JULY 2025 ISSUE 2

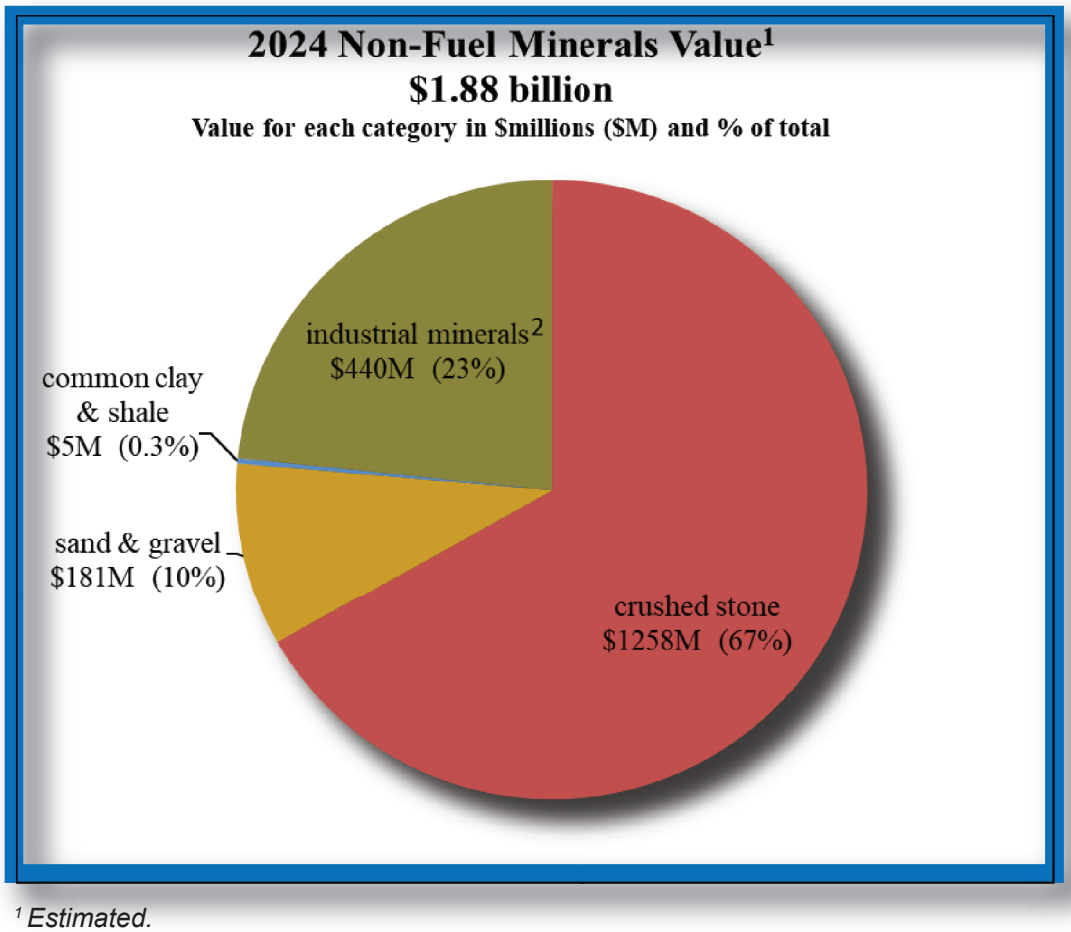
STATE OF THE MINES

NEWSLETTER OF VIRGINIA ENERGY'S
DIVISION OF MINERAL MINING

INSIDE:

VIRGINIA Energy

The value of non-fuel minerals in 2024 was **$1.88 billion**. Crushed stone, used extensively in building and road construction, accounted for 80% of the total reported tonnage and 67% of the total estimated value of non-fuel minerals.



[1] *Estimated.*

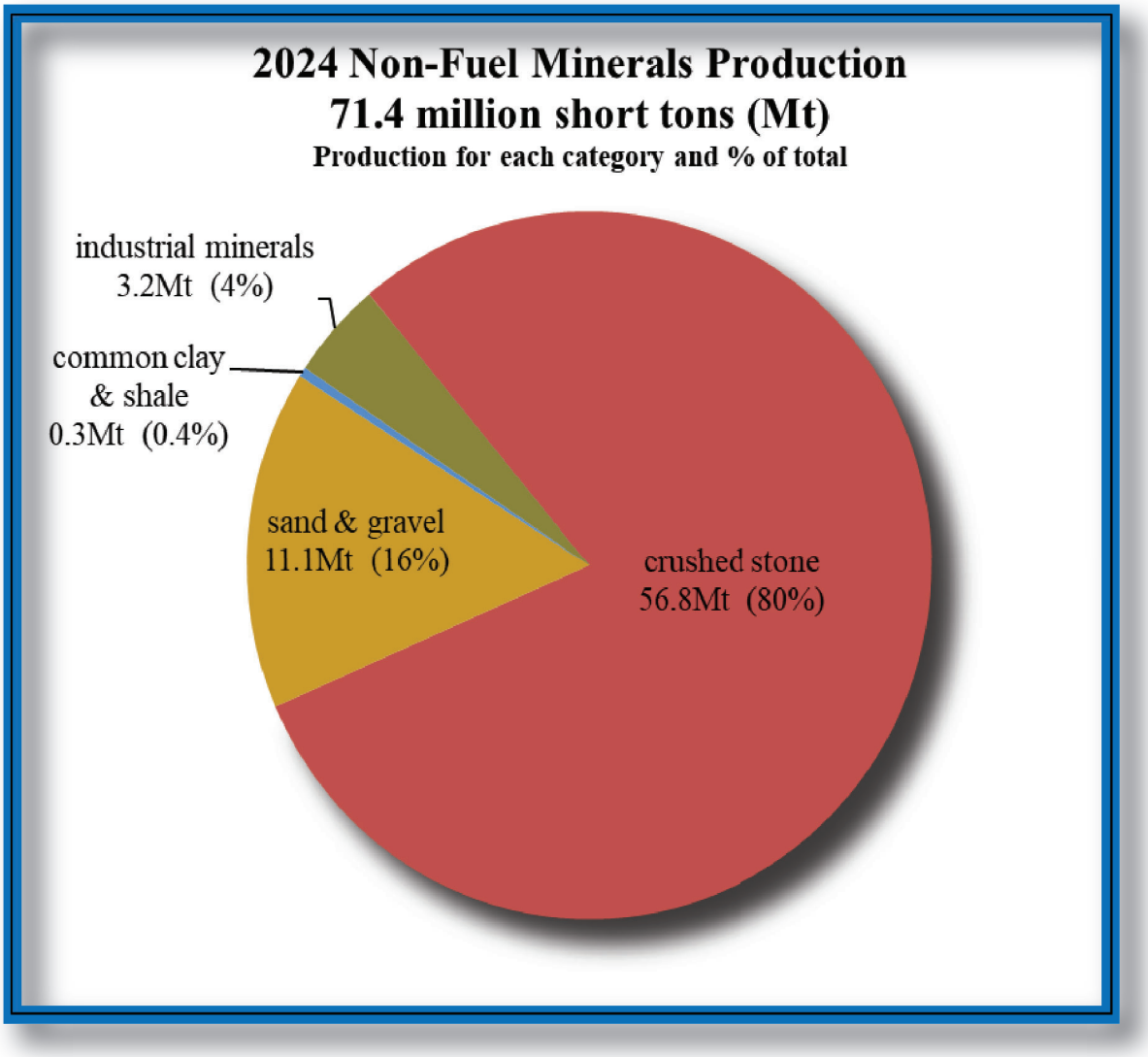
Sand and gravel, also used primarily for construction, totaled 16% of the total tonnage and 10% of the total value.

Clay and shale serve as construction materials as well as raw materials for manufacturing bricks, cement, roofing products, etc., and accounted for less than 1% of the total tonnage and estimated value.

Industrial minerals encompass a wide variety of mineral commodities used in construction, refractory and ceramic products, chemical and filtration processes, among other specialized applications and accounted for 4% of the total tonnage and 23% of the total value.

At the end of 2024, there were **420** active mineral mining permits in Virginia. These mines produced **71,438,833** tons of sand, gravel, crushed stone and other aggregates and industrial minerals. Our **6,709** miners worked **7,539,857** hours!

