South Carolina

Department of Health and Environmental Control

Bureau of Air Quality

Final Determination and Final Notice of MACT Approval

For

Showa Denko Carbon, Inc.
Dorchester County, South Carolina

June 08, 2012

Final Determination and Final Notice of MACT Approval

Showa Denko Carbon, Inc.
Dorchester County, South Carolina

This review was performed by the Bureau of Air Quality of the South Carolina Department of Health and Environmental Control in accordance with South Carolina Regulations for the Prevention of Significant Air Quality Deterioration.

June 08, 2012

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Appendix A Final Issued Construction Permit No. 0900-0025-CZ

Showa Denko Carbon, Inc.
Dorchester County, South Carolina

I. Time Line (Permitting Action History)

June 14, 2011	The South Carolina Department of Health and Environmental Control (SC DHEC), Bureau of Air Quality (BAQ), received a Prevention of Significant Deterioration (PSD) Construction Permit application from Showa Denko Carbon, Inc. under the Expedited Review Program, requesting permission to increase its production capacity from 45,000 tons per year to 85,000 tons per year.
June 15, 2011	BAQ Engineering Services Division (ESD) advised Mr. Jeff Felker (Showa Denko Carbon, Inc.) of receipt of the application via e-mail and phone message. BAQ ESD sent a Completeness Determination letter to Mr. Jeff Felker (Showa Denko Carbon, Inc.) stating the application was deemed incomplete and could not be accepted into the Expedited Program at this time. Air dispersion modeling was not included in the application. BAQ ESD also sent Completeness Determination letters to Ms. Catherine Collins (USPHS) and Ms. Heather Ceron (EPA) that included a copy of the PSD application.
June 22, 2011	Ms. Elizabeth Basil, Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD) participated in a conference call with representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering to go over preliminary findings of the PSD application.
June 30, 2011	Ms. Elizabeth Basil, Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD) participated in a conference call with representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering to go over preliminary findings of Greenhouse Gas BACT analysis for the PSD application. BAQ ESD mailed out a review letter to Showa Denko Carbon, Inc. requesting additional information.
July 19, 2011	Ms. Veronica Barringer (BAQ ESD), representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.
July 20, 2011	BAQ ESD mailed out a review letter to Jeff Felker (Showa Denko Carbon, Inc.) requesting additional information.
July 26, 2011	Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD) and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.
August 2, 2011	Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD), Mr. John Glass (BAQ Modeling) and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns

	with the application. Showa Denko Carbon, Inc. sent an electronic version of all responses to BAQ ESD review letters dated June 30, 2011 and July 19, 2011 as one document. BAQ ESD mailed out a review letter to Mr. Jeff Felker (Showa Denko Carbon, Inc.) requesting additional information regarding calculations in the application. Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD) held a conference call with Mr. Andrew Parks (EPA) to discuss his initial comments on the application.
August 8, 2011	Copies of the air dispersion modeling and an expedited review request were hand delivered to BAQ ESD. BAQ ESD delivered the copies of the air dispersion modeling to BAQ Modeling. BAQ ESD mailed a copy of the facility responses to the June 30 and July 19, 2011 review letters to Ms. Heather Ceron (EPA) (Heather Ceron).
August 9, 2011	Ms. Rhonda Banks Thompson, Ms. Elizabeth Basil, Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD), Mr. John Glass (BAQ Modeling) and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.
August 10, 2011	Responses from Showa Denko Carbon, Inc. to the BAQ ESD, August 2, 2011 review letter were received.
August 11, 2011	BAQ ESD mailed the Completeness Determination and Acceptance into the Expedited Review Program letter to Mr. Jeff Felker (Showa Denko Carbon, Inc.) and carbon copied Ms. Catherine Collins (USPHS) and Ms. Heather Ceron (EPA). BAQ ESD also e-mailed and left a phone message for Mr. Jeff Felker (Showa Denko Carbon, Inc.) regarding completeness determination and acceptance into the expedited review program.
August 15, 2011	BAQ ESD mailed out a review letter to Mr. Jeff Felker (Showa Denko Carbon, Inc.) requesting additional information which included items needed for modeling review.
August 16, 2011	Ms. Sheila Watts (BAQ ESD) and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application. BAQ ESD received comments from Mr. Gregg Worley (EPA) and these comments were sent electronically to Showa Denko Carbon, Inc.
August 17, 2011	Mr. John Glass (BAQ Modeling) received comments from Mr. Stanley Krivo (EPA) and these comments were sent electronically to Mr. John McLure (GEL Engineering).
August 22, 2011	Representatives from BAQ ESD and Modeling, EPA Region IV, Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a meeting to discuss details of Showa's overall process, modeling issues, and questions/comments on the PSD application.
August 26, 2011	Ms. Elizabeth Basil, Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD) Mr. John

	Glass, Ms. Veronica Gorman (BAQ Modeling) held a conference call with representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering to go over updates and issues needing further clarification.
August 28, 2011	BAQ ESD mailed out a review letter to Mr. Jeff Felker (Showa Denko Carbon, Inc.) requesting additional information.
August 30, 2011	Ms. Sheila Watts (BAQ ESD) and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.
September 2, 2011	Mr. John Glass, Mr. Tracy Price, Ms. Veronica Gorman, Mr. Paul Martin (BAQ Modeling), and representatives from GEL and E^xponent participated in a conference call to discuss items needed for the facility modeling analysis.
September 6, 2011	Ms. Elizabeth Basil, Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.
September 9, 2011	Mr. John Glass participated in a conference call with Showa Denko to discuss options for receptor grids and locations.
September 13, 2011	Ms. Elizabeth Basil, Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.
September 15, 2011	Mr. John Glass, Mr. Tracy Price, Ms. Veronica Gorman (BAQ Modeling), Mr. Joe Scire, and Mr. John Patella participated in a conference call to discuss emission rates, receptor fields, and application of SILs for short term and long term SO_2 and NO_2 modeling.
September 20, 2011	Ms. Elizabeth Basil, Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.
September 26, 2011	Conference call with EPA , Showa Denko, consultant, and Ms. Myra Reece; meeting on fence lines and 'through' road issues and modeling items pertaining to 1-hr standards.
September 27, 2011	Ms. Elizabeth Basil, Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.

September 30, 2011	Ms. Elizabeth Basil, Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss proposed BACT limits.
October 4, 2011	Conference call with Mr. John Glass, Mr. Tracy Price, Ms. Ruthie Hall (BAQ Modeling), Showa Denko, Mr. Joe Scire (E^xponent), and GEL to discuss modeling issues.
October 11, 2011	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.
October 18, 2011	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates and any concerns with the application.
October 24, 2011	BAQ ESD e-mailed the draft preliminary determination, draft permit, and draft statement of basis to Mr. Jeff Felker (Showa Denko Carbon, Inc.) for review and comment.
October 25, 2011	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any questions pertaining to the draft preliminary determination, draft permit, and draft statement of basis and updates.
November 1, 2011	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any questions pertaining to the draft preliminary determination, draft permit, and draft statement of basis and updates.
November 8, 2011	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any questions pertaining to the draft preliminary determination, draft permit, and draft statement of basis and updates.
November 15, 2011	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any questions pertaining to the draft preliminary determination, draft permit, and draft statement of basis and updates.
November 18, 2011	Representatives from BAQ Management, ESD and Modeling, EPA Region IV, Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a meeting at the Showa Denko facility to discuss details of Showa's overall process, modeling issues, and questions/comments on the PSD application.
November 23, 2011	Mr. Jeff Felker (Showa Denko Carbon, Inc.) e-mailed comments on the draft preliminary determination and draft permit to BAQ.

November 28, 2011	Mr. Jeff Felker (Showa Denko Carbon, Inc.) e-mailed the summary of stack engineering testing results to BAQ.
November 29, 2011	Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any questions pertaining to the draft preliminary determination, draft permit, and updates.
December 6, 2011	Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any questions pertaining to the draft preliminary determination, draft permit, and updates.
December 8, 2011	Conference call was held with GEL, Showa Denko, EPA, and DHEC to discuss modeling issues.
December 13, 2011	Ms. Rhonda Banks Thompson, Ms. Elizabeth Basil, Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any questions pertaining to the draft preliminary determination, draft permit, and updates.
January 11, 2012	Representatives from BAQ ESD and Modeling, Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a meeting to discuss updates on permitting/modeling, specifically Showa Denko's efforts towards the feasibility of installing emissions abatement equipment on existing sources.
January 17, 2012	Ms. Veronica Barringer, Ms. Sheila Watts, and Mr. Jake Frick (BAQ), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
January 24, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
January 31, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
February 7, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
February 14, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
February 17, 2012	Showa Denko e-mailed a revised PSD application, excluding modeling, to the BAQ.

February 21, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
February 28, 2012	Ms. Elizabeth Basil and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
March 6, 2012	Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
March 13, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
March 20, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates.
March 21, 2012	BAQ ESD e-mailed the revised draft preliminary determination and draft permit to Mr. Jeff Felker (Showa Denko Carbon, Inc.) for review and comment.
March 27, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates along with any comments on the revised draft preliminary determination and draft permit.
March 28, 2012	Mr. Keith McCullock (GEL Engineering) e-mailed comments on the revised draft preliminary determination and draft permit to BAQ. BAQ ESD e-mailed an updated draft statement of basis to Jeff Felker (Showa Denko Carbon, Inc.) for review and comment.
March 29-30, 2012	Mr. Joe Scire and Ms. Irene Lee of E^{x}ponent met with Mr. John Glass, Mr. Tracy Price, Mr. Greg Quina, Mr. Paul Martin, and Ms. Ruthie Hall (BAQ Modeling) to discuss modeling issues and provided additional files not previously received.
March 30, 2012	Ms. Elizabeth Basil and Ms. Veronica Barringer (BAQ ESD) and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any comments and to discuss timeframes.
April 2, 2012	Ms. Veronica Barringer and Mr. Jeff Felker (Showa Denko Carbon, Inc.) held a phone conversation to discuss the monitoring of the baghouses.
April 4, 2012	Mr. Matthew Wike (GEL Engineering) e-mailed comments on the updated draft statement of basis to BAQ.

April 10, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any permitting/modeling updates and timeframes.
April 13, 2012	The BAQ placed the PSD Preliminary Determination and PSD Construction Permit No. 0900-0025-CZ on public notice by publication in *The Journal Scene* newspaper in Summerville, South Carolina. All appropriate Federal and State Officials were notified.
April 17, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any updates.
April 24, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any updates.
April 27, 2012	A conference call was held with Mr. Joe Scire, representatives from Showa Denko Carbon, Inc., representatives from GEL Engineering, and representatives from BAQ Modeling (Mr. John Glass, Mr. Tracy Price, Mr. Greg Quina, Mr. Paul Martin, and Ms. Ruthie Hall) to discuss modeling issues.
May 1, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any updates.
May 8, 2012	Ms. Veronica Barringer and Ms. Sheila Watts (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any updates.
May 14, 2012	A public hearing regarding the draft PSD Construction Permit was held at the Ridgeville Town Hall Auditorium, 105 School Street, Ridgeville, South Carolina.
May 18, 2012	DHEC extended the original public comment period for the proposed project through close of business on May 31, 2012.
May 22, 2012	Ms. Elizabeth Basil and Ms. Sheila Watts (BAQ ESD) and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss comments received during the public hearing.
May 29, 2012	Ms. Veronica Barringer (BAQ ESD), and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss any updates or comments received during the public comment period.
June 1, 2012	Ms. Myra Reece, Ms. Elizabeth Basil, Mr. Henry Porter, and Mr. John Glass (BAQ) and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Exponent Consulting held a conference call to discuss comments received during the

public notice period.

