Prevention of Significant Air Quality Deterioration Review of
The Owens Corning facility,
To be located in Cordele, Georgia (Crisp County)

FINAL DETERMINATION

SIP Permit Application No. 15839
October 2005

State of Georgia
Department of Natural Resources
Environmental Protection Division
Air Protection Branch

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Stationary Source Permitting Program

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BACKGROUND

On November 16, 2004, Owens Corning (OC) submitted to the Environmental Protection Division (EPD) an application for an air quality permit to construct and operate a wool fiberglass manufacturing facility in Cordele, Georgia (Crisp County).

On June 1, 2005, the EPD issued a Preliminary Determination stating that the construction and operation of the wool fiberglass manufacturing facility should be approved. The Preliminary Determination contained a draft Air Quality Permit for the construction and operation of the wool fiberglass facility.

The Division requested that OC place a public notice in a newspaper of general circulation in the area of the proposed facility notifying the public of the proposed construction and providing the opportunity for written public comment and public hearing. Such public notice was placed in the *Cordele Dispatch* (legal organ for Crisp County) on June 9, 2005. The public comment period expired July 9, 2005.

During the comment period, comments were received from OC and the U.S. EPA Region IV. Following the comment period, further discussions were held with OC regarding their comments and EPA's comments. On September 9, OC notified the Division that it had just determined that the proposed facility (and existing OC facilities) might be subject to 40 CFR Part 63 Subpart JJJJ, "National Emission Standard for Hazardous Air Pollutants - Paper and Other Web Coating." Subsequent to that, the company notified EPD that the use of coating to glue fiberglass bats onto backing is subject to Subpart JJJJ. One such coating is asphalt, but there are others.

The changes by OC and the EPA are listed below, along with the changes made to the final Permit. It is the Final Determination of the EPD that the construction of the proposed wool fiberglass facility should be approved.

A copy of the final permit is provided in Appendix A.
A copy of comments received during the public comment period is provided in Appendix B.
A copy of additional correspondence received is provided in Appendix C.

Review of U.S. EPA Region IV Comments

1. Comments on Best Available Control Technology (BACT) Assessment

   a. General Comment - Since this is a new fiberglass manufacturing facility, we would expect it to be the best controlled facility of its type in the United States. We are not sure that a state-of-the-art level of control has been met for the project as proposed, as further discussed below. Our concern in this regard is prompted in part by statements in the application to the effect that a proposed BACT limit or control method is equivalent to something deemed to be BACT at other facilities listed in the RACT/BACT/LAER Clearinghouse. (See additional comment below about the Clearinghouse.) Previous BACT determinations should certainly be considered, but nothing restricts a reviewing authority from concluding that BACT for a new project is better than what has been permitted previously. Is it possible for the source to agree to pollution prevention measures or to further investigate improvements to work practices that promote emission reductions?

EPD's Response
The Division agreed with EPA Region IV to revisit the BACT evaluations for NO_X emissions from the furnace, as well as PM and VOC emissions from the fiberglass manufacturing line. OC was therefore requested to evaluate whether lower NO_X and PM emissions could be achieved by using alternative batch ingredients and/or alternative process configurations. OC submitted several email responses, and a confidential letter dated August 18, 2005, in which they provided reasons for their contention that the proposed fiberglass manufacturing facility in Cordele will be the best controlled facility of its type in the United States and that NO_X, PM or VOC BACT limits should not be lowered.

OC stated that a large percentage of the Cordele plant's bonded production capacity will be devoted to manufacturing R4.2 Flexible Duct Media (FDM). They argue that the process equipment configuration proposed for the Cordele facility is the only demonstrated technology capable of manufacturing R4.2 FDM. OC stated that the proprietary manufacturing technology proposed for the Cordele facility is currently used only in their Waxahachie, Texas facility. They say they are not able to manufacture R4.2 FDM in their older plants and that producing the product, even in Waxahachie, is at the extreme end of their own capability. This is central to their argument because the primary purpose for building the Cordele facility is to increase OC's capacity to produce R4.2 FDM.

OC claims that no competitor or supplier of fiberizing technology has demonstrated the ability to provide or produce R4.2 FDM. According to OC, the R4.2 FDM is difficult to produce because it is lighter than similar products but still must meet the flame penetration and tensile requirements of building codes. The other manufacturers can only meet the flame penetration and tensile property requirements by using thicker insulation. They argue that, because its exclusive process equipment configuration is different from other fiberglass manufacturing facilities (which gives them a competitive advantage), it is unreasonable to compare the Cordele facility process emissions with that emitted from other process equipment configurations used to produce more commonplace fiberglass products.

The EPD accepts OC's claim that the proposed manufacturing equipment and batch ingredients are necessary to assure the satisfactory production of R4.2 FDM. The BACT regulations prohibit the Division from requiring OC to use an unproven process equipment configuration. While other configurations have proven to satisfactorily produce fiberglass insulation, those configurations cannot successfully produce FDM 4.2. Therefore, in this particular situation, EPD believes that is has no legal basis to require the use of different processing equipment in the forming section of the glass melt furnace. As already shown in the Preliminary Determination, EPD concludes that OC has demonstrated that it meets BACT.

EPD is aware that the proposed NO_X and PM BACT emission limits for the furnace and forming section, with no controls, are higher than BACT for other fiberglass manufacturing facilities with controls. While this would normally be considered contrary to the requirements of BACT, EPD has approved it because add-on control equipment has been shown to be too costly for the process configuration proposed. Note that, if OC changes plans and decides to produce a more common product (prior to constructing the approved equipment), EPD reserves the right to reopen the permit and carry out a new BACT analysis.

1.b. Use of RACT/BACT/LAER Clearinghouse (RBLC) Data - The applicant appropriately used RBLC data in the BACT evaluation section of the application. The RBLC is a starting point for obtaining comparison data, not the ending point. Numerous fiberglass manufacturing facilities not listed in the RBLC operate in the United States and elsewhere and could be used for comparison purposes. At a minimum if not already done, we recommend that GEPD review control technologies and emissions limits for all other fiberglass manufacturing facilities in Georgia for comparison with the applicant's BACT proposal. Owens Corning facilities in other states also offer comparison opportunities, including the Santa Clara facility mentioned on page 5-13 of the permit application.

EPD's Response

In addition to the previous review of the RACT/BACT/LAER clearinghouse, the Division conducted a review of the emission limits of the three existing fiberglass manufacturing plants in the state of Georgia. As would be expected, we found lower emission limits for some equipment. However, none of these plants were technologically capable of producing R4.2 FDM, so this did not alter our conclusions outlined in the response to Comment 1.a above. We therefore believe that surveying additional fiberglass manufacturing facilities would not be helpful, unless a facility could be found (other than the OC Waxahachie plant), that was technologically capable of producing R4.2 FDM.

1.c. General Question on Possibility of Combined Control - For some types of facilities, the most effective control method is a single large control device to collect and control emissions from multiple emission points. Is there any possibility for such combined collection and control systems at the proposed facility? For example, would it be possible to have a single, more efficient particulate matter control device for the bonded line mixing chamber and the unbonded line forming section which are the two largest particulate matter emission points? As another example, would it be possible to have a larger incinerator to control emissions of volatile organic compounds from both the bonded and unbonded lines which are the largest VOC emission points?

