GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

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NARRATIVE

TO: Hamid Yavari

FROM: Wei-Wei-Qiu

DATE: October 6, 2022

Facility Name:	**Georgia Stone Products - Jefferson Quarry**
AIRS No.:	15700068
Location:	Jefferson, GA (Jackson County)
Application #:	SIP-28352
Date of Application:	March 18, 2022 (Received on April 6, 2022)

Purpose of Application

On April 6, 2022, Jefferson Quarry submitted SIP Air Permit Application No. 28352 proposing to modify its existing quarry located in Jefferson, Jackson County, Georgia. The proposed modification includes: (1) increasing production in Finishing Plant (beginning with Feed 2, 3 & 4) to 1,000 ton-per-hour (TPH); (2) increasing customer sales to 1,000 TPH and 24 hours per day; (3) expanding paved customer road to 1,900 feet with fixed water sprays, and unpaved road to 2,030 feet with dust control provided by water truck; and (4) operating a 350 TPH portable primary circuit consisting of one hopper, one feeder, one jaw crusher and two conveyors for less than 12-consecutive months.

Currently this quarry is regulated by Air Quality Permit No. 1423-157-0068-S-01-0 issued on December 18, 2020. This facility's production activities include pit drilling, pit loading, crushing, screening, material conveying/storage, truck loading and unloading and associated pollution controlling. Production equipment includes hopper, feeder, trucks, crushers, screens, conveyors and wet suppression systems and water spray trucks. This quarry also has an onsite granite aggregate and sand sale operation.

Equipment List

The table below is the duplication of the updated Attachment A to the Air Quality Permit Amendment No. 1423-157-0068-S-01-1 proposed for the facility modification described in the Application No. 28352.

Process[(1)]	Source Code	Controls	40 CFR 60 Subpart OOO Applicability	
			Prior to April 22, 2008	On or After April 22, 2008
Dump Hopper	DH1	None		Yes
Grizzly Feeder	F1	Water Spray		Yes
Jaw Crusher (50"x62")	CR1	Water Spray		Yes
Conveyor No. 1 (60")	C1	Water Spray		Yes

Process[(1)]	Source Code	Controls	40 CFR 60 Subpart OOO Applicability	
			Prior to April 22, 2008	On or After April 22, 2008
Conveyor No. 2 (48")	C2	Water Carryover		Yes
Conveyor No. 3 (48")	C3	Water Carryover		Yes
Surge Stockpile Fed by Conveyor No. 3	C3 To SP	Water Carryover	n/a	n/a
Surge Tunnel Feeders	F2, F3, F4	Water Carryover		Yes
Conveyor No. 10 (48")	C10	Water Spray		Yes
Screen No. 1 (8'x20' Quad Deck)	SC1	Water Carryover		Yes
Rip Rap Stockpile Fed by Screen No. 1	SC1 TO SP	None	n/a	n/a
Conveyor No. 11 (48")	C11	Water Spray		Yes
Conveyor No. 12 (48")	C12	Water Carryover		Yes
Bin No. 1	B1	Water Carryover		Yes
Feeder No. 5	F5	Water Carryover		Yes
Cone Crusher (CS660)	CR2	Water Spray		Yes
Conveyor No. 13 (42")	C13	Water Spray		Yes
Screen No. 2 (8x24 Triple Deck)	SC2	Water Carryover		Yes
Screen No. 3 (8x24 Triple Deck)	SC3	Water Carryover		Yes
Conveyor No. 14A (30")	C14A	Water Spray		Yes
Conveyor No. 14 (30")	C14	Water Spray		Yes
Bin No. 2	B2	Water Carryover		Yes
Feeder No. 6	F6	Water Carryover		Yes
Cone Crusher (CH660)	CR3	Water Spray		Yes
Conveyor No. 15 (42")	C15	Water Spray		Yes
Conveyor No. 16 (30")	C16	Water Carryover		Yes
Conveyor No. 17 (30")	C17	Water Carryover		Yes
Conveyor No. 18 (36")	C18	Water Carryover		Yes
GAP Stockpile Fed by Conveyor No. 18	C18 TO SP	Water Carryover	n/a	n/a
Conveyor No. 19 (30")	C19	Water Spray		Yes
34 Stockpile Fed by Conveyor No. 19	C19 TO SP	Water Carryover	n/a	n/a
Conveyor No. 20 (30")	C20	Water Spray		Yes
Conveyor No. 21 (42")	C21	Water Spray		Yes
Conveyor No. 22 (42")	C22	Water Spray		Yes
Conveyor No. 23 (30")	C23	Water Carryover		Yes
Screening Stockpile Fed by Conveyor No. 23	C23 TO SP	Water Carryover	n/a	n/a
Conveyor No. 24 (30")	C24	Water Carryover		Yes
Conveyor No. 25 (36")	C25	Water Spray		Yes
Screen No. 4 Wash Screen (8x24 Triple Deck)	SC4	Wet Process		Yes
Conveyor No. 26 (30")	C26	Wet Process		Yes
Conveyor No. 27 (36")	C27	Wet Process		Yes
57 Stockpile Fed by Conveyor No. 27	C27 TO SP	Water Carryover		Yes
Conveyor No. 28 (30")	C28	Wet Process		Yes

