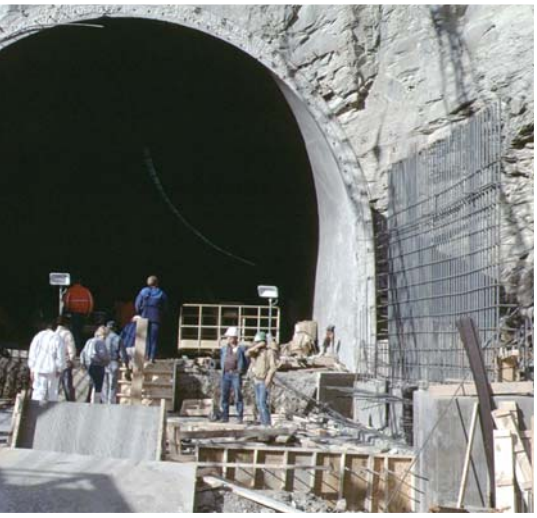
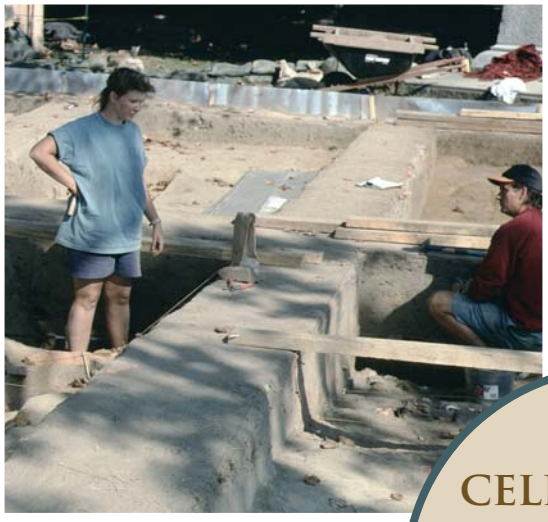
Vol. 60, No. 1 – April 2017

AEG News





CELEBRATING
60 YEARS
of AEG

AEG 60th Annual Meeting
Sept 10–16, 2017
Colorado Springs, CO

Registration NOW Open!

Antlers Hotel
Group Rate Only $175/Night

The Antlers Hotel Colorado Springs is located in the heart of downtown with spectacular views of Pikes Peak and the Rocky Mountains and within walking distance to numerous restaurants, shops, museums, and downtown nightlife.

Short Courses
- Debris Flow
- Professional Ethics for Geoscientists and Engineers, "Things are Changing"
- Characterization of Rock Core and Borehole Conditions for Engineering & Environmental Projects
- GeoDRONEology

Field Trips
- Industrial Minerals Mining & Geology in the Royal Gorge Region (2-day Trip)
- Fire and Flood Impacts & Mitigation
- Debris Flows in the Broadmoor area
- Garden of the Gods Geology
- Cripple Creek/Victor Gold Mine

Guest Tours
- Colorado Springs Fine Arts Center
- Tour Garden of Gods and Lunch in Manitou Springs
- Cog Railroad Ride to the Top of Pikes Peak
- Garden of the Gods Geology

SPECIAL EVENT
Dinner and Tour of Phantom Canyon Brewing Company

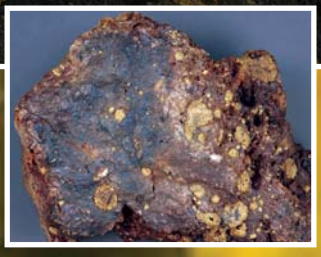
Located in the heart of downtown in the historic Cheyenne Building, the 3-story brick structure was built in 1901 and housed the Chicago Rock Island and Pacific Railroad. In 1909, the building re-opened as the Cheyenne Hotel. Over the years, the building changed hands a number of times for a variety of businesses. Saved from the wrecking ball in 1993, the historic site was purchased by Colorado Governor John Hickenlooper who restored the property and opened Phantom Canyon Brewing Co. to great success. In 1995 the second floor opened as a Billiard Hall, which has been voted the Best Place to Shoot Pool every year since. In 2001 they completed the third floor Banquet Hall.

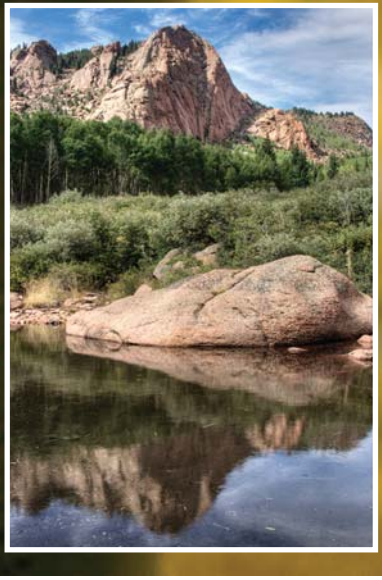
PEAK OF THE PRACTICE

AEG | COLORADO SPRINGS 2017

ENVIRONMENTAL AND ENGINEERING GEOLOGY

In Partnership with the 53rd Forum on the Geology of Industrial Minerals (FGIM)





Call for Abstracts
DEADLINE: May 1, 2017

Details at:
www.aegannualmeeting.org

AEG News

Vol. 60, No. 1 – April 2017

AEG News (ISSN 0899-5788; USPS 954-380) is published five times a year by the Association of Environmental & Engineering Geologists (AEG), with the regular issues Nos. 1–3, published in April, July, and December, respectively. The Annual Report and Directory issue is published in March. The Annual Meeting Program with Abstracts is published in September. Print copies are distributed at the meeting. Association members receive the electronic copy of all five issues of the AEG News as part of their dues. Print copies of the three regular issues are $30 in addition to the annual membership dues. Nonmember annual subscription is $40, and includes only the three regular issues (#1–3) of the *News*. The Annual Report and Directory issue is priced separately. Back issues of *AEG News* are $10 each. Inquiries should be sent to AEG Headquarters: Yolanda Natividad, Association Manager, 1100 Brandywine Blvd. Suite H, Zanesville, Ohio 43701 844-331-7867.

Periodical Postage paid at Zanesville, OH, and additional mailing offices: POSTMASTER: Send address changes to *AEG News*, 1100 Brandywine Blvd. Suite H Zanesville, Ohio 43701, USA. *AEG News* is printed by Allen Press, Lawrence, KS, 66044, USA.

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SUBMISSION INFORMATION

In order of preference:

1. Send files via email, preferably as attachments, to both email addresses above. Optimum file format is MSWord 2011. Users of other software programs should convert their file to ASCII or text only.
2. Images should be sent as high-resolution jpeg or tiff files. **Questions?** Contact Andrea Ptak at 206-725-9169/andrealeighptak@me.com.
3. The policy of *AEG News* editorial staff is to limit the credentials of an individual to two. For example, if John Smith has a MS, a PhD and a PG plus a CEG and a CGWP, his credentials would be limited to John Smith PhD, PG, the two principal credentials. BS/BA and MS degrees will not be recognized. No effort will be made by the *AEG News* editorial staff to determine if individuals whose credentials are missing from the submitted copy actually have academic or professional credentials, nor will the staff verify the existence or correctness of the credentials submitted.

For detailed guidelines visit:
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Contact AEG Headquarters at advertising@aegweb.org.

NEXT SUBMISSION DEADLINE

May 31, 2017, for the July Issue

Canada Agreement number: PM40063731; Return Undeliverable Canadian Addresses to: Station A, PO Box 54; Windsor, ON N9A 6J5; Email: returnsil@imex.pb.com

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Field Trips are some of the highlights of AEG Annual Meetings. These photos show off the diversity of trips from coast to coast that have drawn AEG Members to attend year after year.
See Key on page 7 for details.

PHOTOS BY CHRIS MATHEWSON

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Here's to the Next 60 Years!

Dale C. Andrews, AEG 2016–17 President

This year, AEG is celebrating its 60th anniversary. I am honored to be the president of such a prestigious Association at such an exciting time. In honor of our anniversary, our past presidents have contributed stories in this issue about their experiences with the Association. A consistent thread throughout their contributions is the commitment and energy that our leaders and volunteers have given to this Association and to the engineering and environmental geology profession as a whole. Volunteering is not only vital to the success of AEG, it is also personally fulfilling. I would encourage everyone to find the time to give back to your profession in some way because it is extremely rewarding. I have made many dear and respected friends through my involvement with AEG, and have had many opportunities to learn and grow as a professional.

I would like to thank the many past presidents who took the time to submit an article about their experiences. AEG's mission and purpose is as relevant and important today as it was 60 years ago, and as we celebrate our achievements, I also look forward to the future, knowing how much more we will all accomplish together.

Past President Paul Santi (left) presenting Dale with the President's gavel during the corporate luncheon at the 2016 Annual Meeting in Hawai'i.

Dale Andrews (far right) joined the EC as Secretary during the 2013 Annual Meeting in Seattle. L to R: Outgoing President Matt Morris, Past President Gary Luce, President Ken Anderson, Treasurer Paul Santi and Secretary Dale Andrews.

Dale Andrews comments during a meeting of the AEG Board of Directors at the Annual Meeting in September 2013. L to R: Peter Holland, Dale Andrews, Cynthia Palomares (current AEG Secretary).

A Bright Outlook

KEVIN RICHARDS, AEG 2016–17 TREASURER

We are six weeks into our new fiscal year, and I'm very optimistic for 2017. Our reserves are doing well and membership is steady. We're seeing an unexpected growth of interest in forming new Chapters in several large cities and our student Chapters have been quite active. If you have not renewed your membership yet, it's not too late!

AEG's Technical Working Groups and Annual Meetings Committee have been planning a busy schedule of technical meetings and symposia for 2017. If you haven't been to an AEG meeting recently, I encourage you to check out this year's offerings at aegweb.org. We have arranged for topics to be presented by some of the top experts in their fields of applied geology. These presentations will inform you of the latest approaches and products necessary for you to maintain an edge in your occupation.

If you haven't sponsored an AEG meeting, I encourage you to contact Yolanda Natividad at AEG Headquarters. Her contact information is on the inside cover. Yolanda has recently revamped our Sponsorship categories and can accommodate your needs at an appropriate sponsorship level and help promote your services or products to our community. Finally, I'd like to personally thank our Sponsors who have been helping to support AEG's activities for the past 60 years. Your financial support makes everything we do possible and has greatly benefitted AEG's members for many years now. And members, don't forget to thank our Sponsors the next time you attend an AEG meeting!

AEG Treasurer Kevin Richards (blue shirt) with his fellow EC Members, L to R: Past President Paul Santi, President Dale Andrews, Vice President–President Elect Kathy Troost, and Secretary Cynthia Palomares.

Celebrating 60 Years of AEG!

On AEG's 60th Anniversary:
The Origins of the Association and the Certification of Professional Geologists

J. David Rogers, PhD, PE

The earliest American engineering geologist was Donald F. MacDonald, who worked on the Panama Canal. As more water resource projects were constructed, geology professors like W.W. Crosby, Heinrich Reis, Charles Berkey, Andrew Lawson, George Louderback, and Leslie Ransome served as part-time consultants on a range of high visibility projects during the first half of the 20th Century. The first consulting engineering geologist was J. Hyde Forbes in San Francisco in 1921. In 1932, Cecil C. Kilingsworth, Joseph F. Poland, and Ward C. Smith founded Killingsworth, Poland & Smith – Consulting Engineering Geologists. Dr. Frank A. Nickell was the first geologist hired by the U.S. Bureau of Reclamation in the fall of 1931 to map the rock exposures at Hoover Dam. In 1931, the United States Army Corps of Engineers (USACE) hired Edward B. Burwell, Jr. as their first engineering geologist. In 1938, the California Division of Water Resources hired Chester Marliave as their first engineering geologist.

In 1947, the Engineering Geology Division (EGD) of the Geological Society of America was established as the society's first specialty division. This was hastened by widespread use and organization of engineering geologists and military geologists by federal agencies during the Second World War (1939–45). In 1951, EGD defined "Engineering Geologist" in this way: "A professional engineering geologist is a person who, by reason of his special knowledge of the geological sciences and the principles and methods of engineering analysis and design acquired by professional education or practical experience, is qualified to apply such special knowledge for the purpose of rendering professional services or accomplishing creative work such as consultation, investigation, planning, design or supervision of construction for the purpose of assuring that the geologic elements affecting the structures, works or projects are adequately treated by the responsible engineer."

In January 1952, two back-to-back storms struck the Los Angeles area, damaging hundreds of recently constructed hillside homes. This resulted in the establishment of the world's first excavation and grading ordinance by the City of Los Angeles, which required engineering geologic input on all hillside development. A major problem at the time revolved around the recognition of prehistoric bedrock landslides, which were often overlooked by developers and their engineers. When the Portuguese Bend Landslide activated in 1956, it included 132 recently built homes, and Los Angeles County was drawn into costly litigation. There arose a need for some sort of certification process to assure the competency of geologists authoring these reports.

In June 1957, a group of 13 engineering geologists met in Sacramento to discuss the formation of an organization specific to the practice of engineering geology. The founders were employees of the United States Geological Survey, Bureau of Reclamation, USACE, California Department of Water Resources, California Division of Highways, and two consultants (who had worked for State agencies a few years previous). Over the next eight months they drafted the Constitution and Bylaws as the California Association of Engineering Geologists (CAEG), with three sections in Sacramento, Los Angeles, and San Francisco.

In 1958, the City of Los Angeles established an Engineering Geology Qualifications Board that issued certifications to prepare geology reports. CAEG vigorously promoted certification of engineering geologists in Los Angeles, Orange, and Ventura Counties, and the certification of geologists in California. CAEG formed a Building Codes Committee in 1959, which was established to help draft the modern grading codes that were adopted in 1962–64, including App. Ch. 70 for Excavation & Grading of the Uniform Building Code in 1964.

In 1961, the County of Los Angeles instituted a similar program of certification, followed by Orange County in 1963, and Ventura County in 1965. As interest in affiliation spread beyond California, AEG's board voted to become the Association of Engineering Geologists, or AEG, effective January 1st, 1963. A few months later AEG began publishing the *Bulletin of the Association of Engineering Geologists*, released quarterly.

