DRAFT

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: 08/21/2024
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: 02Q .0504
NSPS: n/a
NESHAP: n/a
PSD: n/a
PSD Avoidance: n/a
NC Toxics: n/a
112(r): n/a
Other: n/a

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Terry Steinert Environmental Manager (704) 434-2261 940 Washburn Switch Road Shelby, NC 28150	Kenneth Hale Plant Manager (704) 434-2261 940 Washburn Switch Road Shelby, NC 28150	Terry Steinert Environmental Manager (704) 434-2261 940 Washburn Switch Road Shelby, NC 28150

Application Data

Application Number: 2300153.24B
Date Received: 08/27/2024
Application Type: Modification
Application Schedule: TV-Sign-501(b)(2) Part II

Existing Permit Data
Existing Permit Number: 01958/T71
Existing Permit Issue Date: 06/24/2024
Existing Permit Expiration Date: 03/31/2029

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2023	45.97	148.81	75.82	49.40	74.39	9.18	6.27 [Methanol (methyl alcohol)]
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)]

Review Engineer: Russell Braswell

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

Comments / Recommendations:
Issue 01958/T72
Permit Issue Date: TBD
Permit Expiration Date: March 31, 2029 (no change)

1. Purpose of Application

Electric Glass Fiber America, LLC (EGFA; the facility) operates a factory in Cleveland County under Title V permit 01958T71 (the existing permit). The existing permit includes Specific Condition 2.1 G.7 which requires EGFA to submit an application pursuant to 15A NCAC 02Q .0500 (*i.e.,* a Title V application) within 12 months of beginning operation of the direct chop line ES382. EGFA has begun operating ES382 and therefore has submitted this application (aka a 2nd-step significant modification).

In addition to reviewing the required Title V permit application, DAQ will also review NSPS applicability for Furnace 525. EGFA had previously been required to perform emission testing to determine if a recent modification to Furnace 525 met the definition of "modification" under NSPS (Specific Condition 2.1 C.7 of the existing permit).

2. Application Chronology

Date	Event
August 27, 2024	Application .24B received and deemed complete. Application initially assigned to Connie Horne for processing.
September 4, 2024	An initial draft of the modified permit and associated application review were sent to DAQ Permits staff (Joe Voelker) for review.
November 7, 2024	Request for additional information sent to EGFA (from Joe Voelker): "What is your compliance status with respect to the requirements of Section 2.1 C.7?" (*i.e.,* did EGFA conduct testing that showed an NSPS modification had occurred?)
December 4, 2024	EGFA submitted a *draft* response to the November 7 request for additional information.
January 21, 2025	Responsibility for application .24B reassigned to Russell Braswell.
March 24, 2025	A follow-up email was sent to EGFA regarding the November 7 request for additional information and EGFA's December 4 draft response.
March 28, 2025	EGFA submitted a finalized response to the November 7 request for additional information and March 24 follow-up email.
March 31, 2025	A new draft of the modified permit and associated application review were sent to DAQ Permits staff (Rahul Thaker) for review.
May 8, 2025	Comments received on the March 31 draft.
May 9, 2025	A revised draft of the modified permit and associated application review were sent to DAQ SSCB staff, DAQ MRO staff, and EGFA staff.
May 15, 2025	Comments received on the May 9 draft.
May 19, 2025	The public notice and EPA review periods began.
XXXX	The public notice period ended.
XXXX	The EPA review period ended.
XXXX	Permit issued.

3. Discussion

3.1 Title V permit application requirement

Background: EGFA previously submitted an application (application 2300153.23B) for permit modification in order to add the emission source ES382 to the permit. EGFA submitted application .23B pursuant to 15A NCAC 02Q .0300 (*i.e.,* a non-Title V permit application), as allowed by 15A NCAC 02Q .0501(b)(2) and 02Q .0504.

DAQ issued Title V permit revision 01958T69 (issued February 8, 2024) in response to that application. That permit revision included Specific Condition 2.1 G.7, which required EGFA to submit an application pursuant to 15A NCAC 02Q .0500 (*i.e.,* a Title V application) within 12 months of beginning operation of the ES382.

Application submittal requirement: As stated previously, this application was due within 12 months of beginning operation of ES382. According to the application, ES382 began operating on June 28, 2024. This application was received On August 27, 2024, and therefore was submitted on-time. In this application, EGFA did not request any specific changes to the permit (*i.e.,* ES382 was built and implemented as originally applied-for).

DAQ's review of application 2300153.23B and associated Title V permit revision 01958T69 are included here as Attachment 1.

Changes to the existing permit:

- Because EGFA has satisfied the application submittal requirement in Specific Condition 2.1 G.7, that requirement can be removed from the permit.

- The other Specific Conditions in Section 2.1 G of the permit will be combined and streamlined to reduce repetition.

3.2 Furnace 525 and "modification" under NSPS

Background: EGFA is permitted to operate four fiberglass furnaces: Nos. 520, 524, 525, and 526. Three of these four furnaces are subject to New Source Performance Standard (NSPS; 40 CFR Part 60) Subpart CC "Standards of Performance for Glass Manufacturing Plants" because they were constructed or modified after the date in 40 CFR 60.290(b). Furnace 525 was constructed before that date, and EGFA has not subsequently made any changes to Furnace 525 that meet the definition of "modification" or "reconstruction" under NSPS (see 40 CFR 60.14 and 60.15).

Furnace 525 project: On January 24, 2023, EGFA submitted application 2300153.23A requesting to rebrick Furnace 525 and add electric boost capability. In that application, EGFA claimed that these actions would not trigger applicability to NSPS Subpart CC because they would:

1. not meet the definition of modification under NSPS because these actions would not result in an increase in the emission rate of particulate matter (PM), and

2. not meet the definition of reconstruction under NSPS because these actions would not meet the cost requirement in 40 CFR 60.15(b)(1).

DAQ agreed with EGFA's analysis and issued Title V permit 01958T68 on August 23, 2023. That permit included a specific condition requiring EGFA to conduct an emission test to verify that no increase in emission rate had occurred as a result of the rebrick and electric boost projects.[1]

Prior to performing the post-modification stack test, EGFA submitted a test protocol to DAQ which stated how EGFA planned to demonstrate that no NSPS modification had taken place:

> "Per Permit Section 2.1 C.9 and 15A NCAC 02Q.0308(a), test results for filterable PM will be compared to the pre-modification source test done on June 8, 2022 *(test reference number 2022-047ST; the pre-modification test)* where the filterable PM emission rate was measured to be 0.97 lb filterable PM per ton of glass." (Protocol Submittal Form for stack test 2024-129ST, received April 22, 2024)

When EGFA conducted stack test 2024-129ST (the post-modification test), the test showed an average PM emission rate of 0.92 pounds per ton of glass produced. EGFA concluded that an NSPS modification had not occurred to Furnace 525 because the pre-modification test resulted in average PM emission rate of 0.97 pounds per ton of glass produced.

