

SUMMER 2015

GEONews

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



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SAVE THE DATE

Summer Section Meeting
Thursday, August 6, 2015
1705 Prime, Raleigh

1000µm

GEONEWS Summer 2015
Issue Date: June 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

AEG Carolinas Section

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Cover: (Christopher Tacker) This octahedral diamond crystal looks like it has been faceted. These are all-natural growth textures on the triangular crystal faces.

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MESSAGE FROM THE CHAIR

By Alex Rutledge, PG, PE
Chair—AEG Carolinas Section

I represented the Carolinas Section at the mid-year AEG Board of Directors meeting, held in Columbus, OH on April 25 and 26. The majority of the meeting focused on planned changes to the AEG governance structure, bylaws, and constitution, as part of our shift from a Section-based model to a Region/Chapter-based model. Details of this planned change and the progress to date can be found in the Members Only section of the AEG website: <http://www.aegweb.org/?page=GovernanceRestructure> (you must be signed in to view this content). In summary, the Executive Council, Governance Restructuring Committee, and our legal counsel are in the process of rewriting the AEG bylaws and Articles of Incorporation to fix the existing conflicts within these documents, define the new governance structure of the Association, and make sure the proposed changes adhere to current California law. This is a complex process and the Association is spending time to ensure everything is handled properly. This summer, our lawyer will do a first draft of the bylaw revisions for discussion at the BOD meeting in September at the Annual Meeting, and we hope to enact these changes at the mid-year 2016 BOD meeting.

Although big changes are happening at the Association level, these changes won't impact how our Section operates at a local level. The Carolinas Section, which may eventually be called the Carolinas Chapter, will continue to have regular meetings, social events, short courses, specialty conferences, and field trips. We will continue to publish GeoNews, sponsor events and initiatives that foster the geoscience profession, provide Visiting Professional presentations at local colleges and universities, and host the prestigious Jahns Lecture Tour. In addition, beginning in 2016, we will be offering scholarships to students attending colleges within the Carolinas through our recently established Carolinas Scholarship Fund. Our Section is consistently recognized as one of the best in the Association, and it's not hard to see why!

My term as Chair will end in September, and, therefore, this will be my last *Message from the Chair*. Being involved in the activities mentioned above, and working with the great volunteers of the Carolinas Section has been an honor. I will continue to serve on the Section BOD as Past Chair next year to help ensure a smooth transition of leadership. Madeline German, our Vice Chair, has done a tremendous job in her current role. She has proved herself a great leader and dedicated advocate of AEG in her four years on the BOD, and if she is elected to the Chair position in September, our section will be in great hands.

As always, I encourage you to contact me or other Board members with 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.

Sincerely,



Alex Rutledge, PG, PE
frutledge@schnebel-eng.com
AEG Carolinas Section Chair

GEORAMBLINGS

By Charles W. Welby

The recent earthquake in Nepal brings to mind a visit my wife and I had to Nepal a number of years ago. The occasion was a meeting of the International Hydrogeology Association which was in Katmandu, Nepal. In the course of that visit I met the then King of Nepal, learned about the protections of the environment that were being attempted by the kingdom, was interviewed about my feeling of the new "democratic government" that had developed with the king at its head. My response to the review was essentially that I had been in Nepal such a short time that I did not know all of the details about the changes and thus could not give an answer. (Sounds like a politician, doesn't it?).

Katmandu proved an interesting city and an interesting place to have an international meeting, although requiring for us Westerners a bit of a complicated trip to get there.

After the papers at the meeting there were some field trips available. One route went along a river to look at the dams, some of the higher mountain scenery, and other geologically interesting features. Well water supply is a big problem. Into the upper reach of the river a sewage plant discharged untreated sewage into the river. Downstream a mile or so people were washing their clothes and swimming in the river.

I took advantage of the field trip mentioned above and also a longer one that took us to Pokhara, not far from the border with India. Along the way we drove along deep river-eroded canyons where the locals were doing their wash in the river some 500 ft. or more below the road – no washing machines here.

It was obvious as one viewed the country side

(Continued on page 5)

AEG CAROLINAS SECTION 2Q TREASURER'S REPORT*By Susan Kelly, Section Treasurer***AEG Carolinas Section Treasurer's Quarterly Report
January 1, 2015 to March 31, 2015**

BALANCE As Of January 1, 2015	
Checking Account	\$18,547.09
Savings Account	\$16,686.71
	<u>\$35,233.80</u>
INCOME	
Meetings and Field Trips	
Section Meeting (Greensboro)	\$1,400.00
Field Trip (Reed Gold Mine)	\$180.00
Member Dues	
Membership Dues	\$570.00
Carolinas Member Dues	\$120.00
Sponsorships	
Sponsorships	\$6,385.00
Interest	
Savings Account	\$2.06
SUBTOTAL - INCOME	<u>\$8,657.06</u>
EXPENSES	
Banking Fees	
Credit Card Reader Fees	\$56.26
Online Deposit Fee	\$3.00
Meeting Expenses	
Visiting Professionals (UNCC and ETSU)	\$332.50
Section Meeting (Greensboro)	\$1,425.42
Jahns Lecturer Expenses	\$171.72
BOD Meeting Expenses (flight to Ohio)	\$423.70
Donations	
NCSTA - Earth Science Room Rental	\$1,000.00
Additional Expenses	
Reimbursement to AEG National for VI Conference	\$4,789.00
SUBTOTAL - EXPENSES	<u>\$8,201.60</u>
BALANCE As Of March 31, 2015	
Checking Account	\$19,000.49
Savings Account	\$16,688.77
TOTAL	<u><u>\$35,689.26</u></u>

(Continued from page 3)

from the bus carrying us along that the landscape had faults of some size and perhaps importance in terms of possible failure at some time in the future. We had an European geologist who really liked to use his Brunton compass. At every stop he would get out and take a dip and strike or two, even though one good look at the road cuts and other evidence indicated that there was some complications in the geologic structure in between the stops.

We spent some time in Pokhara attending to geological sight-seeing. Late one afternoon the clouds lifted, and it was possible to view some of the high peaks of the Himalayas. There are on the Internet some wonderful pictures from Pokhara.

One of the sad bits of the trip was that a friend of mine had set out to climb Mt. Everest some months before my trip. In the course the field trip we traveled parallel to a route he had taken. Somehow he fell off the trail and was killed as a result of his fall. His body was never recovered; so in passing above the site, I gave a salute.

The trip to Nepal and the meeting provided an interesting period of my “ramblings.” As a result and because of family circumstances in California which necessitated our being in California at the time we were to return to the U. S., we came from Katmandu south eventually to Singapore, looking at some of the obvious geological relationships there as visitors, then on to Australia and the Great Barrier Reef and New Zealand and the glacial erosion there.

As I have noted before to friends on occasion, there was a “thrill of being home” as the wheels went down on the airplane as we went into the landing pattern at LAX.

QED

Groundwater and Regulatory Agencies

By Harry LeGrand

The regulatory agencies try hard
To keep the public on guard
For aquifer problems that may arise
Yet, the rules sometime fail to be wise.

The rules are strict and presumably fair
Yet, some people tend to despair
When there are harsh demands to comply
With certain rules that should not apply.

Ground-water conditions are quite variable
Rendering some rules not easily playable
An aquifer absorbs wastes as a ready receptacle
But contamination spots are not easily detectable.

Costly, intensive groundwater tests are too often mandated
Whereas adequate and skillful studies may be best tolerated.

