

**South Carolina Department of Health and Environmental Control (SC DHEC)  
Bureau of Air Quality (BAQ)**

**Response to Comments  
Public Notice #16-029-CM-C  
Vulcan Construction Materials, LLC - Lexington Quarry  
Batesburg-Leesville, Lexington County, South Carolina  
Permit No. 1560-0205-CA**

The following is the SC DHEC BAQ's (Department) response to comments made during the formal comment period held July 21 to August 26, 2016, and the public hearing held on August 23, 2016, regarding the draft synthetic minor construction permit for Vulcan Construction Materials, LLC - Lexington Quarry (Vulcan) located at US Highway 1, S-32-31 in Leesville, Lexington County, South Carolina. The Department Decision, permit, statement of basis, this response document, and a letter of notification to citizens who submitted comments are available for viewing at the SC DHEC Columbia office located at 2600 Bull Street, Columbia, SC 29201, or our webpage at <http://www.scdhec.gov/Environment/AirQuality/PermittingDecisions/>. Hardcopies of all the above-listed documents, as well as the written comments received and transcript of the public hearing can be requested by contacting our Freedom of Information Office at (803) 898-3882. The following is a summary of all comments submitted and the Department's response.

**Air Pollution Impacts** - Comments were received regarding air pollution impacts to air quality, health impacts to the general population and sensitive individuals, impacts to wildlife and other animals and impacts to vegetation from the proposed operation.

Federal and state air quality regulations are established to be protective of public health, using scientific data and human health risk assessments. These regulations include setting standards for ambient air and setting emission limits, controls and/or operational requirements for industrial facilities.

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for six common pollutants ("criteria" pollutants) considered harmful to public health. There are two types of NAAQS: primary standards and secondary standards. Primary standards are set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are set to protect public

welfare, such as protection against decreased visibility, and damage to animals, crops, vegetation, and buildings. National ambient standards have been set for the pollutant of concern from this project, particulate matter. Particulate matter (PM) consists of particulate matter less than 10 micrometers in diameter (PM<sub>10</sub>) and particulate matter less than 2.5 micrometers in diameter (PM<sub>2.5</sub>). The EPA is also required to designate areas of the country as nonattainment when monitoring information shows pollutant concentrations exceed a set standard. There are no nonattainment areas in South Carolina for PM<sub>10</sub> or PM<sub>2.5</sub>.

On a five-year schedule set by the CAA, the EPA reviews ambient standards, which includes a review of scientific and medical data. Based on that periodic review, standards may become more stringent. The primary annual PM<sub>2.5</sub> standard was strengthened from fifteen to twelve micrograms per cubic meter (µg/m<sup>3</sup>) in December 2012 to improve public health protection.

In accordance with South Carolina Regulation 61-62.1, "no permit to construct or modify a source will be issued if emissions interfere with attainment or maintenance of any state or federal standard." Vulcan's operations were evaluated to determine if the emissions would interfere with attainment of the NAAQS. An air quality analysis was performed using an EPA-approved air dispersion computer model to simulate how the facility's maximum emissions will be dispersed into the atmosphere surrounding the proposed site. This simulation used official National Weather Service Meteorological data from the Columbia Metropolitan Airport that was processed and quality assured by Department staff meteorologists. This meteorological data was determined to be representative of the weather conditions that would be observed at the facility's site, including those weather conditions that would produce the worst-case pollutant concentrations in the community surrounding the proposed site. The maximum facility PM<sub>10</sub> and PM<sub>2.5</sub> concentrations were added to background (monitored) pollutant concentrations. The EPA-approved model demonstrated compliance with the NAAQS at the property boundary and off-site without including trees or other vegetation as a buffer (a worst-case scenario).

**Air Dispersion Modeling** – The Department received comments stating that air dispersion modeling results were close to the standards.

SC DHEC uses EPA-approved methods for its analysis of ambient air quality standards. The maximum allowable concentrations are based on worst-case operating conditions. Actual emission concentrations are expected to be lower than modeled. All predicted results are below the established maximum allowable

concentrations, as noted in the table below. For this facility, the PM<sub>2.5</sub> concentrations are 80 percent of the 24-hour standard and 92 percent of the annual standard, both of which are within the compliance range. It should be noted that the existing backgrounds are 57 percent and 81 percent of the standard. The increase from the Vulcan facility is predicted to be an additional 24 percent for the 24-hour and 9 percent for the annual standard. The PM<sub>10</sub> concentration is 59 percent of the allowable standard for the 24-hour averaging period. The existing background is 25 percent of the standard with the predicted increase due to the Vulcan facility being only 34 percent of the 24-hour standard. See the table below for more information.