NSPS Modification: It should be noted that the definition of modification under NSPS specifies that emission rates shall be expressed as kilograms per hour (*i.e.,* total mass emitted per unit of time; see 40 CFR 60.14(b)). Therefore, simply comparing emission factors, in units of pounds of PM per ton of glass produced, is not sufficient to determine if an NSPS modification has occurred. When looking at the average emission rate (in the appropriate units) of the pre-modification test (E_a = 4.65 lb/hr) and the post-modification test (E_b = 5.40 lb/hr), it would appear that an increase in emissions has occurred in terms of total mass emitted per unit of time.

t-test method: When determining if an NSPS modification has occurred using emission testing methods, as is the case here, 40 CFR 60.14(b)(2) states:

> "When the emission rate is based on results from manual emission tests or continuous monitoring systems, the procedures specified in appendix C of this part shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the Administrator shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs."

The Appendix C method is a slightly modified version of a one-tailed Student's *t* test with a 95% confidence interval (note that Appendix C lays out *specific* methods and formulas for this analysis). Attachment 2 shows the Appendix C analysis. Based on this analysis, t is not greater than t', and therefore the Appendix C analysis concludes that an emission increase has not occurred.[2]

[1] Originally Specific Condition 2.1 C.9, later renumbered to 2.1 C.7.

[2] Note that EGFA supplied an Appendix C analysis based on the pre- and post-modification tests (see EGFA's response to request for additional information, dated March 28, 2025). However, when performing this analysis, EGFA incorrectly used the test results in units of pounds of PM per ton of glass produced. DAQ's analysis in Attachment 2 uses the correct units of pounds of PM per hour.

Emission test parameters: Note that 40 CFR 60.14(b)(2) specifically states "All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs."

Several aspects of the pre- and post-modification tests were different. Most notably, the post-modification test was conducted while Furnace 525 was operating with electric boost and producing approximately 20% more glass. Nevertheless, DAQ concludes that it is reasonable to compare EGFA's chosen pre- and post-modification tests:

1. When DAQ reviewed EGFA's proposed test protocol, DAQ did not object to the use of stack test 2022-047ST as the pre-modification test, nor did DAQ suggest any specific parameters to regulate when conducting the post-modification test.

2. EGFA operated the electric boost system for Furnace 525 during the post-modification test. This system was added as part of the T68 revision, so operating this system was needed to show that no NSPS modification had occurred.

3. The furnace was operating at a higher capacity for the post-modification test because the furnace's capacity had been partially restored through rebricking and the use of electric boost. When DAQ reviewed EGFA's application to rebrick Furnace 525 and add electric boost, DAQ noted that the furnace was "in poor operating condition and in need of a full rebuild" and that adding electric boost would allow for "increased annual production up to its currently permitted annual level" (see page 2 of DAQ's application review for application 2300153.23A and associated Title V permit revision 01958T68, issued August 23, 2023).

4. The product mix between the two tests was slightly different, but the end product was the same. EGFA explained the need for the difference in product mix:

   > "The batch formulations from both tests produced EFB glass as that term is defined in industry. Batch formula differences were mostly the result of aging refectory [*sic*] in the furnace prior to the rebuild. Refractory wear causes loss of efficiency. To counter this, some of the limestone in 2022 batch was replaced with quicklime to reduce the energy needed for melting and reduce the rate of wear on the refractory. Limestone is typically preferred over quicklime because of its cost advantage" (see page 3 of EGFA's response to request for additional information, dated March 28, 2025).

Conclusion: Because the Appendix C method concludes that an emission increase has not occurred, and the pre- and post-modification tests were a reasonable comparison, EGFA's project to add electric boost to Furnace 525 cannot be a modification under NSPS. Therefore, Furnace 525 has not triggered applicability to NSPS Subpart CC.

3.3 Changes to the existing permit

Page No.	Section	Description of Changes
Throughout	Throughout	• Updated dates and permit numbers.
6	1	• Removed footnote and application submittal requirement for ES382 because the Permittee has completed that requirement.
n/a	2.1 C.7 (former)	• Removed this condition because the Permittee has completed the testing requirement.

Page No.	Section	Description of Changes
n/a	2.1 G.4, 5, 6, and 7 (former)	• Removed these specific conditions because the Permittee has completed the application submittal requirement. Requirements for ES382 have been combined into Specific Conditions 2.1 G.1, 2, and 3.
78	4	• Updated General Conditions to v8.0. Updates to the General Conditions are made to all Title V permits issued by DAQ as necessary and are not the result of any specific action of the Permittee.

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

4. Compliance Status and Other Regulatory Concerns

Compliance status:

- The application includes a signed Form E5 "Title V Compliance Certification." In this form, EGFA certified compliance with all applicable requirements.

- This facility was most recently inspected on August 21, 2024 by Amir Stewart. EGFA appeared to be in compliance with the Title V permit at that time.

Application fee: Applications for 2nd-step significant modification generally do not require an application fee because the required fee is included with the 1st-step application.

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 15A NCAC 02Q .0112(a)(1)-(3).

- A PE Seal was not required for application .23B (see Attachment 1, Section IX).

- Applications for 2nd-step significant modification generally do not meet any of the criteria in 15A NCAC 02Q .0112(a)(1)-(3).

Zoning Consistency Determination: Pursuant to 15A NCAC 02Q .0507(d), Title V applications require a zoning consistency determination if they involve a new facility or an expansion of existing facility.

- A zoning consistency determination was included with application .23B (see Attachment 1, Section X).

- Applications for 2nd-step significant modification generally do not require a new zoning consistency determination.

General Conditions: The General Conditions (Section 4 of the existing permit) has been updated to DAQ's latest version (Version 8.0). The General Conditions appear in each Title V permit issued by DAQ. Changes to the General Conditions are not targeted at any specific facility or triggered by any action of an applicant.

Removal of References to Affirmative Defense: EPA has promulgated a rule (88 FR 47029, July 21, 2023), with an effective date of August 21, 2023, removing the emergency affirmative defense provisions in operating permits programs, codified in both 40 CFR 70.6(g) and 71.6(g). EPA has concluded that these provisions are inconsistent with the EPA's current interpretation of the enforcement structure of the CAA, in light of prior court decisions.[3] Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses[4] and will harmonize the EPA's treatment of affirmative defenses across different CAA programs.

