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BUREAU OF AIR QUALITY

November 20, 2015

Ms. Elizabeth Basil  
Director, Engineering Services Division  
Bureau of Air Quality  
SC DHEC  
2600 Bull Street  
Columbia, South Carolina 29201

SUBJECT: **Vulcan Construction Materials, LLC - Lexington Quarry  
Synthetic Minor Construction Permit Application**

Dear Ms. Basil:

Vulcan Construction Materials, LLC proposes to install equipment for a 1700 ton per hour aggregate mining facility on approximately 360 acres of property located about three miles to the northwest of Leesville, South Carolina.

Emissions calculations for the facility indicate that potential emissions of PM<sub>10</sub> are greater than 100 tpy. Vulcan requests a facility-wide federally enforceable emissions limitation of less than 100 tpy for PM<sub>10</sub> emissions to be classified as a Conditional Major facility.

Applicable construction permit application forms are provided in Appendix A, a site location map and process flow diagram are presented in Appendix B, and emissions calculations are presented in Appendix C.

**Proposed Equipment:**

Vulcan plans to install the following equipment for an aggregate mining facility in Lexington County, SC. The equipment listed below is for the fully operational facility and is expected to be in place in three to five years. At the initial startup of the quarry, a smaller portable crushing plant will be utilized that will operate at significantly lower hourly rate than the full scale plant.

| Unit ID           | New Equipment ID | New Equipment Description | New Capacity (tph) |
|-------------------|------------------|---------------------------|--------------------|
| 01 Stone Crushing | CRS001           | PRIMARY CRUSHER #1        | 1100               |
|                   | CRS002           | SECONDARY CRUSHER #2      | 1100               |
|                   | CRS003           | TERTIARY CRUSHER #3       | 850                |
|                   | CRS004           | TERTIARY CRUSHER #4       | 850                |

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| Unit ID            | New Equipment ID | New Equipment Description      | New Capacity (tph) |
|--------------------|------------------|--------------------------------|--------------------|
| 02 Stone Conveying | CNV001           | CONVEYOR #1                    | 1700               |
|                    | CNV002           | CONVEYOR #2                    | 1700               |
|                    | CNV003           | CONVEYOR #3                    | 1700               |
|                    | CNV004           | CONVEYOR #4                    | 550                |
|                    | CNV005           | CONVEYOR #5                    | 550                |
|                    | CNV006           | CONVEYOR #6                    | 600                |
|                    | CNV007           | CONVEYOR #7                    | 3000               |
|                    | CNV008           | CONVEYOR #8                    | 800                |
|                    | CNV009           | CONVEYOR #9                    | 800                |
|                    | CNV010           | CONVEYOR #10                   | 800                |
|                    | CNV011           | CONVEYOR #11                   | 800                |
|                    | CNV012           | CONVEYOR #12                   | 1600               |
|                    | CNV013           | CONVEYOR #13                   | 1600               |
|                    | CNV014           | CONVEYOR #14                   | 800                |
|                    | CNV015           | CONVEYOR #15                   | 800                |
|                    | CNV016           | CONVEYOR #16                   | 500                |
|                    | CNV017           | CONVEYOR #17                   | 500                |
|                    | CNV018           | CONVEYOR #18                   | 500                |
|                    | CNV019           | CONVEYOR #19                   | 500                |
|                    | CNV020           | CONVEYOR #20                   | 500                |
|                    | CNV021           | CONVEYOR #21                   | 500                |
|                    | CNV022           | CONVEYOR #22                   | 500                |
|                    | CNV023           | CONVEYOR #23                   | 500                |
|                    | CNV024           | CONVEYOR #24                   | 500                |
|                    | CNV025           | CONVEYOR #25                   | 500                |
|                    | CNV026           | CONVEYOR #26                   | 500                |
|                    | CNV027           | CONVEYOR #27                   | 1500               |
|                    | CNV028           | CONVEYOR #28                   | 700                |
|                    | CNV029           | CONVEYOR #29                   | 1500               |
|                    | SBN001           | BIN #1                         | 1100               |
|                    | SBN002           | BIN #2                         | 800                |
|                    | SBN003           | BIN #3                         | 800                |
| 03 Stone Screening | FDR001           | GRIZZLY FEEDER & TRK UNLOADING | 1700               |
|                    | SCR001           | SCREEN #1                      | 1700               |
|                    | SCR002           | SCREEN #2                      | 1500               |
|                    | SCR003           | SCREEN #3                      | 1500               |
|                    | SCR004           | SCREEN #4                      | 1500               |
|                    | SCR005           | SCREEN #5                      | 1500               |

| Unit ID          | New Equipment ID | New Equipment Description | New Capacity (tph) |
|------------------|------------------|---------------------------|--------------------|
| 04 Stone Washing | SCR006           | SCREEN #6                 | 1500               |
|                  | CNV030           | CONVEYOR #30              | 1500               |
|                  | CNV031           | CONVEYOR #31              | 400                |
|                  | TRB001           | WASH BIN #1               | 1500               |
|                  | TRB002           | WASH BIN #2               | 1500               |
|                  | TRB003           | WASH BIN #3               | 1500               |
|                  | TRB004           | WASH BIN #4               | 1500               |
|                  | TRB005           | WASH BIN #5               | 1500               |
|                  | TRB006           | WASH BIN #6               | 1500               |

The facility intends to utilize a 220 horsepower dewatering pump that will operate using ultra low sulfur diesel fuel. The pump is a Godwin HL2000 Dri-Prime pump with a John Deere 6068HVC94 engine (or equivalent). This engine is designed to comply with non-road emissions regulations and is an Interim Tier 4/Stage IIIB engine.

| Unit ID           | New Equipment ID | New Equipment Description | New Capacity |
|-------------------|------------------|---------------------------|--------------|
| 05 Pit Dewatering | Pump1            | De-watering pump #1       | 220 HP       |

An additional diesel pump will be utilized to withdraw water from the creek. The pump's engine is a 30 horsepower John Deere 4024TF281 (IT4 Flex) (or equivalent). This pump is exempt from construction permitting requirements per Section B.2.iv of the SC Bureau of Air Quality Exemption List dated October 2015.

#### Emissions Calculations:

Emissions were calculated at the operating rates (tons per hour) provided for each piece of equipment based on the potential to emit (8,760 hours per year). Emission factors from AP-42 Table 11.19.2-2 were used to estimate emissions for the equipment to be installed; the operating rate was multiplied by the emission factor to obtain the hourly emission rate. A copy of the AP-42 table is included in Appendix C. Emissions calculations for quarry equipment are included in Tables C-1 and C-2. Wet suppression and carry over moisture is used as control for emission sources as indicated in Table C-1. Equipment that is part of the Wash Process has no uncontrolled or controlled emissions because soaking the material with water is an integral part of the process.

Diesel pump emissions (presented in Table C-3) were calculated using manufacturer's emission information for NO<sub>x</sub> and PM and AP-42 factors for Stationary Diesel Fuel Engines (Table 3.3-1) for all other criteria pollutants. The potential hours of operation for the dewatering pump were

calculated based on an average rainfall of 50 inches per year at the facility location. Emissions of HAPs from burning diesel fuel in the dewatering pump will be insignificant; emission rates calculated using AP-42 factors from Table 3.3-2 were well below the daily de minimus levels for Air Toxics.

Total proposed emissions for the facility after construction are as follows:

| <b>FACILITY-WIDE CRITERIA POLLUTANT EMISSIONS</b> |                                     |                                   |                                       |                                     |
|---|-------------------------------------|-----------------------------------|---------------------------------------|-------------------------------------|
| <b>Pollutant</b>                                  | <b>Potential Uncontrolled (tpy)</b> | <b>Potential Controlled (tpy)</b> | <b>Potential Uncontrolled (lb/hr)</b> | <b>Potential Controlled (lb/hr)</b> |
| PM <sub>10</sub>                                  | 477.65                              | 40.20                             | 109.07                                | 9.19                                |
| PM <sub>2.5</sub>                                 | 68.69                               | 5.11                              | 15.70                                 | 1.18                                |
| SO <sub>2</sub>                                   | 0.52                                | 0.52                              | 0.45                                  | 0.45                                |
| NO <sub>x</sub>                                   | 0.83                                | 0.83                              | 0.72                                  | 0.72                                |
| CO  | 1.69                                | 1.69                              | 1.47                                  | 1.47                                |
| VOC   | 0.18                                | 0.18                              | 0.16                                  | 0.16                                |
| Lead (Pb)   | 0                                   | 0                                 | 0                                     | 0                                   |
| CO <sub>2</sub>                                   | 104.98                              | 104.98                            | 91.27                                 | 91.27                               |
| CH <sub>4</sub>                                   | 1.94E-04                            | 1.94E-04                          | 1.69E-04                              | 1.69E-04                            |
| N <sub>2</sub> O                                  | 7.20E-11                            | 7.20E-11                          | 6.26E-11                              | 6.26E-11                            |
| CO <sub>2</sub> e                                 | 104.99                              | 104.99                            | 91.28                                 | 91.28                               |

### Modeling:

Air dispersion modeling of criteria pollutant emissions has been performed for the Lexington Quarry. The modeling protocol and results are included in Appendix D. The results of the air quality analysis demonstrate that emissions of criteria pollutants will achieve the air quality standards stated in Standard No. 2.



## **Regulatory Discussion:**

- ***Regulations 61-62.5, Standard No. 1 - Emissions from Fuel Burning Operations***

The facility is subject to this regulation as the dewatering pump engine will utilize diesel fuel.

- ***Regulation 61-62.5 Standard No. 2 Ambient Air Quality Standards***

The modeling demonstration included in Appendix D shows that the facility will be in compliance with Standard No. 2 for criteria pollutants emitted. Table 4 includes the equipment location and emission information for new equipment and Table 6 provides a summary of modeled impacts.

- ***Regulation 61-62.5, Standard No. 3 - Waste Combustion and Reduction (State Only)***

This regulation applies to sources that burn anything other than virgin fuels for any purpose. The facility plans to utilize only diesel fuel in the dewatering pump.

- ***Regulation 61-62.5, Standard 3.1 - Medical Waste Incineration (State Only)***

This facility will not incinerate medical waste.

- ***Regulation 61-62.5 Standard No. 4 Emissions from Process Industries***

This facility will be subject to specific sections of this regulation. The quarry will have non-enclosed operations and crushing operations.

As presented in the emissions calculations, the facility will be in compliance with the particulate matter limits set forth by this standard.

- ***Regulation 61-62.5, Standard No. 5 – Volatile Organic Compounds***

This facility will not have any sources of volatile organic compound emissions.

- ***Regulation 61-62.5, Standard No. 5.2 - Control Of Oxides Of Nitrogen (NO<sub>x</sub>)***

The facility plans to utilize a 220 horsepower dewatering pump that will operate using ultra low sulfur diesel fuel. The pump is a Godwin HL2000 Dri-Prime pump with a John Deere 6068HVC94 engine (or equivalent). This engine is

designed to comply with non-road emissions regulations and is an Interim Tier 4/Stage IIIB engine.

- ***Regulation 61-62.5 Standard No. 7 Prevention of Significant Deterioration***

This regulation defines two (2) categories of major stationary sources for PSD applicability. These categories are potential emissions of 100 tpy of PSD pollutants for 28 specific industry types and potential emissions of 250 tpy of PSD pollutants for all other industry types. This facility is not specified as one of the 28 specific industry types and is in the other industry type category. PSD applicability is pollutant specific and is based on the potential to emit considering federally enforceable air pollution controls and/or federally enforceable operating conditions (i.e. emission limits, production limits etc.) This facility will emit PM<sub>10</sub> which is a PSD pollutant. This facility's uncontrolled PM<sub>10</sub> emissions will be greater than 250 tpy. This facility will use wet suppression to control PM<sub>10</sub> emissions to less than 250 tpy. The facility requests that the control devices be federally enforceable with issuance of this permit. Because the federally enforceable potential to emit of PM<sub>10</sub> emissions is less than 250 tpy, this regulation does not apply.

The facility will be located in Lexington County, which has a Minor Source Baseline Date set for PM<sub>10</sub> of March 20, 2000, and for NO<sub>2</sub> and SO<sub>2</sub> of May 23, 1996. Where the minor source baseline date has been set for a pollutant, any increases in emissions from a new or modified emission source must comply with the Standard 7 increment(s) for that pollutant and the facility must submit an analysis that demonstrates emissions increases caused by the facility will not cause an increase in pollutant concentration above the Standard 7 increment(s). No minor baseline date has been set for PM<sub>2.5</sub> and Vulcan is not a major source of PM<sub>2.5</sub>; therefore, this application will not trigger setting a baseline date for PM<sub>2.5</sub>. The incremental impact of the equipment was evaluated by including all new sources at the new operating rates. Table 7 evaluates the incremental emissions from new sources. The modeling demonstration included in Appendix D shows that the facility will be in compliance with Standard No. 7.

- ***Regulation 61-62.5 Standard No. 7.1 Nonattainment New Source Review***

The facility is not located in a non-attainment area, so this standard does not apply.

- ***Regulation 61-62.5, Standard 8 - Toxic Air Pollutants (TAPs) (State Only)***

Fuel burning sources that burn only virgin fuel are not subject to Standard No. 8; the proposed dewatering pump will use only virgin fuel.

- ***Regulations 61-62.6 - Control of Fugitive Particulate Matter***

The facility will not be located in a non-attainment area. This facility will be subject to specific sections of this regulation.

- ***Regulation 61-62.63 - National Emission Standards for Hazardous Air Pollutants: 112(g) (June 28, 1998)***

This regulation is an interim standard that applies to any owner or operator who constructs or reconstructs a major source of hazardous air pollutants (HAP) where the EPA has not promulgated a MACT standard. The proposed dewatering pump is subject to the MACT Standard for RICE (Subpart IIII), therefore this regulation does not apply.

- ***Regulation 61-62.68 (40CFR68) - Chemical Accident Prevention Provisions: 112(r)***

This facility does not store or use chemicals subject to this regulation above the threshold quantities required to trigger applicability.

- ***Regulation 61-62.70 - TITLE V Operating Permit Program***

Any source that has the potential to emit greater than 100 tpy of criteria pollutants, single HAP emissions greater than 10 tpy or total HAP emissions greater than 25 tpy is required to have a Title V permit. This facility has the potential to emit more than 100 tpy of PM<sub>10</sub>, a criteria pollutant. Vulcan requests facility-wide federally enforceable emissions limitation of less than 100 tpy for PM<sub>10</sub> emissions to be classified as a Conditional Major facility and remove itself from applicability to this regulation. Emissions of HAPs from burning diesel fuel in the dewatering pump will be insignificant.

- ***40CFR60 - Standards of Performance for New Stationary Sources (NSPS)***

New Source Performance Standards (NSPS) require new, modified, or reconstructed sources to control emissions to the level achievable by the best-demonstrated technology as specified in the applicable provisions. Moreover, any source subject to a NSPS is also subject to the general provisions of Subpart A, except as otherwise specified.

NSPS Subpart A provides general provisions referenced by other NSPS Subparts. The proposed equipment at Vulcan is subject to NSPS Subpart IIII and OOO which reference Subpart A. Subpart A provides requirements for notifications, performance testing,

recordkeeping, monitoring, and control requirements for referencing subparts as applicable.

***40 CFR Part 60 Subpart OOO- Standards of Performance for Non-Metallic Mineral Processing Plants***

Sources which commenced construction, reconstruction, or modification after August 31, 1983 are subject to all applicable requirements of Federal New Source Performance Standards (NSPS) 40 CFR 60, Subpart OOO. As all equipment in the production lines is being installed new, equipment at the site will be subject to NSPS Subpart OOO with the exception of the wash process equipment; wash equipment is not an affected facility under NSPS.

***40 CFR Part 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines***

NSPS Subpart IIII- Stationary Compression Ignition Internal Combustion Engines applies to stationary compression ignition (CI) internal combustion engines (ICE) that commence construction after July 11, 2005 or are modified or reconstructed after July 11, 2005. Vulcan is proposing to utilize a 220 horsepower dewatering pump that will operate using ultra low sulfur diesel fuel. The pump is a Godwin HL2000 Dri-Prime pump with a John Deere 6068HVC94 engine (or equivalent). This engine is designed to comply with non-road emissions regulations and is an Interim Tier 4/Stage IIIB engine. Therefore, Vulcan will comply with the applicable requirements of this subpart based on the model year and specifications of the engine.

- ***40CFR61 - National Emission Standards for Hazardous Air Pollutants (NESHAP)***

The facility does not have any processes or chemicals subject to this part.

- ***40CFR63 - National Emission Standards for Hazardous Air Pollutants for Source Categories (MACT)***

***40 CFR Part 63 Subpart ZZZZ – Reciprocating Internal Combustion Engines***

Subpart ZZZZ regulates HAP emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. Vulcan plans to operate the compression ignition dewatering pump located at an area source of HAP. The proposed compression ignition (CI) ICE will be a new

source with respect to this subpart and will comply with 40 CFR 63 Subpart ZZZZ by complying with 40 CFR 60 Subpart IIII.

- **40CFR64 - Compliance Assurance Monitoring (CAM): (April 20, 1998)**

CAM applies to facilities required to obtain a Title V permit and this facility is not required to obtain a Title V operating permit. This facility requests a facility-wide federally enforceable emissions limitation of less than 100 tpy for PM<sub>10</sub> emissions to be classified as a Conditional Major facility and remove itself from Title V applicability.

**Summary:**

Vulcan Materials will be in compliance with applicable State and Federal air pollution control regulations and is requesting a Construction Permit for installation of the quarry as documented. The Lexington Quarry wishes to accept federally enforceable administrative limits to operate as a Conditional Major Source.

Please contact John Aultman at (864) 299-4785 if you have any further questions or concerns with regards to this matter.

Sincerely,  
SYNTERRA



Andrea Kehn, PE  
Project Engineer

Cc: John Aultman, Vulcan Construction Materials  
File

Attachments: Appendix A: Application Forms  
Appendix B: Figures  
Appendix C: Emissions Calculations  
Appendix D: Modeling Protocol and results



## **APPENDIX A APPLICATION FORMS**





Bureau of Air Quality  
Construction Permit Application  
Facility Information  
Page 1 of 2

1560-0205  
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| FACILITY IDENTIFICATION  |   |
|--|---|
| SC Air Permit Number (8-digits only)<br><i>(Leave blank if one has never been assigned)</i>                          | Application Date  |
| 1560-0205  | November 20, 2015   |
| Facility Name<br><i>(This should be the name used to identify the facility at the physical address listed below)</i> | Facility Federal Tax Identification Number<br><i>(Established by the U.S. Internal Revenue Service to identify a business entity)</i> |
| Vulcan Construction Materials, LLC (Lexington Quarry)  | 63-1211833  |

| FACILITY PHYSICAL ADDRESS  |                   |   |
|--|-------------------|---|
| Physical Address: 2000 feet east US Hwy 1; S-32-31   | County: Lexington |   |
| City: Leesville  | State: SC         | Zip Code:   |
| Facility Coordinates <i>(Facility coordinates should be based at the front door or main entrance of the facility.)</i> |                   |   |
| Latitude: 33.94  | Longitude: -81.46 | <input type="checkbox"/> NAD27 <i>(North American Datum of 1927)</i><br>Or<br><input checked="" type="checkbox"/> NAD83 <i>(North American Datum of 1983)</i> |

| CO-LOCATION DETERMINATION   |  |
|---|--|
| Are there other facilities in close proximity that could be considered co-located? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes* |  |
| List potential co-located facilities, including air permit numbers if applicable:   |  |
| *If yes, please submit co-location applicability determination details in an attachment to this application.  |  |

| COMMUNITY OUTREACH  |
|---|
| What are the potential air issues and community concerns? Please provide a brief description of potential air issues and community concerns about the entire facility and/or specific project. Include how these issues and concerns are being addressed, if the community has been informed of the proposed construction project, and if so, how they have been informed.<br>The facility has completed a modeling demonstration of the potential emissions and has demonstrated that the facility will be in compliance with applicable regulations. Vulcan held a community outreach meeting at Gilbert High School on January 20 <sup>th</sup> , 2015 to overview and answer questions related to the site and operation of the quarry including the methods for dust control. Another community meeting will be held in the near future. |

| FACILITY'S PRODUCTS / SERVICES   |   |
|--|---|
| Primary Products / Services <i>(List the primary product and/or service)</i> |   |
| Crushed & Broken Granite Mining and Quarrying                                |   |
| Primary SIC Code <i>(Standard Industrial Classification Codes)</i>           | Primary NAICS Code <i>(North American Industry Classification System)</i> |
| 1423   | 212313  |
| Other Products / Services <i>(List any other products and/or services)</i>   |   |
| n/a  |   |
| Other SIC Code(s): n/a   | Other NAICS Code(s): n/a  |

| AIR PERMIT FACILITY CONTACT   |                         |                        |                    |
|---|-------------------------|------------------------|--------------------|
| <i>(Person at the facility who can answer technical questions about the facility and permit application.)</i>   |                         |                        |                    |
| Title/Position: Manager of Env. Services-SC   | Salutation: Mr.         | First Name: John       | Last Name: Aultman |
| Mailing Address: 201 Brown Road   |                         |                        |                    |
| City: Piedmont  | State: SC               | Zip Code: 29673        |                    |
| E-mail Address: aultmanj@vmcmail.com  | Phone No.: 864-299-4785 | Cell No.: 678-614-0247 |                    |
| One hard copy of the signed permit will be mailed to the designated Air Permit Contact.<br>If additional individuals need electronic copies of the permit, please provide their names and e-mail addresses. |                         |                        |                    |
| Name  |                         | E-mail Address         |                    |
| Andrea Kehn   |                         | akehn@synterracorp.com |                    |



**Bureau of Air Quality**  
**Construction Permit Application**  
**Facility Information**  
**Page 2 of 2**

**CONFIDENTIAL INFORMATION / DATA**

Does this application contain confidential information or data? ☒ No ☐ Yes\*

*\*If yes, include a sanitized version of the application for public review and ONLY ONE COPY OF CONFIDENTIAL INFORMATION SHOULD BE SUBMITTED*

**LIST OF FORMS INCLUDED**

*(Identify all forms included in the application package)*

| Form Name                                    | Included (Y/N)  |
|--|---|
| Expedited Review Request (DHEC Form 2212)    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                   |
| Equipment/Processes (DHEC Form 2567)         | <input checked="" type="checkbox"/> Yes   |
| Emissions (DHEC Form 2569)                   | <input checked="" type="checkbox"/> Yes   |
| Regulatory Review (DHEC Form 2570)           | <input checked="" type="checkbox"/> Yes   |
| Emissions Point Information (DHEC Form 2573) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If No, Explain ) |

**OWNER OR OPERATOR**

|   |                 |                         |                        |
|---|-----------------|-------------------------|------------------------|
| Title/Position: Manager of Env. Services-SC | Salutation: Mr. | First Name: John        | Last Name: Aultman     |
| Mailing Address: 201 Brown Road             |                 |                         |                        |
| City: Piedmont                              |                 | State: SC               | Zip Code: 29673        |
| E-mail Address: aultmanj@vmcmail.com        |                 | Phone No.: 864-299-4785 | Cell No.: 678-614-0247 |

**OWNER OR OPERATOR SIGNATURE**

I certify, to the best of my knowledge and belief, that no applicable standards and/or regulations will be contravened or violated. I certify that any application form, report, or compliance certification submitted in this permit application is true, accurate, and complete based on information and belief formed after reasonable inquiry. I understand that any statements and/or descriptions, which are found to be incorrect, may result in the immediate revocation of any permit issued for this application.

