

**NORTH CAROLINA DIVISION OF
AIR QUALITY
Application Review**

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

Issue Date: TBD

<p style="text-align: center;">Facility Data</p> <p>Applicant (Facility's Name): Electric Glass Fiber America, LLC</p> <p>Facility Address: Electric Glass Fiber America, LLC 940 Washburn Switch Road Shelby, NC 28150</p> <p>SIC: 3229 / Pressed And Blown Glass, Nec NAICS: 327212 / Other Pressed and Blown Glass and Glassware Manufacturing</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>	<p style="text-align: center;">Permit Applicability (this application only)</p> <p>SIP: 02D .0530, 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</p>
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Contact Data			Application Data
<p style="text-align: center;">Facility Contact</p> <p>Brigette Tinsley EHS Supervisor (704) 434-2261 940 Washburn Switch Road Shelby, NC 28150</p>	<p style="text-align: center;">Authorized Contact</p> <p>Todd Douthit Plant Manager 940 Washburn Switch Rd Shelby, NC 28150</p>	<p style="text-align: center;">Technical Contact</p> <p>Brigette Tinsley EHS Supervisor (704) 434-2261 940 Washburn Switch Road Shelby, NC 28150</p>	<p>Application Number: 2300153.24A Date Received: 04/08/2024 Application Type: Modification Application Schedule: TV-Sign-501(b)(2) Part II</p> <p style="text-align: center;">Existing Permit Data</p> <p>Existing Permit Number: 01958/T70 Existing Permit Issue Date: 04/01/2024 Existing Permit Expiration Date: 03/31/2029</p>

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)]

<p>Review Engineer: Russell Braswell</p> <p>Review Engineer's Signature: _____ Date: _____</p>	<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 01958/T71 Permit Issue Date: TBD Permit Expiration Date: March 31, 2029 (no change)</p>
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1. Purpose of Application

Electric Glass Fiber America, LLC (EGFA; the facility) operates a factory in Cleveland County under Title V permit 01958T70 (the existing permit). The existing permit includes Specific Conditions 2.1 C.6 and 2.1 C.10, each of which requires EGFA to submit a Title V application for significant modification within 12 months of completing upgrades to Furnace 525. EGFA has completed those upgrades and resumed operation of Furnace 525 and has therefore submitted this application to satisfy Specific Conditions 2.1 C.6 and 2.1 C.10.

2. Application Chronology

Date	Event
April 8, 2024	Application received.
April 19, 2024	An initial internal draft of the permit and this application review were sent to DAQ Permits Section staff.
April 24, 2024	Response received to April 19 draft.
April 25, 2024	A revised draft of the permit and this application review were sent to EGFA staff, DAQ SSCB staff, and DAQ MRO staff.
April 26, 2024	Response received from DAQ MRO staff to the April 25 draft.
May 2, 2024	No other responses received to the April 25 draft.
XXXX	Public notice / EPA review
XXXX	Public notice ends
XXXX	EPA review ends
XXXX	Permit issued.

3. Discussion

3.1 Two-step significant modifications (15A NCAC 02Q .0501(b)(2))

Background: As allowed by 15A NCAC 02Q .0501(b)(2) and 02Q .0504, a facility may apply for a significant modification of a Title V permit using a two-step process. The first step is submitted pursuant to 02Q .0300 (*i.e.*, a non-Title V permit application) and the second step is submitted pursuant to 02Q .0500. If a facility elects to use the two-step process, the facility must submit the second permit application within 12 months of commencing operation of the modified facility.

Applicability: EGFA has recently used the two-step process to modify the Title V permit three times. As a result, the existing permit includes three separate requirements to submit a second-step application. Two of these requirements are applicable to Furnace 525, and the other is applicable to direct chop line ES382. EGFA has not yet begun operation of ES382, and therefore that requirement will not be addressed in this application review, and that requirement will remain in the new Title V permit.

Discussion: In application .18A, EGFA applied to make modifications and upgrades to Furnace 525. DAQ approved the application and issued Title V permit revision 01958T65 (issued September 18, 2018). This permit revision included a specific condition that required EGFA to submit a second application for permit modification.

Before resuming operations of Furnace 525 as applied-for in application .18A, EGFA submitted an additional application (.23A). This application requested additional modifications and upgrades to Furnace 525. DAQ approved the application and issued Title V permit revision 01958T68 (issued August 23, 2023). This permit revision included an *additional* specific condition that required EGFA to submit a second application for permit modification.

In this current application (.24A), EGFA explains that no additional modification to applications .18A and .23A are required. DAQ's review of the applications .18A and .23A, including a review of emission calculations and regulatory applicability, are included with this review as Attachment 1 and Attachment 2, respectively.

Application deadline: In the current application, EGFA states that Furnace 525 resumed operation on March 19, 2024. Therefore, this application was submitted within the 12-month time limit required by 02Q .0504.

Changes to the existing permit: Now that EGFA has satisfied the application submittal requirements of Specific Conditions C.6 and 2.1 C.10, those conditions can be removed from the Title V permit. Furthermore, regulatory citations in Section 2.1 C of the permit can all be updated to 02Q .0508(f) because EGFA has completed the two-step process for Furnace 525.

3.2 Use of projected actual emissions to avoid Prevention of Significant Deterioration (PSD) (15A NCAC 02D .0530(u))

Background: A facility that is a major stationary source for PSD may show that a proposed modification is not a PSD major modification using the baseline to projected actual emissions method in 15A NCAC 02D .0530(u). EGFA used this method in both the .18A and .23A applications for modifying Furnace 525.

Applicability: When a facility uses the projected actual emissions method, the projected actual emissions are included in the permit. The Facility must keep records of actual emissions to compare to the projections

for a period of five years after the modified sources resume operation. The existing permit includes the projected actual emissions for both the .18A and .23A applications.

See Attachment 1 and Attachment 2 for DAQ's reviews of the .18A and .23A applications.

Changes to the existing permit: In application .23A, the projected emissions in the .18A application were increased, making the projections from the .18 application irrelevant. Furthermore, the recordkeeping and reporting period for both applications will be the same. Therefore

- The projected emissions from the .18A application have been removed from the permit because they were superseded by the .23A application.
- The specific conditions for 02D .0530(u) for Furnace 525 have been streamlined into a single condition.
- The five-year reporting and recordkeeping period for Furnace 525 have been added to the permit.

