NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: TBD

Region: Mooresville Regional Office
County: Cleveland
NC Facility ID: 2300153
Inspector's Name: Amir Stewart
Date of Last Inspection: 08/31/2023
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Electric Glass Fiber America, LLC

Facility Address:
Electric Glass Fiber America, LLC
940 Washburn Switch Road
Shelby, NC 28150

SIC: 3229 / Pressed And Blown Glass, Nec
NAICS: 327212 / Other Pressed and Blown Glass and Glassware Manufacturing

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 02D: .0503, .0515, .0516, .0521, .0524, .0530, .0530(u), .1100, .1111, .1806
02Q: .0317, .0504, .0711
NSPS: CC, IIII
NESHAP: ZZZZ, DDDDD
PSD: n/a
PSD Avoidance: 02Q .0317
NC Toxics: 02D .1100, 02Q .0711
112(r): No RMP required.
Other: SOC

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Terry Steinert Environmental Manager (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292	Alan Toney Plant Manager (704) 434-2261 940 Washburn Switch Road Shelby, NC 28150	Terry Steinert Environmental Manager (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292

Application Data

Application Number: 2300153.20B
Date Received: 07/30/2020
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 01958/T69
Existing Permit Issue Date: 02/08/2024
Existing Permit Expiration Date: 04/30/2027

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2022	57.60	185.21	77.16	59.37	85.54	9.87	7.27 [Methanol (methyl alcohol)]
2021	49.95	197.56	105.66	73.10	56.93	15.64	8.67 [Methanol (methyl alcohol)]
2020	85.73	150.35	39.21	56.08	59.63	5.02	3.65 [Methanol (methyl alcohol)]
2019	45.81	179.28	109.89	58.59	76.13	8.67	7.27 [Methanol (methyl alcohol)]
2018	51.46	183.81	78.78	62.78	81.98	6.12	4.87 [Methanol (methyl alcohol)]

Review Engineer: Russell Braswell

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 01958/T70
Permit Issue Date: TBD
Permit Expiration Date: TBD+ 5 years

1.0 Purpose of Application

Electric Glass Fiber America, LLC (EGFA; the facility) operates a factory in Cleveland County under Air Quality Permit No. 01958T69 (the existing permit). The existing permit expired on January 31, 2021.[1] Prior to expiration, EGFA submitted this application in order to renew the permit. Per General Condition K of the existing permit, because the renewal application was received at least six months before the expiration date of the existing permit, the existing permit shall remain in effect, regardless of expiration date, until DAQ issues or denies the renewed permit.

[1] See permit 01958T65, issued September 18, 2018. Following this expiration date, DAQ has issued several permits without issuing a renewed permit. In those permits, DAQ has stated that the existing permit shall expire after DAQ issues the renewal of permit 01958T65.

2.0 Application Chronology

Date	Event
July 30, 2020	Application received.
October 6, 2023	Application transferred to Russell Braswell.
October 24, 2023	Request for additional information sent to EGFA staff via email: 1. Clarify the relation between several material handling processes and associated control devices. 2. Provide the filter size of several control devices. 3. Propose moving several small generators to the list of insignificant activities. 4. Confirm that ES-22 through ES-27 and D5 should be removed from the permit. 5. Suggest several options to streamline the renewed Title V permit. 6. Are there any other changes needed to the permit?
October 25, 2023	Response received to the October 24 request. 3. "I like having the MACT [4Z] requirements stated so that none are missed." 4. "You may take these off the permit." 5. Agreed to the streamlining suggestions. 6. Provided a list of corrections to the list of insignificant activities. Also, EGFA requested removal of Specific Condition 2.2 D (fluoride SOC) because "…fluoride is no longer used as an additive. Since fluorides are a NC TAP, can fluoride just be considered under the 2.2 C requirements?"
November 1, 2023	Response received to the October 24 request. 1. Confirmed that the material handling sources and their control devices are one-to-one.
November 7, 2023	Response received to the October 24 request. 2. Provided a list of filter sizes.
November 29, 2023	An initial draft of the permit and application review were sent to DAQ Permits staff.
December 15, 2023	Request for additional information sent to EGFA staff via email: 1. Does the facility emit 1-BP (new HAP). 2. Clarify the relation between several material silos and associated control devices. 3. Several filters are described only with the gas-to-cloth ratio. Please provide the filter area for those filters.
January 3, 2024	Response received to the December 15 request. 1. "1-bromopropane is not an ingredient in our current binder formulations." 2. Provided the relationship between the material silos and control devices. 3. Provided the requested filter area dimensions.
January 4, 2024	A revised draft of the permit and application review were sent to DAQ SSCB staff, DAQ MRO staff, and EGFA staff.
January 26, 2024	EGFA provided comments on the January 4 draft.
January 31, 2024	EGFA requested revisions to the description of ES378 through ES381.
February 8, 2024	DAQ issued Title V permit 01658T69.
XXXX	Public notice / EPA Review
XXXX	Permit issued.

3.0 Facility and Title V Permit Revisions

3.1 Facility Description

EGFA is a factory that produces fiberglass. The facility operates four fiberglass kilns and activities that support the production of fiberglass, such as material handling, fiber winding, and fiber cutting. In addition, the facility includes various supporting activities, such as boilers and emergency generators.

This facility has been active since the 1950's. Some of the furnaces at this facility were constructed before the adoption of NSPS Subpart CC. According to DAQ's most recent inspection report, the facility operates on a 24/7 schedule and has approximately 800 employees and contractors.

3.2 Title V Permit Revisions Following the Most Recent Title V Permit Renewal

Permit Revision (issued)	Application type	Notes
T62 (February 10, 2016)	Renewal (and TV sig. modification and minor modification)	• This was the most recent Title V permit renewal. • Removed fuel oil as an option for the furnaces. • Removed PSD avoidance limits for fluoride as a result of the SOC limit on fluorides. • Removed PSD avoidance limits from Furnace 526. • Allowed for restart of Furnace 525.
T63 (April 15, 2016)	Administrative amendment	• Correcting typos in T62.
T64 (October 30, 2017)	Administrative amendment	• Changed the name of the facility (formerly PPG).
T65 (September 18, 2018)	TV sig. modification (1st step)	• Allowed for upgrades to Furnace 525. • Added a specific condition for 02D .0530(u).
T66 (September 14, 2020)	Minor modification	• Added several drying ovens to the permit.
T67 (May 12, 2022)	Minor modification	• Increased capacity of the remote wet cut lines
T68 (August 23, 2023)	TV sig. modification (1st step)	• Allowed for rebuild and addition of electric boost to Furnace 525 • Added a specific condition for 02D .0530(u). • Added requirement to conduct emission testing to demonstrate that Furnace 525 did not trigger NSPS reconstruction.
T69 (February 8, 2024)	TV sig. modification (1st step)	• Shut down and relocated a chop operation and associated furnace.

3.3 Summary of Changes to the Existing Title V Permit

Page No.	Section	Description of Changes
Throughout	Throughout	• Updated dates and permit numbers. • Fixed formatting where appropriate. Formatting changes are not intended to affect the Permittee's compliance requirements. • Updated permit language to DAQ's standard language where appropriate.
4	1	• Made the following changes to the list of permitted emission sources: o Corrected description of ESCC96 to "bushing cleaning" o Removed ES-8 o Removed ES-22 through ES-27 o Removed ES-D5 o Noted the filter sizes of where previously only air-to-cloth ratios were listed. • Removed references to previous minor modifications under 02Q .0515.
11	2.1 C.	• Removed references to fluoride PSD Avoidance limits. Those limits had previously been removed from the permit, but some references were erroneously left in the permit.
13, 19, 33	2.1 C.3, 2.1 D.3, 2.1 F.3	• Combined conditions for 02D .0521 into a single condition to reduce repetition and streamline the permit.
14, 20, 34	2.1 C.4, 2.1 D.4, 2.1 F.4	• Updated language for NSPS Subpart CC based on the Title V permit issued to EGFA Lexington (ID No. 2900109). • Removed requirement to track COMS downtime because this already part of DAQ's compliance policy.
16, 23	2.1 C.5, 2.1 D.5	• Renumbered conditions for 02Q .0317 in order to match the order of the NCAC.
16, 23, 28	2.1 C.5, 2.1 D.5, 2.1 E.5	• Clarified emission testing and emission factor development for PSD avoidance and the furnaces. This is only for clarity, and should reflect the way the Permittee has previously been complying with these conditions.
32	2.1 F.	• Removed references to fluoride and SO_2 PSD Avoidance limits. Those limits had previously been removed from the permit, but some references were erroneously left in the permit.
n/a	2.1 F.5 (former)	• Removed requirement to track emissions under 02D .0530(u) because the Permittee has completed the 5-year recordkeeping and reporting requirement.
38	2.1 G	• Added sources from former section 2.1 Q to this section. This change was made because these are all similar sources and subject to similar requirements. This change reduces repetition and streamlines the permit, and does not reflect a physical change by the Permittee. • Created Table 2.1 G.3 to hold the above sources.

Page No.	Section	Description of Changes
51	2.1 M.4	• Added requirement that the Permittee must keep records demonstrating the engines meet the definition of emergency stationary RICE under 40 CFR Part 63 Subpart ZZZZ.
54	2.1 N.	• Added source under former section 2.1 T to this section. This change was made because these are all similar sources and subject to similar requirements. This change reduces repetition and streamlines the permit, and does not reflect a physical change by the Permittee. • Removed specific condition for 40 CFR Part 63 Subpart DDDDD from this section. Those requirements are now all combined under Section 2.2 A.1. This change reduces repetition and streamlines the permit, and does not reflect a physical change by the Permittee.
56	2.1 O.	• Removed specific condition for 40 CFR Part 63 Subpart DDDDD from this section. Those requirements are now all combined under Section 2.2 A.1. This change reduces repetition and streamlines the permit, and does not reflect a physical change by the Permittee.
n/a	2.1 O.6 (former)	• Removed requirement to submit a notification per 15A NCAC 02Q .0508(f) for sources ES-22 through ES-27 because the Permittee has removed those sources from the permit.
63	2.1 Q.	• Section now marked as "RESERVED" because all its former sources have been moved to Section 2.1 G.
66	2.1 S.	• Added specific conditions for 02D .0516 and 02D .0521 because those rules apply to stationary emergency engines. Note that there will not be any monitoring, recordkeeping, or reporting associated with these conditions.
n/a	2.1 T (former)	• Removed this section because all its former sources have been moved to Section 2.1 N.
70	2.2 A.	• Renamed this section to "Facility-wide emission sources subject to 40 CFR Part 63 Subpart DDDDD" • Added a specific condition for 40 CFR Part 63 Subpart DDDDD.

