**Commonwealth of Kentucky**
**Division for Air Quality**

# *RESPONSE TO COMMENTS*

ON THE TITLE V DRAFT PERMIT V-06-018
GALLATIN MATERIALS, LLC
VERONA, KENTUCKY 41092
MAY 31, 2006
ROBERT L. WILLIAMS, REVIEWER
SOURCE I.D. #: 21-071-00031
SOURCE AI #: 71400
ACTIVITY #: APE20050001

**SOURCE DESCRIPTION:**

Gallatin Materials, LLC in Verona, Kentucky submitted an application for the construction and operation of a lime manufacturing facility on May 4, 2005. Gallatin Materials will install two new rotary kilns capable of producing 840 tons of lime per day each, for a total of 1,680 tons of lime per day. They will be operating in conjunction with Sterling Ventures LLC, who will supply the limestone for Gallatin Materials, LLC. Any limestone, after screening by Gallatin Materials, that is considered too large or too small for Gallatin's use will be returned to Sterling Ventures. This permit is being issued as a combined PSD and Title V permit

**PUBLIC AND U.S. EPA REVIEW:**

On March 15, 2006, the public notice on availability of the draft permit and supporting material for comments by persons affected by the plant was published in *The Warsaw Gallatin County News* in Warsaw, Kentucky. The public comment period expired 30 days from the date of publication.

*Comment received*
Comments were received from US EPA Region IV on April 7, 2006 and April 19, 2006; and a Public Hearing conducted at Mary Ellen Bogardus Building (Gallatin County Extension Office), Warsaw, Ky – April 19, 2006. Attachment A to this document lists the comments received and the Division's response to each comment. Changes were made to the permit as a result of the comments received, however, in no case were any emissions standards, or any monitoring, recordkeeping or reporting requirements relaxed. The U.S. EPA has 45 days to comment on this proposed permit.

# ATTACHMENT A

## RESPONSE TO COMMENTS

Comments on Gallatin Materials, LLC Draft Title V Air Quality Permit submitted by Mr. Gregg M. Worley, Chief, Air Permits Section, US EPA Region IV; and a Public Hearing.

US EPA Region IV Comments – April 7, 2006

**Statement of Basis and Related Permit Application Section**

1. Applicant's Proposed BACT Limits in Statement of Basis – Section C. of the Statement of Basis includes a table showing the applicant's proposed BACT emission limits. This may lead to confusion since the applicant's proposed limits (and proposed compliance averaging times) do not match in every respect the limits (and averaging times) that are actually in the draft permit. A Statement of Basis for a merged PSD/Title V permit should present only the reviewing authority's own BACT determination with a reference to information in the permit application if applicable.

   DIVISION'S RESPONSE:

   The Statement of Basis will be revised to reflect only the Division's own BACT determination. The limits (and averaging times) set forth in the permit will be the limits for the facility. Any changes to those limits (and averaging times) will be addressed in the revised Statement of Basis for the Proposed Permit.

2. BACT for Kiln Nitrogen Oxides Emissions

   a. In Section C. of the Statement of Basis you include a BACT assessment for kiln $NO_x$ emissions based in part on references to data in EPA's RACT/BACT/LAER Clearinghouse (RBLC). The $NO_x$ emissions limit based on your assessment is 108.5 lb/hr, equivalent to 3.1 lb/ton lime at the lime production rate limit of 35 ton/hr. Based on the list of comparison projects in the permit application, one past project that may not have been considered is a modification of the Chemical Lime Company O'Neal plant in Calera, Alabama, permitted in March 2005. The modification consisted of adding one new kiln and increasing the production rate of an existing kiln. The source owner was able to net out of new source review for $NO_x$ by virtue of committing to use of an innovative, proprietary $NO_x$ control method. As we understand it, the method consists of physical kiln design changes plus use of an additive. Although the method is proprietary and not yet in operation, the O'Neal project appears to indicate that progress is being made to reduce $NO_x$ emissions from lime manufacturing kilns. The $NO_x$ emission rate expected for Chemical Lime's new and existing kilns is approximately 1.5 lb/ton lime. This is not a BACT or a LAER limit because Chemical Lime netted out of NSR review for $NO_x$. (The term LAER appears in the preceding sentence because the O'Neal plant was in an ozone nonattainment area at the time of permit issuance.)

