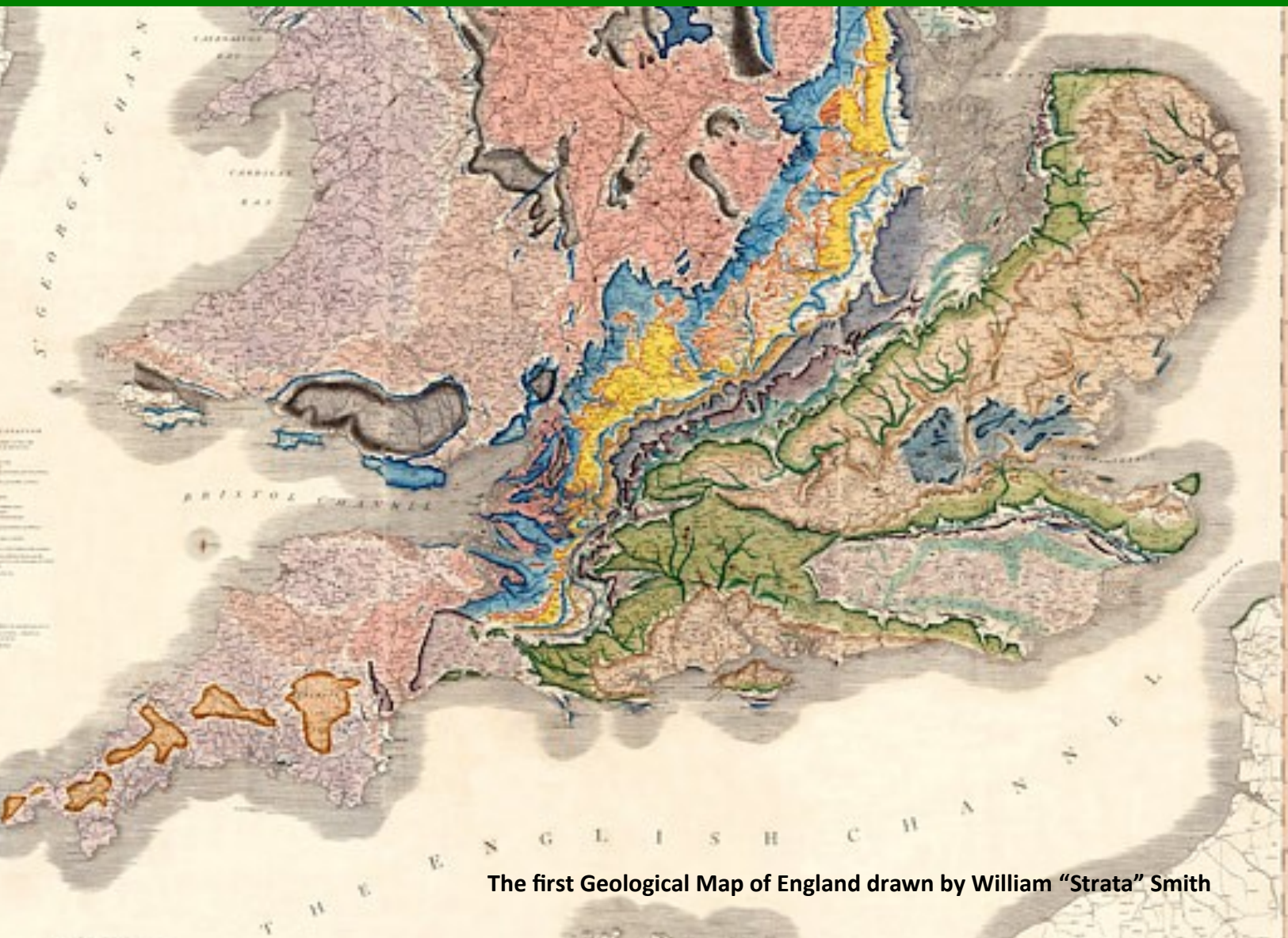


GeoNews

Newsletter of the Association of Environmental & Engineering Geologists,
Carolinas Chapter

2009, 2011, 2013, 2016, and 2017 AEG Chapter of the Year

SPRING 2019



The first Geological Map of England drawn by William “Strata” Smith

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SAVE THE DATE

AEG Carolinas Spring Meeting
There's More Than One Perspective on Coal Ash
Clouds Brewing—Raleigh, NC
April 11, 2019

PFAS and Other Emerging Contaminants Conference
Marriott Raleigh City Center—Raleigh, NC
April 23-24, 2019

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Thanks to our Sponsors!

GeoNews is a publication of the Carolinas Chapter of AEG. There are four issues per year, with deadlines and issue publication dates listed below. We publish news of the profession, announcements, student member news, technical articles, and job openings.

Deadlines for submittal to AE Carolinas GeoNews

(can be flexible depending on events)

Spring—deadline March 1, issue date March 21

Summer—deadline June 1, issue date June 21

Fall—deadline Sept 1, issue date Sept 21

Winter—deadline Dec 1, issue date Dec 21

Deadlines for submittal for the National AEG News:

March issue—January 15

June issue—April 15

September issue—July 15

December issue—October 15

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AEG Carolinas Chapter Website www.aegcarolinas.org

AEG National Website www.aegweb.org

Cover: (NASA's Earth Observatory) The first Geological Map of England drawn by William "Strata" Smith

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MESSAGE FROM THE CHAIR

By Susan Avritt, P.E., P.G., Carolinas Chapter Chair

Greetings Carolinas Chapter! I hope you are enjoying some spring weather and somewhat dryer days.

On February 7th we hosted a dinner meeting at Dilworth Grille in Charlotte, North Carolina. Genia Olson with Hart & Hickman and Janet Macdonald with NCDEQ presented “Latest and Greatest in Risk Assessment” and discussed the development of the NCDEQ risk assessment calculator and current guidance related to risk-based remediation. We had a great turnout with about 85 professionals and students attending. We thank our drink sponsors Eastern Solutions and Con-Test Laboratories.

We are planning a dinner meeting at Clouds Brewing in Raleigh on Thursday, April 11th where attendees will earn 1 CEU for attending the talk. Rick Gaskins, environmental attorney and former Executive Director of the Catawba Riverkeeper Foundation, will be presenting “There’s More Than One Perspective on Coal Ash: Where Are We Now?” We have two drink sponsors for this meeting, ENCO and CCI, so please thank them if you attend! Dinner meeting details are provided on Page 6.