Excessive work is devoted to some sites selected
While most contaminated sites and problems go undetected.



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Diamonds in the Rough

By Dr. Christopher Tacker, Curator of Geology, North Carolina Museum of Natural Sciences

There have been 13 diamonds found in the state of North Carolina since 1893. Most of them were found as a result of panning operations for gold or monazite. One of these is in the Geology Collection of the NC Museum of Natural Sciences. It came from Burke County and was part of the collection of J.A.D. Stephenson, the man who discovered emeralds and chromian spodumene (aka hiddenite) in Alexander County.

You can imagine my feelings when 13 more diamonds arrived in my laboratory, all at one time.

In many ways this story belongs to Jeff Moyer of Mount Pleasant, North Carolina, a gold prospector and amateur exploration geologist. Jeff was the most gifted amateur geologist I ever met. He was a keen student of history, consulting records from the old Charlotte Mine and taking time to learn the oral history of the areas where he worked. He even designed and patented his own equipment. His restless and curious intellect eventually became fascinated with the idea of finding the source of North Carolina's diamonds. So he modified his equipment to trap diamonds as well as gold. And it worked.

The Museum purchased 10 of the diamonds, and Jeff and I made plans to go back into the field to reproduce his findings. It never happened. Jeff was diagnosed with stage 4 lung cancer, and died shortly thereafter.

My next task was to discern whether the diamonds were natural or synthetic. I did everything I could to find out. Energy Dispersive Spectroscopy analysis on the scanning electron microprobe at NC State University showed that they were diamonds with traces of iron, silicon and aluminum on the surface, consistent with a natural origin. The diamonds were also a variety of crystal shapes. Synthetic stones tend to be all of one crystal shape.

My own scientific expertise is in mineralogy, particularly thermodynamics and microanalysis. Minerals tell the entire story of the rock, but in this case, I couldn't read it. The processes of making synthetic diamonds can be shrouded in secrecy, and the engineering moves faster than I can keep track of. I needed an expert in diamonds, someone conversant in the ways to distinguish synthetic stones from natural stones. And there the project sat for many years, as we did not have the money to send the samples out for evaluation.

Fortunately for me, our Director, Emlyn Koster, took an interest in the project. His daily commute took him past Diamonds Direct Crabtree, a North Carolina-based diamond firm. They were diamond experts. *<Facepalm> Why didn't I think of that?*

The Vice President of Diamonds Direct Crabtree, Barak Henis, took a personal interest in the project. Diamonds Direct Crabtree has an ongoing relationship with the Gemological Institute of America, so they sponsored the Museum by sending five of the diamonds out for evaluation.

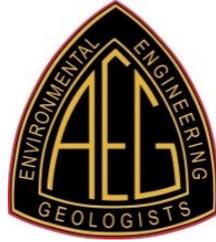
The verdict came back: the diamonds were natural.

So, the Museum of Natural Sciences and I are pleased to announce the discovery of 10 new diamonds from North Carolina. This not only means we are one step closer to finding the source of diamonds in North Carolina, it also means that there is a scientific treasure trove waiting to tell us about the mantle far below North Carolina.

And best of all, we are one step closer to fulfilling Jeff Moyer's legacy. Rest in peace, Jeff. You were right.



This is one of the original 13 diamonds found in NC. It came to the Museum's collection from the estate of J.A.D. Stephenson of Statesville, who bought it "from a countryman in Burke County." Credit: Christopher Tacker



Gem-quality Diamonds in North Carolina???

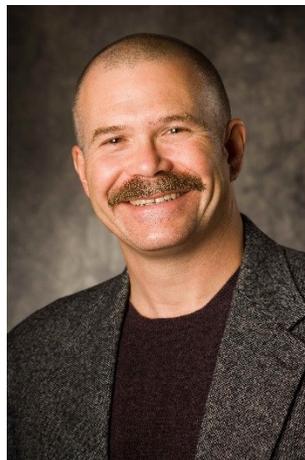
We're trying something new. We've heard one section meeting a year in Raleigh is not enough for some of our members, and we agree! Let's socialize in the summer, too, and see if we can put on a second meeting in Raleigh. After the great Reed Gold Mine field trip in April, the organizers thought we'd diverge from the usual talks on environmental and engineering geology and have a less-technical talk that follows the theme of precious minerals -- first gold, now diamonds. With our state's convoluted geologic past, we shouldn't be surprised that we have diamonds, too. But where, and how? Come to the meeting and find out more. You'll note we're trying a new venue, too. Natty Greene's was just too noisy.

Summer Dinner/Meeting in the East

*The Carolinas Section of the
Association of Environmental & Engineering Geologists presents*

Guest Speaker:

**Dr. Chris Tacker, Research Curator in Geology
North Carolina Museum of Natural Sciences**



Presentation:

Yes, There are Diamonds in North Carolina

(Continued on page 8)

Dinner and Talk: 5:30-9:00 PM on Thursday, August 6, 2015
 1705 Prime
 1705 East Millbrook Road
 Raleigh, North Carolina

Meeting Details

- Place:** 1705 Prime, 1705 East Millbrook Road at Old Wake Forest Road, Raleigh
- Date:** Thursday, August 6, 2015
- Time:** 5:30 PM socializing begins, 7:00 buffet dinner, 8:00 Chris’s talk – Note – special request has been made for a good selection of microbrews (not that it’s important)
- Cost:** AEG members \$30, non-members \$40, public-sector employees \$15, teachers \$10, students free with college ID
- Reservations:** Please make reservations with Rick Kolb (rick.kolb1@gmail.com) by 5:00 PM on Monday, August 3, 2015

Chris’ Abstract

Prior to 1893, thirteen diamonds were found in North Carolina, all in areas of intensive gold or monazite panning. In the last ten years, more have been reported but not substantiated. Then amateur explorationist and gold panner Jeff Moyer brought *thirteen more* into the Museum of Natural Sciences, and began a collaboration with museum staffers. Chris’s talk will review the pertinent igneous geochemistry, diamond petrogenesis, exploration methods, and the techniques Jeff Moyer used to separate out the diamonds. And where did Jeff find these diamonds?

Chris’ Résumé

Dr. Chris Tacker has been the Research Curator in Geology for the North Carolina Museum of Natural Sciences for eighteen years. His basic interest is in minerals and geologic fluids, with specialization in microanalysis, infrared spectroscopy, thermodynamics and experimental petrology. Dr. Tacker’s primary research is on the apatite mineral group, but additional projects involve the reaction between pyrite and clays, emerald geochemistry, the Ediacaran biota of North Carolina, and now, North Carolina diamonds and source rocks. His degrees, all in Geology, are from the University of North Carolina at Chapel Hill (1983), the University of Maryland, College Park (1986) and Rice University (1992), with postdoctoral study at CalTech and the University of Tulsa.

 Environmental Conservation Laboratories	<p>Cary, NC Lab: ENCOCRY@encolabs.com Tel: 919-677-1669 Fax: 919-677-9846</p>	<p>Orlando, FL Lab: ENCOORL@encolabs.com Tel: 407-826-5314 Fax: 407-850-6945</p>
	<p>Jacksonville, FL Lab: ENCOJAX@encolabs.com Tel: 904-296-3007 Fax: 904-296-6210</p>	<p>Corporate Office: 10775 Central Port Drive, Orlando, FL 32824</p>

Carolinas Section Offers Two Groundwater Geochemistry Courses

Rick Kolb

Our section has offered conferences on shale gas in North Carolina in 2012 and vapor intrusion in 2014. Both were resounding successes. As a continuation of our educational efforts, we will offer two groundwater geochemistry courses this fall. Bill Deutsch presented these classes at AEG's annual meeting in Charleston in 2010, and the board thought there was enough need and demand for him to come back to the Carolinas and present them again. Bill's biography is below.

