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BUREAU OF AIR QUALITY

August 26, 2019

Mr. Steve McCaslin  
Bureau of Air Quality  
South Carolina Department of Health and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201

Re: Construction Permit Application  
Luck Stone – Chester Facility *Air Permit # 0640-0080*  
Chester, South Carolina

Dear Steve:

Please find enclosed a construction permit application for the proposed Luck Stone facility to be located near Chester, South Carolina. We are submitting two copies of the construction permit application.

Thank you for your assistance with this submittal. If you have any questions or need additional information, please contact me at (843) 769-7378, extension 4489 ([matthew.wike@gel.com](mailto:matthew.wike@gel.com)) or Mr. Mark Williams with Luck Stone at (804) 476-6404 ([markdwilliams@luckcompanies.com](mailto:markdwilliams@luckcompanies.com)).

Regards,



Matthew W. Wike, P.E.  
Senior Engineer

cc: Mr. Mark Williams, Luck Stone

CONSTRUCTION PERMIT APPLICATION  
LUCK STONE – CHESTER FACILITY

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LUCK STONE  
CHESTER, SOUTH CAROLINA

BUREAU OF AIR QUALITY

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Emission Assumptions and Calculations

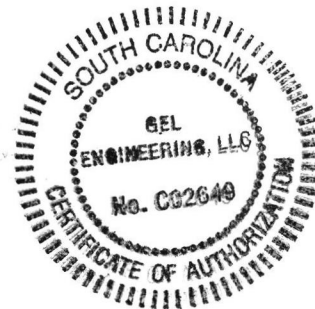
I	Aggregate Mine and Processing
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Figures

1	Site Location and Boundary Map
2	Process Flow Diagram



Matthew Wike, P.E.  
SC State Registration No. 22843



GEL Engineering, LLC  
Certificate of Authorization No. C02649

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*Affixed P.E. Seal only covers information provided in the following sections: Summary, Permit Application Forms, and Emission Assumptions and Calculations.*

**CONSTRUCTION PERMIT APPLICATION  
LUCK STONE – CHESTER FACILITY**

**LUCK STONE  
CHESTER, SOUTH CAROLINA**

**1.0 OVERVIEW OF PERMIT APPLICATION**

Luck Stone – Chester Facility (Luck Stone) is submitting this application to obtain a construction permit for an aggregate mine and processing facility to be located on Route 9 in Chester, South Carolina. This facility has never been permitted by the South Carolina Department of Health and Environmental Control (DHEC) Bureau of Air Quality (BAQ).

The facility requests federally enforceable conditions limiting criteria pollutants to below applicable major source levels of 100 tons per year. The facility will utilize wet suppression to achieve emissions below major source levels.

This construction permit application is being submitted for the following emission sources associated with the aggregates mine and processing operations:

- Mining and Material Handling;
- Material Storage;
- Haul Roads; and
- Customer Roads.

The site location and boundary map of the Luck Stone facility is shown as Figure 1. A process flow diagram is provided as Figure 2. A narrative summary of potentially applicable state and federal regulations is provided in Section 3.0.

**2.0 DESCRIPTION OF PROCESSES AND EMISSIONS**

Luck Stone proposes to locate the aggregate mine and processing facility near Chester, South Carolina. The facility will be capable of crushing 550 tons per hour from the primary crusher. The process starts inside the pit where the stone will be mined and transported in trucks using plant haul roads. The stone will be dumped into the primary jaw crushing station where stone will be initially crushed and conveyed to the first screening station. At the first screening station, the material will be screened and conveyed to storage piles or conveyed to the cone crusher or secondary screen. At the secondary screening/cone crushing station, the material will be screened and/or crushed and then either conveyed to storage piles, recycled back to the crushers/screens, or conveyed to the wash plant. The wash plant is a totally wet process that is not expected to have emissions. Lastly, the material will be transferred to customer trucks from one of the storage piles and the trucks will exit the site using the customer haul roads.

Emissions from the aggregates mine and processing plant will consist of the criteria pollutants particulate matter (PM), PM with an aerodynamic diameter of less than or equal to 10 microns ( $PM_{10}$ ), and PM with an aerodynamic diameter of less than or equal to 2.5 microns ( $PM_{2.5}$ ). A more detailed description of the above operations is provided in the Emission Assumptions and Calculations (EA&C) section of this permit application.

### 3.0 SUMMARY OF REGULATORY COMPLIANCE

This section contains a comprehensive regulatory review for the air emissions from the proposed aggregates mine and processing plant at the Luck Stone facility. The regulations that were identified as being potentially applicable are summarized below and discussed in detail in Sections 3.1 through 3.14.

- South Carolina Emissions from Fuel Burning Operations (R.61-62.5, Standard No. 1)
- South Carolina Ambient Air Quality Standards (R.61-62.5, Standard No. 2)
- South Carolina Waste Combustion and Reduction (R.61-62.5, Standard No. 3) and South Carolina Hospital, Medical, Infectious Waste Incinerators (R.61-62.5, Standard No. 3.1)
- South Carolina Emissions From Process Industries Standard (R.61-62.5, Standard No. 4)
- South Carolina Volatile Organic Compounds Standard (R.61-62.5, Standard No. 5)
- South Carolina Control of Oxides of Nitrogen Standard (R.61-62.5, Standard No. 5.2)
- South Carolina Prevention of Significant Deterioration (PSD) Standard (R.61-62.5, Standard No. 7)
- South Carolina Nonattainment New Source Review (NSR) Standard (R.61-62.5, Standard 7.1)
- South Carolina Toxic Air Pollutants Standard (R.61-62.5, Standard No. 8)
- Standards of Performance for New Stationary Sources (40 CFR Part 60)
- National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
- National Emission Standards for Hazardous Air Pollutants for Source Categories (40 CFR Part 63)
- Compliance Assurance Monitoring (40 CFR Part 64)
- Greenhouse Gas Tailoring Rule (June 3, 2010 Federal Register)

### **3.1 South Carolina Emissions from Fuel Burning Operations (Standard No. 1)**

The South Carolina Emissions from Fuel Burning Operations Standard (R.61-62.5, Standard No. 1) establishes standards for fuel burning operations including limitations on visible emissions, PM emissions, and sulfur dioxide (SO<sub>2</sub>) emissions (Sections I, II, and III, respectively). There are no fuel burning operations associated with the proposed aggregates mining and processing operations at Luck Stone. Therefore, Luck Stone meets the requirements of this standard.

### **3.2 South Carolina Ambient Air Quality Standards (Standard No. 2)**

The South Carolina Ambient Air Quality Standards (SCAAQS - R.61-62.5, Standard No. 2) establish ambient air quality standards for PM<sub>10</sub>, PM<sub>2.5</sub>, carbon monoxide (CO), SO<sub>2</sub>, nitrogen dioxide (NO<sub>2</sub>), ozone, and lead. Emissions from the Luck Stone facility will include PM<sub>10</sub> and PM<sub>2.5</sub>. Compliance with Standard No. 2 is demonstrated using air dispersion modeling.

As shown in EA&C I, PM<sub>2.5</sub> emissions from all emission sources associated with the aggregates mine and processing facility are below the 1.14 pound per hour (lb/hr) per emission source de minimis levels established in the DHEC BAQ's document "Modeling Guidelines for Air Quality Permits." Therefore, no air dispersion modeling is required for PM<sub>2.5</sub> emissions from this facility.

PM<sub>10</sub> emissions from all emissions sources associated with the aggregates mine and processing facility are below the 1.14 lb/hr de minimis level, except the mining and material handling emission source. Therefore, an air dispersion modeling demonstration for PM<sub>10</sub> emissions is required for the mining and material handling operation. As shown in the Air Dispersion Modeling Results section of this application, PM<sub>10</sub> emissions will be in compliance with Standard No. 2.

### **3.3 South Carolina Waste Combustion and Reduction (Standard No. 3) and South Carolina Hospital, Medical, Infectious Waste Incinerators (Standard No. 3.1)**

Both the South Carolina Waste Combustion and Reduction Standard (Standard No. 3) and South Carolina Hospital, Medical, Infectious Waste Incinerators Standard (Standard No. 3.1) establish emission limits and standards for various types of waste combustion sources, hospital, medical, and infectious waste incinerators.

The proposed aggregates mine and processing facility does not include any waste combustion and reduction sources. Additionally, the proposed aggregates mining and processing facility is not classified as a hospital, medical, or infectious waste incinerator. Therefore, Luck Stone meets the requirements of these standards.

### **3.4 South Carolina Emissions from Process Industries Standard (Standard No. 4)**

The South Carolina Emissions from Process Industries Standard (R.61-62.5, Standard No. 4) establishes emission standards for specific process industries as well as for general process industries. None of the specific process industry categories listed in Sections II through VII apply to Luck Stone. The aggregates mine and processing operations at Luck Stone are subject to Standard No. 4, Section VIII - Other Manufacturing, Section IX - Visible Emissions (where not specified elsewhere), and Section X – Non Enclosed Operations.

The following section discusses Luck Stone's compliance with the applicable provisions of Standard No. 4.

#### **Particulate Matter Emissions (Standard No. 4, Section VIII)**

This standard requires that particulate emissions from general process industries be limited to the value in Table 1 of the Standard No. 4, Section VIII regulation. Interpolation of Table 1 can be obtained by the following equation for process weight rates up to 30 tons per hour:

$$E = F \times 4.10 \times P^{(0.67)}$$

where:

E = allowable particulate emission rate in pounds per hour

F = effect factor (F = 0.25 for acid mists, F = 1.0 for all other pollutants)

P = process weight rate in tons per hour

For process weight rates greater than 30 tons per hour, this standard requires that particulate emissions from general process industries be interpolated by the following equation:

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

where:

E = allowable particulate emission rate in pounds per hour

F = effect factor (F = 0.25 for acid mists, F = 1.0 for all other pollutants)

P = process weight rate in tons per hour

The proposed aggregates mine and processing operations are subject to and comply with this standard as shown below:

Process	Process Weight Rate (tons/hour)*	Estimated Controlled Hourly PM Emission Rate (lbs/hr)	Allowable Hourly PM Emission Rate (lbs/hr)
Mining and Material Handling	550	6.81	70.1
Material Storage	550	0.61	70.1
Haul Roads	550	0.32	70.1
Plant Roads	550	0.76	70.1

Visible Emissions (Standard No. 4, Section IX)

This standard requires that visible emissions, including fugitive emissions, not exceed 40 percent opacity for existing sources where construction began on or before December 31, 1985, or 20 percent for new sources if constructed after this date (Parts A and B, respectively). All sources are subject to the 20 percent opacity standard.

Non-Enclosed Operations (Standard No. 4, Section X)

This standard requires the following:

- A. *All non-enclosed operations shall be conducted in such a manner that a minimum of particulate matter becomes airborne. In no case shall established ambient air quality standards be exceeded at or beyond the property line.*
- B. *The owner or operator of all such operations shall maintain dust control of the premises and any roadway owned or controlled by the owner or operator by paving or other suitable measures. Oil treatment is prohibited.*
- C. *All crushing, drying, classification, and like operations shall employ a suitable control device acceptable to the Department, and shall discharge no more particulate matter than that specified in Section VIII of this standard.*

The facility will be in compliance with Standard Nos. 2 and 7 and therefore will not exceed the ambient air quality standards at or beyond the property line.

Additionally, the facility will maintain wet suppression for dust control and will maintain a fugitive dust plan to demonstrate compliance with this regulation. Wet suppression on

the mine hauling roads and customer access roads will be accomplished by spray from mobile water trucks. Each crusher, screen, and conveyor will be equipped with wet suppression valves. The wet suppression system will be operated by the control room. Water spray valves will be activated prior to the initiation of operations. Operation of the water spray valves will be controlled in order to minimize water use such as closing water spray valves on non-operating equipment. The primary source of water for dust suppression systems will be the water that is collected in the sump of the mine pit, which is a combination of stormwater runoff and groundwater infiltration. If necessary, make up water could be supplied by onsite wells or the County water distribution system.

### **3.5 South Carolina Volatile Organic Compounds Standard (Standard No. 5)**

The South Carolina Volatile Organic Compounds Standard (R.61-62.5, Standard No. 5) applies to specific existing industrial sources constructed before July 1, 1979, or July 1, 1980, that have total potential volatile organic compounds (VOC) emissions of more than 550 pounds in any one day or more than 150 pounds in any one hour. This standard applies to existing processes statewide except in the following six counties: Anderson, Bamberg, Barnwell, Chesterfield, Darlington and Hampton (Standard No. 5, Part B.1). Luck Stone's aggregates facility will be located in Fairfield County, which is not included in the above list of exempt counties.

The Luck Stone facility will be constructed after July 1, 1980 and is not expected to emit VOCs. Therefore, Luck Stone meets the requirements of this standard.

### **3.6 South Carolina Control of Oxides of Nitrogen Standard (Standard No. 5.2)**

The South Carolina Control of Oxides of Nitrogen Standard (R.61-62.5, Standard No. 5.2) applies to any stationary source that emits or has the potential to emit  $\text{NO}_x$  generated from fuel combustion that has not undergone a Best Available Control Technology (BACT) analysis for  $\text{NO}_x$  in accordance with Regulation 61-62.5, Standard No. 7, and that meets one or more of the three criteria specified in Section I (a)(1) through (a)(3).