Process[1]	Source Code	Controls	40 CFR 60 Subpart OOO Applicability	
			Prior to April 22, 2008	On or After April 22, 2008
Conveyor No. 29 (30")	C29	Wet Process		Yes
No. 7 Stockpile Fed by Conveyor No. 29	C29 TO SP	Wet Process	n/a	n/a
Conveyor No. 30 (30")	C30	Wet Process		Yes
Conveyor No. 31 (30")	C31	Wet Process		Yes
89 Stockpile Fed by Conveyor No. 31	C31 TO SP	Wet Process	n/a	n/a
Sand Screw No. 1 (44"x32')	SRW1	Wet Process		Yes
Conveyor No. 32 (30")	C32	Wet Process		Yes
Conveyor No. 33 (30")	C33	Wet Process		Yes
Washed Sand Stockpile Fed by Conveyor No. 33	C33 TO SP	Wet Process	n/a	n/a
Drilling in Pit	PITDRILL	Water Spray	n/a	n/a
Loading in Pit	PITLOAD	Water Carryover	n/a	n/a
Portable Hopper No. 1 (350 TPH)	PH1	None		Yes
Portable Grizzly Feeder No. 1 (350 TPH)	PF1	Water Spray		Yes
Portable Jaw Crusher No. 1 (350 TPH)	PCR1	Water Spray		Yes
Portable Conveyor No. 1	PC1	Water Spray		Yes
Portable Conveyor No. 2	PC2	Water Carryover		Yes
Stockpile Fed by Portable Conveyor No. 2	PC2 to SP	Water Carryover		Yes

[1] This table contains information regarding specific emissions points and was created as a reference for certain other Conditions in this Permit (or Permit Amendment). It is not intended to be a comprehensive list of all air pollution sources at this facility and may not include every minor or fugitive emission source. Future minor modifications or additions at this facility may be exempted from permitting by the Georgia Rules for Air Quality Control and may occur without causing this Attachment to be updated.

[2] The control device column is intended to identify emission controls. Sources identified as "water carryover" rely on water moisture previously applied by required water sprays; and "wet process" requires saturation of aggregates with water.

[3] The NSPS column is intended to distinguish between "affected facilities" and "existing facilities" or "exempt facilities". Sources identified as n/a are those types of process equipment/operation not regulated by NSPS Subpart OOO. Hence the NSPS limits do not apply regardless of the age of those types of process equipment/operation.

Emissions & Ambient Impact Modeling

Emissions of concern from this quarry after the proposed modification are PM/PM_{10}, i.e., dusts generated by drilling, crushing, screening, conveying, storage, loading and unloading, wind blowing and traffic. These PM/PM_{10} emissions are substantially abated via the use of a combination of wet suppuration, truck washing and coverage, as well as road paving and water spraying wherever feasible. The controlled potential and actual PM_{10} emissions were estimated by the company based on the capacities and operating hours of the process units listed in the application No. 28352, the applicable emission factors in AP-42, Subsection 11.19.2, *"Crushed Stone Processing & Pulverized Mineral Processing"*, and following Georgia EPD *Guideline for Modeling PM_{10} Ambient Concentration in Areas Impacted by Quarry Operation Producing Crushed Stone.*

The following table summarized the controlled facility wide actual and potential PM_{10} emissions as provide by the application No. 28352 of modified quarry. For details, please refer to the application.