We have been busy visiting schools in North Carolina this spring as part of our Visiting Professionals Program. Schools included this spring are: UNC Chapel Hill, East Carolina University, UNC-Charlotte, Wake Technical Community College, Western Carolina University, East Tennessee State University, and Clemson University. This program is beneficial to undergraduate geology students learning about what careers they might undertake. If you are interested in visiting schools to discuss your career, etc. with geology students, please contact Brad Worley at brad.worley@summitde.net. Brad has several schools lined up for this fall and is looking for volunteers.

The AEG National Annual Meeting will be held in Asheville, North Carolina this year from September 17 to 22, 2019. The Carolinas Chapter members are actively planning the meeting and expect a large crowd for the meeting. The meeting will include technical sessions, field trips, short courses, guest tours, a

(Continued on Page 4)

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Doug Canavella, P.G., M.B.A.



Eric Cross, P.G.

(Continued from Page 3)

special event, and many other networking receptions. Note that if you are an AEG member, you will receive a discounted registration rate. Registration is open, so please visit <https://www.aegannualmeeting.org/> for more information. Also, students can receive a complimentary meeting registration for volunteering to work for 8 hours. So, students, be sure to sign up, as this is a great opportunity to network with professionals from across the nation (contact heather@aegweb.org for more information).

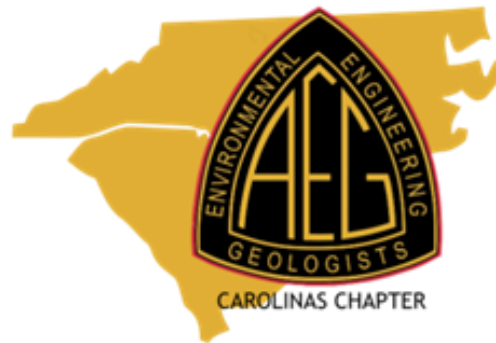
We are planning a field trip to Bald Head Island this spring/early summer, so stay tuned for details. Also, if you have ideas for social events in your area, please reach out to the Social Committee Chair Adam Phillips (adam.phillips@contestlabs.com).

As always, your board and I look forward to hearing from each of you regarding your suggestions and/or concerns related to our Chapter. We are here to serve the needs of our membership, so your feedback is vital and welcome.

Susan Avritt, P.E., P.G.

Susan.avritt@woodplc.com

AEG Carolinas Chapter Chair



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AEG Carolinas Chapter Updated 1Q 2019 Treasurer's Report

By Walt Plekan, P.G., Carolinas Chapter Treasurer



AEG Carolinas Section Treasurer's Report January 1 through March 31, 2019

BALANCE As Of January 1, 2019

Checking Account	\$ 476.85
Savings Account	\$ 20,101.43
	<u>\$20,578.28</u>

INCOME

Meetings

February Meeting	\$1,815.65
------------------	------------

Misc

Section Sponsors	\$5,075.00
Member Fees	\$1,160.00

Interest

Interest from savings	2.30
-----------------------	------

SUBTOTAL - INCOME

\$8,052.95

EXPENSES

Fees

Card reader fees	25.64
Paypal fees	163.34

Meeting Expenses

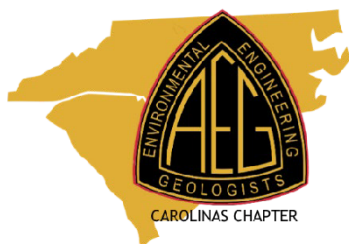
February Meeting	\$3,526.81
------------------	------------

SUBTOTAL - EXPENSES

\$3,715.79

BALANCE As Of March 31, 2019

Checking Account	\$ 6,311.71
Savings Account	\$ 18,603.73
TOTAL	<u>\$24,915.44</u>



AEG Carolinas Dinner/Meeting

*There's More Than One Perspective on Coal Ash; Where
Are We Now?*

**Thursday, April 11, 2019
Clouds Brewing, Raleigh**

*The Carolinas Chapter of the
Association of Environmental & Engineering Geologists Presents*

Guest Speaker: **Rick Gaskins**



**Richard C. Gaskins, Jr.
Environmental Attorney
Former Executive Director, Catawba Riverkeeper Foundation**

Meeting Details

- Place:** Clouds Brewing, 126 N. West Street, Raleigh (improved sound and crowd-quieting controls during the presentation will be in place)
- Date:** Thursday, April 11, 2019
- Time:** 5:30 PM socializing begins, 7:00 PM buffet dinner, 8:00 PM presentation begins
- Cost:** AEG and ASCE members \$40; non-members \$45; public-sector employees, teachers, and general public \$20, students free with college ID. Cost includes one beer ticket courtesy of Environmental Conservation Laboratories, Inc. (ENCO) and Contaminant Control, Inc. (CCI). Thanks to Keith Oravits of ENCO and Mark Vestal of CCI!
- Reservations:** Please RSVP either via email to Alec Dziwanowski (adziwanowski@gmail.com) by 5:00 PM on Monday, April 8, 2019, or reserve and pay in advance by PayPal at our website, www.aegcarolinas.org. If you pay at our website, you do not need to send Alec an email. Paying in advance will save you the time you'd have to wait to pay at the door.
Note!! Attendees that walk in without an RSVP will be charged \$5 in addition to the meeting cost.



Abstract for Rick's Presentation

An AEG Carolinas member saw an excellent presentation by Rick in January on his work along the Catawba River, which is adjacent to a Duke Energy plant. We thought his presentation would be interesting to our members not only for an overview of the current status of coal ash but also for the perspective of a former riverkeeper where there hasn't been a documented release. As you can see in his biography below, Rick was an environmental attorney in private practice for a long time (and is now returning to practice) and is well known among environmental attorneys in North Carolina. Rick will discuss the issues associated with coal ash in the context of the history of the coal ash in North Carolina, including:

- Environmental concerns about coal ash stored in unlined ponds
- Coal ash litigation strategy
- The Dan River spill
- Coal Ash Management Act
- Federal regulation of coal ash
- Coal ash used as structural fill
- Reuse of coal ash in cement and other products
- Disposal of coal ash

Rick will discuss the issue from the perspective as the former Executive Director of an environmental non-profit, although he will also discuss the perspectives of his former clients that operate coal-fired power plants.

Résumé for Rick

Rick Gaskins has worked as an engineer, lawyer, and environmental non-profit leader. After working as an attorney in private practice for over twenty years, he served as Catawba Riverkeeper and Executive Director for the Catawba Riverkeeper Foundation (CRF), an organization that represents the interests of the Catawba River. During his time at CRF, Rick was one of the leaders in the movement to require the cleanup of unlined coal ash ponds in the Carolinas.

