NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date:

Region: Winston-Salem Regional Office
County: Davidson
NC Facility ID: 2900109
Inspector's Name: Taylor Hartsfield
Date of Last Inspection: 03/01/2017
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Electric Glass Fiber America, LLC
(formerly PPG Industries Fiber Glass Products, Inc.)

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

Permit Applicability (this application only)

SIP:
NSPS:
NESHAP:
PSD:
PSD Avoidance:
NC Toxics:
112(r):
Other:

Contact Data

Facility Contact	**Authorized Contact**	**Technical Contact**
Brigette Tinsley Environmental Engineer (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292	Alan Toney Manufacturing Manager (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292	Brigette Tinsley Environmental Engineer (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292

Application Data

Application Number: 2900109.17A, 17B
Date Received: 05/15/2017, 09/19/2017
Application Type: Modification, Name Change
Application Schedule: TV-Sign-501(c)(2) Part II, Administrative

Existing Permit Data
Existing Permit Number: 02688/T41
Existing Permit Issue Date: 03/17/2016
Existing Permit Expiration Date: 08/31/2020

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2015	63.38	166.27	40.27	28.72	38.45	26.13	25.27 [Methanol (methyl alcohol)]
2014	71.43	128.34	33.26	29.23	34.54	16.73	16.23 [Methanol (methyl alcohol)]
2013	54.88	121.03	42.21	26.30	36.65	24.39	23.63 [Methanol (methyl alcohol)]
2012	59.83	115.09	40.55	26.42	39.82	23.95	23.21 [Methanol (methyl alcohol)]
2011	54.92	120.74	39.83	26.72	48.52	24.27	23.58 [Methanol (methyl alcohol)]

Review Engineer: Joseph Voelker

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

Comments / Recommendations:
Issue 02688/T42
Permit Issue Date:
Permit Expiration Date: 08/31/2020

I. 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. 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.

II. Chronology

Date	Description
05/15/2017	An application was received and assigned app no. 2900109.17A.
08/30/2017	Draft permit and review sent to Supervisor and Regional Office for review

Date	Description
09/01/2017	Comments received from the regional office stating: • Emission source ESDG94 is described in the permit as "Diesel Fuel-fired Emergency Generator No. 1 (925 BHP)," but the facility actually refers to this as the No. 2 engine. The No. 1 engine is the insignificant source IESDG93. Can we update this description? • Condition 2.1.F.4.c.i requires the facility to record the "type and quantity of each fuel combusted at the melter and refiner/forehearth (in mmcf/month or gal/month)" for furnace No. 507. Previously, the furnace was permitted for fuel oil, but is now only permitted for natural gas with propane as a backup fuel. Therefore, this requirement may not be applicable, or should at least be reworded. • The S&TC sources consisting of a slasher (IESTE168), coater (IESTE169), and lab vent hood (IESTE170) have been removed from the facility. Can we remove these from the attachment? All comments were addressed as requested.
09/01/2017	Minor comments received from supervisor. All comments were typographical in nature.
09/07/2017	Draft permit sent to Permittee for review.
09/19/2017	Name change application received and assigned application no. 17B.
10/03/2017	Minor comments received from the permittee
~~MM/DD/2017~~	~~Public Notice published on NCDENR DAQ website; concurrent public/EPA comment period begins~~
~~MM/DD2017~~	~~Public comment period ends. No comments received.~~
~~MM/DD2017~~	~~EPA comment period ends. No comments received.~~

III. Modification Description / Regulatory Review

ITEM 1 - Resubmittal of an application to demonstrate compliance with the Prevention of Significant Deterioration (PSD) requirements of 15A NCAC 02D .0530

As stated in Section 1 above, 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 Permittee submitted revised NOx calculations with the current application. Upon review with the consultant, the table below shows the original and the revised projected actual emissions calculations of NOx for the Furnace restart project. All other pollutant calculations have remained the same.