STANDARD NO. 2 - AMBIENT AIR QUALITY STANDARDS ANALYSIS							
Pollutant	Averaging Time	Basis	Maximum Predicted Concentration (µg/m <sup>3</sup> )	Background Concentration (µg/m <sup>3</sup> )	Total (µg/m <sup>3</sup> )	Standard (µg/m <sup>3</sup> )	% of Standard
PM <sub>10</sub>	24 Hour	AERMOD	51.4	38.0	88	150	59
PM <sub>2.5</sub>	24 Hour	AERMOD	8.4	20.0	28	35	80
	Annual	AERMOD	1.1	9.7	11	12	92

A comment was also received that weather patterns need to be considered in the air quality analysis. The air dispersion modeling that SC DHEC performs uses weather data that covers a five-year period. In accordance with EPA guidelines, any given five-year period is sufficient to take into account normal variations in weather patterns for the area. This weather variation was considered in the modeling that was performed for the proposed quarry, including the predicted weather conditions that would produce the worst-case off site pollutant concentrations. The modeling demonstrated compliance with the Standards.

There was also a comment regarding the need to include phase 2 of the pit in the air dispersion modeling analysis. Emissions for both the initial phase and final phase (phase 2) operations of the quarry were evaluated to identify worst-case conditions. Modeling for the initial phase represents the highest concentrations. Based on the worst-case operating scenario, the Vulcan quarry will meet all applicable ambient air quality standards.

**Ambient PM Monitoring** – Comments were received requesting the installation of particulate air samplers (including low cost monitoring systems for PM<sub>10</sub> and PM<sub>2.5</sub> for short-term averaging periods), the Department’s review of samples, and the release of sample real-time results to the public.

Monitoring stations in South Carolina's ambient air monitoring network are specifically located to represent ambient pollution levels in a diverse set of geographical areas. In accordance with 40 Code of Federal Regulations (CFR) 58, Appendix D, ambient air monitors are required to be placed in areas with the highest population, or where the highest pollutant concentrations are expected to occur. If an ambient monitor located in an area of higher emissions or concentrations demonstrates the air pollutant concentrations are lower than the levels set by the national health-protective standards, then it is reasonable to expect that the air pollutant concentrations in other areas with lower emissions or concentrations will also be lower than the national standards.

The Department has operated an air quality monitoring network in South Carolina since 1959. The monitoring network currently includes 43 PM<sub>10</sub> and PM<sub>2.5</sub> monitors and samplers at 16 sites across the state.<sup>1</sup> These monitors and samplers are used to assess South Carolina's air quality and determine compliance with the NAAQS and state ambient air quality standards. All monitors in the Columbia area show attainment of all current air quality standards. The Department annually reviews the monitoring network, and seeks input from the public, to make sure the minimum requirements and the needs of the air program are met.

The closest ambient air monitoring PM<sub>10</sub> station to Leesville, SC, with complete data is the Columbia Bates House (USC Campus) monitoring station<sup>2</sup>, located less than 30 miles east of Leesville. The nearest ambient air monitoring PM<sub>2.5</sub> station to Leesville, SC is the Seven Oaks Recreation Center (Irmo) monitoring station, located less than 30 miles northeast of Leesville. The Columbia, SC monitoring stations represent areas with the highest expected concentrations and population exposure in the area that includes all of Richland and Lexington Counties. Data from these sites show that Lexington County, including the Leesville area, remains in attainment for both PM<sub>10</sub> and PM<sub>2.5</sub> ambient air quality standards. Fine particulate monitoring approximately 30 miles to the west of the proposed operation in a more rural area (Trenton, SC) indicate the Columbia monitors are representative the broad area. Trend graphs from this data are maintained on the Department's web-based application at <https://gis.dhec.sc.gov/monitors/>. The Department's air monitoring data can also be found on EPA's website at [www.epa.gov/airdata](http://www.epa.gov/airdata). Other publicly-available web-based applications, such as AirNow ([www.airnow.gov](http://www.airnow.gov)) also provide near real-time air quality index.

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<sup>1</sup> [www.scdhec.gov/environment/baq/ambientmonitoring.aspx](http://www.scdhec.gov/environment/baq/ambientmonitoring.aspx).

<sup>2</sup> The Cayce PM<sub>10</sub> station is slightly closer to Leesville, but data for the most recent period is incomplete.

There is also historical PM<sub>10</sub> monitoring data available for granite quarries. PM<sub>10</sub> was monitored because quarry operations (transferring, hauling, and crushing material) would be expected to produce more PM<sub>10</sub> sized particulate matter than smaller particulate fraction (PM<sub>2.5</sub>) which is primarily produced by combustion. The fine particulate is also included in the PM<sub>10</sub> measurement. Ambient PM<sub>10</sub> monitoring was conducted by a contractor for Vulcan at its Columbia Quarry (Columbia quarry) between 2003 and 2008. Performance and accuracy of the monitors were periodically checked by SC DHEC technical staff. This monitoring data showed that ambient air quality standards were met. The maximum permitted production rate at the proposed Lexington quarry is less than at the Columbia quarry.

SC DHEC conducted additional ambient PM<sub>10</sub> monitoring near the Columbia quarry and the Martin Marietta Cayce quarry (Cayce quarry) due to concerns about PM<sub>10</sub> concentrations in the adjacent communities. Monitoring was conducted near the Cayce quarry from 1991 to 2012 and near the Columbia Quarry from 1991 to 2010. The results of that monitoring showed ambient concentrations less than half of the health based standards for PM<sub>10</sub> in the area around both quarries at the time the monitoring was discontinued.