The two courses are *Introduction to Groundwater Geochemistry*, offered on October 5, 2015, and *Intermediate Groundwater Geochemistry*, offered on October 6, 2015. The classes may be attended as stand-alone courses or together for a comprehensive course of geochemistry study. We plan to request seven PDHs per course. Both classes will be held at The Frontier in Research Triangle Park. A brief description of each class is included below, and the registration form follows these descriptions.

Both days we will have continental breakfast, lunch (one a barbecue buffet from The Pit), and an afternoon break with a snack. Additionally, we encourage all registrants to attend the networking social Monday evening. We recommend you register early because seating is limited. Discounts are available for AEG members and public-sector employees, as well as registration for both classes. See the registration form for details.

Introduction to Groundwater Geochemistry

This is a general 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 groundwater composition evolves along its flow path in the subsurface. Geochemical processes that will be described and discussed include solution/precipitation 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 mean from the standpoint of contaminant occurrence and mobility.

Major topics covered in this class are:

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

Intermediate Groundwater Geochemistry

This is an intermediate geochemistry course for scientists and engineers, designed to emphasize 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.

(Continued on page 10)

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(Continued from page 10)

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.

Major topics covered in this class are:

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

Bill's Biography

Bill Deutsch holds a B.S. and M.S. in geological sciences from the University of Washington in Seattle. He has worked at Battelle/Pacific Northwest National Lab in applied research for 13 years and as a consultant for 17 years with Woodward-Clyde/URS and Jacobs Engineering. For the past five years, he has been an independent consultant specializing in groundwater geochemistry. His project experience includes environmental assessments and investigations of landfills, refineries, pesticides

plants, military bases, mines and mills, federal weapons facilities and a wide variety of additional industrial sites. In addition, he has participated in remedial designs of sites contaminated with metals, radionuclides, pesticides, solvents, petroleum hydrocarbons, and ordnance compounds. Since 1985, Bill has instructed more than 150 courses on groundwater geochemistry and geochemical modeling. He is the author of *Groundwater Geochemistry*, published by CRC Press, and is a principal scientist at Geochemistry Services LLC.

Planning Committee

This course is being planned by Maddie German of Smith Gardner, Jessica Stearns and Brian Smith of ECS Carolinas, Rick Kolb of Duncklee & Dunham, Adam Phillips of Prism Labs, and Walt Plekan of AECOM.

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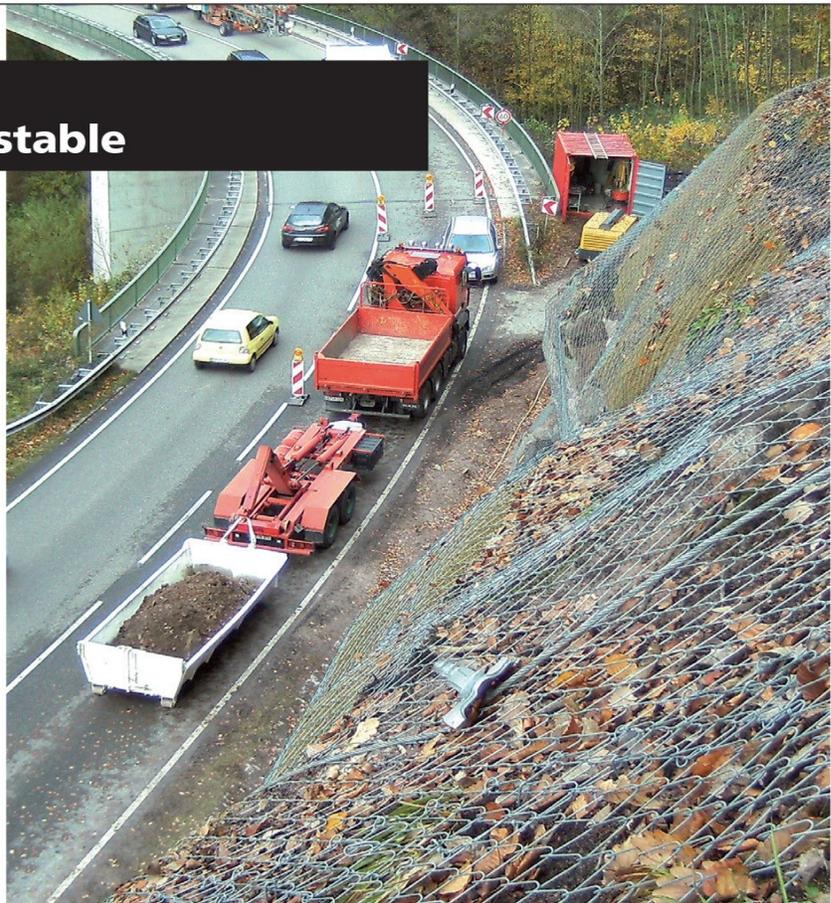
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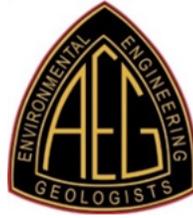


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Carolinas Section

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

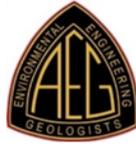
This is an introductory geochemistry course for scientists and engineers working in the field of groundwater site characterization, contamination, and remediation. It is designed to provide basic information on geochemistry that is necessary to understand natural and contaminated systems and how the 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:

Mail: Ms. Maddie German
Smith Gardner
14 N. Boylan Ave.
Raleigh, NC 27603

Phone: (919) 828-0577

At this time, registration is by mail only. We expect to offer payment by Paypal in the future. Check out our website for details.

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
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Topic and Speakers for Section Meeting in Asheville

Though we have yet to finalize the venue for our second summer section meeting in Asheville, we have lined up the speakers for an interesting talk on a brownfield redevelopment site for Winston-Salem State University, the pre-regulatory landfills on the site, and an LCID landfill that for some reason seem to be producing methane.

Winston-Salem State University contracted with Duncklee & Dunham to assist them with a proposed property transaction for 92 acres that include Bowman Gray Stadium and Civitan Park, currently owned by the City of Winston-Salem. The initial Phase I/II assessments indicated the presence of pre-regulatory landfills on the property, so Duncklee & Dunham hired Smith Gardner, Inc. to assist in evaluating the environmental impacts of the landfill units through a variety of means. This presentation will summarize the brownfields agreement process, initial investigation techniques, preliminary results, and rapid-response activities regarding landfill gas. The presentation will also cover additional investigation needs, results and preliminary remedial actions. This project is ongoing as you read this article.

The speakers will be Daphne Jones, P.G., RSM and Senior Geologist at Duncklee & Dunham, and Joan Smyth, P.G., RSM and Senior Hydrogeologist at Smith Gardner.



Daphne holds B.A. and M.S. degrees in geology from the University of Tennessee and Louisiana State University, respectively. She worked for the NCDENR's Division of Waste Management for 17 years, including the Hazardous Waste Section and the North Carolina Brownfields Program. She has worked at

Duncklee & Dunham since 2006, where she specializes in brownfields properties and RCRA post-closure facilities.