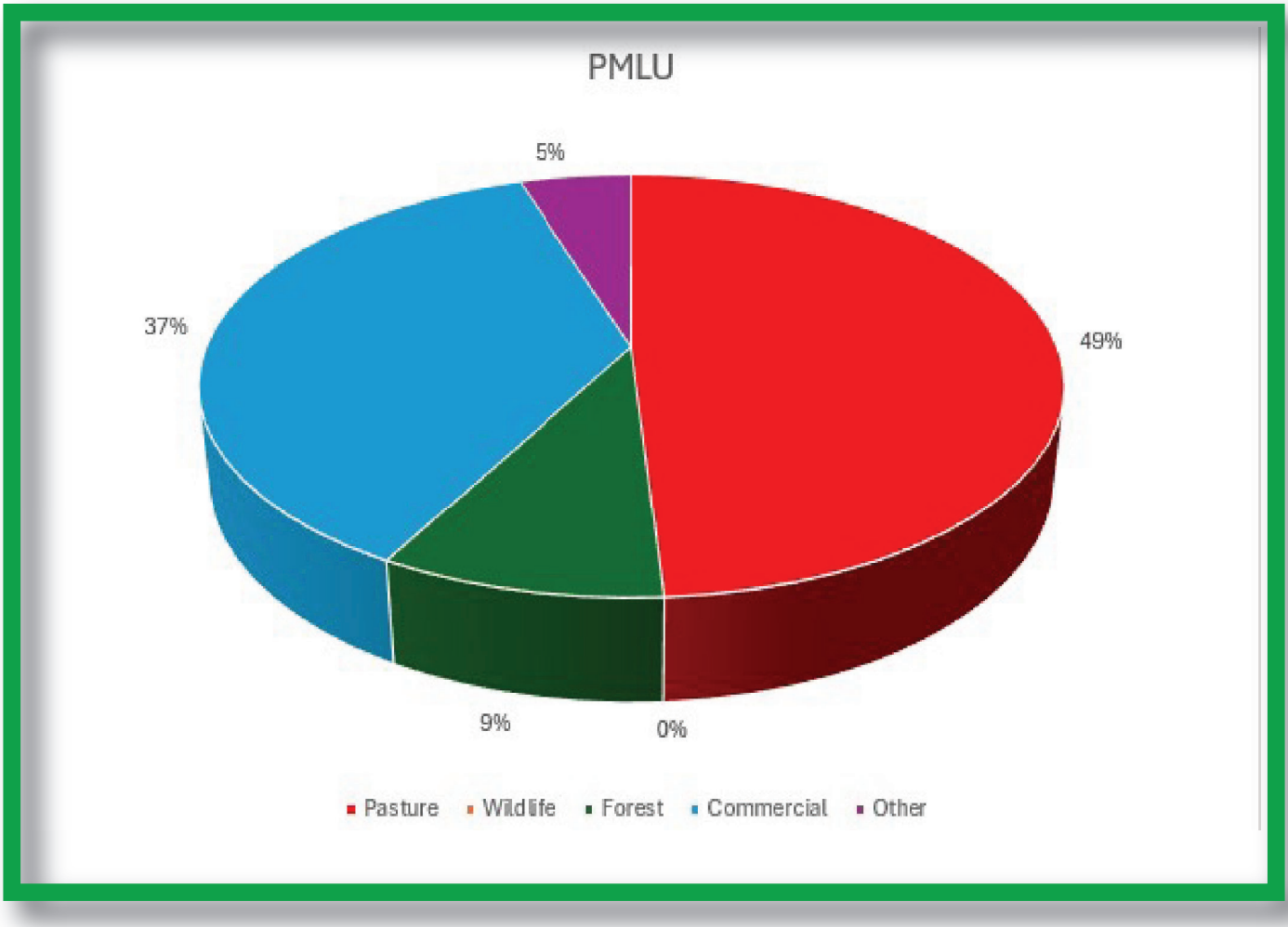
2024 tonnage was down 2% from 2023 figures. There was a 3% increase in the operator hours reported and a 14% increase in contractor hours netting an overall increase of 4%. Contractors continue to represent a significant portion of the mineral mining workforce in the Commonwealth at 43%.



The Division of Mineral Mining uses annual production and hours data to tailor our resources to best serve our mining operators in Virginia, ensuring we have the safest workers in the industry.

Annually, the Division of Mineral Mining reports statistics to the IMCC. Their interests include the number of permits issued and acres of land disturbed, as well as the use of the land following reclamation (Post Mined Land Use or PMLU) for the prior calendar. It was suggested that this might be of interest to our operators, so here you go!

In 2024, the majority of reclaimed land was returned to Pasture with the second largest category being Commercial (includes industrial, landfill, and solar), Other uses include Forest and Other (lincludes recreation). There were a total of 1,436 acres released from bond in 2024.

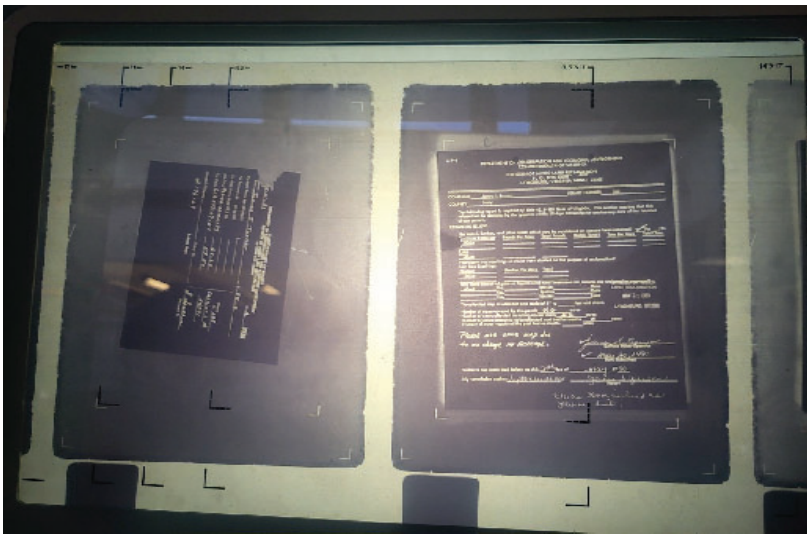


WHAT'S NEW? DATA PRESERVATION

Virginia Energy's Division of Mineral Mining (DMM) was awarded full funding at the requested amount of $146,398.06 (plus in-kind state match to bring the total grant at just under $300,000). The period of performance is August 1, 2025 to July 31, 2027. This project will involve:

- Cataloging 166 boxes of rock core from the Oak Grove core hole in northeastern VA.
- Rescuing historic mineral mining records currently archived on microfilm (2000 permits) .
- Updating the Mineral Resources of Virginia (MRV) database .
- Improvements to the safe storage of our radioactive rock samples.
- Continuation of our sampling and geochemical analysis.

Chrissi Wood-Smith, DMM, is the Principal Investigator for this project. Feel free to reach out with questions about this exciting new project!



Boxes of microfilm with historic mineral mine permit records

Core boxes in Charlotteville warehouse, close up of condition of boxes and labels

UNDERSTANDING THE ANNUAL CONTRACTOR REPORT

By Chrissi Wood-Smith, Technical Services Manager

In 2008, DMM introduced the Annual Contractor Report (DMM182). The idea behind this new form was to minimize reporting requirements for our operators, specifically those that have contractors coming on and off of the permit throughout the year.

What are the reporting requirements? The code of Virginia (§ 45.2-1124) requires that operators, within 30 days after the occurrence of any change in the information required by subsection B, shall notify the Department in writing of such change. In plain language: if you add or remove a contractor this constitutes a change to the license and DMM must be notified within 30 days of the event. This can be a burden to some operators and in the past some of our biggest operators would essentially include every contractor they could think of to mitigate this reporting burden.

Why does this matter? When a contractor is listed on a permit, they are required to file an annual report (DMM146C) of hours and wages by permit (§ 45.2-1129), very similar to the Annual Tonnage Report (DMM146) that operators must also file annually. If an operator lists a contractor and that contractor did not work at the mine site, during the calendar year, the operator has essentially created a reporting requirement for the contractor. If the contractor does not comply with the reporting requirement, DMM issues an administrative closure order and the contractor is not allowed to work at any mineral mine in Virginia until resolved!

What is the solution? To alleviate the reporting burden on both the contractors and operators, DMM created the Annual Contractor Report (DMM182). This report option is an agreement with the operator to report to DMM each year by December 15th all of the contractors that actually worked at their site. This then becomes an accurate list of contractors for that calendar year. Part of the agreement is that the operator must keep an up-to-date contractor list available at the mine site for our inspectors.

Who should use the Annual Contractor Report? This is designed for operators that have different contractors continually changing on their site.

Who should NOT use the Annual Contractor Report? Operators that have no contractors should not use this reporting option. Operators that have few or no changes to their contractor list should not use this reporting option. By choosing the Annual Contractor Reporting option in these instances, you are creating an additional reporting burden for yourselves. Please reach out to your inspector for clarification on your particular circumstance.

How do you select the reporting options or check what you have selected? The Annual Contractor Report is something the operator can opt in or out of on the Permit Application (DMM170). This can be done on the original application, renewals or amendments. To check your reporting status, contact your mine inspector or visit the e-Forms Center to view the last approved permit application for your site. This information is found on page 4 of the DMM170 Permit Application..

Questions? Comments? Reach out to your mine inspector!