Rick graduated from Harvard Law School, where he was the Chairman of the Environmental Law Society and the Managing Editor of the *Harvard Environmental Law Review*. Before law school, Mr. Gaskins received a Fels Research Fellowship to study public policy issues at the University of Pennsylvania and was awarded a B.S. in mechanical engineering from Duke University, *summa cum laude*. Over his career, Rick has served on many boards and received many awards, including most recently the James Dockery Southern Environmental Leadership Award from the Southern Environmental Law Center.



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AEG's 2019 Annual Meeting

Registration Now Open!

As 2019 continues to fly by, the 62nd AEG Annual Meeting in Asheville, NC will be here in no time. The Carolinas Chapter is happy to announce that registration is now open and encourage everyone to register before the early bird registration ends on August 1, 2019. Interested parties can go to <https://www.aegannualmeeting.org/> to register for the meeting, reserve your hotel room, and find additional information regarding all of the events. We have a group rate of \$189/night with the Renaissance Asheville Hotel and encourage everyone to make your reservations early as we anticipate the room block to fill quickly.

We've included some information regarding student volunteer opportunities, field courses, and the Wednesday evening special event in this newsletter. We hope AEG members and non-members alike are excited about these upcoming events and hope to see everyone later this year at the Annual Meeting!



Student Opportunities

Are you a student and interested in the AEG 2019 Annual Meeting? Students who register by August 1 can sign up for the full event for \$95. After this date, the price jumps up to \$125 for students.

Student Volunteers

Students can also sign up as event volunteers and receive a complimentary meeting registration in exchange for 8 hours of their time. Interested student should contact Heather Clark for additional details at heather@aegweb.org or 303-518-0618.

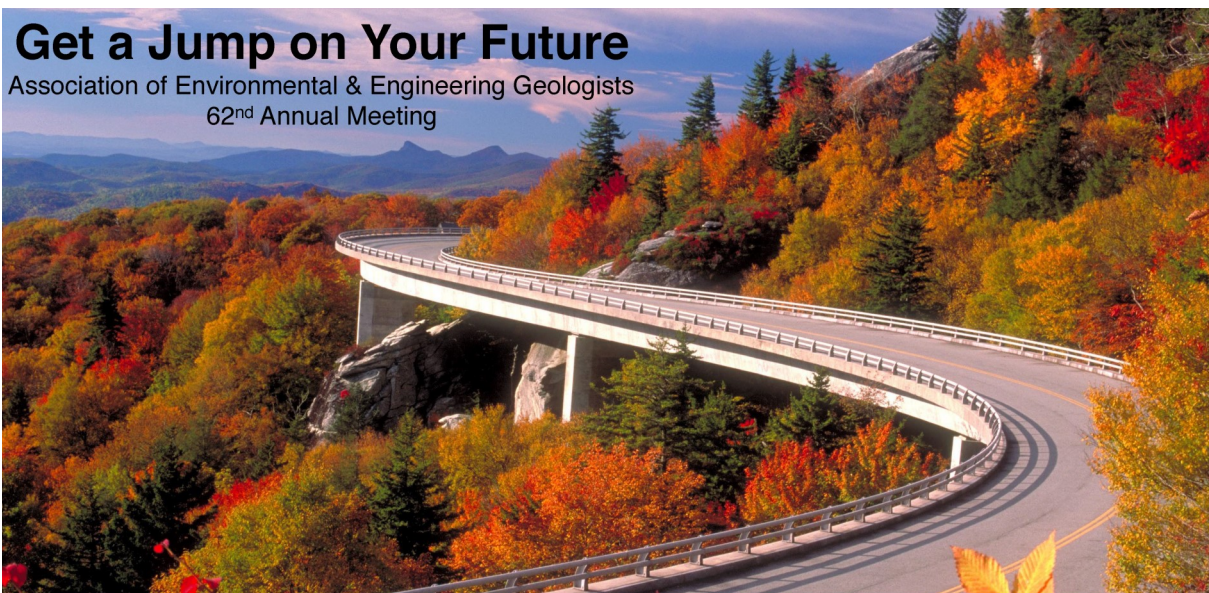
New Annual Meeting Mentor Program

The Student and Young Professional Support Committee (SYPS) is developing an Annual Meeting mentor program to pair professionals that plan to attend the 2019 Annual Meeting with interested student attendees. We hope mentors can provide advice and support both before and during the Annual Meeting to make the meeting more relaxing, enjoyable, and beneficial for students. Students interested in being paired with a mentor will identify themselves when they register for the meeting, and will be provided with the contact information of a professional who has volunteered to be a mentor. The student can then contact the professional with questions ranging from "What should I wear?" to "Could we meet during the Ice Breaker?" If you plan to attend the 2019 Annual Meeting and are interested in serving as a mentor to a student attendee(s), please provide

(Continued on Page 11)

Get a Jump on Your Future

Association of Environmental & Engineering Geologists
62nd Annual Meeting



Meet Industry Leaders

Don't miss this opportunity to identify career opportunities and network with potential employers.



Call for

Technical Papers

Abstract Deadline: May 1, 2019

Online submittal -

www.aegannualmeeting.org

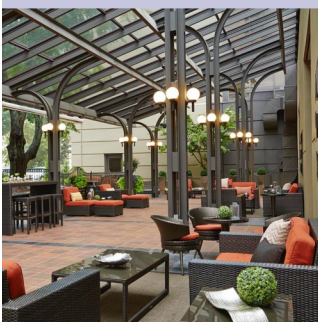
Technical Sessions and Symposia

Proposed Symposia

- 3D Modeling and Data Visualization
- Speaking Their Language - Communicating Science with Non-Scientists - Who, Why, and How Symposium
- Climate Resiliency - Bringing Geoscientists and Climate Scientists Together
- Dams (topic TBD)
- Drones for Geologic Applications
- Environmental (topic TBD)
- Environmental Remediation and Geochemistry
- Geophysical Characterization of Groundwater Aquifers and Bedrock Fractures
- Landslides (topic TBD)
- Naturally Occurring Asbestos
- Tunneling

Proposed Technical Sessions

- Complexity in Modern Engineering Geology
- Emerging Contaminants
- Environmental Characterization and Remediation
- Geologic and Geotechnical Site Characterization
- Geologic Hazard Mapping
- Geological Engineering of Transportation Projects
- Groundwater & Karst
- Hydrogeology and Groundwater Investigations
- Mine Reclamation and Geologic Materials
- Risk-Based Methodology for Geologic Applications
- Rockfall Mitigation
- Seismic Hazards – Investigation and Mitigation / Mapping
- Transportation and Infrastructure Projects
- Vapor Intrusion



AEG's 2019 Annual Meeting

"Old Mountains...New Beginnings"

September 17-22, 2019

Asheville, North Carolina

visit www.aegannualmeeting.org

for more details

Volunteer
8 hours and receive
a complimentary
registration!

