NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Applicant (Facility’s Name): SGL Carbon LLC

Facility Address:
SGL Carbon LLC
307 Jamestown Road
Morganton, NC  28655

SIC: 3624 / Carbon And Graphite Products
NAICS:  335991 / Carbon and Graphite Product Manufacturing

Facility Contact
Dean Ahrens
Environmental Manager
(828) 432-5774
307 Jamestown Road
Morganton, NC 28655

Authorized Contact
Mark Lundblad
Plant Manager
(828) 432-5700
307 Jamestown Road
Morganton, NC 28655

Technical Contact
Dean Ahrens
Environmental Manager
(828) 432-5774
307 Jamestown Road
Morganton, NC 28655

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

Total Actual emissions in TONS/YEAR:

<table>
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<tr>
<th>CY</th>
<th>SO2</th>
<th>NOX</th>
<th>VOC</th>
<th>CO</th>
<th>PM10</th>
<th>Total HAP</th>
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Review Engineer: Urva Patel

Review Engineer’s Signature: Date:

Comments / Recommendations:
Issue 03287/T38
Permit Issue Date:
Permit Expiration Date:
1. Purpose of Application:
Currently, SGL Carbon LLC holds Title V Permit No. 032877T37 with an expiration date of August 31, 2020. The application is submitted for second step (Part II) of two-step significant modification for an addition of a second rectiformer in the graphitization area, which allows the Morganton facility to charge two graphitizing furnaces at one time. This modification represents the required Part II application as described in 15A NCAC 02Q .0502(b)(2). The technical review for the Part I application was completed on January 22, 2018 (See Charles F. Yirka’s technical review - Attachment 1 of this Document). No further technical review is necessary at this time. The Part II application merely concludes the Title V permitting public comment and EPA review periods.

2. Facility Description:
As provided in the application:
The Morganton facility is a graphite product manufacturing facility and is classified under SIC code 3624, Carbon and Graphite Products. The processes at the facility include raw material handling and storage, mixing and extrusion, green stock baking, pitch impregnation, stock re-baking, graphitization and product finishing.

At the Morganton facility, extruded and baked carbon stock made primarily of coal tar pitch and petroleum or metallurgical coke undergoes a graphitization process where electrical resistivity is used to convert carbon to graphite. Electrical resistivity was historically supplied by two rectiformers up until November 14, 2002, when one of the rectiformers was transferred to another site. The Morganton site currently utilizes one rectiformer, which can charge one furnace at a time. There are twelve (12) lengthwise graphitization (LWG) furnaces at the Morganton facility (ES 5E.1 through ES-5E.12).

The LWG process consists of open top furnace shells connected by shunt cables. To begin the loading process, a column of stock is assembled and loaded into the LWG furnace. Once the columns are in place in the furnace, they are covered with petroleum coke for insulation. Using the rectiformer, the furnace is then electrically fired wherein the carbon columns will reach temperatures of approximately 3000 °C. Firing times vary with the load configuration and the total weight of the material in the furnace and can be anywhere between 15 - 62 hours.

Currently, the Morganton facility produces two (2) types of products, HLM and CAG3. Both products operate within the same range of conditions, however the products vary in terms of formulation, pack media usage, and firing times. The CAG3 product includes silicon carbide and natural graphite as raw materials, which are not used in other products at the facility. Additionally, the CAG3 product requires approximately 200 mm of fresh pack media around the product for each furnace cycle, with dedusted pack media used for the remaining product packing. Each furnace cycle for the new product consists of approximately 35% new pack media and 65% dedusted pack media. For existing HLM products, the facility typically uses a higher percentage of dedusted pack media in each furnace cycle.

During the firing process, the petroleum coke insulating material generates gaseous emissions including CO, H2S, TRS, RS, SO2, VOC, NOX, and PM. Emission rates are generally temperature dependent, with the highest rates occurring at the highest temperatures.

As per Ashville Regional Office Compliance Inspection report:
This facility previously manufactured synthetic graphite for use as electrodes in steel and other metal manufacturing. Production has shifted from electrode production to more specialty graphite products with end uses such as molds (railcar wheel and drill bits), bulletproof vests, LEDs, graphite furnaces for sapphire glass, batteries, and semiconductors. Electrodes are now mostly eliminated from the product mix at this facility. The raw material petroleum coke is received by railcar and crushed/screened sized. It is mixed with coal tar pitch (also received by railcar); paraffin oil, iron oxide (not so much anymore), and stearic acid may also be added; cooled; and extruded into various shapes. The green stock is baked in the furnaces. Additional pitch (mix of coal tar and petroleum pitch) is then impregnated into some stock to fill voids and are “second baked” in the Carbottom furnaces. Most stock is then baked in the electric graphite furnaces (LWG – lengthwise graphitizing furnaces) and then machined. The facility operates 24 hours a day, 7 days per week and employs approximately 125 to 150 people. Two different types of pitch are purchased: coal tar pitch for extrusion and petroleum pitch (now mixed with coal tar) for pitch impregnation. Two different types of coke are purchased: petroleum coke for extrusion and petroleum coke for LWG packing media. Pitch and coke sulfur analysis is discussed later in this report.
3. History / Background / Application Chronology:

Permit History Since Last Permit Renewal

September 14, 2015  Title V Air Permit No. 03287T33 issued. This permit includes renewal of Title V permit. It also included Correction of PM limit for the extrusion boilers (ES-CB230 and ES-PB-233), Removal of reference to a non-existent NOx PSD avoidance limit for the extrusion boilers; Addition and removal of few insignificant activities, Addition of all applicable Boiler NESHAP requirements, and CAM revision.

November 3, 2016  Title V Air Permit No. 03287T34 issued. This minor modification permit indicates Transfer of few units to another, Removal of units which was no longer operating, Addition of “DeWalt radial cut-off saw” (No. 18) to ES-5A to replace the “Beyer drill-matic (No. 10)”, Revision/addition of TAP emission limits based on trial testing of new graphite product in the LWG, and Removal of 15A NCAC 02D .0958 requirements.

April 27, 2016  Title V Air Permit No. 03287T35 issued. This minor modification permit indicates Addition of two new lathes, addition of a new packed media silo controlled by a new bin vent filter (ID No. CD-5M), replacement of fabric filter (ID No. CD-5L-DC101), addition of cooling tower (ID No. IA-CT) as insignificant activity.

January 22, 2018  Title V Air Permit No. 03287T36 issued. Under this “Part I” modification, a second rectifier in the graphitization area was added in the permit. It also included a request to utilize a control system consisting of a baghouse, regenerative thermal oxidizer (RTO), and scrubber in series as needed to control emissions from the graphitizing furnaces.

March 14, 2019  Title V Air Permit No. 03287T37 issued. This minor modification permit indicates modification in the recordkeeping of re-graphitized CAG3 and HLM

Application Chronology
August 16, 2019  Received this application as Significant modification-501(b)(2) Part II of the TV permit.
June 10, 2019  Sent acknowledgement letter indicating that the application (4100866.19B) for permit modification was complete.

4. Summary of Changes to the Existing Permit (Permit No. 03287T37):

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<thead>
<tr>
<th>Page No.</th>
<th>Section</th>
<th>Description of Changes</th>
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<td>Permit Cover</td>
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<td>Inserted new issuance and complete application date, application number, facility information.</td>
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<td>41</td>
<td>2.1 M.2.c</td>
<td>Revised permit language as this task has been completed.</td>
</tr>
</tbody>
</table>

5. Compliance Status:

DAQ has reviewed the compliance status of this facility. During the most recent inspection conducted on August 28, 2019, Patrick Ballard of the Asheville Regional Office indicated that the facility appeared to be in compliance with all applicable requirements. Additionally, a signed Title V Compliance Certification (Form E5) indicating that the facility was in compliance with all applicable requirements was submitted with Application No. 1200028.19B on August 16, 2019.
6. New/Modified Equipment/Changes in Emissions:

This application is submitted as a second step (Part II) of two-step significant modification. The facility received Permit No. 03287T36 on January 22, 2018, which authorized installation of Rectiformer (No. 2) for the existing six electric lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.6) and the control devices (ID Nos. CD-5E-S1a, CD-5E-S1b, and CD-5E-S1c).

As stated in Permit No. 03287T36, SGL Carbon must submit a Title V permit modification application to incorporate the new sources into the Title V Permit within 12 months of startup. The facility constructed ES-R2-New at the facility and started operation of the new equipment on August 17, 2018; therefore, the Title V significant modification application must be submitted on or before August 17, 2019. This requirement was met with the submittal of permit application no. 1200028.19B on August 16, 2019.

Please see January 22, 2018 Permit review (03287T36), which is provided as an Attachment A to this document for more details.

The facility has also requested the following changes with this permit application: Removal/Revision of Conditions 2.2 B.1; 2.2 C.1 and 2.2 D.1 as the requirements of these conditions ended with the commencement of normal operation of Rectiformer No. 2.

The Department has concluded that removal/revision of these permit conditions as part of this modification will not be completed at this time. Because normal operation of the second rectiformer has begun, the PSD emissions are tracked via Condition 2.2 D. Therefore, the Division will remove/revise these conditions at the next renewal.

7. Regulatory Review

Unless specifically noted, a detailed discussion of the following list of permit conditions is not included as applicability status has not changed. The facility is expected to be in continued compliance.

15A NCAC 02D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers"
15A NCAC 02D .0512 "Particulates from Miscellaneous Wood Products Finishing Plants"
15A NCAC 02D .0515 "Particulates from Miscellaneous Industrial Processes"
15A NCAC 02D .0516 "Sulfur Dioxide from Combustion Sources"
15A NCAC 02D .0521 "Control of Visible Emissions"
15A NCAC 02D .0524 "New Source Performance Standards" (40 CFR Part 60 Subpart Dc)
15A NCAC 02D .0614 "Compliance Assurance Monitoring"
15A NCAC 02D .0949 “Storage of Miscellaneous Volatile Organic Compounds”
15A NCAC 02D .1100 "Control of Toxic Air Pollutants" (State-enforceable only)
15A NCAC 02D .1111 "Maximum Achievable Control Technology" (40 CFR Part 63 Subpart DDDDD)
15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions" (State-enforceable only)
15A NCAC 02Q .0317 "Avoidance Conditions" (PSD Avoidance)
15A NCAC 02Q .0711, “Emission Rates Requiring a Permit” (State-enforceable only)

8. NSPS, NESHAP/MACT, NSR/PSD, 112(r), CAM

NSPS

This facility is subject to New Source Performance Standards (NSPS), 40 CFR 60, Subpart Dc as noted above. This permit modification does not change this status. For detailed information, see an Attachment A – Section V.

NESHAP/MACT

This facility is a major source for HAPs emissions and is subject to the National Emission Standards for Hazardous Air Pollutants, 40 CFR 63 Subpart DDDDD. However, this permit modification does not affect this status. For detailed information, see an Attachment A – Section V.
NSR/PSD
The facility is a major source under the Federal Prevention of Significant Deterioration (PSD) program. The facility currently has two PSD avoidance limits for emissions of $\text{PM}_{10}$ and $\text{SO}_2$. For detailed information, see an Attachment A – Section V.

112(r)
This facility is NOT subject to the requirements of the Chemical Accident Release Prevention Program, Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above applicability thresholds. But the facility is subject to the General Duty requirements of 112(r).

Compliance Assurance Monitoring (CAM)
The facility is currently subject to CAM. There are no new sources of emissions proposed in this permit modification. Therefore, this permit modification does not change this status.

9. Facility-Wide Air Toxics:
This application does not trigger a new air toxic review or request any changes of emission limits. No further air toxics evaluation is required at this time. For detailed information, see an Attachment A – Section V.A.2 and 3.

10. Facility Emission Review:
There are no changes in potential emissions under this permit modification. Actual emissions for 2013 through 2017 are reported in the header of this permit review.

11. 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 15A 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 shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. South Carolina and Mecklenburg County-local program are affected states and local programs within 50 miles of the facility.