EPD's Response
The Division agrees with U.S. EPA and required OC to evaluate the cost per ton for a single exhaust to control PM from all forming zones in each half of the forming section on the fiberglass line (i.e., two WESPs and two high pressure drop scrubbers). A re-examination by OC of the cost per ton using a single WESP and a single high pressure drop scrubber was submitted on August 19, 2005. This re-evaluation showed that a single control unit was not cost effective; a copy of the cost evaluation is in Appendix C.

It is clear that, as EPA has noted, the cost per ton of removal is very high, compared to that of BACT evaluations for other fiberglass plants. However, OC cites the 1990 NSR Workshop Manual, which states "cost effectiveness values above the levels experienced by other sources of the same type and pollutant, are taken as an indication that unusual and persuasive differences exist with respect to the source under review". OC has stated that, if a control device (such as a WESP) is installed for the forming section, it would be necessary to provide one for each zone in order to allow for the maintenance of a single forming zone, including the control device, without removing the entire machine from service. They have argued that the level of lost production would be much greater if OC utilized one large WESP for all lines. This, they say, would be more problematic for this plant than other fiberglass plants, since their primary product is highly sensitive to the impact of upset conditions in the forming area; the loss of greater than one forming zone on each half of the forming section would result in loss of production. The alternative to allowing that production loss would be to provide for bypass of the control device for maintenance. While that is possible, it adds to the initial engineering and capital cost. In addition, they point out that use of one control devices for two separate lines would compound that problem, necessitating the shutdown of both lines if the control device malfunctioned. Individual devices, while more costly, would be necessary to create the operational freedom and flexibility that OC claims it needs to produce R4.2 FDM.

Details below clarify specific constraints regarding possible VOC and PM controls. These details appear to justify the BACT determination set forth in the Preliminary Determination.

As is also discussed in the response to Comment 1h, the outlet concentration of volatile organic compounds (VOCs) that is typical of control devices that are analyzed in Section 5.4 of the permit application is 20ppm. While the bonded line and unbonded line forming sections are the largest VOC emitters on a mass basis, the VOC concentrations in these exhaust streams is lower than that, approximately 17.5 ppm and 11.1 ppm, respectively. The VOC concentration of a combined stream would be roughly 16.1 ppm. Therefore, little would be gained by installing a control device for the combined VOC emissions from the bonded line and the unbonded line forming sections.

The determination remains that no add-on control for VOC is technically feasible.

1.d. Furnace Nitrogen Oxides Emissions - The proposed BACT NO_X emissions rate for the furnace is 13.5 lb/ton glass pulled (lb/ton), equivalent to 542 tons per year. The comparison points provided in the application are two melting lines at a Guardian Fiberglass facility in West Virginia and the Owens Corning facility in Fairburn, Georgia. The listed NO_X limits for the Guardian Fiberglass facility are 0.023 and 0.024 lb/ton, compared with 13.5 lb/ton for the Fairburn facility and 13.5 lb/ton for the proposed Cordele facility. The application does not provide an explanation of why the proposed Owens Corning facility should have a BACT limit nearly 600 times higher than the limits for the Guardian Fiberglass facility. In addition, although we recognize that the Fairburn facility has undergone a reasonably available control technology determination, it is an older facility that might not represent state-of-the-art controls for NO_X emissions. For further comparison purposes, we recommend that GEPD review the NO_X emission limits for all other fiberglass manufacturing facility furnaces in Georgia (regardless of whether these are cold-top electric melt furnaces) and also ask Owens Corning to provide NO_X limits for all their other furnaces in the United States.

EPD's Response:
The Division conducted a review of other facilities, comparing NO_X emission limits from glass melt furnaces and also reviewing permits to determine what types of NO_X emission control devices had been required. Controls for NO_X emissions were not required on any permits reviewed. However this was not an issue at these facilities since NO_X emissions were inherently very low because different furnace technology was used. As stated above, OC maintains, and EPD is unable to dispute, that the glass melt furnace and batch material proposed for the Cordele facility is the only demonstrated technology capable of producing molten glass that can be fabricated into commercially acceptable R4.2 FDM.

Given the required manufacturing limitations and the furnace's unique design, OC maintains that a comparison of the proposed furnace with other furnaces in the RBLC database is not appropriate. First, the other furnaces in the database use natural gas combustion as the furnace heating source, rather than solely electricity. U.S. EPA has recognized the distinction between operations of cold-top electric melters and other style melters in their development of the New Source Performance (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) for this industry. Secondly, most of the other furnaces are smaller. [For example, the Guardian Fiberglass furnaces referenced are much smaller in capacity than the proposed furnace (90 tpd and 96 tpd compared to 220 tpd). With a very different emissions profile, the use of sodium nitrate is apparently not needed in smaller cold top furnaces.]

On the other hand, a review of other OC furnaces shows that fewer than half have permitted limits for NO_X. Those with limits range from 12.26 lb NO_X /ton of glass pulled to 13.5 lb NO_X /ton of glass pulled (TGP). Each furnace uses sodium nitrate (niter) and they find that, as with the proposed Cordele melter, 54.1% is converted to NO_2 based on a mass balance. While 54.1% indicates that there are 13.5 lb NO_X / TGP, the available stack test data for OC's cold top electric furnaces consistently shows lower emissions than that. This indicates that the true potential NO_X emission rate from the Cordele melter is expected to be significantly less than the proposed limit, based on a mass balance. Based upon the experience of the OC Fairburn plant, actual emission should be closer to 8.9 lb NO_X /TGP and not the theoretical potential rate of 13.5 lb NO_X /TGP,

For these reasons and those discussed in EPD's response to EPA's comment No. 1 a. above, the Division remains convinced that the proposed glass melt furnace without controls is BACT for NO_X and PM. Note that, while EPD could set a lower BACT limit, that would not lower actual emissions, since OC will be using the same amount of niter and producing the same amount of NO_X, independent on the limit.

1.e. Furnace Particulate Matter Emissions -

(1) The BACT cost evaluations for a baghouse control system and for an electrostatic precipitator control system include the purchase cost of a "Stack Cap System" that exceeds the purchase costs of the control devices themselves. The stated purpose for a Stack Cap System is "to collect furnace exhaust in the event that the [control device] is inoperable." We do not understand this purpose since the proposed BACT (a batch wetting system) does not include furnace exhaust collection. Why should a collection method be required for an add-on control system when it is not required for operation without add-on controls?

EPD's Response

OC's proposed control methodology (batch wetting system) is not an end-of-pipe control device. The batch wetting system instead utilizes a water spray on the dry batch as it is dropped onto to the top of the glass melt furnace's cold top, to reduce the generation of airborne particulate matter, having a similar effect as wetting a gravel driveway. Not being a control device, the proposed melter does not require an exhaust stack configuration with a Stack Cap System to allow bypass of a control device. Since glass furnaces cannot be shut down for routine maintenance and are designed to run continuously for many years, if there is an end-of-pipe control device, a bypass is necessary. Service and maintenance to the control device would not be possible without diverting the exhaust from the furnace directly to the atmosphere; the Stack Cap System performs this function. Even if it were possible to construct an end-of-pipe control system on the furnace without a bypass mechanism, a review of the BACT analysis shows that both the baghouse control system and the electrostatic precipitator control system would still not be cost effective, as the cost-effectiveness would be approximately $18,430/ton and $10,520/ton, respectively.

1.e. (2) The BACT cost evaluations for a baghouse control system and for an electrostatic precipitator control system include the cost of a "Recycle System" "to route collected fines back to the batch house for recharging into the furnace." If a recycle system is to be included as a cost, the savings resulting from recharging the collected fines should be included as a credit.