June 5, 2012 Ms. Veronica Barringer, Ms. Sheila Watts (BAQ ESD), Mr. John Glass (BAQ Modeling) and representatives from Showa Denko Carbon, Inc., GEL Engineering, and Fluor Engineering held a conference call to discuss updates on responses to comments received during the public comment period.

II. Introduction and Preliminary Determination

Project Overview

Showa Denko Carbon, Inc. (Showa Denko) submitted a PSD Construction Permit application and a Case-by-Case MACT Determination, also known as 112(g), application to the SC DHEC BAQ (Department) to increase production capacity of graphite electrodes from 45,000 to 85,000 metric tons per year (TPY) at the facility's Dorchester County location. The manufactured graphite electrodes are primarily used by the steelmaking industry as a means of transporting electrical energy into the electric arc steelmaking furnace. This facility, which is located at 478 Ridge Road in Ridgeville, South Carolina, currently holds a Title V Operating Permit and has been operating since 1983.

The application addressed the following modifications to the facility that will involve the use of existing processes and/or new processes:

- New Mill, Mix, and Extrusion Process (new equipment)
- New Bake/Rebake Process (new equipment)
- Existing Rebake Load and Unload/Graphitizing Preparation Process (relocating existing process, increased throughput)
- Existing Bake Load and Unload and Baked Electrode Cleaning Process (use of existing process, increased throughput)
- Existing Pitch Impregnation Process (use of existing process, increased throughput)
- New Pitch Impregnation Process (new equipment)
- Existing Insulating media Receiving Process (use of existing process, increased throughput)
- New Graphitizing Process (new equipment)
- Existing Graphitizing Process (modification of existing equipment)
- Existing Cleaning and Inspection Process (relocating existing process, increased throughput)
- Existing Machining and Shipping Process (use of existing process, increased throughput)
- New Emergency Generator (new equipment)

After completion of the proposed expansion, Showa Denko will have two (2) processes for the Mill, Mix, and Extrusion, the Bake/Rebake, the Pitch Impregnation, and the Graphitizing and remain with only one (1) process for the Rebake Load and Unload/Graphitizing Preparation, the Bake Load and Unload and Baked Electrode Cleaning, the Insulating media Receiving, the Cleaning and Inspection, and the Machining and Shipping.

The facility is currently a major source for PSD. The facility does anticipate that a creditable emission decrease will occur as a result of modification to the existing graphitizing process, as part of this PSD, therefore a netting analysis was performed. The proposed modification resulted in increases that exceeded the PSD significant thresholds for the following pollutants; particulate matter (PM), particulate matter with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), particulate matter with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and carbon dioxide equivalent (CO_2e). Therefore, this project is subject to review under SC Regulation 61-62.5, Standard No. 7 *Prevention of Significant Deterioration*. SC Regulation 61-62.5, Standard No. 7 is equivalent to the Federal Prevention of Significant Deterioration of Air Quality regulations in Title 40 CFR Section 52.21. Pursuant to these regulations, new major stationary sources and modifications to major stationary sources of air pollution must demonstrate that

they will not significantly deteriorate the air quality in their region. Dorchester County, SC is currently in attainment for all criteria pollutants.

A PSD review follows for PM, PM_{10}, $PM_{2.5}$, NO_x, CO, VOC, and CO_2e emissions and includes a BACT determination and Air Quality Impact Analysis. A 112(g) review follows for HAP emissions and includes a Case-by-Case MACT determination.

Regulatory Applicability

The increased production capacity results in potential emissions that exceed the PSD significant thresholds. By virtue of the proposed increase, this project is subject to review under the following standards in SC Regulation 61-62.5 and federal standards:

- Standard No. 1 *Emissions from Fuel Burning Operations*
- Standard No. 2 *Ambient Air Quality Standards*
- Standard No. 3 *Waste Combustion and Reduction*
- Standard No. 4 *Emissions from Process Industries*
- Standard No. 5.1 *Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) Applicable To Volatile Organic Compounds* (State only regulation)
- Standard No. 7 *Prevention of Significant Deterioration*
- Standard No. 8 *Toxic Air Pollutants*
- SC Regulation 61-62.6 *Control of Fugitive Particulate Matter*
- SC Regulation 61-62.7 *Good Engineering Practice Stack Height*
- SC Regulation 61-62.60 South Carolina Designated Facility Plan and New Source Performance Standards and 40 CFR 60 *Standards of Performance of New Stationary Sources*
- SC Regulation 61-62.63/40 CFR 63 *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories*, Subpart A *General Provisions*
- SC Regulation 61-62.63/40 CFR 63 *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories*, Subpart B *Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j)*
- SC Regulation 61-62.70 *Title V Operating Permit Program*
- 40 CFR 52 *Approval And Promulgation Of Implementation Plans*, Section 52.21 *Prevention Of Significant Deterioration Of Air Quality*

Significant Emission Rates

As shown in Table 1, this project exceeds the significant threshold as defined under PSD for PM, PM_{10}, $PM_{2.5}$, NO_x, CO, VOC, and CO_2e emissions. HAP emissions are also shown in this table.

Table 1. Showa Denko – PSD and MACT Applicability Analysis			
Pollutant	**Controlled Emissions Increase**	**PSD Significant Threshold**	**Significant Increase?**
	TPY	**TPY**	
PM	93.4	25	Yes
PM_{10}	93.08	15	Yes
$PM_{2.5}$	92.8	10	Yes
SO_2	-113.5	40	No
NO_X	324.6	40	Yes
CO	4,757	100	Yes
VOC	115.5	40	Yes
Lead	0.0001	0.6	No
CO_2e	255,445	75,000	Yes
HAP (single greatest)	75.4	10	Yes
HAP (total)	75.4	25	Yes

III. Air Quality Impact Analysis Updates

On April 10, 2012, the BAQ made a preliminary determination that the air quality analysis submitted by the Showa Denko facility showed that operation of the proposed facility would not cause or contribute to the violation of any state or federal air quality standard. Subsequent to this, several minor errors were discovered in the preliminary determination and were corrected. A list of these minor items is included below.

- Since the Air Quality Impact Analysis appears in a different section in this Final Determination vs. where it appeared in the Preliminary Determination, all of the tables have been renamed to reflect their location in this document. Thus, Table VI-1 in the Preliminary Determination has been renamed Table III-1 in this document, Table VI-2 has been renamed Table III-2, and so on through Table VI-12, which has been renamed Table III-12.

- Edit Table III-1 to include both AERMOD and BLP as the models used.

- Table III-3 and Table III-5 titles were revised to more accurately reflect the contents of the tables. This change does not affect the modeling results or the compliance determination.

- Table III-3 was revised for the NO_2 1-hour facility list to show only facilities included in the modeling, not the entire list of background sources. This change does not affect the modeling results or the compliance determination.

- Table III-5 was revised for the $PM_{2.5}$ 24-hour facility list to include Showa Denko. This change does not

affect the modeling results or the compliance determination.

- Table III-4 has been edited to correct footnotes and labels, and to correct the $PM_{2.5}$ 24-hour concentration. The original value was the 8th high, but the report stated the 1st high was used. The value was changed to the 1st high concentration. This does not affect the compliance determination.

- Table III-6 has been edited to round the values to the same number of decimal places as the regulatory limits, which is standard practice. Also the title to the table has been revised to be more consistent with the naming convention throughout. These changes do not affect the modeling results or the compliance determination.

- Table III-7 was revised to include the BAQ modeling results when it was discovered the facility did not run highest first high for all pollutants and averaging times. These changes did not affect the compliance determination. Also, footnote 4 was deleted and a general blanket statement was added to Section A describing the NO_X to NO_2 ambient ratio method adjustment used throughout the determination.

- Section B.2 was edited to explain the changes now incorporated into Table III-7.

- Table III-10 edited footnotes to correct the averaging times used. This does not affect the results or the compliance determination.

- Table III-12 has been edited to update state modeling values for PM_{10} and SO_2. This does not affect the compliance determination.

- Section A – Statement added to describe the NO_X to NO_2 ambient ratio method adjustment used throughout the determination.

- Several typographical errors were discovered throughout the document and were corrected.

Following is the Updated Modeling Analysis with the changes made as noted above:

For a major facility, PSD regulations require an applicant to analyze the impact from the construction of a proposed new source(s) on the following areas:

1. Compliance with the National Ambient Air Quality Standards (NAAQS);
2. Compliance with the PSD Increments;
3. Significant impact on PSD Class I Areas, including Class I PSD increments;
4. Impairments to visibility, soil, and vegetation; and
5. Air Quality impact of general growth associated with the source.

All minor and major sources proposing new construction or construction modifications in South Carolina (SC) are also required to demonstrate that their facility will remain in compliance with South Carolina Regulation 61-62.5 Standards 2 (AAQS), Standard 7 (Class II PSD Increments), and Standard 8 (air toxics). General results of this compliance demonstration indicate that there will be no exceedances of Full Impact or South Carolina ambient air quality standards or PSD increments. It is also predicted that this project will not cause any adverse effects on visibility, vegetation, or soils nor will there be any adverse effects caused by growth associated with this project. It is predicted that there will also be no adverse effects on visibility, vegetation, or soils in any of the Class I areas within 300 km of the facility/source nor will there be any

significant impact on the Class I increments at any Class I area.

A. PSD Class II Modeling Analysis

The PSD Review requires pollutants, which are determined to be "major", be evaluated by an Air Quality Impact Analysis and Additional Impacts Analysis. The Air Quality Impact Analysis consists of (1) a Preliminary Modeling Analysis to determine which pollutants from the proposed project at the facility only**,** exceed their Class II Significant Impact Levels (SIL); and (2) a more comprehensive Full Impact Analysis based on concentrations of pollutants that exceed the SIL for the facility and additional 'facility-wide' impacts from other facilities that may impact the Significant Impact Area (SIA). The Additional Impacts Analysis evaluates the impacts on soils, vegetation, and visibility effects.

For this project, all emissions for NO_2 were modeled as NO_X. Then, the ambient ratio method value of 0.80 was applied to all of the modeled concentrations to obtain the final concentrations for NO_2. This ratio method is allowed under *40 CFR 51 Appendix W* and the *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO2 National Ambient Air Quality Standard, 3/1/2012* memo from EPA.

A.1. PSD CLASS II PRELIMINARY MODELING ANALYSIS

Potential emission rates or net emission rate increases for each pollutant determined to be significant (Table III-1.) at the facility were modeled to determine (a) the Significant Impact Level (SIL); (b) the impact area within which a Full Impact Analysis must be performed; and (c) whether or not the facility may be exempted from the ambient monitoring data requirements. Each of these three preliminary Class II analyses is discussed below.

A.1.a. SIGNIFICANT IMPACT LEVEL (SIL) ANALYSIS

If an impact is less than the SIL, then no further PSD analysis is required. Table III-1 provides the results of the SIL modeling analysis for this project for the "major" pollutants as defined above. This analysis shows SILs were exceeded for PM_{10} 24-hour, $PM_{2.5}$ 24-hour, NO_2 1-hour and annual, and CO 1-hour and 8-hour. Therefore, a Full Impact analysis is required for these pollutants. No further PSD analysis is required for PM_{10} Annual and $PM_{2.5}$ Annual. However, these, along with SO_2 (which was not significant for PSD), must be included in the facility-only South Carolina Standard 2/7 modeling. The Full Impact analysis assessed the combined impacts of the significant impact pollutants from the facility sources along with those from other sources in the Significant Impact Area (SIA) and the Screening Area as appropriate.

