VTCA ANNUAL SAFETY SEMINARS 2018

• Roanoke December 4, 2018
• Fredericksburg December 5, 2018
Division of Mineral Mining

Permits

Mineral Mining Permits

<table>
<thead>
<tr>
<th>Year</th>
<th>Permits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>436</td>
</tr>
<tr>
<td>2016</td>
<td>443</td>
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<tr>
<td>2017</td>
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<tr>
<td>2018</td>
<td>442</td>
</tr>
<tr>
<td>2019</td>
<td>441</td>
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</tbody>
</table>
Division of Mineral Mining

Mineral Mining Tonnage

Tonnage

Calendar Year

Tons (Millions)

61.9 67.3 67.3 67.8 68.9

2013 2014 2015 2016 2017
Division of Mineral Mining

Operator and Contractor Workers

Virginia Department of Mines Minerals and Energy

Mineral Mining Workers

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th># Workers</th>
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<tbody>
<tr>
<td>2013</td>
<td>2,088</td>
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<tr>
<td>2014</td>
<td>3,709</td>
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<tr>
<td>2015</td>
<td>6,843</td>
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<tr>
<td>2016</td>
<td>7,960</td>
</tr>
<tr>
<td>2017</td>
<td>7,351</td>
</tr>
</tbody>
</table>

- Contractors
- Operators
- Total
Division of Mineral Mining

Operators and Contractors Hours

Mineral Mining Hours

- 2013: Operators - 6,917,753, Contractors - 0, Total - 6,917,753
- 2014: Operators - 7,990,042, Contractors - 1,000,000, Total - 8,990,042
- 2015: Operators - 7,693,191, Contractors - 1,000,000, Total - 8,693,191
- 2016: Operators - 7,551,587, Contractors - 1,000,000, Total - 8,551,587
- 2017: Operators - 7,762,371, Contractors - 1,000,000, Total - 8,762,371
Division of Mineral Mining

Active Mines with Zero Frequency

Calendar Year

<table>
<thead>
<tr>
<th>Mines</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<td></td>
<td>310</td>
<td>312</td>
<td>316</td>
<td>331</td>
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</tbody>
</table>
Division of Mineral Mining

Serious Injuries

Virginia Serious Injuries

<table>
<thead>
<tr>
<th>Year</th>
<th>Serious Injuries</th>
</tr>
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<tbody>
<tr>
<td>2014</td>
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<tr>
<td>2015</td>
<td>0</td>
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<td>2016</td>
<td>2</td>
</tr>
<tr>
<td>2017</td>
<td>1</td>
</tr>
<tr>
<td>2018</td>
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</table>
Division of Mineral Mining

Accidents Reported

Virginia Accidents

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td>Accidents</td>
<td>80</td>
<td>70</td>
<td>80</td>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>
2014

• March - Baillio Sand Company – Virginia Beach – foreman was struck in the head by high density polyvinyl pipe
• R & S Stone – Floyd – miner struck in upper body and face by drill bit that was lodged in the jaw crusher
2015

• August – Luck Stone Corporation – employee crushed when bin collapsed
2016

- September - Holston River Quarry – Dublin – contract driller received fatal injury when he was struck in the abdomen by a pipe wrench while using the hydraulic force of the drill system to loose a chuck
Fatal Accident Review

New England Stone Industries, Inc.

October 11, 2018
A 26 year old dimension stone quarry miner with two years of experience was fatally injured while attempting to topple a large sawn slab from the quarry face. The miner was on top of the slab using hydraulic bags to push the slab away from the quarry face when the slab un-expectantly broke horizontally a few feet above the quarry floor causing the bottom of the slab to drop and slide away from the face. The miner fell between the slab and the quarry face and was struck by several large rocks that fell from the top of the slab.

The miner accessed the work area with a portable extension ladder from the quarry floor.
Location of miner after fall

Failure plane

Location of miner after fall
Location of miner

Force from hydro-bags

Failure plane

Cut lines

Prior to cut section failure

Recovery Area

After cut section failure
A re-creation of the quarry wall prior to the accident.