EPD's Response

OC claims that the material collected from the hopper of a baghouse or a dry electrostatic precipitator would be approximately 25 tons of batch per year with a value of $110.00 per ton. The resulting savings of approximately $2,750 per year does not change the conclusion of the economic analysis.

1.e. (3) Are any electric melt furnaces operated at other Owens Corning fiberglass manufacturing facilities equipped with add-on particulate matter control devices? Did GEPD research fiberglass manufacturing facilities not listed in the RBLC to determine if other facilities with electric melt furnaces have add-on furnace particulate matter control devices?

EPD's Response
The Division reviewed the design of electric melt furnaces employed by Johns Manville and CertainTeed; both furnaces require a baghouse to control PM emissions. We note that precontrolled PM emissions from these melters are much greater than precontrolled emissions from the proposed furnace at Cordele or the OC furnace employed at the Fairburn facility. The proposed furnace without control in Cordele has comparable PM emissions to electric melt furnaces with add-on PM control devices used by Johns Manville and CertainTeed. OC operates 10 cold top electric melters in the U.S. All utilize batch wetting for particulate matter control and comply with 40 CFR 63 Subpart NNN, *National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing*. Because OC uses an inherently low-emission melter design, none of OC's electric melt furnaces in the U.S. have end-of-pipe control devices.

1.f. <u>Forming Section Particulate Matter Emissions</u> - The proposed PM BACT limits are 7.84 lb/ton for the bonded line and 4 lb/ton for the unbonded line. Regarding these proposed limits, the applicant states (page 5-20 of the application) that "Entries in the RBLC database, presented in Table 5-3, show that similar operations on other forming sections have been deemed as satisfying BACT requirements." In fact, all but one of the RBLC BACT limits listed in Table 5-3 (let alone the limits for facilities not in the RBLC) are considerably lower than the proposed BACT limit of 7.84 lb/ton for the bonded line and generally lower than the proposed BACT limit of 4 lb/ton for the unbonded line. An explanation is needed as to why a new facility should receive BACT limits that are higher than limits for previously permitted facilities.

EPD's Response
In trying to determine why OC's proposed BACT limits are higher than those of other manufacturers, it has been found that each fiberglass manufacturer utilizes different fiberizing technologies to generate finished fiber. Fiber can be made by attenuation, with air and/or flame, by creating greater centrifugal forces, or by changing the characteristics of the primary fiber through spinner design.

However, each approach involves inherent limitations on fiber characteristics and process design. Each manufacturer has considered many variations of the possible approaches to generate the fibers they want to make. Design aspects include the metallurgy of the spinners, the spinner drilling sizes and the configuration and fiber distribution methods. The designs have taken each manufacturer years to optimize and are closely guarded. As previously discussed, it appears that no competitor or supplier of fiberizing technology has demonstrated the ability to produce the primary product proposed for the Cordele facility.

While the Division understands that the overall BACT emission limit proposed for this facility is higher than the existing limits on competitors lines, we conclude that OC has clearly demonstrated the uniqueness of the technology for the proposed manufacturing line. Accordingly, the Division concludes that the proposed BACT emission limit is appropriate for the bonded line forming section technology proposed for the Cordele manufacturing facility.

1.g. Bonded Line Cooling Section Particulate Matter Emissions - The applicant identifies an applicable Georgia rule for the cooling section that imposes a particulate matter emissions standard of 0.04 gr/dscf. The proposed BACT limit is 0.95 lb/ton glass pulled. Will compliance with the proposed 0.95 lb/ton BACT limit assure compliance with the 0.04 gr/dscf standard?

EPD's Response
The following calculations demonstrate that the proposed BACT limit of 0.95 lb/ton will assure compliance with the 0.04 gr/dscf limit of Georgia Rule (oo).

Cooling section total PM emissions = 7.1 lb/hr @ 0.95 lb/ton

With an annual input of 65,700 tons/yr
Cooling section filterable PM emissions = 7.1 lb/hr ÷ 1.15 = 6.20 lb/hr

Cooling section airflow = 25,000 acfm (minimum) @ 110 °F = 23,158 dscfm

$$6.20\frac{\text{lb}}{\text{hr}}\times\frac{\text{min}}{23{,}158\,\text{dscf}}\times\frac{\text{hr}}{60\text{ min}}\times\frac{7{,}000\,\text{gr}}{\text{lb}}=0.03\frac{\text{gr}}{\text{dscf}}$$

1.h. Curing and Forming Volatile Organic Compounds Emissions
(1) On page 5-38 of the permit application regarding control of bonded line curing VOC emissions, the applicant states the following: "As the magnitude of the inlet concentration for the curing exhaust is typically less than 200 ppm (i.e., 20 ppm represents a 90% reduction and likely the highest reduction achievable, based on typical vendor guarantees)." Has a specific vendor guarantee been obtained that verifies what might be expected from "typical" vendor guarantees? In other words, has Owens Corning checked to see if a guarantee of greater than 90 percent reduction can be obtained?

EPD's Response
Page 5-38 in OC's PSD application states, "As the magnitude of the inlet concentration for the curing exhaust is typically less than 20 ppm, the 98% control efficiency may not be achievable on a consistent basis (i.e., 20 ppm represents a 90% reduction and likely the highest reduction

achievable, based on typical vendor guarantees)." OC has not obtained a specific vendor guarantee; however, they reference the U.S. EPA's Air Pollution Control Technology Fact Sheet for Thermal Incinerators, which suggests that while a thermal incinerator may achieve a control efficiency of 98%, it is unlikely to be able to achieve an outlet concentration of less than 20 ppmv.[1] OC also points out that the EPA has frequently recognized this limitation within issued NESHAPs, with emission limits expressed as follows: "reduce mass emissions by X percent, or to a concentration of 20 ppmv."[2] Since the inlet concentration is about 200 ppm, and the outlet concentration is unlikely to be below 20 ppm, a 90% control efficiency is likely the highest achievable destruction rate for this type of application.

> 1.h. (2) The proposed VOC BACT limits are 4 lb/ton for the bonded line curing and forming sections and 2.37 lb/ton for the unbonded line forming section. Most of the RBLC BACT limits listed in Tables 5-19 and 5-20 (let alone the limits for facilities not in the RBLC) are lower than the proposed BACT limits. (However, we are not sure if the entries in Tables 5-19 and 5-20 are directly comparable for the Owens Corning configuration.) An explanation is needed as to why a new facility should receive BACT limits that are higher than limits for previously permitted facilities.

EPD's Response

In accord with EPD's response to other comments, the Division believes (as suggested in EPA's parenthetical statement) that the entries in Tables 5-19 and 5-20 of the permit application, containing other BACT determinations, use fiberglass processes that are not directly comparable to the proposed OC process. For example, Johns Manville uses a proprietary process with a unique product formulation with inherently lower VOC. Since each company utilizes a different proprietary process, a comparison of emissions from competing companies' facilities is not an appropriate analysis. In addition, OC has combined emissions from the bonded line forming section and curing oven for calculating the BACT limit, while some of the other facilities represented in the RBLC database combine emissions differently (i.e., forming and collection, curing and cooling); therefore, it is difficult to make a direct comparison. In no case does the RBLC database indicate the use of add-on control for VOC emission reductions. As OC cannot modify their process without negatively impacting product quality and required specifications, formulation changes are not deemed feasible.