Pollutant	Furnace 503 Baseline Emission Factor (lb/ton)	Baseline Emission Factor Basis	Furnace 503 Baseline Actual Emissions (ton/yr)	Furnace 503 Future Emission Factor (lb/ton)	Future Emission Factor Basis	Furnace 503 Projected Actual Emissions (ton/yr)	Projected Actual Emissions Without Project (ton/yr)	Excludable Emissions (ton/yr) (See Note 3)	Furnace Emission Change (tons/yr)
PM	2.65	Furnace 503 compliance test, April 3-4, 2003 by ACT, and Furnace 501 stack test, 1/3/01, Trigon (See Note 1).	5.01	2.65	Assumed same as baseline.	20.28	9.51	4.50	10.77
PM_{10}	2.18	Furnace 503 compliance test, April 3-4, 2003, and previous stack testing to quantify particle size of PMf (PM10f = 63% of PMf) (See Note 2).	4.13	2.18	Assumed same as baseline.	16.70	7.83	3.70	8.87
PM_{25}	1.96	Assumed equal to 90% of PM10 based upon 8/23/12 Shelby F524 test.	3.72	1.96	Assumed same as baseline.	15.03	7.05	3.33	7.99
NOx	4.16	10/13/93 test: 0.18 lb/MMBtu for melter and 0.06 lb/MMBtu for Ref/fh plus 0.6 lb/ton from batch.	7.87	**4.16**	Assumed same as baseline.	31.89	14.94	7.06	16.95
NOx	4.16	10/13/93 test: 0.18 lb/MMBtu for melter and 0.06 lb/MMBtu for Ref/fh plus 0.6 lb/ton from batch.	7.87	**5.02**	REVISED BASED ON SOURCE TEST	38.48	14.94	7.06	23.54
VOC	7.91E-02	AP-42 Table 1.4-2 for NG combustion: 5.5 lb/mmscf.	0.15	7.91E-02	Assumed same as baseline.	0.61	0.28	0.13	0.32
CO	0.50	AP-42 Table 11.13-4	0.95	0.50	Assumed same as baseline.	3.83	1.80	0.85	2.04
CO_2	84.39	See attached calculation	159.84	84.39	Assumed same as baseline.	647	303.25	143	344
SO_2	1.21	Mass balance average	2.29	1.80	Mass balance avg + 2 stand. dev.	13.77	4.35	2.06	9.42
Fluoride	0.17	Max balance average	0.32	0.23	Mass balance avg + 2 stand. dev.	1.73	0.35	2.13E-02	1.39
Lead	7.19E-06	AP-42 Table 1.4-2 for nat gas combustion: 0.0005 lb/mmscf.	1.36E-05	7.19E-06	Assumed same as baseline.	5.51E-05	2.58E-05	1.22E-05	2.93E-05

Based on the revised emission estimates it appears the Permitee should have no trouble meeting its projected actual emissions estimates. The only revisions to the permit that will be necessary are the removal of the initial testing requirement and the addition of a projected actual emissions table to help assess compliance with 02D .0530(u). A table of the projected actual emissions of only Furnace 503 (including the melter refiner and forhearth) will be included in the revised permit. These emissions are the majority of the emissions of the original project and therefore will simplify the recordkeeping. Only the pollutants of concern (as discussed in the original review) will be included in the table.

ITEM 2 - Part two application submittal requirement pursuant to 15A NCAC 02Q .0501(c)(2) and permit condition 2.1 F.8

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 a 02Q.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 fulfills the 02Q .0501(c)(2) requirement for Furnace 507.

This modification was performed as described in the original application. Therefore, the review for T41 is still applicable and will simply be included as an attachment to this review document for public notice purposes. No additional review is necessary

ITEM 3 - Removal of the 02D .0958 permit condition

PPG 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. The DAQ concurs with this assessment. This rule was revised in November 2016 to limit it applicability to major sources of VOC (over 100 tpy) and maintenance and non-attainment areas. Hence it no longer applies to this facility. The permit condition will removed from the revised air permit.

