

FALL 2015

GEO NEWS

Newsletter of the Association of Environmental & Engineering Geologists, Carolinas Section
2009, 2011, and 2013 AEG Section of the Year

SAVE THE DATE

Fall Wine Terroir and Tasting Field
Trip
October 9-10, 2015
Fairfield Inn and Suites, Elkin

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GEONEWS Fall 2015
Issue Date: September 21, 2015
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Thanks to our Sponsors!

GeoNews is a publication of the Carolinas Section 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 AEG 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 September 1, issue date Sept 21
Winter - deadline December 1, issue date December 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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Cover: (stock photo) A winery in the Yadkin Valley, similar to those we will visit in October

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MESSAGE FROM THE CHAIR*By Madeline German, PE**Incoming Chair—AEG Carolinas Section*

Greetings Carolina Section! We enjoyed a busy summer.

In June, the Carolina's Section held our first Networking Skeet Shoot in Fuquay-Varina at Drakes Landing. This event received rave reviews from all who attended; and we are looking forward to revisiting this activity again.

We added a summer Raleigh Section Meeting on August 6th, at 1705 Prime. Dr. Chris Tacker, the Curator of Geology, North Carolina Museum of Natural Sciences, dazzled us with his talk "Yes, There are Diamonds in North Carolina. During which despite everyone's enthusiasm to drop everything and prospect, Dr. Tacker assured us the odds were not in our favor. The meeting was very well attended, and 20 students attended, despite having summer break.

On August 19th at the Tobacco Road Café in Durham, **Adam Phillips** organized another amazing social with great food, great drinks and great networking opportunities. Members and students were also able to watch the Durham Bulls game from the outdoor patio.

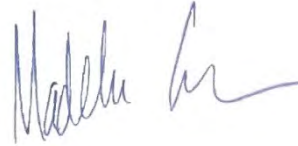
Also, the Carolina's Section amazing, new website is up and running. I encourage everyone to check it out! With the new website also comes PayPal. You can now pre-register for Field Trips, such as the upcoming Wine Terroir and Tasting Tour in Yadkin Valley, North Carolina; section meetings; and special courses or conferences, like the upcoming Geochemistry Courses. New websites can sometimes be a work in progress, so please let us know if you have issues with the site, so we can improve the experience for all our Members.

Finally, I would like to thank **Alex Rutledge** for his hard work and dedication to the Carolina's Section, as he moves into the Past-Chair position. These past few years have been busier and more involved as AEG National moves forward with organizational restructuring, and Alex has done an amazing job of keeping the Carolina's membership involved and up to date with the entire process. We are privileged he will be serving on the governance committee as the process continues forward. Here at home, he led us through the development of our own Carolina's Section Scholarship fund; and we look forward to presenting the first awards in 2016. He has been instrumental in advancing our technological capabilities and accessibility to the Carolina's membership, through the new website, PayPal and the Intuit credit card reader. He helped position members in leadership roles to provide additional networking social opportunities, advance field trip options and increase section membership. For all your service to the Carolina's Section Alex, thank you.

I am excited as we move forward together with some new board members, new field trips, classes and speakers. As always, your new board and I look forward to hearing

from each of you regarding your suggestions and/or concerns related to our section. We are here to serve the needs of our membership, so your feedback is vital and welcome.

Best,



Maddie German, PG
madeline@smithgardnerinc.com
AEG Carolinas Section Chair



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AEG CAROLINAS SECTION 2Q TREASURER'S REPORT*By Susan Kelly, Section Treasurer*

**AEG Carolinas Section Treasurer's Quarterly Report
April 1, 2015 to July 31, 2015**

BALANCE As Of April 1, 2015	
Checking Account	\$19,000.49
Savings Account	\$16,688.77
	<u>\$35,689.26</u>
INCOME	
Meetings, Field Trips, and Courses	
Section Meeting (Raleigh)	\$1,275.00
Spring Field Trip (Reed Gold Mine)	\$1,555.00
Social (Drake Landing)	\$520.00
Fall Field Trip (Wine Tour)	\$260.00
Geochemistry Course	\$775.00
Member Dues	
Membership Dues from National	\$320.00
Carolinas Member Dues	\$60.00
Sponsorships	
Sponsorships	\$500.00
Interest	
Savings Account	\$3.49
SUBTOTAL - INCOME	<u>\$5,268.49</u>
EXPENSES	
Banking Fees	
Credit Card Reader Fees	\$23.33
Online Deposit Fee	\$3.00
Meeting Expenses	
Visiting Professionals (5 schools)	\$469.27
April Section Meeting (Raleigh)	\$1,943.50
Jahns Lecturer Expenses	\$857.02
BOD Meeting Expenses	\$303.16
Spring Field Trip (Reed Gold Mine)	\$550.61
Social (Drake Landing)	\$417.30
August Section Meeting (Raleigh)	\$250.00
Fall Meeting (Asheville)	\$300.00
Fall Field Trip (Wine Tour)	\$25.00
Geochemistry Course	\$120.00
SCAEP/AEG Meeting	\$100.00
Donations	
2015 National Meeting	\$1,500.00
AEG Foundation	\$250.00
Carolinas Scholarship	\$10,000.00
Additional Expenses	
Amplifier for Meetings	\$213.49
SUBTOTAL - EXPENSES	<u>\$17,325.68</u>
BALANCE As Of July 31, 2015	
Checking Account	\$6,939.81
Savings Account	\$16,692.26
TOTAL	<u>\$23,632.07</u>

GEORAMBLINGS

By Charles W. Welby

Since the last GeoRamblings column was written, there has been a bit of “Westward Ho” wandering and some interesting geologic exposures encountered. A trip to eastern Oregon initially and then further travels provided observations related to forest management, stream erosion, and Oregon beaches.

One has to appreciate the value of forests as they provide more than timber for construction, for they play a role in movement of surface water across the landscape and have some influence on the percolation of water into the sub-surface at times and places. Yet fire is an ever present threat. Often we think of man-caused forest fires as the greatest happenstance. However, weather with massive thunder storms and associated lightning strikes can become the primary natural cause of forest fires. When Uther Pendragon (read King Arthur stories) begins to act, things can get warm.

In August there occurred extensive wild fires in the Malheur National Forest in Oregon. Friends in North Carolina have told me that the TV news locally showed pictures of the fires and of the “Fire” Airplanes that dropped fire retardant on the areas around burning areas. These airplanes are modified crop dusters.

I suppose that there are any number of professional papers describing erosion or lack thereof in areas that have sustained major forest fires.

Among the interesting geologic sites was one near Mitchell, Oregon. Several universities have their geology summer field camps located near Mitchell. One of the mapping areas for the camps has an exposure of a turbidity current deposit in a road cut. The Newberry National Volcanic Monument provides a valuable insight into some of the past volcanic activity. Considerable amounts of obsidian are associated with this feature, both at the top of the cone and within the caldera itself.


So think about the geologic processes that provided the shape of the earth’s surface as we know it today and as you wander here and there and view the earth’s surface from a car’s window or from an airplane at perhaps

30,000 feet as a picture that tells a story.

I was once acquainted with a young man, a geology major, who flew large airplanes as a pilot in the U.S. Air Force and then after retiring flew for a commercial airline. The individual noted how much he enjoyed interpreting the geology below him as he flew across the U. S.

For some fun, find a landform map of Erwin Raisz and use it to follow the landforms as you fly across the U.S. If the airline on which you travel has a contest about the time of crossing a particular surface feature of the U. S., perhaps you as a navigator might win a bottle of California Champagne. So keep your mind open about the geologic things that you encounter in everyday life. Geology is not only an interesting professional occupation but also about understanding the world in which you exist.

QED



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Get Ready for the Yadkin Valley Wine Terroir and Tasting Tour

Marlene McCauley, Field Trip Leader

The AEG Carolinas Section Fall Field Trip, Oct. 9-11, focuses on the geology and wines of the Yadkin Valley American Viticultural Area (AVA). Field trip participants will visit four vineyards: Jones von Drehle, Dobbins Creek, and Shadow Springs Vineyards are near Elkin, and Flint Hill Vineyard is near East Bend. The vineyard owners will talk about their wines, and give tours of their vineyard and wine production. Trip leaders will discuss the local geology, and we'll speculate on the effects that the physical aspects of the terroir – bedrock, soil, elevation, slope, aspect, and climate – have on the wines that we'll taste.