[3] NRDC v. EPA, 749 F.3d 1055 (D.C. Cir. 2014).
[4] In newly issued and revised New Source Performance Standards (NSPS), emission guidelines for existing sources, and NESHAP regulations, the EPA has either omitted new affirmative defense provisions or removed existing affirmative defense provisions. See, e.g., National Emission Standards for Hazardous Air Pollutants for the Portland

As a consequence of this EPA action to remove these provisions from 40 CFR 70.6(g), it will be necessary for states and local agencies that have adopted similar affirmative defense provisions in their Part 70 operating permit programs to revise their Part 70 programs (regulations) to remove these provisions. In addition, individual operating permits that contain Title V affirmative defenses based on 40 CFR 70.6(g) or similar state regulations will need to be revised.

DAQ has not adopted these discretionary affirmative defense provisions in its Title V regulations (15A NCAC 02Q .0500). Instead, DAQ has chosen to include them directly in individual Title V permits as General Condition J. Per EPA, DAQ is required to promptly remove such impermissible provisions, as stated above, from individual Title V permits, after August 21, 2023, through normal course of permit issuance.

Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Final Rule, 80 FR 44771 July 27, 2015); National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters; Final Rule, 80 FR 72789 (November 20, 2015); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units; Final Rule, 81 FR 40956 (June 23, 2016).

5. Facility Emissions Review

Changes in emissions: Any changes in emissions from this facility due to the operation of ES382 were addressed in DAQ's review of application 2300153.23B and associated Title V permit revision 01958T69. See Attachment 1 for DAQ's review of that application.

Title V: EGFA is a major source for Title V (as defined in 40 CFR 70.2) because it has actual or potential emissions of regulated pollutants greater than 100 tpy. This application for a 2nd-step significant modification 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 actual or potential emissions of HAP greater than the major source threshold. This application for a 2nd-step significant modification will not affect EGFA's status as a major source of HAP.

PSD: EGFA is a major stationary source for PSD because it has actual 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*), so the threshold for a major stationary source is 100 tpy. This application for a 2nd-step significant modification will not affect EGFA's status as a major stationary source under PSD.

6. Draft Permit Review Summary, Public Notice, and EPA Review

Initial draft: An initial draft of the permit and this application review were sent to DAQ Permits staff on March 31, 2025. Comments were received in-person on May 8, 2025. The comments pointed out typos and corrections needed for the draft permit.

Subsequent drafts: A revised draft of the permit and this application review were sent to DAQ SSCB staff, DAQ MRO staff, and EGFA staff on May 9, 2025. SSCB and EGFA staff had no comments on these drafts. MRO submitted comments on May 15 pointing out typos and corrections needed for the draft 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 XXXXX.
- The Public Notice period ended on XXXXX.
- The EPA Review period ended on XXXXX.

7. Recommendations

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

DAQ recommends issuance of Permit No. 01958T72. MRO, SSCB, and EGFA have received a copy of this permit and submitted comments that were incorporated as described in Section 6.

DRAFT

Attachment 1 to Review of Application 2300153.24B

Review of Application 2300153.23A and associated Title V Permit Revision 01958T69

(page numbers and formatting may be slightly altered from the original document)

NORTH CAROLINA DIVISION OF
AIR QUALITY

Application Review

Issue Date: **February 8, 2024**

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

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 .0515, .0516, .0521
NSPS: NA
NESHAP: NA
PSD: NO
PSD Avoidance: NO
NC Toxics: NO
112(r): NO
Other: PSD applicability reviewed but N/A per 02D .0530(u)

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Terry Steinert Environmental Manager (704) 434-2261 940 Washburn Switch Road Shelby, NC 28150	Alan Toney Plant Manager (704) 434-2261 940 Washburn Switch Road Shelby, NC 28150	Terry Steinert Environmental Manager (704) 434-2261 940 Washburn Switch Road Shelby, NC 28150

Application Data

Application Number: 2300153.23B
Date Received: 11/13/2023
Application Type: Modification
Application Schedule: TV-Sign-501(b)(2) Part I
Existing Permit Data
Existing Permit Number: 01958/T68
Existing Permit Issue Date: 08/23/2023
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]
2021	49.95	197.56	105.66	73.10	56.93	15.64	8.67 [Methanol]
2020	85.73	150.35	39.21	56.08	59.63	5.02	3.65 [Methanol]
2019	45.81	179.28	109.89	58.59	76.13	8.67	7.27 [Methanol]
2018	51.46	183.81	78.78	62.78	81.98	6.12	4.87 [Methanol]

Review Engineer: Joseph Voelker Review Engineer's Signature: Date: February 8, 2024 *[signed by Joe Voelker on Permit Issue Date]*	**Comments / Recommendations:** Issue 01958/T69 Permit Issue Date: 02/08/2024 Permit Expiration Date: 04/30/2027

I. Introduction and Purpose of Application

Electric Glass Fiber America, LLC, (EGFA), a Nippon Electric Glass company owns and operates a fiber glass production facility in Shelby, NC. The facility operates under Title V permit No. 01958T68, issued on August 23, 2023.

EGFA desires to move the Remote Wet Cut (RWC) Line No. 6 dryer (Permit ID. No. ESWCL372) and use it on a new direct chopping operation for Furnace No. 524.

The modification does not contravene or conflict with a condition in the existing permit. At the request of the Permittee, the application will be processed pursuant to 15A NCAC 02Q .0300 procedures as allowed pursuant to 15A NCAC 02Q .0501(b)(2) and 02Q .0504.

II. Chronology

Date	Description
11/13/2023	Application was received and assigned Application No. 2300153.23B
11/14/2023	Acknowledgment letter was sent stating the following: This application submittal **did** contain all the required elements as indicated and has been accepted for processing. Your application will be considered complete as of November 13, 2023, unless informed otherwise by this office within 60 days
01/23/2024	An ADD INFO email was sent requesting clarification of scope of the project.
01/29/2024	Response to 01/23/2024 ADD INFO received. See Section III below.
02/01/2024	Draft permit and review sent to supervisor and regional office for review.
02/02/2024	Comments received from regional office. Comments were minor and were incorporated into final draft.
02/05/2024	Comments received from supervisor. Comments were minor and were incorporated into final draft.
02/05/2024	Draft permit sent to EGFA for review
02/06/2024	EGFA responded to 02/05/2024 email with no comments

III. Modification Description

EGFA is currently permitted to operate six remote wet cut lines (RWCs) at the Shelby facility, one of them specifically as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ESWCL372	Remote Wet Cut Line No. 6 (5,000 pounds per hour dry nominal production rate) including a natural gas-fired dryer (3.5 million Btu per hour maximum heat input rate)	CDWC372	Venturi scrubber (80 gallons per minute minimum liquid injection rate)

EGFA is permanently shutting down this RWC Line No. 6 (ID No. ESWCL372). EGFA would like to relocate the natural gas-fired dryer elsewhere in the facility to control a new "direct chop" operation similar to the direct chop operations already permitted at Section 2.1 I of the existing permit. Only the dryer is being relocated and used. All other equipment including the choppers and conveyors are new. The direct chop operation will receive glass fiber from the bushings in the forehearth of Furnace No. 524. The requested production throughput rate is limited by the dryer; hence the requested production rate will remain 5,000 pounds per hour (dry nominal production rate). A venturi scrubber currently located at the Lexington facility (ID No. CDWC2, as indicated in the Lexington permit) will be moved to the Shelby facility for PM/PM10/PM2.5 control.

