

SUMMARY RESPONSE TO COMMENTS AND QUESTIONS

**South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management
Division of Mining and Solid Waste Management**

**Approval of Mine Operating Permit I-002297
Vulcan Construction Materials, LLC
Fairfield Quarry
January 26, 2021**

This Summary Report outlines specific issues, within the jurisdiction of the South Carolina Department of Health and Environmental Control (DHEC), considered in review of the application submitted for the proposed Fairfield Quarry on Old River Road (S-20-41) in Fairfield County. This Summary Report is being provided to address many of the issues raised by DHEC's Public Notice initiated on April 09, 2020 and the virtual Public Hearing held on August 27, 2020. This Summary Report is specific to DHEC's technical review for the Mine Operating Permit under the authority of the South Carolina Mining Act (Act).

In order to construct and operate the Fairfield Quarry and its associated process equipment, a National Pollutant Discharge Elimination System (NPDES) Permit and a Mine Operating Permit are required by state law. A NPDES Permit (SCG731558) was issued by DHEC on January 21, 2021. DHEC accepted comments on the Draft Mine Operating Permit following the public hearing through December 04, 2020. The approved mine permit, maps, reclamation plan, and this Summary Report are available on DHEC's website at www.scdhec.gov/publicnotices.

General overview: DHEC's Mining and Solid Waste Division has approved the mine operating permit after careful review of all information submitted by the applicant, as well as all comments received from governmental agencies and interested persons. The permit will require the mine operator to comply with the South Carolina Mining Act and the South Carolina Code of Regulations.

The South Carolina Mining Act: The legislative purpose of the Act is to provide that: (1) the usefulness, productivity, and scenic value of all lands and waters involved in mining within the state receive the greatest practical degree of protection and restoration; and that (2) no mining may be carried on in the state unless plans for the mining include reasonable provisions for protection of the surrounding environment and for reclamation of the area of land affected by mining.

The Act provides specific criteria for review of mine permit applications by DHEC. The Act does not supersede local zoning ordinances. Issues related to zoning (i.e., property value and industrial development) are under the jurisdiction of county and municipal planning departments and governed by zoning and land use regulations. DHEC has not been given the authority to consider the effect of a mining operation on property values. DHEC is required to evaluate the application in a timely manner and to consider relevant environmental issues.

Application for the Mine Operating Permit: DHEC received the Application for a Mine Operating Permit from Vulcan Construction Materials, LLC for the proposed Fairfield Quarry on March 18, 2020. An *Intent to Mine* notice was published in *The Voice of Fairfield County* newspaper on April 09, 2020 and April 16, 2020. The notice was mailed to adjacent landowners, government and regulatory agencies, and other interested parties.

In response to the Intent to Mine notice, DHEC received multiple requests to hold a public hearing. DHEC acknowledged that a public hearing would be held at a later date and that notice of the hearing would be provided at least thirty (30) days prior to the hearing date. DHEC requested supplemental information from the applicant.

On July 06, 2020, representatives from DHEC, the S.C. Department of Natural Resources, the applicant, and their consultant met on-site to conduct an inspection of the site and address any concerns. Representatives from DHEC also drove around the surrounding neighborhood and located the local church and roadways.

A virtual public hearing was held by DHEC on August 27, 2020. The *Notice of Public Hearing* was mailed to interested parties on July 23, 2020. The *Notice of Public Hearing* was published in *The Voice of Fairfield County* newspaper on July 23, 2020 and July 30, 2020. The comment period was extended through September 11, 2020.

Permit Application Specifications: Vulcan Construction Materials, LLC is permitted to mine granite. The permitted area of this mine operation composes a tract of land totaling 924.1 acres (a portion of Fairfield County TMS #110-00-00-004.000). The current topography of the permitted area is approximately 300-480ft above mean sea level (msl). The operation is permitted to excavate to a maximum depth of -30ft msl or ~400ft below ground surface (measured from the original ground surface elevation to final elevation at that location).

Land within a mine operating permit is designated according to the permitted use (*Affected acres, Future Reserves, and Buffer Areas*). The **924.1 acre Permitted area** comprises *Affected Areas, Future Reserves, and Buffer Areas*. The following list provides an area description, type of activities, and designated acreage for each component of the Permitted area:

1) **Affected Area** – **201.8 acres**. The affected area comprises all lands to be disturbed by mining activities (pit, sediment basins, haul roads, berms, processing area, overburden storage piles, etc.). Of the 201.8 affected acres, **201.8 acres are currently bonded and may be affected**. The affected area is subject to reclamation requirements.

2) **Future Reserves** – **522.9 acres**. Prior to the initiation of activity in future reserves, the operator shall submit detailed mine and reclamation plans to DHEC for approval. Potential plans for future reserves include, but are not limited to, pit expansion and additional overburden storage areas.