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 7, 2006 (Continued)

**Statement of Basis and Related Permit Application Section (Continued)**

2. b. On page 4-34 of the application, the applicant states that there is no reported case of a full-scale application of SNCR on a cement kiln or a lime kiln. We are aware of at least one full-scale application of SNCR on a cement kiln, plus additional cement kilns that are being or have been permitted to use SNCR. SNCR is definitely an available technology for cement kilns.

c. The applicant makes the following remarks regarding the estimated cost effectiveness of the SCR control option: "The average cost of $NO_x$ removal using SCR is $4,328 per ton $NO_x$ removed, which is clearly economically infeasible." Regarding the SNCR control option, the applicant provides this comment: "This [sic] extensive re-heating and reagent costs result in an average cost of $6,616 per ton $NO_x$ removed. These costs are clearly economically infeasible for the proposed two kilns." Finally, the applicant says this about the O/R control option: "The costs for O/R scrubbing are economically prohibitive for the proposed two kilns and calciner. Average removal costs are $5,100 per ton of $NO_x$ removed." Similar language appears in the statement of basis where you repeat these cost effectiveness values and state for the O/R, SCR, and SNCR control options that these values make the technologies "not economically viable." We take exception with these conclusions. Cost effectiveness values of this magnitude are within the range of values considered acceptable for $NO_x$ control in other instances. We are not necessarily disagreeing with your draft BACT determination for kiln $NO_x$ emissions, but we do not believe that the O/R, SCR and SNCR technologies can be dismissed on the basis of the cited costs. Furthermore, the proposal to increase $NO_x$ emissions by more than 1,200 tons per year at a site immediately adjacent to an ozone nonattainment area serves to emphasize the need for effective $NO_x$ controls.

DIVISION'S RESPONSE:

a. As noted in the comment, the O'Neal plant uses an innovative, proprietary $NO_x$ control system. This system is not available to Gallatin Materials.

b. The Division acknowledges the use of SNCR on cement kilns. Reports by LWB Refractories (March 31, 2006) and the National Lime Association (March 30, 2006) were submitted by Kentuckiana Engineering on behalf of Gallatin Materials which discuss studies with regard to Selective Catalytic Reduction (SCR) and Selective Noncatalytic Reduction (SNCR) for lime kilns. Both reports conclude that these two control methods for $NO_x$ are not viable for lime kilns. In this specific case, the Division agrees with the studies conclusions that these control methods are not BACT for Gallatin Materials.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 7, 2006 (Continued)

**Statement of Basis and Related Permit Application Section (Continued)**

2. DIVISION'S RESPONSE (CONTINUED)

   c. After further investigation and inquiry, the Division has concluded that proper design and operation is the correct choice as BACT for $NO_x$ for this facility. After reviewing the additional information submitted by Kentuckiana Engineering on behalf of Gallatin Materials mentioned in 2.b. above, the Division has concluded that SCR and SNCR are not economically viable options for the control of $NO_x$ emissions for these lime kilns. The Division recognizes US EPA Region IV comment regarding "cost effectiveness values of this magnitude are within the ranges of values considered acceptable for $NO_x$ control in other instances" but also notes that EPA's next statement is "we are not necessarily disagreeing with your draft BACT determination for kiln $NO_x$ emissions …". Therefore, in the absence of definitive requirements for a specific cost per ton value for acceptable BACT, the Division has considered the specific environmental impact of this facility and the economic impact of additional controls and concluded that the Division's original decision is correct.

3. Impacts on Nearby Nonattainment Areas

   The Gallatin Materials site is immediately adjacent to the greater Cincinnati 8-hour ozone nonattainment area and $PM_{2.5}$ nonattainment area. You did not acknowledge the existence of these nonattainment areas in the ambient analysis section of the statement of basis. Further, you did not provide either a quantitative or qualitative assessment of whether emissions from the Gallatin Materials facility are likely to interfere with attainment of ambient ozone and $PM_{2.5}$ standards in these nonattainment areas. We recommend that you at least acknowledge the existence of these areas and provide an opinion as to why approval of the Gallatin Materials project will not adversely contribute to ambient concentrations in excess of ambient air quality standards. We also remind you of the provisions in 401 KAR 51:052 for sources located in designated attainment areas that could cause or contribute to a violation of a national ambient air quality standard.

3. DIVISION'S RESPONSE:

   The Division acknowledges that the Gallatin Materials site is immediately adjacent to the greater Cincinnati 8-hour ozone nonattainment area and $PM_{2.5}$ nonattainment area. The consultant for Gallatin Materials (Kentuckiana Engineering) has submitted additional modeling information since the Draft Permit public notice which addresses EPA's concerns about the Cincinnati nonattainment area, as well as other issues that the EPA has raised (see responses to later comments). The Division's modeler, Mr. Stuart Ecton, has reviewed all modeling information submitted in the application and addenda that have been submitted by Kentuckiana Engineering on behalf of Gallatin Materials since the public notice and is satisfied with the conclusions that the new facility's impact is acceptable.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 7, 2006 (Continued)

**Statement of Basis and Related Permit Application Section (Continued)**

4. Emission Factors

In Section B of the statement of basis, you state that AP-42 emissions factors were used for some purposes. We caution you that AP-42 factors were not developed for use in permitting actions for specific projects. Any such use is at the risk of the user. Use of AP-42 factors to establish a permit limit is not a defense if such limit is exceeded.

