



<b>Company Name:</b>	River Bend Aggregates, LLC	<b>Permit Writer:</b>	Mareesa J Singleton
<b>Agency Air Number:</b>	2060-0665	<b>Date:</b>	July 11, 2024
<b>Permit Number:</b>	CP-50000137 v1.0		

**DATE APPLICATION RECEIVED:** November 02, 2023

**PROJECT DESCRIPTION**

Synthetic minor construction permit application for the construction of equipment associated with a new greenfield granite quarry and a 550 tons per hour (tph) processing plant. The processing plant will consist of crushers, screens, and conveyors. The facility will also install two exempt water diesel fired pumps (100 Hp and 60Hp). The pumps are portable, non-road engines and will not remain at a location for more than twelve (12) consecutive months and therefore are not a stationary source.

**FACILITY DESCRIPTION:** (SIC CODE: 1423/NAICS CODE: 212313)

Granite quarry and processing plant.

**OPERATING PERMIT STATUS:** New Facility; The facility will be granted coverage under the General Conditional Major Operating Permit for Nonmetallic Mineral Processing Plants with the request for an operating permit.

**EMISSIONS**

- Truck loading
  - Uncontrolled and controlled PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from 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, 1995 edition, August 2004 update.
  - 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.
  
- Drilling and truck loading
  - 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, 1995 edition, August 2004 update.
  - 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. 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. Therefore, it was conservatively assumed that primary and secondary crushing emissions were equal to tertiary crushing.



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- Material Storage
  - 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 ≥ 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)
- Transportation (Haul and Customer Roads worst case)
  - Uncontrolled emissions from the 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 variables 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, 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 days with at least 0.01 inches of precipitation during the averaging period. (P = 109 days/yr as taken from <https://www.currentresults.com/Weather/South-Carolina/average-yearly-precipitation.php#c> for Columbia, South Carolina)
  - Controlled emissions from the roads assume a control efficiency of 90% for keeping the roads wet suppressed during transportation activities.

PROJECT EMISSIONS						
Pollutant	Uncontrolled*		Controlled*		PTE	
	lb/hr	TPY	lb/hr	TPY	lb/hr**	TPY
PM	99.94	437.7	8.162	35.75	82.26	<250.0
PM <sub>10</sub>	35.29	154.5	2.828	12.39	30.05	<100.0
PM <sub>2.5</sub>	5.078	22.24	0.4230	1.853	4.551	19.93

\*Includes emissions from fugitive sources. \*\* Does not include emissions from fugitive sources since the facility is not one of the 28 source categories required to include fugitive emissions in its potential to emit.



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FACILITY WIDE EMISSIONS			
Pollutant	Uncontrolled	Controlled	PTE
	TPY	TPY	TPY
PM	437.7	35.75	<250.0
PM <sub>10</sub>	154.5	12.39	<100.0
PM <sub>2.5</sub>	22.24	1.853	19.93

**SOURCE TEST REQUIREMENTS**

In accordance with 40 CFR 60 Subpart 000

**REGULATIONS**

**Applicable - Section II(E) (Synthetic Minor)** – The facility has uncontrolled PM emissions above the major source threshold of 250.0 tons per year (tpy) for PSD and PM<sub>10</sub> emissions above the Title V major source threshold of 100.0 tpy. The facility is requesting a PSD avoidance limit of less than 250.0 tpy of PM and a Title V avoidance limit of less than 100.0 tpy of PM<sub>10</sub>.

Synthetic Minor Limits					
Permit ID	Equipment ID	Permit Issue Date	Pollutant	Emission Limit (TPY)	Explanation
CP-50000137 v1.0	Facility Wide	This Permit	PM	Less than 250.0	PSD Avoidance
CP-50000137 v1.0	Facility Wide	This Permit	PM <sub>10</sub>	Less than 100.0	Title V Avoidance

**Not Applicable - Standard No. 1 (Emissions from Fuel Burning Operations)** – The facility does not have any fuel burning operations.

**Not Applicable - Standard No. 3 (state only) (Waste Combustion and Reduction)** – The facility does not conduct waste combustion or reduction.

**Applicable - Standard No. 4 (Emissions from Process Industries)**

Section VIII:



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Process	Max Process Weight Rate (tons/hr)	PM Allowable at Max (lb/hr)	Uncontrolled Emissions PM (lb/hr)	Controlled Emissions PM (lb/hr)	Monitoring
Aggregate Processing	550	70.1	82.27	6.41	Operation of the wet suppression systems in accordance with this permit and applicable regulations

Section IX: The sources are subject to 20% opacity limit.