3.3 Modification under 40 CFR Part 60 (NSPS)

Background: In general, if a facility makes a modification to an emission source that causes an increase in emission rates, that emission source is considered "modified" under 40 CFR 60.14 (NSPS). The existing Furnace 525 is currently not considered a modified source under NSPS. If it were, the furnace would be subject to NSPS Subpart CC.

Discussion: The project to rebuild Furnace 525 discussed in application .23A could constitute a modification per the definition in 40 CFR 60.14(a). However, EGFA argued that the project would not cause an increase in emission rates, and therefore would not be a modification. In order to verify that claim, DAQ added Specific Condition 2.1 C.9 to the 01958T68 revision of the Title V permit, which requires EGFA to test Furnace 525 within 180 days of the resumption of operations of the furnace. If the results of the required test show an increase in emissions (*i.e.*, Furnace 525 is a modified source under NSPS), then EGFA must also submit an application to incorporate the requirements of NSPS Subpart CC into the Title V permit.

According to the current application, Furnace 525 resumed operation on March 19, 2024. Therefore, EGFA must conduct the test on or before September 15, 2024.

Changes to the existing permit:

- The specific date by which testing is required has been added to the permit.
- Specific Condition 2.1 C.9 has been renumbered to C.7 and has been split into individual paragraphs for clarity. This change is only for clarity and is not intended to affect EGFA's compliance requirements.

3.4 Changes to the existing permit

The following changes were made to the existing Air Permit No. 01958T70:*

Page No.	Section	Description of Changes
Throughout	Throughout	• Updated dates and permit numbers.

Page No.	Section	Description of Changes
9	1.	<ul style="list-style-type: none"> Removed references to requirement to submit a 2nd-step application for Furnace 525 because the Permittee has completed that requirement. Note that the requirement is still in place for ES382.
23	2.1 C	<ul style="list-style-type: none"> Changed rule citations from 02Q .0308(a)(1) to 02Q .0508(f) because the Permittee has submitted the appropriate Title V permit application.
n/a	2.1 C.6 (former)	<ul style="list-style-type: none"> Combined this specific condition with 2.1 C.8 because the reporting periods for these conditions are the same. The recordkeeping and reporting in that section will satisfy the 02D .0530(u) requirements for both the .18A and .23A applications.
26	2.1 C.6 (new)	<ul style="list-style-type: none"> Replaced old section C.6 with old section C.8 Noted dates that recordkeeping and reporting begins and ends. Added reference to the .18A application. The recordkeeping and reporting in this section will satisfy the 02D .0530(u) requirements for both the .18A and .23A applications.
n/a	2.1 C.7 (former)	<ul style="list-style-type: none"> Removed this condition because the Permittee has satisfied the requirement to submit a permit application.
27	2.1 C.7 (new)	<ul style="list-style-type: none"> Replaced old section C.7 with old section C.9. Reformatted this condition to include individual paragraphs. This change is only for clarity and is not intended to affect the Permittee's compliance requirements. Added noncompliance statement. Added a specific due date for this test (September 15, 2024, <i>i.e.</i>, 180 days after March 19, 2024).
56	2.1 L.3	<ul style="list-style-type: none"> Corrected typo (reference to "daily" monitoring, should always have been "monthly").
65	2.1 O.3.h	<ul style="list-style-type: none"> Corrected typo (incorrect section cross reference).

* 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 31, 2023, by Amir Stewart. EGFA appeared to be in compliance with the Title V permit at that time.
- In the previous five years, 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: Applications for the second step of a two-step significant modification only require an application fee if the first step was received before November 18, 2021. Application .18A was received before that date, and therefore EGFA submitted the appropriate fee for this 2nd-step application (.24A).

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 some air permit applications. Any need for a PE Seal was addressed with the .18A and .23A applications.

Zoning Consistency Determination: Pursuant to 15A NCAC 02Q .0507(d), a zoning consistency determination is required for some air permit applications. Any need for a zoning consistency determination was addressed with the .18A and .23A applications.

5. 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 second-step application 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 second-step application will not affect EGFA's status as a major source of HAP.

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 second-step application will not affect EGFA's status as a major stationary source for PSD.

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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 April 19, 2024. Comments were received on April 24, 2024. The comments pointed out typos in the draft permit and application review.

Subsequent draft: A revised draft of the permit and this application review were sent to DAQ MRO staff, DAQ SSCB staff, and EGFA staff on April 24, 2024.

- MRO Comment: The 02D .0530(u) recordkeeping starts: “first year shall start on the first day of the first full calendar month after the startup of Furnace 525”. Wouldn’t this imply the recordkeeping must start on April 1, 2024, instead of the day after startup, March 20, 2024?

Response: The recordkeeping should begin April 1, 2024. The draft permit will be corrected.

- No responses from EGFA or DAQ SSCB staff were received.

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. 01958T71. MRO, SSCB, and EGFA have received a copy of this permit and submitted comments that were incorporated as described in Section 6.

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Attachment 1: Application Review for 2300153.18A

Page numbers in this attachment may differ from the original document due to formatting differences.

<p>Review Engineer: Joseph Voelker</p> <p>Review Engineer's Signature: Date:</p> <p><i>[signed by Joe Voelker on the permit issue date]</i></p>	<p><u>Comments / Recommendations:</u></p> <p>Issue 01958/T65</p> <p>Permit Issue Date: 09/18/2018</p> <p>Permit Expiration Date: 01/31/2021</p>
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I. Introduction and Purpose of Application

The Electric Glass Fiber America, LLC facility, a Nippon Electric Glass (NEG) company manufactures fiberglass for use in a variety of applications including automotive production, cellular telephone production and ballistics (blast protection).

The Permittee had originally submitted an applicability determination (no. 3257) to determine if a permit was required to make changes to certain parts of furnace no. 525. The DAQ concluded that a permit application was required to include a 02D .0530(u) recordkeeping condition to avoid the applicability of PSD permitting requirements.

The application will be processed as the first-step of the two-step permitting process pursuant to 15A NCAC 02Q .0504.

Also during this application, changes to the permit made pursuant to a 502(b)(10) notification form received on September 26, 2016 will be addressed.