Signature of Owner or Operator

Date

**PERSON AND/OR FIRM THAT PREPARED THIS APPLICATION**

*(If not the same person as the Professional Engineer who has reviewed and signed this application.)*

|  |             |             |            |
|--|-------------|-------------|------------|
| Consulting Firm Name:  |             |             |            |
| Title/Position:  | Salutation: | First Name: | Last Name: |
| Mailing Address:   |             |             |            |
| City:  |             | State:      | Zip Code:  |
| E-mail Address:  |             | Phone No.:  | Cell No.:  |
| SC Professional Engineer License/Registration No. (if applicable): |             |             |            |

**PROFESSIONAL ENGINEER INFORMATION**

|  |                 |                         |                 |
|--|-----------------|-------------------------|-----------------|
| Consulting Firm Name: SynTerra Corporation   |                 |                         |                 |
| Title/Position: Project Engineer             | Salutation: Ms. | First Name: Andrea      | Last Name: Kehn |
| Mailing Address: 148 River Street, Suite 220 |                 |                         |                 |
| City: Greenville                             |                 | State: SC               | Zip Code: 29601 |
| E-mail Address: akehn@synterracorp.com       |                 | Phone No.: 864-527-4636 | Cell No.: N/A   |
| SC License/Registration No.: 26552           |                 |                         |                 |

**PROFESSIONAL ENGINEER SIGNATURE**

I have placed my signature and seal on the engineering documents submitted, signifying that I have reviewed this construction permit application as it pertains to the requirements of South Carolina Regulation 61-62, Air Pollution Control Regulations and Standards.

Signature of Professional Engineer

Date





**Bureau of Air Quality  
Construction Permit Application  
Equipment / Processes  
Page 1 of 7**

**APPLICATION IDENTIFICATION**

*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*

|   |   |                   |
|---|---|-------------------|
| Facility Name<br><i>(This should be the name used to identify the facility)</i> | SC Air Permit Number (8-digits only)<br><i>(Leave blank if one has never been assigned)</i> | Application Date  |
| Vulcan Construction Materials, LLC (Lexington Quarry)                           | -   | November 20, 2015 |

**PROJECT DESCRIPTION**

Brief Project Description (What, why, how, etc.): Vulcan plans to install equipment for a 1,700 ton per hour aggregate mining facility. The equipment presented in this application is for the fully operational facility that will be in place in three to five years. At the initial startup of the quarry, a smaller portable crushing plant will be utilized that will operate at a significantly lower rate than the full scale plant.

**ATTACHMENTS**

|  |   |
|--|---|
| <input checked="" type="checkbox"/> Process Flow Diagram         | Location in Application: Appendix B - Figures     |
| <input checked="" type="checkbox"/> Detailed Project Description | Location in Application: Application Cover Letter |

**EQUIPMENT / PROCESS INFORMATION**

| Equipment ID<br>Process ID | Action  | Equipment / Process Description  | Maximum Design<br>Capacity (Units) | Control Device<br>ID(s)    | Pollutants Controlled<br>(Include CAS#) | Capture System Efficiency and<br>Description  | Emission Point<br>ID(s) |
|----------------------------|---|--|------------------------------------|----------------------------|---|---|-------------------------|
| FDR001                     | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | GRIZZLY FEEDER & TRK UNLOADING:<br>62"x12'x28' Grizzly feeder assembly | 1700 TPH<br>(tons per hour)        | WS<br>(Wet<br>Suppression) | PM10/PM2.5                              | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 91.6 % | FDR001                  |
| CRS001                     | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | PRIMARY CRUSHER #1:<br>C160 Jaw Crusher @ 10"CSS                       | 1100 TPH                           | WS                         | PM10/PM2.5                              | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 77.8 % | CRS001                  |
| CRS002                     | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | SECONDARY CRUSHER #2:<br>XL900 Standard Cone Crusher                   | 1100 TPH                           | WS                         | PM10/PM2.5                              | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 77.8 % | CRS002                  |
| CRS003                     | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | TERTIARY CRUSHER #3  | 850 TPH                            | WS                         | PM10/PM2.5                              | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 77.8 % | CRS003                  |
| CRS004                     | <input type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other            | TERTIARY CRUSHER #4  | 850 TPH                            | WS                         | PM10/PM2.5                              | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 77.8 % | CRS004                  |





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|        |   |  |          |                                 |            |   |        |
|--------|---|--|----------|---------------------------------|------------|---|--------|
| SCR001 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | SCREEN #1:<br>8'X20' TD Scalping Screen    | 1700 TPH | WCO<br>(Carry over<br>Moisture) | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 91.2 % | SCR001 |
| SCR002 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Screen #2: 8'X20' TD Scalping Screen       | 1500 TPH | WCO                             | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 91.2 % | SCR002 |
| SCR003 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Screen #3: 8'X20' TD Scalping Screen       | 1500 TPH | WCO                             | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 91.2 % | SCR003 |
| SCR004 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Screen #4: 8'X20' TD Sizing Screen         | 1500 TPH | WCO                             | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 91.2 % | SCR004 |
| SCR005 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Screen #5: 8'X20' TD Sizing Screen         | 1500 TPH | WCO                             | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 91.2 % | SCR005 |
| CNV001 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #1: 54" Short Primary Belt        | 1700 TPH | WS                              | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 95.3 % | CNV001 |
| CNV002 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #2: 54" Main Primary Belt         | 1700 TPH | WCO                             | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 95.3 % | CNV002 |
| CNV003 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #3: 36" Primary Tunnel Belt       | 1700 TPH | WS                              | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 95.3 % | CNV003 |
| CNV004 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #4: 36" Crusher Run Transfer Belt | 550 TPH  | WS                              | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 95.3 % | CNV004 |
| CNV005 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #5: 36" Crusher Run Stacker       | 550 TPH  | WCO                             | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 95.3 % | CNV005 |
| CNV006 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #6: 48" Rip Rap Belt              | 600 TPH  | WS                              | PM10/PM2.5 | From AP-42 Table 11.19.2-2<br>capture efficiency is 100%,<br>control efficiency is 95.3 % | CNV006 |



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|        |   |  |          |     |            |   |        |
|--------|---|--|----------|-----|------------|---|--------|
| CNV007 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #7: 48" Tower 2 Feed Belt         | 3000 TPH | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV007 |
| CNV008 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #8: 42" Crusher Feed Bin Belt     | 800 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV008 |
| CNV009 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #9: 42" Crusher Feed Bin Belt     | 800 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV009 |
| CNV010 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #10: 42" Crusher Feeder Belt      | 800 TPH  | WCO | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV010 |
| CNV011 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #11: 42" Crusher Feeder Belt      | 800 TPH  | WCO | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV011 |
| CNV012 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #12: Crusher Discharge Belt       | 1600 TPH | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV012 |
| CNV013 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #13: Crusher Return Belt          | 1600 TPH | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV013 |
| CNV014 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #14: 42" Tower 3 Feed Belt        | 800 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV014 |
| CNV015 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #15: 42" Tower 3 Feed Belt        | 800 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV015 |
| CNV016 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #16: 36" 3/4" Recrush Belt        | 500 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV016 |
| CNV017 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #17: 36" Screenings Transfer Belt | 500 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV017 |



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|        |   |   |          |     |            |   |        |
|--------|---|---|----------|-----|------------|---|--------|
| CNV018 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #18: 36" Screenings Stacker Belt | 500 TPH  | WCO | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV018 |
| CNV019 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #19: 36" 5's Transfer Belt       | 500 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV019 |
| CNV020 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #20: 36" 5's Stacker Belt        | 500 TPH  | WCO | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV020 |
| CNV021 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #21: 36" 6's Transfer Belt       | 500 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV021 |
| CNV022 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #22: 36" 6's Stacker Belt        | 500 TPH  | WCO | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV022 |
| CNV023 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #23: 36" 7's Transfer Belt       | 500 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV023 |
| CNV024 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #24: 36" 7's Stacker Belt        | 500 TPH  | WCO | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV024 |
| CNV025 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #25: 36" 8's Transfer Belt       | 500 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV025 |
| CNV026 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #26: 36" 8's Stacker Belt        | 500 TPH  | WCO | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV026 |
| CNV027 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #27: 42" Blending Tunnel Belt    | 1500 TPH | WCO | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV027 |
| CNV028 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #28: 36" Dry Blend Stacker Belt  | 700 TPH  | WS  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV028 |





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|        |   |  |          |                     |            |   |        |
|--------|---|--|----------|---------------------|------------|---|--------|
| CNV029 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #29: 42" Tower 4 Feed Belt                  | 1500 TPH | WS                  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | CNV029 |
| SBN001 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Bin #1: 120 Ton Crusher Feed Bin                     | 1100 TPH | WS                  | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | SBN001 |
| SBN002 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Bin #2: 121 Ton Crusher Feed Bin                     | 800 TPH  | WCO                 | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | SBN002 |
| SBN003 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Bin #3: 122 Ton Crusher Feed Bin                     | 800 TPH  | WCO                 | PM10/PM2.5 | From AP-42 Table 11.19.2-2 capture efficiency is 100%, control efficiency is 95.3 % | SBN003 |
| SCR006 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Screen #6: 8'x20' TD Wash Screen                     | 1500 TPH | WP<br>(Wet Process) | PM10/PM2.5 | Capture and control efficiency assumed to be 100% for the wet process               | SCR006 |
| CNV030 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #30: 42" Shuttle Belt                       | 1500 TPH | WP                  | PM10/PM2.5 | Capture and control efficiency assumed to be 100% for the wet process               | CNV030 |
| CNV031 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Conveyor #31:<br>30" Manufactured Stand Stacker Belt | 400 TPH  | WP                  | PM10/PM2.5 | Capture and control efficiency assumed to be 100% for the wet process               | CNV031 |
| TRB001 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Wash Bin #1:<br>400 Ton Washed Stone Storage Bin     | 1500 TPH | WP                  | PM10/PM2.5 | Capture and control efficiency assumed to be 100% for the wet process               | TRB001 |
| TRB002 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Wash Bin #2:<br>400 Ton Washed Stone Storage Bin     | 1500 TPH | WP                  | PM10/PM2.5 | Capture and control efficiency assumed to be 100% for the wet process               | TRB002 |
| TRB003 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Wash Bin #3:<br>400 Ton Washed Stone Storage Bin     | 1500 TPH | WP                  | PM10/PM2.5 | Capture and control efficiency assumed to be 100% for the wet process               | TRB003 |
| TRB004 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Wash Bin #4:<br>400 Ton Washed Stone Storage Bin     | 1500 TPH | WP                  | PM10/PM2.5 | Capture and control efficiency assumed to be 100% for the wet process               | TRB004 |



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|        |   |  |          |      |                                       |   |        |
|--------|---|--|----------|------|---------------------------------------|---|--------|
| TRB005 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Wash Bin #5:<br>400 Ton Washed Stone Storage Bin | 1500 TPH | WP   | PM10/PM2.5                            | Capture and control efficiency assumed to be 100% for the wet process | TRB005 |
| TRB006 | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Wash Bin #6:<br>400 Ton Washed Stone Storage Bin | 1500 TPH | WP   | PM10/PM2.5                            | Capture and control efficiency assumed to be 100% for the wet process | TRB006 |
| PUMP1  | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Dewatering Pump #1 (Diesel Engine)               | 220 hp   | None | PM10/PM2.5/ CO<br>VOC/HAP/NOx/<br>SOx | None  | PUMP1  |

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| <b>CONTROL DEVICE INFORMATION</b> |   |                                     |  |  |   |
|-----------------------------------|---|-------------------------------------|--|--|---|
| <b>Control Device ID</b>          | <b>Action</b>   | <b>Control Device Description</b>   | <b>Maximum Design Capacity (Units)</b> | <b>Inherent/Required/Voluntary (Explain)</b>                   | <b>Destruction/Removal Efficiency Determination</b> |
| WS/WCO                            | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Wet Suppression/Carry Over Moisture | 1700 TPH                               | Required (to maintain emissions below major source thresholds) | Based on AP-42 Table 11.19.2-2                      |
| WP                                | <input checked="" type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other | Wet Process                         | 1700 TPH                               | Required (to maintain emissions below major source thresholds) | Estimated to be 100% based on similar processes     |
|                                   | <input type="checkbox"/> Add<br><input type="checkbox"/> Remove<br><input type="checkbox"/> Modify<br><input type="checkbox"/> Other            |                                     |  |  |   |

| <b>RAW MATERIAL AND PRODUCT INFORMATION</b>              |                        |                   |                        |
|--|------------------------|-------------------|------------------------|
| <b>Equipment ID<br/>Process ID<br/>Control Device ID</b> | <b>Raw Material(s)</b> | <b>Product(s)</b> | <b>Fuels Combusted</b> |
| 01 Stone Crushing  | Raw Rock               | Crushed Rock      | none                   |
| 02 Stone Conveying                                       | Crushed Rock           | Crushed Rock      | None                   |
| 03 Stone Screening                                       | Crushed Rock           | Cleaned Rock      | None                   |
| 04 Pit Dewatering  | Diesel fuel            | n/a               | Diesel fuel            |

| <b>MONITORING AND REPORTING INFORMATION</b>              |  |                             |                            |                                   |                            |
|--|--|-----------------------------|----------------------------|-----------------------------------|----------------------------|
| <b>Equipment ID<br/>Process ID<br/>Control Device ID</b> | <b>Pollutant(s)/Parameter(s) Monitored</b> | <b>Monitoring Frequency</b> | <b>Reporting Frequency</b> | <b>Monitoring/Reporting Basis</b> | <b>Averaging Period(s)</b> |
| WS Wet Suppression                                       | Water flow                                 | Weekly                      | n/a                        | Confirm flow                      | n/a                        |
| WP Wet Process   | Water flow                                 | Requisite for Operation     | n/a                        | n/a                               | n/a                        |
|  |  |                             |                            |                                   |                            |



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**APPLICATION IDENTIFICATION**

*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*

|   |   |                   |
|---|---|-------------------|
| Facility Name<br><i>(This should be the name used to identify the facility)</i> | SC Air Permit Number (8-digits only)<br><i>(Leave blank if one has never been assigned)</i> | Application Date  |
| Vulcan Construction Materials, LLC (Lexington Quarry)                           | -   | November 20, 2015 |

**ATTACHMENTS**

*(Check all the appropriate checkboxes if included as an attachment)*

|   |  |
|---|--|
| <input checked="" type="checkbox"/> Sample Calculations, Emission Factors Used, etc.    | <input checked="" type="checkbox"/> Detailed Explanation of Assumptions, Bottlenecks, etc. |
| <input checked="" type="checkbox"/> Supporting Information: Manufacturer's Data, etc.   | <input type="checkbox"/> Source Test Information   |
| <input checked="" type="checkbox"/> Details on Limits Being Taken for Limited Emissions | <input type="checkbox"/> NSR Analysis  |

**SUMMARY OF PROJECTED CHANGE IN FACILITY WIDE POTENTIAL EMISSIONS**

*(Calculated at maximum design capacity.)*

| Pollutants   | Emission Rates Prior to Construction / Modification (tons/year) |            |         | Emission Rates After Construction / Modification (tons/year) |            |         |
|--|---|------------|---------|--|------------|---------|
|  | Uncontrolled  | Controlled | Limited | Uncontrolled   | Controlled | Limited |
| Particulate Matter (PM)                              | N/A   | N/A        |         | 0.000  | 0.000      |         |
| Particulate Matter <10 Microns (PM <sub>10</sub> )   | N/A   | N/A        |         | 477.65   | 40.20      | 100     |
| Particulate Matter <2.5 Microns (PM <sub>2.5</sub> ) | N/A   | N/A        |         | 68.69  | 5.11       |         |
| Sulfur Dioxide (SO <sub>2</sub> )                    | N/A   | N/A        |         | 0.52   | 0.52       |         |
| Nitrogen Oxides (NO <sub>x</sub> )                   | N/A   | N/A        |         | 0.83   | 0.83       |         |
| Carbon Monoxide (CO)                                 | N/A   | N/A        |         | 1.69   | 1.69       |         |
| Volatile Organic Compounds (VOC)                     | N/A   | N/A        |         | 0.18   | 0.18       |         |
| Lead (Pb)  | N/A   | N/A        |         | 0.000  | 0.000      |         |
| Highest HAP Prior to Construction (CAS #: )          | N/A   | N/A        |         | N/A  | N/A        |         |
| Highest HAP After Construction (CAS #: 50000)        | N/A   | N/A        |         | 7.60E-04   | 0.000      |         |
| Total HAP Emissions*                                 | N/A   | N/A        |         | 2.39E-03   | 0.000      |         |

Include emissions from exempt equipment and emission increases from process changes that were exempt from construction permits.

(\*All HAP emitted from the various equipment or processes must be listed in the appropriate "Potential Emission Rates at Maximum Design Capacity" Table)



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| POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY |                      |                               |  |              |         |            |         |         |         |
|---|----------------------|-------------------------------|--|--------------|---------|------------|---------|---------|---------|
| Equipment ID<br>/ Process ID                        | Emission<br>Point ID | Pollutants<br>(Include CAS #) | Calculation Methods / Limits Taken /<br>Other Comments | Uncontrolled |         | Controlled |         | Limited |         |
|   |                      |                               |  | lbs/hr       | tons/yr | lbs/hr     | tons/yr | lbs/hr  | tons/yr |
| FDR001  | FDR001               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.027        | 0.119   | 0.002      | 0.010   | 22.8    | 100     |
| CRS001  | CRS001               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 2.640        | 11.563  | 0.594      | 2.602   | 22.8    | 100     |
| CRS002  | CRS002               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 2.640        | 11.563  | 0.594      | 2.602   | 22.8    | 100     |
| CRS003  | CRS003               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 2.040        | 8.935   | 0.459      | 2.010   | 22.8    | 100     |
| CRS004  | CRS004               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 2.040        | 8.935   | 0.459      | 2.010   | 22.8    | 100     |
| SCR001  | SCR001               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 14.790       | 64.780  | 1.258      | 5.510   | 22.8    | 100     |
| SCR002  | SCR002               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 13.050       | 57.159  | 1.110      | 4.862   | 22.8    | 100     |
| SCR003  | SCR003               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 13.050       | 57.159  | 1.110      | 4.862   | 22.8    | 100     |
| SCR004  | SCR004               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 13.050       | 57.159  | 1.110      | 4.862   | 22.8    | 100     |
| SCR005  | SCR005               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 13.050       | 57.159  | 1.110      | 4.862   | 22.8    | 100     |
| CNV001  | CNV001               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 1.870        | 8.191   | 0.078      | 0.343   | 22.8    | 100     |
| CNV002  | CNV002               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 1.870        | 8.191   | 0.078      | 0.343   | 22.8    | 100     |
| CNV003  | CNV003               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 1.870        | 8.191   | 0.078      | 0.343   | 22.8    | 100     |
| CNV004  | CNV004               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.605        | 2.650   | 0.025      | 0.111   | 22.8    | 100     |
| CNV005  | CNV005               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.605        | 2.650   | 0.025      | 0.111   | 22.8    | 100     |
| CNV006  | CNV006               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.660        | 2.891   | 0.028      | 0.121   | 22.8    | 100     |
| CNV007  | CNV007               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 3.300        | 14.454  | 0.138      | 0.604   | 22.8    | 100     |
| CNV008  | CNV008               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.880        | 3.854   | 0.037      | 0.161   | 22.8    | 100     |
| CNV009  | CNV009               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.880        | 3.854   | 0.037      | 0.161   | 22.8    | 100     |
| CNV010  | CNV010               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.880        | 3.854   | 0.037      | 0.161   | 22.8    | 100     |
| CNV011  | CNV011               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.880        | 3.854   | 0.037      | 0.161   | 22.8    | 100     |
| CNV012  | CNV012               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 1.760        | 7.709   | 0.074      | 0.322   | 22.8    | 100     |
| CNV013  | CNV013               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 1.760        | 7.709   | 0.074      | 0.322   | 22.8    | 100     |
| CNV014  | CNV014               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.880        | 3.854   | 0.037      | 0.161   | 22.8    | 100     |
| CNV015  | CNV015               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.880        | 3.854   | 0.037      | 0.161   | 22.8    | 100     |
| CNV016  | CNV016               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV017  | CNV017               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV018  | CNV018               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV019  | CNV019               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV020  | CNV020               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV021  | CNV021               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV022  | CNV022               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV023  | CNV023               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV024  | CNV024               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |





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| POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY |                      |                               |  |              |         |            |         |         |         |
|---|----------------------|-------------------------------|--|--------------|---------|------------|---------|---------|---------|
| Equipment ID<br>/ Process ID                        | Emission<br>Point ID | Pollutants<br>(Include CAS #) | Calculation Methods / Limits Taken /<br>Other Comments | Uncontrolled |         | Controlled |         | Limited |         |
|   |                      |                               |  | lbs/hr       | tons/yr | lbs/hr     | tons/yr | lbs/hr  | tons/yr |
| CNV025  | CNV025               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV026  | CNV026               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.550        | 2.409   | 0.023      | 0.101   | 22.8    | 100     |
| CNV027  | CNV027               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 1.650        | 7.227   | 0.069      | 0.302   | 22.8    | 100     |
| CNV028  | CNV028               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.770        | 3.373   | 0.032      | 0.141   | 22.8    | 100     |
| CNV029  | CNV029               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 1.650        | 7.227   | 0.069      | 0.302   | 22.8    | 100     |
| SBN001  | SBN001               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 1.210        | 5.300   | 0.051      | 0.222   | 22.8    | 100     |
| SBN002  | SBN002               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.880        | 3.854   | 0.037      | 0.161   | 22.8    | 100     |
| SBN003  | SBN003               | PM10                          | AP-42 Table 11.19.2-2 Emission Factors                 | 0.880        | 3.854   | 0.037      | 0.161   | 22.8    | 100     |
| FDR001  | FDR001               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.002        | 0.008   | 0.000      | 0.001   |         |         |
| CRS001  | CRS001               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.489        | 2.141   | 0.110      | 0.482   |         |         |
| CRS002  | CRS002               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.489        | 2.141   | 0.110      | 0.482   |         |         |
| CRS003  | CRS003               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.378        | 1.655   | 0.085      | 0.372   |         |         |
| CRS004  | CRS004               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.378        | 1.655   | 0.085      | 0.372   |         |         |
| SCR001  | SCR001               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.999        | 4.377   | 0.085      | 0.372   |         |         |
| SCR002  | SCR002               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.882        | 3.862   | 0.075      | 0.329   |         |         |
| SCR003  | SCR003               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.882        | 3.862   | 0.075      | 0.329   |         |         |
| SCR004  | SCR004               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.882        | 3.862   | 0.075      | 0.329   |         |         |
| SCR005  | SCR005               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.882        | 3.862   | 0.075      | 0.329   |         |         |
| CNV001  | CNV001               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.539        | 2.361   | 0.022      | 0.097   |         |         |
| CNV002  | CNV002               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.539        | 2.361   | 0.022      | 0.097   |         |         |
| CNV003  | CNV003               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.539        | 2.361   | 0.022      | 0.097   |         |         |
| CNV004  | CNV004               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.174        | 0.764   | 0.007      | 0.031   |         |         |
| CNV005  | CNV005               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.174        | 0.764   | 0.007      | 0.031   |         |         |
| CNV006  | CNV006               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.190        | 0.833   | 0.008      | 0.034   |         |         |
| CNV007  | CNV007               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.951        | 4.166   | 0.039      | 0.171   |         |         |
| CNV008  | CNV008               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.254        | 1.111   | 0.010      | 0.046   |         |         |
| CNV009  | CNV009               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.254        | 1.111   | 0.010      | 0.046   |         |         |
| CNV010  | CNV010               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.254        | 1.111   | 0.010      | 0.046   |         |         |
| CNV011  | CNV011               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.254        | 1.111   | 0.010      | 0.046   |         |         |
| CNV012  | CNV012               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.507        | 2.222   | 0.021      | 0.091   |         |         |
| CNV013  | CNV013               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.507        | 2.222   | 0.021      | 0.091   |         |         |
| CNV014  | CNV014               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.254        | 1.111   | 0.010      | 0.046   |         |         |
| CNV015  | CNV015               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.254        | 1.111   | 0.010      | 0.046   |         |         |
| CNV016  | CNV016               | PM2.5                         | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694   | 0.007      | 0.028   |         |         |





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| POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY |                      |                                     |  |              |          |            |          |         |         |
|---|----------------------|-------------------------------------|--|--------------|----------|------------|----------|---------|---------|
| Equipment ID<br>/ Process ID                        | Emission<br>Point ID | Pollutants<br>(Include CAS #)       | Calculation Methods / Limits Taken /<br>Other Comments | Uncontrolled |          | Controlled |          | Limited |         |
|   |                      |                                     |  | lbs/hr       | tons/yr  | lbs/hr     | tons/yr  | lbs/hr  | tons/yr |
| CNV017  | CNV017               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV018  | CNV018               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV019  | CNV019               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV020  | CNV020               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV021  | CNV021               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV022  | CNV022               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV023  | CNV023               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV024  | CNV024               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV025  | CNV025               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV026  | CNV026               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.159        | 0.694    | 0.007      | 0.028    |         |         |
| CNV027  | CNV027               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.476        | 2.083    | 0.020      | 0.085    |         |         |
| CNV028  | CNV028               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.222        | 0.972    | 0.009      | 0.040    |         |         |
| CNV029  | CNV029               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.476        | 2.083    | 0.020      | 0.085    |         |         |
| SBN001  | SBN001               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.349        | 1.528    | 0.014      | 0.063    |         |         |
| SBN002  | SBN002               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.254        | 1.111    | 0.010      | 0.046    |         |         |
| SBN003  | SBN003               | PM2.5                               | AP-42 Table 11.19.2-2 Emission Factors                 | 0.254        | 1.111    | 0.010      | 0.046    |         |         |
| SCR006  | SCR006               | PM10/ PM2.5                         | Engineering Calculations                               | 0.000        | 0.000    | 0.000      | 0.000    |         |         |
| CNV030  | CNV030               | PM10/ PM2.5                         | Engineering Calculations                               | 0.000        | 0.000    | 0.000      | 0.000    |         |         |
| CNV031  | CNV031               | PM10/ PM2.5                         | Engineering Calculations                               | 0.000        | 0.000    | 0.000      | 0.000    |         |         |
| TRB001  | TRB001               | PM10/ PM2.5                         | Engineering Calculations                               | 0.000        | 0.000    | 0.000      | 0.000    |         |         |
| TRB002  | TRB002               | PM10/ PM2.5                         | Engineering Calculations                               | 0.000        | 0.000    | 0.000      | 0.000    |         |         |
| TRB003  | TRB003               | PM10/ PM2.5                         | Engineering Calculations                               | 0.000        | 0.000    | 0.000      | 0.000    |         |         |
| TRB004  | TRB004               | PM10/ PM2.5                         | Engineering Calculations                               | 0.000        | 0.000    | 0.000      | 0.000    |         |         |
| TRB005  | TRB005               | PM10/ PM2.5                         | Engineering Calculations                               | 0.000        | 0.000    | 0.000      | 0.000    |         |         |
| TRB006  | TRB006               | PM10/ PM2.5                         | Engineering Calculations                               | 0.000        | 0.000    | 0.000      | 0.000    |         |         |
| PUMP1   | PUMP1                | PM10/PM2.5                          | AP-42 Table 3.3-1                                      | 0.018        | 0.021    | 0.018      | 0.021    |         |         |
| PUMP1   | PUMP1                | VOC                                 | AP-42 Table 3.3-1                                      | 0.155        | 0.18     | 0.155      | 0.18     |         |         |
| PUMP1   | PUMP1                | NOx                                 | AP-42 Table 3.3-1                                      | 0.723        | 0.832    | 0.723      | 0.832    |         |         |
| PUMP1   | PUMP1                | SOx                                 | AP-42 Table 3.3-1                                      | 0.451        | 0.519    | 0.451      | 0.519    |         |         |
| PUMP1   | PUMP1                | CO                                  | AP-42 Table 3.3-1                                      | 1.470        | 1.690    | 1.470      | 1.690    |         |         |
| PUMP1   | PUMP1                | HAP/TAP<br>Xylene<br>(CAS# 1330207) | AP-42 Table 3.3-2                                      | 1.60E-04     | 1.83E-04 | 1.60E-04   | 1.83E-04 |         |         |



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| POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY |                      |   |  |              |          |            |          |         |         |
|---|----------------------|---|--|--------------|----------|------------|----------|---------|---------|
| Equipment ID<br>/ Process ID                        | Emission<br>Point ID | Pollutants<br>(Include CAS #)             | Calculation Methods / Limits Taken /<br>Other Comments | Uncontrolled |          | Controlled |          | Limited |         |
|   |                      |   |  | lbs/hr       | tons/yr  | lbs/hr     | tons/yr  | lbs/hr  | tons/yr |
| PUMP1   | PUMP1                | HAP/TAP<br>1,3-Butadiene<br>(CAS# 106990) | AP-42 Table 3.3-2                                      | 2.19E-05     | 2.52E-05 | 2.19E-05   | 2.52E-05 |         |         |
| PUMP1   | PUMP1                | HAP/TAP<br>Formaldehyde<br>(CAS# 50000)   | AP-42 Table 3.3-2                                      | 6.61E-04     | 7.60E-04 | 6.61E-04   | 7.60E-04 |         |         |
| PUMP1   | PUMP1                | HAP/TAP<br>Acetaldehyde<br>(CAS# 75070)   | AP-42 Table 3.3-2                                      | 4.29E-04     | 4.94E-04 | 4.29E-04   | 4.94E-04 |         |         |
| PUMP1   | PUMP1                | HAP/TAP<br>Acrolein<br>(CAS# 107028)      | AP-42 Table 3.3-2                                      | 5.18E-05     | 5.96E-05 | 5.18E-05   | 5.96E-05 |         |         |
| PUMP1   | PUMP1                | HAP/TAP<br>Benzene<br>(CAS# 71432)        | AP-42 Table 3.3-2                                      | 5.22E-04     | 6.01e-04 | 5.22E-04   | 6.01e-04 |         |         |
| PUMP1   | PUMP1                | HAP/TAP<br>Toluene<br>(CAS# 108883)       | AP-42 Table 3.3-2                                      | 2.29e-04     | 2.63e-04 | 2.29e-04   | 2.63e-04 |         |         |



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**APPLICATION IDENTIFICATION**

*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*

|   |   |                   |
|---|---|-------------------|
| Facility Name<br><i>(This should be the name used to identify the facility)</i> | SC Air Permit Number (8-digits only)<br><i>(Leave blank if one has never been assigned)</i> | Application Date  |
| Vulcan Construction Materials, LLC (Lexington Quarry)                           | -   | November 20, 2015 |

**STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS**

*(If not listed below add any additional regulations that are triggered.)*

| Regulation   | Applicable                          |                                     | Include all limits, work practices, monitoring, record keeping, etc.                                       |  |   |
|--|-------------------------------------|-------------------------------------|--|--|---|
|  | Yes                                 | No                                  | Explain Applicability Determination  | List the specific limitations and/or requirements that apply.  | How will compliance be demonstrated?  |
| Regulation 61-62.1, Section II(E)<br>Synthetic Minor Construction Permits    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The facility will request a Conditional Major Operating Permit after the construction of the new equipment | The facility wide federally enforceable limits of less than 100 TPY for PM10   | The facility will comply with the PM10 emission limits by limiting the input to the process   |
| Regulation 61-62.1, Section II(G)<br>Conditional Major Operating Permits     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The facility will request a Conditional Major Operating Permit after the construction of the new equipment | The facility wide federally enforceable limits of less than 100 TPY for PM10   | The facility will comply with the PM10 emission limits by limiting the input to the process   |
| Regulation 61-62.5, Standard No. 1<br>Emissions from Fuel Burning Operations | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The facility plans to operate a de-watering pump using diesel fuel.  | Opacity, PM, and SO2 emission limitations per Sections I, II, and III.   | Monitoring not required.  |
| Regulation 61-62.5, Standard No. 2<br>Ambient Air Quality Standards          | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The facility emits criteria pollutants   | Limits by pollutant as presented in Standard 2.  | Air dispersion modeling.  |
| Regulation 61-62.5, Standard No. 3<br>Waste Combustion and Reduction         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | NO WASTE COMBUSTION  |  |   |
| Regulation 61-62.5, Standard No. 4<br>Emissions from Process Industries      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The quarry will have non-enclosed operations and crushing operations.                                      | The facility has an opacity limit of 20% imposed by this standard due to construction commencing after December 31, 1985. The facility has a PM allowable emissions rate (based on a process weight rate in tons per hour) imposed by this standard. | Standard 4 emissions calculations demonstrate that the facility will be in compliance with the particulate matter limits set forth by this standard |
| Regulation 61-62.5, Standard No. 5<br>Volatile Organic Compounds             | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |  |  |   |



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| <b>STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS</b><br><i>(If not listed below add any additional regulations that are triggered.)</i> |                                     |                                     |   |  |  |
|---|-------------------------------------|-------------------------------------|---|--|--|
| <b>Regulation</b>   | <b>Applicable</b>                   |                                     | <b>Include all limits, work practices, monitoring, record keeping, etc.</b>                                       |  |  |
|   | <b>Yes</b>                          | <b>No</b>                           | <b>Explain Applicability Determination</b>  | <b>List the specific limitations and/or requirements that apply.</b>   | <b>How will compliance be demonstrated?</b>  |
| Regulation 61-62.5, Standard No. 5.2<br>Control of Oxides of Nitrogen   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The facility plans to operate a de-watering pump using diesel fuel.   | Per Section III, V, and VI   | The proposed engine is designed to comply with non-road emissions regulations and is an Interim Tier 4/Stage IIIB engine                                   |
| Regulation 61-62.5, Standard No. 7<br>Prevention of Significant Deterioration*  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Lexington County has set a baseline date for PM10, NOx, and SO2   | Maximum allowable increase per Section C   | Air dispersion modeling.   |
| Regulation 61-62.5, Standard No. 7.1<br>Nonattainment New Source Review*  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Not located in non-attainment area  |  |  |
| Regulation 61-62.5, Standard No. 8<br>Toxic Air Pollutants  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | The facility will only using virgin fuel.   |  |  |
| Regulation 61-62.6<br>Control of Fugitive Particulate Matter  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | All facilities are subject  | Per Section III(a)-(d)   | N/A  |
| Regulation 61-62.68<br>Chemical Accident Prevention Provisions  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |   |  |  |
| Regulation 61-62.70<br>Title V Operating Permit Program   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |   |  |  |
| 40 CFR Part 64 - Compliance Assurance<br>Monitoring (CAM)   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |   |  |  |
| 40 CFR 60 Subpart A - General Provisions  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Vulcan plans to construct a non-metallic mineral mining facility and will have a diesel engine operating on site. |  | Notifications, performance testing, recordkeeping, monitoring, and control requirements as applicable.   |
| Subpart OOO   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Non-metallic mineral mining facility  | Opacity limitations based on equipment   | The facility will maintain wet suppression during operation, equipment startup/shutdown records, and records of equipment and control device malfunctions. |
| Subpart IIII  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Diesel engine for de-watering pump  | Emissions limits per 40CFR60.4204 and 40CFR60.4206. Monitoring and compliance requirements per 40CFR60.4209, and 40CFR60.4211. | Manufacturer's emission certification. Maintenance records.  |



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| STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS               |                                     |                                     |  |   |                                      |
|---|-------------------------------------|-------------------------------------|--|---|--------------------------------------|
| <i>(If not listed below add any additional regulations that are triggered.)</i> |                                     |                                     |  |   |                                      |
| Regulation  | Applicable                          |                                     | Include all limits, work practices, monitoring, record keeping, etc.           |   |                                      |
|   | Yes                                 | No                                  | Explain Applicability Determination  | List the specific limitations and/or requirements that apply. | How will compliance be demonstrated? |
|   | <input type="checkbox"/>            | <input type="checkbox"/>            |  |   |                                      |
|   | <input type="checkbox"/>            | <input type="checkbox"/>            |  |   |                                      |
| 40 CFR 61 Subpart A - General Provisions  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |  |   |                                      |
|   | <input type="checkbox"/>            | <input type="checkbox"/>            |  |   |                                      |
| 40 CFR 63 Subpart A - General Provisions  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |  |   |                                      |
| Subpart ZZZZ  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The Facility is subject to Subpart ZZZZ with the operation of a diesel engine. | N/A   | Comply with 40 CFR 60 Subpart IIII   |
|   | <input type="checkbox"/>            | <input type="checkbox"/>            |  |   |                                      |
|   | <input type="checkbox"/>            | <input type="checkbox"/>            |  |   |                                      |
|   | <input type="checkbox"/>            | <input type="checkbox"/>            |  |   |                                      |

\* Green House Gas emissions must be quantified if these regulations are triggered.





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**A. APPLICATION IDENTIFICATION**

|   |  |
|---|--|
| 1. Facility Name: Vulcan Construction Material, LLC (Lexington Quarry)                                      |  |
| 2. SC Air Permit Number (if known; 8-digits only): -  | 3. Application Date: November 20, 2015 |
| 4. Project Description: Vulcan plans to install equipment for a 1,700 ton per hour aggregate mining quarry. |  |

**B. FACILITY INFORMATION**

|  |  |
|--|--|
| 1. Is your company a Small Business? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                   | 2. If a Small Business or small government facility, is Bureau assistance being requested?<br><input type="checkbox"/> Yes <input type="checkbox"/> No |
| 3. Are other facilities collocated for air compliance? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 4. If Yes, provide permit numbers of collocated facilities:  |

**C. AIR CONTACT**

|  |                         |                    |                 |
|--|-------------------------|--------------------|-----------------|
| Consulting Firm Name (if applicable): SynTerra |                         |                    |                 |
| Title/Position: Project Engineer               | Salutation: Ms.         | First Name: Andrea | Last Name: Kehn |
| Mailing Address: 148 River St., Suite 220      |                         |                    |                 |
| City: Greenville                               | State: SC               | Zip Code: 29601    |                 |
| E-mail Address: akehrn@synterracorp.com        | Phone No.: 864-527-4636 | Cell No.: N/A      |                 |

**D. EMISSION POINT DISPERSION PARAMETERS**

Source data requirements are based on the appropriate source classification. Each emission point is classified as a point, area, volume, or flare source. Contact the Bureau of Air Quality for clarification of data requirements. Include sources on a scaled site map. Also, a picture of area or volume sources would be helpful but is not required. A user generated document or spreadsheet may be substituted in lieu of this form provided all of the required emission point parameters are submitted in the same order, units, etc. as presented in these tables.