Section X: The facility is subject to this Section for all non-enclosed operations and is required to develop and implement a Department approved facility wide fugitive dust control plan.

**Not Applicable - Standard No. 5 (Volatile Organic Compounds)** – The facility was not in existence until after July 1, 1979, and July 1, 1980, and does not have any permitted VOC emissions.

**Not Applicable - Standard No. 5.2 (Control of Oxides of Nitrogen (NOx))** - The exempt water pumps are not a stationary source.

**Not Applicable - Standard No. 7 (Prevention of Significant Deterioration)** - The facility is not one of the 28 specifically listed source categories. Therefore, its major source threshold is 250.0 tpy. The facility has uncontrolled PM emissions above this threshold, but the facility is requesting a PSD avoidance limit of less than 250.0 tpy of PM.

PSD Limits					
Permit ID	Equipment ID	Permit Issue Date	Pollutant	Emission Limit (TPY)	Explanation
CP-50000137 v1.0	Facility Wide	This Permit	PM	Less than 250.0	PSD Avoidance

**Applicable - 61-62.6 (Control of Fugitive Particulate Matter)** – The facility is subject and shall develop and implement a Department approved facility wide fugitive dust control plan.

**40 CFR 60 and 61-62.60 (New Source Performance Standards (NSPS))**



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Applicable - Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants): The crushers, screens, conveyors, and bin are subject.

Not Applicable - Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines): The facility will have a 100 Hp and a 60 Hp water exempt pumps. They will not be subject to this Subpart because the source is a non-road, non-stationary engine.

40 CFR 61 and 61-62.61 (National Emission Standards for Hazardous Air Pollutants (NESHAP))

Not Applicable - This project does not emit pollutants from processes subject to this standard.

40 CFR 63 and 61-62.63 (National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories)

Not Applicable - Subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines): The facility will have a 100 Hp and 60 Hp exempt water pumps. They will not be subject to this Subpart because the source is a non-road, non-stationary engine.

Not Applicable - 61-62.68 (Chemical Accident Prevention Provisions) - The facility does not store or use chemicals subject to 112(r) above the threshold quantities described by the regulation.

Not Applicable - 40 CFR 64 (Compliance Assurance Monitoring) - The facility is not a Title V facility.

AMBIENT AIR STANDARDS REVIEW

Applicable - Standard No. 2 (Ambient Air Quality Standards) - While each of the modeled emission points would qualify for exemption from modeling because the PM emissions are less than the exemption emission rate, the facility chose to include them in a modeling compliance demonstration. The two water pumps (emission point ID's SP101 and WP101) are exempt for all emissions since they are portable, "non-road" internal combustion engines. The Haul Roads emission point ID is categorically exempt (the roads will be maintained using a dust control plan [wet suppression] to minimize fugitive dust emissions). See modeling summary dated November 20, 2023, for more details.

Not Applicable - Standard No. 8 (state only) (Toxic Air Pollutants) - There are no Standard 8 emissions from this project. See modeling summary dated November 20, 2023, for more details.

PERIODIC MONITORING



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ID	Regulatory Requirement	Measured Parameter	Required Monitoring Frequency	Reporting Frequency	Monitoring Basis/ Justification
West Suppression System	Discharge Nozzle	Water Flow to Discharge Nozzle	Monthly*	None (Onsite)	40 CFR 60.674(b) 40 CFR 60.676(b)(1)

\*Condition B.11 of the permit is more stringent and requires weekly monitoring.

**PUBLIC NOTICE**

This construction permit(s) has undergone a 30-day public notice period, in accordance with SC Regulation 61-62.1, Section II(N) and SC Regulation 61-62.1, Section II(E), to establish a PSD avoidance limit of less than 250.0 tons per year of PM and a Title V avoidance limit of less than 100.0 tons per year of PM<sub>10</sub>. The comment period was open from December 7, 2023 to January 26, 2024, and the draft permit was placed on the BAQ website during that time period. Comments were received during the comment period.

Additionally, a public meeting and hearing took place on January 11, 2024.

**CHANGES FOLLOWING PUBLIC NOTICE PERIOD**

- **Statement of Basis**
  - Added emission from drilling.
- **Permit**
  - Removed the requirement to submit algorithms to calculate actual PM and PM<sub>10</sub> emission rates with the initial report from permit conditions B.3 and former condition B.4 (new condition B.5).
  - Added the algorithms to calculate actual PM and PM<sub>10</sub> emission rates as permit conditions B.4 and B.6.

**SUMMARY AND CONCLUSIONS**

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.