Maximum concentrations are used for the Significant Impact Level analysis (i.e. Highest-First-High), except for $PM_{2.5}$ and NO_2-1hr. For these newer standards, the following apply.

- 24-hour $PM_{2.5}$: the highest 5-year average of the maximum 24-hour averages over 5 years of meteorological data modeled
- Annual $PM_{2.5}$: the highest 5-year average of the annual averages over 5 years of meteorological data modeled

- 1-hour NO_2: the highest 5-year average of the daily maximum 1-hour averages over 5 years of meteorological data modeled

TABLE III-1. CLASS II PREVENTION OF SIGNIFICANT DETERIORATION (PSD) SIGNIFICANT IMPACT LEVELS							
POLLUTANT	AVERAGING TIME	MODEL USED	MAXIMUM IMPACT ($\mu g/m^3$)	Note	SIL ($\mu g/m^3$)	Exceeds SIL (Yes/No)	SIGNIFICANT IMPACT AREA (km)
PM_{10}	24 HOUR	AERMOD/BLP	5.7	B	5	Yes	0.77
	ANNUAL	AERMOD/BLP	0.16	B	1	No	0
$PM_{2.5}$	24 HOUR	AERMOD/BLP	4.6	C	1.2	Yes	1.96
	ANNUAL	AERMOD/BLP	0.12	D	0.3	No	0
NO_2	1 HOUR	AERMOD/BLP	48.0	A	7.5 (1)	Yes	6.27
	ANNUAL	AERMOD/BLP	1.3	B	1	Yes	0.92
CO	1 HOUR	AERMOD/BLP	3061	B	2000	Yes	2.83
	8 HOUR	AERMOD/BLP	2047	B	500	Yes	4.93
(1) The South Carolina interim SIL for 1-hr NO_2 modeling is 8 but the facility used 7.5, which is conservative.							
Notes: A) Highest 5-year average of the daily maximum predicted 1-hour average at any receptor. B) Maximum predicted average at any receptor. C) Highest 5-year average of the maximum predicted 24-hr averages at any receptor D) Highest 5-year average of the predicted annual average at any receptor.							
Ozone is not modeled, but a general impact assessment is to be made if the source is major for ozone as determined in Table IV-1.							
There is no SIL for fluorides, lead, H_2S, and H_2SO_4. These pollutants will be modeled in Section E – SC State modeling as applicable.							
TSP is not considered a criteria pollutant for this analysis.							

The Southeastern United States, including South Carolina, is NO_X limited with regards to ozone formation. This means that there is an excess of VOC in the atmosphere with regards to ozone formation and increases in VOC do not lead to increases in ozone production. The excess VOC is in part due to natural sources in the environment. Due to the excess VOC, only increases in NO_X in this region are a concern with regards to ozone formation. Ambient impacts from NO_X are addressed in NO_2 modeling.

Due to the highly complex reactions involving formation of ozone in the atmosphere, there is no "preferred" EPA guideline ozone model for individual NO_X source emissions and, hence, ambient air quality ozone demonstrations are not required to be included for NO_X (precursor for ozone). In order to estimate impacts on ozone, increases in NO_X from the project were compared with the total NO_X emissions from the surrounding area of South Carolina. The project NO_X emissions increase is 369.53 tons/year. The proposed project emissions of NOx represent approximately 0.5% of the stationary point source emissions of NOx in South Carolina in 2008 and less than 0.2% of the sum of non-point and mobile source emissions of NOx in South Carolina in 2008. The representative ozone monitoring station for this area, located approximately 28 km from the project location, is the Cape Romain monitor located in Charleston County. The most recent design value of 0.067 ppm for this station shows that the area is currently in attainment with the 8-hour ozone standard of 0.075 PPM. Based on this small increase in NO_X, it is estimated that this project will have minimal impact on overall ozone formation within the surrounding area and should not exceed the current 8-hr ozone standard.

A.1.b. SIGNIFICANT IMPACT AREA (SIA) ANALYSIS

The impact area is a circular area with a radius extending from the source to (1) the most distant point where approved dispersion modeling predicts a significant ambient impact will occur (greater than or equal to the SIL), or (2) a modeling receptor distance of 50 km, whichever is less. An impact area is initially established for each pollutant for every averaging time. Sources within the SIA will be used for this analysis. Table III-1 indicates the maximum distances to significant impacts. All sources within the pollutant respective radius were included for each pollutant accordingly.

In order to insure that the significant impact area was not underestimated, the distance to the most distant significant impact from the Showa Denko facility was increased by a buffer equal to the next more distant receptor beyond the receptor that was equal to or greater than the SIL.

A.1.c. SIGNIFICANT MONITORING CONCENTRATION ANALYSIS

Modeling significance results for PM_{10}, $PM_{2.5}$, NO_2, and CO are shown below along with significant monitoring concentrations for these pollutants. The significant monitoring concentrations are from SC Regulation 61-62.5, Standard No. 7. Impacts are the maximum modeled concentrations for each pollutant (i.e. Highest First High) except for $PM_{2.5}$ and NO_2-1hr. For these newer standards, the following apply.

- 24-hour $PM_{2.5}$: the highest 5-year average of the maximum 24-hour averages over 5 years of meteorological data modeled
- Annual $PM_{2.5}$: the highest 5-year average of the annual averages over 5 years of meteorological data modeled
- 1-hour NO_2: the highest 5-year average of the daily maximum 1-hour averages over 5 years of meteorological data modeled

TABLE III-2. SIGNIFICANT MONITORING CONCENTRATIONS

Pollutant	Averaging Period	Max. Impact ($\mu g/m^3$)	Significant Monitoring Concentration ($\mu g/m^3$)	Exceeds (Y or N)
PM_{10}	24-Hour	5.7	10	No

TABLE III-2. SIGNIFICANT MONITORING CONCENTRATIONS				
Pollutant	Averaging Period	Max. Impact ($\mu g/m^3$)	Significant Monitoring Concentration ($\mu g/m^3$)	Exceeds (Y or N)
$PM_{2.5}$	24-Hour	4.6	4	Yes
NO_2	Annual	1.3	14	No
CO	8-Hour	2047	575	Yes

The maximum impacts for NO_2 Annual and PM_{10} 24-hour are below the significant monitoring concentration (SMC) levels; therefore, no pre-construction monitoring is required for these pollutants. The PM2.5 and CO concentrations exceed the SMC. Since SO_2 is not considered significant for this project as previously determined, pre-construction monitoring for SO_2 is not required. Also, since this site is significant for VOCs, ozone monitoring data also needs to be reviewed. Section 2.4 of U.S. EPA's *Ambient Monitoring Guidelines for Prevention of Significant Deterioration* (EPA-450/4-87-007) permits the use of existing representative air quality data in place of preconstruction monitoring data, provided monitor location, quality of data, and currentness of data are acceptable.

The facility location is in an area that is generally free from the impact of other point sources and area sources associated with human activities. Additionally, the site is located in an area with no complex terrain. According to the EPA document listed above, monitoring data from a regional site may be used as representative data in these cases.

The nearest regional monitor for $PM_{2.5}$ is the Charleston FFA Beacon monitor. The monitoring site and the facility have similar base elevations and there are no significant land features between the facility and monitoring site. The Showa Denko facility is located in a rural area while the FAA site is in a suburban area that would be expected to experience somewhat higher $PM_{2.5}$ concentrations due to local particulate contributions.

The closest CO monitor is located at the Cape Romain station. Since the Cape Romain CO monitor is located in a Class I area on the coast of South Carolina and may not be entirely representative of a more inland, rural area, an alternative monitoring location was sought. The only other candidate site for CO background data in South Carolina is the Greenville County Health Department monitoring station. While this monitoring station is located over 270 km from the project facility, it is in a major urban area with significant CO emissions and is a very conservative alternative that easily satisfies the background monitoring requirements.

Although there is no 1-hr SMC for NO_2, since the significant impact results were above the interim SIL for this averaging period, background monitoring data was needed for the 1-hr NO_2 for the full impact analysis. The Jenkins NO_2 monitor in North Charleston is the closest NO_2 monitoring station to the project location. The Jenkins station is located in an urban area with commercial land use and significant NO_x emissions. The Jenkins Avenue monitor would be expected to provide a very conservative background for the Showa Denko modeling.

Background PM_{10} monitoring data is also needed since cumulative modeling is required for this pollutant. The Jenkins PM_{10} monitor is the closest PM_{10} monitoring station to the project location. The Jenkins station is located in an urban area with commercial land use and significant PM_{10} emissions. Again, the Jenkins Avenue monitor would be expected to provide a very conservative background for the Showa Denko modeling.

The nearest ozone monitoring data is available from the Bushy Park site in Berkeley County and the Cape Romain monitor in Charleston County. The 2008-2010 data is 0.062 and 0.067 for these monitors respectively, both of which are well below the 0.075 ppm threshold. These monitors are operated by the SC DHEC in support of National Ambient Air Quality Standards attainment activities and meet the quality assurance requirements for this work. These activities require the data to be quality assured, and the level of quality assurance for these monitors meets the requirements for PSD modeling.

It has been determined that the data DHEC has obtained for background concentrations are representative (or conservative) of the ambient pollutant concentrations in the area of the proposed facility. In accordance with Chapter C, Section III of the New Source Review Manual (Draft document, dated October 1990), the Bureau approves the use of ambient data collected at DHEC monitoring stations for pre-construction monitoring requirements.

A.2. PSD CLASS II FULL IMPACT MODELING ANALYSIS

A Full Impact Analysis is required for any pollutant for which the proposed source's estimated ambient pollutant concentrations meet or exceed the SIL's (determined in Table III-1). Separate analyses are performed for determining compliance with the NAAQS and PSD increments. The Full Impact Analysis consists of modeling all facilities within the SIA, those in the SA that are not excluded by the screening protocol, and background pollutant concentrations (for the NAAQS analysis). The SA used is an area extending 50 km beyond the SIA for each pollutant and averaging period.

The "Screening Threshold Method for PSD Modeling" or "20D Rule" was used to determine which sources within the Screening Area to include. In order to exclude a source, the annual emissions of a pollutant must be less than 20 times the distance (km) from the SIA to the source in the Screening Area. Sources within 2 km of each other were summed prior to applying the 20D Rule. Each calculated 20D distance was compared to the annual emission of each pollutant. Those sources with annual emissions greater than or equal to 20D were retained and considered in the Full Impact modeling analysis for the Class II NAAQS. For the Class II PSD Increment analysis, all the increment consuming sources in the Screening Area were included (no screening was performed).

In addition, Showa Denko performed a significant concentration gradient analysis for the 1-hr NO_2 modeling as an additional screen for sources to exclude in the Screening Area. In that analysis, modeling was performed for those sources that did not screen out using the 20D rule to determine the lateral and longitudinal concentration gradient between the source and the Showa Denko facility. In agreement with the requirements of the EPA "Guideline on Air Quality Models," those sources whose emissions do not cause a significant concentration gradient in the vicinity of the Showa Denko facility were screened out of the full impact modeling.

A.2.a PSD CLASS II FULL IMPACT - NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ANALYSIS

Table III-3 shows a list of facilities that are included in the full impact analysis for NAAQS modeling.