Fiberglass will be drawn through bushings on the underside of the furnace forehearth. Binder solutions will be applied as the glass emerges from the bushings. The continuous glass filaments will be fed directly to a chopper that will cut the filaments into set lengths. The chopped glass will then be conveyed to the natural gas-fired dryer. A dust collection system collects the PM emissions generated and exhausts them to the venturi scrubber.
The chopper and dryer pair constitute a "line." The proposed project does not involve any modification to the Furnace 524 melter which will supply glass to the line.

The new direct chop line will appear in the revised permit as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES382	Furnace 524 Direct Chop Line No. 1 (5,000 dry pounds per hour nominal production rate) including a natural gas-fired in-line dryer (3.5 million Btu per hour maximum heat input rate)	EC382	Venturi scrubber (80 gallons per minute minimum liquid injection rate)

Emissions Changes
The direct chop lines are sources of combustion emissions from the dryers, VOC, HAP and TAP from the volatilized binders, and PM/PM10/PM2.5 from the chopped fiberglass. Detailed emissions calculations are presented in Appendix B of the application. EGFA also estimates increases in emissions associated with increasing the utilization of Furnace No. 524.

Combustion Emissions
The Permittee utilized AP-42 natural gas external combustion sources emission factors assuming 3.5 MMBtu/hr maximum heat input rate for 8760 hours per year. Although some VOC/HAP/TAP emissions are associated with the combustion of natural gas, the vast majority are associated with the volatilized binder emissions.

Volatized binder emissions
VOC, HAP and TAP emission estimates are derived from emission factors based upon product mix as obtained from the 2020 Air Emissions Inventory.

PM/PM10/PM2.5 Emissions
The maximum capacity of the dryer (the bottleneck of the direct chop operation) is 5,000 pounds per hour, dry. EGFA estimates 4.6% of the dry process rate becomes generated waste, of which 2% is smaller than PM, thus 100 lb/hr of PM. Of this 1% is less than or equal to PM2.5 (or 1 lb/hr) and 1% is less than or equal to PM10 and greater

than PM2.5 (or 1 lb/hr). Since PM includes PM10 and PM10 includes PM2.5, the uncontrolled emission rates of PM/PM10/PM2.5 are 100, 2, and 1 lb/hr respectively.

On Form C8 the Permitee claims the venturi scrubber has removal efficiencies for PM/PM10/PM2.5 of 99.50, 99 and 90 % respectively. This level on control seems reasonable and comparable with the EPAs Air Pollution Control Technology Fact Sheet (EPA-452/F-03-017). Thus, estimates of controlled PTE for PM/PM10/PM2.5 are therefore 2.2, 0.44, and 0.44 tpy respectively.

Increased utilization of Furnace No. 524

Emissions associated with any increase in Furnace 524 utilization due to the addition of the new direct chop operation have been estimated using an actuals-to-projected actuals approach consistent with the PSD rule 15A NCAC 02D .0530.

The baseline period of October 2017 to September 2019 was used for all pollutants. Note that this baseline period extends beyond the normally allowed five-year lookback period. However, production in the last five years was skewed lower by the effects of the pandemic on facility closures, supply chain disruptions, and labor shortages. In 2022 and 2023, major EGFA customers took extended shutdowns for retooling and rebuilds and to rebalance the supply chain, causing EGFA to reduce production. Because of these conditions, the pre-pandemic period is most representative of typical operation. As allowed pursuant to 02D .0530(b)(1)(A), the DAQ concurs with this assumption and hence the baseline period is acceptable.

The following table provides a summary of this analysis.

Table III-1

Shelby Furnace 524 Direct Chop Line PSD Applicability Evaluation (Actuals to Projected Actuals Test)

Pollutant	Baseline Emission Factor (lb/ton)	Baseline Emission Factor Basis	Baseline Actual Emissions (ton/yr)	Future Emission Factor (lb/ton)	Future Emission Factor Basis	Projected Actual Emissions (ton/yr)	Current PSD Avoidance limits (ton/yr)	Potential Emissions from Direct Chop Line	Net Emission Change (tons/yr)	PSD Significant Emission Rate (tons/yr)
PM	0.81	2022 Compliance Test (Method 5&202) (See attached)	30.78	0.81	Assumed same as baseline.	32.92	72.33	2.30	4.45	25
PM_{10}	0.64	2022 compliance test for PM (assumes 75% of PM is PM10) (See attached)	24.50	0.64	Assumed same as baseline.	26.21	58.19	0.20	1.91	15
$PM_{2.5}$	0.48	2023 compliance test for PM (assumes 50% of PM is PM2.5) (See attached)	18.23	0.48	Assumed same as baseline.	19.50		0.55	1.82	10
NOx	2.24	2015 Compliance Test (Furnace 526)	85.30	2.24	Assumed same as baseline.	91.24	91.2	1.49	7.43	40
VOC	1.95E-02	AP-42 Table 1.4-2 for NG combustion: 5.5 lb/mmscf.	0.74	1.95E-02	Assumed same as baseline.	0.79		0.09	0.14	40
CO	0.50	AP-42 Table 11.13-4	19.04	0.50	Assumed same as baseline.	20.37		1.25	2.58	100
CO_2	84.07	Estimate (see attached GHG sheet)	3201.70	84.07	Assumed same as baseline.	3,425		1,788	2011.44	75,000
SO_2	0.58	Mass balance from 2022 + 0.6 lb/mmscf from combustion of NG.	22.11	0.581	Assumed same as baseline.	23.65	114.4	0.01	1.55	40
Fluoride	0.03	Mass balance from 2022	0.95	0.03	Assumed same as baseline.	1.02			0.07	3.0
Lead	1.77E-06	AP-42 Table 1.4-2 for nat gas combustion: 0.0005 lb/mmscf.	6.75E-05	1.77E-06	Assumed same as baseline.	7.22E-05		7.44E-06	1.21E-05	0.6

Furnace 524 Pull Rates:

Average 2 year historical pull rate (October 2017 - September 2019):	**76,163**	**tpy**
Permitted pull rate:	**18,600**	**lb/hr**
Potential production @ permitted pull rate of 18,600 lb/hr & 8,760 hr/yr:	**81,468**	**tpy**
Furnace average natural gas consumption:	**193.00**	**mmscf/yr (2022)**
Gas heat content:	**1030**	**Btu/scf**
Furnace production used to convert gas factors to glass production factors:	**54,453**	**tpy (2022)**

For projected actuals associated with the furnace, EGFA claims to be using potential emissions. However, EGFA is just asserting the same emission factors before and after the project (a reasonable assumption since no changes are being made to the furnace) and multiplying them by the maximum permitted glass pull (production) rate. Note the furnace on a 2-year average basis is operating at approximately 93 % of its permitted capacity. Thus, any increases in emissions from increased utilization are relatively small. Note EGFA did not exclude any emissions that are allowed by 40 CFR 51.166(b)(40(ii)(c). Such emissions are commonly known as “product demand growth” or “existing ability to accommodate” emissions.