Date	Description
09/26/2016	A 502(b)(10) notification form was received by the DAQ.
09/28/2016	A 502(b)(10) notification acknowledgement letter was sent to the Permittee
05/09/2018	An applicability determination request was received and assigned no. 3257
05/29/2018	An email was sent to the Permittee stating that the DAQ determined that the potential emissions calculations supplied were not conclusively "potential emissions." As such, the DAQ opined that the permit needed to be revised to include a 02D .0530(u) recordkeeping requirement.
06/01/2018	A permit application was received and assigned app no. 2300153.18A
06/21/2018	Draft permit sent to Permittee and region
07/09/2018	An email was sent to permittee stating that the request to revise section 2.2 D.1 monitoring, recordkeeping and reporting should be initiated by the responsible official
08/13/2018	Comments received from the Permittee
08/28/2018	An email was received from the RO requesting changes to Section 2.2 D.1 monitoring, recordkeeping and reporting
09/11/2018	Revised draft sent to Permittee.
09/13/2018	Revised comments received from the Permittee and the regional office. The DAQ did not implement all the suggested revisions of the 08/13/2018, 08/28/2018 and 09/13/2018 emails. Mr. Voelker sent an email to request further discussion. This conversation did not occur.
09/17/2018	An email was received stating: please issue the permit. No further discussions needed on the fluoride mass balance conditions.

II. Modification Description

Furnace No. 525 forehearth project

On May 09, 2018, EGFA submitted an applicability determination request that stated the following:

Pursuant to 15A NCAC 02Q .0111 Electric Glass Fiber America, LLC, a Nippon Electric Glass (NEG) company and formerly PPG Industries Fiber Glass Products, Inc., requests a determination as to whether the changes described herein require a revision to the current air quality permit. NEG owns and operates a fiber glass production facility in Shelby, NC. The facility operates under Title V permit No. 01958T64, issued on Oct. 30, 2017. NEG desires to replace and refurbish components of the forehearth section of furnace No. 525 in the third quarter of 2018.

No change to the current, permitted furnace pull rate of 15,822 lb glass/hr will result from this project. The project will include:

- Replacement of forehearth tub and refractory;
- Refurbishment of the natural gas train for the affected forehearth;
- Installation of (15) sliver positions (transformers, applicators, sheet metal, strand hardware);
- Installation of choppers and product conveyors;
- Installation of packout stations for totes;
- Refurbishment of HVAC system;
- Installation of replacement chiller;
- Installation of associated controls; and,
- Relocation of QC Lab to old Roving area lab

In an email received on May 17, 2018, the consultant for the facility elaborated on the extent of the modification. The email states:

In response to the third question below, the purpose of the project is to rebuild the 525 furnace and forehearth and bring an inoperable leg of the forehearth back into production. The product will not change. The glass will still be wet chopped at the furnace. The furnace utilization will likely increase, but there is no downstream glass processing of the glass, so there will be no downstream emission increase.

502(b)(10) notification

On September 26, 2016 a 502(b)(10) notification form was submitted that stated the following:

The facility has eight fiberglass drying ovens on its permit that are no longer operational. These units have not operated in several years and have been abandoned in place and removed from the facility asset list. These sources will not be operated again. PPG requests that these ovens be removed from the permit. The ovens to be removed are the Michigan Drying Ovens (ES 1-5, and ES 9-11).

This is a straightforward request. The sources will be removed from the permit.

III. Regulatory Review

Furnace No. 525 forehearth project

The furnace, which consists of the melter, refiner and forehearths, is subject to the following regulations and limitations:

- **15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES**
- **15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES**
- **15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS**
- **15A NCAC 02D .1100 TOXIC AIR POLLUTANTS**
- **Fluoride limit imposed by SOC (2002-002) pursuant to NCGS 143-215.108(c)**

The changes made to the furnace are not expected to result in an increase in any hourly emissions. Therefore, no changes are needed to the permit conditions that address the regulations and limitations above. The changes resulting from this project, however, may result in the increased utilization of the furnace and for that reason PSD applicability needs to be reviewed.

15A NCAC 02Q. 0317: AVOIDANCE CONDITIONS for 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION

A PSD avoidance condition for this furnace already exists in the permit for a prior project. The emission limits are as follows:

Pollutant	Emissions Limitation
sulfur dioxide	164.69 tons per consecutive 12-month period
particulate matter	81.63 tons per consecutive 12-month period
PM-10	71.63 tons per consecutive 12-month period
nitrogen oxides	100 tons per consecutive 12-month period
carbon monoxide	114.55 tons per consecutive 12-month period

The emissions (i.e., maximum utilization combined with “expected” emission factors) of the furnace after the project are expected to be well below these thresholds. Thus, compliance with this avoidance condition is expected. However, the “project” itself needs to be reviewed for PSD applicability.

15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION

Since this project is expected to increase utilization of the furnace, PSD applicability for the project must be reviewed. The Permittee supplied a baseline to potential emissions analysis. For the baseline period of January 2016 through December 2017 for all pollutants, the average annualized pull rate was 41,921 tpy. The potential annualized pull rate is 69,300 tpy (i.e., 15,822 lb/hr* 8,760 hr/yr). The table below summarizes the analysis (Table 1).

Upon review, the DAQ, the determined that the analysis was not representative of potential emissions, notably for NOx, PM/PM10/PM2.5. The PM emission factors used were based on the most recent source test and did not include PM10 or PM2.5. Additionally, previous source tests suggest higher PM emission rates are possible. For NOx, the emission factor was for a different furnace and did not include contributions of NOx from the refiner and forehearth burners. A review of other furnace data also suggests that higher NOx emission factors are possible.

Although the DAQ did not agree that these data are representative of potential emission estimates, it appears likely that the facility could rely upon tracking actual emissions to avoid PSD review. To this end, a 02D .0530(u) recordkeeping requirement will be placed into the permit. The Permittee will be required to perform source testing on the furnace melter to verify the PM/PM10/PM2.5 and NOx emission factors to be used for the projected actual emissions recordkeeping. Since it is unlikely that the project will result in a change in emission factors for the melter, it is reasonable to assume the emission factors before and after the project are the same. Thus, PSD would be triggered only if the project resulted in a large enough increase of furnace utilization.

