

GEONEWS

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

IN THIS ISSUE:

SAVE THE DATE! APRIL 7 IN RALEIGH JOINT AEG-ASCE MEETING

GEONEWS SPRING 2011 Issue Date: March 21, 2011 **TABLE OF CONTENTS**

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GeoNews is a publication of the Carolinas Section of AEG. There are four issues per year, with deadlines and issue publi- cation dates listed below. We publish news of the profession, technical articles, and job openings.
Deadlines for submittal to AEG Carolinas GeoNews (<i>can be flexible depending on events</i>) 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: Bare-earth LiDAR suggests the presence of a strong, continuous lineation through the spillway near the dam and extending for miles in either direction. See April 7 meeting information on page 5 of this issue.

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MESSAGE FROM THE CHAIR By Paul Weaver, PG, Carolinas Section Chair

The Carolinas Section Board of Directors held our quarterly conference call on January 20 (please see the minutes of the meeting on page 4 of this newsletter).

Among the highlights of the conference call that I would like to bring to your attention in this "Message From the Chair" is that our membership renewals are down about 25% this year. If you have not renewed this year, please do so as soon as possible. In addition, please talk to your coworkers, bosses, etc. and let them know the benefits of being a part of AEG so that they can join also.

Another important point from our conference call was that the Carolinas Section is on good financial ground and would like to establish a scholarship(s) to assist our members with some of this money. We are currently deciding how much and what kind of scholarship(s) to provide. We hope to have an announcement of our decision by the next edition of GeoNews.

The Carolinas Section held our winter meeting at Dave & Buster's in Concord on January 27. We had very good attendance, with approximately 75 people, and were treated to a presentation by this year's Jahn's Lecturer, Bill Haneberg, about his work on a landslide in Tibet.



Thanks to all of you who attended the meeting. It was great getting to speak to everyone.

As I have mentioned before in my "Message from the Chair" articles, the Carolina Section owes our success to the many dedicated individuals who donate their time, talents, and efforts as volunteers. On page 12 of this newsletter, please see the list of areas where we need additional help in order to further our efforts. Please consider giving of yourself to assist us in any of the listed areas that appeal to you. You may contact me directly at pmweaver@bellsouth.net and let me know what to sign you up for.

The Carolinas Section is looking at trying to organize some purely social events for our members this year. Suggestions have included getting a group of members to go together to a baseball game, to a drive-in theater, and/or having a Carolinas Section camping trip. If any of these interests you, or if you have other ideas, please let me know. We are organizing a Socials Committee to put these events together, and I will pass along all suggestions to the committee.

On another matter, I hate that our South Carolina members don't get to participate in most of our meetings due to the distance they would have to travel. We are trying to organize a joint meeting in Columbia with ASCE for this year. The above paragraph about socials also applies to those of you in South Carolina. If any of you in South Carolina have ideas about socials or any other ideas for how the Carolinas Section can better include you, please let me know.

On a personal note to end my column, I would like to let you all know that I am employed again. I am now the Drilling Services Manager/Senior Geotechnical Professional with Summit Consulting Engineers in Hillsborough, North Carolina. Thanks to all of you who provided support and encouragement to me while I was looking for a job; it meant a lot to me.

Thank you!

Poul M. War

Paul M. Weaver AEG Carolinas Section Chair



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AEG CAROLINAS SECTION TREASURER'S REPORT By David Duncklee, Treasurer

AEG Carolinas Section Quarterly Treasurer's Report October 1 to December 31, 2010

BALANCE As Of September 30, 2010	
Checking Account	\$4,830.25
Money Market Account	\$12,093.04
Charleston Planning Account	\$2,529.19
INCOME	
Dinner Meetings	\$1,548.00
Sponsorships	\$0.00
AEG Dues rebates	\$0.00
Defined donations	
AGI Toolkits-Jane & Dr. Welby	\$600.00
Scholarships	\$0.00
Short Courses	
AEG Short Course Sponsors	\$0.00
Interest	
Charleston 2010 Account	\$0.57
Money Market	\$1.52
SUBTOTAL	\$2,150.09
EXPENSES	
Dinner Meetings	
Greensboro Mtg. Venue and Food	\$1,270.90
Educational Programs	
UNC-Ch Students Meeting	\$61.80
AGI Toolkits Purchase	\$3,050.00
Marino's Hotel and Jahn's NCSU Lecture	\$206.56
Administrative	
Name Tags	\$95.49
Charleston 2010 National Meeting	
Chair's National Mtg. Lodging	\$393.64
	\$5,078.39
BALANCE As Of December 31, 2010	
Checking Account	\$1,899.86
Money Market Account	\$12,094.56
Charleston Planning Account	\$2,529.76
TOTAL	\$16,524.18

AEG CAROLINAS SECTION QUARTERLY BOARD MEETING CONFERENCE CALL JANUARY 20, 2011

Attendees: Paul Weaver (Chair) Brad Worley (Vice-Chair) Dave Duncklee (Treasurer) Alex Rutledge (Secretary) Frederick Love (Membership Chair) Jane Gill-Shaler (Newsletter Editor) Rick Kolb (Student Liaison) Jennifer Bauer (Advisor) Bridget Doyle (AEG 2010 Chair) Tami Idol (Webmaster)

The bulleted items below indicate comments, decisions made, or questions raised by conference call attendees.

Annual Carolinas Section Treasurer's Report – Dave

- AEG Carolinas section had a good year. Sponsor money is continuing to come in.
- We need to close out the Charleston account.
- Dave is going to look for a higher interest-bearing account maybe Wachovia.
- The yearly financial report is done.
- Recent sponsor checks were deposited in January and are not included in treasurer's report. Another item not included in the treasurer's report is the profit from the national AEG meeting, which we have not received yet.

Final report of Annual Meeting

- Did everyone get a copy? Yes
- Do we want to give Briget a memento to thank her for all of her hard work? If so, any suggestions as to what this memento should be? Bridget declined a memento

January 27 Meeting at Dave & Buster's in Concord

- We will lose about \$5.00/person on cost
- Do we want to offer any discount for State employees? For the Concord meeting we will not give the state employee discount. For future meetings, we will put the state employee discount to a vote. If we plan to give a discount for the meeting in Raleigh we will put the state employee discount on the announcement.
- If someone is unemployed at the time of the meeting, and they ask for a discount, we will charge them \$15 instead of \$25.
- Who will take care of ordering and bringing cake? Paul will bring the cake. Alex will print AEG logo (Continued on page 7)

APRIL 7 JOINT AEG-ASCE DINNER MEETING IN RALEIGH FEATURES AEG PRESIDENT BRUCE HILTON



The Carolinas Section of the Association of Environmental & Engineering Geologists and the Eastern Branch, North Carolina Section of the American Society of Civil Engineers are very proud to present Bruce Hilton, AEG President, and Chief Engineering Geologist for Kleinfelder, Inc. who will speak at Sparian's Bowling Boutique and Bistro, 141 Park at North Hills Street, Raleigh on Thursday, April 7, 2011.

About the Topic: The Martis Creek Dam is located in the north Tahoe Basin near Truckee, California. In 2006, this dam was identified by preliminary risk analyses to be one of the U.S. Army Corps of Engineers' top ten high-risk dams in the entire United States based on seepage and seismic deficiencies. During the ensuing seepage and seismic studies, the Corps obtained LiDAR data largely as a basis for topographic analysis of hydrologic-breach and inundation-mapping studies. A review of the bare-earth LiDAR (see cover photo) suggested the presence of a strong, continuous lineation through the spillway near the dam and extending for miles in either direction. Bruce's talk will focus on the use of these LiDAR data and the geomorphic analysis and paleoseismic trenching to further evaluate this newly named Polaris Fault Zone.

About the Speaker: Mr. Bruce Hilton began his career at Leighton & Associates in Southern California in 1978 and has continued his career in Northern CA with Kleinfelder, Inc. since 1993. His focus has been with engineering geology of private and public projects throughout the United States during his 32 years in the business. He is Kleinfelder's Chief Engineering Geologist and, in this role, is responsible for the quality, external exposure, marketing, and mentorship throughout the firm. His experience spans both environmental and engineering geology with emphasis on geomorphology, fault studies, landslides and slope stability, GIS, dams and transportation, and soil and groundwater contamination assessments. He resides in Sacramento California with his wife and enjoys, volleyball, golf, and body surfing.

Sparian's is a new venue for us. It opened in December and is unlike any bowling alley you've seen, which is why they call it a "bowling boutique and bistro". It has a beautiful bar and restaurant area with large-screen TVs everywhere. We will be in a meeting room that holds up to 160 people, with a first quality audio-visual system and WiFi access. It is well separated from the bowling alleys, so exterior noise will not be a problem.

(Continued on page 6)

AEG CAROLINAS DINNER MEETING THURSDAY, APRIL 7, 2011

Program: Martis Creek Dam – The Discovery of a New Capable Fault in the Tahoe Basin Speaker: Bruce Hilton, AEG President, Chief Engineering Geologist, Kleinfelder, Inc. Place: Sparian's Bowling Boutique and Bistro, 141 Park at North Hills Street, Raleigh Date: Thursday April 7 2011 Time: 5:30 PM social, 7:00 dinner, 8:00 speaker Cost: Members/Non-members \$25, Unemployed \$15, Student free w/ college ID **Reservations**: Please make reservations with Rick Kolb by 6:00 PM on Monday, April 4 Phone: (919) 858-9898 or e-mail **Directions**: See next page

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Directions:

Sparian's is located on the eastern side of Six Forks Road, opposite North Hills Mall, at the intersection of the Raleigh Beltline (I-440) and Six Forks Road in north Raleigh. Take the Beltline to the Six Forks Road exit (no. 8) and head north on Six Forks Road. Take the first right into the shopping center or the second right onto Dartmouth Road, and then an immediate right into the parking lot. There are surface parking lots on your left and right if you come in from Dartmouth. Sparian's is near the northern end of the large building and faces west.