DIVISION'S RESPONSE:

The Division acknowledges US EPA Region IV's comment. The statements referenced in Section B under the heading: "Emission Factors and Their Source" are just identifying the source for the emission factors used in determining how much of a particular pollutant was being generated by a particular operation by Gallatin Materials.

**Draft Permit**

1. Production Limit

The draft permit section for the two kilns contains a limit on lime production in terms of tons of lime produced per hour. We agree that this limit is appropriate. We recommend that you also consider adding a limit on stone feed input. The reason for this is that the emissions limit for particulate matter is in terms of pounds per ton of stone feed.

DIVISION'S RESPONSE:

The Division acknowledges US EPA Region IV's comment and has made the recommended change.

2. Kiln Emissions Limits for Gaseous Pollutants

The kiln emissions limits for gaseous pollutants ($NO_x$, $SO_2$, and CO) are in terms of pounds per hour. When coupled with the production limit of 35 tons per hour, emissions in lb/ton lime can be derived. We understand that estimated emissions on a lb/ton lime basis were the origin for establishing limits on a lb/hr basis. (As an example, the $NO_x$ limit of 108.5 lb/hr coupled with the production limit of 35 tons per hour apparently derives from an emission rate of 3.1 lb/ton lime.) However, when the production rate is less than 35 tons per hour, exact compliance with the lb/hr limits would produce lb/ton lime emissions that are higher than those we understand were the basis of the lb/hr limits. (For example, a $NO_x$ emissions rate of 108.5 lb/hr at a 30-ton-per-hour production rate would produce a production-based emission rate of 3.6 lb/ton lime for $NO_x$.) Although having enforceable lb/ton lime emissions limits is not mandatory in this case (given that the permit has an

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 7, 2006 (Continued)

**Draft Permit (Continued)**

2. Kiln Emissions Limits for Gaseous Pollutants (Continued)

enforceable production limit plus lb/hr limits), we bring this point to your attention in case lb/ton lime values were an essential part of your BACT determination. For your information, the PSD permit for the Chemical Lime project in Alabama previously mentioned has emissions limits in both lb/hr and lb/ton lime for the gaseous pollutants subject to PSD review.

DIVISION'S RESPONSE:

The Division acknowledges US EPA Region IV's comment.

3. Emission Limits for $PM_{10}$

$PM_{10}$ is a regulated NSR pollutant subject to PSD review for this project. The particulate matter emissions limit for the kilns is expressed as a limit for "particulate matter" with no mention of $PM_{10}$.

DIVISION'S RESPONSE:

The Division acknowledges US EPA Region IV's comment and has made the recommended change.

4. Consideration of Condensible Particles

Particulate matter emissions limits should include any contribution from condensible particulates. The specified compliance demonstration method for the Gallatin Materials kiln particulate matter limits is use of the procedures in 40 CFR 63, subpart AAAAA. We are not certain if these procedures include measurement of condensible particles. We request your review of the subpart AAAAA test methods to confirm whether measurement of condensibles is included. For your information, the March 2005 PSD review for the new kiln at the Chemical Lime facility in Alabama includes a provision requiring the permittee to perform an emissions test for condensible particles to assess whether such particles might be a significant contributor to particulate matter emissions. The permit includes a statement the the permit may be subject to revision if test results indicate the need for establishing an emissions limit including condensibles.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 7, 2006 (Continued)

**Draft Permit (Continued)**

DIVISION'S RESPONSE:

The performance test methods listed in 40 CFR 63, subpart AAAAA are Method 1 (Sample and velocity traverses for stationary sources), 1A (Sample and velocity traverses for stationary sources with small stacks or ducts), 2 (Determination of stack gas velocity and volumetric rate – Type S pitot tube), 2A (Direct measurement of gas volume through pipes and small ducts), 2C (Determination of stack gas velocity and volumetric flow rate in small stacks or ducts – standard pitot tube), 2D (Measurement of gas volumetric flow rates in small pipes and ducts), 2F (), 2G (), 3, (Gas analysis for carbon dioxide, oxygen, excess air, and dry molecular weight), 3A (Determination of oxygen and carbon dioxide concentrations in emissions from stationary sources – Instrumental Analyzer Procedures), 3B (Gas analysis for the determination of emission rate correction factor or excess air), 4 (Determination of moisture content in stack gases), 5 (Determination of particulate emissions from stationary sources), and 5D (Determination of particulate emissions from positive pressure fabric filters). Only Test Methods 5 and 5D have any statement regarding the inclusion of condensibles – "includes any material that condenses at or above the filtration temperature. These are part of the particulate matter limits listed in the permit.