To arrive at the final project emissions increase, EGFA then added all aspects of the project together, which appears in the column "net emissions change" in the table above. Implications with respect to PSD will be discussed in Section IV below.

The following tables shows the increase in VOC/HAP/TAP emissions associated with the project.

Table III-2

Furnace 524 Direct Chop Dryer Potential Combustion Emissions Increase

Direct Chop Dryer	Dryer ID#	Max N. Gas Usage (scf/hr)	Max Natural Gas Usage (mmscf/yr)
F524 Direct Chop	ES382	3,398	29.8

Criteria Pollutant	Emission Factor (lb/mmCF)	Emission Factor Reference	Emissions (lb/hr)	Emissions (ton/yr)
Carbon monoxide (CO)	84.00	AP-42, Table 1.4-1	2.85E-01	1.25
Carbon dioxide (CO2)	1.20E+05	40 CFR 98 Table C-1	408.32	1788.44
Lead (Pb)	5.00E-04	AP-42, Table 1.4-2	1.70E-06	7.44E-06
Nitrogen oxides (NOx)	100.00	AP-42, Table 1.4-1	3.40E-01	1.49
Sulfur dioxide (SO2)	0.60	AP-42, Table 1.4-2	2.04E-03	0.01
Volatile organic compounds (VOC)	5.50	AP-42, Table 1.4-2	1.87E-02	0.08

Toxic Air Pollutant	Emission Factor (lb/mmCF)	Emission Factor Reference	Emissions (lb/hr)	Emissions (ton/yr)
Arsenic	2.00E-04	AP-42, Table 1.4-4	6.80E-07	2.98E-06
Benzene	2.10E-03	AP-42, Table 1.4-3	7.14E-06	3.13E-05
Beryllium	1.20E-05	AP-42, Table 1.4-4	4.08E-08	1.79E-07
Cadmium	1.10E-03	AP-42, Table 1.4-4	3.74E-06	1.64E-05
Chromium	1.40E-03	AP-42, Table 1.4-4	4.76E-06	2.08E-05
Formaldehyde	7.50E-02	AP-42, Table 1.4-3	2.55E-04	1.12E-03
Hexane	1.8	AP-42, Table 1.4-3	6.12E-03	2.68E-02
Manganese	3.80E-04	AP-42, Table 1.4-4	1.29E-06	5.66E-06
Nickel	2.10E-03	AP-42, Table 1.4-4	7.14E-06	3.13E-05
Toluene	3.40E-03	AP-42, Table 1.4-3	1.16E-05	5.06E-05

Table III-3

VOC/HAP/TAP emissions increase from the volatilized binder in the new dryer

Dryer	ID#	Potential Glass Drying Rate			
		Wet		Dry	
		(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
F524 Direct Chop	ES382	5,600	24,528	5,000	21,900

Dry glass rates assume 12% moisture.

Binder Emissions

Pollutant Name	Pollutant Classification	Emission Factor (lbs/ton glass)	Potential Glass Drying Rate - dry (lb/hr)	Potential Emissions (lb/hr)	Potential Glass Drying Rate - dry (ton/yr)	Potential Emissions (ton/yr)
Acetic Acid	VOC, TAP	1.48E-04	5,000	3.70E-04	21,900	1.62E-03
Phosphine	HAP, TAP	7.85E-07	5,000	1.96E-06	21,900	8.59E-06
1,4-Dioxane	VOC, HAP, TAP	2.90E-08	5,000	7.24E-08	21,900	3.17E-07
1-Methoxy-2-propanol	VOC	1.08E-07	5,000	2.69E-07	21,900	1.18E-06
Ethanol	VOC	2.48E-04	5,000	6.19E-04	21,900	2.71E-03
Isopropanol	VOC	3.19E-06	5,000	7.99E-06	21,900	3.50E-05
Propylene Oxide	VOC, HAP	4.26E-09	5,000	1.07E-08	21,900	4.67E-08
Hexachlorbenzene	VOC, HAP	1.63E-09	5,000	4.08E-09	21,900	1.79E-08
Methanol	VOC, HAP	4.49E-05	5,000	1.12E-04	21,900	4.92E-04
Acetaldehyde	VOC, HAP, TAP	2.16E-08	5,000	5.39E-08	21,900	2.36E-07
Hydrazine	VOC, HAP, TAP	3.94E-09	5,000	9.85E-09	21,900	4.31E-08
Ammonia	TAP	9.75E-07	5,000	2.44E-06	21,900	1.07E-05
Ethylene Diamine	VOC, TAP	2.81E-07	5,000	7.02E-07	21,900	3.07E-06
Toluene	VOC, HAP, TAP	1.12E-08	5,000	2.80E-08	21,900	1.23E-07
Formaldehyde	VOC, HAP, TAP	6.17E-10	5,000	1.54E-09	21,900	6.75E-09
Epichlorohydrin	VOC, HAP, TAP	3.61E-13	5,000	9.04E-13	21,900	3.96E-12
Ethylene Oxide	VOC, HAP, TAP	7.72E-09	5,000	1.93E-08	21,900	8.46E-08
Diallyl Phthalate	VOC	7.19E-08	5,000	1.80E-07	21,900	7.87E-07
Diacetone alcohol	VOC	6.61E-06	5,000	1.65E-05	21,900	7.23E-05
Total VOC		4.51E-04	5,000	1.13E-03	21,900	4.94E-03
Total HAP		4.58E-05	5,000	1.14E-04	21,900	5.01E-04

Emission factors are based upon product mix as obtained from the 2020 Air Emissions Inventory. There may be trace amounts of other pollutants present, depending upon the binder employed.

Further discussion of emissions will be made in the context of the applicable regulations discussed below.

IV. Regulatory Review

15A NCAC 02D .0515 PARTICULATES FROM MISCELLANEOUS INDSUTRIAL SOURCES

This rule applies to stacks, vents, or outlets emitting particulates from industrial processes with no other applicable standards. The allowable emission rate is in terms of pounds per hour and is calculated using the following equations:

For process rates up to 30 tons per hour: $E = 4.10(P)^{0.67}$
For process rates greater than 30 tons per hour: $E = 55.0(P)^{0.11} - 40$

Where: E = Allowable emission rate in pounds per hour
P = Process weight in tons per hour

The direct chop line and associated dryer are subject to this rule.