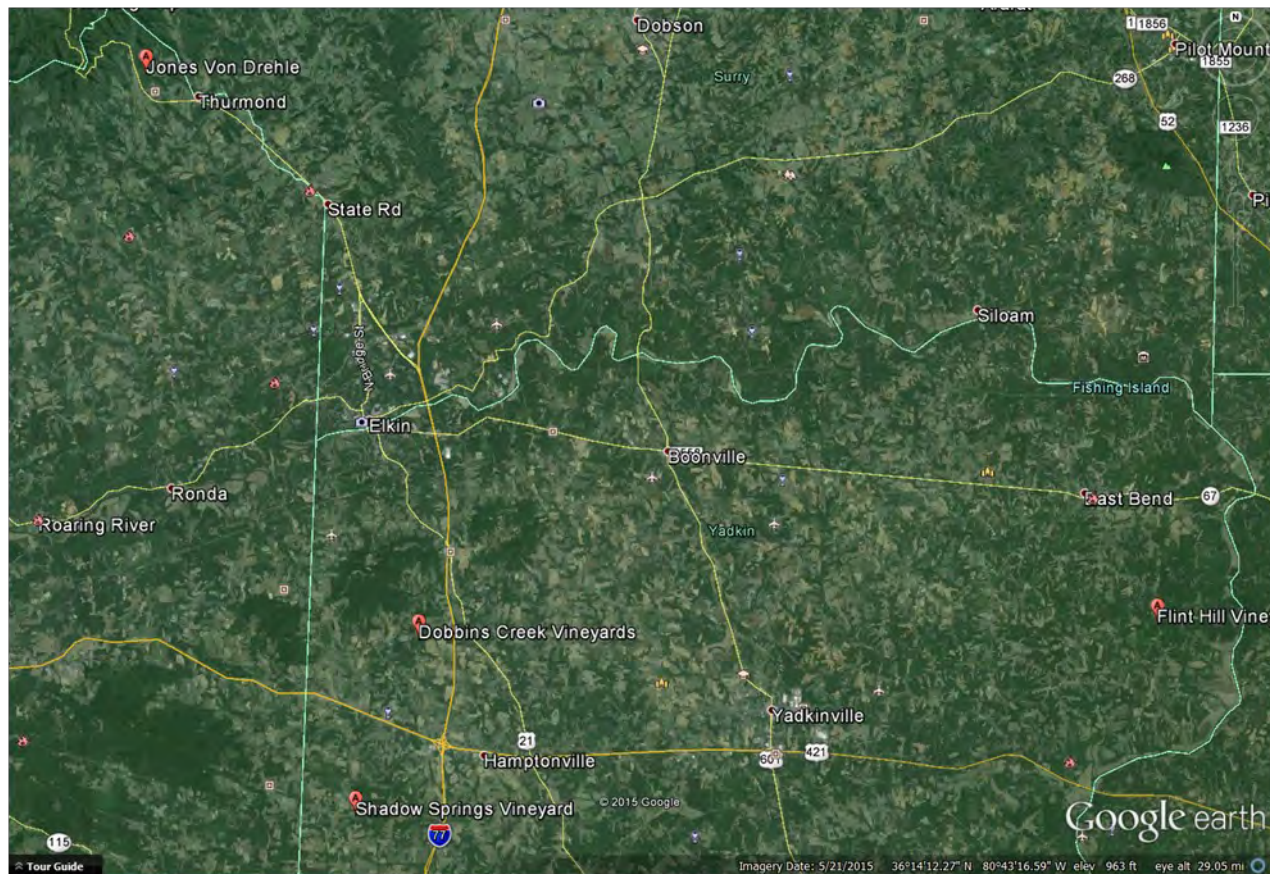


Figure 1: Map of field trip stops (Google Earth).

(Continued on page 7)

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A brief history of wine in North Carolina

North Carolina's wine industry has a much longer history than you might imagine. The Scuppernong grape is native to North Carolina and was the first cultivated grape in the US. Scuppernong is a muscadine grape (*Vitis rotundifolia*), and it differs greatly from *Vitis vinifera*, the Old World species most commonly used in winemaking. Scuppernong grapes were first documented in 1524 by the French explorer Verrazano, who found them in the Cape Fear River valley; Sir Walter Raleigh's explorers found them in abundance on our coast (NC Department of Agriculture).

By 1835, commercial vineyards had been established in North Carolina, producing wine from both black and white muscadine grapes. The industry continued to grow, leading the nation in production before the Civil War. Production recovered post-war, and wine production eventually led the nation in both quality and quantity until Prohibition shut it down from 1909 to 1933 (NC Department of Agriculture). Post-Prohibition, grape growers went through boom and bust times, and by 1968, no commercial wineries existed in the state. In the early 70's, legislation was passed to encourage wine production, and the industry has been growing ever since.

In 1972, the first *vinifera* grapes were planted at Westbend Vineyards in North Carolina by Jack Kroustalis. This was a game-changer for the NC wine industry. Native American grape species, such as *Vitis rotundifolia*, are resistant to disease and thrive on the humidity of the Coastal Plain. However, these wines have a funky, 'foxy' nose, and are an acquired taste for those accustomed to Old World *vinifera* wines. One of my students accurately described the nose as "fuel oil and sweet candy", and I'll admit that I've never acquired a taste for them. But Kroustalis gambled that he could grow *vinifera* in the Piedmont, and he planted Chardonnay, Cabernet Sauvignon, and several other European varieties in Forsyth County.

The industry has seen tremendous growth since the 1990s. Much of this growth has been in *vinifera* grapes. In 1991, North Carolina had 68 commercial vineyards; now, there are over 400, with 1800 acres in production. The number of wineries grew from 21 in 2000, to over 160 now. The North Carolina Department of Agriculture credits the industry with an economic impact of over \$1 billion per year, and more than 7,600 jobs. We're 9th in the nation in wine production, and 3rd in wine tourism.

However, it costs approximately \$13,000 to plant an acre of Chardonnay and bring it to full production, which takes 4 years (Poling and Spayd, 2015). Growers won't break even for at least 8 years, making vineyards an expensive investment. In Europe, growers have had thousands of years to match the correct grape variety to the correct site. *Vinifera* grape growers in North Carolina have been learning by trial and error what grape varieties work best in their area. They must often deal with a variety of challenges including high humidity, which exacerbates fungal diseases and mildew, insect pests, wildlife, extreme heat and cold, rainfall near harvest, and, in some areas, heavy clay-rich soils.

The relationship of geology to terroir in the Yadkin Valley AVA

As the late David Jones, owner of Lava Cap Winery and professor of geology at UC Berkeley was famously quoted as saying, "What you're tasting in a bottle of wine is a hundred million years of geologic history" (Swinchatt and Howell, 2004).



Most wine scientists consider *terroir* to encompass a complex interaction between the physical factors affecting a vineyard, the biology, and human intervention. Our field trip will focus mainly on the physical factors: soils and bedrock, climate and microclimate, elevation, topography, slope, and the aspect, or orientation of the vineyard to the sun.

(Continued on page 8)



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(Continued from page 7)

The Yadkin Valley area was awarded AVA status in 2003, and was the first appellation established in North Carolina. To be awarded AVA status, a region must establish that their terroir, including soils, climate, elevation, and topography, is unique and distinguishable from surrounding areas (Federal Register). Yadkin Valley growers would argue that their terroir is well-suited to growing quality vinifera grapes.

Bedrock and soils: The Yadkin Valley vineyards that we will visit are located in the Sauratown Mountains anticlinorium (SMA) (Flint Hill), the Inner Piedmont (Dobbins Creek and Shadow Springs), and the Blue Ridge (Jones von Drehle). Bedrock includes various metamorphic rocks—schists and gneisses, mainly--of the Blue Ridge and SMA, and granitoids of the Inner Piedmont. Soils are varied, but are generally formed either on saprolite weathered from these rocks, or on fluvial sediments in high terraces. The soils are generally deep, well-drained, acidic, and have fairly low fertility (Federal Register).

Fine wines are produced from grapes grown on all of the different rock types, so soil chemistry appears not to be a dominant factor. Actually, soil scientists aren't exactly sure how different soil types affect wine quality. The affect appears to be indirect; that is, as long as the soil has adequate depth, drainage, and aeration, and is not overly fertile, quality grapes can be produced (Poling and Spayd, 2015).

Climate: According to the State Climate Office of North Carolina, the Yadkin Valley AVA has a frost-free growing season and annual temperatures that allows growers to produce high-quality vinifera grapes (Federal Register). Rainfall, which averages more than 46 inches per year, is on the high side for vinifera. Rainy winters are not a problem, but adequate summer sunshine is needed to fully ripen the grapes, and rain near harvest causes problems with mold, disease, and dilution of the grapes' flavors and sugars. Like Bordeaux, the quality of Yadkin Valley

AVA wines is vintage-dependant.

The AEG Carolinas Section Fall Field Trip to the Yadkin Valley AVA will allow participants ample time to sample and debate both the wines of the area, the terroir, and the geology.

Wine Tasting 101

The Fall Field Trip will begin the evening of Friday, October 9 with an informal but fun wine-tasting session. You'll get the opportunity to try your hand—and nose—at some of the lab activities I use to train the palates of students enrolled in "Terroir, the Science of Wine", a class I teach at Guilford College. The class is an interdisciplinary look at the science--geology, chemistry, geography, and a bit of biology--behind how wine is grown and made. We also investigate the geology of the major wine-growing areas of the world, and see how climate, soils, and geology play a role in what grapes flourish where. They also conduct a multi-part lab project, in which they ferment grape juice into wine.

North Carolina Department of Agriculture and Consumer Services,

<http://www.ncagr.gov/markets/ncwine>

Poling, Barclay, and Spayd, Sara, 2015, *The North Carolina Winegrape Grower's Guide*, NCSU Cooperative Extension.

Swinchatt, Jonathan P., and Howell, D, 2004, *The Wine-maker's Dance: Exploring Terroir in the Napa Valley*, University of California Press.

Yadkin Valley Viticultural Area, A Rule by the Treasury Department and the ATF Bureau, 12/09/2002, Federal Register.



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-Carolinas Section**

**Fall Field Trip
Wine Terroir and Tasting Tour, Yadkin Valley, North Carolina
October 9, 10 and 11, 2015**

Where: Elkin and surrounding area, Yadkin Valley, NC

When: Friday, October 9th through Sunday, October 11th

Cost: \$155 for AEG members and non-members, \$140 for student members (must be 21 years old)

Field Trip Registration Deadline: Tuesday, September 1, 2015

Field Trip Waiver: Please sign/date and return field trip waiver

South Carolina Continuing Education Credits: 8 credits for field trip participation

****Due to the occupancy limits at vineyards, the maximum attendee number is 50. Thus, first come, first serve.**

Field Trip Leaders

Dr. Stephen Harper is a Teaching Associate Professor at East Carolina University, who teaches courses in Physical Geology, Environmental Geology, Geomorphology, and Field Geology. He is Director of the North Carolina Summer Geology Field Course taught every May-June in New Mexico and Colorado, and has been a Wine Enthusiast for 40 years. His research interests include implementing teaching strategies to improve learning outcomes for introductory geology classrooms and laboratories, and the origin of tower karst in Southeast Asia.