E

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Quarterly board meeting minutes (Continued from page 4)

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- and Paul will take it to Harris Teeter for cake design. Text around logo will read: "Welcome Bill Haneberg, 2010-2011 Jahn's Lecturer"
- Who can bring a laptop? We need to show some presentations from National and our section during social time. Rick will bring a laptop.
- Dave, please have copies of Treasurer's report for members to pick up. Dave will bring copies.
- Brad needs RSVPs from board members for Concord quarterly meeting. Tami agreed to re-send the meeting announcement soon using a broader mailing list.
- Chris Boozer is our contact at Dave and Buster's corporate office, and Brad is going to find out who our contact will be in Concord.
- Alex and Jane will start out manning the sign-in table at the meeting.
- Paul will make up a sign-in sheet for those that want to receive CEUs.

Schedule for Bill Haneberg (Jahn's Lecturer)

- Has everyone received the schedule who would like one? Yes
- Discuss disappointment from SC members related to the Jahn's Lecturer not being scheduled at any SC universities. Paul sent a letter to Norm Levine from the board explaining why it was difficult to schedule a lecture in Charleston. We plan to have SC schools involved in next year's Jahn's Lecture.
- Should we also have the Jahn's Lecture available via webcast next year? Will discuss later.

Annual membership renewals

• Membership renewals are down about 25% nationally. We need to reach out to try and increase renewals Fred has been sent list of membership with renewals and non-renewals so we can start making calls.

sponsor? Yes. Thank you Brad and Bridget.

- Do we want to provide a scholarship (or scholarships) at \$450/pop for teachers to attend the meeting? It would be more appropriate to provide scholarships for AEG meetings.
- Who from the Carolinas Section will be attending? Robert Cannon will be presenting a talk, and Gary Rogers will be presenting a poster. Norm Levine and Brad Worley are attending.
- Who will take care of getting booth from National? Who will man the booth? What handouts do we want to have for the booth? Brad will send shipping information to Becky in Denver so she can send booth to meeting.

Spring Section meeting in Raleigh

- Which talk of Bruce's do we want him to give? Dam talk
- Any selection of the locale for the meeting yet? Rick is working on it. Possibly at a new bowling alley in Raleigh. Rick will give us more feedback once he has visited the facility.
- Participation of ASCE in meeting? ASCE is interested in co-sponsoring the meeting, and one person from their board plans to attend.

Scholarships from Carolinas Section

- Do we want to establish a travel scholarship for students to attend the annual meeting? If so, how much per year?
- Are there any other scholarships that we would like to establish on an annual basis? Paul plans to send out a list of options for scholarship and funding opportunities for the board to vote on. These will include student academic and travel scholarships, (Continued on page 8)



can start making cans.

Section meeting without speaker

- Some members have trouble with this because no PDHs, so can't ask employer for reimbursement. We do not plan to have any more quarterly meetings without a speaker.
- What about having a picnic on a Saturday during the summer for a social get together? The board likes this idea and plans to move forward with planning a summer picnic.
- Should we have an additional sectional meeting each year? Maybe in SC?

GSA Meeting in Wilmington in April

• Did we get enough talks to be able to have the session we were going to

News of the Profession

Quarterly board meeting minutes (Continued from page 7)

contributions to geology programs, funding for N.C. and S.C. licensing exam fee, P.G. review course support, and possibly others.

Assistance for students to take the fundamentals portion of the N.C. Licensing exam

• Do we want to provide this? If so, at what levels? See agenda item #9.

Student AEG Chapters

- What are the currently established student chapters? UNC-Charlotte, College of Charleston, NC State
- With Briget gone from College of Charleston by this summer, what are the prospects for the continuation of this chapter? It is currently difficult to know, but AEG Carolinas will provide what support we can.
- There will be 2 new professors this fall, so we might luck out and have one of them agree to be the sponsor for the student chapter.

Visiting Professional Visits

• Need volunteers; Paul will make announcement at Concord quarterly meeting.

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Regional Contact (Raieigh, NC) Joel Miller (303) 358-9879 Joel miller@us.belfor.com

Pine Environmental and Enviro-Equipment's Workshops

• Paul will contact both to try and get schedule finalized. We are most likely looking at sometime in March or April

Carolinas Section article for Spring AEG News

- Deadline for submission is January 31. Paul is running out of things to say; does anyone have any suggestions of what he can include in regards to new about our Section?
- Does anyone have any photos we could include? If someone would take some photos at the January 27 meeting, we can include those with our article. Jane agreed to take photos.

Platinum Plus sponsorship level and corresponding full page advertisement

- Should cost be \$750 (double cost of half-page advertisement) instead of \$600? We will limit full page ads to platinum plus sponsors for this year (only two now).
- Do we want to continue offering this level and fullpage ads after this year? We will discuss this at a later meeting.
- Some options for companies trying to gain additional exposure, without the help of full-page ads, include sending in technical articles, job announcements, advertise at national level, etc.
- Should we add website advertising options for sponsors?

Notice about essay for future of geosciences

- Is this something we want to have sent to the Carolinas Section membership?
- Is this something that National should send out to all AEG members? National will send this out to members and post it on the AEG Facebook page.

Carolinas Section Website

- Where do we stand? Tami has a list of items to address that she will give to our webpage designer. Tami received a bill from GoDaddy, and she'll send the bill on to Dave Duncklee.
- Have things been worked out with the hired help? No problems so far with webpage designer.

The Carolinas Section of AEG is comprised of working people and students like you and me. Give the Chair of the Section an email if you would like to be involved in this great organization! We need your help! Paul Weaver: <u>pmweaver@bellsouth.net</u>

WHAT ARE THE AEG OPERATIONAL COMMITTEES WORKING ON NOW?

By Jennifer Bauer – AEG Vice President/ President-Elect

As part of my duties as AEG Vice President, I act as liaison between the Executive Council and the Operational Committees. I think this is the most fun EC position I've had so far because our committees have so much going on.

At the Annual Meeting in Charleston, the Board of Directors participated in a Membership workshop to generate new ideas on how to retain and attract new members. The Strategic Planning Committee has been working hard compiling all of the great ideas developed during that workshop and has come up with two projects for the Operational Committees to work on. The first is a membership brochure that we can use for marketing to several different audiences (professionals, students, academicians). The second is beefing up the Outstanding Section Award to reflect some of the great ideas that some Sections are already implementing, in the hopes that other sections would pick up some of these ideas and run with them too.

The Sub-committees of the Strategic Planning Committee are working on additional Strategic Plan implementation initiatives as well.

The Advocacy Committee is compiling videos of member testimonials, and working on K-12 education collaboration ideas. They are also organizing AEG representation at the Congressional Visit Days in Washington, D.C.

The Section/Chapter Support Committee is working on Section Board member training, to help orient new members of Section boards. They are also starting up a forum on the AEG website so Sections can exchange ideas year round, not just during Board meetings. Join in!

The Student and Young Professionals Support Committee has put together a packet for Sections to use to engage more students, and they have updated the student welcome packet and recruitment poster.

The Licensure Committee has been trying to keep up with all of the threats to licensure across the country, and is creating an online licensure resource center for states whose licensure status may be threatened or for those who would like to promote licensure where there is none. They are also assembling a Licensure Team made up of representatives across all states.

You may have noticed the work of the Website Committee, as they continually strive to make www.aegweb.org more efficient and effective for AEG's members and non-members.

The Advertising/Sponsorship/Exhibitor Committee is always looking for companies who would like to support the organization financially, while at the same time marketing their products and services to AEG members.

The Committee on Educational Preparation for Professional Practice is gearing up to collaborate with other organizations to define educational competencies for geo-professionals.

The Annual Meeting Committee has been assisting our future meeting Planning Committees to ensure that AEG's Annual Meetings keep getting better and better! Have a short course you'd like to attend in mind? Let the Continuing Education Committee know about your idea, as they are assembling a list of short courses to offer to all Sections.

The Governance and Finance Committees are Operational Committees that report to the Board directly. When the Governance Committee isn't answering questions about the bylaws, they have been updating the Director's Handbook, which is the guide for new Board members. They are preparing for the upcoming Board Orientation that they host before each Board of Director's meeting to help new Board members become more comfortable in their roles as Directors.

The Finance Committee has been independently reviewing the quarterly financial data of the organization and provides a report back to the Board. They also provide advice to the Executive Council when asked.

Without the hard work of the volunteers on our committees, much of what we know as AEG would not exist. The volunteers are the life-blood of this organization. If you get the chance, thank them for the dedication they show toward this great organization. If you are interested in joining in on the fun and advancement of AEG, please contact me for more information on how you can get involved too!

Jennifer Bauer

Jennifer Bauer is AEG Vice President/President-Elect, and past Chair and current advisor of the AEG Carolinas Section. She may be reached at jennbbauer@gmail.com.



News of the Profession

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GEORAMBLINGS By Dr. Charles W. Welby

This spring version of GeoRamblings is written shortly after a week-long trip to and from the West Coast. As usual a window seat on the flight from Chicago to Burbank provides opportunity to observe the geomorphology of the lands we were crossing. About the time we began crossing Nebraska, the clouds broke open, and one could observe the Sandhills region of Nebraska. This is a region where the surface geology of the Pleistocene sand dunes clearly controls the way of life, political outlook, and livelihoods.

The dunes apparently formed at the southern margin of an ice sheet (Nebraskan). Winds from the margin of the ice sheet blew from the north and formed a large area of transverse dunes to the south of the ice sheet front. From the air the East-West broad pattern of the dunes seems to dominate the landscape. Later in the Pleistocene a dry period developed, and the dominant wind direction is interpreted as being from East to West. It was during this period that some of the transverse dues were modified; a later period of dryness brought winds that modified the dune fields even further.

Beneath the grid pattern overlying the dunes and which represents the general road pattern on one-mile centers, the East-West pattern of the dunes can be discerned. Cutting through the dunes is a more or less dendritic pattern of streams.

As the West opened, it was soon learned that cropping the land in this part of the world even with large acreages was not feasible because of the soils and that cattle ranching could be supported by the grass lands. So, without describing the long history of the development over the years, one can easily see why we now have Omaha, Nebraska, an important place for steak lovers.

In a sense to the geologic mind, the geomorphic expressions seen from 30,000 plus feet above is like a fine painting that excites the mind.

An article in the February 27 Raleigh News and Observer describes and discusses the perennial problem of "beach erosion." The article discusses efforts of the communities and land owners to "protect" the beaches and therefore the homes constructed along the shoreline. Of course, the effort is to get governmental agencies to permit construction of backshore protections as well as seaward projecting groins to help control the encroachment of the sea and to even fund the construction of this "beach protection" structures. Similar efforts are underway in other places whether in North Carolina, South Carolina, the south shore of Long Island as well as on the Long Island Sound side and other places in the world.