Based on air dispersion modeling showing compliance with the PM standards, permit requirements to control PM emissions, and historical information indicating compliance with the PM ambient standards at other mining sites with similar equipment and emission controls as the proposed Lexington quarry, the Department has reason to expect the facility to meet State and Federal ambient air quality standards.

**Blasting** – Comments were received with respect to blasting activities.

The air permit does not address blasting activities, as such activities at a granite quarry are regulated by the South Carolina Mining Act. The comments related to blasting will be considered by Bureau of Land and Waste Management (BLWM) as part of the review of the mining permit application.

Comments were made regarding the use of laser blasting to reduce air emissions.

The Department did not find any instances where laser blasting was used in lieu of explosive blasting at stone aggregate operations or any information indicating that it is a feasible alternative. Lasers are used in some dimensional stone operations for

etching or engraving of the stone's surfaces. However, this process is not applicable to stone aggregate processing.

**Community/Quality of Life** - Comments were received regarding the potential impacts to the community's way of life.

The Department cannot make its permit decisions based on these factors. The permit decision is based on the Department's technical review of the permit application and the applicable air regulations in place at the time of the Department's review. As mentioned previously in the *Air Pollution Impacts* Section, these air quality regulations are set to protect public health.

**Complaints** – The Department received a comment about SC DHEC's response time to complaints.

The 24 to 48 hour response time is a SC DHEC guideline. It is established to ensure that all complaints are prioritized and handled based on the health and safety of our citizens. It is possible when a complaint is received that it could be handled within a few hours, but depending on other complaints and incidents that can occur on any given day, as well as the nature of the complaint, it may take the full response time. The response time frame is set to ensure that SC DHEC staff will investigate a complaint within two days.

**Construction Activity** – A comment was made that the development of access roads was observed although it was believed that no activity was allowed until the permits were approved.

The state air regulations prohibit a facility seeking a construction permit, requiring federally enforceable permit conditions to limit its potential to emit, from starting construction activities without an issued air construction permit. However, land clearing activities which could include the development of access roads are not considered a construction activity under the air quality regulations.

**Coordinating the Issuance of Air, Land and Waste, and Water Permits** - Comments were received that the Department should issue the air, mining, and water permits at the same time.

The permit decision for the air permit, mining permit and the water permit will all be issued on the same day.

**Crystalline Silica-** Comments regarding the adverse health effects from crystalline silica were received.

Crystalline silica is found abundantly in the earth's crust and is a component of granite, sand, soil, and other minerals. Several daily activities such as travelling on dry dirt roads and wind blowing across dry or sandy areas may expose people to low concentrations of silica.

In 1996, the EPA evaluated the scientific information available on occupational exposure to silica, which included the medical histories of thousands of miners, as well as available information regarding ambient exposure to silica. The EPA concluded that healthy individuals exposed to non-occupational silica concentrations are adequately protected by the NAAQS for particulate matter, which was  $50 \mu\text{g}/\text{m}^3$  at that time.<sup>3</sup> Since then, the EPA has strengthened PM standards to be more protective of public health. Air dispersion modeling has shown the facility's  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  concentrations are below the current standards.

The EPA has adopted a health benchmark level for crystalline silica; however, based on its evaluation of non-occupational exposure to silica, it has determined that regulating silica exposure using the existing PM standards is protective of public health. Therefore, the EPA has not set a NAAQS for silica nor included it on its list of Hazardous Air Pollutants (HAP). As with the majority of states, SC DHEC regulations focus on control measures in the permitting process and rely on the EPA's determination that regulating particulate emissions, a component of which is silica, is protective of public health.

Exposure to silica dust is more of an occupational (worker safety) issue than a public health concern. Silica is recognized as a carcinogen and silicosis is a disease associated with long-term exposure to very high concentrations of silica in the workplace. Occupational regulations were developed to protect workers from

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<sup>3</sup> "...[A] thorough analysis of the most extensive occupational studies available, each of which examined the medical histories of thousands of miners, suggests that the cumulative risk of silicosis among these South Dakotan, Canadian, and 8-9 South African miners from exposures at or below 1 mg crystalline silica/m years is close to 0%. 3 Using a high estimate of 10% for the crystalline silica fraction in PM from U.S. metropolitan 10 areas, 1 mg crystalline silica/m years is the highest CSE expected from continuous lifetime exposure at or below the annual PM NAAQS of  $50 \mu\text{g}/\text{m}^3$ . Thus, current data suggest that, for healthy individuals not compromised by other respiratory ailments and for ambient environments expected to contain 10% or less crystalline silica fraction in  $\text{PM}_{10}$ , maintenance of the  $50 \mu\text{g}/\text{m}^3$  annual NAAQS for PM should be adequate to protect against silicotic effects from ambient 10 crystalline silica exposures." (US Environmental Protection Agency, 1996)

exposure to silica above certain levels. While worker exposure limits are set to protect workers, measures used to reduce exposure for workers (for example, wet suppression) also reduce air emissions and off-site impacts. Some of the permit requirements, like requiring dust from the crushing, screening and conveying processes to be controlled through wet suppression, reduce both workplace exposures and air emissions. The permit also requires fugitive dust emissions to be minimized through the use of wet suppression, water trucks, paving of roads, and other measures.

