NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date:

Region: Winston-Salem Regional Office
County: Davidson
NC Facility ID: 2900109
Inspector's Name: Jim Hafner
Date of Last Inspection: 06/02/2022
Compliance Code: 5 / In Physical Compliance

Facility Data

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

Facility Address:
Electric Glass Fiber America, LLC
473 New Jersey Church Road
Lexington, NC 27292

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

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

Permit Applicability (this application only)

SIP: 02D .0503, .0515, .0516, .0521, .0524, .0530(u), .1100, .1111: 02Q .0317
NSPS: Subpart CC
NESHAP: MACT Subparts DDDDD, ZZZZ
PSD: NA
PSD Avoidance: YES
NC Toxics: YES
112(r):
Other: state enforceable only conditions pursuant to 15A NCAC 02Q .0308(a)(1) and as required by the Special Order of Consent (SOC) (2002-002) and (2012-002)

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Terry Steinert Environmental Manager (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292	Kurt Christian Plant Manager (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292	Terry Steinert Environmental Manager (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292

Application Data

Application Number: 2900109.19A, 22A, 22B, 23A
Date Received: 11/20/2019, 07/25/2022, 08/02/2022, 03/10/2023
Application Type: Renewal, Administrative Amendment, Modification
Application Schedule: TV-Renewal, TV-Administrative, two TV-Sign-501(b)(2) Part II's
Existing Permit Data
Existing Permit Number: 02688/T45
Existing Permit Issue Date: 01/17/2023
Existing Permit Expiration Date: 04/30/2027

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2021	16.64	144.85	19.19	46.50	43.32	6.83	5.80 [Methanol (methyl alcohol)]
2020	13.21	73.87	8.26	16.26	23.82	1.29	0.8572 [Methanol (methyl alcohol)]
2019	34.34	98.10	34.97	17.64	43.69	11.54	11.01 [Methanol (methyl alcohol)]
2018	43.66	112.22	27.60	22.17	42.98	3.06	2.45 [Methanol (methyl alcohol)]
2017	54.73	128.23	32.40	23.69	28.94	18.43	17.64 [Methanol (methyl alcohol)]

Review Engineer: Joseph Voelker

Review Engineer's Signature: Date:

Comments / Recommendations:
Issue 02688/T46
Permit Issue Date: TBD
Permit Expiration Date: TBD

I. Purpose of Application

Electric Glass Fiber America, LLC, (EGFA), a Nippon Electric Glass company owns and operates a fiber glass production facility in Lexington, NC. EGFA currently holds Title V Permit No. 02688T45, with an expiration date of the earlier of April 30, 2027, or when the renewal of Permit No. 02688T43 has been issued or denied.

This permit review addresses four applications:

- A renewal application (application No. 2900109.19A) was received on November 20, 2019 ,which was at least nine months[1] prior to the original permit expiration date of August 30, 2020. Hence EGFA is covered under the application shield pursuant to 15A NCAC 02Q .0512.
- An administrative amendment (application no. 2900109.22A) was received July 25, 2022.
- A "step two" Title V application (application no. 2900109.22B) addressing the modifications processed under the "step one" application (application no. 2900109.21A) was received on August 2, 2022.
- A "step two" Title V application (application no. 2900109.23A) addressing the modifications processed under the "step one" application (application no. 2900109.22C) was received on March 10, 2023.

These applications are fully described in Section IV below.

As can be seen in Section III below, the permit has been modified five times since the last time the permit was renewed (permit revision no. T40).

II. Chronology

Date	Description
November 20, 2019	A renewal application was received and assigned application no. 2900109.19A
February 3, 2020	Application reassigned to Joe Voelker
December 13, 2020	An email was received from Brigette Tinsley, environmental manager requesting the following: "As we discussed, we'd like the ovens split into separate lanes an eliminate descriptions as 3 lane or 4 lane. Each drying lane can be independently operated, and is equipped with separate burners. This will also change all burner tune ups to 5 years, specifically ES02 from 2 year to 5 year. Please amend descriptions as noted below. All sources are in 2.1.I on page 43"
January 21, 2022	An ADD INFO email was sent requesting updated Forms (B and B9) for the sources described in the December 13, 2020 email above.
January 27, 2022	An ADD INFO email was sent regarding the RWCs TAP emissions.
February 8, 2022	EGFA re-requested (see December 13, 2020 email above) via email that the three, multi-lane ovens (ES01, ES02 and ES03) be re-permitted. The appropriate B forms were submitted at this time.
February 15, 2022	Info received from EGFA including maximum heat input ratings for the various components of the Furnaces.
March 21, 2022	A facility-wide modeling analysis was approved by the AQAB via memo.
July 25, 2022	An administrative amendment application was received via email and assigned application no. 2900109.22A. The purpose of the application was to incorporate NSPS Subpart CC monitoring parameters into permit as required by the existing permit condition at Section 2.1 G.5.d.vi. See discussion NSPS Subpart CC discussion in Section V below.
August 02, 2022	An application was received and assigned application no. 2900109.22B. This application is the "Step Two" Title V application addressing the modifications processed under the "Step One" application (application no. 2900109.21A) which resulted in the issuance of permit revision no. T44.
November 3, 2022	Draft permit sent to Permittee for review via email
November 23, 2022	Comments on the draft permit sent on November 3, 2022 were received via email.
December 05, 2022	A 02Q .0501(b)(2) "Part1" application was received by the DAQ and assigned application no. 2900109.22C to add a direct chop operation to Furnace No. 509, which will consist of one chopper,

[1] 15A NCAC 02Q .0513 (b)(1) was revised affective April 1, 2018 to reduce the time of submittal of the renewal application from nine months to six months prior to expiration of the permit. Permit no. 00268T43 was issued prior to this date and therefore did not contain the revised application submittal deadline.

Date	Description
	associated product conveyance, and packing. This application, pursuant to 02Q .0504, will be processed under the 02Q .0300 permitting rules and procedures.
December 05, 2022	Revised draft sent to Permittee for review via email
December 06, 2022	Comments on the draft permit sent on December 5, 2022 were received via email.
January 17, 2023	Permit revision no. T45 was issued in response to application no. 2900109.22C.
March 10, 2023	An application was received and assigned application no. 2900109.23A. This application is the "Step Two" Title V application addressing the modifications processed under the "Step One" application (application no. 2900109.22C) which resulted in the issuance of permit revision no. T45.
~~MM DD YYYY~~	~~Draft permit published on NCDENR website for concurrent public and EPA review pursuant to TV permitting requirements.~~
~~MM DD YYYY~~	~~Public comment period ended. Only comments received were from the Permittee. The comments were received via mail. The comments were minor. The comments are included as an attachment to this review document.~~
~~MM DD YYYY~~	~~EPA review period ended. No comments received.~~

III. Permitting History Since Last Renewal

The following outline provides a permitting history of the subject facility since the last renewal. Descriptive language is quoted from the air permit review documents.

Permit Revision No.	Issue Date	Application No.	Application Type	Application Schedule
T45	01/17/2023	2900109.22C	Modification	TV-501(b)(2) Part1

Purpose of Application:

EGFA is requesting to add a direct chop operation to Furnace No. 509, which will consist of one chopper, associated product conveyance, and packing.

Permit Revision No.	Issue Date	Application No.	Application Type	Application Schedule
T44	05/03/2022	2900109.21A	Modification	TV-501(b)(2) Part1

Purpose of Application:

Furnace No. 509 at the Lexington facility is currently equipped with an emissions control system (ECS), consisting of a dry, limestone scrubber in series with a five- module fabric filter (ID No CD-509ECS-1). The Permittee desires to remove the ECS as they claim it is no longer needed to comply with any regulatory requirement.

Permit Revision No.	Issue Date	Application No.	Application Type	Application Schedule
T43	03/02/2018	2900109.17C	Modification	TV-Minor

Purpose of Application:

EGFA desires to rebuild Furnace No. 509 in the first quarter of 2018. The furnace is currently equipped with a dry scrubber and a five-module fabric filter in series with a packed column wet scrubber. The control system was designed to reduce fluoride (F) emissions to comply with Special Order by Consent (SOC) No. 2002-002. The SOC limits F emissions from the furnace melter to 0.45 lb F per ton of glass produced. NEG desires to discontinue use of the wet scrubber. The wet scrubber will remain in place, but will not be operated. The dry scrubber and fabric filter will remain operational. In addition, NEG will convert the furnace to an environmentally friendly batch (EFB) like the other furnaces at the Lexington facility. Use of EFB will allow for compliance with the F limit of the SOC without the wet scrubber.

EGFA does not anticipate any increase in particulate matter emissions as a result of removal of the wet scrubber as the fabric filters will continue to be operational.

No change to the currently permitted furnace pull rate of 11,186 is proposed. In addition to refractory replacement,

the rebuild will involve the following changes to the furnace:

- Addition of 2,400kW electric boost with associated transformers;
- Addition of evaporative cooling system and dilution stack;
- Removal of the existing recuperator;
- Changes to the melter burner configuration (total heat input to melter will not change);
- Complete replacement of refiner and forehearth;
- Relocation of forehearth stacks; and,
- Installation of new exit throat at exit of melter.

In addition to the rebuild, EGFA proposes to add three remote wet cut (RWC) lines to serve Furnace 509. Each remote wet cut line will have a capacity of 4,500 lb/hr (dry glass) and will be equipped with a 3.5 MMBtu/hr dryer. The RWC lines will be identical to the RWC line No. 6 that was most recently permitted and constructed at NEG's Shelby site. Furthermore, as stated, NEG will discontinue use of the wet scrubber (although it will not be physically removed at this time).

Permit Revision No.	Issue Date	Application No.	Application Type	Application Schedule
T42	12/21/2017	2900109.17A; 2900109.17B	Modification; Name Change	TV-Sign-501(b)(2) Part II; TV-Administrative

Purpose of Application:

On September 19, 2017, PPG Industries Fiber Glass Products, Inc. (PPG), submitted an administrative application to change its name to Electric Glass Fiber America, LLC (EGFA). On May 15, 2017, PPG submitted an application to request various modifications to its air permit. The following narrative was written prior to the name change notification and reflects the use of the name PPG.

PPG Industries Fiber Glass Products, Inc. (PPG) owns and operates a fiber glass production facility in Lexington, NC. The facility operates under Permit No. 02688T41, issued on March 17, 2016. PPG is requesting four changes to its current permit.

As quoted from permit application:

> Primarily, in May of 2014, PPG submitted an air permit application to restart Furnace No. 503. Permit T38 was subsequently issued on August 14, 2014. Condition 2.2.E.1.c of that permit required PPG to conduct stack testing of the furnace to confirm the accuracy of the emission estimates used in the application. The required stack testing was performed on May 14, 2015. The results of the stack testing indicated that emissions of Nitrogen Oxides (NOx) were greater than the emissions used in the application. The tested NOx rate was determined to be 5.02 lb NOx/ton of glass produced versus the emissions estimate of 4.16 lb NOx/ton that was used in the application. Pursuant to the permit, PPG is therefore required to resubmit an application to demonstrate compliance with the Prevention of Significant Deterioration (PSD) requirements of 15A NCAC 02D .0530. The revised application is attached. The application demonstrates that the projected emissions increase associated with the Furnace 503 restart is well below the PSD significant emission rate for NOx of 40 tons per year (please see the table below and the attached emission calculations).
>
> Secondly, in November of 2015, PPG submitted a permit application for a modification to Furnace No. 507. Permit T41 was issued to allow for this modification. The modification was allowed as a 15A NCAC 02Q .0501(c)(2) modification under Title V. As .0501(c)(2) modifications, PPG must file an amended Title V permit application within one year from the date of beginning operation of the source. PPG began operation of the furnace in June of 2016. This application therefore also fulfills the 0501(c)(2) requirement for Furnace 507.
>
> Thirdly, PPG also requests that the VOC work practice standards of 15A NCAC 02D .0958 be removed from its permit (Condition 2.2.B.2). The Lexington site is not a major source of VOC and is not located in a non-attainment area.
>
> And finally, PPG would like to use a 1,700 cfm bag filter as a vacuum for housekeeping purposes. The filter will be vented to the indoors and will only emit PM. It is our understanding that the filter would need to be added to the insignificant activity list of our current permit.

Permit Revision No.	Issue Date	Application No.	Application Type	Application Schedule

T41	03/17/2016	2900109.15B	Modification	TV-Sign-501(c)(2) Part I

Purpose of Application:

The facility operates under Title V permit No. 02688T40, issued on September 16, 2015. In October of 2013, PPG submitted an air permit application to rebuild Furnace No. 507 and to increase the glass pull capacity from 9,245 to 10,000 lb/hr. In February of 2014, Permit T37 was issued authorizing the rebuild. PPG subsequently completed the rebuild and has been operating the furnace since April of 2014.

PPG would now like to modify the forehearth of the furnace. A portion of the forehearth would be widened and continue to be primarily focused on a direct draw process. The area below the forehearth will also be redesigned. No changes will be made to the melter or to the furnace capacity, and PPG is not requesting any change to the permitted pull rate of the furnace. The total number of positions on the forehearth will decrease.

PPG has also recently conducted stack testing on Furnace 507. PPG requests that these results, listed in Attachment B of this application, be used to update the emission factors contained in Permit Condition 2.1(F)(4)(d)(iii).

Permit Revision No.	Issue Date	Application No.	Application Type	Application Schedule
T40	03/17/2016	2900109.09B	Renewal	TV-Renewal

Purpose of Application:

This permitting action is a renewal of an existing Title V permit pursuant to 2Q .0513.

IV. Modification Discussions

Renewal Application No. 2900109.19A

As stated in Section I above this renewal application was submitted in a timely manner. The active permit at the time the renewal was submitted was revision no. T43. The renewal application was not submitted to modify the permit. However, the permit was revised since that time (revision no. T44). Two additional applications have been submitted recently that will also be addressed at this time. These modifications and proposed modifications will be discussed below.

Revision to NSPS Subpart CC monitoring parameters and application no. 2900109.22A

The existing permit at Section 2.1 G.5.d.vi required the following:

Table 2.1 G.5

Six-minute average 99% UCL opacity value, %	Three-hour block average opacity limit, %
as established pursuant to Section 2.1 G.5.c.iii	as established pursuant to Section 2.1 G.5.c.iv

vi. The Permittee shall submit an application to update values in Table 2.1 G.5 in conjunction with the submittal of the test report required in Section 2.1 G.5.c.ii above.

The Permittee submitted this application (application no. 2900109.22A) on July 25, 2022. These monitoring parameters will be fully addressed in the NSPS Subpart CC discussion in Section V below.

Modification resulting in the issuance of permit revision no. T44 (application no. 2900109.22B)

Permit revision no. T44 was issued recently on May 03, 2022, in response Application No. 2900109.21A. As stated in Section III above:

> Furnace No. 509 at the Lexington facility is currently equipped with an emissions control system (ECS), consisting of a dry, limestone scrubber in series with a five-module fabric filter (ID No CD-509ECS-1). EGFA is requesting to remove the ECS from the melter of Furnace No. 509 (ID No. ES-509-M) as they claim it is no longer needed to comply with any regulatory requirements.

Permit revision no. T44 was issued with permit conditions that covered the operation of Furnace No. 509 before and after the removal of the ECS and the rerouting of the emissions (the "modification"). As necessary, permit conditions included "sunrise or sunset" language that triggered each condition's applicability. A sample of the language is below. This language was contained in the 02D .0521 "Control of Visible Emissions" condition found in the existing permit at Section 2.1 G.3.

> The requirements of Section 2.1 G.3 shall apply after the emissions of the melter (**ID No. ES-509-M**) are rerouted from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack as described in Application No. 2900109.21A. Until then, the requirements at Section 2.1 G.9 shall apply.

Similar language was also included at Sections 2.1 G.4, G.5, G.6, G.7, G.9 and G.10. As required by Section 2.1 G.8 of the permit, EGFA notified the DAQ in a letter dated May 12, 2022 that the emissions of the melter were rerouted from the stack controlled by the emissions control system (ECS) to the uncontrolled stack as described in Application No. 2900109.21A on May 12, 2022.

Since EGFA is now operating Furnace No. 509 without the ECS and the emissions have been rerouted, the modification is now complete. The permit will be revised to remove all conditions no longer applicable.

The permit also contained the following requirement at Section 2.1 G.8.a

> **Permitting** [15A NCAC 02Q .0504(d)]
> a. Pursuant to 15A NCAC 02Q .0501(b)(2), for completion of the two-step significant modification process initiated by Application No. 2900109.21A, the Permittee shall file an amended application following the procedures of Section 15A NCAC 02Q .0500 within one year of rerouting the emissions of the melter (**ID No. ES-509-M**) from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack.

This permit application was received August 2, 2022 and assigned application no. 2900109.22B. As the modification is now complete, and the renewal application will be subject to public notice and EPA review procedures anyway, the completion of the two-step Title V permitting process for this modification will be completed concurrently with this renewal. The permit review for the modification that resulted in the issuance of permit revision no. T44 will be included as an attachment to this renewal review.

Modification resulting in the issuance of permit revision no. T45 (application no. 2900109.23A)
Permit revision no. T45 was issued recently on January 17, 2023, in response Application No. 2900109.22C. As stated in Section III above:

> EGFA is requesting to add a direct chop operation to Furnace No. 509, which will consist of one chopper, associated product conveyance, and packing.

The Permittee stated in the application (application no. 2900109.22C) that the addition of these operations will allow for greater utilization of Furnace No. 509 and hence the potential for an increase in the actual emissions from the furnace. Permit revision no. T45 was issued and included the following requirement at Section 2.1 G.12.

> **Permitting** [15A NCAC 02Q .0504(d)]
> a. Pursuant to 15A NCAC 02Q .0501(b)(2), for completion of the two-step significant modification process initiated by Application No. 2900109.22C, the Permittee shall file an amended application following the procedures of Section 15A NCAC 02Q .0500 within one year of the initial startup of the direct chop operation described in Application No. 2900109.22C.

This permit application was received March 10, 2023, and assigned application no. 2900109.23A. As the renewal application will be subject to public notice and EPA review procedures, the completion of the two-step Title V permitting process for this modification will be completed concurrently with this renewal. The permit review for the modification that resulted in the issuance of permit revision no. T45 will be included as an attachment to this renewal review.

V. Regulatory Review

The regulatory applicability of all permitted sources will be discussed below. Sources will be grouped as possible to limit redundancy. The lettering convention below matches the lettering in the draft permit.

C, D, F, and G -The following four fiberglass furnaces:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Single level fiberglass furnace No. 502, consisting of the following:			
ES-502-M	natural gas/propane direct-fired melter utilizing 100% oxygen firing (3,000 pounds per hour glass pull rate, 15,885 million Btu per hour maximum heat input rate)	CD153	One dry scrubber
ES-502-R	natural gas/propane-fired-refiner (1,694 million Btu per hour maximum heat input rate)	NA	NA
ES-502-F	natural gas/propane-fired forehearth (2,393 million Btu per hour maximum heat input rate)	NA	NA
Single level fiberglass furnace No. 503 consisting of the following:			
ES-503-M	natural gas/propane direct-fired melter utilizing 100% oxygen firing (3,500 pounds per hour glass pull rate, 15,885 million Btu per hour maximum heat input rate)	NA	NA
ES-503-R	natural gas/propane-fired-refiner (1,694 million Btu per hour maximum heat input rate)	NA	NA
ES-503-F	natural gas/propane-fired forehearth (2,393 million Btu per hour maximum heat input rate)	NA	NA
Double level fiberglass furnace No. 507 consisting of the following			
ES-507-M	natural gas/propane direct-fired melter utilizing 100% oxygen firing (10,000 pounds per hour glass pull rate, 500 kW maximum electric boost capacity, 33,888 million Btu per hour maximum heat input rate)	NA	NA
ES-507-R	natural gas/propane-fired-refiner (5,295 million Btu per hour maximum heat input rate)	NA	NA
ES-507-F	natural gas/propane-fired forehearth (16,564 million Btu per hour maximum heat input rate)	NA	NA
Double level fiberglass furnace No. 509 consisting of the following			
ES-509-M	natural gas/propane direct-fired melter utilizing 100% oxygen firing (11,186 pounds per hour glass pull rate, 2,400 kW maximum electric boost capacity, 37,065 million Btu per hour maximum heat input rate)	NA	NA
ES-509-R	natural gas/propane-fired-refiner (2,870 million Btu per hour maximum heat input rate)	NA	NA
ES-509-F	natural gas/propane-fired forehearth (14,519 million Btu per hour maximum heat input rate)	NA	NA

The facility has four fiber glass furnaces.