As most geologists recognize, the evidence is really not that the beaches are eroding but that the shoreline is shifting landward whether it be that the shoreline is backed by low-lying topography backed by dunes, an estuary, or one backed by uplifted coastal areas topped by Pleistocene terraces. Often the terraces are fronted by cliffs, and landslides cause retreat of the land area followed by the beaches. A good example of this process can be observed in Santa Barbara, CA where the potential for landslides onto the beach are being monitored by tensiometers, and potential slide areas are fenced off.

Turning to a bit of "political rambling," is it proper for a governmental unit to tax the general public to "save the beaches" and protect the homes built behind them when it is well recognized that such engineered structures will eventually be useless or create a "beachless" area? Or does the geological evidence point to the fact that those who build close to an advancing sea gambled with their investment and should accept the unfavorable consequences? Is there really an important protection associated with the Public Safety and Health issue in an investment made in front of a well-established geologic process?"

Perhaps the answer lies in the history of coastal development going back to Alexandria and before in the Mediterranean Sea and more close at hand Montauk Point and the south shore of Long Island. In the latter case the retreat of Montauk Point and the south shore of Long Island is documented by navigation charts of the present and past and by modern aerial photography. George Washington was correct when he predicted that the Montauk Point Lighthouse would be under attack in about 200 years after its construction.

(Continued on page 31)



VISITING PROFESSIONALS— OPPORTUNITIES TO SHARE By Rick Kolb, Student Liaison

Did you graduate from college in North Carolina, South Carolina, or Virginia? We are looking for geologists who would like to present talks on geology as a career at their alma maters through AEG's Visiting Professional (VP) Program. This is an opportunity for you to go back to your college and show them that you weren't the slacker everyone thought you were, that you actually have a job as a geologist, do real work, and buy your own beer.

Our section has been conducting these visits since 2007, before the VP Program even started, and we conduct them every year, typically during the spring semester. Our presentations start around 5:00 PM and last for one to two hours. We bring in pizza and soft drinks as an enticement for the students to attend. We have two to four speakers and try to have a variety of backgrounds – public and private sector, environmental and engineering. Each geologist speaks for 20 to 30 minutes on what they do in their jobs, how they got where they are, what they like and dislike about their jobs, thoughts on their career as a geologist, and tips for finding a job.

Presentations can be informal, where you just stand up and talk/entertain, or you can make Powerpoint slides and do a real professional job. After our presentations, we open up the floor for questions, and then, typically at schools where there are graduate students of the right age, we take whoever wants to go out for a few beers and maybe some appetizers. Our section pays for all this, thanks to the generous support of our sponsors. I have made eight or so presentations, and I know I enjoy these interactions at least as much as I think the students do.

So where do we present, or where have we pre-



ASCE Advocacy Schedule

Jeremy Hamm, EI, Geotechnical Staff Professional with Falcon Engineers, has sent us list of some advocacy things that NC engineers of the ASCE Eastern Branch are doing. Jeremy may be contacted at Jeremy R. Hamm, 919-871-0800 or by email at jhamm@falconengineers.com.

- Legislative Fly-in in Washington, DC; March 29th 31st
- Carolina's Conference at NCSU; April 14th 16th
- Legislative Reception at the NC Museum of Science; April 27th
- NC ASCE Section Spring Technical Session in Raleigh; April 29th
- State Public Affairs Grant (SPAG) Infrastructure Roundtable in Raleigh; TBD Spring 2011
- NC ASCE Section Annual Meeting in Raleigh; August 25th 26th

sented? This spring, we will present/have presented at the following schools:

- Furman University, April 14
- Guilford College, February 7
- North Carolina State University, March 31
- UNC- Asheville, March 31
- UNC- Charlotte, April 14
- UNC- Chapel Hill, March 17
- UNC-Wilmington, no date set yet
- Wake Tech, April 4
- Western Carolina University, March 17

American Environmental - Geotechnical Auger, Mud Rotary, Air Rotary, Geoprobe This year we will not go to Appalachian State University or East Carolina University, though we've gone there in the past. And even though, technically, our section includes only the Carolinas, we've also been asked to go to, and have presented at, Virginia Tech, Radford University, and East Tennessee State University. This year we will present at Radford on April 12 and ETSU on March 30.

Note that we are very light in South Carolina. We would love to go annually to Clemson, USC and the College of Charleston, and lack only volunteers to present. Did you go to school there? Ready for a trip back?

If you are interested in being a part of interacting with future geologists, whether or not you went to a college in the Carolinas, please contact Rick Kolb at rkolb0915@aol.com.

News of the Profession

Spring 2011

AEG CAROLINAS SECTION VOLUNTEER OPPORTUNITIES

Scholarship Committee– We are currently looking into offering scholarships to students and possibly teachers for various activities important to AEG. This committee would be responsible for evaluating scholarship applications and deciding on the recipient. This will be a totally new committee for the Carolinas Section.

Short Course Committee – This committee is responsible for deciding on a topic of importance to our membership and helping National organize one short course per year. This will be a totally new committee for the Carolinas Section.

Field Trips Committee – This committee already has a Chair, but needs volunteers to assist with putting together at least one field trip per year for our Section.

Membership Committee – This committee already has a Chair, but needs volunteers to assist with member outreach, membership renewal campaigns, and new membership recruitment campaigns.

Visiting Professionals (VP) Committee - This committee already has a Chair, but needs volunteers to assist with

contacting colleges and universities in the Carolinas that have earth science curriculums to schedule VP visits, and soliciting professionals from the Carolinas Section to present during the visits.

Webmaster – We need an individual to take over the duties of webmaster for our section. We have a paid consultant to perform maintenance on the site, and the webmaster would mostly be responsible for coordinating with the consultant regarding maintenance and updates to the website. This person will take over for our current Webmaster who wishes to retire.

Newsletter Editor – This person would work with our current newsletter editor in the production of the newsletter (GeoNews) every quarter. Eventually, this person would take over all duties of newsletter editor.

Social Committee – We would like to start a committee to organize some Section socials during the year. These could be things like getting a group to go to Durham Bulls or Greensboro Grasshopper baseball games, having a party at a drive-in theater, doing a camping trip, etc.

If you are interested in participating on any of these committees, please email our Section Chair, Paul Weaver, at <u>pmweaver@bellsouth.net</u>



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News of the Profession

Spring 2011



this message or give us a call.

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Spring 2011



Aggressive Fluid Vapor Recovery Trailer (AFVR)

Enviro-Equipment, Inc. (EEI) is pleased to announce the construction of another Aggressive Fluid Vapor Recovery (AFVR) Trailer, also referred to as Dual Phase Extraction (DPE) and Mobile Multi-Phase Extraction (MMPE). While we have sold AFVR Trailers to clients in the past, we now plan to stock AFVR Trailer units for rental or subcontracting. Clients have the option for as little or as much assistance from EEI as they require. Options range from renting and operating the system yourself to subcontracting EEI to do your entire AFVR event.

Key Features of our AFVR Trailers Include:

- Dekker Oil Sealed Liquid Ring 300 SCFM @ 25"HG
- Epoxy Coated KO Tank with Float Tree for Automatic Transfer Pump Operation
- Progressive Cavity Transfer Pump with Manifold and Totalizing Flow Meter
- Manifold allows pumping from KO Tank to Storage Tank AND Pumping From Storage Tank through Totalizing Flow Meter to discharge point simply by adjusting valves
- Vapor Phase Carbon Drum for Off Gas Treatment
- Ultra Silent Diesel Generator, 230volt 3 Phase, Push Start, Auxiliary 115 and 230V Outlets
- Galvanized Steel Inlet Manifold, 3" Header, (7) 2" Zones with Ball Valve and Vacuum Gauge
- Multiple Sampling Ports
- UL Listed Control Panel

EEI also carries all of the necessary accessories for AFVR events including "tanker truck" carn lock hoses, vapor phase granulated activated carbon media, thermo anemometers, photoionization detectors (PID), flame ionization detectors (FID), well head assemblies and stinger piping.

EEI is your one stop shop for rental of pilot test equipment or full scale remediation systems. We also custom build remediation systems on skids, in trailers or in buildings to your specifications. EEI is a Met Lab Certified Control Panel shop.

Enviro-Equipment, Inc. is your full service center for AFVR Trailers. We build them, so we can maintain and repair them. Whether it's a unit we built, you built or someone else built, we are your one stop service center. Contact Evan Chew at our Remediation Division 1-866-855-8267 or email us at remediation@enviroequipment.com.

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EDUCATION SECTION

AEG PRESIDENT BRUCE HILTON TO VISIT UNIVERSI-TIES IN THE TRIANGLE

By Rick Kolb, Duncklee & Dunham

AEG President Bruce Hilton, who is the Chief Engineering Geologist for Kleinfelder, will visit the Triangle area to present at our section meeting on Thursday, April 7 and to make presentations at North Carolina State University and the University of North Carolina at Chapel Hill. Bruce's biography and the abstract of his talk to the AEG-ASCE sections are on page 5 of this newsletter.

The AEG President typically visits sections around the country that invite him/her and has a selection of talks to present, and also presents the latest news about AEG activities. We have chosen for our section meeting to have Bruce present his talk on a newly discovered fault that is beneath the spillway for a dam in the Tahoe Basin.

He will present his second talk on the California High Speed Train project, which will cross over 200 active faults, at NC State at 10:00 AM on Thursday, April 7 and at UNC-Chapel Hill at 12:00 noon on Friday, April 8.

AEG members are invited to attend either of those presentations if you would like to see his other talk. Details of these presentations are in the newsletter calendar and on page 5 of this newsletter. The abstract of his talk follows:

California High Speed Train – How to Cross Active Faults at 250 mph

In 1996, California passed legislation that appropriated funds to begin the environmental permitting processes for the first U.S. high speed rail system that could operate at speeds up to 250 mph and provide a system that would enable travelers to go from Los Angeles to San Francisco in two hours.

In 2009, Californians approved Proposition 1A, which resulted in a bond sale of \$10 billion followed by \$2.25 billion in America Reinvestment and Recovery Act (a.k.a. as stimulus) dollars that have spring-boarded the system-wide project design that is now well underway.