Virginia Energy's Division of Mineral Mining (DMM) was awarded full funding at the requested amount of $249,830 for a new Abandoned Hardrock Mine Reclamation (AHMR) Grant Program funded through the DOI under the Energy Community Revitalization Program. The period of performance is August 1, 2025 to July 31, 2028. This project will involve:

- **Increase the inventory** of abandoned mineral mine features across the Commonwealth.
- **Reclaim Four Mile Fenster Mine in Ewing, Virginia**. This project will close the adit to prevent the unauthorized and unsafe entry into the mine works. This adit is readily accessible from the public road and has shown numerous signs of unauthorized entry. It represents a safety hazard to persons who enter due to the absence of regulated ground control and the potential for roof collapse. The project will close access to the adit using a bat gate. This will prevent human entry into the unsafe mine while allowing access to the native bat population.
- **Reclaim Tellurium Gold Mine in Fluvanna, Virginia.**This project will close one or two vertical shafts. The site is in an area of known gold mining activity and due to this is subject to unauthorized visitation. The vertical openings are steep sided, partially filled shafts which represent a hazard to site visitors and wildlife. The vertical shafts will be closed with a combination of riprap and grout forming a cyclopean mass which will effectively plug the opening. The plug will have bearing around the circumference of the opening that will provide an effective permanent closure.

DMM is very excited about this new funding opportunity and has worked hard as part of the national work group lead by IMCC-NAAMLP to petition Congress for the on-going funding to reclaim hazardous non-coal mine sites in the nation.

Chrissi Wood-Smith, DMM, is the Principal Investigator for this project. Feel free to reach out with questions about this exciting new project!

INTERSTATE MINING COMPACT COMMISSION

NAAMLP
NATIONAL ASSOCIATION OF ABANDONED MINE LAND PROGRAMS

In 2025, Virginia Energy and the Virginia Transportation Construction Alliance (VTCA) recognized 8 mineral mine operations and 134 mineral mine workers for notable safety achievements as part of the annual Virginia Mineral Mine Safety Awards program. This program has recognized 136 companies and 762 mineral miners for outstanding safety achievements in Virginia's mineral mining industry since its inception in 2007. The 762 mineral miners recognized represent a cumulative total of over 18,000 years working without a lost time injury.

For the 2025 award program, the 8 companies listed below were recognized for working without a reportable injury with the most production hours in a specific category based on calendar year 2024 data. These represent a cumulative total of 410,007 production hours working safely.

Quarry Operations

Company	Mine	Hours without Injury	Work Lost-Time Employees	Tonnage Mined
Appalachian Aggregates LLC	Glade Stone Plant	24,704	11	287,766
Salem Stone Corporation	#1 Sylvatus Quarry	47,175	17	440,520
Luck Stone Corporation	Rockville Plant	72,511	39	2,611,000
E. Dillon & Company	#1 Quarry	112,977	69	666,944

Open Pit Operations

Company	Mine	Hours without Injury	Work Lost-Time Employees	Tonnage Mined
Vico Construction Co.	SPPIT	4,899	19	90,190
Stoney Creek Materials LLC	Stoney Creek Mine	9,896	7	68,081
Holcim-Mar, Inc.	Rappahannock Farm	26,469	15	542,724
USC Saltville Brine LLC	Saltville Salt	111,376	49	208,109

In 2025 134 miners with a cumulative total of 2,899 years working were nominated for individual safety awards. These miners represent 13 mineral mine companies including Appalachian Aggregates, Boxley Materials, Cedar Mountain Stone, Iluka, Luck Stone, Martin Marietta, O-N Minerals, Rockydale Quarries, Salem Stone, Shenandoah Stone, US Silica, Titan America (Roanoke Cement), and Vulcan Materials. Virginia Energy and the VTCA will present these awards at various mine site events during the late summer and fall.

As part of last year's awards program, 98 miners were recognized for reaching individual safety award milestones. Notable milestones included 2 miners reaching 50 or more years without a lost time and 14 miners working 40 or more years without a lost time injury. O-N Minerals Harman Darr (51 years) and Appalachian Aggregates Billy Rose (50 years) were recognized for working 50+ years without an injury a simply amazing achievement. Those with 40 or more years without a lost time injury included Martin Marietta's Raymond Davis (40 years) and Kenneth Ward (40 years, Luck Stone's CEO Charles S. Luck, IV (40 years), Appalachian Aggregates Lawrence Helbert (41 years), Thomas Scarberry (41 years), Billy Sullivan (44 years), and Sam Tigler (46 years), O-N Minerals Clay Coleman (43 years), Danny Tingler (44 years), John McCullough (45 years), Ricky Easterday (45 years), Adrian Campuzano (45 years), and Daniel Chavez (45years), and Vulcan Materials Frank Hogue, Jr. (45 years). Congratulations on reaching these outstanding milestones.

Billy Rose, Appalachian Aggregates (on left), with DMM's Director Phil Skorupa was recognized for working 51 years without a lost time injury.

Salem Stone's Sylvatus Quarry was awarded Company Safety Award in July 2025

DMM and VTCA presented the 2025 company awards at the VTCA's Annual Meeting on June 22, 2025, at The Greenbriar, White Sulfur Springs, West Virginia. Check out this press release about the 2025 award winners.

*"There is no better evidence of an exemplary mining operation than each miner leaving work the same as they started the day," said **Virginia Energy Division of Mineral Mining Director Phil Skorupa**. "Safety is more than a practice, it's a culture for this industry and I applaud the companies that instill that in their day-to-day work to show how much they value those on the job."*

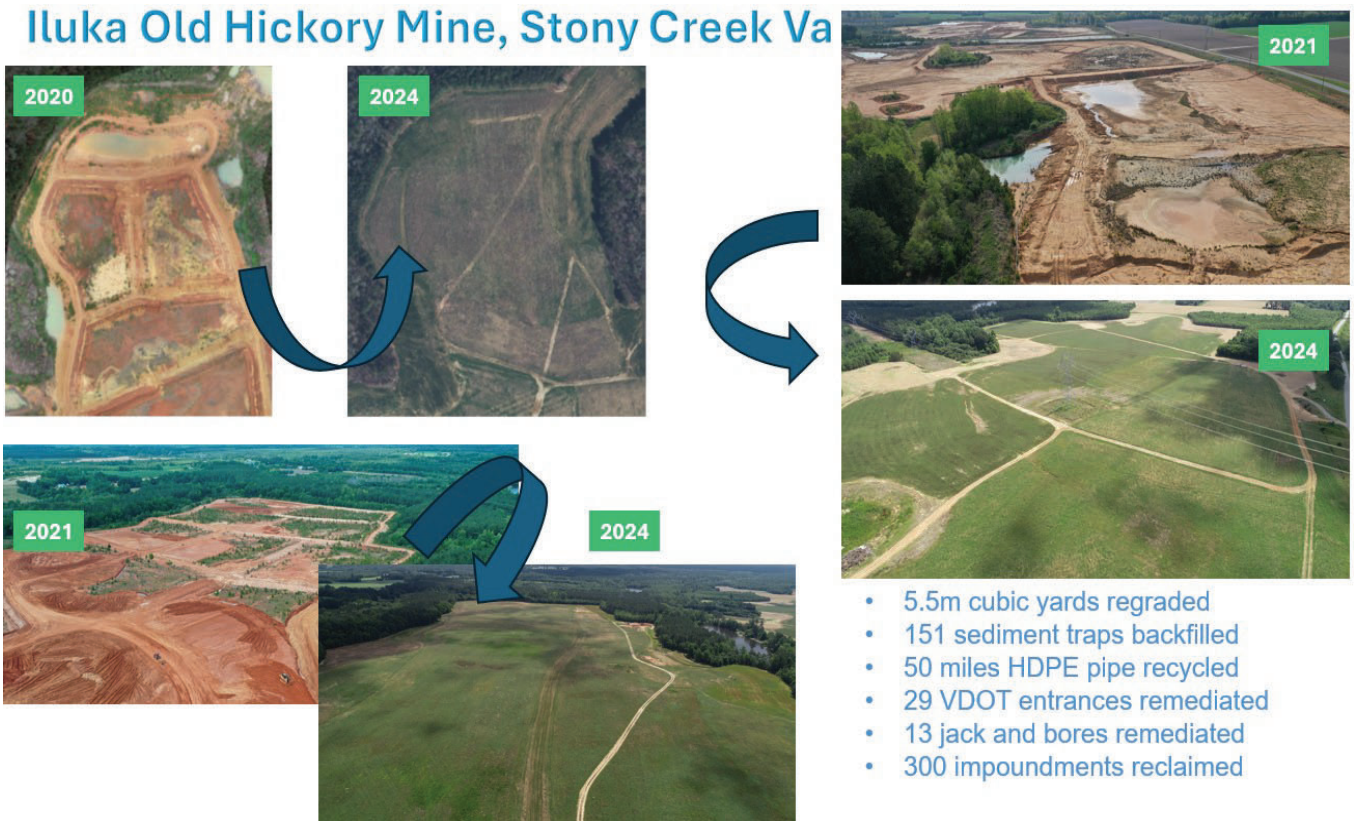
RECLAMATION AWARD WINNERS

Reclaiming areas disturbed by mining is a critical part of the mining process. In recognition of this, the Virginia Mineral Mining Mined Land Reclamation Awards are given out to deserving mines that have exhibited exemplary work in the area of mined land reclamation. This annual awards program is co-sponsored by the Division of Mineral Mining and the Virginia Transportation Construction Alliance (VTCA). Winners are usually announced in two categories: Best Quarry and Best Non-Quarry sites, but this year there were no Quarry sites nominated.