Page No.	Section	Description of Changes
81	3	• Removed the following sources from the list of insignificant activities: o I-BL142 o I-BL143 o I-BL144 o I506FBSB o I508FBSB o I510FBSB o I514FBSB o I516FBSB o I-ESMCP o I-ESAM95 o I-ESAM96 o I-ESFOT12 o I-ESWOMT o I-ES52LOHH o I-ESHFSWH • Corrected description of the following insignificant activities: o I-ESRE184 o I-ESRE185 o I-ESRE191 o I-ESRE192 o I-ESRE196 o I-ESRE198

* This list is not intended to be a detailed record of every change made to the permit but a summary of those changes.

4.0 Rules Review

EGFA is subject to the following State Implementation Plan (SIP) rules, in addition to the General Conditions:

- 15A NCAC 02D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers"
- 15A NCAC 02D .0515 "Particulates from Miscellaneous Industrial Processes"
- 15A NCAC 02D .0516 "Sulfur Dioxide from Combustion Sources"
- 15A NCAC 02D .0521 "Control of Visible Emissions"
- 15A NCAC 02D .0524 "New Source Performance Standards"
- 15A NCAC 02D .0530 "Prevention of Significant Deterioration"
- 15A NCAC 02D .0530(u) Use of Projected Emissions
- 15A NCAC 02D .1100 "Control of Toxic Air Pollutants" [State-enforceable only]
- 15A NCAC 02D .1111 "Maximum Achievable Control Technology"
- 15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions" [State-enforceable only]
- 15A NCAC 02Q .0317 "Avoidance Conditions" (PSD Avoidance)
- 15A NCAC 02Q .0504 "Option for Obtaining Construction and Operation Permit"
- 15A NCAC 02Q .0711 "Emission Rates Requiring a Permit" [State-enforceable only]

EGFA's applicability and compliance requirements for each of these rules are discussed in detail below. In addition to the above SIP rules, EGFA is subject to a Special Order of Consent (SOC). The history of the SOC and EGFA's requirements under the SOC are discussed in Section 7.0.

4.1 15A NCAC 02D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers"

Applicability: This rule applies to fuel burning indirect heat exchangers (most commonly boilers).

- Each boiler at this facility is subject to this rule.
- Each drying oven at this facility is subject to this rule.
- The glass furnaces are not subject to this rule because they are not indirect heat exchangers.
- The in-line drying furnaces (e.g., ES378) are not subject to this rule because they are *direct* heat exchangers. Combustion gas in these furnaces directly contacts the objects being heated within the furnace.

Emission limits: The emission limit for this rule is calculated by the equation $E = 1.090 \times Q^{-0.2594}$, where E is the particulate emission limit in lb/MMBtu and Q is the combined heat input of each emission source subject to this rule. Q is determined when an emission source is added to the permit and is not revised when other sources subject to this rule are added to (or removed from) the permit. As a result, different heat exchangers can have different emission limits under this rule.

***E* for Sources under 02D .0503**	
Source ID	**Limit**
ESB83A	0.40
ESB83B	0.33

***E* for Sources under 02D .0503**	
Source ID	**Limit**
ESB83C	0.39
ES-22	0.36
ES-23	0.36
ES-24	0.36
ES-25	0.36
ES-26	0.36
ES-27	0.36
ES-6	0.32
ES-7	0.32
ES-12	0.32
ES-17	0.32
ES-18	0.32
ES-19	0.32
ES-20	0.32
ES-21	0.32
ES-14a	0.32
ES-14b	0.32
ES-14c	0.32
ES-15a	0.32
ES-15b	0.32
ES-15c	0.32

The subject sources at this facility can only burn natural gas. In order to calculate PM emissions from the combustion of these fuels, the emission factors published by EPA in AP-42 can be applied. The published emission factors are not in units of pounds per million Btu, so the emission factor must be converted:

- PM from natural gas (AP-42 Chapter 1.4, Table 1.4-2; PM [Total]):

$$\frac{7.6\text{ lb}}{\text{million scf}} \times \frac{1\text{ scf}}{1{,}020\text{ Btu}} = \frac{\mathbf{0.007\text{ lb}}}{\mathbf{million\ Btu}}$$

  Therefore, natural gas is expected to comply with the PM limit by a wide margin.

Monitoring, Recordkeeping, and Reporting: Based on the wide margin of compliance for natural gas, DAQ has determined that no monitoring, recordkeeping, or reporting is required to demonstrate compliance with 15A NCAC 02D .0503. DAQ has reviewed this analysis for the existing permit and agrees with this analysis.

Compliance: EGFA is expected to remain in compliance with this rule.

4.2 15A NCAC 02D .0515 "Particulates from Miscellaneous Industrial Processes"

Applicability: This rule applies to emission sources that exhaust through a stack and are not subject to another particulate matter (PM) emission limit.[2] Each source at this facility, excluding those listed below, is subject to this rule.

- The material handling sources subject to a BACT limit (Section 2.1 H of the permit) are not subject to this rule because they are subject to PM BACT limit.
- Boilers and generators are generally not subject to this rule because they do not have a process rate.

Sources subject to NSPS Subpart CC: The glass furnace melters 520, 524, and 526 are subject to NSPS Subpart CC. That rule includes an emission standard for only *filterable* PM.[3] Therefore, the furnace melters are also subject to 02D .0515.

Emission limit: The emission limit for this rule is calculated by the equations $E = 4.10 \times P^{0.67}$ (for $P \leq 30$) or $E = 55(P)^{0.11} - 40$, where E is the emission limit in pounds per hour and P is the process rate of the emission source measured in tons per hour. The equation is listed in the permit as the emission limit.

Emission testing: The glass furnaces are not equipped with add-on control devices. DAQ requires EGFA to perform regular emission testing on the glass furnaces in order to demonstrate compliance with this rule. Testing is required annually unless the test most recent test result is less than 80% of the limit, in which case testing is only required every five years.

When testing a glass furnace, EGFA is only required to test the melter portion of the furnace. The forehearth and refiner portions of the furnace are each expected to emit 10% of the PM of the melter. DAQ approved this method of testing PM emissions for all of the glass furnaces with the T60 permit revision.[4]

The below table shows the most recent test results for each of the four melters.

Test	Date	Melter tested	Results (PM_{tot}, lb/hour)
2022-047ST	June 8, 2022	524M	4.48 (27% of limit)
		525M	5.2 (37% of limit)
2021-020ST	May 19, 2022	520M[5]	0.32 (4% of limit)
2019-309ST	December 11, 2019	526M	11.69 (57% of limit)

Monitoring for sources with add-on control devices: Several of the sources subject to this rule are equipped with an add-on control device, such as a fabric filter or scrubber. In order for EGFA to demonstrate

[2] Note that, when demonstrating compliance with this rule, facilities must perform emission testing using EPA Methods 5 *and* 202 (i.e., test for filterable and condensable PM). Therefore, rules that only apply to filterable PM are not considered for the purposes of this rule. See 15A NCAC 02D .2609(a).
[3] Compliance with NSPS Subpart CC is demonstrated using a Method 5 emission test, which only tests for filterable PM. See 40 CFR 60.296(d)(2).
[4] See DAQ's application review for Title V permit 01958T60 (issued July 1, 2014).
[5] Also tested 525M, but that furnace was subsequently re-tested.

compliance for those sources, EGFA must conduct inspections and maintenance on each of the control devices.

Monitoring for sources without COMS or add-on control devices: The fiberglass drying ovens (Section 2.1 O of the permit) are subject to this rule, but do not use add-on control devices to comply with the rule. DAQ only requires EGFA to maintain production records such that *P* can be determined for these drying ovens. DAQ approved this method with the T51 permit revision.[6]

Recordkeeping: EGFA must keep records of

- Glass furnace emission test results.
- Process rates such that *P* can be determined.
- Control device maintenance and monitoring.

Reporting: EGFA must submit a semiannual summary report.

Compliance: EGFA appeared to be in compliance with this rule during the most recent compliance inspection. Continued compliance will be determined with subsequent inspections and reports.

4.3 15A NCAC 02D .0516 "Sulfur Dioxide from Combustion Sources"

Applicability: This rule applies to combustion sources that are not subject to an SO_2 emission limit under NSPS or MACT. The furnaces, boilers, and emergency generators are subject to this rule.

Emission limit: In all cases, the emission limit is 2.3 pounds of SO_2 per million Btu of heat input.

Compliance for non-glass furnace sources: In general, SO_2 emitted by combustion sources is a function of the amount of sulfur present in the fuel. Fuel burning sources at this facility can only burn natural gas. In order to calculate SO_2 emissions from the combustion of natural gas, the emission factors published by EPA in AP-42 can be applied. In some cases, the published emission factors are not in units of pounds per million Btu, so the emission factor must be converted:

- SO_2 from natural gas in boilers (AP-42 Chapter 1.4, Table 1.4-2; SO_2):

  $$\frac{0.6 \text{ lb}}{\text{million scf}} \times \frac{1 \text{ scf}}{1{,}020 \text{ Btu}} = \frac{\mathbf{0.001 \text{ lb}}}{\mathbf{\text{million Btu}}}$$

  Therefore, natural gas (when burned in a boiler) is expected to comply with the SO_2 limit by a wide margin. This will also apply to natural gas burned in an oven.

- SO_2 from natural gas burned in a stationary engine (AP-42 Chapter 3.3, Table 3.3-2; SO_2): **5.88 E-04 pounds per million Btu**. Therefore, natural gas (when burned in a stationary engine) is expected to comply with the SO_2 limit by a wide margin.

[6] See DAQ's application review for Title V permit 01958T51 (issued September 28, 2010).

- SO_2 from diesel fuel burned in an engine with capacity less than 600 horsepower (AP-42 Chapter 3.3, Table 3.3-1; SO_x): **0.29 pounds per million Btu**. Therefore, diesel fuel burned in these types of engines is expected to comply with the SO_2 limit by a wide margin.

- SO_2 from diesel fuel burned in an engine with capacity greater than 600 horsepower (AP-42 Chapter 3.4, Table 3.4-1; SO_2, S=0.5): [1.01×0.5] = **0.5005 pounds per million Btu**. Therefore, diesel fuel burned in these types of engines is expected to comply with the SO_2 limit by a wide margin.

Compliance for glass furnaces: SO_2 is expected to be emitted by the glass furnaces because the combustion fuel contains sulfur and the raw materials contain sulfur. DAQ previously analyzed the potential SO_2 emission rate from the glass furnaces at EGFA's Lexington facility. DAQ concluded the worst-case SO_2 emission rate would be approximately **0.0003 pounds per million Btu**.[7] EGFA's Lexington facility (facility ID 2900109) produces the same product (textile fiberglass) using the same methods (natural gas/propane fired furnaces equipped with electric boost) as the Shelby facility. Therefore, this comparison is valid, and the glass furnaces at this facility are expected to comply with the SO_2 limit by a wide margin.