Geotechnical and engineering geologic hazards across nearly 800 miles of the high-speed corridor are daunting challenges. Among these, 42 active faults are crossed by the project that require analysis and mitigation to ensure passenger safety and relatively uninterrupted revenue service. This talk focuses on the history and project components of high speed train systems, the overall technical challenges, and in particular the risk-based methods of analysis and mitigation alternatives developed at fault crossings.



EDUCATION SECTION

AEG RESEARCHES EARTH SCIENCE EDUCATION ADVO-CACY FOR GRADES K-12 By Rick Kolb, Duncklee & Dunham

The Advocacy Committee of the Association of Environmental & Engineering Geologists (AEG) recently established a subcommittee to investigate ways to advocate for earth science education for grades K-12. Our full committee will review the subcommittee's recommendations and pass those we select to the Executive Council of AEG for consideration and ultimately implementation.

Several teachers from the North Carolina Science Teachers Association attended the fall section meeting of the Carolinas Section of AEG, which happened to coincide with the annual meeting of the NCSTA in Greensboro. AEG members solicited and received several suggestions for advocacy from these teachers, and one topic about which these teachers' support was unanimous was the need for an AP curriculum for earth science.

The subcommittee will conduct some background research on this topic, which will likely include discussions with the American Geological Institute, who we expect would take a leading role in this effort.

AEG publishes an annual report and the Advocacy Committee noted the 2010 report includes The Importance of Earth Science Education, as approved by the National Earth Science Teachers Association on March 28, 1987. The chair of the subcommittee commented that we should start discussions with NESTA to update this statement.

Our committee welcomes your ideas on ways practicing geologists can advocate for earth science education in the K-12 grades. Please send your ideas to Rick Kolb at rkolb0915@aol.com.



Douglas A. Canavello, P.G. President

503 Industrial Ave. (27406) P.O. Box 16265 Greensboro, NC 27416-0265

(866) 545-9507 Fax (336) 691-0648 doug@pyramidenvironmental.com www.pyramidenvironmental.com

ENVIRONMENTAL EDUCA-TION CONFERENCE COMING TO NC IN OCTOBER 2011

The 40th Annual Conference of the North American Association for Environmental Education (NAAEE) is coming to North Carolina in 2011. Join NAAEE and EENC (Environmental Educators of North Carolina) as they host attendees from around the world October 11-15, 2011 at the LEED Silver certified Raleigh Convention Center.

Six strands complement the conference theme: Rooted in Time: Branching to the Future. Visit the NAAEE website to learn more http://www.naaee.org/ conference/call-for-presentations.

2011 NAAEE Conference Strands

- **Conservation Education**
- **Climate Change**
- Environmental Issues in EE •
- EE Goes to School
- **Environmental Justice**

Network and Leadership Development http://web.eenorthcarolina.org/Files/eenc/2011/ NAAEE2011StrandsPDF.pdf



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EDUCATION SECTION

LETTERS FROM RANDY

By Randy Bechtel, NC Geological Survey,

Ed: Randy is a great resource, and so wonderfully energetic and enthusiastic about science education! He is always sending us these great links, so we thought we would share them with our readers occasionally.

- **Hi everyone**: No doubt you have heard about the large magnitude 8.9 earthquake in Japan. Here is a link to some great info. http://www.iris.edu/hq/retm. Look at the 'Teachable Moment Presentations' the 18 slide power point has a lot of great information.
- Tsunami information from NOAA
- What areas in the US are ready for a tsunami? How about here in North Carolina? http://www.tsunamiready.noaa.gov/ts-communities.htm and http://www.tsunamiready.noaa.gov/

Articles

Unraveling the History Beneath the Ice – an interesting article not only about geologist doing field work but also some of the extreme conditions that geologist will endure to find and collect rocks. http://scientistatwork.blogs.nytimes.com/2010/12/28/

unraveling-the-history-beneath-the-ice/? partner=rss&emc=rss

Back to the Dead (Sea, That Is) – Drilling in the sediments for a 500,000 year record of Earth's history. http://www.aftau.org/site/News2? page=NewsArticle&id=13593

Volcances in Saudi Arabia – http:// earthobservatory.nasa.gov/IOTD/view.php? id=48355&src=eoa-iotd. Click on the picture for a detailed version and zoom in – notice the cone-shaped, pock marks, those are little volcances – probably cinder cones similar to the "Menan Buttes" in Idaho (next article below). This volcanic field sits adjacent to the Red Sea spreading center (divergent plate boundary).

Volcanoes in Idaho – Great images – notice all of the agricultural colors, shapes, and patterns in contrast with the brown lava field and the buttes (tuff cones). Click on the image at the link below, and zoom in to the Snake River for great examples of meanders (and meander scars), in particular to the lower left of the buttes – a great oxbow lake(s). Craters of the Moon National Monument and Preserve (to the southwest) has similar geology and both areas are in the Snake River Plain. http://earthobservatory.nasa.gov/IOTD/ view.php?id=48097

For information on earthquakes that have affected North Carolina here are a few publications from the NC Geological Survey: *(see next column)*

Publications.

Map of Earthquakes Epicenters in North Carolina and Adjacent States (poster). http://ncmaps.stores.yahoo.net/gh2mapofeaep.html. Scroll down to Earthquakes of the SE United State http://

www.geology.enr.state.nc.us/proj_earth/proj_earth.html The NC Geological Survey wants to know what teachers

need for teaching about earthquakes! Poster? Booklet? Online? In what format? What information are you looking for? Also, if you have activities you would like to share please send them to me at Randy.Bechtel@ncdenr.gov so I can send them out to other teachers. (if responding to either of these requests please put "shakin' not stirred" in the subject line).

ERATTA Randy Bechtel writes: Just read the (*Winter 2010 GeoNews*) newsletter, thanks for so much coverage of geoscience education. I realize the newsletter is already out in the public but I just wanted to bring your attention to one incorrect item - on page 10, left hand column, 2nd paragraph: I have not been an officer in AEG at any level, though I am the Vice President of the Southeast Section of the National Association of Geoscience Teachers. Thanks, Randy Bechtel *Ed: Sorry Randy! My bad.*

REOPENING OF FLUORESCENT MINERALS EXHIBIT AT UNIVERSITY OF RICHMOND

So, you like fluorescent minerals? Lots of them? The Lora Robins Gallery of Design from Nature at University of Richmond VA, recently opened the reinstallation of their permanent exhibition, Fluorescent Minerals. The display contains more than 300 specimens and more than 40 different mineral species from North America and beyond, and it explores the science behind these minerals' ability to fluoresce.

Within the new installation, a push of a button turns on 28 new ultraviolet shortwave and longwave lamps that agitate the minerals' internal atomic structure, causing the rocks to fluoresce brightly. Since the minerals glow differently under the two different wavelengths of ultraviolet light, the lamps run on a timed sequence that exposes the specimens first to longwave ultraviolet light, then shortwave ultraviolet light, and finally both long and shortwave light together to produce a unique and dazzling color show.

Highlights of the installation include numerous bright reddish-orange and green rocks of calcite and willemite from New Jersey, yellow-green hyalite opal slabs from North Carolina, and deep red rubies from India. More information at http://museums.richmond.edu.

When the Ground Moves – A Citizens Guide to Geologic Hazards in N.C.. http://ncmaps.stores.yahoo.net/ic32wheamo.html

Willy is this happening?

Fred L Beyer, Jr. 1709 Hatherleigh Place Fayetleville, NC 28304-2510

February 26, 2011

Dr. William C. Harrison, Chairman State Board of Education 6302 Mail Service Center Raleigh, NC 27699-6302

Dear Dr. Harrison:

During its regular meeting in March of last year, the State Board of Education adopted the Essential Skills Curriculum for Science in grades K-12. A number of individuals with interest in the earth sciences were involved in developing the syllabus for the Earth/Environmental Science course that is part of that curriculum. During the development process the course went through three versions which were throughly vetted by high school science teachers, curriculum specialists and scientists. Shortly after the curriculum was adopted a number of us became aware that a fourth version of the course of which we were not aware had been included in the adopted curriculum. Upon reviewing the adopted course syllabus we discovered that a number of critical earth science concepts had been removed from the course.

Since that time a number of us who are dedicated to ensuring that North Carolina students receive a comprehensive grounding in the earth sciences have been attempting to convince the leadership in the Department of Public Instruction to take a revised syllabus to the State Board in order to correct the deficiencies in the course. The department's administration has refused to assist us in this effort. They maintain that changes to the instructional support documents will be sufficient to insure that the missing concepts are taught as part of the course. In spite of those claims, evidence coming from school systems where the curriculum is already being implemented indicates that those concepts are being excluded from the instructional program.

The history of curriculum implementation in our state makes it obvious that concepts which need to be taught must be included in the adopted course of study. Our committee believes it is imperative that the course be changed to include the omitted concepts and that the revised course curriculum must have the force of law. We would like to request a meeting with you to discuss the procedure for submitting a revised curriculum for the Earth/Environmental Science course to the State Board of Education. Thank you for your attention to this issue. We look forward to hearing from you.

Sincerely,

Fred L. Beyer, Jr. Science Curriculum Specialist, Retired

REVISION TO THE SCIENCE CURRICULUM FOR NORTH CAROLINA

Letter from Randy Bechtel, DENR

Hi Everyone,

I know many of you have been interested in the revision to the science curriculum for North Carolina. Here is an opportunity for you to be involved. I am not sure of the timeline yet, but in the near future resources will be developed to assist teachers to teach science, and earth science specifically. These resources will collectively be called Tool Kits.

As I understand it, participants in the development of these resources will use the 'Unpacked Content' as a guide for development. K-12 teachers will be one of the main developers of material but the geoscience community can be a valuable resource. The new curriculum is scheduled to be implemented during the 2012-2013 school year. I have been in contact with NC DPI and will update you with the specifics of timeline, process, and expectations for development of educational resources.

If you are interested in this project, take a look at the documents which show the revised science curriculum for all grades, including the 9-12 Earth/ Environmental course. I hope that we can provide quality and age-appropriate information, activities and resources for all of the teachers who need to teach earth science (and geologic processes and materials specifically).

Remember, many of the teachers in the elementary level have **little to no science background** and, although middle and high school teachers have a science degree, **few have a geology background**. The geoscience community has the opportunity to make an educational impact.