Source	Controlled Actual Emissions[1]		Controlled Potential Emissions[2]	
	PM_{10}		PM_{10}	
	lb./hr.	ton/year	lb./hr.	ton/year
Rock Processing Units	5.27	16.36	5.27	23.1
Traffic/Roadway & Stockpile[3]	16.9	52.42	16.9	74.01
Sum--→	22.17	68.73	22.17	97.10

[1] Based on 6,205 hours per year
[2] Based on 8,760 hours per year

Application No. 28352 also included an ambient dispersion/impact modeling performed for the modified quarry. The modeling analyzed the impact of the facility/quarry wide potential PM_{10} emissions regarding National Ambient Air Quality Standards (NAAQS). According to the modeling, the total ambient impact of the quarry is 147.3 $\mu g/m^3$ if the portable processing plant is located at Scenario A location, or 146.4 $\mu g/m^3$ if the portable processing plant is located at Scenario B location. Bothe were lower than NAAQS' (150 $\mu g/m^3$). Air Protection Branch's Data & Modeling Unit (DMU) reviewed the modeling, and, in the attached memorandum, concluded that the modeling included with the application "shows compliance with the NAAQS and the Georgia Quarry Modeling Guideline." Then DMU recommended to issue a permit to the facility and the proposed modifications. For details, please refer to the attached memorandum dated August 11, 2022, from the Data & Modeling Unit.

Regulatory Applicability

PM/dust emissions from stationary point sources/processing equipment such as crushers, screeners, and conveyors are subject to the applicable PM and visible emission limits under Georgia Rules (e) and (b). These sources are expected to comply with the applicable PM and the visible emission limit of 40% opacity due to the use of wet suppression/water spray and other emission reduction measures wherever feasible and necessary.

PM emissions from area and moving sources at this facility such as drilling, loading, unloading, windblow and traffic are subject to Georgia Rule (n). Rule (n) limits the opacity of any fugitive emissions to 20% opacity and requires the facility to take reasonable precautions such as wet suppression as feasible to reduce such fugitive PM emissions.

This facility processes nonmetallic minerals as specified in 40 CFR Part 60, Subpart OOO, *Standards of Performance for Nonmetallic Processing Plants.* NSPS Subpart OOO applies to any affected facilities that commenced construction, modification, or reconstruction after August 31, 1983. Since all the process equipment listed in this application will be constructed after August 31, 1983, they are subject to NSPS Subpart OOO. Without using any designated PM/dust capture systems, the facility's crushing operations, screening operations, belt conveyor transfer points and any other affected processing units as specified in this NSPS standard are subject to the applicable fugitive/visible emission standards for affected facilities/sources constructed, modified, or reconstructed on or after April 22, 2008. These limits are more stringent than those in Georgia Rules (b) and (n). The Permittee also shall comply with the applicable testing, monitoring, reporting, and record keeping requirements under NSPS Subpart OOO.

The facility is expected to comply with the applicable emission limits in these rules via the use of a combination of wet suppuration, truck washing and coverage, as well as road paving wherever feasible.

Permit Conditions

Air Quality Permit Amendment No. 1423-157-0068-S-01-1 was proposed for the modification to the operation of the existing Jefferson Quarry as proposed by the application No. 28352.

New Conditions 4.4 thru 4.7, 9.7 and 9.8 were added to regulate the operation of the 350 TPH portable primary circuit consisting of one hopper, one feeder, one jaw crusher and two conveyors.

Among them, Conditions 4.5, 4.6, 4.7 and 9.8 allow the internal combustion engine(s) powering the 350 TPH portable primary circuit to be operated as a "nonroad engine(s)". To be considered as "nonroad engine(s)", the internal combustion engine(s) powering the 350 TPH portable primary circuit and its like-for-like replacement(s) if applicable is subject to applicable emission standards and operating requirements of 40 CFR Part 89, *"Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines."* The quarry is required to demonstrate via certification or performance testing that the engine(s) including their like-for-like replacement(s) if applicable is in compliance with the applicable emission standards under 40 CFR Part 89, Subpart B per 40 CFR 89.112.