> 1.h. (3) The mixing chamber has an estimated VOC emissions rate of 132 tpy, and is therefore the VOC emitter of all the emission units. Do the majority of the emissions from the mixing chamber come from the curing line which has the only add-on control (an incinerator)? If not, how is the facility ensuring that there is adequate control of VOC emissions from the mixing chamber?

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[1] U.S. EPA, *Air Pollution Control Technology Fact Sheet: Thermal Incinerator*, EPA-452/F-03-022, http://www.epa.gov/ttn/catc/dir1/fthermal.pdf.

[2] Examples include Subpart S, NESHAP from the Pulp and Paper Industry, Subpart SSSS, NESHAP for Surface Coating of Metal Coil, and Subpart LLLLL, NESHAP for Asphalt Processing and Asphalt Roofing Manufacturing.

EPD's Response
Most VOC emissions from the mixing chamber are from the bonded forming section, as can be seen in the following table, which details the VOC concentrations and potential VOC emissions from the bonded forming exhaust. The VOC concentration from the forming section is approximately 17.5 ppm, which is lower than the outlet concentrations of many of the facilities with add-on control devices analyzed in Section 5.4 of the permit application. We conclude that installing VOC emission controls is unlikely to achieve any significant reduction in forming section emissions. With regard to the possibility of our requiring OC to reformulate resin, as previously indicated, OC has a proprietary formulation mix and believes that formulation changes are technically infeasible.

Table 1. Bonded Line Forming Emissions

Pollutant	Potential Emissions (TPY)	Concentration*	
		(ug/m^3)	(ppm)
PM	254.92	57,548	NA
NOx	31.54	7,119	3.78
CO	93.62	21,135	18.45
Formaldehyde	23.22	5,241	4.27
Methanol	56.19	12,684	9.68
Phenol	39.56	8,931	2.32
Ethanol	10.54	2,379	1.26
Combustion VOC	0.42	95	NA

* Concentration is based on the total forming section flow rate.

2. Comments on Preliminary Determination and Draft Permit

a. "Fugitive Emissions" Terminology - In a sentence starting on page 10 of the preliminary determination and continuing on page 11, GEPD states that Owens Corning "proposes to install a batch wetting system on the furnace which will minimize the amount of batch ingredients lost as fugitive emissions which are ducted through the stack." We request that in future GEPD take care when using the term "fugitives emissions." Emissions ducted through a stack are not fugitive emissions.

EPD's Response
The EPA notes that emissions ducted through a stack are not fugitive emissions. The EPD will insure future references to emissions ducted through the furnace stack, or any other stack, are not referred to as fugitive emissions.

2.b. Including Condensible Particles in Permit Emissions Limits - In permit condition 2.7.a., GEPD imposes a PM emissions limit for the furnace that includes filterable particles but not condensible particles. When condensible particles are known to be present (as acknowledged by the applicant in this case), an emissions limit that includes condensible particles should be specified along with an appropriate compliance test method. EPA has espoused this policy in various statements including the April 5, 2005, interim guidance statement entitled "Implementation of New Source Review Requirements in $PM_{2.5}$ Nonattainment Areas." (Note: Despite its title, this guidance applies to both attainment and nonattainment areas.)

EPD's Response

The EPD agrees that this permit needs to include an emissions limit for condensable particulate matter with the appropriate test methods. Condition 2.7 (b) has been added to limit total PM emissions from the glass melt furnace. Condition 6.2 (f) now requires Performance testing while using Conditional Test Method 5 and Method 202 simultaneously to establish total and filterable PM concentrations. Condition 6.3 has been modified to include a performance testing requirement to demonstrate compliance with the PM emission limit in Condition 2.7 (b). Condition 6.12 has been modified, citing 40 CFR 51, Appendix S, as an authority requiring PM performance testing.

3. Comments on Air Quality Impact Analysis

a. Meteorological Data - The meteorological data used in the air quality impact modeling were measured at Macon, GA and Centreville, AL in 1974-78. The Guideline on Air Quality Models (40 CFR 51, Appendix W) states that consecutive years from the most recent, readily available 5-year period should be used. Data more than a quarter-century old are not considered recent.

EPD's Response

For permit modeling consistency the EPD set up a meteorological database for applicant use that maintains data consistency from one applicant to the next, streamlining modeling efficiency and maintaining reliability. This database is maintained on the Division's website (georgiaair.org). The data to be used for this area is Met data for Macon, GA and Centreville, AL (years 1974 to 1978). EPD believes that this dataset represents a normal five-year period in Georgia. However, when the next generation dispersion modeling system (AERMOD) is required to be used in place of Industrial Source Complex for modeling results, EPD will consider requiring the use of more recent meteorological data, since the modeling consistencies will then be altered anyway, due to using a new modeling system for air quality analysis.

3.b. National Ambient Air Quality (NAAQS) Assessment -

(1) GEPD in the preliminary determination indicates modeled PM_{10} 24-hour concentrations are in excess of the NAAQS. These concentrations are not reported in Table 25 of the preliminary determination. The basis of the values reported in this table should be explained.

EPD's Response
During the course of modeling the Division became aware of NAAQS exceedances in Dooly County at one receptor outside the OC significant impact area (SIA). When the preliminary determination was issued, conclusive modeling data based on an accurate source location and emission data for a source within the regional inventory was not available. So, though preliminary results showed that OC would not make a significant contribution to the predicted NAAQS exceedance, further analysis was necessary and was still going on during the issuance of the preliminary determination.

Final modeling analysis has shown that modeled concentrations, from all major sources, were 196.67 ug/m^3 for the 24-hour averaging period and 45.08 ug/m^3 for the annual averaging period. Both of these values were located at receptors outside the OC SIA and, when added to the background concentrations, clearly exceed the NAAQS, which are 150 ug/m^3 for the 24-hour average and 50 ug/m^3 for the annual average. However, the modeling analysis also showed that OC's 24-hour PM contribution to the NAAQS exceedance is no higher than 1.52 ug/m^3 and its annual contribution is 0.110 ug/m^3, which is below the 24-hour significant contribution concentration of 5 ug/m^3 and 1 ug/m^3 for annual averaging period.

As a result of the completed modeling analyses, which showed that OC does not significantly contribute to a 24-hour or an annual NAAQS PM exceedance in Dooly County, the EPD concludes that the modeling results indicate that ambient air concentrations of pollutants emitted by the proposed facility will comply with applicable state and federal regulations.

> 3.b. (2) Because the PSD emission inventory is a smaller sub-set of the NAAQS emission inventory, the maximum NAAQS concentrations (with the possible exception of the high-sixth-highest PM_{10} 24-hour value) should be equal to or greater than the corresponding maximum PSD increment values. The annual NAAQS concentrations in Table 25 are less than those reported for the PSD Class II increments in Table 24. The final determination should explain the provided NAAQS modeling results.

EPD's Response
The updated modeling concentrations shown below in Table 24 are compared to the PSD increment; the modeled 24-hour values are based on the highest-second-high. Table 25 compares the modeled 24-hour air quality impact value to the NAAQS and is based on the highest-sixth-high. Therefore, the 24-hour NAAQS concentrations listed in Table 25 can, on occasion, be less than those reported for the PSD increments in Table 24. As expected, the annual values are equal since everything onsite for a Greenfield facility consumes increment and everything onsite is assessed against the NAAQS.

> 3.b. (3) Owens Corning's contribution to all modeled PM_{10} concentration greater than the NAAQS (e.g., highest-second-high, highest-third-high, etc.) must be less than the significant impact levels. The preliminary determination does not provide confirmation that all PM_{10} NAAQS compliance concentrations were assessed.