5. Compliance Averaging Times

You express the kiln emissions limits for $SO_2$, $NO_x$, and CO in terms of lb/hr. The specified averaging times for these limits is not clear to us. Since the stated compliance demonstration methods for these limits are EPA reference methods, we assume that the compliance averaging times are by default the times that would result from use of these methods. For clarity, we recommend that you list the compliance averaging times next to the emission limits. We also request verification that the intended compliance averaging times are consistent with the averaging times that are applicable to the ambient impact modeling analysis. For example, the compliance averaging time for the sulfur dioxide emissions should be consistent with the shortest averaging period assessed in the modeling analysis (a 3-hour averaging time).

DIVISION'S RESPONSE:

The Division acknowledges US EPA Region IV's comment and has made the recommended change.

6. Testing Requirements for Kilns

The most recently permitted lime manufacturing project in Region 4 is the Chemical Lime project in Alabama mentioned above. The permit for this project requires use of a CEMS on the kiln stacks to monitor emissions of $NO_x$, $SO_2$, and CO. We recommend that you also consider requiring continuous monitoring for Gallatin Materials' gaseous kiln emissions, especially $NO_x$ emissions.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 7, 2006 (Continued)

**Draft Permit (Continued)**

DIVISION'S RESPONSE:

The Division acknowledges US EPA Region IV's comment.

7. Additional

In the permit section for the kilns, you use the term "nitrogen oxide" in a number of places. This term should be changed to "nitrogen oxides" wherever it appears.

DIVISION'S RESPONSE:

The Division acknowledges US EPA Region IV's comment and has made the recommended changes.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006

**Response to Comments**

The first section of the revised air quality analysis document is Kentuckiana Engineering Company's (KEC) response to our comments (dated 09/14/05) on the original PSD application. These comments were discussed in a 20 October 2005 conference call between KEC, Kentucky Department of Air Quality (KDAQ) and U.S. Environmental Protection Agency (EPA). Some of the comments have been resolved while others remain unanswered. The following provides the unresolved original comments, with original numbers, following by the reason the comment remains unresolved.

1. Project – The proposed quick lime manufacturing facility will be located on 10 acrea of leased land from Sterling Materials Company (SMC). SMC is an existing limestone mine. The two companies are independent and do not have a common owner. SMC will be adjacent to GM and will provide the needed raw limestone to GM. It was noted that the construction and operation of GM will not cause any major change to the existing mining and processing operations at SMC. The following are comments on this arrangement. SMC emission increases associated with GM operation are secondary emissions that should be included in the PSD impact assessment.

   Reason Unresolved:

   Although KEC has used the new SMC emission units associated with the GM project, it appears that the increases in emissions from the existing SMC units due to the project have not been considered. In addition, no table providing the GM emission units with associated emission rates and exit parameters was provided.

   The provided plant layout did not identify GM's fence line or that of SMC. The plant layout should include both GM and SMC with specific identification of their property and fence lines and plant components. Shared components should be identified.

   Reason Unresolved:

   The revised application section doers not contain a figure showing SMC and GM fence lines and plant components.

   DIVISION'S RESPONSE:

   All emission increases associated with the GM project occurring at the Sterling Materials Company (SMC) plant have been included in the GM PSD permit application. These items are shown in the POC table submitted with the application in Volume 2, Appendix B. For clarity, these units are shown below:

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Response to Comments (Continued)**

1. DIVISION'S RESPONSE: (CONTINUED)

| | |
|---|---|
| LH1 | Limestone transfer from existing mine conveyor to high mag conveyor LS-C01 |
| LH2A | Limestone transfer from conveyor LS-C01 to high mag limestone stockpile LSP1 |
| LH2B | Limestone transfer from conveyor LS-C01 to conveyor LS-C01A |
| LSP1 | High mag limestone stockpile, 0.34 acre |
| LH3 | Limestone transfer from conveyor LS-C01A to high mag limestone stockpile LSP2 |
| LSP2 | High mag limestone stockpile, 0.34 acre |
| LH6 | Limestone transfer from conveyor LS-C02 to conveyor LS-C03 |
| LH7 | Limestone transfer from conveyor LS-C03 to existing mine conveyor |
| LH8 | Limestone transfer from mine's existing radial stacker to conveyor LS-C04 |
| LH9 | Limestone transfer from conveyor LS-C04 to radial stacker LS-C05 |
| LH10 | Limestone transfer from radial stacker LS-C05 to limestone stockpile LSP3 |
| LSP3 | Limestone stockpile, 1.5 acres |

The above units were shown in the POC Table attached to the application and all exit parameters were shown in the table.