A comment was received asking if any monitoring for silica has been conducted.

The Department is unaware of any ambient air monitoring for silica or any air samples related to the speciation for silica.

**Dust/Fugitive Particulate Matter** – Comments were received regarding particulate matter (PM emissions), including fugitive PM emissions at the proposed facility. These comments included health impacts, dust on public and facility-owned roads, dust on homes, plants, and animals, and effectiveness of dust suppression.

Particulate matter (PM) emissions from the operating equipment and the on-site roads and storage piles are required to be controlled per air quality regulations. These regulations limit PM emissions, limit opacity (amount of light blocked by dust particles), and require the facility to take initial opacity readings of equipment. Air dispersion modeling demonstrated that PM pollutant concentrations did not exceed the NAAQS, which are protective of public health and welfare. For health impact information, please see the *Air Pollution Impacts* Section.

Using wet suppression to control PM emissions is required by the air permit. The crushed stone processing plant (crushers, screens, conveyor systems) is regulated under the federal EPA New Source Performance Standard (NSPS) for Nonmetallic Mineral Processing Plants, 40 CFR 60 Subpart OOO, as well as State standards. These regulations require the use of wet suppression and require maintenance, inspections, and corrective action on that control equipment. When wet suppression systems are in use, the water spray valves will be activated prior to the initiation of operations and the operator will adjust the flow depending on process conditions. Water trucks (or other dust control measures) will be used to control fugitive road and storage pile emissions. When dust suppression is conducted in accordance with this permit, it is effective in controlling dust emissions.

A request was received to require a more detailed fugitive dust control plan. After further review, the Department agreed with the request for additional details. See the revised fugitive dust plan requirements below.

Compliance with non-enclosed operations and fugitive dust requirements shall be demonstrated by developing a facility-wide fugitive dust control plan for controlling fugitive emissions from process operations, truck traffic, storage piles, and any other areas within the permitted facility where fugitive dust emissions can be generated. The plan shall be developed and submitted to the Director of Engineering Services for approval 180 days prior to the start of operation. The owner/operator shall implement the plan within 30 days of approval and create a schedule for its periodic review and update. The plan shall be kept and maintained on-site with a record of revisions. The plan shall address and/or contain at a minimum the following:

1. Water Trucks / Dust Control Systems
  - a. Operation and maintenance checks of water trucks or an approved dust control system.
  - b. Operating scenarios for water truck or dust control system failures or inadequacies
  - c. Dates the water trucks or dust control system did not operate and the alternative(s) dust control method used.
  
2. Truck Traffic
  - a. Road speed limits
  - b. Vehicle loading, off-loading, transportation or dumping of material procedures
  - c. Spillage and residual materials clean-up procedures
  - d. Operation and maintenance checks of sprinklers
  - e. Signage with respect to SC Code of Laws Sections 56-5-4100 and 56-5-4110 (which requires haul trucks transporting aggregate from all quarries to prevent the escape of materials loaded onto the vehicles)
  
3. Storage Piles
  - a. Material stock piling procedures
  
4. Process Equipment
  - a. Operation and maintenance checks of all plant equipment and enclosures.

- b. Spillage and residual materials clean-up procedures
- c. Daily visual emission checks on each crusher, screen, conveyor and storage bin when it is in operation.
- d. Written guidelines on how to handle opacity problems

The owner/operator shall develop logs or use other approved methods to comply with the requirements of the plan.

**Enclosed Rock Crushers** – Comments were received about enclosing rock crushers.

The complete enclosing of rock crushers is not typical for granite quarries. Enclosing the crushers introduces additional hazards and risks to employees by increasing both the sound and confined dust exposure. It also limits access to the equipment and increases the potential for accidents.

Although total enclosures are rarely used, partial enclosures are commonly employed to minimize sound transmission. Partial process equipment enclosures will be provided at Vulcan as necessary to comply with the sound performance standard required by the Lexington County zoning ordinance.

**Enforcement and Compliance/Inspections** – Comments were received regarding the enforcement, compliance and inspection process. Several comments were made about the inspection frequency.

Vulcan is a conditional major facility based on its potential air emissions and is inspected at a minimum of every other year; however, the Department has the discretion to inspect facilities more frequently if repeat non-compliance is observed or in response to complaints. During air quality inspections, all sources on the permit are inspected for compliance with the permit conditions. The inspector also reviews all records, logs, etc. for compliance with the permit. It is also noted if there are any inconsistencies between the permit and operation at the facility. Any alleged violations are detailed in the inspection report and referred to the Department's Enforcement Section.

