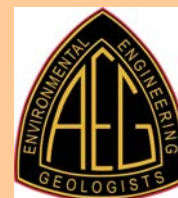




# GEO NEWS



Newsletter of the Association of Environmental & Engineering Geologists and  
American Institute of Professional Geologists, Carolinas Sections

## Spring 2007

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### MARK YOUR CALENDAR!

#### **“Site Characterization for the Design of Effective Groundwater Remediation Projects”**

Date – April 11, 2007

Place – UNC University Club,  
Raleigh, NC

Contact – Rick Kolb,  
rakolb@MACTEC.com

Calendar of upcoming events is on our website  
- <http://www.AEGCarolinas.org>

Issue date 21 March 2007

## **JOHN MOYLAN, JAHNS LECTURER, AT JOINT AEG, AIPG, AND GWPNC MEETING WEDNESDAY, APRIL 11 IN RALEIGH**

The Carolinas Section of the Association of Environmental & Engineering Geologists (AEG), Ground Water Professionals of North Carolina (GWPNC), and The American Institute of Professional Geologists (AIPG) are proud to present a joint meeting featuring the 2007 Jahns Distinguished Lecturer, **John E. Moylan, R.G.**, supported by the AEG and the Geological Society of America. The talk is entitled *Site Characterization for the Design of Effective Groundwater Remediation Projects*, and will be held on Wednesday April 11, 2007 at the NC State University Club at 4200 Hillsborough Street in Raleigh.

**Abstract:** Too often groundwater remediation projects have been implemented with too little site specific geologic, hydrogeologic, and geochemical site characterization data. Literature reports of remediation often provide very little information on the hydrogeology or geology of the site. Many articles never clearly describe the aquifer material, don't state the range or distribution of hydraulic conductivities, or discuss the homogeneity or heterogeneity of the water bearing material. In these cases, it is seldom possible to determine whether the remedy being reported on is effective or efficient. The speaker will discuss site conditions as a basis for effective remediation planning and design. Examples will be provided, and a question and answer session will follow the presentation.

**About the Speaker:** Mr. Moylan received

a BS degree in Geology from the University of Kansas in 1958 and attended a special Corps of Engineers Geological Engineering program at the University of Minnesota in 1974. He worked as a geologist for the Corps of Engineers Kansas City District for 33 years where he rose to Chief of the Geology Section and retired as Chief of the Geotechnical Branch in 1991. He was an Adjunct Instructor in Geology at the University of Missouri at Kansas City from 1979 through 1985.

Following his retirement from the Corps of Engineers, he worked for Woodward-Clyde Consultants/URS for 10 years as a Senior Consulting Geologist and is currently an independent consulting geologist.

Mr. Moylan is experienced in most aspects of engineering geology. He has conducted geologic investigations for site selection, design, construction, performance monitoring, and remedial design of dam projects. In addition, he worked on the geologic investigations of many military projects, a natural salt contamination area, and a proposed nuclear waste disposal site. Since 1978, his work also included the investigation, remedial design, and performance evaluation of hazardous waste sites, and he has worked on over 50 National Priority List Superfund Sites. While with Woodward-Clyde/URS, he was technical advisor and peer reviewer on geotechnical and environmental projects throughout the company. He has actively encouraged expanding the focus of environmental geologic investigations and studies from the nature and extent of contamination to include site characterization needed for effective remedial design and remedial action.

Mr. Moylan is a member of the Geological Society of America and has been an active member of the AEG since 1966 and was a founding member of the Kansas City-Omaha Section. He served as the 1969-1970 Section Chairman and again 2003 to 2005. He has actively

encouraged the participation of geology students at the University of Missouri at Kansas City and the University of Kansas in Kansas City-Omaha Section activities and has made several technical presentations

#### **Directions: University Club**

4200 Hillsborough Street, Raleigh, North Carolina

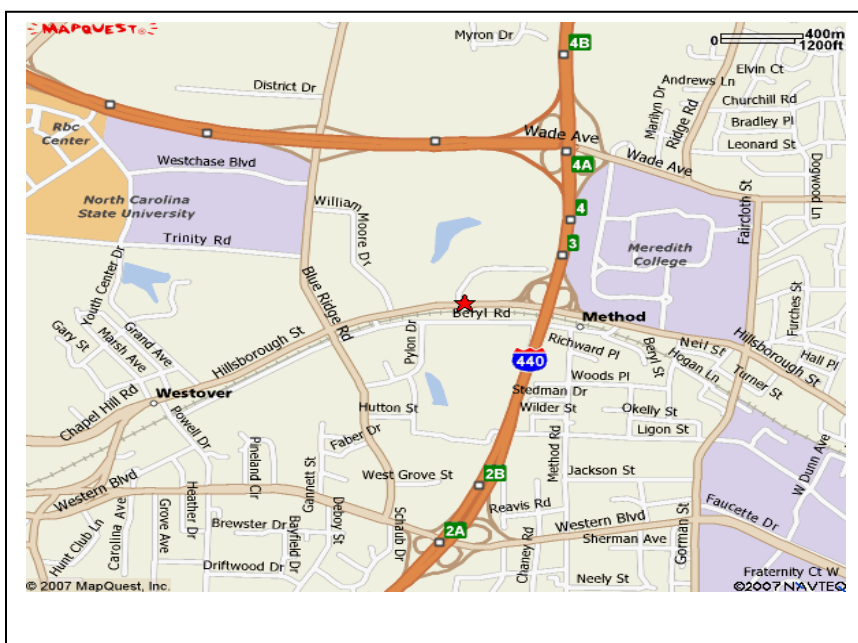
#### **From the west:**

Take I-40 eastbound to Exit 289 (Wade Avenue) and exit I-40 from the right two lanes onto Wade Avenue. Follow the road signs that read "North Raleigh". Stay on the Extension approximately three miles until the third exit, when you intersect I-440/U.S. 1 (the Raleigh Beltline). Take the Beltline south and stay in the right-most lane. Take the first exit, which is Hillsborough Street. Exit off of I-440, bear right and merge onto Hillsborough Street. The University Club is almost immediately on your right.