The proposed aggregates mine and processing operations are not expected to emit  $\text{NO}_x$  from any stationary source. Therefore, Luck Stone meets the requirements of this standard.

### **3.7 South Carolina PSD Standard (Standard No. 7)**

The South Carolina PSD Standard (R.61-62.5, Standard No. 7) applies if the facility is classified as a "major" source as defined under this regulation, or if the facility is classified as a "minor" source and is located in a county for which Minor Source Baseline Dates (MSBDs) for  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$ ,  $\text{SO}_2$ , and  $\text{NO}_2$  have been established.



### Major Source Review

Mining and aggregates plants are not one of the 28 source categories subject to the 100 tpy PSD major source threshold. Total uncontrolled potential emissions of particulates exceed the 250 tpy threshold. However, the facility requests federally enforceable facility-wide limits for particulates and below the PSD major source threshold of 250 tpy and Title V threshold of 100 tpy. The major source applicability under the PSD regulations is determined based on a facility's potential to emit. Potential to emit is defined under Standard No. 7, Part D as:

*The maximum capacity of a plant to emit a pollutant under its physical and operational design. Any physical or operational limitations on the capacity of the plant to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.*

Luck Stone will operate under the emission limitations described above. Therefore, Luck Stone will not be considered a major source under the PSD regulations.

### MSBD Compliance

The facility will be located in Chester County for which MSBDs have only been established for PM<sub>10</sub> and SO<sub>2</sub>. Per DHEC BAQ's document "Modeling Guidelines for Air Quality Permits", no air dispersion modeling is required for Standard No. 7 for non-PSD projects unless specifically requested by DHEC BAQ.

### **3.8 South Carolina Nonattainment NSR Standard (Standard No. 7.1)**

The South Carolina Nonattainment NSR Standard (R.61-62.5, Standard No. 7.1) applies to major sources constructed or modified in any nonattainment area designated in 40 CFR Part 81.341 if the emissions from such facility will cause or contribute to concentrations of a regulated NSR pollutant for which the nonattainment area was designated as nonattainment.

Since Chester County is not designated as a nonattainment area, Standard No. 7.1 is not applicable at this time. Therefore, Luck Stone meets the requirements of this standard.

### **3.9 South Carolina Toxic Air Pollutants Standard (Standard No. 8)**

The South Carolina Toxic Air Pollutants (TAPs) Standard (R.61-62.5, Standard No. 8) requires Luck Stone to identify and quantify emissions of South Carolina TAPs to determine compliance with established ambient air quality standards for these TAPs. This regulation establishes standards for approximately 255 TAPs, including most of the 187 hazardous air pollutants (HAPs) established by Title III of the Clean Air Act Amendments.

Luck Stone meets the requirements of this standard since they do not emit .

### **3.10 Standards of Performance for New Stationary Sources (40 CFR Part 60)**

The following sections describe New Source Performance Standards (NSPS) promulgated under 40 CFR Part 60 that could potentially apply to the aggregate operations included in this project.

#### **Nonmetallic Mineral Processing Plants (Subpart 000)**

This NSPS applies to nonmetallic mineral processing plants that commenced construction, modification, or reconstruction after August 31, 1983.

A nonmetallic mineral processing plant is defined as any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, aggregates concrete plants, portland cement plants, or any other facility processing nonmetallic minerals except as provided in §60.670 (b) and (c). Luck Stone will handle and crush nonmetallic minerals as defined in Subpart 000 and therefore, the aggregates mine and processing facility is subject to this standard.

Each crusher, screen, and conveyor is subject to the rule. Subpart 000 does not apply to drilling, non-enclosed truck loading, or storage piles as those sources are not listed in §60.670(a). Since the facility is comprised entirely of fugitive emissions, only the fugitive particulate matter emission limits and compliance requirements of Table 3 and §60.672(b) apply. Table 3 of Subpart 000 lists the following requirements that are applicable to a facility that will commence construction after April 22, 2008:

- 7 percent opacity for conveyor transfer points and screens
- 12 percent opacity for crushers.
- Initial Performance Test
- Periodic inspections of water sprays per §60.674 (b)
- Reporting and recordkeeping requirements of water sprays under §60.676

#### **Stationary Compression Ignition Internal Combustion Engines (Subpart IIII)**

The NSPS for stationary compression ignition internal combustion engines, as outlined in 40 CFR Part 60, Subpart IIII, specifies standards to reduce PM, NO<sub>x</sub>, CO, and non-methane hydrocarbons (NMHC) emissions.

The facility will be installing a portable 550 kilowatt diesel generator that will not be subject to Subpart IIII since the generator will be a nonroad engine. 40 CFR Part 1068.30 states "(1) a nonroad engine is any internal combustion engine: (iii) that, by itself or in or

*on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform."*

In addition 40 CFR Part 1068.30 states that which is not a nonroad engine: "(2) an internal combustion engine is not a nonroad engine if: (iii) [t]he engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year."

Since the 550 kilowatt diesel generator is portable and it will be moved and will not remain at a location for more than 12 consecutive months, the generator meets the standard because there are no stationary generators.

#### Stationary Spark Ignition Internal Combustion Engines (Subpart JJJJ)

The NSPS for stationary spark ignition internal combustion engines (Subpart JJJJ) specifies standards to reduce NO<sub>x</sub>, CO, and VOC emissions.

Luck will not maintain any stationary spark ignition internal combustion engines. Therefore, Luck Stone meets the requirements of this standard.

#### 3.11 National Emission Standards for HAPs (40 CFR Part 61)

40 CFR Part 61 establishes National Emission Standards for Hazardous Air Pollutants (NESHAPs) in Subparts A through FF. None of the NESHAPs found in 40 CFR Part 61 applies to the emission sources at Luck Stone.

### **3.12 National Emission Standards for HAPs for Source Categories (40 CFR Part 63)**

40 CFR Part 63 establishes technology-based regulations for specific source categories emitting any of the 187 compounds designated by the EPA as HAPs. The EPA regulates emissions of HAPs from major and area sources as promulgated under a NESHAP. Facilities that are required to demonstrate compliance with a particular NESHAP must employ Maximum Achievable Control Technology (MACT) as specified in the regulation.

Under 40 CFR Part 63, a major source is defined as any stationary source emitting 10 tpy or more of any individual HAP, or 25 tpy or more of any combination of HAPs. An area source of HAPs is a facility that is not a major source of HAPs, is not located at a major source, and is not part of a major source of HAP emissions.

Since the facility will not emit any HAPs, none of the 40 CFR Part 63 standards apply to Luck Stone. The generator is not subject to 40 CFR Part 63 Subpart ZZZZ for the same reason as the generator is not subject to 40 CFR Part 60 Subpart IIII. See a more detailed explanation in Section 3.10. Therefore, Luck Stone meets the requirements of this standard.

### **3.13 Compliance Assurance Monitoring**

The 40 CFR Part 64 Compliance Assurance Monitoring (CAM) regulation was developed in order to provide reasonable assurance that facilities comply with emissions limitations by monitoring the operation and maintenance of their control devices. CAM applies to an emissions unit if all of the following criteria are met:

- the unit is located at a major source for which a Title V permit is required; and
- the unit is subject to an emission limitation or standard; and
- the unit uses a control device to achieve compliance with a federally enforceable limit or standard; and
- the unit has potential pre-control or post-control emissions of at least 100% of the major source amount; and
- The unit is not otherwise exempt from CAM.

The Luck Stone facility will not be a major source and will not need a Title V permit due to federally enforceable emission limitations. Therefore, Luck Stone meets the requirements of this standard.

### **3.14 Greenhouse Gas Tailoring Rule**

A new industrial source that is major for criteria pollutants and will emit or have the potential to emit 75,000 tpy CO<sub>2</sub> equivalents (CO<sub>2e</sub>) will be subject to PSD permitting requirements for greenhouse gases (GHGs) as long as the source is subject to PSD for another pollutant.

This application does not contain any emission sources that emit GHGs. Therefore, Luck Stone meets the requirements of this standard.

Table 1  
 Facility Summary of Emissions  
 Luck Stone - Chester Facility  
 Chester, South Carolina

Emissions Source Description	Uncontrolled PM		Controlled PM <sup>1</sup>		Uncontrolled PM-10		Controlled PM-10 <sup>1</sup>		Uncontrolled PM-2.5		Controlled PM-2.5 <sup>1</sup>	
	Hourly Emissions (lbs/hr)	Annual Emissions (tpy)	Hourly Emissions (lbs/hr)	Annual Emissions (tpy)	Hourly Emissions (lbs/hr)	Annual Emissions (tpy)	Hourly Emissions (lbs/hr)	Annual Emissions (tpy)	Hourly Emissions (lbs/hr)	Annual Emissions (tpy)	Hourly Emissions (lbs/hr)	Annual Emissions (tpy)
Mining and Material Handling	80.51	352.65	6.81	29.84	29.20	127.91	<b>2.43</b>	10.64	4.42	19.37	0.35	1.54
Material Storage	0.61	2.68	0.61	2.68	0.31	1.34	0.31	1.34	0.04	0.19	0.04	0.19
Haul Roads	3.16	13.85	0.32	1.38	0.90	3.94	0.09	0.39	0.09	0.39	0.01	0.04
Customer Roads	7.63	33.40	0.76	3.34	2.25	9.86	0.23	0.99	0.23	0.99	0.02	0.10
Totals	91.91	402.58	8.50	37.25	32.66	143.05	3.05	13.36	4.78	20.94	0.43	1.87

Note:

1. PM emissions do not require modeling. Controlled emissions requiring modeling due to PM-10 emissions over 1.14 lbs/hr are highlighted in bold and yellow. All PM-2.5 emissions are below 1.14 lbs/hr and do not require modeling.



**Bureau of Air Quality  
Construction Permit Application  
Facility Information  
Page 1 of 3**

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FACILITY IDENTIFICATION	
SC Air Permit Number (8-digits only) <i>(Leave blank if one has never been assigned)</i> - 0640-0080	Application Date August 2019
Facility Name <i>(This should be the name used to identify the facility at the physical address listed below)</i> Luck Stone – Chester Quarry	Facility Federal Tax Identification Number <i>(Established by the U.S. Internal Revenue Service to identify a business entity)</i> 54-0630628

FACILITY PHYSICAL ADDRESS		
Physical Address: Route 9 East	County: Chester	
City: Chester	State: SC	Zip Code: 29706
Facility Coordinates <i>(Facility coordinates should be based at the front door or main entrance of the facility.)</i>		
Latitude: 34° 43' 26" N	Longitude: 81° 08' 45" W	<input type="checkbox"/> NAD27 <i>(North American Datum of 1927)</i> Or <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: NA	

*\*If yes, please submit co-location applicability determination details in an attachment to this application.*

COMMUNITY OUTREACH
<p>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.</p> <p>A community information meeting was held on May 8, 2019 with neighbors and related stakeholders in attendance. Luck Stone gave a presentation about the site goals and potential, and community members asked questions. A major concern for neighbors was the mine's impact on groundwater, the effects of blasting, and the potential for dust from crushing operations and traffic. Luck Stone intends to monitor dust continuously and will use a water truck to spray road surfaces and storage piles with water. In addition, the plant will be equipped with a wet suppression system that sprays fine streams of water on critical parts of the plant that have the highest potential for dust, such as crushers, screens, and transfer points. Every blast will be monitored for decibel level and air overpressure level. The effects on groundwater will be minimal because of the fine pore sizes found in the rock present. Little infiltration is expected.</p>

FACILITY'S PRODUCTS / SERVICES	
Primary Products / Services <i>(List the primary product and/or service)</i> Crushed aggregate materials for use in asphalt and concrete products	
Primary SIC Code <i>(Standard Industrial Classification Codes)</i> 1423	Primary NAICS Code <i>(North American Industry Classification System)</i> 212313
Other Products / Services <i>(List any other products and/or services)</i> NA	
Other SIC Code(s): NA	Other NAICS Code(s): NA

AIR PERMIT FACILITY CONTACT			
<i>(Person at the facility who can answer technical questions about the facility and permit application.)</i>			
Title/Position: Environmental Manager	Salutation: Mr.	First Name: Mark	Last Name: Williams
Mailing Address: P.O. Box 29682			
City: Richmond	State: VA	Zip Code: 23242	
E-mail Address: markdwilliams@luckcompanies.com	Phone No.: 804-476-6404	Cell No.: 804-641-1457	



**Bureau of Air Quality  
Construction Permit Application  
Facility Information  
Page 2 of 3**

**AIR PERMIT FACILITY CONTACT**

*(Person at the facility who can answer technical questions about the facility and permit application.)*

One hard copy of the signed permit will be mailed to the designated Air Permit Contact.

If additional individuals need electronic copies of the permit, please provide their names and e-mail addresses.