12. Other Regulatory Considerations:
- An application fee was supplied with this permit application.
- A Professional Engineers Seal is not required with this permit application.
- A zoning consistency determination is not required for this permit application.
- A 30-day public notice and 45-day EPA review is required for this permit application.

13. Recommendations/Conclusion:
TBD
ATTACHMENT A

NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: January 22, 2018

Facility Data

Applicant (Facility’s Name): SGL Carbon LLC

Facility Address:
SGL Carbon, LLC
307 Jamestown Road
Morganton, NC 28655

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Fee Classification: Before: Title V After: Title V

Contact Data

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Technical Contact
Billy Thompson
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(828) 432-5773
307 Jamestown Road
Morganton, NC 28655

Application Data

Application Number: 1200028.17A
Date Received: 06/30/2017
Application Type: Modification
Application Schedule: TV-Sign-501(c)(2) Part I Existing Permit Data
Existing Permit Number: 03287/T35
Existing Permit Issue Date: 04/27/2017
Existing Permit Expiration Date: 08/31/2020

Total Actual emissions in TONS/YEAR:

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I. Purpose of Application

This permitting action is for a significant modification of the existing Title V permit pursuant to 15A NCAC 02Q.0501(c)(2) – Purpose of Section and Requirement for a Permit (Part 1). Pursuant to 15A NCAC 02Q.0501(c)(2) SGL Carbon, LLC (SGL) shall not begin construction without first obtaining a construction and operation permit following the procedures under Rule 02Q.0504 and filing a complete application within 12 months after commencing operation to modify the construction and operation permit to meet the requirements of this Section. The application indicates SGL is a major source of sulfur dioxide (potential to emit of greater than 250 TPY) for PSD purposes and a major source of HAPs (potential to emit of greater than 10/25 TPY) as defined in CAA Section 112(a). SGL is currently subject to 40 CFR Part 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters and 40 CFR Part 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. An additional application was received on September 28, 2017 to replace the existing application. As such, the application was not declared complete until the last request for additional information was received starting the one year clock for issuance due date.

SGL currently operates under NC DAQ Permit No. 03287T35, issued on April 7, 2017.

II. Description of Facility Operations

Facility Operations from Asheville Regional Office Inspection Report

“This facility previously manufactured synthetic graphite for use as electrodes in steel and other metal manufacturing. Production has shifted from electrode production to more specialty graphite products with end uses such as molds (railcar wheel and drill bits), bulletproof vests, LEDs, graphite furnaces for sapphire glass, batteries, and semiconductors. Electrodes are now mostly eliminated from the product mix at this facility. The raw material petroleum coke received by railcar is crushed/screened/sized and then mixed with coal tar pitch (also received by railcar); paraffin oil, iron oxide (not so much anymore), and stearic acid may also be added; cooled; and extruded into various shapes. The green stock is baked first in either the Sagger Pit furnaces or the recirculation furnaces (mostly shut down). Additional pitch (mix of coal tar and petroleum pitch) is then impregnated into some stock to fill voids and are “second baked” in the Carbottom furnaces. Most stock is then baked in the electric graphite furnaces (LWG – lengthwise graphitizing furnaces) and then machined. The facility operates 24 hours a day, 7 days per week and employs approximately 150 people. Two different types of pitch are purchased: coal tar pitch for extrusion and petroleum pitch (now mixed with coal tar) for pitch impregnation. Two different types of coke are purchased: petroleum coke for extrusion and petroleum coke for LWG packing media.”

The following two sections are an expanded description of facility operations from the permit application of the existing graphitization process and the proposed project at the Morganton facility:

Existing Facility Operations
“At the Morganton facility, extruded and baked carbon stock made primarily of coal tar pitch and petroleum or metallurgical coke undergoes a graphitization process where electrical resistivity is used to convert carbon to graphite. Electrical resistivity was historically supplied by two rectiformers up until November 14, 2002, when one of the rectiformers was transferred to another site. The Morganton site currently utilizes one rectiformer, which can charge one furnace at a time. There are twelve (12) lengthwise graphitization (LWG) furnaces at the Morganton facility (ES 5E.1 through ES-5E.12).

The LWG process consists of open top furnace shells connected by shunt cables. To begin the loading process, a column of stock is assembled and loaded into the LWG furnace. Once the columns are in place in the furnace, they are covered with petroleum coke for insulation. Using the rectiformer, the furnace is then electrically fired wherein the carbon columns will reach temperatures of approximately 3000 °C. Firing times vary with the load configuration and the total weight of the material in the furnace and can be anywhere between 15 - 62 hours.

Currently, the Morganton facility produces two (2) types of products, HLM and CAG3. Both products operate within the same range of conditions, however the products vary in terms of formulation, pack media usage, and firing times. The CAG3 product includes silicon carbide and natural graphite as raw materials, which are not used in other products at the facility. Additionally, the CAG3 product requires approximately 200 mm of fresh pack media around the product for each furnace cycle, with dedusted pack media used for the remaining product packing. Each furnace cycle for the new product consists of approximately 35% new pack media and 65% dedusted pack media. For existing HLM products, the facility typically uses a higher percentage of dedusted pack media in each furnace cycle.

During the firing process, the petroleum coke insulating material generates gaseous emissions including CO, H₂S, TRS, RS, SO₂, VOC, NOₓ, and PM. Emission rates are generally temperature dependent, with the highest rates occurring at the highest temperatures.”

**Proposed Project Description**

“The graphitization process at the Morganton facility involves the use of electrical resistivity to convert carbon to graphite. Electrical resistivity is currently supplied by one rectiformer, which can charge one furnace at a time. SGL is proposing to add a second rectiformer in the graphitization area, which will allow the Morganton facility to charge two graphitizing furnaces at one time. SGL is proposing to utilize a control system consisting of a baghouse, regenerative thermal oxidizer (RTO), and scrubber in series as needed to control emissions from the graphitizing furnaces to levels less than the existing synthetic minor limit for particulate matter emissions with an aerodynamic diameter less than ten microns (PM₁₀), and less than the PSD significant emission rates (SER) for particulate matter emissions with an aerodynamic diameter less than 2.5 microns (PM₂.₅), carbon monoxide (CO), sulfur dioxide (SO₂), hydrogen sulfide (H₂S), non-HAP reduced sulfur (RS), and total reduced sulfur (TRS). Further details are provided in Section 2 of this application.”

**III. History/Background/Application Chronology**

**History/Background**

**March 22, 2016** - The DAQ Air Quality Analysis Branch reviewed state air toxics modeling submitted by SGL and issued a memo on March 22, 2016 indicating the modeling demonstrated that the facility could comply with the Acceptable Ambient Limits (AALs) listed in 15A NCAC 02D .1104 - Toxic Air Pollutant Guidelines.
March 29, 2016 - Deferral of Enforcement letter from DAQ to SGL required compliance with the Toxic Air Pollutant Guidelines - 15A NCAC 02D .1104

April 5, 2016 - Title V Permit Application 1200028.16A received for a minor modification of the Title V Permit. The permit was updated to add the toxic air pollutant (TAP) emission limits based on trial testing (November 3 – 5, 2015) and add “Two Kingston Lathes” (No. 19 and No. 20) to replace the “Mazak Lathe 2575” (No. 17) previously removed from the permit and “One custom cut-off saw (No. 21)” to control device ES-5A addition of two lathes and a replacement of one lathe. See discussion below.

July 14, 2016 – The Title V facility was last inspected by Mr. Patrick Ballard of the Asheville Regional Office (ARO). The facility appeared to be in compliance.

August 4, 2016 - Letter issued acknowledging the receipt of the Title V Permit Application 1200028.16A. This letter allowed the Permittee to implement the proposed changes immediately provided applicant complies with the proposed permit terms and conditions identified in the application.

December 6, 2016 – This Title V Permit Application 1200028.16B was received for a minor modification of the Title V Permit for the addition of two lathes and a replacement of one lathe.

November 3, 2016 – Title V Permit 03287T34 was issued for a minor modification for Title V Permit Application 1200028.16A. The permit was updated to add the state enforceable toxic air pollutant (TAP) emission limits based on trial testing (November 3 – 5, 2015) of a new graphite product in the lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.12). In addition, two new extrusions mixers (ID Nos. ES-1E.1 and ES-1E.2) were moved and are to be controlled by an existing bagfilter (ID No. CD-1D-DC254). Also, five new weigh car collection sources (ID Nos. ES-1E.6 through ES-1E.10) were moved and to be controlled by an existing bagfilter (ID No. CD-02-DFT3-36).

December 12, 2016 – Minor modification approval letter issued within the required 10-day period acknowledging the receipt of this Title V Permit Application 1200028.16B. This letter allows the Permittee to implement the proposed changes immediately provided applicant complies with the proposed permit terms and conditions identified in the application.

January 11, 2017 - DAQ received SGL letter requesting that this Office determine whether an Air Quality Permit is necessary for the two cooling towers, and for the pack media silo with a bin vent filter.

January 27, 2017 - Permit Applicability Determination No. 2976 letter issued. A permit modification was not required for cooling towers as the cooling towers were declared exempt from permitting. The pack media silo with a bin vent filter, however, was determined to not be an insignificant activity; therefore, a Title V Air Permit application was required.

February 13, 2017 – Request for addition information was made. The Title V Air Permit application 1200028.16B did not appear to address the requirement for a permit modification required for the silo and bin vent filter as per Permit Applicability Determination No. 2976 mentioned above. Also, request was made for the actual PM2.5/10 emissions increases associated with the proposed new sources controlled by the existing bagfilter for PSD applicability purposes.

March 7, 2017 – The requested additional information was provided and therefore the application
was amended.

April 4, 2017 – Title V Permit 03287T35 was issued for a minor modification for Title V Permit Application 1200028.16B.
Application Chronology

April 3, 2017 – Letter issued by Ms. Nancy Jones of the AQAB approving of the March 14, 2017 PSD Dispersion Modeling Protocol for CO for 90 days. SGL later decided not to pursue obtaining a PSD/BACT permit as per Rule 02D .0530.

June 1, 2017 – A teleconference meeting was held with Mr. William Willets and Mr. Charles Yirka and SGL staff members and Ms. Nicole Saniti. It was decided that SGL should consider submitting and application with 02D .0530(u) instead of PSD/BACT 02D .0530 as the means of demonstrating compliance for the second rectiformer.

June 30, 2017 – Permit application received for the addition of a second rectiformer.

August 10, 2017 – Request for additional information made to Ms. Saniti regarding compliance with 02D .0515. Response was received from Ms. Saniti regarding compliance with 02D .0515.

August 22, 2017 – Email response to telephone questions regarding netting calculations and assumptions made received from Ms. Saniti.

September 6, 2017 – Teleconference call was held with DAQ Permitting Section staff members Misters William Willets, Mark Cuilla, Booker Pullen and this engineer. Also in attendance via telephone were Mark Lundblad, Billy Thompson, Lee Gjetley and Bobby Ballentine with SGL and Ms. Nicole Saniti with Trinity Consultants. The DAQ indicated there were changes to the application that needed to be addressed (e.g., treatment of fugitive emissions).

September 6, 2016 – Request for additional information was made concerning 30% loss of CAG3 in emissions calculations as per spreadsheets. Ms. Saniti responded this is due to the difference in loaded versus finished weight of the product. Requested additional information regarding the state air toxics demonstration previously submitted. Ms. Saniti confirmed that the toxics analysis did consider the proposed two rectiformers.

October 20, 2017 – Receipt date of the resubmitted permit application based on discussions during the conference call.

October 24, 2017 – Email response to Mr. Ballard concerning the odor complaints that appear to be attributable to SGL. Indicated that the emissions controls as proposed would probably not control odors. Attached a draft source and control description.

October 25, 2017 – Ms. Saniti submitted comments on draft source descriptions table for this modification for the addition of the second rectiformer and optional controls.