For now, I just wanted everyone to become familiar with the material and think of resources and information that would be appropriate to assist teachers. I will pass on more information as I receive it. This discussion can also be continued during the upcoming SEGSA conference March 23-25 in Wilmington, NC.

Lastly, in an effort to not deluge DPI with questions, I request that all inquiries be sent through me and I can communicate those ideas and suggestions directly to the appropriate person for the grade level at DPI.

THANKS TO RICK WOOTON FOR GENEROUS DONATION

Letter from Paul Weaver, Chair, AEG Carolinas

Rick Wooten North Carolina Geological Survey 2090 U.S. Highway 70 Swannanoa, North Carolina 28778

Dear Rick,

The Carolinas Section of the Association of Environmental and Engineering Geologists (AEG) hereby recognizes the \$200 donation made by the Highlands-Cashiers Land Trust to the AEG Carolinas Section in your honor. We would like to express our gratitude to both the Land Trust and to you for the choice of AEG as the recipient of this donation. As you know, AEG could not continue our work as an advocate of our profession if not for the generosity of those such as yourself and the Land Trust. We assure you that this donation will be put to good use assisting fellow AEG members.

Once again, the Carolinas Section of AEG thanks you.

Sincerely,

Poul M. War

Paul M. Weaver, P.G. Chair – AEG Carolinas Section

Cc: Gary R. Wein, Ph.D. Executive Director Highlands-Cashiers Land Trust



News of the Profession

Spring 2011

2011 SE GSA, MARCH 23-25 FEATURES THEME SESSION ON GEOSCIENCE EDUCATION

The Dept. of Geography and Geology at the University of North Carolina-Wilmington is pleased to host the 60th Annual Meeting of the GSA's Southeastern Section on March 23-25 at the new Wilmington Convention Center, located on the banks of the scenic Cape Fear River. The Keynote speaker will be William G. Ross Jr., Duke University professor, environmental lawyer, and former Secretary of the North Carolina Dept. of Environment and Natural Resources. For complete registration information on the meeting, go to http:// www.geosociety.org/Sections/se/2011mtg/index.htm

In addition to many special theme sessions, there is one on geoscience education, chaired by Randy Bechtel, NC Geological Survey. Take a look at it, and please try to get over to Wilmington on March 23-25. Below is the description:

Title: Building a Foundation in Geoscience Education: Gathering Educators with Professionals to Create a Geoscience Literate Public.

A geoscience literate public is needed to make appropriate decisions regarding health, safety and economy in an era with increasing misinformation and disinformation. Many times K-12 students and teachers do not have the time or ability to thoroughly understand the interconnectedness of geology other than identifying rocks and minerals and learning the layers of the Earth. These students are also ill prepared to be successful in college level science courses. The geoscience community has an opportunity to be involved in crafting the direction of the curricula (National and State (North Carolina)) and to provide educators with age-appropriate resources and educational opportunities as well as discussion, activities, and community participation. We encourage educators and geoscientists to submit their best practices for engaging students, teachers and the public in Earth Science education.

The geologic community needs to provide appropriate information and resources to K-12 teachers who may have no, or very little, science background (K-5); are trained in another science (6-12 biology, chemistry, or physics) and have to teach Earth science; and teachers who are new to the area or new to teaching and are overwhelmed in learning the geology of such a diverse state. The foundation of education begins in the elementary school (K-5) where the most assistance is needed because teachers are least prepared to teach science. The middle and high school levels (6-12) have a shortage of geologically knowledgeable teachers, and all levels have pressures to teach to the End-of-Grade and End-of-Course tests. Many times geology, science in general, and history get pushed aside because of these pressures.

Again, for more information on the 2011 SE GSA, go to http://www.geosociety.org/Sections/ se/2011mtg/index.htm



ANNOUNCEMENTS

Call for Abstracts for 2011 AEG Annual Meeting in Anchorage, AK. You can get information at www.aegweb.org.

Call for Talks or Posters for 2011 Virginia Geologic **Research Symposium**

The Virginia Division of Geology and Mineral Resources (DGMR) is pleased to solicit interested parties for talks or posters for the 2011 Virginia Geologic Research Symposium to be held on April 14th, 2011, at the DGMR office in the Natural Resources Building, 900 Natural Resource Drive, Charlottesville, Virginia, 22903.

The Virginia Geologic Research Symposium is an opportunity for geologists working in Virginia to gather, network and present new, developing, or innovative research focused on the geology of Virginia. The schedule will be similar to last year's Symposium with a technical session in the morning, a poster session after lunch, a period for topical breakout sessions, and another technical session in the afternoon.

If you are interested in presenting either a technical session talk or a poster, or if you would like to facilitate a breakout session on a topic of interest to you, please contact David Spears.

> David B. Spears, PG, State Geologist david.spears@dmme.virginia.gov Department of Mines, Minerals and Energy Division of Geology and Mineral Resources 900 Natural Resources Drive, Suite 500 Charlottesville, VA 22903 434-951-6350

Obama Administration hails EOS Remediation for its efforts to expand exports

Suresh Kumar, U.S. Commerce Assistant Secre-

tary for Trade Promotion and Director General of the U.S. & Foreign Commercial Service visited Raleigh, NC on Thursday, January 27, 2011, to keynote the North Carolina World Trade Association's Global Innovation Kickoff Luncheon. Mr. Kumar delivered remarks on President Obama's National Export Initiative and honored two North Carolina companies for their success in the global marketplace.

Mr. Kumar presented **EOS Remediation** with U.S. Department of Commerce Export Achievement Certificate to recognize EOS Remediation's successful efforts in exporting groundwater remediation technologies to new overseas markets. The certificate is part of the

Obama administration's efforts to highlight its goal of doubling U.S. exports within five years.

Suresh Kumar was nominated by President Obama and unanimously confirmed by the U.S. Senate to lead the U.S. & Foreign Commercial Service's extensive worldwide network of 109 offices across the U.S. and 127 offices in 77 countries around the world. USFCS is the trade promotion arm of the U.S. Government that supports U.S. businesses to compete and win in the global marketplace. (SOURCE U.S. & Foreign Commercial Service)

EOS Remediation, an AEG Carolinas Gold Sponsor, is a leading provider of innovative patented methods for in situ aerobic and anaerobic bioremediation of natural resources such as soil and groundwater. The EOS® family of products are formulated with renewable, biodegradable vegetable oil feed stock supporting sustainability both above and below ground.

Ann Borden, President and Sheri Knox, International Technologies Manager were present to receive the certificate.

Gary Birk, EOS Remediation, LLC, Skype: gary.birk; Skype In: 919.809.7626 Blog: http://blog.myeosremediation.com/ www.eosremediation.com

Solutions-IES, Inc. is pleased to announce the addition of Stephen Richardson, Ph.D., P.Eng. Dr. Richardson obtained his Ph.D. in Environmental Sciences and Engineering from the University of North Carolina at Chapel Hill. Prior to earning his doctorate degree, Dr. Richardson was employed as an Environmental Professional Consulting Engineer in Edmonton, Canada.

Dr. Richardson specializes in the application of bioremediation strategies to treat hazardous compounds in soil, groundwater, and surface water at a range of contaminated sites, including former manufactured gas plants, (Continued on page 22)



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Announcements (Continued from page 21)

munitions facilities, gas stations, and oil/gas refineries. His consulting and academic experience encompasses the design and operation of conventional remediation techniques as well as the testing of novel applications. Dr. Richardson's background in Environmental Engineering and remediation brings a wealth of knowledge that will immediately impact our many client projects.

"Dr. Richardson is an enormous asset to our team," said Ann Borden, CEO/President of Solutions-IES. "His balance of real-world consulting experience and academic knowledge allows Solutions-IES to continue bridging the gap between traditional environmental services and innovative remedial technologies. Dr. Richardson increases the Company's strength and his passion aligns with our creative community of entrepreneurs." Solutions-IES is proud to welcome Dr. Richardson, a dynamic professional who will help support Solutions-IES' continued commitment to our clients and develop new remediation technologies that are scientific, responsive and cost-effective.

Dawn M. Marshall | Project Manager Solutions-IES, Inc. Phone: 919.873.1060 ext. 131 Fax: 919.873.1074 Mobile: 919.208.5645 Blog: www.mysolutions-ies.com/blog www.solutions-ies.com

Enviro-Equipment Announces New Remediation Technology— For the past several months Brian Chew, PG of **Enviro-Equipment** has been working on a new remediation process with OxyGreen Corporation. The process involves a patented electrolysis cell for producing pure oxygen from water insitu. Electrolysis is obviously not new but this application is. This system can run on household current, and is designed to polish off the sites that are almost cleaned up, but are still hanging on.

There are a lot of remediation techniques out there and Brian wanted to hear what you think about this one. A video of the prototype cell in operation is available on Enviro-Equipment's website. You can comment or ask questions on EEI's blog The cell requires 4-inch recovery style wells to operate, so it will fit into those existing pump and treat \ SVE wells that are not working for you any more. A press release about the process is provided below. We look forward to hearing from you.

PRESS RELEASE

Lab Testing of a Bioremediation Process for Clean Up of Petroleum Contaminated Groundwater is a Huge Success for Enviro-Equipment, Inc. (EEI) and Oxy-Green Corporation, Charlotte, NC and Cape Coral, FL.

Enviro-Equipment, Inc. (EEI), a provider of water quality monitoring instruments and remediation rental equipment, and OxyGreen Corporation, an engineering technology company, announced in January the completion of laboratory testing of the next generation of Oxy-Green Corporation's patented oxygen generating cell. The testing was carried out at EEI's laboratory and manufacturing facility in Charlotte NC.

The new generation oxygen cell is operated and monitored by a programmable logic controller (PLC) and is designed to produce a higher amount of pure oxygen than the previous design. In 2010, EEI was awarded an exclusive contract to manufacture the cells and system controls. The contract included software developed by EEI to monitor and control the OxyGreen system.

The OxyGreen system is a green, chemical free, bioremediation technology designed to remove petrochemical contamination left behind by most groundwater remediation systems which are primarily designed to only remove gross contamination. The OxyGreen technology is a natural way to oxygenate groundwater. The oxygen generated comes directly from the ground water via electrolysis.