Name	E-mail Address
Matthew Wike, P.E.	Matthew.Wike@gel.com

**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: Environmental Manager	Salutation: Mr.	First Name: Mark	Last Name: Williams
Mailing Address: PO Box 29682			
City: Richmond	State: VA	Zip Code: 23242	
E-mail Address: markdwilliams@luckcompanies.com	Phone No.: 804-476-6404	Cell No.: 804-641-1457	

**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





**Bureau of Air Quality  
Construction Permit Application  
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Page 3 of 3**

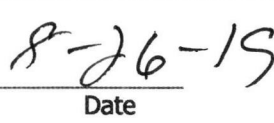
<b>PERSON AND/OR FIRM THAT PREPARED THIS APPLICATION</b> <i>(If not the same person as the Professional Engineer who has reviewed and signed this application.)</i>			
Consulting Firm Name:			
Title/Position:	Salutation:	First Name:	Last Name:
Mailing Address:			
City:	State:	Zip Code:	
E-mail Address:	Phone No.:	Cell No.:	
SC Professional Engineer License/Registration No. (if applicable):			

<b>PROFESSIONAL ENGINEER INFORMATION</b>			
Consulting Firm Name: GEL Engineering, LLC			
Title/Position: Senior Engineer	Salutation: Mr.	First Name: Matthew	Last Name: Wike
Mailing Address: P.O. Box 30712			
City: Charleston	State: SC	Zip Code: 29417	
E-mail Address: matthew.wike@gel.com	Phone No.: 843-300-4252	Cell No.: 843-697-2205	
SC License/Registration No.: 22843			

**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





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Construction Permit Application  
Equipment / Processes  
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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 <i>(This should be the name used to identify the facility)</i> Luck Stone – Chester Facility	SC Air Permit Number (8-digits only) <i>(Leave blank if one has never been assigned)</i> -	Application Date August 2019
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**PROJECT DESCRIPTION**

Brief Project Description (What, why, how, etc.): Luck Stone proposes to locate the aggregates mine and processing facility near Chester, South Carolina. The facility will be capable of crushing 550 tons per hour from the primary crusher. The process starts inside the pit where the stone will be mined and transported in trucks using plant haul roads. The stone will be dumped into the primary jaw crushing station where stone will be initially crushed and conveyed to the first screening station. At the first screening station, the material will be screened and conveyed to one of two storage piles or conveyed to the cone crusher or secondary screen. At the secondary screening/cone crushing station, the material will be screened and/or crushed and then either conveyed to one additional storage pile, recycled back to the crushers/screens, or conveyed to the wash plant. Lastly, the material will be transferred to customer trucks from one of the storage piles and the trucks will exit the site using the customer haul roads.

**ATTACHMENTS**

<input checked="" type="checkbox"/> Process Flow Diagram	Location in Application: Figure 2
<input checked="" type="checkbox"/> Detailed Project Description	Location in Application: Summary and Emission Assumptions and Calculations

**EQUIPMENT / PROCESS INFORMATION**

Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
See EA&C I	<input checked="" type="checkbox"/> Add <input type="checkbox"/> Remove <input type="checkbox"/> Modify <input type="checkbox"/> Other	550 tph crushed aggregate mine and processing facility with wet suppression (See Summary and EA&C for details)	550 tph	NA (Wet Suppression will be used)	PM/PM10/PM2.5	NA	Fugitive

**CONTROL DEVICE INFORMATION**

Control Device ID	Action	Control Device Description	Maximum Design Capacity (Units)	Inherent/Required/Voluntary (Explain)	Destruction/Removal Efficiency Determination
NA (Wet Suppression will be used)	<input type="checkbox"/> Add <input type="checkbox"/> Remove <input type="checkbox"/> Modify <input checked="" type="checkbox"/> Other	NA (Wet Suppression will be used)	NA	Required	Efficiency of Wet Suppression Varies by equipment/process. See EA&C I.

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**Bureau of Air Quality  
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Equipment / Processes  
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<b>RAW MATERIAL AND PRODUCT INFORMATION</b>			
Equipment ID Process ID Control Device ID	Raw Material(s)	Product(s)	Fuels Combusted
See EA&C I	Stone	Aggregates of various sizes	NA

<b>MONITORING AND REPORTING INFORMATION</b>					
Equipment ID Process ID Control Device ID	Pollutant(s)/Parameter(s) Monitored	Monitoring Frequency	Reporting Frequency	Monitoring/Reporting Basis	Averaging Period(s)
See EA&C I	Opacity	Initial Method 9	As specified in 40 CFR Part 60 Subparts A and OOO	As specified in 40 CFR Part 60 Subparts A and OOO	As specified in 40 CFR Part 60 Subparts A and OOO
See EA&C I	Best Management Practices for Fugitive Dust/Wet Suppression System	As specified in similar quarry air permits and in 40 CFR Part 60 Subparts OOO	As specified in similar quarry air permits and in 40 CFR Part 60 Subparts OOO	As specified in similar quarry air permits and in 40 CFR Part 60 Subparts OOO	As specified in similar quarry air permits and in 40 CFR Part 60 Subparts OOO



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Construction Permit Application  
Emissions  
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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 <i>(This should be the name used to identify the facility)</i> Luck Stone – Chester Facility	SC Air Permit Number (8-digits only) <i>(Leave blank if one has never been assigned)</i> -	Application Date August 2019
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**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)	Not Applicable	Not Applicable	Not Applicable	402.58	37.25	<100 tpy
Particulate Matter <10 Microns (PM <sub>10</sub> )				143.05	13.36	<100 tpy
Particulate Matter <2.5 Microns (PM <sub>2.5</sub> )				20.94	1.87	NA
Sulfur Dioxide (SO <sub>2</sub> )				Not Applicable		
Nitrogen Oxides (NO <sub>x</sub> )						
Carbon Monoxide (CO)						
Volatile Organic Compounds (VOC)						
Lead (Pb)						
Highest HAP Prior to Construction (CAS #: NA)						
Highest HAP After Construction (CAS #: NA)						
Total HAP Emissions*				Not Applicable		

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)

**POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY**

Equipment ID / Process ID	Emission Point ID	Pollutants (Include CAS #)	Calculation Methods / Limits Taken / Other Comments	Uncontrolled		Controlled		Limited	
				lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
See EA&C									



**Bureau of Air Quality  
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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 <i>(This should be the name used to identify the facility)</i> Luck Stone – Chester Facility	SC Air Permit Number (8-digits only) <i>(Leave blank if one has never been assigned)</i> -	Application Date August 2019
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**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) Synthetic Minor Construction Permits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project is subject as federally enforceable permit conditions are requested to keep the emission below PSD and Title V major source levels	See Summary Section	See Summary Section
Regulation 61-62.1, Section II(G) Conditional Major Operating Permits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project is subject as federally enforceable permit conditions are requested to keep the emission below PSD and Title V major source levels	See Summary Section	See Summary Section
Regulation 61-62.5, Standard No. 1 Emissions from Fuel Burning Operations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
Regulation 61-62.5, Standard No. 2 Ambient Air Quality Standards	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project is subject. PM-10 modeling is included with this application	PM-10 (24-hour) = 150 µg/m <sup>3</sup>	Air Dispersion Modeling
Regulation 61-62.5, Standard No. 3 Waste Combustion and Reduction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
Regulation 61-62.5, Standard No. 4 Emissions from Process Industries	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project is subject to the PM and Opacity limits in Sections VIII and IX and Non-Enclosed Operations in Section X.	See Summary Section	See Summary Section
Regulation 61-62.5, Standard No. 5 Volatile Organic Compounds	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA



**Bureau of Air Quality**  
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<b>STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS</b> <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?
Regulation 61-62.5, Standard No. 5.2 Control of Oxides of Nitrogen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
Regulation 61-62.5, Standard No. 7 Prevention of Significant Deterioration*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
Regulation 61-62.5, Standard No. 7.1 Nonattainment New Source Review*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
Regulation 61-62.5, Standard No. 8 Toxic Air Pollutants	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
Regulation 61-62.6 Control of Fugitive Particulate Matter	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project is subject	See Summary Section	The facility will utilize wet suppression and other best management practices.
Regulation 61-62.68 Chemical Accident Prevention Provisions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
Regulation 61-62.70 Title V Operating Permit Program	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
40 CFR Part 64 - Compliance Assurance Monitoring (CAM)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
40 CFR 60 Subpart A - General Provisions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project is subject	See Summary Section	See Summary Section
Subpart 000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project is subject	See Summary Section	See Summary Section
40 CFR 61 Subpart A - General Provisions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA
40 CFR 63 Subpart A - General Provisions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The project is not subject	NA	NA

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



**Bureau of Air Quality  
Emission Point Information  
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<b>A. APPLICATION IDENTIFICATION</b>	
1. Facility Name: Luck Stone – Chester Facility	
2. SC Air Permit Number (if known; 8-digits only): -	3. Application Date: August 2019
4. Project Description: Luck Stone proposes to locate the aggregates mine and processing facility near Chester, South Carolina. The facility will be capable of crushing 550 tons per hour from the primary crusher. The process starts inside the pit where the stone will be mined and transported in trucks using plant haul roads. The stone will be dumped into the primary jaw crushing station where stone will be initially crushed and conveyed to the first screening station. At the first screening station, the material will be screened and conveyed to one of two storage piles or conveyed to the cone crusher or secondary screen. At the secondary screening/cone crushing station, the material will be screened and/or crushed and then either conveyed to one additional storage pile, recycled back to the crushers/screens, or conveyed to the wash plant. Lastly, the material will be transferred to customer trucks from one of the storage piles and the trucks will exit the site using the customer haul roads.	

<b>B. FACILITY INFORMATION</b>	
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? <input type="checkbox"/> Yes <input checked="" 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: NA

<b>C. AIR CONTACT</b>			
Consulting Firm Name: GEL Engineering, LLC			
Title/Position: Senior Engineer	Salutation: Mr.	First Name: Matthew	Last Name: Wike
Mailing Address: P.O. Box 30712			
City: Charleston	State: SC	Zip Code: 29417	
E-mail Address: matthew.wike@gel.com	Phone No.: 843-300-4252	Cell No.: 843-697-2205	

**\*See Air Dispersion Modeling Results Section of this application for all information required for Sections D through Section L below.**

<b>D. EMISSION POINT DISPERSION PARAMETERS</b>
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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Emission Point Information  
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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
				<input type="checkbox"/> Yes <input type="checkbox"/> No		
				<input type="checkbox"/> Yes <input type="checkbox"/> No		
				<input type="checkbox"/> Yes <input type="checkbox"/> No		

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

## AIR DISPERSION MODELING RESULTS

### LUCK STONE – CHESTER FACILITY CHESTER, SOUTH CAROLINA

#### 1.0 INTRODUCTION

Luck Stone – Chester Facility (Luck Stone) proposes to operate an aggregate mine and processing facility near Chester, South Carolina. Luck Stone currently has no permit issued by the South Carolina Department of Health and Environmental Control (DHEC) Bureau of Air Quality (BAQ).

An air dispersion modeling demonstration is required for particulates with aerodynamic diameter less or equal to 10 microns ( $PM_{10}$ ). This air dispersion modeling demonstration was required because  $PM_{10}$  emissions from the mining and material handling emission sources are greater than 1.14 pounds per hour (lb/hr). Emissions of particulates with aerodynamic diameter less or equal to 2.5 microns ( $PM_{2.5}$ ) from the mining and material handling operations are less than 1.14 lb/hr, and therefore, no modeling is required for  $PM_{2.5}$  emissions. Additionally, modeling for  $PM_{10}$  or  $PM_{2.5}$  emissions from the material storage, the haul road process, or customer road process is not required since emissions from those processes are less than 1.14 lb/hr. The 1.14 lb/hr  $PM_{10}$  and  $PM_{2.5}$  de minimis levels are established in the DHEC document “Modeling Guidelines for Air Quality Permits” dated October 2018.

This modeling analysis was performed to determine compliance with the South Carolina Ambient Air Quality Standards (R.61-62.5, Standard No. 2). A South Carolina Prevention of Significant Deterioration (PSD) Minor Source Baseline Standard (R.61-62.5, Standard No. 7) modeling demonstration is not required since, per DHEC document “Modeling Guidelines for Air Quality Permits” dated October 2018, DHEC BAQ no longer requires a Standard No. 7 modeling demonstration for applications that have not triggered a PSD review. Lastly, the facility is not expected to emit toxic air pollutants and thus a South Carolina Toxic Air Pollutants Standard (R.61-62.5, Standard No. 8) modeling demonstration is not required.

#### 2.0 AIR DISPERSION MODELING DATA

Modeling was performed using the latest version (version 18081) of the U.S. Environmental Protection Agency (EPA)-approved AERMOD air dispersion model. No urban option was used in this demonstration. The model used Chester meteorological data for years 2012 through 2016 obtained from DHEC BAQ’s website. The ADJ\_U\* (UStar) files were chosen from DHEC BAQ’s meteorological data as allowed by EPA’s modeling guidance issued in Appendix W (2017). The AERMOD air dispersion model inputs contain the onsite building coordinates, incorporates good engineering practices, and downwash calculations. All model options were chosen in accordance with the

DHEC document “Modeling Guidelines for Air Quality Permits” dated October 2018 and AERMOD guidance from the DHEC BAQ website.