Furnace No. 502 has not operated since 2001. Previous correspondence indicated the facility wanted to keep it on the permit in the case they ever had a need for it. The implications of restarting the furnace will be discussed in context of the regulatory discussions below.

Furnaces 503, 507 and 509 all operate without control equipment and use batch materials defined as environmentally friendly batch (EFB). EFB is a modified raw material feed to the furnaces and is defined as batch material having an elemental fluorine (F) composition of no greater than 0.9 pounds per ton (batch material). The implications of using EFB will be discussed in context of the regulatory discussions below. Each furnace will be discussed individually only as necessary.

15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

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

All four furnaces are subject to this rule and all have process rates less than 30 tons per hour.

Furnaces Nos. 503, 507 and 509
Each furnace has a dedicated stack for the melter and separate stacks for the refiner and forehearth sections. Emissions from all stacks are combined to assess compliance with the standard. To focus testing resources on the melter stack, which is the primary source of the PM emissions, the Permittee has accepted conservative emission factors based on previous stack tests to account for the PM emissions from the refiner and forehearths. Those emission factors are:

PM (filterable)	0.46 lb/ton of glass pulled
PM (condensable)	0.05 lb/ton of glass pulled

These emission factors are used in conjunction with the glass pull rate achieved during a stack test to determine the PM emissions from the refiner and forehearth sections of the furnace. These emissions are added to those of the melter and then compared against the allowable PM emissions as determined from the first equation above.

Annual testing of the melter stacks are required. If the results of a test, in conjunction with the emissions contribution of the refiner and forehearths, are less than 80 percent of the allowable emission limit, the Permittee is only required to stack test once every five years following the last stack test. A review of the compliance inspection reports show no violations of the 02D .0515 emission standard in the previous five years.

Monitoring and recordkeeping requirements consist of the maintenance of production records such that the process rates can be derived, and the records shall be available to the DAQ upon request. The records shall include:
- the date and approval status of the most recent source test conducted;
- the production rate at which the source test was conducted; and
- the maximum production rate achieved since the most recent source test conducted.

A semiannual summary report of the monitoring and recordkeeping requirements is also required.

Other than updating language to reflect the current permit shell, no substantive changes to these conditions are necessary as a part of this renewal. Continued compliance is expected.

Furnace No. 502
This furnace has not operated since 2001. Unlike the other furnaces, this furnace melter is equipped with a dry scrubber. However, as documented in the permit review for the last permit renewal (permit revision no. T40), the scrubber is expected to be only needed to comply with the state enforceable only fluoride and filterable PM emission limits. This furnace, like all the others, is expected to be able to demonstrate compliance with this rule without PM controls. Hence any monitoring, recordkeeping, and reporting associated with the control system is addressed in the state-enforceable only permit condition addressing the fluoride and filterable PM emission limits.

Since no monitoring, recordkeeping, or reporting associated with the control system for this furnace with respect to this rule is required, its testing, monitoring, recordkeeping, and reporting requirements are the same as those for the other three furnaces with the following exceptions:

- A stack test to demonstrate compliance with this rule will be required within 180 days of the restart of the furnace.
- The Permittee will be required to justify conservative emission factors to account for the PM emissions from the refiner and forehearths.

Other than updating language to reflect the current permit shell, no substantive changes to these conditions are necessary as a part of this renewal. Continued compliance 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. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

In the case of the furnaces, SO2 emissions result from the combustion of natural gas in the burners installed on the melters, refiners, and forehearths. SO2 is also formed during the melting of the batch materials in the melter. The Permittee has supplied the following information via email, received on February 15, 2022, showing the maximum expected emission rate of SO2 from each furnace.

Furnace Heat Input Capacity (MMBtu/hr)				
	Furnace			
	502	503	507	509
Melter	15,885	15,885	33,888	37,065
Refiner	1,694	1,694	5,295	2,870
Forehearth	2,393	2,393	16,564	14,519
Total	19,973	19,973	55,747	54,454
Max Electric Boost (kWh)	no boost	no boost	600	3600

Furnace 0516 Compliance				
	Furnace			
	502	503	507	509
MMBtu/hr	19,973	19,973	55,747	54,454
Furnace capacity (lb glass/hr)	3,000	3,500	10,000	11,186
Max SO2 From Fuel (lb/hr)	0.011	0.011	0.032	0.031
SO2 from Raw Materials (lb/hr)	4.95	5.78	16.50	18.46
Total SO2 (lb/hr)	4.96	5.79	16.53	18.49
SO2 (lb/MMBtu)	0.000248	0.00029	0.000297	0.00034

The maximum SO2 from the fuel (natural gas) is 0.6 pounds per million standard cubic feet as given in AP-42 Table 1.4-2. The SO2 emissions from the batch materials was based on worst case mass balance considerations for the batch recipes. This value is 3.3 lb SO2 emitted per ton of glass pulled. Note the margin of compliance is approximately 4 orders of magnitude. Given the margin of compliance, no monitoring/recordkeeping/reporting is required for sulfur dioxide emissions from these sources.

Other than updating language to reflect the current permit shell, no substantive changes to these conditions are necessary as a part of this renewal. Continued compliance 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 reasonably expected to occur. Each furnace has one melter, multiple refiners and multiple forehearths. Each melter, refiner and forehearth has an emission point. Each melter, refiner, and forehearth is subject to this rule.

For the melter, refiners and forehearths of Furnace No. 509, as this furnace 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.

For the melters, refiners and forehearths of Furnaces No. 502, 503, and 507, as these furnaces were manufactured as of July 1, 1971, the visible emissions from these sources shall not be more than 40 percent opacity when averaged over a six-minute period except for the following exceptions:

Six minute averaging periods may exceed 40 percent opacity if:
(1) no six-minute period exceeds 90 percent opacity;
(2) no more than one six-minute period exceeds 40 percent opacity in any hour; and
(3) no more than four six-minute periods exceed 40 percent opacity in any 24-hour period.

Monitoring requirements (with the exceptions of the melters for Furnace Nos. 507 and 509) consist of weekly observations of the emission points of these sources for any visible emissions above normal. If visible emissions from these sources are observed to be above normal, the Permittee shall either:

i. Take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements, or

ii. Demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2610 (Method 9) for 12 minutes is below the applicable opacity limit.

Recordkeeping for the results of the monitoring requirements and a semiannual summary report of the monitoring and recordkeeping requirements is required.

Additional requirements for the melters of Furnace Nos. 507 and 509
The melters of these furnaces are required to operate continuous opacity monitoring systems (COMS) pursuant to NSPS Subpart CC (see discussion elsewhere). Thus, pursuant to 02D .0521(g), for sources required to install, operate, and maintain such COMS, compliance with the numerical opacity limits in this Rule shall be determined as follows excluding startups, shutdowns, maintenance periods when fuel is not being combusted, and malfunctions approved as such according to procedures approved under 15A NCAC 02D .0535:
(1) no more than four six-minute periods shall exceed the opacity standard in any one day; and
(2) the percent of excess emissions, defined as the percentage of monitored operating time in a calendar quarter above the opacity limit, shall not exceed 0.8 percent of the total operating hours. If a source operates less than 500 hours during a calendar quarter, the percent of excess emissions shall be calculated by including hours operated immediately prior to this quarter until 500 operational hours are obtained.

The NSPS Subpart CC conditions include explicit recordkeeping requirements for the COMs data. The current permit conditions for 02D .0521 are silent in this regard. The 02D .0521 conditions will be updated to reflect that the Permitee shall meet the NSPS Subpart CC COMS recordkeeping requirements to meet the 02D .0521 recordkeeping requirements. Other than updating this recordkeeping language and to update the condition in general to reflect the current permit shell, no substantive changes to these conditions are necessary as a part of this renewal. Continued compliance 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. Only the melters of Furnace Nos. 507 and 509 are subject to this rule.

Furnace No. 507 became subject to NSPS Subpart CC with the modifications that were addressed in Application no. 2900109.13D(14A), which resulted in permit no. 02688T37 issued on February 10, 2014.

Furnace No. 509 became subject to NSPS Subpart CC with the modifications that were addressed in Application no. 2900109.21A, which resulted in permit no. 02688T44 issued on May 03, 2022.

As textile fiberglass furnaces using a modified process (i.e., no controls) as defined under 40 CFR 60.291, the melters (ID Nos. ES-507-M and ES-509-M), pursuant to 40 CFR 60.293(b)(3), are subject to a PM filterable standard of 0.5 gram of particulate per kilogram of glass produced (g/kg, or 1.0 pound per ton (lb/ton), of glass produced). In addition, EGFA is required to install and operate on the melters continuous opacity monitoring systems (COMs) pursuant to 40 CFR 60 293(c). Pursuant to 40 CFR 60.293(c), EGFA was required to do performance tests and concurrently establish a 99% Upper Confidence Level (UCL) for the opacity, which according to the rule is to be used to determine excess emissions and reported pursuant to 40 CFR 60.7.

In the past, the DAQ in its Title V permits stated that each exceedance of the 99% Upper Confidence Level (UCL), which according to the rule are to be treated as excess emissions and reported as such pursuant to 40 CFR 60.7, were violations of 02D .0524. In effect, these 99% UCL values were being treated as opacity standards. Saint Gobain Containers (SGCI, now Ardagh Glass Inc., facility ID No. 9100069) in 2007 had challenged the DAQ that these exceedances were not to be used as an opacity standard but rather to assess if the furnace melter was being properly operated and maintained (see permit review for permit revision no. T18 of the Ardagh Glass permit.). The DAQ ultimately agreed that the 99% UCL values were not opacity standards. As a result of negotiations between SGCI and the DAQ, substantially revised monitoring and recordkeeping requirements were incorporated into the SGCI NSPS Subpart CC permit condition. This identical approach was applied to Furnace No. 507 in EGFA's (PPG at the time) permit revision no. T40 issued September 16, 2015. This approach was also implemented for Furnace No. 509 in permit no. 02688T44 issued on May 03, 2022.

This approach includes, in addition to the initial performance testing and the establishment of the 99% UCL for the opacity described above, the establishment of a three-hour block average opacity value that is correlated to the 1 lb/ton of glass pulled emission limit, pursuant to the authority under 15A NCAC 02Q .0508(f), as follows (similar language is included in the permit condition):

> The opacity limit shall be established by using the three 1-hour average opacity values from the performance test required in 40 CFR 63.293(b) and (c) and determining the 99% Upper Confidence Limit (UCL) of the three 1-hour averages. The resultant three-hour opacity UCL value shall then be pro-rated to the NSPS particulate matter limit (1.0 pounds of PM per ton of glass pulled), by using the average PM emission rate value determined during the performance test required in 40 CFR 63.293(b) and (c).

The Permittee will then assess compliance with the PM limit on a continuous basis by calculating three-hour block average opacity values and comparing against the three-hour opacity limit as follows (similar language is included in the permit condition):

> Three-hour block average opacity values shall be calculated as the arithmetic average of any and all valid six-minute averages within a three-hour period. A three-hour period means a 180-minute period commencing at 12am, 3am, 6am, 9am, 12pm, 3pm, 6pm, and 9pm each day. Excluding periods of startup, shut down and malfunction of the furnace melter (ID No. ES-509-M), no three-hour block average opacity value shall exceed the value established during the initial performance test.

In addition to reporting all of the 6-minute periods during which the average opacity of the emissions from the furnace melter exceed the 99% UCL value as excess emissions for purposes of 40 CFR 60.7, which will ultimately be used to assess "acceptable operation and maintenance at all times" including startup, shutdown, and malfunction pursuant to 40 CFR 60.11(d), the approach also includes the calculation of two additional parameters to assess "acceptable operation and maintenance during normal operation" which excludes startup, shutdown, and malfunction. This monitoring requirement is implemented under the authority of 15A NCAC 02Q .0508(f) (or 02Q .0308 for non-TV permitting actions). The two parameters are "Percent Excess Emissions" and "Percent COMs Downtime."

As a result of issues raised by the DAQ Technical Services Section regarding the enforcement of the parameter Percent COMs Downtime on Furnace No. 507 (see letter dated December 3, 2020, included as Attachment A to this review), it was determined upon review that this parameter, which was originally intended to only reflect normal operation but in practice it was defined to reflect all operation (that is, it included periods of startup, shutdown, and malfunction) was redundant with the standard DAQ compliance enforcement policy for sources using COMs. As a result, it was decided to remove explicit mention of the "Percent COMs Downtime parameter as specified in the NSPS Subpart CC conditions (see email dated December 10, 2020 and included as Attachment B to his review). As this decision was made during the time the existing permit was open to incorporate the NSPS Subpart CC requirements for the melter (ID No. ES-509-M), the "Percent COMs Downtime was not incorporated into the permit for the melter (ID No. ES-509-M). However, the permit condition for the melter (ID No. ES-507-M) was not revised to remove the Percent COMs Downtime, as that application was open under a state-only permitting process (i.e., 02Q .0300 procedures via 02Q .0504) and it was determined that removing the Percent COMs Downtime parameter from the TV permit for the melter (ID no. ES-507-M) needed to occur under a TV permitting action. Since the renewal application was in house, it was decided to address it during the renewal review (i.e., this review). Hence the Percent COMs Downtime parameter will be removed from the permit condition addressing the NSPS Subpart CC requirements for the melter (ID No. ES-507-M) in the draft permit.

During the incorporation of the NSPS Subpart CC requirements for the melter (ID No. ES-509-M) into permit no. 02688T44 issued on May 03, 2022, the requirements were incorporated into the permit with the current permitting policy and shell standards in mind. The language and format of the condition for the melter (ID No. ES-509-M) will now be used to revise/update the permit condition for the melter (ID No. ES-507-M) in the draft permit.

For the melter (ID No. ES-507-M), the initial testing for compliance and establishment of all required parameters was conducted October 1, 2014. These values are contained in the existing permit.

Application no. 2900109.22A

The existing permit at Section 2.1 G.5.d.vi required the following:

Table 2.1 G.5

Six-minute average 99% UCL opacity value, %	Three-hour block average opacity limit, %
as established pursuant to Section 2.1 G.5.c.iii	as established pursuant to Section 2.1 G.5.c.iv

vi. The Permittee shall submit an application to update values in Table 2.1 G.5 in conjunction with the submittal of the test report required in Section 2.1 G.5.c.ii above.

For the melter (ID No. ES-509-M), the initial testing for compliance and establishment of all monitoring parameters under the NSPS Subpart CC condition was conducted June 2, 2022. EGFA submitted a request to incorporate these values into the permit as required pursuant to the existing permit condition at Section 2.1 G.5.d.vi. This request was assigned application no 2900109.22A and was received on July 25, 2022 .

The test report submitted with the request was reviewed by the AQAB and was approved via a memo dated September 8, 2022 (Tracking No. 202-105st)

The six-minute average 99% UCL opacity value based on the data submitted with the test report was determined by this engineer to be 3.14%. The three-hour block average opacity limit based on the data submitted with the test report was determined to be 3.7%. See email dated April 12, 2023. These parameters will be incorporated into the draft permit.

In summary, with respect to the NSPS Subpart CC permit condition addressing the melter (ID No. ES-509-M), the existing permit condition will be revised to:

- remove the initial testing requirements at the existing Section 2.1 G.5.c.ii, iii, and iv.
- remove the application submittal requirements at the existing Section 2.1 G.5.d.vi to incorporate the monitoring values in Table 2.1 G.5
- incorporate the monitoring values in Table 2.1 G.5

No other substantial changes will be necessary to the NSPS condition addressing the melter (ID No. ES-509-M).

As stated previously, for melter (ID No. ES-507-M) , the existing permit condition will be revised to match the condition for melter (ID No. ES-509-M).

State-Enforceable Only
Permit conditions to address the fluoride and filterable PM emission limitations established by Special Order of Consent 2002-002 or 2012-01

EGFA (formerly PPG) and the Environmental Management Commission (EMC), an agency of the state of North Carolina entered into a Special Order of Consent (SOC, 2002-002) to address alleged violations of PSD (02D .0530), NSPS (02D .0524), and state air toxics regulations (02D .1100). The SOC encompassed both this facility and the Shelby facility (which is beyond the scope of the discussion here).

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

- Fluorides - 0.45lb/ton (annual average) of glass pulled
- The numerical emission limits for PM in 40 CFR Subpart CC (0.5 g/kg modified process or 0.25 g/kg using controls).

These limits apply to all furnaces at Lexington with exceptions as discussed below. The proper statutory authority for these emission limitations was reconsidered during the permitting of the Furnace 509 modification incorporated into permit revision No. T32. It was determined that the authority for these emission limitations should be under NCGS 143-215.108(c) and hence a state enforceable only condition. Hence, these emission limits are not enforceable under the Title V permitting regulations.

However, Furnace No. 509 became subject to NSPS Subpart CC with the modifications that were addressed in Application no. 2900109.21A, which resulted in permit no. 02688T44 issued on May 03, 2023. As a result, the permit condition addressing the SOC imposed limits was revised. To be consistent with current permitting policy, the correct regulatory authority for state enforceable only permit conditions was revised to be 15A NCAC 02Q .0308(a)(1). This change will made to all of the SOC imposed permit conditions as necessary.

Each furnace below will be discussed separately. Note that when the term furnace is used, the melter is the furnace component of concern. The permit is specific in this regard.

Furnace No. 502
Furnace No. 502 is the only furnace at Lexington that currently must meet these limits by using an emission control system (i.e., a dry scrubber). The current permit requires annual testing and if the margin of compliance is large enough (80 percent of the respective emission limit), the Permittee shall be required to stack test only once every five years following the last stack test.

The existing permit condition requires that a performance test for fluoride be conducted within 180 days of the restart of Furnace No. 502. As noted elsewhere this furnace has not been operated since 2001. The permit will be revised to clarify that a

performance test shall be conducted for filterable PM as well. Note that under the 02D .0515 condition, a similar performance test is required for total PM. The SOC allows the permittee to comply with the less stringent filterable PM limit when controls are not to be used. This is equivalent to furnace operation during periods of control device maintenance. The permit also allows for this as well. However, the test plan in the existing permit is deficient in that it does not provide for a demonstration of compliance under this operating scenario. The permit will be revised to require EGFA to test for this operating scenario if, upon restart, it decides it would like to avail itself of this operating scenario.

The current permit condition does not contain any recordkeeping requirements. However, it does require the submittal of a permit application to establish monitoring parameters prior to startup. Thus, upon restart and permit reopening, the appropriate monitoring parameters and associated recordkeeping requirements will be implemented. The permit condition will be revised to clarify the intent and purpose of the application submittal requirement.

Furnace No. 503
Furnace No. 503 is subject to the fluoride and filterable PM limits under the SOC and has chosen to comply with these limits not by the use of controls but by using a low fluoride containing batch mixture. This batch mixture is identified in the permit as "environmentally friendly batch" (EFB). EFB is a modified raw material feed to the furnaces and is defined as batch material having an elemental fluorine composition of no greater than 0.9 pounds per ton (batch material). Previous source testing has shown that the use of this batch material will result in fluoride emissions of less than 0.45 lb/ton of glass pulled. The most recent test for fluoride was conducted on Furnace No. 509 on August 4 and 5, 2021 for comparison. The results were 0.07 lb/ton of glass pulled or 16 percent of the limit.

For monitoring purposes for fluoride, the current permit requires that EGFA determine the fluoride emissions on a monthly basis utilizing the mass balance approach as described in Section 2.1.F.4.c. of the permit for Furnace 507. The facility determines the fluoride content of the batch material (not to exceed 0.9 lb/ton) and then via an x-ray methodology, determines the fluoride content in the final product. The difference is assumed to be emitted.

For monitoring purposes for filterable PM, the current permit requires that EGFA comply with the PM testing requirements of the 02D .0515 permit condition at existing Section 2.1 D.1.d (current draft Section 2.1 D.1.c). This requirement is incomplete. The permit will be revised for EGFA to also comply with the monitoring and recordkeeping requirements of the 02D .0515 condition, found in the current draft at Section 2.1 D.1.e.

Standard semi-annual reporting is also required. Continued compliance with these requirements is expected.

Furnace No. 507
Furnace 507 is only subject to the fluoride emission limits under the SOC. Compliance with the SOC imposed filterable PM limit was superseded by the filterable PM limit under NSPS Subpart CC when Furnace No. 507 became subject to NSPS Subpart CC with the modifications that were addressed in Application no. 2900109.13D(14A), which resulted in permit no. 02688T37 issued on February 10, 2014. Like Furnace Nos. 503 and 509, this furnace uses "EFB" to comply with the fluoride limit.