December 1, 2017 – Ms. Saniti submitted first comments on draft conditions for 02D .0530(u)

December 6, 2017 – Ms. Saniti submitted comments on draft conditions for 02D .0530(u) and stated in response to my question that emissions of HCN were found to be at the non-detect amount at SGL’s Ozark facility and, therefore, this facility. The Responsible Official and Environmental Manager were copied on this response.

December 7, 2017 – Ms. Saniti submitted more detailed information regarding the proposed control system for the facility which included design specification including the capture system. The application was declared complete on this date.
December 8, 2017 – Internal meeting was held to discuss draft permit conditions. In attendance were Mr. Willets, Mr. Cuilla, Mr. Pullen, Mr. Ballard and this engineer.

December 12, 2017 – Mr. Ballard forwarded SGL’s response to a recent odor complaint. Mr. Thompson indicated SGL was running a load of wheels investigating the effect of adding more fresh pack media a source of sulfur emissions from the graphitizing process. This is not something they will do in the long-term.

December 15, 2017 - Draft Title V permit and review submitted for review and comments to PSD Supervisor Mr. Booker T. Pullen.

December 22, 2017 - Draft Title V permit and review comments received from Mr. Pullen.

January 4, 2018 - Draft Title V permit and review submitted to Mr. Samir Parekh of the Stationary Compliance Branch (SSCB), Mr. Patrick Ballard of the Asheville Regional Offices (ARO), Mr. Billy Thompson of SGL and Ms. Nicole Saniti of Trinity for review and comments.

January 4, 2018 - Draft Title V permit and review comments received from Mr. Patrick Ballard.

January 9, 2018 - Draft Title V permit and review comments received from Ms. Saniti.

January 22, 2018 - Title V permit and review issued by the Raleigh Central Office (RCO).

IV. Project Description

The following section is a project description from the permit application of the proposed project at the Morganton facility with footnotes added by this engineer:

“The proposed project involves the addition of a second rectiformer in the graphitization area, which will allow the Morganton facility to charge two (2) graphitizing furnaces at one time. During furnace firing, other furnaces may be in other phases of the production process, including loading, cooling, or unloading.

Following the proposed project, the Morganton facility will continue to produce both HLM and CAG3 products at the facility. The HLM products result in lower emissions due to the use of significantly less fresh pack media in the graphitization process. Without controls, emissions of multiple pollutants could potentially exceed the PSD SERs depending on the production rate and mix of HLM and CAG3 production at the facility. Therefore, SGL is proposing the installation of a new control system consisting of a baghouse, RTO, and scrubber (in series) to reduce emissions of CO, particulates, and sulfur compounds as needed to ensure the project does not result in an exceedance of the PSD SER. As a result of the proposed use of a control system as-needed, SGL requests that DAQ revise the compliance demonstration methodology for the existing PM₁₀ and SO₂ PSD avoidance limits to be based on 12-month rolling emission calculations in lieu of the petroleum coke throughput limits in Permit Conditions 2.2. B.1 and 2.2. C.1¹.

¹ The DAQ Permitting Section agreed with this request and allowed for the tracking of actual emissions of PM₁₀ and SO₂ for PSD avoidance when normal operation of the proposed second rectiformer occurs.
SGL Carbon does not anticipate an increase in throughput or emissions from any sources upstream of the graphitization process. Since the facility has historically produced electrodes in addition to HLM and CAG3 products, the historical material throughput in the material handling, mixing, and extrusion areas is greater than the projected actual throughput through these areas due to the shorter electrode batch cycle time. Therefore, there will be no increase in emissions from these areas. Additionally, SGL does not expect any increase in emissions from the existing petroleum coke processing equipment in ES-5I. Any increase in fresh pack media use will be offset by a decrease in recycled pack media use, and the longer batch cycle times of the HLM and CAG3 product indicates that less petroleum coke processing will be required on an annual basis as compared to the baseline period. Therefore, there will be no increase in PM, PM$_{10}$, or PM$_{2.5}$ from petroleum coke handling. As discussed in Section 3.1.4 of this application, SGL has conservatively included the potential emissions from the recently permitted pack media silo in the project emission increase calculation for the proposed project.

With this application, SGL proposes that a 15A NCAC 2D .0530(u) emissions reporting condition be added to the operating permit for pollutants that have a calculated net emissions increase of more than 50% of the SER.\footnote{The DAQ Permitting Section agreed with this demonstration that there will not be other emissions processes debottlenecked because of the addition of the proposed second rectiformer} \footnote{The DAQ Air Permitting Section instead has required reporting of all PSD pollutants with the exception on Non-HAP TRS. It was determined compliance with the PAE for the other sulfur compounds would suffice.}

This engineer generally concurs with the above approach. See the footnotes.
The following list of Emission Sources and Control Devices as found in Section 1 required modifying to for the proposed construction and operational changes and are indicated by highlighting and strikethrough:

<table>
<thead>
<tr>
<th>Emission Source ID No.</th>
<th>Emission Source Description</th>
<th>Control Device ID No.</th>
<th>Control Device Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Graphite Department</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-5E.1 through ES-5E.12</td>
<td>Twelve electric lengthwise graphitizing (LWG) furnaces (Building 24) with nitrogen purging capability as batch demands warrant use</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
| ES-5E.1 through ES-5E.6 | ****Six electric lengthwise graphitizing (LWG) furnaces (Building 24) with two associated rectiformer (No. 2) with nitrogen purging capability as batch demands warrant use | Control Option – HLM and CAG3 Product | CD-5E-S1a One fabric filter (13,394 square feet of filter area)  
CD-5E-S1b One RTO (1,500 degrees F minimum temperature)  
CD-5E-S1c One packed tower scrubber (0.8 gpm minimum caustic solution injection rate) |
| ES-5E.7 through ES-5E.12 | Six electric lengthwise graphitizing (LWG) furnaces (Building 24) with two associated rectiformer (No. 1) with nitrogen purging capability as batch demands warrant use | HLM or CAG3 Product | NA |

**** The installation of rectiformer No. 2 for the existing six electric lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.6) and the control devices (ID Nos. CD-5E-S1a, CD-5E-S1b, and CD-5E-S1c) are listed as a 15A NCAC 02Q .0501(c)(2) modification. The Permittee shall file a Title V Air Quality Permit Application on or before 12 months after commencing normal operation of rectiformer No. 2 in accordance with General Condition NN.1. The permit shield described in General Condition R does not apply and compliance certification as described in General Condition P is not required.
V. Regulatory Review

The facility is currently subject to the following regulations:

15A NCAC 02D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers"
15A NCAC 02D .0512 "Particulates from Miscellaneous Wood Products Finishing Plants"
15A NCAC 02D .0515 "Particulates from Miscellaneous Industrial Processes"
15A NCAC 02D .0516 "Sulfur Dioxide from Combustion Sources"
15A NCAC 02D .0521 "Control of Visible Emissions"
15A NCAC 02D .0524 "New Source Performance Standards" (40 CFR Part 60 Subpart Dc)
15A NCAC 02D .0614 "Compliance Assurance Monitoring"
15A NCAC 02D .0949 “Storage of Miscellaneous Volatile Organic Compounds”
15A NCAC 02D .1100 "Control of Toxic Air Pollutants"
15A NCAC 02D .1111 "Maximum Achievable Control Technology" (40 CFR Part 63 Subpart DDDDD)
15A NCAC 02Q .0317 "Avoidance Conditions" (PSD Avoidance)
15A NCAC 02Q .0711, “Emission Rates Requiring a Permit”

The following regulations were affected and required changes:

15A NCAC 02Q .0317 "Avoidance Conditions" (PSD Avoidance)

The following additional regulation will apply:

15A NCAC 02D .0530 “Prevention of Significant Deterioration”, specifically, 02D .0530(u)

No additional sources were added to the permit however a second rectiformer and emissions controls were proposed and added to the permit.

The changes in the emissions source description and limits summary table at Section 2.1 L of the permit are indicated by highlighting:

L. **Six electric lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.6) with one associated rectiformer (No. 2) controlled by one fabric filter (ID No. CD-5E-S1a), one RTO (ID No. CD-5E-S1b), and one packed tower scrubber (ID No. CD-5E-S1c) in series; and**

**Six electric lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.7 through ES-5E.12) with one associated rectiformer (No. 1)**

The following provides a summary of limits and/or standards for the emission source(s) described above.

<table>
<thead>
<tr>
<th>Regulated Pollutant</th>
<th>Limits/Standards</th>
<th>Applicable Regulation</th>
</tr>
</thead>
</table>
| Particulate matter  | (For process rates up to 30 tons per hour) E = 4.10 \times P^{0.67}  
(For process rates greater than 30 tons per hour) E = 55.0 \times P^{0.11} - 40  
Where \( E = \) allowable emission rate in pounds per hour \( P = \) process weight in tons per hour | 15A NCAC 02D .0515 |
| Visible emissions   | 20 percent opacity | 15A NCAC 02D .0521 |
| Odors               | State-enforceable only See Section 2.2 A.1 | 15A NCAC 02D .1806 |
| Toxic air pollutants| State-enforceable only See Section 2.2 A.2 | 15A NCAC 02D .1100 |
Regulated Pollutant | Limits/Standards | Applicable Regulation
---|---|---
Particulate matter | See Section 2.2 B | 15A NCAC 02Q .0317 (PSD Avoidance)
Sulfur dioxide | See Section 2.2 C | 15A NCAC 02Q .0317 (PSD Avoidance)
PM$_{10}$, PM$_{2.5}$, SO$_2$, VOC, CO, NO$_x$, CO$_2$, TRS, H$_2$S and H$_2$SO$_4$ | See Section 2.2 D | 15A NCAC 02D .0530(u) (PSD Avoidance)

A review of the affected regulations follows:

15A NCAC 02D .0515 "Particulates from Miscellaneous Industrial Processes"
This regulation was affected by the proposed changes. Emissions of particulate matter from these sources (ID Nos. ES-5E.1 through ES-5E.12) shall not exceed an allowable emission rate as calculated by the following equations:

(For process rates up to 30 tons per hour)
$$E = 4.10 \times P^{0.67}$$

(For process rates greater than 30 tons per hour)
$$E = 55.0 \times P^{0.11} - 40$$

Where $E$ = allowable emission rate in pounds per hour
$P$ = process weight rate in tons per hour

Liquid and gaseous fuels and combustion air are not considered as part of the process weight.

The LWG furnaces produce a product using a batch operation, therefore the process weight rate for each product is calculated per the above equations and as per 15A NCAC 02D .0515(b).

Using the maximum throughputs provided for the LWG furnaces, the PM emissions limits are calculated as described in the following table. Note calculations based on metric tons (MT).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAG3</td>
<td>5.41$^1$</td>
<td>32.86</td>
<td>35</td>
<td>0.94</td>
<td>5.09</td>
<td>9.55</td>
</tr>
<tr>
<td>HLM</td>
<td>0.40$^1$</td>
<td>46</td>
<td>27</td>
<td>1.70</td>
<td>0.68</td>
<td>12.54</td>
</tr>
</tbody>
</table>

1. Emission factors are based on pounds/MT of material loaded in the furnace not including pack media;
   the lb/MT emission factors are lb/MT of product loaded, not lb/MT of product and pack media.

The uncontrolled actual emissions from the LWG furnaces when averaged over the batch time are less than the allowable emission limits provided in the table, therefore the LWG furnaces are inherently in compliance with 15A NCAC 02D .0515.
SGL is required to maintain production records such that the process weight rates (P) in tons per hour can be derived and make these records available upon request. No reporting is required for particulate emissions from these sources. The existing condition in the permit did not require any changes.

Continued compliance is expected.

15A NCAC 02D .0521 "Control of Visible Emissions"
This regulation was affected by the proposed changes. Visible emissions from these sources (ID Nos. ES-5E.1 through ES-5E.12) shall not be more than 20 percent opacity when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent not more than once in any hour and not more than four times in any 24-hour period. In no event, shall the six-minute average exceed 87 percent opacity.