#### **From the south and east:**

Take I-440 around the southern and eastern sides of Raleigh until the Hillsborough Street exit (Exit 3). At the base of the ramp, turn right onto Hillsborough Street. Follow Hillsborough Street for approximately ½ mile; the University Club will be on your right:

*(Meeting Registration form is on Page 4)*



**MESSAGE FROM THE CHAIR***Rick Kolb, Chair, AEG Carolinas*

I recently returned from our AEG meeting in Columbia. Dr. Terry West, AEG's President and a professor at Purdue University, spoke on the past, present and future of landfills. This meeting was special for a variety of reasons: it was our first visit to Columbia in 15 years, the national president came to talk, and we had almost 40 attendees, including six students from USC. Raymond Knox, our treasurer with Schnabel in Columbia, and Briget Doyle, a professor at the College of Charleston, our past secretary and now chair for the 2010 national meeting, have been asking for a meeting in South Carolina. After driving 3½ hours from Raleigh to Columbia, I now have a first-hand understanding why they've been asking this. It is not a short drive, especially coming home at 10:00 that night (and yes, the sidewalks of Columbia were being rolled up as I left). However, the meeting was great, and I'm glad I made the drive. We met at Carolina Wings, and our sponsors willingly bought many buckets of beers for those in attendance. The food was great, the meeting room we had was private and fit perfectly, and Dr. West's talk was quite informative. Raymond, thanks for an excellent meeting. And thank you to Dr. Welby and Raymond Knox for providing scholarships for the six students so that they could attend for free.

Our next meeting on Wednesday, April 11 will be, I hope, equally special and a little different. Our speaker will be John Moylan, who is the 2007 Jahns Lecturer. Details of this meeting are elsewhere in this bulletin. The Jahns lecturer is supported by AEG and GSA, and the lecturer travels the country giving talks. This meeting will be special because we have the Jahns lecturer, and because it will be what I think is the first-ever joint meeting of the Carolinas Section of AEG, the Ground Water Professionals of North Carolina, and the American Institute of Professional Geologists. Being a joint meeting, we are hoping for a large turnout, so come meet some geologists from other organizations. You may have noted we moved our usual January meeting to February to fit

Dr. West's schedule. Likewise, we have moved our usual May meeting to April in an effort to reach out to local university students, which are among the targets of the Jahns lecturer and who will be out of school for the summer by the time of our usual May meeting date. I recently visited the Marine, Earth and Atmospheric Sciences (MEAS) department at NCSU and visited with Dr. Fountain, the chairman of the department. I offered to have Mr. Moylan give a talk at NCSU, and Dr. Fountain accepted the invitation. Mr. Moylan will give a talk to the MEAS department at 3:30 PM on April 11. I will attend that presentation with Mr. Moylan, and afterwards will invite students to come over to the University Club, if only for the social hour. You may recall from my message in the previous newsletter that one of my objectives is to attract students and faculty to our meetings, which coincides nicely with the Jahns lecture series, and which was one of my reasons for visiting NCSU. I encourage any practicing geologist who maintains contact with his alma mater to visit your school and talk to students about life as a geologist. As I've said before to anyone who will listen, we need to do a better job of getting out the word that jobs are available for geologists, and that it's a great profession in which to work.

Misti Benchabbat of Schnabel in Columbia is our vice-chair. Recently her husband has transferred to Atlanta, and she has moved and given up her position on the board. Therefore, we have a vacancy to fill the remaining six months of Misti's position. Please contact anyone on the board if you are interested in testing the waters for a six-month trial period of being a board member of AEG. You will work with a good mix of people ranging in age from Recent to Cambrian. Primary commitment is to participate in board conference calls quarterly and bring some new ideas to our section. Remember that our organization, both on the section level and national level, is only as strong as those volunteers willing to serve. I urge you to consider using some of your free time to give back something to the profession.

*Rick Kolb*

Chair, AEG Carolinas

**Meeting Registration Form**

Registration deadline is Monday, April 9, 2007.  
To register by mail, complete and mail the following:

Name: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State, Zip \_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

Please mail your registration to Rick Kolb,  
MACTEC Engineering, 3301 Atlantic Avenue,  
Raleigh 27604.

Questions? Call Rick at (919) 831-8054 or  
email at [rakolb@MACTEC.com](mailto:rakolb@MACTEC.com).

**GeoNews** is a publication of the Carolinas Section of AEG. There are four issues per year, with deadlines and issue publication dates listed below. We publish news of the profession, job openings, and positions wanted.

Deadlines can be flexible depending on events  
Spring – deadline March 1, issue date March 21  
Summer – deadline June 1, issue date June 21  
Fall – deadline September 1, issue date September 21  
Winter – deadline December 1, issue date December 21

Deadlines for submittals for the National AEG News:

March issue – January 21, 2006  
June issue – April 30, 2006  
September issue – July 31, 2006  
December issue – October 31, 2006

AEG Carolinas Section – Current Officers and Contacts

Chair ..... Rick Kolb, [Chair@aegcarolinas.org](mailto:Chair@aegcarolinas.org)  
Vice-Chair ... Misti Benchabbatt (resigned) [Vicechair@aegcarolinas.org](mailto:Vicechair@aegcarolinas.org)  
Treasurer ..... Raymond Knox [treasurer@aegcarolinas.org](mailto:treasurer@aegcarolinas.org)  
Secretary..... Richard P. Lovett, [secretary@aegcarolinas.org](mailto:secretary@aegcarolinas.org)  
Membership Chair..... OPEN  
Past Section Chair..... Tyler Clark [tyler.clark@ncmail.net](mailto:tyler.clark@ncmail.net)  
Advisor ..... Gary Rogers (336) 274-9456 [advisor@aegcarolinas.org](mailto:advisor@aegcarolinas.org)  
AEG Carolinas Section Website..... [www.aegcarolinas.org](http://www.aegcarolinas.org)  
AEG National Website..... <http://aegweb.org/indexf.html>

AIPG Carolinas Section – Officers and Contacts

President..... John M. Stewart, 336-668-0093 [jstewart@trigoneng.com](mailto:jstewart@trigoneng.com)  
Secretary/Treasurer..... Russ Patterson, (919) 774-3770  
..... [russ@patternsexploration.com](mailto:russ@patternsexploration.com)  
Membership Chair..... Macklin M. Armstrong, (919) 838-9933  
..... [armgepeng@mindspring.com](mailto:armgepeng@mindspring.com)

GeoNews Newsletter Editor..... Jane Gill-Shaler (336) 883-0170  
..... [janehgill@stanfordalumni.org](mailto:janehgill@stanfordalumni.org)  
Emeritus Newsletter Editor ..... Phil Winchester, Jr. (828) 628-2119  
..... [pwinchesterjr@aol.com](mailto:pwinchesterjr@aol.com)

**Letters to the Editor**

Editor: I've retired as Executive Director of the NC Aggregates Association but have been retained to lobby for them during this session of the General Assembly...so I'll be looking after mining, geological, environmental, permitting and related issues. Please let your readers know of my interests in these areas and have them contact me if they know of legislative issues of importance to the geological engineering community. My Email address is [fra@bellsouth.net](mailto:fra@bellsouth.net), phone is 919-571-9106 (O) or 919-630-6364 (Cell).