TABLE III-3. CLASS II FULL IMPACT ANALYSIS – NAAQS SOURCES						
PM_{10} 24-Hour	$PM_{2.5}$ 24-Hour	SO_2	NO_2 1-Hour	NO_2 Annual	CO 1-Hour	CO 8-Hour
Showa Denko	Showa Denko	--	Showa Denko	Showa Denko	Showa Denko	Showa Denko
Santee Cooper - Jefferies	Santee Cooper - Jefferies	--	American-LaFrance	Santee Cooper - Jefferies	Roseburg Forest Products	Roseburg Forest Products
SCE&G Williams	SCE&G Williams	--	Chamber Oakridge Landfill	SCE&G Williams	Georgia-Pacific Corp - Resins	Georgia-Pacific Corp - Resins
C. R. BARD	C. R. BARD	--	--	E.I.Dupont	SCE&G Williams	SCE&G Williams
Santee Cooper - Cross	Santee Cooper - Cross	--	--	C. R. BARD	Georgia-Pacific Russellville Resin	Georgia-Pacific Russellville Resin
MeadWestvaco	MeadWestvaco	--	--	BP-Amoco Cooper River	Alcoa - Mt. Holly	Alcoa - Mt. Holly
MeadWestvaco Chemical Division	MeadWestvaco Chemical Division	--	--	Santee Cooper - Cross	American-LaFrance	American-LaFrance
Cogen South LLC	Cogen South LLC	--	--	Nucor Steel	BP-Amoco Cooper River	BP-Amoco Cooper River
Charleston Technical Center	Charleston Technical Center	--	--	Air Liquide Large	Santee Cooper - Cross	Santee Cooper - Cross
SCE&G Canadys	SCE&G Canadys	--	--	Corning Inc.	Nucor Steel	Nucor Steel
Georgia Pacific Sawmill	Georgia Pacific Sawmill	--	--	DAK Americas LLC	Air Liquide Large	Air Liquide Large
Holcim Inc.	Holcim Inc.	--	--	MeadWestvaco	MeadWestvaco	MeadWestvaco
Georgia Pacific - MDF	Georgia Pacific - MDF	--	--	Rhodia	Rhodia	Rhodia
--	--	--	--	Charleston AFB	SCE&G - Hagood	SCE&G - Hagood
--	--	--	--	SCE&G - Hagood	Kinder Morgan Bulk Terminals	Kinder Morgan Bulk Terminals
--	--	--	--	Kinder Morgan Bulk Terminals	MeadWestvaco Chemical Division	MeadWestvaco Chemical Division
--	--	--	--	MeadWestvaco Chemical Division	BASF North Charleston	BASF North Charleston
--	--	--	--	Cogen South LLC	Cogen South LLC	Cogen South LLC
--	--	--	--	Charleston Technical Center	Charleston Technical Center	Charleston Technical Center
--	--	--	--	SCE&G Canadys	Tri County Paving Inc.	Tri County Paving Inc.
--	--	--	--	Giant Cement	SCE&G Canadys	SCE&G Canadys
--	--	--	--	Blue Circle Cement	Giant Cement	Giant Cement
--	--	--	--	Chamber Oakridge Landfill	Blue Circle Cement	Blue Circle Cement
--	--	--	--	Holcim Inc.	Chamber Oakridge Landfill	Chamber Oakridge Landfill
--	--	--	--	Georgia Pacific - MDF	Holcim Inc.	Holcim Inc.
--	--	--	--	--	Georgia Pacific - MDF	Georgia Pacific - MDF
--	--	--	--	--	Tri County Paving Inc.	Tri County Paving Inc.

TABLE III-3. CLASS II FULL IMPACT ANALYSIS – NAAQS SOURCES						
PM_{10} 24-Hour	**$PM_{2.5}$ 24-Hour**	**SO_2**	**NO_2 1-Hour**	**NO_2 Annual**	**CO 1-Hour**	**CO 8-Hour**
SO2 is not significant for PSD and is not included in any further analysis.						

Table III-4 shows that when proposed facility emissions are modeled with other sources in the SIA and SA, and background values are added, the National Ambient Air Quality Standards are not exceeded and compliance has been demonstrated.

Table III-4. NATIONAL AMBIENT AIR QUALITY STANDARDS CLASS II FULL IMPACT ANALYSIS							
Pollutant	Averaging Time	Model Used	Maximum Modeled Concentration ($\mu g/m^3$) (1)	Background Concentration ($\mu g/m^3$) (2)	Total ($\mu g/m^3$)	Standard ($\mu g/m^3$)	% of Standard
PM_{10}	24 Hour	AERMOD/BLP	12.6	47.0	60	150	40
$PM_{2.5}$	24 Hour	AERMOD/BLP	12.5 (3)	20.0	32	35	86
NO_2	1 Hour	AERMOD/BLP	(4)	Level 2b (5)	159 (4, 6)	188	85
	Annual	AERMOD/BLP	6.6	15.2	22	100	22
CO	1 Hour	AERMOD/BLP	3402.6	2022.8	5425	40,000	14
	8 Hour	AERMOD/BLP	1924.3	1412.2	3337	10,000	33
1) The highest-first-high modeled concentrations for the 5 years of Meteorological data are listed for annual averaging periods and the highest second-high for short-term averaging periods.							
2) Backgrounds are summarized in Section D.							
3) The 1st high averaged over the five years of modeling was used.							
4) A separate modeled concentration was not reported. Total impact is based on the sum of predicted and a background value that varies with season and hour-of-day.							
5) Background value varied by season and hour of day – see page 68 of modeling report for a complete explanation							
6) Controlling concentration is based on the 8th high averaged over the 5-years of modeling							

Level 2b 1-hour background values for NO_2 were developed based on guidance in the March 1, 2011 EPA memorandum entitled "*Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO2 National Ambient Air Quality Standard*" (referred to hereafter as the Additional Clarification Memo). Level 2b 1-hour background values were developed for NO_2 based on hourly concentrations measured at the Jenkins Avenue Fire Station monitor for the period 2008-2010.

The dispersion parameters of each off-site source, as well as each respective modeled emission rate included in the Class II NAAQS Full Impact Analysis, is included in the facility's application (Dated June 2011 and subsequent revisions and/or additions) and the corresponding electronic modeling files.

A.2.b. PSD CLASS II - PSD INCREMENT ANALYSIS

The full impact analysis for PSD increment consuming sources is performed in the same manner as the full impact analysis for the NAAQS shown above. The sources included are all increment consuming sources from the facility and those previously identified within the SIA and SA.

TABLE III-5. PSD CLASS II INCREMENT ANALYSIS - PSD INCREMENT CONSUMING SOURCES			
PM_{10} 24-Hour	**$PM_{2.5}$** 24-Hour (a)	**SO_2** (b)	**NO_2** Annual
Showa Denko	Showa Denko	--	Showa Denko
Roseburg Forest Products	--	--	Roseburg Forest Products
SCE&G Williams	--	--	Lanxess
Lanxess	--	--	E.I.Dupont
E.I.Dupont	--	--	Georgia-Pacific Russellville Resin

TABLE III-5. PSD CLASS II INCREMENT ANALYSIS - PSD INCREMENT CONSUMING SOURCES			
PM_{10} 24-Hour	**$PM_{2.5}$** 24-Hour[(a)]	**SO_2**[(b)]	**NO_2** Annual
Georgia-Pacific Wood Products	--	--	Naval Weapons Station
Georgia-Pacific Russellville Resin	--	--	Alcoa - Mt. Holly
Naval Weapons Station	--	--	American-LaFrance
Alcoa - Mt. Holly	--	--	The Gates Rubber Company
American-LaFrance	--	--	BP-Amoco Cooper River
The Gates Rubber Company	--	--	Santee Cooper - Cross
BP-Amoco Cooper River	--	--	JW ALUMINUM
Santee Cooper - Cross	--	--	SC Pipeline Corp.
JW ALUMINUM	--	--	Berkeley Co. Water & Sanitatio
Santee Cooper	--	--	Berkeley Co. Water & Sanitation Authority
SC Pipeline Corp.	--	--	Nucor Steel
Berkeley Co. Water & Sanitatio	--	--	Air Liquide Large
Berkeley Co. Water & Sanitation Authority	--	--	Fortifiber Coporation
Nucor Steel	--	--	Corning Inc.
Air Liquide Large	--	--	Hanahan Water Treatment
Fortifiber Coporation	--	--	DAK Americas LLC
Corning Inc.	--	--	Williams Technology
Hanahan Water Treatment	--	--	Asahi Kasei Spandex America LLC (0420-0101)
DAK Americas LLC	--	--	Kemira
Sun Chemical	--	--	McAllister Smith Funeral Home Goose Creek
Williams Technology	--	--	Santee Cooper Berkeley County Landfill Gas Electric Generation Facility
Kemira	--	--	MeadWestvaco
McAllister Smith Funeral Home Goose Creek	--	--	Rhodia
Santee Cooper Berkeley County Landfill Gas Electric Generation Facility	--	--	Allied Terminal
Santee Cooper Berkeley County Landfill Gas Electric Generation Facility	--	--	Kinder Morgan Bulk Terminals
MeadWestvaco	--	--	Charleston AFB
Rhodia	--	--	Amerada Hess-Charleston North Terminal
Allied Terminal	--	--	Medical University of South Carolina
Kinder Morgan Bulk Terminals	--	--	City of Chas. Plum Island Sludge Incinerator
Macalloy Corporation	--	--	GS Roofing Products
Charleston AFB	--	--	SCE&G - Hagood
Medical University of South Carolina	--	--	Siebe North Inc.
GS Roofing Products	--	--	Charleston Steel & Metal Co.
SCE&G - Hagood	--	--	Kinder Morgan Bulk Terminals
Siebe North Inc.	--	--	Lockheed Martin Aeronautical
Charleston Steel & Metal Co.	--	--	Roper Hospital
Kinder Morgan Bulk Terminals	--	--	R.H. Johnson VA Medical Center
Lockheed Martin Aeronautical	--	--	Moore Drums
Roper Hospital	--	--	South Carolina Farm Bureau
R.H. Johnson VA Medical Center	--	--	Trident Medical Center
Moore Drums	--	--	Broyhill Furniture
South Carolina Farm Bureau	--	--	MeadWestvaco Chemical Division
Trident Medical Center	--	--	North Charleston Sewer Dist.