EPD's Response

Final modeling results were completed after the issuance of the preliminary determination. As seen in the Division's modification to Section 6.0 below, the modeled annual and 24-hour PM_{10} concentrations were below the associated NAAQS significant impact levels and the proposed facility will comply with applicable state and federal regulations. Following is a strike-through modification to Section 6 of the preliminary determination. It includes corrections related to several modeling questions posed by the EPA. This discussion is intended to replace the original discussion in the preliminary determination.

6.0 AMBIENT AIR QUALITY REVIEW

Increment Consumption:

The PSD regulations establish specific maximum allowable increases in ambient concentrations (or increments) for PM10, NO_X, SO_2, ~~CO~~ and other pollutants for all areas in compliance with the NAAQS. All areas of the country are categorized as a function of overall use. The regulations were designed to prevent significant air quality deterioration by specifying allowable incremental changes in PM10, NO_X, and SO_2 concentrations within each area category. The area categories are defined below:

> Class I – Those areas where almost any deterioration of current air quality is undesirable, and little or no industrial development would be allowed (e.g., national parks, wilderness areas).
>
> Class II – Those areas where moderate, well-controlled energy or industrial growth is desired without air quality deterioration up to the national standards (all attainment areas not categorized as Class I were initially designated Class II).
>
> Class III – Those areas where substantial energy or industrial development is intended, and where modest increases in ambient concentrations above Class II increments, but below national standards, would be allowed (designation to Class III must follow strict redesignation procedures).

The Crisp County area, and all other attainment areas in Georgia not designated as Class I areas, are Class II areas. The Class I areas near the proposed OC facility are St. Mark Wilderness Area, Okefenokee National Wildlife Refuge Area and Bradwell Bay Wilderness Area.

The first step in the air quality analysis was to determine whether the net emissions increases (i.e., facility-wide potential emissions for a green field facility) associated with the proposed OC Cordele facility, when processed in a dispersion model, cause a significant impact upon the area surrounding a facility. "Significant" impacts are defined by ambient concentration thresholds commonly referred to as the Modeling Significance Levels (MSL). This "significance analysis" determined whether the proposed OC plant could forgo a full-scale impact analysis to demonstrate compliance with the NAAQS and PSD Class II Increments.

The results of the significance analysis conducted for the Owens Corning proposed plant are summarized in Table 23 below. The impacts due to the total project emissions of NO_2, PM_{10} and CO were calculated in this analysis using the ISCST3 dispersion model. Table 23 shows the highest concentration modeling result for each pollutant. The complete modeling analysis results are located in Section 3 of the Permit Application Class II Air Quality Modeling Analyses. The EPD modeling results are found in Appendix C of this document.

Table 23. Class II Modeling Results vs. Significant Impact Levels & Significant Monitoring Concentrations

Pollutant	Averaging Period	PSD Significant Impact Level (ug/m^3)	Monitoring Concentration Level (ug/m^3)	Modeled Concentration (ug/m^3)	Notes
NO_2	Annual	1	14	18.30*	Additional modeling needed
PM_{10}	24-Hour	5	10	29.33	Additional modeling needed
	Annual	1	--	3.42	Additional modeling needed
CO	1-Hour	2,000	--	41.13	No further modeling needed
	8-Hour	500	575	19.77	No further modeling needed

* Modeled concentration shown here is for NO_X. Approximately 75% of NO_X emissions are converted to NO_2 based on the default assumptions of the Ambient Ratio Method.

As shown in Table 23, the project's impact is below the significant impact level (SIL) for both CO averaging periods; therefore, no further modeling is required for this pollutant. The maximum CO concentration is also below its corresponding pre-construction monitoring levels; therefore no monitoring is required for CO.

A significant impact analysis was done for the emissions increases of NO_2 and PM_{10}. Since concentrations exceed the NAAQS SIL, PSD Increment analyses were carried out for NO_2 and PM_{10}. NO_2 and PM_{10} also exceeded the pre-construction monitoring levels. However, as indicated above, state local area monitors (SLAM) for NO_2 and PM_{10} are available and the data from these monitors provide reasonable (or in some cases conservative) estimates of the background pollutant concentrations considered in this analysis; therefore, pre-construction monitoring is not considered necessary for NO_2 or PM_{10}.

Because the modeled NO_2 and PM_{10} concentration increases exceed the SILs, further modeling was required under PSD to ensure that the Class II PSD increment for the area is not consumed. This further evaluation had to include all sources within 50 kilometers of the project's area of impact. The area of impact is determined by the farthest distance from the site that exceeds the SIL. This distance was 13.93 km for PM and 11. 37~~73~~ for NO_2; therefore, along with the modeled sources, all PM increment-consuming sources within 63.93 km (13.93 km + 50 km) and NO_2 increment-consuming sources within 61. 37~~73~~ km (11.37~~73~~ km + 50 km) of the proposed Cordele plant were included in the modeling. Georgia EPD provided (via our web page and additional information via e-mail) Owens Corning with a list of all the increment-consuming sources that qualify. Table 24 summarizes the maximum offsite concentrations from this evaluation:

Table 24. Class II Modeled PSD Impacts vs. PSD Increments

Pollutant	Averaging Period	PSD Increment (ug/m^3)	Modeled Concentration from Proposed OC Facility (ug/m^3)	Modeled Concentration from All Increment Consuming Sources (ug/m^3)	Notes

NO_X	Annual	25	18.30*	18.59*	Includes all sources within 61.37~~73~~ km
PM_{10}	24-Hour	30	25.34	25.67	Includes all sources within 63.93 km
	Annual	17	3.4	5.25	Includes all sources within 63.93 km

* Modeled concentration shown here is for NO_X. Approximately 75% of NO_X emissions are converted to NO_2 based on the default assumptions of the Ambient Ratio Method.

As shown in Table 24, the modeled impacts of NO_2 and PM_{10} are below the PSD increments. Given this, the proposed project is predicted to comply with the PSD Class II Increment analysis.

Ambient Air Quality:

The NAAQS are established as ambient ceilings applicable to the entire country, and they must be attained and maintained. PSD requires that any pollutant that has predicted significant impacts due to the modification alone must be evaluated for NAAQS compliance. Table 23 shows that both NO_2 and PM_{10} were above the significant impact level and therefore, must be evaluated further. The initial model submitted by OC included all contributing sources within the radius of impact (ROI) of the proposed Cordele plant. The background concentrations, as determined by the EPD, were added to the modeled results. In all cases, the modeled impacts were below the associated NAAQS limits. However, based on new source locations and emission data discovered for a source within the regional inventory after the initial model was submitted a new ISCST3 model was analyzed. The modeling results indicated that ambient air concentrations of pollutants emitted by the proposed facility will comply with applicable state and federal regulations. ~~except the NAAQS annual and 24-hour PM_{10} concentrations. However, the results show that OC does not make a significant contribution to the violation.~~ Therefore, the modeling demonstrates that an air permit for the proposed modification can be issued. Note that Crisp County, where the proposed facility would be located, is currently in compliance with all NAAQS including the 1-hour and 8-hour ozone standard and the 8-hour fine particulate matter standard.