My replacement as Executive Director of the Association is Mr. Jay Stem, a PE, CE graduate of NCSU, with work experience with NCDOT, ST Wooten, and Ralph Hodge contractor. Jay shares my interests in geotechnical matters and is eager to meet and work with AEG members. He may be reached at [ncaa@ncaggregates.org](mailto:ncaa@ncaggregates.org), phone 919-782-7055.

Let me also take this opportunity to thank many, many AEG, AIPG and CGS members for your friendship over the years. The PEOPLE of the mining, consulting, state and local agency and educational communities stand out as the best part of my 35 years representing the state and national aggregates industry. We plan to remain in the Raleigh area so I look forward to continuing to see many good friends.

Lastly, let me extend a grateful "thank you" to the geological community supporting the November '06 NCSTA Rock and Mineral Giveaway exhibit. Once again, it was one of the highlights of the conference and greatly enjoyed by the 1500 or so visiting teachers and school administrators. Keep up this valuable educational outreach program.

*Fred Allen, Principal of Allen Consulting Group,  
Raleigh, 919-571-9106*

Send letters to the editor to [editor@aegcarolinas.org](mailto:editor@aegcarolinas.org). We reserve the right to edit for length. Please restrict letters to subjects of potential interest to AEG and AIPG members.



## AEG GOVERNANCE COMMITTEE UPDATE

*By Jennifer Bauer, Co-Chair, AEG Governance Committee*

Many of you may not be aware that AEG Nationals even has a Governance Committee, but since I am a Carolinas Section member, and have recently become the co-chair of this committee, I've decided to give the Section some information about the Committee and an update on our activities. The Governance Committee (GC) was formed in 2004 as a standing committee with a Charter Statement that reads: "The Governance Committee will report to the BOD (Board of Directors) and be charged with evaluating and reporting to the BOD as an advisor in the following respects:

1. Review and Summarize options for BOD and Executive Council (EC) structure, policy, by-laws and protocol.
2. Provide training and monitor performance of the BOD & EC.
3. Interact at regular intervals with the BOD, EC and associated committees including but not necessarily limited to the Strategic Planning and By-Laws Committee."

The GC accomplishes these goals in several ways. It monitors two BOD and EC meetings a year to ensure by-laws and protocols are being followed; it helps lead a board member orientation at the mid-year and annual meetings; it participates in by-laws workshops; and provides general guidance to the BOD and EC.

In the past few months, the GC has had input on selecting and developing leadership training for the BOD and financial training for members of the EC. GC members are currently in the process of revising the Committee Charter to bring it up to date in order to present it to the BOD at the mid-year meeting in Indianapolis, Indiana in April. Other GC members are busy reviewing the Director's Handbook, a notebook full of AEG information for Section Chairs in order to better prepare them as Board members. My co-chair, Paul Hale (Allegheny-Ohio

Section), and I are busy preparing for the Board Orientation, which will be held on April 20th, the day before the mid-year BOD meeting. We are also actively recruiting new members for the GC. If you are interested in ensuring the integrity of AEG as an organization, feel free to contact me about GC membership.

*Jennifer Bauer is the Co-Chair for the AEG Governance Committee, and former Chair of AEG Carolinas.*

## GEO

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## AEG 50<sup>TH</sup> ANNIVERSARY IN LOS ANGELES - ABSTRACTS DUE BY APRIL 1, 2007

AEG's 50th Anniversary (AEG-2007) is being planned for September 24 - 29, 2007 at the Sheraton Universal Hotel in Los Angeles. Be a part of the celebration by submitting an abstract for the Meeting. Abstracts must be a maximum of 250 words (not including the title and author information). Author information must include full name of main author and all co-authors, affiliation/company, mailing address, and e-mail address.

E-mail your abstract to Julie Keaton, Meetings Manager ([aegjuliek@aol.com](mailto:aegjuliek@aol.com)), as an attachment to your e-mail.

**Technical** Session topics include: Construction Geology, Environmental Issues, Coastal/Floodplain Processes, Dams, Field Geology, Forensic Geology, Geomorphology, Geophysics, Geotechnics, Landslides/Slope Stability, Natural Hazards, Remote Sensing/GIS, Rock Mechanics, Seismic Hazards, Seismology, Site Characterization, Soil Mechanics, Ethics, Professional Practice, Subsidence, and Tunneling.

Symposia include: Paleoseismology and Active Faulting, Perspectives on Regulatory Review, The Future of Environmental and Engineering Geology - A Global Perspective, Engineering Challenges of Mine Reclamation, Levee Protecting Urban Population Centers: Are New Standards Needed?, Tunneling, Solving Diverse Problems with Groundwater Models, Advances in Subsurface Characterization Techniques and Environmental Investigations, Dam Removal and Decommissioning, Operating Dam Analysis and Remediation,


*Julie Keaton, AEG Meetings Manager, may be contacted at [aegjuliek@aol.com](mailto:aegjuliek@aol.com).*

## AIPG ETHICS COURSE IN CLEMSON ON APRIL 17, 2007

*By Macklin M. Armstrong*

Macklin M. Armstrong will present a half-day ethics course at the Clemson University Hydrogeology Symposium in Clemson, South Carolina on April 17, 2007. He has previously presented the AIPG Carolinas Section sponsored course titled Rules of Professional Conduct – Case Study Approach to geologists, engineers, land surveyors, and landscape architects. Courses have been held in Raleigh, Durham, and Atlantic Beach, North Carolina.

*Mr. Armstrong serves on Ethics Committees for the AIPG and the National Association of State Boards of Geology. He may be reached at [armgeoeng@mindspring.com](mailto:armgeoeng@mindspring.com)*



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## ABOUT OUR MEMBERS

By Rick Kolb, Chair, AEG Carolinas

*This is a new column that we are instituting in this issue to introduce you to our members, one by one. This first column introduces an active member of AEG Carolinas, Jane Gill-Shaler of GEO.*

**Jane Gill-Shaler** is a self-employed Professional Geologist, with registrations in California and North Carolina. After a career running her own retail art supply and screen printing business in California, she retired in 1981 and went back to school, earning a degree in Geology at San Francisco State University in 1989. She was hired as a staff geologist for PES Environmental, a small company in Marin County, California, doing environmental site assessments and various aspects of remedial work. When her husband, Dick Shaler, retired

as County Architect and Chief of Mapping for Marin County, CA, they both decided to pack up and move. They had good friends in High Point, so settled there in a rambling brick home on five acres of rolling land in 1999. Dick is happy working full time on restoring antique sports cars, and Jane is restoring her dad's 1956 Plymouth Suburban station wagon. They built their own 24 x 48 foot garage, and have plans for an expansion.