Later in 1963, a small group of geologists met in Golden, CO, to form the American Institute of Professional Geologists (AIPG), with their headquarters at the Colorado School of Mines. Members who went through an established process of verifying their formal education and professional experience could qualify to use the title "Certified Professional Geologists," abbreviated by the letters CPG.

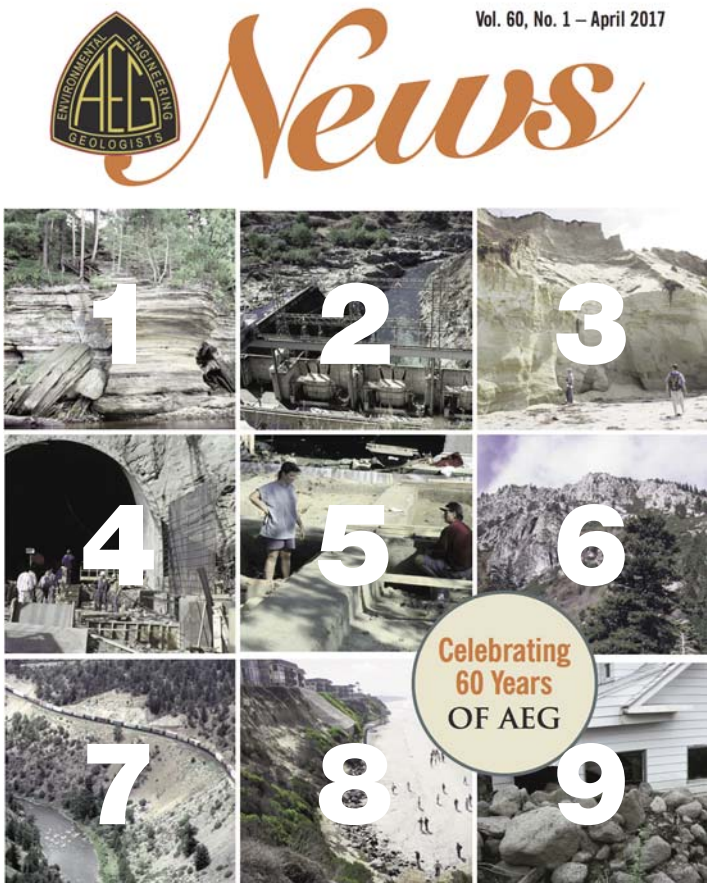
In 1968, California passed legislation to establish a Board of Registration for Geologists and Geophysicists (BRGG). The first certificates were issued in September 1970. By 1972, 848 people had become registered as Certified Engineering

Geologists (CEGs). Geologists and geophysicists were licensed as separate disciplines, with the subspecialty certifications in engineering geology (in CA, OR, and WA), and hydrogeology (in CA and WA).

Management of the *AEG Bulletin* was conjoined with the Geological Society of America in 1995 and the name changed to *Environmental & Engineering Geoscience*, released bi-monthly. In January 2005, members voted to change the name to the Association of Environmental & Engineering Geologists (AEG) to encapsulate the broadening scope of applied geology consultations involved with environmental assessments. The new name was adopted in September 2005, and the organization still calls itself AEG.

Making the move from College Station, TX, to Denver, CO.

Photograph taken at the First Annual Convention of the California Association of Engineering Geologists held at Hotel Senator, Sacramento, California on October 11, 1958. ***Rear:*** *M. J. McQuilken, W. W. Peak, J. R. Jensen, C. S. Content, F. C. Kresse, B. G. Hicks, L. West, A. B. Arnold, G. A. Kiersch, W. D. Pedersen, J. Manning, D. P. Scott, M. S. Lyons, A. L. Franks, A. D. Powers, R. Hood, W. C. Ellis, H. E. Richardson, R. C. Thompson, M. D. Binkley, J. M. Parsons, P. Y. Amimoto* ***Center:*** *W. L. Burnham, E. C. Marliave, R. Farina, R. E. Trefzger, C. H. Swan, R. P. Bisio, S. L. Werner, G. Curtin, R. C. Richter, R. F. Moore, H. A. Kues, R. E. Thronson, C. E. Marek, B. H. Marliave, P. R. Fisher, R. W. Reynolds, H. R. Taber, R. T. Bean, T. I. Sommens, R. J. Anderson, L. B. James* ***Front:*** *A. L. O'Neill, R. E. Harpster, J. E. Kelly, G. A. Brown, W. D. Fuqua, R. F. Laird, R. C. Treasher, H. D. Woods, J. F. Poland, W. I. Gardner, C. E. Hall, P. J. Guthrie, C. R. McClure, R. C. Thomas, B. M. Hall, I. E. Klein, G. Marchand, C. E. McHuron, C. F. Worts, Jr., E. J. Zielbauer*



On the Cover:

Field trips are one of the big draws of AEG Annual Meetings. Longtime member and Past President Chris Mathewson provided us with a selection of photos from Annual Meeting field trips dating back to 1977.

1. Wisconsin Plains, 1991
2. California, 1995
3. Los Angeles, 2007
4. Winston Salem, 1985
5. Jamestown–Williamsburg, 1994
6. Lake Tahoe, 2009
7. Glenwood Canyon, 1998
8. Anchorage, Alaska, 2011
9. Portland, Oregon, 1997

3rd 2017 NASL

3rd North American Symposium on Landslides

June 4-8 2017, Roanoke, Virginia, USA

Landslides: Putting Experience, Knowledge and Emerging Technologies into Practice

June 4-8, 2017 • Roanoke, VA

For more information and to register:

www.aegweb.org/landslideroanoke2017

The main objective of the symposium is to provide a stimulating forum for geoscientists, engineers, planners, economists, program managers, and other decision makers concerned with landslide hazards and their impact on society. Papers related to investigation, classification, monitoring, analysis and mitigation of landslides, as well as case studies on innovative analysis techniques and solutions will be presented.

SHORT COURSES

Synthetic Aperture Interferometric Georadar • Drones 101 • Debris Flow and Shallow Landslide Mitigation
Geotechnical Analysis and Monitoring Using 3D Laser Scanning • Anchored Mesh Slope Stabilization Systems

TECHNICAL SESSIONS

Technical sessions will be held on three days with 4 sessions each day of the symposium.
Symposium field trips will take place on Wednesday and are included with full registrations.

FIELD TRIPS & GUEST TOUR

Mountain Lake Landslides & "Dirty Dancing" • The Narrows Landslide & I-81 Rock Slope Stability
Natural Bridge Rockfall Fatality & Remediation • Fortune's Cove and the 1969 Hurricane Camille Debris Flow
Blue Ridge Debris Deposits and Alluvial Fans • Boulders and Beer • Guest Tour: Chateau Morrisette Winery Tour
Post Meeting: Overnight trip in Wilkes/Watauga County, NC

Sunday Evening "Ice-Breaker" Reception • Lunch and Refreshment Breaks included
Exhibit Hall • Selection of Full-day Field Trips included • Poster Sessions

The Hotel Roanoke & Conference Center, Curio Collection by Hilton - NASL group rate $156

2017 Coastal Hazards Professional Forum

Save the Date!

November 14-16, 2017

1100 Brandywine Blvd., Suite H, Zanesville, OH 43701 • 844-331-7867 • www.aegweb.org

Past Presidents Speak!

1979
RICHARD J. PROCTOR

In 1975, when I was Membership Chair of the Southern California Section, I asked professors I knew at the local universities to talk about and post notices explaining the benefits of AEG to young members. The response was excellent, especially from Paul Merifield at UCLA, Barney Pipkin at USC, and Marty Stout at CalState LA. That year, I was Visiting Associate Professor at Caltech, and taught Engineering Geology 101—the first and only class in applied geology for graduate engineering and geology students.

AEG President Ray Throckmorton noticed the increase in membership in the SoCal Section and asked me to be national Member Chair. This led to my becoming Secretary, and, skipping VP, President in 1979. My accomplishments included getting five new Student Chapters started, forming the Continuing Education Committee, and efforts to improve international cooperation—including the Japanese Society of Landslides when they visited in May 1979.

Future president Bill Paris and I presented a framed certificate to the USGS in Washington, DC, on recognition of their one hundredth anniversary (although the original certificate erroneously read Geological Society of America). And although not occurring during my presidency, I was thrilled in 1962 to win the $25 prize for designing the AEG logo.

As hobbies I enjoy traveling abroad, and have been writing a novel and screenplay (very difficult for a technical writer). Advice to incoming AEG Officers: enjoy the friendships you will make and the camaraderie, and strive to make AEG an even better organization than it already is.

1982
WILLIAM C. PARISH

Early on in my career, I was struck by the lack of understanding between engineers and geologists and wanted to make a difference. While working for a civil/sanitary firm in Baltimore, MD, I was invited to a Baltimore–Washington–Harrisburg (BWH) AEG meeting by two colleagues. At that time, the monthly meetings rotated through the three cities. Through that introduction, I initiated and chaired the first annual AEG-ASCE joint symposium. Speakers and attendees participated from both professions. It was a surprising success with over 100 in attendance. Later that year, I changed jobs and moved closer to Washington D.C. but remained within the BWH section. When I wasn't traveling, I attended the Washington D.C. meetings and it was there I met Alice Allen (the first woman engineering geologist in North America) and Chuck Withington—both active and respected members of AEG.

Unbeknownst to me, they recommended me to the position of National Membership Chairman.

Late one summer day in 1977, I had a call from Buzz Spellman to offer me the position. I accepted. As National Membership Chairman I conducted the first survey of the membership for years of experience, specialty, title, status and salary. Bylaw changes were effected to streamline the application forms and allow joining by academicians, affiliates and students to be much easier.

My success in that position launched me on the path to Secretary, VP, and ultimately President in 1981–82. I was the youngest president up to that time and the only one not having served in a Section. I had transferred to Michigan by then and therefore was the only at-large president.

A great experience for me was to present plaques of recognition to the 13 founding members of AEG at the 25th anniversary of AEG in 1982.

Through my tenure I was honored and privileged to get to know, work with, and call as friends past presidents: Ray Throckmorton, Noel Ravneberg, Buzz Spellman, John Ivey, Al Depman, and up and coming leaders: Dick Galster, Bob Valentine, Allen Hatheway, Norm Tilford, Chris Mathewson, Greg Hempen, Mavis Kent, and of course the great Floyd Johnston as Executive Director.

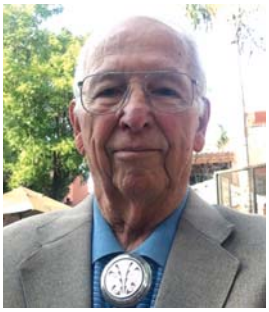
AEG advanced my professional development and personal achievements. Because of my experience with AEG, I was invited to a four-year position on the U.S. National Committee on Geology. Through this, I was asked to participate on a team representing the United States at the 27th Geologic Congress held during the cold war in Moscow—an experience in and of itself. It was on this trip that I formed an association with George Kiersch, an engineer and a geologist and one of the pioneers of engineering geology.

I retired three years ago to Franklin, TN, and have been providing management consulting services to small environmental engineering companies and energy project developers.

My suggestion to future presidents is to enjoy the moment—it goes by very fast!

1984

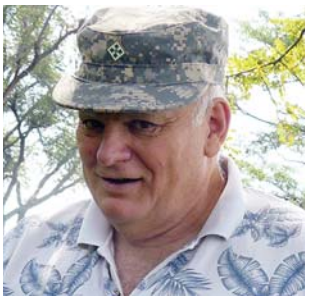
ROBERT M. VALENTINE



I joined AEG (then CAEG) in 1962 with the encouragement of my supervisor who was a strong proponent of professionalism and AEG was the best vehicle to achieve that end. I expanded on that as a charter member of the Denver Section and the Co-chair of the Annual Meeting in Denver, the first outside of California. Subsequently, as Denver Section Chair, I became a member of the AEG Board of Directors and later member of several national committees. With that background, I also understood the commitment required to be President of AEG. Unfortunately, my tenure as President was consumed by the concurrent problems of AEG being sued by a resident of California and an investigation by the U.S. Department of Justice, with both problems stemming from our "restrictive" Code of Ethics. The crisis was resolved but at significant expense to AEG. Several years later, I was appointed to the Board of the AEG Foundation and served as its President for three years. It was during this time that I believe I made my greatest contribution to AEG in my 50+ years of participation. Except for some minor pro bono work, I have not done any consulting since I retired. Since retirement, Joy and I have been traveling and moving (three times), and in 2016, we celebrated our 60th anniversary.

1985

ALLEN W. HATHEWAY



I was 24 years into my career, serving with various national west-coast geotechnical consultants after leaving active duty in my 30-year U.S. Army Engineer military career. Turns out that I was a "usual" pick for the ascension ladder at the start, and then, in 1985, became the first professor that AEG allowed at its lead.

Maddeningly enough, my presidency was shadowed with putting down (favorably) a suit against AEG, by a litigious California land developer known for such behavior.

AEG has presented numerous opportunities for personal challenge; that is its nature!

My second technical book on cleanup of derelict gasworks is about to go to the publisher, so I am doing my part to buck-up our hind end, the "environmental" title which gave us a new name, but which hardly anyone honors in writing and speaking.

Advice for future presidents: Do it for the right reason; it's a small and select group that has proven to admit the widest variety of individuals and it always needs the best leadership that appears on the horizon.

1987

THEODORE (TED) R. MAYNARD

I became a member of AEG in 1971 soon after the formation of the North Central Section (NCS). By the time I became active as an officer in the late 1970s, the Section had grown and increased its activity from occasional to monthly meetings. While I was chairman of the NCS, I was also chairman of the ASCE Geotechnical Division of the Illinois Section and, through cross advertising, the monthly meetings of both groups were attracting a sizeable attendance. A yearly joint meeting was also established, increasing interaction between the professions. After serving on AEG's Board of Directors, I become Advertising Manager for AEG's publications and was successful enough that it became one of AEG's main income streams at the time.

I served AEG during turbulent times with two terms as Treasurer, then Vice-President, and finally as President in 1987. As Treasurer, I had the dubious honor of being the first to inform the membership that, because of lawyer fees and settlement costs, we were in debt beyond our ability to recover without a new infusion of income. Fortunately, the Board realized the necessity of raising dues and this, followed by two consecutive financially successful Annual Meetings, allowed me to leave the presidency with AEG on a strong financial footing.