Currently the existing sources (ID Nos. ES-5E.6 through ES-5E.12) operate with rectiformer No. 1 producing CAG3 and HLM and visible emissions appear to be minimal. These existing sources (ID Nos. ES-5E.1 through ES-5E.6) are proposed to be operated with an additional rectiformer No. 2 producing the same products, CAG3 and HLM. Eventually control devices are proposed to be installed when needed and operated while controlling emissions from these sources and operate in series (fabric filter, RTO, and scrubber). These control devices are proposed to be operated as needed to reduce emissions.

The Permittee is required to observe the emissions point of these sources weekly for any visible emissions above normal. A visible emissions test (Method 9) was considered however since emissions appear to be minimal the addition of rectiformer No. 2 should not affect visible emissions. The Permittee shall however be required to reestablish normal emissions within the first month of normal operation of rectiformer No. 2. No other changes were required.

Continued compliance is expected.

15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions"
This regulation applies to multiple sources and affected facility-wide sources. See 2.2 A.1. A reference to the odor rule, regulation 02D .1806, was inserted in Section 2.1. L which was missing from the summary table referencing Section 2.2.

Continued compliance is expected.
The following table of Multiple Emission Sources and Conditions as found in Section 2.2 A that apply facility-wide did not require modification.

A. Facility-wide affected sources

The above emission sources are subject to this multiple emission source limit.

<table>
<thead>
<tr>
<th>Regulated Pollutant</th>
<th>Limits/Standards</th>
<th>Applicable Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odors</td>
<td><strong>State-enforceable only</strong> Odorous emissions must be controlled</td>
<td>15A NCAC 02D .1806</td>
</tr>
<tr>
<td>Toxic air pollutants</td>
<td><strong>State-enforceable only</strong> Toxic air pollutant emissions shall not exceed their modeled acceptable ambient levels</td>
<td>15A NCAC 02D .1100</td>
</tr>
<tr>
<td>Toxic air pollutants</td>
<td><strong>State-enforceable only</strong> A permit shall be required PRIOR to exceeding the representative TPER</td>
<td>15A NCAC 02Q .0711</td>
</tr>
</tbody>
</table>

State-enforceable only

1. 15A NCAC 02D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS
   a. 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.

   The most recent odor complaint was received on December 7, 2017. Mr. Ballard contacted the complainant and Mr. Billy Thompson of SGL. Mr. Thompson responded indicating that SGL had added more pack media for wheels to see if this would help downstream quality issues and this would not be normal mode of operation.

   Mr. Ballard suggested perhaps CAG3 was the source of odorous emissions and that perhaps SGL should be required to control emissions when producing this product. Since the controls at this time are optional and this is not how SGL prefers to operate this engineer recommends we see if odor problems continue and then look for a solution.

   Continued compliance is expected.

State-enforceable only

2. 15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS - Pursuant to 15A NCAC 02D .1100 "Control of Toxic Air Pollutants," and in accordance with the approved application for an air toxics compliance demonstration, the following permit limits shall not be exceeded:

<table>
<thead>
<tr>
<th>Emission Source(s)</th>
<th>Toxic Air Pollutant(s)</th>
<th>Emission Limit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility-wide</td>
<td>Hydrogen Sulfide</td>
<td>317.3 lbs/day</td>
</tr>
<tr>
<td>Facility-wide</td>
<td>Carbon Disulfide</td>
<td>105.3 lbs/day</td>
</tr>
<tr>
<td>Facility-wide</td>
<td>Methyl Mercaptan</td>
<td>1.38 E-1 lbs/hr</td>
</tr>
<tr>
<td>Facility-wide</td>
<td>Benzene</td>
<td>174.62 lbs/year</td>
</tr>
</tbody>
</table>
This engineer reviewed the permit review associated with Permit Application 1200028.16A and the Air Permit 03287T34 issued on 11/03/2016 as it first appeared that the modeling did not account for the production of CAG3 (described as a new graphite product). From the permit review:

“The March 29, 2016 Deferral of Enforcement letter from DAQ to SGL required compliance with the Toxic Air Pollutant Guidelines - 15A NCAC 02D .1104 as detailed below. The updated TAP limits are based on the trial testing of a new graphite product in the graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.12). On March 2, 2016, the facility submitted information concerning trial runs for a new product. The information indicated that carbon disulfide, hydrogen sulfide and methyl mercaptan may exceed the TAP permit limits because of the new product. The facility conducted emissions measurements on November 3 – 5, 2015 from the trial runs and conducted dispersion modeling based on the results.” The March 29, 2016 response letter from DAQ “Deferral of Enforcement – Graphite Furnace Trial Runs” stated:

This office is in receipt of your March 2, 2016, letter requesting a deferral of enforcement for new product trial runs at your facility. As detailed in your letter, source testing performed during a trial run on November 3rd through the 5th, 2015, resulted in emission measurements of three pollutants above your previously evaluated limit. As part of your March 2, 2016, request, you included modeling of the pollutant emission rates. The Division of Air Quality’s Air Quality Analysis Branch reviewed the submitted modeling and issued a memo on March 22, 2016… The modeling demonstrated that your facility could comply with the Acceptable Ambient Limits (AALs) listed in 15A NCAC 02D .1104 TOXIC AIR POLLUTANT GUIDELINES. The modeled inputs were emission rates conservatively increased from the November 3-5, 2015, source testing results… Since you have demonstrated, through modeling, that the anticipated emission rates would not exceed the AALs, and that you plan to modify your permit to reflect the increased allowable emission rates, this office will grant the deferral of enforcement… Since the emission rates of concern are included in the "State Enforceable Only" portion of your Title V permit, these deviations do not need to be included in your Title V semi-annual deviation report or your Annual Compliance Certification.

SGL’s new graphite product is similar to the existing graphite products produced at the Morganton facility and requires operation with the same range of conditions currently utilized at the facility. The only difference between the new product and the existing products are related to the product formulation and the graphitization pack media. The new product includes silicon carbide and natural graphite as raw materials, which are not used in other products at the facility. Additionally, the new product requires approximately 200 millimeters (mm) of fresh pack media around the product for each furnace cycle, with dedusted pack media used for the remaining product packing. Each furnace cycle for the new product consists of approximately 35% new pack media and 65% dedusted pack media.

For existing products, the facility typically uses a higher percentage of dedusted pack media in each furnace cycle; however, there is no permit requirement related to the frequency of adding fresh pack media.
SGL conducted dispersion modeling utilizing the results of the source testing while assuming the future use of two LWG furnaces simultaneously with continuous use of two rectiformers (noting that's double the normal capacity since only one furnace is charged per rectiformer). The actual emission rates from the LWG furnaces during the trial testing were less than the maximum emission rates included in the modeling analysis. Hydrogen sulfide, and carbon disulfide are almost entirely emitted from the LWG furnaces (ID Nos. ES-5E-1 -- ES-5E-12) while methyl mercaptan is only emitted from the LWG furnaces. Hydrogen sulfide is also emitted from emission sources (ID Nos. ES-2D-50 -- 2D-52, ES-2E-57F61 -- 67, and ES-2H-10 -- 2H-19), but not notable when compared to the 317.3 lbs/hr from the LWG furnaces. Similarly, carbon disulfide is also emitted from emission sources (ID Nos. ES-1B, ES-1J, ES-1L, ES-1I, and ES-4A), but not notable when compared to the 105.3 lbs/hr from the LWG furnaces. Emissions of these three TAPs from other sources at the facility are not expected to change as a result of the graphitization of the new product.

The dispersion modeling analysis was approved by Mr. Darryl Grassick, Meteorologist II, Air Quality Analysis Branch, on March 22, 2016 with emissions being maximized while demonstrating compliance with the respective AALs (hydrogen sulfide at 96.8%, carbon disulfide at 20.7%, and methyl mercaptan at 11.6%)

This engineer confirmed the application did account for CAG3 (the new product) in the modeling demonstration and considered the emissions resulting from the operation of the second rectiformer as proposed in this application.

Continued compliance is expected.

**State-enforceable only**

**3. 15A NCAC 02Q .0711: EMISSION RATES REQUIRING A PERMIT** – Pursuant to 15A NCAC 02Q .0711 “Emission Rates Requiring a Permit,” for each of the below listed toxic air pollutants (TAPs), the Permittee has made a demonstration that facility-wide actual emissions do not exceed the Toxic Permit Emission Rates (TPERs) listed in 15A NCAC 02D .0711. The facility shall be operated and maintained in such a manner that emissions of any TAPs from the facility, including fugitive emissions, will not exceed TPERs listed in 15A NCAC 02Q .0711.

a. A permit to emit any of the below listed TAPs shall be required for this facility if actual emissions from all sources will become greater than the corresponding TPERs.

b. PRIOR to exceeding any of these listed TPERs, the Permittee shall be responsible for obtaining a permit to emit TAPs and for demonstrating compliance with the requirements of 15A NCAC 02D .1100 “Control of Toxic Air Pollutants”.
c. In accordance with the approved application, the Permittee shall maintain records of operational information (written or electronic format) demonstrating that the TAP emissions do not exceed the TPERs as listed below:

<table>
<thead>
<tr>
<th>Pollutant (CAS Number)</th>
<th>TPERs Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Carcinogens (lbs/year)</td>
</tr>
<tr>
<td>Methylene chloride (75-09-2)</td>
<td>1600</td>
</tr>
<tr>
<td>Methyl ethyl ketone (78-93-3)</td>
<td></td>
</tr>
<tr>
<td>Nickel metal (7440-02-40)</td>
<td></td>
</tr>
<tr>
<td>Nickel, soluble compounds, as nickel</td>
<td></td>
</tr>
<tr>
<td>Toluene (108-88-3)</td>
<td></td>
</tr>
<tr>
<td>Trichlorofluoromethane (75-69-4)</td>
<td></td>
</tr>
<tr>
<td>Xylene (1330-20-7)</td>
<td></td>
</tr>
</tbody>
</table>

From the permit review associated with Permit Application 1200028.16A and the Air Permit 03287T34 issued on 11/03/2016:

“The facility has also demonstrated per 15A NCAC 02Q.0711 that facility-wide actual emissions of the TAPs listed below do not exceed their respective Toxic Permitting Emission Rates (TPERs). A permit to emit any of these pollutants shall be required if actual emissions from all sources exceed their corresponding TPERs.”

Continued compliance is expected.
The following is a modified existing PSD avoidance permit condition at Section 2.2 B of the permit with additions indicated by highlighting:

B. Twelve lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.12)

One packing media recycling department (ID No. ES-5I) with associated fabric filter (ID No. CD-5I-DC2474)

One stock machining and conveying line (ID No. ES-5J) with associated fabric filter (ID No. CD-5J-DC5803)

The above emission sources are subject to this multiple emission source limit.

<table>
<thead>
<tr>
<th>Regulated Pollutant</th>
<th>Limits/Standards</th>
<th>Applicable Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM$_{10}$</td>
<td>Less than 15 tons per year combined emissions</td>
<td>15A NCAC 02Q .0317 (PSD Avoidance)</td>
</tr>
</tbody>
</table>

1. 15A NCAC 02Q .0317: AVOIDANCE CONDITIONS
   for 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION
   a. To comply with this permit and avoid the applicability of 15A NCAC 02D .0530, "Prevention of Significant Deterioration," as requested by the Permittee, ending with the commencement of normal operation of rectiformer No. 2, the PM$_{10}$ emissions from these sources (ID No. ES-5E.1 through ES-5E.12, ES-5I, ES-5J) combined, shall be less than 15 tons per consecutive 12-month period.
   i. To ensure enforceability of this limit the following restrictions shall apply:
      A. total usage of petroleum coke shall not exceed 11,400,000 pounds per consecutive 12-month period, and
      B. total monthly 80-ton batches of petroleum coke processed by this source (ID No. ES-5I) shall not exceed 150.
   ii. Tracking of actual emissions shall begin with the commencement of normal operation of rectiformer No. 2 as per condition 2.2 D.1 in the permit and regulation 15 NCAC 02D .0530(u).

   b. The Permittee shall submit a summary report postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. The report shall contain the following:
      i. the monthly PM$_{10}$ emissions for the previous 17 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months,
      ii. the total weight in pounds of petroleum coke (including packing media) processed in these sources (ID Nos. ES-5E.1 through ES-5E.12), and
      iii. the total weight in pounds of petroleum coke processed in this source (ID No. ES-5I).