ITEM 4 - Addition of a 1,700 cfm bag filter as a vacuum for housekeeping purposes

The vacuum system will exhaust after passing through a bagfilter into the indoor space. Thus, the emission of regulated PM into the environment is expected to be well below 5 tpy. The source will be added to the permit as an insignificant activity as defined at 15A NCAC 02Q .0508.

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

NSPS

ITEMS 1 through 4 have no implications with respect to NSPS.

NESHAP/MACT

The PPG 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. The facility is a "100 ton" source category, "glass fiber processing plants". It is an existing major stationary source under PSD for several regulated pollutants including PM/PM10/PM2.5, Fluorides, NOx and SO_2.

For ITEM 2, see Section III for Attachment A for full discussion with respect to the various PSD avoidance and 02D .0530(u) recordkeeping requirements.

112(r)

This facility 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 this rule.

CAM

The modification discussed in Items 1 through 4 do not trigger CAM requirements. See Attachment A for ITEM 2 discussion..

V. Compliance History

As excerpted from the compliance inspection report of March 1, 2017 by Taylor Hartsfield from the Winston Salem Regional Office.

> PPG Industries Fiber Glass Products, Inc. appears to be operating in compliance with all appropriate regulations based upon the visual observations and the DAQ records at the time of this inspection.

However on December 7, 2016 the facility received a Notice of Violation and Notice of Recommendation for Enforcement 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 up 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. The results from this third test were received on January 9, 2017. According to the summary of results, the filterable PM results were 0.15 pounds per ton of glass produced. Therefore, it appears that the facility is now operating in compliance with the filterable PM emissions limit.

A civil penalty of $8208 was assessed on July 25, 2017 for the above mentioned violations.

VI. Changes Implemented in Revised Permit

Existing Condition No.	New Condition No.	Changes
GLOBAL	Same	• Changed name of facility to Electric Glass Fiber America, LLC
Permit page one	Same	• Revised dates, permit numbers, etc. using current shell standards
Cover Letter	Cover Letter	• Used current shell language, updated permit numbers, dates, etc.
Insignificant activities list	Same	• Added reference to IES-VS – Housekeeping vacuum system exhausting indoors • Removed reference to IESTE 168, 169 and 170 as they have been removed from the facility.
Section 1 – Permitted Equipment list	Same	• Removed the 15A NCAC 02Q .0501(c)(2) application submittal requirement footnote for the forehearth of furnace 507. This application satisfied this requirement. • For ESDG94 – the descriptor was revised from No. 1 to No. 2 here and throughout permit
GLOBAL	Same	• Replaced "assure" with ensure" (except in the General Conditions) consistent with current permitting practice.
2.1 F.4.c.i.	same	• Removed reference to "gal/month." The furnace no longer burns liquid fuel.

Existing Condition No.	New Condition No.	Changes
2.1 F.8	NA	• 02Q .0504 application submittal requirement condition was removed. The current application satisfied this requirement
2.1.G.1.c.i	Same	• Added the following language at the request of the permittee. *The most recent demonstration was December 2016.*
2.2 B.2	NA	• 02D .0958 condition was removed as it is no longer applicable. All references to this rule throughout the permit were removed
2.2 D.1	Same	• Consistent with current permitting practice, added a projected actual emissions table for Furnace 503. These are not limits but rather a tool to assess if the original projections were correct.
Section 3 General Conditions	Same	• Section was revised from version 4.0 (12/17/2015) to 5.1(08/03/2017) Changes include: • Condition LL was revised to clarify that the requirements for testing, monitoring, and recordkeeping are suspended until operation resumes. • Condition MM – removed STATE ENFORCEABLE ONLY; added comma after process areas to clarify intent

VII. 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 at or before the time notice provided to the public under 02Q .0521 above.