The analysis used one receptor grid which utilizes the AERMOD distance method. This method places discrete receptors at 50-meter intervals along the facility property boundary. Furthermore, receptors were placed in a grid outside the property boundary at no more than 100-meter spacing extending out 1,500 meters and in such a manner to ensure identification of the highest concentrations. The Chester County terrain data, in National Elevation Data 83 (NED83) format, required to run the AERMAP subprogram was obtained from DHEC’s BAQ website <http://www.scdhec.gov/environment/air-quality/air-dispersion-modeling-data>. Terrain elevations were calculated within the AERMAP subprogram.

A receptor grid with 100 meter spacing was generated around the facility extending out to 1,500 meters. Discrete receptors were placed every 50 meters along the Luck Stone boundary. The volume sources and receptor coordinates used in the modeling were determined from conversations with Luck Stone and an aerial view of the site using Google Earth. The latest Chester NED terrain data was obtained from DHEC BAQ’s website and used in this modeling demonstration. Terrain elevations were calculated within the AERMAP subprogram.

A summary of the modeled hourly emission rates and volume source parameters for the Luck Stone facility is included as Table 1. This table summarizes the pertinent modeling inputs and is included in lieu of the DHEC BAQ Emission Point Information form. A site location and boundary map is included as Figure 1.

### **3.0 AIR DISPERSION MODELING RESULTS**

Copies of the AERMOD model input and output files will be submitted to DHEC via disk or electronic mail.

#### **3.1 South Carolina Ambient Air Quality Standards (Standard No. 2)**

The South Carolina Ambient Air Quality Standards (SCAAQS - R.61-62.5, Standard No. 2) establish ambient air quality standards for criteria pollutants, including PM<sub>10</sub>, PM<sub>2.5</sub>, carbon dioxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), ozone, and lead.

As stated in Section 1.0, PM<sub>10</sub> was the only criteria pollutant requiring a modeling demonstration to comply with Standard No. 2. To determine compliance with the SCAAQS, the estimated maximum potential ground-level concentrations of criteria pollutants resulting from site emissions were added to corresponding background concentrations for the criteria pollutants. The resultant total concentrations were then compared to the SCAAQS, as shown in Table 2. The modeling results demonstrate that

PM<sub>10</sub> emissions from Luck Stone will be in compliance with the applicable ambient air quality standards.

The 2013-2015 three-year average background concentration data for the criteria pollutants was obtained from the most recent monitoring data provided on the DHEC BAQ website.

**Table 1**  
**Summary of Modeled Emission Rates and Volume Source Parameters**

**Luck Stone - Chester Facility**  
**Chester, South Carolina**

Volume Source ID	Equip ID	Source Description	PM <sub>10</sub> <sup>1</sup> (lbs/hr)	Source Release Height (ft)	Elevated Source Height (ft)	Horizontal Dimension (ft)	Vertical Dimension (ft)	Horizontal Modeling Parameter <sup>2</sup> - $\sigma_y$ (ft)	Vertical Modeling Parameter <sup>3</sup> - $\sigma_z$ (ft)
V1	P1	Portable 3055 Jaw Plant (P1)	0.297	10.5	3.0	14.7	15.0	3.42	3.49
V2	P1a	Under Jaw Conveyor	0.025	10.0	5.0	2	10.0	0.47	2.33
V3	P1b	52" x 20" VGF Screen	0.407	10.0	5.0	1.7	10.0	0.39	2.33
V4	P2	Under Grizzly Reject Conveyor	0.025	11.5	8.0	2.5	7.0	0.58	1.63
V5	P3	Triple Deck Screen	0.407	11.8	4.0	12.5	15.5	2.91	3.60
V6	P3a	Triple Deck Screen Conveyor	0.025	13.0	11.0	2.0	4.0	0.47	0.93
V7	P3b	Triple Deck Screen Conveyor	0.025	11.0	10.0	2.0	2.0	0.47	0.47
V8	P3c	Triple Deck Screen Conveyor	0.025	10.0	8.0	2.0	4.0	0.47	0.93
V9	P3d	Triple Deck Screen Feed Conveyor	0.025	7.0	6.0	2.0	2.0	0.47	0.47
V10	P3e	Triple Deck Screen Under Conveyor	0.025	7.0	6.0	2.0	2.0	0.47	0.47
V11	P4	Kodiak Cone Crusher	0.297	11.5	3.0	6.0	17.0	1.40	3.95
V12	P4a	Under Cone Conveyor	0.025	5.5	3.0	2.0	5.0	0.47	1.16
V13	P6	Stackable Plus Conveyor	0.025	6.5	5.0	3.0	3.0	0.70	0.70
V14	P7	Stackable Plus Conveyor	0.025	9.5	5.0	3.0	9.0	0.70	2.09
V15	P8	Stackable Plus Conveyor	0.025	6.5	6.0	3.0	1.0	0.70	0.23
V16	P9	Stackable Plus Conveyor	0.025	7.0	6.0	3.0	2.0	0.70	0.47
V17	P10	Stackable Plus Conveyor	0.025	10.0	8.0	3.0	4.0	0.70	0.93
V18	P11	Portable Radial Stacking Conveyor	0.025	5.0	3.0	2.5	4.0	0.58	0.93
V19	P12	Pinnacle Conveyor	0.025	10.0	8.0	3.0	4.0	0.70	0.93
V20	P13	Transfer Conveyor	0.025	9.5	5.0	4.0	9.0	0.93	2.09
V21	P14	Channel Flame Conveyor	0.025	7.0	6.0	3.0	2.0	0.70	0.47
V22	P15	Portable Radial Stacking Conveyor	0.025	4.5	3.0	2.5	3.0	0.58	0.70
V23	P16	Telestacker Conveyor	0.025	9.0	4.0	2.5	10.0	0.58	2.33
V24	P17	Double Deck Screen	0.407	11.0	4.0	11.5	14.0	2.67	3.26
V25	P17a	Under Screen Conveyor	0.025	11.0	8.0	2.0	6.0	0.47	1.40
V26	Tload	Final Product Truck Loading	0.055	6.0	4.0	5.0	4.0	1.16	0.93
V27	Drill	Drilling inside the Quarry	0.044	22.5	15.0	2.5	15.0	0.58	3.49
V28	HaulLoad	Truck Loading at the Quarry	0.009	8.0	6.0	5.0	4.0	1.16	0.93

**Notes:**

- 1) Facility is not required to model PM<sub>2.5</sub> emissions since emissions from each emission grouping (material handling, storage piles, etc.) are below 1.14 lb/hr.
- 2) Horizontal Modeling Parameter -  $\sigma_y$  = Horizontal dimension divided by 4.3 for a single volume source.
- 3) Vertical Modeling Parameter -  $\sigma_z$  = Vertical dimension divided by 4.3 since all sources are elevated at height greater than 0 ft.

Table 2

Comparison of Air Dispersion Modeling Results with  
South Carolina Ambient Air Quality Standards No. 2

Luck Stone - Chester Facility  
Chester, South Carolina

Pollutant	Averaging Period	Modeled Concentration ( $\mu\text{g}/\text{m}^3$ )	Background Concentration ( $\mu\text{g}/\text{m}^3$ ) <sup>1</sup>	Total Concentration ( $\mu\text{g}/\text{m}^3$ )	Allowable Concentration ( $\mu\text{g}/\text{m}^3$ )	Site in Compliance
PM <sub>10</sub>	24 hour	80.9	42	122.9	150	Yes

**Notes:**

1) Background concentration taken from the DHEC 2013-2015 average monitoring data gathered from the following sites for each pollutant:

PM<sub>10</sub> = Cayce City Hall

## EMISSIONS ASSUMPTIONS AND CALCULATIONS I AGGREGATE MINE AND PROCESSING

### Luck Stone Chester, South Carolina

The following emissions assumptions and calculations are presented for emissions from the mining and material handling, transportation, and material storage operations associated with Luck Stone's proposed aggregate mine and processing facility near Chester, South Carolina. In addition, emissions from the wind erosion of storage piles are presented in this emission assumptions and calculations. Emission calculations are presented for particulate matter (PM), particulates with aerodynamic diameter of less than or equal to 10 microns (PM<sub>10</sub>), and particulates with aerodynamic diameter of less than or equal to 2.5 microns (PM<sub>2.5</sub>). While the facility will have a 550 kilowatt diesel generator (P5), the generator is not considered a stationary source as it will be portable, nonroad, non-stationary engine. Therefore, the diesel generator is not subject to air permitting and is not subject to 40 CFR Part 60 Subpart IIII or 40 CFR Part 63 Subpart ZZZZ.

#### 1.0 Emission Assumptions

- The facility requests federally enforceable permit conditions limiting the potential to emit of PM and PM<sub>10</sub> to below 100 tons per year.
- Emission sources at the facility can be broken into the following categories:
  - Mining and Material Handling – includes wet drilling and truck loading operations;
  - Material Storage; and
  - Transportation
    - Haul Roads; and
    - Customer Roads.
- The facility will have a wash plant that will be a totally wet process, that is not except to have emissions. The wash plant will consist of the following equipment:
  - Belt Feeder;
  - Transfer Conveyor;
  - Wash Plant;
  - Chip Conveyor;
  - Course Conveyor;
  - Intermediate Conveyor; and
  - Sand Conveyor.
- The facility does not have any plans for non-electric dewatering pumps at this time.



Mining

- PM, PM<sub>10</sub>, and PM<sub>2.5</sub> are the only criteria pollutants emitted from the emission sources of wet drilling (Drill) and truck loading (HaulLoad) of materials in the mine.
- Emissions were calculated assuming 8,760 hours per year.
- Uncontrolled and controlled PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from wet drilling and truck loading at the mine are calculated based on the U.S. Environmental Protection Agency (EPA) Compilation of Air Pollutant Emission Factors, AP-42, Section 11.19.2, Table 11.19.2-2, dated August 2004.
- AP-42, Table 11.19.2-2 only provides truck loading emission factors for PM<sub>10</sub> emissions. PM emissions for the truck loading within the quarry were conservatively assumed to be three times PM<sub>10</sub> emissions from truck unloading of fragmented stone.
- AP-42 Section 11.19.2 does not provide PM<sub>2.5</sub> emission factors for wet drilling or truck loading. In cases where PM<sub>2.5</sub> emission factors were not determined, the PM<sub>10</sub> emission factor was used and adjusted based on the particle size multiplier (0.053 - PM<sub>2.5</sub>/0.35 - PM<sub>10</sub>) contained in AP-42 Section 13.2.4 for Aggregate Handling and Storage Piles.

Material Handling

- A summary of the material handling and storage related equipment to be installed at Luck Stone that will have PM emissions is shown below:

Equip ID	Description
P1	Portable 3055 Jaw Plant (P1)
P1a	Under Jaw Conveyor
P1b	52" x 20" VGF Screen
P2	Under Grizzly Reject Conveyor
P3	Triple Deck Screen
P3a	Triple Deck Screen Conveyor
P3b	Triple Deck Screen Conveyor
P3c	Triple Deck Screen Conveyor
P3d	Triple Deck Screen Feed Conveyor
P3e	Triple Deck Screen Under Conveyor
P4	Kodiak Cone Crusher
P4a	Under Cone Conveyor
P6	Stackable Plus Conveyor
P7	Stackable Plus Conveyor
P8	Stackable Plus Conveyor
P9	Stackable Plus Conveyor

Equip ID	Description
P10	Stackable Plus Conveyor
P11	Portable Radial Stacking Conveyor
P12	Pinnacle Conveyor
P13	Transfer Conveyor
P14	Channel Flame Conveyor
P15	Portable Radial Stacking Conveyor
P16	Telestacker Conveyor
P17	Double Deck Screen
P17a	Under Screen Conveyor
Tload	Final Product Truck Loading
Drill	Drilling inside the Quarry
HaulLoad	Truck Loading at the Quarry

- PM, PM<sub>10</sub>, and PM<sub>2.5</sub> are the only criteria pollutants emitted.
- The hourly production rates were provided by Luck Stone. Annual emissions were calculated assuming 8,760 hours per year.
- Uncontrolled and controlled PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from material handling are calculated based on the EPA Compilation of Air Pollutant Emission Factors, AP-42, Section 11.19.2, Table 11.19.2-2, dated August 2004. Controlled emissions are based on wet suppression.
- AP-42, Table 11.19.2-2 only provides truck loading emission factors for PM<sub>10</sub> emissions. PM emissions for the final product truck loading were conservatively assumed to be three times PM<sub>10</sub> emissions.
- AP-42 Section 11.19.2 only provides PM<sub>2.5</sub> emission factors for some operations. For other operations, PM<sub>2.5</sub> emission factors were not determined. In cases where PM<sub>2.5</sub> emission factors were not determined, the PM<sub>10</sub> emission factor was used and adjusted based on the particle size multiplier (0.053- PM<sub>2.5</sub> /0.35- PM<sub>10</sub>) contained in AP-42 Section 13.2.4 for Aggregate Handling and Storage Piles.
- No PM emissions data was provided in AP-42 for primary or secondary crushing. It was conservatively assumed that primary and secondary crushing emissions were equal to tertiary crushing.