Table 25. Predicted Ambient Air Quality Impacts vs. NAAQS

Pollutant	Averaging Period	Modeled Conc. from Proposed OC Facility (ug/m^3)	Modeled Conc. from All Major Sources w/in the SIA (ug/m^3)	Background Conc. (ug/m^3)	Combined Conc. from Proposed OC Facility Plus Background (ug/m^3)	Combined Conc. from All Major Sources Plus Background (ug/m^3)	NAAQS (ug/m^3)
NO_2	Annual	18.30[1]	18.85	27	45.3[2]	45.85	100
PM_{10}	24-Hour	22.61	23.18	38	60.61[2]	61.18	150
	Annual	3.42	5.92	20	23.42	25.92	50

[1] Modeled concentration shown here is for NO_X. Approximately 75% of NO_X emissions are converted to NO_2 based on the default assumptions of the Ambient Ratio Method.

[2] Concentrations have changed from those in the preliminary determination due to new data based on new source locations and emission data discovered for a source within the regional inventory. The numbers in this table reflect the remodeled data.

3.c. Complex Terrain –

(1) Complex terrain for this project is indicated to be terrain greater than 450 feet. Complex terrain is defined as terrain above the height of the lowest stack with significant emissions. Given this definition of complex terrain, GEPD's indication in the preliminary

determination that intermediate terrain is terrain above 420 feet must be an error. Intermediate terrain is terrain elevation between stack height and plume height. An explanation or re-analysis is needed.
(2) The ISCST3 default option is not simple terrain but includes both simple and complex terrain processing.
(3) The EPA Region 4 complex terrain guidance indicates the ISCST3 model, without representative project site-specific meteorological data, is not appropriate for analyses when complex terrain is found controlling. Complex terrain was found controlling and ISCST3 was used with NWS meteorological data for all receptor. An appropriate complex terrain model should be used or site-specific meteorological data should be acquired for use with the ISCST3 model.

EPD's Response
In the initial analysis, a single set of emissions weighted stack parameters based on both PM_{10} and NO_X emissions was used to determine the representative stack height and the calculated minimum final plume rise height. However, in response to EPA's complex terrain inquiries, OC has reanalyzed complex terrain heights, using a separate set of emissions weighted stack parameters for PM_{10} and NO_X. Following is a discussion of these results. This is intended to replace the complex terrain section in the preliminary determination and is presented in strike through format.

Complex Terrain:

Because some of the area surrounding the mill proposed plant is classified as complex terrain (terrain which has an elevation that is equal to or exceeds the lowest stack height of the sources being modeled), a complex terrain modeling analysis was completed. The complex terrain modeling was based on the EPA Region 4 guidance for complex terrain processing. Analysis was performed to determine whether intermediate terrain (i.e., terrain elevation greater than the lowest stack height, but less than final plume rise height) and true complex terrain (i.e., terrain elevation greater than final plume rise height) is an important factor that must be addressed in the analysis using an alternative complex terrain model (simple terrain option), or whether ISCST3 can be applied using default processing options. The relevant components of the EPA Region 4 guidance for complex terrain processing are found in Section 3 – Intermediate Terrain Analysis. Following the guidance, screen modeling was completed in the default mode for complex terrain that takes the greater of the applicable predictions from the complex and simple terrain algorithms. If the resulting concentrations were below the SIL, no further air quality analysis (modeling to demonstrate compliance with the NAAQS or PSD Increment) would be required. As demonstrated, the impacts from this facility are below the SILs for receptors with elevations greater than the complex terrain elevation of 450 feet in the PM and NO_2 significant analysis; however the impacts were found to be above the SILs for PM and NO_2 at receptors with elevation greater than the intermediate terrain elevation of 420 feet. Therefore, complex terrain analysis (as opposed to simple terrain which is the ISCST3 default option) is required for PM and NO_2. However, further evaluation of the PM and NO_2 modeling found that the complex terrain algorithms were the controlling algorithms for the intermediate terrain receptors, and therefore the

~~ISCST3 model may be used in default mode for all receptors.~~

Complex terrain was analyzed separately for PM_{10} and NO_2. For PM_{10}, the intermediate terrain elevation is 125 meters and the true complex terrain elevation is 149.3 meters. Significant impacts were not observed at any receptors with elevations exceeding 149.3 meters. For significant impacts at intermediate terrain receptors, EPA Region 4's guidance was followed for comparing predicted impacts using two processing modes within the ISC model: HE>ZI mode, which includes both simple and complex algorithms, and NOCMPL mode, which includes only the simple terrain processing algorithms. If the difference between the modeled impacts in the two modes is less than the applicable MSL, the conclusion is that intermediate terrain is not an issue. No differences greater than the MSL were predicted in conducting this analysis; therefore, complex terrain is not an issue for PM_{10}.

For NO_2, the intermediate terrain elevation is 130 meters and the true complex terrain elevation is 135.4 meters. Significant impacts were predicted at intermediate and complex terrain receptors in the NO_2 analysis. A comparison of predicted impacts using the HE>ZI processing mode and the NOCMPL processing mode showed no differences greater than the MSL for intermediate terrain receptors. Therefore, the HE>ZI processing mode is valid for intermediate terrain receptors. A total of 28 receptors have an elevation greater than 135.4 meters and are significant for NO_2, which represents 0.61% of the total number of significant receptors (4,591). Table 27 summarizes the predicted impacts for the Significance, NAAQS, and PSD Increment modeling analyses at these complex terrain receptors.

Table 27. Predicted Impacts at NO_2 Complex Receptors

UTM East (km)	UTM North (km)	Elevation (m)	Significance Analysis Impact ($\mu g/m^3$)	% Greater than MSL	NAAQS Analysis[A] Impact ($\mu g/m^3$)	% of Standard	PSD Increment Analysis Impact ($\mu g/m^3$)	% of Standard
243.4	3,532.2	143.3	1.20	20%	29.04	29%	1.80	7%
243.4	3,532.0	143.1	1.15	15%	29.05	29%	1.82	7%
243.2	3,532.2	140.9	1.27	27%	29.13	29%	1.90	8%
243.2	3,532.0	140.3	1.22	22%	29.12	29%	1.88	8%
243.2	3,531.6	140.2	1.21	21%	29.07	29%	1.84	7%
243.0	3,531.6	140.2	1.23	23%	29.09	29%	1.86	7%
243.4	3,532.4	140.0	1.29	29%	29.07	29%	1.82	7%
240.6	3,530.8	140.0	1.08	8%	28.81	29%	1.58	6%
243.6	3,532.2	139.9	1.26	26%	29.02	29%	1.79	7%
240.8	3,530.8	139.7	1.11	11%	28.82	29%	1.59	6%
243.6	3,532.0	139.2	1.20	20%	29.02	29%	1.79	7%
243.2	3,531.8	138.3	1.22	22%	29.08	29%	1.85	7%
243.2	3,531.4	138.3	1.18	18%	29.01	29%	1.78	7%
243.0	3,531.8	138.3	1.24	24%	29.12	29%	1.88	8%
243.2	3,532.4	137.5	1.35	35%	29.10	29%	1.87	7%
243.6	3,532.4	137.3	1.27	27%	29.06	29%	1.80	7%
240.4	3,530.8	137.3	1.06	6%	28.81	29%	1.57	6%
242.4	3,531.6	137.2	1.30	30%	29.14	29%	1.91	8%
241.2	3,530.6	137.2	1.06	6%	28.74	29%	1.53	6%
243.0	3,532.0	136.9	1.26	26%	29.13	29%	1.90	8%
241.4	3,530.8	136.9	1.08	8%	28.83	29%	1.60	6%
242.0	3,531.8	136.6	1.38	38%	29.23	29%	2.01	8%
243.4	3,531.8	135.9	1.19	19%	29.04	29%	1.82	7%
243.4	3,532.6	135.8	1.26	26%	29.05	29%	1.81	7%
243.4	3,533.0	135.7	1.07	7%	28.92	29%	1.70	7%
242.4	3,531.8	135.7	1.33	33%	29.16	29%	1.94	8%
243.5	3,531.0	135.5	1.10	10%	28.89	29%	1.67	7%
243.0	3,531.4	135.5	1.22	22%	29.02	29%	1.80	7%
Maximum Impact/Percentage:			**1.38**	**38%**	**29.23**	**29%**	**2.01**	**8%**

A. NAAQS impacts include a background concentration of 27 $\mu g/m^3$.

As shown, the maximum impact predicted in the NAAQS analysis at these receptors was 29% of the NO_2 NAAQS standard of 100 ug/m^3. The maximum impact predicted in the PSD Increment Analysis at these complex terrain receptors was 8% of the Class II Increment of 25 ug/m^3. Based on the wide compliance margin with both standards, the small number of affected receptors, and the generally flat terrain in the area surrounding the proposed facility location, complex terrain is not an issue in the NO_2 analysis.