In 2025, the Virginia Orphaned Land Advisory Committee selected three non-quarry sand and gravel operations for exemplary land restoration following mineral extraction. These companies demonstrated strong environmental planning, collaboration with local partners, and a commitment to lasting land value through thoughtful grading, seeding, erosion control, and productive reuse. These included:

Overall Winner - Non-Quarry:
- Iluka Old Hickory Mine

Honorable Mention – Non-Quarry
- Branscome Operating LLC Hofmeyer Pit
- Chaney Enterprises, LP Moss Neck Mine



Congratulations to all nominees and thanks for setting the bar so high for Virginia Mineral Mining Mined Land Reclamation!

Additional information on our Reclamation Award Program is found here. The press release can be found here.

The Interstate Mining Compact Commission (IMCC) awarded **Vulcan Construction Materials Puddledock Sand and Gravel Mine** the 2025 winner of the non-coal division in its annual national reclamation awards!

The reclamation area consisted of 13.4 acres. Work in this area began over two decades ago when the operator began to backfill the area with mine overburden in the early 2000s. The operator worked for years to overcome the low pH and poor soil conditions in this area. After failing to successfully reclaim the area, Vulcan hired contractors with the right combination of experience and expertise to get the job done. The area now serves as extended wildlife habitat for the many deer who live in the surrounding woods between the mine pit and the Appomattox River.

By Jason Frankin, Mine Inspector

2024 was a banner year for Virginia's mineral mining industry with eleven operations recognized for excellence by the National Stone, Sand & Gravel Association (NSSGA) in their Awards of Excellence program. This program recognizes NSSGA member company operations' achievements in the areas of Community Relations, Environmental Excellence, and Safety Excellence. NSSGA presented the awards at their annual Legislative & Policy Forum held in Washington, D.C., in September 2024. Nine of the Virginia operations received Community Relations Excellence awards and 2 were awarded Environmental Excellence awardsl.

In 2024, the NSSGA also recognized Ted Baker, CEO of Blue Water Industries, by awarding him the Paul Mellott, Jr. Award for Political Excellence. Blue Water Industries, which operated BWI Abington LLC quarry in Virginia from 2018 to 2024, sold their Virginia holdings to Martin Marietta in 2024. The Paul Mellot, Jr Award for Political Excellence is given annually to an industry leader who works tirelessly on behalf of our industry to promote ROCKPAC (a political action committee solely dedicated to advancing the aggregates industry's priorities with federal candidates) and the importance of political advocacy. The Paul Mellot Jr. Award was given in 2023 to Virginian Charles S. Luck, IV, President and CEO of Luck Companies, who was also the recipient of the Barry K. Wendt Memorial Commitment Award, NSSGA's most distinguished individual award, in 2023. In 2024, Charles S. Luck IV, a VMI graduate, was inducted into the Pit & Quarry Hall of Fame, joining his Father Charles Luck III and Grandfather Charles Luck, Jr.

The **Community Relations Excellence Awards** recognize producers whose community involvement and support activities enhance the public's perception of the aggregate industry and the individual producer's operation. Virginia's mineral mining operations shined in this category, with 9 sites being awarded. The Community Relations Excellence awards are presented annually to operations that actively engage with and support the communities in which they operate – going out of the way to operate as and be a good neighbor. "The Community Relations awards highlight the importance our industry places on being a good neighbor," said NSSGA's President & CEO Michael Johnson. "Building and maintaining strong relationships with the community lays the foundation for our members' success and growth. I'm honored to acknowledge the outstanding efforts of today's winners."

In 2024, the following Virginia mineral mining operations received Community Relations Excellence awards:

Gold	Boxley Materials, Arvonia, Buckingham Co.
Silver	Vulcan Materials, Graham Quarry, Fairfax Co.
Bronze	Boxley Materials, Blue Ridge, Bedford Co. Boxley Materials, Fieldale, Henry Co. Boxley Materials, Lawyers Road, Campbell Co. Boxley Materials, Mt. Athos, Campbell Co. Boxley Materials, Piney River, Amherst Co. Boxley Materials, Rich Patch, Alleghany Co. Martin Marietta, Anderson Creek, Goochland.

Boxley Materials Company (a Summit Materials company) is notable as the most awarded Virginia mining company in 2024, with 7 of their operations recognized for Community Relations Excellence. And, outstandingly, Boxley Materials Company's Arvonia Quarry was awarded the prestigious Gold Award for Community Excellence, one of only 10 nationwide to receive this award in 2024.

NSSGA's Facebook Post Announcing
Boxley's Arvonia Quarry (Buckingham) Gold Award

Boxley Materials Arvonia Quarry (Buckingham Co.)

Community Relations Excellence category

- Employees collected school supplies and delivered them to Buckingham Elementary School, adopted the roadway near the quarry, and held two clean up events last year as part of VDOT's Adopt-A-Highway program.
- They hosted First Responder Safety Site Visits for the Arvonia Volunteer Fire Department and the Dillwyn Volunteer Fire Department. First Responders enjoyed a meal and an orientation of the quarry operations to better familiarize each other with site safety features and protocols. The guided tour of the operation with the First Responders is a best practice to improve the response time in case of an emergency at a mine site, especially critical in rural communities.
- Arvonia employees participated in the company's annual United Way campaign to help non-profit organizations support the needs of residents throughout the region and made donations to the Arvonia and Dillwyn Volunteer Fire Departments.
- The Arvonia Quarry is a member of the Buckingham Chamber of Commerce, and the Arvonia Quarry Manager is an active member of that Chamber. Through his engagement, he actively identifies opportunities for Boxley to support the community and educate local businesses about aggregates.

Kara Poole and Spencer Young of Boxley Materials receiving the Gold

The NSSGA recognized 2 Virginia operations in their **Environmental Excellence Awards** category with Martin Marietta Materials Midlothian Quarry winning a Gold award and Luck Stone Corporation's Rockville Plant winning a Silver award. NSSGA's Environmental Excellence Awards recognize our producer member operations actively contributing to the maintenance of the environment in and around their operations as evidenced by a corporate commitment to the exemplary use of environmental controls and systems. This award is based, in part, on the extent to which an operation meets and exceeds technical environmental and regulatory requirements. Virginia **NSSGA Environmental Excellence Awards** 2024 winners

Gold Martin Marietta, Midlothian Quarry, Chesterfield Co.
Silver Luck Stone, Rockville, Goochland Co.

In addition to the NSSGA Environmental Excellence Silver Award, Luck Stone's Rockville Plant, located in eastern Goochland County, was awarded the Virginia Energy and VTCA Overall and Best Quarry Reclamation Award for their pavilion overlooking pavilion the quarry where the company hosts tours to local schools and other visitors. Both Martin Marietta and Luck Stone garnered National and State recognition for their environmental dedication during 2024, a huge accomplishment for the industry in Virginia.

Congratulations to all the companies for recognized for outstanding achievements and dedication to Community Relations and Environmental stewardship. The NSSGA also has a Safety Excellence Award category. NSSGA's Safety Excellence Awards, established in 1987, promote safe working conditions and practices. Let's bring a **Safety Excellence Award** to Virginia in 2025! .