For monitoring purposes for fluoride, the current permit requires that EGFA determine the fluoride emissions on a monthly basis utilizing the mass balance approach as described in Section 2.1.F.4.c. of the permit.

Standard semi-annual reporting is also required. Continued compliance with these requirements is expected.

Furnace No. 509
The SOC (2002-002) was revised a couple times. Its final revision was SOC 2012-001, which addressed Furnace No. 509 requirements. Furnace 509 is only subject to the fluoride emission limits under the SOC. Compliance with the SOC imposed filterable PM limit was superseded by the filterable PM limit under NSPS Subpart CC when Furnace No. 509 became subject to NSPS Subpart CC with the modifications that were addressed in Application no. 2900109.21A, which resulted in permit no. 02688T44 issued on May 03, 2022. Like Furnace Nos. 503 and 507, this furnace uses "EFB" to comply with the fluoride limit.

Like Furnace Nos. 503 and 507, for monitoring purposes for fluoride, the current permit requires that EGFA determine the fluoride emissions on a monthly basis utilizing the mass balance approach as described in Section 2.1.F.4.c. of the permit.

Standard semi-annual reporting is also required. Continued compliance with these requirements is expected.

15A NCAC 2Q .0317: AVOIDANCE CONDITIONS for 15A NCAC 2D. 0530: PREVENTION OF SIGNIFICANT DETERIORATION
AND
15A NCAC 02Q .0317: AVOIDANCE CONDITIONS for 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION and 15A NCAC 02D .0531: SOURCES IN NONATTAINMENT AREAS

Furnace Nos. 502 and 507 each have a PSD avoidance condition. Each furnace will be discussed separately.

Furnace No. 502
The permit condition for Furnace No. 502 has PM10, PM and fluoride emission limits. The permit contains no monitoring, recordkeeping and reporting other than a production limitation of 3,000 pounds of glass per hour, the furnaces' permitted capacity. Given that limitations were based on the maximum capacity of the furnace and the furnace is currently not operating, no substantive changes to the existing monitoring, recordkeeping and reporting requirements are necessary.

Furnace No. 507
The PSD avoidance condition for this furnace has existed in its current form since the issuance of permit no. 02688T25 on April 13, 2006. The PSD avoidance condition was revised at that time to address modifications of Furnace No. 507. At that time, Davidson County, was designated a $PM_{2.5}$ nonattainment area. Thus, in addition to revising to the existing avoidance condition for PSD (15A NCAC 02D .0530), the Permittee was seeking to establish an avoidance limitation for the nonattainment New Source Review permitting requirements pursuant to 15A NCAC 2D .0531.

Other than making revisions to bring the condition up to current shell standards, no substantive changes to the existing monitoring, recordkeeping and reporting requirements are necessary. Continued compliance with these requirements is expected.

15A NCAC 02D. 0530(U): USE OF PROJECTED ACTUAL EMISSIONS TO AVOID APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

See the discussion in Facility-wide Regulatory Considerations in Section VI below.

A. The following boilers appear in the current permit:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ESB67, ESB68	Two natural gas/propane/No. 2 fuel oil-fired boilers (21.0 million Btu per hour maximum heat input capacity each)	NA	NA

15A NCAC 02D .0503: PARTICULATES FROM FUEL BURNING INDIRECT HEAT EXCHANGERS

This regulation applies to particulate matter emissions from the combustion of fuel in indirect heat exchangers, such as boilers, that are discharged from any stack or chimney into the atmosphere. Fuel burning indirect heat exchangers (FBIHE) are limited to particulate matter emissions under this rule by the following equation:

$E = 1.090*Q^{(-0.2594)}$

Where:
E = allowable emission limit for particulate matter in lb/million Btu.
Q = maximum heat input in million Btu/hour.

The emission limitation for a given source is determined as a function of the total heat input to all such sources on site at the time the particular source was permitted. Also, once a limit has been established for a source, it shall not be changed upon the permitting of additional sources.

The current permit contains a PM emission limit of 0.326 lb/MMBtu. The language of the rule however suggests that this value should be shown to two significant digits, thus 0.33 lb/MMBtu. This value correlates to approximately 101 MMBtu/hr. A review of the permit history that can readily be seen (revision no. R20 issued July 29, 2003) shows that there were at one point five boilers with heat inputs of 21 MMBtu/hr each. One boiler had been removed prior to the last permit renewal. Two other boilers (ID Nos. ESB64 and ESB66) were removed from Permit No. 02688T45. Consistent with rule, the removal of a FBIHX shall not change the allowable emission limit of any FBIHX whose allowable emission limit has previously been established. Thus, the existing limit is correct for the remaining two boilers.

Using AP-42 data (Section 1.3 "Fuel Oil Combustion," Tables 1.3 -1 and 2 for oil fired boilers for conservatism), the estimated PM emissions are 0.021 lb/MMBtu. Thus, the expected emissions are an order of magnitude lower than allowed by the rule. The DAQ allows the use of AP-42 when reasonable which is the case for these small oil and gas-fired boilers. Likewise, the PM emissions for firing natural gas or propane in the FBIHEs are expected to be well below the allowable limit. Consistent with current DAQ policy, no testing, monitoring, recordkeeping and reporting is required for PM emissions when firing of these fuels.

Other than revising the limit to two significant digits and updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance 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. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

Using AP-42 data (Section 1.3 "Fuel Oil Combustion," Tables 1.3 -1 for oil-fired boilers for conservatism), the estimated SO_2 emissions are 0.51 lb/MMBtu. Likewise, the SO_2 emissions from firing natural gas or propane (which have inherently low sulfur) in these sources are expected to be well below the allowable limit. Consistent with current DAQ policy, no testing, monitoring, recordkeeping and reporting will be required for SO_2 emissions when firing these fuels.

Other than updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance 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 reasonably expected to occur. As these boilers 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.

Given the low visible emissions typically produced by boilers firing natural gas/propane or No.2 fuel oil, no monitoring, recordkeeping and reporting has been required for visible emissions when firing these fuels. This approach will remain unchanged in the revised permit. Other than updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance is expected.

15A NCAC 02D .1109: CAA 112(j); CASE-BY-CASE MACT FOR BOILERS AND PROCESS HEATERS

The current permit (revision no. T44) has Case-by-Case MACT provisions under 112(j) for these boilers (ID Nos. ESB67 and ESB68). With the promulgation of 40 CFR Part 63 Subpart DDDDD (MACT 5D), "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters," the applicability of the CAA §112(j) requirements sunset on May 20, 2019, after which the Permittee is required to comply with MACT 5D. Pursuant to 40 CFR 63.56(b), DAQ is required to incorporate the requirements of MACT 5D in the Title V permit upon its next renewal and establish a compliance date that is not longer than 8 years after the standard is promulgated or the Permittee was first required to comply with the case-by-case standard, whichever is earlier. This compliance date for MACT 5D was determined to be May 20, 2019. These requirements were incorporated into the TV permit during the last permit renewal (permit revision no. T40). Since this compliance date for MACT 5D has passed, the 112(j) requirements no longer apply and will be removed from the permit.

See discussion below for MACT 5D requirements as they apply to the boilers.

15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY
(40 CFR Part 63 Subpart DDDDD (5D), "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters")

As of this permit issuance, EPA has proposed amendments to 5D (85 FR 52198, August 24, 2020). Once the amendments are finalized, it is recommended that the permit conditions be reviewed and revised as needed during the next significant modification.

The current permit includes 5D requirements for two boilers (ID Nos. ESB67, and ESB68). 5D applies to new and existing boilers at major sources of HAP emissions. A boiler is considered new if it was constructed or reconstructed after June 4, 2010. Both boilers were constructed prior to this date and are considered existing sources under 5D. The 5D requirements became effective on May 20, 2019 (See the 02D .1109 discussion above).

Although permitted to burn No. 2 fuel oil, the Permittee intends on only burning fuel oil in these boilers during periods of natural gas curtailment. As such, under 5D the boilers can be considered "units designed to burn gas 1 fuels" pursuant to 40 CFR 63. 7499(l) as defined in 40 CFR 63.7575. The requirements for such units (existing units larger than 10 mmBtu/hr each) are annual tune ups, a one-time energy assessment and associated recordkeeping and reporting. The initial tune ups and the one-time energy assessment were required to be completed by the compliance date of May 20, 2019.

The one-time energy assessment was completed in December 2015. The following information was obtained from the inspection report dated May 23, 2019, two days after the compliance date.

> The most recent annual tune-ups took place as follows: ESB64 (out of service) on May 6, 2016, ESB66 on April 12, 2019, ESB67 on May 6, 2019, and ESB68 on April 22, 2019. A tune-up will take place on Boiler ESB64 if it is ever put back into service.

As stated previously in the 02D .0503 discussion above, the two boilers (ID Nos. ESB64 and ESB66) were removed from Permit No. 02688T45. Thus, the Permittee has met the one-time energy assessment requirement, initial tune-up requirements and the initial Notification of Compliance Status by the compliance date of May 20, 2019. A review of the subsequent inspection reports suggest the Permittee is in compliance with all subsequent tune-up requirements.

Other than memorializing the completion of the one-time energy assessment, initial tune-ups, initial NOCS, and updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance is expected.

B. The following emergency generators

- **Diesel Fuel-fired Emergency Generator No. 1 (1,676 brake horsepower) (ID No. ESDG93)**
- **Diesel Fuel-fired Emergency Generator No. 2 (1,609 brake horsepower) (ID No. ESDG94)**
- **Diesel Fuel-fired Emergency Generator, WWTP (1,095 brake horsepower) (ID No. ESDG97)**

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. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

Using the AP-42 emission factor of 1.01 times the percent sulfur content of the fuel (Section 3.4, "Large Stationary Diesel and All Stationary Dual-fuel Engines," Table 3.4 -1 for diesel fuel-fired engines), the combustion of diesel fuel found is not expected to exceed this limitation unless the diesel fuel has a sulfur content of approximately 2.3%. Fuel with a sulfur content this high is not commercially available in North Carolina. Given the expected margin of compliance, and consistent with current DAQ policy, no monitoring, recordkeeping and reporting is required.

Other than updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance 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 reasonably expected to occur. As these boilers 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.

Visible emissions from diesel fuel-fired engines are typically low. Consistent with current DAQ policy, no monitoring recordkeeping or reporting is required for the visible emissions from the combustion of diesel fuel in internal combustion engines.

Other than updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance is expected.

15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY
(40 CFR 63, Subpart ZZZZ "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines")

This rule applies to stationary reciprocating internal combustion engines (stationary RICE) at major and areas sources of HAP emissions. Existing RICE greater than 500 BHP are existing RICE if constructed or reconstructed prior to December 19, 2002. These two engines were constructed prior to 1996 based on a survey conducted in 2012 and hence are considered existing RICE pursuant to 40 CFR 63.6590(a)(1)(i). These engines are solely permitted for emergency service as defined at 40 CFR 63.6675.

Pursuant to 40 CFR 63.6590(b)(3)(iii), as emergency engines greater than 500 BHP, these engines do not have to meet the requirements of 40 CFR 63 Subpart ZZZZ and Subpart A, including initial notification requirements.

Other than updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance is expected.

15A NCAC 2D .0524 NEW SOURCE PERFORMANCE STANDARDS
(40 CFR Part 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines)

This rule generally applies to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) engines constructed 2005 and later. These two engines were constructed prior to 1996 based on a survey conducted in 2012. Thus, this rule does not apply to these engines.

E. The following wet cut lines:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
EPWC1	Remote Wet Cut Line No. 1 (4,500 lbs/hr dry nominal production rate) including a natural gas-fired dryer (3.5 million Btu per hour maximum heat input rate)	CDWC1	Venturi scrubber (80 gallons per minute minimum liquid injection rate)
EPWC2	Remote Wet Cut Line No. 2 (4,500 lbs/hr dry nominal production rate) including a natural gas-fired dryer (3.5 million Btu per hour maximum heat input rate)	CDWC2	Venturi scrubber (80 gallons per minute minimum liquid injection rate)
EPWC3	Remote Wet Cut Line No. 3 (4,500 lbs/hr dry nominal production rate) including a natural gas-fired dryer (3.5 million Btu per hour maximum heat input rate)	CDWC3	Venturi scrubber (80 gallons per minute minimum liquid injection rate)

These sources were added to the permit in permit revision no. T43. (See Section III above). Fiberglass is drawn from the underside of the furnace forehearth. Binder solutions are applied and the glass is wound onto tubes. The tubes are then placed on racks. These racks are then transported to a remote location where the glass is unwound and fed into a chopper. The chopped glass is then conveyed to a fluid bed-dryer. A dust collection system collects the PM emissions generated and exhausts them to a venturi scrubber. The wet cut lines are sources of combustion emissions, PM, VOC, HAP and TAP. A review of the three most recently available emissions inventory (calendar years 2018 , 2019 and 2020) shows for each of the following pollutants the maximum annual emissions from all three lines:

PM emissions: less than 0.5 tpy (2018)

VOC emissions: approximately 10 tpy (2019)
Largest HAP: 6087 pounds per year Methanol (2019)
Largest TAP: 5360 pounds per year, Acetic Acid (2018)

15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

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 sources in the table above are all subject to this rule.

Each wet cut line has a maximum nominal dry process rate of 4500 lb/hr or per the original application a total process rate of 5,040 lb/hr (2.52 tons per hour) to account for 12% water weight. Thus, using the first equation above the allowable emission rate is 7.6 lb/hr. The permittee estimates the controlled PM emissions of 0.91 lb/hr using wet venturi scrubbers with 99% removal efficiency for total PM.

All of the sources above comply with the emission limitations by using venturi scrubbers to control the PM emissions.

Monitoring requirements 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 is required to maintain an 80 gallon per minute flowrate for each scrubber. Recordkeeping for the results of the monitoring requirements and a semiannual summary report of the monitoring and recordkeeping requirements is required.

Other than updating language to reflect the current permit shell, no substantive changes to this condition are necessary as a part of this renewal. Continued compliance 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. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

SO_2 emissions originate from the firing of natural gas in the dryers. The SO_2 emissions from firing natural gas (which have inherently low sulfur) in these sources are expected to be well below the allowable limit. Consistent with current DAQ policy, no testing, monitoring, recordkeeping and reporting is required for SO_2 emissions when firing these fuels.

Other than updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance 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 reasonably 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 noted the difficulty of distinguishing opacity associated with the PM emissions vs the opacity associated with condensation of the saturated plume. It is also worth noting that in most cases opacity is an indicator of PM emissions. The control devices (scrubbers) in this case are very efficient and the monitoring, recordkeeping and reporting requirements imposed via 02D .0515 should keep the scrubbers 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 2 lb/hr of VOC) in these sources is also expected to be very low.

Consistent with current DAQ policy, no monitoring recordkeeping or reporting is required for the visible emissions from these sources. Other than updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance is expected.

H. The following material handling sources:

Table 2.1.H

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ESDC78, ESDC79, ESDC83, ESDC84	Four raw material storage silos	CDDC78, CDDC79, CDDC83, CDDC84	Four cartridge filters (886 square feet of filter media, each)
ESDC80, ESDC81, ESDC82	Three raw material storage silos	CDDC81	One cartridge filter (886 square feet of filter media)
ESDC88	Scrap material storage silo	CDDC88	One bagfilter (256 square feet of filter media)
ESDC85, ESDC86	Two raw material transfer systems	CDDC85, CDDC86	Two cartridge filters (886 square feet of filter media, each)
ESDC89	raw material storage silo	CDDC89	One cartridge filter (886 square feet of filter media)
ESDC90	raw material storage silo	CDDC90	One bagfilter (184 square feet of filter media)
ESDC91	Lime storage silo associated with the wastewater treatment operation	CDDC91	One cartridge filter (250 square feet of filter media)
ESDC101	One blender (No. A)	CDDC101	One cartridge filter (750 square feet of filter area)
ESDC102	One blender (No. B)	CDDC102	One cartridge filter (750 square feet of filter area)
ESDC103 through ESDC107	Five mixed batch storage bins (Nos. 1 through 5)	CDDC103 through CDDC107	Five cartridge filters (1,470 square feet of filter area, each)
ESDC111	Two Klug bins (Nos. 8E and 8W)	CDDC111	One cartridge filter (750 square feet of filter area)
ESDC110	Three Klug bins (Nos. 7E, 7S, and 7N)	CDDC110	One cartridge filter (750 square feet of filter area)
ESDC109	Three Klug bins (Nos. 5N, 5S, and 6)	CDDC109	One cartridge filter (750 square feet of filter area)
ESDC108, ESDC178, ESDC179	One Klug bin (No. 4) One Klug bin (No. 3) One Klug bin (No. 9)	CDDC108, CDDC178, CDDC179	Three cartridge filters (750 square feet of filter area, each)
ESDC114	One furnace batch storage bin (No. 503)	CDDC114	One cartridge filter (1,080 square feet of filter area)
ESDC-115	One furnace batch storage bin (No. 503)	CDDC-115	One cartridge filter (1,080 square feet of filter area, each)
ESDC-116	One furnace batch storage bin (No. 503)	CDDC-116	One cartridge filter (1,080 square feet of filter area, each)
ESDC117N	One furnace batch storage bin (No. 507N)	CDDC117N	One cartridge filter (1,080 square feet of filter area)

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ESDC117S	One furnace batch storage bin (No. 507S)	CDDC117S	One cartridge filter (1,080 square feet of filter area)
ESDC119	One furnace batch storage bin (No. 509N)	CDDC119N	One cartridge filter (1,080 square feet of filter area)
ESDC119S	One furnace batch storage bin (No. 509S)	CDDC119S	One cartridge filter (1,080 square feet of filter area)
ESDC180	One large scale bin	CDDC180	One bagfilter (225 square feet of filter area)
ESDC183	One raw material bin (4th floor)	CDDC183	One cartridge filter (750 square feet of filter area)
~~ES118~~	~~Limestone Reagent Bin for CD-F509ECS~~	~~CD-DC118~~	~~Bin vent filter (1,080 square feet of filter area)~~
~~ES181~~	~~Dust Collection System for CD-F509ECS~~	~~CD-DC181~~	~~Blower vent filter (960 square feet of filter area)~~
~~ES182~~	~~Klug Bin for CD-F509ECS~~	~~CD-DC182~~	~~Bin vent filter (480 square feet of filter area)~~

The sources in the table above are material handling equipment associated with the raw materials of glass production. They are all particulate matter emission sources only and are all controlled with filter systems.

The following three sources, ID Nos, ES118, ES181 and ES182 and their associated control devices are no longer in service. They were removed from service upon the removal from service of the emissions control system (ECS), consisting of a dry, limestone scrubber in series with a five- module fabric filter (ID No CD-509ECS-1) from the Furnace No. 509 melter (ID No. ES-509-M) during the recent permit modification (permit revision no. 45, issued May 3, 2022, see Section III above).

15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

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 sources in the table above are all subject to this rule. For all sources the process rates are less than 30 tons per hour. All of the sources above comply with the emission limitations by using filtration to control the PM emissions.

Monitoring requirements 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.

Upon review, the annual visual inspection requirement is in error. Standard DAQ monitoring requirements include monthly visual inspections. This will be corrected in the revised draft permit.

Recordkeeping for the results of the monitoring requirements and a semiannual summary report of the monitoring and recordkeeping requirements is required.

Other than updating language to reflect the current permit shell and correct the visual inspection frequency, no substantive changes to this condition are necessary as a part of this renewal. Continued compliance 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 reasonably expected to occur. This rule applies to the sources in the Table above as follows:

- Visible emissions from these sources (ID Nos. ESDC108 through ESDC111, ESDC178, and ESDC179) shall not be more than 40 percent opacity when averaged over a six-minute period. Consistent with the rule, these sources have a much higher 40% opacity limit since they were manufactured as of July 21, 1971.

- Visible emissions from the remaining sources in the table shall not be more than 20 percent opacity when averaged over a six-minute period.

Monitoring requirements consist of the monthly observations of the emission points of these sources for any visible emissions above normal. If visible emissions from these sources are observed to be above normal, the Permittee shall either:

i. Take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements, or
ii. Demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2610 (Method 9) for 12 minutes is below the applicable opacity limit.

Recordkeeping for the results of the monitoring requirements and a semiannual summary report of the monitoring and recordkeeping requirements is required.

Other than updating language to reflect the current permit shell, no substantive changes to this condition are necessary as a part of this renewal. Continued compliance is expected.