Almost immediately after becoming President, the newly appointed Executive Director resigned and my finding a replacement became an urgent priority. During my presidency a time consuming effort was underway to revise the By-Laws and Code of Ethics to conform to IRS regulations and to try and eliminate the possibility of future lawsuits. Other efforts were to actively encourage professional licensure by states, as opposed to any form of non-legal certification; to promote awareness of AEG by establishing communications with other geological, engineering, and scientific organizations; and to encourage individual AEG sections to increase funds and education by hosting local conferences. My last active leadership participation was to serve as Chairman of the 1991 Annual Meeting in Chicago. Participation in AEG increased my awareness of the importance of having relationships and friendships with a diverse group of fellow practitioners, which assist in one's growth intellectually and professionally. My advice to future presidents is to promote the ideas and concepts, which you personally feel important to the continued growth of both AEG and our profession.

1988

JOHN W. WILLIAMS

In the early 1970s, as a Junior Geologist with the California Division of Mines and Geology (CDMG)—now the California Geological Survey (CGS)—I realized that AEG was a dynamic organization with a skilled membership actively involved in areas of the geosciences that I found interesting, challenging, and important in addressing societal needs. I joined the San Francisco section, a decision that I have never regretted.

Often, I am asked why I spend so much time with various professional societies, in particular AEG. My answer consists of two parts: first, these organizations are involved in a science that I love, and second, and perhaps more important, the members of these organizations are people that I have enjoyed associating with for nearly a half century. As I continued my membership with AEG, I decided to expand my participation beyond just being a passive member, and contribute more actively through leadership roles as an officer and committee chair. My initial involvement in such a role was as the coordinator of AEG student membership, a role that helped me interface with students—the future lifeblood of the organization. A few years later, I was honored to be selected to serve as the Secretary for AEG and ultimately became President of the organization.

Several activities of which I am particularly proud of during my term as AEG President include the following: helping bridge the gap between the applied activities of the engineering geology community and academia (given my career as a Professor of Geology), continuing to support and encourage the inclusion of students, reducing the paperwork required to join AEG, and working to strengthen the financial footing of AEG.

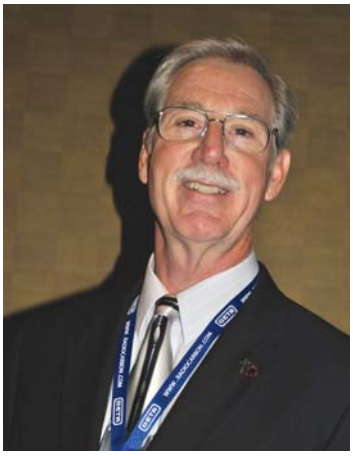
The advice that I offer future presidents is to remember that AEG is an organization of people who possess unique skills and desires. Reach out to each individual, appreciate each person, and include all in the activities of AEG.

1989
CHRISTOPHER C. MATHEWSON

I completed my PhD degree in Geological Engineering at the University of Arizona in 1971 and joined the faculty in the Department of Geology at Texas A&M University that fall where I started and developed an academic program in "Engineering Geology." While researching the answer to the question, What is Engineering Geology?, I discovered AEG in 1972 and became active in the Dallas-Fort Worth (DFW) Section and the Annual Meetings. In 1978, I was asked to serve as an assistant editor for the Southwest region. In 1980, I became the Editor of the *AEG Bulletin* and served until 1987, when I became Vice-President (1987–88). This was followed successively as President (1988–89) and Past-President (1989–90). Following my service as a member of the EC, I served as the AEG Representative to AGI (1993–97 and 1998–2002). My final major service to AEG was as Executive Director from 1998–2002. I believe that my greatest contribution to AEG was the continued involvement of my former students in AEG at both the local and national level. My activities in AEG served as examples of what is expected of a professional—"so get out there and serve!" I have continued to be active at the local and national level and have now become the official meeting photographer. My advice to future AEG presidents and members in general is GET OUT THERE AND SERVE—you are the example of a professional.

1990
GREG HEMPEN

I pursued AEG membership shortly after returning to my hometown of St. Louis in 1973 for employment with the St. Louis District (SLD), Corps of Engineers. [At that time the application process was scrutinized for the applicant's proper credentials.] My first employer was another defense department agency, Defense Mapping Agency, on the outskirts of Washington, D.C. Several SLD employees, including long-time AEG Treasurer Gordon Cordes, were active in AEG. As a geophysicist and engineer, I wanted to be involved in AEG to learn practical issues in site geology for large structures and foundation design, to network with other geologists, and to develop other professional skills.



Around the time of my return to St. Louis, the St. Louis Section of AEG was attempting to revitalize because of the death of Ed Lutzen, a very active member. Lutzen's Section would have developed an Annual Meeting in St. Louis in the early 1970s had he not passed away. I was recruited into AEG with other younger members. I was asked to run as a Section officer a year later.

The St. Louis Section allowed me to move through the officer ranks. I served two terms as Chairman, when there would have been a gap due to an officer's relocation. Upon completing duties as Section Chair/Director, I was asked to take over the AEG Directory and streamline its development. I was later recruited to be the AEG Treasurer nominee—then a two-year commitment—by AEG Past Presidents Dick Galster, Allen Hatheway, and John Ivy. I accepted section and AEG offices, as well as other professional organizations' duties, to serve the profession that provided such a wonderful career and allowed me to meet so many professional friends regionally and globally.

Perhaps my major accomplishment during my AEG officer tenure was changing both the office of Treasurer to a

professional fiscal position and the oversight of AEG's finances to a forward assessment, instead of the mere values the budget lines had the prior year. I was the last Treasurer to write every AEG check, assess every billing invoice, and accept every dues payment. This was such tedious work that the Treasurer, had no time to get a good return for AEG's reserves, develop a proper budget, and review income and expense streams through the year. I passed on the Treasurer's role to my good friend Steve Garrison. When Steve took the role of Treasurer, the office of the Executive Director worked under the Treasurer's oversight to conduct the bookkeeping. This revision of fiscal roles allowed Steve, who was well versed in small business finances, to vastly improve fiscal responsibilities to AEG's members. Except for the few years immediately after Past President Steve Garrison's death, when I was deeply shaken by his loss, I have been involved in some capacity with AEG's financial review.

Led by AEG and with many other geologists, I did my part to seek geologic registration in the Midwest for the profession as a whole. Licensure was obtained in Arkansas and Missouri, and then many other Midwestern states.

I have been blessed by faith, family, friends, and function (career). AEG's benefits of local and annual meetings, professional camaraderie, training, committee opportunities, pursuit of licensure, and learning administrative (officer) responsibilities have been essential to my career development. I do not believe that I could have advanced in SLD to a position of technical expert for my region without the credentials and skill sets obtained through AEG. I have met so many professionals, most of whom are extremely proficient in their fields, who are not only friends, but further know that I will assist them and have the assurance of their help should I need it.

After retirement from the federal government, I have rewired my career to geophysical consulting. I have been fortunate to continue to serve AEG on its Finance Committee and the temporary Governance Restructuring Committee. I was pleased when St. Louis Chapter sought to place my name into consideration as a Regional Director. I am happy to have been elected as the AEG Midwest Regional Director.

My advice to future officers of any organization is to embrace the opportunity, faithfully complete your duties for the members' best interests, and seek broad counsel on any major decision.

1991
MAVIS D. KENT

In about 1971, AEG had an active student chapter at Portland State University, so, I decided to join and meet some real-life geologists. Soon I was attending local Oregon Section meetings where I had the privilege to get to know legendary local geologists who were also well known in AEG circles, many of whom served as Past Presidents. They were generous with their knowledge and friendship, and this networking led to my first professional job with Shannon & Wilson working on nuclear plant siting projects. After graduation, I became more involved in the Oregon Section taking on several positions that opened over time including Section Chair. Networking extended to the Association level and I began taking on Committee assignments, was elected to Association offices, then in 1991 was elected the first woman president of AEG. In a time when some areas of geology were not easy for women geologists to enter, AEG was a good career-building choice for me that offered professional friendships, learning about application of engineering geology, and great opportunities. And, AEG was a fun organization.

During my term as President, AEG began the transition to paid meeting organizers for Annual Meetings. Having chaired the 1980 Annual Meeting on Portland, OR, where we did everything from renting buses to negotiating with hotels, it was clear that the meetings had grown large enough that more help was needed for the local organizers to assure continued success of the annual meetings.

In 2010, I retired from the Oregon Department of Environmental Quality, where I had served as a senior hydrogeologist, and started my own environmental and engineering geology consulting firm, Plateau Geoscience Group. Along with working on engineering geology and environmental projects, I have been actively involved volunteering in the local Boy Scouting program, and on local community boards and committees. I have also had some time to spend on pastimes including hand quilting award-winning quilts, and traveling.

Organizations such as AEG can and should provide rewarding experiences for their members. I would urge AEG Presidents to continue a focus on benefits to the membership including those future engineering geologists looking for a good science project in grade school or studying hard at university.

1993
JEFFREY R. KEATON

I got a job in the L.A. office of Dames & Moore after graduating with a degree in geological engineering from University of Arizona. The senior engineering geologist in the office, Ray Seiple, informed me of the monthly meetings of the Southern California Section of AEG and recommended that I become a member.

I was approached by Greg Hempen, I believe, and asked if I would be willing to take the role of Treasurer; I said "no." The person ready to move into the vice president position was unable to continue; Greg called back and asked if I would be willing to run for the newly created position of president-elect. It was the position of the vice president, but with the expectation that the person in that role would move into the president position. I agreed.

I had been doing work at the Kennecott Utah Copper refinery in Magna, UT. A dominating feature was a 1,215-foot-high concrete stack at the Garfield smelter. An innovative slip form was used for concrete placement, which won

an outstanding civil engineering achievement award from the American Society of Civil Engineers. I was working near this stack and saw a small rectangle about shoulder-high on its base. I walked over to take a look and found a dirty plastic cover on a bronze ASCE plaque. This inspired me to propose an Outstanding Environmental & Engineering Geologic Project Award, which was approved by the AEG Board of Directors. My proposal stipulated that the plaque be larger and placed near the project in a publicly accessible place.

One of the many people I met through AEG was Professor Christopher Mathewson. Through this friendship, I was encouraged to consider the PhD program at Texas A&M in the multidisciplinary Center for Engineering Geoscience, which he founded and directed. Completing the PhD was an important element in my career as a technical expert in engineering geology.

My focus recently has been related to quantifying uncertainty and variability in geology at the field-observation level and communicating the results to non-geologists, particularly engineers. I also have been putting tremendous effort into engineering sustainability, and making a case for why documenting stability of slopes is just as important as characterizing landslide-prone slopes. Once slope-movement damage insurance is available, it will result in expansion of research on slope-movement processes, just as earthquake damage insurance resulted in expanded research on earthquake processes.

My advice for future presidents: Identify appropriate technical and professional societies for collaborative activities and meetings.

1994
ROBERT E. TEPEL

My participation in AEG began shortly after I started my first full-time professional job as a Junior Engineering Geologist in October 1964, at the Palmdale California Design and Construction office of the California Department of Water Resources. Starting salary was $619.00 per month. My supervisor was Frank Kresse, and the managing engineering geologist was Arthur B. Arnold. Both Art and Frank emphasized the importance of a professional approach to our work, and both encouraged every engineering geologist in the office to join AEG. I joined AEG in 1965 for the camaraderie and because I could gain knowledge that would help me in my work. It paid off in both knowledge and camaraderie, not only then, but throughout my career.

My term as President of AEG was 1993–94. My earlier service in association leadership included Chair of the San Francisco Section (1984–86), Chair of the AEG Committee on Professional Registration from 1988–91 (we call it Licensure now, not Registration), and before I became President in 1993, Secretary and President-elect. My major initiatives as AEG President were to promote and defend professional licensure for geologists, to educate the Board of Directors about its role in the governance of the organization (i.e., to convince it that it should be a policy board, not an operating board), and to build a solid governance foundation for AEG with a complete set of operating policies. Why? Because policies prevent some problems and provide consistent guidance in solving other problems as they arise. Almost all of my original policy documents are still in place today in some form.

1995
RICHARD E. GRAY

I began working as a Geotechnical Engineer in 1956. I had been interested in geology as a child and was trained to use geology in my work. AEG went national in 1963 and my membership certificate was signed that year by a great geologist, Ed Eckel.

By 1993 I had served as: Chair of the Joint ASCE-GSA-AEG Committee on Engineering Geology, Chair of GSA's Engineering Geology Division, and Chair of ASCE's Soil Mechanics and Foundation Engineering Division.A member of the AEG Executive Council resigned due to lack of support from his employer and I was asked to take his place on the Executive Council. I joined a great group: Jeff Keaton, Bob Tepel, Susan Steele Weir, and Eldon Gath.

As a relatively young organization AEG had cash flow problems, particularly with uneven income from Annual Meetings. In 1995, our Executive Council hired Julie Keaton as Meeting Coordinator. She provided stability to Annual Meeting planning and operations. Thank you, Julie!

For many years I chaired the U.S. National Group of IAEG and served a term as IAEG Vice President for North America. I'm pleased at the current involvement of Scott Burns and Jeff Keaton in the leadership of IAEG and I am looking forward to the 2018 AEG-IAEG joint meeting in San Francisco.

1996
SUSAN STEELE WEIR

My membership in AEG became official in 1977, but I had attended local Denver Section meetings since 1973. In those days, my colleagues and mentors at the USGS, including Dick Lemke, always drove home the point that to ease transition from student to practitioner, a person had to join and actively participate in a technical organization. AEG became that organization for me. My first post was keeper of the slide projector and screen to bring to each Section meeting. Later as Chairman of the Denver Section, I supported the idea of reorganization of AEG Section boundaries to merge the Denver Section and surrounding states to become the Rocky Mountain Section. This action became widely known as the "Land Grab of 1985."