Jane started volunteering her time as a newsletter editor with AEG Carolinas, and as an offshoot of this work started her own company, Geology Executive Online, (or GEO), that she currently runs out of her home. Clients include Groundwater Resources Association of California, and Association for Women Geoscientists. She spends her time between High Point and rental properties in California and New Hampshire, bringing along the laptop to keep up with GEO business.

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## TECHNICAL SECTION

### TEMPORARY MONITORING WELLS

*By Jay Zimmerman, Aquifer Protection Section, Div. of Water Quality, NCDENR  
(Reprinted by Permission from the Author)*

Recent inspections of temporary monitor wells, conducted by the Division of Water Quality's Aquifer Protection Section, have resulted in the discovery of numerous violations of the state well construction rules. The inspections have resulted in the issuance of Notices of Violation and in some instances, civil penalties. In each case, the monitor wells had been installed weeks or months before the state's inspection and had incomplete grouting, no well ID tag, no locking well cap and no protection against damage, as required by the regulations. In all cases, the wells consisted of a 1"- 2" PVC pipe in an open field, grouted to land surface with bentonite and capped with a PVC slip cap.

Often, the reason given for the violations was that the wells were intended to be "temporary" and, as such, the well contractor did not believe the construction requirements were the same as for a "permanent" monitor well. Upon investigation, it was usually discovered that due to project delays and other reasons cited by the contractor or consultant, temporary monitor wells that were intended to remain for only a few days were forgotten, or that sufficient money had not been budgeted to convert the wells into permanent monitor wells.

The definition of a "temporary well" in 15A NCAC 2C .0100 in part means a well, other than a water supply well, constructed to determine aquifer characteristics, and which will be properly abandoned or converted to a permanent well within five days (or 120 hours) of completion of the borehole.

It should be noted that there is very little difference between the construction methods associated with a temporary and a permanent monitor well. At a minimum, the temporary

wells require a method of construction to preclude the vertical migration of contaminants along the borehole. Normally this is accomplished through the installation of a grout seal. Permanent wells (those that remain for a period beyond 5 days) must meet the construction requirements in 15A NCAC 2C .0108(c). Standards for the construction of permanent monitor wells include, but are not limited to, a grout seal (the upper three feet of which must be a cement type grout), a locking well cap, completed and securely affixed ID tag, and some sort of protection against damage. Any monitor well that remains in the ground for a period of more than 5 days or 120 hours from the completion of the borehole, regardless of the originally intended length of time, must be converted to a permanent monitor well, or be permanently abandoned. The Aquifer Protection Section encourages well contractors to discuss these well construction requirements with their clients to ensure they understand the limitations associated with temporary monitor wells. Remember, the well contractor is the person responsible for the proper construction of any well. Any agreement between the contractor and well owner that deviates from the regulations may not be a sufficient defense for improper construction.

*Jay Zimmerma, PG, is with the Aquifer Protection Section of the Division of Water Quality, NC DENR.*



Ground Engineering & Environmental Services

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## GEORAMBLINGS

*By Charles W. Welby*

This “episode” of GEORAMBLINGS is being written while sitting in a room that overlooks Cabrillo Boulevard in Santa Barbara, CA, a place visited often because of family living here. The geology of the Santa Ynez Mountains which form the back drop is fascinating in and of itself, and for those enamored of landslides and such, there are many opportunities to observe the mobile surface of the earth.

We passed the “infamous” La Conchita mass movement area late in the night as we approached Santa Barbara; even in the dim light of the street lights of the community and the reflected light from the headlights of the cars on U.S. 101 the scale of the slide area and the continuing threats to the community are apparent. Not far from here, located in the Los Padres National Forest, there is an ancient Native American burial site which is located upon the debris from an old landslide.

One purpose of the trip was to confirm a childhood memory of a “shoot out” at the weir which controlled the water flow of the Kern River into its natural terminus, Lake Buena Vista. I had mentioned the “shoot out” in a paper given some years ago at an American Water Resources Association conference in Scotland. However, the opportunity to confirm this memory did not arise until recently as it required access to the microfilm records of the local newspaper, and the library was always closed in the past when I was “in town.”

The event took place in June of 1937. It had been a wet year in the Sierra, apparently. The weir had been installed in conjunction with the control of the flow of the Kern River into Lake Buena Vista as part of water rights arrangements in an important agricultural area of California. The effect of the weir was to limit the amount of water that flowed into the natural basin which had been preempted by some of the “Cattle Barons” of California in the

19th Century. At the time there were grain crops being grown on the lake bottom.

The effect of the weir was to back the water through a series of irrigation canals northward to the Tulare Lake region, an extensive agricultural area of California. Geomorphology and geology enter into the picture at this point. In the natural situation prior to the settlement of California when the Lake Buena Vista was full, the water backed up northward into the Tulare Basin, and at extremely high water levels the water flowed into the Kings River. The levees protecting the Tulare Basin farmlands from the Kings River were threatened with breaching at the time.

The status of the water levels prompted about 50 ranchers from the Tulare Basin area to threaten the guards at the weir and to open it so that the Kern River would follow its natural drainage path. The grain in the Lake Buena Vista basin had been harvested while some of the dispute was going on, and various injunctions were denied in court, and the matter disappeared into headlines associated with the onset of WWII as water drained into Lake Buena Vista, protecting the farmlands to the north.

Today the California Aqueduct channel follows a path a few tens of feet away from where the weir was located; the Kern River channel is essentially dry, and Lake Buena Vista is a small recreational lake taking its water from the California Aqueduct system. Notable also is the general dryness of the area; where once there were low willows and other types of vegetation along the course of the Kern River and out into its floodplain, there is nothing but dead grass, scattered dead trees and tree stumps. Not far away is the site of what was once the deepest oil well drilled, its depth somewhat over 18,000 feet.

At an annual dinner for the local West Kern Oil Museum one of the attendees remarked to me that he remembered swimming at the weir. One time he and a buddy skipped school and went swimming there on a hot day in the late spring only to be seen by the story-teller’s parents as they drove by on their way home from Bakersfield.