   All instances of deviations from the requirements of this permit must be clearly identified.

A review of this PSD avoidance permit condition indicated the affected sources with the most substantial emissions (twelve lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.12) were subject to review under this application and became affected under this application for a second rectiformer (No. 2). The remaining sources do not have the PTE that would require the avoidance
condition remain in effect. The Permits Section determined this avoidance condition could be removed. The submittal of this application, to avoid the applicability of PSD requirements by means of the regulation 2D .0530(u), included a netting analysis that included the same affected sources (12 furnaces) that were debottlenecked. See condition D., below.

Continued compliance is expected.

The following is a modified existing PSD avoidance permit condition at Section 2.2 C of the permit with additions indicated by highlighting:

C. Twelve electric lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.12)

The above emission sources are subject to this multiple emission source limit.

<table>
<thead>
<tr>
<th>Regulated Pollutant</th>
<th>Limits/Standards</th>
<th>Applicable Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur dioxide</td>
<td>Less than 459.4 tons per year combined emissions</td>
<td>15A NCAC 02Q .0317 (PSD Avoidance)</td>
</tr>
</tbody>
</table>

1. 15A NCAC 02Q .0317: AVOIDANCE CONDITIONS for 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION

a. To comply with this permit and avoid the applicability of 15A NCAC 02D .0530, "Prevention of Significant Deterioration," as requested by the Permittee ending with the commencement of normal operation of rectiformer No. 2, sulfur dioxide emissions from these sources (ID Nos. ES-5E.1 through ES-5E.12) shall be less than 459.4 tons per consecutive 12-month period.
   i. To ensure enforceability of this limit the following restrictions shall apply:
      A. total usage of petroleum coke shall not exceed 11,400,000 pounds per consecutive 12-month period.
   ii. Tracking of actual emissions shall begin with the commencement of normal operation of rectiformer No. 2 as per condition 2.2 D.1 in the permit and regulation 15 NCAC 02D .0530(u).

b. The Permittee shall submit a summary report postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. The report shall contain the following:
   i. the monthly sulfur dioxide emissions from these sources (ID Nos. ES-5E.1 through ES-5E.12) for the previous 17 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months.

All instances of deviations from the requirements of this permit must be clearly identified.

A review of this PSD avoidance permit condition indicated the affected sources (twelve lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.12) were subject to review under this application and became affected under this application for a second rectiformer (No. 2). The Permits Section determined this avoidance condition could be removed. The submittal of this application, to avoid the applicability of PSD requirements by means of the regulation 2D .0530(u), included a netting analysis that included the same affected sources (12 furnaces) that were debottlenecked.

The following is an additional emissions source description at Section 2.2 D of the permit and permit condition for the new applicable regulation 02D .0530(u) as indicated by highlighting:
D. Six electric lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.1) with one associated rectiformer (No. 2) controlled by one fabric filter (ID No. CD-5E-S1a), one RTO (ID No. CD-5E-S1b), and one packed tower scrubber (ID No. CD-5E-S1c) in series; and

Six electric lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.6 through ES-5E.12) with one associated rectiformer (No. 1)

1. 15A NCAC 02D.0530(a): USE OF PROJECTED ACTUAL EMISSIONS TO AVOID APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

a. The Permittee has used projected actual emissions (PAE) to avoid applicability of prevention of significant deterioration requirements for the project consisting of the construction and operation of rectiformer No. 2 and construction and operation of the optional control system consisting of a fabric filter (ID No. CD-5E-S1a), RTO (ID No. CD-5E-S1b) and scrubber (ID No. CD-5E-S1c) in series installed on six LWG furnaces (ID Nos. (ES-5E.1 through ES-5E.6) of the twelve (12) LWG furnaces (ID Nos. ES-5E.1 through ES-5E.12) in the graphitization area as fully described in Application No. 1200028.17A.

In order to verify the assumptions used in the projected actual emissions calculations, beginning with the commencement of the normal operation of rectiformer No. 2 the Permittee shall comply with the testing, monitoring, recordkeeping and reporting requirements in conditions. b. through w. below.

Testing [15A NCAC 02Q.0508(f)]

b. If emissions testing is required, the testing shall be performed in accordance General Condition JJ.

c. Initial testing shall not be required until the associated emissions capture and control system installed on the six LWG furnaces (ID Nos. (ES-5E.1 through ES-5E.6) commences normal operation and after achieving maximum production rates for HLM and CAG3. Initial testing shall be conducted within 60 days after achieving the maximum production rate of HLM and CAG3.

d. Under the provisions of NCGS 143-215.108, the Permittee shall conduct before and after control source testing of one of the six LWG furnaces (ID Nos. (ES-5E.1 through ES-5E.6) while operating one rectiformer for PM <10 μm (PM10) [filterable and condensable], PM <2.5μm (PM2.5) [filterable and condensable], sulfur dioxide (SO2), volatile organic compounds (VOC), carbon monoxide (CO), nitrogen oxides (NOx), carbon dioxide (CO2), TRS (total reduced sulfur), H2S (hydrogen sulfide), and sulfuric acid (H2SO4) mist in accordance with a testing protocol approved by the DAQ.

e. The Permittee shall notify the Asheville Regional Office at least 15 days before the scheduled emissions tests begins.

f. At least one compliance test shall be conducted every five calendar years. There shall be no more than sixty-two months between any two compliance tests. The 5-year testing cycle shall commence with the approval of the initial compliance stack tests.

g. The results of each approved test shall be used to derive emission factors in pounds of pollutant per metric ton (MT) of HLM and CAG3 (on a pollutant by pollutant basis) produced.

h. The Permittee shall submit an air permit application to modify the derived factors and interim PAEs (Projected Actual Emissions) in Table 2.2 D.1, below, within 30 days of the approval of the emissions tests.

i. Interim parametric monitoring limitations and ranges follow. Actual parametric monitoring ranges and limits shall be established during the tests. The Permittee shall submit an air permit application to modify the interim parametric monitoring based on the approved emissions tests.
Interim Parametric Monitoring

1. Fabric filter (ID No. CD-5E-S1a) – Pressure drop minimum -25 in. H₂O; maximum +25 in. H₂O.
2. RTO (ID No. CD-5E-S1b) – Minimum temperature 1,500 degrees F.
3. Scrubber (ID No. CD-5E-S1c) – 0.8 gal./min caustic injection rate; pH minimum 12.6; maximum (quenched) entering temperature 150°F.
4. Local Exhaust Ventilation System (hoods) – Indicators of capture according to manufacturer-specified hood capture system parameters.

j. Testing shall be performed on one LWG furnace during the emissions generating phases of the heating and cooling phases. Testing may cease during the cooling phase when emissions reach non-detect levels or the cooling cycle is complete. Unless otherwise approved by the DAQ, testing shall be conducted with the source operating at least at 90% of its permitted capacity of 46 MT of HLM and 33 MT of CAG3 product loaded weight for two LWG furnaces. The Permittee shall measure and record the operation batch rates (HLM and CAG3) during the test.

Monitoring [15A NCAC 02Q .0530(u)]

k. The Permittee shall monitor the monthly throughput in MT (metric tons) of finished products (HLM and CAG3) and the emissions control status as these products are manufactured.

I. The Permittee shall continuously monitor the control parameters as per 2.2 D.1.i. 1 through 4, the interim parametric monitoring, above.

m. The Permittee shall conduct monthly periodic capture system inspections.

Recordkeeping [15A NCAC 02Q .0508(f)]

n. The Permittee shall maintain production records (in written or electronic form) of MT (metric tons) of HLM and CAG3 produced per calendar month.

o. The Permittee shall maintain continuous monitoring records (in written or electronic form) of control parameters as per 2.2 D.1.i. 1 through 4, the interim parametric monitoring, above.

p. The Permittee shall maintain records of actual emissions for the pollutants in Table 2.2 D.1 in tons per year on a calendar year basis for ten years following the resumption of regular operations following the commencement of normal operation of rectiformer No. 2 and following the commencement of normal operation of the optional control system.

q. For each pollutant PM₁₀, PM₂.₅, SO₂, VOC, CO, NOₓ, CO₂, TRS, H₂S and H₂SO₄:

\[
\sum_{n=1}^{10} = \text{Total LWG Emissions} \left( \frac{\text{tons}}{\text{month}} \right)
\]

\[
\text{Total LWG Emissions} \left( \frac{\text{tons}}{\text{month}} \right) = \left( \frac{\text{MT HLM}}{\text{month}} \right) \times \text{HLM EF} \left( \frac{\text{lb}}{\text{MT HLM}} \right) + \left( \frac{\text{MT CAG3}}{\text{month}} \right) \times \text{CAG3 EF} \left( \frac{\text{lb}}{\text{MT CAG3}} \right)
\]

Where:
- LWG = Twelve lengthwise graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.12) with optional associated fabric filter (ID No. CD-5E-S1a), RTO (ID No. CD-5E-S1b) and scrubber (ID No. CD-5E-S1c)
- MT = Metric tons
- HLM EF = Emissions factor (lb/(MT HLM))
- CAG3 EF = Emissions factor (lb/(MT CAG3))
- \(n\) = The series of all pollutants
r. The actual emissions of the twelve LWG furnaces (ID Nos. ES-5E.1 through ES-5E.12) following the commencement of normal operation of rectiformer No. 2 and following the commencement of normal operation of the optional control system shall be calculated monthly and compared to the interim PAEs by applying the interim emissions factors (which include the manufacturer’s specified capture efficiency of 90% for the controlled case) below:

Table 2.2 D.1

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Interim Projected Actual Emissions (including fugitive emissions) * (tpy)</th>
<th>HLM uncontrolled (lb/MT)</th>
<th>CAG3 uncontrolled (lb/MT)</th>
<th>HLM controlled (lb/MT)</th>
<th>CAG3 controlled (lb/MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM₁₀</td>
<td>13.41</td>
<td>0.24</td>
<td>5.10</td>
<td>0.03</td>
<td>0.56</td>
</tr>
<tr>
<td>PM₂₅</td>
<td>12.40</td>
<td>0.22</td>
<td>4.72</td>
<td>0.02</td>
<td>0.51</td>
</tr>
<tr>
<td>SO₂</td>
<td>147.79</td>
<td>1.77</td>
<td>54.32</td>
<td>0.26</td>
<td>7.88</td>
</tr>
<tr>
<td>VOC</td>
<td>10.05</td>
<td>0.87</td>
<td>2.79</td>
<td>0.10</td>
<td>0.33</td>
</tr>
<tr>
<td>CO</td>
<td>447.32</td>
<td>24.51</td>
<td>133.20</td>
<td>4.22</td>
<td>22.91</td>
</tr>
<tr>
<td>NOₓ</td>
<td>2.45</td>
<td>0.04</td>
<td>0.21</td>
<td>0.04</td>
<td>0.21</td>
</tr>
<tr>
<td>CO₂</td>
<td>23,490.50</td>
<td>1,258</td>
<td>3,198</td>
<td>1,258</td>
<td>3,198</td>
</tr>
<tr>
<td>TRS (H₂S and CH₄S only)</td>
<td>13.71</td>
<td>0.40</td>
<td>4.93</td>
<td>0.05</td>
<td>0.58</td>
</tr>
<tr>
<td>H₂S (Non-HAP RS only)</td>
<td>13.65</td>
<td>0.40</td>
<td>4.91</td>
<td>0.05</td>
<td>0.58</td>
</tr>
<tr>
<td>H₂SO₄</td>
<td>2.03</td>
<td>0</td>
<td>0</td>
<td>0.01</td>
<td>0.33</td>
</tr>
</tbody>
</table>

* The projected actual emissions are not enforceable limitations. If the reported actual emissions exceed the projected actual emissions, the Permittee shall include in its annual report an explanation as to why actual emissions exceeded the projected actual emissions.

s. The Permittee shall make the information, documented and maintained in this condition available to the Director or the general public pursuant to the requirements in 40 CFR 70.4(b)(3)(viii).