15A NCAC 02D. 0530(u): USE OF PROJECTED ACTUAL EMISSIONS TO AVOID APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

Batch storage bins (**ID Nos. ESDC-115 and ESDC-116**) have recordkeeping requirements subject to this rule in conjunction with Furnace No. 503. See discussion in SECTION VI below.

I. The following ovens

Emission Source ID No.	Emission Source Description
ESDO70	One single lane dielectric fiberglass drying oven (1,800 pounds per hour throughput capacity)
OSI-1, OSI-2	Two natural gas-fired fiberglass drying ovens #1 and #2 (0.8 million Btu per hour maximum heat input capacity each)
ES01, ES03	Two three lane natural gas-fired fiberglass drying ovens (4.5 million Btu per hour maximum heat input capacity each)
ES02	One four lane natural gas-fired fiberglass drying oven (5.6 million Btu per hour maximum heat input capacity)
ES04, ES05, ES06, ES07	Four single lane natural gas-fired fiberglass drying ovens (1,320 pounds per hour throughput capacity each, 1.5 million Btu per hour maximum heat input capacity each)

Fiberglass is drawn from the underside of furnace forehearth. Binder solutions are applied and the glass is wound on spools. The spools are then placed on racks. These racks are then placed in the ovens for drying. With the exception of the dielectric oven (ID No. ESDO 70) all the ovens are indirect heat exchangers (IDHX) that combust natural gas. Thus, each oven has at least two emission points; one for combustion gases and one for the VOC/HAP/TAP emissions from the binder solutions.

In an email dated February 8, 2022, EGFA requested that the three, multi-lane ovens (ES01, ES02 and ES03) be re-permitted. The email stated the following:

> The requested revised permit would list each oven lane an individual permit ID. The oven lanes operate independently of each other, so the request is being made to more accurately represent each lane as an individual source. This does not affect the oven emissions or the way the ovens have been modeled.

The Permittee provided revised B forms. This request is reasonable. These changes will be discussed as necessary in the regulatory review below. The revised list of ovens will appear in the draft permit as follows:

Emission Source ID No.	Emission Source Description
ESDO70	One single lane dielectric fiberglass drying oven (1,800 pounds per hour throughput capacity)
OSI-1, OSI-2	Two natural gas-fired fiberglass drying ovens #1 and #2 (0.8 million Btu per hour maximum heat input capacity each)
ES01A, ES01B and ES 01C	Three single lane natural gas-fired fiberglass drying ovens (1,320 pounds per hour throughput capacity each, 1.5 million Btu per hour maximum heat input capacity each)
ES02A, ES02B, ES02C and ES02D	Four single lane natural gas-fired fiberglass drying oven ((1,056 pounds per hour throughput capacity each, 1.2 million Btu per hour maximum heat input capacity each)
ES03A, ES03B and ES03C	Three single lane natural gas-fired fiberglass drying ovens (1,320 pounds per hour throughput capacity each, 1.5 million Btu per hour maximum heat input capacity each)
ES04, ES05, ES06, ES07	Four single lane natural gas-fired fiberglass drying ovens (1,320 pounds per hour throughput capacity each, 1.5 million Btu per hour maximum heat input capacity each)

15A NCAC 2D .0503: PARTICULATES FROM FUEL BURNING INDIRECT HEAT EXCHANGERS

This regulation applies to particulate matter emissions from the combustion of fuel in indirect heat exchangers (IDHXs) that are discharged from any stack or chimney into the atmosphere. The emission limitation for a given IDHX is determined as a function of the total heat input to all IDHXs on site at the time the particular IDHX was permitted.

This rule limits PM emissions from fuel burning heat exchangers by the following equation:

E = 1.090*(Q)^(-0.2594)
where:
E = allowable emission limit for particulate matter in lb/million Btu.
Q = maximum heat input in million Btu/hour.

This rule applies to these ovens as well as the two boilers discussed in Section V.A above. Note that this rule only applies to the stacks exhausting the combustion side of the IDHX. 15A NCAC 02D .0515 applies to the process side exhausts.

The current permit has an allowable emission rate of 0.49 pounds per million Btu heat input. This limit was established during the permitting of the ovens, ID Nos. ES04-and ES07 (permit revision no. T37, issued February10, 2014). This value correlates to a heat input of 22.2 MMBtu/hr. However, at the time these ovens were permitted the total heat input of all IDHXs on site (including the four new ovens) was actually 106.2 MMBtu/hr. Thus, the current limit was set incorrectly. Using the equation with the correct heat input at the time of permitting yields an allowable emission limit of 0.33 lb/MMBtu. Consistent with rule, the removal of an IDHX shall not change the allowable emission limit of any IDHX whose allowable emission limit has previously been established. Thus, the existing limit is correct even though two boilers, ID Nos. ESB64 and ESB66, (i.e., IDHXs) were removed during a recent permitting action. See the discussion in Section V.A above.

Per AP-42 the expected PM emissions from natural gas combustion is 7.6 lb/MMscf or, assuming a heating value 1020 Btu/scf, 0.0075 lb/MMBtu. Thus, for all on site natural gas-fired ovens heat compliance with this rule is expected by a wide margin. Thus, the erroneous emission limit established in permit no. T37 was never exceeded. Consistent with current DAQ policy for natural gas fired IDHXs, no M/R/R will be required.

Other than updating language to reflect the current permit shell and updated the allowable emission limit, no substantive changes to this condition are necessary as a part of this renewal. Continued compliance is expected.

15A NCAC 2D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

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 process stacks of the ovens in the table above are all subject to this rule. The process rates for these ovens vary from 0.53 to 0.9 tons per hour (tph). The allowable emission limits then vary from 2.7 to 3.8 lb/hr.

The Permittee has not reported PM emissions in its emissions inventories as it believes it emits no PM. It is all VOCs and organic HAPs and TAPs (mostly methanol and acetic acid). In 2020, the last year of emissions inventory data available the facility reported less than 6 tpy of total VOCs. Assuming 8760 hours per year operation, this is equal to 1.4 lb/hr of VOC. Thus, assuming all VOC emissions converted into condensable PM, compliance with this standard would be expected.

As the ovens do not rely on control devices for compliance with this standard, the monitoring requirements consist of the maintenance of production records such that the process rates "P" in tons per hour, as specified by the formulas contained above, can be derived and shall make these records available to a DAQ authorized representative upon request.

Other than updating language to reflect the current permit shell, no substantive changes to this condition are necessary as a part of this renewal. Continued compliance 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. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

SO_2 emissions originate from the firing of natural gas in the ovens, except for the dielectric dryer (ID No. ESDO70), and only applies to the combustion stacks. The SO_2 emissions from firing natural gas (which has inherently low sulfur) in these sources are expected to be well below the allowable limit. Consistent with current DAQ policy, no testing, monitoring, recordkeeping and reporting is required for SO_2 emissions when firing these fuels.

Other than updating language to reflect the current permit shell, no changes to this condition are necessary as a part of this renewal. Continued compliance 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 reasonably 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.

This rule applies to all process and combustion stacks for these ovens.

Regarding the combustion stacks only, natural gas is fired in these ovens. Hence the visible emission are expected to be very low to non-existent. Consistent with current DAQ policy, no monitoring recordkeeping or reporting is required for the visible emissions from the firing of natural gas in these ovens. The Permit will be revised to remove the current M/R/R requirements on the combustion stacks.

Regarding the process stacks only, which have little to no PM emissions, are also expected to have very low visible emissions. As such, the monitoring requirements consist of the monthly observations of the emission points of these sources for any visible emissions above normal. If visible emissions from these sources are observed to be above normal, the Permittee shall either:

i. take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements, or
ii. demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2610 (Method 9) for 12 minutes is below the applicable opacity limit.

Recordkeeping for the results of the monitoring requirements and a semiannual summary report of the monitoring and recordkeeping requirements is required.

Other than updating language to reflect the current permit shell and removing the M/R/R for the combustion stacks, no substantive changes to this condition are necessary as a part of this renewal. Continued compliance is expected.

15A NCAC 02D .1109: CAA 112(j); CASE-BY-CASE MACT FOR BOILERS AND PROCESS HEATERS

The current permit (revision no. T44) has Case-by-Case MACT provisions under 112(j) for the ovens (ID Nos. ES01 through ES03, OSI-1, and OSI-2). With the promulgation of 40 CFR Part 63 Subpart DDDDD (MACT 5D), "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters," the applicability of the CAA §112(j) requirements sunset on May 20, 2019, after which the Permittee was required to comply with MACT 5D. Pursuant to 40 CFR 63.56(b), the DAQ is required to incorporate the requirements of MACT 5D in the Title V permit upon its next renewal and establish a compliance date that is not longer than 8 years after the standard is promulgated or the Permittee was first required to comply with the case-by-case standard, whichever is earlier. This compliance date for MACT 5D was determined to be May 20, 2019. These requirements were incorporated into the TV permit during the last permit renewal (permit revision no. T40). Since this compliance date for MACT 5D has passed, the 112(j) requirements no longer apply and will be removed from the permit.

See discussion below for MACT 5D requirements as they apply to these ovens.

15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY
(40 CFR Part 63 Subpart DDDDD (5D), "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters")

As of this permit issuance, EPA has proposed amendments to 5D (85 FR 52198, August 24, 2020). Once the amendments are finalized, it is recommended that the permit conditions be reviewed and revised as needed during the next significant modification.

5D applies to new and existing boilers and process heaters at major sources of HAP emissions. A boiler or process heater is considered new if it was constructed or reconstructed after June 4, 2010. The following sources are considered process heaters under this rule.

ID Nos. ES01, ES02, ES03, OSI-1, OSI-2 - Constructed on or before June 4, 2010 and therefore considered existing
ID Nos. ES04-ES07 - Constructed after June 4, 2010 and therefore considered new

The permit has separate conditions for the existing ovens and the new ovens.

Existing process heaters
For these process heaters, the 5D requirements became effective on May 20, 2019 (See the 02D .1109 discussion above).

The process heaters, as they burn only natural gas, are considered "units designed to burn gas 1 fuels" pursuant to 40 CFR 63. 7499(l) as defined in 40 CFR 63.7575. The requirements for such units (existing units with heat inputs less than 5 mmBtu/hr each) are 5-year tune ups, a one-time energy assessment and associated recordkeeping and reporting. The initial tune ups and the one-time energy assessment were required to be completed by the compliance date of May 20, 2019.

The one-time energy assessment was completed in December 2015. The most recent inspection report dated August 04, 2021 states:

> "The initial tune ups took place in February 2018 for each subject oven and the NOCS was submitted on March 23, 2018. Tune-ups for the ovens also took place in February 2019 since the Case-by-Case MACT was still in effect until May19, 2019 and annual tune-ups were required."

The current permit reflects the oven ES01, ES02 and ES03 as multi-lane ovens. The existing permit reflects the oven (ID No. ES-02) as being less than 10 MMBtu per hour but greater than 5 MMBtu/hr, therefore requiring biennial tune-ups pursuant to the rule. The revised draft permit reflects all the ovens being permitted as single lane ovens, and in each case the ovens are now all less than 5 MMBtu per hour heat input each. Thus, the ovens are only subject to tune ups every five years. The permit will be revised to reflect the revised tune up schedule for the oven (ID No. ES02).

In summary the permit will be revised :
- to memorialize the initial notification, initial tune-up, and energy assessment requirements;
- to reflect five-year tune ups are required for the four single lane ovens (ID Nos. ES02A, ES02B, ES02C and ES02D) formerly permitted as the single, four lane oven (ID No. ES02); and
- bring the condition up to current permit shell standards.

Continued compliance is expected.

New process heaters

For these process heaters, the 5D requirements became effective upon startup.

The process heaters, as they burn only natural gas, are considered "units designed to burn gas 1 fuels" pursuant to 40 CFR 63. 7499(l) as defined in 40 CFR 63.7575. The requirements for such units (new units with heat inputs less than 5 mmBtu/hr each) are 5-year tune ups and associated recordkeeping and reporting.

The most recent inspection report dated August 31, 2020 states:

> "The Initial Notification was received on April 25, 2014 and indicated that the ovens commenced operation on April 9, 2014. The initial tune-up of the new ovens was due within 61 months of the start-up date, making the due date May 9, 2019. The Notification of Compliance Status (NOCS) was due within 60 days of the initial tune up. The first 5-year compliance report for the new ovens was due on January 31, 2020. Tune-ups of the subject ovens took place on February 2018 and the NOCS was submitted on March 23, 2018. The five-year compliance report was submitted on January 29, 2020, and was submitted to the EPA through CDX. The compliance report indicated that the most recent tune-ups were done on February 21, 2019, for ovens ES04 – ES07. The facility appears to be in compliance with 2D .1111 and NESHAP Subpart 5D.

In summary the permit will be revised :
- to memorialize the initial notification requirements; and
- to bring the condition up to current permit shell standards.

15A NCAC 02D. 0530(U): USE OF PROJECTED ACTUAL EMISSIONS TO AVOID APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

See the discussion in Facility-wide Regulatory Considerations in Section VI below.

J. The following source:

Emission Source ID	Emission Source Description	Control Device ID No	Control Device Description
ESBR412	Binder Mix Room	NA	NA

The Binder Mix Room is a source of VOC, HAP, and TAP emissions with VOC emissions generally less than 2 tpy on an annual basis. Generally, the largest HAP and TAP emissions are associated with Methanol and Acetic Acid, both also considered VOCs. No combustion emissions or PM emissions are associated with this source.

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

This regulation applies to fuel burning operations and industrial processes where visible emissions can be reasonably expected to occur. Visible emissions from this source are expected to be well below the allowable 20% opacity limit. Consistent with current DAQ policy, no monitoring recordkeeping or reporting is required for the visible emissions from this source.

Other than updating language to reflect the current permit shell, no substantive changes to this condition are necessary as a part of this renewal. Continued compliance is expected.

State Enforceable Only

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

See discussion in SECTION VI below.

State Enforceable Only

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

See discussion in SECTION VI below.

VI. Facility-wide Regulatory Considerations

15A NCAC 02D. 0530(U): USE OF PROJECTED ACTUAL EMISSIONS TO AVOID APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

15A NCAC 02D .0530(u) allows for the Permittee to use estimates of future emissions associated with a specific modification to address PSD applicability. Assuming the Permittee stays below these "projected actual emissions" estimates, the modification will not be subject to PSD review. These recordkeeping requirements stay in effect either five or ten years, starting with the beginning of operation of the source(s) after the modification. If the actual emissions remain below the "projected actual emissions," for the entire five- or ten-year period, the recordkeeping requirements expire and are subsequently removed from the permit.

The existing permit has a few of these conditions. Each will be addressed separately.

Furnace No. 509
The Permittee has used projected actual emissions to avoid applicability of PSD requirements for a project including the rerouting of the emissions of the melter (**ID No. ES-509-M**) from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack. This project is fully described in permit application no. 2900109.21A.

These requirements were incorporated into permit no. 02688T44 issued May 03, 2022, at Section 2.1 G.6 of the existing permit. Other than making revisions to bring the condition up to current shell standards, no substantive changes to the existing monitoring, recordkeeping and reporting requirements are necessary. Continued compliance with these requirements is expected.

Furnace No. 503 and appurtenant equipment
The Permittee has used projected actual emissions to avoid applicability of PSD requirements for a project consisting of modifications to Furnace 503 and the addition of two batch bins and is fully described in application no. 2900109.14B.

These requirements were incorporated into permit no. 02688T38 issued August 14, 2014, at Section 2.1 D.1 of the existing permit for a ten year period. As the ten-year period has not expired, this permit condition will remain in the permit. Other than making revisions to bring the condition up to current shell standards, no substantive changes to the existing monitoring, recordkeeping and reporting requirements are necessary. Continued compliance with these requirements is expected.

Furnace No. 507 and four drying ovens
The Permittee has used projected actual emissions to avoid applicability of PSD requirements for a project consisting of modifications to Furnace 507 and the addition of four drying ovens and is fully described in application no. 2900109.13D and a project consisting of modifications to the forehearth of Furnace 507 and is fully described in application no. 2900109.15B.

The requirements for the project addressed in application no. 2900109.13D were incorporated into permit no. 02688T37 issued February 10, 2014, at Section 2.1 C.1 of the existing permit for a ten-year period. Furnace No. 507 resumed operation after this modification in April of 2014.

The requirements for the project addressed in application no. 2900109.15B were incorporated into permit no. 02688T41 issued March 17, 2016, at Section 2.1 C.1 of the existing permit. Although the Permittee at that time considered this project independent of the project addressed in application no. 2900109.13D, for expediency it agreed to combine the projects. The following quote is from the permit review for application no. 2900109.15B and explains the approach that was implemented into permit no. 02688T41.

> For emissions tracking purposes under 2D .0530(u) only, the current forehearth project will be combined with the melter and oven project addressed in application no. 2900109.13D for which a 2D 0530(u) recordkeeping condition already exists in the permit at Section 2.2.C.1. This seems reasonable since once this current project is completed the emissions from the current project cannot be differentiated from the project of 2900109.13D as they involve the same sources. The 2900109.13D project requires 10 years of recordkeeping since it involved an increase in the furnace's design capacity whereas the current project does not and hence requires only 5 years of recordkeeping. Thus, the existing 10-year recordkeeping requirements will cover the required recordkeeping period for the current project as well.

As the ten-year period has not expired, this permit condition will remain in the permit. Other than making revisions to bring the condition up to current shell standards, no substantive changes to the existing monitoring, recordkeeping and reporting requirements are necessary. Continued compliance with these requirements is expected.

15A NCAC 02D .0614: COMPLIANCE ASSURANCE MONITORING (CAM)

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.

Applicability will be addressed for all on-site sources below. Note that once one of the three criteria identified in 02D .0614(a) is determined to not apply, no further discussion is necessary. Each source, or similar groups of sources using control devices, will be discussed separately.

Furnace No. 502

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Single level fiberglass furnace No. 502, consisting of the following:			
ES-502-M	natural gas/propane direct-fired melter utilizing 100% oxygen firing (3,000 pounds per hour glass pull rate)	CD153	One dry scrubber
ES-502-R	natural gas/propane-fired-refiner	NA	NA
ES-502-F	natural gas/propane-fired forehearth	NA	NA

Only the Furnace No. 502 melter is equipped with a scrubber system. However, it was installed to comply with state enforceable only fluoride (F) and filterable PM emission limits established pursuant to Special Order of Consent (SOC) 2002-002). The scrubber may also be used to comply with the 15A NCAC 02D .0515.

The state enforceable only limits under the SOC do not meet the definition of "applicable requirements" under 02D .0614(c)(1), which in turn mean they do not meet the definition of an "emission limitation or standard" under 02D .0614(c). Thus, the furnace No. 502 melter is not subject to CAM for the state enforceable only limits under the SOC as it does not meet the applicability requirement at 02D .0614(a)(1).

With respect to 02D .0515, the Furnace No. 502 melter has potential uncontrolled emissions of less than 100 tpy of PM10 and PM2.5, the applicable regulated air pollutants under this rule. Thus, the Furnace No. 502 melter is not subject to CAM for this rule as it does not meet the applicability requirement at 02D .0614(a)(3).

The material handling sources found at Section 2.1 H of the permit
These sources are all controlled by bagfilters to comply with 02D .0515 and 02D .0521. EGFA submitted a CAM applicability analysis for these sources in the renewal application. All of these sources had potential uncontrolled emissions of less than 100 tpy of PM10 and PM2.5, the applicable regulated air pollutants. Thus, these sources are not subject to CAM as they do not meet the applicability requirement at 02D .0614(a)(3).

Three remote wet cut lines found at Section 2.1 E of the permit
Each remote wet cut line is controlled by a venturi scrubber which is used to comply with 02D .0515 and 02D .0521. EGFA submitted a CAM applicability analysis for these sources via email on July 28, 2022. All of these sources had potential uncontrolled emissions of less than 100 tpy of PM10 and PM2.5. Thus, these sources are not subject to CAM as they do not meet the applicability requirement at 02D .0614(a)(3).

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.

EGFA conducted a facility-wide dispersion modeling analysis in support of the modifications made to Furnace No. 509 in the most recent permitting action (application no. 2900109.21A, which resulted in permit no. 02688T44 issued on May 03, 2022) . The modeling is fully described in the permit review for permit no. 02688T44. The modeling analysis was ultimately approved by the AQAB via a memo on March 21, 2022.

Nine TAPS were included in the dispersion modeling analysis. All emission rates were based on potential emission estimates. Given the margins of compliance of these emission rates with respect to each TAPs AAL, the emission rates were then optimized to result in ambient impacts close to each TAPs AAL. The following table shows the "optimization factor" for each TAP.