The speaker at the annual dinner was a petroleum engineer with Occidental Elk Hills

Corporation, the operator of what was once the Elk Hills Naval Petroleum Reserve. His talk described the cooperation between the petroleum industry, academia, and the U.S. government in the emplacement of instruments at the Mammoth Lake Volcanic Observatory and at the Parkfield San Andreas Fault Observatory.

Some 730,000 years ago the Mammoth Lake, CA crater formed; the volcanic eruption spreading ash into Wyoming and the Dakotas. There have been other less dynamic eruptions within the last 10,000 years. An earthquake centered beneath the crater in 1978 alerted the geologic community to the possibility that the Mammoth Lake Crater might be in the process of becoming an active volcano once again, and in 1989 deep seismic events suggested that the dome beneath the crater was becoming active again.

A deep monitoring hole was drilled in the 1980s, and the project was to instrument it. The instruments had to go into a 3.5 inch diameter hole. Strain gages, water level and water sampling devices, seismometers, and other miniaturized equipment were installed with considerable difficulty. The development of the techniques for installing these instruments took place at the Mammoth Lake Observatory. The techniques developed for pumping the miniaturized instruments downhole are being employed on a world-wide basis.

At Parkfield the well drilled to cross the San Andreas Fault did not do so. However instruments installed at the site using oil field techniques and skills have produced some interesting results. The instrumentation has detected tremors preceding earthquakes, and the instruments have recorded the sounds of the movement of the earth along the San Andreas Fault. What does it sound like? Try scratching a hard knife blade across a piece of granite, or “visualize” the crunch that one might hear if one is unfortunate enough to scrape a car’s fender against a concrete wall. The short recording represented many weeks of sounds generated by the movement of the earth slabs.

The study has thus far provided an

intriguing insight into the behavior of the San Andreas in the Parkfield area. Time-series plots of the tremors and earthquakes generated in the Parkfield area suggest that there is perhaps a thirty-day interval between the onset of a series of tremors and the occurrence of an identifiable earthquake. In the end, though, at Parkfield the word is “If the earth shakes, get under the table to finish your steak,” or some similar advice.

### *Charles W. Welby*

*Dr. Charles W. Welby is a former section chair for AEG and a regular contributor to this newsletter. He may be reached at [cww\\_ral@hotmail.com](mailto:cww_ral@hotmail.com).*

## **AIPG INVITES ARTICLES**

*By Wendy Davidson, AIPG*

You are invited to submit an article, paper, or guest column based upon your experiences or activities. The article can address a professional subject, be technical in nature, or comment on a state or national issue affecting the profession of geology.

Article submissions should be 800 to 3200 words in length. Photos, figures, tables, etc. are always welcome!

Please contact AIPG if you have any questions. I look forward to hearing from you!

Wendy Davidson, AIPG National Headquarters, [wjd@aipg.org](mailto:wjd@aipg.org)

## **Parratt-Wolff, Inc. Groundwater Monitoring, Subsurface Exploration**

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Hillsborough, North Carolina 27278

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## NEWS OF THE NORTH CAROLINA GEOLOGICAL SURVEY

By Jennifer Bauer, NCGS, Asheville

**NCGS Mapping Team** The members of the NC Geological Survey's (NCGS) Landslide Hazard Mapping Program, dubbed by some as "Team Slide," are presently involved in several activities. Since September, the field teams have been working in the field verifying the locations of slope movements and slope movement deposits in Watauga County and the Boone, NC area until snow in January drove them back to Buncombe County. Currently remote sensing is being used to identify slope movements and slope movement deposits in Buncombe County that need to be field verified, as this is the next county on the Landslide Hazard Mapping list.

In addition to fieldwork and data input, the team has been working on several publications. Three team members had papers accepted for the 1st Annual North American Landslide Conference, co-hosted by AEG, in Vail, Colorado in June, 2007. Our hope is that these three will be able to attend in order to represent North Carolina at this international conference.

The team was also invited to submit a paper for a special edition of the journal *Landslides* devoted to debris flows. Much time has been spent on data analysis, figure preparation, and writing of this article. Stay tuned for information regarding a publication date of this paper.

On March 1-2, team members attended the 2007 NC GIS Conference to present a talk and a poster on the work the team did in Macon County and how Geographic Information Systems, or GIS, was an integral part of this project. The Macon County maps are available online at [http://www.geology.enr.state.nc.us/Landslide\\_Info/MaconCounty.html](http://www.geology.enr.state.nc.us/Landslide_Info/MaconCounty.html) and paper copies can be purchased from the NCGS sales office in Raleigh, NC (919-733-2423).

Two team members will be giving talks at Southeast GSA on March 29-30 in Savannah, GA.

Rick Wooten will be speaking on *Landslide Hazard Mapping in North Carolina – Geology in the Interest of Public Safety and Informed Decision Making*. Anne Witt will be speaking on the August 13-14, 1940 storm event in Watauga County, the landslides it caused, and how the people in the area were affected. Both of these talks will be in the Geology in the Public Interest session.

### Geohazards in Transportation Symposium

The NCGS is also co-hosting the 2007 Symposium on Geohazards in Transportation in the Appalachian Region this August 1-2, along with the AEG-Carolinas Section and the NC Department of Transportation. The Symposium will be held at the Haywood Park Hotel in downtown Asheville, NC. It will consist of a day and a half of technical sessions, Skip Watts (past Jahns lecturer) as a guest speaker, and a half-day field trip on the second day. Session topics include: Economic Impact of Geological Hazards; Costs/Benefits of Geoscience Information; Landslides: Past, Present and Future; Innovations in Real-Time Monitoring for Geohazards; Rock Slope Problems and Stabilization; and Karst and Mine Subsidence Hazards in Transportation.

Please contact Jennifer Bauer ([jennbbauer@gmail.com](mailto:jennbbauer@gmail.com)) or Jody Kuhne ([jkuhne@dot.state.nc.us](mailto:jkuhne@dot.state.nc.us)) for more information, or to submit an abstract.

**New Chief Geologist of NCGS** On top of all that's going on with the Landslide team, we are sad to see the Chief Geologist of the NCGS (and past chair of the Carolinas Section) Tyler Clark leave his position. He is moving to Munich, Germany with his family, as his wife has taken a two year position over there. While the team is disheartened by Tyler's departure, we are happy to welcome Ken Taylor into the Chief Geologist position. Ken, a past Chief Geologist of the NCGS, will step right in and continue to run things smoothly.

