

# VAPSS NEWSLETTER



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Third Quarter 2019



## “Cannabis, Hops & Soil What You Didn’t Know You Needed to Know”



VAPSS Fall Conference - October 17-18, 2019

Homewood Suites by Hilton, 12810 Old Stage Road, Chester, VA 23836

**SCHEDULE, SPEAKERS & TOPICS** (see attached Registration Form – Also available online at <http://vapss.org/>)

Please also consider being a supporting sponsor (see attached letter and sponsor benefits and sponsor levels)

### Thursday, October 17

8:00am–8:30am Registration  
8:30am–Noon “Classroom” Presentations  
(Lunch will be provided)  
1:30-4:30pm - Field Trip to Shirley Plantation  
4:30pm–5:30pm - VAPSS Business Meeting at  
Homewood Suites Hotel  
6-7pm - Craft Beer Tasting **(NEW)**  
7-8 pm - Dinner Meeting **(NEW)**  
8 pm – Soil Judging Contest

### Friday, October 18

8:30am– Noon “Classroom” Presentations  
(Lunch will be provided)  
Field Trip – Virginia State University’s  
Franklin Research Farm

### FEATURED SPEAKERS

- *Thermo Fisher Scientific, (X-Ray Fluorescence Instrument (XFR))* morning and demonstration on dredge spoil soil in afternoon at Shirley Plantation
- *John Fike, “Soils and Hemp Production”*, Interactive Video presentation from Virginia Tech
- *Laura Siegle, “Soils and Hop Production in Virginia”*, Virginia Tech Extension – Amelia County FRIDAY
- *Eric Day, “Tick and Insect Issues in the Field & Working in the Spotted Lanternfly Quarantine Area”*, Manager, VA Tech Insect ID Lab
- *Matt Tolley, “Hops Production and Use in the Real World of Craft Brewing”*, Brew Master, Soils, Hops & Craft Beer Brewer
- *Dave Harper, “NCRS and Soils Updates”* NCRS
- *Dr. Lee Daniels, Field Trip to Shirley Plantation* (dredge soil management including conversion of both fresh- and saltwater dredge materials to ag production, acid-forming materials site – acid sulfate soil, tidal-created freshwater forested wetland, pits in dredge and natural soil areas)
- *Charles Carter, Field Trip to Shirley Plantation*, Pecan grove operation with auger holes
- *Randy Green “Growing and the Business Side of Hops Production”*, Old Dominion Hops Cooperative FRIDAY
- *Dr. Ramesh Dhakal, Virginia State University Hemyard* FRIDAY
- *Hops Farming* - Additional background: (<https://covabizmag.com/a-revolution-in-virginia-hops-farming/>)

## Call the Hotel Directly to Book Rooms

804-751-0010

Homewood Suites  
by Hilton Richmond-Chester

Group Name: VAPSS  
Group Code: VP1  
Check-in: 16-OCT-2019  
Check-out: 18-OCT-2019



Hotel Address: 12810 Old Stage Rd  
Chester, Virginia 23836

the following room types were available (9/27/19)

15 King Suite Studio - \$119 per night  
10 King One Bedroom - \$129 per night  
5 One Bedroom Doubles - \$129 per night

## Nominations Needed for Officers for 2020

### We need:

- Vice-President for 2020,  
(who would be President in 2021)
- Secretary and a Treasurer for 2020++
- One New Board Member

David Hall and Alexandria Schmidt have agreed to serve as the nomination committee for the 2020 officers and directors.

Please submit your nominations to:

David Hall [davidh@swva.net](mailto:davidh@swva.net) (540) 392-8049  
Alexandria Schmidt  
[schmidtaf1214@gmail.com](mailto:schmidtaf1214@gmail.com)

## Soil Stress

From Horn, R. and T. Baumgartl, Stress Theory and Stress/strain Processes, A-23 to A-29 *In* Sumner, M.E., (Ed.) 2000. The Handbook of Soil Science, CRC Taylor & Francis Group (publishers), Boca Raton, Florida

As applied, Stress Theory, pp A-23, 31 July 2019, Nan Gray, Soil Scientist

Rainfall to date is 40 inches, at the end of July, in Sinking Creek Valley of Craig-Giles County. Rain/liquid precipitation is on track to be approximately 60 inches by the end of the year and may be as high as 71 inches. Construction projects that use 40 inches of rain per year for the erosion and sediment control calculations will find the low number inadequate for reality of holding soil in place.

Soil stress and the mechanical behavior of soil varies with its moisture content, and is not to be assumed uniform in different soils or types of soils. *Soil stress propagation is transmitted in at least three dimensions and can alter the chemical, physical and biological properties if the internal mechanical strength is exceeded. The type of external force applied, time dependency and number of compaction events can either change properties to depths by divergent processes or destroy a given structure by shear forces such as kneading.* We witness this with landslide, slips, slumps and creeps along cuts, embankments and adjacent areas to soils that are disturbed.