Abbreviations / Units of Measure: UTM = Universal Transverse Mercator; °N = Degrees North; °W = Degrees West; m = meters; AGL = Above Ground Level; ft = feet; ft/s = feet per second; ° = Degrees; °F = Degrees Fahrenheit





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| E. POINT SOURCE DATA   |                   |                                      |            |          |           |                         |            |                      |                      |                       |                 |  |             |             |            |
|--|-------------------|--------------------------------------|------------|----------|-----------|-------------------------|------------|----------------------|----------------------|-----------------------|-----------------|--|-------------|-------------|------------|
| (Point sources such as stacks, chimneys, exhaust fans, and vents.) |                   |                                      |            |          |           |                         |            |                      |                      |                       |                 |  |             |             |            |
| Emission Point ID  | Description/Name  | Point Source Coordinates Projection: |            |          |           | Release Height AGL (ft) | Temp. (°F) | Exit Velocity (ft/s) | Inside Diameter (ft) | Discharge Orientation | Rain Cap? (Y/N) | Distance To Nearest Property Boundary (ft) | Building    |             |            |
|  |                   | UTM E (m)                            | UTM N (m)  | Lat (°N) | Long (°W) |                         |            |                      |                      |                       |                 |  | Height (ft) | Length (ft) | Width (ft) |
| PUMP1  | Dewatering Pump#1 | 456852.410000001                     | 3756638.92 |          |           | 4                       | ambient    | 0.003                | 1                    | horizontal            | N               | See modeling files                         | n/a         | n/a         | n/a        |
|  |                   |                                      |            |          |           |                         |            |                      |                      |                       |                 |  |             |             |            |
|  |                   |                                      |            |          |           |                         |            |                      |                      |                       |                 |  |             |             |            |
|  |                   |                                      |            |          |           |                         |            |                      |                      |                       |                 |  |             |             |            |

| <b>F. AREA SOURCE DATA</b><br>(Area sources such as storage piles, and other sources that have low level or ground level releases with no plumes.) |                  |                                     |           |          |           |                         |                      |                       |                      |
|--|------------------|-------------------------------------|-----------|----------|-----------|-------------------------|----------------------|-----------------------|----------------------|
| Emission Point ID  | Description/Name | Area Source Coordinates Projection: |           |          |           | Release Height AGL (ft) | Easterly Length (ft) | Northerly Length (ft) | Angle From North (°) |
|  |                  | UTM E (m)                           | UTM N (m) | Lat (°N) | Long (°W) |                         |                      |                       |                      |
|  |                  |                                     |           |          |           |                         |                      |                       |                      |
|  |                  |                                     |           |          |           |                         |                      |                       |                      |
|  |                  |                                     |           |          |           |                         |                      |                       |                      |

| <b>G. VOLUME SOURCE DATA</b><br>(Volume sources such as building fugitives that have initial dispersion vertical depth prior to release.) |                                |   |            |          |           |                         |                                   |
|---|--------------------------------|---|------------|----------|-----------|-------------------------|-----------------------------------|
| Emission Point ID   | Description/Name               | Volume Source Coordinates Projection: NAD83 |            |          |           | Release Height AGL (ft) | Initial Horizontal Dimension (ft) |
|   |                                | UTM E (m)                                   | UTM N (m)  | Lat (°N) | Long (°W) |                         |                                   |
| FDR001  | GRIZZLY FEEDER & TRK UNLOADING | 456911.756                                  | 3756379.96 |          |           | 485                     | 2.33                              |
| CRS001  | PRIMARY CRUSHER #1             | 456914.925                                  | 3756379.74 |          |           | 465                     | 1.16                              |
| CRS002  | SECONDARY CRUSHER #2           | 457056.141                                  | 3756286.49 |          |           | 620                     | 1.16                              |
| CRS003  | TERTIARY CRUSHER #3            | 457197.211                                  | 3756409.9  |          |           | 620                     | 1.16                              |
| CRS004  | TERTIARY CRUSHER #4            | 457195.687                                  | 3756406.58 |          |           | 620                     | 1.16                              |
| SCR001  | SCREEN #1                      | 457055.897                                  | 3756283.47 |          |           | 640                     | 2.94                              |



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| G. VOLUME SOURCE DATA   |                  |  |                |             |              |                               |                                      |                                    |  |
|---|------------------|--|----------------|-------------|--------------|-------------------------------|--------------------------------------|------------------------------------|--|
| (Volume sources such as building fugitives that have initial dispersion vertical depth prior to release.) |                  |  |                |             |              |                               |                                      |                                    |  |
| Emission Point ID   | Description/Name | Volume Source Coordinates<br>Projection: NAD83 |                |             |              | Release Height<br>AGL<br>(ft) | Initial Horizontal Dimension<br>(ft) | Initial Vertical Dimension<br>(ft) | Distance To Nearest Property<br>Boundary<br>(ft) |
|   |                  | UTM E<br>(m)                                   | UTM N<br>(m)   | Lat<br>(°N) | Long<br>(°W) |                               |                                      |                                    |  |
| SCR002  | SCREEN #2        | 457216.2<br>25                                 | 3756363<br>.85 |             |              | 640                           | 2.94                                 | 3.49                               | See modeling files                               |
| SCR003  | SCREEN #3        | 457218.4<br>5                                  | 3756360<br>.17 |             |              | 640                           | 2.94                                 | 3.49                               | See modeling files                               |
| SCR004  | SCREEN #4        | 457285.0<br>68                                 | 3756401<br>.18 |             |              | 640                           | 2.94                                 | 3.49                               | See modeling files                               |
| SCR005  | SCREEN #5        | 457287.3<br>23                                 | 3756397<br>.44 |             |              | 640                           | 2.94                                 | 3.49                               | See modeling files                               |
| CNV001  | CONVEYOR #1      | 456909.4<br>09                                 | 3756380<br>.17 |             |              | 470                           | 1.05                                 | 1.16                               | See modeling files                               |
| CNV002  | CONVEYOR #2      | 457119.4<br>08                                 | 3756359<br>.96 |             |              | 670                           | 1.05                                 | 1.16                               | See modeling files                               |
| CNV003  | CONVEYOR #3      | 457058.2<br>44                                 | 3756287<br>.98 |             |              | 665                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV004  | CONVEYOR #4      | 457063.0<br>28                                 | 3756275<br>.76 |             |              | 620                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV005  | CONVEYOR #5      | 457077.6<br>85                                 | 3756247<br>.23 |             |              | 665                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV006  | CONVEYOR #6      | 457077.6<br>85                                 | 3756247<br>.23 |             |              | 642                           | 0.93                                 | 1.16                               | See modeling files                               |
| CNV007  | CONVEYOR #7      | 457221.1<br>01                                 | 3756363<br>.95 |             |              | 673                           | 0.93                                 | 1.16                               | See modeling files                               |
| CNV008  | CONVEYOR #8      | 457201.2<br>64                                 | 3756403<br>.56 |             |              | 650                           | 0.81                                 | 1.16                               | See modeling files                               |
| CNV009  | CONVEYOR #9      | 457203.0<br>92                                 | 3756406<br>.92 |             |              | 650                           | 0.81                                 | 1.16                               | See modeling files                               |
| CNV010  | CONVEYOR #10     | 457197.9<br>42                                 | 3756409<br>.63 |             |              | 630                           | 0.81                                 | 1.16                               | See modeling files                               |
| CNV011  | CONVEYOR #11     | 457196.1<br>44                                 | 3756406<br>.25 |             |              | 630                           | 0.81                                 | 1.16                               | See modeling files                               |
| CNV012  | CONVEYOR #12     | 457190.8<br>41                                 | 3756397<br>.26 |             |              | 615                           | 0.93                                 | 1.16                               | See modeling files                               |
| CNV013  | CONVEYOR #13     | 457157.8<br>96                                 | 3756333<br>.53 |             |              | 635                           | 0.93                                 | 1.16                               | See modeling files                               |
| CNV014  | CONVEYOR #14     | 457291.0<br>72                                 | 3756404<br>.38 |             |              | 665                           | 0.81                                 | 1.16                               | See modeling files                               |
| CNV015  | CONVEYOR #15     | 457293.1<br>14                                 | 3756400<br>.51 |             |              | 665                           | 0.81                                 | 1.16                               | See modeling files                               |
| CNV016  | CONVEYOR #16     | 457217.6<br>58                                 | 3756371<br>.02 |             |              | 632                           | 0.70                                 | 1.16                               | See modeling files                               |

| G. VOLUME SOURCE DATA   |                  |  |                |             |               |                               |                                      |                                    |  |
|---|------------------|--|----------------|-------------|---------------|-------------------------------|--------------------------------------|------------------------------------|--|
| (Volume sources such as building fugitives that have initial dispersion vertical depth prior to release.) |                  |  |                |             |               |                               |                                      |                                    |  |
| Emission Point ID   | Description/Name | Volume Source Coordinates<br>Projection: NAD83 |                |             |               | Release Height<br>AGL<br>(ft) | Initial Horizontal Dimension<br>(ft) | Initial Vertical Dimension<br>(ft) | Distance To Nearest Property<br>Boundary<br>(ft) |
|   |                  | UTM E<br>(m)                                   | UTM N<br>(m)   | Lat<br>(°N) | Long<br>(° W) |                               |                                      |                                    |  |
| CNV017  | CONVEYOR #17     | 457219.0<br>59                                 | 3756352<br>.43 |             |               | 627                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV018  | CONVEYOR #18     | 457221.4<br>65                                 | 3756307<br>.17 |             |               | 670                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV019  | CONVEYOR #19     | 457228.2<br>93                                 | 3756355<br>.66 |             |               | 627                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV020  | CONVEYOR #20     | 457249.7<br>46                                 | 3756326<br>.52 |             |               | 670                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV021  | CONVEYOR #21     | 457284.2<br>76                                 | 3756388<br>.99 |             |               | 627                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV022  | CONVEYOR #22     | 457286.3<br>46                                 | 3756341<br>.39 |             |               | 670                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV023  | CONVEYOR #23     | 457292.0<br>16                                 | 3756390<br>.76 |             |               | 627                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV024  | CONVEYOR #24     | 457317.0<br>35                                 | 3756358<br>.95 |             |               | 670                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV025  | CONVEYOR #25     | 457298.2<br>64                                 | 3756394<br>.63 |             |               | 627                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV026  | CONVEYOR #26     | 457350.6<br>49                                 | 3756377<br>.41 |             |               | 670                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV027  | CONVEYOR #27     | 457395.5<br>99                                 | 3756402<br>.4  |             |               | 615                           | 0.81                                 | 1.16                               | See modeling files                               |
| CNV028  | CONVEYOR #28     | 457392.0<br>33                                 | 3756367<br>.57 |             |               | 655                           | 0.70                                 | 1.16                               | See modeling files                               |
| CNV029  | CONVEYOR #29     | 457505.4<br>6                                  | 3756415<br>.74 |             |               | 685                           | 0.81                                 | 1.16                               | See modeling files                               |
| SBN001  | BIN #1           | 457058.2<br>44                                 | 3756287<br>.98 |             |               | 632                           | 0.70                                 | 1.40                               | See modeling files                               |
| SBN002  | BIN #2           | 457201.2<br>64                                 | 3756403<br>.56 |             |               | 632                           | 0.70                                 | 1.40                               | See modeling files                               |
| SBN003  | BIN #3           | 457203.0<br>92                                 | 3756406<br>.92 |             |               | 632                           | 0.70                                 | 1.40                               | See modeling files                               |



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| H. FLARE SOURCE DATA  |                  |                          |           |          |            |                         |                            |  |             |             |            |
|---|------------------|--------------------------|-----------|----------|------------|-------------------------|----------------------------|--|-------------|-------------|------------|
| (Point sources where the combustion takes place at the tip of the stack.) |                  |                          |           |          |            |                         |                            |  |             |             |            |
| Emission Point ID   | Description/Name | Flare Source Coordinates |           |          |            | Release Height AGL (ft) | Heat Release Rate (BTU/hr) | Distance To Nearest Property Boundary (ft) | Building    |             |            |
|   |                  | Projection:              |           |          |            |                         |                            |  | Height (ft) | Length (ft) | Width (ft) |
|   |                  | UTM E (m)                | UTM N (m) | Lat (°N) | Long (° W) |                         |                            |  |             |             |            |
|   |                  |                          |           |          |            |                         |                            |  |             |             |            |
|   |                  |                          |           |          |            |                         |                            |  |             |             |            |
|   |                  |                          |           |          |            |                         |                            |  |             |             |            |

| I. AREA CIRCULAR SOURCE DATA |                  |                                  |              |             |               |                            |                        |  |
|------------------------------|------------------|----------------------------------|--------------|-------------|---------------|----------------------------|------------------------|--|
| Emission Point ID            | Description/Name | Area Circular Source Coordinates |              |             |               | Release Height<br>AGL (ft) | Radius of Area<br>(ft) | Distance To Nearest Property<br>Boundary<br>(ft) |
|                              |                  | Projection:                      |              |             |               |                            |                        |  |
|                              |                  | UTM E<br>(m)                     | UTM N<br>(m) | Lat<br>(°N) | Long<br>(° W) |                            |                        |  |
|                              |                  |                                  |              |             |               |                            |                        |  |
|                              |                  |                                  |              |             |               |                            |                        |  |
|                              |                  |                                  |              |             |               |                            |                        |  |

| J. AREA POLY SOURCE DATA |                  |                              |              |                            |                    |
|--------------------------|------------------|------------------------------|--------------|----------------------------|--------------------|
| Emission Point ID        | Description/Name | Area Poly Source Coordinates |              | Release Height<br>AGL (ft) | Number of Vertices |
|                          |                  | Projection:                  |              |                            |                    |
|                          |                  | UTM E<br>(m)                 | UTM N<br>(m) |                            |                    |
|                          |                  |                              |              |                            |                    |
|                          |                  |                              |              |                            |                    |
|                          |                  |                              |              |                            |                    |

| K. OPEN PIT SOURCE DATA |                  |                             |           |                         |                      |                       |              |                      |
|-------------------------|------------------|-----------------------------|-----------|-------------------------|----------------------|-----------------------|--------------|----------------------|
| Emission Point ID       | Description/Name | Open Pit Source Coordinates |           | Release Height AGL (ft) | Easterly Length (ft) | Northerly Length (ft) | Volume (ft³) | Angle From North (°) |
|                         |                  | Projection:                 |           |                         |                      |                       |              |                      |
|                         |                  | UTM E (m)                   | UTM N (m) |                         |                      |                       |              |                      |
|                         |                  |                             |           |                         |                      |                       |              |                      |
|                         |                  |                             |           |                         |                      |                       |              |                      |
|                         |                  |                             |           |                         |                      |                       |              |                      |



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| L. EMISSION RATES |                |       |                       |   |                            |                  |
|-------------------|----------------|-------|-----------------------|---|----------------------------|------------------|
| Emission Point ID | Pollutant Name | CAS # | Emission Rate (lb/hr) | Same as Permitted <sup>(1)</sup>                                    | Controlled or Uncontrolled | Averaging Period |
| FDR001            | PM10           | N/A   | 0.002                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CRS001            | PM10           | N/A   | 0.594                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CRS002            | PM10           | N/A   | 0.594                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CRS003            | PM10           | N/A   | 0.459                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CRS004            | PM10           | N/A   | 0.459                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| SCR001            | PM10           | N/A   | 1.258                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| SCR002            | PM10           | N/A   | 1.110                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| SCR003            | PM10           | N/A   | 1.110                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| SCR004            | PM10           | N/A   | 1.110                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| SCR005            | PM10           | N/A   | 1.110                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV001            | PM10           | N/A   | 0.078                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV002            | PM10           | N/A   | 0.078                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV003            | PM10           | N/A   | 0.078                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV004            | PM10           | N/A   | 0.025                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV005            | PM10           | N/A   | 0.025                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV006            | PM10           | N/A   | 0.028                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV007            | PM10           | N/A   | 0.138                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV008            | PM10           | N/A   | 0.037                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV009            | PM10           | N/A   | 0.037                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV010            | PM10           | N/A   | 0.037                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV011            | PM10           | N/A   | 0.037                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV012            | PM10           | N/A   | 0.074                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV013            | PM10           | N/A   | 0.074                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV014            | PM10           | N/A   | 0.037                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV015            | PM10           | N/A   | 0.037                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV016            | PM10           | N/A   | 0.023                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV017            | PM10           | N/A   | 0.023                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV018            | PM10           | N/A   | 0.023                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV019            | PM10           | N/A   | 0.023                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV020            | PM10           | N/A   | 0.023                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV021            | PM10           | N/A   | 0.023                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV022            | PM10           | N/A   | 0.023                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |
| CNV023            | PM10           | N/A   | 0.023                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr            |





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| <b>L. EMISSION RATES</b> |                       |              |                              |   |                                   |                         |
|--------------------------|-----------------------|--------------|------------------------------|---|-----------------------------------|-------------------------|
| <b>Emission Point ID</b> | <b>Pollutant Name</b> | <b>CAS #</b> | <b>Emission Rate (lb/hr)</b> | <b>Same as Permitted <sup>(1)</sup></b>                             | <b>Controlled or Uncontrolled</b> | <b>Averaging Period</b> |
| CNV024                   | PM10                  | N/A          | 0.023                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr                   |
| CNV025                   | PM10                  | N/A          | 0.023                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr                   |
| CNV026                   | PM10                  | N/A          | 0.023                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr                   |
| CNV027                   | PM10                  | N/A          | 0.069                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr                   |
| CNV028                   | PM10                  | N/A          | 0.032                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr                   |
| CNV029                   | PM10                  | N/A          | 0.069                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr                   |
| SBN001                   | PM10                  | N/A          | 0.051                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr                   |
| SBN002                   | PM10                  | N/A          | 0.037                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr                   |
| SBN003                   | PM10                  | N/A          | 0.037                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr                   |
| FDR001                   | PM2.5                 | N/A          | 0.000                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CRS001                   | PM2.5                 | N/A          | 0.110                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CRS002                   | PM2.5                 | N/A          | 0.110                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CRS003                   | PM2.5                 | N/A          | 0.085                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CRS004                   | PM2.5                 | N/A          | 0.085                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| SCR001                   | PM2.5                 | N/A          | 0.085                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| SCR002                   | PM2.5                 | N/A          | 0.075                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| SCR003                   | PM2.5                 | N/A          | 0.075                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| SCR004                   | PM2.5                 | N/A          | 0.075                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| SCR005                   | PM2.5                 | N/A          | 0.075                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV001                   | PM2.5                 | N/A          | 0.022                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV002                   | PM2.5                 | N/A          | 0.022                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV003                   | PM2.5                 | N/A          | 0.022                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV004                   | PM2.5                 | N/A          | 0.007                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV005                   | PM2.5                 | N/A          | 0.007                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV006                   | PM2.5                 | N/A          | 0.008                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV007                   | PM2.5                 | N/A          | 0.039                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV008                   | PM2.5                 | N/A          | 0.010                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV009                   | PM2.5                 | N/A          | 0.010                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV010                   | PM2.5                 | N/A          | 0.010                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV011                   | PM2.5                 | N/A          | 0.010                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV012                   | PM2.5                 | N/A          | 0.021                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV013                   | PM2.5                 | N/A          | 0.021                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV014                   | PM2.5                 | N/A          | 0.010                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |
| CNV015                   | PM2.5                 | N/A          | 0.010                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                        | 24-hr, Annual           |



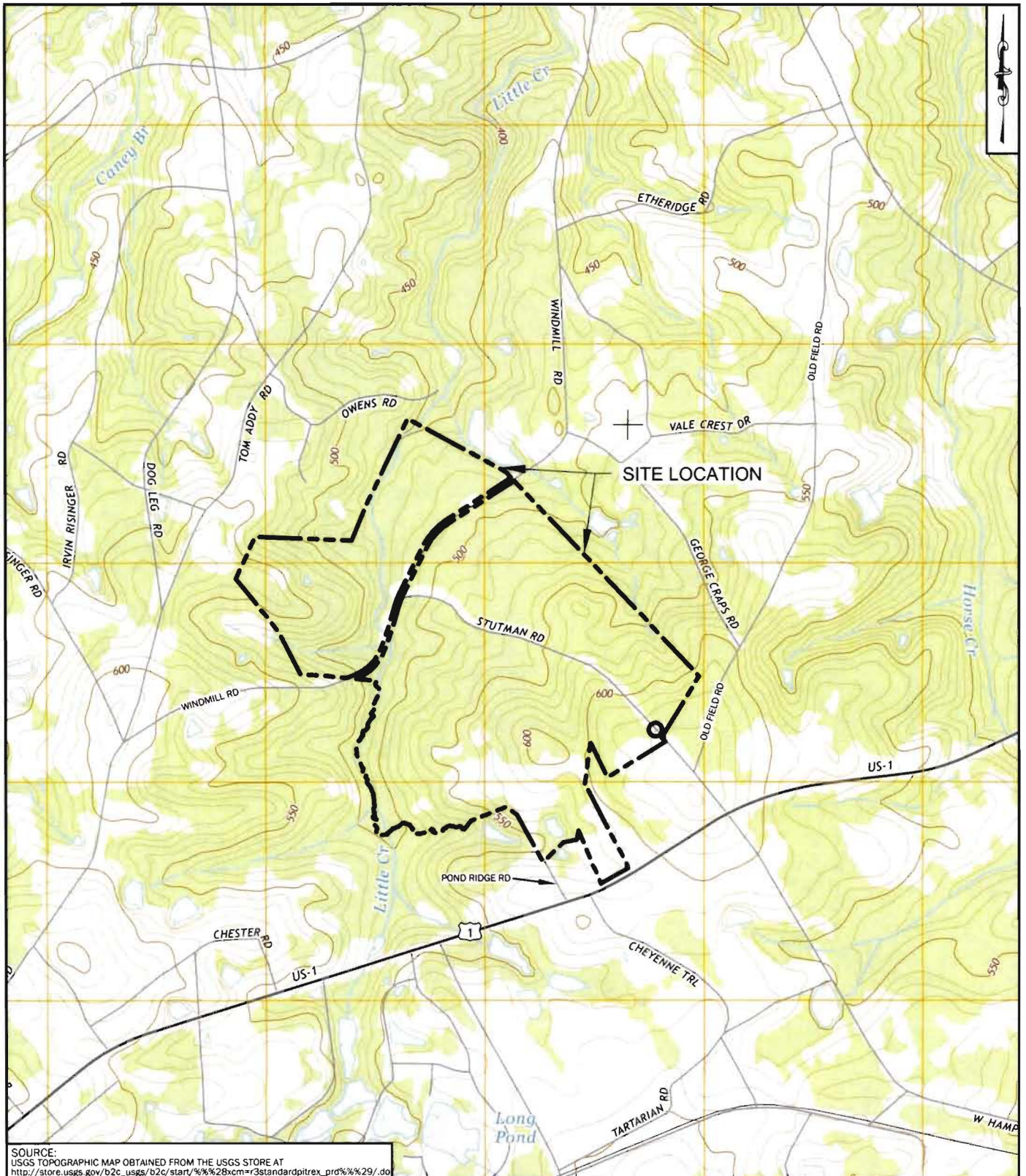
**Bureau of Air Quality**  
**Emission Point Information**  
 Page 8 of 8

| L. EMISSION RATES |                |       |                       |   |                            |                  |
|-------------------|----------------|-------|-----------------------|---|----------------------------|------------------|
| Emission Point ID | Pollutant Name | CAS # | Emission Rate (lb/hr) | Same as Permitted <sup>(1)</sup>                                    | Controlled or Uncontrolled | Averaging Period |
| CNV016            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV017            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV018            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV019            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV020            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV021            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV022            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV023            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV024            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV025            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV026            | PM2.5          | N/A   | 0.007                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV027            | PM2.5          | N/A   | 0.020                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV028            | PM2.5          | N/A   | 0.009                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| CNV029            | PM2.5          | N/A   | 0.020                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| SBN001            | PM2.5          | N/A   | 0.014                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| SBN002            | PM2.5          | N/A   | 0.010                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| SBN003            | PM2.5          | N/A   | 0.010                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Controlled                 | 24-hr, Annual    |
| PUMPI             | PM10           | N/A   | 0.018                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Uncontrolled               | 24-hr            |
| PUMPI             | PM2.5          | N/A   | 0.018                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Uncontrolled               | 24-hr, Annual    |
| PUMPI             | CO             | N/A   | 1.47                  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Uncontrolled               | 1-hr, 8-hr       |
| PUMPI             | NOx            | N/A   | 0.723                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Uncontrolled               | 1-hr, Annual     |
| PUMPI             | SO2            | N/A   | 0.451                 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Uncontrolled               | 1-hr             |

(1) Any difference between the rates used for permitting and the air compliance demonstration must be explained in the application report.