Dr. Marlene McCauley is a professor at Guilford College, emphasizing in Petrology, Mineralogy, Geochemistry, and the Science of Wine. She has led field seminars in Italy, the Colorado Plateau, Africa, and the Galapagos. Her recent research focuses on the design of innovative and engaging lab science courses in the liberal arts curriculum, including "Terroir: the Science of Wine".

Jane Gill-Shaler is a geologist, who currently researches and compiles articles, technical information, and human interest items for a variety of online publications. She is an active AEG Carolinas member whose has upgraded the AEG Carolinas newsletter and sponsor recruiting process.

Field Trip Summary

The Yadkin Valley became North Carolina's first federally-approved American Viticultural Area (AVA) in 2003. With this appellation, the [wineries](#) and vineyards of an area covering all or part of Surry, Yadkin, Wilkes, Davie, Davidson, Forsyth, and Stokes counties began labeling their wines "Yadkin Valley," proudly proclaiming the fruits of our region. Five years later, the Swan Creek region, which is mostly inside the Yadkin Valley AVA, was recognized as its own AVA, reflecting its particular microclimate.

Yadkin County, North Carolina, was formed in 1850 and was originally a farming community with flue cured tobacco as the major cash crop grown. As tobacco use declined, production of other crops continued to increase. The Yadkin Valley AVA is now home to 44 wineries, the largest concentration in

the State of North Carolina. The Yadkin Valley Wine Region was the first and remains the largest federally designated wine producing region, or appellation, in North Carolina. The four vineyards, which we will visit, produce Red Wines, such as Cabernet Sauvignon, Cabernet Franc, Merlot, Petit Verdot, Bordeaux or Meritage blends from the previous 4 grapes, Tempranillo, Syrah, and Chambourcin; White wines, such as Chardonnay, Viognier, Riesling, Petit Manseng, and Seyval Blanc.

The Yadkin Valley wineries are small, with intimate wine tasting rooms providing more access to the winemakers and owners (often one and the same). This setting offers a great chance to try new wines and learn about the winemaking process.

Marlene McCauley will start off the field trip on Friday evening with an informal session to introduce participants to wine tasting. Participants will learn to detect the different aromas in red and white wines, and then we will practice on some local vintages. Steve Harper will also introduce participants to hard apple and pear ciders from McRitchie Winery and Ciderworks.

The field trip stops on Saturday and Sunday will focus on touring and tasting wines at four vineyards, Jones von Drehle Vineyards, Dobbins Creek Vineyards, Shadow Springs Vineyard, and Flint Hill Vineyards. The vineyard owners will talk about their wines, give tours of their vineyard and wine production, and Marlene McCauley and Steve Harper will discuss the local geology of the areas. We will also discuss/ speculate on the effects that the physical aspects of the terroir – bedrock, soil, elevation, slope, slope aspect, and climate – have on the wine.

Field Trip Logistics

The field trip will begin at 7:30 PM on Friday, October 9th, at the Fairfield Inn and Suites (628 CC Camp Road /268 Bypass, Elkin, NC 28621; 336-353-2008) with an informal session in wine tasting by Marlene McCauley. Steve Harper will talk briefly about hard apple and pear ciders produced by McRitchie Winery & Ciderworks. 1-2 hours total time. Parking is available at the hotel. **AEG will not be providing dinner or bus transportation this evening**, so please plan accordingly and drink responsibly.

The field trip will continue at 10:00 AM on Saturday, October 10th, at the Fairfield Inn and Suites. Please be ready to board a coach bus by 10:15 AM as we will be traveling to the first of three vineyards, Jones von Drehle Vineyards (964 Old Railroad Grade Road, Thurmond, NC). We need to be on time at the vineyard by 11:00 AM. Chuck Jones, vineyard owner, will give us a walking tour and talk about their 10 wines. **Lunch will be provided at Jones von Drehle vineyards**. Participants with special dietary needs for this lunch, such as gluten free, vegetarian, should inform Stephen Harper or Sue Buchanan of those dietary needs at harpers@ecu.edu or sbuchanan@schnabel-eng.com by September 30th.

We will be departing Jones von Drehle Vineyards by 1:30 PM, and traveling to Dobbins Creek Vineyards (4430 Vineyard View Lane, Hamptonville, NC). The owner, Charles King, will talk about their 8 to 9 wines and give us a tour of the vineyard. We plan to spend about 1.5-2 hours at this stop.

The third and final stop on Saturday is the Shadow Springs Vineyard (5543 Crater Rd, Hamptonville, NC). Here owners, Jamie and Chuck Johnson, will have us taste their 8 to 10 wines and talk about their vineyard. We will be at Shadow Springs Vineyard until about 5:00 PM. The bus will then drive us back to the Fairfield Inn and Suites (we should arrive around 5:30 to 6:00 PM). **AEG will not provide a dinner on Saturday night**. However, there is a large restaurant across from the Fairfield Inn, called Pirates Landing (161 Interstate Way, Elkin, NC, 336-366-4150), where we can all meet up and have

dinner together. Otherwise, there are plenty of other restaurants and fast food options in the Elkin/Jonesville area.

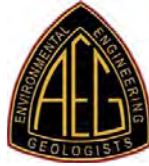
Optional Day: Sunday, October 11

For those that are interested, the field trip will continue on Sunday, October 11th, at the Flint Hill Vineyards (2133 Flint Hill Road, East Bend). *This day will be an optional day, thus the registration form indicates an additional fee for Sunday.* Lunch at Flint Hill Vineyards will start at 11:30 AM. Wine tasting will commence at Noon as no alcohol can be served before Noon on Sundays. The cost for a lasagna and salad lunch + wine tasting at Flint Hill will be \$20 + tax. **AEG will not be providing meals or bus transportation for Sunday**, so please plan accordingly and drive yourself to Flint Hill Vineyards near East Bend, NC.

Hotel Stay: Friday and Saturday night, October 9 and 10, 2015

If you would like to stay at a hotel Friday and Saturday night, then please make your own reservation. AEG has reserved a block of hotel rooms at the Fairfield Inn & Suites (336-353-2008) for Friday night only, but please make your own reservation. Some other hotels that are located in the Elkin and Jonesville area are: Hampton Inn (336-835-1994), Best Western (336-835-6000), and the Comfort Inn (336-835-9400).

ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS



LIABILITY WAIVER FOR FIELD TRIP PARTICIPANTS

The undersigned having been fully advised as to the nature and possible dangers and hazards of the field trip, hereby acknowledges and agrees this _____ day of _____, 20____, that:

1. (please print) _____ (herein referred to as "Participant") intends to participate in one or more field trips sponsored by the Association of Environmental & Engineering Geologists (herein referred to as "AEG").

The field trip for which this waiver is being made is to be held on Friday, October 9 through Sunday, October 11, 2015, in the Yadkin Valley, North Carolina.

2. Participant agrees and understands that during such field trip(s), he/she will be under the direction and control of the trip leader approved by the AEG, and specifically agrees to comply with all reasonable directions and instructions by the trip director during the course thereof.

3. Participant understands and acknowledges that there are risks of injury to person and/or property that are associated with field trips, including without limitation risks related to travel hazards, terrain, weather, eating and sleeping arrangements, and other circumstances. Participant hereby voluntarily assumes all risks connected with or arising out of his/her participation in field trip activities, and waives any claim against AEG, its officers, directors, employees, agents and members for any injury, harm, damage or other liability arising out of field trip activities.

4. Participant understands and acknowledges that the AEG assumes no liability for personal injuries or property damages to participants or to third persons arising out of field trip activities. Participant agrees to hold AEG harmless from any liability for harm arising out of the acts or omissions of AEG or Participant during any such field trip, and indemnify AEG against any and all awards or judgments against AEG in favor of third parties for losses and damages (including attorney's fees and any costs involved because of said claims), on account of injury, death or property damage, or inconvenience or loss of money due to delay that may arise, by reason of Participant's participation in field trip activities.

5. I understand that my use of alcohol or drugs would impair my judgment and coordination, and I hereby waive, and will hold the AEG harmless from, any and all claims of bodily injury or other harm arising from my use of either. I will indemnify AEG against awards or judgments in favor of third parties for losses or damages (including attorney's fees and costs), of whatever nature, arising out of my use of alcohol or drugs while participating in field trip activities.

6. I hereby state that **I am at least twenty-one (21) years old**, am competent to sign this document, and am legally permitted to consume alcoholic beverages.

Date: _____ Signed: _____
(Participant's Signature)

Mail liability waiver to:

Sue Buchanan
Schnabel Engineering
11A Oak Branch Drive
Greensboro, NC 27407

or email to:

sbuchanan@schnabel-eng.com

REGISTRATION FORM

Wine Terroir and Tasting Tour, Yadkin Valley, North Carolina

October 9, 10 and 11, 2015

Please fill out top portion for each individual attendee.

Name: _____ (Circle one: Member, Non-Member, or Student)

Company: _____

Professional Society Affiliation: _____

Address (Street, City, State, Zip): _____

Phone (office, home, or cell): _____ Fax: _____

Email: _____

Please fill in the total cost below.

Event	Member		Non-member		Student (must be 21 years old)	
Friday Evening, Wine Tasting Social (October 9 th , 7:30 PM to 9:30 PM) & Saturday, All day Field Trip		\$130.00		\$130.00		\$115.00
Sunday, Half day Field Trip (October 11 th , 11:30 AM to 1:30 PM)		\$25.00		\$25.00		\$25.00
Total Cost						

PAYMENT METHODPayment **MUST** be made to complete your registration and reserve your spot on the field trip.