Soil stress from deformation is a safety issue to the pipeline integrity. Pipeline integrity management states soil stress and soil shear strength must be considered for routing and construction projects.

Stable soil can become unstable soil (that moves) for many reasons. As mentioned, soil that is saturated with water may not be able to hold its own weight on a slope and may migrate, a little at a time (creep) or en masse suddenly catastrophically (landslide) or if cut, soil may fall into the area cut (calve or cave in). Some soils with shrink-swell clays, move on their own with heaving when wet and shrinking/cracking when dry. Disruption of the soils' ability to push against itself, if cut, allows the shrink-swell clays to push against the open cut, forcing the sidewall of a cut to collapse.

Other forces can cause soils to collapse or move such as the vibrations from heavy equipment or nearby railroad or highway.

Geohazards such as karst or fluctuating high water table may destabilize soil coherence and cohesiveness, reducing the strength of the soil to stay intact. In the case of soil and vegetation spanning a void, conditions may change if vegetation is removed and the soil may lose its strength associated with the roots and collapse into a hole or rock fracture if there is a crack, creating a sinkhole, which may lead directly to groundwater.

Our Region (Appalachian Mountains of the Virginias) has many soil types that change with topography, climate, parent material (bedrock), vegetation, and time. Humans impact soils with different land uses. Some land uses are not suitable for the existent soils.

In the case of pipelines, stress corrosion cracks may form if the pipeline is installed in soils that move and this is where time and moisture are external to what humans can control. Not all soils are suitable for every land use. This is where we come in.

King, F. (2010) Development of Guidelines for Identification of Stress Corrosion Cracking (SCC) Sites and Estimation of Re-inspection Intervals for SCC Direct Assessment

Pipeline and Hazardous Materials Safety Administration Guidelines 195-Transportation of Hazardous Materials by Pipeline

## Transitions

### Dan Amos

Dan Fry Amos, of Concord and Blacksburg, Va., passed away Friday, September 13, 2019 after a brief illness. He is now with his parents, Daniel Carter and Jane Fry Amos, and his beloved wife of 62 years, Anne Doppler Amos. Left to share wonderful memories are his son, Daniel Carter (Renee) Amos; his daughter, Gabrielle Amos Minnich; and his grandchildren, Dylan and Riley Minnich. Dan was born and educated in Kentucky and earned his doctorate in soil science from Michigan State University. He spent his career working at Virginia Tech, teaching and conducting research. He loved his family, good beer, and funny jokes. He was an excellent friend and the best father. We love him and cherish his memory. –

*Roanoke Times*

*“Dan F. Amos was an Associate Professor of Agronomy/Crop and Soil Environmental Sciences from 1961 to 1990. In addition to his service at Virginia Tech, Dan was a founding member of VAPSS and the party leader for the Chesterfield County Cooperative Soil Survey. He was a mentor to many current and former VAPSS members.” – Nan Gray*

### James Belshan

JAMES EDWARD BELSHAN, born to John Leonard Belshan and Mary Ellen Cox Belshan on February 4, 1946 in Roanoke, Virginia, but lived most of his life in Disputanta, VA. He graduated from Prince George High School, where he played drums in the marching band during a season of significant recognition. He also graduated from Virginia Tech with a degree in agronomy. He was a soil scientist and charter member of Virginia Association of Professional Soil Scientists (VAPSS). He owned and operated Virginia Soils Evaluation Company. He also operated a family farm. While mapping Mount Vernon, George Washington’s home, he discovered a previously unknown quarry on the property. A marker was placed there commemorating his discovery. He also mapped the Kings Dominion property prior to its development. He was a part of the Optimist Club and Warrenton Jaycees. He was a member of the Prince George Masonic Lodge No. 115, Prince George, VA. He served his community by being on the Sussex County Board of Supervisors. He was a member of Oakland Baptist Church. He is survived by his wife of nearly 52 years, Sandra Kay Sheppard Belshan; children, Christina Elaine Belshan Bishop (Cecil), James Lee Belshan (Josie, who is deceased), Kathryn Leigh Belshan Parker (Jonathan); 8 grandchildren; brother, John William Belshan (Betty); and numerous nieces and nephews. A funeral service will be conducted at 11:00 am on Friday, July 26, 2019, at the Chesterfield Chapel of J.T. Morriss & Son Funeral Home

*“A deep loss, good-natured and always willing to help. We worked closely when he was a soil scientist for Fairfax County. Never critical, always sought solutions.” – Bill Sledjeski*

**Photo Request:** If you have any photos of Dan Amos or Bill Belshan, please forward them to Nan Gray ([soilwork@pemtel.net](mailto:soilwork@pemtel.net)) or the VAPSS Office ([vapss@vapss.org](mailto:vapss@vapss.org))



# Virginia Association of Professional Soil Scientists 2019 Officers & Board of Directors

**PRESIDENT:** Nan Gray [soilwork@pemt.net](mailto:soilwork@pemt.net)

**President Elect:** David Hall [davidh@swva.net](mailto:davidh@swva.net)

**PAST PRES:** Bob Melby (2018)

[valleysoils@gmail.com](mailto:valleysoils@gmail.com)