The direct cut line has a maximum nominal dry process rate of 5000 lb/hr or per the original application a total process rate of 5,600 lb/hr (2.8 tons per hour) to account for 12% water weight. Thus, using the first equation above the allowable emission rate is 8.2 lb/hr. The permittee estimates the controlled PM emissions of 0.5 lb/hr using wet venturi scrubbers with 99.5% removal efficiency for total PM. Note that only a removal efficiency of approximately 92% is necessary to show compliance with 02D .0515. Given the expected margin of compliance, no emissions testing for 02D .0515 will be required.

Note there are four existing direct chop operations permitted at Section 2.1 I of the permit. The monitoring recordkeeping and reporting requirements imposed on the new line will be the same as those for the existing lines.

Monitoring requirements will consist of the performance of inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there are no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

i. An annual visual inspection of the system ductwork and material collection unit for leaks; and
ii. An annual (for each 12-month period following the initial inspection) internal inspection of the system's structural integrity.

In addition, the Permittee will be required to maintain a minimum 80 gallon per minute flowrate for the scrubber. Recordkeeping for the results of the monitoring requirements and a semiannual summary report of the monitoring and recordkeeping requirements will also be required.

Compliance with this rule is expected.

15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

This regulation applies to any combustion source that emits sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances Emissions of sulfur dioxide from these sources shall not exceed 2.3 pounds per million Btu heat input. When determining compliance with this standard:

(1) the sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included;
(2) the sulfur dioxide formed or reduced as a result of treating flue gases with sulfur trioxide or other materials shall be included in the computation of emissions; and
(3) the determination of Btu input shall not include the contribution from any portion of fuels used exclusively to inflate the heat input value used to demonstrate compliance with the emission standard in Paragraph (a) of this Rule

SO_2 emissions originate from the firing of natural gas in the dryers. No SO_2 emissions are expected from the other aspects of the direct chop line. The SO_2 emissions from firing natural gas (all of which have an inherently low sulfur content) in this dryer are expected to be well below the allowable limit. Consistent with the existing direct chop operations and current DAQ policy, no testing, monitoring, recordkeeping, and reporting is required to demonstrate compliance with this standard. Compliance with this rule is expected.

15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS
This regulation applies to fuel burning operations and industrial processes where visible emissions can be expected to occur.

As these sources were "manufactured" after July 1, 1971, the visible emissions from these sources shall not be more than 20 percent opacity when averaged over a six-minute period except for the following exceptions:

Six-minute averaging periods may exceed 20 percent opacity if:
(1) no six-minute period exceeds 87 percent opacity;
(2) no more than one six-minute period exceeds 20 percent opacity in any hour; and
(3) no more than four six-minute periods exceed 20 percent opacity in any 24-hour period.

It is also worth noting that in most cases opacity is an indicator of PM emissions. It is also worth noting the difficulty of distinguishing opacity associated with the PM emissions vs the opacity associated with condensation of a saturated plume such as that expected from the venturi scrubber. The control device (scrubbers) in this case is very efficient and the monitoring, recordkeeping and reporting requirements imposed via 02D .0515 should keep the scrubber operating effectively. As seen in the discussion for 02D .0515 above, the controlled emissions are expected to be an order of magnitude less than those allowed by 02D .0515. Visible emissions associated with the combustion of natural gas or the volatilization of the VOC-containing binders (expected to be approximately .001 lb/hr of VOC) in this source is also expected to be very low.

Consistent with the monitoring, recordkeeping, and reporting imposed on the existing direct chop lines and current DAQ policy, no monitoring recordkeeping or reporting is required for the visible emissions from this new direct chop line. Compliance with this rule is expected.

15A NCAC 02D .0524: NEW SOURCE PERFORMANCE STANDARDS
(40 CFR Part 60 Subpart CC "Standards of Performance for Glass Manufacturing Plants")
This rule (with some exceptions) applies to glass melting furnaces that commence construction or modification after June 15, 1979. Furnace No. 524 is currently subject to this rule. The addition of the direct chop line will perhaps increase the utilization of the NSPS affected parts of the furnace, but no modifications are being made as a result of this project. The direct chop line is not an affected source. No further review is necessary.

15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION (PSD)
The facility is considered a PSD major source. See Section V below for additional discussion.

With respect to this current project EGFA submitted a "baseline to projected actual" emissions analysis to determine if a review pursuant to PSD is required. This analysis is fully discussed in Section III, Emissions Changes above. As seen in Section III, Table III-1 above, the emission increases for all regulated New Source Review (NSR) pollutants are below the respective PSD significant emission rates (SERs) and therefore PSD review is not triggered.

Consistent with 15A NCAC 02D .05030(u), since the projected actual emissions increases for all NSR pollutants are less than 50% of the amounts that would be considered a significant emissions increase (without reference to the amount that is a significant net emissions increase), no permit condition is required for monitoring, recordkeeping and reporting of the annual emissions related to the project.

15A NCAC 02D .0900 VOLATILE ORGANIC COMPOUNDS (VOCs)
15A NCAC 02D .0902 APPLICABILITY
The 02D .0900 Section of rules applies to sources that emit greater than or equal to 15 pounds of volatile organic compounds per day unless specified otherwise in this Section.

The facility is located in Cleveland County. Cleveland County is considered to be in attainment for all pollutants. Pursuant to 02Q .0902(e) the following rules apply statewide:

- 15A NCAC 02D .0925, Petroleum Liquid Storage in Fixed Roof Tanks, for fixed roof tanks at gasoline bulk plants and gasoline bulk terminals
- 15A NCAC 02D .0927, Bulk Gasoline Terminals
- 15A NCAC 02D .0928, Gasoline Service Stations Stage I
- 15A NCAC 02D .0932, Gasoline Cargo Tanks and Vapor Collection Systems
- 15A NCAC 02D .0933, Petroleum Liquid Storage in External Floating Roof Tanks, for external floating roof tanks at bulk gasoline plants and bulk gasoline terminals
- 15A NCAC 02D .094 VOC Emissions from Transfer Operations
- 15A NCAC 02D .0949, Storage of Miscellaneous Volatile Organic Compounds

None of these rules apply to the subject facility.

Pursuant to 02D .0902(f), (g), and (h), all 02D .0900 rules potentially apply to facilities in the following counties if they meet other certain criteria relating to the facility's status as being located in a moderate nonattainment or maintenance area for the 1997 8-hour ambient air quality standard for ozone and in one of the following areas.

- Cabarrus County
- Gaston County
- Lincoln County
- Mecklenburg County
- Rowan County
- Union County
- Davidson Township and Coddle Creek Township in Iredell County.