AEG Student
Registration just
\$95

AEG's 2019 Annual Meeting

(Continued from Page 9)

your contact information and the number of students you are willing to mentor in an email to Kevin Mininger, SYPSC Co-chair, at kmininger@rjh-consultants.com.

Young@Heart Student/Professional Social

Tuesday, September 17, 2019 - 7:00-9:00pm

This social event is a great way to start your week in Asheville. Make or mingle with your friends in environmental and engineering geology while you enjoy free appetizers (and a free drink ticket if you arrive early!) at Pack's Tavern. Just a short walk from the hotel, this event is an excellent opportunity to build connections with peers, mentors, senior fellows, and potential employers. We encourage students and young professionals to join the event and welcome experienced professionals who are "young at heart!" (Students Free, all others \$10)

Student/Professional Networking Reception

Be sure to attend the Student/Professional Networking Reception at Barley's Taproom on Tuesday, September 17, 2019, 5:15-6:30pm. This fun and relaxed event is the perfect place for you to make new friends and meet future employers/employees! You don't want to miss it! Be sure to sign up on your registration form.



Field Courses

North Fork Dam Improvements—Making Asheville's Water Supply More Resilient

Situated in the Blue Ridge Mountains of North Carolina and adjacent to Pisgah National Forest, North Fork Dam is a high hazard earthen embankment located approximately twenty miles east of Asheville. The impounded body of water, Burnett Reservoir, is the primary water source for the City of Asheville and other surrounding communities. Completed in the early 1950's, North Fork Dam is undergoing a series of improvements that will allow for the controlled discharge of the Probable Maximum Precipitation event and increase the global stability of the Main Dam and Saddle Dam during a seismic event. To these ends, the construction of a new 530-foot-long and 218-foot-wide auxiliary spillway with Fuse Gates, the placement of two stability berms on the Main Dam (133 feet tall) and Saddle Dam (63 feet tall), and the modification of gates and a concrete chute overlay of the principal spillway are currently underway. This exciting construction project is set within the grand and beautiful Blue Ridge Mountains, just below the Blue Ridge Parkway. On this trip we will discuss the

(Continued on Page 12)



AEG's 2019 Annual Meeting

(Continued from Page 11)

challenges and design of the auxiliary spillway, principal spillway modification, and embankment improvements. Additionally, the trip will include an overview of the geologic history of the site and region. Expect a few bear and wild turkey sightings during this eventful afternoon field trip.

Breweries and Brownfields—The Environmental History of Asheville's River Arts District

Asheville's River Arts District (RAD), located along the French Broad River, has seen a significant transformation over the past 25 years. In this half-day field course, we will explore the rich history of the RAD beginning with the industrial development in the late 1800s and early 1900s. We will survey the impacts this historical development has had on the environment and how developers are taking advantage of the North Carolina Brownfields Program to redevelop properties in this unique and desirable area of Asheville. We will begin with a presentation at the Wedge Brewing, which is located at a Brownfields site, and then take a trolley tour to sites with environmental impacts located in the



River Arts District. Topics discussed will include the status of sites in the Brownfields Programs and other environmental programs in the RAD, as well as initiatives by the City of Asheville for redevelopment of the area. We will have lunch catered by 12 Bones barbecue at Wedge Brewing.



Debris Flows, Rock Slides, Rock Falls, and Big Slow Movers: Who Could Ask for More?

This one-day field course will examine a variety of landslides in the mountains of western North Carolina. We will visit locations along the steep rugged terrain of the Blue Ridge Escarpment with over a century of historic landslide activity. In the steep Pacolet River valley, we will visit sites affected by damaging debris flows triggered by intense thunderstorms the evening of May 18, 2018. Attendees will visit a large-scale debris slide moving within landslide deposit impacting a development at the edge of the Blue Ridge Escarpment. At Chimney Rock State Park in Hickory Nut Gorge we will see spectacular, but challenging terrain that poses challenges from debris flows and rock falls that have been documented there since 1916 and more recently in May 2018. In the afternoon we will

(Continued on Page 13)

AEG's 2019 Annual Meeting

(Continued from Page 12)

stop and see a large weathered-rock slide that closed Highway 9 in June 2018. Topics to be discussed are the landslide history of the area, and the geologic controls on landforms at a variety of scales that are prone to landslides, and relationships between rainfall and landslides.

Matthew Cawley

Business Development Manager

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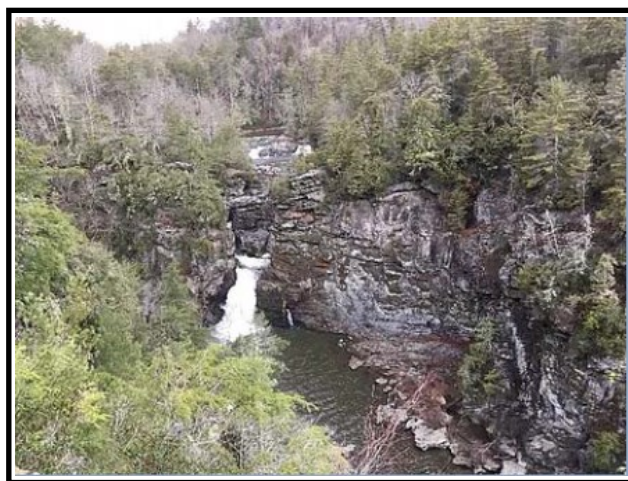


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These Rocks are Mined, But You Can Look at Them: Mining and Geology Field Course

Spend the day learning about western North Carolina's complex geology and rich mineral history. In the morning we will visit an operating aggregate mine to examine the geology and some of the challenges presented by mining in the mountains. We will then explore a classic pegmatite mine. The area mining industry began in the Spruce Pine pegmatites which were the source for high quality feldspar and mica. Today Spruce Pine leads the nation in feldspar production and the world in high purity quartz production. After lunch we will tour the Museum of North Carolina Minerals along the Blue Ridge Parkway and visit two stops along Linville Gorge to see the geology and spectacular views. Topics to be discussed include regional metamorphic and structural history as well as slope instability associated with the Blue Ridge escarpment, the steep, rugged transition from the piedmont into the mountains.