Photo taken after the accident. Note: ladder in picture was placed there by first responders.
View of a hydro-bag pushing cut slab away from the quarry wall
DMM Recommends:

• Ensure fall protection is worn by all persons when working in an area where there is a danger of falling.
• Ensure that all miners are adequately task trained before assigning them a task or duty.
• Have written procedures in place that adequately mitigate the safety hazards associated with tasks.
• Perform a job safety analysis when a task is not fully consistent with established procedures.
• Stay off of, and a safe distance away from, objects being jacked, lifted, or otherwise moved due to the unpredictability of the movement.
OUR SPECIAL THANK YOU TO:

• Cedar Mountain Stone
  1. Ed Dalrymple
  2. Dan Sadtler - Superintendent
  3. David Bradeson - Manager
  4. Chris Ferguson – Grapple operator
  5. Mark Duncan – Loader operator
DMM/VTCA Safety Award Program
Operator Recognition

• Began in 2007
• Currently recognizes 8 mine operator each year for most hours worked in two categories by type of operation and each category of operation’s hourly performance levels
• To win must have worked the most hours with a ZERO Accident Frequency Rate

Quarry Categories
1. 0-25,000 employee hours
2. 25,000 – 50,000 employee hours
3. 50,000 – 75,000 employee hours
4. 75,000 plus employee hours
Open Pit

1. 0- 5,000 employee hours
2. 5,000 – 10,000 employee hours
3. 10,000- - 30,000 employee hours
4. 30,000 plus employee hours
Quarry Category AWARD WINNERS 2018:

- Chantilly Crushed Stone, Inc., Chantilly Quarry, Loudoun County, 123,450 hours
- Vulcan Construction Materials, LLC., Graham Quarry, Fairfax County, 73,302 hours
- Pounding Mill Quarry Group, Bluefield Quarry, Tazwell County, 47,718 hours
- BWI Abingdon, LLC., Abingdon Quarry, Washington County, 22,722 hours
Open Pit Category AWARD WINNERS:

- Nestle Purina Petcare, Nestle Purina Mine, King William County, 471,207 hours
- Luck Stone Corporation, Caroline Sand and Gravel, Caroline County, 25,618 hours
- King William Sand and Gravel, Inc., King William Mine, King William Cty, 9,426 hours
- Old River Land Company, LLC., New Kent # 1 Mine, 4,474 hours
INDIVIDUAL MINER RECOGNITION PROGRAM

• Nominations submitted annually
• 5 year increments beginning at 15 years
• Nominations are accepted generally April of the each year
Individual Miners

- DMM received 36 nominations for miners working from 15 to 35 years without a lost time accident in 2017. These awards were presented during 2018.

- Since this program began in 2007, a total of 296 miners have been recognized for working safely.

- These 296 miners represent 7,141 years without a lost time accident!!

- Shown here are presentations from past years.
Updates to the Virginia Safety and Health Regulations for Mineral Mining

Effective: November 30, 2018
Definitions added under 4VAC25-40-10:

"Barricaded" means physically obstructed to hinder or prevent the passage of persons or vehicles.

"Competent person" means a person having abilities and experience that fully qualify him to perform the duty to which he is assigned.

"Confined space" means an enclosed area that is large enough for an employee to enter fully and perform his assigned work but is not designed for continuous occupancy by the employee and has a limited or restricted means of entry or exit. These spaces may include storage bins, hoppers, silos, tanks, vaults, and other similar areas.

"Mine vehicle" means any vehicle on the mine site that is utilized by the mine operator or contractors performing excavation, maintenance, or construction at the mine.
Other Updates:

4VAC25-40-50. Reporting of accidents and injuries by the operator.

A. Operators shall report any accident involving serious personal injury or death to any person on the mine property to the division by the quickest available means, and the scene of the accident shall not be disturbed until an investigation is conducted by the division. For accidents where the injured person is transported to a hospital, but confinement is not expected, the operator may either preserve the scene or collect relevant physical data and photographs as specified by the division. The division shall be notified immediately upon learning that the injured person has been admitted to the hospital for medical treatment. Head injuries that result in loss of consciousness at the site shall be reported immediately.

B. Operators shall report all other accidents and occupational injuries to the division within 10 days of their occurrence. Operators shall keep on file a report of all accidents and occupational injuries occurring on the mine property for review by the division mine inspector. Such records shall be kept for three years.
4VAC25-40-100. Employee training.

New or reassigned employees shall be trained in state and company safety regulations and be task trained prior to being assigned a task or duty. Records of training shall be kept in writing at the mine site for the duration of the miner's employment and for 60 days after termination of employment.

4VAC25-40-290. Restricted access.

Access to unattended mine roads or mine openings shall be restricted by use of gates, doors, or fences and warning signs shall be posted.

4VAC25-40-300. Closure of roads or openings.

Upon abandonment of a mine, the operator shall effectively close or fence all roads, mine openings, and surface excavations where hazardous conditions exist and warning signs shall be posted. Upon temporary cessation of mining activities as provided for in § 45.1-181 of the Code of Virginia, the operator shall effectively close or barricade access roads and hazardous areas.
Stationary grinding machines other than special bit grinders shall be equipped with:
1. Peripheral hoods (less than 90° throat openings) capable of withstanding the force of a bursting wheel;
2. Adjustable tool rests set no further than 1/8 inch from the wheel; and

4VAC25-40-460. Examination for unsafe conditions.
All personnel shall examine their active workings for unsafe conditions prior to starting work and frequently thereafter. Any unsafe condition found shall be corrected or reported to the designated certified mine foreman, or when a certified foreman is not required, a competent person.