As Cleveland County is not on this list, rule applicability pursuant to 02D .0902(f), (g) and (h) does not apply. In summary, no 02D .0900 rules apply.

State enforceable only
15A NCAC 02Q .0700: TOXIC AIR POLLUTANT PROCEDURES
15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS

The regulations at 15A NCAC 02Q .0700 require, with some exceptions, a permit to emit any toxic air pollutant (TAP) at levels greater than the TAP permitted emission rate (TPER) specified in 15A NCAC 02Q .0711. These regulations include the procedural rules used to comply with the TAP control requirements found at 15A NCAC 02D .1100. 15A NCAC 02D .1104 contains Acceptable Ambient Levels (AALs) for each TAP. Generally, a facility must conduct a dispersion modeling analysis to demonstrate that each TAP emitted above its respective TPER will not result in the respective AAL being exceeded beyond the facility's premises. Collectively, these "toxics" rules are state-enforceable only and are not subject to the TV requirements found at 15A NCAC 02Q .0500.

The proposed modifications may result in slight increases in the potential emissions of several regulated hazardous air pollutants (HAPs) and toxic air pollutants (TAPs) that are primarily emitted from the binders applied to the glass. No increase in the HAPs or TAPs associated with combustion in the dryer will occur on a PTE basis since the dryer is simply being relocated and was included in the previous modeling demonstration. The same can be said for the binder emissions. The HAP/TAP emissions associated with the RWC No. 6 dryer will now be emitted from the new dryer of the new wet chop line.

A facility-wide TAP modeling demonstration was conducted in April 2020 and approved via a memo from the Air Quality and Analysis Branch (AQAB). The emission rates modeled were back-calculated from the Acceptable Ambient Levels (AALs). These modeled, back-calculated TAP emissions rates are higher than the expected post-modification rates. As a result, additional TAP modeling is not necessary at this time. No changes will be made to

the existing monitoring, recordkeeping, and reporting requirements. Continued compliance with this rule is expected.

V. NSPS, NESHAPS, PSD, Attainment Status, 112(r), Toxics and CAM

NSPS
The changes made at the facility do not result in any new NSPS applicability.

Furnaces
Three furnace melters (ID Nos. 520M, 524M, 526M) are subject to NSPS Subpart CC "Standards of Performance for Glass Manufacturing Plants." However, no changes are being made to the furnaces. The direct chop line is not an affected source. See discussion in Section IV above.

Engines
One emergency engine (ID No. ESDP93) is subject to NSPS Subpart IIII "New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines."

NESHAP/MACT
The changes made at the facility during this modification do not result in any new NESHAP/MACT applicability. The facility is a major source of HAP and produces continuous strand fiberglass (SIC 3229). However, the facility is not subject to:

- 40 CFR 61 Subpart N National Emission Standard for Inorganic Arsenic Emissions from Glass Manufacturing Plants;
- 40 CFR 63 Subpart NNN "National Emission Standards for Wool Fiberglass Manufacturing"; nor
- 40 CFR 63 Subpart HHHH "National Emission Standards for Wet-Formed Fiberglass Mat Production."

Also given the facility is a major source for HAP the furnaces are not subject to any area source MACT including:

- 40 CFR 63 Subpart SSSSSS - "National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources."

Engines
All internal combustion engines are subject to HAP major source requirements under 40 CFR 63 Subpart ZZZZ "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines."

Boilers and drying ovens
All boilers and natural gas-fired drying ovens and vaporizer are subject to 40 CFR 63 Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters".

PSD
Cleveland County is in attainment for all pollutants.

For major stationary sources located in areas designated as attainment with respect to a specific regulated NSR pollutant, the requirements of the PSD program (40 CFR Part 51.166, as incorporated into 15A NCAC 02D .0530) apply. Major stationary sources are those sources with a potential to emit (as defined at 40 CFR 51.166(b)(4)) of a regulated New Source Review (NSR) pollutant of either: 100 tons per year or more if the source is listed in 51.166(b)(1)(i)(a); or 250 tons per year or more otherwise. The subject facility is one of the stationary sources listed under 51.166(b)(1)(i)(a) (i.e., a "glass fiber processing plant") and is therefore in the "100 ton per year" category. It is considered an existing major stationary source under PSD for several regulated NSR pollutants including PM/PM10/PM2.5, Fluorides, NOx and SO_2.

The current modification does not trigger PSD review. See Section IV for full discussion of PSD with respect to the current modification.

Attainment Status
The following are the minor source baseline dates for Cleveland County.

Cleveland	PM_{10}	04/30/1979	PPG
	SO_2	02/10/1978	PPG
	NO_X	04/21/2008	Cleveland Co. Generating Facility
	$PM_{2.5}$	08/01/2014	Kings Mountain Energy Center

From Table III in Section III above, the potential emissions increase of these pollutants on an hourly basis are (assuming 8760 hours of operation per year):
PM2.5 1.82 tpy or 0.42 lb/hr
PM10 1.91 tpy or 0.44 lb/hr
SO2 1.55 tpy or 0.35 lb/hr
NOx 7.43 tpy or 1.70 lb/hr

These emission rates will be included in the permit cover letter for increment tracking purposes.

Toxics
See discussion in Section IV above.

CAM
15A NCAC 02D .0614 implements the federal rule "Compliance Assurance Monitoring" (CAM) at 40 CFR Part 64. The CAM rule requires owners and operators at a facility with a Title V permit to conduct monitoring to provide a reasonable assurance of compliance with applicable requirements. Monitoring focuses on emissions units that rely on pollution control device equipment to achieve compliance with applicable standards. Applicability is addressed at 02D .0614(a), which states:

> (a) General Applicability. Except as set forth in Paragraph (b) of this Rule, the requirements of this Paragraph shall apply to a pollutant-specific emissions unit at a facility required to obtain a permit pursuant to 15A NCAC 02Q .0500 if the unit:
> (1) is subject to an emission limitation or standard for the applicable regulated air pollutant, or a surrogate thereof, other than an emission limitation or standard that is exempt pursuant to Subparagraph (b)(1) of this Rule;
> (2) uses a control device to achieve compliance with any such emission limitation or standard; and
> (3) has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this Subparagraph, "potential pre-control device emissions" means the same as "potential to emit" as defined in 15A NCAC 02Q .0103, except that emission reductions achieved by the applicable control device shall not be taken into account.

Note that a pollutant-specific emissions unit (PSEU) is defined in at 40 CFR 64.1 as an emissions unit considered separately with respect to each regulated air pollutant. Also note that TAPs are not considered regulated air pollutants as defined at 40 CFR 64.1 and hence not subject to CAM.