Joan Smyth, P.G. RSM and Senior Hydrogeologist for Smith Gardner holds a B.S. in Hydrogeology from Northern Arizona University. She has been with Smith Gardner since 1994. Smith Gardner provides specialty engineering and geological consulting services, and focuses on solid, hazardous and industrial waste management. Joan has

extensive experience in geological and hydrogeological site evaluations for landfill permitting and assessment, and soil, groundwater and landfill-gas remediation.



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Raising Funds to Send More Well Supplies to Haiti

Dave Duncklee, Duncklee & Dunham

You may be aware of the efforts our section has made for the past several years to send well screen and casing to drillers in Haiti. The country still struggles to provide safe drinking water to its citizens, and news of the aftermath of the 7.0-magnitude earthquake of 2010 has disappeared from the media. The country continues to struggle in its recovery. Remember that over 200,000 people died in that earthquake (including 122 Americans), 1½ million were displaced initially, and five years later, 85,000 are still displaced.

The Carolinas Section has organized and sent two shipments of well supplies, and we are now raising funds for the third. Our efforts have been described in our Summer 2014 section newsletter (viewable at our section website, www.aegcarolinas.org) and in the September 2014 edition of *AEG News*. Dave Duncklee discussed our latest effort at the April section meeting at Natty Greene's.

The well-drilling companies (and section sponsors) Geologic Exploration in North Carolina and SAEDACCO in South Carolina are again generously contributing 4-inch-

diameter well screen. Typically, well screens are hand cut by the drillers, which allows too much sand to enter the well, prematurely wearing out the Afridev hand pumps. The 10- and 20-slot screen we send makes for a longer lasting well, which allows sparse resources to be used elsewhere. As has been done in our two previous shipments, Lifewater Canada will arrange to offload the well screen and for transport to Grison Garde, where the Haitian drillers and their equipment are based.

Our section solicits donations from **YOU** to help pay for shipping these materials to a U.S. port for transit to Cap-Haitien, and for tariffs and duties at the port. Please donate what you can and by mid-July because our shipment is planned for late July. Every \$5, \$10, or \$20 helps more than you may think. You can mail a check for your donation to Rick Kolb, c/o Duncklee & Dunham; 511 Keisler Drive, Suite 102; Cary, NC 27518. The people of Haiti thank you for your support. Below is a picture of Haitians collecting water from one of the wells that uses the well screen we donated previously.



History and Geology at Reed Gold Mine

By Sue Buchanan, Field Trip Chair

Gold fever was in the air this past April! The Reed Gold Mine field trip was hosted by Phil Bradley, Senior Piedmont Geologist for the NC Geological Survey, Heather Hanna, Geologist for the NC Geological Survey, Stephen Challenger, geology graduate student at North Carolina State University, and Aaron Kepley, Reed Gold Mine Historic Interpreter. These knowledgeable volunteers took 50+ people (geo-professionals, students, and kids) on a tour of the Reed Gold Mine historic site. It was a hoot, but we didn't run off with any loot (maybe next time!).



Phil Bradley, Heather Hanna, and Stephen Challenger explaining the regional and local geology to the AEG field trip attendees.

Phil Bradley, Heather Hanna, and Stephen Challenger took folks on a geology tour of the Reed Gold Mine site. We first discussed the regional structural geology of the area in which the Reed Gold Mine is located within the Gold Hill shear zone and the Silver Hill fault. The main structural feature at the site is the Reed Mine northeast plunging anticline that includes a greenstone body mapped on the Upper, Middle, Lower, and Lake Hills. The host rocks of the Tillery Formation are laminated argillite and felsic tuff with secondary greywacke and rhyodacite. Phil, Heather and Stephen walked the group through the site stopping at outcrops in and near Little Meadow Creek, to show the structure of the Reed Mine northeast plunging anticline and explained that the greenstone is likely either a sill or concordant layer involved in regional folding. The gold at the site is confined to quartz veins within the greenstone body and the quartz veins are likely the result of along-axis extension during folding.



Phil Bradley and Heather Hanna showing the structural geology of the greenstone body to AEG field trip attendees. Rock outcrop is located in Little Meadow Creek along the hiking trails at the Reed Gold Mine site.

The geology story then continued into the Reed Gold Mine underground and above ground tours, led by Aaron Kepley and other Reed Gold Mine staff. Some of the features seen and discussed on this phase of the tour were: 1) a stop at Little Meadow Creek and sharing the story of gold mining in the United States and how it all began at this site with a 12 year old boy named Conrad Reed tracking down his arrow in the creek and finding a shiny rock in 1799, 2) then entered the underground mine at Linker Adit and learned that the gold was mined by following quartz veins, such as Vein 4 which was the most profitable of all the veins, 3) saw a kibble (Cornish for bucket) where miners, equipment, and ore were raised and lowered into the mine, 4) watched a demonstration on how miners used hammer, chisel, and blasting to mine out the quartz and rock, 5) walked above ground and learned about miners digging holes a few feet below the ground surface to find gold nuggets, and 6) saw a Stamp Mill in operation where rock is crushed and gold is separated out from the crushed rock on a large panning table.

The last activity was trying our luck at panning for gold. The Reed Gold Mine staff gave each one of us a pan of sediment dug from along the banks of Little Meadow Creek, and taught us how to pan for gold. A few flakes of gold were found!

(Continued on page 14)

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Entrance to Reed Gold Mine underground tour at Linker Adit.



Morgan Shaft and kibble. This shaft is 50 feet deep and used to raise and lower men, equipment and ore.



AEG field trip members being taught by Reed Gold Mine staff how to pan for gold. The sediment was taken from the banks of Little Meadow Creek, the location of the first documented discovery of gold in the United States. Some folks were lucky that day and found a flake or two of gold in their pan!

AEG would like to thank Phil, Heather, Stephen, Aaron and the Reed Gold Mine staff for all their hard work in putting together a wonderful field trip. Many field trip attendees enjoyed learning about the geology, the gold mine, and panning.



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Message From the President

By Ken Ferguson, AEG National President

Updating AEG's Governing Documents May 7, 2015

Over the past several months I've provided multiple updates in the AEG NEWS, through the AEG Insider, in direct communications to the Section Chairs, and at Section meetings I've had the privilege to attend about the ongoing efforts to restructure the governance of AEG. Part of this effort was intended to edit the Constitution of AEG with the purpose of bringing it up-to-date with California law, which is where AEG is incorporated as a 501c6 corporation. This article is intended to provide a detailed update on the process undertaken in this effort. A separate (forthcoming) article provides discussion on the process to look at revising our Bylaws to adjust to the regional model for our Board of Directors that membership approved in the summer of 2014.

The short answer is that legal counsel has advised us that California law does not recognize a Constitution as a governing document of corporations and that the only governing documents recognized are the Articles of Incorporation (AoI) and Bylaws. What this means is that AEG needs to amend and restate its AoI through a member vote. The amended and restated AoI were approved by the Board of Directors at the 2015 Mid-Year Board of Directors Meeting in April. At that time, the Board also moved to have the membership vote to approve the amended and restated AoI and that vote is planned to occur this summer concurrently with the vote for AEG Officers. In parallel, legal counsel recommends that the content now included in the Constitution will need to be shifted to our Bylaws as part of the Bylaw revision process and eventually the Constitution should be rescinded.

This summer AEG will be sending the amended and restated AoI to the full membership to vote on. The only changes to the AoI are related to adding the word environmental to our statement of purpose, which is how AEG gets classified as a 501c6 corporation. The other notable part of this is that AEG never amended the AoI with the

State of California after it approved to change it's the Association of Environmental & Engineering Geologists back in the early 2000s, so the amended and restated AoI will make this name change official with the State of California.