The prototype cell was tested in a laboratory setting with a scaled down control panel. "The test results exceeded all expectations with increases in dissolved oxygen (DO) levels and changes in oxidation reduction potential (ORP)," according to EEI Principal Hydrogeologist Brian E. Chew, Sr. P.G. "The new cell design definitely facilitated the higher production of pure oxygen and the power usage to produce the desired production was less than anticipated. These favorable results mean that only minor changes will have to be made to the prototype cell and the controls before full production," added Chew.

OxyGreen's Chairman, Ed McLaughlin said, "We have customers lined up to use this technology on their sites. These sites are 60 to 80 percent remediated and need to be polished off to get their no further action (NFA) letters. McLaughlin and Chew have high expectations for the OxyGreen System and are especially pleased with results of their collaboration. "We have a remarkable opportunity here," remarked Chew. "We have materials and fabricators all ready to go to supply OxyGreen systems to our customer base in the environmental industry," Chew added.

"This technology means growth for OxyGreen Corporation and for EEI, but even more important, it means a new tool to improve the quality of the water supply for Americans and people around the world, "states McLaughlin.

He added, "Environmental contamination by petroleum agents is a major problem, requiring billions of dollars annually in the US for remediation. The OxyGreen System can make a major contribution toward a safe environment and provide new jobs in the US."

Enviro-Equipment, Inc., a woman-owned small business founded in 1993, rents, sells, and manufactures environmental monitoring equipment used for pollution control, groundwater remediation, water and wastewater treatment, safety and industrial hygiene, and environmental assessment. The Charlotte, NC facility also offers <u>water pumps</u>, environmental sampling supplies, safety products, equipment repair, and training. Enviro-

(Continued on page 23)

GEOBRUGG TO CONDUCT FREE TWO-DAY ROCK & SOIL SLOPE STABILITY WORK-SHOP APRIL 8-9 IN VIRGINIA

Geobrugg North America will conduct a free two-day Rock & Soil Slope Stability Workshop at James Madison University, **Harrisonburg, VA** on Friday and Saturday, April 8 & 9, 2011. You can attend either or both days as you wish. If you're interested, contact Sandra Delawder at 540-568-6144 or delawdsa@jmu.edu to register.

Who Should Attend? This course is intended for consulting engineers and geologists, transportation agencies, municipalities, public works, as well as landscape architects and specialty construction contractors who are engaged in slope stabilization.

Recommended Background Knowledge. Geologists and Engineers with a background in basic engineering geology principles, general geology, and/or engineering. Experience in basic soil or rock mechanics is helpful but not required.

Schedule, Day One:

In the morning participants will receive an introduction to methods of stabilizing shallow slope failures with particular emphasis on the performance, cost and aesthetic advantages of using high-tensile strength wire mesh in comparison to other types of facing materials, such as shotcrete, gravity walls, wire rope nets, or standard wire meshes. In the afternoon the course will cover an overview of rockfall mechanics, rockfall rating systems, and explore the options of utilizing various rockfall mitigation techniques. Attendees will receive a complimentary copy of version 7.0 of the RUVOLUM® program, the Colorado Rockfall Simulation Program (CRSP), and will practice using the software on actual project case studies. Upon completion, participants will have and be able to use the software for potential slope stabilization and rockfall mitigation projects.

Announcements (Continued from page 22)

Equipment's customers include colleges and universities, government agencies, industry, and environmental consultants in the ground-water hydrology and industrial hygiene fields.

OxyGreen, Corporation is an engineering technology company that produces U.S. patented in situ ground-water bioremediation products. It is a 100% permanently and totally disabled combat veteran owned business. For more information please visit: <u>http://</u> www.enviroequipment.com/.

Schedule, Day Two:

A practical one-day, hands-on design course that will provide the student with the basic concepts of rock and soil slope stability analyses and design. An emphasis will be placed on both hand solutions and computer solutions using current, industry-standard software with emphasis on deep-circular type applications. Attendees will analyze rock slopes using kinematic and limiting equilibrium methods; analyze rock slopes using ROCKPACK computer software; analyze soil slopes using Bishop and Janbu Methods; analyze soil slopes using XSTABL computer software; and understand basic methods of slope stabilization. Note: ROCKPACK and XSTAB are not provided as part of the course.

Instructor: William F. Kane, PhD, PG, PE, of KANE GeoTech, Inc., 7400 Shoreline Driver, Suite 6, Stockton, California 95219. www.kanegeotech.com, Tel: 209-472-1822, Fax: 209-472-0802. Dr. Kane may be reached at william.kane@kanegeotech.com

Bio: Dr. Kane received his B.A. (1975) in geology from James Madison University, and his M.S. (1981) and Ph.D. (1985) degrees in Civil Engineering from Virginia Tech. He is President of KANE GeoTech, Inc., Stockton, California, which he founded in 1997. As an award-winning professor, he taught civil engineering and engineering geology at the universities of Tennessee, Pacific, and Alabama-Huntsville. His firm consults on a variety of geotechnical problems for many local, state and federal agencies as well as private industry. He has authored or co-authored approximately 80 technical papers and reports.



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TECHNICAL SECTION

FLEXIBLE TEMPORARY SHORING USED IN NEW

CONSTRUCTION APPLICATION Author: Frank Amend, PE Geobrugg North America, LLC Rocky Mount, NC Ph: 252-937-2552 frank.amend@geobrugg.com

The challenge of high angle slopes required for the installation of foundation walls of buildings under construction is best met with a temporary shoring application that is efficient and economical. The sheer walls must maintain rigidity to prevent collapse that could injure workers and delay the real project. After the construction is completed, the area between the shoring walls and building is backfilled with soil.

This necessary instability hazard has been addressed in the past with the construction of retaining walls, removal of unstable materials, or installation of shotcrete as a hard surface solution. More cost-effective is the use of a staggered-pattern anchoring system with a flexible facing. Using this flexible facing solution, a hightensile mesh material is pinned throughout the slope face, providing compressive force to retain the unstable slope.

The Georgia Tech Nanotechnology Research Facility in Atlanta was built in 2006 and during its construction a temporary shoring system of approximately 5,000 square feet was required. Extreme Technology's, Inc. (ETI) offered a solution for the temporary shoring that not only provided for the construction of the new fourstory building, but navigated remnants of the previous building's fiber optic, electric, water, gas and phone lines that saturated the work site. ETI installed the 100 foot long wall which was 30 feet high in three (3) days, enabling the general contractor to stay within the project's timeframe.



The initial excavation began just four feet from an active roadway and utility lines. A six (6) foot depth of material was removed from the proposed wall site and mechanical anchors were installed in the roughly vertical (*Continued on page 25*)



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Innovations in Water Monitoring

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slope. TECCO® mesh panels were meanwhile cut to the final depth of the finished wall, "stitched" together with compression claws for a "2-diamond" overlap, and rolled together with a length of black geo-fabric cut to the same size. Each mesh plus geo-fabric panel was then laid at the top of the proposed wall.

As each six (6) foot depth was removed from the slope, another row of mechanical anchors was installed, the panel of mesh/fabric was lowered down the wall into position along the wall surface, the TECCO® spike plates were secured to the mechanical anchors, and finally the anchor nuts were torqued to achieve a 7,000 ksi pretensioned load on the mesh.

The pre-tensioning provided active pressure against the slope face, preventing breakouts between the soil nails. The spike plates optimized the force transfer from mesh to anchors. The combination of mesh and geofabric pre-tensioned against the slope restricted deformations in critical surface sections and prevented movement along the planes of weakness.

ETI utilized dimensioning models for the engineered design of the system, including anchor placement specific for this temporary shoring application.







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WATER WELL INSTALLATION CHALLENGES IN HAITI By Doug and Susan Rakoczy

Ed: As you read these emails, forwarded to us from Haiti and minimally edited, take time think a little bit about the things we accept as a given in this wonderful country of ours. Perhaps you have just had a tall glass of cold iced tea, or did the dishes, or treated yourself to a nice hot shower and gotten in some clean clothes after a hard day at work. All of this requires water, clean water; readily available and plentiful here, but not so in many parts of the world.

Former North Carolinians **Doug and Susan Rakoczy** live with the youngest three of their five children about seven kilometers west-southwest of Cap-Haitien on the northern coast of Haiti. "The distance means nothing in Haiti," says Doug in a recent email, "because it takes about 30 minutes to drive that distance because the roads are so bad." Doug and Susan work with two organizations called **Global H2Ope** based out of Fargo, ND and **Lifewater** Canada (www.lifewater.ca), installing water wells and teaching the local Haitians to maintain them.

Doug has earned several degrees, including a master of science in geo-environmental studies and an education degree with emphasis on special education. In addition to his more recent teaching position in Minnesota, he has over 12 years of prior experience as an envi-



Photo 1. Drilling a replacement well at a school in Haiti.

ronmental consultant and project manager for **Duncklee & Dunham** in Cary, North Carolina. His experience included soil and groundwater assessment and remediation sites in North Carolina, South Carolina, Virginia, Tennessee, Maryland, Delaware, West Virginia, Kentucky, and Pennsylvania. Other environmental projects were located in New York, Connecticut, Missouri, Kansas, Michigan, Ohio, Indiana, and Texas.

Asked why they went to Haiti in the first place, Doug said that it all stemmed from his wife Susan's background in long term missionary work. "She first went to Haiti in January 2009 on a short term mission trip to do some nursing/medical clinic work. She was with a group from near where we live in Minnesota, [which] had also been going to Haiti for a number of years on short term mission trips to drill wells and do [hand] well pump repair."

Susan returned to Haiti after the big earthquake with a faith-based crisis response team. One of her Minnesota group, Bryan Odegard, "decided to start an organization called **Global H2ope**, so that there could be some sort of a year-round program to help drill and repair well pumps." Doug says "We decided that we felt guided to be the people working on the ground in Haiti with Global H2ope, and they agreed. Because my wife is an RN and I had a background in environmental geology, it seemed like a good fit. Clean water (or lack of it) is such a HUGE health issue here, and leads to the sickness and misery of so many people. I guess we thought we could try and help, and we felt that this was the direction that God was leading us."

"Susan spent a good part of the summer of 2010 [in Haiti], and I came for several weeks in late July/early August. We moved here with [three of] our children Jacob (14), Julia (12), and Joshua (9) in November of 2010. We also have 2 [independent] older children.