For PM, note that the refiner and forehearth emission factors are assumed to be 10% of the total furnace emissions and the melter is equal to 90% of the total furnace emissions. This ratio was established in previous permitting exercises based on older stack test data for the refiner and forehearth stacks. This ratio was established to minimize source testing requirements for the refiner and forehearth whose PM emissions are expected to be minor compared to the melter. Thus, after conducting a source test for PM on the melter, an emission factor for PM for the refiner and forehearths and hence the total furnace can be established. For example, a PM_{2.5} test on the melter that yields 0.4 lb/ton of glass pulled on the melter would result in a total furnace emission factor of 0.44 lb/ton of glass pulled (i.e., 0.4/0.9) and a refiner/forehearth emission factor of 0.044 lb/ton of glass pulled (i.e., 0.44/0.1).

Similarly, for NO_x, the melter emission factor will be determined by source testing. For the refiner and forehearths, the NO_x emission factor will be based on historical testing for furnace 526. The factor as described in application no. 2300153.14A, is equal to 0.06 lb/MMBtu and is also used for emission inventory purposes. Again, it is expected that the majority of the NO_x emissions are from the melter.

To review the likelihood of the necessity to resubmit a PSD application as a result of the required testing and a potential change in the emission factors used in the submitted analysis, emission factors for NO_x, PM, PM₁₀ and PM_{2.5} were increased to values such that a baseline and projected emissions analysis using maximum utilization would result in emission increases to just below PSD significance for the particular pollutant. See Table 2 below. For example, if the NO_x testing on the melter, in conjunction with the contribution of 0.06 lb/MMBtu of heat input for the refiner and forehearths, is equal to 2.91 lb/ton of glass pulled, the furnace would have to be operated at its permitted pull rate for 8,760 hours straight to emit 39.9 tpy of NO_x, just below the 40 tpy significance level.

Table 1.**Shelby Furnace 525 PSD Applicability Evaluation (Actuals to Potentials 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	Potential Emissions (ton/yr)	Current PSD Avoidance limits (ton/yr)	Net Emission Change (tons/yr)	PSD Significant Emission Rate (tons/yr)
PM	0.96	2016 Compliance Test (Method 5&202) (See attached)	20.08	0.96	Assumed same as baseline.	33.24	81.63	13.16	25
PM ₁₀	0.55	2016 compliance test for PM _c plus 55% of PM _f (See attached)	11.48	0.55	Assumed same as baseline.	19.00	71.63	7.52	15
PM _{2.5}	0.49	Assumed equal to 90% PM ₁₀ .	10.33	0.49	Assumed same as baseline.	17.10	NA	6.77	10
NO _x	2.24	2015 Compliance Test (Furnace 526)	46.89	2.24	Assumed same as baseline.	77.62	100	30.72	40
VOC	4.19E-02	AP-42 Table 1.4-2 for NG combustion: 5.5 lb/mmscf.	0.88	4.19E-02	Assumed same as baseline.	1.45	NA	0.57	40
CO	0.50	AP-42 Table 11.13-4	10.47	0.50	Assumed same as baseline.	17.33	114.55	6.86	100
SO ₂	0.26	Mass balance from 2017 + 0.6 lb/mmscf from combustion of NG.	5.49	0.262	Assumed same as baseline.	9.08	164.69	3.59	40
Fluoride	0.08	2016 Compliance Test	1.67	0.08	Assumed same as baseline.	2.77	106.23	1.10	3.0
Lead	3.81E-06	AP-42 Table 1.4-2 for nat gas combustion: 0.0005 lb/mmscf.	7.97E-05	3.81E-06	Assumed same as baseline.	1.32E-04	NA	5.22E-05	0.6

Furnace 525 Pull Rates:

Average 2 year historical pull rate (January 2016 - December 2017):

41,867**tpy**

Potential production @ permitted pull rate of 15,822 lb/hr & 8,760 hr/yr:

69,300**tpy**

Furnace average natural gas consumption:

322.00**mmscf/yr (2017)**

Gas heat content:

1030**Btu/scf**

Furnace production used to convert gas factors to glass production factors:

42,277**tpy (2017)**

Table 2
Shelby Furnace 525 PSD Applicability Evaluation (Optimized to PSD applicability thresholds)

Pollutant	Baseline Emission Factor (lb/ton)	Baseline Emission Factor Basis	Baseline Actual Emissions (ton/yr)	Future Emission Factor (lb/ton)	Future Emission Factor Basis	Potential Emissions (ton/yr)	Current PSD Avoidance limits (ton/yr)	Net Emission Change (tons/yr)	PSD Significant Emission Rate (tons/yr)
PM	1.81	maximized	37.89	1.81	Assumed same as baseline.	62.72	81.63	24.8	25
PM ₁₀	1.08	maximized	22.61	1.08	Assumed same as baseline.	37.42	71.63	14.8	15
PM _{2.5}	0.71	maximized	14.86	0.71	Assumed same as baseline.	24.60		9.7	10
NO _x	2.91	maximized	60.92	2.91	Assumed same as baseline.	100.83	100	39.9	40

However, if the NO_x emission factor turns out to be greater than this, the facility could simply reduce its production to stay below the significance thresholds. The following table (Table 3) provides a summary for the emission factors used in the application (Table 1) and those “optimized” to result in emissions just below the appropriate PSD significance levels (Table 2).

Table 3

Pollutant	Emission Factor submitted in application (lb/ton)	Emission Factors "optimized" (lb/ton)	PSD Significant Emission Rate (tons/yr)
PM	0.96	1.81	25
PM ₁₀	0.55	1.08	15
PM _{2.5}	0.49	0.71	10
NO _x	2.24	2.91	40

It should be noted that the facility achieved during the baseline period a production rate of 9,978 lb/hr of glass on a monthly average. Annualized, this value becomes 43,704 tpy of glass. The difference of this value and the baseline (41,867 tpy) is the additional production level (1,836 tpy) that “could have been accommodated” during the baseline period for PSD review purposes.