TABLE III-5. PSD CLASS II INCREMENT ANALYSIS - PSD INCREMENT CONSUMING SOURCES			
PM_{10} 24-Hour	**$PM_{2.5}$** 24-Hour[(a)]	**SO_2**[(b)]	**NO_2** Annual
Chem-Marine Terminal	--	--	Foster Wheeler
Broyhill Furniture	--	--	The Scotts Company
MeadWestvaco Chemical Division	--	--	BASF North Charleston
Siebe-North Inc.-Butyl 2	--	--	ExxonMobil
North Charleston Sewer Dist.	--	--	Deytens Shipyards
Foster Wheeler	--	--	Carolina Starches
The Scotts Company	--	--	Bon Secours St. Francis Xavier
BASF North Charleston	--	--	Cogen South LLC
ExxonMobil	--	--	Palmetto Lime LLC
Deytens Shipyards	--	--	Charleston Technical Center
Metal Trades Inc.	--	--	Green Oasis Environmental
Bon Secours St. Francis Xavier	--	--	National Starch LLC
Cogen South LLC	--	--	SCE&G Faber Place
Charleston Marine Container	--	--	American Tank Fabrication Co.
Palmetto Lime LLC	--	--	Heritage Synfuel Binders
Charleston Technical Center	--	--	Vought Aircraft Industries Inc.
Green Oasis Environmental	--	--	Charleston County Detention Center
Vickers Inc.	--	--	Holset Engineering
Charleston Cement Company	--	--	Tri County Paving Inc.
National Starch LLC	--	--	Chamber Oakridge Landfill
SCE&G Faber Place	--	--	DBW Inc (formerly Lauscha Fiber International)
American Tank Fabrication Co.	--	--	SRE Dorchester
Heritage Synfuel Binders	--	--	Holcim Inc.
Cummins MerCruiser Diesel LLC	--	--	Carolina Pole Inc
Vought Aircraft Industries Inc.	--	--	V.P. Kiser Lumber Co. Inc.
Charleston County Detention Center	--	--	Orangeburg County Biomass
Holset Engineering	--	--	Tri County Paving Inc.
Tri County Paving Inc.	--	--	Banks Construction Co.
Giant Cement	--	--	--
Blue Circle Cement	--	--	--
Westvaco Lumber Mill	--	--	--
Robert Bosch Corporation	--	--	--
Summerville Medical Center	--	--	--
Lauscha Fiber International-Summerville	--	--	--
Geocycle	--	--	--
Chamber Oakridge Landfill	--	--	--
Dausey	--	--	--
Raisio Staest US Inc	--	--	--
Cemplank Inc.	--	--	--
DBW Inc (formerly Lauscha Fiber International)	--	--	--
SRE Dorchester	--	--	--
Banks Construction Co.	--	--	--
Holcim Inc.	--	--	--
Georgia Pacific - MDF	--	--	--
Carolina Pole Inc	--	--	--
V.P. Kiser Lumber Co. Inc.	--	--	--
Lumber Components	--	--	--
Pennington Crossarm Co.	--	--	--
Orangeburg County Biomass	--	--	--
Tri County Paving Inc.	--	--	--

TABLE III-5. PSD CLASS II INCREMENT ANALYSIS - PSD INCREMENT CONSUMING SOURCES			
PM_{10} 24-Hour	**$PM_{2.5}$** 24-Hour[(a)]	**SO_2**[(b)]	**NO_2** Annual
Sanders Brothers	--	--	--
Banks Construction Co.	--	--	--
(a) There are no increment consuming $PM_{2.5}$ sources other than those at the Showa Denko facility			
(b) SO2 is not significant for PSD and is not included in any further analysis.			

The emissions from the Showa Denko facility project were combined with those from additional non-facility sources identified in Table III-5 and included in the PSD Class II Full Impact Increment modeling analysis. Table III-6 indicates that the maximum impact for each averaging period and each pollutant was determined to be less than the PSD increment standard for each averaging period.

Table III-6. PSD CLASS II INCREMENT ANALYSIS					
POLLUTANT	AVERAGING TIME	MODEL USED	MAXIMUM MODELED CONCENTRATION ($\mu g/m^3$)	STANDARD ($\mu g/m^3$)	% OF STANDARD
PM_{10}	24 Hour	AERMOD/BLP	9	30	31
$PM_{2.5}$	24 Hour	AERMOD/BLP	5	9	56
NO_2	Annual	AERMOD/BLP	2	25	8
The highest-first-high modeled concentrations for the 5 years of Meteorological data are listed for annual averaging periods and the highest second-high for other averaging periods.					

B. Additional Impacts Analysis – Growth, Soils and Vegetation, and Visibility Impairment

PSD review requires an analysis of any potential impairment to visibility, soils, and vegetation that may occur as a result of the proposed or modified facility/sources. The review also requires an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the expansion.

B.1. Growth

The SC PSD rules require the applicant to provide information relating to the nature and extent of air quality impacts from all commercial, residential, industrial and other growth, which has occurred since August 7, 1977, in the area the facility, or modification, would affect. For the purposes of this report, the area the facility would affect is defined as the area of significant impact. The greatest significant impact distance was determined to be 6.27 km. The facility will hire approximately 140 new employees, and it is anticipated that the workforce will come from existing local population. The facility modifications will be completed by local contractors. Therefore, there will be little or no commercial or industrial growth associated with the construction and modification of the facility and any workforce growth associated residential and commercial growth is not expected to cause or contribute a quantifiable adverse impact on local ambient air quality.

B.2. Soils and Vegetation

Maximum predicted offsite impacts (highest first high) were compared to EPA secondary NAAQS or screening levels. Modeling of all the proposed emissions for the soils and vegetation analysis indicates that there will be no adverse impacts expected on soils or vegetation caused by the proposed facility emissions. Also, the facility used the power law relationship to obtain concentrations for averaging periods which were not modeled and there were EPA screening values. This was taken from Chapter 5 of the EPA “Workbook of Atmospheric Dispersion Estimates”, revised 1970.

$X(t2) = X(t1)(t1/t2)^{0.2}$
X = concentrations
t2 = needed averaging period
t1 = other averaging period

However, the table below contains BAQ modeling results since the facility did not model for highest first high for all pollutants and averaging times. BAQ ran the actual averaging times in the model and did not use the "power law" equation as shown above. The maximum impacts were determined by summing the results of the AERMOD and BLP runs without using CALPOST to combine the outputs on an hour-of-day basis (except for the SO2 1-hr, which used the Level 2b data). This is a more conservative approach.

Table III-7. SOILS AND VEGETATION ANALYSIS

Pollutant	Averaging Time	Model Used	Facility / Regional Impact ($\mu g/m^3$) (2)	EPA Screening Concentration ($\mu g/m^3$)	AAQS Standard ($\mu g/m^3$)	Exceeds
PM_{10}	24 Hour	AERMOD/BLP	62	N/A	150	No
	Annual	AERMOD/BLP	20 (1)	N/A	50	No
$PM_{2.5}$	24 Hour	AERMOD/BLP	35	N/A	35	No
	Annual	AERMOD/BLP	12 (1)	N/A	15.0	No
SO_2 (1)	1 Hour	AERMOD/BLP	152.8 (1)	917	196	No
	3 Hour	AERMOD/BLP	192 (1)	786	1300	No
	Annual	AERMOD/BLP	10 (1)	18	80	No
NO_2	4 Hour	AERMOD/BLP	129	3760	N/A	No
	8 Hour	AERMOD/BLP	96	3760	N/A	No
	1 Month	AERMOD/BLP	12	564	N/A	No
	Annual	AERMOD/BLP	22	94	100	No
CO	1 Week	AERMOD/BLP	3713 (1, 4)	1,800,000	N/A	No
Lead	3 Month	AERMOD/BLP	0.006 (1, 3)	0.15	--	No

1) This concentration includes only the facility impacts since this pollutant did not exceed the Significant Impact Level, or no SIL was available. All other values include full impact sources.
2) Results include background values when available.
3) Lead is the maximum 3-month rolling average over the modeling period.
4) Used 1-hour averaging time results as a conservative comparison.

B.3. Visibility

This visibility impairment analysis is distinct from the Class I visibility impact analysis. VISCREEN was used following the guidelines published in the *Workbook for Plume Visual Impact Screening and Analysis* (EPA-450/4-88-015, 1988). The procedure consists of a screening process done through several levels. A nearby sensitive receptor, such as a state park or local airport, is analyzed to determine if an impact is expected.

Visibility analyses for Class II areas are not necessary for this project, as there are no visibility sensitive areas located within any of the project's Significant Impact Areas (SIAs).

C. PSD Class I Impact Analysis

A facility within 100 km of a Class I area must perform Class I modeling to determine the impact on the Class I area. For the visibility and deposition analyses, the recommendations in the; 1) *Interagency Workgroup on Air Quality Modeling Phase II Summary Report and Recommendations for Modeling Long Range Transport*

Impacts (IWAQM) (EPA-454/R-98-019, December 1998); 2) *Federal Land Managers' Air Quality Related Values Workgroup Phase I Report (FLAG 2010)* (U.S. Forest Service- Air Quality Program, the National Park Service – Air Resources Division, and the U.S. Fish & Wildlife Service – Air Quality Branch, December 2000); 3) *Regional Haze Regulations and Guidelines for Best Available Retrofit Technology* (U.S. EPA, June 15, 2005); and 4) U.S. EPA's *Guidelines on Air Quality Models (Guideline)*, are to be followed.

The 2010 version of the FLAG document allows the screening of sources based on total emissions of certain pollutants and distance from the source to the Class I area. When a source is screened out with $Q/D \leq 10$ (where D = distance from the source to the Class I area in kilometers; Q = TPY of SO2 + NOx + PM10 + H2SO4), the facility is not required to do an AQRV analysis. Additional information provided in public comment responses clarified that for modified sources, applicants should only consider the emissions increases associated with the proposed project modification when calculating Q/D.

For this project, the source was below the screening level and no AQRV analysis was required. [Q/D = 8.9 ≤ 10 where D = 67 kilometers (Cape Romain) and Q = 599 TPY].

C.1 CLASS I SIGNIFICANT IMPACT LEVEL ANALYSIS

Table III-10 shows the maximum impacts on Cape Romain for NO_2, PM_{10}, and $PM_{2.5}$. The air quality impacts are less than the Class I SILs for all pollutants. No further air modeling analyses are required to demonstrate compliance with the PSD increments.

Table III-8. CLASS I PSD SIGNIFICANT IMPACT LEVEL ANALYSIS

Pollutant	Averaging Time	Model Used	Maximum Modeled Concentration (μg/m^3)	SIL (μg/m^3)	Significant Impact?
PM_{10}	24 HOUR	CALPUFF	0.05	0.32	No
	ANNUAL	CALPUFF	0.002	0.16	No
$PM_{2.5}$	24 HOUR	CALPUFF	0.05	0.07	No
	ANNUAL	CALPUFF	0.002	0.06	No
NO_2	ANNUAL	CALPUFF	0.005	0.1	No
Highest First-high values is shown for all pollutants and averaging periods.					
All PM10 was assumed to be PM2.5 for this analysis.					

C.2. CLASS I INCREMENT CONSUMPTION IMPACT ANALYSIS

Table III-11 shows the maximum impacts on Cape Romain for NO_2, PM_{10}, and $PM_{2.5}$ from the facility project emissions. The air quality impacts are less than the Class I SILs for all pollutants. No further air concentration analyses are required to demonstrate compliance with the PSD increments.

TABLE III-9. CLASS I PSD INCREMENT IMPACTS CAPE ROMAIN NATIONAL WILDLIFE REFUGE

Pollutant	Averaging Time	Model Used	Year	Maximum Modeled Concentration (μg/m^3)	Standard (μg/m^3)	Exceeds Standard?
PM_{10}	24 HOUR	CALPUFF	2001	0.05	8.0	No
			2002	0.04	8.0	No
			2003	0.05	8.0	No
	ANNUAL	CALPUFF	2001	0.002	4.0	No
			2002	0.002	4.0	No
			2003	0.002	4.0	No
$PM_{2.5}$	24 HOUR	CALPUFF	2001	0.05	2.0	No
			2002	0.04	2.0	No
			2003	0.05	2.0	No
	ANNUAL	CALPUFF	2001	0.002	1.0	No
			2002	0.002	1.0	No
			2003	0.002	1.0	No
NO_2	ANNUAL	CALPUFF	2001	0.005	2.5	No
			2002	0.005	2.5	No
			2003	0.005	2.5	No
Highest First-high values is shown for all pollutants and averaging periods.						
Standards are from SC Regulation 61-62.5 Standard 7, Class I Area limits.						

D. South Carolina Facility-wide Compliance Demonstration

All minor and major sources proposing new construction or construction modifications in South Carolina are

required to demonstrate compliance with South Carolina Regulation No. 62.5 Standards Nos. 2 (NAAQS), 7 (Class II PSD Increment), and 8 (Air Toxics). Standard No. 7 (PSD) Part k - "Source Impact Analysis" and Part p - "Sources Impacting Federal Class I Areas - Additional Requirements" require Class II modeling. Facility-wide emissions from the Showa Denko facility only were modeled to demonstrate compliance with Standards 2, 7, and 8.