Two drawings were submitted to the Division on April 27, 2006, depicting both the SMC fence line and plant components and the GM fence line and plant components.

2. Alternate Fuels - The two kilns use fuel oil for startup and the normal operational fuel of 90% coal and 10% petroleum coke. Alternate fuels include wood chips, paper products, tire-derived fuel, waste oils, and landfill gases. The impact modeling used emission values associated with the coal/coke fuel. Confirmation is needed that these emissions produce the worst-case impacts for all pollutants considering associated fuel dependent changes in the exit stack parameters and emission rates.

Reason Unresolved:

Although the response indicates normal operation is with the fuel used in the impact assessment, alternate fuels are still planned. Estimates of emissions and exit parameters associated with expected alternate fuels have not been provided to demonstrate the conservative nature of the modeled fuel. The revised application indicates compliance demonstrations will be performed before alternate fuels are used. This item is only resolved if the permit includes emission limits reflective of the modeled fuel.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Response to Comments (Continued)**

2. DIVISION'S RESPONSE:

The application submitted by KEC on behalf of GM lists only coal and coke as a fuel. Therefore GM will only be permitted to burn coal and coke in their kilns. No alternate fuels of any kind will be considered without GM first submitting an application for a modification, and accompanied with appropriate verifiable emission factors. If a change in the "method of operation" is determined, then a PSD review will be required.

3. AERMET - Surface parameters selected were those for the project site not the meteorological station as indicated in the AERMOD guidance document. If the surface characteristics are that different for these two locations, the meteorological data may not be representative of the project site. A possible modeling procedure to compensate for this difference may be to run AERMOD with both the meteorological station and the project station surface parameters and selected the largest controlling concentrations from the two analyses. The following are additional comments on the section of the application.

Determination of meteorological data representativeness should include surface parameters, topography, and proximity. Comparison of the project's surface parameters with those of the selected meteorological station should be provided.

Number of sectors selected depends on the distribution of surface parameters about the appropriate site. The use of eight sectors and four sectors may be appropriate for the plant site but more sectors may be needed to represent the meteorological station.

Reason Unresolved:

This major issue with the previous impact modeling was not addressed. The representativeness of the meteorological data to the project location must be assessed. Given the difference in surface parameters between the meteorological site and the project site provided in the Original PSD application, the meteorological data do not appear to be representative. No additional analyses have been provided to address these differences – how the differences in surface parameters may affect the controlling project concentrations. Use of one or the other location's surface parameters without this assessment is not appropriate. Therefore, the modeled impacts can not be accepted as representative of the project until the meteorological data have been demonstrated as representative of the project site or an alternate analysis procedure is used to compensate for this deficiency.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Response to Comments (Continued)**

3. DIVISION'S RESPONSE:

A Revised Air Quality Analysis was performed using both the surface characteristics from the meteorological station and the site. This was further clarified with the submittal of the Revised Air Quality Analysis Addendum #1 that was submitted on April 27, 2006. Eight sectors were used for the plant site since the distribution of the surface parameters were similar across the 3 kilometer area. Twelve sectors were used for the meteorological station since the surface parameters were more diverse.

The Addendum #1 to the Revised Air Quality Analysis further clarifies the modeling. All the modeling using the airport lulc and the site lulc was included in Appendix C to the Revised Air Quality Analysis. The Revised Air Quality Analysis did fail to clearly show the differences in the modeling impacts. This was further clarified in the Revised Air Quality Analysis Addendum #1.

4. Controlling Load Determination - The following comments are associated with the identification of the controlling load configuration:

The modeling only considered 90/10% mix of coal/coke.
No consideration is given to one kiln operating at 50% load. The 50% load option assumed one of the two kilns operating at 100% load. Confirmation is needed that each kiln will not operate at less than 75% load.
PM10 load calculations were not performed. It was assumed, not demonstrated that material handling will control the PM10 impacts.
Results show NOx with 75% load and $SO_2$ with 100% load produce the maximum short-term concentration, while 75% loads produce the maximum annual concentrations.