Material Storage

- Part of Luck Stone’s operations will include eight (8) storage piles for holding various materials that have been mined, crushed, and screened.
- The size of each storage pile in acres was provided by knowledgeable Luck Stone staff.

- Emission factors of 3.2 lbs PM per day per acre, 1.6 lbs PM<sub>10</sub> per day per acre, and 0.23 lbs PM<sub>2.5</sub> per day per acre were used for storage pile wind erosion calculations. The PM emission factor is based on an equation in the EPA Document 450/2-92-004 "Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures," Equation 2-12. Based on the referenced document, the fraction of PM which is PM<sub>10</sub> is estimated at 0.5. To obtain the PM<sub>2.5</sub> emission factors, the PM emission factor was used and adjusted based on the particle size multiplier (0.053 PM<sub>2.5</sub> /0.74-PM) contained in AP-42 Section 13.2.4 for Aggregate Handling and Storage Piles.
- The wind erosion equation used to calculate the PM emission factor is shown below:  

$$E = 1.7 \times (s/1.5) \times [(365-p)/235] \times (f/15)$$
 Where,  
 E = lbs PM per day per acre  
 s = 3.9 silt content % (from AP-42 5<sup>th</sup> Edition Table 13.2.4-1 for various limestone products)  
 p = 110 number of days with  $\geq 0.01$  inches of precipitation per year (from AP-42 Figure 13.2.2-1)  
 f = 10 percentage of time that the unobstructed wind speed exceeds 5.4 m/s at the mean pile height (engineering estimate)
- Annual PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions are calculated assuming 8,760 hours of operation per year.
- Hourly emissions were calculated using 24 hours per day. Annual emissions were calculated using 365 days per year.

Transportation (Haul and Customer Roads)

- Uncontrolled emissions from the haul roads and customer roads are based on the AP-42, Section 13.2.2 (Unpaved Roads), Equations 1a and 2, for vehicles traveling on unpaved surfaces at industrial sites. The equation is provided below and the variable are defined:  

$$E_{ext} = [k (s/12)^a \times (W/3)^b] (365 - P/365)$$
 Where:  
 E<sub>ext</sub> = annual or other long-term average emission factor in the same units as k  
 k, a, and b = Constants (Table 13.2.2-2)  
 s = Surface material silt content (%) – (Table 13.2.2-1, mean = 8.3 haul roads and 10 for customer roads)

W = average weight of vehicles (tons)

P = number of hours with at least 0.01 inches of precipitation during the averaging period. (Used 2012 Charleston, SC data from weatherunderground.com - Number of days with 0.01 inches of rain: P = 107 days/yr)

Constant	PM2.5	PM10	PM30
K (lb/VMT)	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

- Controlled emissions from the haul roads and customer roads assume a control efficiency of 90% for keeping the roads wet suppressed during transportation activities.
- VMT for haul road and customer roads provided by knowledgeable Luck Stone staff.

**2.0 Emission Calculations**

Using the above assumptions and the following equations, PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from the mining and material handling equipment are calculated and shown in Tables 1, 2, and 3, respectively. PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from wind erosion on the storage piles are calculated and shown in Table 4. PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from unpaved roads are calculated and shown in Table 5. The boxed alpha codes in the equations refer to the appropriate columns in the tables.

**Tables 1-3 – Material Handling - PM, PM<sub>10</sub>, and PM<sub>2.5</sub> Emissions**

$$\boxed{A} \frac{\text{tons material}}{\text{hour}} \times \boxed{B} \frac{\text{lbs uncontrolled emissions}}{\text{ton material}} = \boxed{C} \frac{\text{lbs uncontrolled emissions}}{\text{hour}}$$

$$\boxed{C} \frac{\text{lbs uncontrolled emissions}}{\text{hour}} \times \frac{8760 \text{ hours}}{\text{year}} \times \frac{\text{ton}}{2000 \text{ lbs}} = \boxed{D} \frac{\text{tons uncontrolled emissions}}{\text{year}}$$

$$\boxed{A} \frac{\text{tons material}}{\text{hour}} \times \boxed{E} \frac{\text{lbs controlled emissions}}{\text{ton material}} = \boxed{F} \frac{\text{lbs controlled emissions}}{\text{hour}}$$

$$\boxed{F} \frac{\text{lbs controlled emissions}}{\text{hour}} \times \frac{8760 \text{ hours}}{\text{year}} \times \frac{\text{ton}}{2000 \text{ lbs}} = \boxed{G} \frac{\text{tons controlled emissions}}{\text{year}}$$

**Table 4 – Storage Piles - PM, PM<sub>10</sub>, and PM<sub>2.5</sub> Emissions**

$$\boxed{A} \text{ Pile Size (Acres)} \times \boxed{B} \frac{\text{lbs emissions}}{\text{day-acre}} \times \frac{\text{day}}{24 \text{ hour}} = \boxed{C} \frac{\text{lbs emissions}}{\text{hour}}$$

$$\boxed{C} \frac{\text{lbs emissions}}{\text{hour}} \times \frac{8760 \text{ hours}}{\text{year}} \times \frac{\text{ton}}{2000 \text{ lbs}} = \boxed{D} \frac{\text{tons emissions}}{\text{year}}$$

**Table 5 – Unpaved Roads - PM, PM<sub>10</sub>, and PM<sub>2.5</sub> Emissions**

$$E = [k (s/12)^a \times (W/3)^b]$$

$$E_{\text{ext}} = E(365 - P/365)$$

Where,

k = constant (lb/Vehicle Mile Traveled (VMT))  $\boxed{A}$

s = Surface Material Silt Loading Content (%)  $\boxed{B}$

W = vehicle weight (tons)  $\boxed{C}$

P = hours with 0.01 inches of rain

E = emission factor (lb/VMT)  $\boxed{D}$

E<sub>ext</sub> = emission factor (lb/VMT)  $\boxed{E}$

$$\boxed{E} \frac{\text{lbs emissions}}{\text{VMT}} \times \boxed{F} \frac{\text{VMT}}{\text{year}} \times \frac{\text{ton}}{2000 \text{ lbs}} = \boxed{G} \frac{\text{tons uncontrolled emissions}}{\text{year}}$$

$$\boxed{G} \frac{\text{tons uncontrolled emissions}}{\text{year}} \times \frac{\text{year}}{8760 \text{ hrs}} \times \frac{2000 \text{ lbs}}{\text{ton}} = \boxed{H} \frac{\text{lbs uncontrolled emissions}}{\text{hour}}$$

$$\boxed{G} \frac{\text{tons uncontrolled emissions}}{\text{year}} \times \boxed{I} \text{ 1-Wet Suppression Control Efficiency \%} = \boxed{J} \frac{\text{tons controlled emissions}}{\text{year}}$$

$$\boxed{H} \frac{\text{lbs uncontrolled emissions}}{\text{hour}} \times \boxed{I} \text{ 1-Wet Suppression Control Efficiency \%} = \boxed{K} \frac{\text{lbs controlled emissions}}{\text{hour}}$$

Table 1  
Emission Assumptions and Calculation I: PM Emissions from Drilling and Material Handling  
Luck Stone - Chester Facility  
Chester, South Carolina

Emission Source ID	Emissions Source Description	A Design Capacity (tons/hr)	B Uncontrolled PM Emission Factor (lbs/ton)	C Uncontrolled PM Hourly Emissions (lbs/hr)	D Uncontrolled PM Annual Emissions (tpy)	E Controlled PM Emission Factor (lbs/ton)	F Controlled PM Hourly Emissions (lbs/hr)	G Controlled PM Annual Emissions (tpy)
P1	Portable 3055 Jaw Plant (P1)	550	0.0054	2.97	13.01	0.0012	0.66	2.89
P1a	Under Jaw Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P1b	52" x 20" VGF Screen	550	0.025	13.75	60.23	0.0022	1.21	5.30
P2	Under Grizzly Reject Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P3	Triple Deck Screen	550	0.025	13.75	60.23	0.0022	1.21	5.30
P3a	Triple Deck Screen Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P3b	Triple Deck Screen Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P3c	Triple Deck Screen Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P3d	Triple Deck Screen Feed Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P3e	Triple Deck Screen Under Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P4	Kodiak Cone Crusher	550	0.0054	2.97	13.01	0.0012	0.66	2.89
P4a	Under Cone Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P6	Stackable Plus Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P7	Stackable Plus Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P8	Stackable Plus Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P9	Stackable Plus Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P10	Stackable Plus Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P11	Portable Radial Stacking Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P12	Pinnacle Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P13	Transfer Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P14	Channel Flame Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P15	Portable Radial Stacking Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P16	Telestacker Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
P17	Double Deck Screen	550	0.025	13.75	60.23	0.0022	1.21	5.30
P17a	Under Screen Conveyor	550	0.003	1.65	7.23	0.00014	0.077	0.34
Tload	Final Product Truck Loading	550	0.0003	0.17	0.72	0.0003	0.165	0.72
Drill	Drilling inside the Quarry	550	0.0002	0.13	0.58	0.0002	0.132	0.58
HaulLoad	Truck Loading at the Quarry	550	0.00005	0.03	0.12	0.00005	0.026	0.12
Total	-	-	-	80.51	352.65	-	6.81	29.84

**Table 2**  
**Emission Assumptions and Calculation: PM-10 Emissions from Drilling and Material Handling**  
**Luck Stone - Chester Facility**  
**Chester, South Carolina**

Emission Source ID	Emissions Source Description	A Design Capacity (tons/hr)	B Uncontrolled PM <sub>10</sub> Emission Factor (lbs/ton)	C Uncontrolled PM <sub>10</sub> Hourly Emissions (lbs/hr)	D Uncontrolled PM <sub>10</sub> Annual Emissions (tpy)	E Controlled PM <sub>10</sub> Emission Factor (lbs/ton)	F Controlled PM <sub>10</sub> Hourly Emissions (lbs/hr)	G Controlled PM <sub>10</sub> Annual Emissions (tpy)
P1	Portable 3055 Jaw Plant (P1)	550	0.0024	1.32	5.78	0.00054	0.297	1.30
P1a	Under Jaw Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P1b	52" x 20" VGF Screen	550	0.0087	4.79	20.96	0.00074	0.407	1.78
P2	Under Grizzly Reject Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P3	Triple Deck Screen	550	0.0087	4.79	20.96	0.00074	0.407	1.78
P3a	Triple Deck Screen Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P3b	Triple Deck Screen Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P3c	Triple Deck Screen Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P3d	Triple Deck Screen Feed Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P3e	Triple Deck Screen Under Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P4	Kodiak Cone Crusher	550	0.0024	1.32	5.78	0.00054	0.297	1.30
P4a	Under Cone Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P6	Stackable Plus Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P7	Stackable Plus Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P8	Stackable Plus Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P9	Stackable Plus Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P10	Stackable Plus Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P11	Portable Radial Stacking Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P12	Pinnacle Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P13	Transfer Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P14	Channel Flame Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P15	Portable Radial Stacking Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P16	Telestacker Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
P17	Double Deck Screen	550	0.0087	4.79	20.96	0.00074	0.407	1.78
P17a	Under Screen Conveyor	550	0.0011	0.61	2.65	0.000046	0.025	0.11
Tload	Final Product Truck Loading	550	0.0001	0.06	0.24	0.0001	0.055	0.24
Drill	Drilling inside the Quarry	550	0.00008	0.04	0.19	0.00008	0.044	0.19
HaulLoad	Truck Loading at the Quarry	550	0.000016	0.01	0.04	0.000016	0.009	0.04
<b>Total</b>	<b>-</b>	<b>-</b>		<b>29.20</b>	<b>127.91</b>		<b>2.43</b>	<b>10.64</b>



**Table 3**  
**Emission Assumptions and Calculation I: PM2.5 Emissions from Drilling and Material Handling**  
**Luck Stone - Chester Facility**  
**Chester, South Carolina**

Emission Source ID	Emissions Source Description	A Design Capacity (tons/hr)	B Uncontrolled PM <sub>2.5</sub> Emission Factor (lbs/ton)	C Uncontrolled PM <sub>2.5</sub> Hourly Emissions (lbs/hr)	D Uncontrolled PM <sub>2.5</sub> Annual Emissions (tpy)	E Controlled PM <sub>2.5</sub> Emission Factor (lbs/ton)	F Controlled PM <sub>2.5</sub> Hourly Emissions (lbs/hr)	G Controlled PM <sub>2.5</sub> Annual Emissions (tpy)
P1	Portable 3055 Jaw Plant (P1)	550	0.00036	0.20	0.88	0.0001	0.055	0.24
P1a	Under Jaw Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P1b	52" x 20" VGF Screen	550	0.0013	0.72	3.17	0.00005	0.028	0.12
P2	Under Grizzly Reject Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P3	Triple Deck Screen	550	0.0013	0.72	3.17	0.00005	0.028	0.12
P3a	Triple Deck Screen Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P3b	Triple Deck Screen Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P3c	Triple Deck Screen Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P3d	Triple Deck Screen Feed Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P3e	Triple Deck Screen Under Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P4	Kodiak Cone Crusher	550	0.00036	0.20	0.88	0.0001	0.055	0.24
P4a	Under Cone Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P6	Stackable Plus Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P7	Stackable Plus Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.031
P8	Stackable Plus Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.031
P9	Stackable Plus Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.031
P10	Stackable Plus Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.031
P11	Portable Radial Stacking Conveyor	550	0.00017	0.09	0.40	0.000013	0.0072	0.0313
P12	Pinnacle Conveyor	550	0.00017	0.09	0.40	0.000013	0.0072	0.0313
P13	Transfer Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P14	Channel Flame Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P15	Portable Radial Stacking Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P16	Telestacker Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.03
P17	Double Deck Screen	550	0.0013	0.72	3.17	0.00005	0.028	0.12
P17a	Under Screen Conveyor	550	0.00017	0.09	0.40	0.000013	0.007	0.031
Tload	Final Product Truck Loading	550	0.000015	0.008	0.04	0.000015	0.008	0.04
Drill	Drilling inside the Quarry	550	0.000012	0.007	0.03	0.000012	0.007	0.03
HaulLoad	Truck Loading at the Quarry	550	0.000002	0.0013	0.006	0.000002	0.001	0.01
<b>Total</b>	-	-		<b>4.42</b>	<b>19.37</b>		<b>0.35</b>	<b>1.54</b>

Note:  
1. Since all emissions from each source are below 1 pound per hour, no air dispersion modeling is required.