To minimize the need to resubmit an application to address any changes resulting from greater than anticipated emission factors, equations that treat the emission factors as variables will be included in the permit in place of defined projected actual emission estimates to be used for comparative purposes and to facilitate enforcement. A derivation of the equations is as follows:

Projected actual emissions (PAE) = Pollutant Emission Factor in pounds per ton of glass pulled * actual 12-month total production in tons per year = $(EF_{\text{pollutant}} / 2000) * P_{12\text{-month}}$

Baseline actual emissions (BAE) = Pollutant Emission Factor * 41,867 tpy = $EF_{\text{pollutant}} / 2000 * 41,867$

Could Have Accommodated Emissions (CHA) = Pollutant Emission Factor * (43,704-41,867) tpy = $EF_{\text{pollutant}} / 2000 * 1,836$

PSD Significance level (SIG) = 40 tpy for NO_x, 25 tpy for PM, 15 tpy of PM₁₀ and 10 tpy for PM_{2.5}

For NO_x

$PAE - CHA - BAE < SIG < 40 \text{ tpy}$

$$(EF_{NOx} / 2000 * P_{12\text{-month}}) - (EF_{NOx} / 2000 * 1,836) - (EF_{NOx} / 2000 * 41,867) < 40$$

Simplifying,

$$(EF_{NOx})/2000 * (P_{12\text{-month}} - 1,836 - 41,867) < 40 \quad \text{or}$$

$$\text{For NOx:} \quad (EF_{NOx})/2000 * (P_{12\text{-month}} - 43,703) < 40$$

Similarly, for PM, PM10 and PM2.5

$$\text{For PM:} \quad (EF_{PM})/2000 * (P_{12\text{-month}} - 43,703) < 25$$

$$\text{For PM10:} \quad (EF_{PM10})/2000 * (P_{12\text{-month}} - 43,703) < 15$$

$$\text{For PM2.5} \quad (EF_{PM2.5})/2000 * (P_{12\text{-month}} - 43,703) < 10$$

502(b)(10) notification

Eight drying ovens are simply being removed from the air permit. Other than removing references to the sources in the air permit, no changes to the permit conditions are necessary.

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

NSPS

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

NESHAP/MACT

The changes made at the facility do not result in any NESHAP/MACT applicability.

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"; or

40 CFR 63 Subpart HHHH "National Emission Standards for Wet-Formed Fiberglass Mat Production"

Also given the facility is a major source for HAP they are not subject to SUBPART SSSSSS - "National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources."

NSR/PSD

The County of Cleveland is in attainment of all criteria pollutants. The facility is a "100 ton" source category, "glass fiber processing plants". It is an existing major stationary source under PSD regulations for several regulated pollutants. The project will result in the addition of a 02D .0530(u) recordkeeping condition. See Section III for details.

Attainment Status

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

County	Pollutant	Baseline Date	Triggered By
Cleveland	PM10	04/30/79	PPG
	SO ₂	02/10/78	PPG
	NO _x	04/21/08	Cleveland Co. Generating Facility

All modifications in Cleveland County that result in increases greater than 1 lb/hour of the pollutants listed above are tracked for PSD increment consumption purposes. The emissions increases associated with this modification are less than this threshold.

See discussion in Section III for PSD considerations related to this modification.

112(r)

The facility is not subject to Section 112(r) because it does not store any of the regulated substances in quantities above the applicable thresholds.

Toxics (15A NCAC 02O .0700, 02D .1100)

The allowable TAP emission rates listed in the permit are based on optimized potential emission rates. The changes to the facility will not result in an increase in the potential emissions of any TAPs. No further review is necessary.

DRAFT

V. Compliance History

The facility was last inspected by Jim Hafner of the WSRO on July 26, 2017. In the inspection report he made the following statement:

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

VI. Changes Implemented in Revised Permit

Existing Condition No.	New Condition No.	Changes
Cover Letter	Same	<ul style="list-style-type: none"> Used current shell language, updated permit numbers, dates, etc.
Section 1	Same	<ul style="list-style-type: none"> Removed reference to eight fiberglass drying ovens ES-1 through ES-5 and ES9-ES11
2.1 A.1.c	NA	<ul style="list-style-type: none"> Removed initial testing requirement as it was satisfied on July 30, 2016
2.1 A.1. d, e, f, g	2.1 A.1 c, d, e, f	<ul style="list-style-type: none"> Simple renumbering
2.1 D.1.c	same	<ul style="list-style-type: none"> Memorialized subsequent PM test of July 26, 2017.
2.1 D.6.c	same	<ul style="list-style-type: none"> Memorialized subsequent NSPS test of July 26, 2017.
2.1 E.1.c	same	<ul style="list-style-type: none"> Memorialized subsequent PM test of July 26, 2017.
2.1 I.1.c and e	same	<ul style="list-style-type: none"> Removed references to cyclones. These had been removed in Permit no. T51
NA	Section 2.1 E.6	<ul style="list-style-type: none"> Added a 02D 0530(u) recordkeeping and reporting condition
NA	Section 2.1 E.7	<ul style="list-style-type: none"> Added a 02Q .0504 permit application submittal requirement condition
Section 2.1 O	Same	<ul style="list-style-type: none"> Removed reference to eight fiberglass drying ovens ES-1 through ES-5 and ES9-ES11
Section 2.2 A	Same	<ul style="list-style-type: none"> Removed reference to eight fiberglass drying ovens ES-1 through ES-5 and ES9-ES11
2.2 B.1	NA	<ul style="list-style-type: none"> Removed permit condition addressing 02D .0958. Cleveland County is not in non-attainment for ozone nor is it a maintenance area for ozone. This rule no longer applies.
2.2 D.1	Same	SOC Fluoride condition
b.	same	<ul style="list-style-type: none"> Revised testing condition to memorialize that the required initial testing and batch material fluoride content determination was completed on June 30, 2016.
d.	same	<ul style="list-style-type: none"> The following sentence was added to this paragraph since it was removed from the revised testing condition. The determination shall be conducted pursuant to the sampling and analysis plan used in the initial batch fluoride content determination on June 30, 2016.
f.	same	<ul style="list-style-type: none"> This condition was revised to clarify that record shall be kept in written or electronic format.