Reason Unresolved:

Table 7-15 shows the emission rate of each pollutant for each kiln is directly proportional to the percent load and the exit temperature does not change with load. The revised application assumes 100% load for $NO_2$ impacts. This may not be conservative or appropriate given the original application showed 75% load producing the maximum annual impacts. The fact that 75% load was used for annual $SO_2$ and toxic assessments adds support to this comment.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Response to Comments (Continued)**

4. DIVISION'S RESPONSE:

A review of Tables 7-16, 7-17, 7-19, and 7-20 clearly show that load modeling was performed for CO, $PM_{10}$, $SO_2$, and toxics. The tables have the following headers showing the load impacts:

2K100% - Two Kilns at 100% Load
2K75% - Two Kilns at 75% Load
2K50% - Two Kilns at 50% Load
1K50% - One Kiln at 50% Load
1K100% - One Kiln at 100% Load

With regards to $NO_x$, since the $NO_x$ ambient concentration is based on an annual limit, it would be unreasonable to assume that the kilns would operate at 50% or 75% load on an annual basis. This was the reason the $NO_x$ impacts were based on 100% load for both kilns.

5. Significant Impact Area (SIA) - The following comments are associated with the SIA analysis:

Only 100% loads were used for this assessment. Based on the load analysis, some maximum concentrations may occur with 75% load.

All SIA determinations were within the 100-m resolution fence line grid so the coarse 1-km spaced grid was not a problem.

Reason Unresolved:

Although 75% load was shown controlling for the annual periods in the previous analyses and Tables 7-19 and 7-20 indicate 75% loads produce the highest concentrations, the SIA assessment appears to only model 100% load conditions.

DIVISION'S RESPONSE:

GM has agreed that it was not clear in the Revised Air Quality Analysis what the SIA analysis was based on. However, in Addendum #1, this was further clarified and clearly showed the analysis considered both the airport lulc data and the site lulc data, and that the SIA was analyzed using different loads.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Response to Comments (Continued)**

6. Full NAAQS Analysis - The following are comments on the cumulative NAAQS assessment:

   Confirmation is needed that the proper GM loads (i.e., 100% and 75% loads for short-term and 75% loads for annual) were used in this assessment.

   Reason Unresolved: See item 5 above.

   DIVISION'S RESPONSE:

   Addendum #1 of the Revised Air Quality Analysis clearly shows what the full NAAQS Analysis was based on. The Table from Addendum #1 shows:

   a. $NO_x$ modeling was based on the Airport LULC data using 100% loads.
   b. CO modeling was based on the GM LULC data using 100% loads.
   c. $PM_{10}$ modeling was based on the GM LULC data using 100% loads.
   d. $SO_2$ modeling for the 3-hr and 24-hr was based on the GM LULC data using 100% loads.
   e. $SO_2$ modeling for the annual impacts was based on the Airport LULC data using 75% loads.

**Sections of Revised Application**

1. Project Emissions – The revised application does not contain a listing of the project modeled primary and secondary emissions (i.e., SMC) and their associated release parameters. The secondary SMC emissions, which should be included in the modeling, are the increases in emissions from existing units due only to the GM project. Estimates of emissions and exit parameters associated with expected alternate fuels should be included in the application.

   DIVISION'S RESPONSE:

   All emission increases associated with the GM project occurring at the SMC plant have been included in the GM PSD permit application. These items are shown in the POC table submitted with the application. For clarity, these units are shown below:

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Sections of Revised Application (Continued)**

1. DIVISION'S RESPONSE: (CONTINUED)

| | |
|---|---|
| LH1 | Limestone transfer from existing mine conveyor to high mag conveyor LS-C01 |
| LH2A | Limestone transfer from conveyor LS-C01 to high mag limestone stockpile LSP1 |
| LH2B | Limestone transfer from conveyor LS-C01 to conveyor LS-C01A |
| LSP1 | High mag limestone stockpile, 0.34 acre |
| LH3 | Limestone transfer from conveyor LS-C01A to high mag limestone stockpile LSP2 |
| LSP2 | High mag limestone stockpile, 0.34 acre |
| LH6 | Limestone transfer from conveyor LS-C02 to conveyor LS-C03 |
| LH7 | Limestone transfer from conveyor LS-C03 to existing mine conveyor |
| LH8 | Limestone transfer from mine's existing radial stacker to conveyor LS-C04 |
| LH9 | Limestone transfer from conveyor LS-C04 to radial stacker LS-C05 |
| LH10 | Limestone transfer from radial stacker LS-C05 to limestone stockpile LSP3 |
| LSP3 | Limestone stockpile, 1.5 acres |

The above units were shown in the POC Table attached to the application and all exit parameters were shown in the table.

2. Project Site Plan Layout – The plant site layout, including the GM and SMC fence lines and plant components, has not been provided.

DIVISION'S RESPONSE:

Two drawings were submitted to the Division on April 27, 2006, depicting both the SMC fence line and plant components and the GM fence line and plant components.