"We feel it's important to help develop a sustainable system to help Haitians get clean water through a well drilling and pump repair program (and I mean handpumps, which is what many of the wells drilled here have) that will eventually be run by Haitians. We seek to give them the training and resources to do the work themselves (and not have to rely on Americans or Canadians). We also seek to do this work from a Christian perspective as we are a Christian-based organization. Our mission is to show the love of Christ as we work with the Haitian people. I returned to school several years ago and obtained [a special] education degree and I am also .. teaching 2nd/3rd/4th grade in an international. We are planning on being here 2 years."

Their group partners with Lifewater Canada (www.lifewater.ca) to drill wells, repair pumps, and provide health education, training, and equipment with the goal of enabling Haitians to do the work for themselves. This provides not only clean water but employment opportunities for the Haitians, and is a catalyst for a sustainable program with the responsibility for Haitians to continue.

WELL DRILLING

Photo 1 "is from early February 2011 when Doug's team drilled a well at a nearby orphanage/school. The school has 400 students, 108 of them orphans, and is run by Catholic nuns." Doug is bending over the mud pit shoveling cuttings. "The existing well at the school is located adjacent to where their latrines were later built so (*Continued on page 28*)

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it has been contaminated. The new well was drilled in the ...portion of the property as far upgradient of the latrines as we could get (around 250 or 300 feet). We are drilling with small trailer mounted rotary drills. The other two rigs that are used are smaller than the one in the picture.."

"We don't have a mud tub. You have to dig your mud pits before you start drilling. The drilling is strictly

wash rotary/mud rotary. This well (photo 2) was drilled to a depth of around 90 feet. The driller (Bryan, on left) is from Minnesota and is one of the Global H2ope founders. We are trying to train Haitians to run the rig. Edrick (in the blue hat) will be the driller.

"The Haitian drillers rarely use bentonite gel to mix drilling mud and they have trouble with holes collapsing, especially since they take a long time to get their drill rods out of the hole. They don't use bottom caps on the wells-they flush water



Photo 2. Hand dug mud pits. Edrick (in blue hat) is learning the rudiments of drilling from Bryan.

inside the casing to get the sand out and get the well down. Then they put a little gravel down inside the casing to the base of the screen to keep sands from running up inside the casing. I've not seen anything like it before. It's like going back in time about 40 years. Most of the wells have hand pumps set in them, and people just come and fill up their containers and carry it back to their homes. I believe [that] 75% of Haitian homes don't have running water."

"All the drilling I have seen here is wash/mud rotary. I've never seen any hollow stem augers. They are too expensive and hard to get. The small drills are also



"The drillers here don't like using mud because of the cost of the bentonite gel and difficulty getting it in here. They do have problems with holes collapsing, how-





not capable of turning 6 1/4 inch ID augers to the depth necessary. We also don't have bentonite pellets; too hard to get and ship in economically."

"We use 4-inch PVC casing in 20 foot lengths with bells to connect; again, threaded casing and screen is not available here and is too expensive to ship in. We cut the screen with a hacksaw, but I cut 3 rows of slots no more than 1 inch apart. It takes a long time to cut the screens, and the importance of cutting the screens properly

is something we are trying to get across."

Doug describes more well drilling: "The drill used for the well installed at the orphanage was a Deep Rock D 20, I think. We actually had an end-cap on this well. The other drill one of the Haitian drillers is using is a smaller Deep Rock D 50 [Photo 3]. That rig only has 1 1/2" drill rods, no stabilizer rod, and only a drag bit (no roller cone bit). That engine on the smaller rig only turns the drill stem; you have to use a hand crank to drill down or pull the drill stem back out. There is a separate gen-

erator for running the pump to pump the water.

caps, [nor do] the North American drillers I have encountered here. They wash sand out of the borehole by pumping water down the casing. In the well we did at the school/orphanage, we didn't have to do that because we had a larger bit with a stabilizer rod and we did mix some bentonite gel."

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Haiti (Continued from page 28)

ever, as you can imagine. It is also difficult getting filter pack here. It's hard to find sand the right size, and you have to do a lot of screening. Often, the sand (or gravel) is too coarse and too angular to serve any purpose, and they have a hard time getting it down to the screen. However, it is often better if the formation just collapses around the screen, because the coarse sand and fine gravel that we try and screen the wells in makes a great natural

sand pack."

"We are also working on helping the Haitian drillers understand the need for a grout seal. Sometimes the hole will collapse and they'll want to put their filter pack around solid casing 20 or 30 feet above the screen. They need to understand they need a longer grout seal, at least 20 or 30 feet." **GEOLOGY**

"We are in the Northern Plain of Haitibasically a bowl surrounded by mountains on 3 sides and the ocean to the north. The drilling is in sediments

Photo 3. Smaller Deep Rock D 50.

consisting of clayey sand to silty fine sand to more coarse sand and eventually sand and gravel. There are some harder layers occasionally (limestone or coral?), and there are also sometimes issues with salt-water intrusion as you get closer to the coast.

"Once you start getting up in the foothills the drilling becomes much more difficult as rock is obviously much shallower. It gets rugged in a hurry once you rise in elevation out of the Northern Plain, and we can't drill in these locations. In the Northern Plain, there are confining layers that are present in places between 70 and 100 feet below grade and I have seen some wells that are flowing at the surface if they are drilled deep enough. The deepest I have seen a well drilled is 140 feet."

PUMPS "Most of the wells we install will have hand pumps installed in them - we are using AFRIDEV pumps (designed in India)."

According to an online description, the Afridev pump is a fully corrosion resistant, lever action handpump, designed for heavy duty use and for serving communities of up to 300 people. It is a public domain pump

> defined by Rural Water Supply Network (RWSN) specifications. More about this pump at www.rwsn.ch.

Doug continues; "We drill wells for communities, churches, and schools, and there has to be a certain amount of community involvement. Many people will use the community wells - people come with their buckets and other containers to get water from the wells for cooking, drinking, etc.

"As I said before, around 75% of Haitian houses don't have running water. It

would also not be practical to put submersible pumps in the wells because there is no consistent and reliable power source available. There are huge infrastructure issues here."

LABORATORY In an email dated February 18, 2011, Susan reports "one of the projects of this week has been to take a concrete shed behind our house and turn it into a laboratory to house an incubator to grow water samples and check for bacteria. So as part of that process it was determined that we needed some sand to mix the cement for blocks and plastering the walls. It was arranged that on Wednesday morning at 6:00am the sand would

(Continued on page 30)





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arrive. I picked out a place to put it that would be convenient for mixing and anticipated a pick up truck to show up in the morning. That night it once again rained torrentially and was still cloudy as I was up preparing to direct where the sand was to be placed.

"At 6:30 am...

I hear this loud noise at the front gate...I look out the window and in comes an enormous dump truck filled to the brim with sand!!! I was in a bit of shock, but thought, OK ... I guess we can make this work. So the truck started backing into the area I had arranged, unfortunately, because it was HUGE, and the ground was spongy, it created about 6 to 8 inch tracks and demolished our cute little brick walkway! Before he went any farther and hit a tree or the house, I



Photo 4. We put AFRIDEV hand pumps in most of the wells, but this well will actually get a submersible pump

stopped him and told him I'd find another place!

"So we went to the other part of the lawn, (again leaving deep tire tracks) and he dumped the sand. As he got ready to move out, we noticed that he now had a flat tire in the back and that he was quite stuck in the mud that he had just created. I could not help but find this so typical and amusing. So the driver now had to take the sand which he had just dumped into a pile and use our shovel to throw our sand under his wheels to get his enormous 1970ish beat up dump truck out of our yard! When it was all over and he had eventually gotten unstuck...I surveyed the broken walkway, the new trenches in our yard and the deep hole now filled with muddy sand and looked over at our [9 year old] son who said, 'That was a really cool dump truck!' and that about sums it up."

"Getting back to the Lab, it will become a very useful tool to identify whether or not wells are contami-



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nated with just normal bacteria or with things that can cause harm, like E. coli. All the wells that are being surveyed are also having sampling done. About 1/3 of those are coming back with positive results for bacteria. Of those, we are resampling and then growing the sample in the incubator. So far all but one sample has grown 'bad

stuff.'"

Right now, AEG Carolinas Sponsor ESC Laboratories (Barry Kroll) is helping to provide free well water analysis service for the project.

WELL REPAIR Susan writes, "Yesterday, I went out with one of the Canadian team members and Edrick, [the driller intern with the blue hat], to do the second round of sampling. It was still pretty cloudy and I was in the back of the open truck. At one point a Haitian man came over to me and was attempt-

ing to describe a well close by that needed work. After getting the full picture from Edrick, we went to see this pump, up the steep hill, into a little enclave of simple homes. The well did indeed need work!

Evidently, a large truck or bulldozer [had] backed into it and pushed it over, twisted the handle and destroyed the concrete pump pad. Of course as is common, this incident took place and then [the driver] just drove away leaving the people in this area of many hundreds having to walk a long distance to get water. All we could do yesterday was document what had happened and say we will see what we can do. There are many broken wells, many wells that need to be cleaned, many wells that need to be replaced, and many wells that need to be drilled so that the current wells will last longer. It takes a lot of time and money. The government is not involved at all in drilling or repair in the rural areas. The challenge is great, but again, doing something is the first step."

SANITATION EDUCATION "We are finding it is not enough to just drill a well or fix a well; it needs to be clean water, not just water. There is so much education that needs to be done here in the villages to teach [the people] about keeping animals, laundry, bathing etc. away from the wells. But mostly, there needs to be education on [basic] sanitation issues i.e. Latrines. They are few and far between.

Let's just say, while it is great to have water, it is even greater to know how to protect that water and in turn (Continued on page 31)

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yourself and family. This is done through health and hygiene classes for the residents around the wells. It is the only long term solution. Anyway, we will now have to decide how to go about dealing with all these contaminated wells that we are finding. One more step in the process.

"On the way home from taking the samples, it started to down pour. It was cold and I was drenched. As I rode along in the open back of the truck, going past homes that are little more than shacks, seeing people waiting patiently under overhangs or trees, themselves getting wet, I realized afresh how fortunate I was to be going back to warm clothes, a dry house and hot food. Many Haitians will see none of those things during this rainy time. I also saw again the beauty of the mountains, the open fields of rice patties, animals



Photo 5. Doug, Susan and family in Haiti in 2011.

quietly grazing in marshy land and the laborers in the field, machete in hand, cultivating the field of beans. How can such beauty and such suffering exist together...and yet it does here in Haiti. Maybe that is why this is such a special place."