Monitoring, Recordkeeping, and Reporting: Based on the wide margin of compliance for each of the subject sources at this facility, DAQ has determined that no monitoring, recordkeeping, or reporting is required to demonstrate compliance with 15A NCAC 02D .0516.

Changes to the existing permit: This rule applies to emergency generators, but the existing permit does not include a specific condition for this rule and the generator ESDP93. This will be corrected in the new Title V permit. Note that no monitoring, recordkeeping, or reporting will be required as part of this change.

4.4 15A NCAC 02D .0521 "Control of Visible Emissions"

Applicability: This rule applies to sources of visible emissions (VE) that are not subject to another VE standard under 02D .0500. Generally, this rule is not applied to sources that are not expected to produce any VE (*e.g.*, from a storage tank). Each source at this facility is subject to this rule.

Sources subject to NSPS Subpart CC: Each glass furnace (and associated activities like the forehearths) is subject to this rule. Note that three of the glass furnaces are also subject to 40 CFR Part 60 Subpart CC, which requires opacity *monitoring*, but does not include a specific VE *standard.* Therefore, the glass furnaces are subject to both Subpart CC opacity requirements and this rule.

Emission limits: The VE limit for this rule depends on the construction date of the individual source in question:

- For sources constructed before July 1, 1971, the VE limit is 40%.

- For other sources, the VE limit is 20%.

For sources not operating a continuous opacity monitoring system (COMS), the rule allows for one exceedance of the specific limit per hour, and four exceedances per 24-hour period. For sources operating

[7] See DAQ's application review for Title V permit 02688T46 issued to Electric Glass Fiber America, LLC (Lexington facility), page 9.

a COMS, the rule allows for four six-minute exceedances per day and limits opacity exceedances on a quarterly basis.

Monitoring and recordkeeping: For sources not operating a COMS, EGFA must conduct regular VE observations on all emission points for VE above normal. If VE above normal is detected, EGFA must take corrective actions or conduct a Method 9 test to determine that an exceedance of the VE standard has not occurred.

For sources operating a COMS, EGFA must operate the COMS according to 15A NCAC 02D .0613 and keep records of COMS data and COMS downtime.

Reporting: EGFA must submit a semiannual summary report. For sources operating COMS, EGFA must also submit a quarterly report per NSPS Subpart CC.

Compliance: EGFA appeared to be in compliance with this rule during the most recent compliance inspection. Continued compliance will be determined with subsequent inspections and reports.

Changes to the existing permit:

- The existing permit contains several redundant specific conditions for the glass furnaces for this rule. Those conditions will be combined to reduce repetition and streamline the permit.

- This rule applies to emergency generators, but the existing permit does not include a specific condition for this rule and the generator ESDP93. This will be corrected in the new Title V permit. Note that no monitoring, recordkeeping, or reporting will be required as part of this change.

4.5 15A NCAC 02D .0524 "New Source Performance Standards" (NSPS)

This rule incorporates the NSPS rules (40 CFR Part 60) into North Carolina's SIP. See Section 5.1 for a discussion of NSPS rules that apply to this facility.

4.6 15A NCAC 02D .0530 "Prevention of Significant Deterioration" (PSD)

Applicability: This rule incorporates the PSD requirements in 40 CFR Part 51.166 into North Carolina's SIP. EGFA has previously been designated a major stationary source for PSD, so this rule applies to this facility.

Emission limits: The permit includes Best Available Control Technology (BACT) limits in the permit for the material handling processes listed in Section 2.1 H of the permit. These limits have been included in the Title V permit since the T43 revision (issued November 12, 2004) of the permit and have not been modified since then.

Monitoring: Each subject source is controlled by fabric filters. EGFA must conduct regular maintenance and inspections of the fabric filters.

Recordkeeping: EGFA must keep records of filter inspections and maintenance.

Reporting: EGFA must submit a semiannual summary report.

Compliance: EGFA appeared to be in compliance with this rule during the most recent compliance inspection. Continued compliance will be determined with subsequent inspections and reports.

4.7 15A NCAC 02D .0530(u) Use of Projected Actual Emissions

Applicability: When an existing PSD major source makes a modification, the applicant may opt to show the modification is not a PSD-major modification by comparing the pre-modification baseline emissions of that source to the projected actual emissions (PAE) of the source after the modification. If the difference in the projected and baseline emissions is less than the threshold for a significant emission increase (as defined in 40 CFR 51.166), the modification is not PSD-major. The PAE method is specified in 15A NCAC 02D .0530(u).

If a facility chooses to use the PAE method to avoid a major modification, the facility must keep records of actual emissions post-modification to show that the PAE were reasonable compared to the actual emissions. EGFA has used the PAE method several times in the past, so the existing permit includes several references to this rule.

Requirements: In order to use the PAE method to demonstrate a modification is not major, a facility must estimate (i.e., "project") the change in emissions that will result from that modification. The permit includes the emission estimates from several recent modifications performed by EGFA. Note that these emission estimates are not emission limits; if EGFA were to exceed the original estimates, EGFA may be required to redo the original demonstration to show that there has not been a significant emission increase.

Current reporting requirements: The existing permit includes three specific conditions for 02D .0530(u):

- Specific Condition 2.1 E.6 (Furnace 525)

  This condition was added to the permit based on EGFA's application .18A and proposed modification to Furnace 525. According to DAQ's most recent inspection report, the proposed modification has not been completed and therefore the reporting period has not begun. Note that EGFA must conduct emission testing in order to verify PAE estimates for this project.

- Specific Condition 2.1 E.8 (Furnace 525)

  This condition was added to the permit based on EGFA's application .23A and proposed modification to Furnace 525. According to DAQ's most recent inspection report, the proposed modification has not been completed and therefore the reporting period has not begun. Note that EGFA must conduct emission testing in order to verify PAE estimates for this project.

- Specific Condition 2.1 F.5 (Furnace 526)

  This condition was added to the permit based on EGFA's application .14A and proposed modification to Furnace 526. According to the CY2022 annual compliance certification (ACC),[8] the five-year reporting period for this condition has expired.

[8] The ACC is a report required by General Condition P. This report is required for all Title V facilities.

Reporting: EGFA is required to submit an annual report that shows the emissions from each modification that used the PAE method. These reports are only required for five calendar years following the completion of the modification.

Compliance: Based on the most recent inspection report, EGFA appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

Changes to the existing permit: The reporting requirement in Specific Condition 2.1 F.5 has been completed. It will be removed from the renewed Title V permit.

4.8 15A NCAC 02D .1100 "Control of Toxic Air Pollutants" [State-enforceable Only]

Background: EGFA has previously performed air dispersion modeling in order to demonstrate compliance with the acceptable ambient limits (AAL) for the toxic air pollutants (TAP) listed in 02D .1104. The modeled emission rates are listed in the Title V permit as emission limits.

Monitoring and recordkeeping: EGFA must maintain records on-site that demonstrate compliance with each of the modeled TAP emission rates.

Reporting: EGFA must submit a semiannual summary report.

Compliance: Based on the most recent inspection report, EGFA appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports. See Section 6.0 for additional discussion of EGFA's requirements for TAP emissions.

4.9 15A NCAC 02D .1111 "Maximum Achievable Control Technology" (MACT)

This rule incorporates the MACT rules (40 CFR Part 63) into North Carolina's SIP. See Section 5.3 for a discussion of MACT rules that apply to this facility.

4.10 15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions" [State-enforceable Only]

Applicability: This rule applies to facilities that emit, or could potentially emit, odorous emissions. The existing permit includes a specific condition for this rule.

Monitoring, recordkeeping, and reporting: The existing permit does not require any monitoring, recordkeeping, or reporting for this rule.

Compliance: Based on the most recent inspection report, EGFA appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections.

4.11 15A NCAC 02Q .0317 "Avoidance Conditions" (Avoidance of 15A NCAC 02D .0530 "Prevention of Significant Deterioration"; PSD Avoidance)

Applicability: A facility may accept an enforceable emission limit or operating limit in order to avoid the applicability of specific rules (see 02Q .0317(a)). EGFA has previously accepted several emission limits in order to avoid triggering a significant modification under 15A NCAC 02D .0530.

Emission limits: The table below summarizes the PSD avoidance limits included in the existing permit.

Emission Source	Limit (tpy)	First included in permit	Notes
Furnace 520	PM_{10}: 108.7	Already included as of revision R40.[9]	1
Furnace 520 (melter only)	PM: 97.15		
Furnace 524	SO_2: 114.4	Already included as of revision R40.	1
	PM: 72.33		
	PM_{10}: 58.19		
	NOx: 91.2		
Furnace 525	SO_2: 164.69	Already included as of revision R40.	1, 2
	PM: 81.63		
	PM_{10}: 71.63		
	NOx: 100		
	CO: 114.55		
Furnace 526	None	n/a	3
Material handling (Listed in Table 2.1 G.1 of the existing permit)	PM: 23.04	First included in the permit with the T43 permit revision.	---
Material handling (Listed in Table 2.1 G.2 of the existing permit)	PM: 1.05	First included in the permit with the T43 permit revision.	---
Emergency generators (ESDG85, ESDG86, ESDG88A, ESDG88B)	NOx: 40	Already included as of revision R40.	---

Notes:

1. Permit previously included a limit for fluoride. The fluoride limit was removed from the permit with the T62 permit revision.
2. Permit previously included a limit for lead. The lead limit was removed from the permit with the T43 permit revision.
3. Permit previously included several PSD avoidance limits for Furnace 526. All of these limits had been included in the permit before the R40 permit revision. These limits were removed from the permit with the T62 permit revision.

[9] This permit revision was issued on October 10, 2002. This is the earliest revision of the Title V permit available in DAQ's electronic database.

Monitoring and Recordkeeping:

- For the glass furnaces, EGFA must calculate emissions using emission factors developed from the most recent emission tests or another emission factor approved by DAQ.

- For the material handling sources, DAQ has determined that monitoring requirements associated with 15A NCAC 02D .0515 are sufficient to demonstrate compliance with the PM limits.

- For the emergency generators, DAQ has determined that compliance with the NOx limit can be demonstrated if each generator operates for less than 1,000 hours per year.

Reporting: EGFA must submit a semiannual summary report for each of the PSD avoidance limits.

Compliance: EGFA appeared to be in compliance with this rule during the most recent compliance inspection. Continued compliance will be determined with subsequent inspections and reports.