Existing Condition No.	New Condition No.	Changes
g.	same	<ul style="list-style-type: none"> • This condition was revised to remove the following specific items: <ol style="list-style-type: none"> i. the correlated batch fluoride content value; ii. the total fluoride content in pounds per ton of glass pulled for each recipe used for the previous six months; and iii. the total fluoride content in pounds per ton of glass produced on a rolling 12-month average basis for each furnace. <p>In cooperation with the regional office these items were removed for confidentiality concerns. The region will review the records at each annual inspection.</p>
Section 3 General Conditions	Same	<ul style="list-style-type: none"> • Revision to current version (5.3, 08/21/2018) Changes include: <ul style="list-style-type: none"> ○ Condition K was revised to read: <ul style="list-style-type: none"> “...terminates the facility's right to operate unless a complete 15A NCAC 02Q .0500 renewal application is submitted at least <i>six</i> months before the date of permit expiration. “

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

NA

VIII. Recommendations

Issue 01958T65.

Attachment 2: Application Review for 2300153.23A

Page numbers in this attachment may differ from the original document due to formatting differences.

<p>Review Engineer: Joseph Voelker</p> <p>Review Engineer's Signature: _____ Date: _____</p> <p><i>[signed by Joe Voelker on the permit issue date]</i></p>	<p>Comments / Recommendations:</p> <p>Issue 01958/T68</p> <p>Permit Issue Date: 08/23/2023</p> <p>Permit Expiration Date: 04/30/2027*</p> <p>*This permit shall expire on the earlier of April 30, 2027 or the renewal of Permit No. 01958T65 has been issued or denied.</p>
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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. 01958T67, issued on May 2, 2022.

Furnace No. 525 is nearing the end of its current campaign. EGFA desires to rebuild the furnace and add electric boost capability. Activities are to be completed in the fourth quarter of 2023.

Although the modification is considered to be a significant modification, the modification does not contradict or contravene the existing permit. As such, 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
01/24/2023	Application was received and assigned Application No. 2300153.23A
01/30/2023	Acknowledgment letter was sent stating application was deemed complete.
03/01/2023	ADD INFO email sent requesting the following: <ul style="list-style-type: none"> • Zoning determination Have you received a response from the city of Shelby? • Calculations Can you send me a spreadsheet of the calculations for this application? • Reconstruction Can you send me the supporting calcs that show reconstruction is not triggered?
04/24/2023	Spreadsheet requested received on 03/01/2023 via email.
05/20/2023	An ADD INFO email was sent requesting justification for the baseline period chosen for PSD applicability purposes.
05/26/2023	Reconstruction information requested on 03/01/2023 received via email.
07/26/2023	An email was received justifying the use of the baseline period between January 2017 and December 2018, which is outside the default 5-year look back period for PSD applicability purposes.
08/03/2023	Draft sent to Permittee for review
08/21/2023	Comments received from EGFA; one typographical error comment received

III. Modification Description

Furnace 525 underwent a “mini-repair” in 2011. The last full repair was in July of 1996. The design life after the last repair was six to seven years. The furnace is now in poor operating condition and in need of a full rebuild.

The rebuild will involve extensive refractory replacement. The major components of the repair will consist of demolition, cleaning and refurbishment/rebricking of the furnace and refurbishment of the HVAC system, and addition of electric boost.

EGFA also plans to convert the furnace to produce Wet Chop products. The furnace was previously configured to produce Direct Roving products. Four choppers will be installed for this conversion. The choppers will only emit trace quantities of volatiles and particulate indoors.

EGFA is also proposing to install a two megawatt electric boost system in the furnace melter. The boost will allow for increased furnace life, improved melting efficiency, and increased annual production up to its currently permitted annual level. However, EGFA is not requesting any change to the existing permitted maximum hourly pull rate of 15,822 lb glass/hr and no downstream changes, such as increased drying oven utilization, are needed for this conversion."

Furnace 525 appears in the existing permit as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Double level fiberglass furnace No. 525, using only EFB* technology, consisting of the following:			
525M	natural gas / propane / direct oxygen fired melter (15,822 pounds glass per hour maximum allowable pull rate)	NA	NA
525R	natural gas / propane-fired refiner	NA	NA
525F	natural gas / propane-fired forehearth	NA	NA

*EFB- Environmentally Friendly Batch - a modified raw material feed to the furnaces that utilize materials with relatively low fluoride content.

It will appear in the revised permit as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Double level fiberglass furnace No. 525, using only EFB technology, consisting of the following:			
525M	natural gas / propane / direct oxygen fired melter with electric boost (2 megawatt maximum capacity) (15,822 pounds glass per hour maximum allowable pull rate)	NA	NA
525R	natural gas / propane-fired refiner	NA	NA
525F	natural gas / propane-fired forehearth	NA	NA

EFB- Environmentally Friendly Batch -

Emissions Changes

As described above, any emissions changes would be associated with any increase in utilization of Furnace 525 and any emissions from the new four choppers which are primarily sources of PM emitting indoors.

The following table shows a summary of the emissions prior to and after the modification. The Permittee chose January 2017 through December 2018 as the baseline period. The average annualized glass pull rate was 42,647 tpy. Pursuant to 02D .0530 "Prevention of Significant Deterioration," the baseline period is limited to within the most recent five-year period. However, also pursuant to the rule:

“The Director shall allow a different time period, not to exceed 10 years immediately preceding the date that a complete permit application is received by the Division, if the owner or operator demonstrates that it is more representative of normal source operation.”

In an email dated July 26, 2023, the following explanation was provided:

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. Additionally, the furnace refractory was reaching the end of life, so throughputs were artificially lowered to prevent hot spots from developing. On May 24, 2023, the furnace was shut down over safety concerns with refractory condition. The furnace will be rebricked as part of normal refractory replacement during this shutdown, allowing the return to normal production rates once customer orders stabilize. Because of these conditions, the pre-pandemic period is most representative of typical operation.

The above explanation was deemed sufficient for the purpose of calculating the baseline emissions. Projected actual emissions were assumed to be equivalent to the maximum permitted glass pull rate of 15,822 lb/hr times 8,760 hours per year. The following table provides a summary of the emission increases associated with this project.