## **APPENDIX B FIGURES**





SOURCE:  
USGS TOPOGRAPHIC MAP OBTAINED FROM THE USGS STORE AT  
[http://store.usgs.gov/b2c\\_usgs/b2c/start/%%28xcm=r3standardpitrex\\_prd%%29/./do](http://store.usgs.gov/b2c_usgs/b2c/start/%%28xcm=r3standardpitrex_prd%%29/./do)



148 RIVER STREET, SUITE 220  
GREENVILLE, SOUTH CAROLINA  
PHONE 864-421-9999  
[www.synterracorp.com](http://www.synterracorp.com)



LEXINGTON COUNTY

**FIGURE 1**  
**USGS TOPOGRAPHIC MAP**  
**VULCAN MATERIALS COMPANY**  
**LEESVILLE, SOUTH CAROLINA**  
**GILBERT SC QUADRANGLE**

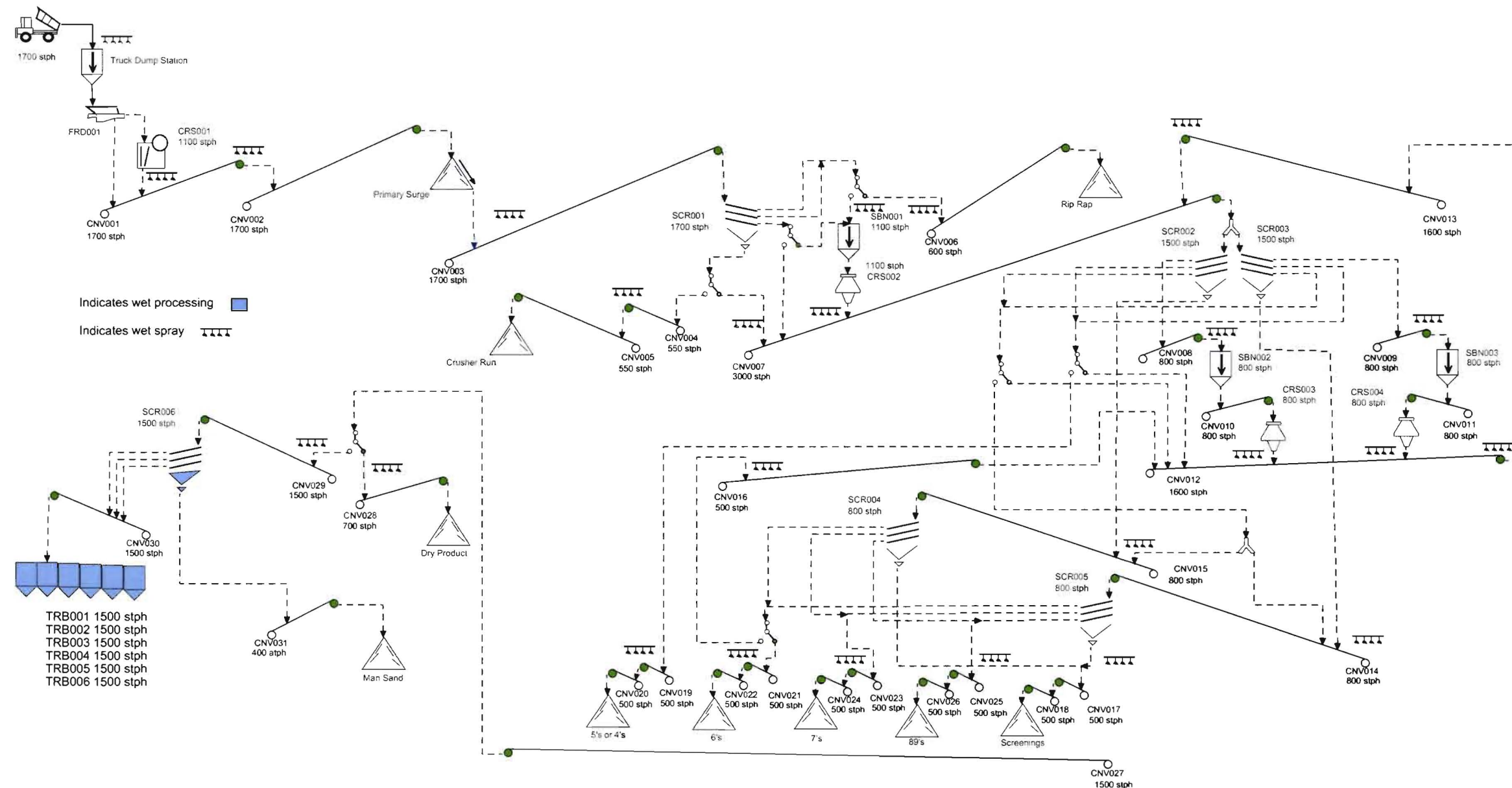
DRAWN BY: C. NEWELL  
PROJECT MANAGER: A. KEHN  
LAYOUT: FIG 1 (USGS)

DATE: 11/11/2015  
CONTOUR INTERVAL: 10 FEET  
MAP DATE: 2014

GRAPHIC SCALE  
1000 0 1000 2000  
IN FEET

P:\Vulcan Construction Materials\963\02 Air Modeling\08 Lexington Air Permit\DWG\FIG 1-VULCAN LEXINGTON USGS MAP.dwg





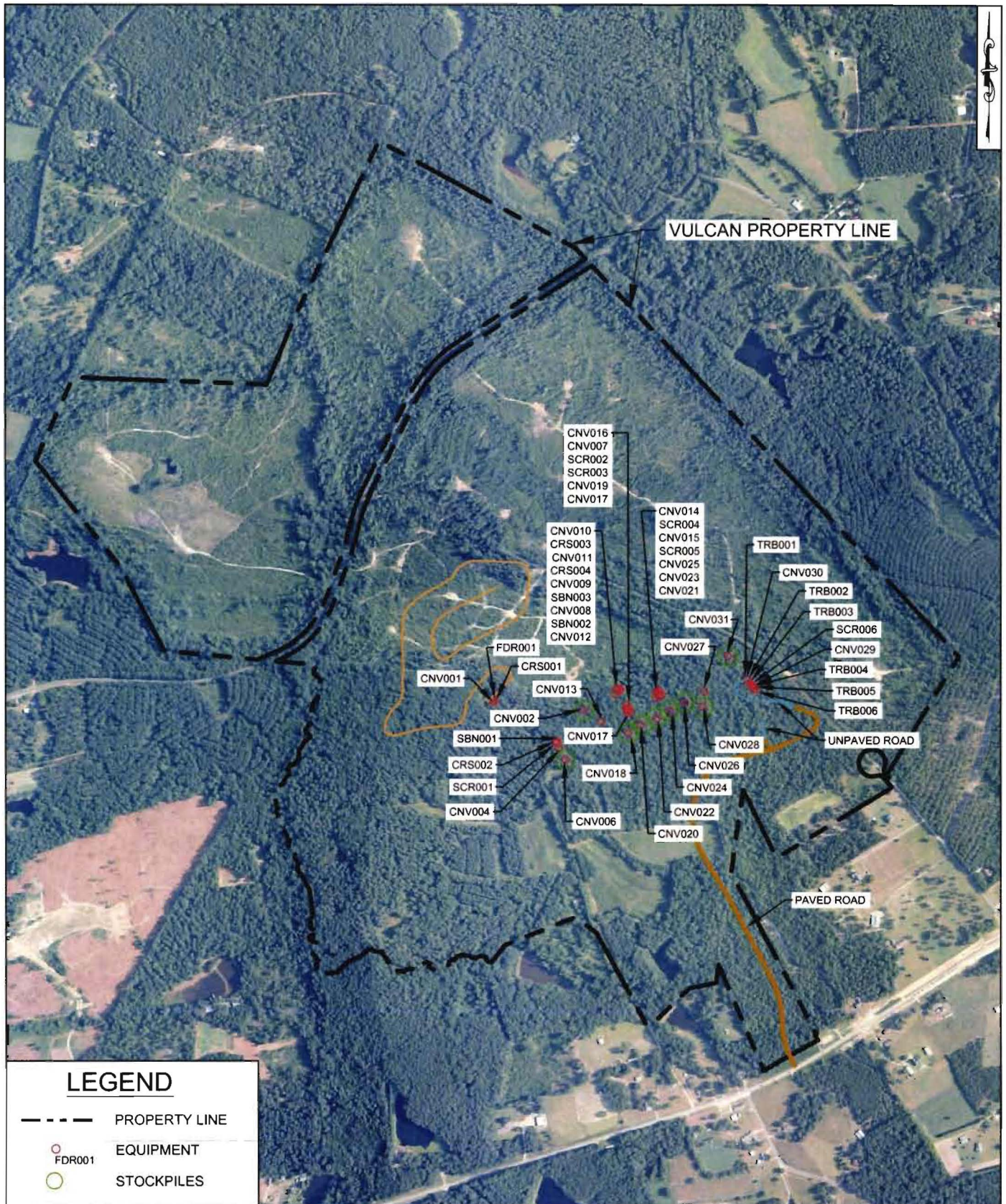
Calculation results may differ due to variations in operating conditions and application of crushing and screening equipment. This information does not constitute an express or implied warranty, but shows results of calculations based on information provided by customers or equipment manufacturers. Use this information for estimating purposes only.

All calculations performed by AggFlow. <http://www.AggFlow.com>

Lexington Quarry  
Plant Flow  
Vulcan Construction Materials  
Page #1

Date: November/17/2015





## LEGEND

- PROPERTY LINE
- FDR001 EQUIPMENT
- STOCKPILES



GRAPHIC SCALE  
150 0 150 300  
IN METERS

148 RIVER STREET, SUITE 220  
GREENVILLE, SOUTH CAROLINA 29601  
PHONE 864-421-9999  
www.synterracorp.com

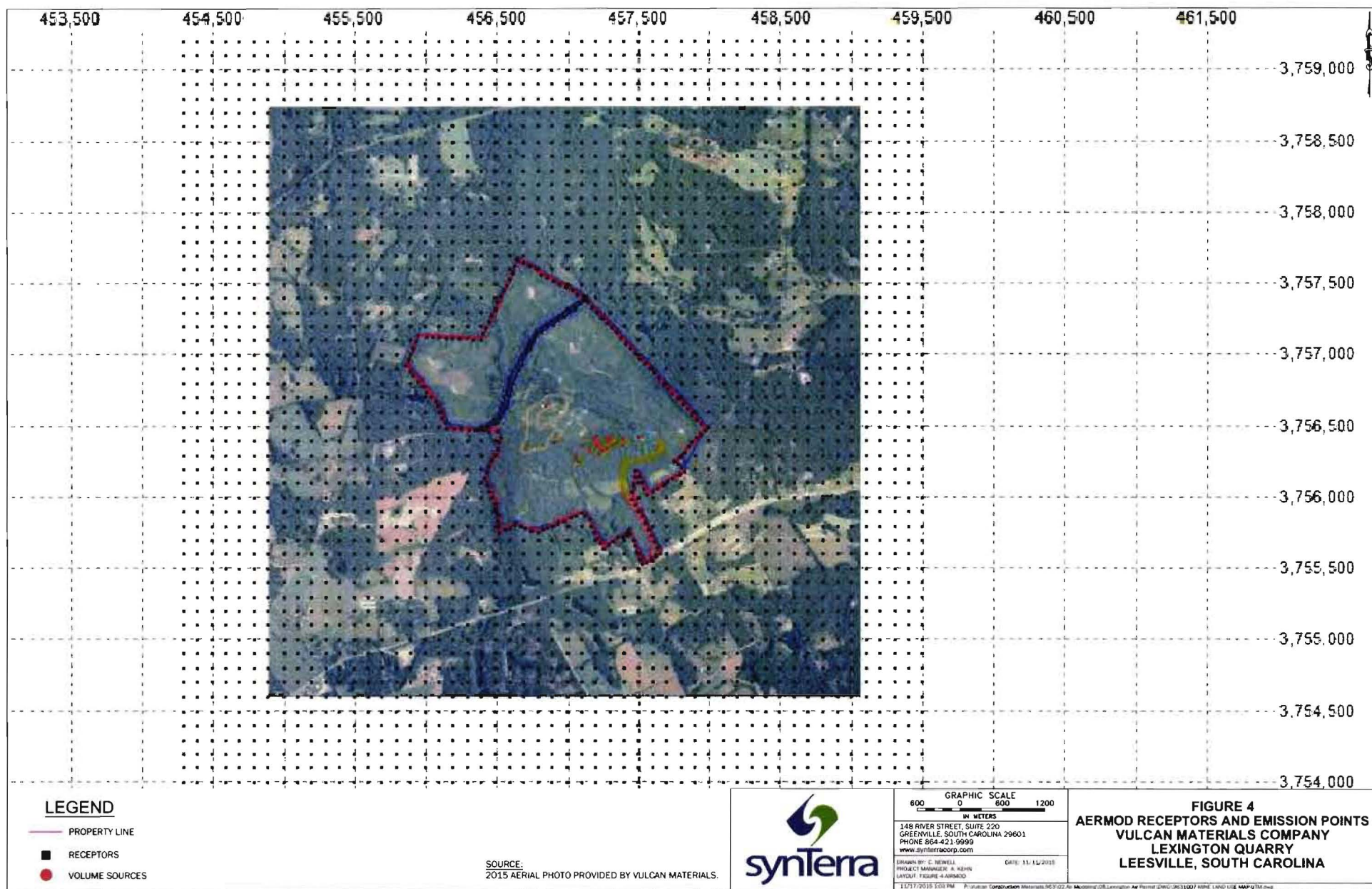
DRAWN BY: C. NEWELL  
PROJECT MANAGER: A. KEHN  
LAYOUT: FIGURE 3

DATE: 11/11/2015

11/11/2015 1:15 PM P:\Vulcan Construction Materials\963\02 Air Modeling\08 Lexington Air Permit\DWG\9631007-MINE LAND USE MAP-UTM.dwg

**FIGURE 3**  
**EQUIPMENT LOCATIONS**  
**VULCAN MATERIALS COMPANY**  
**LEXINGTON QUARRY**  
**LEESVILLE, SOUTH CAROLINA**





## **APPENDIX C EMISSIONS CALCULATIONS**

Table C-1 - CONTROLLED EMISSIONS

Vulcan Construction Materials, LLC - Lexington Quarry

| Emission Unit Description      | Equipment ID | Description                         | Subject to NSPS OOO | Capacity (TPH) | Emission Factor (PM10) (lb/ton) | Emission Factor (PM2.5) (lb/ton) | Emission Control System | Emissions    |               |            |             | STD 2 & 7 Emission Rate Exempt from Modeling (lbs/hr) | PM 10 Modeling Required? | PM 2.5 Modeling Required? |
|--------------------------------|--------------|-------------------------------------|---------------------|----------------|---------------------------------|----------------------------------|-------------------------|--------------|---------------|------------|-------------|---|--------------------------|---------------------------|
|                                |              |                                     |                     |                |                                 |                                  |                         | PM10 (lb/hr) | PM2.5 (lb/hr) | PM10 (tpy) | PM2.5 (tpy) |   |                          |                           |
| GRIZZLY FEEDER & TRK UNLOADING | FDR001       | 62"x12"x28' Grizzly feeder assembly | YES                 | 1700           | 0.000001344                     | 0.000000                         | WS                      | 0.002        | 0.000         | 0.010      | 0.001       | 1   | no                       | no                        |
| PRIMARY CRUSHER #1             | CRS001       | C160 Jaw Crusher @ 10"CSS           | YES                 | 1100           | 0.00054                         | 0.00010                          | WS                      | 0.594        | 0.110         | 2.602      | 0.482       | 1   | no                       | no                        |
| SECONDARY CRUSHER #2           | CRS002       | XL900 Standard Cone Crusher         | YES                 | 1100           | 0.00054                         | 0.00010                          | WS                      | 0.594        | 0.110         | 2.602      | 0.482       | 1   | no                       | no                        |
| TERTIARY CRUSHER #3            | CRS003       | Crusher                             | YES                 | 850            | 0.00054                         | 0.00010                          | WS                      | 0.459        | 0.085         | 2.010      | 0.372       | 1   | no                       | no                        |
| TERTIARY CRUSHER #4            | CRS004       | Crusher                             | YES                 | 850            | 0.00054                         | 0.00010                          | WS                      | 0.459        | 0.085         | 2.010      | 0.372       | 1   | no                       | no                        |
| SCREEN #1                      | SCR001       | 8'X20' TD Scalping Screen           | YES                 | 1700           | 0.00074                         | 0.000050                         | WCO                     | 1.258        | 0.085         | 5.510      | 0.372       | 1   | yes                      | no                        |
| SCREEN #2                      | SCR002       | 8'X20' TD Scalping Screen           | YES                 | 1500           | 0.00074                         | 0.000050                         | WCO                     | 1.110        | 0.075         | 4.862      | 0.329       | 1   | yes                      | no                        |
| SCREEN #3                      | SCR003       | 8'X20' TD Scalping Screen           | YES                 | 1500           | 0.00074                         | 0.000050                         | WCO                     | 1.110        | 0.075         | 4.862      | 0.329       | 1   | yes                      | no                        |
| SCREEN #4                      | SCR004       | 8'X20' TD Sizing Screen             | YES                 | 1500           | 0.00074                         | 0.000050                         | WCO                     | 1.110        | 0.075         | 4.862      | 0.329       | 1   | yes                      | no                        |
| SCREEN #5                      | SCR005       | 8'X20' TD Sizing Screen             | YES                 | 1500           | 0.00074                         | 0.000050                         | WCO                     | 1.110        | 0.075         | 4.862      | 0.329       | 1   | yes                      | no                        |
| CONVEYOR #1                    | CNV001       | 54" Short Primary Belt              | YES                 | 1700           | 0.000046                        | 0.000013                         | WS                      | 0.078        | 0.022         | 0.343      | 0.097       | 1   | no                       | no                        |
| CONVEYOR #2                    | CNV002       | 54" Main Primary Belt               | YES                 | 1700           | 0.000046                        | 0.000013                         | WCO                     | 0.078        | 0.022         | 0.343      | 0.097       | 1   | no                       | no                        |
| CONVEYOR #3                    | CNV003       | 36" Primary Tunnel Belt             | YES                 | 1700           | 0.000046                        | 0.000013                         | WS                      | 0.078        | 0.022         | 0.343      | 0.097       | 1   | no                       | no                        |
| CONVEYOR #4                    | CNV004       | 36" Crusher Run Transfer Belt       | YES                 | 550            | 0.000046                        | 0.000013                         | WS                      | 0.025        | 0.007         | 0.111      | 0.031       | 1   | no                       | no                        |
| CONVEYOR #5                    | CNV005       | 36" Crusher Run Stacker             | YES                 | 550            | 0.000046                        | 0.000013                         | WCO                     | 0.025        | 0.007         | 0.111      | 0.031       | 1   | no                       | no                        |
| CONVEYOR #6                    | CNV006       | 48" Rip Rap Belt                    | YES                 | 600            | 0.000046                        | 0.000013                         | WS                      | 0.028        | 0.008         | 0.121      | 0.034       | 1   | no                       | no                        |
| CONVEYOR #7                    | CNV007       | 48" Tower 2 Feed Belt               | YES                 | 3000           | 0.000046                        | 0.000013                         | WS                      | 0.138        | 0.039         | 0.604      | 0.171       | 1   | no                       | no                        |
| CONVEYOR #8                    | CNV008       | 42" Crusher Feed Bin Belt           | YES                 | 800            | 0.000046                        | 0.000013                         | WCO                     | 0.037        | 0.010         | 0.161      | 0.046       | 1   | no                       | no                        |
| CONVEYOR #9                    | CNV009       | 42" Crusher Feed Bin Belt           | YES                 | 800            | 0.000046                        | 0.000013                         | WS                      | 0.037        | 0.010         | 0.161      | 0.046       | 1   | no                       | no                        |
| CONVEYOR #10                   | CNV010       | 42" Crusher Feeder Belt             | YES                 | 800            | 0.000046                        | 0.000013                         | WCO                     | 0.037        | 0.010         | 0.161      | 0.046       | 1   | no                       | no                        |
| CONVEYOR #11                   | CNV011       | 42" Crusher Feeder Belt             | YES                 | 800            | 0.000046                        | 0.000013                         | WCO                     | 0.037        | 0.010         | 0.161      | 0.046       | 1   | no                       | no                        |
| CONVEYOR #12                   | CNV012       | 48" Crusher Discharge Belt          | YES                 | 1600           | 0.000046                        | 0.000013                         | WS                      | 0.074        | 0.021         | 0.322      | 0.091       | 1   | no                       | no                        |
| CONVEYOR #13                   | CNV013       | 48" Crusher Return Belt             | YES                 | 1600           | 0.000046                        | 0.000013                         | WS                      | 0.074        | 0.021         | 0.322      | 0.091       | 1   | no                       | no                        |
| CONVEYOR #14                   | CNV014       | 42" Tower 3 Feed Belt               | YES                 | 800            | 0.000046                        | 0.000013                         | WS                      | 0.037        | 0.010         | 0.161      | 0.046       | 1   | no                       | no                        |
| CONVEYOR #15                   | CNV015       | 42" Tower 3 Feed Belt               | YES                 | 800            | 0.000046                        | 0.000013                         | WS                      | 0.037        | 0.010         | 0.161      | 0.046       | 1   | no                       | no                        |
| CONVEYOR #16                   | CNV016       | 36" 3/4" Recrush Belt               | YES                 | 500            | 0.000046                        | 0.000013                         | WS                      | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #17                   | CNV017       | 36" Screenings Transfer Belt        | YES                 | 500            | 0.000046                        | 0.000013                         | WS                      | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #18                   | CNV018       | 36" Screenings Stacker Belt         | YES                 | 500            | 0.000046                        | 0.000013                         | WCO                     | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #19                   | CNV019       | 36" 5's Transfer Belt               | YES                 | 500            | 0.000046                        | 0.000013                         | WS                      | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #20                   | CNV020       | 36" 5's Stacker Belt                | YES                 | 500            | 0.000046                        | 0.000013                         | WCO                     | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #21                   | CNV021       | 36" 6's Transfer Belt               | YES                 | 500            | 0.000046                        | 0.000013                         | WS                      | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #22                   | CNV022       | 36" 6's Stacker Belt                | YES                 | 500            | 0.000046                        | 0.000013                         | WCO                     | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #23                   | CNV023       | 36" 7's Transfer Belt               | YES                 | 500            | 0.000046                        | 0.000013                         | WS                      | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #24                   | CNV024       | 36" 7's Stacker Belt                | YES                 | 500            | 0.000046                        | 0.000013                         | WS                      | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #25                   | CNV025       | 36" 8's Transfer Belt               | YES                 | 500            | 0.000046                        | 0.000013                         | WS                      | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #26                   | CNV026       | 36" 8's Stacker Belt                | YES                 | 500            | 0.000046                        | 0.000013                         | WCO                     | 0.023        | 0.007         | 0.101      | 0.028       | 1   | no                       | no                        |
| CONVEYOR #27                   | CNV027       | 42" Blending Tunnel Belt            | YES                 | 1500           | 0.000046                        | 0.000013                         | WCO                     | 0.069        | 0.020         | 0.302      | 0.085       | 1   | no                       | no                        |
| CONVEYOR #28                   | CNV028       | 36" Dry Blend Stacker Belt          | YES                 | 700            | 0.000046                        | 0.000013                         | WS                      | 0.032        | 0.009         | 0.141      | 0.040       | 1   | no                       | no                        |
| CONVEYOR #29                   | CNV029       | 42" Tower 4 Feed Belt               | YES                 | 1500           | 0.000046                        | 0.000013                         | WS                      | 0.069        | 0.020         | 0.302      | 0.085       | 1   | no                       | no                        |
| BIN #1                         | SBN001       | 120 Ton Crusher Feed Bin            | YES                 | 1100           | 0.000046                        | 0.000013                         | WS                      | 0.051        | 0.014         | 0.222      | 0.063       | 1   | no                       | no                        |
| BIN #2                         | SBN002       | 121 Ton Crusher Feed Bin            | YES                 | 800            | 0.000046                        | 0.000013                         | WCO                     | 0.037        | 0.010         | 0.161      | 0.046       | 1   | no                       | no                        |
| BIN #3                         | SBN003       | 122 Ton Crusher Feed Bin            | YES                 | 800            | 0.000046                        | 0.000013                         | WCO                     | 0.037        | 0.010         | 0.161      | 0.046       | 1   | no                       | no                        |
| WASH PROCESS                   |              |                                     |                     |                |                                 |                                  |                         |              |               |            |             |   |                          |                           |
| SCREEN #6                      | SCR006       | 8'x20' TD Wash Screen               | NO                  | 1500           |                                 |                                  | WP                      | 0.000        |               |            |             |   |                          |                           |
| CONVEYOR #30                   | CNV030       | 42" Shuttle Belt                    | NO                  | 1500           |                                 |                                  | WP                      | 0.000        | 0.000         | 0.000      | 0.000       |   |                          |                           |
| CONVEYOR #31                   | CNV031       | 30" Manufactured Stand Stacker Belt | NO                  | 400            |                                 |                                  | WP                      | 0.000        | 0.000         | 0.000      | 0.000       |   |                          |                           |
| WASH BIN #1                    | TRB001       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  | WP                      | 0.000        | 0.000         | 0.000      | 0.000       |   |                          |                           |
| WASH BIN #2                    | TRB002       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  | WP                      | 0.000        | 0.000         | 0.000      | 0.000       |   |                          |                           |
| WASH BIN #3                    | TRB003       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  | WP                      | 0.000        | 0.000         | 0.000      | 0.000       |   |                          |                           |
| WASH BIN #4                    | TRB004       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  | WP                      | 0.000        | 0.000         | 0.000      | 0.000       |   |                          |                           |
| WASH BIN #5                    | TRB005       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  | WP                      | 0.000        | 0.000         | 0.000      | 0.000       |   |                          |                           |
| WASH BIN #6                    | TRB006       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  | WP                      | 0.000        | 0.000         | 0.000      | 0.000       |   |                          |                           |