Changes to the existing permit: In the existing permit, for each furnace subject to this rule, EGFA demonstrates compliance with the PSD avoidance limit using "an emission factor determined during the last annual test." This will be clarified in the new permit: EGFA will use the most recent results of emission testing for 02D .0515. This is essentially how EGFA already demonstrates compliance with the rule; this change is only for clarity.

4.12 15A NCAC 02Q .0504 "Option for Obtaining Construction and Operation Permit"

Background: A facility may choose to make a significant modification to a Title V permit using a "two-step" process as allowed by 15A NCAC 02Q .0501(b)(2). When a facility uses the two-step process, the facility must submit a second permit application within 12 months of commencing operation of the modified sources.

Applicability: EGFA used the two-step process to make two significant modifications at this facility. As a result, the existing permit includes two separate specific conditions which require EGFA to submit a permit application.

Requirements: EGFA is required to submit a 2nd-step application upon completion of the upgrades to Furnace 525 allowed by application .18A and .23A. According to DAQ's most recent inspection report, EGFA has not yet completed those upgrades.

Reporting: EGFA must submit a notification within 30 days of completing the above-mentioned upgrades to Furnace 525.

Compliance: Compliance with this rule will be determined when EGFA submits the required notifications and applications.

4.13 15A NCAC 02Q .0711 "Emission Rates Requiring a Permit" [State-enforceable Only]

Applicability: In general, this rule applies to sources that construct a new facility (see 02Q .0704) or make a modification (see 02Q .0706) that cause an increase in TAP emission rates, and the TAP emission rates

are less than the TAP permitting emission rates (TPER) listed in 02Q .0711. The existing permit includes a specific condition for this rule.

Monitoring, recordkeeping, and reporting: EGFA must keep records demonstrating that the TPERs listed in the permit have not been exceeded. No reporting is required.

Compliance: Based on the most recent inspection report, EGFA appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports. See Section 6.0 for further discussion of EGFA's requirements with regards to TAP emissions.

5.0 NSPS (40 CFR Part 60), NESHAP (40 CFR Part 61), MACT (40 CFR Part 63), CAM (40 CFR Part 64), PSD (15A NCAC 02D .0530), and §112(r)

5.1 New Source Performance Standards (NSPS; 40 CFR Part 60)

5.1.1 NSPS Subpart CC "Standards of Performance for Glass Manufacturing Plants"

Applicability: This rule applies to glass melting furnaces that commenced construction or modification after June 15, 1979. This rule was promulgated on October 7, 1980 and most recently amended on October 17, 2000. The furnaces 520M, 524M, and 526M are subject to this rule. The furnace 525M is not subject to this rule because it was constructed before the applicability date and has not been modified (according to the definition in §60.2) since that date.

Modification and reconstruction under NSPS: As stated above, the furnace 525M is not subject to this rule because it has not been modified or reconstructed. EGFA has recently applied to rebuild furnace 525M and add electric boost capability. EGFA demonstrated that this rebuild project will not meet the definition of reconstruction or modification under NSPS. DAQ agreed with EGFA on the condition that an emission test demonstrate no increase in PM emissions has occurred as a result of the rebuild project.[10]

Modified-processes: For the purposes of this rule, each furnace operates "with modified-processes" (see §60.291) which essentially means these furnaces operate without add-on control devices.

Emission standards: For furnaces that produce fiberglass and operate with modified processes (i.e., each furnace at this facility), the rule limits PM emissions to less than 0.5 grams per kilogram glass produced (see §60.293(b)(3)). The existing permit includes the equivalent limit of 1.0 pounds per ton.

Demonstrating compliance: In order to demonstrate compliance with the PM limit, EGFA must operate a continuous opacity monitoring system (COMS) (see §40 CFR 60.293(c)). Data gathered by the COMS must be compared to opacity measured during performance testing. EGFA must use the "upper confidence limit" (UCL) method in §60.293(c)(4) and (5) to determine excess emissions. Note that this method does not necessarily determine violations of 15A NCAC 02D .0524, and DAQ has chosen to include a three-hour block average opacity value in the permit as well:

> "In the past, the DAQ in its Title V permits stated that each exceedance of the 99% Upper Confidence Level (UCL), which according to the rule are to be treated as excess emissions and reported as such pursuant to 40 CFR 60.7, were violations of 02D .0524. In effect, these 99% UCL values were being treated as opacity standards. Saint Gobain Containers (SGCI, now Ardagh Glass Inc., facility ID No. 9100069) in 2007 had challenged the DAQ that these exceedances were not to be used as an opacity standard but rather to assess if the furnace melter was being properly operated and maintained (see permit review for permit revision no. T18 of the Ardagh Glass permit.). The DAQ ultimately agreed that the 99% UCL values were not opacity standards. As a result of negotiations between SGCI and the DAQ, substantially revised monitoring and recordkeeping requirements were incorporated into the SGCI NSPS Subpart CC permit condition… This approach includes, in addition to the initial performance testing and the establishment of the 99% UCL for the opacity described above, the establishment of a three-hour block average opacity value that is

[10] See DAQ's application review for Title V permit 01958T68 (issued August 23, 2023).

> correlated to the 1 lb/ton of glass pulled emission limit, pursuant to the authority under 15A NCAC 02Q .0508(f)…"[11]

The existing permit includes a limit for "percent COMS downtime," but as discussed below, this limit is redundant and will be removed:

> "As a result of issues raised by the DAQ Technical Services Section…it was determined upon review that [percent COMS downtime], which was originally intended to only reflect normal operation but in practice it was defined to reflect all operation (that is, it included periods of startup, shutdown, and malfunction) was redundant with the standard DAQ compliance enforcement policy for sources using COMs. As a result, it was decided to remove explicit mention of the 'Percent COMs Downtime' parameter as specified in the NSPS Subpart CC conditions."[12]

The existing permit explicitly states that 3% or more of excess emissions over a 3-month period is a violation of 02D .0524.

Emission testing: DAQ requires EGFA to perform regular emission testing on each of the subject melters. EGFA must test each melter annually, but if a test result is less than 80% of the emission standard, EGFA may instead test that melter once per five years.

Test	Date	Melter tested	Results (PM_{filt}, lb/ton_{glass})
2022-047ST	June 8, 2022	524M	0.59 (59% of limit)
2021-020ST	May 19, 2022	520M[13]	0.097 (1% of limit)
2019-309ST	December 11, 2019	526M	0.56 (56% of limit)

Recordkeeping and reporting: EGFA must keep records of COMS operation, furnace operating time, and periods of startup, shutdown, and malfunction. EGFA must submit a quarterly summary report.

Compliance: EGFA appeared to be in compliance with this rule during the most recent compliance inspection. Continued compliance will be determined with subsequent inspections and reports.

Changes to the existing permit:

- The specific conditions for NSPS Subpart CC will be updated to match the specific conditions in the Tile V permit for EGFA's Lexington facility (facility ID 2900109). This change is for clarity and to ensure conformity across DAQ's permits and EGFA's NSPS-affected furnaces.

- As discussed above, the permit will no longer require calculation of percent COMS downtime because it is redundant.

[11] See note 7 (page 10). The Lexington facility operates a modified-process NSPS-affected glass furnace that produces fiberglass, i.e., a furnace that operates identically to the NSPS-affected furnaces at this facility.
[12] See note 7.
[13] Also tested 525M, but that furnace was subsequently re-tested.

5.1.2 NSPS Subpart IIII "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines"

Applicability: This rule applies to stationary compression ignition internal combustion engines (CI ICE) constructed or modified after the applicability dates in 40 CFR 60.4200(a)(2). For the purposes of this rule, each engine at this facility is an emergency-use CI ICE. The emergency fuel pump ESDP93 is subject to this rule. Each other emergency CI ICE at this facility was constructed before the applicability date and has not been modified or reconstructed since that date.

Emission standards: Emergency CI engines subject to this rule must be certified to meet the applicable emission standards in 40 CFR 60.4205(b).

Fuel requirements: Diesel fuel must meet the sulfur requirements in 40 CFR 1090.305 (a.k.a. ultra-low sulfur diesel).

Monitoring requirements: EGFA must install a non-resettable hour meter on each subject emergency engine. The engines must only be operated such that they meet the definition of emergency engine (e.g., not operated as a peak shaving engine).

Compliance requirements: The engines must be operated with good work practices and according to manufacturer's instructions. To be designated as an emergency engine, the engine can operate for non-emergency purposes (*e.g.,* maintenance testing) for less than 100 hours per year. Up to 50 of those hours can be for non-emergency use, except for peak-shaving (with rare exceptions).

Compliance: Based on the most recent inspection report, EGFA appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

5.2 National Emission Standards for Hazardous Air Pollutants (NESHAP; 40 CFR Part 61)

5.2.1 NESHAP Subpart N "National Emission Standard for Inorganic Arsenic Emissions From Glass Manufacturing Plants" [not applicable]

Applicability: This rule applies to glass furnaces that use commercial arsenic as a raw material. DAQ has previously determined that this rule does not apply to EGFA, and operations at this facility have not changed substantially since that determination.

5.3 Maximum Achievable Control Technology (MACT; 40 CFR Part 63)

5.3.1 Major source status

EGFA is a major source of hazardous air pollutants (HAP) because it has potential emissions of HAP greater than the thresholds listed in the definition of "major source" in 40 CFR 63.2. Because this facility is a major source of HAP, rules that apply exclusively to area sources of HAP (e.g., Subpart SSSSSS) categorically do not apply to this facility.

5.3.2 MACT Subpart NNN "National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing" [not applicable]

Applicability: This rule applies to wool fiberglass manufacturing facilities that are also major sources of HAP. DAQ has previously determined that this rule does not apply to EGFA, and operations at this facility have not changed substantially since that determination.

5.3.3 MACT Subpart HHHH "National Emission Standards for Hazardous Air Pollutants for Wet-Formed Fiberglass Mat Production" [not applicable]

Applicability: This rule applies to facilities that produce wet-formed fiberglass mat and are also major sources of HAP. DAQ has previously determined that this rule does not apply to EGFA, and operations at this facility have not changed substantially since that determination.

5.3.4 MACT Subpart ZZZZ "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"

Applicability: This rule applies to all stationary reciprocating internal combustion engines (RICE). Each engine at this facility is subject to this rule. The rule has different requirements for engines based on the status of the facility (major or minor source of HAP), use of the engine (emergency, nonemergency, etc.), age of the engine, and size of the engine.

RICE with limited requirements: Under this rule, there are several categories of RICE that do not have to meet the requirements of the rule or of Subpart A (although in some cases, the RICE must submit an initial notification):

- A new or reconstructed emergency RICE with capacity less than 500 horsepower at a major source of HAP. Note that these engines demonstrate compliance with this rule by demonstrating compliance with NSPS Subpart IIII (see 40 CFR 63.6590(c)(6)). This covers the engine ESDP93.
- An existing emergency RICE with capacity greater than 500 horsepower at a major source of HAP (see 40 CFR 63.6590(b)(3)(iii)). This covers the engines ESDG85, ESDG86, ESDG88A, and ESDG88B.