GLITTERING PAST OF THE RUTHERFORD MINES

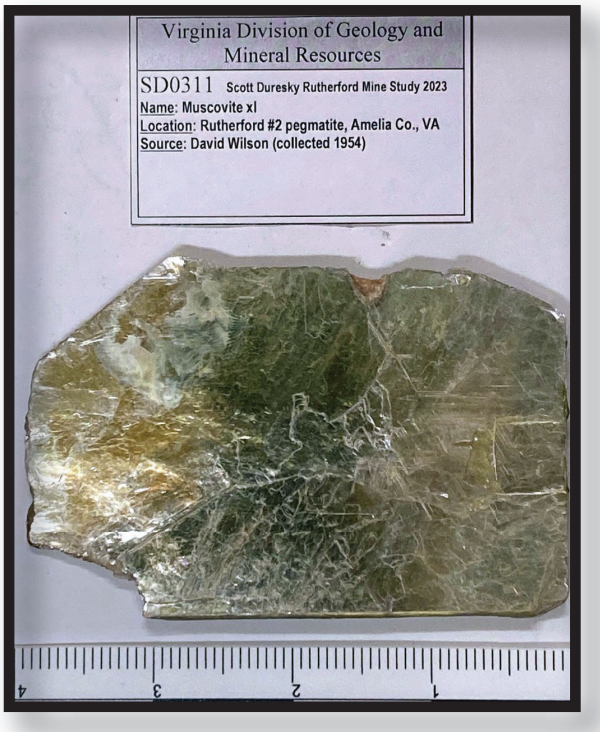
By Chrissi Wood-Smith, Technical Services Manager

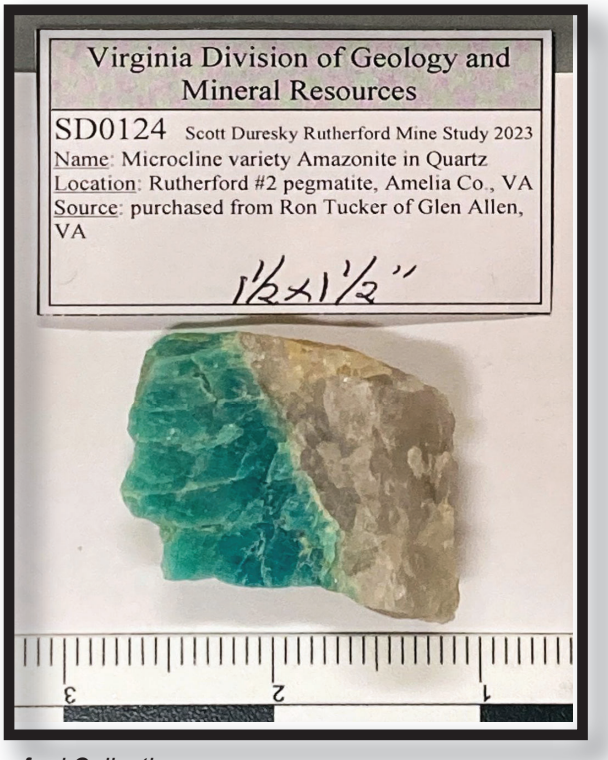
The Rutherford Mines are located in Amelia County near Amelia Court House, Virginia. The Rutherford Mines Nos. 1, 2, and 3 were a series of world-famous excavations into pegmatite dikes within what has historically been known as the Amelia Mining District (Grier, 1994). Commercial mining for mica began in the early 1870's and continued intermittently until 1912, with beautiful gem-quality green, semi-precious amazonite, native to this area, produced until around 1932. The latest extensive mining occurred from 1957 to 1960 (Sweet and Penick, 1992). It's also noted to be one of the most important sources of Rare-Earth Niobium and Tantalum bearing minerals in the United States (Duresky, 2020)

The first major shaft was dug in the late 1800s. At that time mica was used for stove insulation. During World War II, the US Government needed mica for electronics. Though the earliest and latest operations at Rutherford were for mica, most mining had been for amazonite (Brown, 1962).

During the late 19th and early 20th centuries, many quality gem specimens were collected for European museums (Duresky, 2025) and collectors including over 50 rare pegmatite minerals from the mines (Glass, 1935). The Rutherford Mine Pegmatite No. 2, until permanently closed in 1998, was one of the most important pegmatites in North America for the collection of rare-earth and other rare and exotic species. It was also noted as one of the best worldwide sources of gem quality Spessartine Garnet crystals.

Geologists jump up and down in excitement over the diversity and unique minerals found at Rutherford, though the history of the site and the beautiful treasures found within are as intriguing. Whatever your interests, The Rutherford Mines will deliver.





Specimens from our Rutherford Collection

Mica Mining at the Rutherford Mines

The Rutherford Mines is well known for historic mica and feldspar mining which began in this district shortly after the Civil War and produced minerals from over 55 deposits. Pegmatite deposits in Virginia yield chiefly mica and feldspar, and to a lesser extent the gemstones and rare minerals found exclusively in Amelia County. The mine has an extensive history, operating intermittently from 1873 to the early 1960s. It is believed the earliest workings were done by Native Americans inhabiting the area as flint-digging tools, the type used by Native Americas, were found at the site, indicating that these early Americans knew of the many treasures at Rutherford.

Mica, a primary commodity mined at the Rutherford Mines has a rich history that predates European settlement. It has been used since very early times, originally for its decorative appearance and ceremonial purposes by Native Americans. Due to its high melting point and ability to withstand high temperatures, mica became invaluable during the American Revolution and the late 1800's saw a boom in mica mining with the advent of Thomas Edison's electric motor. Although our neighboring state of North Carolina is perhaps best known for this mineral, Virginia has two historic mine sites that are part of the Amelia Pegmatite District which encompasses an area of about 48 square miles in Amelia County, Virginia.

Mica, known more formally as muscovite, is something we probably all remember finding as a child. Mica's sparkly appearance quickly catches the eye and it's fun to peel the fine layers carefully apart. The flaky mica most of us encounter on the surface is much different that the thick sheets of muscovite found below ground.

Early mining of mica was accomplished predominantly by hand digging trenches and pits. In some cases, explosives may have been used to expose the minerals. Shafts were sunk along the strike and dip of the pegmatite deposit to reach the sheet mica. Once the pockets of mica were exposed, the mineral was hand-picked because it is very fragile. Due to the high costs of mining and relatively small market, sheet mica is no longer mined in the United States.

Amazonite Mining at the Rutherford Mines and Morefield Gem Mine

Amazonite is a semi-precious mineral that is found in granitic pegmatites. It is a blue-green variety of microcline (a type of feldspar). The source of amazonite's color is a small quantity of lead and water in the feldspar crystal structure.

As a gemstone, amazonite holds significance in various cultures and has been used for centuries in jewelry and as an ornamental stone. It is valued not only for its vibrant color but also for its supposed metaphysical properties, which are believed to promote harmony, balance, and emotional healing.

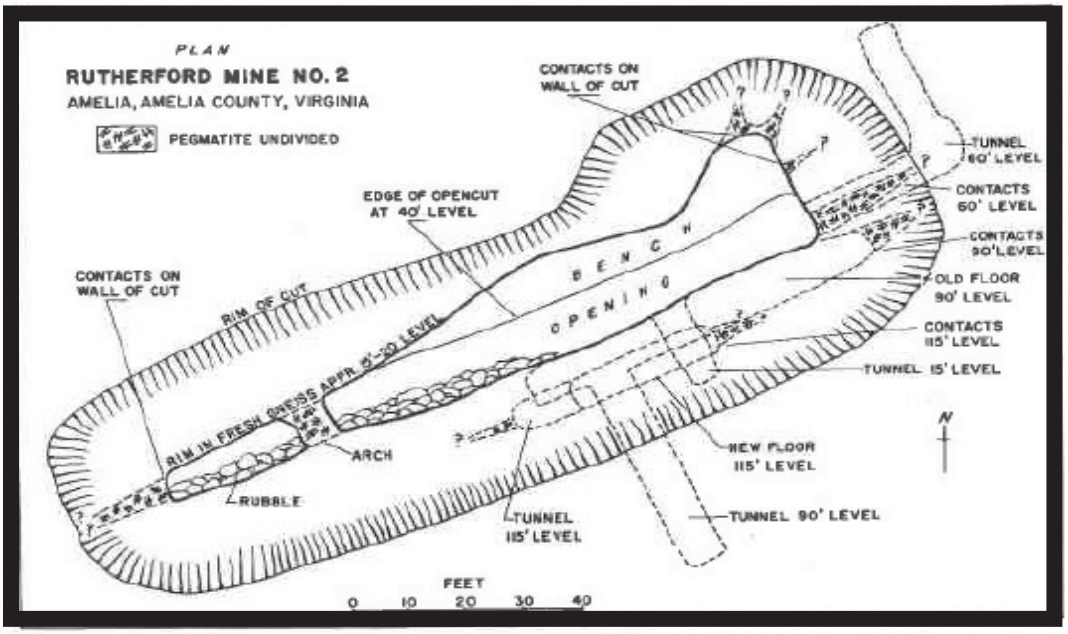
In the early 1900s, 15 tons of gem quality Amazonite were mined from No. 2 at the Rutherford Mines. In later years, collectors would search the tailings for pieces of the beautiful mineral.

Another famous pegmatite mine in Amelia County is the Morefield Gem Mine owned by Sam and Sharon Dunaway. This site has held an active mineral mining permit since 1979. Though currently flooded and inactive, when active the underground mine is magical to behold. Sheets of mica can be found inches thick, and the walls are a seafoam aqua color that must be witnessed to accurately describe. The mine has produced over 70 different minerals including feldspar (amazonite), mica, beryl, and phenakite. Topaz, garnets and quartz (amethyst) can also be found.

Learn more about Amazonite in Virginia here.