TAP	Optimization Factor
Acetic Acid	4.5
Acrolein	981.8
Arsenic	1.9
Beryllium	59.5
Benzene	5.1
Cadmium	32.8
Chromium	377.3
Fluoride	1.6
Formaldehyde	7.8

The potential emission rates of TAP for each source was multiplied by the respective optimization factor in the table above. The results of the modeling analysis are shown in the table below (excerpted from the AQAB memo dated March 21, 2022.

Maximum Modeled Toxics Impacts for the Optimized Emissions
EFGA Lexington Facility, Davidson County, North Carolina

Pollutant	Averaging Period	Max. Conc. (µg/m³)	AAL (µg/m³)	% of AAL
Acetic acid	1-hr	3608	3700	98 %
Acrolein	1-hr	2557	2700	95 %
Arsenic	Annual	1.9E-4	2.3E-4	83 %
Beryllium	Annual	3.8E-3	4.1E-3	93 %
Benzene	Annual	0.106	0.12	88 %
Cadmium	Annual	5.02E-3	5.5E-3	91 %
Chromium	24-hr	0.588	0.62	95 %
Fluoride	1-hr	78	250	31 %
	24-hr	15	16	95 %
Formaldehyde	1-hr	146	150	97 %

Note the smallest optimization factor, 1.6, was used for Fluoride, which resulted in maximum impacts of 31% and 95% of the 1-hour and 24-hour AALs respectively. The permit was revised to reflect these new emission limits of each TAP for each source in Table 2.2 A.1 of the permit. The current permit contains the following monitoring requirement:

> The Permittee shall record, retain on site (in written or electronic format) and make available to an authorized representative upon request records sufficient to show that the permitted emission rates in Table 2.2 A.1 are not exceeded.

Given that the modeling analysis was based on TAP emission estimates that are well above the expected potential emissions for each source, the monitoring requirement will remain unchanged.

Continued compliance with this rule is expected. No changes to the current permit are necessary.

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

This rule requires that the Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

To date odors have not been an issue at the facility. Continued compliance is expected.

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 decisions[2]. Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses[3] 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 permits, after August 21, 2023, through the normal course of permit issuance. General Condition J will therefore be removed from the revised permit.

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

NSPS
Furnace Nos. 507 and 509 are subject to 40 CFR Part 60 Subpart CC "Standards of Performance for Glass Manufacturing Plants." See discussion in Section V above.

NESHAPS/MACT
The EGFA facility is considered a major source of HAP. Hence no area source emission standards apply.

The boilers (ID Nos. ESB67 and ESB68) in Section 2.1 A of the permit and all of the drying ovens in Section 2.1 I of the permit (excepting ID No. ESDO70) are subject to 40 CFR 63, Subpart DDDDD, "National Emission Standards for Hazardous Air

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

Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters." See discussion in Section V above.

The following insignificant activities are subject to 40 CFR 63 Subpart ZZZZ "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)."

Emission Source ID No.	Emission Source Description[1]
IESEB98 and IESEB99 (**MACT ZZZZ**)	Natural gas-fired combustion air emergency blowers (150 BHP, each)
IESEB100 (**MACT ZZZZ**)	Natural gas-fired combustion air emergency blowers (190 BHP, each)
IESDP151 (**MACT ZZZZ**)	Diesel-fired fire pump (215 BHP)
IESDP152 (**MACT ZZZZ**)	Diesel-fired fire pump (143 BHP)
IESEP175 (**MACT ZZZZ**)	Propane-fired emergency pump at WWTP (24 BHP)
IESDP95 (**MACT ZZZZ**)	Diesel-fired Emergency process water pump (575 BHP)
IESDP951 (**MACT ZZZZ**)	Diesel-fired emergency process water supply pump (240 BHP)

All of these RICE are considered "existing under the rule."
RICE over 500 brake horsepower (BHP) in emergency service do not have to meet the requirements of 40 CFR 63 Subpart ZZZZ and Subpart A, including initial notification requirements.

RICE with compression ignition and less than or equal to 500 BHP are subject to the following

Except during periods of startup of the IC engine, the Permittee shall:
i. Change oil and filter every 500 hours of operation or annually, whichever comes first;
ii. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and
iii. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
[40 CFR 63.6602, Table 2c to Subpart ZZZZ]

RICE with spark ignition and less than or equal to 500 BHP are subject to the following

Except during periods of startup of the IC engine, the Permittee shall:
i. change oil and filter every 500 hours of operation or annually, whichever comes first;
ii. inspect spark plugs every 1,000 hours of operation or annually, whichever comes first; and
iii. inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary
[40 CFR 63.6602, Table 2c of Subpart ZZZZ]

As the facility is a major source of HAP and produces continuous strand fiberglass (SIC 3229), the facility is <u>not</u> 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".

<u>PSD/Attainment Status</u>
Davidson 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 pollutants including PM/PM10/PM2.5, Fluorides, NOx and SO_2.

This renewal does not trigger PSD review. The permit contains two PSD avoidance conditions. See discussions in Section V above.

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).

CAM
See discussion in Facility-wide Regulatory Considerations in Section VI above.

Toxics
See discussion in Facility-wide Regulatory Considerations in Section VI above.

VIII. Compliance History

The most recent compliance inspection report by Jim Hafner of the Winston-Salem Regional Office (June 2, 2022) states the following:

> Electric Glass Fiber America, LLC appeared to operate in compliance with all Air Quality rules and regulations at the time of this inspection.

The five-year compliance history from the inspection report is also included verbatim below.

> August 16 -2021 – A Notice of Deficiency (NOD) was issued for failure to conduct annual maintenance on two fire pump engines.
>
> May 12, 2020 – A Notice of Violation (NOV) was issued for failure to conduct a stack test on Furnace No. 509 during CY 2019. The test conducted in October 2018 indicated that the PM emission rate was at 88% of the maximum 2D .0515 limit indicating annual testing was required. No enforcement resulted from this violation.

IX. Changes Implemented in Revised Permit

The following changes were made to Air Permit No. 02688T46:*

Page No.	Section	Description of Changes
NA	Cover Letter	▪ Used current shell language, updated permit numbers, dates, etc. ▪ Removed minor modification language ▪ Added “right to contest” language
1	Permit cover letter	▪ Revised dates, permit numbers, etc. using current shell standards

Page No.	Section	Description of Changes
4	Section 1 – Permitted Equipment list	▪ Removed minor modification footnote ▪ Removed 02Q .0501(b)(2) modification footnotes for the application nos. 2900109.21A and 22C ▪ Removed all ".1109 Case-by-Case MACT" identifiers as the rule is no longer applicable. ▪ Removed reference to the dry scrubber (ID No. CD-F509ECS-1) as it is no longer in service. Furnace No. 509 melter emissions have been rerouted. ▪ Removed reference to the following three sources and their associated control devices: ID Nos. ES118 and CD-DC-118, ES181 and CD-DC181 and ES182 and CD-DC 182. ▪ Revised descriptors for all furnaces to include heat input ratings ▪ Re-permitted all ovens as "single lane" ovens as follows: -ES01 is ES01A, ES01B, and ES01C -ES02 is ES02A, ES02B, ES02C, and ES02D -ES03 is ES03A, ES03B, and ES03C -Added MACT DDDDD descriptors ▪ For ESDG94, the brake horsepower value was corrected from 925 to 1,609 brake horsepower at the request of the Permittee on May 19, 2023 ▪ ESDG93 (formerly IESDG93) was moved to Section 1 of the Permit
GLOBAL	GLOBAL	▪ Revised all conditions as necessary to bring to current shell standards and permitting policy. No changes in intent were made as a result of these changes. All changes in intent are noted elsewhere.
NA	Section 2.1 A.4 (existing permit)	▪ Removed condition 2.1 A.4 from the existing permit as it addressed 15A NCAC 02D .1109 "Case-by-Case MACT", which is no longer applicable as of May 20, 2019. These requirements have been superseded by the MACT DDDDD requirements pursuant to 15A NCAC 02D .1111.
8	Section 2.1 A.4	▪ 15A NCAC 02D .1111 MACT condition ▪ Formerly Section 2.1 A.5 ▪ Memorialized initial tune up, energy assessment and initial notification.
11	Section 2.1 B	▪ Added reference to ESDG93; formerly IESDG93, it is an existing stationary RICE under MACT ZZZZ. Thus, it has the same applicable requirements as the other two engines in this section. ▪ In Section 2.1 B.1.c, corrected the language to reflect that diesel fuel and not propane or natural gas is the fuel fired in the engines. ▪ In Section 2.1 B.2.c, corrected the language to reflect that diesel fuel and not propane or natural gas is the fuel fired in the engines. ▪
13	Section 2.1 C.1	▪ Revised the 02D .0515 testing requirement to clarify that annual stack testing is to be conducted within 13 months of the previous stack test and that the five-year testing is to be conducted within 61 months of the previous stack test.
15	Section 2.1 C.5	▪ SOC (2002-002) imposed requirements ▪ Revised language to be consistent with current shell standards ▪ Revised applicable regulatory to 15A NCAC 02Q .0308(a)(1) ▪ Clarified the intent of the existing permit application requirement is to submit the application concurrently with the initial testing protocol submitted upon the restart of the furnace to establish the appropriate monitoring and recordkeeping requirements.
17	Section 2.1 D.1	▪ 02D .0515 condition ▪ Removed existing section 2.1 D.1.c, an initial testing requirement, as it had been satisfied on May 14, 2015 ▪ Revised the 02D .0515 testing requirement to clarify that annual stack testing is to be conducted within 13 months of the previous stack test and that the five-year testing is to be conducted within 61 months of the previous stack test.
19	Section 2.1 D.4	▪ SOC (2002-002) imposed requirements ▪ Revised language to be consistent with current shell standards ▪ Revised monitoring requirement for filterable PM to be met by compliance with the total PM monitoring requirements under 02D .0515

Page No.	Section	Description of Changes
22	Section 2.1 F.1	▪ Revised the 02D .0515 testing requirement to clarify that annual stack testing is to be conducted within 13 months of the previous stack test and that the five-year testing is to be conducted within 61 months of the previous stack test.
24	Section 2.1 F.4	▪ Added record keeping for total NOx, CO, SO_2 and lead to the existing PSD avoidance condition.
26	Section 2.1 F.5	▪ NSPS Subpart CC condition for melter (ID No. ES-507-M) ▪ Condition was substantially revised to align with the NSPS Subpart CC condition for the melter (ID No. ES-509-M) at Section 2.1 G.5. See review for discussion. ▪ Revised reporting frequency from a quarterly to a semiannual basis as requested by Permittee. Calculations, however, will remain on a quarterly basis consistent with current DAQ policy.
30	Section 2.1 G	▪ Removed reference to the dry scrubber (ID No. CD-F509ECS-1) as it is no longer in service. Furnace No. 509 melter emissions have been rerouted. ▪ Removed existing permit condition G.8 addressing the requirement to submit the "step two" Title V permit application. This requirement was satisfied with the receipt of permit application no. 2900109.22B ▪ Removed existing permit condition G.9 as it is no longer applicable. It has been superseded by conditions 2.1 G.3 and G.4 ▪ Removed existing permit condition G.10 as it is no longer applicable. It has been superseded by conditions 2.1 G.7 ▪ Removed sunrise and sunset language from permit conditions G.3, G.4, G.5 and G.6. Renumbered conditions as appropriate. Revised regulatory applicability from 02Q .0308 to 02Q .0508 to reflect TV applicability. Added TV noncompliance statements consistent with current DAQ permit policy. ▪ Removed existing permit condition G.12 addressing the requirement to submit the "step two" Title V permit application. This requirement was satisfied with the receipt of permit application no. 2900109.23A ▪ Existing condition G11 was renumbered to G.7. ▪ Existing condition G.7 was renumbered to G.8.
30	Section 2.1 G.1	▪ Revised the 02D .0515 testing requirement to clarify that annual stack testing is to be conducted within 13 months of the previous stack test and that the five-year testing is to be conducted within 61 months of the previous stack test.
33	Section 2.1 G.5	▪ NSPS Subpart CC condition for melter (ID No. ES-509-M) ▪ Removed initial testing requirements as these requirements have been met (existing permit conditions 2.1 G.5 c.ii, iii and iv) ▪ Updated Table 2.1 G.5 with the parameters established during the initial performance testing on June 2, 2022 ▪ Removed application submittal requirement as this requirement has been met (existing permit condition Section 2.1 G.5 d.vi.) ▪ Relocated the definition of the "three-hour block average opacity limit" from the removed testing condition at existing Section 2.1 G.5.c.iv to current section 2.1 G.5.d.vi. ▪ Clarified the intent of Table 2.1 G.5 parameters during testing conducted to re-establish those parameters with the following <u>underlined</u> language at the current Section 2.1 G.5.d.ix. The Permittee shall submit a permit application with the test reports for any testing conducted pursuant to Section 2.1 G.5 d.vii above to revise the associated parameters in Table 2.1 G.5. <u>The parameters in Table 2.1 G.5 do not apply during these performance tests.</u> ▪ Revised reporting frequency from a quarterly to a semiannual basis as requested by Permittee. Calculations, however, will remain on a quarterly basis consistent with current DAQ policy.
35	Section 2.1 G.6	▪ 02D .0530(u) condition for application no. 2900109.21A ▪ Clarified that the report shall contain the emissions from the melter (**ID No ES-509-M**), refiner (**ID No. ES-509-R**) and forehearth (**ID No. ES-509-F**) of

Page No.	Section	Description of Changes
36	Section 2.1 G.7	▪ 02D .0530(u) condition for application no. 2900109.22C ▪ Revised description of project from "direct chop" to "wet chop." "wet chop" better reflects the project as it is a commonly used term to describe fiber that is chopped with binder applied but is not sent to a dryer. ▪ Clarified that the report shall contain the emissions from the melter (**ID No ES-509-M**), refiner (**ID No. ES-509-R**) and forehearth (**ID No. ES-509-F**) of
38	Section 2.1 H	▪ Removed reference to the following three sources and their associated control devices: ID Nos. ES118 and CD-DC-118, ES181 and CD-DC181 and ES182 and CD-DC 182.
39	Section 2.1 H.1	▪ Revised the annual visual inspection to monthly to be consistent with current DAQ permitting policy for 02D .0515 monitoring
42	Section 2.1 I	▪ Revised the affected source list to reflect the individual permitting of the single lane ovens that were previously considered to be multi-lane ovens.
42	Section 2.1 I.1	▪ 02D .0503 condition ▪ Formerly Section 2.1 I.5 ▪ Revised allowable limit to 0.33 lb/MMBtu
43	Section 2.1 I.2	▪ 02D .0515 condition ▪ Formerly Section 2.1 I.1
43	Section 2.1 I.3	▪ 02D .0516 condition ▪ Formerly Section 2.1 I.2
43	Section 2.1 I.4	▪ 02D .0521 condition ▪ Formerly Section 2.1 I.3 ▪ Removed visible emissions M/R/R for the combustion stacks consistent with current DAQ permitting policy.
NA	Section 2.1 I.4 (existing)	▪ Removed condition 2.1 I.4 from the existing permit as it addressed 15A NCAC 02D .1109 "Case-by-Case MACT", which is no longer applicable as of May 20, 2019. These requirements have been superseded by the MACT DDDDD requirements pursuant to 15A NCAC 02D .1111.
44	Section 2.1 I.5	▪ MACT DDDDD condition for "new" ovens ▪ Former Section 2.1 I.6 ▪ Memorialized initial notifications
46	Section 2.1 I.6	▪ MACT DDDDD condition for "existing" ovens ▪ Former Section 2.1 I.7 ▪ Memorialized initial notifications, energy assessment, and tune-ups ▪ Revised tune up schedule for all ovens to once every five years.
54	Section 2.2 C.1	At the request of the Permittee and consistent with the notification letter dated January 16, 2015, the following statement was added to the 02D 0530(u) recordkeeping condition: The requirements in Section 2.2 C.1 b through e below apply through the end of the 2024 calendar year.
55	Section 2.2 D.1	At the request of the Permittee and consistent with the notification letter dated January 16, 2015, the following statement was added to the 02D 0530(u) recordkeeping condition: The requirements in Section 2.2 D.1 b through e below apply through the end of the 2024 calendar year.

Page No.	Section	Description of Changes
56	Section 3 (insignificant activities list)	▪ Removed the following sources from the permit. They were requested for removal in application no. 09B but were not removed inadvertently: IESWT183, IESWT184 and IESWE191 ▪ Revised descriptor for source (ID No. IESDP951) to read: Diesel-fired emergency process water supply pump for Furnace No. 509 (240 BHP) [MACT ZZZZ] ▪ Added source IESDP952 that was discovered during an internal TV compliance review. ▪ Added source IESWT194 that was added to ESM in 2011 but was inadvertently left off of the insignificant activities list ▪ Revised descriptor for IESPP150 to read: Propane flare for propane farm. ▪ Removed the following fire pump from the permit (ID No. IESDP151) ▪ For IESEB98 and IESEB99 revised BHP from 175 to 150 ▪ For IESEB100 revised BHP from 175 to 190 ▪ For IESDP95 revised BHP from 830 to 575 ▪ For IESDG93 revised BHP from 750 to 1676 and moved to Section 1 of the permit.
58	Section 4	▪ Revised general conditions from version 6.0, 01/07/2022 to version 7.0, 08/21/2023) Changes include: -GC J – the emergency provisions were removed. See discussion in Section VI of permit review.

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

X. Public Notice/EPA and Affected State(s) 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 15 A NCAC 02Q .0525, the EPA will have a concurrent 45-day review 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 pursuant 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 and local program at or before the time notice provided to the public under 02Q .0521 above. Current NC permitting policy is to provide notice to all local programs in NC and all contiguous states regardless of their status as an affected state under 02Q .0522.

~~*Notice of the DRAFT Title V Permit to Affected States ran from XXXX YY, 2020, to XXXX YY, 2020.* **Update with comments received from Affected States.**~~

~~*Public Notice of the DRAFT Title V Permit ran from XXXX YY, 2020, to XXXX YY, 2020 on the DAQ website and in the newspaper "X"X"X"* **Update with public comments received.**~~

~~*EPA's 45-day review period ran concurrent with the 30-day Public Notice, from XXXX YY, 2020, to XXXX YY, 2020.* **Update with comments received from EPA and U.S. EPA Region 4 regarding the DRAFT Title V Permit.**~~

XI. 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 group of permitting actions since 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.

XII. Zoning

A zoning consistency determination per 02Q .0304(b) was **NOT** required for this group of permitting actions as it is not a new facility or the expansion of an existing facility.

XIII. Recommendations

~~*To be determined after public notice and EPA review.*~~

Attachment A

Permit Review for Permit No. 02688T44
(Application No. 2900109.21A)

NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: **May 03, 2022**

Region: Winston-Salem Regional Office
County: Davidson
NC Facility ID: 2900109
Inspector's Name: Jim Hafner
Date of Last Inspection: 08/04/2021
Compliance Code: 5 / In Physical Compliance

Facility Data

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

Facility Address:
Electric Glass Fiber America, LLC
473 New Jersey Church Road
Lexington, NC 27292

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, .0521, .0524, .0530, 02Q .0504
NSPS: Subpart CC
NESHAP: NA
PSD: no
PSD Avoidance: no but 02D .0530(u)
NC Toxics: yes
112(r): NO
Other:

Contact Data

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

Application Data

Application Number: 2900109.21A
Date Received: 10/08/2021
Application Type: Modification
Application Schedule: TV-501(b)(2) Part1

Existing Permit Data
Existing Permit Number: 02688/T43
Existing Permit Issue Date: 03/02/2018
Existing Permit Expiration Date: 08/31/2020

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2020	13.21	73.87	8.26	16.26	23.82	1.29	0.8572 [Methanol (methyl alcohol)]
2019	34.34	98.10	34.97	17.64	43.69	11.54	11.01 [Methanol (methyl alcohol)]
2018	43.66	112.22	27.60	22.17	42.98	3.06	2.45 [Methanol (methyl alcohol)]
2017	54.73	128.23	32.40	23.69	28.94	18.43	17.64 [Methanol (methyl alcohol)]
2016	47.47	162.54	32.86	28.21	37.28	19.35	18.48 [Methanol (methyl alcohol)]

Review Engineer: Joseph Voelker

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

Joseph Voelker May 03, 2022

Comments / Recommendations:
Issue 02688/T44
Permit Issue Date: May 03,2022
Permit Expiration Date: April 30, 2027, or the renewal of Permit No. 02688T43 has been issued or denied

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 Lexington, NC. The facility operates under Title V permit No. 02688T43, issued on March 2, 2018. The permit expired on August 31, 2020. However, EGFA has submitted a timely and complete renewal application to the Division of Air Quality (DAQ) on November 19, 2019 (Application No. 2900109.19A) and is operating under the application shield pursuant to 15A NCAC 02Q .0512(b).