3.d. Class I Area Deposition - Deposition is a PSD Class I area air quality related value (AQRV) that should be addressed in the PSD permit application. This AQRV was not included in the preliminary determination.

EPD's Response

The following discussion can be seen as an extension of the AMBIENT AIR QUALITY REVIEW of the Preliminary Determination.

Class I Deposition Analysis:

In the deposition analysis, the project's contribution to the deposition of chemical species in the Class I area was evaluated against values set by the Federal Land Manager (FLM). The objective of the deposition analysis is to demonstrate that emissions from the facility would not increase total deposition beyond a deposition assessment threshold (DAT) for either sulfur (S) or Nitrogen (N). Predicted impacts below the DAT suggest that no further analysis of deposition impacts is warranted for this project. FLM guidance for assessment of deposition impacts suggests that an appropriate sulfur and nitrogen DAT is 0.01 kg/ha/yr (each) for Class I areas in the Eastern United States.

The maximum predicted sulfur and nitrogen depositions at the Okefenokee, Saint Marks, and Bradwell Bay areas are presented in Table 28. The results of the deposition analysis show that the predicted sulfur deposition and nitrogen deposition impacts are well below the threshold screening values.

Table 28. Sulfur and Nitrogen Deposition Impacts

Species	**Okefenokee Maximum Predicted Impact (kg/ha/yr)**	**St. Marks Maximum Predicted Impact (kg/ha/yr)**	**Bradwell Bay Maximum Predicted Impact (kg/ha/yr)**	**Deposition Assessment Threshold (kg/ha/yr)**
Nitrate	9.30E-04	3.41E-04	3.23E-04	0.01
Sulfate	1.05E-04	4.75E-05	4.11E-05	0.01

3.e. Class II Area Visibility -
(1) The preliminary determination contains an incorrect statement that only regional, national, or international airports are of concern for the Class II visibility assessment. All visibility sensitive receptors within the Class II impact area should be included in this assessment.

EPD's Response
EPD concurs with EPA on this issue.

3.e. (2) Because the critical color and contrast visibility target values are based on plumes being perceptible to untrained observers, they are appropriate for both Class I and Class II visibility assessments.

EPD's Response
Yes and moreover, the criteria are valid thresholds for plume impairment, and are not restricted to the area in which such impairment may occur.

3.e. (3) The final determination should include the modeling results and their comparison to the critical target values.

EPD's Response

The applicant's consultant prepared an assessment of the worst-case meteorological conditions for the Georgia Veterans State Park and the Cordele County Airport (which may be exceeded as much as 1% of the year) in accordance with VISCREEN tutorial guidance. Level II Viscreen modeling was repeated using the identified condition (D stability; 3 m/s wind speed). EPD's Level II VISCREEN modeling indicated that the plume would be perceptible more than 1% of the year for both the Georgia Veterans State Park and the Cordele County Airport. Refined visual impairment modeling was then conducted by the EPD with a PLUVUE II model. In this model the worst-case stability and worst-case sector were identified and used to obtain both Delta E and Contrast for each wave length of light (color). This more sophisticated analysis indicated that the plume modeling criteria was not exceeded inside the Georgia Veterans State Park using these parameters; it also indicated that plume visual impairment would not occur over the Cordele County Airport more than 1% of the year. These modeling results demonstrate to the EPD that visual impacts are acceptable; the results are attached in appendix C.

Review of the Owens Corning June 30, 2005 Comments

Conditions 5.1.c and d.

OC requests that recalibration of pressure drop and liquid flow rate monitoring devices be performed per the manufacturer's specifications rather than after an arbitrary amount of time. Requested changes are noted in bold with deletions noted with a strikethrough.

5.1.c. Differential pressure across each of the scrubbers with ID Nos. IS101 – IS106, SC100, IS201 and IS202. Data shall be recorded every four hours for each scrubber associated with manufacturing line CG-1 or CG-2 when that manufacturing line is in operation. Each pressure drop monitoring device must be certified by the manufacturer to be accurate to within 1 inch water gauge over its operating range. The monitoring devices must be recalibrated **~~each quarter~~ per the manufacturer's specifications**.

5.1.d. Liquid recirculation rate for each of the scrubbers with ID Nos. IS101 – IS106, SC100, IS201 and IS202. Data shall be recorded every four hours for each scrubber associated with manufacturing line CG-1 or CG-2 when that manufacturing line is in operation. Each flow rate monitoring device must be certified by the manufacturer to be accurate to within 5% over its operating range. The monitoring devices must be recalibrated **~~each quarter~~ per the manufacturer's specifications**.

EPD's Response

Monitoring requirements for wet scrubbers are included under §60.683. Specifically §60.683(c) requires, "All monitoring devices required under this section to be recalibrated quarterly in accordance with procedures under §60.13(b)." Therefore, the gas pressure drop monitoring devices and the scrubbing liquid flow rate monitoring devices must be recalibrated each quarter. The permit will not be modified as a result of this comment.

Conditions 6.19 and 6.20.

OC requests use of fiberizer pull camera readings to determine the furnace glass pull rate, as this method is more accurate and less cumbersome than the glass pull rate calculation presently detailed. In addition, Rotary Spin Fiberglass Manufacturing Line CG-2 will produce loose fill insulation; therefore, there will be no measure of trimmed mat width for this line; therefore, the glass pull rate calculation presented cannot be used for this manufacturing line. Requested changes are noted in bold with deletions noted with a strikethrough.