The Workings at the Rutherford Mines

There are three distinct workings at the Rutherford Mines: No. 1, No. 2 and No. 3. The workings at No. 1 began as a 70-foot-long pit at the southeast end of which a shaft, No. 1 shaft, was dug. This shaft was worked at various levels with drifts until it reached a death of 90 feet according to Spurgeon Bartlett (mine foreman). (Lemke, 1944). 200 feet away, the workings at No. 2 began as a 150-foot-long pit, 50 feet wide at the surface and 75 feet deep. There is reported to have been a 75-foot shaft at the east end. Sheet 22 inches by 24 inches of Muscovite, the largest found in Virginia, were reported to have been found at No. 2 (Pegau, 1932). No. 3 consisted of a 25-foot shaft and 36-foot adit that was 6 feet high and 4 feet wide.



Overview map of No. 2 Mine (Sinkankas, 1968)

Our Collection from the Rutherford Mine

In 2025, Virginia Energy, in cooperation with USGS and funding from National Geological and Geophysical Data Preservation Program (NGGDPP) grant, began archiving historic mining records and photographing samples from the Rutherford Mine in Amelia. Our geologists began the process of carefully cleaning, inventorying, cataloging, and photographing specimens from the mine. These specimens represent unique examples of the complex mineralogy of the Rutherford pegmatite. Additionally, many specimens have X-ray diffraction or mineral chemistry analyses which were also scanned providing data for specific identification as well as a source of critical mineral exploration information.

Scott Duresky of Charlottesville has assembled this collection of the various and unique mineral species found in the Rutherford Mine. He has generously donated these specimens to the permanent collections of Virginia Energy. Since the Rutherford Mine is permanently closed, these specimens represent a unique collection that provides a comprehensive representation of the mineralogical diversity of this site.

The collection includes 388 physical items that were inventoried and photographed as part of the NGGDPP FY2024-2025.

Learn more about the Rutherford Mines here.

RISK TOLERANCE

By Eric Snowadsky, Mine Inspector

WHAT EFFECTS YOUR SAFETY DECISION MAKING ?

If you are an avid reader of the MSHA.gov website, you have likely noticed the ever- increasing number of fatalities occurring in the Mining Industry over the last couple of years. This rapid increase in fatal accidents is such that the Federal Agency has struggled to provide Preliminary Reports, Fatality Alerts and Final Reports in a timely manner. As of this writing, 28 miners have not returned home after reporting to their jobs. Seventeen of these tragic incidents have occurred since the end of July 2024. Alarming, YES!

Reading the Final reports of these tragedies, I am struck by the similarity in causational factors. The factor most apparent to me is that these miners failed to make the right decision, and too often, the associated leaders in charge. What are we doing as Industry leaders to counteract this trend?

My last few years in the Industry, I worked for the global organization, CRH. By 2016, CRH had experienced an unacceptable rate of serious accidents, and the Company reacted by creating and distributing an in-house training program called Risk Tolerance Training (RT). The program was designed around 10 RT factors identifying some of the underlying causes of the decisions we make, specifically in the Safety world.

Upon leaving the Industry a few years ago to join the State Mining Safety Team, I reached out to CRH through their local Safety Management and requested a copy of the RT training materials. The company responded in a positive way providing the training materials with no strings attached. I applaud this generosity.

Mr. Jeff Withrow, CRH Safety Manager, provided the following comments about the Program, *"Each of us maintains our own level of tolerance for risks we face each day. Our willingness to accept more risk is based on a number of drivers - education, experience, risk vs. reward, perception of outcome, etc. The risk tolerance program was developed to assist our people in their understanding of not only the risk they are exposed to, but what the individual drivers of their risk tolerance may be. In an exercise many of our employees would be perfect in their identification of risk, but their acceptance of the risk and choice on whether to procced, or not, was based on their perception of the risk tolerance drivers. Our objective is to educate our people on these drivers with the hope of maintaining a LOW level of risk tolerance daily."*

Today, these RT materials have been used on many occasions by our Inspectors during Annual Refresher Training sessions and distributed to others. The feedback from the attendees has been very favorable. A common comment included with the post-training evaluations is that this training is thought provoking and really promotes group discussions. The materials are available upon request. Please do not hesitate to contact me, your inspector or our training staff for your request.

RISK TOLERANCE FACTORS:

1) Overestimating Capability or Experience
A belief that one's physical ability (strength or agility) will allow them to do the task without injury or that years of experience (wisdom) will prevent any adverse situations.

2) Familiarity with the task
A repetitive task can become routine and then risk awareness decreases. Complacency sets in when it is done many times without an incident.

3) Seriousness of Outcome
When we believe the outcome of an action could be serious, we have less acceptance for the risk. If we believe the outcome may not be serious, we accept more risk.

4) Voluntary Actions and Being in Control
Control over an activity or engaging in an activity voluntarily results in the risk being perceived as lower.

5) Personal Experience with an Outcome
When we have had a personal experience in our past with a serious outcome, we will be less accepting of the risks associated with the activity. If not, we may be skeptical that a serious incident could actually occur.

6) Cost of Non-Compliance
Risk tolerance can be reduced when the cost of non-compliance to a standard is increased. The reverse is also a factor ... if the cost of compliance is high ($$ or effort) more risk will be accepted.

7) Overly Confident in the Equipment
Risk tolerance increases when we have excessive confidence and trust in the equipment and believe the integrity and capability of the equipment can prevent an incident.

8) Confidence in Protection and Rescue
Risk tolerance increases when we have excessive confidence in the personal protective equipment and when we believe rescue is imminent.

9) Potential Profit & Gain from Actions
Risk tolerance increases when there are incentives, pay, rewards or other gains that encourage 'faster', 'more of', 'cheaper' or 'short-cuts'.

10) Role Models Accepting Risk
The level of risk accepted by the mentors and role models in a work group will impact the level of risk accepted by the group as a whole.

MINE SAFETY AND HEALTH LAW SEMINAR

By Cale Moore, Mine Inspector

August 2024 marked the 8th year of the Virginia Energy's Mineral Mining Mine Safety and Health Law Seminar. From August 27-29, eighteen attendees joined instructor Cale Moore in Charlottesville to learn the ins and outs of the Federal mine safety laws. The attendees represented large and small mineral mining operators and independent contractors from across the state with the goal of bringing a deeper knowledge of MSHA's laws back to their respective operations.

The Mine Safety and Health Law Seminar was established in 2016 with the objective of helping Virginia mine operators and their agents not only achieve federal compliance but develop a robust safety culture. The three-day course outlines MSHA from top to bottom, starting with the Mine Safety and Health Act of 1977 and how it came to be. It also delves into the Code of Federal Regulations and the MSHA's Program Policy Manual, a handbook that provides context and guidance behind the laws and regulations. Finally, the class provides advice on dealing with MSHA directly, such as how to get the most out of an inspection, how to contest and appeal citations, and the rights and responsibilities of all miners.

The class also featured several guest speakers with extensive experience in the mining industry and working with MSHA. Beau Thomas, Chief of the North Carolina Department of Labor Mine and Quarry Bureau, joined the class to discuss MSHA citations, including penalties and how to effectively appeal and contest them. Troy Austin, Luck Stone Corporation's Value Safety Manager, told the class about his personal experience dealing with a tragic fatality at one of their Virginia mine sites, outlining not only how MSHA and DMM handled the situation, but the human importance and impact of health and safety. Finally, Paul Saunders, Mineral Mining's Manager of Safety and Permitting, utilized his experience in the Virginia mineral mining industry as an operator and regulator to review the differences between MSHA and Virginia laws and regulations.

At the end of the seminar, the attendees left with a newfound confidence in working with MSHA and a deeper knowledge of the Federal mine safety laws. One of the participants said he takes the class every year because of how much he values the information, and several attendees, when asked what they felt the most important part of the seminar was, simply said "all of it". If you are interested in attending, the next seminar is scheduled for September 23-25, 2025, in Charlottesville. It is open to anyone interested and is always free of charge. For more information on the seminar, please take a look at this flyer. If you have questions about attending, contact Cale Moore at cale.moore@energy.virginia.gov.

GOODWYN MINE RECLAMATION

by Jonathan Steinbauer, OLP Specialist

The Goodwyn Mine, an abandoned underground gold mine located within Lake Anna State Park, operated between 1880 and 1886 by the Pocahontas Gold Mining Company (1880) and by the Goodwyn Mining Company (1881-1886). The land in Lake Anna State Park used to be known as "Gold Hill", with gold first discovered in 1829 and mining reaching its peak in the 1880s. In 1971, Lake Anna was created to serve as a water coolant for Virginia Power's nuclear plant. In 1972, work began on the acquisition and development of a water-oriented state park. Lake Anna State Park opened in 1983.

Prior to mining underground, the Goodwin family extensively placer mined along nearby Pigeon Run. Though the underground mine operated for a short time, the site had considerable infrastructure including a stamp mill and amalgamation facility for gold extraction. Foundations of some of the structures still exist in the park today. Historical records show three shafts were sunk at the site, with the main shaft extending 200 feet below ground. Recent field surveys have identified mine shaft features at the site. Though some gold was found and processed, the site was not profitable and went out of business. In 1886, the mine site was sold at auction and has been dormant ever since.