NOTES:

WS = WET SUPPRESSION  
WP = WET PROCESS  
WCO = CARRY OVER MOISTURE

|   |       |           |                     |
|---|-------|-----------|---------------------|
| TOTAL POTENTIAL PM-10 EMISSIONS             | 9.17  | Lb/Hr     |                     |
| TOTAL POTENTIAL CONTROLLED PM-10 EMISSIONS  | 40.18 | Tons/Year | @ (8760 Hours/Year) |
| TOTAL POTENTIAL PM-2.5 EMISSIONS            | 1.16  | Lb/Hr     |                     |
| TOTAL POTENTIAL CONTROLLED PM-2.5 EMISSIONS | 5.09  | Tons/Year | @ (8760 Hours/Year) |



Table C-2 - UNCONTROLLED EMISSIONS

Vulcan Construction Materials, LLC - Lexington Quarry

| Emission Unit Description      | Equipment ID | Description                         | Subject to NSPS OOO | Capacity (TPH) | Emission Factor (PM10) (lb/ton) | Emission Factor (PM2.5) (lb/ton) | Emission Control System | Emissions    |               |            |             |
|--------------------------------|--------------|-------------------------------------|---------------------|----------------|---------------------------------|----------------------------------|-------------------------|--------------|---------------|------------|-------------|
|                                |              |                                     |                     |                |                                 |                                  |                         | PM10 (lb/hr) | PM2.5 (lb/hr) | PM10 (tpy) | PM2.5 (tpy) |
| GRIZZLY FEEDER & TRK UNLOADING | FDR001       | 62"x12"x28' Grizzly feeder assembly | YES                 | 1700           | 0.000016                        | 0.0000011                        | NONE                    | 0.027        | 0.002         | 0.119      | 0.008       |
| PRIMARY CRUSHER #1             | CRS001       | C160 Jaw Crusher @ 10"CSS           | YES                 | 1100           | 0.0024                          | 0.00044                          | NONE                    | 2.640        | 0.489         | 11.563     | 2.141       |
| SECONDARY CRUSHER #2           | CRS002       | XL900 Standard Cone Crusher         | YES                 | 1100           | 0.0024                          | 0.00044                          | NONE                    | 2.640        | 0.489         | 11.563     | 2.141       |
| TERTIARY CRUSHER #3            | CRS003       | XL900 Shorthead Cone Crusher        | YES                 | 850            | 0.0024                          | 0.00044                          | NONE                    | 2.040        | 0.378         | 8.935      | 1.655       |
| TERTIARY CRUSHER #4            | CRS004       | XL900 Shorthead Cone Crusher        | YES                 | 850            | 0.0024                          | 0.00044                          | NONE                    | 2.040        | 0.378         | 8.935      | 1.655       |
| SCREEN #1                      | SCR001       | 8'X20' TD Scalping Screen           | YES                 | 1700           | 0.0087                          | 0.00059                          | NONE                    | 14.790       | 0.999         | 64.780     | 4.377       |
| SCREEN #2                      | SCR002       | 8'X20' TD Scalping Screen           | YES                 | 1500           | 0.0087                          | 0.00059                          | NONE                    | 13.050       | 0.882         | 57.159     | 3.862       |
| SCREEN #3                      | SCR003       | 8'X20' TD Scalping Screen           | YES                 | 1500           | 0.0087                          | 0.00059                          | NONE                    | 13.050       | 0.882         | 57.159     | 3.862       |
| SCREEN #4                      | SCR004       | 8'X20' TD Sizing Screen             | YES                 | 1500           | 0.0087                          | 0.00059                          | NONE                    | 13.050       | 0.882         | 57.159     | 3.862       |
| SCREEN #5                      | SCR005       | 8'X20' TD Sizing Screen             | YES                 | 1500           | 0.0087                          | 0.00059                          | NONE                    | 13.050       | 0.882         | 57.159     | 3.862       |
| CONVEYOR #1                    | CNV001       | 54" Short Primary Belt              | YES                 | 1700           | 0.0011                          | 0.00032                          | NONE                    | 1.870        | 0.539         | 8.191      | 2.361       |
| CONVEYOR #2                    | CNV002       | 54" Main Primary Belt               | YES                 | 1700           | 0.0011                          | 0.00032                          | NONE                    | 1.870        | 0.539         | 8.191      | 2.361       |
| CONVEYOR #3                    | CNV003       | 36" Primary Tunnel Belt             | YES                 | 1700           | 0.0011                          | 0.00032                          | NONE                    | 1.870        | 0.539         | 8.191      | 2.361       |
| CONVEYOR #4                    | CNV004       | 36" Crusher Run Transfer Belt       | YES                 | 550            | 0.0011                          | 0.00032                          | NONE                    | 0.605        | 0.174         | 2.650      | 0.764       |
| CONVEYOR #5                    | CNV005       | 36" Crusher Run Stacker             | YES                 | 550            | 0.0011                          | 0.00032                          | NONE                    | 0.605        | 0.174         | 2.650      | 0.764       |
| CONVEYOR #6                    | CNV006       | 48" Rip Rap Belt                    | YES                 | 600            | 0.0011                          | 0.00032                          | NONE                    | 0.660        | 0.190         | 2.891      | 0.833       |
| CONVEYOR #7                    | CNV007       | 48" Tower 2 Feed Belt               | YES                 | 3000           | 0.0011                          | 0.00032                          | NONE                    | 3.300        | 0.951         | 14.454     | 4.166       |
| CONVEYOR #8                    | CNV008       | 42" Crusher Feed Bin Belt           | YES                 | 800            | 0.0011                          | 0.00032                          | NONE                    | 0.880        | 0.254         | 3.854      | 1.111       |
| CONVEYOR #9                    | CNV009       | 42" Crusher Feed Bin Belt           | YES                 | 800            | 0.0011                          | 0.00032                          | NONE                    | 0.880        | 0.254         | 3.854      | 1.111       |
| CONVEYOR #10                   | CNV010       | 42" Crusher Feeder Belt             | YES                 | 800            | 0.0011                          | 0.00032                          | NONE                    | 0.880        | 0.254         | 3.854      | 1.111       |
| CONVEYOR #11                   | CNV011       | 42" Crusher Feeder Belt             | YES                 | 800            | 0.0011                          | 0.00032                          | NONE                    | 0.880        | 0.254         | 3.854      | 1.111       |
| CONVEYOR #12                   | CNV012       | 48" Crusher Discharge Belt          | YES                 | 1600           | 0.0011                          | 0.00032                          | NONE                    | 1.760        | 0.507         | 7.709      | 2.222       |
| CONVEYOR #13                   | CNV013       | 48" Crusher Return Belt             | YES                 | 1600           | 0.0011                          | 0.00032                          | NONE                    | 1.760        | 0.507         | 7.709      | 2.222       |
| CONVEYOR #14                   | CNV014       | 42" Tower 3 Feed Belt               | YES                 | 800            | 0.0011                          | 0.00032                          | NONE                    | 0.880        | 0.254         | 3.854      | 1.111       |
| CONVEYOR #15                   | CNV015       | 42" Tower 3 Feed Belt               | YES                 | 800            | 0.0011                          | 0.00032                          | NONE                    | 0.880        | 0.254         | 3.854      | 1.111       |
| CONVEYOR #16                   | CNV016       | 36" 3/4" Recrush Belt               | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #17                   | CNV017       | 36" Screenings Transfer Belt        | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #18                   | CNV018       | 36" Screenings Stacker Belt         | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #19                   | CNV019       | 36" 5's Transfer Belt               | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #20                   | CNV020       | 36" 5's Stacker Belt                | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #21                   | CNV021       | 36" 6's Transfer Belt               | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #22                   | CNV022       | 36" 6's Stacker Belt                | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #23                   | CNV023       | 36" 7's Transfer Belt               | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #24                   | CNV024       | 36" 7's Stacker Belt                | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #25                   | CNV025       | 36" 89's Transfer Belt              | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #26                   | CNV026       | 36" 89's Stacker Belt               | YES                 | 500            | 0.0011                          | 0.00032                          | NONE                    | 0.550        | 0.159         | 2.409      | 0.694       |
| CONVEYOR #27                   | CNV027       | 42" Blending Tunnel Belt            | YES                 | 1500           | 0.0011                          | 0.00032                          | NONE                    | 1.650        | 0.476         | 7.227      | 2.083       |
| CONVEYOR #28                   | CNV028       | 36" Dry Blend Stacker Belt          | YES                 | 700            | 0.0011                          | 0.00032                          | NONE                    | 0.770        | 0.222         | 3.373      | 0.972       |
| CONVEYOR #29                   | CNV029       | 42" Tower 4 Feed Belt               | YES                 | 1500           | 0.0011                          | 0.00032                          | NONE                    | 1.650        | 0.476         | 7.227      | 2.083       |
| BIN #1                         | SBN001       | 120 Ton Crusher Feed Bin            | YES                 | 1100           | 0.0011                          | 0.00032                          | NONE                    | 1.210        | 0.349         | 5.300      | 1.528       |
| BIN #2                         | SBN002       | 121 Ton Crusher Feed Bin            | YES                 | 800            | 0.0011                          | 0.00032                          | NONE                    | 0.880        | 0.254         | 3.854      | 1.111       |
| BIN #3                         | SBN003       | 122 Ton Crusher Feed Bin            | YES                 | 800            | 0.0011                          | 0.00032                          | NONE                    | 0.880        | 0.254         | 3.854      | 1.111       |
|                                |              |                                     |                     |                |                                 |                                  |                         |              |               |            |             |
| WASH PROCESS                   |              |                                     |                     |                |                                 |                                  |                         |              |               |            |             |
| SCREEN #6                      | SCR006       | 8'x20' TD Wash Screen               | NO                  | 1500           |                                 |                                  |                         | 0.000        | 0.000         | 0.000      | 0.000       |
| CONVEYOR #30                   | CNV030       | 42" Shuttle Belt                    | NO                  | 1500           |                                 |                                  |                         | 0.000        | 0.000         | 0.000      | 0.000       |
| CONVEYOR #31                   | CNV031       | 30" Manufactured Stand Stacker Belt | NO                  | 400            |                                 |                                  |                         | 0.000        | 0.000         | 0.000      | 0.000       |
| WASH BIN #1                    | TRB001       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  |                         | 0.000        | 0.000         | 0.000      | 0.000       |
| WASH BIN #2                    | TRB002       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  |                         | 0.000        | 0.000         | 0.000      | 0.000       |
| WASH BIN #3                    | TRB003       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  |                         | 0.000        | 0.000         | 0.000      | 0.000       |
| WASH BIN #4                    | TRB004       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  |                         | 0.000        | 0.000         | 0.000      | 0.000       |
| WASH BIN #5                    | TRB005       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  |                         | 0.000        | 0.000         | 0.000      | 0.000       |
| WASH BIN #6                    | TRB006       | 400 T Washed Stone Storage Bin      | NO                  | 1500           |                                 |                                  |                         | 0.000        | 0.000         | 0.000      | 0.000       |

|  |        |           |                     |                                     |
|--|--------|-----------|---------------------|-------------------------------------|
| TOTAL POTENTIAL PM-10 EMISSIONS                | 109.05 | Lb/Hr     |                     |                                     |
| TOTAL POTENTIAL UN-CONTROLLED PM-10 EMISSIONS  | 477.63 | Tons/Year | @ (8760 Hours/Year) | Synthetic minor construction permit |
|  |        |           |                     |                                     |
| TOTAL POTENTIAL PM-2.5 EMISSIONS               | 15.68  | Lb/Hr     |                     |                                     |
| TOTAL POTENTIAL UN-CONTROLLED PM-2.5 EMISSIONS | 68.67  | Tons/Year | @ (8760 Hours/Year) |                                     |



Vulcan Construction Materials, LLC - Lexington Quarry  
Construction Permit Application  
Dewatering Pump (Diesel)

|                         |                        |                              |
|-------------------------|------------------------|------------------------------|
| Hours operated per year | 2,300                  |                              |
| Pump Capacity           | 1200 gpm               |                              |
| Average Rainfall        | 50 in/yr               |                              |
| Drainage Basin          | 122 acres              | calculated                   |
| Water Inflow to Quarry  | 165,629,640 gallons/yr | rainfall/12*acres*43560*7.48 |
| Annual Pumping time     | 2,300.4 hrs            | pump capacity / inflow / 60  |
|                         | 287.6 days             | pumping time / 8             |
| Tier 4 Engine capacity  | 220 hp                 |                              |
|                         | 0.560 MMBTU/hr         |                              |

Table C-3

| Emission Factors | PM-10    | PM-2.5   | NOx    | CO <sup>2</sup> | SOx <sup>2</sup> | VOC <sup>2</sup> | CO <sub>2</sub> <sup>3</sup> | CH <sub>4</sub> <sup>3</sup> | N <sub>2</sub> O <sup>3</sup> | CO <sub>2</sub> e <sup>3</sup> |
|------------------|----------|----------|--------|-----------------|------------------|------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|
| lb/hp-hr         | 0.000082 | 0.000082 | 0.0033 | 0.00668         | 0.00205          | 7.05E-04         |                              |                              |                               |                                |
| kg/MMBTU         |          |          |        |                 |                  |                  | 73.96                        | 3.00E-03                     | 6.00E-04                      | 7.42E+01                       |

<sup>1</sup> John Deere engine Emissions Information; Page 6 of Off-Highway Diesel Engine Ratings publication. PM g/kWh = 0.05, Nox g/kWH = 2

<sup>2</sup> AP-42 Table 3.3-1 Stationary Diesel Fuel engines 0.0015 % sulfur in No. 2 Fuel Oil

<sup>3</sup> Emission factors for greenhouse gases from distillate fuel oil No.2 combustion are from Tables C-1 and C-2 of 40 CFR 98, Subpart C.

Criteria Pollutant Emissions

| Equipment ID    | Operating hours per year MAX | Capacity (hp) | Uncontrolled Emissions |         |       |        |         |       |         |         |       |         |         |       |         |         |       |        |         |       |
|-----------------|------------------------------|---------------|------------------------|---------|-------|--------|---------|-------|---------|---------|-------|---------|---------|-------|---------|---------|-------|--------|---------|-------|
|                 |                              |               | PM-10                  |         |       | PM-2.5 |         |       | NOx     |         |       | CO      |         |       | SOx     |         |       | VOC    |         |       |
|                 |                              |               | lbs/yr                 | tons/yr | lb/hr | lbs/yr | tons/yr | lb/hr | lbs/yr  | tons/yr | lb/hr | lbs/yr  | tons/yr | lb/hr | lbs/yr  | tons/yr | lb/hr | lbs/yr | tons/yr | lb/hr |
| Dewatering Pump | 2300                         | 220           | 41.59                  | 0.021   | 0.018 | 41.59  | 0.021   | 0.018 | 1663.79 | 0.832   | 0.723 | 3380.68 | 1.690   | 1.470 | 1037.49 | 0.519   | 0.451 | 356.79 | 0.18    | 0.155 |

Greenhouse Gas Emissions

| Equipment ID    | Operating hours per year MAX | Capacity (hp) | Uncontrolled Emissions |         |       |        |          |          |          |          |          |           |         |       |
|-----------------|------------------------------|---------------|------------------------|---------|-------|--------|----------|----------|----------|----------|----------|-----------|---------|-------|
|                 |                              |               | CO2                    |         |       | CH4    |          |          | N2O      |          |          | CO2e      |         |       |
|                 |                              |               | lbs/yr                 | tons/yr | lb/hr | lbs/yr | tons/yr  | lb/hr    | lbs/yr   | tons/yr  | lb/hr    | lbs/yr    | tons/yr | lb/hr |
| Dewatering Pump | 2300                         | 220           | 209967.55              | 104.98  | 91.27 | 0.39   | 1.94E-04 | 1.69E-04 | 1.44E-07 | 7.20E-11 | 6.26E-11 | 209977.27 | 104.99  | 91.28 |

| HAP/TAP       | Emission Factor <sup>3</sup> | Uncontrolled HAP Emissions |          | Daily De-minimus <sup>4</sup> |
|---------------|------------------------------|----------------------------|----------|-------------------------------|
|               | lb/MMBtu                     | lb/hr                      | tons/yr  | lb/day                        |
| Benzene       | 9.33E-04                     | 5.22E-04                   | 6.01E-04 | 1.8                           |
| Toluene       | 4.09E-04                     | 2.29E-04                   | 2.63E-04 | 24                            |
| Xylene        | 2.85E-04                     | 1.60E-04                   | 1.83E-04 | 52.2                          |
| 1,3-Butadiene | 3.91E-05                     | 2.19E-05                   | 2.52E-05 | 1.326                         |
| Formaldehyde  | 1.18E-03                     | 6.61E-04                   | 7.60E-04 | 0.18                          |
| Acetaldehyde  | 7.67E-04                     | 4.29E-04                   | 4.94E-04 | 21.6                          |
| Acrolein      | 9.25E-05                     | 5.18E-05                   | 5.96E-05 | 0.015                         |
| Total HAPs    |                              | 2.07E-03                   | 2.39E-03 |                               |

<sup>3</sup> AP-42 Table 3.3-2 Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines

<sup>4</sup> Table 1 - Modeling De Minimus Levels for Air Toxics listed in Standard No. 8. South Carolina Air Quality Modeling Guidelines, July 2001

Table C-4 - STANDARD NO. 7 INCREMENTAL EMISSIONS  
Vulcan Construction Materials, LLC - Lexington Quarry