Table A
Shelby Furnace 525 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	Potential Emissions (ton/yr)	Current PSD Avoidance limits (ton/yr)	Net Emission Change (ton/yr)	PSD Significant Emission Rate (ton/yr)
PM	1.20	2022 Compliance Test (Method 5&202) (See attached)	25.51	1.20	Assumed same as baseline.	41.45	81.63	15.94	25
PM ₁₀	0.71	2022 compliance test for PMc plus 55% of PMf (See attached)	15.22	0.71	Assumed same as baseline.	24.73	71.63	9.51	15
PM _{2.5}	0.64	Assumed equal to 90% PM10.	13.70	0.64	Assumed same as baseline.	22.26		8.56	10
NOx	2.24	2015 Compliance Test (Furnace 526)	47.77	2.24	Assumed same as baseline.	77.62	100	29.85	40
VOC	4.20E-02	AP-42 Table 1.4-2 for NG combustion: 5.5 lb/mmscf.	0.90	4.20E-02	Assumed same as baseline.	1.46		0.56	40
CO	0.50	AP-42 Table 11.13-4	10.66	0.50	Assumed same as baseline.	17.33	114.55	6.66	100
CO ₂	84.07	Estimate (see attached GHG sheet)	1792.78	84.07	Assumed same as baseline.	2,913		1,120	75,000
SO ₂	0.59	Mass balance from 2021 + 0.6 lb/mmscf from combustion of NG.	12.67	0.594	Assumed same as baseline.	20.59	164.69	7.92	40
Fluoride	0.08	2016 Compliance Test	1.71	0.08	Assumed same as baseline.	2.77		1.07	3.0
Lead	3.82E-06	AP-42 Table 1.4-2 for nat gas combustion: 0.0005 lb/mmscf.	8.14E-05	3.82E-06	Assumed same as baseline.	1.32E-04		5.09E-05	0.6

Furnace 525 Pull Rates:
 Average 2 year historical pull rate (January 2017 - December 2018): 42,647 tpy
 Permitted pull rate: 15,822 lb/hr
 Potential production @ permitted pull rate of 15,822 lb/hr & 8,760 hr/yr: 69,300 tpy
 Furnace average natural gas consumption: 313.00 mmscf/yr (2021)
 Gas heat content: 1030 Btu/scf
 Furnace production used to convert gas factors to glass production factors: 40,977 tpy (2021)

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

IV. Regulatory Review

The existing permit contains conditions that address the following air regulations with respect Furnace No. 525. With the exception of 15A NCAC 02D .0530, all existing monitoring recordkeeping and reporting requirements under the following rules were drafted in consideration of the potential emissions of Furnace No. 525, which are not increasing as a result of this modification and therefore continued compliance is expected with the associated permit

conditions. No changes to the existing permit conditions addressing these rules are necessary except as discussed below.

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

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

15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

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. This furnace is currently not subject to this rule. Therefore, the applicability of this rule as a result of this project needs to be addressed.

Furnace 525 is not currently subject to the NSPS. The NSPS would apply if EGFA were to construct a new facility or reconstruct or modify the affected facility. The definition of affected facility for purposes of the NSPS is the "glass melting furnace" which includes only:

a unit comprising a refractory vessel in which raw materials are charged, melted at high temperature, refined, and conditioned to produce molten glass. The unit includes foundations, superstructure and retaining walls, raw material charger systems, heat exchangers, melter cooling system, exhaust system, refractory brick work, fuel supply and electrical boosting equipment, integral control systems and instrumentation, and appendages for conditioning and distributing molten glass to forming apparatuses. The forming apparatuses, including the float bath used in flat glass manufacturing and flow channels in wool fiberglass and textile fiberglass manufacturing, are not considered part of the glass melting furnace. [40 CFR § 60.291]

"Construction" means fabrication, erection, or installation of an affected facility. EGFA is not proposing such construction. The furnace is in existence.

"Reconstruction" is defined as the replacement of components of an existing facility to such an extent that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and (2) It is technologically and economically feasible to meet the applicable standards set forth in this part.

The Permittee provided the capital cost estimates for the changes to the furnace as defined under Subpart CC. Subpart CC specifically excludes the cost of the refractory replacement from the definition of reconstruction and the cost of the remaining modifications, including the electric boost, will not exceed 50% of the replacement costs of a comparable furnace. Thus, the reconstruction provisions are not applicable.

A "modification" is defined under the NSPS as any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted. The emission rate is expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable. PM is the only pollutant regulated under Subpart CC. EGFA does not anticipate any increase in hourly PM emissions from the furnace, therefore EGFA claims the modification provisions are also not applicable. To verify this assumption, the following test requirement will be placed into the permit.

Pursuant to 15A NCAC 02Q .0508(a)(1) the Permittee shall, in order to determine if the modifications associated with application no. 2300153.23A are a "modification" as defined under 40 CFR Part 60 Subpart A, conduct source testing on the Furnace No. 525 melter (**ID No. 525M**) for filterable particulate matter consistent with 40 CFR 60.14 and 40 CFR 60 Appendix C. The Permittee shall test the melter stack within 180 days after startup after the completion of the modifications addressed in application no. 2300153.23A. The testing shall be conducted in accordance with General Condition JJ. The testing shall

be conducted according to a protocol pre-approved by the DAQ. The protocol shall clearly state the goals of the testing and indicate to which pre-modification source test the proposed post-modification test will be compared. If the testing indicates that a “modification” has occurred, the Permittee shall submit a permit application to incorporate the requirements of 40 CFR Subpart CC into the air permit concurrently with the test report submitted in accordance with General Condition JJ. The test report shall also include, if applicable, a statement that a modification as defined under 40 CFR Part 60 Subpart A had not occurred and the results of the analysis conducted pursuant to 40 CFR 60 Appendix C.

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 Conditions

Emission limitations implemented pursuant to NCGS 143-215.108(c) and as required by the Special Order of Consent (SOC) (2012-01)

15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS

15A NCAC 02D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS

15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The facility is considered a PSD major source. See Section V below for discussion.

With respect to this current project the facility 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 A 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.

However, consistent with 15A NCAC 02D .05030(u), since the projected emissions increases for a number of pollutants are greater than 50% of the amounts that would be considered a significant emissions increase under PSD, a permit condition is being added to the permit for monitoring, recordkeeping and reporting of the annual emissions related to the project in tons per year, for five years following resumption of regular operations after the change. The Permittee will compare the actual emissions of the Furnace No. 525 melter, refiner, and forehearth against the projected actual emissions in the following table. These values are derived from Table A in Section III above.