In June 2024, the Division of Mineral Mining's Orphaned Land Program (OLP) began evaluating the condition of abandoned mine sites identified in the Lake Anna area. DMM's investigation of the Goodwyn Mine site identified that fencing installed around the main shaft and one other mine shaft had fallen into disrepair. We reached out to Lake Anna State Park on collaborating with Virginia Energy to replace the current fencing with new fencing and install new fencing around other mine shafts and features at the site to reduce safety hazards and risk to the public including a mine shaft located near a Lake Anna hiking trail. After an additional site visit, Lake Anna State Park and Virginia Energy developed a scope of work and plan to replace and install new fencing around the former mine shafts, build an observation platform, and install informative signs describing the history of the site.

Main shaft area and original fencing during prior to rehabilitation.

Unfenced mine site shaft feature to the south of the Main Shaft. Image is looking south.

Our Orphaned Land Program was established in 1978 and has reclaimed over 135 abandoned mineral mine lands in the Commonwealth. There are approximately 9,500 abandoned features in Virginia; 3,300 have been inventoried.

Learn More about our Orphaned Land Program here.

Lake Anna State Park hosts interpretive ranger-led programming to visitors, so it was very important to keep the mine site features visible to the public while also restricting direct access to the features and reducing risk to the public. Five areas were chosen to be fenced. To keep with the park aesthetics, split rail fencing backed with woven wire mesh was selected to replace the deteriorated and damaged failed t-post and welded wire fencing and newly identified features.

LAV Fencing (Midlothian, Virginia) was awarded the contract in December 2024 and completed the work in January 2025. Approximately 1,075 feet of new fencing was installed as part of the project. The fencing is offset 8 feet from the edge of each mine feature and an observation area was constructed overlooking the main shaft. This area was designed by the project engineer and the Lake Anna State Park representative. The fence consists of a 3-tier split rail fence 4 feet high backed by a 6-inch stay spaced woven wire mesh. Signs warning visitors of the potential hazards were placed at even intervals around each feature and areas disturbed were covered with natural mulch.

Main Shaft observation area.

Main Shaft as seen from fenced observation area.

With the new fencing, informative signs, and observation platform, Lake Anna State Park plans to provide guided tours of the area with the potential to open the area for unguided visits. This project highlights the successful collaboration between agencies to ensure the protection of the public and historic mine sites. If you are aware of any historic or abandoned mine sites on your property in Virginia that you would like to have Virginia Energy to evaluate for potential hazards and reclamation, please reach out to us.

Our Orphaned Land Specailist, Jonathan Steinbauer, has taken a new job. We wish him the best and thank him for his hard work for the program.

SMALL MINE OPERATORS COLLABORATE WITH VDOT

By Preston Bristow , Mine Inspector

The Division of Mineral Mining's Preston Bristow recently had an idea to assist small mine operators with their reclamation activities by coordinating with VDOT to obtain and transport excess soil material from VDOT jobs back to their mine sites.

The idea is not totally new. Many of the mine sites currently accepting such material from VDOT have a per-load contract to accept these materials, which helps generate revenue for the mine site. VDOT regulations limit the disposal of roadside material to certain types of controlled sites. This can mean longer haul distances for VDOT, which effectively decreases VDOT's productivity while increasing costs to the taxpayer. Most of the excess soil material VDOT generates has historically been disposed of at a permitted landfill or other regulated site, such as a Virginia mineral mine.

By pairing VDOT with small mine operators who need this type of material for reclamation and are willing to accept this material without compensation, it effectively becomes a win-win solution for both. This solution provides VDOT with a greater number of sites where they can dispose of roadside materials resulting in potentially shorter haul distances and reduced transportation and manpower costs. Mine operators benefit by being able to obtain suitable materials to help them achieve their reclamation goals.

A small mine in Middlesex County is a prime example of a very small operator who was in desparate need of fill material in order to reclaim their mine. This was a legacy situation where the responsibility for reclamation of a mine on their property fell to a family upon the passing of their father, the original mine operator. Preston was able to use his contacts within VDOT to put the parties together resulting in a win for the mine operator and subsequently the taxpayers of the Commonwealth because VDOT's costs were reduced in the process.

As a reminder, no offsite material may be brought onto a mine site without prior approval from the Division of Mineral Mining (DMM). If you are interested in receiving offsite material, please contact your local DMM Inspector.

Original Pit Wall

Ongoing Pit Wall Reclamation Using Material from Nearby VDOT Road Project.

LUCK STONE LEESBURG TUNNEL PLUG

By Sarah Hamm, Permit Engineer

Luck Stone Corporation owns and operates the Leesburg Plant in Ashburn, Loudoun County, Virginia. The quarry mines diabase, also known as traprock, a dense, igneous rock with a greenish-black to bluish-black color, and has played a major part in supporting the development of Northern Virginia, especially areas west of Interstate 495. Initially developed by Luck Stone in the early 1970's, the Leesburg Plant became interested in an abandoned small quarry that was partially mined prior to Virginia mining regulations (pre-1976) located immediately north of the decommissioned Washington and Old Dominion Railroad (W&OD). Plans were already in place by the county and the Northern Virginia Regional Park Authority to create a recreational trail along the discontinued railbed which prevented expanding the existing south pit into the abandoned pit. With reserves remaining in the North Quarry, the decision was made to work with Loudoun County to connect the two pits via a tunnel beneath the W&OD trail. Figures 1 and 2 give an aerial view of the project area and tunnel location.

Figure 1 and Figure 2: Aerial views of the project area

Construction on the tunnel began in January 1995. The tunnel was officially placed in service on May 1, 1995. With an approximate width and height of 35 feet and 27 feet, respectively, the 290-foot-long tunnel was large enough to accommodate a single lane for a haul truck. Photos from the construction phase and after completion of the tunnel are shown in Figures 3 through 6.

Figure 3 and Figure 4: Photos taken in February 1995 during the tunnel construction. Figure 3 (left) shows a shot taking place to square the face. Figure 4 (right) shows material being mucked from the tunnel during a snowstorm.

Figure 5 (left): Photo of the completed tunnel connecting the North and South Quarries. Figure 6 (Right): The completed tunnel was large enough to allow haul trucks to pass through to carry stone to the processing plant.

As mining in the North Quarry reached the end of its life, Luck Stone and Loudoun Water, the local municipal water authority, teamed up to develop a unique and productive post mining land use for the pit: the North Quarry will become the Milestone Reservoir. Water pumped from the Potomac River, located approximately two and half miles north of the site, will fill the reservoir. During regular flow periods, the Potomac supplies the water treatment facility directly. During periods of low flow, water from the reservoir will be pumped to the local water treatment facility.

As operations continue in the South Quarry, the connecting tunnel presents a potential problem. The reservoir could not be filled above the tunnel level without flooding the South Quarry. The solution? Plug the tunnel. At a normal pool elevation, approximately 200 million gallons of water will be held above the tunnel. Table 1 shows the volumes of water to be stored in the reservoir at various elevations. At completion, the reservoir will hold over one billion gallons of water. Figure 7 shows the tunnel from the North Quarry side and provides some perspective for the large volume of water that will be contained once filled.

Key Water Level / Elevations	Water Surface Elev. (ft NAVD88)	Volume (MG)
Surcharged Pool (High Water Level)	210	1259
Normal Pool	200	1217
Tunnel Plug Invert	175	1017
Active Reservoir Low Water Level	10	156

Table 1: Water volumes in millions of gallons of water at various locations within the Milestone Reservoir.

Figure 7 : A photo from the tunnel taken from the North Quarry side of the mine.

A 20-foot thick concrete plug was engineered using recommendations from the Bureau of Mines Information Circular 9020 "Design of Bulkheads for Controlling Water in Underground Mines." The plug was conservatively designed to hold back a hydrostatic pressure for a maximum flood elevation of 260 feet while the normal high water elevation in the reservoir is 210 feet. An overview of the plug design is shown in Figure 8.

Currently, work is underway to prepare for the plug's construction. Prior to construction, additional resin grouted rock bolts will be installed on five-foot radial and longitudinal spacings along the entire length of the tunnel. To create a waterproof barrier around the plug, 15 feet long curtain grouting holes will be drilled and grouted on five-foot spacings in the plug area. Additionally, one inch contact grouting pipes will be installed radially every 3 feet around the permitter of the plug. Contact grouting is used to help tie the plug structure to the surrounding in-situ rock. The pipes will be installed at 45-degree angles from horizontal. Once the concrete plug has cured, a drill will be inserted into the pipe to drill into the in-situ ore body. Once drilled, the contact grout will be injected into the open hole to help tie the plug in place.