Requirements: For each subject engine, EGFA must:

- Install a non-resettable hour meter
- Reduce periods of idle and startup
- Regular oil changes and other maintenance
- Operate only as allowed to meet the definition of emergency engines

Recordkeeping: EGFA must keep records of engine operation and maintenance activities.

Reporting: EGFA must submit a semiannual summary report.

Compliance: Based on the most recent inspection report, EGFA appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

Changes to the existing permit: The specific condition for engines ESDG85, ESDG86, ESDG88A, and ESDG88B has been updated to define "emergency use" and require that these engines only operate as emergency engines.

5.3.5 MACT Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters"

Applicability: This rule applies to boilers and process heaters (defined by 40 CFR 63.7575) located at major sources of HAP. The natural gas/No. 2 fuel oil-fired boilers, the fiberglass drying ovens, and the propane vaporizer are subject to this rule. The in-line drying furnaces are not subject to this rule because they are not process heaters.

Process heaters: As specified in 40 CFR 63.7575, a "Process heater" is a device that transfers heat indirectly to a process material. Within the in-line drying furnaces, the combustion air directly contacts the objects being heated. Therefore, the in-line drying furnaces are not process heaters and are not subject to this rule.

Subcategories: For each boiler, the requirements of this rule are based on the specific subcategory of boiler. Each subject source at this facility is in the "Units designed to burn gas 1 fuels" subcategory (a.k.a. "gas 1 boilers," see 40 CFR 63.7499(l)). The rule defines this subcategory:

> *Unit designed to burn gas 1 subcategory* includes any boiler or process heater that burns only natural gas, refinery gas, and/or other gas 1 fuels. Gaseous fuel boilers and process heaters that burn liquid fuel for periodic testing of liquid fuel, maintenance, or operator training, not to exceed a combined total of 48 hours during any calendar year, are included in this definition. Gaseous fuel boilers and process heaters that burn liquid fuel during periods of gas curtailment or gas supply interruptions of any duration are also included in this definition.

Note that although boilers ES83A and ES83B can burn oil, gas 1 boilers are allowed to burn oil during certain periods (such as maintenance or gas curtailment).

Requirements: For gas 1 boilers (i.e., each boiler at this facility), the rule requires:

- Operate with good work practices [40 CFR 63.7500(a)(3)],
- Conduct initial and regular tune-ups [40 CFR 63.7540(a)(10)-(13)]
  - Every five years for boilers with capacity less than 5 MMBtu/hr
  - Every other year for boilers with capacity between 5 and 10 MMBtu/hr
  - Every year for boilers with capacity greater than 10 MMBtu/hr
- For existing boilers, conduct an initial, one-time energy assessment. [40 CFR 63.7500(a)(1), Table 3]

Monitoring, recordkeeping, and reporting: The facility must keep records of the tune-ups and other maintenance activities and submit regular reports.

Compliance: During DAQ's most recent inspection, EGFA appeared to be in compliance with this rule. Continued compliance will be determined during subsequent inspections and reports.

Changes to the existing permit:

- The specific conditions for MACT Subpart DDDDD will be rewritten to match the format of DAQ's other Title V permits. Formatting changes are only for clarity and are not intended to change EGFA's compliance requirements.

- The new permit will include only one specific condition for MACT Subpart DDDDD. Due to the broad similarity of the requirements for the boilers, all boilers and process heaters will be consolidated into this single condition.

5.4 Prevention of Significant Deterioration (PSD)

Background: EGFA has previously been designated as a major stationary source for PSD.

Existing PSD requirements: The existing permit includes Best Available Control Technology (BACT) limits for some material handling sources (Section 2.1 H of the permit). These requirements have been included in the permit since the T43 revision of the permit. See Section 4.6 for a discussion of EGFA's requirements for PSD.

Existing PSD avoidance requirements: In general, any modification at a PSD major stationary source is a major modification if the increase in emissions from that modification are equal to or greater than the "significant" threshold in 40 CFR 51.166(b)(23)(i). EGFA has previously made several modifications that avoided being classified as major because EGFA accepted emission limits under 15A NCAC 02Q .0317. See Section 4.11 for a discussion of EGFA's requirements to avoid PSD.

5.5 Section 112(r) of the Clean Air Act (and 15A NCAC 02D .2100 "Risk Management Program")

This rule requires facilities that store materials above the threshold quantities in 40 CFR 68.130 above their respective thresholds to prepare and submit a risk management plan (RMP).

In the renewal application on Form A3, EGFA indicates that an RMP is not required for this facility because "no regulated substance [are] stored in excess of thresholds that require RMP." Therefore, EGFA does not have any increased requirements under §112(r). Note that other parts of that rule, such as the General Duty clause, may still apply to this facility; those portions of §112(r) are beyond the scope of the Title V permit.

5.6 Compliance Assurance Monitoring (CAM; 40 CFR Part 64)

The compliance assurance monitoring (CAM) rule requires owners and operators to conduct monitoring to provide a reasonable assurance of compliance with applicable requirements under the act. Per 02D .0614(a), this rule potentially applies to any facility required to obtain a permit under 02Q .0500 (i.e., a Title V permit). This facility is required to obtain a permit under 02Q .0500. Therefore, CAM applicability must be examined.

Monitoring focuses on emissions units that rely on pollution control device equipment to achieve compliance with applicable standards. An emission unit is subject to CAM, under 40 CFR Part 64, if all of the following conditions are met:

I. The unit is subject to any (non-exempt, e.g., pre-November 15, 1990, Section 111 or 112 standard) emission limitation or standard for the applicable regulated pollutant.
II. The unit uses any control device to achieve compliance with any such emission limitation or standard.
III. The unit's pre-control potential emission rate exceeds 100 percent of the amount required for a source to be classified as a major source, i.e., either 100 tpy (for criteria pollutants) or 10 tpy of any individual/25 tpy of any combination of HAP.

EGFA included a CAM analysis with the renewal application. Based on the analysis, CAM does not apply to any emission source at this facility. DAQ agrees with EGFA's analysis. EGFA's analysis is included here as an Attachment.

6.0 North Carolina Toxic Air Pollutants

Applicability: The rules for toxic air pollutants under 15A NCAC 02D .1100 and 02Q .0700 apply to facilities that emit toxic air pollutants. In general, if a facility would emit a TAP at rates greater than the TAP permitting emission rates (TPER) listed in 02Q .0711, the facility must first conduct an air dispersion modeling demonstration to demonstrate compliance with the acceptable ambient limits (AAL) in 15A NCAC 02D .1104 and .1106. Several types of sources are exempt from TAP requirements; exempt sources are listed in 02Q .0702.

Modeled emission rates: EGFA has previously performed air dispersion modeling in order to demonstrate compliance with the AALs. The modeled emission rates are included in the permit as emission limits. The modeling was most recently updated July 17, 2020.

TPERs: For TAPs which are not emitted in excess of the TPERs in 02Q .0711, no modeling demonstration is required. The permit lists several TAPs and their respective TPERs; EGFA must prepare a modeling demonstration before increasing emission of these TAPs above their TPERs.

7.0 Special Order of Consent

Background: PPG[14] and the Environmental Management Commission (EMC), an agency of the state of North Carolina, entered into a Special Order of Consent (SOC) to address alleged violations of PSD, NSPS, and state air toxics regulations (02D .1100). The SOC encompassed both this facility and the Lexington facility (facility ID 2900109).

The original SOC was approved in 2002 (SOC #2002-002), and has been modified slightly twice thereafter (SOC 2004-003 and 2007-005).

Pursuant to the SOC, the Permittee is required to meet the following limits through the use of either an emissions control system or the use of a modified material feed known as "environmentally friendly batch" and meeting the following limits:

- Fluorides - 0.45lb/ton (annual average) of glass pulled.
- The numerical emission limits for PM in 40 CFR Subpart CC.

As a result, the existing permit includes Specific Condition 2.1 E.4, which limits Furnace 525 to a PM emission rate equal to the NSPS emission rate and Specific Condition 2.2 D.1, which limits fluoride emissions from each of the glass furnaces.

PM from Furnace 525: Furnace 525 is not subject to NSPS Subpart CC. Per the SOC, EGFA must still meet the PM (filterable) emission limit from the NSPS, i.e. 1 pound per ton glass production. Unlike the NSPS-affected furnaces, the SOC does not require EGFA to operate a COMS. Instead, compliance is determined using the same compliance methods as in 02D .0515. This limit was first included in the permit with the T43 permit revision, although at that time it was incorporated into the permit under 02D .0524 and required the facility to avoid triggering a modification under NSPS.

Based on the most recent inspection reports and emission tests, EGFA appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and emission tests.

Fluorides from all furnaces: EGFA must limit the fluoride emissions from the furnaces by limiting the amount of fluoride in the raw materials ("environmentally friendly batch"; "EFB"). As allowed by the T62 permit revision, EGFA conducted emission testing and correlated the results linearly with the total fluoride content of the batch. After performing this initial analysis, EGFA must conduct subsequent analyses annually. The requirement for EFB was first included in the permit as of permit revision T43, but the method for determining what constitutes EFB was first added with the T62 permit revision.

Based on DAQ's most recent inspection report, EGFA completed the most recent batch analysis as of June 2023.

Based on the most recent inspection reports and emission tests, EGFA appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

[14] "PPG Industries Fiber Glass Products Inc," the former name of this facility.

8.0 Compliance Status and Other Regulatory Concerns

Compliance status:

- This facility was most recently inspected on Amir Stewart on August 31, 2023. EGFA appeared to be in compliance with the existing permit at that time.

- In the application for permit renewal, EGFA included Form E5 "Title V Compliance Certification" which was signed by the facility's responsible official at the time of submittal. On Form E5, EGFA indicated it was "in compliance with all applicable requirements."

- Since the previous Title V permit renewal, EGFA has been issued three Notices of Violation:

Date	Issues Noted	Outcome
February 11, 2022	EGFA had not performed the maintenance and monitoring required by MACT Subpart ZZZZ	Resolved as of March 2, 2022.
April 28, 2023	EGFA submitted the required annual compliance certification, but failed to note that a violation occurred during the reporting period.	Rescinded as of May 5, 2023.
December 12, 2023	EGFA experienced excessive monitor downtime for the COMS associated with Melters 520M and 524M.	Resolved as of January 10, 2024.

Application fee: An application for Title V permit renewal does not require an application fee.