The amended and restated AoI that will be voted on available on the website at this link: www.aegweb.org/restateaoi - note that this document is formatted for readability and that in this form does not conform to the exact formatting and criteria that are required for submission to the State of California.

For a comparison, the AoI currently on record with the State of California can be found on our website at www.aegweb.org/aoi. I encourage you all to review them, not just in the context of this article, but also because they are a fascinating historical document of the Association. Below is a more in-depth explanation of the process that has been undertaken. This discussion is largely excerpted from the report to the Board of Directors that was presented in advance of the 2015 Mid-Year Board of Directors Meeting that occurred at the end of April in Columbus, OH.

Background Information

At the Annual Meeting of the Board of Directors (BOD) in September of 2014 in Scottsdale, Arizona, it was decided the Constitution of AEG needed to be revised to improve the clarity of its wording and to ensure that it is current with California state law, where AEG is incorporated as a 501c6 corporation. In parallel with this process the need to obtain our AoI for the purpose of ensuring that they are current with California state law was realized. The direction from the BOD was for me as President to form a small ad hoc committee to review the Constitution and AoI, propose edits, have those edits reviewed by California legal counsel and bring them to the BOD at the 2015 Mid-Year BOD meeting. Following direction from the BOD it is intended that these revisions would then be provided to the AEG membership for comment, with voting on the change to occur in the summer of 2015. This report summarizes the process, includes attachments of attorney recommendations, and presents a ballot for the membership to comment on, and eventually vote for this summer, pending



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BOD approval.

The ad hoc committee that I formed included the following members:

Ken Fergason, 2014-2015 President

Duane Krueger, Past President

Renee Wawczak, North Central Section Chair

David Bieber, Past President

Dale Andrews, 2014-2015 Treasurer

The current AEG Association Manager, Marrijane Jones also participated in the process.

Description of the Process

The AoI were received in late 2014 and reviewed. It was recognized that AEG needs to update its name with the state of California, as it is still incorporated under the original, 1960 AoI as the California Association of Engineering Geologists with an amendment in 1963 to change the name to the Association of Engineering Geologists. It was decided that this document would be presented to the California attorney who represents AEG and specializes in non-profits, Joel Corwin.

Initial comments and proposed edits to the Constitution were suggested by myself and went to the full ad hoc committee for review and comment. Once final edits were agreed upon, the Constitution and proposed edits were proved to the attorney for review.

Results of Legal Review

The attorney responded with a long list of very detailed recommendations. The two most significant findings and associated recommendations are paraphrased below.

1. AEG is not the legally recognized name of the Association in California as we are incorporated under the original 1960 AoI with the amended name change in 1963. It was recommended that we immediately apply to update the name of the Association and revise the Purpose statement (the statement from which our non-profit and tax exempt status is based upon). This is currently in process and documents regarding this process are attached.
2. The state of California does not recognize a Constitution as a governing document of the Association, it only recognizes the AoI and Bylaws as the governing docu-

ments. The attorney recommends that we amend and restate the AoI and statement of purpose to represent our new name. He also recommends that the information currently in our Constitution, including updates in language for clarity, be shifted to the Bylaws as their inclusion in the AoI is not appropriate. Another recommendation is that we rescind the Constitution to as not have duplicate documents and invite confusion regarding the documents that govern the Association.

At the Executive Council (EC) meeting on March 1st and 2nd, 2015, the EC was unanimous in the opinion of instituting all of the attorney's recommendations. To that end Marrijane Jones was instructed to contact the attorney and begin the process to formally apply for a name change and to ask the attorney to provide recommended language for restated AoI, including an updated statement of purpose. The attorney's suggested restated AoI is attached is available at www.aegweb.org/restateaoi.

A few other recommendations regarding additional clauses within the Bylaws and disclosure language were included in the attorney's recommendations that will be covered in the Bylaw revision process currently being undertaken by the Governance Restructure Committee.

Moving Forward

As stated above, the EC recommended that all of the attorney's recommendations be implemented. The list below summarizes the course of action set forth by the BOD.

1. The BOD voted to approve the amended and restated Articles of Incorporation.
2. The BOD directed the Governance Restructure Committee to add information currently in the Constitution to the Bylaws, maintaining where appropriate (specifically language regarding the Board of Directors and Executive Council), the need for membership approval for revisions.
3. As part of the Bylaw revision and eventual approval process, the BOD should approve a vote of the membership to rescind the Constitution.

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4. That the other attorney recommendations be addressed as part of the Bylaw revision process.
5. This course of action be communicated to the membership, allowing for membership input.

Communication to the Membership

Clear and detailed information regarding this process must be communicated to the membership, especially regarding the Constitution having no legal standing regarding the governing of AEG and the recommendation to eventually vote to rescind the Constitution. The following communication plan has been developed.

As President of AEG, author a detailed description of the process (this article). This report or a version of this report is submitted to Section Chairs for their use, posted to the website under the Members Only area, published in the AEG NEWS, published in the AEG Insider, and published in an email sent directly to all members. Included in this report will be the specific draft language that the membership will be asked to vote on and a request for comments.

In parallel with the report a PowerPoint presentation will be developed that summarizes the report for Section Chairs to present at meetings and/or send to their membership. This presentation will also be posted to the website. If you have any questions or concerns regarding this process, please contact me. And if you want to be a part of the ongoing governance restructure effort, positions are available.

Respectfully Submitted,
Ken Ferguson
2014-2015 President



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Minutes for Board of Directors and Annual Planning Meeting
June 13, 2015
Joanna Harbison, Secretary

Roll Call:

Alex Rutledge (Chair)
 Madeline German (Vice Chair)
 Susan Kelly (Treasurer)
 Joanna Harbison (Secretary)
 Jennifer Thomas (Newsletter Editor)
 Rick Kolb (Student Liaison and Advisor)

4 of the 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, trial run may be available at the August meeting in Raleigh. We should have it up and running by the October Geochemistry courses.

Raleigh Section Meeting

The meeting is scheduled for August 6 2015 at 1705 Prime
 The speaker is Dr. Chris Tacker a Research Curator in Geology at the North Carolina Museum of Natural Sciences.
 This is the first meeting with the new dinner cost of \$30 for members, \$40 for non members, \$ 15 for public sector employees and \$10 for teachers.

Social Committee

Sporting Clays at Drake Landing Social event is scheduled for June 27, 2015. Overall the attendance looks promising at the time of the meeting.
 Talked about other social events such as a Durham Bulls game with a possible date of August 19, 2015. The US National Whitewater Center in Charlotte was also suggested.

2015-2016 Jahns Lecture Tour schedule

Susan Kelly as the new Vice Chair will take the role of scheduling the 2015-2016 Jahns Lecture Tour.
 The Tour will need to correspond with the school schedules during the spring of 2016
 It was recommended that this role be a continuing duty for the Vice Chair.
 Jerry DeGraff is the 2015-2016 Jahns Lecturer and will officially be announced in September.
 The summary article of Eldons visit will be in the summer newsletter.

Calendar of events for newsletter and websites

Josh Hanks is taking over for Rick and his email is josh@dunkleedunham.com

Section Field Trips

October 10-11 is the Geo Wine Terroir Tasting. There is a limit of 50 for this trip.
 Guidebooks are currently being worked on and the idea of having a web based app guide book was mentioned. Alex provided Sue with Nate Saraceno's contact info. Nate has worked on a web based app for the Annual Meeting in Pittsburg.
 Was suggested that we coordinate with Paul Johnstone of CGS to see if they would be interested in having AEG as a co-sponsor for their field trips on a regular basis.
 Ideas for 2016 trips were discussed with the possibility of a coastal field trip dealing with sea level rise and climate change. A possible survey using survey monkey may be sent out to gain ideas for the upcoming year.