Furnace No. 509 at the Lexington facility is currently equipped with an emissions control system (ECS), consisting of a dry, limestone scrubber in series with a five- module fabric filter (ID No CD-509ECS-1). EGFA is requesting to remove the ECS from the melter of Furnace No. 509 (ID No. ES-509-M) as they claim it is no longer needed to comply with any regulatory requirements.

Although the modification is considered to be a significant modification (see discussion in Section IV below), the modification does not contradict or contravene the existing permit, with the possible exception of the State-enforceable only emission limitations. However, pursuant to 15 A NCAC 02Q .0516(e), the State-enforceable only part of the permit is to be revised pursuant to 15A NCAC 02Q .0300 procedures. 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), 02Q .0504 and 02Q .0516.

II. Chronology

Date	Description
10/08/2021	Application was received and assigned Application No. 2900109.21A
10/11/2021	Acknowledgment letter was sent stating application was administratively complete.
11/10/2021	Preliminary comments from the Winston Salem Regional Office (WSRO)were received via email
01/05/2022	ADD INFO email sent requesting if they facility would like to remove certain sources related to the operation of the ECS which will be removed from the permit.
01/06/2022	ADD INFO email sent requesting clarification of the exhaust configuration of the Furnace 509 melter once the ECS is removed from the permit.
01/06/2022	ADD INFO email sent requesting justification for the baseline period chosen for the PSD applicability analysis
01/11/2022	Email in response to ADD INFO email sent 01/05/2022 was received stating to remove the following three sources from the permit : ES118, ES181 and ES182 Email response also included information requested in ADD INFO emails sent on 01/06/2022/
01/11/2022	Conversations occurred between David Keen and Tom Anderson of the Air Quality Analysis Branch (AQAB). It was determined that a revised air toxics modeling analysis pursuant to 15A NCAC 02Q .0706 will be required for the modification described in the current application.
01/13/2022	ADD INFO email sent stating that the PSD applicability analysis supplied did not meet the requirements for a "baseline to potential" emissions PSD applicability analysis. A request to submit a revised analysis was included.
01/13/2022	Modeling analysis discussed on 01/11/2022 was submitted to the AQAB via email.
01/21/2022	An ADD INFO email was sent to EGFA requesting if the dispersion parameters associated with the drying ovens were correct in the modeling analysis submitted on 01/13/2022.
01/24/2022	An email was received requesting to remove boilers ESB64 and ESB66 from the permit.
01/27/2022	An ADD INFO email was sent to EGFA requesting that the emission rates of all the TAPs be reviewed to ensure that they represent the current activities of the facility. A cursory review of the drying ovens data in the recent emissions inventory showed that acetic acid was being emitted from the drying ovens but was not included in the recent modeling analysis.
02/07/2022	An email from the responsible official was received by the DAQ requesting the submitted PSD applicability analysis in the application to be treated as a "baseline to projected actual" analysis

Date	Description
02/07/2022	A revised modeling analysis was submitted to the AQAB via email.
02/10/2022	Joe Voelker raised questions regarding the dispersion parameters for the drying ovens in the modeling analysis submitted on 02/07/2022. An ADD INFO email was sent requesting a summary email to accompany the final submitted modeling analysis.
02/17/2022	A revised modeling analysis was submitted to the AQAB via email. The revised analysis adequately represented the dispersion parameters for the drying ovens and answered all previous questions regarding modeled emission rates, dispersion parameters, drying ovens configurations, etc.
03/21/2021	A memo was issued by the AQAB approving the modeling analysis as represented in the 02/17/2022 submittal.
03/22/2022	An email was received with a spreadsheet showing how the emission rates used in the 02/17/2022 modeling submittal were derived.
03/23/2022	An email was received from the EGFA responsible official requesting the current application be processed pursuant to 15A NCAC 02Q .0501(b)(2) and 02Q .0504.
04/11/2022	Draft sent to Permittee for review
04/19/2022	Comments received from EGFA; all comments were minor in nature
04/21/2022	DAQ response to comments was sent to EGFA
04/25/2022	Follow-up email received from EGFA. EGFA had no further comment

III. Modification Description

As stated in Section I above, EGFA is requesting remove the ECS (ID No. CD-509ECS-1) from the melter of Furnace No. 509 (ID No. ES-509-M). No other physical changes or changes to the maximum permitted glass pull rate is being requested. The following narrative provides a useful background discussion for the request.

The ECS was installed on the melter of Furnace No. 509 to reduce fluoride (F) and filterable particulate matter (PM) emissions to comply with Special Order by Consent 2012-01 (SOC). The SOC requires EGFA to meet a fluoride emission limit of 0.45 lb/ton (annual average) of glass produced through either the use of a reference technology of "environmentally friendly batch" (EFB), which is a modified raw material feed with minimal F content, or by use of air emission controls. The SOC also requires EGFA to meet a filterable PM emission limit of 1.0 lb/ton of glass produced if no controls are used or to meet a filterable PM emission limit of 0.5 lb/ton if controls are used. At the time the ECS was installed, Furnace 509 was the only operating furnace at EGFA that had not converted to using EFB. Continued operation on a standard batch was required to allow EGFA to produce glass with a certain specification required by one of its customers. This customer no longer requires this specific product.

As a result, Furnace No. 509 was switched to run only on EFB in June of 2018. This was addressed via a minor modification that resulted in the issuance of permit revision no. T43 issued on March 03, 2018. The modification also included, among other things the discontinuation of the wet scrubber (ID No. CD-F509ECS-2) also used to ensure compliance with the SOC imposed F limit. The net result was that Permit No. T43 required EGFA to use EFB and the ECS.

The Permittee conducted emissions testing on Furnace No. 509 in August of 2021. The testing was designed to determine the effect of the ECS on F and PM emissions. Sampling of F as well as filterable and condensable PM was performed at both the inlet (which represents uncontrolled emissions) and the outlet of the ECS. The test results were reviewed and approved via a memo from the North Carolina Division of Air Quality (DAQ) stationary source compliance branch (SSCB) dated February 01, 2022. These results will be discussed in context of the applicable regulations below.

IV. Regulatory Review

State Enforceable Only

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

As stated in Section III above, the ECS was installed on the melter of Furnace No. 509 to reduce F and filterable PM emissions to comply with Special Order by Consent 2002-002 (SOC). The SOC was revised over time as certain milestones were achieved with the final revision being designated SOC 2012-01. The SOC required EGFA to meet a F emission limit of 0.45 lb/ton (annual average) of glass produced through either the use of a reference technology of EFB, which is a modified raw material feed with minimal F content, or by use of air emission controls. The SOC also requires EGFA to meet a filterable PM emission limit of 1.0 lb/ton of glass produced if no controls are used or to meet a filterable PM emission limit of 0.5 lb/ton if controls are used.

Also described in Section III above, prior to permit revision no. T43, the permit condition addressing the SOC did not require the use of EFB. Upon issuance of permit revision no. T43, the EGFA was required to use EFB and to continue operation of the ECS. At that time, EGFA had not requested to remove the ECS as it wanted to pursue exploratory testing to make sure compliance would be achieved upon the ECS removal. That testing was conducted in August 2021 and approved via a memo from the SSCB on February 1, 2022 as previously discussed in the 02D .0515 discussion above. The August 2021 test results for the inlet of the ECS, which will represent the uncontrolled emissions after the ECS is removed, are as follows:

Fluoride emissions = 0.07 lb/ton
Filterable PM emissions = 0.54 lb /ton

Thus, the EGFA demonstrated that it can comply with the SOC imposed limits without the use of the ECS.

For F, the monitoring, recordkeeping and reporting associated with the use of the ECS will be removed. Monitoring to show compliance with the 0.45 lb/ton limit will be to use the same mass balance approach that is used on Furnace No. 507. Furnace No. 507 is also subject to a F limit pursuant to SOC 2012-01 which is the same as SOC 2002-002.

For PM, as will be shown below in the discussion for NSPS Subpart CC, the removal of the ECS will trigger NSPS Subpart CC applicability. Under NSPS Subpart CC, the melter will be subject to a filterable PM emission limit of 1.0 lb/ton of glass produced. As such, the PM filterable emission limit under this permit condition will be removed as will all the associated monitoring recordkeeping and reporting.

With respect to F, continued compliance with the permit condition is expected.

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

This rule applies to sources of particulate matter from any stack, vent, or outlet, resulting from any industrial process for which no other emission control standards for total particulate matter are applicable. Emissions of particulate matter from the source shall not exceed an allowable emission rate as calculated by the following equations:

$E = 4.10 \times P^{0.67}$ (for process rates less than or equal to 30 tons per hour), or
$E = 55.0 \times P^{0.11} - 40$ (for process rates greater than 30 tons per hour)
Where E = allowable emission rate in pounds per hour
P = process weight in tons per hour
Liquid and gaseous fuels and combustion air are not considered as part of the process weight.

Furnace No. 509 has a maximum glass pull rate of 11,186 pounds per hour (lb/hr). However, the Permittee estimates the process rate based on batch material usage as 14,400 lb/hr or approximately 7.2 tph. Glass manufacturing, because of fusion (processing) losses, results in the mass of the raw materials added to the furnace being greater than the mass of the final glass product. Using the appropriate equation above results in an allowable emission rate of 15.4 lb/hr to 3 significant digits at the maximum process rate. For comparison purposes below, this allowable emission rate at the maximum permitted production rate is equivalent to 3.21 lb/ ton of glass pulled.

Furnace No. 509 consists of the melter (ID No. ES-509-M), the refiner (ID No. ES-509-R) and the forehearth (ID No. ES-509-F). For purposes of determining compliance with this rule, the combined emissions of the melter, refiner and forehearth are considered. In permit revision no. T32, issued June 03, 2011, in acknowledgment that the melter is the largest contributor

of PM emissions and to simplify determinations of compliance with this rule, conservative assumptions of the emissions contributions from the refiner and forehearth were memorialized in the permit as follows at Section 2.1 G.1.d.

> For the purposes of determination of compliance with condition a (*i.e., the emission standard*)., the contribution of particulate matter emissions from the refiner and forehearth are assumed to be:

PM (filterable)	0.46 lb/ton of glass pulled
PM (condensable)	0.05 lb/ton of glass pulled

Thus, the total PM from the refiner/forehearth stack is assumed to be 0.51 lb/ton of glass pulled.

As stated in Section III above, EGFA conducted source testing which was reviewed and approved by the SSCB on February 1, 2022. At the tested process rate of 4.48 tons per hour (tph), the glass pull rate was 3.48 tph and the allowable emission rate under this rule is 11.2 lb/hr. The total uncontrolled PM emissions from the melter were determined to be 2.68 lb/hr and the contribution from the refiner and forehearth was calculated to be 1.77 lb/hr. Therefore, the total PM emissions from Furnace No. 509 was determined to be 4.45 lb/hr or 39.7 % (i.e., 4.45/11.2*100) of the allowable emission rate. Thus, it is expected that compliance with this standard will be met after the removal of the ECS.

The current permit condition addressing this rule does not require the use of the ECS nor any monitoring recordkeeping or reporting associated with the ECS. This was because the installation of the ECS (addressed in permit revision no. T32) was not necessary to comply with this rule based on the historical performance testing. Thus, the permit condition was not revised to include any ECS requirements. As such, minimal changes are required to the existing permit condition. The only substantial changes will be to the testing requirements which will include removal of the completed testing requirements. Moving forward and consistent with current permitting policy associated with glass furnaces with no active controls, PM testing will be required on an annual basis. When the results of the test are less than 80% of the allowable emission limit, the testing frequency is reduced to once every five years.

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. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

When the ECS was permitted in permit revision no. T32, it was not anticipated that adding the ECS would have any effect on the SO_2 emissions from the melter stack. As such, the monitoring, recordkeeping and reporting that existed for this rule prior to the ECS installation was not revised. Similarly, the removal of the ECS is not expected to have any effect on the SO_2, most notably any increases. No changes are necessary to the existing permit condition addressing this rule.

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

This rule applies to all fuel burning sources and industrial processes reasonably expected to have visible emissions. Visible emissions from these sources shall not be more than 20 percent opacity when averaged over a six-minute period. This rule currently applies to the melter stack, melter (ECS) bypass stack and the refiner/forehearth stack.

It will be shown below in the NSPS Subpart CC discussion that EGFA will be required to install and operate a continuous opacity monitoring system (COMs) on the melter. However, NSPS Subpart CC does not contain a visible emission standard. Therefore 02D .0521 will still apply to the melter. 02D .0521(g) has specific requirements for sources with COMs, including how to deal with data from startups, shutdowns and malfunctions. The requirements at 02D .0521(g) will be included in the revised permit. Because of the specific requirements for sources using COMS to comply with 02D .0521 a separate permit condition for the melter will be created. Reference to the bypass stack will also be removed as the Permittee will no longer utilize it.

The current permit currently requires weekly VE readings and associated recordkeeping and reporting for the refiner and forehearth. No changes to the VEs from the refiner/forehearth are expected by this modification and therefore no changes will be made to the existing monitoring, recordkeeping and reporting requirements associated with the refiner/forehearth.

Continued compliance with this rule is expected.

15A NCAC 2D .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.

The source testing conducted on August 4 and 5, 2021 mentioned in Section III above shows that the pre-control emissions of PM filterable are greater than the post-control emissions of PM filterable. Thus, the removal of the ECS will result in an increase in PM filterable emissions and therefore meets the definition of a modification pursuant to 40 CFR 60.14. As such it is also considered a modification pursuant to Title I of the federal Clean Air Act and a significant modification under 02Q .0500.

Furnace No. 509 meets the definition of a glass melting furnace and is an affected facility pursuant to 40 CFR 60.290(a). As a result of the proposed modification, pursuant to 40 CFR 60.290(b), Furnace No. 509 is now subject to NSPS Subpart CC "Standards of Performance for Glass Manufacturing Plants."

As a textile fiberglass furnace using a modified process (i.e., no controls) as defined under 40 CFR 60.291, the melter of Furnace No. 509, pursuant to 40 CFR 60.293(b)(3), will be subject to a PM filterable standard of 0.5 gram of particulate per kilogram of glass produced (g/kg), or 1.0 lb/ton of glass produced. In addition, EGFA will be required to install and operate a continuous opacity monitoring system (COMs) pursuant to 40 CFR 60 293(c). Also pursuant to 40 CFR 60.293(c), EGFA will be required to do a performance test and concurrently establish a 99% Upper Confidence Level (UCL) for the opacity, which according to the rule is to be treated as excess emissions and reported pursuant to 40 CFR 60.7.

In the past, the DAQ in its Title V permits stated that each exceedance of the 99% Upper Confidence Level (UCL), which according to the rule are to be treated as excess emissions and reported as such pursuant to 40 CFR 60.7, were violations of 02D .0524. In effect, these 99% UCL values were being treated as opacity standards. Saint Gobain Containers (SGCI, now Ardagh Glass Inc., facility ID No. 9100069) in 2007 had challenged the DAQ that these exceedances were not to be used as an opacity standard but rather to assess if the furnace melter was being properly operated in maintained (see permit review for permit revision no. T18 of the Ardagh Glass permit.). The DAQ ultimately agreed that the 99% UCL values were not opacity standards. As a result of negotiations between SGCI and the DAQ substantially revised monitoring and recordkeeping requirements were incorporated into the SGCI NSPS Subpart CC permit condition. This identical approach was applied to Furnace No. 507 in EGFA's (PPG at the time) permit revision no. T40 issued September 16, 2015. This approach will be implemented for Furnace No. 509 in this permitting action as well.

This approach includes in addition to the initial performance testing and the establishment of the 99% UCL for the opacity described above, the establishment of a three-hour block average opacity value that is correlated to the 1 lb/ton of glass pulled emission limit, pursuant to the authority under 15A NCAC 02Q .0508(f), as follows (similar language is included in the permit condition):

> The opacity limit shall be established by using the three 1-hour average opacity values from the performance test required in 40 CFR 63.293(b) and (c) and determining the 99% Upper Confidence Limit (UCL) of the three 1-hour averages. The resultant three-hour opacity UCL value shall then be pro-rated to the NSPS particulate matter limit (1.0 pounds of PM per ton of glass pulled), by using the average PM emission rate value determined during the performance test required in 40 CFR 63.293(b) and (c).

The Permittee will then assess compliance with the PM limit on a continuous basis by calculating three-hour block average opacity values and comparing against the three-hour opacity limit as follows (similar language is included in the permit condition):

> Three-hour block average opacity values shall be calculated as the arithmetic average of any and all valid six-minute averages within a three-hour period. A three-hour period means a 180-minute period commencing at 12am, 3am, 6am, 9am, 12pm, 3pm, 6pm, and 9pm each day. Excluding periods of startup, shut down and malfunction of the furnace melter (ID No. ES-509-M), no three-hour block average opacity value shall exceed the value established during the initial performance test.

In addition to reporting all of the 6-minute periods during which the average opacity of the emissions from the furnace melter exceed the 99% UCL value as excess emissions for purposes of 40 CFR 60.7, which will ultimately be used to assess "acceptable operation and maintenance at all times" including startup, shutdown, and malfunction pursuant to 40 CFR 60.11(d), the approach also includes the calculation of two additional parameters to assess "acceptable operation and maintenance during normal operation" which excludes startup, shutdown, and malfunction. This monitoring requirement is implemented under the authority of 15A NCAC 02Q .0508(f) (or 02Q .0308 for non-TV permitting actions). The two parameters are Percent Excess Emissions and Percent COMs Downtime.

As a result of issues raised with the DAQ Technical Services Section regarding the enforcement of the parameter "Percent COMs Downtime" on Furnace No. 507 (see letter dated December 3, 2020, included as Attachment A to this review), it was determined upon review that this parameter, which was originally intended to only reflect normal operation but in practice it was defined to reflect all operation (that is, it included periods of startup , shutdown and malfunction) was redundant with the standard DAQ compliance enforcement policy for sources using COMs. As a result, it was decided to remove explicit mention of the "Percent COMs Downtime" parameter as specified in the NSPS Subpart CC conditions (see email dated December 10, 2020 and included as Attachment B to his review). Thus, "Percent COMs Downtime" will not be included in the Furnace No. 509 condition. Note that the concept of monitor downtime is still a parameter that is used by the DAQ pursuant to 40 CFR 60.7 when assessing proper operation and maintenance pursuant to 40 CFR 60.11(d) and is consistent with the DAQ enforcement policies.

Associated recordkeeping and reporting will also be included. EGFA will also be required to submit a permit application with the results of the initial performance test to incorporate the 99% UCL opacity value, and the three-hour block average opacity limit monitoring parameters into the permit.

Compliance with this rule is expected.

15A NCAC 2D .0530: PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The PSD regulations are designed to ensure that the air quality in current attainment areas does not significantly deteriorate beyond baseline concentration levels. The facility is considered a PSD major source. See Section V below for discussion.

With respect to this proposed modification the facility submitted a "baseline to potential" emissions analysis to determine if a review pursuant to PSD is required. The Permittee chose a baseline period of January 2014 through December 2015 as the baseline period. Pursuant to this rule 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 January 11, 2022, the following explanation was provided:

> Furnace operations during the most recent five years have not been representative of normal furnace operation for several reasons. There have been three furnace shutdowns since 2018. One shutdown was related to COVID. The other two were due to customer demand and product changes. The product changes were necessitated by poor furnace performance that required operators to drain the furnace to make adjustments. These three shutdowns greatly hindered the production capacity of the furnace and are not indicative of normal operation.

The above explanation was deemed sufficient for purposes of calculating the baseline emissions.