AEG's 2019 Annual Meeting

"A Night in the Mountains" Special Event

On Wednesday (9/18/19) the Carolinas Chapter will host a special event at Taylor Ranch. This venue is a 5th generation privately-owned 500 acre working Quarter Horse and Texas Longhorn Cattle Ranch located in Fletcher, NC. Taylor Ranch includes a 7-acre lake stocked with brim and bass along side scenic mountain views. A schedule for the evening is included below:



Tentative Event Timeline

6:30pm – Arrival at Taylor Ranch. Try your hand at sport fishing, horseshoes, corn hole, and other varieties of lawn games, or sit by our lake, relax and enjoy the views and view the wildlife that calls Taylor Ranch home. All recreational equipment provided. Fishing poles and artificial bait are provided with good fishing assured as we allow sport fishing with a catch and release policy.

6:30pm – 10:00pm – Enjoy bottomless non-alcoholic beverages to include: a large assortment of soft drinks, freshly brewed iced tea and coffee, lemonade, and a variety of infused waters. A bar will be available, one drink ticket is included. They feature several of the local breweries in Asheville, aka Beer City USA!

6:30pm – 10:00pm – Enjoy true Appalachian Culture with the sounds of a Professional Bluegrass Band. Listen as local musicians play their favorites and take your requests. A member of the band will call and instruct audience participation Square Dancing and Mountain Broom Dances.

6:00pm-Dark – Go back in time as you travel across the ranch for a tour in one of our Authentic Horse-Drawn Covered Wagons.

6:15pm – Watch in awe as a member of the Taylor Ranch staff calls and feeds the herd of Registered Texas Longhorn Cattle. This is a great photo opportunity with one of their prize steers.

7:00pm – Dinner is served! The dinner bell rings as the aromas from the grill call all your guests to dinner.

8:30pm– Sit by the campfire and have a S'mores roast, or sip on your cold local brew and listen to the tales of true Appalachia as told by our professional story teller. Guests of all ages will be mesmerized as they take you back to the era of the Cherokee Indian, the homesteaders, the moonshiners, and many more.

10:00pm– Guests depart Taylor Ranch with memories made that will last a lifetime.

Additional information can be found on the AEG Annual Meeting website.

ES eastern solutions

ENVIRONMENTAL EQUIPMENT RENTAL
& FIELD SUPPORT SERVICES

Eastern Solutions is an environmental rental and field service support company. Our inventory continues to grow with new and updated equipment and supplies. The equipment rental services offers free pick-up and delivery 90 miles from Charlotte (includes but not limited to Greensboro, NC; Greenville, SC; Columbia, SC), whether it's to an office or your job site. If you are outside the 90-mile radius, we offer free ground to and from shipping (equipment is shipped in plastic crates with pre-printed return labels inside). We'd like to thank all of our existing clients for their continued support and welcome any new clients. If you are interested in hearing more about Eastern Solutions, please let us know and we would be more than happy to come out and visit.

Below is a quick breakdown of the exciting things happening at ES:



Added Inventory / Supplies:

Along with several items added to our growing inventory, here is a quick list of those specialty items that have been requested:

- Core Drill w/ water kit
- Hammer Drills
- Diaphragm Pumps
- Air-Sparge System (Pilot Testing)
- SVE System (Pilot Testing)
- Sewer Camera w/Locator
- Downhole Camera w/DVR
- ATV / UTV Rental (Coming in April)
- Sand, Bentonite, and 55-Gallon Drums
- Large Selection of Vapor Points
- Carbon (Vapor/Water)



New Support Services

Based on our client's requests to expand our support services, Eastern Solutions now offers the following (Please note these services are for existing rental clients only):

- Bushhogging and Heavy Clearing (i.e. Forestry Cutter)
- Small Excavations and Trenching
- Silt Fence Installation
- Minor Storm Water Repair
- Downhole Well Camera w/DVR Service
- Sewer Push Camera w/Locator Service
- Field Personnel Support
- AS/SVE System Support and Installation
- Equipment Calibration and Repair Services

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**Rentals@EasterSolutionsEnv.com
Main Office: 803.746.5180**

AEG Foundation

By Nichole Vetter

Become an AEG Foundation Member!

Did you know that you can help support the AEG Foundation by becoming an AEG Foundation Member? [Join today](#), and you will receive a quarterly newsletter, an invitation to the donor reception at the annual meeting, and updates on the AEG Foundation. But, most importantly, you will be joining a community of professionals giving back to further the Geology and Engineering profession.



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Beer and Geology

By Joshua Hanks, P.G.

The relationship between a geologist and beer is a well documented phenomenon which can be observed in both the academic and professional fields. As a beer enthusiast myself, I was introduced to a brewery named after two well-known geologists. I was so mesmerized by this brewery that I stumbled upon several other geology related breweries and beers that I thought was worth sharing with everyone.

It was our very own Rick Kolb who informed me about the brewery, Hutton & Smith, located in Chattanooga, TN. The brewery is named after James Hutton and William “Strata” Smith, both who are considered the fathers of modern geology. James Hutton was best known for his theory of uniformitarianism, which assumes that the same natural laws and processes that we observe today apply to the past (big steps for the early 19th century). William Smith was best known for creating the first nationwide geologic map in 1801. As for their beer, I have not had it but I am a fan of their beer names such as Plutonic Pale Ale, Igneous IPA, and The Good Schist American Pale Ale.

Learning about this brewery piqued my interest to see just how common geologist or geology themes move into the brewing world. It turns out that there are a number of beers with geology-related names. Gneiss Brewing in Limerick, Maine has beers such as Archean Altbier, Impact Crater Doppelbock, and the Cenozoic Porter. Shale Brewing Company in North Canton, Ohio has the Shale IPA, Deep Driller Porter, and Roughneck Red Amber Ale. Even Dogfish Head

Brewery in Milton, Delaware has a beer named the Pangaea Ale.

Lastly, I came across Wynkoop Brewing Company in Denver, Colorado. This brewery was established in 1988 by John Hickenlooper and three of his business partners. While some may know John Hickenlooper as the former Governor of Colorado and former Mayor of Denver, he was also a geologist for Buckhorn Petroleum prior to brewing beer.

I am sure there are more geology-related breweries and beers in the world than what I have listed here. If you know of any, please feel free to share them with me so I can expand my beer bucket list. As for any readers with a passion for homebrewing, perhaps there is an untapped market of the brewing world that needs a geologist’s touch.

The logo for Wood, featuring the word "wood." in a white, lowercase, sans-serif font with a period, set against a solid purple rectangular background.