The new direct chop operation will use a control device (i.e., the scrubber) to comply with 02D .0515. Although the source has an uncontrolled PTE for PM greater than 100 tpy (438 tpy), its uncontrolled PTE emissions of PM10 and PM2.5 are well below the 100 tpy criteria at 02D .0614 (a)(3) (8.76 and 4.38 tpy respectively). Note only PM10 and PM 2.5 are applicable regulated air pollutants under 02D .0614.

Hence CAM does not apply to new direct chop line.

112r - Risk Management Program (RMP) (15A NCAC 2D .2100)
The Permittee is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in 112(r).

VI. Compliance History

As stated in the compliance inspection report conducted by Amir Stewart of the MRO on August 31, 2023:

Based on my observations during this inspection, this facility appeared to be in compliance with the applicable air quality regulations.

The following compliance history was also contained the inspection report.

Compliance history since 2018:

- A Notice of Deficiency (NOD) was issued to the facility on August 9, 2018, for failure to record visible emission observations for baghouses (ID Nos. DC124 through DC127, and DC153, and DC154)
- A Notice of Violation (NOV) was issued to the facility on February 11, 2022, for failure to conduct annual maintenance on 7 water pumps and a blower in 2021. This NOV was resolved on March 2, 2022.
- A Notice of Violation (NOV) was issued to the facility on December 12, 2023, for not complying with Air Permit No. 01958T68, Specific Conditions 2.1.C.5.g and 2.1.D.6.g [40 CFR 60.293(c) of 40 CFR Part 60, Subpart CC]. A response to this NOV has yet to be received by the DAQ and therefore this NOV is still unresolved at the time of this review.

VII. Changes Implemented in Revised Permit

Page No.	Section	Description of Changes
NA	Cover letter	• Updated cover letter to current shell standards
4	Section 1	• Removed reference to RWC line no. 6 (ID No. ESWCL372) and the associated scrubber (ID No. CDWC372) • Added reference to the new direct chop line (ID No. ES382) and associated scrubber (ID no. EC382) • Added 02Q .0501(b)(2) modification footnote
45	Section 2.1 I	• Revised all conditions to current DAQ permitting "shell" standards. • In Section 2.1 I.1.f (the 02D .0515 reporting condition), removed reference to cyclones. All cyclones addressed in this section of the permit were removed in permit revision no. T51. • Added reference to new direct chop line (ID No. ES382) and associated scrubber (ID no. EC382) • Added conditions to address the applicable regulations for the new direct chop line (ID No. ES382) and associated scrubber (ID no. EC382). As this source was added via 02Q .0504, it is not considered a TV modification. As such the overarching regulatory authority is 15A NCAC 02Q .0308(a). • Added permit application submittal and startup notification requirements for the modification addressed in the current application no. 2300153.23B (the new direct chop line and associated scrubber) pursuant to 15A NCAC 02Q .0504 and 15A NCAC 02Q .0501(b)(2).
74	Section 2.1 R	• Removed reference to RWC line no. 6 (ID No. ESWCL372) and the associated scrubber (ID No. CDWC372)
85	Section 2.2 C.1	• 02D .1100 toxics condition • Removed reference to RWC line no. 6 (ID No. ESWCL372) from Table 2.2 C.1
91	Section 3	• No changes

Page No.	Section	Description of Changes
94	Section 4 General Conditions	• No changes

VIII. Public Notice/EPA and Affected State(s) Review

The application is being processed pursuant to 15A NCAC 02Q .0501(b)(2) and 02Q .0504. Pursuant to 02Q .0504, the permitting procedures under 02Q .0300 will be followed. As such no public notice or EPA review procedures apply. Pursuant to 02Q .0504(d), the Permittee shall have one year after the startup of the direct chop line (ID No. ES382) after the modifications described in Application No. 2300153.23B occur to submit an amended application following the procedures under 02Q .0500, namely the Title V significant modification procedures under 02Q .0516. The modification at that point will be subject to the public notice and the EPA and affected state review procedures.

IX. 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:

(1) design;
(2) determination of applicability and appropriateness; or
(3) determination and interpretation of performance of air pollution capture and control systems.

A PE Seal was not required for this permitting as it met the following exemption at 02Q .0112(b)(4):

(b) The requirements of Paragraph (a) of this Rule shall not apply to the following:
* * *
(4) particulate emission sources with air flow rates of less than or equal to 10,000 actual cubic feet per minute (ACFM);

As indicated on Form C8 for the control device, with is primarily a PM control device, the airflow rate is less than 10,000 ACFM.

X. Zoning

A zoning consistency determination is required pursuant to 15A NCAC 02Q .0304(b) if the air permit application involves a new facility or the expansion of an existing facility.

Consistent with 15A NCAC 02Q .0304(b)(1)(A), the application included a response from Audrey Godfrey, Senior Planner City of Shelby Planning Services Department, dated November 7, 2023, stating "the proposed operation is consistent with applicable zoning ordinances."

XI. Recommendations

This permit application has been reviewed by NC DAQ to determine compliance with all procedures and requirements. NC DAQ has determined that this facility appears to be complying with all applicable requirements except as noted in Section VI above.

The Mooresville Regional Office has received a copy of this permit and had no comments.

NC DAQ recommends issuance of the revised permit (Permit No. 01958T69).

Attachment 2 to Review of Application 2300153.24B

Appendix C to 40 CFR Part 60 - Determination of Emission Rate Change

Parameters	Pre-mod test (2022-047ST) (Set *a*)	Post-mod test (2024-129ST) (Set *b*)
Glass production rate, lb/hr *For informational purpose only*	9,660	11,715
Individual test run results, lb_{PM}/hr (E_i)	3.77	5.34
	5.17	5.64
	5.02	5.23
Sample count n (n_a and n_b)	3	3
Step 3.2: Arithmetic mean E, (E_a and E_b)	4.65	5.40
For a and b, for each E_i, $(E_i - E)^2$	0.7744	0.0036
	0.2704	0.0576
	0.1369	0.0289
Step 3.3: For a and b, S_a^2 and S_b^2 $S^2 = \frac{\sum(E_i - E)^2}{n-1}$	0.5909	0.0450
Step 3.4: $S_p = \left[\frac{(n_a-1){S_a}^2 + (n_b-1){S_b}^2}{n_a+n_b-2}\right]^{1/2}$	0.5639	
Step 3.5: $t = \frac{E_b - E_a}{S_p\left[\frac{1}{n_a}+\frac{1}{n_b}\right]^{1/2}}$	1.6289	
Table 1 to Appendix C: t' for Degrees of Freedom (n_a+n_b-2=4)	2.132	
Results (Step 4.1): If $Eb > Ea$ and $t > t'$, a statistically significant increase in emission rate has occurred	$Eb > Ea$, but $t < t'$ Therefore, a statistically significant increase in emission rate has <u>not</u> occurred	