**Table 4**  
**Emission Assumptions and Calculation: Storage Pile Wind Emissions**  
**Luck Stone**  
**Chester, South Carolina**

Emission Point ID	Emissions Point Description		A Pile Size (acres)	B Emission Factor			C Hourly Emissions			D Annual Emissions		
				(lbs PM/day/acre)	(lbs PM10/day/acre)	(lbs PM2.5/day/acre)	(lbs PM/hr)	(lbs PM10/hr)	(lbs PM2.5/hr)	(tons PM/yr)	(tons PM10/yr)	(tons PM2.5/yr)
STP1	Storage Pile No. 1	#8	0.88	3.2	1.6	0.23	0.117	0.059	0.008	0.51	0.26	0.04
STP2	Storage Pile No. 2	#4	0.19	3.2	1.6	0.23	0.025	0.013	0.002	0.11	0.06	0.01
STP3	Storage Pile No. 3	#21A	1.02	3.2	1.6	0.23	0.136	0.068	0.010	0.60	0.30	0.04
STP4	Storage Pile No. 4	RipRap	0.70	3.2	1.6	0.23	0.093	0.047	0.007	0.41	0.20	0.03
STP5	Storage Pile No. 5	#57	0.71	3.2	1.6	0.23	0.095	0.047	0.007	0.41	0.21	0.03
STP6	Storage Pile No. 6	#5	0.16	3.2	1.6	0.23	0.021	0.011	0.002	0.09	0.05	0.01
STP7	Storage Pile No. 7	Sand	0.78	3.2	1.6	0.23	0.104	0.052	0.007	0.46	0.23	0.03
STP8	Storage Pile No. 8	Driveway Mix	0.15	3.2	1.6	0.23	0.020	0.010	0.001	0.09	0.04	0.006
<b>Total</b>	-		-				<b>0.612</b>	<b>0.306</b>	<b>0.044</b>	<b>2.68</b>	<b>1.34</b>	<b>0.19</b>

**Note:**

1. Since PM10 and PM2.5 emissions from each source are below 1.14 pounds per hour, no air dispersion modeling is required.

**Table 5**  
**Emission Assumptions and Calculation I: Unpaved Road Emissions**  
**Luck Stone - Chester Facility**  
**Chester, South Carolina**

Emission Source ID	Pollutants	A	B	C	D	E	F	G	H	I	J	K
		Particle Size Multiplier k (lb/VMT)	Surface Material Silt Loading Content (%)	Avg. Vehicle Weight W (tons)	Emission Factor E (lbs/VMT)	Emission Factor Eext (lbs/VMT)	VMT/yr	Uncontrolled (tons/yr)	Uncontrolled (lbs/hour)	Wet Suppression Control Efficiency (%)	Controlled (tons/yr)	Controlled (lbs/hr)
Haul	PM	4.9	8.3	138	21.20	14.99	1,848	13.85	3.16	90	1.38	0.32
	PM10	1.5	8.3	138	6.03	4.26	1,848	3.94	0.90	90	0.39	0.09
	PM2.5	0.15	8.3	138	0.60	0.43	1,848	0.39	0.09	90	0.04	0.01
Customer	PM	4.9	10	13.75	8.56	6.05	11,046	33.40	7.63	90	3.34	0.76
	PM10	1.5	10	13.75	2.53	1.79	11,046	9.86	2.25	90	0.99	0.23
	PM2.5	0.15	10	13.75	0.25	0.18	11,046	0.99	0.23	90	0.10	0.02
Total	PM	-	-	-	-	-	-	47.25	10.79	-	4.73	1.08
	PM10	-	-	-	-	-	-	13.80	3.15	-	1.38	0.32
	PM2.5	-	-	-	-	-	-	1.38	0.32	-	0.14	0.03

**Notes:**

1) Emissions based on calculation found in AP-42, Section 13.2.2, Equation 1a:  $E = [k (s/12)^a \times (W/3)^b]$  with an extension from Equation 2:  $E_{ext} = E \times (365 - P / 365)$

Where:  $E_{ext}$  = annual or other long-term average emission factor in the same units as k,

k = particle size multiplier (Table 13.2.2-2)

s = surface material silt content (%) - Table 13.2.2-1, Quarry Haul/Plant (mean)

W = mean weight of vehicles (tons) - obtained from Winnseboro Quarry

a, b = empirical constants from AP-42 Table 13.2.2.2

P = number of hours with at least 0.01 inches of precipitation during the averaging period, (Used 2012 data from weatherunderground.com for Charleston as representative for all of South Carolina - Number of days with 0.01 inches of rain: P = 107 days/yr)

Constant	PM2.5	PM10	PM30
k (lb/VMT)	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

2) Controlled emissions are based on 90% control efficiency from use of wet suppression to keep the haul roads wet at all times.

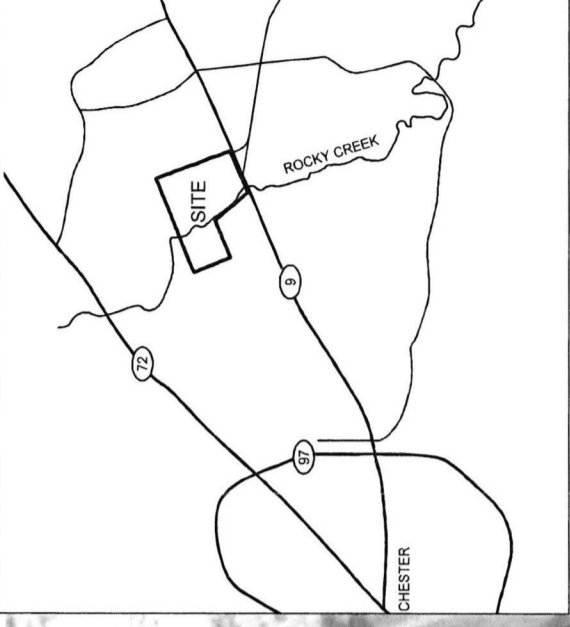
3) The vehicle miles traveled (VMT) data was provided by Luck Stone.

DATE: 08/20/2019  
 DRAWN / APPROVED BY: TJP / MMW  
 PROJECT NUMBER: Iks100119  
 FIGURE: 1

LUCK STONE - CHESTER FACILITY  
 CHESTER, SOUTH CAROLINA

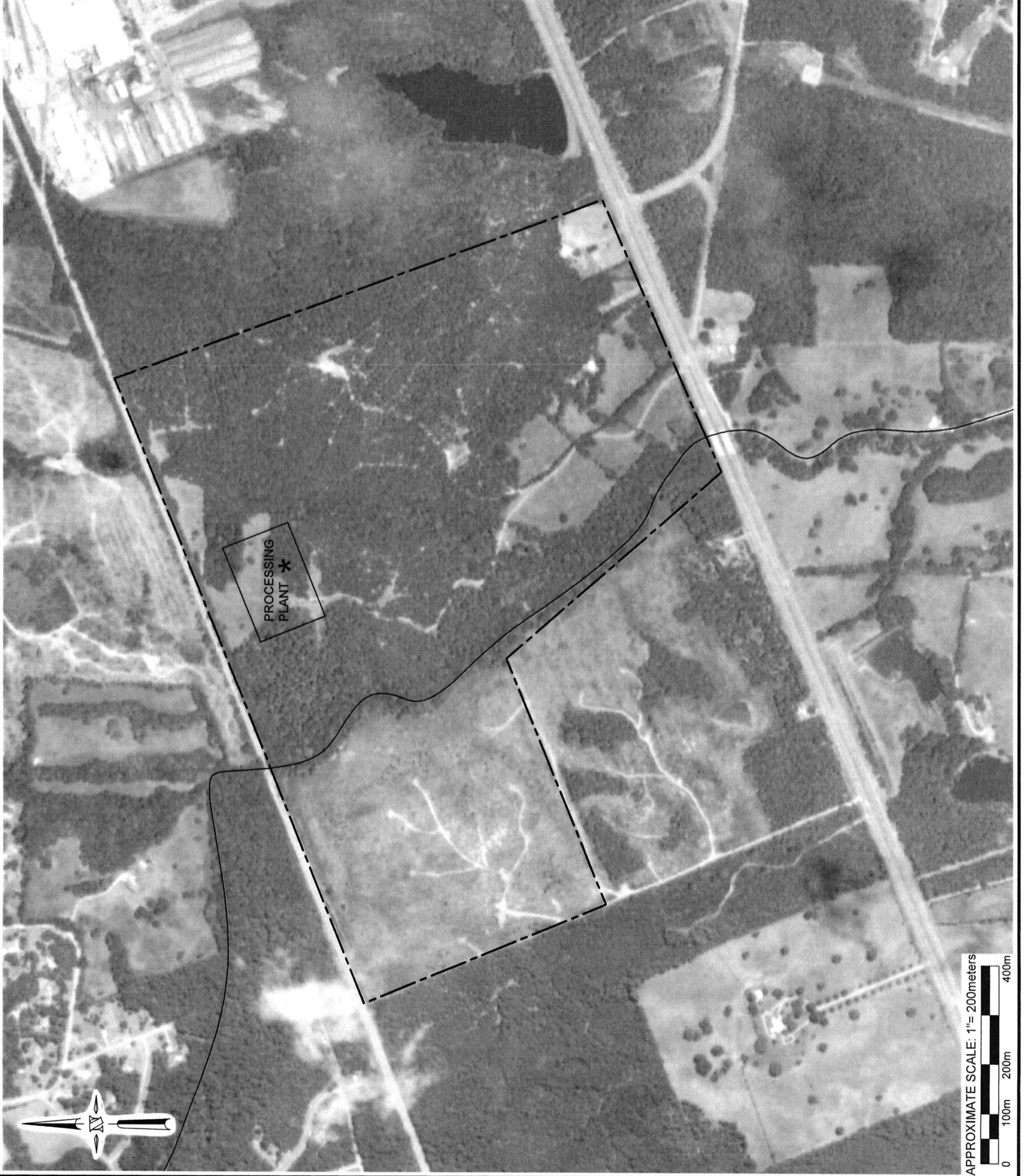
SITE LOCATION AND BOUNDARY MAP

**GEL** Engineering LLC  
 a member of THE GEL GROUP INC  
 ENVIRONMENTAL ■ ENGINEERING ■ SURVEYING  
 F 843.769.7378  
 P 843.769.7378  
 2040 Savage Road  
 Charleston, SC 29407  
 www.gel.com  
 problem solved



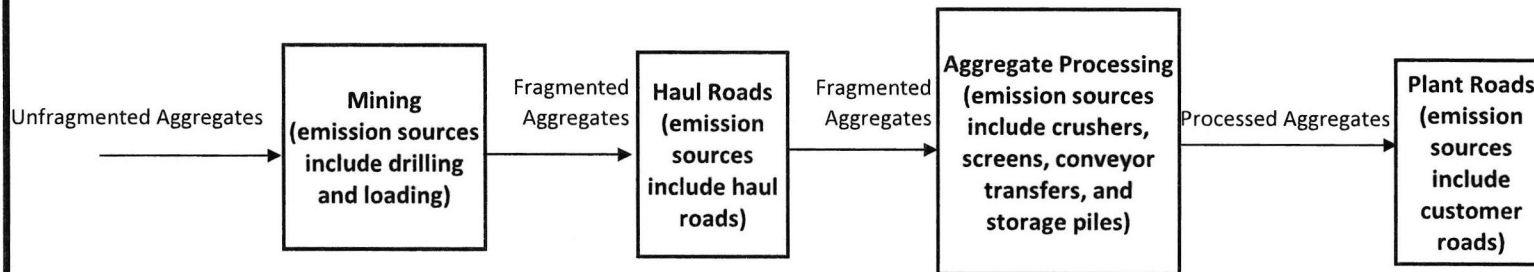
LEGEND  
 - - - - - PROPERTY BOUNDARY

\* SEE MODELING FILES FOR THE EXACT LOCATION OF THE VOLUME SOURCES



APPROXIMATE SCALE: 1"= 200meters  
 0 100m 200m 400m

**FIGURE 2**  
**PROCESS FLOW DIAGRAM**  
**LUCK STONE - CHESTER FACILITY**  
**CHESTER, SOUTH CAROLINA**



## Whiteside, Pamela

---

**From:** Whiteside, Pamela  
**Sent:** Wednesday, August 28, 2019 4:11 PM  
**To:** markdwilliams@luckcompanies.com  
**Cc:** Woods, Jamie M.; Wilbanks, M. Chad; Dabney, Alexis D.; Hayes, Alyson; Singleton, Mareesa  
**Subject:** LUCK STONE - CHESTER QUARRY (0640-0080) Fees Owed  
**Attachments:** 0640-0080.pdf

Tracking:	Recipient	Delivery	Read
	markdwilliams@luckcompanies.com		
	Woods, Jamie M.	Delivered: 8/28/2019 4:12 PM	
	Wilbanks, M. Chad	Delivered: 8/28/2019 4:12 PM	Read: 8/28/2019 4:37 PM
	Dabney, Alexis D.	Delivered: 8/28/2019 4:12 PM	
	Hayes, Alyson	Delivered: 8/28/2019 4:12 PM	
	Singleton, Mareesa	Delivered: 8/28/2019 4:12 PM	

The Bureau of Air Quality is in receipt of a permit application for LUCK STONE - CHESTER QUARRY (0640-0080). Based on available information, it appears the facility owes fees to SC DHEC Bureau of Air Quality. Permits will not be issued for a facility that owes fees under SC Regulation 61-30.