SCHOOLS

"The school kids gathered around while on recess. We really had to work to get them to back away from the drill. The school uniforms are not just for Catholic schools. In every Haitian school, kids wear uniforms (including the one our kids go to). Also, every child must pay to go to school in Haiti (even those going to government sponsored schools which are like our public schools). That is one of the things that continues the cycle

GeoRamblings (Continued from page 10)

So do we "protect" the beaches effectively with structures at public expense where no obvious public health and welfare is served other than a tax base which probably will not cover the cost of the construction and where the natural preservation of the beaches comes from the erosion of the dunes and bluffs as the ocean attacks them through the storms that pass by periodically? of poverty in Haiti-lack of ability for kids to access schools and education because their family can't afford it and they don't have a sponsor.

"It was interesting to hear Doug's take on the Creole language, too. "The word "ecole" is Creole for school (very similar to the French term "l'ecole." Creole

> is basically a mix of French and African languages. Some pronunciations are the same as French but the spelling is more phonetic (Creole for goodbye is "orevwa", Creole for yes is "wi" Creole for thank you is "mesi", etc.)."

> AEG Carolinas Section members Dave Duncklee of **Duncklee & Dunham** environmental consultants and Section sponsors **Environmental Science Corporation** (**ESC**) analytical labs are currently providing materials and lab services to Doug's efforts

in Haiti.

CONTRIBUTIONS

If you would like to contribute material, supplies, or other resources to these efforts, please contact AEG Carolinas Section Treasurer Dave Duncklee at e@dunckleedunham.com. Dave compiled the information in this article.

ED: Comments in quotes are taken directly from the Rakoczy's emails of February 2011, less minor edits, and with text additions for clarity in brackets []. Photographs are by Doug and Susan Rakoczy. For a local video on the work being done in Haiti, go to http:// www.wday.com/event/videos/vidid/20806/

Incidentally, a book by Richard A. Davis, Jr., The Evolving Coast, 1996, is an interesting read. It is published by the Scientific Library of the Scientific American magazine.

Charles W. Welby

Dr. Charles W. Welby is a former Section Chair for AEG Carolinas and a regular contributor to this newsletter. He may be reached at cww_ral@hotmail.com.

CALENDAR OF EVENTS - 2011

Geological Events in the Carolinas

Courtesy of AEG Carolinas Section – <u>www.aegcarolinas.org</u>. Last updated March 3, 2011 Send updates/corrections to Rick Kolb, Duncklee & Dunham, <u>rkolb0915@aol.com</u>. *Meeting Date, Time, and Location are Subject to Change – Please Verify Prior to the Meeting*

Date: April 6-7, 2011

Event: Science-Engineering-Technology Congressional Visit Days

More information: http://www.usinnovation.org/pdf/ CVD2011-Invitation12511.pdf, or AGI – www.agiweb.org

Location: Washington, D.C.

Contact: Rick Kolb, Advocacy Committee Chairman, rkolb0915@aol.com

Date: Thursday, April 7, 2011

Event: Presentation by AEG President Bruce Hilton Location: 10:00 AM, Room 1132, Jordan Hall, North Carolina State University; Raleigh, North Carolina Presentation Topic: California's High Speed Train --How to Cross Active Faults at 250 mph

Date: Thursday, April 7, 2011

Event: AEG Carolinas Section Spring Meeting, held jointly with the Eastern Branch of ASCELocation: 5:30-9:00 PM; Sparian's Bowling Boutique

and Bistro; Raleigh, North Carolina

Speaker: AEG President Bruce Hilton – Martis Creek Dam – The Discovery of a New Capable Fault

in the Tahoe Basin

RSVP to Rick Kolb – rkolb0915@aol.com – no later than April 4. (see article page 5) PDH: 1

Date: Friday, April 8, 2011

Event: Presentation by AEG President Bruce Hilton Location: 12:00 noon, Room 105, Mitchell Hall, University of North Carolina; Chapel Hill, North Carolina

Presentation Topic: California's High Speed Train --How to Cross Active Faults at 250 mph Date: April 11-15, 2011

Event: The Complete Ground-Water Monitoring Field Course

Location: San Diego, California Contact: The Nielsen Environmental Field School; www.envirofieldschool.com

Date: April 11-15, 2011

Event: The Remediation Course Location: Las Vegas, Nevada Contact: Princeton Groundwater, Inc.; www.princetongroundwater.com; (813) 964-0800

Date: April 11-12, 2011

Event: The Complete Ground-Water Monitoring Well Design, Construction and Development Field Course Location: San Diego, California Contact: The Nielsen Environmental Field School; www.envirofieldschool.com

Date: April 13-15, 2011

Event: The Complete Ground-Water Sampling Field Course Location: San Diego, California Contact: The Nielsen Environmental Field School;

www.envirofieldschool.com

Date: April 18-19, 2011

Event: The Complete Surface Water and Sediment Sampling Field Course Location: Tampa, Florida Contact: The Nielsen Environmental Field School; www.envirofieldschool.com

(Continued on page 33)



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(Continued from page 32) Date: Friday, April 22, 2011 Event: Earth Day Location: The entire planet Contact: www.earthday.org

Date: May 1-5, 2011

Event: 2011 National Ground Water Association National Summit Location: Hyatt Regency Baltimore on the Inner Harbor; Baltimore, Maryland Contact: www.ngwa.org

Date: May 1, 2011

Event: Conceptual Modeling for MODFLOW and FE-FLOW Location: Hyatt Regency Baltimore on the Inner Harbor; Baltimore, Maryland Contact: www.ngwa.org

Date: May 5-6, 2011

Event: Determining the Best Bioremediation Approach for Sites Contaminated with Chlorinated Solvents Location: Hyatt Regency Baltimore on the Inner Harbor; Baltimore, Maryland Contact: www.ngwa.org

Date: May 17-20, 2011

Event: The Environmental Sampling Course Location: Las Cruces, New Mexico Contact: The Nielsen Environmental Field School: www.envirofieldschool.com

Date: April 28-29, 2011

Event: Estimated Times of Remediation Associated with MNA and Source Removal Location: Charlotte, North Carolina Contact: National Ground Water Association, www.ngwa.org; (800) 551-7379



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Date: June 14-16, 2011 Event: Improving Hydrogeologic Analysis of Fractured Bedrock Systems Location: University of Wisconsin, Madison Contact: Midwest Geosciences Group, www.midwestgeo.com; (763) 607-0092

Date: September 19-24, 2011

Event: AEG Annual Meeting Location: Anchorage Hilton Hotel; Anchorage, Alaska

Date: September 19-21, 2011

Event: Geoscience Congressional Visit Days Location: Washington, D.C. Contact: Rick Kolb, Advocacy Committee Chairman, rkolb0915@aol.com

Date: October 9-15, 2011

Event: Earth Science Week Location: World-wide Details: www.earthscienceweek.org

Date: November 4-7, 2012

Event: Geological Society of America Annual Meeting Location: Charlotte, North Carolina



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- MPAGER: Applicants for Member Class 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 an applicant shall be practicing in the field of Engineering Geology, Environmental Geology or Hydrogeology. Annual Dues for new (first-time) Members = 575.00 per year for the first year of membership. Otherwise Annual Dues = \$115.00. Applicants who qualify for Member Class, but are engaged in full-time teaching at the Primary, Secondary or post-secondary level are eligible for Teacher Status (Annual Dues = \$35,00).
- AFFILIATE: Applicants for Affiliate Member Class shall be scientists or engineers who work with engineering geologists; reachers engaged in middle-school and high school Earth Science education; or persons interested in engineering geology. Annual Dues = \$75.00 (Teacher Dues = \$35.00)
- STUDENT: Applicants for Student Member Class shall be full-time Students enrolled in an academic program in the geoschaces of in a related field in engineering. Annual Dues FREE
- INTERNATIONAL: Applicants shall hold the sam requirements as for Member Class, but may select from the following dues schedule: \$35, which I for the billowing the structure of the second sec Meeting Abstracts and the AEG News

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

PROFESSIONAL DEVELOPMENT

AEG – Serving Professionals in Environmental, Ground-Water and Engineering Geology since 1957

- · AEG sponsors workshops and short courses for which official Continuing Education Units are offered.
- AEG encourages its members to participate in activities of mutual interest with other societies and organizations.
- The annual Richard H. Jahns Distinguished Lecturer in Engineering Geology is co-sponsored by AEG and the GSA Engineering Geology Division.
- · AEG members make presentations and lead field trips for students at all levels.
- AEG's Technical and Professional Practice Committees keep the Association in a position of influence through their wide-ranging activities.
- AEG's 25 Sections and 20 Student Chapters provide educational and networking opportunities for members through regular etings, field trips and local newsletters.
- Students compete for scholarships and awards, and interact with practicing professionals.
- Short courses, field trips, and technical sessions provide opportunities for AEG members to enhance their professional practice.
- International members are found in more than 20 countries and Designated Correspondents enhance technology transfer among more than a dozen countries.

MEMBERSHIP APPLICATION

ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS



The Association of Environmental & Engineering Geologists (AEG) is an international, non-profit scientific and technical society, whose 3,000 members include geologists specializing in engineering geology, environmental geology, and ground-water geology as well as other professionals in affiliated fields such as civil and mining engineering, land-use planning, public policy and education.

Through its technical and professional activities, AEG strives to promote the value and importance of geologic practice in:

- detecting, containing, and remediating contaminated soil and ground water;
- recognizing and mitigating hazardous geologic processes to promote public safety and welfare; and
- siting, planning, designing, constructing, and maintaining engineered works.

Check Us Out www.aegweb.org

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.

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

WORK PHONE:

PREFERRED ADDRESS:

Name:

PREFERRED E-MAIL:

Second Address:

Home Phone:

DESIRED CLASS OF MEMBERSHIP:

CERTIFICATION:

Card Number:

(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.

Enclosed is my check for the amount of Annual Dues of §

Credit Card Payment Option Discover Master Card Visa

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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: 303-757-2969: AEG Web: 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

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whil do all we can to help you outh your outliness. Most of our memoers are practicing professionals with responsionity 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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GeoNews Newsletter: Business card size ad (2" high x 3-1/2" wide), four times per year.

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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.

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

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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, <u>www.aegcarolinas.org</u>, with a link to your site.

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Business Card	\$ 40.00
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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

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