4VAC25-40-800. Use of explosives.
R. Blast warning signals shall be established and posted at the mine. Audible warning signals shall be given prior to firing a blast and shall be loud enough to be heard within the entire blast area.
4VAC25-40-810. Recordkeeping.

A detailed record of each surface blast shall be prepared immediately by the certified blaster. Records shall be maintained at the mine site for three years and subject to inspection by the division mine inspectors. Records shall contain the following information:

13. Height or length of stemming for each hole;

17. Seismograph records, including:
   a. Name and signature of the person operating the seismograph;
   b. Name of the person analyzing the seismograph record; and
   c. Seismograph readings;

18. When a permanently installed seismograph is used to prove compliance, the record shall indicate the:
   a. Name of the person and company that installed the seismograph; and
   b. Name, signature, and company affiliation of the person validating the authenticity of the seismic data collected and transmitted by the permanent unit.

The information should be attached to the blast record as soon as it is available, but in no instance later than five working days after the shot; and
4VAC25-40-880. Ground vibration from blasting.
A. Ground vibration, measured as peak particle velocity resulting from blasting, shall not exceed the limits set forth in Figure 1 at any inhabited building not owned or leased by the operator, without approval of the director. A seismographic record shall be provided for each blast.

![Graph showing blast vibration frequency vs. maximum allowable particle velocity.](image)

*Figure 1. Alternative blasting level criteria. (Source modified from figure B-1. Bureau of Mines R18507)*
Each operator shall maintain a plan to control the effects of blasting on areas adjacent to the operation. In the event of a blasting complaint, accident, or flyrock incident, the plan will be subject to review and approval of the division.

4VAC25-40-910. Seismic testing and evaluation.
Seismic testing and evaluation to determine compliance with blasting regulations shall:
1. Utilize acceptable instrumentation that measures ground vibration, air overpressure, and vibration frequency;
2. Be conducted and analyzed by a qualified person; and
3. Be conducted whenever directed by the division.

In the event of a blasting complaint, accident, or flyrock investigation, all available data on the blast, including videos, shall be made available to the division.
4VAC25-40-2015. Installation of electrical circuits; supervision of electrical work.

A. Electrical equipment and circuits shall be installed in accordance with the standards in the National Electrical Code, unless provided for in this part.

B. All work on new electric systems or modifications to existing electric systems performed in accordance with the National Electrical Code and this part shall be done by, or under the direct supervision of, a certified electrical repairman or other appropriately licensed electrical repairman. Routine maintenance of electrical systems and equipment where no changes are being made to the system or the equipment may be performed by a competent person who has received task training in the work from an appropriately licensed or certified electrical repairman.

4VAC25-40-2550. Confined space hazard.

A safety harness attached to an attended life line shall be worn by persons before they enter confined spaces. No person shall enter any confined space until the supply and discharge of materials has ceased and the supply and discharge equipment is has been locked out and tagged out. No person shall enter an area where they are exposed to entrapment by the caving or sliding of loose, unconsolidated material. No person shall enter a confined space unless the area is provided with adequate ventilation.
Hitches and slings used to hoist materials shall be of safe design, maintained in a safe condition so as to avoid safety hazards, and used in a safe manner.

Persons shall stay clear of suspended loads. Suspended loads shall be handled or secured in a manner to prevent their unintentional release.

4VAC25-40-3328. Certified underground blaster.
A certified underground blaster shall be in direct charge of all blasting activities and shall fire all shots.
1996 Threshold Limit Values and Biological Exposure Indices published by the American Conference of Governmental Industrial Hygienists

American Table of Distances, 1991 edition, published by the Institute of Makers of Explosives

National Electrical Code, 2008 edition, published by the National Fire Protection Association


2018 SAFETY INITIATIVES
POWERED HAULAGE

BE AWARE OF YOUR SURROUNDINGS

Smart Alert Focused Educated
SEAT BELT USAGE
CONVEYORS

THINK SAFETY - BE ALERT AROUND ALL POWERED CONVEYORS
OTHER

• Online registration and fee payment for certification classes
• Annual Reporting of contractors for those signed up due December 2018
• Safety Audit Assistance Program
QUESTIONS

• Call our office at (434) 951-6311
• Call your local Mine Inspector
• Visit our website at: www.dmme.virginia.gov
• Sign up for our e-mail by contacting Chrissie Wood Smith at: (434)951-6322
THANK YOU
Happy Holidays and a safe New Year!