PM10 Baseline Date: 3/20/2000  
Nox, SO2 Baseline Date: 5/23/1996

CONTROLLED EMISSIONS

| EMISSION UNIT DESCRIPTION | EQUIP ID | INSTALL or MODIFY AFTER BASELINE | Pre-Baseline PROCESS RATE (TPH) | Current PROCESS RATE (TPH) | Process Rate NET Increase or Decrease | EMISSION FACTOR (PM10) (lb/ton) | EMISSION CONTROL SYSTEM | NET PROCESS EMISSIONS (PM 10 LB/HR) | NET PROCESS EMISSIONS (NOx 10 LB/HR) | NET PROCESS EMISSIONS (SO2 10 LB/HR) |
|---------------------------|----------|----------------------------------|---------------------------------|----------------------------|---------------------------------------|---------------------------------|-------------------------|-------------------------------------|--------------------------------------|--------------------------------------|
| GRIZZLY FEEDER & TRK UNL  | FDR001   | YES                              | 0                               | 1700                       | 1700                                  | 1.344E-06                       | WS                      | 0.002                               |                                      |                                      |
| PRIMARY CRUSHER #1        | CRS001   | YES                              | 0                               | 1100                       | 1100                                  | 0.00054                         | WS                      | 0.594                               |                                      |                                      |
| SECONDARY CRUSHER #2      | CRS002   | YES                              | 0                               | 1100                       | 1100                                  | 0.00054                         | WS                      | 0.594                               |                                      |                                      |
| TERTIARY CRUSHER #3       | CRS003   | YES                              | 0                               | 850                        | 850                                   | 0.00054                         | WS                      | 0.459                               |                                      |                                      |
| TERTIARY CRUSHER #4       | CRS004   | YES                              | 0                               | 850                        | 850                                   | 0.00054                         | WS                      | 0.459                               |                                      |                                      |
| SCREEN #1                 | SCR001   | YES                              | 0                               | 1700                       | 1700                                  | 0.00074                         | WCO                     | 1.258                               |                                      |                                      |
| SCREEN #2                 | SCR002   | YES                              | 0                               | 1500                       | 1500                                  | 0.00074                         | WCO                     | 1.110                               |                                      |                                      |
| SCREEN #3                 | SCR003   | YES                              | 0                               | 1500                       | 1500                                  | 0.00074                         | WCO                     | 1.110                               |                                      |                                      |
| SCREEN #4                 | SCR004   | YES                              | 0                               | 1500                       | 1500                                  | 0.00074                         | WCO                     | 1.110                               |                                      |                                      |
| SCREEN #5                 | SCR005   | YES                              | 0                               | 1500                       | 1500                                  | 0.00074                         | WCO                     | 1.110                               |                                      |                                      |
| CONVEYOR #1               | CNV001   | YES                              | 0                               | 1700                       | 1700                                  | 0.000046                        | WS                      | 0.078                               |                                      |                                      |
| CONVEYOR #2               | CNV002   | YES                              | 0                               | 1700                       | 1700                                  | 0.000046                        | WCO                     | 0.078                               |                                      |                                      |
| CONVEYOR #3               | CNV003   | YES                              | 0                               | 1700                       | 1700                                  | 0.000046                        | WS                      | 0.078                               |                                      |                                      |
| CONVEYOR #4               | CNV004   | YES                              | 0                               | 550                        | 550                                   | 0.000046                        | WS                      | 0.025                               |                                      |                                      |
| CONVEYOR #5               | CNV005   | YES                              | 0                               | 550                        | 550                                   | 0.000046                        | WCO                     | 0.025                               |                                      |                                      |
| CONVEYOR #6               | CNV006   | YES                              | 0                               | 600                        | 600                                   | 0.000046                        | WS                      | 0.028                               |                                      |                                      |
| CONVEYOR #7               | CNV007   | YES                              | 0                               | 3000                       | 3000                                  | 0.000046                        | WS                      | 0.138                               |                                      |                                      |
| CONVEYOR #8               | CNV008   | YES                              | 0                               | 800                        | 800                                   | 0.000046                        | WCO                     | 0.037                               |                                      |                                      |
| CONVEYOR #9               | CNV009   | YES                              | 0                               | 800                        | 800                                   | 0.000046                        | WS                      | 0.037                               |                                      |                                      |
| CONVEYOR #10              | CNV010   | YES                              | 0                               | 800                        | 800                                   | 0.000046                        | WCO                     | 0.037                               |                                      |                                      |
| CONVEYOR #11              | CNV011   | YES                              | 0                               | 800                        | 800                                   | 0.000046                        | WCO                     | 0.037                               |                                      |                                      |
| CONVEYOR #12              | CNV012   | YES                              | 0                               | 1600                       | 1600                                  | 0.000046                        | WS                      | 0.074                               |                                      |                                      |
| CONVEYOR #13              | CNV013   | YES                              | 0                               | 1600                       | 1600                                  | 0.000046                        | WS                      | 0.074                               |                                      |                                      |
| CONVEYOR #14              | CNV014   | YES                              | 0                               | 800                        | 800                                   | 0.000046                        | WS                      | 0.037                               |                                      |                                      |
| CONVEYOR #15              | CNV015   | YES                              | 0                               | 800                        | 800                                   | 0.000046                        | WS                      | 0.037                               |                                      |                                      |
| CONVEYOR #16              | CNV016   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WS                      | 0.023                               |                                      |                                      |
| CONVEYOR #17              | CNV017   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WS                      | 0.023                               |                                      |                                      |
| CONVEYOR #18              | CNV018   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WCO                     | 0.023                               |                                      |                                      |
| CONVEYOR #19              | CNV019   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WS                      | 0.023                               |                                      |                                      |
| CONVEYOR #20              | CNV020   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WCO                     | 0.023                               |                                      |                                      |
| CONVEYOR #21              | CNV021   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WS                      | 0.023                               |                                      |                                      |
| CONVEYOR #22              | CNV022   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WCO                     | 0.023                               |                                      |                                      |
| CONVEYOR #23              | CNV023   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WS                      | 0.023                               |                                      |                                      |
| CONVEYOR #24              | CNV024   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WS                      | 0.023                               |                                      |                                      |
| CONVEYOR #25              | CNV025   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WS                      | 0.023                               |                                      |                                      |
| CONVEYOR #26              | CNV026   | YES                              | 0                               | 500                        | 500                                   | 0.000046                        | WCO                     | 0.023                               |                                      |                                      |
| CONVEYOR #27              | CNV027   | YES                              | 0                               | 1500                       | 1500                                  | 0.000046                        | WCO                     | 0.069                               |                                      |                                      |
| CONVEYOR #28              | CNV028   | YES                              | 0                               | 700                        | 700                                   | 0.000046                        | WS                      | 0.032                               |                                      |                                      |
| CONVEYOR #29              | CNV029   | YES                              | 0                               | 1500                       | 1500                                  | 0.000046                        | WS                      | 0.069                               |                                      |                                      |
| BIN #1                    | SBN001   | YES                              | 0                               | 1100                       | 1100                                  | 0.000046                        | WS                      | 0.051                               |                                      |                                      |
| BIN #2                    | SBN002   | YES                              | 0                               | 800                        | 800                                   | 0.000046                        | WCO                     | 0.037                               |                                      |                                      |
| BIN #3                    | SBN003   | YES                              | 0                               | 800                        | 800                                   | 0.000046                        | WCO                     | 0.037                               |                                      |                                      |
| DEWATERING PUMP #1        | PUMP1    | YES                              | 0                               |                            |                                       |                                 |                         |                                     | 0.723                                | 0.451                                |
| TOTAL                     |          |                                  |                                 |                            |                                       |                                 |                         | 9.172                               | 0.723                                | 0.451                                |

Equipment with '0' Pre-Baseline Process Rate were installed after the baseline date; this ensures that 100% of emissions are modeled for Standard 7.

## Vulcan Construction Materials, LLC - Lexington Quarry Construction Permit Application

### Standard 4 Allowable Emission Rate Calculation

Facility Maximum operating rate                      1700 tons per hour

Because the hourly production rate is greater than 30 tons per hour, the following equation for the allowable emission rate is used:  $E = F(55.0 \cdot P^{0.11} - 40)$ , where F is 1 and P is the hourly production rate.

F            =                      1 from Table B

P            =                      1700.00 tons/hr

E            =                       $F \cdot (55.0 \cdot P^{0.11} - 40)$

E            =                      84.66 lbs/hr

|  |
|--|
| Calculated emission rate this process<br>PH - 1 (TSP)      9.191 lb/hr |
|--|

Prepared by      AEK

Checked by      RAA

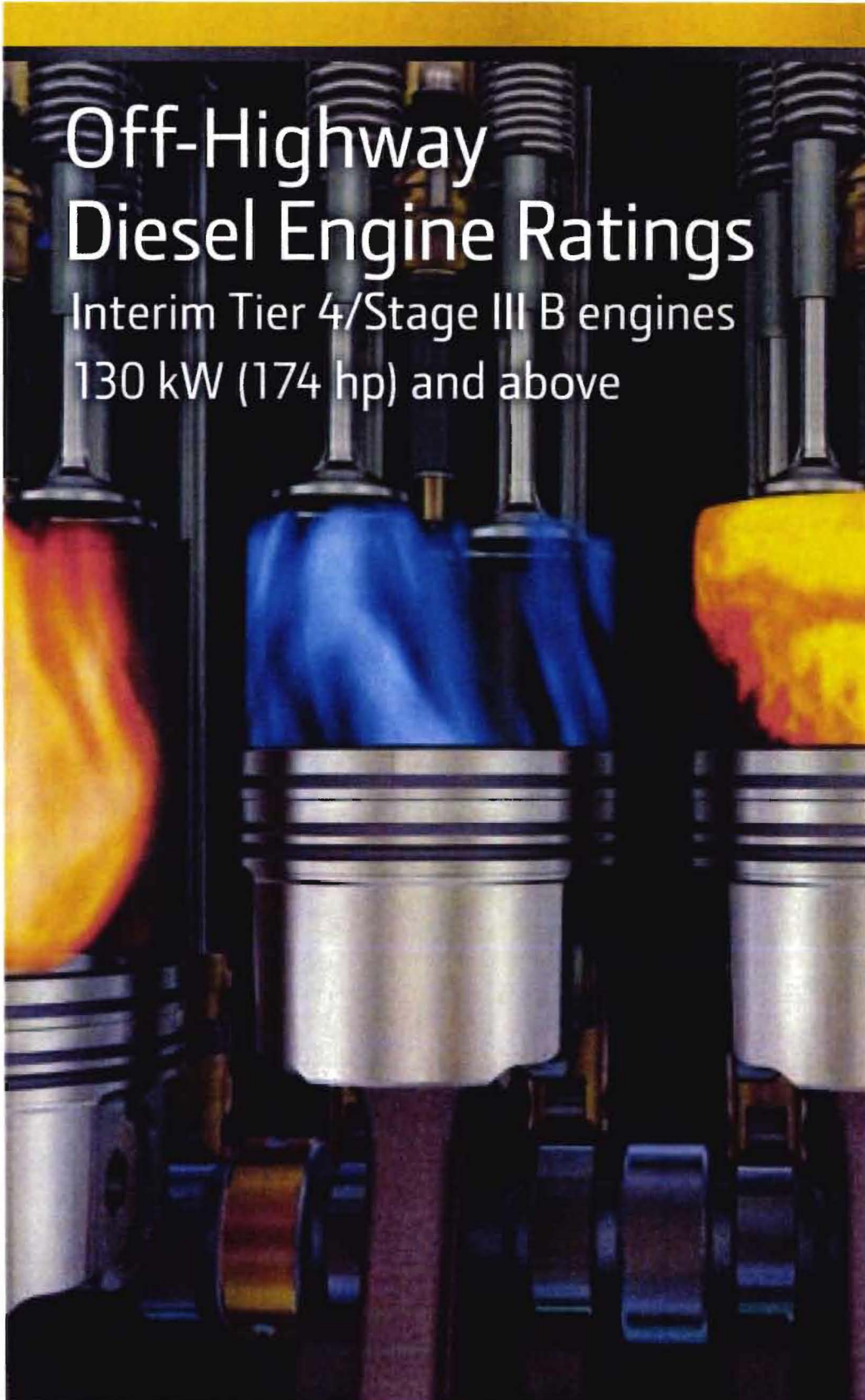




JOHN DEERE

# Off-Highway Diesel Engine Ratings

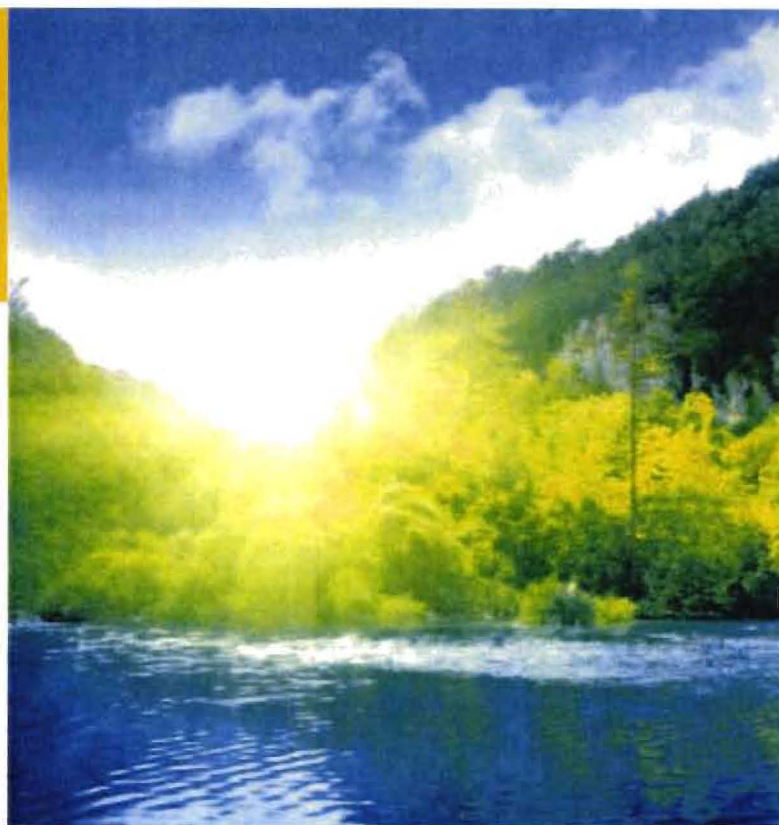
Interim Tier 4/Stage III B engines  
130 kW (174 hp) and above



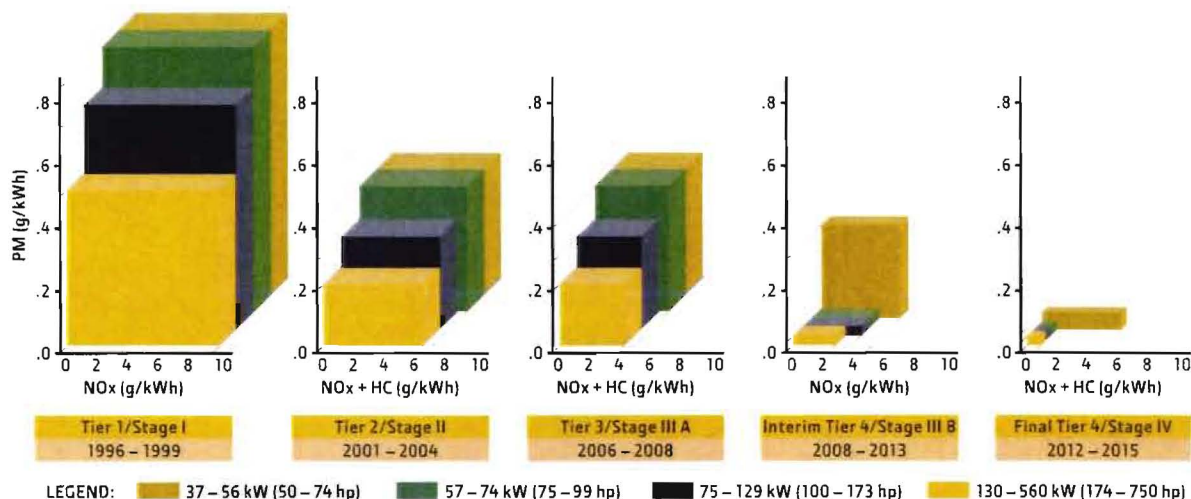
## Emissions information

The ultimate in performance, fuel economy, and emissions compliance is available with John Deere engines. To meet emissions regulations, John Deere worked closely with equipment manufacturers to identify engine technologies that best suited their needs.

John Deere engines comply with nonroad emissions regulations for the U.S. Environmental Protection Agency (EPA), the European Union (EU), and the California Air Resources Board (CARB).



### EPA and EU nonroad emissions regulations: 37 – 560 kW (50 – 750 hp)







# JOHN DEERE



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John Deere reserves the right to change specification and design of all products described in this literature without notice.



DSWT68 Litho in U.S.A. (09-04)

[www.JohnDeere.com/tier4](http://www.JohnDeere.com/tier4)

Table 11.19.2-2 (English Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (lb/Ton)<sup>a</sup>

| Source <sup>b</sup>                                       | Total Particulate Matter <sup>r,s</sup> | EMISSION FACTOR RATING | Total PM-10             | EMISSION FACTOR RATING | Total PM-2.5            | EMISSION FACTOR RATING |
|---|---|------------------------|-------------------------|------------------------|-------------------------|------------------------|
| Primary Crushing (SCC 3-05-020-01)                        | ND                                      |                        | ND <sup>n</sup>         |                        | ND <sup>n</sup>         |                        |
| Primary Crushing (controlled) (SCC 3-05-020-01)           | ND                                      |                        | ND <sup>n</sup>         |                        | ND <sup>n</sup>         |                        |
| Secondary Crushing (SCC 3-05-020-02)                      | ND                                      |                        | ND <sup>n</sup>         |                        | ND <sup>n</sup>         |                        |
| Secondary Crushing (controlled) (SCC 3-05-020-02)         | ND                                      |                        | ND <sup>n</sup>         |                        | ND <sup>n</sup>         |                        |
| Tertiary Crushing (SCC 3-050030-03)                       | 0.0054 <sup>d</sup>                     | E                      | 0.0024 <sup>o</sup>     | C                      | ND <sup>n</sup>         |                        |
| Tertiary Crushing (controlled) (SCC 3-05-020-03)          | 0.0012 <sup>d</sup>                     | E                      | 0.00054 <sup>p</sup>    | C                      | 0.00010 <sup>q</sup>    | E                      |
| Fines Crushing (SCC 3-05-020-05)                          | 0.0390 <sup>e</sup>                     | E                      | 0.0150 <sup>e</sup>     | E                      | ND                      |                        |
| Fines Crushing (controlled) (SCC 3-05-020-05)             | 0.0030 <sup>f</sup>                     | E                      | 0.0012 <sup>f</sup>     | E                      | 0.000070 <sup>q</sup>   | E                      |
| Screening (SCC 3-05-020-02, 03)                           | 0.025 <sup>c</sup>                      | E                      | 0.0087 <sup>l</sup>     | C                      | ND                      |                        |
| Screening (controlled) (SCC 3-05-020-02, 03)              | 0.0022 <sup>d</sup>                     | E                      | 0.00074 <sup>m</sup>    | C                      | 0.000050 <sup>q</sup>   | E                      |
| Fines Screening (SCC 3-05-020-21)                         | 0.30 <sup>g</sup>                       | E                      | 0.072 <sup>g</sup>      | E                      | ND                      |                        |
| Fines Screening (controlled) (SCC 3-05-020-21)            | 0.0036 <sup>g</sup>                     | E                      | 0.0022 <sup>g</sup>     | E                      | ND                      |                        |
| Conveyor Transfer Point (SCC 3-05-020-06)                 | 0.0030 <sup>h</sup>                     | E                      | 0.00110 <sup>h</sup>    | D                      | ND                      |                        |
| Conveyor Transfer Point (controlled) (SCC 3-05-020-06)    | 0.00014 <sup>i</sup>                    | E                      | 4.6 x 10 <sup>-5i</sup> | D                      | 1.3 x 10 <sup>-5q</sup> | E                      |
| Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)       | ND                                      |                        | 8.0 x 10 <sup>-3j</sup> | E                      | ND                      |                        |
| Truck Unloading - Fragmented Stone (SCC 3-05-020-31)      | ND                                      |                        | 1.6 x 10 <sup>-3j</sup> | E                      | ND                      |                        |
| Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32) | ND                                      |                        | 0.00010 <sup>k</sup>    | E                      | ND                      |                        |

a. Emission factors represent uncontrolled emissions unless noted. Emission factors in lb/Ton of material of throughput. SCC = Source Classification Code. ND = No data.

b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

- e. Reference 4
- f. References 4 and 15
- g. Reference 4
- h. References 5 and 6
- i. References 5, 6, and 15
- j. Reference 11
- k. Reference 12
- l. References 1, 3, 7, and 8
- m. References 1, 3, 7, 8, and 15
- n. No data available, but emission factors for PM-10 for tertiary crushers can be used as an upper limit for primary or secondary crushing
- o. References 2, 3, 7, 8
- p. References 2, 3, 7, 8, and 15
- q. Reference 15
- r. PM emission factors are presented based on PM-100 data in the Background Support Document for Section 11.19.2
- s. Emission factors for PM-30 and PM-50 are available in Figures 11.19.2-3 through 11.19.2-6.

Note: Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32) was corrected to Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32). October 1, 2010.

## **APPENDIX D**

# **MODELING PROTOCOL AND RESULTS**





## PROJECT MEMORANDUM

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Date: November 6, 2015

Project: 963.02 Phase 08

To: John Aultman

From: Andrea Kehn

A handwritten signature in blue ink that reads "Andrea Kehn".

Subject: Lexington Quarry Modeling Protocol

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### SUMMARY

Air dispersion modeling of criteria pollutant emissions from the quarry has been performed for the proposed sources at the Lexington Quarry. The results of the air quality analysis demonstrate that emissions of criteria pollutants will achieve the air quality standards stated in Standard No. 2. Tables that summarize the emission rates and results of the ambient air quality impact analysis are included in the Attachments.

The PM<sub>10</sub> incremental impact of the equipment was also calculated using the dispersion model and the incremental increase is below the allowable increase in the Prevention of Significant Deterioration Minor Source Increment Standard No. 7. The baseline date for Lexington County was set for PM<sub>10</sub> on March 20, 2000.