3. Emission Inventory (Section 7.4) – Our previous comment on the use of the 20D procedure remains applicable to this revised analysis. This procedure is used to identify sources that can be considered for elimination. Emission sources in close proximity should be totaled prior to application of the 20D procedure.

In addition, Table 7-6 used a SIA of 0.58 km for $PM_{10}$ while table 7-27 shows a SIA of 0.40 km. Table 7-4 used a $SO_2$ SIA of 0.48 km while Table 7-28 shows 0.49 km as the correct value.

DIVISION'S RESPONSE:

Emission sources within close proximity were totaled prior to the application of the 20D procedure.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Sections of Revised Application (Continued)**

3. DIVISION'S RESPONSE: (CONTINUED)

The Tables have been corrected with the following SIA values:

| | | |
|---|---|---|
| Table 7-6 | $PM_{10}$ SIA | 0.58 km |
| Table 7-27 | $PM_{10}$ SIA | 0.58 km |
| Table 7-4 | $SO_2$ SIA | 0.49 km |
| Table 7-28 | $SO_2$ SIA | 0.49 km |

These corrections had no bearing on the sources that were included in the Full Impact Analysis for $PM_{10}$ and $SO_2$. These corrected tables are included with the document.

4. AEROMOD Meteorological Data – The representativeness of the meteorological data used in the AERMOD modeling analyses has not been resolved. The previously identified differences in surface parameters for the meteorological site and the project site bring into question the appropriateness of these data for project site AERMOD impact assessments. Use of one or the other location's surface parameters without justification is not appropriate. Therefore, the modeled impacts can not be accepted as representative of the project until the meteorological data have been demonstrated to be representative of the project site or an alternate analysis procedure is used to compensate for this deficiency.

DIVISION'S RESPONSE:

GM performed the Revised Air Quality Analysis using both the surface characteristics from the meteorological station and the site. Further clarification was obtained with the submittal of the Revised Air Quality Analysis Addendum #1. GM used eight sectors for the plant site since the distribution of the surface parameters were similar across the 3 kilometer area. GM used twelve sectors for the meteorological station since the surface parameters were more diverse.

Addendum #1 to the Revised Air Quality Analysis further clarified the modeling. All the modeling using the airport lulc and the site lulc were included in Appendix C to the Revised Air Quality Analysis. The Revised Air Quality Analysis did fail to clearly show the difference in the modeling impacts. This was, again, further clarified in Addendum #1.

5. Load Analysis – The maximum impact analysis considered loads of 100, 75 and 50 percent. The exit temperature did not change the load. Also, the emission rates for each pollutant were directly proportional to the load – no proportional higher emissions with decreased loads. For annual periods, only 100% loads were modeled for $NO_x$ and $SO_2$ emissions. The previous version of the application showed 75% load produces the maximum impacts for these pollutants. Considering this result and the fact that the revised application indicates $SO_2$ and toxics annual assessments should use 75% load, use 100% load for these pollutants does not appear appropriate.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Sections of Revised Application (Continued)**

5. DIVISION'S RESPONSE:

On page 7-189 of the Revised Air Quality Analysis, it clearly states that the $SO_2$ short term modeling would be based on 100% load and the annual impacts would be based on 75% load. On page 7-191 of the Revised Air Quality Analysis, it clearly states that the air toxics short term modeling would be based on 100% load and the annual impacts would be based on 75% load.

6. Significant Impact Areas (SIA) – Review of the plot files used to determine the SIA reveals the use concentrations greater than the significant impact levels (SIL). The SIA radial distance for each pollutant should be that associated with concentrations less than the SIL; not values that equal or exceed the SIL. The plot files may have selected SIA smaller than appropriate.

DIVISION'S RESPONSE:

On page C-26 in the New Source Review Manual, Section IV.B, it states:

> This area includes all locations where the significant increase in the potential emissions from a modification will cause a significant ambient impact (i.e., equal or exceed the applicable significant ambient impact level as shown in Table C-4)

The SIAs were based on ambient impacts that equaled or exceeded the SILs.

7. $PM_{10}$ NAAQS Modeling – Two AERMOD runs were used to assess NAAQS $PM_{10}$ compliance. One AERMOD analysis included GM emissions and all other selected NAAQS sources with receptors located within the SIA outside GM's fence line. The second run had only SMC $PM_{10}$ emissions with concentrations estimated at the smaller set of receptors located outside the larger SMC fence line but within the SIA. Although the text indicates the output concentrations were summed, the application does not clearly indicate how this was accomplished. It appears that the second AERMOD analysis with SMC emissions should have also include emission from GM and other nearby sources. If this is done, the maximum concentration from either of the two AERMOD analyses will be the controlling concentration.