Table III-10. STANDARD NO. 2 - AMBIENT AIR QUALITY STANDARDS MODELING ANALYSIS

Pollutant	Averaging Time	Model Used	Maximum Modeled Concentration ($\mu g/m^3$) (1)	Background Concentration ($\mu g/m^3$)	Total ($\mu g/m^3$)	Standard ($\mu g/m^3$)	% of Standard
PM_{10}	24 Hour	AERMOD/BLP	11.8	47	59	150	39
	Annual	AERMOD/BLP	2.7	17.2	20	50	40
$PM_{2.5}$	24 Hour	AERMOD/BLP	9.2 (2)	20	29	35	83
	Annual	AERMOD/BLP	2.3 (4)	9.4	12	15	80
SO_2	3 Hour	AERMOD/BLP	91.8	65.7	158	1300	12
	24 Hour	AERMOD/BLP	48.7	23.2	72	365	20
	Annual	AERMOD/BLP	6.8	3.1	10	80	13
NO_2	Annual	AERMOD/BLP	4.5	15.2	20	100	20
CO	1 Hour	AERMOD/BLP	3402.2	2022.8	5425	40,000	14
	8 Hour	AERMOD/BLP	1909.3	1412.8	3322	10,000	33
Lead	3 Month	AERMOD/BLP	0.00002 (3)	0.006	0.01	0.15	7

1) The highest-first-high modeled concentration was used for annual averaging periods and the highest-second-high was used for all other averaging periods, except Lead and unless otherwise noted.

2) The highest 8th high averaged over the five years of modeling was used.

3) Lead is the maximum 3-month rolling average over the modeling period.

4) The highest 1st high averaged over the five years of modeling was used.

Table III-11. BACKGROUND MONITORING DATA ($\mu g/m^3$)

Pollutant	Site Name	County	Year	1-Hr	3-Hr	8-Hr	24-Hr	3-Mo	Annual
PM_{10}	Jenkins Ave	Charleston	08-10				47		17.2
$PM_{2.5}$	Charleston FAA	Berkeley	08-10				20		9.4
SO_2	Jenkins Ave	Charleston	08-10	Level 2b Or 79.4	65.7		23.2		3.1
NO_2	Jenkins Ave	Charleston	08-10	Level 2b Or 76.5					15.2
CO	Greenville CHD	Greenville	08-10	2022.8		1412.8			
Pb	Jenkins Ave	Charleston	08-10					0.006	

Lead is the maximum 3-month rolling average over the three year period.
PM2.5 is the three year design value.
PM10 24-hr is the fourth-high over three year period.
Annual for pollutants other than PM2.5 is the average of the annual averages over the three year period.
All other averaging periods are the average of the three year second-high values.

Table III-12. STANDARD NO. 7 - CLASS II PSD MODELING ANALYSIS					
Pollutant	Averaging Time	Model Used	Maximum Modeled Concentration ($\mu g/m^3$) (1)	Standard ($\mu g/m^3$)	% of Standard
PM_{10}	24 Hour	AERMOD/BLP	12	30	40
	Annual	AERMOD/BLP	3	17	18
$PM_{2.5}$	24 Hour	AERMOD/BLP	5	9	56
	Annual	AERMOD/BLP	0	4	0
SO_2	3 Hour	AERMOD/BLP	92	512	18
	24 Hour	AERMOD/BLP	49	91	54
	Annual	AERMOD/BLP	7	20	35
NO_2	Annual	AERMOD/BLP	1	25	4
1) The highest-first-high modeled concentration was used for annual averaging periods and the highest-second-high was used for all other averaging periods.					

Since the Showa Denko facility is subject to Section 112(g) of the Clean Air Act and will be required to be in compliance with this regulation upon startup of the proposed project, the facility is exempt from Standard 8 and corresponding Standard 8 modeling requirements.

IV. Final Determination

On April 13, 2012, the BAQ made a preliminary determination that the Showa Denko Carbon, Inc. facility expansion may be constructed if the emission limitations and conditions outlined in Draft PSD/112g Construction Permit No. 0900-0025-CZ are met. This draft construction permit was included as Appendix D of the Preliminary Determination. The Statement of Basis that contains explanations of the permitting actions was included as Appendix E of the Preliminary Determination. The Public comment period closed on May 16, 2012. Comments were received from the public during and after the Public Hearing. Comments were received from the EPA. These comments are addressed below in the Comments and Response section. No comments were received from the Federal Land Manager (FLM), or Showa Denko Carbon, Inc. during the public comment period.

Since the Preliminary Determination was issued, the need for several corrections has been identified. Page 32 of the Statement of Basis has been revised to include two pieces of equipment for the SO_2 netting analysis. This change did not affect the overall net decrease of 113.5 tons per year. Permit Condition 5.B.8 was added and Permit Condition 6.B.1 was modified. A grammatical error on page 56 of the Preliminary Determination was corrected.

On June 08, 2012, the BAQ made a final determination that the Showa Denko Carbon, Inc. facility proposed project may be approved provided the emission limitations and conditions outlined in Construction Permit No. 0900-0025-CZ are met. The Appendix A of this Final Determination contains a copy of the final issued construction permit.

V. Comments and Responses

The following is the SC Department of Health and Environmental Control's (DHEC) Bureau of Air Quality (Department) response to the comments made and issues raised during the formal comment period held April 13, 2012 – May 31, 2012 and the public hearing held on May 14, 2012, regarding the draft construction permit for Showa Denko Carbon, Inc. (Showa Denko, or facility) at 478 Ridge Road in Ridgeville, Dorchester County. The written comments received regarding the draft permit are available for viewing at the SC DHEC Columbia office located at 2600 Bull Street, Columbia, SC 29201, or on the SC DHEC webpage http://www.scdhec.gov/environment/baq/PermittingDecisions, or hardcopies can be requested by contacting our Freedom of Information Office at (803) 898-3817.

1. **Graphitizing stack air emission concerns:** There were comments regarding emission problems from the 430 stack (existing Graphitizing Furnace stack) that occurred in the late 1990's. The commenter stated that the incidents caused physical damage to both people and personal property and wanted to know what had been done to rectify the problem and what measures were in place to ensure it would not reoccur. The Department asked Showa Denko to review their records for any air emission issues relating to the stack and time period. Based on their review, Showa Denko stated that on Wednesday, September 18, 1996, employees reported a substance near the parking lot and on the cars in the lot. Showa Denko investigated the reports and found the issue was the startup of an exhaust fan on the existing graphitizing stack. An exhaust fan had been turned on the morning of September 18, 1996, after having been down for several months. During the time the fan was shut down for maintenance, moisture and dust from metallurgical coke accumulated in the fan housing. Metallurgical coke is an insulating material, containing some sulfur, used in the graphitizing process. It is believed that the moisture in the housing became acidic from contact with the metallurgical coke dust. Based on that incident, some cars in the parking lot were repainted. No injuries were reported to Showa Denko officials as a result of that incident. The air permit required the facility to monitor opacity on the existing graphitizing stack at the time of the incident. The opacity reading did increase for less than one minute, but that reading was still below the regulatory requirement.

Showa Denko has since developed Graphitization Induced Draft Fan Operations procedures to prevent this incident from occurring again. The permit requires the installation of an SO_2 emissions reduction control device on both the existing and new graphitizing furnaces, requires initial and periodic stack testing and daily monitoring of the control device. Additionally, the permit limits the amount of sulfur contained in the metallurgical coke.

2. **Start of construction:** A comment was received stating that several acres of land had been cleared even though the permit had not been issued. Federal and state regulations prohibit a facility seeking a Prevention of Significant Deterioration (PSD) permit from starting construction activities without an issued air permit. However, land clearing activities are not considered a construction activity under the air quality regulations. Showa Denko has taken on that activity as a financial risk in the event that they do not qualify for issuance of the air construction permit.

3. **Noise:** A comment was received regarding noise created by the facility. The Department does not have any noise regulations and therefore cannot regulate noise levels. Dorchester County does have a noise ordinance. Noise concerns can be reported to the Dorchester County Sheriff's Office at (843) 832-0300.

4. **SO_2 impacts and acid rain:** A comment was made concerning the impacts of SO_2 emissions and

acid rain. Sulfur dioxide (SO_2) emissions are being reduced at this plant as part of the proposed expansion. The facility will be installing an emission control device to reduce SO_2 emissions on both the new graphitizing furnaces and the existing graphitizing furnaces. Due to the installation of these control devices and sulfur limits on raw materials, facility-wide SO_2 emissions will be decreasing by over 100 tons per year. The permit requires initial and periodic stack testing and daily monitoring of the control devices to demonstrate SO_2 emissions are being reduced effectively. Additionally, Showa Denko has demonstrated through air dispersion computer modeling that the maximum emission concentrations are below ambient standards.

5. **Health, property, and livestock impacts:** A comment was received concerning the health, safety and environmental impacts this expansion (and the current facility configuration) will have on health, livestock, property, and crops. In order to receive an air quality permit, the facility must demonstrate that they are in compliance with air quality standards set by the Environmental Protection Agency (EPA) and DHEC. The Clean Air Act established two types of National Ambient Air Quality Standards (NAAQS). Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The EPA has set NAAQS for six principal pollutants, which are called "criteria" pollutants: particulate matter (PM, PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone, carbon monoxide (CO) and lead. The NAAQS are reviewed every 5 years and updated as necessary so that concerns regarding the health of sensitive individuals and protection of welfare are incorporated into air quality standards. These NAAQS are incorporated into South Carolina regulations through our rulemaking process. Showa Denko has demonstrated through air dispersion computer modeling that the maximum emission concentrations are below the NAAQS. Additionally, under PSD permit requirements, Showa Denko conducted a soil and vegetation modeling analysis. The EPA has set screening levels to determine if there is any potential harm to soil and vegetation at the facility fence line and beyond into the community. The results of the modeling analysis were below the EPA screening levels indicating that the project will have no adverse impacts on soils or vegetation. The permit also requires stack testing, monitoring of pollution control devices, raw material sulfur and nitrogen limits, recordkeeping and reporting to ensure the facility is meeting the regulatory requirements.

6. **Insufficient emissions monitoring:** Comments were received stating the frequency of stack testing requirements were not adequate and that continuous monitoring was needed to protect the community. The Clean Air Act is designed to protect local air quality from potential pollution impacts from large sources through the PSD permitting process. In order to receive a PSD permit, Showa Denko has to apply Best Available Control Technology (BACT) to all equipment impacted by the expansion and conduct an air quality analysis to demonstrate it will not cause or contribute to an exceedance of an air quality. All of the potential emissions from the project were reviewed and a BACT review was followed to identify the required control device and/or control technology. Similar facilities that were issued PSD permits were reviewed as part of this process.

The permit review process included a determination of the sufficient monitoring requirements to assure compliance with the emission limits. We looked at federal and state air regulatory requirements, PSD permits issued to similar sources in other states and other Department-issued PSD permits for new and existing sources to determine appropriate monitoring requirements for this permit. The permit requires initial and periodic stack testing. The stack testing regulation requires that the tests be conducted “while the source is operating at the maximum expected production rate or other production rate or operating parameter which

would result in the highest emissions for the pollutants being tested." All test results will be reviewed by the Department. Monitoring pollution control devices to demonstrate they are effectively removing pollution is an essential demonstration of compliance with those emission limits. The most stringent federal air regulations have a long standing history of requiring an initial stack test followed by control device monitoring for compliance demonstrations. In our review of PSD permits issued to similar sources we found that permit requirements were limited to initial testing followed by control device monitoring. This expansion permit requires that control devices be monitored at least daily and corrective action taken when the controls are operating outside the proper performance range. Additionally, if we determine it is warranted, the Department can require stack testing at any time.