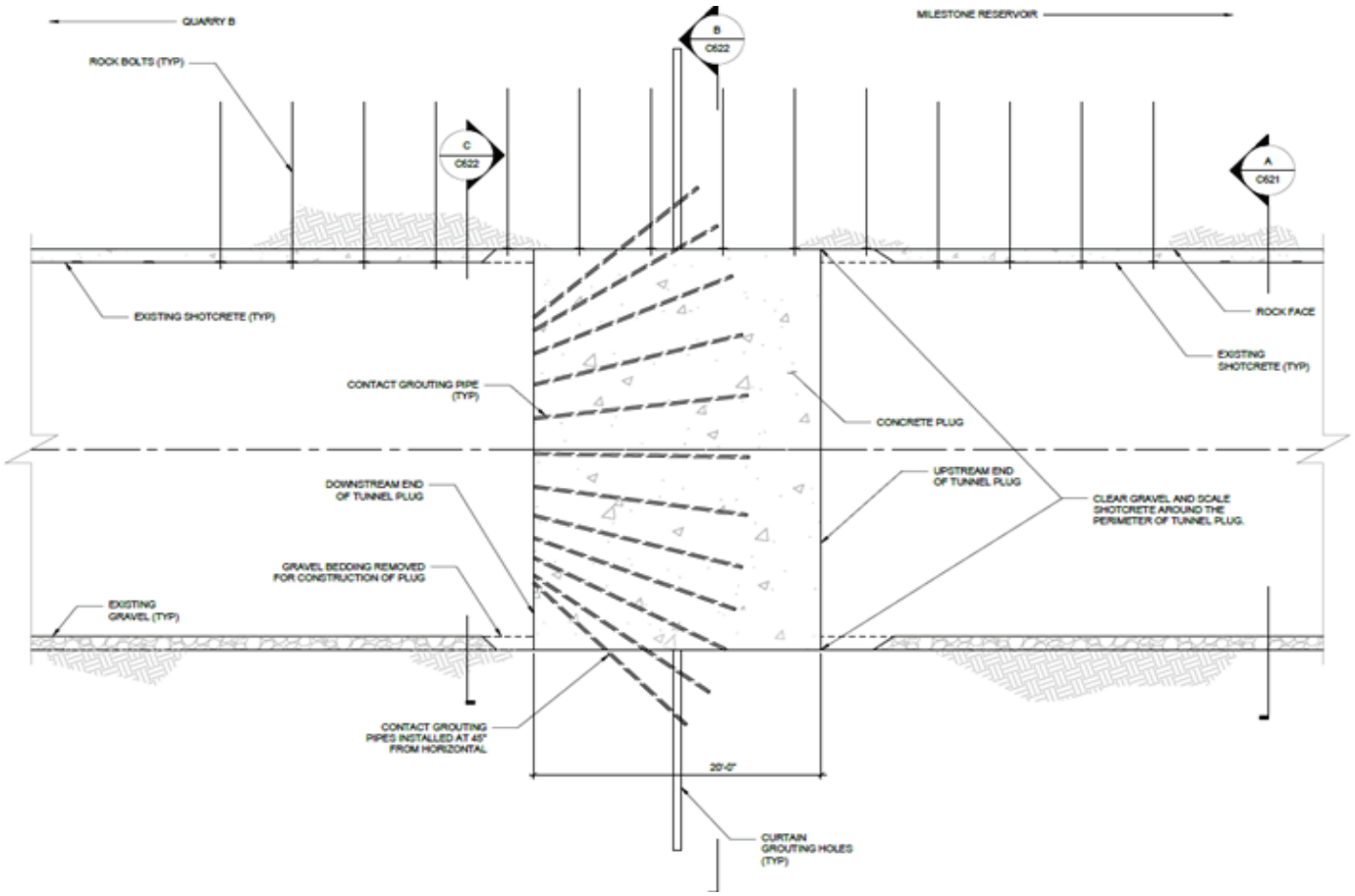


Figure 8: Cross sectional view of plug design.

A monitoring plan will be put in place once the plug is completed. Four structure monitoring points will be installed on the face of the plug so that it may be surveyed for movement from the quarry side. Additionally, points for the installation of permanent vibration wire piezometers and inclinometers have been identified throughout the project area.

The plug will be surveyed daily prior to and during the initial filling. As long as no movement is detected, survey frequencies will gradually decrease throughout the first year of the plug's life to weekly, then monthly. If the plug position continues to remain unchanged, the surveys will be reduced to quarterly after the first year. Loudoun Water Estimates that by 2040, its customers may require 90 million gallons of drinking water per day. The agreement between Luck Stone and Loudoun Water is advantageous for both companies, as well as the local community. Over time, additional Luck Stone quarries may be converted to reservoirs, creating as much as eight billion gallons of capacity to Loudon Water. Additionally, converting the quarry into a reservoir gives the quarry a productive and long-lasting post mining land use that serves the community in which they spent years operating. Additional information on the Potomac Water Supply Program and the Milestone Reservoir can be found on Loudoun Water's website.

JAMES SCHAEFER

Division of Mineral Mining's **James Schaefer** competed in the UCI Medio Fondo World Championships in Aalborg, Denmark, on September 1, 2024. Over 3000 amateur cyclists from across the globe participated in the race, with James being one of six cyclists from Virginia who competed at the World Championships. The race is a one-lap, 80-mile circuit through the Danish countryside.

Virginians at the 2024 Cycling World Championship

Maters 60-64 starting pen

James waiting at the start

In May 2025, James competed in the World Championship qualifier in Jacksonville, Alabama. James will be riding in several charity events, including the Heart of Virginia Bike Festival in Hanover County, which the proceeds for will benefit Brain Injury Association of Virginia and Bikes for Kids. James also competed in the National Championships in July 2025, the Virginia Championships in July 2025, and will participate in various regional events during the rest of 2025 including weekly training races at Bryan Park in Richmond, VA. Best of luck, James!

ELLE LINDGREN

Elle Lindgren returned to DMM this summer and is working for the Orphaned Land Program. She is validating the new "Previously Mined Lands" database to ensure all of our records are up-to-date.

In December, Elle will be graduating Magna Cum Laude from the University of North Carolina at Wilmington with Bachelor of Science degrees in Environmental Science and a double Minor in Marine Biology and Oceanography.

Elle is Technical Services Manager Chrissi Wood-Smith's daughter.

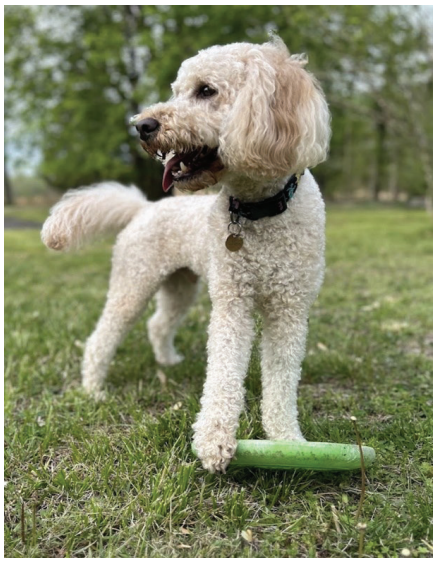
ELIZABETH "GRATIA" GOODE

My name is Elizabeth Goode, but I go by Gratia. Sometimes my friends call me Gray, if that's easier. I grew up in Chesterfield and fell in love with the outdoors at camp in the mountains and camping trips with my dad. I love hiking, the beach, and am always up for an adventure.

After high school I moved to Washington where I attended Western Washington University where I studied Environmental Education. I moved back to Virginia after graduation, then I spent some time in Tennessee and North Carolina. I decided to go back to school to study Environmental Science and I got my Master of Teaching degree. I taught high school Earth and Environmental Science for the last fifteen years, during which time, I also met my husband and had our two kids. My husband, Jon, is a blueberry farmer. My two kids, Sage and Sully, keep us busy with their year-round sports. And Jasper, our dog, is pretty cool when he isn't eating trash.

Sage

Sully



Jasper

I enjoy doing basically anything with my family, but in my free time I enjoy traveling, reading, writing, making bread, and watching sports. I am a Commanders and Braves fan, but I enjoy watching any softball, soccer, and basketball too. Currently I am trying to get my novel finished and hopefully published.

I'm excited to be joining the mineral mining group and Virginia Energy. Looking forward to meeting you in person if I haven't already.

Gratia has joined DMM as the new Area 5 Inspector. She can be reached at elizabeth.goode@energy.virginia.gov.

Paxton Contractor's King Pit, Surry County

Abandoned Mined Land, Chesterfield County

PETRIFIED WOOD

Sanford Construction and Contracting, Prince George County

R. J. Smith Construction, Chesterfield County

This sweet girl sat through the training and test for Surface Foreman. She is a service dog for her owner at Branscome's Wattsville Pit in Accomack County.

Luck Stone, Leesburg Plant, Loudoun County

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If you have topics you would like featured in our newsletter, please contact chrissi.wood-smith@energy.virginia.gov

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