I set my sights on becoming AEG President one day—of this group of "world class" engineering geologists that had inspired me so. I was honored to be asked to join the Executive Council in 1992 as Secretary then progressed to President in 1995–96. During my presidency, primary goals were looking forward to the 21st century in AEG with a vision to increase communication between the EC and the AEG membership, working together to increase membership in AEG and continue to further the importance of the engineering geology profession.

Central to that important communications element was a formal program started to make a concentrated effort for Section visits by the President during their tenure. That open personal communication between Section members and President was in itself amazing and was a benefit to each AEG member. During these Section visits, I led discussions for organizational improvement, welcomed the new Great Basin Section, became a keynote speaker for symposiums and encouraged the revitalization of struggling sections. Also, the "DID YOU KNOW THAT YOUR PRESIDENT" column was introduced in *AEG News* such that members and students could learn more about their President.

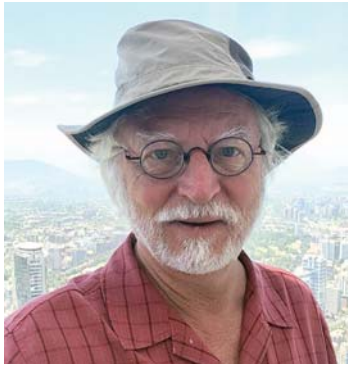
After completing my term as AEG President in 1996, I served as Chairman of the committee formed to locate, interview, and select AEG's first Executive Director, Norman Tilford; assisted to develop the Tilford Scholarship and have continued to serve on that scholarship selection committee; served on the AEG Foundation Board of Directors, and served as Chairman of the committee assembled to develop the Karl and Ruth Terzaghi Mentor Award. In 2008, I was awarded Honorary Membership in AEG. These days I continue to participate in AEG Chapter and Annual Meetings, mentoring students, and promoting the vision of the continued success for women in the engineering geology profession, mostly by serving as an example myself. AEG has been a valuable partner throughout my career, providing a network of professional contacts and long-lasting friendships. Serving as President of AEG was professionally rewarding and the experience of a lifetime. My advice to future Presidents, continue to involve the students, bring them into the fold; they are the future leadership of AEG and the profession.

1997
ELDON M. GATH

I became a member of AEG because I found myself in the engineering geology field and it was clear that I should be a member of the organization that best represents that profession. I became President because I was an outspoken critic of many of AEG's practices and priorities, and was asked to get involved to help fix my concerns. Within the officer chain, I first reorganized the financial accounting systems to finally allow us a predictive vision of cash flow and income/expenses based on real historical data.

As President, I think my most important accomplishments were getting significantly enhanced visibility of AEG to the local Sections and other professional organizations, and in finally getting the membership process simplified, its prior application and approval process being one of my most vocal complaints since I first joined in the early '80s. I learned a lot as an AEG officer: accounting, planning, communicating, and representing—all of which served me in good stead when I founded the company, Earth Consultants International, that I still lead.

As an AEG member, I have had the privilege to learn from and become accepted into the company of the finest practitioners and educators of our day. Since my presidency ended in 1997, I have continued to participate in AEG and represent engineering geology through speaking frequently and often at a widely diverse suite of civic, academic, and professional meetings around the world. I have shared in both the AEG's and GSA-EGD's outstanding paper awards, been made a Fellow of GSA, and was honored to be selected as the AEG-GSA Richard H. Jahns Distinguished Lecturer in Applied Geology for 2014–15, as well as the U.S. National Group Leader for the IAEG. Most recently, I was similarly honored to be elected as the Southern California Chapter's first Regional Director to the newly revamped AEG Board of Directors.



My most sage advice for those who will next serve AEG is to be sure to have fun along the way. This is not a job we have; it is a profession that spoke to us somewhere along our academic path or work career. If you are called to help to direct its future, what a rewarding and fun thing it will be. If allowed a second suggestion, it is a very small, fun, and wonderful world out there; please get out and see it and meet your international colleagues. They, too, are fun.

1998

JOHN H. PECK

I joined AEG in the '70s because at that time it was the only geological society that held regular meetings in the Boston area, where I lived. Not only that, but the meetings had speakers who talked about real geological issues and the applications for resolving them!

As I became active in the New England Section, I eventually became Chairman and then got involved in the parent organization. I became AEG President in an unusual way: the vice president/president-elect had to resign in 1996 because of an unexpected health issue. I was asked to put my name in nomination to replace him at the Annual Meeting. I agreed and was elected by the Board of Directors. I became President in September of the following year.

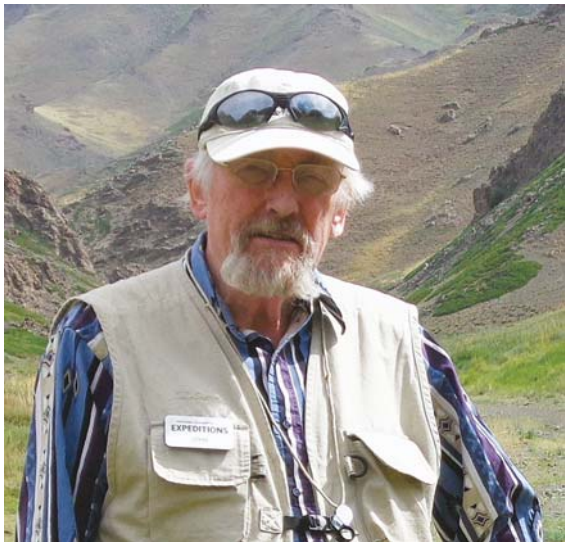
To me, the greatest achievement of my term as president was the introduction of e-mail as a means of communication among the Executive Committee and members of the Board of Directors of AEG. Prior to that time, everything had been done by telephone or "snail mail." This was an incredible time-saver for the participants.

A secondary achievement was the agreement between AEG and IAEG to become affiliated—an agreement of enormous benefit to both parties expanding aspects of geology all over the world.

Since 2004, I have served as Chairman of the Finance Committee of the AEG Foundation, and as a member of the Foundation's Board of Directors for seven of those years.

I have retired at least three times since 1997, and, as the years go by, continue to consult on interesting engineering geology jobs. My favorite project was the foundation geology of the Skywalk at the Grand Canyon, which was completed in 2007.

I have never once regretted becoming a geologist nor becoming a member of AEG. The association has provided me education and much enjoyment over the past 40-plus years. The members have become friends and colleagues and provided me with many years of geological insights.



1999

JAMES H. MAY

In 1977, while working for the Army Corps of Engineers in Wilmington, NC, I was encouraged to join AEG by my supervisor Bob Seison. It was also in North Carolina that I met Norm Tilford. Norm would later become my friend and mentor, along with Chris Mathewson, as I earned my PhD at Texas A & M. In 1995, I was called by Bob Tepel to see if I was interested in serving as AEG Treasurer. At that time there was no active AEG section near Vicksburg, MS, and AEG had very little representation in the southeastern United States in general.

PHOTO BY ALLEN V. SHAW

I became President in 1999 during a time when AEG was having difficulty tracking finances and controlling spending. I corrected an error in the Excel® spreadsheet used to track AEG finances, which led to more accurate accounting. I feel that it was a significant achievement to keep AEG within its budget at that time. Also, I negotiated around a potentially damaging and expensive lawsuit. It was also rewarding to influence more AEG involvement from other geologists in the southeast. The many friends that I have made in AEG and IAEG have provided inspiration as well as technical guidance and support throughout my career.

After my term as President, I co-chaired the AEG Annual Meeting in New Orleans in 2008 and served as Director and Treasurer for the AEG Foundation. I am currently serving on the AEG and AEGF Finance Committees. I established Alpha Geological Assessments in 2005 and have been working as a geotechnical consultant for the Defense Intelligence Agency's Underground Facility Analyses Center.

Future presidents should visit as many AEG Sections as possible with the message that engineering geology programs must be protected and maintained at select universities. Environmental geology and hydrogeology are, after all, only subsets of Engineering Geology.

2001

REX UPP

As memory serves me, I had enrolled at Stanford in 1976 to study landslides. The AEG Annual Meeting was coming to Lake Tahoe, so I asked Dean Dick Jahns (later my dissertation advisor) if it was a good Idea to attend. Dick, of course, said it was and that I should join AEG and so I did. I was the San Francisco Section Membership Chair for eight or nine years. The process of becoming a member was very cumbersome in those days and I realized I couldn't get it changed from San Francisco. So, in 1994, I became Section Chair (a two-year term) so I could participate on the AEG Board. In 1994, the Board unanimously changed the bylaws to make it easier for

geologists to join AEG. When my second year was coming to a close, President Bob Tepel asked me to accept the nomination to AEG Secretary for the two-year term beginning on 1997.

In those days, Executive Council members were either Secretary or Treasurer for two years each, but not both. In 1996 the Secretary, Paul Dumontelle, became ill had had to resign. I was invited to fill that spot about a half-year before my term was to begin. When I was in my second year as Secretary, I decided one should serve as Treasurer to be an informed President. The EC agreed and I was elected to a two-year term as Treasurer, finally becoming President in 2001.

While I was Treasurer we moved AEG headquarters from Sudbury, MA to College Station, TX. When I was Treasurer, we hired a comptroller to do a thorough internal audit and found AEG was in debt. I had been on the board for about six years and I tried yearly to get an increase in dues. Finally as President, I persuaded the board to approve a $25 annual increase. After two years with the higher dues, the debt was paid off with no loss of membership. That major presidential accomplishment has probably been forgotten. One (actually two) other contributions remain: The establishment of outstanding chapters and student chapters. In all I served on the Executive Council for about 6 1/2 years, probably a record.

Following my tenure on the EC, I was nominated to be on the board of California Geotechnical Engineering Association. I served on the Board for ten years and as President in 2012.

I continue consulting in engineering geology and geotechnical engineering, focusing on litigation support.

My advice to future Presidents: start working on your key issues as soon as you take office if not sooner. I spent the first six months dealing with silly problems and complaints coming in from various members. As a result, I was not able reach all the goals I had wanted to.

2003
SCOTT F. BURNS

I first became a member of AEG via the Lower Mississippi Valley Section in the late 1980s when I was teaching engineering geology at Louisiana Tech because it was the national organization for engineering geology. Then I moved to teach at Portland State University in 1990, where they appointed me newsletter editor of the Section two years later. It got me heavily involved in everything. In 1996, I became Oregon section chair just in time to host a national AEG meeting in Portland. I started the three-year term on the Executive Council four years later, culminating in my presidency in 2002–03. When I took over as President, AEG was in difficult financial straits. The board wanted to have a lawsuit against Texas A & M, site of our national office. I made three trips to Texas to work this out with the university. In the end, all bills were paid, no lawsuits happened, friendships remained, and Julie Keaton and I moved the whole office to Denver in a two-day truck trip. We had a super Annual Meeting the following fall in Vail; the financial fortunes of AEG turned around; and, our growth financially continued. Close financial attention to AEG's organization has continued to this day. During my presidency, we also started the Outstanding Section and Outstanding Student Chapter Awards. Also, during my term, I started going to the annual IAEG meetings to help give AEG more exposure internationally and have not missed since then. Today, I am the first American to be the president of IAEG, and we will be hosting the first IAEG congress in the United States this coming September 2018 in San Francisco. Advice to future presidents: Show strong leadership, involve the students and under 40 members more, keep involvement internationally, and have fun.

My career produced 48 wonderful and talented MS and PhD students in engineering geology plus hundreds of other students who took my classes. My national lecture tour of 148 universities and chapters from 2011–12 as the Richard Jahns Distinguished Lecturer was one of the highlights of my career. My research in landslides, Missoula floods, radon, heavy metals in soils and terroir of wine still keeps me busy. I remain active in AEG to this day and love the annual meetings and the specialty conferences. I have engineering geology friends, not only coast to coast in North America, but around the world. Life has been good to me!

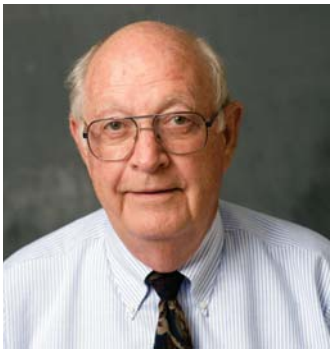
2005
DAVID W. BIEBER

I became involved with AEG in 1988 while living in the Sacramento area. My first role with AEG was as Vice-chair for the 1995 AEG Annual Meeting held in Sacramento. In the early 2000s, AEG was having financial and management challenges. I felt that I could help solve those challenges, so when offered the opportunity to serve on the Executive Council (EC), I gladly accepted. I became President of the Association in 2005, and between when I joined the council as Treasurer in 2003 and when my term on the EC ended in 2007, my fellow EC members and I took significant steps to improve the Association's financial health, helped reorganize AEG's management, grew the Treasurer's Reserve to over $300,000, instituted the

Strategic Planning and Governance Committees, presided over the change of our name from the Association of Engineering Geologists to the Association of Environmental and Engineering Geologists, took our publishing from print to digital, arranged for our past publications to be digitized, and set up the first North American Landslide Conference. The most valuable things I have gotten from AEG are the many friends that I have made throughout the world. However, it is because of the contacts that I have made in AEG that I am in the position I am now. I continue to give back to AEG through mentoring and involvement in the Front Range Chapter. I have also volunteered to co-chair the AEG 2017 Annual Meeting to be held in Colorado Springs. If I could give only two pieces of advice to incoming AEG leaders, they are: 1) always be open and honest with the membership and 2) AEG leadership is not about the individual, but about the team.

2007
TERRY R. WEST

I became a member soon after attending the AEG Annual Meeting in Chicago in 1979. It was apparent that AEG had much to offer a young engineering geologist/geological engineer. Becoming a full member in those days was challenging, as five years of experience working under an AEG member or equivalent was required. Only three years of experience was granted for PhD research and I only qualified after adding the time accumulated working for a geotechnical engineer. My greatest achievement as President was reuniting the membership after a forced move of Headquarters from College Station to Denver.



AEG has become my primary professional organization and attending Annual Meetings and field trips on a regular basis with my wife to see our friends again is always a special experience. I continue as a faculty member at Purdue University specializing in environmental and engineering geology. Eighty-three graduates (18 PhD and 65 MS have completed degrees under my direction. Seven of the PhD graduates are geology faculty members in various countries of the world. I am currently revising my textbook, Geology Applied to Engineering, with Dr. Abdul Shakoor as my co-author. My advice to future Presidents: continue to pursue the goals of AEG as the leader of the applied geology profession. Provide the membership with meaningful programs, publications and attractive annual meetings, and travel widely to visit AEG Chapters.