7. **$PM_{2.5}$ emissions impacts:** A comment was received concerning impacts from particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) emissions. Showa Denko has demonstrated through air dispersion computer modeling that the maximum emission concentrations are below ambient standards. A BACT analysis was conducted for all sources impacted by the expansion that emitted $PM_{2.5}$. BACT for $PM_{2.5}$ was determined to be a wet scrubber for the graphitizing furnaces, baghouses for material handling operations and good combustion practices for any natural gas and propane burner. The permit requires initial and periodic stack testing and at least daily monitoring of control devices to demonstrate compliance with the emission limits.

8. **Health and environmental impacts to water:** The Department received comments questioning the state of the water table in Dorchester County and whether Showa Denko should limit their groundwater consumption and use other methods of obtaining water such as pumping from the lake. One comment questioned where Showa Denko would get the water they would need for the proposed expansion. Due to the nature of these comments, the Bureau of Air Quality asked the Bureau of Water to assist in reviewing these comments provided on the draft permit. Showa Denko is regulated under SC Regulation 61-113, Groundwater Use and Reporting. The facility is a current Capacity Use permitted groundwater withdrawer, with Permit # 18IN002. The facility is permitted to withdraw a maximum of 114,000,000 gallons per year and has reported an average withdrawal of 62,234,000 gallons per year for the previous five (5) years. Should the facility require any increase in groundwater withdrawal above what they are currently permitted, they will be required to apply for a modification to their existing Groundwater Withdrawal Permit. The application will be reviewed in accordance with the regulations and any draft permit decision will be placed on public notice for community input. Two (2) production wells at the facility are completed in the Middle Zone of the Crouch Branch Aquifer (formerly Black Creek Aquifer) at approximately 460 feet below ground surface. The producing zone is separated from the shallow water table by two (2) substantial clay layers, each approaching 100 feet in thickness. Drought related drops in the water table and pond levels have been reported over much of the Coastal Plain of South Carolina. Because the aquifer used by Showa Denko is separated from the water table aquifer, current fluctuations of the shallow water table are not associated with the groundwater withdrawal at Showa Denko For additional information please contact Rob Devlin at 803-898-3798 (devlinrj@dhec.sc.gov) or Paul Bristol at 803-898-3559 (bristopl@dhec.sc.gov) with SCDHEC Bureau of Water, Groundwater Management Section.

9. **General opposition and support:** The Department received a general comment supporting the issuance of a permit for this facility. Title 48 of the SC Code of Laws, Section 48-1-100, states that "If, after appropriate public comment procedures, as defined by Department regulations, the Department finds that the discharge from the proposed outlet or source will not be in contravention of provisions of this chapter, a permit to construct and a permit to discharge must be issued to the applicant." The Department cannot make permitting decisions based on community approval or disapproval of the company/facility. The Department

does not make permit decisions based on the number of individuals or groups that support or oppose a project. The Department's decision is based on the Department's technical review of an applicant's application and the regulatory requirements in place at the time of the Department's review. The Department welcomes and appreciates all comments made regarding the Showa Denko Carbon, Inc. Ridgeville facility.

10. **Include project emissions as enforceable permit conditions:** The Environmental Protection Agency (EPA) commented that the modeled emission rates should be included as enforceable conditions in the permit. The Department has a long standing history of including modeled emission rates as an attachment in all construction and operating permits with standard language requiring a new modeling demonstration if these emissions are exceeded. We assume Tables 1, 2 and 3 referred to in the comment are the emission tables in the "Class II Modeling Report" submitted by Showa Denko. These emission rates were used in the air quality analysis and are included in the permit's Attachment A. These emission rates in the demonstration are part of the permit, although higher rates can be incorporated administratively into Attachment A of the permit, provided a valid demonstration does not interfere with the attainment and maintenance of any state or federal standard. The permit requires Showa Denko to maintain emissions at or below the emission rates in Attachment A of the permit. To provide clarity that emissions will be maintained at or below the Attachment A emission rates, we have included a permit condition that states stack testing results will be used to demonstrate compliance with the emission limits and to verify emissions used in the modeling demonstration. Please refer to permit condition 5.A.8.

11. **Class I modeling current actual emission rates:** The EPA questioned whether or not the current actual emission rates were provided in Table 4 of the Class I modeling protocol. The emission rates provided in Table 4 of the Class I modeling protocol have been confirmed to be the current actual emission rates for the stacks identified and are consistent with the emissions listed in Table A-4 of the Class II modeling report.

12. **Class I modeling emission rates for stack MOD-59:** The EPA questioned why the emissions for the stack identified as MOD-59 were the same in Table 2 and Table 4 of the Class I modeling protocol, when the emissions in Table 2 were identified as future allowable emissions while those in Table 4 were identified as current actual emission rates. For MOD-59, there are no changes in emissions due to the project and the current actual emissions are the same as the future allowable emissions.

13. **Class I modeling stack parameters:** The EPA asked for an explanation as to why stack diameters, exit temperatures, and exit velocities were not changing on stacks listed in Table 2 of the Class I protocol whose heights were being increased. In February/March 2012, air dispersion modeling for the project was updated to incorporate "peak" short-term hourly emission rates for existing and new sources based on information obtained from the source testing campaign completed in January. The updated modeling runs indicated that substantial height increases are required for certain stacks in order to comply with the new, much more restrictive ambient air quality standards for SO_2, NO_2, and $PM_{2.5}$ (including condensables). Based on these air dispersion modeling results, the stack heights shown in Table 2 are an initial future configuration that improves dispersion characteristics to achieve compliance with the new ambient air quality standards.

There are many variables that must be considered before actually physically modifying any existing stack for a large increase in height (foundations, seismic design, wind loads, structural supports, ventilation requirements, etc.). Detailed engineering is being performed to optimize the initial future stack configurations shown in Table 2 while ensuring that the applicable building codes are satisfied and the

required improvements in dispersion characteristics are maintained.

This also applies to modifications to the existing graphitizing process. In order to comply with the new, much more restrictive ambient air quality standards, the roof vent (Line 01) on the existing graphitizing process will be fitted with duct work that will route emissions to two new tall stacks (ML1a and ML1b). The existing tall stack (P68), which has no emission controls, will be demolished and replaced by a scrubber (MP68) in approximately the same location. The stack parameters for stacks ML1a, ML1b, and MP68 are initial future configurations that improve dispersion characteristics to achieve compliance with the new ambient air quality standards. Detailed engineering is being undertaken to optimize these initial future stack configurations while ensuring that the applicable building codes are satisfied and the required improvements in dispersion characteristics are maintained.

Once this detailed engineering work is completed, Showa Denko will update the modeling demonstration, as necessary, with the final stack configurations (including heights, diameters, temperatures, flow rates, etc.) and submit the updated modeling demonstration to the Department for review and approval.

14. **Class I model used:** The EPA asked for confirmation that the EPA regulatory versions and EPA default options were used in the Class I CALPUFF modeling. CALPUFF v5.8 and CALMET v5.8, the EPA regulatory versions, were used for this modeling, configured with the EPA default options (including the MREG=1 regulatory option).

15. **Class I modeling meteorological and land use data:** The EPA asked for confirmation that the VISTAS meteorological data set was prepared using the EPA regulatory version of CALPUFF and that the VISTAS data were not altered. The standard VISTAS meteorological dataset and VISTAS CALMET technical options were used in the EPA regulatory CALMET v5.8.

16. **Class II modeling current actual emission rates:** The EPA questioned whether or not the current actual emission rates were provided in Table A-4 of the Class II modeling report. The emissions in TableA-4 of the Class II report reflect current actual emissions rates. There are no project associated increased emissions for MOD-P59 for the modeled PSD pollutants. For SO_2, CO, nitrogen oxides (NO_x), particulate matter less than 10 micrometers in diameter (PM_{10}) and $PM_{2.5}$ there are no changes in the emissions due to the project, which is why Tables A-2 and A-4 have the same emission rates for these pollutants.

17. **Class II modeling current actual baseline period:** The EPA asked for the reason the 2007-2008 period is considered appropriate for use as the current baseline period for the ambient impact modeling. The existing Showa Denko facility can produce approximately 45,000 metric tons of finished graphite electrodes per year. Production at the facility was essentially "sold out" for many years leading up to the recent economic recession. Production of finished graphite electrodes from the existing Showa Denko facility during the five calendar years prior to submittal of the PSD permit application in June/August 2011 was as follows:

Calendar Year	**Finished Graphite Electrode Production W/O Pins (Metric Tons)**
2006	44,500
2007	44,800

2008	43,400
2009	17,600
2010	38,600

The most recent recession was not normal. The effects of that recession can clearly be seen in the table above. As the recession worsened in 2009, customer orders for graphite electrodes decreased dramatically, forcing Showa Denko to curtail operations and then shut down portions of the existing facility for much of 2009. As economic conditions improved in 2010, production began to ramp up, but still did not reach normal, pre-recession levels. Given the above information, the 2009-2010 period is not representative of normal operation. Because of this, it was determined that the 2007-2008 period was most representative as the most recent two-year period indicative of normal operations for the existing Showa Denko facility. This approach is in keeping with the definition of "actual emissions" in DHEC Regulation 61-62.5, Standard No. 7 (b)(1)(ii), which reads as follows:

(ii) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The Department shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

Showa Denko elected to use a very conservative approach when deriving the hourly emission rates (current actual and future potential) used in the impact modeling. For the actual calculations of short term hourly emissions from the existing carbottoms and graphitizing operations, Showa Denko elected to be conservative and retain the "normalized" approach that is used to track emissions for the current operating permit (i.e. Showa Denko used the long term ton per year emissions for 2007-2008 and divided by the continuous operating schedule to obtain the short term hourly emission rates used in the impact modeling). For future potential short term hourly emissions from the existing and new carbottoms and graphitizing operations, the hourly emissions calculations were updated based on data from the recent source testing campaign to account for short term "spikes" or "peaks" in emissions from these sources.

This approach produces a conservative modeling demonstration as Showa Denko used the "peak" hourly emission rate when modeling future potential emissions from existing and new sources. For current actual hourly emissions from existing sources, Showa Denko used the lower "normalized" hourly emission rate instead of the "peak" hourly emission rate. This increases the delta when current actual hourly emissions are subtracted from future potential hourly emissions, and thus produces a conservative modeling demonstration that overestimates project impacts.

18. **Class II modeling stack P68 downwash:** The EPA commented that emission point P68, which has a height that is greater than Good Engineering Practice, was modeled without including potential downwash effects. This comment indicated that the effect of this on the impact analysis would be conservative. The Department agrees that the result is conservative and, therefore, no change in the impact analysis is needed.

19. **Class II modeling graphitizing area stack parameters:** The EPA commented on the distribution of the emissions through the graphitizing area stacks (MP68, ML1a, and ML1b), asking for an explanation of why the description in Section 2 of the Class II modeling report indicates only two stacks and what the effect of the distribution on the stack exit temperature and velocity would be. The existing roof vent will be replaced by two new dispersion stacks (ML1a and ML1b) in addition to a new scrubber that will be built at the location of the associated existing graphitizing process stack (MP68). The SO_2, CO, NO_x, PM_{10} and $PM_{2.5}$ emissions from the graphitizing process will be emitted through these three stacks. The design calls for a fixed percentage of the SO_2, PM_{10} and $PM_{2.5}$ emissions to be routed to the new scrubber stack for control, while the remaining uncontrolled percentage will be emitted through the two new dispersion stacks. The Section 2 sentence in question, describing the graphitizing process, is clarified below:

In order to demonstrate compliance via air dispersion modeling with the new stringent 1-hour SO2 standard, the existing roof vent (Line 01) will be fitted with duct work that will route some of the emissions to two new tall stacks (ML1a and ML1b). The existing tall stack (P68) which has no emission controls will be demolished and replaced by a scrubber (MP68) in approximately the same location. After the modification, the Line 01 and P68 emissions will be released through a combination of three stacks (MP68, ML1a and ML1b).