The following table was provided in the application

Lexington Furnace 509 CD Removal PSD Applicability Evaluation (Actuals to Potentials)

Pollutant	Baseline Emission Factor (lb/ton)	Baseline Emission Factor Basis Assuming Controls	Baseline Actual Emissions (ton/yr)	Post Modification Emission Factor (lb/ton)	Future Emission Factor Basis	Potential Emissions (ton/yr)	F509 Emission Change - Actual to Potential (tons/yr)	PSD Significant Emission Rate (tons/yr)
PM	0.67	0.16 lb/ton melter (11/3/11 509 test - controlled) + 0.51 lb/ton ref/fh (permit) (See attached PM sheet)	12.22	1.51	1.0 lb/ton melter (NSPS limit - uncontrolled) + 0.51 lb/ton ref/fh (permit) (See attached PM sheet)	36.99	24.77	25
PM_{10}	0.67	0.33 lb/ton melter (11/3/11 509 test - controlled) + 0.34 lb/ton ref/fh (1/01 stack test) - See attached "PM" sheet. (0.24 lb/ton condensable, 0.09 lb/ton filterable from melter)	12.18	0.87	0.53 lb/ton melter (8/4/21 509 test) + 0.34 lb/ton ref/fh (1/01 stack test) - See attached "PM" sheet. (0.23 lb/ton condensable, 0.3 filterable from melter)	21.23	9.05	15
$PM_{2.5}$	0.63	90% of PM10 filterable (0.09 lb/ton melter controlled) + condensible melter (0.24 lb/ton melter controlled) + 90% of PM10 filterable (0.29 lb/ton ref/fh uncontrolled) + condensible (0.05 lb/ton ref/fh uncontrolled) - See attached "PM" sheet.	11.49	0.81	90% of PM10 filterable (0.30 lb/ton melter uncontrolled) + condensible melter (0.23 lb/ton melter uncontrolled) + 90% of PM10 filterable (0.29 lb/ton ref/fh uncontrolled) + condensible (0.05 lb/ton ref/fh uncontrolled) - See attached "PM" sheet.	19.80	8.30	10
NOx	3.22	2.53 lb/ton melter (1/14 507 test) + 0.150 lb/ton ref/fh (based on gas use factor)	58.78	3.22	Assumed same as baseline.	78.94	20.16	40
VOC	6.03E-02	AP-42 Table 1.4-2 for natural gas combustion: 5.5 lb/mmscf and 400 MMscf/yr.	1.10	6.03E-02	Assumed same as baseline.	1.48	0.38	40
CO	0.50	AP-42 table 11.13-4	9.12	0.50	Assumed same as baseline.	12.25	3.13	100
SO_2	3.27	2015 509 mass balance	59.65	3.27	Assumed same as baseline.	80.11	20.46	40
CO_2	84.72	See attached calculation.	1545.27	84.72	Assumed same as baseline.	2075.32	530.04	75000
Fluoride	0.02	0.024 lb/ton melter + 0.95 lb/ton ref/fh - See attached "Fluoride" sheet.	0.44	0.08	8/4/21 ACT Test	1.91	1.47	3.0
Lead	5.48E-06	AP-42 Table 1.4-2 for natural gas combustion: 0.0005 lb/mmscf and 400 MMscf/yr.	1.00E-04	5.48E-06	Assumed same as baseline.	1.34E-04	3.43E-05	0.6

Abbreviations used:

PM f = Filterable Particulate Matter as measured by EPA Method 5
PM c = Condensable Particulate Matter as measured by EPA Method 202
PM10f: Portion of filterable PM measuring 10 microns or less
SOC: Special Order by Consent 2009-001, dated June 16, 2009

Furnace 509 Production Parameters

Average 2 year historical pull rate (tpy) (Jan 2014 - Dec 2015):	**36,481**
Production @ permitted pull rate of 11,186 lb/hr & 8,760 hr/yr:	**48,995**
Furnace natural gas use (MMscf/yr)	**400**
Furnace natural gas use (MMscf/ton glass)	**0.011**

Upon review of the table, this engineer found the analysis acceptable with the exception of the fluoride (F) and PM/PM10/PM2.5 analyses. Although in each of these analyses maximum production rates were used, the emission factors used cannot be justified as representing potential emissions. The maximum F emissions allowed by the permit are 0.45 lb/ton (i.e., the SOC 2002-002 imposed F limit at Section 2.1 G.4) whereas the submitted analysis used a stack test emission factor to represent potential emissions. With respect to PM/PM10/PM2.5, the melter post modification will be uncontrolled. The only emission limitation that addresses total PM is 15A NCAC 02D .0515, which is discussed above. In that discussion, potential PM emissions allowable by rule is 3.21 lb/ton. There are no PM10 or PM2.5 limitations in the existing permit. The Permittee relied on source testing emissions data and some assumed size fraction data to estimate the PM10 and PM2.5 emission factors and in turn potential emissions.

An email was sent to the Permittee on January 13, 2022 requesting that a revised baseline-to potential analysis be submitted. On February 7, 2022 an email from the responsible official was received by the DAQ requesting the submitted analysis to be treated as a "baseline to projected actual" analysis. This engineer finds this request acceptable. The emission estimates were all based on reasonable data and are reasonable for projected emissions but simply not for potential emission estimates. Consistent with 15A NCAC 02D .0530(u), a recordkeeping requirement will be placed into the permit to track emissions of F, PM, PM10 and PM2.5. The table below will be included in the permit for purposes of tracking emissions.

Pollutant	Projected Actual Emissions (tons per year)
PM	37
PM10	21
PM2.5	20
Fluorides	1.9

Since the modification did not request an increase in production rate, the recordkeeping requirement will be in effect for five years. The first year shall start on the first full calendar month after commencing regular operations after the modification described in permit application no. 2900109.21A. Each subsequent year shall include the same 12-month period. Associated reporting will also be required.

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

15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY
No MACT rules apply. See discussion in Section V below.

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 last facility-wide modeling demonstration for EGFA was approved by the DAQ Air Quality and Analysis Branch (AQAB) on January 16, 2018. The emission limits in the current permit are based on that analysis.

As a result of the proposed modification, the emissions from the Furnace No. 509 melter will no longer be exhausted out of the emission point associated with the ECS that is being removed from the permit (stack ID No. ECS509). The emissions will now be exhausted out of the pre-existing stack for the furnace melter that was in use prior to the

installation of the ECS (stack ID No. EPM34). Since the dispersion parameters between the two stacks are significantly different, the Permittee supplied a new dispersion modeling analysis on January 13, 2022 upon request and pursuant to 15A NCAC 02Q .0706.

A review of the dispersion parameters and emission rates of TAPs from the drying ovens raised questions regarding their representativeness of the facility's current operation. Notably, recent emissions inventory of the drying ovens show TAPs being emitted that were not included in the submitted modeling analysis. Also, the drying ovens, being indirect-fired heat exchangers, each have two stacks; one for combustion emissions and one for the TAPs volatilized in the ovens (i.e., process side). After some back and forth discussion with the EGFA (see Section II above), a revised modeling analysis was submitted on February 17, 2022. The modeling analysis was ultimately approved by the AQAB via a memo on March 21, 2022.

Nine TAPS were included in the dispersion modeling analysis. All emission rates were based on potential emission estimates. Given the margins of compliance of these emission rates with respect to each TAPs AAL, the emission rates were then optimized to result in ambient impacts close to each TAPs AAL. The following table shows the "optimization factor" for each TAP.

TAP	Optimization Factor
Acetic Acid	4.5
Acrolein	981.8
Arsenic	1.9
Beryllium	59.5
Benzene	5.1
Cadmium	32.8
Chromium	377.3
Fluoride	1.6
Formaldehyde	7.8

The potential emission rates of TAP for each source was multiplied by the respective optimization factor in the table above. The results of the modeling analysis are shown in the table below (excerpted from the AQAB memo dated March 21, 2022.

Maximum Modeled Toxics Impacts for the Optimized Emissions
EFGA Lexington Facility, Davidson County, North Carolina

Pollutant	Averaging Period	Max. Conc. (µg/m³)	AAL (µg/m³)	% of AAL
Acetic acid	1-hr	3608	3700	98 %
Acrolein	1-hr	2557	2700	95 %
Arsenic	Annual	1.9E-4	2.3E-4	83 %
Beryllium	Annual	3.8E-3	4.1E-3	93 %
Benzene	Annual	0.106	0.12	88 %
Cadmium	Annual	5.02E-3	5.5E-3	91 %
Chromium	24-hr	0.588	0.62	95 %
Fluoride	1-hr	78	250	31 %
	24-hr	15	16	95 %
Formaldehyde	1-hr	146	150	97 %

Note the smallest optimization factor, 1.6, was used for Fluoride, which resulted in maximum impacts of 31% and 95% of the 1-hour and 24-hour AALs respectively. The draft permit has been revised to reflect the new emission limits of each TAP for each source in Table 2.2 A.1. The current permit contains the following monitoring requirement:

> The Permittee shall record, retain on site (in written or electronic format) and make available to an authorized representative upon request records sufficient to show that the permitted emission rates in Table 2.2 A.1 are not exceeded.

Given that the modeling analysis was based on TAP emission estimates that are well above the expected potential emissions for each source, the monitoring requirement will remain unchanged.

Continued compliance with this rule is expected.

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

This rule requires that the Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

To date odors have not been an issue at the facility. The removal of the ECS is not expected to cause an increase in odors. Continued compliance is expected.

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

NSPS
As a result of the current modification of Furnace No. 509, the furnace is now subject to NSPS Subpart CC “Standards of Performance for Glass Manufacturing Plants.” See Section IV above for a full discussion.

NESHAP/MACT

The facility is a major source of HAP and produces continuous strand fiberglass (SIC 3229). 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. 509, the applicability of 15A NCAC 02D .1112 "112(g) Case By Case Maximum Achievable Control Technology" was considered. The removal of the ECS 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

Davidson 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 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.

Davidson County has triggered the minor source baseline date for PM2.5, PM10 and NOx. For increment tracking purposes, the following derivation shows the pounds per hour increase of each pollutant. From the PSD applicability analysis (see Section IV above); using the projected actual emissions minus baseline emissions and assuming 8760 hours per year operation yields the following estimates:

PM10	9.05 tpy	2.1 lb/hr
PM2.5	8.3 tpy	1.9 lb/hr
NOx	20.2 tpy	4.6 lb/hr

CAM

The removal of the ECS does not trigger a CAM review.

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 preliminary comments received from the WSRO on November 10, 2021:

> A compliance inspection was conducted on August 4, 2021. The facility was found to be deficient in fulfilling the requirements of 40 CFR 63 Subpart ZZZZ but operating in compliance with all other Air Quality rules and regulations at the time of this inspection.

The preliminary comments also included the following compliance history for the last 5 years:

- August 16, 2021 – A NOD was sent for failure to perform annual maintenance as required by 40 CFR Part 63 Subpart ZZZZ since September 2019 for the diesel-fired engines associated with the process emergency water supply and return pumps for Furnace No. 509 (ID Nos. IESDP951 and IESDP952).

- May 12, 2020 – A NOV was sent for failure to conduct a stack test on Furnace No. 509 during CY 2019. The test conducted in October 2018 indicated that the PM emission rate was at 88% of the maximum 2D .0515 limit indicating annual testing was required. No enforcement resulted from this violation.

- December 7, 2016 – A NOV and Notice of Recommendation for Enforcement (NRE) was issued for failing to comply with NCGS 143-215.108(c) and SOC 2012-001 as referenced by Condition 2.1.G.4.a. of Air Quality Permit 02688T41. As discussed under Condition 2.1.G.4 of this report, the facility conducted two stack tests on September 20, 2016, and November 2, 2016, and the results of those tests demonstrated filterable PM results exceeding the limit of 0.5 pounds per ton of glass produced or 1.0 pound per ton of glass produced during periods of control device maintenance. A response was received from the facility on December 21, 2016. According to that response, the high filterable PM results from the source tests were caused by a malfunction of the packed column wet scrubber (Control Source ID No. CD-F509ECS-2), which operates in series after the dry scrubber with 5-module fabric filter (Control Source ID No. CD-F509ECS-1), on the melter. More specifically, the mist eliminator pad was lifting and bending while in operation, which allowed particulate laden moisture to slip through. Therefore, the facility took corrective action by replacing the old, 4" pad with a new, coarser 6" pad. In addition, the facility built a new top support grid for the pad, tied the pad down to the top and bottom support grids, and replaced the tellerette media in the scrubber. A third test was conducted on December 16, 2016, at a glass pull rate of 7,721 pounds per hour. The results from this third test were received on January 9, 2017, and review by the DAQ-SSCB on May 3, 2017, indicated compliance for NCGS 143-215.108(c) and SOC 2012-001 as the PM filterable results were 0.15 pounds per ton of glass produced. The facility paid a civil penalty of $8,208.00 on August 15, 2017, to close out case No. 2017-008.

VII. Changes Implemented in Revised Permit

Page No.	Section	Description of Changes
NA	Cover Letter	▪ Used current shell language, updated permit numbers, dates, etc. ▪ Removed minor modification language ▪ Added "right to contest" language
NA	2.3	▪ Relocated insignificant activities and formalized it explicitly as part of the permit at Section 2.3
1	Permit cover letter	▪ Revised dates, permit numbers, etc. using current shell standards
4	Section 1 – Permitted Equipment list	▪ Removed boilers (ID Nos. ESB64 and ESB66) at the request of the Permittee ▪ Added NSPS Subpart CC identifier to melter (ID No. ES-509-M) ▪ Added 02Q .0501(b)(2) footnote
8	2.1A	▪ Removed reference to boilers ID Nos. ESB64 and ESB66
9	2.1 A.3	▪ Removed reference to boilers ID Nos. ESB64 and ESB66 in 02D .0521 permit condition
34	2.1 G	▪ Section addressing Furnace No. 509 ▪ Revised all permit condition language throughout Section to be consistent to current permit shell standards. No changes in intent were made except as indicated elsewhere in this table.
35	2.1 G.1	▪ Removed specific testing requirement at former Section 2.1G.1.c.i as it has been satisfied

Page No.	Section	Description of Changes
36	2.1 G.3	▪ Removed reference to Furnace No. 509 Melter from the 02D .0521 condition. A separate condition was added to address the melter as it is required to use COMs for compliance after the modification. ▪ The "establish normal after modification 2900109.17C" was removed as it has already been established. No "new normal" language will be added as the modification is not expected to affect VE emissions from the refiner and forehearth. ▪ The following condition was added to address applicability after permit issuance: The requirements of Section 2.1 G.3 shall apply after the emissions of the melter (**ID No. ES-509-M**) are rerouted from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack as described in Application No. 2900109.21A. Until then, the requirements at Section 2.1 G.9 shall apply.
36	2.1 G.4	▪ Added a 02D .0521 condition to address the melter's requirements using COMs after the modification. ▪ The following condition was added to address applicability after permit issuance: The requirements of Section 2.1 G.4 shall apply after the emissions of the melter (**ID No. ES-509-M**) are rerouted from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack as described in Application No. 2900109.21A. Until then, the requirements at Section 2.1 G.9 shall apply. ▪
37	2.1 G.5.	▪ Added a condition addressing 15A NCAC 02D .0524 (NSPS Subpart CC) for the Furnace 509 melter after the modification ▪ The following condition was added to address applicability after permit issuance: The requirements of Section 2.1 G.5 shall apply after the emissions of the melter (**ID No. ES-509-M**) are rerouted from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack as described in Application No. 2900109.21A.
40	2.1 G.6	▪ Added a condition addressing 15A NCAC 02D .0530(u) after the modification
40	2.1.G 7	▪ Section addressing PM and F requirements under SOC 2012-01 ▪ Formerly 2.1 G.4 ▪ Revised regulatory reference from NCGS 143-215.108(c) to 15A NCAC 02Q .0308(a)(1). ▪ This condition only applies after the modification is completed. The following condition was added to trigger this section's applicability after permit issuance: The requirements of Section 2.1 G.7 shall apply after the emissions of the melter (**ID No. ES-509-M**) are rerouted from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack as described in Application No. 2900109.21A. Until then, Section 2.1 G.10 applies. ▪ Removed PM filterable emission limitation as PM filterable is now regulated under NSPS Subpart CC ▪ Removed all monitoring, recordkeeping and reporting requirements associated with PM filterable as they are no longer applicable ▪ The final condition only addresses fluoride. The permit condition is now identical to the condition that addresses fluoride for Furnace No. 507 at Section 2.1 F.7
	NA	▪ The testing requirement at the former Section 2.1 G.5 was removed as it was satisfied November 18, 2018.
41	2.1 G.8	▪ Added permit application submittal and startup notification requirements pursuant to 15A NCAC 02Q .0504 and 15A NCAC 02Q .0501(b)(2).

Page No.	Section	Description of Changes
41	2.1 G.9	▪ Formerly 2.1 G.3. ▪ The existing 02D .0521 condition was relocated here. ▪ A condition was added to sunset the requirements of this condition as follows: The requirements of Section 2.1 G.9 shall apply until the emissions of the melter (**ID No. ES-509-M**) are rerouted from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack as described in Application No. 2900109.21A The requirements in Section 2.1 G.3 or G.4 shall then apply.
42	2.1 G.10	▪ Former 2.1 G.4 ▪ The existing State-enforceable only condition was relocated here. ▪ A condition was added to sunset the requirements of this condition as follows: The requirements of Section 2.1 G.10 shall apply until the emissions of the melter (**ID No. ES-509-M**) are rerouted from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack as described in Application No. 2900109.21A The requirements in Section 2.1 G.7 shall then apply.
	2.2 A.1	▪ The 02D .1100 condition was substantially revised to reflect the modeling analysis approved by the AQAB on March 21, 2022.
	Same	▪ Updated general conditions from version 5.1, 08/03/2017) to version 6.0, 01/07/2022.

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 from the date of beginning of operation of the source (in the case, beginning operation of the melter in an uncontrolled manner as described in the application) 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 action since although it did involve the modification of an existing source, 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 per 02Q .0304(b) was **NOT** required for this permitting action as it is not a new facility or the expansion of an existing facility.

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 Winston-Salem Regional Office has received a copy of this permit and submitted comments that were incorporated as described in Section VII.

Recommend Issuance of Permit No. 10400T04

Attachment A

Letter Dated December 3, 2020
Review of 2020 Third Quarter COMS Report

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

MICHAEL ABRACZINSKAS
Director

NORTH CAROLINA
Environmental Quality

December 3, 2020

Mr. Kurt Christian
Plant Manager
Electric Glass Fiber America, LLC
473 New Jersey Church Road
Lexington, NC 27292-6726

SUBJECT: Review of 2020 Third Quarter COMS Report
Electric Glass Fiber America – Lexington
Lexington, Davidson County, North Carolina
Air Quality Permit No. 02688T43
Facility ID: 2900109

Dear Mr. Christian:

Thank you for your timely submittal of the subject report, dated October 26, 2020. The report included an assessment of the continuous opacity monitoring system (COMS) operating on the double-level fiberglass furnace melter (ID No. ES-507-M) during the third quarter of 2020. Additional clarification regarding monitoring downtime was provided by Bridgette Tinsley of your staff on November 18, 2020. The Division of Air Quality (DAQ) has completed its review of the COMS-related information in the report and has the following comments:

1. The COMS on the furnace melter was installed pursuant to 2D .0524 (40 CFR Part 60, Subpart CC - *Standards of Performance for Glass Manufacturing Plants*) and used to determine compliance with the particulate matter (PM) standard using a 3-hour block average opacity value. The quarterly report was reviewed for compliance with the 5.0% opacity limit set forth in Air Permit No. 02688, Specific Condition 2.1.F.5.d. Excess emissions from the furnace melter were attributed to either startup, shutdown, malfunction, or other exempt emissions. These emissions were reviewed and allowed in accordance with applicable monitoring rules.

2. The report was also reviewed for compliance with good operation and maintenance (O&M) practices pursuant to 2D .0524 (NSPS CC, including Subpart A - *General Provisions*), 40 CFR 60.11(d), 40 CFR 60.13(e), and CFR 60.293(c)(5). Specific Condition 2.1.F.5 cites an acceptable quarterly O&M criteria of 3% for percent excess emissions (%EE; 3.0% opacity, 6-minute average) and percent COMS downtime (%CD). When compared to the total operating time of the furnace melter during the third quarter of 2020, %EE was reported as 0.01% and %CD was reported as 0.22%; however, our review determined the

quarterly %CD exceeded the 3% O&M criteria due to out-of-control periods resulting from failed daily calibrations. Section 3.1(1) of 40 CFR Part 60, Appendix F, Procedure 3, states that an out-of-control begins whenever the daily calibration drift exceeds twice the applicable drift specification in 40 CFR Part 60, Appendix B, Performance Specification 1 (PS-1). An out-of-control period renders all recorded data invalid until the COMS successfully passes a subsequent calibration drift assessment. Our review determined there were five (5) out-of-control days during the third quarter, which occurred on August 4, 2020, September 3, 2020 and September 6-8, 2020. The out-of-control periods should have been categorized as monitor downtime.