2008
DORIAN E. KUPER

In the early 1980s, my employer at the time suggested I join AEG and attend the monthly meetings to network with other professionals. In 1983, after filling out massive paperwork required at that time, I joined! I lived in San Diego then, and a group of geologists from various consulting firms shared rides to drive the two-plus hours to Los Angeles for the meetings. The camaraderie gained by sharing rides, attending meetings, and growing professionally inspired me to become more involved with AEG. My husband, Tom—also a geologist and past AEG Foundation Board member—and I attended several Annual Meetings where we got to know more about AEG and the folks who worked tirelessly to make the organization grow. I was thrilled when asked to join the EC, and to eventually become the third woman President, and thoroughly enjoyed my five years on the EC. There were tough times financially, but we were able to create a plan to set aside "rainy day" monies for AEG's future.

Outreach to other societies to make AEG more visible was a commitment I had, as AEG is the "home" for engineering and environmental geologists. Because AEG means so much to us, with the help of my mom, Cathryn Beardsley, we started the Beardsley–Kuper Field Camp Scholarship through the AEG Foundation. The scholarships pay up to $3,500 for field camps with a strong engineering and/or environmental geology emphasis.

AEG has allowed us to network with other professionals across the country and internationally. We have developed close ties with those folks and as a result have also secured interesting work within and outside of the U.S. for our two-person firm. We could never have been as successful if it wasn't for the ties we have with AEG professionals. Future presidents should have fun with their responsibilities, continue to grow by getting out of the office and into the field, and share experiences with students and younger AEG professionals. And remember, volunteers are the lifeblood of AEG and they are precious. Continue to encourage students, young professionals, and the "older" ones too to network, as the benefits they reap as part of AEG will be surprising!

We would like to thank the Past Presidents for contributing to the Anniversary Issue. Their hard work and dedication is much appreciated by AEG members!

2009
MARK MOLINARI

I initially became a member of AEG in graduate school at University of Nevada-Reno at the recommendation of my thesis advisor, Dr. Burt Slemmons, who subsequently became an AEG Honorary Member. I let my membership lapse when I was living/working in an area where the nearest Section meetings were more than two hours away. I became an active member of the Washinton section in the mid-1990s after moving to Seattle. In the spring of 2003, the then Section Chair, Tom Badger, asked if I would consider being on the Section Board. After I agreed, he told me I would be taking over as Section Chair since he was going to graduate school out of state. After my two years on the Section and national Board of Directors (BOD), I was asked by Dave Simon, the outgoing Past-President, if I would consider serving on the Executive Council (EC) in the future. I agreed but did not expect to be asked to join the EC the following year. I agreed because I wanted to continue working to grow the membership and improve AEG's financial strength that had been initiated by the EC and BOD during the prior two years. I am most proud of my work with the other EC members to maintain a positive fiscal year for AEG despite the negative impacts on our membership and revenue due to the economic downturn.

The greatest impact has been the networking and friendships I have made serving on the BOD, EC, and various committees, as well as attending all but two of the Annual Meetings since 2003.

I am in my 33rd year working as an environmental & engineering geologist for AECOM and legacy companies (URS and Dames & Moore). Since completing my term on the EC in 2010, I have co-chaired the AEG 2013 Annual Meeting and 2015 Landslide Symposium (both in Seattle), been financial chair for the 2016 Annual Meeting in Kona and upcoming 2017 NASL meetings, and was on the committee evaluating options for reorganization and the transition from Sections to Chapters.

My advice for future Presidents is to develop a solid working relationship with your colleagues on the EC, you'll need their active support the year you are President. Get to as many Chapters and Student Chapters as the travel budget and your time will allow; it is very rewarding to meet the members and get first hand feedback on AEG.

2010
DUANE T. KREUGER

I became a member of AEG after attending a few Section meetings in the mid '90s. Before I knew it, I was hooked! I served as a Section Officer for seven years, and then I served a few years on the Governance Committee, before being asked to serve on the Executive Council. I wanted to take on the role of AEG President to spread the word regarding environmental engineering and geology and about the career opportunities available to graduating students and young professionals. The biggest impact of AEG, for me, is the continuing education you get by being a member. As far as accomplishments, in 2010, we found ourselves in the situation of potentially not being able to maintain our Annual Meeting manager with less than five months until the Annual Meeting in Charleston. We made it work and enjoyed a successful east coast meeting. With that, my best advice is to "expect the unexpected."

2011
BRUCE R. HILTON

Six degrees of separation:
When I read that Past President Richard Proctor stated that one of his favorite accomplishments was working with professors like Dr. Martin Stout to show the value of AEG to students, I was thrilled. I was indeed one of Marty's students and have been a member ever since 1976! Thank you, Richard!

Like many, I began at a local level, seeing the benefits to others and myself of AEG arranging workshops and field trips and the typical dinner meetings with many great speakers. As a Section Chair and thus Director on the Board, I learned how impactful AEG is to our profession and made many national and international friends I enjoy to this day. At that time, there was and still is a need for stronger governance controls. I worked closely with Duane Kreuger, Mark Molinari, Jennifer Bauer, Matt Morris, and Dale Andrews on that committee that remains a valuable constituent of AEG's success. I mentioned those individuals because all five became AEG presidents! As President in 2011, I tackled the goals of 1) improving relationships with engineers, 2) moving to another organizational structure, and, 3) developing a relationship with Engineers Without Borders (EWB). I worked at local and national levels to bond with engineers and emphasize the importance of our symbiotic relationship with AEG members across the country.

After my presidency, I led the Governance Restructure Committee to adopt the Regional Director model we now have. I also went to Kenya and designed and built a water restoration project in 2014 on behalf of AEG and EWB—an extremely rewarding experience for sure! AEG has become my most valuable social circle and before retiring was the most effective network for learning what other fellow geologists were enjoying and markets that were strong for us all. My only advice to future - Presidents is to savor the time. Five years is a long commitment but they were the best years of my life. The closer you get to the core of our profession, the prouder you become!

2012
JENNIFER BAUER

Without being an active member in AEG, I wouldn't have the life I have today. By becoming involved in AEG, first as a Section officer then moving up to Association level roles, I realized my leadership potential. I made contacts that exposed me to a broad range of applied geology that I had not experienced before. Through AEG, I found my passion for helping others understand geologic hazards and how to protect themselves. By serving on the Executive Council and as President in 2011–12, I learned the value of teamwork, communication, financial responsibility, conflict resolution, and the uplifting power of the energy of AEG members when they get together. Experiencing this gave me the foundation and the confidence to run my own consulting firm now, with a focused mission to help protect the lives and property of others from landslide hazards. I am grateful to AEG and its members for all it has given and continues to give to our great profession, and to my life.

2014
GARY C. LUCE

I became a member of AEG because the organization emphasized the importance of geology in engineering. Specifically, AEG emphasized the value of applied, rather than theoretical, science, which greatly appealed to me. I wanted to serve on the Executive Council in order to give back just some of what I have gotten out of AEG. I was inspired by several Past Presidents to encourage students to participate in AEG as I had been encouraged when I was a student member.

My goal as President initially was to work toward a five-year plan for the Association in as many areas of our operations and technical initiatives as I could. After our former Association Manager resigned, I worked with the collaboration of the EC and especially with then President-Elect Ken Fergason in the hiring of Offinger Management, which I believe greatly improved our financial transparency while also improving our responsiveness to members.

AEG was the direct connection for me for three different companies I worked for over my 30-year career. I have made a lot of friends all across the country and being able to reach out to them for advice and for discussion of important topics really enhanced my technical knowledge and skills.

Currently, I serve on the AEG Foundation Board and with the Foundation marketing committee. I am also part of the 2018 AEG-IAEG planning committee.

Having good ideas is important but building consensus and giving a voice to our Chapters and their members is what I think it takes to be an effective leader. The single best advice I think I can offer to future leaders is to be a good listener.

2015
KEN FERGASON

The journey that ended with me as the 58th President of AEG began when I was in high school thinking about what to major in when I got to Texas A&M University. On an airline flight, my father sat next a professor from A&M who told him all about engineering geology and when I heard about it, my response was along the lines of "I didn't know that existed, and wow, you can get a job doing that." That professor was AEG Past President, Chris Mathewson.

You never know what that conversation you have with a random person will result in, so you might as well talk up environmental/engineering/applied geology. You just might inspire a future president.

2016
PAUL SANTI

I became a member of AEG while in graduate school at Texas A&M. Past-President Chris Mathewson established a culture where we all knew that membership was an important part of our identity and future success as environmental and engineering geologists. Since that time, there has been an AEG connection with every single job I've had! I have a debt of gratitude to pay back to the Association and to its membership, so I was happy to serve as President (once the time was right and I was able to look down the barrel of a five-year commitment without flinching!). Being President was an amazing, humbling honor that I view as the pinnacle of my career. There is so much going on that my biggest goal was simply to keep the wheels on the bus. However, we were able to do some new things, and I think the biggest accomplishments were finalizing our organization restructure and then being able to pick up our strategic planning where it had been idling for a couple of years, with a few great workshops to brainstorm and prioritize our future ventures. As Past-President the last few months, I've had the chance to refocus on my day job at the university. I'm on sabbatical this Spring, with a much-needed break to concentrate on building my research group, as well as some work/play travel to Europe! The best advice I received as an incoming President was from Past-President Bruce Hilton: "have fun and don't let it beat you up." Of course I kept forgetting his advice! I would add to it: keep things in perspective, and be patient and respectful when other people are so passionate about some things that you wonder about their perspective.

A gathering of AEG Past Presidents at the 2002 Annual Meeting in Reno, Nevada

Rocks and Water, and AEG!

Dorian Elder Kuper, AEG Past-President

Growing up, I was always checking out rocks out in the Phoenix desert where I lived or on my grandparents' cattle ranch in Skull Valley, AZ. I would be constantly on and off a horse picking up "cool" rocks to take home.

When I told my Dad I wanted to go to school to be a geologist, he said "What? You are supposed to work in an office as a secretary, or …." Needless to say, I won out and spent 4 years with 35 men and 4 other women earning my Geology degree. A professor I had said women shouldn't go to field camp; women belong in the laboratory for geology. HA! I successfully completed my field camp with a smile! Now, it is refreshing to see a large proportion of women in the geological sciences and being accepted into the "field."

Grad school provided great opportunities while working at a large geotechnical firm where I was the only female staff geologist at the time. They had a Project Engineer who was a woman who saved me one funny time in the field. Being a staff geologist, I was mapping the geology on a large grading job in San Diego where I instructed the grading contractor to "excavate deeper—you haven't removed all of the compressible alluvium." Can you imagine a 22-year-old telling an "older" contractor what to do with his giant scrapers? He told me to call my office and have my "boss" come out to decide if it was necessary. So I did, and out came Carol Forrester, a geotechnical engineer. That got him, two women telling him what to do…but we succeeded!

Tom & Dorian Kuper during an IAEG meeting in Banff, BC.

As the first woman to be registered as a Certified Engineering Geologist in San Diego County, only a few years ago, I had entrees into a variety of networking events. I enjoyed going through the chairs of the San Diego Association of Geologists, as I interacted with senior geologists committed to mentoring us "young ones." These are geologists that were competitors and yet offering me to come out to their job sites to see fault trenches, landslides, down hole borings, grading jobs, and more! Wow, talk about sharing. Trust was built between the professionals, including my future husband, Tom Kuper—who was a competitor while we were dating and yes, he did steal a client of mine!

I joined AEG in 1981 and attended monthly meetings in Los Angeles. This was the best opportunity as I learned the "art" of networking, developing contacts and connecting with professionals. I observed senior geologists in competing firms sharing ideas, building trust with each other, and developing long-term relationships.

Large geotechnical firms in the 1970s and 1980s that I worked for tended to separate engineers and geologists. With the exception of Leighton & Associates in Southern California, firms were led by engineers, not geologists, at that time. As a Staff Geologist, I did the fieldwork and then handed over the information for the engineer to do the analysis and write the reports. With more experience, I analyzed data and prepared reports, however generally an engineer "reviewed" and "stamped" the reports. Over the years, we have seen positive changes, especially in the Northwest where engineering geologists can work within their area of expertise and geotechnical firms are run by engineering geologists as well. The divisions between the two professions have been reduced considerably.

I learned that volunteering with AEG and other professional organizations would allow me to expand my marketing capabilities. When Tom and I moved to Oregon, I had no clients. I joined the Society for Marketing Professional Services (SMPS), which provided a huge opportunity to meet prospective clients, primarily engineers and architects. That was the steppingstone to forming a niche clientele—mining. An architect approached me and asked if I could permit an aggregate mine site in Washington? Sure, let me take a look at it (I had never permitted an aggregate site, much less in Washington). A little homework and we got the site permitted by characterizing the rock resource, designing the mine and reclamation plans, and managing the key consultants. Thanks to SMPS connections, we jumped into permitting aggregate sites all over the Northwest.

I was lucky to be appointed to the Oregon State Board of Geologists, which I served a seven-year term and as a result


The Kupers at the AEG field trip to the Grand Canyon

was elected to the Executive Council of the National State Boards of Geology (ASBOG), which prepares the national registration exams for Geologists. At the same time, Tom and I were attending local and national AEG meetings and overlapped with professionals across the U.S. and internationally. In developing the ASBOG tests, I also saw the differences in the practice of engineering geology, depending on what part of the Country one lived. It was quite an eye-opener for me.

The most rewarding phone call was from Dr. Scott Burns asking me if I would be interested in coming on the Executive Council for AEG. I was flattered and apprehensive at the same time, as I felt to be an unknown in the AEG national arena. I was mainly involved with the Southern California and Oregon Sections, who would vote for me? I was honored to spend five years on the EC. The opportunity to meet other geologists from the U.S., Canada, and numerous European countries by overlapping in national and international meetings has been wonderful. To be able to attend AEG meetings and brainstorm various technical solutions with other professionals is very rewarding.