Membership Update

Currently have a total of 205 members
 83 active full time, 113 active student, 9 active others (senior, affiliates, lifetime)

Carolinas Section (Carolinas Chapter) Scholarship

The Foundation approved our application.
 \$10,000 will be sent to the board approved seed fund.
 Some suggestions have been for fundraising such as a student night where the students present posters, have more meetings, possibly have something tied to the social events.
 Paul Weaver has been selected as the Carolinas Scholarship manager and will need to form a selection committee to discuss the selection criteria, the committee will also be in coordination with the AEG Foundation.
 Hope to start awarding scholarships in the spring.

Newsletter

GeoNews - Summer edition
 Several items are still due to Jen, but they are nearly complete
 The updated Geochemistry course flyer will be included.

Carolinas Section sponsorship of the 2015 AEG Annual Meeting

Have a total of \$1,500 to distribute
 Opening session (shared, \$600)
 Student Professional Reception (shared, \$300)
 Student Mini Grant Program (\$600) - still to be determined on how students can locate and apply for

(Continued on page 23)

(Continued from page 22)
grant.

Mid Year BOD meeting in Columbus OH –April 25-26, 2015

The Executive Council, Governance Restructuring Committee and legal council are in the process of rewriting the AEG bylaws and Articles of Incorporation to adhere to current California Law.

These revisions will incorporate the changes that are currently ongoing in relation to our organization shifting from a section model to a Regional/Chapter model with Regional Directors serving on the board of directors instead of Section Chairs.

We can no longer accept credit card information via mail or phone. All credit transactions must be done in person with a “swiper” or via a PayPal account which is currently being added to the website.

More volunteers are needed at the Association level.

Fall Section Meeting- Asheville

Susan Kelly has taken on the role of organizer for the meeting and will coordinate and finalize a venue, menu and announcement.

Currently soliciting ideas for speakers.

Board Elections

The Current plan:

Chair: Maddie German

Vice Chair: Susan Kelly

Several candidates were identified for the open positions of Treasurer and Secretary. Alex will contact them to gauge their interest.

Website Upgrade

The content management system (CMS) for our section website is out of date.

Brad Isles would like to help us switch to WordPress a more universal CMS. This would make updates and changes to the website much simpler to anyone that works on our website in the future as well as make it mobile friendly.

Maddie made a motion to obtain a proposal from Brad Isles to update the CMS, Susan second the motion and it was unanimously voted on.

Geochemistry Courses in October

It will be October 5-6, 2018

Bill Deutch will be offering the courses

It will be located at The Frontier in Research Triangle Park

Announcement will included in the summer edition of GeoNews

The website will have the signup information as well as a way to pay through PayPal if the CMS can be updated in time.

Sponsorship of NCSTA Conference

Discussed how feasible it is to continue supporting this event and the awards given as we have in past years.

Randy Bechtel informed us that no Earth Science room will be available at this year’s conference, which we sponsored for \$1,000 last year.

We also proposed reducing the number of earth science kits we order from 500 to 400 in 2015 based on past experience at the conference

Haiti Well Supplies Donations

The shipment is scheduled for July/August

This has been a very successful and fairly high profile program for the section.

Seeking donations via the newsletter and at meetings/ events

We plan to wait to see what the final need is for shipment, and vote on an amount that we can provide based on the need.

SAEDACCO and Geologic Exploration have made donations

Communication and Social Media

Will communicate with Jason Sents about transitioning management/ownership of the LinkedIn page

Joanna will create an AEG Carolinas Section Facebook page for communications with our members, non-members and students, and has agreed to manage the LinkedIn communications as well.

Sponsorship Chair Position

Rick is stepping down and is reaching out to the members for a replacement

This position is very important and we need a dedicated individual to take on this responsibility

Several candidates were identified and Rick will reach out to gauge their interest.

Visiting Professionals presentations

The summary article will be in the summer newsletter

Presidents Visit

Paul Santee is the new AEG president

The visit should be scheduled around January of 2016 and a new venue should be selected in Charlotte.

Replace Speaker Amplifier

The amplifier no longer functions and Alex made a motion to research and replace the amplifier for the speaker system because one will likely be needed for our August meeting and the October Geochemistry courses. Joanna seconded the motion and it was unanimously voted on. The goal is to have a new amplifier available for the next section meeting.

EDUCATION

Summary of Visiting Professional Program
By Rick Kolb, Student Liaison

For the ninth consecutive year, geologists from the Carolinas Section and a few non-members made presentations on geology careers during the past academic year. We thank this year’s presenters for volunteering their time to educate students of geology on career opportunities, and especially those that presented for the first time. Without volunteers, these presentations would not be possible. The following table summarizes our visits for the past academic year:

School	Presenters
Clemson University	Susan Kelly, Kevin Barnes*
North Carolina State University	Kenneth Taylor, Brad Worley, Rick Kolb
UNC-Charlotte	Rebecca Deal*, Cyrus Parker*, Rick Kolb
UNC-Chapel Hill	Brad Worley, Kenneth Taylor, Cyrus Parker, Rick Kolb
UNC-Wilmington	Nathan Mohs, Samuel Watson*, Rick Kolb

Susan Kelly of AMEC Foster Wheeler in Asheville made our first VP visit to her alma mater. It was a bit of a challenge finding someone to go with her, and Kevin Barnes, whom I’d met as a recent graduate of NC State, volunteered and did a great job.

Our student/faculty audiences range in size from a handful at the smaller schools to 40 at the larger schools. As we’ve done in the past, we bought pizzas and soft drinks to kick off our presentations, which generally started on Thursday afternoon between 5:00 and 6:00, and we finished before 8:00. It is common for several students to stay behind and ask questions one-on-one to the presenters. Partly as a result of our visits to these schools, the Carolinas Section now has a healthy contingent of student members, many of which attend our section meetings (e.g., 25 students attended the section meeting in Raleigh). Through the generous support of our section’s sponsors, we can bring the pizzas and soft drinks to these presentations, and pay for dinners of student members at our section meetings. Section meetings provide an invaluable experience for students to network with practicing professionals.

Are you interested in interacting with the future geology professionals? It is a lot of fun and very informal. We invite and encourage you to participate in our presentations to colleges, especially your alma mater. Contact Rick Kolb at rick.kolb1@gmail.com if you are interested in participating in this program.



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ANNOUNCEMENTS

2015 Membership Challenge Results

It looks like we have seven more full-members this year in comparison to last year. Take a look below to see how many full-members other sections have added. In summary, almost every section added members, and no sections have reduced membership. Thanks, Eric for all of your hard work in recruiting new members and keeping our existing members! The hard work is paying off.

Alaska	0
Allegheny-Ohio	6
Arizona	1
Baltimore-Washington-Harrisburg	8
Carolinas	7
Great Basin	1
Intermountain	1
Kansas City-Omaha	5
Lower Mississippi Valley	2
New England	2
New York-Philadelphia	11
North Central	4
Ohio River Valley	1
Oregon	10
Rocky Mountain	13
Sacramento	4
San Francisco	17
Southeastern	3
Southern California	30
Southern Nevada	3
St Louis	3
Texas	5
Washington	9

EPA Releases Technical Guides to Support Vapor Intrusion Assessment and Mitigation Activities (from U.S. EPA Press Office)

WASHINGTON – Today, the U.S. Environmental Protection Agency (EPA) released two technical guides to support assessment and mitigation activities at sites where vapor intrusion is an actual or potential concern.

The Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air applies to all sites being evaluated under federal land cleanup statutes by EPA, other federal agencies, state and tribal governments and brownfield grantees. A companion document, the Technical Guide for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites addresses any sites where vapor intrusion related to petroleum contamination from

underground storage tanks is a potential concern. Both guides are applicable to residential and non-residential settings.

“These guides will promote national consistency in assessing and addressing the vapor intrusion human exposure pathway at contaminated sites to protect human health -- particularly the most vulnerable,” says Mathy Stanislaus, assistant administrator for the Office of Solid Waste and Emergency Response. “States, tribes and localities, in particular, will find the guides to be critical resources for identifying and considering key factors related to vapor intrusion assessments, risk management decisions and mitigation actions.”

National awareness and concern about vapor intrusion has grown over the last several decades. At the same time, knowledge of and experience with assessment and mitigation of vapor intrusion has substantially increased, leading to heightened understanding of and improved approaches for evaluating and managing vapor intrusion. Relying upon this enhanced knowledge and more extensive experience, the guides present EPA’s current recommendations for identifying, evaluating and managing vapor intrusion while providing flexible technical approaches to accommodate site-specific conditions and circumstances.

At sites where vapor intrusion poses a potential or actual hazard to occupants’ health or safety, exposures usually can be prevented or reduced through relatively simple actions such as changing building pressure and ventilation. In most cases, costs associated with addressing vapor intrusion can be very manageable, resulting in long-term benefits including improved public health and less costly response actions. These benefits are especially likely when actions are undertaken early.

Vapor intrusion refers to the migration of hazardous vapors from contaminated subsurface sources such as groundwater through soil into overlying building and structures. Exposure to these vapors by building occupants can potentially pose both acute and chronic health risks. Vapor intrusion is a potential concern at any building—existing or planned—located near soil or groundwater contaminated with vapor-forming toxic chemicals.

To access the documents and for more information on vapor intrusion:

<http://www.epa.gov/oswer/vaporintrusion/>

ANNOUNCEMENTS

Ross Environmental Services, Inc. Purchases A&D Environmental Services, Inc.

The owners of Ross Environmental Services, Inc. and its affiliate companies, announced May 13 the acquisition of A&D Environmental Services, Inc., an environmental and industrial service company headquartered in High Point, NC.

The owners, the Cromling Family – Maureen Ross Cromling, her husband William Cromling II, and their sons, William Cromling III, and Jon Cromling, purchased A&D Environmental Services through a newly formed company, the JBC Group. The family also owns the Ross Group of companies, including Ross Environmental Services, Inc., Ross Incineration Services, Inc. and Ross Transportation Services, Inc., as well as ReTech Plastics, LLC and ReTech Steel LLC, which are all members of The RossWay Group.

A&D Environmental Services, is a leader in the environmental and industrial service industry providing a full range of industrial, remediation, waste management, transportation and emergency response services from eight locations throughout the Southeast and Colorado. The knowledgeable and experienced A&D management

team will continue to operate the company under the A&D Environmental Services name.

“With this acquisition, we are making significant progress towards accomplishing our goals for continued growth and diversification. This new partnership will enable our customers to continue to receive the high quality service that they have come to expect from us in the past 65 years with the addition of new, more comprehensive services,” said William E. Cromling III on behalf of the family ownership.

Paul Taveira, Chief Executive Officer of A&D Environmental said that the acquisition will benefit A&D associates and customers in several ways. “This acquisition expands the expertise, infrastructure, and services available to customers of both companies as the businesses are very complementary in terms of their geography and service offerings,” he said.

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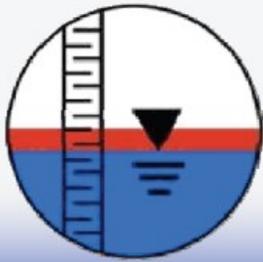
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www.pine-environmental.com

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CALENDAR OF EVENTS - 2015

Geological Events in the Carolinas

Courtesy of AEG Carolinas Section – www.aegcarolinas.org. Last updated March 21, 2015

Send updates/corrections to Rick Kolb, Duncklee & Dunham, rick.kolb1@gmail.com

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

Date: Monday, June 22, 2015 (Meetings held on the fourth Monday of the month)

Event: U.S. Green Building Council NC Chapter Green Drinks Trivia
Location: 5:00 PM at Natty Greene's Brewery, Raleigh, NC
Details: www.usgbnc.org

Date: Tuesday July 7, 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: Thursday July 16, 2015 (Meetings are held on the third Thursday of the month)

Event: Meeting of South Carolina Association of Environmental Professionals
Presentation: Direct Sensing/Direct Imaging for Site Investigation and Remediation
Cost: Annual fee of \$25 includes pizza, beer and soft drinks at all meetings
Location: 6:00 PM Social, 7:00 PM Presentation at Jim Hamilton-L.B. Owens Airport – 1400 Jim Hamilton Boulevard, Columbia, SC
Contact/RSVP: Peter Byer at 803-548-2180 or pbyer@saedacco.com

Date: Monday, July 27, 2015 (Meetings held on the fourth Monday of the month)

Event: U.S. Green Building Council NC Chapter Green Drinks Trivia
Location: 5:00 PM at Natty Greene's Brewery, Raleigh, NC
Details: www.usgbnc.org

Date: Tuesday August 4, 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: Thursday August 6, 2015

Event: AEG Carolinas Summer Dinner/ Meeting
Speaker: Dr. Chris Tacker, Research Curator in Geology; North Carolina Museum of Natural Sciences
Talk: Yes, There are Diamonds in North Carolina
Location: 1705 Prime, 1705 East Millbrook Road at Old Wake Forest Road, Raleigh NC
Cost: AEG members \$30, non-members \$40, public-sector employees \$15, teachers \$10,

(Continued on page 29)



Chris Schappell
Branch Manager

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(Continued from page 28)

students **free** with college ID
 Details: 5:30-7:00 social, 7:00-8:00 buffet
 dinner, 8:00-9:00 presentation
 Contact/RSVP: Rick Kolb
rick.kolb1@gmail.com by 5:00pm on Monday
 August 3, 2015

Date: Tuesday, August 11, 2015

Event: Quarterly meeting of the North Carolina Board for Licensing of Geologists
 Location: Starts at 9 AM at the office of Upton Associates; 3733 Benson Dr. Raleigh, NC; morning session open to the public
 Contact: nclbg@bellsouth.net

Date: Monday, August 24, 2015 (Meetings held on the fourth Monday of the month)

Event: U.S. Green Building Council NC Chapter Green Drinks Trivia
 Location: 5:00 PM at Natty Greene's Brewery, Raleigh, NC
 Details: www.usgbcnc.org

Date: Tuesday, September 1, 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: Thursday, September 10, 2015

Event: Meeting of the North Carolina Association of Environmental Professionals
 Presentation: Advancing the Science, Policy,

and Approach of Stream Restoration
 Location: Dilworth Grill, Charlotte, NC
 Details: 5:30-6:30 social, 6:30 dinner, 7:00 Presentation

Date: Thursday, September 17, 2015

Event: Groundwater Professionals of North Carolina Social
 Location: US National Whitewater Center, Charlotte
 Details: TBA