Please mail registration form and check to:

Sue Buchanan
Schnabel Engineering
11A Oak Branch Drive
Greensboro, NC 27407

Make check payable to **AEG Carolinas Section**.

☐ Check box if paid via PayPal on our section website at aegcarolinas.org
 (located under News and Events, Carolinas Fall Field Trip)

Total Payment Amount: \$ _____

List attendee(s) for which this payment is for: _____



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Association of Environmental & Engineering Geologists – AEG

North Carolina Environmental Legislation Updates

By Ward Marotti, President of North Carolina Association of Environmental Professionals

Below are links to and excerpts from some of the many environmental legislative items considered during this year's session. These links are also posted on the NCAEP website's blog page. Should you have suggestions for additional posts, please provide them.

Please note, NCAEP is not an advocacy organization. Our primary mission is to provide our members with the unbiased resources necessary for them to remain educated about and abreast of the North Carolina's ever-evolving technical and regulatory environmental landscape.

Should you like to discuss any of these items with our board members, please contact them <http://ncaep.org/page-979801>.

HOUSE BILL 795

AN ACT to reform and amend the State environmental policy act.

<http://www.ncleg.net/gascripts/BillLookup/BillLookup.pl?Session=2015&BillID=h795&submitButton=Go>

f. Any irreversible and irretrievable environmental changes which would be involved in the proposed action should it be implemented.

For purposes of this subdivision, a direct environmental impact does not include impacts that are speculative, secondary, or cumulative with other previous actions or that occur outside of the State.

(7a) "Significant expenditure of public moneys" means

expenditures of public funds greater than ten million dollars (\$10,000,000) for a single project or action or related group of projects or actions. For purposes of this subdivision, contributions of funds or in-kind contributions by municipalities, counties, regional or special-purpose government agencies, and other similar entities created by an act of the General Assembly and in-kind contributions by a non-State entity shall not be considered an expenditure of public funds for purposes of calculating whether such an expenditure is significant

HOUSE BILL 760

AN ACT to provide further regulatory relief to the citizens of north carolina by providing for VARIOUS administrative reforms, by eliminating certain unnecessary or outdated statutes and regulations and MODERNIZING or simplifying cumbersome or outdated regulations, and by making various other statutory changes.

<http://www.ncleg.net/Sessions/2015/Bills/House/HTML/H760v2.html>

PART III. ENVIRONMENTAL AND NATURAL RESOURCE REGULATION

AMEND ISOLATED WETLANDS LAW

(2) Mitigation requirements for impacts to isolated wetlands shall only apply to the amount of impact that exceeds the thresholds set out in subdivision (1) of this section. The mitigation ratio for impacts of greater than one-acre exceeding the thresholds for the entire project under 15A NCAC 02H .1305(g)(6) shall be 1:1 and may be located on the same parcel.

(3) For purposes of Section 54(b) of this section, "isolated wetlands" means a Basin Wetland or Bog as described in the North Carolina Wetland Assessment User Manual prepared by the North Carolina Wetland Functional Assessment Team, version 4.1 October, 2010, that are not jurisdictional wetlands under the federal Clean Water Act. An "isolated wetland" does not include an isolated

(Continued on page 15)



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Fax: 919-677-9846

Orlando, FL Lab:

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Tel: 904-296-3007
Fax: 904-296-6210

Corporate Office:

10775 Central Port Drive,
Orlando, FL 32824

(Continued from page 14)

~~man-made ditch or pond constructed for stormwater management purposes or any other man-made isolated pond.~~

(4) Impacts to isolated wetlands shall not be combined with the project impacts to 404 jurisdictional wetlands or streams for the purpose of determining when impact thresholds that trigger a mitigation requirement are met.

AMEND STORMWATER MANAGEMENT LAW

(2) Vegetative buffers adjacent to intermittent streams shall be measured from the center of the stream bed.

RIPARIAN BUFFER REFORM

(b1) Exceeding Minimum State Requirements. – The Commission may approve a delegation application proposing a riparian buffer width that exceeds that required by the State for the type of surface body of water and the river basin or basins in which the unit of local government is located only in accordance with the procedures of this section:

(1) Units of local government may request exceedances in riparian buffer widths from the Commission when submitting an application under subsection (b) of this section. Exceedances in buffer width enforced by units of local government under an existing local ordinance may not be enforced after February 1, 2016, unless the unit of local government has either received approval for an exceedance under the procedures set forth in this subsection or has an application for an exceedance pending with the Commission. Under no circumstances shall any existing local ordinance be enforced after June 1, 2016, unless the Commission has approved the exceedance. For purposes of this subdivision, an "existing local ordinance" is a local ordinance approved prior to August 1, 2015, that includes an exceedance in riparian buffer width from that required by the State.

(2) The Commission may consider a request for an exceedance in riparian buffer width only if the request is accompanied by a scientific study prepared by or on behalf of the unit of local government that provides a justifi-

cation for the exceedance based on the topography, soils, hydrology, and environmental impacts within the jurisdiction of the unit of local government. The Commission may also require that the study include any other information it finds necessary to evaluate the request for the exceedance.

(3) The Commission shall grant the request for an exceedance only if it finds that the need for the exceedance in riparian buffer width is established by the scientific evidence presented by the unit of local government requesting the exceedance in order to meet the nutrient reduction goal set by the Commission for the basin subject to the riparian buffer rule.

(4) For purposes of this subsection, "existing local ordinance" shall include a zoning district, subdivision or development regulation; comprehensive plan; policy; resolution; or any other act carrying the effect of law

(e3) Limitation on Local Government Riparian Area Restrictions. – Units of local government may impose restrictions upon the use of riparian areas as defined in 15A NCAC 02B .0202 only within river basins where riparian buffers are required by the State.

HOUSE BILL 639

AN ACT to establish the clinical exercise physiologist licensing act.

<http://www.ncga.state.nc.us/gascripts/BillLookUp/BillLookUp.pl?Session=2011&BillID=H639>

HOUSE BILL 141

AN ACT to authorize cities to undertake activities within their stormwater management programs to implement flood reduction techniques that result in improvements to private property.

<http://www.ncleg.net/gascripts/BillLookUp/BillLookUp.pl?Session=2015&BillID=h141>

(Continued on page 16)

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HOUSE BILL 186

AN ACT to require the Environmental ReVIEW Commission to conduct a study of water resources availability in the Cape Fear River Basin.

<http://www.ncleg.net/gascripts/BillLookUp/BillLookUp.pl?Session=2015&BillID=H186>

Sincerely,

Ward Marotti

President

NC Association of Environmental Professionals

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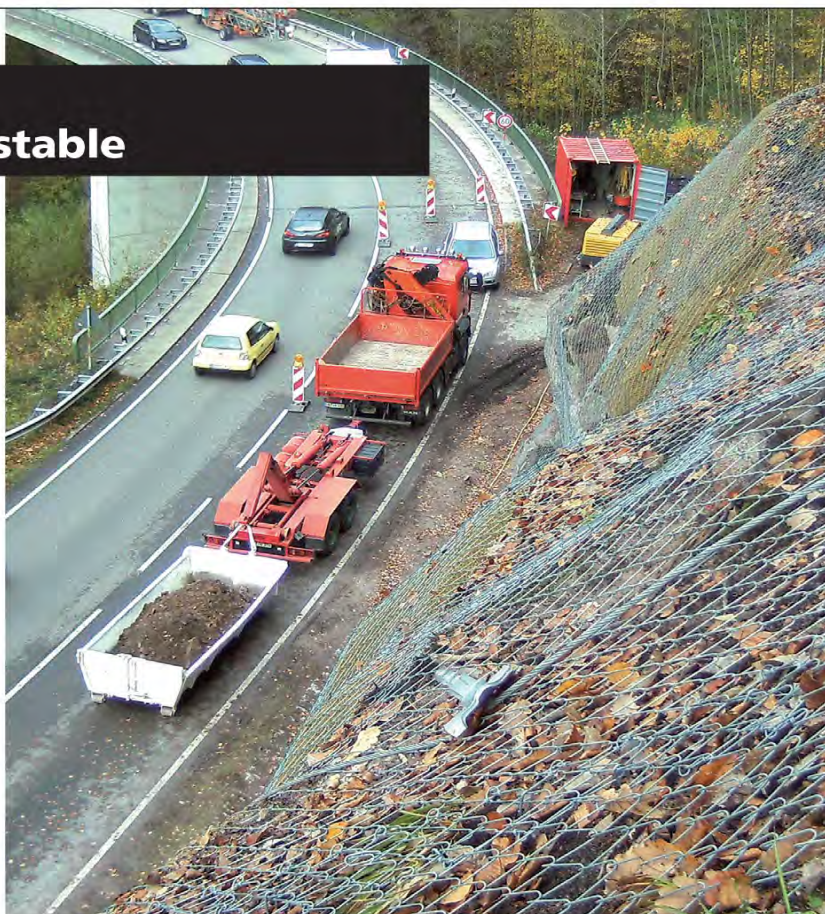
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Meet Our Members

Madeline German, Incoming Chair

I grew up in a small suburb of Cleveland, Ohio. My parent's house was on a cul-de-sac that had limited landscaping in the center. Literally, there were two small trees and two shrubs, the rest was decorative pebbles. I would walk or ride my bike down to the cul-de-sac and sit in the stone building mountains and moats, and spending hours looking for the pretty and unique rocks or the rocks that would draw on the concrete. When I would get back home I would only be allowed to keep one or two and I would have to return the others to the cul-de-sac. Sometimes I would hide them so I could find them the next day and so none of the other neighborhood children could make off with my treasure.