Attached is the invoice(s) that shows any outstanding fees. Instructions on how to submit payment are included in the invoice.

If you have questions or need to verify the Department has received payment, you can contact Jamie Woods at (803) 898-3460 or Chad Wilbanks at (803) 898-4106. Please note that if you have already paid your fees our system may take a few days to show these fees have been paid.

Pamela Whiteside

S.C. Dept. of Health & Environmental Control  
Bureau of Air Quality – Air Permitting Division  
Office: (803) 898-4276



550 KW Diesel Fuel-Fired Generator (Exempt Activities) Emission Calculations

Luck Stone - Chester Facility  
 Chester, South Carolina

Fuel: Diesel

Equipment	Equipment Description	Equipment Rating (KW)	Equipment Rating (hp)	Potential Hours of Operation (hrs)	Pollutant	PM/PM <sub>10</sub> /PM <sub>2.5</sub>		SO <sub>2</sub>		CO		NO <sub>x</sub>		VOCs		CO <sub>2</sub>	
						Units	(lbs/hr)	(tons/yr)	(lbs/hr)	(tons/yr)	(lbs/hr)	(tons/yr)	(lbs/hr)	(tons/yr)	(lbs/hr)	(tons/yr)	(lbs/hr)
EX-DG	550-kW Emergency Generator 88-20	550	738	8760	Emission Factor	2.00E-02		1.21E-05		3.50E+00		4.00E-01		1.90E-01		1.16	
						(g/kW-hr)		(lb/hp-hr)		(g/kW-hr)		(g/kW-hr)		(g/kW-hr)		(lb/hp-hr)	
					Emissions	0.024	0.106	0.009	0.039	4.24	18.59	0.49	2.12	0.23	1.01	856	3,747

Notes:

1. Emission Factors for SO<sub>2</sub> and CO<sub>2</sub>e taken from AP-42 Section 3.4 (greater than 600 hp/447 kW).
2. Emission Factors for PM/PM<sub>10</sub>/PM<sub>2.5</sub>, CO, NO<sub>x</sub>, and VOCs taken from EPA Tier 4 Non-Road Emission Standards for compression engines between 450 and 560 kW. Engine being purchased by Luck will be a Tier 4 certified engine.
3. Sulfur dioxide emissions from > 600 hp generators assumes a sulfur content of 0.0015%. EF = 8.09E-03 x 0.0015 = 1.21E-05
4. PM/PM<sub>10</sub>/PM<sub>2.5</sub> are assumed to be equal.

**RE: Luck Stone - Chester Quarry Air Permit Application (0640-0080-CA)**

Matthew Wike &lt;matthew.wike@gel.com&gt;

Wed 10/9/2019 10:47 AM

To: Davis, Lance &lt;davism1@dhec.sc.gov&gt;

Cc: Mark Williams &lt;MarkDWilliams@luckcompanies.com&gt;

 1 attachments (146 KB)

550 kw generator.pdf;

\*\*\* Caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. \*\*\*

Lance

Please find enclosed the requested emissions for the 550 kW diesel generator.

The haul roads will all be unpaved and the emissions were assumed to be such. At some point in the future, Luck may pave from the road to the scale house, but the plan is for the remaining site to be unpaved.

Please let us know if you have and additional questions.

Thanks

Matt

**Matthew W. Wike, P.E.**

2040 Savage Road, Charleston, SC 29407 | P.O. Box 30712, Charleston, SC 29417

Cell: 843.697.2205 | Office: 843.769.7378 x4489

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---

**From:** Davis, Lance <davism1@dhec.sc.gov>**Sent:** Friday, October 4, 2019 2:41 PM**To:** Matthew Wike <matthew.wike@gel.com>; markdwilliams@luckcompanies.com**Subject:** Re: Luck Stone - Chester Quarry Air Permit Application (0640-0080-CA)

Hello again Matt,

I also wanted to request that the emissions for the 550 kW diesel generator be evaluated. As detailed in the statement of basis, the generator is exempt from requiring a construction permit. However, the emissions for exempt sources need to be included in the facility-wide emissions.

Also, will any of the haul/plant roads be paved? I did not see any indication in the application as the entirety of the road's emissions were evaluated using the unpaved emission factors.

If you have any questions, please feel free to get in touch.



Thanks again,

**Lance Davis**

Permit Writer, General Permitting Section

**S.C. Dept. of Health & Environmental Control**

**Bureau of Air Quality - Air Permitting Division**

Office: (803) 898-7220

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[Redacted]

---

**From:** Davis, Lance <davism1@dhec.sc.gov>

**Sent:** Friday, October 4, 2019 8:47 AM

**To:** Matthew Wike <matthew.wike@gel.com>; markdwilliams@luckcompanies.com  
<MarkDWilliams@luckcompanies.com>

**Subject:** Re: Luck Stone - Chester Quarry Air Permit Application (0640-0080-CA)

Hey Matt and good morning,

Thank you for your review of the drafts. I've updated the permit a bit with the following changes with your comments in mind and based on internal review. They have been marked up using "track changes":

Regarding the Statement of Basis, I see you had changed the emission rates for the PTE column to the uncontrolled combined values of fugitive and non-fugitive sources. I have changed them to the "controlled" rate of only the Mining and Material Handling (i.e. non-fugitive) because the air dispersion modeling assessment was based off of those emissions. When calculating PTE, fugitive emissions are not to be included as mining is not one of the 28 source categories defined by the EPA.

For the construction permit itself, I included the V1 emission point that was suggested. Additionally, I kept the exempt sources that were suggested to be removed from the modeling summary attachment as even exempt sources are to be included in those.

Additionally, I have adjusted the OOO Section "D" to only give the conditions that applies to the project.

Please let me know if you have any issue with the attached changes or have any other questions regarding the drafts.

Thank you,

**Lance Davis**

Permit Writer, General Permitting Section  
**S.C. Dept. of Health & Environmental Control**

**Bureau of Air Quality - Air Permitting Division**

Office: (803) 898-7220

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---

**From:** Matthew Wike <matthew.wike@gel.com>  
**Sent:** Monday, September 30, 2019 2:23 PM  
**To:** Davis, Lance <davism1@dhec.sc.gov>; markdwilliams@luckcompanies.com  
<markdwilliams@luckcompanies.com>  
**Cc:** Mark Williams <MarkDWilliams@luckcompanies.com>  
**Subject:** RE: Luck Stone - Chester Quarry Air Permit Application (0640-0080-CA)

\*\*\* Caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. \*\*\*

Lance

Please find enclosed our comments on the draft permit and draft statement of basis.

Please call me if we need to discuss any comments.

Thanks

Matt

**Matthew W. Wike, P.E.**



2040 Savage Road, Charleston, SC 29407 | P.O. Box 30712, Charleston, SC 29417

Cell: 843.697.2205 | Office: 843.769.7378 x4489

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---

**From:** Davis, Lance <davism1@dhec.sc.gov>  
**Sent:** Thursday, September 26, 2019 8:59 AM  
**To:** markdwilliams@luckcompanies.com  
**Cc:** Matthew Wike <matthew.wike@gel.com>  
**Subject:** Re: Luck Stone - Chester Quarry Air Permit Application (0640-0080-CA)

Good morning Mr. Williams,

I have attached a draft copy of the air permit and statement of basis for the Luckstone Chester Quarry. Please review the draft permit and the attached statement of basis and let me know of any comments,

questions, or concerns by Thursday, October 3, 2019.

Thank you,

**Lance Davis**

Permit Writer, General Permitting Section  
**S.C. Dept. of Health & Environmental Control**

**Bureau of Air Quality - Air Permitting Division**

Office: (803) 898-7220

Connect: [www.scdhec.gov](http://www.scdhec.gov) [Facebook](#) [Twitter](#)

[REDACTED]

---

**From:** Matthew Wike <matthew.wike@gel.com>  
**Sent:** Wednesday, September 25, 2019 11:09 AM  
**To:** Davis, Lance <davism1@dhec.sc.gov>  
**Cc:** markdwilliams@luckcompanies.com <markdwilliams@luckcompanies.com>  
**Subject:** RE: Luck Stone - Chester Quarry Air Permit Application (0640-0080-CA)

\*\*\* Caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. \*\*\*

Lance

Please see below for responses.

Thanks

Matt

**Matthew W. Wike, P.E.**

**GEL** Engineering LLC

2040 Savage Road, Charleston, SC 29407 | P.O. Box 30712, Charleston, SC 29417

Cell: 843.697.2205 | Office: 843.769.7378 x4489

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**From:** Davis, Lance <davism1@dhec.sc.gov>  
**Sent:** Tuesday, September 24, 2019 3:46 PM  
**To:** Matthew Wike <matthew.wike@gel.com>  
**Cc:** markdwilliams@luckcompanies.com  
**Subject:** Re: Luck Stone - Chester Quarry Air Permit Application (0640-0080-CA)

## Response to DHEC Questions and Comments

### E-Mail – Davis/DHEC to Williams/Luck Stone and Wike/GEL

#### Page 1

- Under the Emissions Assumptions and Calculations, a 100.0 TPY limit for PM and PM10 as a federally enforceable limit is proposed. Because the operation is not considered one of the 28 source categories, PM may operate at 250.0 TPY before it reaches the PSD threshold. Was a 250.0 TPY federally enforceable limit intended instead of the 100.0 TPY for PM? The facility request a 100 tpy federally enforceable limit for PM and PM<sub>10</sub> to avoid being a major source under the Title V Operating Permit Program (South Carolina Regulation 61.61.70.2(r)(2)).
- In the aggregation of the emissions, fugitive emissions from stock piles and loading are included. The operation is not considered one of the 28 source categories, so fugitive emissions do not need to be included. I will still provide these in the statement of basis to provide more information. Luck Stone has provided the fugitive emissions from stockpiles and loading activities voluntarily in order to provide additional information.
- PM10 modeling is not required as quarry operations are modeled on a piece-by-piece basis. However, the modeling submittal has been submitted to modeling for review. Luck Stone provided this conservatively in case DHEC interpreted the per source De Minimis exemption to apply to the entire crushing plant source.
- Please provide the dimensions (as detailed in 60.676(a)1 and 60.676(a)2) of each conveyor and screener. The dimensions of each conveyor and screen are as follows:

Equip ID	Description	Dimensions
P1	Portable 3055 Jaw Plant (P1)	NA
P1a	Under Jaw Conveyor	54" x 46'
P1b	52" x 20" VGF Screen	52" x 20'
P2	Under Grizzly Reject Conveyor	30" x 13'6"
P3	Triple Deck Screen	7' x 20'
P3a	Triple Deck Screen Conveyor	30" x 13'6"
P3b	Triple Deck Screen Conveyor	30" x 13'6"
P3c	Triple Deck Screen Conveyor	30" x 13'6"
P3d	Triple Deck Screen Feed Conveyor	42" x 50'
P3e	Triple Deck Screen Under Conveyor	60" x 30'
P4	Kodiak Cone Crusher	NA
P4a	Under Cone Conveyor	48" x 20'
P6	Stackable Plus Conveyor	36" x 60'
P7	Stackable Plus Conveyor	36" x 60'
P8	Stackable Plus Conveyor	36" x 60'
P9	Stackable Plus Conveyor	36" x 60'
P10	Stackable Plus Conveyor	36" x 60'
P11	Portable Radial Stacking Conveyor	36" x 95'
P12	Pinnacle Conveyor	36" x 100'
P13	Transfer Conveyor	48" x 65'
P14	Channel Flame Conveyor	36" x 30'
P15	Portable Radial Stacking Conveyor	30" x 80'
P16	Telestacker Conveyor	30" x 120'

**Response to DHEC Questions and Comments**  
**E-Mail – Davis/DHEC to Williams/Luck Stone and Wike/GEL**  
**Page 2**

Equip ID	Description	Dimensions
P17	Double Deck Screen	6' x 20'
P17a	Under Screen Conveyor	48" x 32'

- To confirm, each crusher, screener, and conveyor has a wet suppression spray nozzle associated with it and not only water carryover? Luck Stone confirms that each crusher, screener, and conveyor is equipped with wet suppression spray nozzles.
- Each piece of equipment listed involving the crushing, conveying, and screening are at 550 TPH. Is this because of the potential capacity of the crusher's throughput? Luck Stone has conservatively assumed that all equipment has the same potential capacity as the jaw crusher.
- Please provide what the wash process equipment consists of. As documented in Emissions Assumptions and Calculation I of the August 2019 Construction Permit Application, the wash plant will be a totally wet process, that is not expected to be a source of air emissions. The wash plant will consist of the following equipment:
  - Belt Feeder;
  - Transfer Conveyor;
  - Wash Plant;
  - Chip Conveyor;
  - Course Conveyor;
  - Intermediate Conveyor; and
  - Sand Conveyor.