PFAS and Other Emerging Contaminants Conference

Date: April 23 – 24, 2019

Location: Raleigh Marriott City Center
Raleigh, NC 27601

Website: <https://www.acecnc.org/events/details/pfas-and-other-emerging-contaminants-conference-1606>

Day 1 Agenda (Tuesday, April 23, 2019)

7:00 am Registration			
8:00 am Welcoming statements from GWPNC/ACEC			
8:15 – 8:30 am Message from our Conference Sponsor (John Sallman and Dan Schneider, Terracon)			
PFAS Introduction and Chemistry	8:30 – 9:00 am	Introduction to PFAS and Sites that may be of Concern	Aaryn Jones, USEPA
	9:00 – 9:30 am	PFAS Analysis Methods and Sampling Techniques	Elizabeth Denly, TRC
	9:30 – 10:00 am	Deeper Dive Into Analysis of PFAS and a Look at the Wide Range of Chemicals Found	James McCord, USEPA
Coffee & snack break in the Exhibit Hall			
PFAS Occurrence, Fate, and Remediation	10:30 – 11:00 am	Assessing Emerging and Legacy PFCs in NC Drinking Water Sources Through Targeted and Non-targeted Monitoring	Lee Ferguson, Duke University
	11:00 – 11:30 am	Atmospheric Deposition as a Source of Contamination at PFAS-Impacted Sites	Stephen Zemba, Sanborn Head & Associates, Inc. and Christopher Zevitas, USDOT
	11:30 – 12:00 pm	Treatment Options for PFAS Impacted Matrices	Jeffrey McDonough, Arcadis
Lunch			
1:25 – 1:30 pm Message from our Gold Sponsor (Brianna McLaughlin, Con-Test)			
PFAS Toxicology, Risk Assessment, and Risk Communication	1:30 – 2:00 pm	An Overview of What We Know about PFAS Toxicology	Jamie Dewitt, ECU
	2:00 – 2:30 pm	Prioritization of Exposure Pathways at Sites Impacted by PFAS	Jennifer Arblaster, Geosyntec
	2:30 – 3:00 pm	Communicating the Risk of PFAS Release from Landfills	Johnsie Lang, USEPA
Coffee & snack break in the Exhibit Hall			
Gen X in North Carolina	3:30 – 4:00 pm	Academic Research: Developing the Science to Help Answer Community Questions	Detlef Knappe, NCSU
	4:00 – 4:30 pm	NCDEQ response to GenX in the Cape Fear River	Julie Woosley, NCDEQ DWM and Mike Abraczinskas, NCDEQ DAQ
	4:30 – 5:00 pm	GenX Litigation in North Carolina	Geoffrey Gisler, Southern Environmental Law Center
5:00 – 7:00 pm Poster Competition/Happy Hour in Exhibit Hall			

Day 2 Agenda (Wednesday, April 24, 2019)

1,4-Dioxane	8:30 – 9:00 am	Intro to 1,4-Dioxane: Where Do We Find It and What Are the Concerns?	Hunter Anderson, AFCEC
	9:00 – 9:30 am	1,4-Dioxane: Chemical Analysis, Fate, and Transport	Caitlin Bell, Arcadis
	9:30 – 10:00 am	In Situ and Ex Situ Treatment Technologies for 1,4-Dioxane	Brant Smith, Peroxychem
Coffee & snack break in Exhibit Hall			
Other Emerging Contaminants(EC) and Issues	10:30 – 11:00 am	Review of ECs to be Addressed by the NC DEQ and DHHS Secretaries' SAB: GenX, TCE VI, and Hexavalent Chromium	Sandy Mort, NCDEQ
	11:00 – 11:30 am	Vapor Intrusion: Assessment and Mitigation Options for Sites with Known or Suspected Chlorinated Solvent Contamination	Kelly Johnson, NCDEQ
	11:30 – 12:00 pm	The Role of Bromide in Disinfection Byproduct Formation in Drinking Water	Amber Greune, Geosyntec
Lunch			
1:25 – 1:30 pm Message from our Gold Sponsor (Peter de Haven, Geosyntec)			
Regulatory Considerations and Legal Insights	1:30 – 2:00 pm	Greensboro's Response to PFAS in its Watershed and Drinking Water	Mike Borchers, Greensboro Water Resources
	2:00 – 2:30 pm	Turning Science into Law – The Process for Setting Health-Based Exposure Limits and Opportunities to Participate	Sean Sullivan, Troutman Sanders
	2:30 – 3:00 pm	An Attorney's Perspective on the Future of Risk and Liability	Ethan Ware, Williams Mullen
3:00 pm Closing Remarks			

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Carolina Board Meeting Minutes 1-10-2019 from 5pm to 6pm—Conference Call*By Jennifer Thomas—Secretary*

1. Call to Order
2. Roll Call Susan A., Anthony H., Beca, Paul, Jacob, Rohit, Adam P., Rick K., Maddie
3. Carolinas Chapter Finances – Walt
 - a. Review of current chapter finances:

As of January 8, 2019:
Checking: \$2,207
Savings: \$18,601
PayPal: \$1,005
Total: \$21,813
(total last call: \$23,860)
 - b. Received new card reader; hopeful that it will work better
4. Upcoming Chapter Meetings
 - a. Charlotte
 - i. Dilworth Grille, February 7, 2019
 - ii. Susan to bring cash box, card reader
 - iii. Rick will print and bring the sponsor poster.
 - iv. Upcoming events to advertise include the Emerging Contaminants conference, Groundwater Professionals meeting, and Raleigh meeting.
 - v. Drink sponsors Eastern Solutions, Con-Test Laboratory
 - vi. Eastern, Enviro-Equipment, and Con-Test displaying.
 - vii. Will promote membership and sponsorship.
 - viii. Promote Carolinas scholarship for 2020.
 - ix. Increased price from \$30/\$35 to \$40/\$45
 - b. Raleigh meeting
 - i. Rick and Josh will organize the meeting.
 - ii. We don't have a speaker yet.
 - iii. We will try to schedule for the end of April .
 - iv. Clouds Brewing was too noisy last time. If we do meet there again, we will announce that networking can continue upstairs so members aren't being too noisy during presentation.
 - c. A summer meeting this year would be too close to Annual Meeting in September. Rick suggested we start holding two meetings per year in Charlotte and Raleigh.
5. GEONews—Josh
 - a. The Winter Issue needs Letter from Chair. Otherwise pretty good.