In 2001, several states and years later, I graduated high school and began my college career at Appalachian State University (ASU). Yes, the same ASU who's football team beat the Michigan Wolverines in their opening game of 2007. I decided that the North Carolina Mountains was a great place to study geology. During my four years at ASU I was able to travel on field trips throughout the Blue Ridge Mountains in North Carolina and Virginia, out to west Texas and New Mexico. I learned to snowboard and became very involved with the fitness program. I graduated in 2005.

My first environmental job was working at a laboratory performing analysis on water and soil samples from North Carolina and Virginia. In 2006 I moved to Raleigh, North Carolina and started my first consulting job at Municipal Engineering Services, Co. (MESCO). I quickly learned how to walk the fine line between budget and investigation information, as well as the importance of understanding your regulator's position on various issues. While working at MESCO I wrote numerous Design Hydrogeologic Reports, Groundwater Monitoring Plans and Site Studies. I also learned about soil and groundwater remediation.

I became involved with AEG shortly after meeting Rick Kolb at a Groundwater Professionals Meeting in Raleigh. His excitement for the organization brought me into the meetings and the quality people I met and exceptional speakers lead me to join. I quickly became involved with the organization locally, as well as using the National Meetings as an opportunity travel and speak.

Today I work for Smith Gardner, Inc. (S+G) a company focused on solid waste consulting. I enjoy this work because it allows me to experience many aspects of our profession from basic phase I investigations to developing comprehensive remedial strategies. I have kept my passion for fitness and fun; spending time outdoors with my husband and our two dogs or training for amateur muay thai competitions.

Coastal Plain Aquifers

By Harry LeGrand

Two types of Coastal Plain aquifers are in layers
The water-table and deep confined aquifers are play-
ers
Distinctly separated by beds of clay
Leakage of water between is in the play
Warding off aquifer problems are in our prayers.

Recharge to the water-table aquifer is at hand.
Precipitation goes directly into exposed sand.
Almost everywhere it is for domestic supply.
But caution exists where contaminants lie.
For humans this aquifer represents an active land.

The water-table aquifer is as busy as can be
Its recharge and discharge we can almost see.
Learning from water-table fluctuations,
We understand the aquifers' deliberations.
Streams and confining beds fit nicely to a tee.

Confined aquifers at best have water of high pressure
With optimistic view we consider this a real treasure
But with recharge conditions so slow,
We could ultimately face limited flow
Long-term use of well water we must closely meas-
ure.

Scarcer now are the artesian, or overflowing, wells
Years ago were commonly displayed in many dells
Pumping wells cause cones of depression
As lower water levels express a recession
Understanding unwinds as the long story tells.

For thousands of years in a state of storage
The confined water has little chance of flowage
For practical purposes, the water is mined
And for future use, we are getting behind
For a long period we must carefully manage.

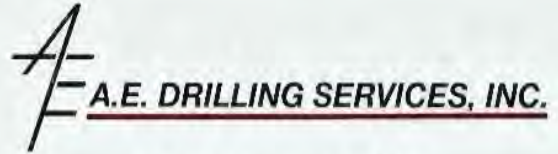
As confined water moves coastward and down dip
It is blocked by salty water as a wall-like strip
Upward through clays some water leaks
But not a true outlet that it really seeks
Long in residence, the water never has a big trip.

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A Good Time Was Had by All at the Durham Bulls Social

Adam Phillips, Social Chair

The recent Durham Bulls social event at Tobacco Road, overlooking the DBAP was a good time, with about 15 folks that joined me. It was a beautiful summer evening with clear skies. The group was a mix of mostly subcontractors, a few consultants, and I believe one from DENR. The Bulls played against the Toledo Mud Hens, and the game was extra “intense” from the get-go. The Tobacco Road terrace (outdoor seating) was bombarded with home run balls! I think there were 5 home runs in the game, several of which came close to hitting folks at Tobacco Road, one landing on a table breaking a glass and causing a dinner to fall onto the ground. Good times!



Mark Lassiter, P.G.
President

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❖ Geophysical Services:

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- ❖ Archaeological – Graves, Foundations, Artifacts
- ❖ Non-Destructive Evaluation – Concrete / Rebar Mapping, Void Detection
- ❖ Unexploded Ordnance Detection – Digital Geophysical Mapping

Minutes for Board of Directors Meeting, September 8, 2015

Joanna Harbison, Secretary

AEG CAROLINAS SECTION BOARD OF DIRECTORS MEETING MINUTES September 8, 2015 at 4:30pm Joanna Harbison, Secretary

Roll Call:

Alex Rutledge (Chair)
Madeline German (Vice Chair)
Susan Kelly (Treasurer)
Joanna Harbison (Secretary)
Paul Weaver (Past Chair)
Jennifer Thomas (Newsletter Editor)
Rick Kolb (Student Liaison and Advisor)
Rebecca Deal (incoming Secretary)
Russell Molyneux (incoming Membership Chair)

All 5 members of the Carolinas Section Board of Directors were present- Quorum obtained.

Carolinas Section Finances

AEG Carolina's section is doing well.
Paypal has been setup for website payment processing, worked very well for the Raleigh meeting in August.

Fall Section Meeting- Asheville

The meeting is scheduled for Thursday September 17, 2015 at The Millroom.
The speakers are Daphne Jones P.G. with Dunklee & Dunham, and Joan Smyth P.G. with Smith Garner.
This meeting will offer the opportunity to renew memberships while there.

Geochemistry Short Course

October 5-6, 2015 at the Frontier in Research Triangle Park.

Bill Deutsch will be presenting the classes.

Payment is received through Paypal on the sections webpage.

Announcements have been added to the Facebook and LinkedIn pages.

Section Field Trips

October 10-11, 2015- Geo Wine Terrior Tasting
There is a limit of 50 for this trip and spots are still available.

Coordination with CGS to see if they would be interested in having AEG as a co-sponsor for their field trips on a regular basis has received good initial feedback.

A coastal field trip is being arranged for late spring early summer of 2016. Trip will in all likelihood take place in Wilmington.

Field Trip Satisfaction survey is being drafted.

Greensboro Section Meeting

Alex will take on the role of meeting organizer.

November 12, 2015 is the tentative date set for the fall meeting.

Was suggested that the venue be relocated from Natty Greene's to somewhere that is more presentation friendly.

Charlotte Section Meeting

Paul Santi AEG President is presenting at this meeting or the meeting in Raleigh. Maddie will follow up with Paul to confirm.

Tentative date set for the end of January 2016.

Newsletter

GeoNews- Fall Edition

Maddie's message from the chair to be included.

The updated Geochemistry course flyer will be included.
Events that happened over the summer and upcoming events should be added.

Updated website info calendar and, new Board of Director roles along with contact information should be incorporated.

Social Committee

The Durham Bulls social event from August 19, 2015 went very well.

The NC Museum of Natural Sciences in Raleigh was suggested as a winter social event.

The US National whitewater Center in Charlotte was suggested as a spring social event.

(Continued on page 21)



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[Haynes Campbell - \(919\) 210-5148; hcampbell@esclabsciences.com](mailto:hcampbell@esclabsciences.com)

(Continued from page 19)

Board elections and Leadership Transition

The new Board of Directors will transition around September 24, 2015.

21 votes were tallied and it was a unanimous decision.

The new Board of Directors are:

Chair: Maddie German

Vice Chair: Susan Kelly

Treasurer: Eric Cross

Secretary: Rebecca Deal

Past Chair: Alex Rutledge

Paul Weaver will move into an Advisor position with the section

Website Update

The website now has a new look.

New content management system (CMS) allows for easier updates and features.

Links to the Facebook and LinkedIn page are available.

Paypal is linked up to the website for easier payment for meetings, classes and field trips.

Please address any issues to Brad Isles.

Haiti Well Supplies Donation

No additional funds are needed from the Carolinas Section for the most recent shipment of well supplies.

2015-2016 Jahns Lecture Tour Scheduling

Susan Kelly as the new Vice Chair will take on the role of scheduling the 2015-2016 Jahns Lecture tour.

The tour will need to correspond with the school schedules during the Fall of 2016.

Jerry deGraff is the 2015-2016 Jahns Lecturer

Calendar of Events for Newsletter and Website

Now maintained by Josh Hanks. His email is josh@dunkleedunham.com

EDUCATION

Carolinas Section Announces Undergraduate Scholarships for Geology Majors

By Paul Weaver, Chair, Carolinas Section Scholarship Fund

The Carolinas Section is pleased to announce that, beginning in the 2016-2017 academic year, we will award scholarships to deserving undergraduate students that are majoring in geology at colleges and universities schools in North Carolina and South Carolina. These scholarships will be administered through the AEG Foundation with the award recipients chosen by the Carolinas Scholarship Committee, which will be comprised of five members of the Carolinas Section.

The eligibility requirements for the scholarship are as follows:

- Undergraduate student must be a geoscience major enrolled in a school in North or South Carolina.
- Student must be an AEG Student Member.
- Student must provide academic transcripts.
- Student must provide an approximately 500-word essay that describes why they believe they deserve the scholarship and how they will use it (e.g., for tuition, field camp, books, etc.).
- The scholarship application must be completed on the AEG Foundation website (www.aegfoundation.org) by February 1 of each year.