VIII. Recommendations

~~TBD~~

~~It is recommended that permit no. 02688T41 be issued.~~

Attachment A
Permit Review for Permit No. T41 issued in response to application no. 2900109.15B

NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: **March 17, 2016**

Region: Winston-Salem Regional Office
County: Davidson
NC Facility ID: 2900109
Inspector's Name: Chris Lewter
Date of Last Inspection: 03/02/2015
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): PPG Industries Fiber Glass Products, Inc.

Facility Address:
PPG Industries Fiber Glass Products, Inc.
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:
NSPS:
NESHAP:
PSD:
PSD Avoidance:
NC Toxics:
112(r):
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Brigette Tinsley Environmental Engineer (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292	Alan Toney Manufacturing Manager (336) 357-8151 473 New Jersey Church Road Lexington, NC 27293	Brigette Tinsley Environmental Engineer (336) 357-8151 473 New Jersey Church Road Lexington, NC 27292

Application Data

Application Number: 2900109.15B
Date Received: 11/17/2015
Application Type: Modification
Application Schedule: TV-Sign-501(c)(2) Part I

Existing Permit Data
Existing Permit Number: 02688/T40
Existing Permit Issue Date: 09/16/2015
Existing Permit Expiration Date: 04/30/2020

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2014	71.43	128.34	33.26	29.23	34.54	16.73	16.23 [Methanol (methyl alcohol)]
2013	54.88	121.03	42.21	26.30	36.65	24.39	23.63 [Methanol (methyl alcohol)]
2012	59.83	115.09	40.55	26.42	39.82	23.95	23.21 [Methanol (methyl alcohol)]
2011	54.92	120.74	39.83	26.72	48.52	24.27	23.58 [Methanol (methyl alcohol)]
2010	66.07	120.79	44.87	27.36	56.46	25.72	25.01 [Methanol (methyl alcohol)]

Review Engineer: Joseph Voelker

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

Comments / Recommendations:
Issue 02688/T41
Permit Issue Date: March 17, 2016
Permit Expiration Date: April 30, 2020

I. Purpose of Application

PPG Industries Fiber Glass Products, Inc. (PPG) owns and operates a fiber glass production facility in Lexington, NC. 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).

II. Chronology

Date	Description
11/17/2015	An application was received and assigned app no. 2300153.15B.
11/19/2015	Add INFO email sent requesting: spreadsheet to facilitate calculation review; a response justifying why the current project should not be combined with the project addressed in application no. 13D for PSD aggregation purposes.
11/19/2015	PPG provided the spreadsheet requested on 11/19/2015
11/24/2015	PPG provided the regulatory analysis requested on 11/19/2015
12/7/2015	PPG responded via email to the question of aggregation posed on 11/19/2015.
02/19/2016	Draft permit sent to Permittee for review
03/16/2016	Permit addendum received

III. Modification Description / Regulatory Review

Furnace 507 source testing

Furnace 507 is subject to PSD avoidance condition 2.1F.4. This condition lists the PM/10/2.5 emission factors that must be used in calculating the total emissions for demonstrating PSD avoidance.

Condition 2.1.F.4.d.iii. states:

> *iii. The following emission factors shall be used in the calculations listed above:*

Pollutant	$F_{PMx,EFB}$
PM	*1.90*
PM_{10}	*1.73*
$PM_{2.5}$	*1.73*

A. The Permittee shall submit an application for a permit modification within 30 days of revising any emission factor as provided in the table above.

B. The emission factors listed above may be updated using an administrative permit amendment as provided in 15A NCAC 2Q .0514.

The Permittee would like to revise the emission factors as follows based on recent source testing.

Pollutant	Current Factor (lb/ton)	Proposed Factor (lb/ton)
PM	1.90	1.14
PM10	1.73	0.71
PM2.5	1.73	0.54

The testing was conducted on October 1, 2014 and was submitted to the DAQ stationary source compliance branch (SSCB) for review and approval. The testing was approved on February 5, 2015. The DAQ, however, finds the appropriate emission factors to be as follows:

Pollutant	Emission factor for melter based on 10/14 source test (lb/ton glass pulled)	Combined refiner/forehearth emission factor (lb/ton glass pulled)	Revised Factor (lb/ton glass pulled)
PM	1.04	0.51	1.55
PM10	0.65	0.51	1.16
PM2.5	0.49	0.51	1.00

The revised factors are the sum of the emission factor for the melter as determined by the October 2014 source test and the previously approved emission factor for the refiner and forehearth combined, as memorialized in the 2D .0515 permit condition (see 2.1.F.1). The Permittee's proposed factor was based on an assumption that the refiner and forehearth contribution was 10% of the value of the melter. This assumption is incorrect for this furnace.