There is an ongoing discussion on whether to remove the quarterly %CD criteria from your permit since it *applies only during normal operation,* in order to apply DAQ's percent monitor downtime (%MD) target criteria that *applies at all times*; %MD should not exceed 6% for any single quarter or 3% over two consecutive quarters. This approach would be consistent with how we evaluate all COMS sources. In order to apply the %MD target criteria, we will wait for the fourth quarter COMS results before making a final determination regarding good O&M practices. In the interim, we recommend that your operating permit be modified to remove the %CD permit condition.

3. The 2020 third quarter COMS audit was conducted on September 2, 2020. The audit was performed in accordance with Procedure 3 of 40 CFR Part 60, Appendix F - *Quality Assurance (QA) Procedures*. The QA test results of the COMS audit appear to have met the quarterly specifications and is accepted.

Due to the COVID-19 restrictions on DAQ staff and our office operations, the mailing of this letter may be delayed. In the meantime, an electronic copy (e-copy) is being provided for your records. If you should have any questions, please contact me at (919) 707-8410 or dennis.igboko@ncdenr.gov.

Sincerely,

Dennis Igboko, Environmental Engineer
Division of Air Quality, NCDEQ

c: Kurt Christian, Electric Glass Fiber (e-copy)
Brigette Tinsley, Electric Glass Fiber (e-copy)
Ray Stewart, DAQ WSRO (e-copy)
Gary Saunders, DAQ SSCB (e-copy)
IBEAM Documents, 2900109 (e-copy)
Central File, Davidson County

Attachment B

Email Dated December 3, 2020
Discussion of the Review of 2020 Third Quarter COMS Report

Voelker, Joseph

Subject: FW: Review of 2020 Third Quarter COMS Report NSPS SUBART CC %CD

From: Voelker, Joseph
Sent: Thursday, December 10, 2020 2:51 PM
To: Igboko, Dennis <dennis.igboko@ncdenr.gov>
Cc: Cuilla, Mark <mark.cuilla@ncdenr.gov>; Pullen, Booker <booker.pullen@ncdenr.gov>; Hall, Steve <steve.hall@ncdenr.gov>; Saunders, Gary <gary.saunders@ncdenr.gov>
Subject: RE: Review of 2020 Third Quarter COMS Report NSPS SUBART CC %CD

Hello Dennis,

I met with Booker and Mark, and permitting supports removing the "%CD requirements" from the all NSPS Subpart CC permits that have them.

I am aware of 4. Two are EGFA Lexington and Shelby. Two are Ardagh Glass and Wilson and Henderson.

I have EGFA Lexington and Shelby renewals in house so they will be removed from the draft permits.

We have to do a reopen for cause for the others. All require public notice 45 days on top of review.

In short, we will likely not have % CD removed from all TV permits by the next time you need to review quarterly reports. So, please allow this fact to inform any compliance enforcement activity that may be required before the TV permits without the %CD requirement are issued.

Joseph Voelker, P.E.
Environmental Engineer, Division of Air Quality
North Carolina Department of Environmental Quality
1641 Mail Service Center 919.707.8730 (Office)
Raleigh, NC 27699-1641
Joseph.Voelker@ncdenr.gov

Attachment B

Permit Review for Permit No. 02688T45
(Application No. 2900109.22C)

NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: **January 17, 2023**

Region: Winston-Salem Regional Office
County: Davidson
NC Facility ID: 2900109
Inspector's Name: Jim Hafner
Date of Last Inspection: 06/02/2022
Compliance Code: 5 / In Physical Compliance

Facility Data

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

Facility Address:
Electric Glass Fiber America, LLC
473 New Jersey Church Road
Lexington, NC 27292

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: NA
NSPS: NA
NESHAP: NA
PSD: no
PSD Avoidance: no, but 02D .0530(u)
NC Toxics: NO
112(r): NO
Other:

Contact Data

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

Application Data

Application Number: 2900109.22C
Date Received: 12/05/2022
Application Type: Modification
Application Schedule: TV-501(b)(2) Part1

Existing Permit Data
Existing Permit Number: 02688/T44
Existing Permit Issue Date: 05/03/2022
Existing Permit Expiration Date: 04/30/2027

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2021	16.64	144.85	19.19	46.50	43.32	6.83	5.80 [Methanol (methyl alcohol)]
2020	13.21	73.87	8.26	16.26	23.82	1.29	0.8572 [Methanol (methyl alcohol)]
2019	34.34	98.10	34.97	17.64	43.69	11.54	11.01 [Methanol (methyl alcohol)]
2018	43.66	112.22	27.60	22.17	42.98	3.06	2.45 [Methanol (methyl alcohol)]
2017	54.73	128.23	32.40	23.69	28.94	18.43	17.64 [Methanol (methyl alcohol)]

Review Engineer: Joseph Voelker

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

Joseph Voelker 01/17/2023

Comments / Recommendations:
Issue 02688/T45
Permit Issue Date: January 17, 2023
Permit Expiration Date: April 30, 2027, or the renewal of Permit No. 02688T43 has been issued or denied

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 Lexington, NC. The facility operates under Title V permit No. 02688T44, issued on May 3, 2022.

EGFA is requesting to add a direct chop operation to Furnace No. 509, which will consist of one chopper, associated product conveyance, and packing.

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
12/05/2022	Application was received and assigned Application No. 2900109.22C
12/08/2022	Acknowledgment letter was sent stating application was deemed incomplete. The balance of the $7210 fee is required ($4120).
12/05/2022	ADD INFO email sent stating that the PSD applicability analysis supplied did not meet the requirements for a "baseline to potential" emissions PSD applicability analysis. The following questions were asked: • Would the Permittee like to supplant the Actual to Potential Table in Appendix B in the current application with the table included in application no. 21A? • Would the Permittee like the table referenced above to be considered as an "Actual to Projected Actual" analysis for PSD purposes in the current application? • Would the Permittee consistent with 02Q .0504 like to process the current application as a two-step significant modification?
12/12/2022	A check for $4120 was received by the DAQ.
12/07/2022	An email from the responsible official was received by the DAQ answering YES to all the questions asked in the 12/05/2022 ADD INFO email.
12/20/2022	An email was received from Jim Hafner of the regional office stating: "I reviewed this permit and did not have any comments."
01/03/2023	Draft sent to Permittee for review
01/09/2023	Comments received from EGFA; one typographical error comment received

III. Modification Description

As stated in Section I above, EGFA is requesting to add a direct chop operation to Furnace No. 509, which will consist of one chopper, associated product conveyance, and packing operations. These operations are not emission sources. On December 19, 2022, the Permittee provided the following additional information:

> *EGFA is re-activating seven existing production positions where glass strands are formed and a sizing (binder) mixture is applied. The strands feed into a new chopper that cuts the strands into pre-determined lengths. The chopped strands are then conveyed on belts to packages for shipment.*
>
> *The additional equipment consists only of the chopper and conveyor.*
>
> *No material is added by the chopper and no material is removed (e.g., drying or heat setting), except for off spec fiber that is rejected for length, beading or fusion with other fiber. The strands are wet, so there is very little airborne particulate generated by the cutting process. The process is not vented outside. Hence, there are no emissions from the chopper.*

However, the Permittee states in the application that the addition of these operations will allow for greater utilization of Furnace No. 509 and hence the potential for an increase in the actual emissions from the furnace.

Further discussion of the modification will be made with respect to the applicable air regulations.

IV. Regulatory Review

Furnace No. 509 is described 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. 509 consisting of the following:			
ES-509-M	natural gas/propane direct-fired melter utilizing 100% oxygen firing (11,186 pounds per hour glass pull rate and 2,400 kW maximum electric boost capacity)	CD-F509ECS-1+	Dry scrubber with 5-module fabric filter (34,830 square feet of filter area)
ES-509-M	natural gas/propane direct-fired melter utilizing 100% oxygen firing (11,186 pounds per hour glass pull rate and 2,400 kW maximum electric boost capacity)	NA++	NA
ES-509-R	natural gas/propane-fired-refiner	NA	NA
ES-509-F	natural gas/propane-fired forehearth	NA	NA

+ operating scenario until the emissions of the melter (**ID No. ES-509-M**) are permanently rerouted from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack as described in Application No. 2900109.21A.
++operation scenario after the emissions of the melter (**ID No. ES-509-M**) are permanently rerouted from the stack controlled by the emissions control system (ECS) (**ID No. CD-509ECS-1**) to the uncontrolled stack as described in Application No. 2900109.21A.

As can been seen in the footnotes in the table above, the furnace melter was recently modified to allow the rerouting of its emissions to an uncontrolled stack. The existing permit contains permit conditions that reflect all applicable requirements before and after that modification. Thus, some permit conditions no longer apply. The permit conditions that no longer apply will not be removed during this permit modification. Their removal will be addressed in a separate permitting action for the permit renewal.

The permit contains permit conditions that address the following applicable air regulations with respect Furnace No. 509. 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. 509 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 described for 02D .0530 below.

15A NCAC 02D .0515 PARTICULATES FROM MISCELLANEOUS INDSUTRIAL 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")

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 PSD regulations are designed to ensure that the air quality in current attainment areas does not significantly deteriorate beyond baseline concentration levels. The facility is considered a PSD major source. See Section V below for discussion.

With respect to this current project (the Direct Chop Process Project) the facility submitted a "baseline to potential" emissions analysis to determine if a review pursuant to PSD is required. During review of the current application, the potential emissions calculations were discussed with the Permittee. As was the case for the potential emission calculations included in the previous modification application (Furnace No. 509 ECS Removal Project, application no. 2900109.21A), this engineer found the analysis acceptable with the exception of the fluoride (F) and PM/PM10/PM2.5 analyses. In short, for these pollutants, the calculations are representative of projected actual emissions but not potential emissions. The Permittee agreed in an email dated December 7, 2022 (See Section II above).

It was also noted in the current application that the baseline emissions calculations and the potential (or projected actual) emissions calculations are identical to those included in the application for the Furnace No. 509 ECS Removal Project with the exception of the PM10 and PM2.5 emissions. The application states: "The only difference in the calculation is that the post-modification emission factors for PM10 and PM2.5 are now based upon compliance test results and not post modification estimates." This was discussed with the Permittee. Since these emission estimates are being considered as projected actual emissions, the original estimates included in the application for the Furnace No. 509 ECS Removal Project are still valid and additionally are more conservative. The Permittee was asked if EGFA would like to use the baseline to potential/projected actuals emissions analysis for the Furnace No. 509 ECS Removal Project for the current project. The Permittee agreed in an email dated December 7, 2022 (See Section II above). In summary, the analysis provided in the review for the Furnace No. 509 ECS Removal Project is valid for the current project because:
1) the baseline periods are the same for both projects; and
2) the future emissions (that is, the potential or projected actual emissions) are based on the maximum permitted throughputs and are not dependent on specific glass formulations.

The following review is therefore excerpted from the review for the Furnace No. 509 ECS Removal Project with differences noted below the discussion.

Verbatim Excerpt from the Review for the Furnace No. 509 ECS Removal Project, Application No. 2900109.21A

The Permittee chose a baseline period of January 2014 through December 2015 as the baseline period. Pursuant to this rule 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 January 11, 2022, the following explanation was provided:

> Furnace operations during the most recent five years have not been representative of normal furnace operation for several reasons. There have been three furnace shutdowns since 2018. One shutdown was related to COVID. The other two were due to customer demand and product changes. The product changes were necessitated by poor furnace performance that required operators to drain the furnace to make adjustments. These three shutdowns greatly hindered the production capacity of the furnace and are not indicative of normal operation.

The above explanation was deemed sufficient for purposes of calculating the baseline emissions.

The following table was provided in the application:

Pollutant	Baseline Emission Factor (lb/ton)	Baseline Emission Factor Basis Assuming Controls	Baseline Actual Emissions (ton/yr)	Post Modification Emission Factor (lb/ton)	Future Emission Factor Basis	Potential Emissions (ton/yr)	F509 Emission Change - Actual to Potential (tons/yr)	PSD Significant Emission Rate (tons/yr)
PM	0.67	0.16 lb/ton melter (11/3/11 509 test - controlled) + 0.51 lb/ton ref/fh (permit) (See attached PM sheet)	12.22	1.51	1.0 lb/ton melter (NSPS limit - uncontrolled) + 0.51 lb/ton ref/fh (permit) (See attached PM sheet)	36.99	24.77	25
PM_{10}	0.67	0.33 lb/ton melter (11/3/11 509 test - controlled) + 0.34 lb/ton ref/fh (1/01 stack test) - See attached "PM" sheet. (0.24 lb/ton condensable, 0.09 lb/ton filterable from melter)	12.18	0.87	0.53 lb/ton melter (8/4/21 509 test) + 0.34 lb/ton ref/fh (1/01 stack test) - See attached "PM" sheet. (0.23 lb/ton condensable, 0.3 filterable from melter)	21.23	9.05	15
$PM_{2.5}$	0.63	90% of PM10 filterable (0.09 lb/ton melter controlled) + condensible melter (0.24 lb/ton melter controlled) + 90% of PM10 filterable (0.29 lb/ton ref/fh uncontrolled) + condensible (0.05 lb/ton ref/fh uncontrolled) - See attached "PM" sheet.	11.49	0.81	90% of PM10 filterable (0.30 lb/ton melter uncontrolled) + condensible melter (0.23 lb/ton melter uncontrolled) + 90% of PM10 filterable (0.29 lb/ton ref/fh uncontrolled) + condensible (0.05 lb/ton ref/fh uncontrolled) - See attached "PM" sheet.	19.80	8.30	10
NOx	3.22	2.53 lb/ton melter (1/14 507 test) + 0.150 lb/ton ref/fh (based on gas use factor)	58.78	3.22	Assumed same as baseline.	78.94	20.16	40
VOC	6.03E-02	AP-42 Table 1.4-2 for natural gas combustion: 5.5 lb/mmscf and 400 MMscf/yr.	1.10	6.03E-02	Assumed same as baseline.	1.48	0.38	40
CO	0.50	AP-42 table 11.13-4	9.12	0.50	Assumed same as baseline.	12.25	3.13	100
SO_2	3.27	2015 509 mass balance	59.65	3.27	Assumed same as baseline.	80.11	20.46	40
CO_2	84.72	See attached calculation.	1545.27	84.72	Assumed same as baseline.	2075.32	530.04	75000
Fluoride	0.02	0.024 lb/ton melter + 0.95 lb/ton ref/fh - See attached "Fluoride" sheet.	0.44	0.08	8/4/21 ACT Test	1.91	1.47	3.0
Lead	5.48E-06	AP-42 Table 1.4-2 for natural gas combustion: 0.0005 lb/mmscf and 400 MMscf/yr.	1.00E-04	5.48E-06	Assumed same as baseline.	1.34E-04	3.43E-05	0.6

Abbreviations used:

PM f = Filterable Particulate Matter as measured by EPA Method 5

PM c = Condensable Particulate Matter as measured by EPA Method 202

PM10f: Portion of filterable PM measuring 10 microns or less

SOC: Special Order by Consent 2009-001, dated June 16, 2009

Furnace 509 Production Parameters

Average 2 year historical pull rate (tpy) (Jan 2014 - Dec 2015):	**36,481**
Production @ permitted pull rate of 11,186 lb/hr & 8,760 hr/yr:	**48,995**
Furnace natural gas use (MMscf/yr)	**400**
Furnace natural gas use (MMscf/ton glass)	**0.011**

Upon review of the table, this engineer found the analysis acceptable with the exception of the fluoride (F) and PM/PM10/PM2.5 analyses. Although in each of these analyses maximum production rates were used, the emission factors used cannot be justified as representing potential emissions. The maximum F emissions allowed by the permit are 0.45 lb/ton (i.e., the SOC 2002-002 imposed F limit at Section 2.1 G.4) whereas the submitted analysis used a stack test emission factor to represent potential emissions. With respect to PM/PM10/PM2.5, the melter post modification will be uncontrolled. The only emission limitation that addresses total PM is 15A NCAC 02D .0515, which is discussed above. In that discussion, potential PM emissions allowable by rule is 3.21 lb/ton. There are no PM10 or PM2.5 limitations in the existing permit. The Permittee relied on source testing emissions data and some assumed size fraction data to estimate the PM10 and PM2.5 emission factors and in turn potential emissions.

An email was sent to the Permittee on January 13, 2022, requesting that a revised baseline-to potential analysis be submitted. On February 7, 2022, an email from the responsible official was received by the DAQ requesting the submitted analysis to be treated as a "baseline to projected actual" analysis. This engineer finds this request acceptable. The emission estimates were all based on reasonable data and are reasonable for projected emissions but simply not for potential emission estimates. Consistent with 15A NCAC 02D .0530(u), a recordkeeping requirement will be placed into the permit to track emissions of F, PM, PM10 and PM2.5. The table below will be included in the permit for purposes of tracking emissions.

Pollutant	Projected Actual Emissions (tons per year)
PM	37
PM10	21
PM2.5	20
Fluorides	1.9

Since the modification did not request an increase in production rate, the recordkeeping requirement will be in effect for five years. The first year shall start on the first full calendar month after commencing regular operations after the modification described in permit application no. 2900109.21A. Each subsequent year shall include the same 12-month period. Associated reporting will also be required.

Differences from the review for the Furnace No. 509 ECS Removal Project above
The Furnace No. 509 ECS Removal Project has already been implemented and the 5-year recordkeeping has already begun. As stated above, the baseline to potential/projected actuals emissions analysis for the previous Furnace No. 509 ECS Removal Project is identical to the current project. The current permit will need to be revised to reflect the current project. Therefore, a new 02D .0530(u) condition will be placed into the permit. It will be identical to the existing condition found at Section 2.1.G.6 except that the 5-year recordkeeping period will be begin upon start up of the direct chop operations.

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

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

NSPS
The Furnace No. 509 melter is subject to NSPS Subpart CC "Standards of Performance for Glass Manufacturing Plants."

NESHAP/MACT

The facility is a major source of HAP and produces continuous strand fiberglass (SIC 3229). 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".

PSD
Davidson 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 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.

Davidson County has triggered the minor source baseline date for PM2.5, PM10 and NOx. For increment tracking purposes, the following derivation shows the pounds per hour increase of each pollutant. From the PSD applicability analysis (see Section IV above); using the projected actual emissions minus baseline emissions and assuming 8760 hours per year operation yields the following estimates:

PM10 9.05 tpy 2.1 lb/hr
PM2.5 8.3 tpy 1.9 lb/hr
NOx 20.2 tpy 4.6 lb/hr

Because these emission estimates are identical to those addressed for the Furnace No. 509 ECS Removal Project and represent the same emissions, there is no need to consider them for increment tracking purposes in this application as this was addressed in application no. 2900109.21A.

CAM
This modification does not trigger a CAM review.

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 Jim Hafner of the WSRO on June 02, 2022:

Electric Glass Fiber America, LLC appeared to operate in compliance with all Air Quality rules and regulations at the time of this inspection.

The following compliance history was also contained the inspection report.

August 16 -2021 – A Notice of Deficiency (NOD) was issued for failure to conduct annual maintenance on two fire pump engines.

May 12, 2020 – A Notice of Violation (NOV) was issued for failure to conduct a stack test on Furnace No. 509 during CY 2019. The test conducted in October 2018 indicated that the PM emission rate was at 88% of the maximum 2D .0515 limit indicating annual testing was required. No enforcement resulted from this violation.

VII. Changes Implemented in Revised Permit

Page No.	Section	Description of Changes
NA	Cover Letter	▪ Used current shell language, updated permit numbers, dates, etc.
1	Permit page 1	▪ Revised dates, permit numbers, etc. using current shell standards
4	Section 1 – Permitted Equipment list	▪ Added 02Q .0501(b)(2) footnote
37	2.1 G.4.h	▪ Corrected reference of " given in Section 2.1 G.5.k" to " given in Section 2.1 G.5 i.". This comment was received by the Permittee on 01/09/2023.
44	2.1 G.11	▪ Added a condition addressing 15A NCAC 02D .0530(u) for the modification addressed in the current application
45	2.1 G.12	▪ 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).

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 from the date of beginning operation of the new direct chop operation associated with Furnace No. 509 as described in the application 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 per 15A NCAC 02Q .0304(b) is required for this permitting action as it involves an expansion of an existing facility. 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 Davidson County Planning and Zoning Office. The request was stamped received by the zoning office on December 5, 2022.

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 Winston-Salem Regional Office has received a copy of this permit and submitted comments that were incorporated as described in Section VII.

Recommend Issuance of Permit No. 02688T45.