(Continued on Page 21)

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(Continued from Page 20)

6. Membership - Anthony

- a. Renewals to date for 2019 will be released next week. Numbers are similar to last year.
- b. We are looking to develop 2019 membership using NC PG list. Rick will see if emails can be put on an Excel spreadsheet to pull from.
- c. Ideas for membership drive 2019 include pitching a discount rate for annual meeting and chapter meetings in the email blast and getting the SC PG list. Walt got it to advertise the first VI conference. We will reach out to the SC licensing board for a current list.

7. Sponsors – Eric and/or Beca

- a. More sponsors in 2018 than typical.
- b. Sponsor email blast went out on 1/7. Beginning to get renewals via PayPal.
- c. Potential enticements for sponsors:
 - i. Discuss that with the new pdh requirements, there will be more people at meetings, thus more networking and options for having a table and offering drink tickets (which folks like and gets the sponsor extra advertising).
 - ii. We can add a separate posts to our Facebook page for each sponsor (I've recently getting more feedback from Facebook about looking at our posts, so we should continue to post updates).

- d. To build sponsors in 2019 reach out to contractors you work with.

8. Field Trips – Rohit

- a. We are planning a coastal hazards trip for spring 2019 to reach out to Wilmington. We will use this event to grow the Wilmington membership base.
- b. Rick has been talking to UNC-Wilmington faculty. Next week we'll get an answer. Fall is a possibility if spring doesn't work.
- c. Ideas for Spring 2020 include the Boone dam in Johnson City, TN with a possible side trip to Gray Fossil Museum.

9. 2019 Asheville Meeting – Paul

- a. Having frequent calls – don't need to discuss on this call. Another one will be soon.
- b. There was concern that the Emerging Contaminants conference in Raleigh may kill interest in the symposium at the national meeting. Paul thinks the geographic difference, out of town guests, and other things going on at the annual meeting will not impact interest. We will proceed with both emerging contaminants events.
- c. Spread the word with co-workers, clients, contractors/potential exhibitors. We expect a good turnout, but verbally spreading the word with a brief discussion a great way to market the meeting. Please send Rick potential sponsors who aren't necessarily chapter sponsors.

10. Social Activities– Adam/Rick

- a. Possible night play golf in Raleigh?
- b. Target areas without dinner meetings. Susan suggested a hike and brewery or whitewater rafting on the French Broad in Asheville. Beca suggested a Whitewater Center social in Charlotte in the summer.

(Continued on Page 22)

Todd Elmore
Business Development Manager



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(Continued from Page 21)

11. AEG National (from Chapter Call in October)

- a. Licensure committee looking for volunteers (TX and ID are facing licensure threats) TX was resolved. Sunset Advisory Board did not find a compelling reason to end licensure this time.
- b. Other committees also looking for volunteers. On the AEG website under Committees.

12. Carolinas Scholarship: won't know about applications until beginning of February.

13. SC forming own chapter. Anthony is promoting it in Greenville due to density of interested people but it would be statewide.

A Clemson professor, Alan Colson, is on board with a Clemson student chapter. There are many students interested in a geology club.

14. There wasn't any interest in the field day so it didn't happen. We'll wait til next year.

15. Jahns Lecturer – new lecturer will not be named until this fall, so no action needed at this point.

16. Rick suggests a regional conference on sea level rise in 2020 or 2021. They tried to have it on the gulf coast but it didn't end up coming to fruition. The east coast is more affected.

Meeting Ended at 6pm

Minutes Recorded by Jennifer Thomas



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CALENDAR OF EVENTS—2019

Geological Events in the Carolinas

Courtesy of AEG Carolinas Chapter—www.aegcarolinas.org. Last updated April 6, 2019

Send updates/corrections to Alec Dziwanowski, adziwanowski@gmail.com

Meeting Date, Time, and Location are Subject to Change—Please Verify Prior to the Meeting

Date: April 9-10, 2019

Event: Geo³T² 2019 Conference

Check In: Tuesday—7:00 am to 3:00 pm, Wednesday—7:00 am to 9:00 am

Location: Embassy Suites, 201 Harrison oaks Boulevard, Cary, NC 27513

Details/Registration: <https://connect.ncdot.gov/events/Pages/Geo3T2conference.aspx>

Date: Thursday, April 11, 2019

Event: AEG Carolinas Chapter Spring Meeting

Presentation: There's More Than One Perspective on Coal Ash; Where Are We Now? By Rick Gaskins

Time: 5:30 pm social begins, 7 pm buffet dinner, 8 pm presentation

Location: Clouds brewing; 126 N. West Street, Raleigh, NC 27603

Cost: AEG and ASCE Members \$40, Non-members \$45, Public Sector/Teachers \$20, Students free with college ID.

Details: <http://aegcarolinas.org/aeg-carolinas-dinner-meeting-april-11/>

Contact/RSVP: Alec Dziwanowski at adziwanowski@gmail.com by 5:00 pm on April 8, 2019

Date: Thursday, April 18, 2019

Event: Meeting of South Carolina Association of Environmental Professionals

Presentation: TBD (facebook.com/SCAEP.org)

Cost: Annual fee of \$35 (\$15 for students) includes pizza, beer and soft drinks at all meetings

Time: Social with food/beverages at 6:30 pm; Meeting 7:00 pm

Location: Jim Hamilton-L.B. Owens Airport – 1400 Jim Hamilton Boulevard, Columbia, SC

Contact/RSVP: David Heicher at dheicher@dakotatechnologies.com

Date: April 23 and 24, 2019

Event: PFAS and Other Emerging Contaminants Conference

Location: Marriott Raleigh City Center; 500 Fayetteville Street, Raleigh, NC 2760

Details: <https://www.acecnc.org/events/details/pfas-and-other-emerging-contaminants-conference-1606>

Date: Thursday, April 25, 2019

Event: Principles of High Purity Water Workshop

Cost: \$340

Time: 7:30 am – 4:30 pm

Location: Pureflow Corporate Headquarters; 1241 Jay Lane, Graham, NC 27253

Details: <http://www.cvent.com/events/principles-of-high-purity-water/event-summary-2266614b624c43e584e8c34363de710f.aspx>

Date: Thursday, May 16, 2019

Event: Meeting of South Carolina Association of Environmental Professionals

Presentation: TBD (facebook.com/SCAEP.org)

Cost: Annual fee of \$35 (\$15 for students) includes pizza, beer and soft drinks at all meetings

Time: Social with food/beverages at 6:30 pm; Meeting 7:00 pm

Location: Jim Hamilton-L.B. Owens Airport – 1400 Jim Hamilton Boulevard, Columbia, SC