The number and amount of scholarships awarded each year will depend upon the amount of money available in the Scholarship Fund. The Carolinas Section has established the fund with seed money in the amount of \$10,000. We plan to conduct on-going fundraising for the Scholarship Fund throughout the year. In the meantime, if you would like more about information about the fund, the fund charter and description can be found at <http://www.aegfoundation.org/funds/carolinas.php>. If you would like to make a donation to the fund, please go to <http://www.aegfoundation.org/pdf/AEGF%20Donation%20Form.pdf>. Since the scholarship has just recently been approved by the AEG Foundation, the Foundation website may not show the Carolinas Scholarship in the list of scholarships available. If this is the case and you would like to make a donation, please write-in "Carolinas Scholarship Fund" and your donation amount.

The Carolinas Scholarship Fund Committee and the Carolinas Section Board of Directors are excited to have finally established the Carolinas Scholarship Fund since this has been something we have wanted to do for many years. We look forward to awarding scholarships to deserving students in 2016 and for many more years into the future.



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EDUCATION**AEG Wake Tech Student Chapter
is Formed**

By Jeff Weis and Melanie McCaskey

Wake Technical Community College members of AEG are excited to announce the formation of the AEG Wake Tech Student Chapter. We are quite proud to be the first student AEG chapter at any two-year college. The chapter was approved this past spring semester, and in our first full academic year we are looking to start traditions, get involved in the community as well as the environment, and take part in all that AEG has to offer. We are hoping to be able to host speakers, put together interesting field trips, and help introduce and prepare our students for careers in the world of Environmental and Engineering Geology. We have generated a lot of interest from the students and look forward to a bright future. Feel free to contact us with any suggestions. We look forward to working with you all.

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CALENDAR OF EVENTS - 2015

Geological Events in the Carolinas

Courtesy of AEG Carolinas Section – www.aegcarolinas.org. Last updated June 21, 2015
Send updates/corrections to Josh Hanks, Dunklee & Dunham, josh@dunkleedunham.com
Meeting Date, Time, and Location are Subject to Change – Please Verify Prior to the Meeting

Date: September 20-26, 2015

Event: AEG 2015 Annual Meeting

Location: Wyndham Grand Hotel-Pittsburg
Downtown; 600 Commonwealth
Pl; Pittsburg, Pennsylvania

Contact: Heather Clark, AEG Annual Meeting Manager;

heather@aegweb.org

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

Date: Thursday, September 24, 2015

Event: Groundwater Professionals of North Carolina Social and Meeting

Location: US National Whitewater Center, Charlotte, NC

Time: 6-7pm Registration & Social, 7-8pm
Dinner, 8-9pm Guest Speaker

Topic: Groundwater Impacts from Duke Energy's Allen Steam Plant, Belmont, NC by Sam Perkins with Catawba RIVERKEEPER

Details: Members \$35, Non-members \$45

Contact: Mike Stanforth at (704) 913-7614 or
mstanforth@excelengr.com

Date: Thursday, October 1, 2015

Event: NC Association of Environmental Professionals with NC Water Resource Association Meeting

Workshop: 1:00 pm Marriott-Downtown Winston Salem - 425 North Cherry Street, Winston-Salem, NC 27101

Topic: Nutrient Management Implications for Mitigation by Rich Gannon (NCDWR), Michael Ellison (NCDMS), Marc Recktenwald (City of Charlotte), and Kyle Hall (City of Charlotte)

Social: 5:30 pm Foothills Brewpub – 638 West Fourth Street, Winston-Salem, NC 27101

Date: Friday, October 2, 2015

Event: ASBOG Geology Exam

Details: Deadline to apply to take the exams was August 14, 2015 (and preapproval to take the exam before that)

Location: McKimmon Center, NC State University, Raleigh

Contact: www.ncblg.org

Date: Tuesday, October 6, 2015 (meetings are held on the first Tuesday of the month)

Event: Engineers Without Borders monthly meeting, Research Triangle Park Professional Chapter

Location: 6:30-8:00 PM at the offices of Camp Dresser & McKee; 5400 Glenwood Avenue, Suite 300; Raleigh

Details: www.meetup.com/EWB-USA-RTP-Professional-Chapter/

Date: Friday October 9- Sunday October 11, 2015

Event: AEG Carolinas Section Fall Field Trip

Location: Wine Terroir and Tasting Tour; Yadkin Valley, North Carolina

Cost: \$155 for AEG members and non-members, \$140 for student members (must be 21 years old)

Details: <http://www.aegcarolinas.org/index.php>

Date: Thursday, October 15, 2015

(meetings are held on the third Thursday of the month)

Event: Meeting of South Carolina Association of Environmental Professionals

Presentation: In Situ Thermal Remediation Technology by TRS Group

Cost: Annual fee of \$25 includes pizza, beer

(Continued on page 25)



(Continued from page 24)

and soft drinks at all meetings
Time: 6:00pm Social with Pizza & Beverages,
7:00pm Presentation
Location: Jim Hamilton-L.B. Owens Airport

– 1400 Jim Hamilton Boulevard, Columbia,
SC

Contact/RSVP: Chuck Clymer at (803) 212-0054 or
cclymer@terracon.com

Date: Friday, October 23-Sunday, October 25, 2015

Event: Carolina Geologic Society Annual
Field & Meeting
Topic: Tectonic History of the Eastern Pied-
mont, South Carolina or Alpine Tectonics
Come Home to Roost in South Carolina
Details: http://www.carolinageologicalsociety.org/CGS/2015_Meeting.html

Registration Deadline: October 16, 2015
Registration: <https://www.regonline.com/builder/site/Default.aspx?EventID=1758573>

Date: Sunday, November 1 - Wednesday, 4, 2015

Event: Geological Society of America Annu-
al Meeting
Location: Baltimore Convention Center; 1 W
Pratt St, Baltimore, Maryland
Registration Deadline: September 28, 2015
Information: <http://community.geosociety.org/gsa2015/home>

**Date: Tuesday, November 3, 2015
(meetings are held on the first Tuesday
of the month)**

Event: Engineers Without Borders monthly
meeting, Research Triangle Park Profes-
sional Chapter
Location: Embassy Suites Newark – Wil-
mington/South; 654 South College Ave-
nue, Newark Delaware 19713
Reservation Deadline: October 10, 2015 to get
the Group Rate of \$135/night
Reservation Details: 302-368-8000 or http://embassysuites.hilton.com/en/es/groups/personalized/N/NEWDEES-ASB-20151110/index.jhtml?WT.mc_id=POG

**Date: Wednesday, November 11 – Satur-
day, November 14, 2015**

Event: National ASBOG 2015 Fall COE
Workshop and Annual Meeting
Location: 6:30-8:00 PM at the offices of
Camp Dresser & McKee; 5400 Glenwood
Avenue, Suite 300; Raleigh
Details: www.meetup.com/EWB-USA-RTP-Professional-Chapter/

Date: Tuesday, November 17, 2015

Event: Quarterly meeting of the North Caroli-
na Board of Licensing Geologists
Location: Starts at 9 AM at the office of Guil-
ford College; 5800 W Friendly Avenue,
Greensboro, NC; morning session open to
the public
Contact: ncblg@bellsouth.net

**Date: Tuesday, December 1, 2015
(meetings are held on the first Tuesday
of the month)**

Event: Engineers Without Borders monthly
meeting, Research Triangle Park Profes-
sional Chapter
Location: 6:30-8:00 PM at the offices of
Camp Dresser & McKee; 5400 Glenwood
Avenue, Suite 300; Raleigh
Details: www.meetup.com/EWB-USA-RTP-Professional-Chapter/

Date: Tuesday, January 19, 2016

Event: Quarterly meeting of the North Caroli-
na Board of Licensing Geologists
Location: Starts at 9 AM at the office of Up-
ton Associates; 3733 Benson Dr. Raleigh,
NC; morning session open to the public



(Continued from page 25)

Contact: ncblg@bellsouth.net

Date: March 18, 2016

Event: ASBOG Geology Exam

Details: Deadline to apply for the exam is February 2, 2016 (and preapproval to take the exam before that)

Location: McKimmon Center, NC State University, Raleigh

Contact: www.ncblg.org

Date: March 31- April 1 2016

Event: Geologic Society of America Annual Southeastern Section Meeting

Location: Columbia Convention Center; Columbia, South Carolina

Date: April 7-April 9, 2016

Event: ASBOG Spring COE Workshop

Location: TBD

Contact: ncblg@bellsouth.net

Date: April 12, 2016

Event: Quarterly meeting of the North Carolina Board of Licensing Geologists

Location: Starts at 9 AM at the office of Upton Associates; 3733 Benson Dr. Raleigh, NC; morning session open to the public

Contact: ncblg@bellsouth.net

Date: August 6, 2016

Event: ASBOG Annual Meeting

Location: Video Conference and Physical

Contact: ncblg@bellsouth.net

Date: August 9, 2016

Event: Quarterly meeting of the North Carolina Board of Licensing Geologists

Location: Starts at 9 AM at the office of Upton Associates; 3733 Benson Dr. Raleigh, NC; morning session open to the public

Contact: ncblg@bellsouth.net

Date: September 18-24, 2016

Event: AEG Annual Meeting

Location: Kona, Hawaii

Date: September 30, 2016

Event: ASBOG Geology Exam

Details: Deadline to apply for the exam is August 16, 2016 (and preapproval to take the exam before that)

Location: McKimmon Center, NC State University, Raleigh

Date: November 15, 2016

Event: Quarterly meeting of the North Carolina Board of Licensing Geologists

Location: Starts at 9 AM at the office of Upton Associates; 3733 Benson Dr. Raleigh, NC; morning session open to the public

Contact: ncblg@bellsouth.net

Date: September 2017 (dates to be determined)

Event: AEG Annual Meeting

Location: Denver, Colorado

Date: September 2019 (dates to be determined)