DIVISION'S RESPONSE:

The plot files from each of the runs were imported into an excel spread sheet. The GM modeling results included all the NAAQS sources and the SMC modeling included the SMC sources only. As stated in the Revised Air Quality Analysis, page 7-222, a spatial and temperal analysis was performed for the 24-hr impacts and a spatial analysis was performed for the annual impacts.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Sections of Revised Application (Continued)**

7. DIVISION'S RESPONSE: (CONTINUED)

For each year of the modeling runs the plot files from the GM plus nearby sources and the SMC sources were combined to ascertain a temporal and spatial relationship. As noted on page 7-222, only 1988 showed any receptors that were both spatially and temporally related.

For the annual impacts, there were 34 receptors that showed a spatial relationship for both modeling runs. The plot files from both the GM and nearby sources and the SMC sources were combined and the impacts on each receptor were summed. This summation for each year is shown in Table 7-34 on page 7-222.

8. PSD Increment Inventory – The original application performed the PSD increment assessment conservatively by using the results of the NAAQS compliance modeling to compare with PSD increments. The revised modeling used this same procedure for $SO_2$ and $NO_2$ increment compliance.

The revised $PM_{10}$ PSD increment compliance assessment used in KY and IN identified PSD consuming sources and the OH NAAQS inventory. This procedure is appropriate if the $PM_{10}$ minor source baseline data used by KY and IN is equal to or earlier than the minor source baseline data associated with the SIA receptors modeled. The application does not address this issue. In addition, some of the 24-hour $PM_{10}$ PSD increment concentrations in Tyable 7-44 are larger than the $PM_{10}$ NAAQS concentration in Table 7-32/33. An explanation should be provided.

The correct annual modeled $PM_{10}$ concentration in Table 7-35 should be 4.04 ug/m$^3$.

DIVISION'S RESPONSE:

The KY minor source baseline for Gallatin County was 7/31/1988. The IN minor source baseline data was 1/6/1975.

The $PM_{10}$ impacts in the increment modeling are larger than the $PM_{10}$ NAAQS impacts because the SMC impacts were not excluded from receptors within the SMC plant property. Since the impacts did not cause a problem with the increment, the values in Table 7-44 represent worse-case increment.

The annual impact shown in Table 7-35 is the more correct impact since SMC impacts within the SMC property were excluded. However, using the 4.04 ug/m$^3$ in Table 7-35 results in a total impact including monitored background (20 ug/m$^3$) of 20.04 ug/m$^3$. This still demonstrates compliance with the NAAQS of 50 ug/m$^3$. GM did not object to using this value in Table 7-35.

**RESPONSE TO COMMENTS (CONTINUED)**

US EPA Region IV Comments – April 14, 2006 (Continued)

**Sections of Revised Application (Continued)**

9. Class I Area Assessment – The CALLPUFF screening results provided in Table 8-1 has an incorrect $PM_{10}$ annual SIL. The correct value id 0.2 ug/m$^3$.

   DIVISION'S RESPONSE:

   The comment is noted. The screening annual impact for $PM_{10}$ is still below 0.2 ug/m$^3$.

10. Additional Analysis – The modeled NAAQS values should be used in Table 9-1 to compare tot he vegetation sensitivity values. Although the Class II area visibility assessment was addressed in the applicant's response to comments, this issue should also be address in the revised application.

    DIVISION'S RESPONSE:

    EPA document EPA-450/2-81-078 states that the values in Table 3.1 are to be compared to the impacts of the proposed source, which is what is reflected in Table 9-1 in the application.

Public Hearing conducted at Mary Ellen Bogardus Building (Gallatin County Extension Office), Warsaw, Ky – April 19, 2006

A public hearing was held in Mary Ellen Bogardus Building (Gallatin County Extension Office) on April 19, 2006. Those in attendance representing the Division for Air Quality were Mr. Don Newell, Permit Review Branch Manager, and Mr. Jim Morse, Permit Support Section Supervisor. Besides the citizens of Warsaw and Verona, Ms Sherry Needy of Verona.

The purpose of the Public Hearing was to hear and receive comments/concerns regarding the PSD Title V Construction / Operating permit that would be issued to Gallatin Materials, LLC. There was only one person to speak that night, Ms Needy, who was not in favor of approving a permit for the facility due to the dust problem that was already being experienced due to Sterling Ventures having a limestone operation in the same vicinity.

DIVISION'S RESPONSE:

The Division will work diligently on ensuring that Gallatin Materials meets those restrictions listed in the permit. A vacuum system will be incorporated in Gallatin Materials operation and should prove to be beneficial in Gallatin Materials meeting those restrictions in regards to fugitive dust emissions.

**RESPONSE TO COMMENTS (CONTINUED)**

**CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.