Service to our clients and solving complex issues in permitting aggregate sites is the key to our success. Referrals from clients are the best type of marketing a company can have. At the same time, being involved with AEG, getting to know members and conversely them knowing the kind of work we do has led to recommendations from AEG folks to potential clients. These relationships have afforded us projects we never would have dreamed of!

I have developed some very warm and dear friends within AEG that I know I can pick up the phone to say "hi" and catch up; or to say "hi, I am working in your area, can we collaborate on a project together?" We have shared lots of work stories, travel stories and of course "some" beer and wine together with many true AEG friends. Stay involved, and have fun with AEG, as exciting work opportunities and special friendships will evolve.

Interested in a Leadership Position with AEG?

Start by getting involved with your local Chapter. Contact information is available at AEG's website, www.aegweb.org.

My Role in the Creation of *AEG News*

Richard C. Kent

In June of 1979, I received a telephone call from future AEG President Dick Proctor asking if I would be interested in becoming editor of the AEG newsletter. He gave very few details, other than to say I would report to the Executive Council. I would be working with Floyd Johnston who made address labels from individual tin plates in his backyard shop. The previous editors of the AEG newsletter changed on an annual basis during the 1960s, rotating among California Sections. In 1970 the AEG Bulletin and Newsletter had one editor. The following year, Frank Whelby (NC) became the editor and served for five years, followed by John Miller (BWH) for a year, and then my predecessor, Charles Withington (BMH) for three years.

The earliest issues were called *CAEG News Letter.* I have refreshed my memory several times by looking through my collection of AEG newsletters, which includes all of them from Volume 1, No.1. A paragraph in the October 1964 issue caught my eye. It was a summary of the engineering geology mapping for the Stanford Linear Accelerator. Construction had started on the accelerator in July 1963 and ended in February 1966. My father worked on the construction of the accelerator and told me about how he had never been involved in a project with such stringent engineering accuracy for being straight! A few years earlier, I had been working at Fairchild Semiconductor with the team who invented the integrated circuit (geology is my 2nd career).

In the Honorary Member Citation for Dick Proctor by Allen Hatheway, Roy Shleman, and Elizabeth Newton (*EG&G*, February 2005), Dick is described as part of the second wave of practicing engineering geologists. Dick never called me a third-generation anything, but his humor and encouragement throughout my first year as editor kept me alert and on my toes. In Dick's response to the citation, he writes that I brought color to the newsletter for the first time. Actually, single color was used in the newsletter shortly after its beginning in the 1960s. Early editors had decided to have a color represent a season (four seasons, four newsletters per year). I continued with the color tradition (as told to me by the early editors): issue number 1 (1st quarter) was red for the (recent) holiday season; issue 2 was green representing the breakout of spring's foliage; issue 3 was blue for the cloudless blue skies of summer; and, issue 4 was brown for leaves changing color in the fall.

The May 1963 newsletter called for AEG logo design entries with a $25 prize offered to the winner. An update in the September 1963 newsletter: "… [the Board] moved to hold off any decision, and that the emblem contest be further publicized." More entries were needed. The logo is first used in the January 1965 newsletter issue as a result of Dick Proctor's generic design based on the Girl Scout logo.

The content of the newsletter would change over the years, but the primary goal was always to provide news of AEG and its members. Gradual expansion of topics included Annual Meeting promotions and photographs of meetings and short technical articles (introduced January 1982). I began to coordinate a correspondents program expanded by Dick Galster, which included news articles written by nine worldwide correspondents (introduced April 1983). Also in 1983, "Public Information" was assigned to the newsletter editor as an outreach for other professional organizations, which included distributing news about AEG to various news outlets (magazines/newspapers) around the nation. I wrote a Public Relations Manual and distributed it to all Sections in 1986. I created a reader inquiry tear out card and even had an AEG BBS (electronic bulletin board system—a precursor to the internet) on one of my personal computers for AEG members to download and chat. A few years later in 1989, I had the local radio station in Vail, CO, visit our hotel and interview the Executive Council. Our AEG Annual Meeting, goals, and history of AEG made radio news, local newspaper articles, and therefore fulfilled some of our public relations objectives.

The author and his wife Mavis in Finland

In 1984, glossy cover stock was introduced as a platform for four-color advertising, a new source of revenue. Advertising on the back cover (a highly-desired placement) did not attract anyone during 1984, 1985, and 1986. It became discouraging but in January 1987 we finally received our first four-color advertiser: Diversified Well Products. Times were changing and AEG was trying to "identity-adjust," especially due to the large number of members more involved in environmental projects than in projects typified by the large, worldwide hydro projects of the 1960s, which gave impetus for engineering geologists expertise and registration, and (C)AEG.

At the 1986 Annual Meeting in San Francisco, I suggested that the newsletter had evolved into a news magazine and deserved a name change. The Executive Council agreed, and I listed suggested names for consideration in the July 1987 issue. We did not receive many votes so the Executive Council asked me for my opinion and suggestions. I said to keep it simple and the newsletter was renamed *AEG NEWS*.

Each successive president was responsible for offering the newsletter editor to me during my tenure (with Council approval), and each essentially gave me the same marching orders: "Keep doing what you are doing, with some humor." I had the honor of serving AEG in this capacity through Presidents Howard Spellman, Dick Proctor, John Ivey, Al Depman, Bill Paris, Dick Galster, Bob Valentine, Allen Hatheway, Norm Tilford, Ted Maynard, and John Williams.

My last issue as editor was April 1988. I decided to print a couple of my photographs on the January and April covers that year. I chose a shot of Wizard Island, Crater Lake National Park, for January, and, for April, my photo of the sparkling lead-zine-silver ore thousands of feet underground in the Broken Hill Mine, Australia (from my visit in 1971).

I left as editor of *AEG NEWS* and entered the Marketing Committee established by AEG to work with the Long-Range Planning Committee. During the years, I worked with team members on a Foundation charter review committee and the K–12 scholarship charter formation, helped on the Remote Sensing committee, was a member of the ASCE-AEG-GSA Tarzaghi engineering geology committee, helped with engineering geology exam questions in Washington and Oregon, and participated in the ceremonial signing by the Governor for Oregon registration.

I began my association with AEG in the Portland Section in 1972, learning from fellow engineering geologists Jasper Holland, Phil Grubaugh, Reuben Newcomb, Bob Deacon, Herb Schlicker, Ken Dodds, Harold Stuart, Bob Gamer, Ed Worth, Pete Paterson, Ken Faught, and so many others. We shared stories about our projects and often visited with each other as family. In 1978, AEG President Howard Spellman asked me to represent AEG and attend (with Mavis) the Circum-Pacific (geothermal) Conference in Honolulu led by Michael T. Halibouty. I volunteered to be the Finance Chair for the 1981 AEG Annual Meeting held in Portland. Chair Mavis had put together an outstanding Annual Meeting Committee, including our friends Ken Dodds and Jasper Holland as Co-Chairs.

There are so many who have made this journey in AEG a wonderful life experience for me. After leaving the editor of *AEG News* to the next generation, Mavis and I, with our two very young sons, decided to move back to the Pacific Northwest where they would start pre-school and kindergarten. Although AEG no longer took priority due to enhanced family responsibilities, I became involved as chair of the city planning commission for seven years, spent a tenure as an elected school board director, and volunteered for seven years as a youth soccer coach with two Division championships. Mavis became a Boy Scout Troop Scoutmaster, and I became a geology merit badge counselor. We attended weekly Scout meetings and monthly outings from Canada to the peaks of the Cascades in winter snow—and guided our younger sons who became Eagle Scouts.

Jasper Holland, 19th AEG President with Lorrayne Kent, lasagna co-cooks at reception for invited guests, 1981 post-Annual Meeting in Portland, Rick and Mavis Kent home, West Linn, Oregon.

John and Winding Ivey, reception for invited guests, 1981 post-Annual Meeting in Portland, Rick and Mavis Kent home, West Linn, Oregon.

Congratulations to all who have made AEG a great professional organization and have taught me so much (you know who you are because Mavis and I have emailed you or stayed in your home and had morning coffee). Thank you, Dick, for your initial encouragement to become editor, and thank you AEG for the opportunity to serve.

Histories from the HomeFront

Allegheny-Ohio Section/ Greater Pittsburgh Chapter

In the early years of the Allegheny-Ohio (A-O) Section, there were active clusters of individuals from Pittsburgh, PA; Huntington, WV; and Kent State University (KSU), Kent, OH, who regularly attended AEG Annual Meetings. For years, they were urged to form a new Section based in Pittsburgh, but the members felt that, at the time, the group was too small. In 1974, then AEG President Sam Sargent contacted Richard Gray and urged him to reconsider. Shortly after, the Allegheny-Ohio Section was established. The Section quickly learned that a small group, whose members were often out of Pittsburgh, resulted in poor attendance at Section meetings. To remedy this, joint meetings were usually set up with colleagues from the ASCE Geo-Institute Pittsburgh Chapter or the Pittsburgh Geological Society, a tradition that has continued to the present day.

In 1987, the A-O Section began to organize and plan the 1990 AEG Annual Meeting. Although membership was low, the Section pulled together to plan the meeting. Pat Oshel, of the United States Corps of Engineers (Huntington District), agreed to chair the meeting and numerous Section members volunteered to participate: Dick Gray was the Technical Program Chair; Dr. Abdul Shakoor was Symposia/Short Course Chair; Tom Sturges handled Sponsors/Exhibitors; Brian Greene was Publicity Chair; and Section Chair Peter Barth among others. There was also a robust Student Career Workshop organized by the KSU Student Chapter. Though the meeting had a rough start during the planning phase, it was a technical and financial success, and was one of the largest, if not THE largest, meeting held in the Eastern U.S. up to that time, with around 700 attendees. The successful hosting of the 1990 Annual Meeting was one of the major milestones of the Section and was instrumental in promoting membership growth and creating a strong Section and a close knit group of members, many of whom are still active to this day.

Over the past two decades since the meeting, an influx of young members from Kent State University, mentored by Dr. Abdul Shakoor, have played a major role maintaining the Section/Chapter. KSU grads have served as local officers as well as serving the association on a national level and with *AEG News*. We have had members involved with the Strategic Initiative Coordinators Committee, Student and Young Professional Support Committee, the Dams Technical Working Group (including a series of most successful symposia organized by the Dams Technical Working Group) and help with publicity in recent years. The Section/Chapter has also produced three AEG Presidents: Richard Gray (1995), Matthew Morris (2013), and our current President, Dale Andrews.

We have always, with few exceptions, hosted Jahns Lecturers and AEG Presidents and helped them deliver their talks at various universities in the region. In addition, every year the Section/Chapter makes an effort to invite both local speakers and speakers from across the country to present at independent and joint meetings with other Pittsburgh organizations. In more recent years, we have begun a joint society annual student night meeting where students are invited to present their research and interact with local professionals.

One notable field trip that the Section/Chapter put on was led by Pete Briggs in the mid–1990s. Entitled Geology of the Forbes Trail, from Bedford to Pittsburgh, it followed the troop movements of General John Forbes associated with the French and Indian War.

In 2015, the A-O Section hosted the AEG Annual Meeting for a second time. Once again it was a success with a great amount of local involvement and support!

Over the years the the Section, now the Greater Pittsburgh Chapter, has produced some very successful and prominent professionals and mentors to serve the region, such as Donald Bruce, the 2015–16 Terzaghi's lecturer, and AEG Honorary Members Abdul Shakoor, Dick Gray, Harry Ferguson, Jim Hamel, and Shailer Philbrick. Our Chapter continues to grow and has plans to increase member activities under the leadership of our current and future officers.

Field Trip – 2015 Annual Meeting in Pittsburgh

Carolinas Section/Chapter

Rick Kolb and Paul Weaver

AEG was incorporated in 1960 in Sacramento California, on the other side of the country from the Carolinas, but it was not long before the need for representation from other parts of the U.S. became apparent. As word spread, so did the outcry for chartered memberships. Norm Tilford, Dan Johnson, and Cal Swan of Ebasco Services, Inc. sent out a letter to AEG members in the area to suggest that being a member of the Southeastern Section was not advantageous, and that they should form their own Carolina Section. The timing was such that if a Carolina Section was not formed right away, the new AEG constitution,

to be ratified in 1976, would have prohibited the formation of a new section. As a result of some frantic telephone calls and letters (this was before email, remember) and after a hastily convened meeting in Greensboro, we were chartered as the Carolina Section in 1977, 40 years ago.

Early Section members worked for N.C. Department of Transportation, U.S. Army Corps of Engineers, Ebasco Services, Inc., American Foundations, Duke Power, and Carolina Power & Light, with Charles Welby of N.C. State Raleigh representing academia. South Carolina joined our Section within a few years, and we eventually changed the name to the Carolinas Section to reflect that there were two states, North Carolina AND South Carolina, in our Section. Officers, including Section Chair, Vice Chair, Treasurer, and Secretary, were elected by the membership.

The Carolinas Section was the recipient of the AEG Section of the Year in 2009, 2011, 2013, and 2016

Carolinas Scholarship

Since 2011, AEG Carolinas has been working towards establishing a scholarship for undergraduate students attending college in North or South Carolina. Due to the large endowment $15,000 to $20,000 needed to establish the fund with the AEG Foundation, this goal was tabled for many years. Following the success of the Vapor Intrusion Conference in 2014, the start-up funds were finally available. In 2016, the first scholarship was awarded to Ashleigh Nicole Kirker, a rising junior at the College of Charleston. Since its establishment in 2015, AEG Carolinas has held a 50/50 raffle at each dinner meeting to raise funds for the scholarship. Additional conferences are planned to ensure the Carolinas Scholarship is available for students for many years to come.

The Section/Chapter serves the environmental and engineering geology profession and the public in North and South Carolina, holding quarterly meetings in North Carolina to provide opportunities for all our members and visitors to attend. On April 26, 1980, the Carolina Section began its continuing education efforts by joining with the ASCE in co-sponsoring a symposium, AEG-ASCE Symposium on Hazardous Waste Disposal. Since then, our meeting topics have ranged widely and have included a discussion on building a tunnel under an active airport runway, a report of a trip to China and the building of the Three Gorges Dam, a discussion of the geologic role in flooding and flood prevention, a talk on transmissivity and anisotropy, and current and future groundwater issues in North & South Carolina. Interestingly, on June 17, 1988, John Palmer discussed the possible applications of personal computers in the work of engineering geologists and the ways that his company was using personal computers in their work, with some emphasis on their use for graphics. My how things have changed.