3) **Buffer area** – **199.4 acres**. Buffer is land not to be disturbed by mine activity. Buffers are used to lessen potential effects to surrounding land (setbacks to property boundaries, public roads, wetlands, wildlife, etc.). Any land disturbance not consistent with accepted silviculture practices in the buffer areas would require the Mine Operating Permit to be modified *prior* to any such disturbance. Appropriate silviculture practices may be utilized to manage upland buffer areas allowing the thinning of timber under the direction of a SC Licensed Professional Forester.

Mine Reclamation: The Act defines reclamation as the reasonable rehabilitation of affected land (mined or otherwise disturbed) to a useful purpose and the protection of natural resources in surrounding areas. The Act does not require the land disturbed by mining to be returned to its original state. Reclamation of the mine to a specific land use is based on many factors; including, but not limited to: the method of mining, the material mined, the geology and topography of the area, size, surrounding land uses, and the desired use for the former mine site. Lakes or ponds, grassland, woodland, cropland, parks or recreational developments, or residential or commercial developments may be acceptable reclamation objectives.

Vulcan Construction Materials, LLC is currently permitted to affect 201.8 acres. A reclamation bond has been submitted based on the requirements of the Act (Section 48-20-110) and Regulations (R.89-200). The reclamation bond will remain in effect with DHEC until the mine site has been reclaimed to regulatory standards and released. Reclamation bonds are in place to ensure proper reclamation of disturbed areas (it does not serve as financial assurance for potential off-site impacts).

The approved reclamation plan states the site will be reclaimed to pond/lake and grasslands. Unconsolidated material shall be sloped no steeper than a 3H:1V gradient and will be vegetated. Final pond depth shall be greater than 4ft on, at least, 50% of the water surface. Other disturbed areas (e.g., plant, processing area) will be graded and vegetated as grassland. Once all mining has ended and the site meets reclamation standards, the mining permit would be canceled; at that time the Mining & Reclamation Program has no further jurisdiction over land use.

Groundwater Availability:

DHEC considers the potential effects of mining activities on the quantity of groundwater available to nearby water supply wells and lakes/ponds. The pumping of water from the water table is expected at Fairfield Quarry. The maximum depth of allowed excavation is 400 feet below ground level. This depth, within competent granitic bedrock, will limit the lateral extent of the cone of depression, narrowing the area of influence. The Mine Operating Permit requires the operator to install no fewer than four (4) monitoring wells along the eastern boundary of the site in order to monitor any potential effects mine dewatering may have on adjacent properties. These monitoring well locations are strategically placed between the source of dewatering and nearby residences, in order to give a clear understanding of any effects dewatering may have on residential wells. Given the competent nature of granitic bedrock and the distances from the pit to nearby residences, it is not anticipated that the pumping of water from the Fairfield Quarry will impact the quantity of water in nearby wells.

However, if a water supply well complaint is received, DHEC is responsible for determining if dewatering activities at the mine have caused the problem. If DHEC determines the mine caused the problem, the operator is responsible for repairing, deepening, or re-drilling the affected well(s) and to supply the affected household(s) with bottled water until access to groundwater is restored. This will be at no expense to the landowner.

A water well survey form is available on the DHEC Fairfield Quarry webpage (www.scdhec.gov/Vulcan). We strongly encourage all local residents with a water well to fill out as much information as they can and return the form to DHEC for our review.

DHEC received comments from the general public that suggested the operator perform annual piezometer measurements on nearby water wells. DHEC does not recommend that the operator hire a third-party consultant to conduct piezometer readings or any other measurements within drinking water wells. Breaking the hygiene seal on a drinking water well may introduce bacteria and other harmful organisms, and the risks outweigh any benefits from measurements we may receive from such an investigation.

Surface Water:

Discharge Monitoring and Sediment Control: Fairfield Quarry is permitted to discharge wastewater and stormwater through outfall 001 in accordance with the *NPDES General Permit for*

Discharges Associated with Nonmetal Mineral Mining Facilities (SCG731558). All discharges will be routed to the west in a tributary of Horse Branch Creek. Discharges from the outfall will be subject to numeric effluent limits (total suspended solids and pH) and other permit requirements that are protective of human health and the environment.

The operator has indicated that during operations, water from the processing plant will be routed in a closed circuit system through the collection pond where the clean water is then recycled for use in the processing plant. Under normal rainfall conditions, this closed circuit system will operate without discharging into waters of the state. However, in extreme or prolonged rainfall events, there is a potential for the water volume to exceed the capacity of the wash circuit system. Under these circumstances any excess water may be discharged into waters of the state through the regulated outfall 001.