In order be considered as a "nonroad engine(s)", the internal combustion engine(s) powering the 350 TPH portable primary circuit and its like-for-like replacement(s) if applicable shall be configured and operated to meet the following criteria of "nonroad engines" as defined in §§89.2 and 89.103 of 40 CFR Part 89:

"Nonroad engine means:

(1) Except as discussed in paragraph (2) of this definition, a nonroad engine is any internal combustion engine:

(i) In or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or

(ii) In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or

(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.

(2) An internal combustion engine is not a nonroad engine if:

(i) the engine is used to propel a motor vehicle, or a vehicle used solely for competition, or is subject to standards promulgated under section 202 of the Act; or

(ii) the engine is regulated by a federal New Source Performance Standard promulgated under section 111 of the Act; or

> *(iii) the 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 (or engines) 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. This paragraph does not apply to an engine after the engine is removed from the location."*

Consequently, to be considered as "nonroad engines" under 40 CFR Part 89, the internal combustion engine(s) powering the 350 TPH portable primary circuit and its like-for-like replacement(s) shall not remain onsite at this facility/site for more than 12 consecutive months including nonoperating time. Any like-for-like replacement engine(s) which will perform same or similar function as the engine(s) replaced will be included in calculating the consecutive time period.

Since the internal combustion engine(s) powering the 350 TPH portable primary circuit/portable processing plant and its like-for-like replacement(s) if applicable will be operated as "a nonroad engine(s)" as required by Conditions 4.5, 4.7, 4.6 and 9.8, it does not meet the definition of stationary engines under 40 CFR Part 60, Subpart IIII, *"Standards of Performance for Stationary Compression Ignition Internal Combustion Engines"*, or 40 CFR Part 63, Subpart ZZZZ, *"National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines."* Therefore, the engine(s) will not be subject to NSPS or NESHAP standards mentioned above.

The internal combustion engine(s) powering the 350 TPH portable primary circuit/portable processing plant and its like-for-like replacement(s) is subject to the fuel sulfur content limits in Georgia Rule 391-3-1-.02(2)(g) – *"Sulfur Dioxide"* and in 40 CFR § 1090.305. New Condition 4.6 incorporates the fuel sulfur limits. The internal combustion engine(s) powering the 350 TPH portable primary circuit/portable processing plant and its like-for-like replacement(s) shall comply with this limit.

New Condition 4.7 incorporates the applicable emission compliance certification requirements for internal combustion engines under CFR Part 89, Subpart B per 40 CFR 89.112.

To keep the ambient impact modeling for PM_{10} emissions mentioned above valid for sure, new Condition 9.7 limits the operational locations of the portable processing plant to the two locations identified in the modeling. This condition also requires the Permittee to notify the Division in writing to substantiate the effect on ambient air quality if any portable units identified are relocated and operated at other locations.

Current Conditions 9.2 and 9.3 have been updated to incorporate the new production rates, operating times, and lengths of paved and unpaved customer roads, as proposed by the application No. 28352, and used in the PM_{10} emission ambient impact modeling included with the application No. 28352 and approved by the Division.

Toxic Impact Assessment

The proposed facility/quarry modifications will not cause significant emissions of any toxic air pollutants. No toxic impact assessment is required.

Summary & Recommendations

Jefferson Quarry submitted the Application No. 28352 proposing to modify its existing quarry located in Jackson County which is an attainment area. The modification involves: (1) increasing production in Finishing Plant to 1,000 ton-per-hour (TPH); (2) increasing customer sales to 1,000 TPH and 24 hours per day; (3) expanding paved customer road to 1,900 feet with fixed water sprays, and unpaved road to 2,030 feet with dust control provided by water truck; and (4) operating a 350 TPH portable primary circuit consisting of one hopper, one feeder, one jaw crusher and two conveyors for less than 12-consecutive months. The facility is a synthetic minor source for PM_{10} emissions, since it uses a combination of operational capacity and time limits, wet suppression, truck coverage, as well as road paving wherever feasible to ensure the results of the ambient impact modeling for PM_{10} emissions to be acceptable.

In conclusion, I recommend issuing the proposed Air Quality Permit Amendment No. 1423-157-0068-S-01-1 for the modification to Jefferson Quarry as described in Application No. 28352. Public Advisory for this permit application expired on April 22, 2022. This facility is located within Northeast District Office - Athens. Application fee of $1,000 was paid on April 7, 2022.