Hey Matt,

Thank you for the information.

To recap our phone conversation from earlier today, Title V does not have a National Ambient Air Quality Standard for PM and only for PM10 and PM2.5. Because of this, there is no Title V limit to avoid for PM. Should the facility wish to avoid PSD, a 250.0 TPY limit will need to be requested for PM and PM10. To avoid Title V, a PM10 limit must be requested that is below 100.0 TPY. We appreciate you clarifying this for us. Luck requests a PSD Avoidance Limit for PM and PM10 to below 250 tpy. Additionally, Luck Stone requests a Title V Avoidance Limit for PM10 to below 100 tpy. Luck Stone seeks to avoid PSD for all pollutants and to avoid Title V for all pollutants.

Additionally, Please confirm if the facility is in agreement to suspend the air permitting review clock while all other bureaus are reviewing their respective applications. Luck Stone agrees to suspend the time limits, since the Mining Division plans to hold all public meetings at the same time.

Thank you again,

**Lance Davis**

Permit Writer, General Permitting Section  
**S.C. Dept. of Health & Environmental Control**

**Bureau of Air Quality - Air Permitting Division**

Office: (803) 898-7220

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[Redacted]

---

**From:** Matthew Wike <matthew.wike@gel.com>  
**Sent:** Friday, September 20, 2019 11:59 AM  
**To:** Davis, Lance <davisml@dhec.sc.gov>  
**Cc:** markdwilliams@luckcompanies.com <markdwilliams@luckcompanies.com>  
**Subject:** RE: Luck Stone - Chester Quarry Air Permit Application (0640-0080-CA)

\*\*\* Caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. \*\*\*

Lance

Please find enclosed our responses to your comments/questions below.

Please let us know if you have any more questions.

Thanks

Matt

**Matthew W. Wike, P.E.**



2040 Savage Road, Charleston, SC 29407 | P.O. Box 30712, Charleston, SC 29417

Cell: 843.697.2205 | Office: 843.769.7378 x4489

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**From:** Davis, Lance <davisml@dhec.sc.gov>  
**Sent:** Friday, September 13, 2019 11:36 AM  
**To:** Matthew Wike <matthew.wike@gel.com>  
**Cc:** markdwilliams@luckcompanies.com  
**Subject:** Re: Luck Stone - Chester Quarry Air Permit Application (0640-0080-CA)

Hello Matt and good morning,

I am in the process of reviewing the Luck Stone - Chester Quarry air permit application (0640-0080-CA) and have some questions and comments:

- Under the Emissions Assumptions and Calculations, a 100.0 TPY limit for PM and PM10 as a federally enforceable limit is proposed. Because the operation is not considered one of the 28 source categories, PM may operate at 250.0 TPY before it reaches the PSD threshold. Was a 250.0 TPY federally enforceable limit intended instead of the 100.0 TPY for PM?
- In the aggregation of the emissions, fugitive emissions from stock piles and loading are included. The operation is not considered one of the 28 source categories, so fugitive emissions do not need to be included. I will still provide these in the statement of basis to provide more information.
- PM10 modeling is not required as quarry operations are modeled on a piece-by-piece basis. However, the modeling submittal has been submitted to modeling for review.
- Please provide the dimensions (as detailed in 60.676(a)1 and 60.676(a)2) of each conveyor and screener.
- To confirm, each crusher, screener, and conveyor has a wet suppression spray nozzle associated with it and not only water carryover?
- Each piece of equipment listed involving the crushing, conveying, and screening are at 550 TPH. Is this because of the potential capacity of the crusher's throughput?
- Please provide what the wash process equipment consists of.

Please don't hesitate to get in touch if you have any questions. Thank you for your help with this project.

Sincerely,

**Lance Davis**

Permit Writer, General Permitting Section  
**S.C. Dept. of Health & Environmental Control**

**Bureau of Air Quality - Air Permitting Division**  
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<b>STANDARD NO. 2 - AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)</b>						
<b>Emission Point ID</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>Lead</b>
V1	0.297	--	--	--	--	--
V2	0.025	--	--	--	--	--
V3	0.407	--	--	--	--	--
V4	0.025	--	--	--	--	--
V5	0.407	--	--	--	--	--
V6	0.025	--	--	--	--	--
V7	0.025	--	--	--	--	--
V8	0.025	--	--	--	--	--
V9	0.025	--	--	--	--	--
V10	0.025	--	--	--	--	--
V11	0.297	--	--	--	--	--
V12	0.025	--	--	--	--	--
V13	0.025	--	--	--	--	--
V14	0.025	--	--	--	--	--
V15	0.025	--	--	--	--	--
V16	0.025	--	--	--	--	--
V17	0.025	--	--	--	--	--
V18	0.025	--	--	--	--	--
V19	0.025	--	--	--	--	--
V20	0.025	--	--	--	--	--
V21	0.025	--	--	--	--	--
V22	0.025	--	--	--	--	--
V23	0.025	--	--	--	--	--
V24	0.407	--	--	--	--	--
V25	0.025	--	--	--	--	--
V26	0.055	--	--	--	--	--
V27	0.044	--	--	--	--	--
V28	0.009	--	--	--	--	--
<b>FACILITY TOTAL</b>	<b>2.423</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

<b>STANDARD NO. 2 AND 7 - EXEMPTED AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)</b>						
<b>Emission Source</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>Lead</b>
Customer Roads	0.23	0.02	--	--	--	--
Haul Roads	0.09	0.01	--	--	--	--
Material Storage	0.31	0.04	--	--	--	--
Mining and Material Handling	--	0.35	--	--	--	--
<b>FACILITY TOTAL</b>	<b>0.63</b>	<b>0.42</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

**EMISSION POINT DESCRIPTIVE INFORMATION**

<b>Emission Point ID</b>	<b>Source Identification &amp; Description</b>	<b>Date Installed (Modified)</b>	<b>Status</b>	<b>Other</b>
Fugitive	Customer Roads	2019	Exempt Std 2, 7: PM <sub>10</sub> , PM <sub>2.5</sub> <1.14 lb/hr	
	Haul Roads	2019	Exempt Std 2, 7: PM <sub>10</sub> , PM <sub>2.5</sub> <1.14 lb/hr	
	Material Storage (8 storage piles)	2019	Exempt Std 2, 7: PM <sub>10</sub> , PM <sub>2.5</sub> <1.14 lb/hr	
[Individual IDs are listed below:]	Mining and Material Handling (individual sources are listed below)	2019	Exempt Std 2: PM <sub>2.5</sub> <1.14 lb/hr	
V1	Portable 3055 Jaw Plant (P1)	2019	Exempt Std 2: PM <sub>2.5</sub> <1.14 lb/hr	Mining and Material Handling
V2	Under Jaw Conveyor	2019		
V3	52 x 20 VGF Screen	2019		
V4	Under Grizzly Reject Conveyor	2019		
V5	Triple Deck Screen	2019		
V6	Triple Deck Screen Conveyor	2019		
V7	Triple Deck Screen Conveyor	2019		
V8	Triple Deck Screen Conveyor	2019		
V9	Triple Deck Screen Feed Conveyor	2019		
V10	Triple Deck Screen Under Conveyor	2019		
V11	Kodiak Cone Crusher	2019		
V12	Under Cone Conveyor	2019		
V13	Stackable Plus Conveyor	2019		
V14	Stackable Plus Conveyor	2019		
V15	Stackable Plus Conveyor	2019		
V16	Stackable Plus Conveyor	2019		
V17	Stackable Plus Conveyor	2019		
V18	Portable Radial Stacking Conveyor	2019		
V19	Pinnacle Conveyor	2019		
V20	Transfer Conveyor	2019		
V21	Channel Flame Conveyor	2019		
V22	Portable Radial Stacking Conveyor	2019		
V23	Telestacker Conveyor	2019		
V24	Double Deck Screen	2019		
V25	Under Screen Conveyor	2019		
V26	Final Product Truck Loading	2019		
V27	Drilling inside the Quarry	2019		
V28	Truck Loading at the Quarry	2019		

**VOLUME SOURCE PARAMETERS**

Emission Point ID	Date Last Modeled	Location (UTM)		Source Release Height (ft)	Horizontal Dimension $\sigma_y$ (ft)	Vertical Dimension $\sigma_z$ (ft)	Distance To Property Line (ft)
		East (M)	North (M)				
V1	9/20/19	485783	3843128	10.5	3.41	3.48	(1)
V2	9/20/19	485783	3843128	10	0.47	2.33	(1)
V3	9/20/19	485783	3843128	10	0.39	2.33	(1)
V4	9/20/19	485783	3843128	11.5	0.58	1.63	(1)
V5	9/20/19	485749	3843105	11.8	2.91	3.60	(1)
V6	9/20/19	485749	3843105	13	0.47	0.93	(1)
V7	9/20/19	485749	3843105	11	0.47	0.47	(1)
V8	9/20/19	485749	3843105	10	0.47	0.93	(1)
V9	9/20/19	485749	3843105	7	0.47	0.47	(1)
V10	9/20/19	485749	3843105	7	0.47	0.47	(1)
V11	9/20/19	485753	3843095	11.5	1.40	3.95	(1)
V12	9/20/19	485753	3843095	5.5	0.47	1.16	(1)
V13	9/20/19	485782	3843133	6.5	0.70	0.70	(1)
V14	9/20/19	485772	3843133	9.5	0.70	2.09	(1)
V15	9/20/19	485746	3843106	6.5	0.70	0.23	(1)
V16	9/20/19	485746	3843099	7	0.70	0.47	(1)
V17	9/20/19	485756	3843099	10	0.70	0.93	(1)
V18	9/20/19	485734	3843111	5	0.58	0.93	(1)
V19	9/20/19	485774	3843137	10	0.70	0.93	(1)
V20	9/20/19	485745	3843104	9.5	0.93	2.09	(1)
V21	9/20/19	485739	3843103	7	0.70	0.47	(1)
V22	9/20/19	485737	3843121	4.5	0.58	0.70	(1)
V23	9/20/19	485741	3843076	9	0.58	2.33	(1)
V24	9/20/19	485772	3843133	11	2.67	3.26	(1)
V25	9/20/19	485772	3843133	11	0.47	1.40	(1)
V26	9/20/19	485714	3843092	6	1.16	0.93	(1)
V27	9/20/19	486151	3842887	22.5	0.58	3.49	(1)
V28	9/20/19	486145	3842884	8	1.16	0.93	(1)

1) See modeling files.

**AERMOD/AERMAP SPECIFICATIONS TABLE**

<b>MET DATA <sup>(1)</sup></b>	UZA-GSO 2012-16 [Surface = Rock Hill, SC (669 ft MSL); Upper Air = Greensboro, SC]										
<b>NED TERRAIN FILES</b>	Chester County										
<b>PROJECTION DATUM</b>	NAD27	<input type="checkbox"/>		NAD83	<input checked="" type="checkbox"/>		WGS-84	<input type="checkbox"/>		NWS-84	<input type="checkbox"/>
<b>RURAL or URBAN?</b>	Rural	<input checked="" type="checkbox"/>		Urban	<input type="checkbox"/>						
<b>ELEVATIONS EXTRACTED</b>	Buildings	<input type="checkbox"/>		Sources	<input checked="" type="checkbox"/>		Tanks	<input type="checkbox"/>		Receptors	<input checked="" type="checkbox"/>

1) The ADJ\_U\* data set was used.

**HISTORY**

<b>Date</b>	<b>By</b>	<b>Reason</b>	<b>Description</b>
9/20/19	SWS	C/P	PM <sub>10</sub> emissions from Mining and Material Handling were modeled with AERMOD. Other PM <sub>10</sub> emissions and all PM <sub>2.5</sub> emissions are below exemption level.