The primary control for sediment will be to direct, as feasible, all stormwater (runoff from rainfall) from the excavated area into the pit. This water may be used in the processing plant or discharged through an outfall regulated by the NPDES permit. The NPDES permit requires the operator to have proper Best Management Practices (BMPs) and a Stormwater Pollution Prevention Plan (SWPPP) in place. Furthermore, the operator shall operate the Fairfield Quarry in accordance with the *Erosion and Sediment Control Maps* (dated February 19, 2020) and the approved mine maps.

The NPDES general permit requires that stormwater outfalls have appropriate BMPs to minimize the discharge of pollutants. The permit also requires benchmark monitoring of stormwater discharges. Benchmark monitoring involves collecting a quarterly sample during the first 30 minutes of the stormwater discharge and analyzing it for Total Suspended Solids. If the average of the four quarterly benchmark samples is greater than 100 mg/l Total Suspended Solids, then the operator must either improve their BMP's or document that it is not feasible to improve their BMP's. If the average of the four quarterly benchmark samples is less than 100 mg/l Total Suspended Solids, benchmark sampling is no longer required during this permit term for that outfall.

Traffic: A common concern expressed is the increase of truck traffic hauling mined material. The SC Mining Act only authorizes DHEC to regulate truck traffic on roads inside the permit boundary. DHEC can only evaluate impacts to public roads as it pertains to the physical effects from the mining operation (e.g. blasting, undermining, etc.).

Other concerns with road systems, including use of the roads and general “wear and tear”, are under the jurisdiction of S.C. Department of Transportation (SCDOT), S.C. Public Service Commission, or Fairfield County Department of Public Works. The applicant is required to obtain an encroachment permit from SCDOT before utilizing the haul road. SCDOT has reviewed the application and has approved the permit on engineering merits, and is only awaiting State and County approval before issuing the encroachment permit.

Blasting: All public roads will be greater than 1,000 feet from any approved blasting. All residential structures are at least half a mile from any approved blasting. The Good Hope Baptist Church is approximately one and a half miles from any approved blasting. At these distances, it is not anticipated that blasting will have any deleterious effects on nearby public roads, residential structures, or public buildings. All blasting is required to be performed by a S.C. licensed blaster and be within 1.0 inch per second peak particle velocity at the closest inhabited structure, which is considered more than adequate to protect the structure’s integrity.

Per Regulation 89-150.I., to provide for adequate public safety, DHEC is required to establish a minimum distance between blasting and any structure not owned by the operator. Typically, for a new ("green-site") quarry, we set that distance no closer than 1,000ft. The applicant has indicated on the MR-400 that they will observe at least 1,500ft from blasting to the nearest inhabited structure, in order to satisfy that part of the Regulation. Additionally, all public roads appear to be at least 1,000ft from proposed blasting.

The half-mile blast radius refers to Regulation 89-150.A., which requires the operator to offer a pre-blast survey for any inhabited structure within that half-mile. The applicant has indicated on the MR-400 that 14 parcels fall within this half-mile radius. Before any blasting may occur, DHEC shall confirm this information and send questionnaires to all 14 landowners, and whoever indicates that they have a structure on their land will be offered a pre-blast survey at no cost to them. A pre-blast survey is conducted by a third-party, independent contractor who will send someone out to inspect the structure and take photographs of any existing damage prior to blasting. This report can then be used to support or reject future claims that blasting caused subsequent damage. If it is determined that blasting is the cause of structural damage, then the operator is required to repair that damage at their expense and take measures to prevent additional damage in the future.

An additional term and condition within this quarry permit requires the operator to keep flyrock within the permit boundary. Given the distances between the pit and the nearest permit boundary, fly-rock is not expected to land outside the permit boundary during typical blasts.

Ground vibrations, due to blasting, may be felt outside of the permit boundary. Federal guidelines on surface blasting state that a peak particle velocity (PPV) of 2.0ips is considered safe for structures; South Carolina goes one step further and limits PPV to 1.0ips (Regulation 89-150.E.) at the closest structure for an additional measure of safety. So, while ground vibrations may be felt offsite as an annoyance, it is not considered intense enough to cause damage to structures or roads.

Zoning: Appropriate or compatible land use is determined by local government. DHEC has no authority regarding zoning in Fairfield County. Specifically, the S.C. Mining Act states in Section 48-20-250: *"No provision of this chapter supersedes, affects, or prevents the enforcement of a zoning regulation or ordinance within the jurisdiction of an incorporated municipality or county or by an agency or department of this State, except when a provision of the regulation or ordinance is in direct conflict with this chapter."* This section requires Fairfield County to enforce their own local ordinances, and has no effect on whether a state permit can be approved or denied.

Other Vulcan Operations: It has been brought to SCDHEC's attention that the operator has been cited by another state's agency [the Tennessee Department of Environment and Conservation (TDEC)]. TDEC cited the operator for depositing limestone-based sediment into a local waterway. The differences between the limestone quarry in Tennessee and the proposed granite quarry in South Carolina are too drastic to consider them as similar operations.