PE Seal: Pursuant to 15A NCAC 02Q .0112 "Application requiring a Professional Engineering Seal," a professional engineer's seal (PE seal) is required to seal technical portions of air permit applications for new sources and modifications of existing sources as defined in 15A NCAC 02Q .0103 that involve the criteria in 02Q .0112(a)(1)-(3). Applications for renewal do not require a PE seal.

Zoning: A Zoning Consistency Determination per 15A NCAC 02Q .0304(b) was not required for this modification because there is no expansion of the existing facility.

Addition of 1-bromopropane to §112(b): On December 22, 2021, the US EPA added 1-bromopropane (1-BP) to the list of HAP.[15] ERGFA has not previously quantified emissions of 1-BP. As part of processing this renewal application, DAQ asked EGFA to quantify emissions of 1-BP. EGFA responded that 1-BP is not an ingredient at this facility.

[15] See 87 FR 393 (published January 5, 2022).

9.0 Facility Emissions Review

Title V: EGFA is a major source for Title V (as defined in 40 CFR 70.2) because it has potential emissions of regulated pollutants greater than 100 tpy. This permit renewal will not affect EGFA's status as a major source for Title V.

HAP: EGFA is a major source of HAP (as defined in 40 CFR 63.2) because it has potential emissions of HAP greater than the major source threshold. This permit renewal will not affect EGFA's status a major source of HAP. Note that EGFA has reviewed potential emissions of 1-BP and concluded that no 1-BP is emitted from this facility.

PSD: EGFA is a major stationary source for PSD because it has potential emissions of regulated NSR pollutants greater than the thresholds in 40 CFR 51.166(b)(1)(i)(*a*). Note that a "glass fiber processing plant" is a specifically listed source category in 40 CFR 51.166(b)(1)(i)(*a*). This permit renewal will not affect EGFA's status a major stationary source for PSD.

10.0 Draft Permit Review Summary, Public Notice, and EPA Review

Initial draft: An initial draft of the Title V permit and this application review were sent to DAQ Permits staff on November 29, 2023. Comments were received on December 11, 2023.

- DAQ Permits Comment 1: EGFA must quantify emissions of the newly added HAP 1-BP.

  Response: A request for additional information was sent to EGFA to address emissions of 1-BP. EGFA stated that no 1-BP is used at the facility. This information was added to the application review.

- DAQ Permits Comment 2: Several control devices are only described by their air-to-filter area ratio. EGFA should provide the filter area for these sources.

  Response: A request for additional information was sent to EGFA to address the unlisted filter areas. EGFA provided the requested information.

- DAQ Permits Comment 3: The permit should be clearer as to how EGFA establishes an emission factor for PM and PM_{10} for PSD avoidance for the furnaces.

  Response: The permit will now specifically state that emission testing for the purposes of demonstrating compliance with PSD avoidance will be based on the same one/five year schedule as with other sources at the facility. This should be how EGFA was already complying with these conditions.

- DAQ Permits Comment 4: Noncompliance statements should be added to all specific conditions except those covered by the two-step significant modification process.

  Response: These were added where appropriate.

- DAQ Permits Comment 5: Various typos in the draft permit and draft application review.

  Response: These were corrected.

Subsequent draft: A revised draft of the Title V permit and this application review were sent to DAQ SSCB staff, DAQ MRO staff, and EGFA staff on January 4, 2024.

- DAQ SSCB staff had no comments.

- DAQ MRO staff responded with comments on January 12, 2024. The comments pointed out typos in the draft permit and application review. Those typos were corrected.

- EGFA staff responded with comments on January 26, 2024.

  - EGFA Comment 1: Various typos and formatting corrections in the draft permit.

Response: These were corrected.

- EGFA Comment 2: In Section 2.1 C.4.i, the permit states that DAQ will provide a format for reporting opacity excess emissions. Where is this available?

  Response: EGFA was provided with a sample report.

- EGFA Comment 3: In several cases, the permit requires reporting 17 months of data for a 12-month rolling total. Why 17 instead of 12 or 13?

  Response: In these cases, the permit requires EGFA to report the 12-month rolling for each month in a six-month period. In order for DAQ to verify the 12-month rolling total for first month of that six-month period, EGFA must also supply data for the 11 months preceding that month. Therefore, EGFA must submit the six months of data for the reporting period, plus the preceding 11 months, or 17 months total.

- EGFA Comment 4: In Section 2.1 S.3.k.vii, does the permit require keeping engine certification records in the logbook?

  Response: Yes. The rule requires facilities to keep the following records: 40 CFR 60.4214(a)(2)(iii): "If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards."

- EGFA Comment 5: In Section 2.2 A.1, should the permit list all of the sources subject to MACT Subpart DDDDD?

  Response: Yes. This will be added to the permit.

Public Notice and EPA Review: A notice of the draft Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0518(b), the EPA will have a 45-day review period. Based on an agreement between DAQ and EPA, this period will generally coincide with the 30-day public notice period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the draft Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. DAQ voluntarily provides notice to each bordering State (Virginia, Tennessee, Georgia, and South Carolina).

- The Public Notice and EPA Review periods began on XXXX
- The Public Notice period ended on XXXX
- The EPA Review period ended on XXXX

11.0 Recommendations

This permit application has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility appears to be complying with all applicable requirements.

DAQ recommends issuance of Permit No. 01958T70. MRO, SSCB, and EGFA have received a copy of this permit and submitted comments that were incorporated as described in Section 10.0.

Attachment to Review of Application 2300153.20B
CAM Analysis

The following analysis was prepared by EGFA and included in the application as "CAM Applicability Evaluation"

PPG Shelby CAM Applicability Evaluation

Emission Source ID No.	Emission Source Description	Control Device ID No.	Permit ID	Control Device Description	Uncontrolled Emissions (tpy)	Emission Calculation Reference (Attached)	CAM Applicability
ESDC100	Furnace batch storage bin serving furnace 525	DC100	G	Baghouse	6.77	Furnace Batch Feed System	Not Applicable
ESDC101	Furnace batch storage bin serving furnace 525	DC101	G	Baghouse	6.77	Furnace Batch Feed System	Not Applicable
ESDC102	Furnace batch storage bin serving furnace 524	DC102	G	Baghouse	7.96	Furnace Batch Feed System	Not Applicable
ESDC103	Furnace batch storage bin serving furnace 524	DC103	G	Baghouse	7.96	Furnace Batch Feed System	Not Applicable
ESDC104	Furnace batch storage bin serving furnace 520	DC104	G	Baghouse	3.12	Furnace Batch Feed System	Not Applicable
ESDC105	Furnace batch storage bin serving furnace 520	DC105	G	Baghouse	3.12	Furnace Batch Feed System	Not Applicable
ESDC382	Mixed batch storage bin serving furnace 526	DC382	G	Baghouse	8.56	Furnace Batch Feed System	Not Applicable
ESDC383	Mixed batch storage bin serving furnace 526	DC383	G	Baghouse	8.56	Furnace Batch Feed System	Not Applicable
ESDC129	One batch storage bin serving furnace 526	DC129	G	Baghouse	34.25	Furnace Batch Feed System	Not Applicable
ESDC127	Raw material storage silo (silo #14)	DC127	G	Baghouse	35.03	Silo Dust Collector	Not Applicable
ESDC132	Raw material storage silo (silo #18-1)	DC132	G	Baghouse	4.48	Silo Dust Collector	Not Applicable
ESDC133	Raw material storage silo (silo #18-2)	DC133	G	Baghouse	4.48	Silo Dust Collector	Not Applicable
ESDC134	Raw material storage silo (silo #19-1)	DC134	G	Baghouse	8.76	Silo Dust Collector	Not Applicable
ESDC135	Raw material storage silo (silo #19-2)	DC135	G	Baghouse	8.76	Silo Dust Collector	Not Applicable
ESDC153	Raw material storage silo (silo #15)	DC153	G	Baghouse	17.91	Silo Dust Collector	Not Applicable
ESDC112	Raw material storage silo (silo #1)	DC112	G	Baghouse	0.80	Silo Dust Collector	Not Applicable
ESDC113	Raw material storage silo (silo #2)	DC113	G	Baghouse	0.80	Silo Dust Collector	Not Applicable
ESDC114	Raw material storage silo (silo #3)	DC114	G	Baghouse	0.80	Silo Dust Collector	Not Applicable
ESDC115	Raw material storage silo (silo #4)	DC115	G	Baghouse	0.80	Silo Dust Collector	Not Applicable
ESDC116	Raw material storage silo (silo #5-1)	DC116	G	Baghouse	6.37	Silo Dust Collector	Not Applicable
ESDC117	Raw material storage silo (silo #5-2)	DC117	G	Baghouse	6.37	Silo Dust Collector	Not Applicable
ESDC118	Raw material storage silo (silo #6-1)	DC118	G	Baghouse	9.84	Silo Dust Collector	Not Applicable
ESDC124	Raw material storage silo (silo #11)	DC124	G	Baghouse	1.49	Silo Dust Collector	Not Applicable
ESDC125	Raw material storage silo (silo #12)	DC125	G	Baghouse	28.85	Silo Dust Collector	Not Applicable
ESDC126	Raw material storage silo (silo #13)	DC126	G	Baghouse	6.37	Silo Dust Collector	Not Applicable
ESDC131	Raw material storage silo (silo #6-2)	DC131	G	Baghouse	0.15	Silo Dust Collector	Not Applicable
ESDC154	Raw material storage silo (silo #16)	DC154	G	Baghouse	0.15	Silo Dust Collector	Not Applicable
ESDC119	Batch storage silo (silo #7)	ESDC119	H	Baghouse	0.80	Silo Dust Collector	Not Applicable
ESDC120	Batch storage silo (silo #8)	ESDC120	H	Baghouse	0.80	Silo Dust Collector	Not Applicable
ESDC121	Batch storage silo (silo #9)	ESDC121	H	Baghouse	4.38	Silo Dust Collector	Not Applicable
ESDC121	Batch storage silo (silo #9)	ESDC122	H	Baghouse	4.38	Silo Dust Collector	Not Applicable
ESDC123	Batch storage silo (silo #10)	ESDC123	H	Baghouse	1.49	Silo Dust Collector	Not Applicable
ESDC123	Batch storage silo (silo #10-1)	ESDC152	H	Baghouse	1.49	Silo Dust Collector	Not Applicable
ESWC367	Remote wet cut line 1	EPWC367	R	Venturi scrubber	3.13	Remote Wet Cut Dryer	Not Applicable
ESWC368	Remote wet cut line 2	EPWC368	R	Venturi scrubber	3.13	Remote Wet Cut Dryer	Not Applicable
ESWC369	Remote wet cut line 3	EPWC369	R	Venturi scrubber	3.13	Remote Wet Cut Dryer	Not Applicable
ESWCL370	Remote wet cut line 4	CDWC370	R	Venturi scrubber	2.68	Remote Wet Cut Dryer	Not Applicable
ESWCL371	Remote wet cut line 5	CDWC371	R	Venturi scrubber	2.68	Remote Wet Cut Dryer	Not Applicable
ESWCL372	Remote wet cut line 6	CDWC372	R	Venturi scrubber	2.68	Remote Wet Cut Dryer	Not Applicable
ES378	Furnace 526 in-line dryer	EC378	I	Venturi scrubber	1.26	In-line Dryer	Not Applicable
ES381	Furnace 526 in-line dryer	EC381	I	Venturi scrubber	0.79	In-line Dryer	Not Applicable
ES379	Furnace 526 in-line dryer	EC379	I	Venturi scrubber	1.10	In-line Dryer	Not Applicable
ES380	Furnace 526 in-line dryer	EC380	I	Venturi scrubber	1.10	In-line Dryer	Not Applicable
ES97	Binder mix room vent	97EC	K	Cartridge filter	87.6	Engineering estimate at 20 lb/hr uncontrolled (see TV)	Not Applicable
ESCC96	Caustic brush cleaning system	CDWS96	L	Cross-flow scrubber	8.76	Engineering estimate at 2 lb/hr uncontrolled (see TV)	Not Applicable
EPDC160	Batch house bin (blender a)	DC160	Q	Cartridge filter	61.00	Batch House Filter	Not Applicable
EPDC161	Batch house bin (blender b)	DC161	Q	Cartridge filter	61.00	Batch House Filter	Not Applicable
EPDC162	Batch house bin (silo #17)	DC162	Q	Cartridge filter	3.06	Batch House Filter	Not Applicable
EPDC163	Batch house bin (scale bin 1)	DC163	Q	Cartridge filter	6.12	Batch House Filter	Not Applicable
EPDC164	Batch house bin (scale bin 2)	DC164	Q	Cartridge filter	12.25	Batch House Filter	Not Applicable
EPDC165	Batch house bin (scale bin 3)	DC165	Q	Cartridge filter	67.35	Batch House Filter	Not Applicable
EPDC166	Batch house bin (scale bin 4a)	DC166	Q	Cartridge filter	48.98	Batch House Filter	Not Applicable
EPDC167	Batch house bin (scale bin 4b)	DC167	Q	Cartridge filter	48.98	Batch House Filter	Not Applicable
EPDC168	Batch house bin (scale bin 5)	DC168	Q	Cartridge filter	18.37	Batch House Filter	Not Applicable
EPDC169	Batch house bin (scale bin 6)	DC169	Q	Cartridge filter	48.98	Batch House Filter	Not Applicable
EPDC170	Batch house bin (scale bin 7)	DC170	Q	Cartridge filter	67.35	Batch House Filter	Not Applicable
EPDC171	Batch house bin (scale bin 8)	DC171	Q	Cartridge filter	3.06	Batch House Filter	Not Applicable
EPDC172	Batch house bin (bag breaker 1)	DC172	Q	Cartridge filter	3.06	Batch House Filter	Not Applicable
EPDC173	Batch house bin (bag breaker 2)	DC173	Q	Cartridge filter	3.06	Batch House Filter	Not Applicable
EPDC174	Batch house bin (bag breaker 3)	DC174	Q	Cartridge filter	3.06	Batch House Filter	Not Applicable
EPDC175	Batch house bin (silo #20)	DC175	Q	Cartridge filter	4.01	Batch House Filter	Not Applicable
EPDC176	Batch house bin (scale bin 11)	DC176	Q	Cartridge filter	61.23	Batch House Filter	Not Applicable
EPDC177	Batch house bin (MBSB 1)	DC177	Q	Cartridge filter	40.08	Batch House Filter	Not Applicable
EPDC178	Batch house bin (MBSB 2)	DC178	Q	Cartridge filter	40.08	Batch House Filter	Not Applicable
EPDC179	Batch house bin (MBSB 3)	DC179	Q	Cartridge filter	40.08	Batch House Filter	Not Applicable
EPDC180	Batch house bin (MBSB 6)	DC180	Q	Cartridge filter	40.08	Batch House Filter	Not Applicable
EPDC181	Batch house bin (MBSB 7)	DC181	Q	Cartridge filter	40.08	Batch House Filter	Not Applicable
EPDC182	Batch House Central Vac	DC182	Q	Cartridge filter	2.67	Batch House Filter	Not Applicable
EPDC183	Batch House Scale Area	DC183	Q	Cartridge filter	2.67	Batch House Filter	Not Applicable
EPDC184	Batch House Scale Area	DC184	Q	Cartridge filter	2.67	Batch House Filter	Not Applicable
EPDC185	Batch House Scale Area	DC185	Q	Cartridge filter	2.67	Batch House Filter	Not Applicable
EPDC186	Batch House Scale Area	DC186	Q	Cartridge filter	2.67	Batch House Filter	Not Applicable
EPDC187	Batch House Scale Area	DC187	Q	Cartridge filter	2.67	Batch House Filter	Not Applicable