Air construction permits require a facility to certify that construction is complete in accordance with the construction permit and to request an operating permit within 15 days after the actual date of initial startup. The inspectors will then verify that the equipment was constructed per the construction permit and is operating in accordance with its conditions. The Department also conducts site visits for

permitting and compliance assistance. If any deviations or potential violations are observed on these visits, they are referred to the Enforcement Section for resolution.

Air inspection reports are typically completed within 30 days after an inspection and contain the equipment and logs inspected, compliance status with permit conditions, identifies any deviations or potential violations.

There was also a comment made that inspection reports should be published on the SC DHEC website and made available free of charge to the public.

In order to ensure open access, accountability, and timely and appropriate response to the public, all requests for information are coordinated through SC DHEC's Freedom of Information (FOI) Center. For more information on FOI requests, including fees, visit the following webpage: <http://www.scdhec.gov/Agency/RequestCopiesofRecords/>

Comments were received regarding the enforcement of the air regulations.

If a potential violation is discovered during an air site visit or an inspection, a summary of the concerns is forwarded to the Enforcement Section for review. If a potential violation exists, a Notice of Violation (or Notice of Alleged Violation) may be issued. Depending on the seriousness of the potential violations, the company may have an enforcement conference with the Department to discuss the alleged violations and note any areas where corrective actions have been taken. During the conference, there is a discussion of actions necessary for the facility to return to compliance. Subsequent to the conference, the Enforcement Section will determine if additional action, to include the assessment of civil penalties, is warranted.

The Department received a comment that detection and reporting of violations should not be handled initially by Vulcan.

The monitoring, testing, recordkeeping, and reporting requirements in an air permit are the responsibility of the facility. The facility may perform the requirements of the permit in-house or outsource it to a contractor. The Department will review all compliance information submitted by the facility (or obtained on site) to determine compliance.

**Fees** - There were comments made that fees should be imposed on permit holders for applications, inspections and reporting.

The Department charges fees in accordance with SC Regulation 61-30, Environmental Protection Fees. Per this regulation the Department charges annual fees based on annual emissions. These fees cover the cost of permit application reviews, inspections, and enforcement and compliance assurance activities.

**Final Agency Decision** - A comment was received about the legal recourse for citizens if permit is issued.

The complete “Guide to Board Review” can be found at the following web address:

<http://www.scdhec.gov/Agency/BoardofDirectors/GuidetoBoardReview/>

**General Opposition and Support** – SC DHEC received several comments requesting denial of the permit. Several comments in support of the facility were also received.

The Department appreciates all comments made regarding Vulcan. However, the Department cannot make permitting decisions based on community, business, employee, or customer support or non-support of the company/facility. The Department’s decision is based on the Department’s technical review of an application and the regulatory requirements in place at the time of the Department’s review.

**Impacts to Wildlife and Vegetation** – Comments were received regarding the potential impacts to area wildlife and vegetation.

As mentioned previously in the *Air Pollution Impacts* section, some regulated air pollutants have primary and secondary standards; secondary standards are set to protect public welfare, which includes protecting against damage to animals, crops, and vegetation. Also, as mentioned in the *Noise* Section, impacts to wildlife are assessed by South Carolina’s Department of Natural Resources (SC DNR) and reviewed by SC DHEC as part of the mine permit application process.

**Land and Property Value/Economic Impact** – Comments were received regarding the impact to property values and the possible economic impact.

All zoning decisions are made at the local level by a city or county zoning authority, usually before a permit request is received by the Department. The Department cannot dictate where a facility locates or factor property value impacts into

permitting decisions. Contact your local city or county council representatives for more information on how to get involved in local zoning and planning issues.

**Land Impacts** – Comments related to physical safety barriers, land reclamation, fault lines, earthquakes, cemeteries, and a historic homestead were received.

The air regulations do not address these activities and are therefore not covered in the air permit. The comments related to these activities will be considered by BLWM as part of the reviews of the mining permit application.

**Light Pollution** – A comment was received regarding the effects of artificial illumination on residents, animals, and air pollution; a request was made to include a permit condition limiting light pollution. A suggestion was received to follow an ordinance set forth by a professional organization.

The Department must base an air permit decision on the applicable air regulations in place at the time of the Department's technical review. There are currently no air quality regulations regarding lighting, therefore the Department has no authority to regulate or require a permit condition for lighting. Although lighting is not addressed in the air permit, the Lexington County Zoning Ordinance limits operation at the mine from 7:00 a.m. to 7:00 p.m. Additionally, the facility's extensive buffer should help to minimize extraneous light offsite.

**Monitoring/Self-Monitoring** - Comments were made regarding the frequency of monitoring and how the facility is monitored for compliance.