*Jennifer Bauer is with the NCGS, and may be reached at [jennbbauer@gmail.com](mailto:jennbbauer@gmail.com)*



## ANNOUNCEMENTS

### **AE Drilling Services Project in Georgia**

AE Drilling Services, Greenville, SC, has been busy on a large deep bedrock solvent investigation at Lockheed/Dobbins in Marietta, GA, assisting MACTEC with their large deep geotechnical drilling project at Georgia Power's Plant Vogtle nuclear station, and working with a number of southeastern environmental consultants on Geoprobe reagent injection for in situ solvent remediation

For more information, contact Mark Lassiter, AE Drilling Services, [mlassiter@aedrilling.com](mailto:mlassiter@aedrilling.com)

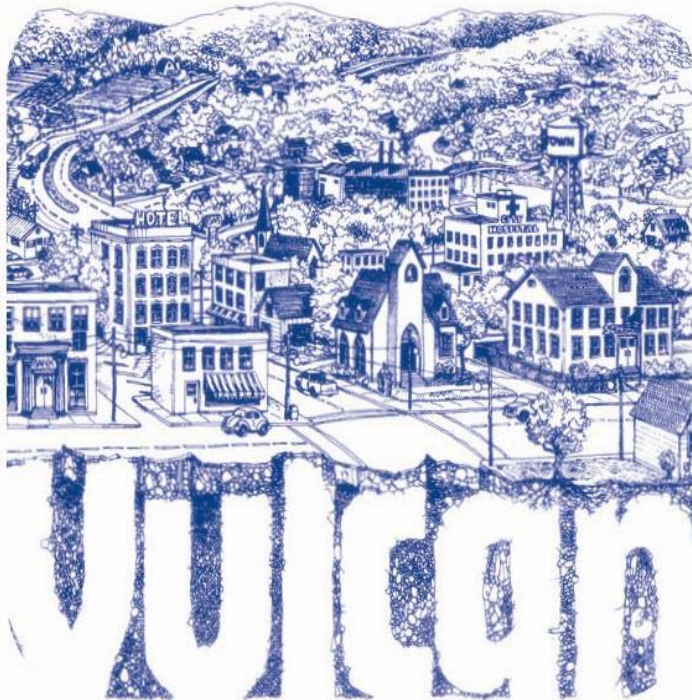
### **Vulcan Materials to acquire Florida Rock**

AEG Carolinas Sponsor Vulcan Materials Company, the nation's largest producer of construction aggregates, and Florida Rock Industries Inc., a leading producer of construction aggregates, cement, concrete and concrete products in the Southeast and Mid-Atlantic states,

announced February that they have signed a definitive agreement for Vulcan Materials to acquire Florida Rock in a cash and stock transaction valued at approximately \$4.6 billion. The acquisition, which has been unanimously approved by both companies' boards of directors, will significantly enhance Vulcan Materials' strategic position and long-term growth opportunities by greatly expanding its presence in attractive Florida markets and in other high-growth Southeast and Mid-Atlantic states. The combined company will have aggregates reserves totaling approximately 13.9 billion tons, an increase of more than 20% over Vulcan Materials' stand-alone aggregates reserves, and 2006 pro forma aggregates shipments of 300 million tons, an increase of approximately 18% compared to Vulcan Materials' stand-alone shipments. Vulcan Materials Chairman and CEO, Don James said, "This is a tremendous opportunity for Vulcan Materials and Florida

*(continued next page)*

## Foundations of the community.



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(continued from previous page)

Rock. We're taking two high performance companies and creating an even better company."

"We are extremely pleased to combine our organization with Vulcan Materials," said Florida Rock President and CEO, John Baker. "We have great respect for Vulcan Materials' team and believe they offer an ideal business fit and a highly compatible culture to Florida Rock's. The transaction, which is anticipated to close in mid-year 2007, is expected to be neutral to Vulcan Materials' earnings in 2007 and accretive to earnings in 2008 and beyond. The transaction is subject to the approval of a majority of Florida Rock shareholders, regulatory approvals and customary closing conditions.

For more information, contact Jim Stroud of Vulcan Materials, at [StroudJ@VMCMAIL.com](mailto:StroudJ@VMCMAIL.com).

## JOB OPPORTUNITIES

### **ENVIRONMENTAL PROJECT MANAGER**

**Golder Associates, Inc.**, an employee owned consulting firm with branch offices throughout the United States, specializes in environmental sciences, hydrogeology, and engineering. The Golder Greensboro office is looking for environmental professionals with experience in remediation and/or environmental permitting, environmental compliance, and project management. Must be capable of managing projects and proposals for environmental investigations, remedial design or environmental permitting and compliance. Must have strong communication skills and be capable of overseeing and directing others to perform a variety of tasks (calculations; field work, preparation of reports, proposals, and applications; review regulations).

Competitive salary and benefits package. Equal Opportunity Employer. Submit your resume to: **GOLDER ASSOCIATES NC, INC.**, 4900 Koger Boulevard, Suite 140, Greensboro, NC 27407, Attention: R. Kirkman; Fax: (336) 852-4904; E-mail: [rkirkman@golder.com](mailto:rkirkman@golder.com) 2/07. An Affirmative Action and Equal Opportunity Employer

### **THREE ENVIRONMENTAL POSITIONS**

**Trigon Engineering Consultants, Inc.** is seeking environmental professionals with a minimum of 2 years of experience to provide services for multimedia environmental consulting projects for industrial, commercial, and institutional clients. Responsibilities are varied by position and include: preparation of Phase I ESAs, assistance with Phase II remediation, and water quality programs in Greensboro; and air quality compliance auditing, industrial hygiene, and air monitoring in Charlotte.

- Environmental Scientist in the Environmental Site Assessments Department in Greensboro
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Submit résumé with references to [hr@trigoneng.com](mailto:hr@trigoneng.com) or fax to 336.668.3868. Identify the position for which you want to apply. EOE/M/F/V

### **AEG CAREER CENTER**

AEG Career Center offers its community members—and the industry at large—an easy-to-use and highly targeted resource for online employment connections.

Employers can post jobs online, search for qualified candidates based on specific job criteria, and create an online resume agent to email qualified candidates daily.

For job seekers, the AEG Career Center is a free service that provides access to employers and jobs. In addition to posting their resumes, job seekers may view available jobs based on their criteria and save those jobs for later review if they choose. Job seekers can also create a search agent to provide email notifications of jobs that match their criteria. Go to. <http://careers.aegweb.org/>

## **AEG AND GSA TO EVALUATE CANDIDATES FOR THE 2007-8 RICHARD H. JAHNS LECTURESHIP**

Appointment of the Distinguished Lecturer will be considered annually in accordance with the bylaws of the Engineering Geology Division of the Geological Society of America (EGD) and the Association of Environmental & Engineering Geologists (AEG). The appointment will be made to an individual who through research or practice has contributed to the advancement of environmental and/or engineering geology.