Contact/RSVP: David Heicher at dheicher@dakotatechnologies.com

Date: Friday, May 31, 2019

Event: USACE, Wilmington District Lunch & Learn

Topic: Stream and Wetland Mitigation Update by Todd Tugwell

Time: Lunch 11:30 am, Presentation 12:00 pm

Location: Long Leaf Room, New Hanover County Public Library; 1241 Military Cutoff Road, Wilmington, NC 28405

Details: <http://www.ncaep.org/event-3347309>

(Continued on Page 24)

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(Continued from Page 23)

Date: June 6 and 7, 2019

Event: Groundwater Professionals of North Carolina Dinner Meeting and Golf Tournament

Presentation: How to Improve ISCO Performance in Source Areas by Pat Hicks

Cost: \$125 per person, includes golf, lunch, and beverages

Time: Dinner Meeting on June 6 from 5:30 pm to 9:00 pm | Golf Tournament on June 7

Location: Grandover Resort; 1000 Club Road; Greensboro, NC 27407

Details/Registration: <http://gwpnc.org/meetings.html>

Date: June 8 - 14, 2019

Event: AEG Grand Canyon Field Trip

Location: Flagstaff, Arizona

Costs: \$3,470.00 per person, not inclusive of travel to and accommodations within Flagstaff.

Details: <https://www.aegweb.org/events/EventDetails.aspx?id=1054496&group=>

Date: Thursday, June 20, 2019

Event: Meeting of South Carolina Association of Environmental Professionals

Presentation: TBD ([facebook.com/SCAEP.org](https://www.facebook.com/SCAEP.org))

Cost: Annual fee of \$35 (\$15 for students) includes pizza, beer and soft drinks at all meetings

Time: Social with food/beverages at 6:30 pm; Meeting 7:00 pm

Location: Jim Hamilton-L.B. Owens Airport – 1400 Jim Hamilton Boulevard, Columbia, SC

Contact/RSVP: David Heicher at dheicher@dakotatechnologies.com

Date: July 14-16, 2019

Event: Transportation Research Board Workshop

Topic: Sustainable Resource Conservation and Recovery in Transportation

Location: National Academy of Sciences; 2101 Constitution Ave NW, Washington D.C., 20418

Details: <https://www.trb-adc60.org/summer-workshop/>

Date: September 16-21, 2019

Event: AEG 62nd Annual Meeting

Location: Asheville, North Carolina

Deadline: Early registration ends on Aug. 1; costs increase after Aug. 1

Details: <https://www.aegannualmeeting.org/>

Contact: Heather Clark (heather@aegweb.org)

Date: Thursday, September 26, 2019

Event: Emerging Contaminants Environmental Workshop

Location: TBD - Raleigh, NC

Details: <https://enviroworkshops.com/workshop/2019-09-26-raleigh-nc/>

Date: September 14-19, 2020

Event: AEG Annual Meeting

Location: Portland, Oregon

Costs: TBD

Contact: Heather Clark (heather@aegweb.org)

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AFFILIATE ☐ Affiliate Dues - \$100*
Must be a scientist or engineer working with engineering geologists, or a person interested in environmental and engineering geology.

TEACHER ☐ Sign up at www.aegweb.org/join
Must be engaged in full-time teaching at the Primary, Secondary or Post-Secondary level in Earth Science or a related subject.

INTERNATIONAL ☐ International Dues - \$25
Must meet the requirements for Full Members above, but not be a citizen of the United States.

Memberships are based on the calendar year. Applications received after October 1 will extend through the following year.

2. INDICATE YOUR CHAPTER

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Signature _____

My signature attests that, to the best of my knowledge, I meet the academic and practice requirements for the membership class requested and that all information on this application are true and correct.

5. PROVIDE PAYMENT

☐ Check (Payable to AEG) Total Enclosed \$ _____ (include membership fee, chapter dues, and any optional features)
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Thank you! We appreciate your support of the Association of Environmental & Engineering Geologists.



AEG CAROLINAS CHAPTER – SPONSOR INFORMATION

The Carolinas Chapter of AEG supports many of its activities with financial assistance provided by our sponsors. Our activities include quarterly meetings, periodic field trips and seminars, a quarterly newsletter, and email announcements about our meetings and geoscience related activities. In addition, we donate large quantities of educational resources to science teachers.

We offer several levels of sponsorship, but they all have one goal: to keep the sponsor's name in front of our members and to bring you business. We have a real commitment to connecting our sponsors to potential buyers and will do all we can to help you build your business. Most of our members are practicing professionals with responsibility for selecting subcontractors, so our group is a great place to find new customers and to catch up with existing clients in an informal setting.

Our sponsors provide the financial support that allows us to have reasonably priced dinner meetings, host seminars, provide discounted dinner meeting costs for students and teachers, underwrite the cost of newsletters and our web site, provide geoscience mentors for students and young professionals, and support science education tools to our teachers and in our schools. All costs listed below are per year and end in December. New sponsorships received after October will continue to December of the following year.

Silver Sponsor (\$275):

GeoNews Newsletter: Business card size ad (2" high x 3-1/2" wide), four times per year.

Meetings: Listing on a Sponsor Poster, located at sign-in table. Verbal acknowledgement by name in Chairman's introductory comments.

Meeting Exhibits: Space for tabletop display at one meeting. Cost of meeting waived for one person on the exhibit date.

Email Announcements: Listing of your company name on each AEG Carolinas Chapter email announcement (our email list is currently over 1,000 people)

Web Page: Acknowledgement on the AEG Carolinas Chapter Web Page, www.aegcarolinas.org, with a link to your site.

Gold Sponsor (\$400):

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Meeting Exhibits: Space for tabletop display at two meetings. Cost of meeting waived for one person on the exhibit date.

Email Announcements: Listing of your company name on each AEG Carolinas Chapter email announcement (our email list is currently over 1,000 people)

Web Page: Acknowledgement on the AEG Carolinas Chapter Web Page, www.aegcarolinas.org, with a link to your site.

Platinum Sponsor (\$550):

GeoNews Newsletter: Half-page ad (4-1/2" high x 7" wide), four times per year.

Meetings: Listing on a Sponsor Poster, located at sign in table. Verbal acknowledgement by name in Chairman's introductory comments.

Meeting Exhibit: Space for tabletop display at three meetings. Cost of meeting waived for one person on the exhibit date.

Email Announcements: Listing of your company name on each AEG - Carolinas Chapter email announcement (our email list is currently over 1,000 people)

Web Page: Acknowledgement on the AEG Carolinas Chapter Web Page, www.aegcarolinas.org, with a link to your site.

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AEG Carolinas Chapter Sponsorship Form

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