Furnace 507 modifications

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. Permit T37 contained a recordkeeping condition to show that the modification would not trigger a PSD review (See permit condition 2.2.C addressing 15A NCAC 2D .0530(u)).

PPG would now like to modify the forehearth of the furnace. A portion of the forehearth will be widened and continue to be primarily focused on a direct draw process. The area below the forehearth will also be redesigned. The total number of positions on the forehearth will decrease. Six of the positions on the forehearth will be widened which will involve steel, refractory, and insulation changes. The area beneath the forehearth will also be modified. In addition, binder lines, applicators, water lines, and air supplies will be re-routed to align with the new widened positions and applicator equipment. 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.

Currently, there are 26 burners with a total heat input equivalent to 0.0806 MMBtu /hr. The proposed project will change the configuration to 46 smaller burners, with a total heat input equivalent of 0.096 MMBtu/hr.

Due to a potential increase in natural gas consumption in the forehearth, NOx emissions have the most potential to be affected by the burner change. The burner change represents about a 20% increase in heat input capacity of the forehearth. Typically, the forehearth emissions are approximately as 10% of the total furnace emissions. In the application, PPG estimated a 9.64 TPY NOx emission increase associated with the project. With a 20% increase in

forehearth burner capacity, and assuming a linear increase in NOx emissions with heat input, PPG estimates the total NOx emissions increase from the furnace to increase from 9.64 to 10.79 TPY.

Regulatory review

15A NCAC 2D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES
15A NCAC 2D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES
15A NCAC 2D .0521: CONTROL OF VISIBLE EMISSIONS

The proposed modifications are not expected to result in an increase of PM, SO2 or visible emissions. No changes are necessary to the existing permit conditions.

15A NCAC 2Q .0317: AVOIDANCE CONDITIONS for
15A NCAC 2D .0530: PREVENTION OF SIGNIFICANT DETERIORATION and
15A NCAC 2D .0531: SOURCES IN NONATTAINMENT AREAS
Under this permit condition, the contribution of the forehearth is considered in the total PM, PM10 and PM2.5 and fluoride emissions. The Permittee has requested to revise the PM/PM10/PM2.5 emission factors based upon source testing conducted in 2014. These factors were revised and is discussed elsewhere in this review document. This modification has no other implications with respect to the permit condition addressing this PSD avoidance condition.

15A NCAC 2D .0524: NEW SOURCE PERFORMANCE STANDARDS
This rule does not apply to the forehearth. Only the melter is subject to NSPS Subpart CC Standards of Performance for Glass Manufacturing Plants.

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

As stated above Furnace 507 is already subject to 2D .0530 (PSD avoidance) condition for an old modification (>10 years) and a 2D .0530(u) recordkeeping condition to show that the modifications addressed in application no. 13D will not trigger a PSD review. The modification addressed in application no. 13D consisted of increasing the throughput of the melter from 9,245 to 10,000 lb/hr of glass pulled after a furnace rebuild and the addition of four natural gas fired ovens. Furnace 507 resumed operation after this modification in April of 2014, approximately 22 months ago at the time of this review.

PPG maintains that the proposed modifications described in the current application are unrelated to the modifications addressed in application no. 13D. PPG provided an email response on 12/7/2015 that explains how these two projects are economically and technically unrelated. The DAQ finds the explanation satisfactory.