A summary of the modeled off-site impacts is presented as Tables D-2 and D-3 in Appendix D.

### MODELING CONSIDERATIONS

The air dispersion modeling analysis was completed using the most recent version of the AERMOD model, version 15181 using BEEST version 11.02 as the operating interface. Building downwash was not considered as there are no onsite buildings. The land-use within three kilometers of the facility was determined to be urban for air dispersion modeling purposes. The population of Lexington County (277,888 – 2014 estimate) was obtained from the US Census Bureau Quick Facts webpage. A GEP stack height analysis was not completed as the model calculates cavity impacts as necessary.

The quarry is located in Lexington County, SC; therefore, the meteorological data set for CAE\_GSO for years 2002-2006 downloaded from DHEC's website was used for modeling. Per instructions on DHEC's website, the Digital Terrain Data, NED files, were used for Lexington County. For the area within the planned mining area, source elevations were extracted from an updated mine map.

Equipment and property line locations are expressed in Universal Transverse Mercator (UTM) Zone 17 (NAD83) coordinates. Figure D-1 depicts the facility and emission points in relationship to the property boundaries and the impact receptor grid. Emission sources are shown in Figure D-2.

Equipment at the quarry includes truck unloading, screens, crushers, bins, and conveyors. Sources of emissions were modeled as volume sources as is typical for fugitive dust from this type of equipment at an aggregate facility (per the National Stone, Sand and Gravel Association's "Modeling Fugitive Dust Sources with AERMOD", January 2007, hereinafter referred to as "NSSGA document"). The UTM Coordinates for the sources are at the center of the source. The release height for a volume source is the height of the center of the source. The release heights were estimated for the equipment. The initial lateral dimension ( $\sigma_{zy}$ ) and initial vertical dimension ( $\sigma_{zo}$ ) for the volume sources were also calculated per suggested procedures in the NSSGA document as summarized below. All sources were considered to be adjacent to a structure for the purposes of this calculation. Complete calculations of model data for the volume sources are included as Table D-1 (Appendix D).

| Equipment       | Release Ht                  | Initial Vertical Dimension<br>( $\sigma_{zo}$ ) | Initial Lateral Dimension<br>( $\sigma_{zy}$ ) |
|-----------------|-----------------------------|---|--|
| Truck Unloading | Based on height of transfer | maximum height of unloading divided by 2.15     | Width of truck divided by 4.3                  |
| Screens         | Based on height of transfer | vertical dimension of volume divided by 2.15    | Width of screen divided by 4.3                 |
| Crushers        | Based on height of transfer | vertical dimension of volume divided by 2.15    | Width of crusher divided by 4.3                |
| Bins            | Based on height of transfer | vertical dimension of volume divided by 2.15    | Width of bin divided by 4.3                    |
| Conveyors       | Based on height of transfer | vertical dimension of volume divided by 4.3     | Width of the conveyor divided by 4.3           |

The receptor grid was set up as a "Special Grid" in BEEST. A Fenceline grid was created at 50 m spacing. Then the grid receptors were created using the Distance Method with Spacing of 100 m and a Grid Distance of 1,500 m. Analysis of modeling results shows that the maximum modeled concentration occurs within this receptor grid.

## MODELING RESULTS FOR STANDARD 2

Modeling results summary files are included as Table D-2 for Standard 2. To demonstrate compliance with Standard 2, the maximum modeled impact using 5 years of NWS meteorological data was added to the background data and compared to the NAAQS for criteria pollutants. Background levels for criteria pollutants were obtained

from DHEC's "Background Data for Modeling Purposes" spreadsheet available on DHEC's website and updated 9/9/2015. The background sites used for each pollutant are documented on Table D-2.

## **PM**

Per Section 2.1.6.2 of EPA's Addendum to the AERMOD User's Guide (EPA-454/B-03-001) dated June 2015, modeling demonstrations for the PM<sub>10</sub> NAAQS (SC Standard 2) are based on the High 6<sup>th</sup> High value over five years of meteorological data for the 24-hour PM<sub>10</sub> concentration. The AERMOD model was run using a single five year meteorological data file.

Per Section 2.1.6.1 of EPA's Addendum to the AERMOD User's Guide (EPA-454/B-03-001) dated June 2015, modeling demonstrations for the PM<sub>2.5</sub> NAAQS (SC Standard 2) 24-hour and annual modeled contributions are based on the highest of the multi-year average of the first high concentrations at each receptor, using five years of meteorological data. In AERMOD, the special processing for the 24-hour and annual averages for PM<sub>2.5</sub> was triggered by using "PM25" as the pollutant ID. The model was run using the MULTYEAR option with single year met files.

## **NO<sub>x</sub>**

Per Section 2.1.7 of EPA's Addendum to the AERMOD User's Guide (EPA-454/B-03-001) dated June 2015, the modeled design value for NO<sub>x</sub> is based on the 98<sup>th</sup> percentile of the daily maximum 1-hour values, which is represented by the eighth-highest of the daily maximum 1 hour values across the year.

Also for the 1-hour NO<sub>2</sub> modeling the Tier II approach (Ambient Ratio Method) was selected in BEEST utilizing a NO<sub>2</sub>/NO<sub>x</sub> ratio of 0.8, per EPA's memorandum dated March 1, 2011 "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard".

## **SO<sub>2</sub>**

Per Section 2.1.7 of EPA's Addendum to the AERMOD User's Guide (EPA-454/B-03-001) dated June 2015, the modeled design value for SO<sub>2</sub> is based on the 99<sup>th</sup> percentile of the daily maximum 1-hour values, which is represented by the fourth-highest of the daily maximum 1 hour values across the year.

## **CO**

The modeled design value for 1-hour and 8-hour CO is represented by the High 2<sup>nd</sup> High value over five years of meteorological data for the 24-hour PM<sub>10</sub> concentration.

Modeled impacts for all criteria pollutants were below the National Ambient Air Quality Standard (NAAQS) primary value, so the site passes for Standard No. 2 modeled impacts.

#### **MODELING RESULTS FOR STANDARD 7**

Modeling results summary files are included as Table D-3 for Standard 7. Background levels were not added to modeled concentrations when evaluating compliance with Standard 7 increments.

Consistent with guidance provided in the New Source Review Workshop Manual, dated October 1990, and SC DHEC Modeling Guidelines, the highest annual average is used for the annual average PM<sub>10</sub>, NO<sub>2</sub>, and SO<sub>2</sub> concentrations, and the average of the 2<sup>nd</sup> high concentration is used for the 24-hour PM<sub>10</sub> concentration, and the 24-hour and 3-hour SO<sub>2</sub> concentration.

The incremental increases in the modeled impacts are below the allowable incremental increase so the site passes for Standard No. 7 modeled impacts.

Modeling forms are included in Appendix A. Modeling input and output files are included on the enclosed CD's.



TABLE D-1 - VOLUME SOURCE PARAMETERS FOR MODELING  
Vulcan Construction Materials, LLC - Lexington Quarry

| Source ID | Source Description             | Installation or Modification Date   | Easting (X) (m) | Northing (Y) (m) | Base Elevation (ft) | Release Height (ft) | Horizontal Dimension $\sigma_y$ (ft) | Vertical Dimension $\sigma_z$ (ft) | Controlled Emission Rate PM 10 (lbs/hr) | Controlled Emission Rate PM 2.5 (lbs/hr) | STD 2 & 7 Exempt Rate (lbs/hr) | PM 10 Modeling Required? | PM 2.5 Modeling Required? | PM 10 Modeling Required? | PM 2.5 Modeling Required? |
|-----------|--------------------------------|-------------------------------------|-----------------|------------------|---------------------|---------------------|--------------------------------------|------------------------------------|---|--|--------------------------------|--------------------------|---------------------------|--------------------------|---------------------------|
| FDR001    | GRIZZLY FEEDER & TRK UNLOADING | 62"x12"x28" Grizzly feeder assembly | 456911.756      | 3756379.96       | 455                 | 485                 | 2.33                                 | 23.26                              | 0.002                                   | 0.000                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CRS001    | PRIMARY CRUSHER #1             | C160 Jaw Crusher @ 10"CSS           | 456914.925      | 3756379.74       | 455                 | 465                 | 1.16                                 | 3.49                               | 0.594                                   | 0.110                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CRS002    | SECONDARY CRUSHER #2           | XL900 Standard Cone Crusher         | 457056.141      | 3756286.49       | 610                 | 620                 | 1.16                                 | 3.49                               | 0.594                                   | 0.110                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CRS003    | TERTIARY CRUSHER #3            | XL900 Shorthead Cone Crusher        | 457197.211      | 3756409.9        | 610                 | 620                 | 1.16                                 | 3.49                               | 0.459                                   | 0.085                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CRS004    | TERTIARY CRUSHER #4            | XL900 Shorthead Cone Crusher        | 457195.687      | 3756406.58       | 610                 | 620                 | 1.16                                 | 3.49                               | 0.459                                   | 0.085                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| SCR001    | SCREEN #1                      | 8'X20' TD Scalping Screen           | 457055.897      | 3756283.47       | 610                 | 640                 | 2.94                                 | 3.49                               | 1.258                                   | 0.085                                    | 1.0000                         | yes                      | no                        | yes                      | no                        |
| SCR002    | SCREEN #2                      | 8'X20' TD Scalping Screen           | 457216.225      | 3756363.85       | 610                 | 640                 | 2.94                                 | 3.49                               | 1.110                                   | 0.075                                    | 1.0000                         | yes                      | no                        | yes                      | no                        |
| SCR003    | SCREEN #3                      | 8'X20' TD Scalping Screen           | 457218.45       | 3756360.17       | 610                 | 640                 | 2.94                                 | 3.49                               | 1.110                                   | 0.075                                    | 1.0000                         | yes                      | no                        | yes                      | no                        |
| SCR004    | SCREEN #4                      | 8'X20' TD Sizing Screen             | 457285.068      | 3756401.18       | 610                 | 640                 | 2.94                                 | 3.49                               | 1.110                                   | 0.075                                    | 1.0000                         | yes                      | no                        | yes                      | no                        |
| SCR005    | SCREEN #5                      | 8'X20' TD Sizing Screen             | 457287.323      | 3756397.44       | 610                 | 640                 | 2.94                                 | 3.49                               | 1.110                                   | 0.075                                    | 1.0000                         | yes                      | no                        | yes                      | no                        |
| CNV001    | CONVEYOR #1                    | 54" Short Primary Belt              | 456909.409      | 3756380.17       | 455                 | 470                 | 1.05                                 | 1.16                               | 0.078                                   | 0.022                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV002    | CONVEYOR #2                    | 54" Main Primary Belt               | 457119.408      | 3756359.96       | 455                 | 670                 | 1.05                                 | 1.16                               | 0.078                                   | 0.022                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV003    | CONVEYOR #3                    | 36" Primary Tunnel Belt             | 457058.244      | 3756287.98       | 590                 | 665                 | 0.70                                 | 1.16                               | 0.078                                   | 0.022                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV004    | CONVEYOR #4                    | 36" Crusher Run Transfer Belt       | 457063.028      | 3756275.76       | 610                 | 620                 | 0.70                                 | 1.16                               | 0.025                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV005    | CONVEYOR #5                    | 36" Crusher Run Stacker             | 457077.685      | 3756247.23       | 610                 | 665                 | 0.70                                 | 1.16                               | 0.025                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV006    | CONVEYOR #6                    | 48" Rip Rap Belt                    | 457077.685      | 3756247.23       | 610                 | 642                 | 0.93                                 | 1.16                               | 0.028                                   | 0.008                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV007    | CONVEYOR #7                    | 48" Tower 2 Feed Belt               | 457221.101      | 3756363.95       | 610                 | 673                 | 0.93                                 | 1.16                               | 0.138                                   | 0.039                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV008    | CONVEYOR #8                    | 42" Crusher Feed Bin Belt           | 457201.264      | 3756403.56       | 610                 | 650                 | 0.81                                 | 1.16                               | 0.037                                   | 0.010                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV009    | CONVEYOR #9                    | 42" Crusher Feed Bin Belt           | 457203.092      | 3756406.92       | 610                 | 650                 | 0.81                                 | 1.16                               | 0.037                                   | 0.010                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV010    | CONVEYOR #10                   | 42" Crusher Feeder Belt             | 457197.942      | 3756409.63       | 610                 | 630                 | 0.81                                 | 1.16                               | 0.037                                   | 0.010                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV011    | CONVEYOR #11                   | 42" Crusher Feeder Belt             | 457196.144      | 3756406.25       | 610                 | 630                 | 0.81                                 | 1.16                               | 0.037                                   | 0.010                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV012    | CONVEYOR #12                   | 48" Crusher Discharge Belt          | 457190.841      | 3756397.26       | 610                 | 615                 | 0.93                                 | 1.16                               | 0.074                                   | 0.021                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV013    | CONVEYOR #13                   | 48" Crusher Return Belt             | 457157.896      | 3756333.53       | 610                 | 635                 | 0.93                                 | 1.16                               | 0.074                                   | 0.021                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV014    | CONVEYOR #14                   | 42" Tower 3 Feed Belt               | 457291.072      | 3756404.38       | 610                 | 665                 | 0.81                                 | 1.16                               | 0.037                                   | 0.010                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV015    | CONVEYOR #15                   | 42" Tower 3 Feed Belt               | 457293.114      | 3756400.51       | 610                 | 665                 | 0.81                                 | 1.16                               | 0.037                                   | 0.010                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV016    | CONVEYOR #16                   | 36" 3/4" Recrush Belt               | 457217.658      | 3756371.02       | 610                 | 632                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV017    | CONVEYOR #17                   | 36" Screenings Transfer Belt        | 457219.059      | 3756352.43       | 610                 | 627                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV018    | CONVEYOR #18                   | 36" Screenings Stacker Belt         | 457221.465      | 3756307.17       | 610                 | 670                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV019    | CONVEYOR #19                   | 36" 5's Transfer Belt               | 457228.293      | 3756355.66       | 610                 | 627                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV020    | CONVEYOR #20                   | 36" 5's Stacker Belt                | 457249.746      | 3756326.52       | 610                 | 670                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV021    | CONVEYOR #21                   | 36" 6's Transfer Belt               | 457284.276      | 3756388.99       | 610                 | 627                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV022    | CONVEYOR #22                   | 36" 6's Stacker Belt                | 457286.346      | 3756341.39       | 610                 | 670                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV023    | CONVEYOR #23                   | 36" 7's Transfer Belt               | 457292.016      | 3756390.76       | 610                 | 627                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV024    | CONVEYOR #24                   | 36" 7's Stacker Belt                | 457317.035      | 3756358.95       | 610                 | 670                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV025    | CONVEYOR #25                   | 36" 89's Transfer Belt              | 457298.264      | 3756394.63       | 610                 | 627                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV026    | CONVEYOR #26                   | 36" 89's Stacker Belt               | 457350.649      | 3756377.41       | 610                 | 670                 | 0.70                                 | 1.16                               | 0.023                                   | 0.007                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV027    | CONVEYOR #27                   | 42" Blending Tunnel Belt            | 457395.599      | 3756402.4        | 600                 | 615                 | 0.81                                 | 1.16                               | 0.069                                   | 0.020                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV028    | CONVEYOR #28                   | 36" Dry Blend Stacker Belt          | 457392.033      | 3756367.57       | 610                 | 655                 | 0.70                                 | 1.16                               | 0.032                                   | 0.009                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| CNV029    | CONVEYOR #29                   | 42" Tower 4 Feed Belt               | 457505.46       | 3756415.74       | 610                 | 685                 | 0.81                                 | 1.16                               | 0.069                                   | 0.020                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| SBN001    | BIN #1                         | 120 Ton Crusher Feed Bin            | 457058.244      | 3756287.98       | 610                 | 632                 | 0.70                                 | 1.40                               | 0.051                                   | 0.014                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| SBN002    | BIN #2                         | 121 Ton Crusher Feed Bin            | 457201.264      | 3756403.56       | 610                 | 632                 | 0.70                                 | 1.40                               | 0.037                                   | 0.010                                    | 1.0000                         | no                       | no                        | no                       | no                        |
| SBN003    | BIN #3                         | 122 Ton Crusher Feed Bin            | 457203.092      | 3756406.92       | 610                 | 632                 | 0.70                                 | 1.40                               | 0.037                                   | 0.010                                    | 1.0000                         | no                       | no                        | no                       | no                        |

**TABLE D-2 - SUMMATION OF MODELED IMPACTS (STANDARD 2)**

**Vulcan Construction Materials, LLC - Lexington Quarry**

| Pollutant                             | 2002<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | 2003<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | 2004<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | 2005<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | 2006<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | Background <sup>4</sup><br>( $\mu\text{g}/\text{m}^3$ ) | Total Impact<br>( $\mu\text{g}/\text{m}^3$ ) | Standard<br>( $\mu\text{g}/\text{m}^3$ ) | PASS? |
|---------------------------------------|--|--|--|--|--|---|--|--|-------|
| PM <sub>10</sub> 24-hr <sup>1</sup>   | 0.5027   |  |  |  |  | 38  | 38.50  | 150                                      | YES   |
| PM <sub>2.5</sub> 24-hr <sup>2</sup>  | 0.33   | 0.29   | 0.29   | 0.26   | 0.29   | 20  | 20.33  | 35                                       | YES   |
| PM <sub>2.5</sub> Annual <sup>3</sup> | 0.022  | 0.020  | 0.020  | 0.020  | 0.020  | 9.7   | 9.72   | 12                                       | YES   |
| SO <sub>2</sub> 1-hr                  | 52.84  | 54.25  | 54.78  | 57.15  | 55.64  | 30.5  | 87.70  | 196                                      | YES   |
| CO 1-hr                               | 186.22   | 187.85   | 188.31   | 194.61   | 185.55   | 1450.3  | 1644.94                                      | 40000                                    | YES   |
| CO 8-hr                               | 43.70  | 41.58  | 57.58  | 46.99  | 71.47  | 916.0   | 987.47                                       | 10000                                    | YES   |
| NO <sub>2</sub> Annual Average        | 0.49   | 0.47   | 0.47   | 0.47   | 0.50   | 8.8   | 9.31   | 100                                      | YES   |
| NO <sub>2</sub> 1-hr                  | 62.17  | 66.48  | 66.87  | 60.21  | 67.93  | 83.4  | 151.32                                       | 188                                      | YES   |

The PM<sub>10</sub> 24-hr modeled impact is the maximum average high-6th-high 24-hr result over 5 years

The PM<sub>2.5</sub> 24-hr modeled impact is the maximum average high 24-hr result over 5 years

The PM<sub>2.5</sub> annual modeled impact is the maximum average high annual result over 5 years

The SO<sub>2</sub> 1-hr modeled impact is the 4th high result over 5 years

The CO 1-hr modeled impact is the 2nd high result over 5 years

The CO 8-hr modeled impact is the 2nd high result over 5 years

The NO<sub>2</sub> annual modeled impact is the high result over 5 years

The NO<sub>2</sub> 1-hr modeled impact is the 8th high result over 5 years

Background concentrations for pollutants obtained from "SC DHEC BACKGROUND CONCENTRATIONS FOR MODELING PURPOSES" spreadsheet updated 9/9/2015

PM<sub>10</sub> used Bates House site in Columbia.

PM<sub>2.5</sub> used Irmo site in Lexington, Co.

SO<sub>2</sub> used Parklane site in Richland

CO used Parklane site in Richland

NO<sub>2</sub> used Sandhill site in Richland

**TABLE D-3 - CLASS II PSD (STANDARD 7)****Vulcan Construction Materials, LLC - Lexington Quarry**

| Pollutant                | 2002<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | 2003<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | 2004<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | 2005<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | 2006<br>Modeled Impact<br>( $\mu\text{g}/\text{m}^3$ ) | Maximum<br>Modeled Conc<br>( $\mu\text{g}/\text{m}^3$ ) | Standard<br>( $\mu\text{g}/\text{m}^3$ ) | PASS? |
|--------------------------|--|--|--|--|--|---|--|-------|
| PM <sub>10</sub> 24-hr   | 0.56   | 0.53   | 0.49   | 0.52   | 0.46   | 0.56  | 30                                       | YES   |
| PM <sub>10</sub> Annual  | 0.06   | 0.08   | 0.07   | 0.06   | 0.08   | 0.08  | 17                                       | YES   |
| PM <sub>2.5</sub> 24-hr  | 0.33   | 0.29   | 0.29   | 0.26   | 0.29   | 0.33  | 9  | YES   |
| PM <sub>2.5</sub> Annual | 0.02   | 0.02   | 0.02   | 0.02   | 0.02   | 0.02  | 4  | YES   |
| SO <sub>2</sub> Annual   | 0.40   | 0.39   | 0.39   | 0.39   | 0.41   | 0.41  | 20                                       | YES   |
| SO <sub>2</sub> 24-hr    | 7.10   | 7.12   | 8.39   | 6.39   | 9.69   | 9.69  | 91                                       | YES   |
| SO <sub>2</sub> 3-hr     | 25.20  | 26.77  | 26.52  | 21.68  | 28.31  | 28.31   | 512                                      | YES   |
| NO <sub>2</sub> Annual   | 0.49   | 0.47   | 0.47   | 0.47   | 0.50   | 0.50  | 25                                       | YES   |

The PM<sub>10</sub> 24-hr modeled impact is the maximum average high-2nd-high 24-hr results over 5 years.

The PM<sub>10</sub> and PM<sub>2.5</sub> annual modeled impact is the maximum average high result over 5 years.

The SO<sub>2</sub> 3-hr modeled impact is the maximum average high-2nd-high 24-hr results over 5 years.

The SO<sub>2</sub> 24-hr and annual modeled impact is high result over 5 years.

The NO<sub>2</sub> annual modeled impact is the high result over 5 years