Event: AEG Annual Meeting

Location: Asheville, North Carolina



Chris Schappell

Branch Manager

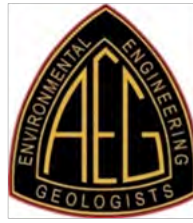
P.O. Box 5621

Aiken, South Carolina 29804

Phone: 803.230.7992

Email: jcs@terrasonicinternational.com

www.terrasonicinternational.com



Carolinas Section

Basic and Intermediate Groundwater Geochemistry

Presented by:

Bill Deutsch

Program Organizer:

Association of Environmental & Engineering Geologists – Carolinas Section

October 5 and 6, 2015

8:30 AM - 5:30 PM each day

The Frontier

800 Park Offices Drive

Research Triangle Park/Durham, North Carolina

Two Separate Courses Offered:

October 5

Introduction to Groundwater Geochemistry

Major Topics to Include:

- The Aquifer Geochemical System
- Solution and Gas Phase Reactions
- Mineral Dissolution/Precipitation
- Oxidation/Reduction Reactions
- Adsorption/Desorption Reactions and Modeling Methods

October 6

Intermediate Groundwater Geochemistry

Major Topics to Include:

- Aquifer Geochemical Processes
- Fate and Transport of Contaminants
- Natural Attenuation Processes and Modeling
- Applied Remediation Methods
- Geochemical Modeling

Two Courses in Groundwater Geochemistry

Schedule

The Carolinas Section of AEG offers two days of courses in groundwater geochemistry: *Introduction to Groundwater Geochemistry* on October 5, 2015, and *Intermediate Groundwater Geochemistry* on October 6, 2015.

Course Overview

Introduction to Groundwater Geochemistry

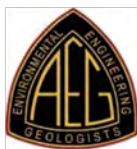
This is an introductory geochemistry course for scientists and engineers working in the field of groundwater site characterization, contamination, and remediation. It is designed to provide basic information on geochemistry that is necessary to understand natural and contaminated systems and how the composition of groundwater evolves along its flowpath in the subsurface. Geochemical processes that will be described and discussed include solution complexation reactions, solution/gas interactions, mineral dissolution/precipitation, oxidation/reduction, and adsorption/desorption. Data collection, presentation, and interpretation of results will be discussed. Examples that illustrate the concepts are described throughout the class. At the end of this one-day class, attendees will have a better understanding of the types of geochemical processes that affect groundwater composition, the importance of collecting sufficient data to understand site-specific geochemical systems, and what the data they have collected mean from the standpoint of contaminant occurrence and mobility.

Intermediate Groundwater Geochemistry

This is an intermediate geochemistry course for scientists and engineers designed to show the importance of geochemistry in the evaluation of contaminant fate and transport and in the design of applied remediation methods. Although a brief introduction to geochemical processes will be provided, this is an applied geochemistry class and assumes attendees have a basic knowledge of groundwater chemistry (mineral equilibrium, redox processes, and adsorption/desorption effects). Geochemical models based on public-domain computer codes will be used to predict the impact of natural attenuation processes and applied remediation methods on aquifer remediation. Examples that illustrate the concepts are described throughout the class. These examples include cases where a lack of geochemical knowledge about site conditions can lead to underestimation of the degree of required active remediation or exacerbation of contamination in an aquifer. At the end of this one-day class, attendees will have an appreciation for the importance of geochemistry in predicting inorganic/organic contaminant fate and transport and the application of geochemistry to *in situ* active remediation methods. Examples that illustrate the concepts are described throughout the class.

We expect the South Carolina Board of Registration for Geologists will approve 7 Professional Development Hours for each course.

Presenter: Bill Deutsch – Bill holds B.S. and M.S. degrees in geological sciences from the University of Washington and is an independent consultant that specializes in groundwater geochemistry. Since 1985, Bill has instructed more than 150 courses in groundwater geochemistry and geochemical modeling, including at AEG's annual meeting in Charleston in 2010. He is the author of *Groundwater Geochemistry*, published by CRC Press, and is a principal scientist at Geochemistry Services LLC.



Carolinas Section

Basic and Intermediate Groundwater Geochemistry

October 5-6, 2015; The Frontier – Research Triangle Park/Durham, North Carolina

Conference cost:

General registration (non-AEG member).....	<input type="checkbox"/> \$195/Intro	<input type="checkbox"/> \$195 Intermed.	<input type="checkbox"/> \$350 Both
AEG member	<input type="checkbox"/> \$175/Intro	<input type="checkbox"/> \$175 Intermed	<input type="checkbox"/> \$300 Both
Public-sector employee (ID required at check-in)	<input type="checkbox"/> \$150/Intro	<input type="checkbox"/> \$150 Intermed	<input type="checkbox"/> \$260 Both
Full-time student (ID required at check-in)	<input type="checkbox"/> \$90/Intro	<input type="checkbox"/> \$130 Intermed	<input type="checkbox"/> \$130 Both
Total for all checked boxes	\$_____		

Registration each day includes continental breakfast, lunch and a break, and an evening social with light appetizers on Monday evening. Cancellation policy: fully refundable up to one week prior to the event, less an administrative fee of \$25.

Registration information:

Attendee Name _____

Title/Position _____

Company/Organization _____

Address _____

City/State/Zip _____

Phone _____

Email _____

To pre-register:

Website/Credit Card:

<http://aegcarolinas.org/aeg-groundwater-geochemistry-course/>

Mail: Ms. Maddie German
Smith Gardner

14 N. Boylan Ave.
Raleigh, NC 27603

Phone: (919) 828-0577

Hotel Information:

The conference will be held at the Frontier at 800 Park Offices Drive in Durham, North Carolina (<http://www.rtp.org/about-us/the-frontier/>). Nearby hotels (within 3 miles) include:

Hilton Garden Inn 919-941-6066

Marriott 919-941-6200

Holiday Inn Express and Suites 919-474-9800

Homewood Suites 919-474-9900

Double Tree 919-941-600

Comfort Suites 919-314-1200¹⁹

www.aegcarolinas.org

Join us at AEG's 58th Annual Meeting

September 19 - 26, 2015

HOSTED BY THE ALLEGHENY-OHIO SECTION



- ▶ Planned **FIELD TRIPS** to include:
Landslides of Pittsburgh, rock slopes of Ohio, dams of Pennsylvania and more!
- ▶ A full schedule of outstanding **SYMPOSIA, TECHNICAL SESSIONS, and SHORT COURSES.**
- ▶ Held at the **WYNDHAM GRAND HOTEL** at the confluence of three great rivers and the point of the "Golden Triangle" in downtown Pittsburgh.

MEMBERSHIP APPLICATION



ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS

MEMBER:

- ☐ **New Member Dues – \$95.00** First year of membership only.
☐ **Full Member Dues – \$140.00***

Applicants for Member Class, including Full and New Members, shall hold a degree in geology, engineering geology or geological engineering, or a degree in a related professional field with 30 semester-hours of credit in the geosciences. In addition, the applicant shall be practicing in the field of Engineering Geology, Environmental Geology or Hydrogeology.

**Section Dues - Section dues are charged to all Full Members, invoiced separately. More information regarding Section dues can be found at www.aegweb.org.*

AFFILIATE:

- ☐ **Affiliate Dues – \$100.00**

Applicants for Affiliate Member Class shall be scientists or engineers who work with engineering geologists, or persons interested in environmental and engineering geology.

TEACHER:

- ☐ **Teacher Dues – \$35.00**

Applicants for Teacher Member Class shall be engaged in full-time teaching at the Primary, Secondary or post-secondary level in the area of Earth Science education or a related subject.

STUDENT:

- ☐ **Annual Dues – FREE**

Applicants for Student Member Class shall be full-time students enrolled in an academic program in the geosciences or in a related field in engineering.

INTERNATIONAL:

- ☐ **International Member Dues – \$35**

Applicants shall hold the same requirements as for Member Class. International Members receive (online ONLY) the E&EG Journal, Annual Directory, Annual Meeting Program with Abstracts and the AEG NEWS.

AEG memberships are based on the calendar year. Applications received after October 1 will be entered for the following calendar year.

APPLICATION FORM

Please complete this form and mail it with your Annual Dues payment to the Association's Headquarters office for processing. New member applicants do not pay Section dues for their initial year of membership.

Name: _____
(Please print your name as you would like it shown on your membership certificate.)

Date of Birth: _____
Required to authorize payment

Preferred Address: ☐ Home ☐ Work ☐ School

Preferred Phone: ☐ Home ☐ Work ☐ School ☐ Mobile

Preferred E-mail: ☐ Home ☐ Work ☐ School

Alternate Address: ☐ Home ☐ Work ☐ School

Alternate Phone: ☐ Home ☐ Work ☐ School ☐ Mobile

Alternate E-mail: ☐ Home ☐ Work ☐ School

Desired Class of Membership: _____

Annual Dues Amount*: _____
**Section Dues not included. A separate invoice will be mailed to you.*

Payment Method:
☐ Check Enclosed
☐ Visa ☐ Master Card ☐ Discover ☐ AMEX
Name on Card: _____

Cardholder Address: ☐ Home ☐ Work ☐ School ☐ Other
(If not provided above, please provide card address)

Card Number: _____

Expiration Date: _____

Certification/Authorization: _____
(Signature)

My signature attests that, to the best of my knowledge, I meet the academic and practice requirements for the membership class I have requested and that all entries on this application are true and correct. I also authorize AEG to charge my credit card for the dues payment, if I selected the credit card payment option.

SUBMISSION: Send this form with your check or credit card authorization to: Association of Environmental & Engineering Geologists • PO Box 460518, Denver, CO 80246
 Phone: 303-757-2926 • FAX: 720-230-4846
aeg@aegweb.org • www.aegweb.org



ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS

Connecting Professionals, Practice and the Public



Student and New Graduate Member Application

Let the Association of Environmental & Engineering Geologists (AEG) show you the great benefits to being a part of the geology profession! **AEG is geology in practice.** Join us and see why our members LOVE their jobs!