Date: Saturday, September 19 - Sunday, September 20, 2015

Event: US Green Building Council NC Chapter Camp and Clean Overnight
 Location: Falls Lake State Recreation Area
 Details: www.usgbcnc.org

Date: September 2015 (Exact date TBA)

Event: AEG Carolinas Section Meeting
 Location: Asheville, NC (Venue TBA)
 Details: <http://www.aegcarolinas.org/>

Date: Sunday, September 20 – Saturday, September 26, 2015

Event: AEG 2015 Annual Meeting
 Location: Wyndham Grand Hotel-Pittsburg Downtown; 600 Commonwealth Place; Pittsburgh, Pennsylvania
 Contact: Heather Clark, AEG Annual Meeting Manager;
heather@aegweb.org
 Details: <http://www.aegannualmeeting.org/>

Date: Monday, September 28, 2015 (Meetings held on the fourth Monday of the month)

Event: U.S. Green Building Council NC Chapter Green Drinks Trivia
 Location: 5:00 PM at Natty Greene's Brewery, Raleigh, NC
 Details: www.usgbcnc.org

Date: Thursday, October 1, 2015

Event: Joint meeting of the NC Association of Environmental Professionals and NC Water Resources Association
 Presentation: Nutrient Management Implications for Mitigation
 Location: 1:00 at the Downtown Marriott, Winston Salem, NC



A&D Environmental

Scott Pearce
 Vice President

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(Continued from page 29)

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)

Registration Deadline: Tuesday, September 1, 2015

Details: <http://www.aegcarolinas.org/index.php>; Sue Buchanan: sbuchanan@schnabel-eng.com

Date: Friday, October 2, 2015

Event: ASBOG Geology Exams
 Details: Deadline to apply to take the exams is August 14, 2015 (and preapproval to take the exam before that)
 Location: McKimmon Center, NC State University, Raleigh
 Contact: www.ncblg.org

Date: Monday and Tuesday, October 5 and 6, 2015

Event: Basic and Intermediate Groundwater Geochemistry Courses
 Location: The Frontier; 800 Park Offices Drive; Durham, North Carolina
 Information: www.aegcarolinas.org, details on page 9 of this newsletter

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

Event: Geological Society of America Annual Meeting
 Location: Baltimore Convention Center; 1 W. Pratt St.; Baltimore, Maryland
 Registration Deadline: September 28, 2015

Information: <http://community.geosociety.org/gsa2015/home>

Date: March 31- April 1 2016

Event: Geologic Society of America Annual Southeastern Section Meeting
 Location: Columbia Convention Center; Columbia, South Carolina
 Information:

Date: September 19-26, 2016

Event: AEG Annual Meeting
 Location: Waikoloa Beach Marriott Resort and Spa; Waikoloa Beach, Hawaii

Date: September 9-17, 2017

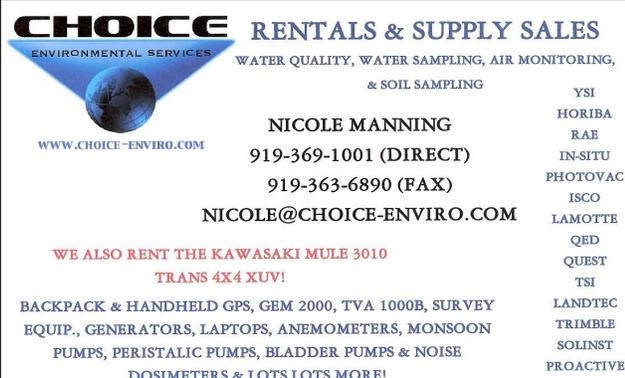
Event: AEG Annual Meeting
 Location: Colorado Springs, Colorado

Date: September 2019 (dates to be determined)

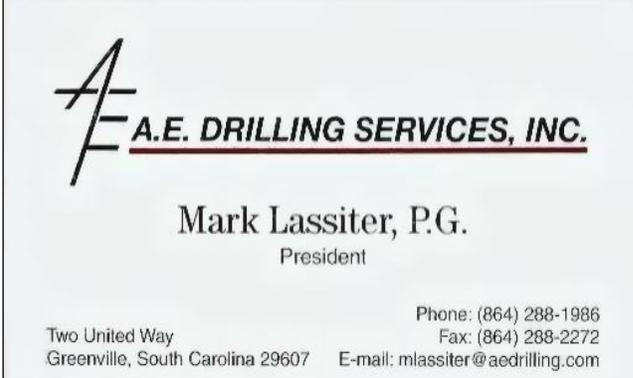
Event: AEG Annual Meeting, hosted by the Carolinas Section
 Location: Asheville, North Carolina



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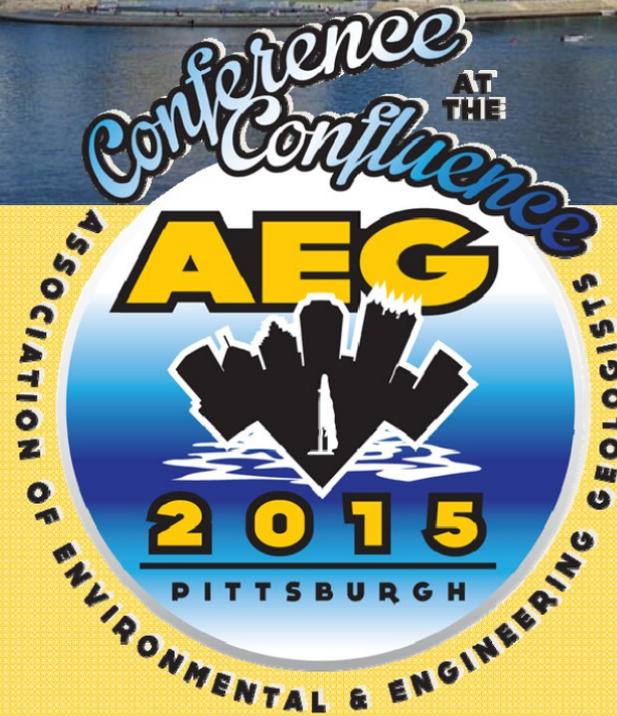


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Join us at AEG's 58th Annual Meeting

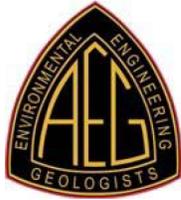
September 19 - 26, 2015

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Details at AEGweb.org beginning October 2014



ASSOCIATION OF ENVIRONMENTAL &
ENGINEERING GEOLOGISTS
-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).

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 (October 10 th , 10:00 AM to 6:00 PM)		\$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 METHOD (Payment MUST accompany this registration form.)

Make check payable to **AEG Carolinas Section**. Please mail registration form and payment to:

Sue Buchanan

Schnabel Engineering

11A Oak Branch Drive

Greensboro, NC 27407

Or email to: sbuchanan@schnabel-eng.com

Total Payment Amount: \$ _____

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

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.

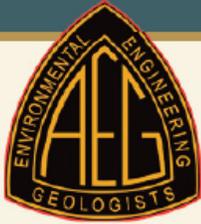
6. I hereby state that I am at least twenty-one (21) years old, am competent to sign this document, and am legally permitted to consume alcoholic beverages.

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

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

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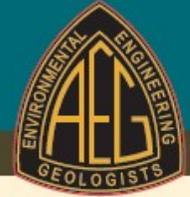
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Submission Send this form to:

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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.

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