Reporting [15A NCAC 02Q .0508(f)]

t. The Permittee shall notify the Asheville Regional Office within 15 days of construction and operation of rectiformer No. 2 and within 15 days of construction and operation the optional control system.

u. The Permittee shall submit a report of the emissions of the pollutants listed in Table 2.1 D.1 to the Director within 60 days after the end of each calendar year during which the records in Section 2.2 D.1.r above must be generated. The report shall contain the items listed in 40 CFR 51.166(r)(6)(v)(a) through (c). The reported actual emissions for each of the ten calendar years for the following pollutants will be compared to the respective projected actual emissions as included in Table 2.2 D.1, above.

v. The reported actual emissions (post-construction emissions) of the twelve LWG furnaces (ID Nos. ES-5E.1 through ES-5E.12) following the commencement of normal operation of rectiformer No. 2 and following the commencement of normal operation of the optional control system for each of the ten calendar years will be compared to the projected actual emissions.
emissions (pre-construction projection) for the twelve LWG furnaces (ID Nos. (ES-5E.1 through ES-5E.12)) as per the above.

w. The Permittee shall submit a summary report of the actual emissions within 60 days after the end of each calendar year during which the records in condition p. must be generated. The report shall contain the following:
i. the monthly PM$_{10}$, PM$_{2.5}$, SO$_{2}$, VOC, CO, NOx, CO$_{2}$, TRS, H$_{2}$S and H$_{2}$SO$_{4}$ emissions from these sources (ID Nos. ES-5E.1 through ES-5E.12) for the previous 17 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months.

All instances of deviations from the requirements of this permit must be clearly identified.

A review of the affected regulation, above, 15A NCAC 02D.0530 “Prevention of Significant Deterioration”, specifically, subsection, 02D.0530(u) follows:

The New Source Review (NSR) permitting program requires that a source obtain a permit prior to commencing construction of any project at an industrial facility if the proposed project results in an emissions increase in excess of certain threshold levels.

The Morganton facility is located in Burke County, is presently designated as “attainment” or “unclassifiable” for all criteria pollutants. The following sections discuss the methodology used in the project emissions increase evaluation conducted to assess PSD applicability under the NSR program.

**Emissions Calculations for 02D.0530(u)**

As per the permit application:

“Different calculation methodologies are used for existing and new units; therefore, it is important to clarify whether a source affected by the proposed project is considered a new or existing emission unit.

40 CFR 51.166(b)(7) define new unit and existing units as follows:

*Emissions unit means any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant and includes an electric utility steam generating unit as defined in paragraph (b)(30) of this section. For purposes of this section, there are two types of emissions units as described in paragraphs (b)(7)(i) and (ii) of this section.*

(i) A new emissions unit is any emissions unit that is (or will be) newly constructed and that has existed for less than 2 years from the date such emissions unit first operated.

(ii) An existing emissions unit is any emissions unit that does not meet the requirements in paragraph (b)(7)(i) of this section. A replacement unit, as defined in paragraph (b)(32) of this section, is an existing emissions unit.

Based on the definitions provided, the proposed rectiformer and control devices do not meet the definition on an emission unit as they do not have the potential to emit regulated pollutants. The emission units debottlenecked by the proposed project are the LWG furnaces. The LWG furnaces do not meet the requirements of 40 CFR 51.166(b)(7)(i), and do not meet the definition of replacement unit in 40 CFR
51.166(b)(32), therefore, the LWG furnaces qualify as existing emission units. The recently permitted pack media silo is a new emission unit.\(^4\)

The Morganton facility is classified as a major source for PSD. Project increases were evaluated to determine if the proposed project is a major modification using the current NSR Reform methodology.

For projects that involve new and existing emission units, PSD applicability is determined using the hybrid test as defined 51.165(a)(2)(ii)(f):

\[(f)\] Hybrid test for projects that involve multiple types of emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the method specified in paragraphs (a)(2)(ii)(c) through (d) of this section as applicable with respect to each emissions unit, for each type of emissions unit equals or exceeds the significant amount for that pollutant (as defined in paragraph (a)(1)(x) of this section).\(^5\)

**Major modification** is defined by 40 CFR 51.165(a)(1)(v):

“Major Modification” means any physical change in or change in the method of operation of a major stationary source that would result in a significant emission increase of a regulated NSR pollutant ... and a significant net emissions increase of that pollutant ...

As the project is classified as a physical change, the project needs to be analyzed to determine if a significant net emissions increase will occur.

**Net emissions increase** (NEI) is defined by 40 CFR 51.165(a)(1)(vi)(A):

“Net Emissions Increase” means, with respect to any regulated NSR pollutant ... the amount by which the sum of the following exceeds zero:

1. The increase in emissions ... as calculated pursuant to paragraph (a)(2)(ii) [for existing units, calculated by actual-to-projected actual or actual-to-potential; for new units, calculated by actual-to-potential] of this section; and

2. Any other increases or decreases in actual emissions...that are contemporaneous with the particular change and are otherwise creditable. Baseline emissions for calculating increases and decreases...shall be determined as provided...

The first step (A) is commonly referred to as the “project emission increases” as it accounts only for emissions related to the proposed project itself. If the emission increases estimated per step (A) exceed the major modification thresholds, then the applicant may move to step (B), commonly referred to as the 5-year contemporaneous netting analysis. The netting analysis includes all projects for which emission increases or decreases occurred. If the resulting net emission increases exceed the major modification threshold after completing the netting analysis, then NSR permitting is required.

\(^4\) The Permitting Section agrees the rectiformer and controls do not meet the definition of new emissions units and agrees that the debottlenecked units are the furnaces. Furthermore, we agree with the determination as to which are new and existing units for the purposes of determining if there is a major source increase in emissions for PSD.  
\(^5\) The Permitting Section agrees that applying the hybrid test is appropriate.
While the prior quotations only reference three components of the NEI calculation, there are actually four calculated components, with the additional component being a subset of the definition for projected actual. The four components are listed below and are discussed individually, as appropriate.

1. Baseline actual emissions for existing units (A)
2. Projected actual emissions for existing units (B)
3. “Could have been accommodated” emissions exclusion for existing units (C) (commonly called the demand growth exclusion)
4. Potential emissions for new units (D)

For existing units, the NEI is calculated based on projected actual emissions (B), baseline actual emissions (A), and emissions that could have been accommodated (C). For new units, the NEI is calculated based on potential emissions (D). The total project emissions increase is calculated as the sum of the emissions increases for the existing and new units.”

This engineer has reviewed the above definitions and proposed methodology. See footnotes. The NEI calculation methodology described above appears to have been applied appropriately.

**Baseline Actual Emissions (A)**

As per the permit application:

“Baseline actual emissions are defined in 15A NCAC 2D .0530(b)(1) which supersedes the definition provided in 40 CFR 51.166(b). For an existing emissions unit, baseline actual emissions are defined as:

*For an existing emissions unit, baseline actual emissions mean the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the five-year period immediately preceding the date that a complete permit application is received by the Division for a permit required under this 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.*

Baseline actual emissions from the graphitization area are calculated based on the baseline period from July 2007 to June 2009 by using 24-month average product loading rates to produce annual throughputs. See Appendix B.3 - Past Actual Emissions.⁶

Emission factors used to calculate baseline actual emissions from the graphitization area for PM, PM₁₀, SO₂, VOC, CO, NOₓ, H₂S, and CO₂ are derived from emissions testing performed in 2011 at the SGL Carbon Ozark facility. The testing was conducted during production of electrode products and are based on the pounds of pollutant emitted per metric ton (MT) of product loaded into the furnace. Since SGL has not conducted testing on electrode products, and the Ozark graphitization process used in 2011 was similar to that of the Morganton facility, the Ozark electrode emission factors are the most representative emission factors available. An emission factor for PM₂.₅ is derived from a ratio of PM₁₀ to PM₂.₅ emissions from emissions recorded during 2015 testing of CAG3 product at the Morganton facility. Similarly, RS and TRS emissions are derived

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⁶ The baseline period selected and the BAE emissions calculation appears to be appropriate.
by multiplying the H$_2$S emission factor from the 2011 Ozark testing by a ratio of H$_2$S to RS or TRS emissions recorded during 2015 testing at the Morganton facility.  

The annual average MT of product loaded based on the maximum 24-month period was multiplied by these emission factors to determine baseline actual emissions of each pollutant. An example calculation is provided as follows:

**Baseline Actual Annual PM Emissions from July 2007 to June 2009:**

\[
\text{PM Emissions (tpy)} = \text{HLM Loaded} \left( \frac{\text{MT}}{\text{yr}} \right) \times \text{PM Emission Factor} \left( \frac{\text{lb}}{\text{MT Loaded}} \right) \\
\times \text{Conversion Factor} \left( \frac{\text{Ton}}{2,000 \text{ lb}} \right)
\]

\[
\text{PM Emissions (tpy)} = 16,591 \left( \frac{\text{MT}}{\text{yr}} \right) \times 0.40 \left( \frac{\text{lb PM}}{\text{MT}} \right) \times \left( \frac{\text{Ton PM}}{2,000 \text{ lb}} \right)
\]

\[
\text{PM Emissions (tpy)} = 3.33 \text{ tpy}^7
\]

This engineer has reviewed the methodology and calculations establishing the BAE. See footnotes. The BAE calculations described above appear to have been applied appropriately.

**Projected Actual Emissions (B)**

As per the permit application with footnotes added by this engineer:

“Projected actual emissions are defined in 40 CFR 51.166(b)(40)(i) as:

*Projected actual emissions means the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the 5 years (12-month period) following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that regulated NSR pollutant, and full utilization of the unit would result in a significant emissions increase, or a significant net emissions increase at the major stationary source.*

SGL envisions projected actual emissions from three different operating scenarios following the installation of the second rectiformer:

- Scenario #1 – 100% CAG3 production
- Scenario #2 – 100% HLM production
- Scenario #3 – Mix of HLM and CAG3 production

Emission factors for CAG3 production are derived from 2015 testing conducted at the Morganton facility and are based on the pounds of pollutant emitted per metric ton (MT) of product loaded into a furnace.

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7 The Permitting Section agrees with applying these factors as a means of calculating PAE for the Rule 02D .0530(u). These factors appear in the associated permit condition as interim factors and are to be verified by emissions testing. Also the derivation of RS and TRS emissions appears to be appropriate.
The CO₂ emission factor is based on the maximum observed CO₂ wt% observed during testing at the Morganton facility in 2015.⁸

Emission factors for HLM production for PM, PM₁₀, SO₂, VOC, CO, NOₓ, H₂S, and CO₂ are derived from emissions testing performed in 2011 at the SGL Carbon Ozark facility. The testing was conducted during production of electrode products and emission factors are based on the pounds of pollutant emitted per MT of product loaded into the furnace. Since emissions from the graphitization process are believed to be primarily driven by pack media usage, and the mix of fresh and recycled pack media for electrodes is similar to that of HLM product, the Ozark electrode emission factors are the most representative emission factors available for the HLM product. An emission factor for PM₂.₅ is derived from a ratio of PM₁₀ to PM₂.₅ emissions from emissions recorded during 2015 testing at the Morganton facility. Similarly, RS and TRS emissions are derived by multiplying the H₂S emission factor from the 2011 Ozark testing by a ratio of H₂S to RS or TRS emissions recorded during 2015 testing at the Morganton facility.⁹

As part of the proposed project, SGL is proposing to utilize a baghouse, RTO, and scrubber in series as needed to control emissions from the graphitizing furnaces. Specifically, the control scenario will be used when producing CAG3 product beyond production levels discussed in Section 4 of this application (see Table 4-3).¹⁰ Based on documentation provided by the manufacturer, approximately 1% of the SO₂ emitted from the RTO will be converted to sulfur trioxide (SO₃). In the wet scrubber, an estimated 30-40% of the SO₃ will be converted to H₂SO₄ mist due to reaction between water and the saturated gas. An emission factor is derived for H₂SO₄ mist based on the SO₂ emission factor for CAG3 production and the conversion of SO₂ to H₂SO₄.