We have also had meetings featuring talks on sea-level rise, site characterization for the design of effective groundwater-remediation projects, the geologic and disaster perspectives of Hurricane Katrina, a talk on GIS in environmental and engineering geology, hazardous waste disposal, and the technical controversies and geopolitics of Salt Lake City, Utah.

In April 2012, Jenn Bauer with others on AEG's EC at that time participated in the Science/Engineering/Technology Congressional Visits Day (CVD). On September 11 & 12, 2012, Brad Worley represented AEG Carolinas geologists at the 5th Annual Geosciences CVD. This was Brad's fourth CVD so he could proceed without a chaperone, allowing for more one-on one interaction with the congress member or staffer. This provided him the opportunity to stress AEG's ability to assist members of Congress when they need help or information on certain legislative issues. He met with Senator Kay Hagan (D-NC) and her staffers as well as Dave Wegner and Katherine Waring, with the House Transportation Committee, then Brandy Dillingham, staff member in Representative Brad Miller's (D-NC-13) office and finally Kirk Bell, staff member in Representative Howard Coble's (R-NC-6) office.

AEG Carolinas has helped with the ongoing service project to help provide clean water wells in Haiti since 2010 when Doug Rakoczy, former environmental geologist at Duncklee and Dunham, moved his family to Haiti.

Technical Symposia and Seminars

The Carolinas Section has conducted several special events and short courses in our region from the first in April 1980, in conjunction with ASCE, Symposium on Hazardous Waste Disposal. This included 26 talks, and was very well attended by professionals, government employees, and academics from throughout the southeast. Our most recent was on October 2015, and featured two one-day classes in Raleigh by Bill Deutsch: Introduction to Groundwater Geochemistry, and Application of Groundwater Geochemistry to Contaminant Migration and Remediation.

New York – Pennsylvania Section/Chapter

Founding Years

As AEG has its 60th anniversary this year, NY-P acknowledges and celebrates that none of this would have been possible without its strong foundation that began in 1970. Around this time, AEG began its eastward expansion from Denver to the coast. Many of NY-P's charter members came from major companies, including Dames & Moore, Dan Raviv Associates, Dunn Geoscience, Leggette, Brashears & Graham, and Woodward-Clyde Consultants (WCC). Members from these and other organizations in the New York City and New Jersey areas attended the Section meetings, but several loyal members made their way to meetings and events from Albany, New York where Dunn Geoscience was based. NY-P's 2017 board called on its longstanding members to recall these early years, and learned of several prominent members, including George Banino, Al Depman, Professor Ed Doheny, Hank Maxwell, Wayne Hutchison, Jack Koczan, Haig Kasabach (the current Secretary of Sterling Hill Mining Museum located in Ogdensburg, NJ), and Noel Ravneberg. Two of NY-P's charter members, Noel Ravneberg of WCC and independent

consultant Al Depman, went on to become AEG's national presidents in 1977 and 1981, respectively. Noel Ravneberg was active within the Section holding positions, including secretary, vice chairperson, and chairperson, and served as chairman of the 1976 annual meeting in October sponsored by the NY-P Section and held in Cherry Hill, NJ.

Chairperson Lineage

The most thorough record of past chairpersons begins in 1980, with member Chuck Hunnewell who joined the Section with many of his colleagues in 1975. Then Don Ganser, who had worked at WCC, served in the mid-1980s; Ganser then went on to found Ganser and Associates in Denver, Colorado in 2007. Later John Naso of Leggette Brashears & Graham held the position, followed by Dave Muscalo from 1988–94 along with his Vice Chair Nick DeRose. Dave Muscalo also served as Chair for the 1996 Annual Meeting, the second one sponsored by NY-P. Subsequent Chairs include Chris Copley, Rich Bizub, Mark Zdepski, Rich Britton, Ted Toskos, Thom Waldron, Loren Lasky (December 2010–May 2014), Curt Schmidt, and our current chair Rose DeLorenzo.

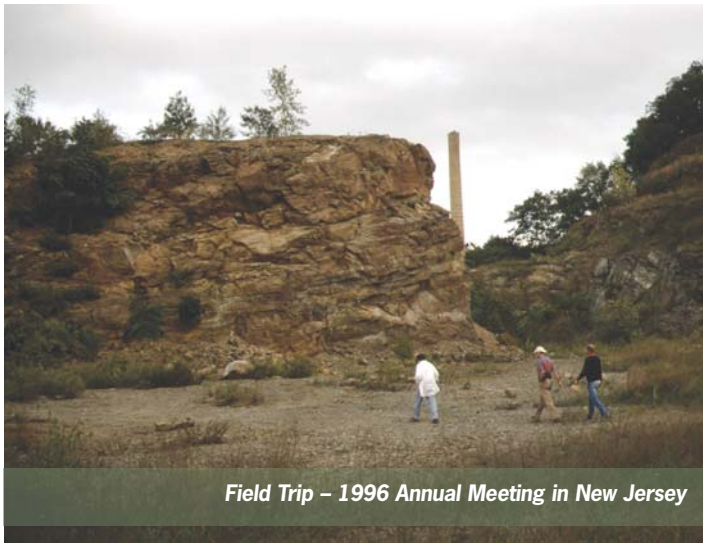
1996 Annual Meeting 1996

Planning and getting the 39th Annual Meeting (September 24–29, 1996) off the ground required a dedicated team of professionals, which was managed by Meeting Chairman Dave Muscalo and his assembled team of about 15 members. Program planning was headed by Dan Raviv of Dan Raviv Associates. Many meetings were held in NJ and PA as the team planned the venue, field trips and events, logistics, and registration. The week before the event was quite intense. Several meetings were held in Dan Raviv's office to check on the final guidebook, review registration/payments, and stuff registration packets.

The meeting was held at the Brunswick Hilton and Towers in East Brunswick, NJ.

The field trips committee was co-chaired by George Banino (RUST Environmental & Infrastructure) and Haig Kasabach (NJ State Geologist). They focused on four areas: The Engineering Geology of the Middle and Late Proterozoic Rocks of the New Jersey Highlands, The Geology and Environmental Management of the Hackensack Meadowlands and Adjacent Areas in New Jersey and New York, Overview of the Geology of the New York City Area, and An Inside Look at New York City Geology, which included a trip into New York City Water Tunnel #3.

The meeting was well received by all attendees. The success of the meeting was gauged in the amount of information exchanged and relationships gained with new prospective partners. In spite of low attendance from NY/NJ/PA professionals due to at least one competing meeting aimed at environmental professionals, the meeting attracted 117 registrants, 36 spouses and 22 exhibitors. Others attended only for a day or attended the annual dinner.



Field Trip – 1996 Annual Meeting in New Jersey

Memorable Field Trips

Contributions from Loren Lasky and Curt Schmidt

Rich Volkert's Field Trip of the NJ Highlands included stops at the well-known folded late Proterozoic gneiss along Route 23 north of Butler and the former E.I Dupont Pompton Lakes Works remediation site in Pompton Lakes. The day ended up with a tour of the Sterling Hill Mine Museum, where we were able to enter the upper areas of the former zinc mine. The museum has recreated actual conditions over the varied history of the mine.

A few years later, the NY-P returned to the Sterling Hill Mine for a Friends and Family Outing. The day included an insider's tour of the museum, a barbeque lunch, and then a rare tour of the ore processing buildings that contained machinery that had been left in-place when the mine was shut down suddenly in 1986 due to the low price of zinc. The storage silos still have a large amount of zinc ore that were present the day the mine was shut down.

Manhattan Circle Line Cruise: The New York Philadelphia Chapter ran a Geologic Cruise around the island of Manhattan in June 2012. Five sponsored students and 250 guests viewed geologic features from the oldest Precambrian basement complex to the youngest glacial moraine deposits in Brooklyn, while wining and dining on our Circle Line cruise. Our geologist narrator, Sidney Horenstein, from the Museum of Natural History, provided a fascinating non-stop commentary illustrating how New York City's unique geology influenced the history and development of the city. To quote Professor Horenstein: "Geology is surpassingly intuitive, accessible and concrete, and often has the excitement of a never-ending detective story!"

The Inversand Marl Pit in Mantua Township, in southern NJ. Professor Ken Lacovera of Drexel University (now with Rowan University) was our field trip leader and host for this 2015 field trip. Since then, the Inversand property was purchased by Rowan University and is being developed as the Rowan University Fossil Quarry, with Dr. Lacovera as the founding Dean of the new School of the Earth & Environment. Field trip attendees, including children of many of our members, spent time listening to Ken present the history of the marl pit, which was mined for use as fertilizer (skeletal remains) and manganese greensand.

We also were shown remains of a big sea turtle, and the braincase of a mosasaur, a giant swimming komodo dragon.

NJ "Geologist Licensing Act" (2003)

Many of our members, including Rich Bizub and Thom Waldron, were very active in mobilizing geologists to garner support of the NJ State Senate Bill. Unfortunately the bill, which was last advanced in 1990, did not gain sufficient support from the Senate Subcommittee and was strongly opposed by the professional engineers. Regardless, we put forth a good effort by attending hearings and contacting legislators.

Section/Chapter Meetings

Meeting locations have traveled around New Jersey because of its central location to our membership, and often based on convenience for our most active members. In the late 1980s, many meetings were held in Wayne, NJ, (Holiday Inn off Route 46). Later the meeting place of choice was the Victoria Manor in Edison, NJ. Since about 2004, our meetings moved to Somerset in central New Jersey, at a hotel/conference center where the name seemingly changes annually. Nevertheless, it serves as a great base for our Chapter.

Meetings, however, were not always held at a set location. In the late 1980s and into the mid-1990s, meetings were held in far-off wild places like the Gasho House in Central Valley, NY; the Navy Club in Camden, NJ; and occasionally at restaurants near Philadelphia. We have also held joint meetings with other engineering and environmental organizations at such locations as the Valley Forge Casino in King of Prussia, PA, and the Officers' Club at the former Fort Monmouth in Eatontown, NJ.

Chapter Today

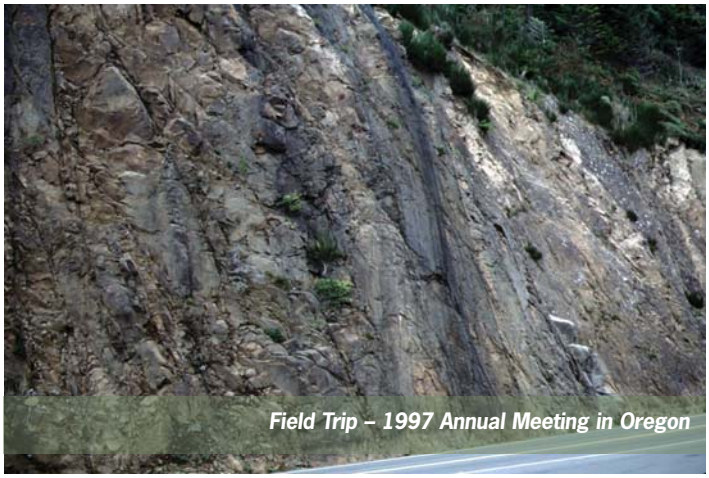
Over the past year the Chapter has established more committee positions to both better serve the Chapter and engage more of its members in leadership roles. As part of these new roles, we have been able to devote much time and effort towards social media, connecting the Chapter with more organizations and people. Chapter members are actively involved with students, including starting local student chapters at universities and colleges in the area and putting on an annual student night for students to present their research and connect with industry professionals. Furthermore, we have started partnering with similar industry organizations to sponsor an annual Aspiring Professionals Networking Event for young industry professionals.

NY-P is also setting up a scholarship program. Thank you to all our members, past and present, who came together to recall the New York – Philadelphia's Chapter story.

Oregon Section/Chapter

Benjamin George, Oregon Chapter Secretary

What follows is an abridged history of the Oregon Section. On April 28, 1965, W. L. Burnham sent notification that the AEG Board of Directors "acted upon the application of the Oregon group (of rag-tag geologists) for Section status." At our inception we were known as the Portland, Oregon Section. Sometime in 1976, we shortened our name to the Oregon Section, and we are now known as the Oregon Chapter with the changes that occurred to the structure of AEG in 2016. Over the course of the past 51 years as a part of AEG we have been honored to have over 40 different members serve on the board, contributing committees, and as volunteers. We have grown to a Chapter with 87 full members and a successful Student Chapter at Portland State University, with very active professors and students from Oregon State University and Western Oregon University.



Field Trip – 1997 Annual Meeting in Oregon

Our Section's newsletter evolved from a simple mailer to a great resource for distributing information on upcoming meetings, news from our Chair and AEG, and an avenue for local consulting firms, contractors and manufacturers to advertise to a select group. Many thanks to those who have spent countless hours working to compile the newsletter information. The fact that many other Chapters use our newsletter as a template speaks to its effective and attractive style.

In 1981, we hosted the 24th Annual Meeting, Newer Horizons in Engineering Geology. The technical program focused on the recent Mt. St. Helens eruption, nuclear waste disposal, instrumentation as geologic tools, geologic investigations, geologic hazards/landslides, coastal processes, and earthquakes/seismicity. There were field trips to the Hanford Atomic Reservation and Columbia River Gorge, to central Oregon and Northwest Oregon Coast to explore the engineering geology wonders of our world, and to the Lewis and Toutle Rivers to see the aftermath of the Mt. St. Helens eruption. Symposiums on risk analysis and professional liability were held.

We again hosted AEG members at the 40th Annual Meeting, Converging at Cascadia, in 1997. The wonderful technical program was accompanied by several short courses and field trips. Short courses offered information on topics such as regional seismic hazard analysis, stream system evaluation and rehabilitation, and geoscience on the internet (the new fandangled tool). Field trips lead observers to the Oregon Coast to see an abundance of landslides, into the Columbia River Gorge to see geologic beauty and the impressive Bonneville Dam, up Spirit Lake Memorial Highway to Mount St. Helens' awe and to

Willapa Bay, Washington for a canoe ride to see evidence of a magnitude 9.0 historic earthquake, circa 1700.