The air construction permit requires the facility to perform an initial opacity test for all equipment. This test plan is reviewed and approved by the Department's Source Evaluation Section. The test is typically performed by a contractor hired by the facility and may be observed by the SC DHEC's Source Evaluation Section. The Source Evaluation Section reviews the test results to ensure compliance with the applicable standard. The air construction permit requires the facility to conduct daily visual inspections on the equipment to ensure they are meeting the opacity limits as well as compliance with the requirements of the Department-approved fugitive dust control plan. All of this data is required to be recorded in a log book. During the Department's unannounced air inspections, the inspectors review all required records, observe the facility's processes while in operation, make visual emission observations, verify that the equipment onsite matches those listed in the current

permit, and review any other pertinent information. For more information on the inspection process see the *Enforcement and Compliance/Inspections* Section.

**Noise** – Comments were received regarding the potential impacts of noise pollution to the area and to animals. Requests were made for the installation of noise abatement structures and a noise reduction plan.

The Department does not have any noise standards in the air quality regulations. However, excessive noise levels not typical for a site should be reported to the appropriate SC DHEC regional office:

Midlands-Columbia Office, 8500 Farrow Road, Columbia, SC 29203 at (803) 896-0620.

Lexington County's Code of Ordinances does address noise concerns. The facility has stated that it will use partial equipment enclosures as necessary to comply with the sound performance standard. Contact Lexington County's Code of Enforcement Office for further information. Although noise is not addressed in the permit, only 355.7 acres of the 553.2 total permitted acres may be used for the mining process; this includes a buffer of 197.5 acres. This should help reduce noise from the plant. Impacts to wildlife are addressed by the SC DNR and during the SC DHEC's review of the mine permit application.

**Operating Hours** - Comments were received requesting limits on the hours of operations.

The Lexington County Zoning Ordinance limits operation at the mine to Monday through Saturday from 7:00 a.m. to 7:00 pm.

**Other Mining Operations** –Comments were received about the complaints from other mining operations.

The Department reviewed ten years of inspection reports for all the South Carolina air permitted granite quarries. Violations were noted in less than 10 percent of those inspections and in less than 2 percent of the Vulcan inspections. The Department has also not received a large number of complaints about the Vulcan quarries in the same time period.

**Other Sources of Air Emissions** – A comment was made that air permit emissions and air quality analysis for particulate matter needs to include excavation and blasting.

The emission factors used to calculate the potential to emit for Vulcan are from the EPA-developed document, *AP-42: Compilation of Air Emission Factors* (AP-42). Section 11.19.2 covers crushed stone processing and does not include emission factors for excavating or particulate matter generated from blasting. AP-42 Section 11.9 covers Western Surface Coal Mining and contains blasting emission factors for that type of operation. However, Section 11.19.2 states that “the procedure should not be applied to stone quarries because of dissimilarities in blasting techniques, material blasted, and size of the blast areas.”

Additionally, blasting is typically done while primary crushing and hauling are not in operation. The blast area must be cleared before the blast and cannot resume until the blasting contractors have inspected the blast area and determined the area safe to re-enter. This operational shutdown typically lasts approximately 30 minutes while the actual blast occurs in less than one minute. The emissions created from blasting are offset by the cessation of emissions from primary crushing and hauling during that blasting period.

Section 11.9 also provides excavation emission factors. After evaluation of the factors, it was determined that they were developed based on areas of the southwestern United States where vegetation and precipitation varies significantly from that of the midlands of South Carolina and therefore these emission factors are not applicable to Vulcan.

SC DHEC and granite quarry operations in the State conducted ambient air monitoring in the 1990’s and 2000’s for particulate matter. Some of this monitoring was conducted while both stripping and near surface blasting were being conducted. The results of the monitoring show that the particulate matter emissions from all of the operations were in attainment with the ambient air quality standards. The operations at the proposed Lexington Quarry would be similar to operations as those previously monitored. See the *Ambient PM Monitoring* section for more information.

**Permit Conditions** – A comment was received that SC DHEC has the right to require permit conditions from the proposed facility.

The proposed draft permit contains all applicable state and federal regulations including emission limits, monitoring, recordkeeping, reporting, and a NAAQS compliance demonstration. All comments received during the public comment period are reviewed and considered. Based on comments received, Condition C.5 of

the Permit has been modified. See the *Dust/Fugitive Particulate Matter* Section of this document for more details.

**Permit Decision** – Comments were received stating that there was insufficient information, research, and planning, and that unbiased expertise and scientific data were needed to make a permit decision. A comment was also received that although the Department had a public comment period, the decision to issue the permit was made by the Department prior to the public comment period and that the permit decision is a done deal.

The air quality regulations require the Department to review the application and to draft a construction permit before the public comment period. The public comment period is intended to provide the public an opportunity to review and comment on the application and draft permit (if the application meets all applicable state and federal air pollution regulations) at the same time.

The facility submitted information required to make an air permit decision. The air emission estimates are based on the EPA developed document AP-42. These emission factors are based on testing conducted at similar quarries and this estimation methodology is commonly used by all the South Carolina granite mines for estimating emissions. The facility's application included an air dispersion modeling analysis to show the project would not interfere with attainment of ambient air quality standards, a regulatory review of the applicable state and federal standards, and a demonstration that the facility would be able to meet these requirements. The permit details how the facility will demonstrate compliance with those requirements. The facility has submitted all the information required to assess whether air quality requirements would be met.