**TREASURER:** Greg Monnett [greg@enviro-utilities.com](mailto:greg@enviro-utilities.com)

**SECRETARY:** Lexi Jones [aamljones@gmail.com](mailto:aamljones@gmail.com)

**BOARD MEMBERS:** (usually only four at large Directors)

**Matt Tolley** (rotates off Board 2021)

[matt.tolley@soils-inc.com](mailto:matt.tolley@soils-inc.com)

**Bill Sledjeski** (rotates off Board 2021)

[bill@sledjeski.com](mailto:bill@sledjeski.com)

**George Swecker** (rotates off Board 2019)

[GeorgeSwecker@gmail.com](mailto:GeorgeSwecker@gmail.com)

**Roy Hunter** (rotates off Board in 2020)

[rhunter@dominionsoil.com](mailto:rhunter@dominionsoil.com)

**Bryan Layman** (rotates off Board 2019)

[blayman@ecslimited.com](mailto:blayman@ecslimited.com)

**-NRCS Liaison:** Alexandra Schmidt

[schmidtaf1214@gmail.com](mailto:schmidtaf1214@gmail.com) –

**VPISU Liaison:** John Galbraith [ttcf@vt.edu](mailto:ttcf@vt.edu) –

**Exec. Sec:** Jeff Miller [vapss@vapss.org](mailto:vapss@vapss.org)

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## PennEast Pipeline Story

*Engineering News-Record Sept 15, 2019 by Debra K. Rubin*

Federal appellate judges' reversal of decisions by a lower court and by the Federal Energy Regulatory Agency to allow private developers of the \$1-billion, 120-mile PennEast natural gas pipeline to condemn state-owned land in New Jersey appears headed for US Supreme Court review.

The Sept. 10 ruling by the three-judge panel of the Third Circuit Court of Appeals in Philadelphia said the previous approvals of eminent domain to seize 131 land parcels, including 40 that are state-owned, for the 36-in.-dia line violate the US Constitution's 11th Amendment.

PennEast had argued it was allowed under the federal Natural Gas Act to condemn properties along the line route and said that a ruling like the one it ultimately received could cause that project and other interstate pipelines to halt. Read more...<https://www.enr.com/articles/47512-court-nixes-eminent-domain-for-big-east-coast-fracked-gas-pipeline>

The contentious battle over the destruction of functioning healthy soils is hardly part of the argument, but it should be front and center. We cannot continue to disrupt intact soils and expect them to behave the way they did. The elephant in the room for us is Mountain Valley Pipeline and the Atlantic Coast Pipeline, neither of which have been proven by science or math to be needed. Nor, where their routes are changing the existent soils. For example, the MVP route intercepts soils known to fail (with trenching, landslides, karst, steep slopes, shrink-swell clay, etc.) in more than 225 miles of the 300+ miles of the route. That is an expected 75% failure rate just with the soils. That does not include any failure rate of materials, such as corrosion cracks or bad welds. The MVP route has destroyed over 6,000 acres of Prime Agricultural land in Appalachia, a rare commodity anyway. Shameful.

As Soil Scientists, we must consider the science and the soils. We are obligated to object to unwise land use. This is not a political namby-pamby blah blah. We are scientists. And we know about climate changes through time and space. We know soils do not recover from many disturbances, such as trenching, compaction/compression or pollution for a long time, if ever.

We in VAPSS should not remain quiet, for fear of losing a paycheck. We in VAPSS must be part of the solution to soil change, if a change is appropriate. Soil change is climate change. And that is not just my opinion (*Nan Gray*).

# Declining Acidic Deposition Begins Reversal of Forest-Soil Acidification in the Northeastern U.S. and Eastern Canada

**ABSTRACT:** Decreasing trends in acidic deposition levels over the past several decades have led to partial chemical recovery of surface waters. However, depletion of soil Ca from acidic deposition has slowed surface water recovery and led to the impairment of both aquatic and terrestrial ecosystems. Nevertheless, documentation of acidic deposition effects on soils has been limited, and little is known regarding soil responses to ongoing acidic deposition decreases. In this study, resampling of soils in eastern Canada and the northeastern U.S. was done at 27 sites exposed to reductions in wet  $\text{SO}_4^{2-}$  deposition of 5.7–76%, over intervals of 8–24 y. Decreases of exchangeable Al in the O horizon and increases in pH in the O and B horizons were seen at most sites. Among all sites, reductions in  $\text{SO}_4^{2-}$  deposition were positively correlated with ratios (final sampling/initial sampling) of base saturation ( $P < 0.01$ ) and negatively correlated with exchangeable Al ratios ( $P < 0.05$ ) in the O horizon. However, base saturation in the B horizon decreased at one-third of the sites, with no increases. These results are unique in showing that the effects of acidic deposition on North American soils have begun to reverse.

[Click here for the complete article](#)