Note 1: These are the only sources at EGFA Shelby which employ a control device and are therefore potentially subject to CAM.
Note 2: The majority of furnaces employ EFB technology to control emissions. EFB is a modified batch formulation. Such passive control measures are not considered a "control device" which is potentially subject to CAM requirements (please see 40 CFR 64.1).
Note 3: CAM not applicable to any emissions unit because uncontrolled emissions are less than 100 tpy.

Silo Dust Collector Emissions Calculations

Source ID	Source Description	Material Name	Material Transferred From	Material Transferred To	Total Material Transferred in 2019 (lbs)	Total Material Transferred in 2019 (tons)	Potential Material Transferred (tons)	Number of Storage Silos	Number of Dust Collectors	AP-42 Table 11-17.4 (lbs/ton)	Uncontrolled PM Emissions (tons/yr)	Control Efficiency (%)	Controlled PM Emissions (tons/yr)
ESDC112	Silo #1	Clay	Bulk Unloading	Storage Silo	22,403,551.2	11,202	15,766	6	1	0.61	0.801	99.9%	0.001
ESDC113	Silo #2	Clay	Bulk Unloading	Storage Silo	22,403,551.2	11,202	15,766	6	1	0.61	0.801	99.9%	0.001
ESDC114	Silo #3	Clay	Bulk Unloading	Storage Silo	22,403,551.2	11,202	15,766	6	1	0.61	0.801	99.9%	0.001
ESDC115	Silo #4	Clay	Bulk Unloading	Storage Silo	22,403,551.2	11,202	15,766	6	1	0.61	0.801	99.9%	0.001
ESDC116	Silo #5, dust collector 1	Ulexite	Bulk Unloading	Storage Silo	14,836,040.6	7,418	10,441	1	2	0.61	6.369	99.9%	0.001
ESDC117	Silo #5, dust collector 2	Ulexite	Bulk Unloading	Storage Silo	14,836,040.6	7,418	10,441	1	2	0.61	6.369	99.9%	0.001
ESDC118	Silo #6, dust collector 1	Colemanite	Bulk Unloading	Storage Silo	22,933,031.6	11,467	16,139	1	2	0.61	9.845	99.9%	0.002
ESDC119	Silo #7	Clay	Bulk Unloading	Storage Silo	22,403,551.2	11,202	15,766	6	1	0.61	0.801	99.9%	0.001
ESDC120	Silo #8	Clay	Bulk Unloading	Storage Silo	22,403,551.2	11,202	15,766	6	1	0.61	0.801	99.9%	0.001
ESDC121	Silo #9, dust collector 1	Silica	Bulk Unloading	Storage Silo	20,397,238.4	10,199	14,355	2	2	0.61	4.378	99.9%	0.001
ESDC122	Silo #9, dust collector 2	Silica	Bulk Unloading	Storage Silo	20,397,238.4	10,199	14,355	2	2	0.61	4.378	99.9%	0.001
ESDC123	Silo #10, dust collector 1	Limestone	Bulk Unloading	Storage Silo	6,953,711.1	3,477	4,894	2	2	0.61	1.493	99.9%	0.000
ESDC124	Silo #11	Flourspar	Bulk Unloading	Storage Silo	6,953,711.1	3,477	4,894	1	1	0.61	1.493	99.9%	0.001
ESDC125	Silo #12	Clay	Storage Silos	Silo #12	134,421,266.4	67,211	94,599	1	1	0.61	28.853	99.9%	0.020
ESDC126	Silo #13	Ulexite	Storage Silos	Silo #13	29,672,076.6	14,836	20,882	1	1	0.61	6.369	99.9%	0.005
ESDC127	Silo #14	Silica	Storage Silos	Silo #14	163,177,894.6	81,589	114,836	1	1	0.61	35.025	99.9%	0.025
ESDC131	Silo #6, dust collector 2	Colemanite	Bulk Unloading	Storage Silo	341,100.7	171	240	1	2	0.61	0.146	99.9%	0.000
ESDC132	Silo #18, dust collector 1	Limestone	Bulk Unloading	Storage Silo	20,861,133.3	10,431	14,681	2	2	0.61	4.478	99.9%	0.001
ESDC133	Silo #18, dust collector 2	Limestone	Bulk Unloading	Storage Silo	20,861,133.3	10,431	14,681	2	2	0.61	4.478	99.9%	0.001
ESDC134	Silo #19, dust collector 1	Silica	Bulk Unloading	Storage Silo	40,794,476.8	20,397	28,709	2	2	0.61	8.756	99.9%	0.002
ESDC135	Silo #19, dust collector 2	Silica	Bulk Unloading	Storage Silo	40,794,476.8	20,397	28,709	2	2	0.61	8.756	99.9%	0.002
ESDC152	Silo #10, dust collector 2	Limestone	Bulk Unloading	Storage Silo	20,861,133.3	10,431	14,681	2	2	0.61	4.478	99.9%	0.001
ESDC153	Silo #15	Limestone	Storage Silos	Silo #15	83,444,526.7	41,722	58,724	1	1	0.61	17.911	99.9%	0.013
ESDC154	Silo #16	Dolomite	Bulk Unloading	Storage Silo	682,201.5	341	480	1	1	0.61	0.146	99.9%	0.000

Furnace Batch Feed System Emissions Calculations

Source ID	Source Description	Furnace Number	Number of Batch Feeds per Furnace	Potential Furnace Pull Rate (tons/yr)	Fusion Loss (%)	Batch per Source (ton/yr)	AP-42 17-11.4 (lbs/ton)	Uncontrolled PM Emissions (tons/yr)	Control Efficiency (%)	Dust Collector ID	Controlled PM Emissions (tons/yr)
ESDC382	Furnace 526 Batch Feed #1	526	2	87,600	22.00%	56,154	0.61	8.56	99.9%	DC-382	0.009
ESDC383	Furnace 526 Batch Feed #2	526	2	87,600	22.00%	56,154	0.61	8.56	99.9%	DC-383	0.009
ESDC129	Furnace 526 Batch Feed #3	526	1	87,600	22.00%	112,308	0.61	34.25	99.9%	DC-129	0.034
ESDC100	Furnace 525 Batch Feed #1	525	2	69,300	22.00%	44,423	0.61	6.77	99.9%	DC-100	0.007
ESDC101	Furnace 525 Batch Feed #2	525	2	69,300	22.00%	44,423	0.61	6.77	99.9%	DC-101	0.007
ESDC102	Furnace 524 Batch Feed #1	524	2	81,468	22.00%	52,223.1	0.61	7.96	99.9%	DC-102	0.008
ESDC103	Furnace 524 Batch Feed #2	524	2	81,468	22.00%	52,223.1	0.61	7.96	99.9%	DC-103	0.008
ESDC104	Furnace 520 Batch Feed #1	520	2	31,886	22.00%	20,440.0	0.61	3.12	99.9%	DC-104	0.003
ESDC105	Furnace 520 Batch Feed #2	520	2	31,886	22.00%	20,440.0	0.61	3.12	99.9%	DC-105	0.003

Note: 22% fusion loss was used as a conservative estimate. Fusion loss is generally no greater than 20% for any furnace.