After consideration and a complete review of the air permit application and supplemental information, applicable state and federal air quality regulations, comments and concerns made at the public hearing and all other comments received within the required time frame, the public hearing transcript, and all other pertinent information, the Department has determined it has sufficient information to make a permitting decision.

**Permit Life** – A request was made for a permit expiration date and for permit renewals on 5-year intervals.

Only Title V (major source) air operating permits are required to have a 5-year life and an expiration date. This facility is not considered a major source.

An air construction permit allows for construction and start of operation of the mine. The facility has 18 months to start construction; this deadline may be extended if needed. The facility must request an operating permit within 15 days of start of operation. The facility can continue to operate under the construction permit until an operating permit is issued. The construction permit contains all of the requirements for the facility to operate in compliance with the state and federal air quality regulations. Should there be any compliance issues at the facility, the facility will be expected to correct these immediately. Non-compliance may also result in enforcement actions by the Department. Once a conditional major operating permit is issued, proposed changes at the facility will be reviewed to determine if additional construction permits are necessary, and the operating permit will be updated when regulatory requirements are amended or as necessary to make other changes.

**Permit Moratorium** – Comments were received that the Department should not issue new permits if it cannot adequately monitor the facilities currently in operation.

Facilities with active air permits are monitored and inspected in accordance with the air quality regulations and the air permit. In accordance with Section 48-1-100(A) of South Carolina Pollution Control Act, the Department must issue a permit if an applicant submits an application that meets all applicable standards. The Department's Environmental Protection Fees regulation establishes time schedules for timely action on permit applications for construction permits. Therefore, the Department may not hold a permit application indefinitely when a facility has submitted all of the required information and the Department has reviewed such information as well as information from the public and determined the project can comply with the applicable air regulatory requirements. The permitting decision must be based on the technical review and the regulatory requirements in place at the time of the Department's review. See the *Enforcement and Compliance/Inspections and Monitoring/Self-Monitoring* Sections for more information.

**Public Comment Period** – A request was made to extend the comment period until all documents are received and accessible to the public.

The Department strives to provide ample opportunities for public participation, including making resources available to the public for review and comment. Consistent with S.C. Regulation 61-62.1, the Department provided for adequate

notice and review to the public of the permit application, draft air permit, draft statement of basis, and notice of the public meeting and public hearing. Per this regulation, a public comment period of thirty (30) days is required. The public comment period for this air permit began July 21, 2016, and ended on August 26, 2016, for a total of thirty-seven (37) days. On August 8, 2016, the Department held a public meeting, which included an extensive question and answer forum, in addition to a public hearing on August 23, 2016. Additionally, Department staff met with community members on several occasions to hear concerns and provide answers to questions. The Department may not hold a permit application indefinitely when a facility has submitted all of the required information for review and the Department has complied with the regulatory requirements for public participation.

**Radon** - General comments about the impacts of radon inhalation were received.

Radon is a radioactive gas that comes from the natural decay of uranium found in nearly all soils. It typically moves up through the ground to the air above and into buildings through cracks and other holes in the foundation. Buildings trap radon inside, where it can build up and cause lung damage when inhaled. A method to reduce radon concentrations in buildings is to vent the gas to the ambient air, where it quickly disperses and dilutes. The EPA does not regulate radon from granite quarry operations. For more information about radon and how to test radon concentrations in your home, please visit the SC DHEC radon website at [www.scdhec.gov/radon](http://www.scdhec.gov/radon).

A comment was received asking if any radon monitoring had been conducted.

No monitoring for existing radon levels has been done associated with the proposed permit. Individual homeowners may request free radon test kits to evaluate the level of radon in their home. Information describing the representative concentrations of radon by county is available in a map on our website.

A comment was received that the blasting and crushing of granite rock may increase radon concentrations.

Any actions that would increase cracks or faults in a building's foundation may increase the amount of radon in that structure. The only way to know the level of radon is through testing in that building. For more information on how to test a building, please visit: [www.scdhec.gov/radon](http://www.scdhec.gov/radon).

A study<sup>4</sup> regarding radon exposure in a granite quarry may be found on our website at <http://www.scdhec.gov/Environment/AirQuality/PermittingDecisions/>.

**SC DHEC's Responsibility** – Comments were made that SC DHEC's mission is to improve the quality of life for all South Carolinians by protecting and promoting the health of the public and the environment.

State and Federal regulations are drafted and promulgated specifically to protect the health and welfare of the public and the environment. The Department ensures that these protective standards can be met before issuing any air permit.