Benefits of Student Membership Include:

- Eligibility for **Scholarships** that provide funding for field camp, field studies, academic studies and travel to present at national meetings.
- **Discounts** for attending AEG's Annual and local Section Meetings, field trips, and short courses (sometimes you can attend for **FREE**).
- **Networking** opportunities to potentially **meet YOUR future employer!** One member noted, "Every job I have had was a result of shaking hands at an AEG event!"
- **Free online access** to *Environmental & Engineering Geoscience*, co-published with the Geological Society of America, *AEG NEWS*, and *AEG's Annual Meeting Program with Abstracts*.
- **STUDENT MEMBERSHIP IS FREE!**
- PLUS, as **AEG's gift to you for graduating**, your first year of Professional Membership when you renew as a Full Member will be reduced by \$45.00.

Application Form

Name : _____

Preferred Address: _____

Phone: _____

E-mail (Current Institutional Provider): _____

E-mail (Non-Institutional Provider): _____

Institution (College/University): _____

Anticipated Graduation Year: _____

Please check one: ☐ Student (free) ☐ New Graduate
*(1st year, only \$95.00)

*Note: AEG will contact New Graduates upon receiving the application for payment and to complete the application process.

Submission Send this form to:

Association of Environmental & Engineering Geologists,
1100 Brandywine Blvd Suite H, Zanesville, Ohio 43701
Phone: 1-844-331-7867 (toll free); Fax: 740-452-2552
Email: contact@aegweb.org; Website: www.aegweb.org



AEG CAROLINAS SECTION – SPONSOR INFORMATION

The Carolinas Section 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 (\$250):

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 Section email announcement (our email list is currently over 1,000 people)

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

Gold Sponsor (\$375):

GeoNews Newsletter: Quarter-Page ad (4-1/2" 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 two meetings. Cost of meeting waived for one person on the exhibit date.

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

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

Platinum Sponsor (\$500):

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 Section email announcement (our email list is currently over 1,000 people)

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

Titanium Sponsor (\$600):

Same as Platinum, but with a FULL PAGE ad in GeoNews. Limited to 2 Sponsors per year.

GeoNews Newsletter Sponsorship Only

Businesses or individuals can also advertise in GeoNews without being a full sponsor. The annual rates for advertising in GeoNews are as follows:

Business Card	\$ 40.00
Quarter Page	\$ 60.00
Half Page	\$ 100.00
Full Page	\$ 200.00

Please complete the form below and mail to Jane Gill-Shaler, AEG Carolinas newsletter editor. Please call or email if you have any questions (contact information below).

AEG Carolinas Section Sponsorship Form

Please begin our sponsorship of the Carolinas Section of the Association of Engineering Geologists. Our sponsorship level is:

- _____ Platinum PLUS Section Sponsorship, \$600/year
 _____ Platinum Section Sponsorship, \$500/year
 _____ Gold Section Sponsorship, \$375/year
 _____ Silver Section Sponsorship, \$250/year
 _____ GeoNews Newsletter Sponsor Only (see above)

Name: _____

Address: _____

City, State, Zip: _____

Phone: _____ Fax: _____

Contact Person: _____

Cell: _____

Email: _____

Website URL: _____

Date of Payment: _____

Something about your company (use back of page for more room) _____

Please enclose a business card or email ad in jpg, pdf, or doc to Rick Kolb at rick.kolb1@gmail.com.

MAKE CHECK OUT TO AEG CAROLINAS

Snail mail form and payment to:

Rick Kolb, Duncklee & Dunham, 511 Keisler Drive, Suite 102, Cary, North Carolina 27518

(Modified 7/11/13)

SPONSOR OR RENEW MEMBERSHIP AT WWW.AEGWEB.ORG!

Thank You, AEG Carolinas Sponsors!!

TITANIUM SPONSORS

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www.enviroequipment.com
 Denise Chew, 704-588-7970, denise@enviroequipment.com, Brian Chew, 888-274-8929, brian@enviroequipment.com; We are a Woman-Owned Small Business, staffed by experienced professionals, committed to providing quality environmental equipment and products for rent or sale at reasonable rates. EEI is a stocking distributor of numerous environmental products for detection of air, water, and soil contamination.

ESC Lab Sciences 12065 Lebanon Road Mt. Juliet TN 37122
www.esclabsciences.com
 Barry Kroll, 800-767-5859, bkroll@esclabsciences.com 800-767-5859; ESC Lab Sciences is the only environmental laboratory certified to support your work nationwide from one location. No other lab is as accessible or prepared to handle your needs throughout the country.

PLATINUM SPONSORS

Geobrugg North America, LLC, 8004 Windspray Drive, Summerfield, NC 27358; www.geobrugg.com
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 As the manufacturer of high-tensile steel wire protection systems, we provide the best solution for our customers -- worldwide.

Pine Environmental Services, Inc. 8411 Garvey Drive, Suite 113 Raleigh NC 27616 www.pine-environmental.com
 Paul Federline, 866-646-7463, pfederline@pine-environmental.com 919-713-0008; Pine Environmental Services, Inc., "The Environmental Supply and Support People" is the largest environmental supply and leasing company in North America. Pine is the leading provider of rental equipment in the nation with the latest instruments available. Pine Environmental Services, Inc. takes pride in their unprecedented customer support and competitive pricing. Extended hours of operation and after-hour emergency support are on hand.

GOLD SPONSORS

Pyramid Environmental 503 Industrial Avenue Greensboro NC 27406
www.pyramidenvironmental.com
 Doug Canavella, 336-335-3174, doug@pyramidenvironmental.com ; Since 1990, as a professional, licensed engineering and geological firm, Pyramid has the expertise to research and analyze relevant environmental regulations, potential hazards, clean-up alternatives and environmental protection issues to design and implement solutions for environmental problems.

SAEDACCO 9088 Northfield Drive Fort Mill SC 29707
www.saedacco.com
 Peter Byer, 803-548-2180, pbyer@saedacco.com 803-548-2180; South Atlantic Environmental Drilling and Construction Co, Inc., (SAEDACCO), founded in 1993, is a southeast regional environmental services company. SAEDACCO is located in Fort Mill, SC and specializes in providing Direct Push, Drilling Construction, and Remediation services for the environmental industry.

Schnabel Engineering 11-A Oak Branch Drive Greensboro NC 27407
www.schnabel-eng.com
 Gary Rogers, 336-274-9456, grogers@schnabel-eng.com, Robert Cannon, rcannon@schnabel-eng.com; Schnabel Engineering, Inc. is an ENR Top 10 geotechnical engineering firm. Schnabel offers highly specialized services in geotechnical engineering, geostructural design, dam engineering, tunnel and underground engineering, environmental and applied geoscience services, construction inspection and testing, and resident engineering services.

SILVER SPONSORS

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 Scott Pearce, 336-803-1783, spearce@adenviro.com, Dan Martin, 336-434-7750, dmartin@adenviro.com; A & D Environmental Services, Inc., is a full-service environmental and industrial company offering remedial, industrial, emergency response, waste management, and transportation services throughout the southeast. Maximum protection, minimum risk, total peace of mind.

AE Drilling Services, Inc. Two United Way Greenville SC 29607
www.aedrilling.com
 W. Martin Johnson, P.G., 864-288-1986, mjohnson@aedrilling.com ; AE Drilling Services has provided geotechnical, environmental, water supply, and mineral exploration drilling services to fellow professionals for over 40 years.

CCI, 3434 Black & Decker Road, Hope Mills NC 28348. www.cci-env.com Mark Vestal, 910-484-7000, mark.vestal@cci-env.com. CCI is a full service environmental consulting company. Our services include asbestos abatement, remediation, demolition & specialty blasting.

Con-test Analytical Laboratory, 39 Spruce Street; East Longmeadow, MA 01028; www.contestlabs.com
 Paul Konnik, 314-302-0431, paul.konnik@contestlabs.com; Con-Test Analytical Laboratory is a full service environmental testing laboratory with capabilities in nearly all soil, air and water analyses. Con-Test has experienced staff and state of the art instrumentation to provide quality analytical services, balancing response and prompt turnaround with precise and reliable analyses, ensuring data integrity. Our value added service includes expertise in technical and customer service which is reflected in a diverse customer base.

Choice Environmental 1804 Holt Road Cary NC 27519-5984 www.choice-enviro.com
 Nicole Manning, 919-369-1001, nicole@choice-enviro.com, Steve Jenkins, steve@choice-enviro.com; Choice Environmental Services, LLC. We carry or rent backpack & handheld GPS, EEM2000, TVA1000B, Survey Equipment, Generators, Laptops, anemometers, monsoon pumps, peristaltic pumps, bladder pumps, and more. We also rent the Kawasaki Mule 3010.

EGIS, PA 441 Northside Drive Chapel Hill NC 27516
www.watervellvideos.com
 Mike Vaught, 919-929-8363, gwinvest@juno.com, Lynn Bressler, 919-929-8363, ; EGIS, PA specializes in downhole geophysical and borehole video inspection services. We can assist in well development and rehabilitation.

Environmental Conservation Labs (ENCO) 102-A Woodwinds Industrial Court Cary NC 27511 www.encolabs.com
 Jim Hays, 919-467-3090, jhays@encolabs.com, Susan Purser, spurs-er@encolabs.com; ENCO Labs is committed to having the best service in the industry. With this service, we are also the most economical lab to use as well. Fewer errors, less rework time, and solid defensible data.

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