6.19 The Permittee shall use **the average glass pull rate obtained from fiberizer pull cameras and** the following equation to determine compliance with the PM emission limits of Conditions No. 2.7 for Rotary Spin Fiberglass Manufacturing Lines CG-1 and CG-2, as follows:
[Subpart PPP - 40 CFR 60.685(c)]

$$E = \frac{(C_t)(Q_{sd})}{(p_{avg})(K)}$$

where:

E	=	Emission rate of PM, lb/ton
C_t	=	Concentration of PM, g/dscf
Q_{sd}	=	Volumetric flow rate of effluent gas, dscf/hr
P_{avg}	=	Average glass pull rate from three test runs (P_i), ton/hr
K	=	Conversion factor, 7,000 gr/lb

~~$$P_i = (K')(L_s)(W_m)(M)\left(1.0 - (\frac{LOI}{100})\right)$$~~

~~**where:**~~

~~**P_i**~~	~~=~~	~~**Glass pull rate at interval "i", ton/hr**~~
~~**L_s**~~	~~=~~	~~**Line speed, ft/min**~~
~~**W_m**~~	~~=~~	~~**Trimmed mat width, ft**~~
~~**M**~~	~~=~~	~~**Mat gram weight, lb/ft^2**~~
~~**LOI**~~	~~=~~	~~**Loss on ignition, weight percent**~~
~~**K'**~~	~~=~~	~~**Conversion factor, [0.03 (min-ton)/(hr-lb)]**~~

6.20. The Permittee shall determine the line speed (Ls), trimmed mat width (Wm), and mat gram weight (M) for each performance test run on Rotary Spin Fiberglass Manufacturing Lines CG-1 and CG-2, from the process information or from direct measurements. **As an alternative, the Permittee shall maintain fiberizer pull cameras to determine the furnace glass pull rate.**
[Subpart PPP - 40 CFR 60.685(c)(3)(ii)]

EPD's Response

The permit will not be modified as a result of this comment; test methods and procedures for determining individual glass pull rate is included under §60.685. Specifically §60.685(c)(3) requires, "The individual glass pull (pi) to be computed using the following equation $P_i = (K')(L_s)(W_m)(M)\left(1.0 - (\frac{LOI}{100})\right)$**."** Therefore, the glass pull rate calculation for each manufacturing line must be determined in accordance with 40 CFR 60, Subpart PPP.

The Division is aware that new technology has been developed since the promulgation of this NSPS and that MACT requirements may allow the use of cameras for pull rate determination. The Division believes if OC submits an official determination request to EPA region IV to change the Subpart PPP requirements it is likely OC will have a favorable ruling on a case-by-case bases.

Condition 7.15.vii.

OC will likely record the amount of sodium nitrate charged to a batch day bin, which ultimately charges the furnace. For purposes of compliance with the emission limit, OC will presume that all material charged to the day bin in a particular day will be charged to the furnace that day as well, at which point oxides of nitrogen (NO_X) emissions will be generated. In certain maintenance situations where batch flow to the day bin can be interrupted for times as great as 12 hours and then refilled on the subsequent day, the correlation on a daily basis is not appropriate. Therefore, OC proposes a weekly average to allow for the swings in charging of the day bin to be accommodated more appropriately, such that the tracking of sodium nitrate charged more accurately represents actual NO_X emissions from the furnace.

7.15.vii Any ~~**day**~~ **week** during which the emissions of NO_X from the Glass Melt Furnace CG101, as determined by the procedures in Condition 7.8, exceeds 13.5 pounds per ton of glass pulled.

EPD's Response
The Division has updated the permit to require weekly NO_X emissions from the glass melt furnace to remain below the BACT limit of 13.5 lb/TGP.

Condition 6.14.

As written, Condition 6.14 requires submittal of test results during the same time period that the testing itself is required. OC requests the allowed time for submittal of test results be changed to within 60 days of completion of testing to ensure ample laboratory processing time for test samples.

6.14. The Permittee shall, within 60 days after achieving the maximum production rate but not later than 180 days after initial start-up of each Rotary Spin Fiberglass Manufacturing Line (CG-1 and CG-2), conduct performance test(s) to demonstrate compliance with the PM limits in Condition Nos. 2.7 b through 2.7 d. The results of the performance test(s) shall be submitted to the Division within sixty (60) days ~~**after maximum production or 180 days after startup**~~ **of completion of testing**.
[Subpart PPP - 40 CFR 60.8; 391-3-1-.02(6)(b)1(i)]

EPD's Response
The Division has updated the permit to reflect the change requested in the comment.

Condition 6.17.

OC requests addition of language to clarify that testing is only required on the one raw material handling system stack (RM100) that vents to the atmosphere. Testing is not required on the various raw material handling system dust collectors that vent indoors.

6.17. The Permittee shall, within 180 days after initial start-up of each Rotary Spin Fiberglass Manufacturing Line (CG-1 and CG-2), conduct performance tests for PM to verify compliance with the emission limits stipulated in Condition Nos. 2.6 **(Stack RM100 only)**, 2.14 and 2.15.
[391-3-1-.02(6)(b)1(i)]

EPD's Response
The Division has updated the permit to reflect the change requested in the comment.

Regarding the Applicability of 40 CFR Part 63 Subpart JJJJ

On September 9, 2005, an email was received from Owens Corning, stating the following:

"…we have just determined that MACT Standard of 40 CFR 63 Subpart JJJJ, National Emission Standard for Hazardous Air Pollutants - Paper and Other Web Coating may be applicable to this permit." The email went on to say that the proposed plant "…will be a major source of Hazardous Air Pollutant (HAP) emissions and will feature equipment and operations that apply an adhesive or coating to a substrate which is then applied to a thermal or acoustical insulation material or some other material. The coatings that are envisioned for use include, but are not necessarily limited to, heated asphalt (Owens Corning Trumbull Asphalt Laminating Bulk type 1309 asphalt), various hot melt glues and/or various water-based adhesives."

It continued: "It is Owens Corning's intent to show/achieve compliance with Subpart JJJJ via the material testing that is described in 40 CFR 63.3370(a)(1) and/or 40 CFR 63.3370(a)(2) which employ USEPA Test Method 311. Owens Corning expects this Method to show that for every coating/adhesive in question that the mass fraction of organic HAP in the material is less than 0.016 (1.6 wt.%) or that the mass fraction of organic HAP in the materials' solids is less than 0.08 (8.0 wt.%)."

In further discussions on this matter with OC, it was determined that OC had discovered this applicability on their own, and that no state or federal agency had contacted them regarding the applicability or Subpart JJJJ to any of their existing or proposed fiberglass plants. EPD, like other state agencies, is aware of Subpart JJJJ and had identified facilities that it considered were likely to be subject, contacted them and included that in their Title V permit if applicable. However, EPD had no reason to suspect that Subpart JJJJ was applicable to any fiberglass plants.

When this issue was raised by OC, EPD did not initially believe that it was the intent of the writers of NESHAP to subject such facilities and that is was likely that such processes were not actually subject to Subpart JJJJ. However, OC then revealed that it had submitted a "blind request to Paul Almodovar, the EPA person at RTP in North Carolina who authored this standard." They "asked him if it applied and his response was that it was applicable. When asked whether this only applied only to asphalt glue, OC added that: "We do have some other process that it applies to that use adhesives other than the asphalt application. Examples: Fiberglass lamination (used to glue two layers of fiberglass together that uses a water based adhesive); what we call flange tack down (where we use dots of adhesive to hold down the flanges of the insulation product); and water based adhesive application of a paper flange used in the manufacture of wide insulation in manufactured housing markets.

OC has informed EPD that it has a compliance strategy that they are confident will demonstrate that the plant is in compliance with Subpart JJJJ. Therefore, in order to not have to re-open the permit at a later date, Subpart JJJJ has been added as an applicable requirement to this permit. Emission Units CG107 and CG 108 are now included in the Permit Source List and new Conditions 2.1, 2.22, 6.2o, 6.21, and 7.10 are added to require compliance with Subpart JJJJ. Because the control strategy chosen by OC involves demonstrating that each material is compliant, there is no control equipment that needs to be addressed in the permit review.

Note that the bagging equipment has also been added as an emission unit; while it is uncontrolled, it is subject to Rule(e) and Rule(b).

APPENDIX A

AIR QUALITY PERMIT

3296-081-0063-P-01-0

APPENDIX B

Comments Received During the Public Comments Period

APPENDIX C

Additional Correspondence