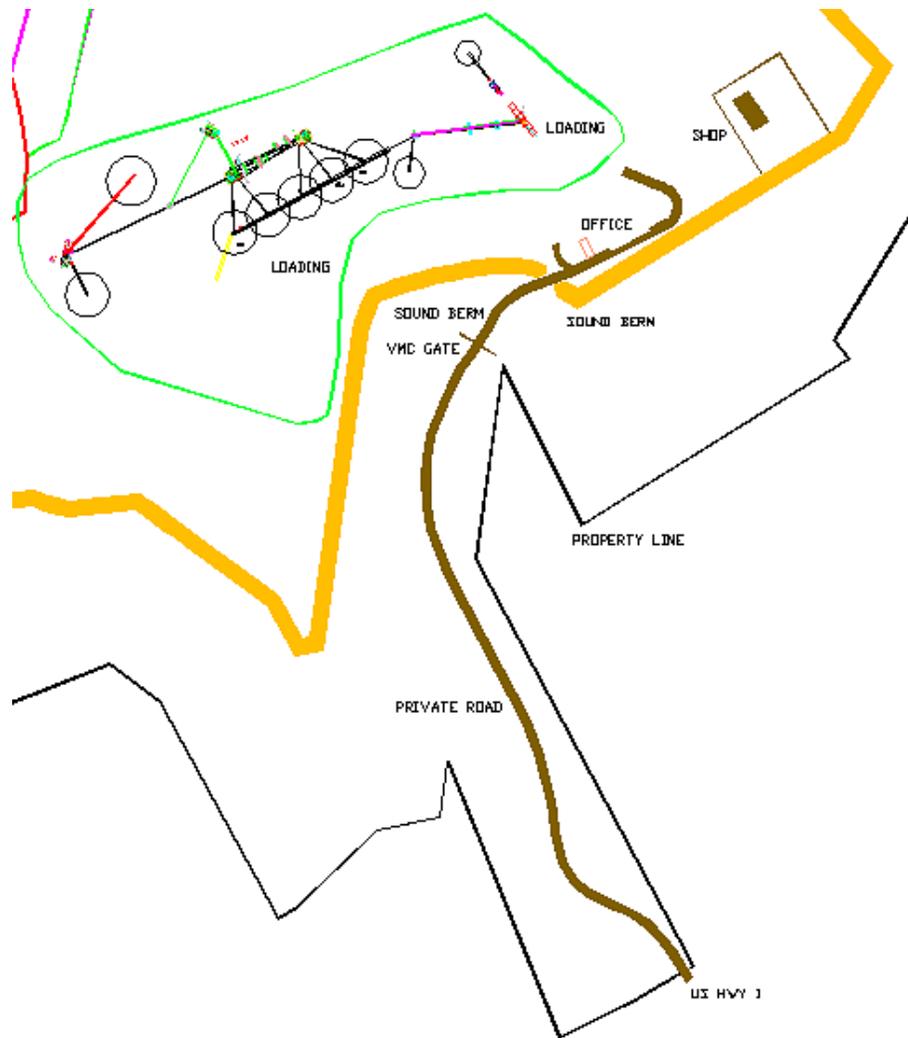
**Truck Traffic** – Comments were received regarding the impacts from increased truck traffic, including idling of trucks while waiting at the facility.

The Department regulates fugitive PM emissions (dust) from the equipment, from any non-enclosed operations (such as storage piles), and from roadways owned and/or controlled by the facility. However, the Department does not regulate truck traffic on public roads. Emissions from vehicles are regulated by the EPA under the authority of the CAA. The permit requires the facility's roadways to be paved and/or treated (such as the use of water sprays) to minimize dust. The facility must also develop and implement a comprehensive fugitive dust control plan to ensure fugitive dust emissions are minimized.

Furthermore, the facility has stated that truck idling should not be a concern due to the market demand, operational scheduling, and the location of the Lexington Quarry. According to Vulcan, the Lexington Quarry would have an approximately 2600-foot long private road leading into the site. All staging for loading is planned inside the sound berm. If trucks arrive prior to the quarry opening, the private road is long enough so that trucks would not need to be parked on US HWY 1. In addition, the area along the private road would be surrounded by natural vegetation. See sketch below.

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<sup>4</sup> Environmental Health & Engineering, "Radon Exposures in a Granite Quarry". [www.eheinc.com](http://www.eheinc.com)



A request was received to require all trucks entering and exiting the site to be tarped.

According to SC Code of Laws Section 56-5-4100 and 56-5-4110, haul trucks transporting aggregate from all quarries are required to secure their load with a cover to prevent spillage. While it is the truck drivers' responsibility to comply with these regulations as they travel on public highways, the facility will post signs of these requirements in appropriate areas on the site. The fugitive dust plan condition has been modified to include this requirement. See the *Dust/Fugitive Particulate Matter* Section of this document for the requirement.

**Water Impacts** – Comments were received regarding the potential impacts this facility may have on surrounding water sources and wells.

The Bureau of Air Quality only has the authority to review the air quality impacts of air pollutants as specified in our state and federal air quality regulations. SC DHEC's Bureau of Water (BOW) is currently reviewing the National Pollutant Discharge Elimination System (NPDES) permit application. The facility is also required to have a Mining Permit that addresses the potential for groundwater-related impacts from dewatering activities. The comments related to water impacts will be considered by BOW and BLWM as part of the reviews of the respective permit applications.