The purpose of the lectureship is to increase awareness at institutions of higher learning about environmental and/or engineering geology. The Distinguished Lecturer's qualifications are based on his/her outstanding research and/or practice in environmental and/or engineering geology or the application of geology to improving the environment or engineered work(s) (i.e., applied geology).

The lecturer should be prepared to speak on topics of earth processes and the consequences of human interaction with these processes, or the application of geology to environmental and/or engineering works. Consideration by the Jahns Lecturer Selection Committee members will be given to individuals whose research results or practice activities are particularly timely. Joint membership in EGD and AEG is desirable; individuals selected for the Jahns Lectureship who are not members of both organizations are encouraged to consider becoming members. When practical, research-oriented individuals will be chosen for even-numbered years and practice-oriented individuals will be chosen for odd-numbered years.

Upon acceptance of the appointment of the Jahns Lecturer, the awardee will be introduced 1) at the AEG Annual Meeting's Opening Session immediately following the talk by the current year's Jahns Lecturer, and 2) at the EGD's annual luncheon. A plaque will be presented to the

Distinguished Lecturer by the EGD on even numbered years and by AEG on odd-numbered years. The focus of the Distinguished Lecturer is to:

1. Present lectures by invitation at universities/colleges that do not have applied geology programs to promote awareness of applied geology among undergraduate geology students.
2. Give lectures at universities/colleges with applied geology programs to reinforce the recognition and importance of applied geology.
3. Give presentations to non-geology students, graduate and undergraduate, to improve awareness and demonstrate the importance of applied geology.
4. Give presentations to professional society groups in the region of universities/colleges inviting the lecturer to make presentations.

If you, or someone you know would make an excellent candidate, please email the name and resume to AEG President Terry West at [trwest@purdue.edu](mailto:trwest@purdue.edu) with a copy sent to [aeg@aegweb.org](mailto:aeg@aegweb.org).

If you have any additional questions, please contact Becky Roland at the AEG office.

## **AIPG MERGES WITH FAPG**

*By William J. Siok, AIPG Executive Director*

It's a privilege to advise you that it is now official. The merger of Florida Association of Professional Geologists (FAPG) with AIPG is a fact as of January 1 of this year!

All who worked to effect this merger are elated with the outcome and more than anxious to move forward to continue the important work of AIPG and all its sections, especially the newly reconstituted and reorganized Florida Section. The AIPG Florida Section, now known as the FAPG Section of AIPG, has an ambitious year ahead. Details of legislative visits, section election activities, and appointment of regional coordinators can be found on the FAPG website, (accessible through the AIPG webpage [www.aipg.org](http://www.aipg.org)).



First things first, however! On behalf of all members, the national Executive Committee, and headquarters staff, I am pleased to extend a wholehearted welcome to all the individual geologists who, through this merger, have joined the ranks of AIPG! We are all proud to welcome you as new members of the only professional association dedicated primarily to advocacy on behalf of the entire profession.

I'd like to provide a little background on the merger to place it in the proper context. Almost three years ago, a mutual interest developed in closer cooperation between the Florida Section of AIPG (which had become somewhat inactive) and the FAPG. A series of discussions between leaders of both organizations led to a formal meeting between the FAPG Executive Committee and AIPG officers in conjunction with the annual FAPG legislative visits.

Subsequent meetings reinforced the recognition of mutual interests and led to two years of negotiations. The negotiations were constructive and resulted in the merger. The new FAPG Section of AIPG benefits from the merger from administrative support consistently provided

by AIPG headquarters and from the significant increase in Florida membership numbers which represent a potent voice in Florida professional circles and for advocacy efforts. AIPG also benefits from the increased membership resulting from the merger, particularly in its ability to advocate for the profession in Florida.

The new members of AIPG will all be accorded the status of general Member, except those who are currently AIPG CPGs. These CPGs will retain their certifications. The new Members will be encouraged to upgrade to Certified Professional Geologist, but achieving the CPG is not mandatory for their full active participation in AIPG affairs.

This is indeed a significant and extremely important development. All members can take heart from this merger, especially as an indication of the potential for further similar cooperative efforts in other sections. AIPG is vibrant, healthy, and proceeding into the future with constructive programs and real potential for increased visibility and enhanced success as an advocate for the profession.

*William J. Siok, CPG, is AIPG Executive Director*



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## **GEOHAZARDS IN TRANSPORTATION IN THE APPALACHIAN REGION COALITION TO BE HELD ON AUGUST 1-2, 2007**

The North Carolina Department of Transportation (DOT) along with the North Carolina Geologic Survey and the Association of Environmental and Engineering Geologists is pleased to announce hosting the annual symposium to be held in Asheville, NC on August 1-2, 2007.

The Coalition is comprised of interested Professionals in transportation or associated with transportation projects. Members and presenters come from primarily Southern Appalachian states and represent public interests including states' DOT'S, FHWA, states' Geologic Surveys, Army Corps of Engineers and private interests that include academia, railroads, consultants, contractors and vendors serving the industry.

Presentations are sought ranging from direct transportation impact to any earth science, environmental or engineering topic that furthers the science of Geologic Hazards and their effect on transportation systems. Recent geologic events worldwide and regional pressures for development have focused attention on Geohazards.

The Session topics intend to emphasize the economic impacts and the need for increased planning and geological awareness in the built environment. In addition, there is a need to share information related to failures


associated with geohazards remediation.

Presentations addressing failure forensics will be of particular interest and a learning tool for participants.