Pollutant	Projected Actual Emissions (tons per year)
PM	41.5
PM10	24.7
PM2.5	22.3
NOx	77.6
VOC	1.5
CO	17.3
SO2	20.6
Fluoride	2.77

The projections in the table above are not enforceable limitations. If projected emissions are exceeded, consistent with 15A NCAC 02D .0530, the Permittee shall include in its annual report an explanation as to why the actual rates exceeded the projection.

Compliance is expected with the requirements imposed pursuant to 15A NCAC 02D .0530(u).

General Conditions Discussion

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 decisions¹. Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses² and will harmonize the EPA’s treatment of affirmative defenses across different CAA programs.

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.

The DAQ has not adopted these discretionary affirmative defense provisions in its Title V regulations (15A NCAC 02Q .0500) nor other state regulations. Hence, no changes to its Title V or other state regulations are necessary. Instead, DAQ had chosen to include them directly in individual Title V permits as General Condition J. Therefore, as discussed above, the DAQ is required to promptly remove such impermissible provisions, from individual Title V

¹ NRDC v. EPA, 749 F.3d 1055 (D.C. Cir. 2014).

² 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 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).

permits, after August 21, 2023, through the normal course of permit issuance. General Condition J will therefore be removed from the revised permit.

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

NSPS

The Furnace No. 525 melter is potentially subject to NSPS Subpart CC “Standards of Performance for Glass Manufacturing Plants.” See discussion in Section IV above.

NESHAP/MACT

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";
- 40 CFR 63 Subpart HHHH "National Emission Standards for Wet-Formed Fiberglass Mat Production"; nor
- 40 CFR 63 Subpart SSSSSS, National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources”.

For the current modification of Furnace No. 525, the applicability of 15A NCAC 02D .1112 “112(g) Case By Case Maximum Achievable Control Technology” was considered. This rule applies to the construction or reconstruction of major sources of hazardous air pollutants as defined under 02D .1112 with certain exceptions. This modification project involves changes to the existing Furnace No. 525 and some appurtenant equipment. Although the facility overall is a major source of HAP, Furnace No. 525 is not a major source of HAP by itself. As such the project does not meet the definition of “construct a major source” at 15A NCAC 02D .1112(c)(4) nor the definition of “Reconstruct a major source” at 15A NCAC 02D .1112(c)(14) and hence is not subject to the requirements of this rule.

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 criteria 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 the potential to emit (as defined at 40 CFR 51.166(b)(4)) of 250 tons per year or more of a regulated New Source Review (NSR) pollutant. For sources in specific categories, the potential to emit threshold is 100 tons per year. The subject facility is in a "100 ton" source category (i.e., "glass fiber processing plants"). It is considered an existing major stationary source under PSD for several regulated NSR pollutants including PM/PM10/PM2.5, Fluorides, NOx and SO₂.

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

Based on the application, the emission increases of these pollutants are the result of the potential increased utilization of Furnace No. 525.

From Table A in Section III above, the potential emissions increases of these pollutants are:

PM2.5 8.56 tpy or 2.0 lb/hr
PM10 9.51 tpy or 2.2 lb/hr
SO2 7.92 tpy or 1.8 lb/hr
NOx 29.85 tpy or 6.8 lb/hr

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

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.

Furnace No. 525 does not utilize any control devices. As such, it does not meet the applicability requirement of 02D .0614(a)(2). Hence CAM does not apply to Furnace No. 525 before or after the proposed modification.

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 Melinda Wolanin of the MRO on March 22, 2022:

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

The following compliance history was also contained the inspection report.

Compliance history since 2017:

- 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.

VII. Changes Implemented in Revised Permit

The following changes were made to the existing Air Permit No. 01958T67:*

Page No.	Section	Description of Changes
NA	Cover letter	<ul style="list-style-type: none"> • Updated cover letter to current shell standards
4	Section 1	<ul style="list-style-type: none"> • Revised the descriptor for the Furnace 525 melter (ID No. 525M) to include 2 megawatt electric boost • Added 02Q .0501(b)(2) modification footnote
24	Section 2.1 E	<ul style="list-style-type: none"> • Revised all conditions to current DAQ permitting “shell” standards
25	Section 2.1 E.1.c	<ul style="list-style-type: none"> • 02D .0515 condition • Memorialized the test dates of May 19, 2021 and June 8, 2022
26	Section 2.1 E.3	<ul style="list-style-type: none"> • 02D .0521 condition • Revised the monitoring requirements to include VE readings for the melter stack. Applicability was correctly stated in paragraph a but the monitoring requirements were missing, most likely a typographical error. The reestablishment of normal VE readings after the modification were also added for the melter, refiner, and forehearth stacks.
29	Section 2.1 E.8	<ul style="list-style-type: none"> ▪ Added a condition addressing 15A NCAC 02D .0530(u) for the modification addressed in the current application
30	Section 2.1 E.9	<ul style="list-style-type: none"> ▪ Added testing requirements to determine if a modification as defined under NSPS will have occurred.
30	Section 2.1 E.10	<ul style="list-style-type: none"> • Added permit application submittal and startup notification requirements for the modification addressed in the current application pursuant to 15A NCAC 02Q .0504 and 15A NCAC 02Q .0501(b)(2).
89	Section 3	<ul style="list-style-type: none"> • No changes
92	Section 4 General Conditions	<ul style="list-style-type: none"> • Revised from (version 6.0, 01/07/2022) to (version 7.0, 08/21/2023). Changes include: <ul style="list-style-type: none"> ○ GC J – removed the Emergency Provisions (40 CFR 70.6(g))

* This list is not intended to be a detailed record of every change made to the permit but a summary of those 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 Furnace 525 melter (**ID No. 525M**) after the modifications described in Application No. 2300153.23A 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 did not require any design, any substantial determination of applicability and appropriateness; or the determination and interpretation of performance of air pollution capture and control systems.

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. This modification is neither and hence no zoning consistency determination was submitted.

Consistent with 15A NCAC 02Q .0304(b)(1)(A), the application included proof of the receipt of the request for a zoning consistency determination by the City of Shelby Planning Services Department. The request was signed and received by the office on January 18, 2023.

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.

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

This engineer recommends issuance of the revised permit (Permit No. 01958T68).