PPG also provided in this application calculations of what they claim to be a “baseline actual to potential emissions applicability test” to show that this project in of itself does not trigger a PSD review. The DAQ disagreed with this assertion. The baseline emissions (October 2010 through September 2012) were calculated using PM/PM10/PM2.5 and NOx emission factors that were obtained in October of 2014, claiming they were more representative of the emission factors that PPG were using previously as being representative of that time period. This included usage in emissions inventory reports and the actuals to projected actuals emissions applicability test used in application no. 13D. The net effect on the baseline emissions was to make them lower which keeping all other factors equal would likely make a baseline to projected or potential emissions applicability test more stringent. However, the DAQs concern here is that these factors were based on sources tests that were conducted after the modifications occurred. Although the DAQ can see the value in using the most representative data it does not think it makes sense in this case. It would call into question the original applicability test used in application no. 13D.

Further, the claimed “potential” emission estimates are in the view of the DAQ “projected actual” emission estimates. The Permittee did use the maximum permitted throughput of the furnace to calculate emissions, but in the case of PM/PM10/PM2.5 and NOx, it used the emission factors based on the October 2014 source test. Based on an examination of previous source tests as well as source tests for other glass furnaces, including those at this facility, it is hard to justify a single source test consisting of three one hour runs on a given day will be representative of the

potential emissions of that pollutant on a pound per ton of glass pulled basis at any time. Given these concerns, the DAQ requires that a 2D .0530(u) recordkeeping condition be placed into the permit to address this project.

Upon discussions with the Permittee, the following approach was decided. 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. 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 13D as they involve the same sources. The 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. In addition, both projects utilized almost the same baseline period and production rate (37,489 tpy in March 2010 to Feb 2012 for the project addressed in 13D and 36,188 tpy in Oct 2010-Sept 2012 for the current project). In both cases, the "projected actuals" was based on the revised potential throughput rate of 10,000 lbs of glass per hour. In application no. 13D the projected actuals assumed larger emission factors for PM/PM10/PM2.5 and NOx for the furnace melter than those used in the current application. Given the position that revising the applicability test conducted for application no. 13D is not justified, that applicability test can be considered more stringent. However, given the source tests conducted after the modifications addressed in application no. 13D show lower emissions of PM/PM10/PM2.5 and NOx than those used in the applicability analysis in application no. 13D, the Permittee is expected to have no issues meeting the original projected actuals emissions estimates.

The current permit did not contain a listing of the projected actual emission estimates relied upon in application no. 13D. These are the values that the Permittee must compare its records to determine if a PSD review is warranted. The values chosen are the projected actual emission estimates, since those values are easily calculated. The inclusion of this table has become standard practice for 2D .0530(u) recordkeeping conditions. The following table, which summarizes the applicability analysis that was ultimately deemed acceptable, was included in the review document for application no. 13D.

Lexington PSD Applicability Evaluation for Furnace 507 Modifications and Natural Gas Ovens

Pollutant	Oven Potential Emissions (ton/yr)	Furnace 507 Emissions Increase (ton/yr)	Total Fuance and Oven Emissions Increase - Net Emissions Change (tons/yr)	PSD Significant Emission Rate (tons/yr)
PM	0.19	18.05	18.25	25
PM_{10}	0.19	14.47	14.66	15
PM_{25}	0.19	9.57	9.76	10
NOx	2.55	8.14	10.69	40
VOC	26.96	0.07	27.03	40
CO	1.07	0.89	1.96	100
CO_2	3066	150.16	3216.07	75000
SO_2	0.02	0.41	0.42	40
Fluoride	0.00	2.99	2.99	3.0
Lead	0.00	6.02E-06	6.02E-06	0.6

The corresponding projected actual emissions for this analysis is shown in the following table (the last column). Note that only the projected actual emissions for PM/PM10/PM2.5, NOx, VOC and fluorides will be included in the permit. It was determined during application no. 13D that if there was an issue with a PSD review being triggered it would most likely be the result of these pollutants. This rationale is fully explained in the review document for application no. 13D.