Submitted abstracts are reviewed and selected by section chairs and the committee. Selected presentations will require an abstract and Power Point presentation. The 2007 section headings include:

<i>Session</i>	<i>Moderator/Chair</i>
Economic Impact of Geological Hazards	Jody Stanton, USACE
Cost/ Benefit of Geoscience Information	Hugh Bevans, USGS
Landslides: Past, Present and Future	Kirk Beach, ODOT
Rock Slope Stabilization	Vanessa Bateman, TDOT

Additional session headings are developing and will be presented in the formal announcement. For information about presentations or other details please contact:  
Jody Kuhne, NC DOT, 828-298-3228, [jkuhne@dot.state.nc.us](mailto:jkuhne@dot.state.nc.us)  
Jennifer Bauer, AEG, 828-296-4500, [Jennifer.Bauer@ncmail.net](mailto:Jennifer.Bauer@ncmail.net)  
Rick Wooten, NCGS, 828-296-4500, [Rick.Wooten@ncmail.net](mailto:Rick.Wooten@ncmail.net)  
Tony Szwilski, Marshall University, 304-696-5457, [szwilski@marshall.edu](mailto:szwilski@marshall.edu)  
Kirk Beach, Ohio DOT, 614-275-1342, [kirk.beach@dot.state.oh.us](mailto:kirk.beach@dot.state.oh.us)

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




## CALENDAR OF EVENTS - 2007

### Geological Events in the Carolinas

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Send updates/corrections to [rakolb@MACTEC.com](mailto:rakolb@MACTEC.com) Last Updated March 14, 2007

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April 11, 2007 	AEG dinner meeting, talk by John Moylan, Jahns Lecturer (p.1 of this issue)	University Club Raleigh, NC	6:00-9:00	For reservations, contact Rick Kolb (919) 831-8054 or <a href="mailto:rakolb@MACTEC.com">rakolb@MACTEC.com</a> This is a joint meeting of the GWPNC, AEG, and AIPG	
March 22, 2007 	Quarterly meeting, Ground Water Professionals of North Carolina <a href="http://www.gwpnc.org">www.gwpnc.org</a>	Clarion Hotel, Swing Road, Greensboro	6:00-9:00	Meeting speaker will be Seth Ryan and Ari Ferro of ENSR, who will present results of a phytoremediation study.  For reservations, contact Kelly Dillon @ (919) 618-1498 or <a href="mailto:Kelly.dillon@pacelabs.com">Kelly.dillon@pacelabs.com</a>	
April 16-18, 2007	Hydrogeology Symposium	Clemson University, SC		Clemson University, Clemson South Carolina. Details at <a href="http://www.ces.clemson.edu/hydro/symposium/index.html">http://www.ces.clemson.edu/hydro/symposium/index.html</a>	
April 26, 2007 	Monthly meeting (Third Thursday of the month)	USC Main Campus, 1 <sup>st</sup> floor faculty lounge	6:30 – 8:30	South Carolina Association of Environmental Professionals. Karl Rains is their contact person (803) 798-1200. Details at their website: <a href="http://www.geocities.com/scaep">www.geocities.com/scaep</a> .	





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June 21, 2007 	Quarterly meeting and <b>9<sup>th</sup> annual golf tournament</b> , Ground Water Professionals of NC <a href="http://www.gwpnc.org">www.gwpnc.org</a>	Days Inn, US 1 at Morganton Road exit, Southern Pines	6:00-9:00	Meeting speaker yet to be announced. Friday, June 22 is the 9 <sup>th</sup> Annual GWPNC golf tournament, to be held at Anderson Creek in Spring Lake. Your section chair will vouch that this tournament will be a good time. For reservations, contact Kelly Dillon @ (919) 618-1498 or <a href="mailto:Kelly.dillon@pacelabs.com">Kelly.dillon@pacelabs.com</a>	
August 1-2, 2007	Geohazards in Transportation Symposium	Asheville, NC	1-1/2 days	Geohazards in Transportation Symposium. A day and a half of technical sessions, and half day field trip. See article page 11 of this issue. Please contact Jennifer Bauer ( <a href="mailto:jennbbauer@gmail.com">jennbbauer@gmail.com</a> ) or Jody Kuhne ( <a href="mailto:jkuhne@dot.state.nc.us">jkuhne@dot.state.nc.us</a> ) for more information, or to submit an abstract.	
<i>Recurring meetings in the region and other information</i>					
	Water Research Seminar Series and other events	Various, but generally in Jordan Hall on NCSU Campus	Varies	<a href="http://www.ncsu.edu/wrri/events.html#wrriseminars">http://www.ncsu.edu/wrri/events.html#wrriseminars</a> Email: <a href="mailto:water_resources@ncsu.edu">water_resources@ncsu.edu</a>	




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3rd Thurs. of the Month 	Forsyth Gem and Mineral Club Monthly Meeting	Vulcan Materials, 4401 N. Patterson Ave., Winston-Salem,	7:30 PM	<a href="http://www.forsythgemclub.com/">Forsyth Gem and Mineral Club</a> The Club holds monthly meetings and has an annual gem and mineral show in September. Phone: Jim Stroud at (336) 744-2940 Email: <a href="mailto:stroudj@vmcmail.com">stroudj@vmcmail.com</a> or Website: <a href="http://www.forsythgemclub.com/">http://www.forsythgemclub.com/</a>	
Generally on the last Thursday of the month 	AGS Monthly Meeting	Atlanta, Fernbank Museum	6:30 PM	The <a href="http://www.atlantageologists.org/">Atlanta Geological Society</a> holds monthly meetings, generally on the third Thursday of the month, and quarterly field trips. Stone Mountain, GA field trip on November 4, 2006. President: <a href="mailto:john_costello@mail.dnr.state.ga.us">john_costello@mail.dnr.state.ga.us</a> Website: <a href="http://www.atlantageologists.org/">http://www.atlantageologists.org/</a>	
 First Monday of each month except January	Southern Appalachian Mineral Society	Murphy-Oakley Community Center, Asheville, NC	7:00 PM	<a href="http://www.main.nc.us/sams/">Southern Appalachian Mineral Society</a> Field Trips to limited access and historic collecting sites take place from April to October. Information on the website and from (828) 298-4237.  Website: <a href="http://www.main.nc.us/sams/">http://www.main.nc.us/sams/</a>	
Various Dates	Listing of National Geo Events of Various Groups	Various Locations		Geological Society of America Geoscience Calendar <a href="http://www.geosociety.org/calendar/">http://www.geosociety.org/calendar/</a>	




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March 29-30, 2007 	GSA Southeastern Section Conference	Savannah, GA	All Day	Geological Society of America – Southeastern Section <a href="#">George Stephens</a> Email: <a href="mailto:geoice@gwu.edu">geoice@gwu.edu</a> SE Section: <a href="http://www.geosociety.org/sectdiv/southe/index.htm">http://www.geosociety.org/sectdiv/southe/index.htm</a> 2007 annual meeting in Savannah, 2008 in Charlotte	8+
	ASCE GeoInstitute Conferences and Links	Your Choice		American Society of Civil Engineers GeoInstitute <a href="http://www.geoinstitute.org/events/events.cfm">http://www.geoinstitute.org/events/events.cfm</a>	
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