To determine the need for operation of controls, SGL has calculated a theoretical project emission increase on an uncontrolled basis for both the 100% CAG3 and 100% HLM production scenarios. As shown in Appendix B, no control is required for 100% production of HLM product, as the calculated project emission increase based on this scenario is less than the PSD SERs. Production of 100% CAG3 would require the use of controls and represents the worst-case projected actual emissions. Therefore, the project emission increase calculation assumes projected actual emissions based on production of CAG3 only and relies upon the proposed control devices as needed to remain below the PSD SERs.

One of the control devices that will be added as part of the proposed control scenario is a RTO. The RTO uses natural gas and will have a total maximum firing rate of 2.5 MMBtu per hour (MMBtu/hr). As noted above, the proposed unit will only operate as needed to control emissions from the graphitizing furnaces to levels less than the emission limits. Emissions due to natural gas combustion in the RTO have been calculated based on 8,408.64 hours per year of operation (96% capacity utilization).

An example calculation of PM emissions from CAG3 production is provided as follows:

**Projected Actual Annual Uncontrolled PM Emissions from CAG3 Production:**

\[
\text{Uncontrolled PM Emissions (tpy)} = \text{CAG3 Loaded (MT/year)} \times \text{PM Emission Factor (lb/MT Loaded)} \times \text{Conversion Factor (Ton/2000 lb)}
\]

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⁸ These would appear to be the most appropriate factors to use in PAE emissions calculations in the interim before emissions factors are established by the required emissions testing.

⁹ The Permitting Section determined the derivation of these factors was appropriate.

¹⁰ The control scenario, 3 devices in series, will be operated when producing CAG3 or HLM products on an as needed basis as long as the PAEs (tons per year rolling average) are not exceeded.
Projected Actual Annual Controlled PM Emissions from CAG3 Production:

Controlled PM Emissions (tpy) = Uncontrolled PM Emissions (tpy) × PM Control Efficiency (%)

Controlled PM Emissions (tpy) = 40.57 tpy × (1 - 65%)

Controlled PM Emissions (tpy) = 14.20 tpy

This engineer has reviewed the methodology and calculations establishing the PAE. The PAE calculations described above appears to have been applied appropriately.

Emissions That Could Have Been Accommodated (C)

As per the permit application:

“The definition specifies the exclusion of emissions that could have been accommodated during the 24-month baseline period in 40 CFR 51.166(b)(40)(ii)(c) as follows:

...shall exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions under paragraph (b)(47) of this section and that are also unrelated to the particular project, including any increased utilization due to product demand growth.

The emissions increase for existing emission units is calculated as the difference between projected actual emissions (B) and baseline actual emissions (A), excluding emissions that could have been accommodated during the 24-month baseline period (C). The LWG furnaces are existing sources, and emissions increases are calculated based on the projected emissions from the LWG furnaces when using two rectiformers as compared to the baseline actual emissions and emissions that could have been accommodated when only one rectiformer was present.

The process used to determine the emissions that could have been accommodated is described in Section 3.2.3.

The determination of the emissions that could have been accommodated is based on a review of the operation of the LWG furnaces during the 24-month baseline period. As shown in Appendix B of this application, the maximum monthly loading rate of the LWG furnaces during the 24-month baseline period was 1,978.43 metric tons in July 2008. This is equivalent to 96% utilization of one rectiformer based on the electrode products manufactured during the time period. Although the facility was manufacturing electrodes during the selected baseline period, HLM and CAG3 have been produced at the facility and could have been produced using one rectiformer if there had been demand for these products. It is clear that the emissions from production of HLM and CAG3 could have been accommodated during the baseline period, and that the emissions from these products using one rectiformer are unrelated to the proposed project.
Electrodes have a shorter batch cycle time than the current HLM and CAG3 products made at the facility. Therefore, it is inaccurate to assume that SGL could have accommodated 1,978.43 metric tons of product loading in a given month for the HLM or CAG3 products. The maximum emissions that could have been accommodated during the baseline period are based on the CAG3 product, which has the highest emissions on a pound per MT basis of all of the products manufactured at the facility. To determine the production rate of CAG3 that could have been accommodated using one rectiformer, SGL has taken the 96% capacity utilization that occurred in July 2008 and has calculated the equivalent annual CAG3 production using one rectiformer as follows:

**CAG3 Loading Rate that Could Have Been Accommodated – One Rectiformer**

\[
\begin{align*}
\text{CAG3 CHA Loading Rate} \left( \frac{\text{MT}}{\text{yr}} \right) &= \frac{\text{Capacity Utilization} \% \times 8,760 \, \text{hr} \, \text{yr}^{-1}}{\text{CAG3 Firing Time} \left( \frac{\text{hr}}{\text{batch}} \right)} \times \text{Loaded Weight} \left( \frac{\text{MT}}{\text{batch}} \right) \\
\text{CAG3 CHA Loading Rate} \left( \frac{\text{MT}}{\text{yr}} \right) &= \frac{96\% \times 8,760 \, \text{hr} \, \text{yr}^{-1}}{35 \, \text{hr} \, \text{batch}^{-1}} \times 33 \left( \frac{\text{MT}}{\text{batch}} \right) \\
\text{CAG3 CHA Loading Rate} \left( \frac{\text{MT}}{\text{yr}} \right) &= 7,929 \, \text{MT} \, \text{yr}^{-1}
\end{align*}
\]

At the calculated annual loading rate, PM$_{10}$ emissions from the CAG3 product would have exceeded the 15 tpy PSD permit limit for the LWG furnaces and the pack media recycling area. Therefore, SGL has adjusted the CAG3 loading rate that could have been accommodated:

**CAG3 Loading Rate that Could Have Been Accommodated – One Rectiformer**

\[
\begin{align*}
\text{CAG3 CHA Loading Rate} \left( \frac{\text{MT}}{\text{yr}} \right) &= \frac{\text{PM}_{10} \text{ Emission Limit} \, \text{(tpy)} - \text{Pack Media Recycling Projected Emissions} \, \text{(tpy)}}{\text{CAG3 PM}_{10} \text{ Emissions} \left( \frac{\text{lb}}{\text{MT}} \right) \times \left( \frac{1 \text{ ton}}{2,000 \text{ lb}} \right)} \\
\text{CAG3 CHA Loading Rate} \left( \frac{\text{MT}}{\text{yr}} \right) &= \frac{15 \text{ tpy} - 1.54 \text{ tpy}}{5.10 \, \text{lb} \, \text{MT}^{-1} \times \frac{1 \text{ ton}}{2,000 \text{ lb}}} \\
\text{CAG3 CHA Loading Rate} \left( \frac{\text{MT}}{\text{yr}} \right) &= 5,280 \, \text{MT} \, \text{yr}^{-1}
\end{align*}
\]

The calculated loading rate based on the PM$_{10}$ emission limit of 15 tpy is equivalent to 64% capacity utilization as shown below:

**CAG3 Capacity Utilization – One Rectiformer**
As shown in the calculation, the maximum rectiformer capacity utilization based on the CAG3 emissions profile and 15 tpy PSD avoidance limit is 64%, which is well below the 96% capacity utilization demonstrated over the course of a month during the baseline period. Therefore, this level of CAG3 loading could have been accommodated during the baseline period and the emissions associated with this CAG3 loading are excluded from the project emissions increase.

This engineer has reviewed the methodology and calculations establishing the CAE. The CAE calculations described above appears to have been applied appropriately.

Potential Emissions (D)

As per the permit application with footnotes added by this engineer:

"SGL recently permitted a pack media silo for installation at the Morganton facility. Although justification could be provided that this project is separate and unrelated to the proposed project, SGL has conservatively included the potential emissions from the pack media silo in the project emission increase calculation for the proposed project. Potential emissions are calculated based on potential throughput of the silo and controlled emission factors taken from AP-42 Section 11.12, Concrete Batching, Table 11.12-2 for cement supplement unloading to elevated storage silo (pneumatic). Detailed emission calculations are provided in Appendix B."

This engineer has reviewed the methodology and calculations establishing the PTE. The PTE calculations described above appears to have been applied appropriately.

Net Emissions Increase

As per the permit application with footnotes added by this engineer:

\[
\text{CAG3 Capacity Utilization (\%)} = \frac{\text{CAG3 CHA Loading Rate (MT yr\(^{-1}\))} \times \text{hr batch}}{\text{Loaded Weight (MT batch) \times hr yr}}
\]

\[
\text{CAG3 Capacity Utilization (\%)} = \frac{5,280 \text{MT yr}^{-1} \times 35 \text{ hr batch}}{33 \text{ MT batch} \times 8,760 \text{ hr yr}}
\]

\[
\text{CAG3 Capacity Utilization (\%)} = 64\%
\]

11 The Permitting Section determined, considering the amount of CAG3 that could have been produced using one rectiformer, applying a capacity factor in determining emissions that could have been accommodated is consistent with the definition of what emissions can be excluded during the baseline period [40 CFR 51.166(b)(40)(ii)(c)].
“Table 3-1 shows the net emission increase for the proposed project compared to the PSD major modification thresholds. As shown in the table, the project does not trigger PSD permitting for any pollutants.

It is important to note that for the purposes of the project emissions increase calculations, only the non-HAP portion of RS has been included. The PSD rules do not define the terms “total reduced sulfur (including H\textsubscript{2}S)” (TRS) and “reduced sulfur compounds (including H\textsubscript{2}S)” (RS), therefore, the definitions of these pollutants are obtained from regulations promulgated under the CAA. New Source Performance Standard (NSPS) Subpart BB defines TRS as the sum of the sulfur compounds H\textsubscript{2}S, methyl mercaptan (CH\textsubscript{4}S), dimethyl sulfide (DMS), and dimethyl disulfide (DMDS). NSPS Subpart J defines RS as H\textsubscript{2}S, carbonyl sulfide (COS) and carbon disulfide (CS\textsubscript{2}) in 40 CFR 60.101. As provided in 40 CFR 51.166(b)(49)(v), regulated NSR pollutants shall not include HAPs listed under Section 112 of the CAA unless the HAPs are also regulated as a constituent or precursor of a pollutant listed under CAA Section 108 (i.e., criteria pollutants). Neither COS or CS\textsubscript{2} are regulated by the Environmental Protection Agency (EPA) as a constituent or precursor of a criteria pollutant and therefore are not subject to PSD, even as RS. The only non-HAP RS emitted by SGL is H\textsubscript{2}S. The only TRS pollutants emitted by SGL are H\textsubscript{2}S and CH\textsubscript{4}S, as DMS and DMDS were below detection limits during the performance test.

The DAQ’s Air Permitting Section concurs with the above analysis defining what the PSD regulations may define as TRS and RS and that the only the non-HAP portion should be included. In SGL’s case, we can conclude:

- Non-HAP RS (SGL only H\textsubscript{2}S)
- TRS (SGL total of H\textsubscript{2}S and CH\textsubscript{4}S)

As such only these two pollutants are included in the 2D.0530(u) condition requiring tracking of actual emissions. Since H\textsubscript{2}S is included with Non-HAP RS and TRS tracking of this pollutant was not required. See Section V. Condition D. above.