Pollutant	Ovens (ES04 through ES07)	Increases from Furnace (tpy)	Total project Increase (tpy)	Furnace 507 Projected Actual	Total, Project Projected Actual

	Projected actual Emissions, (tpy			Emissions, (tpy)	Emissions, (tpy)
PM	0.19	18.05	18.25	56.28	56.48
PM_{10}	0.19	14.47	14.66	49.28	49.47
PM_{25}	0.19	9.56	9.76	40.95	41.15
NOx	2.55	8.14	10.69	100.14	102.69
VOC	26.96	0.07	27.03	0.82	27.78
Fluorides	0	2.99	2.99	4.93	4.93

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

NSPS

See discussion in Section III.

NESHAP/MACT

The PPG 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. The facility is a "100 ton" source category, "glass fiber processing plants". It is an existing major stationary source under PSD for several regulated pollutants including PM/PM10/PM2.5, Fluorides, NOx and SO_2.

See Section III. for full discussion with respect to the various PSD avoidance and 2D .0530(u) recordkeeping requirements.

112(r)

This facility 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 this rule.

CAM

The modification does not trigger CAM requirements. Furnace 507 does not utilize control devices.

V. Compliance History

As excerpted from the compliance inspection report of March 2, 2015 with Chris Lewter from the Winston Salem Regional Office.

> As a result of this inspection, the facility was found to be deficient in fulfilling the requirements of Permit Condition 2.1.I.4 (2D .1109: CAA 112(j); Case-by-Case MACT for Boilers and Process Heaters), which requires the facility to perform an annual inspection and conduct one tune-up per CY on each NG-fired fiberglass drying oven (ID Nos. ES01 through ES03, OSI-1, and OSI-2) since the facility did not conduct annual inspections and tune-ups of said ovens in CY2014. The facility was also found to be deficient in fulfilling the requirements of Permit Condition 3.P since the annual compliance certification submitted for CY2014 was inaccurate. The facility will be issued a NOD.

VI. Changes Implemented in Revised Permit

Existing Condition No.	New Condition No.	Changes
Cover Letter	Cover Letter	• Used current shell language, updated permit numbers, dates, etc.
Permit page one	Same	• Revised dates, permit numbers, etc using current shell standards
Insignificant activities list	Same	• Made numerous changes based on the request of the Permittee via email received 11/6/2015
Section 1 – Permitted Equipment list	Same	• Removed reference to ESDC 87 and associated control device – Permittee states it is not operable and wishes to remove it from the air permit.
2.1.F.4.d.iii.	Same	• Revised emission factors at Permittee's request and as justified in permit application
NA	2.1.F.8	• Added a permit application submittal requirement pursuant to 15A NCAC 2Q .0504.
2.1.H.	Same	• Reference to ESDC87 was removed from the list of sources and applicable regulations table
2.1.H.2.b.	Same	• Removed reference to ESDC87
2.2.C.	Same	• 2D .0530(u) condition for Furnace 507 and appurtenant equipment
a.	Same	• Added reference to project addressed in current application (i.e., 15B)
c.	NA	• Removed testing requirement as it has already been satisfied
d.	c.	• Simple renumbering
NA	d.	• Added table of projected actual emission estimates for the pollutants for which recordkeeping is required.

Section 3 General Conditions	Same	• Section was revised form v.3.6 to current shell version 4.0 (12/17/2015). Only minor changes were made. Changes include:
		  • Updating regulation references from "2D" and "2Q" to "02D" and "02Q" to be consistent with regulation nomenclature.
		  • References to DENR were revised to DEQ

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

This changes addressed in the permit application will be handled in two step fashion pursuant to 15A NCAC 2Q .0504. The current application will be processed under the sate permitting procedures found at 15A NCAC 2Q .0300. The Permittee will be required to submit a Title V permit application consistent with 15A NCAC 2Q .0500 permitting procedures within 12 months of resuming operations after the current modifications are completed.

VIII. Recommendations

It is recommended that permit no. 02688T41 be issued.