Batch House Filter Emissions Calculations

Source ID	Source Description	Potential Throughput (ton/hr)	Potential Throughput (ton/yr)	AP-42 Table 11-17.4 (lbs/ton)	Uncontrolled PM Emissions (lb/hr)	Uncontrolled PM Emissions (tons/yr)
EPDC160	BLENDER A	41.1	200000	0.61	25.07	61.0
EPDC161	BLENDER B	41.1	200000	0.61	25.07	61.0
EPDC162	SILO 17	1.1	10038	0.61	0.70	3.1
EPDC163	SCALE BIN 1	2.3	20075	0.61	1.40	6.1
EPDC164	SCALE BIN 2	4.6	40150	0.61	2.80	12.2
EPDC165	SCALE BIN 3	25.2	220825	0.61	15.38	67.4
EPDC166	SCALE BIN 4A	18.3	160600	0.61	11.18	49.0
EPDC167	SCALE BIN 4B	18.3	160600	0.61	11.18	49.0
EPDC168	SCALE BIN 5	6.9	60225	0.61	4.19	18.4
EPDC169	SCALE BIN 6	18.3	160600	0.61	11.18	49.0
EPDC170	SCALE BIN 7	25.2	220825	0.61	15.38	67.4
EPDC171	SCALE BIN 8	1.1	10038	0.61	0.70	3.1
EPDC172	BAG BREAKER 1	1.1	10038	0.61	0.70	3.1
EPDC173	BAG BREAKER 2	1.1	10038	0.61	0.70	3.1
EPDC174	BAG BREAKER 3	1.1	10038	0.61	0.70	3.1
EPDC175	SILO 20	1.5	13140	0.61	0.92	4.0
EPDC176	SCALE 11	22.9	200750	0.61	13.98	61.2
EPDC177	MBSB 1	15.0	131400	0.61	9.15	40.1
EPDC178	MBSB 2	15.0	131400	0.61	9.15	40.1
EPDC179	MBSB 3	15.0	131400	0.61	9.15	40.1
EPDC180	MBSB 6	15.0	131400	0.61	9.15	40.1
EPDC181	MBSB 7	15.0	131400	0.61	9.15	40.1
EPDC182	Batch House Central Vac	1.0	8760	0.61	0.61	2.7
EPDC183	Batch House Scale Area	1.0	8760	0.61	0.61	2.7
EPDC184	Batch House Scale Area	1.0	8760	0.61	0.61	2.7
EPDC185	Batch House Scale Area	1.0	8760	0.61	0.61	2.7
EPDC186	Batch House Scale Area	1.0	8760	0.61	0.61	2.7
EPDC187	Batch House Scale Area	1.0	8760	0.61	0.61	2.7

Wet Cut Dryer Potential PM Emissions

Dryer & Control Device Identification

Emission Source ID (oven)		ESWC367	ESWC368	ESWC369	ESWCL370	ESWCL371
Control Device ID		CDWC367	CDWC368	CDWC369	CDWC370	CDWC371
Heat capacity	MMBtu/hr	3.5	3.5	3.5	3.5	3.5
Heat capacity	scf/hr	3398	3398	3398	3398	3398

Dryer Output

Desired Capacity - assumes moisture content is excluded	lb/hr	3,500	3,500	3,500	3,000	3,000
Amt glass waste, 1.7%	lb/hr	59.5	59.5	59.5	51	51
Amt of glass waste going to the control device, 60%	lb/hr	36	36	36	31	31
Pre-control Emission	**lb/hr**	**36**	**36**	**36**	**31**	**31**

note: ~0.7% of total waste are larger pieces that fall out prior to control

Control Device Assumptions

Glass Lint / PM						
Amt glass through scrubber as lint, 98% of 1.7% of throughput	lb/hr	34.99	34.99	34.99	29.99	29.99
Amt lint emitted from scrubber 1% (99% removal)	lb/hr ton/yr	0.3499 1.532	0.3499 1.53	0.3499 1.53	0.2999 1.31	0.2999 1.31
PM-10						
Amt PM10, 2% of 1% of the throughput (uncontrolled)	lb/hr	0.71	0.71	0.71	0.61	0.61
Uncontrolled Emissions	ton/yr	3.13	3.13	3.13	2.68	2.68
Amt PM10 emitted from scrubber 1% (99% removal)	lb/hr	7.14E-03	7.14E-03	7.14E-03	6.12E-03	6.12E-03
Controlled Emissions	ton/yr	3.13E-02	3.13E-02	3.13E-02	2.68E-02	2.68E-02

Furnace 526 In-line Dryer Potential PM Emission Calculations

Dryer & Control Device Identification

Emission Source ID (dryer)		ES378	ES379	ES380	ES381	
Control Device ID		CD378	CD379	CD380	CD381	
Heat capacity	MMBtu/hr	2	2	2	1.5	
Heat capacity	scf/hr	1942	1942	1942	1456	1030 scf/Btu

Dryer Output

						Equations
Amt bare glass capacity input to dryer (excludes moisture)	lb/hr	2,400	2,100	2,100	1,500	
Amt glass waste, 2%	lb/hr	48	42	42	30	2%x bare glass capacity (based upon measurements). Only waste glass stream is controlled.
Amt of glass waste going to the control device, 30%	lb/hr	14.40	12.60	12.60	9.00	30% x amt waste (based upon measurements)
Pre-control Emission	**lb/hr**	**14.40**	**12.60**	**12.60**	**9.00**	

Control Device Assumptions

Glass Lint						
Amt glass through scrubber as lint, 80%	lb/hr	11.52	10.08	10.08	7.20	glass waste to control x 80%
Amt glass through scrubber as PM, 20%	lb/hr	2.88	2.52	2.52	1.80	glass waste to control x 20%
Amt lint emitted from scrubber 0.1% (99.90)% removal)	lb/hr	0.012	0.010	0.010	0.007	amt glass lint thru scrubber x 0.1%
	ton/yr	0.050	0.044	0.044	0.032	lb/hr x 8760/2000
PM						
Amt PM>10 micron, 18%	lb/hr	2.59	2.27	2.27	1.62	glass waste to control x 18%
Amt PM>10 micron emitted from control 0.3% (99.7% removal)	lb/hr	0.008	0.007	0.007	0.005	glass waste to control x 0.3%
	ton/yr	0.034	0.030	0.030	0.021	lb/hr x 8760/2000
PM-10						
Amt PM10, 2% of PM through scrubber (uncontrolled)	lb/hr	0.29	0.25	0.25	0.18	glass waste to control x 2%
Uncontrolled Emissions	ton/yr	1.26	1.10	1.10	0.79	
Amt PM10 emitted from scrubber 0.75% (99.25% removal)	lb/hr	2.16E-03	1.89E-03	1.89E-03	1.35E-03	glass waste to control x 0.75%
Controlled Emissions	ton/yr	9.46E-03	8.28E-03	8.28E-03	5.91E-03	lb/hr x 8760/2000

Remote Wet Cut Lint Collection System Emissions

Identification

Common Plant ID		RWC #1	RWC #2	RWC #3
Emission Source ID		ESWC367	ESWC368	ESWC369

Assumptions

Dryer Waste (Dryer Scrubber)	% BG	1.0%	1.0%	1.0%
Classifier Overs (Bins)	% BG	0.1%	0.1%	0.1%
Classifier & SE Waste	% BG	2.0%	2.0%	2.0%
Other Waste	% BG	0.5%	0.5%	0.5%
Dryer Waste as Lint	%	80.0%	80.0%	80.0%
Dryer Waste > 10 micron	%	18.0%	18.0%	18.0%
Dryer Waste < 10 micron	%	2.0%	2.0%	2.0%
Lint Collection Waste as Lint	%	80.0%	80.0%	80.0%
Lint Collection Waste > 10 micron	%	18.0%	18.0%	18.0%
Lint Collection Waste < 10 micron	%	2.0%	2.0%	2.0%
Scrubber Efficiency for Lint	%	99.95%	99.95%	99.95%
Scrubber Efficiency at 10 micron	%	99.80%	99.80%	99.80%
Scrubber Efficiency at 5 micron	%	99.50%	99.50%	99.50%
Hours use per year		8,760	8,760	8,760

Scrubber Input Conditions

Maximum Chopper Input (Dry)	BG lb/hr	5,100	5,100	5,100
Maximum Moisture	% BG	10.0%	10.0%	10.0%
Maximum Moisture Content	lb/hr	510	510	510
Maximum Input Process Rate (Wet)	lb/hr	5,610	5,610	5,610

Lint Collection Scrubber Conditions

Lint Removed	lb/hr	81.56	81.56	81.56
10 micron removed (nominal size)	lb/hr	18.32	18.32	18.32
5 micron removed (nominal size)	lb/hr	2.03	2.03	2.03
Total removed	lb/hr	101.91	101.91	101.91
	%	99.91%	99.91%	99.91%
Controlled PM Emissions (Total)	lb/hr	0.09	0.09	0.09
	tpy	0.384	0.384	0.384
Controlled PM10 Emissions	lb/hr	0.0102	0.0102	0.0102
	tpy	0.0447	0.0447	0.0447
Uncontrolled PM10 Emissions	lb/hr	2.0400	2.0400	2.0400
	tpy	8.9352	8.9352	8.9352