From the permit application:

“Table 3-1. Project Net Emissions Increase”
<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Baseline Actual Emissions (A) (tpy)</th>
<th>Projected Actual Emissions (B) (tpy)</th>
<th>Emissions That Could Have Been Accommodated (C) (tpy)</th>
<th>Potential Emissions from Pack Media Silo (D) (tpy)</th>
<th>Project Emissions Increase (B)-(A)-(C)+(D) (tpy)</th>
<th>PSD Significant Emission Rate (tpy)</th>
<th>Is PSD Review Required? (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>3.33</td>
<td>14.74</td>
<td>10.95</td>
<td>0.02</td>
<td>0.47</td>
<td>25</td>
<td>No</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>1.98</td>
<td>13.41</td>
<td>11.48</td>
<td>0.01</td>
<td>-0.04</td>
<td>15</td>
<td>No</td>
</tr>
<tr>
<td>PM₂₅</td>
<td>1.83</td>
<td>12.40</td>
<td>10.62</td>
<td>0.01</td>
<td>-0.04</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td>SO₂</td>
<td>14.64</td>
<td>147.79</td>
<td>128.77</td>
<td>0</td>
<td>4.39</td>
<td>40</td>
<td>No</td>
</tr>
<tr>
<td>VOC</td>
<td>7.24</td>
<td>10.05</td>
<td>3.12</td>
<td>0</td>
<td>-0.31</td>
<td>40</td>
<td>No</td>
</tr>
<tr>
<td>CO</td>
<td>203.31</td>
<td>447.32</td>
<td>148.33</td>
<td>0</td>
<td>95.68</td>
<td>100</td>
<td>No</td>
</tr>
<tr>
<td>NOₓ</td>
<td>0.35</td>
<td>2.45</td>
<td>0.22</td>
<td>0</td>
<td>1.89</td>
<td>40</td>
<td>No</td>
</tr>
<tr>
<td>CO₂</td>
<td>10,435.73</td>
<td>23,490.50</td>
<td>4,497.43</td>
<td>0</td>
<td>8,557.34</td>
<td>75,000</td>
<td>No</td>
</tr>
<tr>
<td>Non-HAP RS</td>
<td>3.29</td>
<td>13.65</td>
<td>9.67</td>
<td>0</td>
<td>0.70</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td>TRS</td>
<td>3.31</td>
<td>13.71</td>
<td>9.71</td>
<td>0</td>
<td>0.70</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td>H₂S</td>
<td>3.29</td>
<td>13.65</td>
<td>9.67</td>
<td>0</td>
<td>0.70</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td>H₂SO₄ mist</td>
<td>0</td>
<td>2.03</td>
<td>0</td>
<td>0</td>
<td>2.03</td>
<td>7</td>
<td>No</td>
</tr>
</tbody>
</table>

“SGL has used projected actual emissions to avoid applicability of prevention of significant deterioration requirements for the project consisting of the addition of a second rectiformer (No. 2) in the graphitization area consisting of twelve (12) LWG furnaces (ID Nos. (ES-5E.1 through ES-5E.12) and the addition of a control system consisting of a baghouse (ID No. CD-5E-S1c), RTO (ID No. CD-5E-S1b) and scrubber (ID No. CD-5E-S1a) has used projected actual emissions to avoid applicability of prevention of significant deterioration requirements.”

This engineer has reviewed the methodology and calculations establishing the NEI. The NEI calculation method described above appears to have been applied appropriately. In summary SGL intends on constructing and operating the second rectiformer No. 2 to allow the firing of two furnaces at one time. The second rectiformer No. 2 is dedicated to the existing six furnaces ES-5E.1 through ES-5E.6. SGL intends on operating the rectiformers according to customer demand. The controls will not be constructed and operated until it is anticipated, due to customer demand, the possible exceedance of the allowed PAE emissions.
VI. Proposed Changes to the Permit and TVEE Discussion

The following table lists all modifications associated with this permit action:

<table>
<thead>
<tr>
<th>Page(s)</th>
<th>Section</th>
<th>Description of Change(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover and throughout</td>
<td>Throughout</td>
<td>Updated all tables, dates, and permit revision numbers.</td>
</tr>
<tr>
<td>8</td>
<td>Section 1</td>
<td>Revised the description of the furnaces and inserted optional control device descriptions.</td>
</tr>
<tr>
<td>9</td>
<td>Section 1</td>
<td>Added footnote for this significant modification of the permit.</td>
</tr>
<tr>
<td>41</td>
<td>Section 2.1. L</td>
<td>• Revised the description of the furnaces and inserted optional control device descriptions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inserted the odor regulation 02D .1806 which was missing from the summary table referencing Section 2.2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inserted the new applicable regulation 02D .0530(u) and affected pollutants in summary table referencing Section 2.2.</td>
</tr>
<tr>
<td>42</td>
<td>Section 2.1. L.2.c</td>
<td>Added the 02D .0521 stipulation that the Permittee is required to reestablish normal within 30 days of operating to modified control system.</td>
</tr>
<tr>
<td>60</td>
<td>Section 2.2. B.</td>
<td>Revised the PSD avoidance condition for PM10 indicating this stipulation would end when rectiformer No. 2 begins operation.</td>
</tr>
<tr>
<td>61</td>
<td>Section 2.2. C.</td>
<td>Revised the PSD avoidance condition for SO2 indicating this stipulation would end when rectiformer No. 2 begins operation.</td>
</tr>
<tr>
<td>62 - 65</td>
<td>Section 2.2. D.1</td>
<td>Inserted new PSD avoidance condition (02D .0530(u) for multiple pollutants.</td>
</tr>
<tr>
<td>71-80</td>
<td>Section 3</td>
<td>Inserted latest (version 5.1, 08/03/2017) of General Conditions.</td>
</tr>
</tbody>
</table>

TVEE changes were approved by Ms. Jenny Sheppard on January 22, 2018.

VII. Statement of Compliance

A. SGL was last inspected on August 9, 2017 by Mr. Patrick Ballard of the Asheville Regional Office (ARO). According to the inspection report, SGL appeared to be in compliance with the air quality permit and applicable air quality regulations at the time of the inspection.

B. The inspection report includes the ten-year compliance history as follows:

1. On May 6, 2008 a NOV/NRE was issued for violation of General Condition F of Air Permit No. 03287T26 for improper operation of the electrostatic precipitator (ID No. CD-1B-02-ESP) installed on the extrusion mix coolers and molding operation (ID No. ES-1B). The company was assessed $3,244 for this violation.

2. On April 6, 2010 a NOV was issued for General Condition F of Air Permit No. 03287T27 for improper operation of the bagfilter (ID No. CD-2C-DC425) installed on shot blasting cleaning operations (ID Nos. ES-2C and ES-2M); the three pitch working tanks (ID No. ES-4A); and the molding operation (ID No. 1h-15AS2EH) at the mold filling station.

3. On July 13, 2011 a NOV was issued for failure to timely submit the 2010 air emissions inventory.

4. On February 13, 2012 a Notice of Deficiency was issued for failure to timely submit a semi-annual report.

5. On March 29, 2016, a Deferral of Enforcement letter on compliance with the 15A NCAC 02D .1104 Toxic Air Pollutant Guidelines for the graphitizing (LWG) furnaces (ID Nos. ES-5E.1 through ES-5E.12) was issued since the March 2016 submitted dispersion modeling
demonstrated that the facility could comply with the respective Acceptable Ambient Levels (AALs) based on emission rates being conservatively increased from the November 3-5, 2015 source testing results.

Permit 03287T34 was issued on November 3, 2016 resolving the state enforceable only compliance issues per Item No. 5, above. Please see the previous permit review and Section V. 2 and 3, below.

VIII. NSPS, NESHAPS/MACT, PSD, PSD Increment, 112(r), CAM, 502(b)(10) Changes, PE Requirement, Local Zoning Requirement, Session Law 2012-91, Toxic Air Pollutants (State-Enforceable Only) Requirements, Insignificant Activities

**NSPS** – The facility operates one natural gas-fired plant boiler (ID No. ES-PB-233) subject to 40 CFR 60, Subpart Dc. The Permittee is required to keep monthly records of the amount of natural gas fired in the boiler. Continued compliance is expected. This permit modification does not affect this status, and continued compliance is expected.

**NESHAPS/MACT** – Based on the facility's potential and actual emissions, the facility is considered a major source for HAPs.

*Subpart DDDDD*

Boilers ES-CB230 and ES-PB-233 at the facility are subject to the above MACT Subpart DDDDD. The boilers can be classified as "gas 1" under the regulation because they only fire natural gas (as defined in the regulation). A permit stipulation for requirements for a gas 1 boiler was added to the Title V Air Permit 03287T33.

Four natural gas-fired hot oil heaters (ID No. I-Oilheaters.1 through I-Oilheaters.4) are rated at only 1.269 MMBtu/hr maximum heat input each. The oil heaters are considered insignificant activities under 15A NCAC 02Q.0503(8). Since the oil heaters are indirectly fired, they are subject to MACT Subpart DDDDD. One of the requirements for each oil heater would be to perform a 5-year energy assessment.

All other natural gas sources at this facility were determined to be direct fired, and they are not subject to MACT Subpart DDDDD.

This permit modification does not affect this status. Continued compliance is expected.

**PSD** – The facility currently operates under two PSD avoidance conditions for the emissions of PM10 and SO2. See Section V., above, for discussion.

As per this application, the changes to the permit proposed by SGL must be evaluated to determine if this project is a major modification for PSD. See Section V., above, for discussion.

**PSD Increment**

Burke County has not been triggered for PSD increment tracking. Therefore, no increment is consumed or generated as a result of this modification.

**112(r)** – The 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 the Rule.
This permit modification does not affect this status.

**RACT** – SGL Carbon is not located in an area of ozone nonattainment. Therefore, RACT does not apply.

**CAM** – 40 CFR 64 (CAM) applies to a control device if the following criteria are met:

1. The unit being controlled is subject to a non-exempt emission standard
2. The control device is being used to comply with the emission standard
3. The unit being controlled has potential emissions of the pollutant subject to the emission standard of greater than major source thresholds.

The specific CAM plans can be found in the permit in Sections 2.2.F. In general, SGL must perform daily monitoring for visible emissions from the subject control devices. In addition, SGL must perform the maintenance and monitoring required by 02D .0515 and 02D .0521.

CAM applies to the existing sources. This permit modification does not affect this status. These CAM permit conditions did not require any changes. There are no new sources of emissions proposed in this permit modification, however additional optional emissions controls are proposed. From the permit application:

“As shown in Appendix B pre-control emissions from each individual graphitization furnace are less than Title V major source thresholds for pollutants controlled by the proposed control devices. Therefore, CAM does not apply.”

This engineer concurs with this determination if only one individual furnace is controlled at a time. If more than one furnace is controlled the applicability of CAM should be reconsidered under the Part 2 application. Continued compliance is expected.

**502(b)(10) Changes** – No changes are pending at this time.

**PE Requirement** – A PE stamp was provided with the application.

**Local Zoning Requirement** – A zoning consistency determination was provided with this application.

**Session Law 2012-91** – Does not apply as a result of this permit modification.

**Toxic Air Pollutants (State-Enforceable Only)** – The facility is subject to 15A NCAC 02D .1100. See Section V.2 and 3, above, for discussion. There are no increases in toxic air pollutant emissions associated with this permit modification.

**Insignificant Activities** – No additional emissions sources were added to the insignificant activities list as a result of this permit modification.

**IX. Other Regulatory Considerations**

- An application fee of $922.00 was received by DAQ.
- The appropriate number of application copies was received by DAQ.
- Public notice is not required for this first step of a modification under 15A NCAC 02Q .0515.
- IBEAM TVEE was updated.
- The application addendum was signed by Mr. Mark Lundblad, Plant Manager, on October 10, 2017.

X. **Recommendations**

This application has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility appears to be or is expected to achieve compliance as specified in the permit with all applicable requirements. A draft permit was provided to the applicant and ARO on INSERT. Comments were made by Ms. Saniti of Trinity Consultants for SGL on INSERT.

Issue P/N 03287T36.