As indicated previously concerning these stack exit velocities and exit temperatures, once the detailed engineering work is completed, Showa Denko will update the modeling demonstration, as necessary, with the final stack configurations (including heights, diameters, temperatures, flow rates, etc.) and submit the updated modeling demonstration to the Department for review and approval.

20**.** **Class II modeling post-processing:** The EPA asked that the proper operation of the post-processing programs used to obtain appropriate temporal and spatial pairing of the ambient concentrations and the development of concentrations in the form of the NAAQS be demonstrated. The equivalency of CALPOST with the AERMOD processing of concentrations was demonstrated by comparing the direct output of AERMOD with all point sources included with the source-by-source AERMOD runs summed by CALSUM and POSTUTIL. These runs demonstrating equivalency were provided to the Department. A second set of equivalency tests was provided in Appendix F comparing the output from the US EPA BLP and POSTBLP executables for line sources with that used in the Showa Denko runs using CALPOST. A comparison of the results obtained indicated no difference between the two methods and the Department verified through independent modeling runs that there is no difference between the two methods, demonstrating the two methods are equivalent.

21. **Class II models:** The EPA asked that the use of only the unmodified regulatory approved AERMOD and BLP computer models be confirmed. The EPA BLP model executable allows only 100 receptors to be used, which is inadequate for the Showa Denko project. The array dimensions in the BLP code were expanded to accommodate the 15,000 receptors used in the Showa Denko analysis, as allowed in Section 3.1.2b of the EPA *Guideline on Air Quality Models*. The equivalency of the code after the modification to accommodate more receptors with the original EPA executable was demonstrated in the Appendix F tests. The regulatory approved version of AERMOD, which can accommodate the Showa Denko receptor and source configuration, was used without modifications.

22. **Class II modeling meteorological and land use data:**

a. The EPA commented on the assessment of the representativeness of the meteorological data surface characteristics. The use of the Charleston airport (KCHS) meteorological data for the Showa Denko project was based on the criteria in Section 8.3.a of the EPA *Guideline on Air Quality Models*. In particular, the criteria include consideration of: the proximity of the meteorological site to the facility (KCHS is the closest ASOS meteorological site by far); the complexity of the terrain (similar at both the KCHS and the facility); representativeness of exposure of the meteorological site (the KCHS is a well-sited instrument free from obstructions); and the time period for which the meteorological data are available (good quality hourly data for a recent five-year period). In addition, an analysis presented in the Class II report of surface roughness characteristics in the vicinity of the project facility and the meteorological site shows that both locations are of similar (moderate) roughness. Although the roughness in the Charleston area is more due to urban structures than near the facility where the roughness is more attributable to trees, the roughness characteristics are deemed similar with differences of less than 45 cm on the average. As noted in the report, roughness length is considered to be of secondary importance for this project as most of the emissions are emitted from tall stacks. The factors used in judging representativeness are based on the EPA recommendation in Appendix W that surface characteristics should "generally describe" the modeling domain. It is the judgement of the Department that the Charleston Airport meteorological data is representative for sources included in the modeling domain for the Showa Denko project.

b. The EPA commented on the number of calm observations in the meteorological data that was used in the air modeling analysis and asking for a justification as to why the AERMINUTE processor was not used to reduce the number of calm periods. The use of AERMINUTE is not a regulatory requirement. Its use is based on the importance of light wind speed dispersion for the sources of interest and the frequency of calm winds. Unlike the case of non-buoyant emissions from ground-level sources, where light wind, stable conditions are likely to lead to the worst case predicted conditions, the Showa Denko sources are dominated by tall stacks. In addition, at Charleston Airport, the frequency of calm conditions (13.3%) is low compared to other National Weather Service stations. Also, an important element of the analysis involves the use of the BLP model for the buoyant line source impacts. The BLP model was designed to use a minimum wind speed of 1 m/s in its calculations. BLP does not include a random plume component to treat low wind speed conditions that would occur if AERMINUTE processing were to be used. Another consideration is the fact that many of the PSD background sources included in the modeling are located 20 km or more from Showa Denko. Due to transport time (causality) considerations, the steady-state assumptions in AERMOD and BLP break down when the transport distances exceed one hour transport time (or 3.6 km for a 1 m/s wind speed). Using AERMINUTE to add some hours with winds in the 0.5-1.0 m/s wind speed range would not properly allow cumulative impacts to be assessed in the modeling due to the limits of the steady-state assumption.

23. **$PM_{2.5}$ minor source baseline date:** The EPA commented on the minor source baseline date, indicating that since the revised Showa Denko application was received after the $PM_{2.5}$ trigger date of 10/20/2011, the Showa Denko project sets the $PM_{2.5}$ minor source baseline date for Dorchester County. According to the $PM_{2.5}$ Increment, SIL, and SMC rule (75 FR 64864, October 20, 2010) "[t]he ''minor source baseline date'' is the earliest date after the trigger date on which a source or modification submits the first complete application for a PSD permit in a particular area." (p. 64868) The Showa Denko PSD application was received by the Department on June 14, 2011 and accepted as complete on August 11, 2011. The Department has not received a $PM_{2.5}$ major PSD application for any project in Dorchester County (or that would cause a significant impact in Dorchester County) since the $PM_{2.5}$ trigger date of 10/20/2011. Also,

the revisions to the original application do not qualify as a separate PSD application with respect to the PSD regulations. Therefore, the Department has determined that the minor source baseline date has not been set for Dorchester County.

24. **Class II increment modeling:** The EPA asked for confirmation that the Dorchester County minor source baseline dates were used to identify the increment affecting sources located in counties outside of Dorchester County. The Department reviewed the inventory of background sources included in the Showa Denko modeling and confirmed that the Dorchester County minor source baseline dates were used to identify the sources that were included in the modeling.

25. **Class II background source inventory basis:** The EPA commented on the basis for the emissions of other, non-Showa Denko sources that were included in the air impact assessment for the project. The Bureau of Air Quality has reviewed the air dispersion modeling that was submitted and has verified that the emissions for the off-site sources included in the full impact modeling are based on maximum allowable emission rates applicable to each pollutant and averaging period.

26. **Clarification on thermal oxidizer technical feasibility:** The EPA commented that a sentence was truncated on page 56 of the preliminary determination. The final determination clarifies that the sentence should have stated, "Afterburners generally require an exhaust flow rate greater than 5,000 scfm for proper operation; therefore, a thermal oxidizer is not technically feasible."

27. **Ambient Air:** The EPA commented that the modeling demonstration must include ambient air and that a determination of what constitutes ambient air is case specific. Showa Denko owns a portion of Haven Road, a dirt road with no shoulder that runs across the Showa Denko property. Haven Road was created historically for the expressed and limited purpose of allowing restricted access across the approximately 800 acres comprising the Showa Denko site. This access is for neighbors who live on either side of the facility and for emergency vehicle access. We believe the modeling included ambient air and is protective of public health. Receptors were placed on the same dirt road for the portion that Showa Denko did not own, and the modeling results indicated pollutant concentrations were less than the ambient standards. Traversing this dirt road takes less than 60 seconds at moderate speeds. There are no ambient standards that are based on individuals being negatively effected based on traversing an industrial property in a vehicle for less than one minute.

Since the facility was originally constructed, it has received three PSD permits, each requiring the installation of BACT for all impacted units. This PSD permit includes the installation of a SO_2 scrubber on the existing graphitizing furnaces, even though these existing furnaces were not impacted by the expansion and therefore did not require a BACT analysis.

To clarify that the Showa Denko portion of Haven Road is not ambient air and that public health is protected, permit condition 6.B.1 (page 47) has been modified to state,

"Showa Denko Carbon, Inc. will construct and maintain perimeter fencing on their property boundary. This fencing will be completed prior to start of operation of the expansion and the facility shall certify to the construction of the fence in their operating permit request.

The facility shall cause to be posted on both sides of the road at both ends of the road as it crosses the Showa Denko property signage that states,

a: the property is private;

b: access is restricted;

c: vehicles may not stop, stand or park;

d: loitering is prohibited.

The signs must be clearly visible and legible to any vehicle. Weathered or damaged signs shall be replaced or repaired immediately.

The facility shall monitor the Showa Denko owned portion of Haven Road to ensure there is no loitering and that no authorized vehicle stops, stands, or parks. Monitoring on that portion of the road includes,

a: Surveillance cameras to monitor for loitering or any prohibited or unauthorized vehicle activity;

b: Staff assigned to monitoring the road and cameras who would be trained and responsible for responding to any situation where an authorized vehicle was not traversing the road in an appropriate amount of time;

c: Written procedures for responding to any loitering or unauthorized vehicle issues.

Incidents will be recorded and maintained on site for a period of 5 years. Records shall include the date of incident, action taken, and the amount of time any non-Showa Denko personnel remained on that portion of the road."

VI. Summary of Changes to the Statement of Basis, Construction Permit and Other Changes

Changes to the Draft Statement of Basis

1. Page 32 – Included two sources (preheaters and hot oil heater) that were new/modified within the last five (5) years as creditable emissions increases to the PSD netting analysis for SO_2. The addition of these two sources did not result in a change to the overall net SO_2 decrease value previously presented.

Changes to the Draft Construction Permit

1. Permit Condition 5.B.8 (page 8) was included to address EPA's comment regarding the inclusion of modeled emission rates as enforceable conditions in the permit. Condition 5.B.8 states "All source tests are required to demonstrate compliance with the emission limits and verify emissions used in the modeling demonstration. This requirement does not include the initial screening test listed in Condition 5.B.3.b(9)."

2. Permit Condition 6.B.1 (page 47) was modified to address EPA's comment that ambient air must be included in the modeling demonstration. Condition 6.B.1 was modified to further clarify ambient air was modeled for this project. The condition now states, "Showa Denko Carbon, Inc. will construct and maintain perimeter fencing on their property boundary. This fencing will be completed prior to start of

operation of the expansion and the facility shall certify to the construction of the fence in their operating permit request. The facility shall cause to be posted on both sides of the road at both ends of the road as it crosses the Showa Denko property signage that states,

a- the property is private;
b- access is restricted;
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The facility shall monitor the Showa Denko owned portion of Haven Road to ensure there is no loitering and that no authorized vehicle stops, stands, or parks. Monitoring on that portion of the road includes,

a- Surveillance cameras to monitor for loitering or any prohibited or unauthorized vehicle activity;
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c- Written procedures for responding to any loitering or unauthorized vehicle issues.

Incidents will be recorded and maintained on site for a period of 5 years. Records shall include the date of the incident, action taken, and the amount of time any non-Showa Denko personnel remained on that portion of the road.

Other Changes

1. To correct a grammatical error on page 56 of the Preliminary Determination, BAQ is clarifying that the sentence should have stated, “Afterburners generally require an exhaust flow rate greater than 5,000 scfm for proper operation; therefore, a thermal oxidizer is not technically feasible.”

Appendix A

Issued Construction Permit 0900-0025-CZ