The biggest difference between these sites is that the Kingsport Quarry is mining limestone, whereas the proposed Fairfield Quarry will mine granite. Limestone and granite react very differently. Limestone is highly susceptible to chemical weathering and dissolution, much like dissolving salt in water. This allows sediment to flow underground in solution, and to be deposited in streams via seeps, where it falls out of solution and becomes a solid again, like when water evaporates and you're again left with the salt. Granite, however, is not very susceptible to chemical weathering. The primary minerals in granite do not dissolve in water and will not be able

to be transported underground. Granite is more susceptible to mechanical weathering, which would occur aboveground, where it's easier to observe, inspect, and prevent.

TDEC and Vulcan have both confirmed that this material was placed in a stockpile sometime in the 1960s or 1970s, by a different company, and with little to no environmental engineering. Environmental regulations and engineering practices have come a long way in the past 50-60 years and the proposed site will use modern techniques to adhere to modern regulations to minimize and prevent sediment transport and deposition.

The operator is required to submit a SWPPP for approval, which will protect local waterways from sediment deposits.

AIR QUALITY

Dust: The Division of Mining and Solid Waste Management is responsible for regulating dust emissions from a mining site. Sources of dust include: moving equipment, handling of the mineral resource and overburden, truck traffic, and wind erosion.

At active sites, the major contributors of dust are equipment and truck traffic. Properly constructed access roads with dust suppression methods (e.g., water trucks, sprinklers) is the most effective way to manage dust from traffic. The operator shall be required to use a watering truck and other dust control methods as part of the Mine Operating Permit. The frequency of watering will depend on weather conditions and volume of traffic.

Wind erosion of areas stripped of vegetation and material stockpiles are also sources for potential dust. Soil stabilization measures, such as vegetation, shall be installed as soon as practical. The combination of minimizing land disturbance and re-vegetation will lessen the potential for windblown dust.

Health Risks with Dust Exposure: Health risks are mitigated by controlling the dust at the source. Source control measures include best management practices, such as water trucks, dust suppressants, sprinklers, etc.

The Mine Safety & Health Administration (MSHA) is responsible for protecting the health of workers at mine operations. As part of their duties, MSHA monitors exposure of workers to dust. Results from monitoring show the risk is greatest within work environments involving processing (crushing/grinding) and operating equipment. If a problem concerning overexposure exists, MSHA would require the company to install some type of engineering control to eliminate the concern at the source.

Meeting MSHA requirements to control dust in the immediate work area will further minimize any exposure risk outside the permitted area. No elevated exposure risk is anticipated from the mine beyond the property line.

We are exposed on a daily basis to dust from non-industrial sources such as dirt roads, fields, and bare lots. Although the proposed quarrying operation does not add any new hazards, engineering and administrative controls have been designed to minimize the production of airborne dust. Based on the proposed controls at the quarry (natural buffers, distance from property lines, controls on the haul road), an increase in the exposure to silica or other materials beyond the property line is not anticipated.

Information on air monitoring in South Carolina is available on DHEC's Bureau of Air Quality website at <http://www.scdhec.gov/HomeAndEnvironment/Air/AmbientAir/>.

Reclamation: The operator shall be responsible for the reasonable rehabilitation of the affected land for useful purposes. The operator has indicated that the site will be reclaimed as a pond/lake and grasslands in the MR-500 Reclamation Plan. To a practicable degree, reclamation efforts shall run concurrently with mining activities. Financial assurance for reclamation activities must be received by DHEC before the permit is approved, and maintained throughout the life of the mine. Final reclamation requirements must be inspected and approved by DHEC before the permit is cancelled and the financial assurance is returned.

Reclamation plans that involve the construction of a lake or pond shall take appropriate measures, as described by Regulation 89-330.D., to prevent the formation of noxious, odious, or foul pools on site.

Offsite Wildlife Disturbance: Observations at other active quarries indicate that general animal populations are not noticeably affected by mining. Despite the noise and presence of humans on site, animal populations in and around the site adapt and continue to thrive, given that most operators do not allow hunting on their site for safety and legal reasons. Given that the majority of this site will not be affected and it will remain in its current undeveloped state, it is not anticipated that local landowners will notice any change in animal populations. However, if animal populations are affected, DHEC does not have the authority to require the operator to give monetary compensation to the affected landowner; that would be a civil matter between the landowner and the operator.

General Opposition: DHEC received several comments requesting denial of a permit. While DHEC appreciates all comments received, it is important to recognize that we do not have the authority to make permitting decisions based on community, business, employee, or customer approval or disapproval of a proposed operation. DHEC is required by law to make a decision based *only* on the technical review of an application and the regulatory requirements in place at the time of that review. In 48-20-70 of the Act, DHEC is required to grant an operating permit to the applicant if there are no technical reasons to deny the permit.