The Oregon Chapter is situated in a place of such beauty and geologic challenge. We are fortunate to have a dedicated group of people willing and able to be a part of the AEG family. We look forward to once again hosting the Annual Meeting in 2020 and hope to see you here in the beautiful Pacific Northwest.

Rocky Mountain Section/ Mile High Chapter

The Mile High Chapter (previously Rocky Mountain Section) extends along the Front Range of the majestic Rocky Mountains. The hub of activity is centered in Denver, CO. The Mile High Chapter was originally established as the Denver Section; the name was changed and the boundaries were greatly expanded in 1984. We have one Chapter, the New Mexico Chapter, and two student chapters: Colorado School of Mines (CSM) and South Dakota School of Mines and Technology (SDSMT).

The Section/Chapter has a history a strong activity with the association. Six AEG Presidents hailed from the Section: Edwin B. Eckel (1965), Richard W. Lemke (1970), John B. Ivey (1980), Robert M. Valentine (1984), Susan Steele Weir (1996), and Paul Santi (2016). It was the recipient of the AEG Outstanding Section Award in 2003 and 2006, The Colorado School of Mines Student Chapter received the Outstanding Student Chapter Award in 2002 and 2013, and shared second place in 2003. As the Rocky Mountain Section, it hosted AEG's Annual Meeting in 1965 and 1974 (Denver) and in 1989 and 2003 (Vail). As the Mile High Chapter, it will host the 2017 meeting in Colorado Springs. Members Wallace R. Hansen, Fitzhugh T. Lee, and William K. Smith all served as Association editors. Member Jill Carlson was the recipient of the 2013 Outstanding Service Award.

Past President Susan Steele Weir at the Chapter's holiday party

Monthly Meetings and Student Nights

The Mile High Chapter holds monthly meetings from September through May each year. We have had many interesting talks throughout the years along with field trips and social events. We have hosted a few Holiday parties at the Denver Botanical Gardens. The holiday lights are always amazing to see. We are planning our social event for this year to be in April. Most March meetings are reserved for the annual student night. The format is typically a poster session with an accompanying oral presentation. The local professionals are great about sponsorship of the event. The CSM Student Chapter typically puts on a raffle to earn extra money. The student winner receives a nice award and gift each year. The money raised goes towards discounting the student dinners for the monthly meetings and guest speaker expenses.

San Francisco Section/Chapter

Maggie Parks, Secretary and Morley Beckman, Chair

Greetings from soggy northern California! To celebrate 60 years of AEG, we asked our emeritus and longtime members to recount their memories of AEGSF's history. David Hoexter noted that our Chapter has been meeting on the second Tuesday of the month for at least 41 years—since 1976, when he joined!

Rex Upp recalled those meetings fondly: "I joined the AEG SF Section in 1976 when [I was] a grad student at Stanford. Meetings in those days were on the second Tuesday of the month, just as they are now. The meetings were held in San Francisco at The Engineers Club on the top two floors of the Hong Kong Bank Building located at the corner of Pine and Samson Streets in the Financial District. Street parking was free after 6:00 pm so we could park for free out in front. [Note from the editor: Free parking in downtown San Francisco? Hard to imagine!]

"The meetings began with social mingling and drinking in the bar on the lower floor. At 7:00 pm, we would walk up a grand staircase to the top floor for dinner and the program. When the meeting was over, the bar was already closed. A group or five to ten of us would walk the four blocks over to an open bar at the Embarcadero Center for a nightcap or two to fortify us for the long drive home. I would get home to San Jose after 11:00 pm. I still can't believe we actually did that and all survived."

Rex's tales definitely take us back to a different time! We're all glad you survived, too!

On a sweet note, our longtime member Bob Tepel and his wife Alice are attendees at almost every meeting, and on at least one occasion they celebrated their wedding anniversary at an AEG dinner meeting with their extended geology family. These connections are what keep our Chapter strong!

Many of our longtime members have held leadership positions within AEGSF, and at the national level within AEG. At our most recent meeting, we counted at least three AEG Past Presidents in the room: John Williams (1988), Bob Tepel (1994), and Rex Upp (2001) and an unknown but presumably sizable group of AEG Presidents-to-Be.

Both Rex Upp and Ed Medley recalled their years serving on the local board, and their efforts to attract new members. According to Ed, "For a couple of years I was Section Member-

ship Chair (after Rex Upp), when I worked really hard to muster more members. I did so—only to discover at the end of my duty that just as many folk had left as had joined. Which is what Rex told me would happen... "

But the story has a happy ending! When Rex told us about the challenges attracting members, he had this to share: "I was membership chair for eight or nine years from the 1980s to the 1990s. Becoming a member was a tedious process that included submitting college transcripts and sponsorship forms from three members. I couldn't make any headway in getting this process changed from San Francisco, so when offered the challenge of becoming Section Chair I accepted and was elected in 1994. As an AEG board member, I was able to get the process simplified by a unanimous vote of the board."

As our Section/Chapter has grown in the past few years, the current officers would like to heartily thank Rex, Ed, Bob, David, and all the other longtime members and officers who came before us. You are too numerous to mention, and your dedication to AEG has inspired many future generations of geologists and engineers. We thank you for your hard work to build our Chapter, reduce the barriers to entry into AEG, and keep our traditions going!

More recently, our Past Chair Sarah Kalika shared this photo of her exciting "life on the edge" as a geologist. The photo was taken at the Salt Lake City annual meeting in 2012, when she was pregnant with her twin daughters!

We hope to continue our proud tradition (every second Tuesday!) here in the San Francisco Bay Area for many years to come.

South Africa Section/Chapter

In 1970, there were 30 engineering geologists practicing in South Africa and the time had come to establish a professional society. Some had been participating in the Division of Soil Mechanics and Foundation Engineering of the South African Institute of Civil Engineers (SAICE) but a separate society to cater specifically to the professional needs of engineering geologists was needed.

Three of the engineering geologists (John Weaver, Bernard Kraft, and Monte van Schalkwyk) were already members of the Association of Engineering Geologists in the USA. An initial pursuance committee made up of these three AEG members, Konrad Clauss, and Mick Mountain explored a few avenues to get a separate society started. Their efforts culminated in the formation of the AEG South African Section (SAIEG), which had its first meeting on February 22, 1972. (Introduction extracted from *A Century of Geological Endeavor in Southern Africa: 1895–1995*. Editor: Carl R Anhaeusser, Publisher: Linden: Geological Society of South Africa, (1997.)

There is no question that AEG at the time provided a home for us and did a lot for South African engineering geology profession. We still retain our ties with AEG and must always be grateful for the home they provided to us from the early 1970s.

SAIEG asked its members for any memories they had of their roles in and the activities of the Section. Here follows some of our member's contributions:

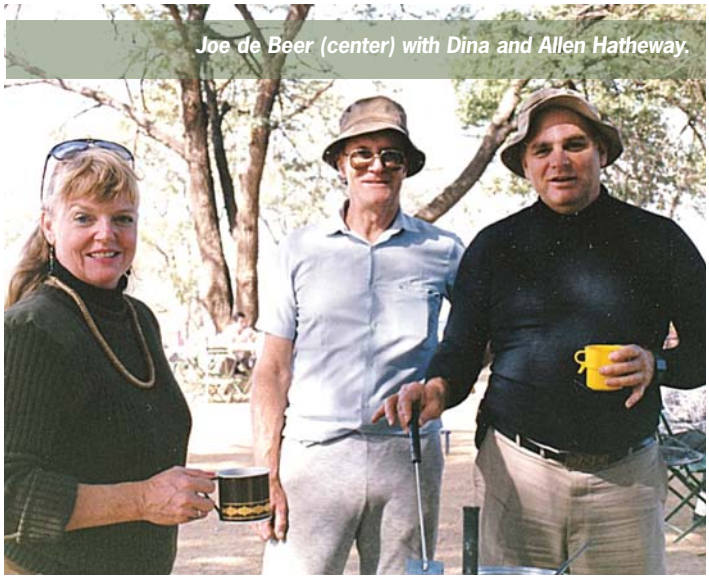
In 1973, JH (Joe) de Beer was elected onto the AEG Committee. Joe served on a number of sub-committees, one being responsible for the preparation of a guide for the description of rock cores for engineering geological purposes. He also served on a committee looking at the safety of persons working in small diameter trial holes for the purpose of recording soils profiles. This Illustrates the important role AEG had in the establishment of formal engineering geological practice in South Africa.

In 1974, as Chairman of the new South Africa Section, Joe was invited by AEG to attend the Annual Meeting in Denver, CO. Once there, Joe was welcomed into the homes of Dick and June Lemke and Bob Valentine and his wife. Joe and his wife Paddy became firm friends with the Lemkes and Joe corresponded with them for many years until shortly before Dick's death.

At the Denver meeting, Joe was privileged to meet some of the great names in AEG such as Ed Eckel, Pete Henley, Sam Sargent, Ray Throckmorton, Jasper Holland, Noel Ravneberg, Buzz Spellman, Richard Proctor, John Ivey, Al Depman, Dick Galster, Norman Tilford, John W. Williams, Chris Mathewson, Bob Schlossen and David Varnes.

Kobus Venter joined the AEG Section in 1973 and by 1975 he was co-opted onto the committee as program organizer. He recalls how the AEG Section cooperated closely with the Geotechnical Division of SAICE and the how the SA Section helped in establishing the profession of engineering geology in South Africa.

Frank Netterberg attended the AEG Annual Meeting in 1976 at Cherry Hill while Chair of the AEG (SA Section) where he received the Holdredge Award. He remembers a dramatic presentation on the failure of the Teton Dam and also mentions that



Joe de Beer (center) with Dina and Allen Hatheway.

he made good contacts there and kept them up for many years.

Joe de Beer attended two additional Annual Meetings as chairman of the South African Chapter: Seattle in 1977 and Boston in 1984. In Seattle, Joe was privileged to meet Dr. Robert Leggett, the author of *Cities and Geology*. Joe had had correspondence with Dr Leggett for a couple of years before the publication of his book in 1972. The correspondence was on Joe's Master's thesis on the engineering geology of Johannesburg and his involvement in the subsequent establishment of the Geotechnical Data Bank by the City Engineer's Department in Johannesburg.

In 1980 the Section organized the first conference with the theme Engineering Geology of Southern Africa, and Kobus assisted Dr. Tony Brink to set up the field trip, which followed the conference. In that same year, Phil Paige-Green was elected to the AEG committee where his first task was to gather contributions on the activities of members for inclusion in the quarterly newsletter of AEG. This involved phoning as many members as possible and summarizing what projects they were busy with and posting the contributions off to the USA for publication.

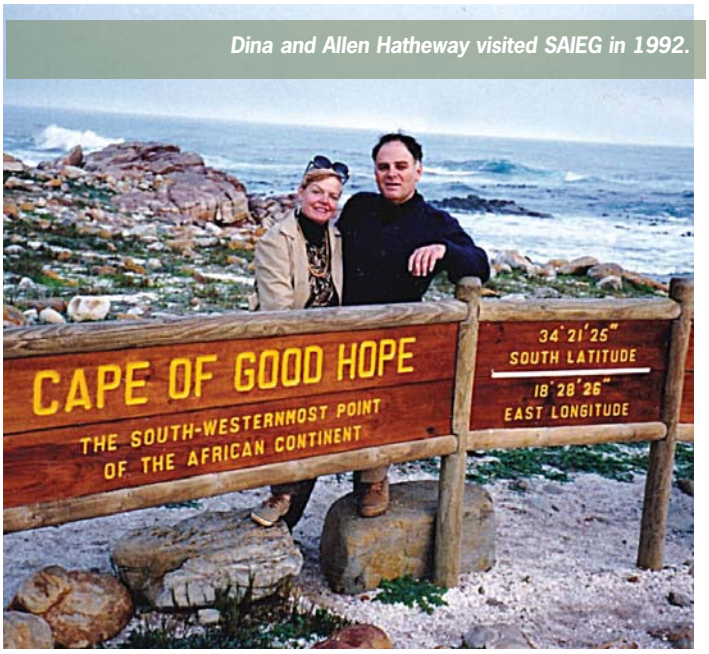
In 1981, Henning Olivier (as Chairman) and Kobus Venter attended the Annual AEG meeting in Portland, Oregon. During that same year, SAIEG held another conference, this time on The Engineering Geology of Cities in South Africa at which Chris Mathewson was the keynote speaker. After the conference, Phil Paige-Green was privileged to take Chris and his family to the Kruger National Park for a short visit.

Kobus Venter also attended the AEG Annual Meeting in San Diego in 1983 as Chairman of the S.A. Section and during that trip he and his wife Marianne drove to Los Angeles with Dick Proctor. He visited a number of prominent AEG members during his trips, always experiencing their warm hospitality. These members included Bob Valentine in Houston, Chris Mathewson in College Station, Don Banks in Vicksburg, Terry West at Purdue University and John Ivey in Denver.

In 1989, Joe de Beer was again very active in AEG and attended, with his late wife Paddy, the Annual Meeting in Vail Colorado. Joe also established a friendship with Allen Hatheway and his wife Dina who both visited South Africa and stayed with the de Beers in Johannesburg in June 1990 during a lecture tour by Allen of South Africa. Together they visited the Kruger National Park and on one occasion witnessed a lion pulling down a large kudu bull right in front of their vehicle.

In more recent times, Richard Puchner attended the annual meeting in Salt Lake City (2012) and Robert Leyland attended the AEG Annual Meetings in Seattle (2013), Pittsburg (2015), and Kona (Hawaii) (2016) the last two as Section Chair. Robert was always welcomed and invited to attend events organized around the meeting. He also mentions that he was impressed by the family-like atmosphere of the AEG meetings.

With respect to technical presentations and field visits Joe de Beer remembers attending a presentation by George Kiersch on the Vaiont Dam failure in Italy during October 1963. George was the first engineering geologist to arrive on the scene of the destruction wrought by the



Dina and Allen Hatheway visited SAIEG in 1992.

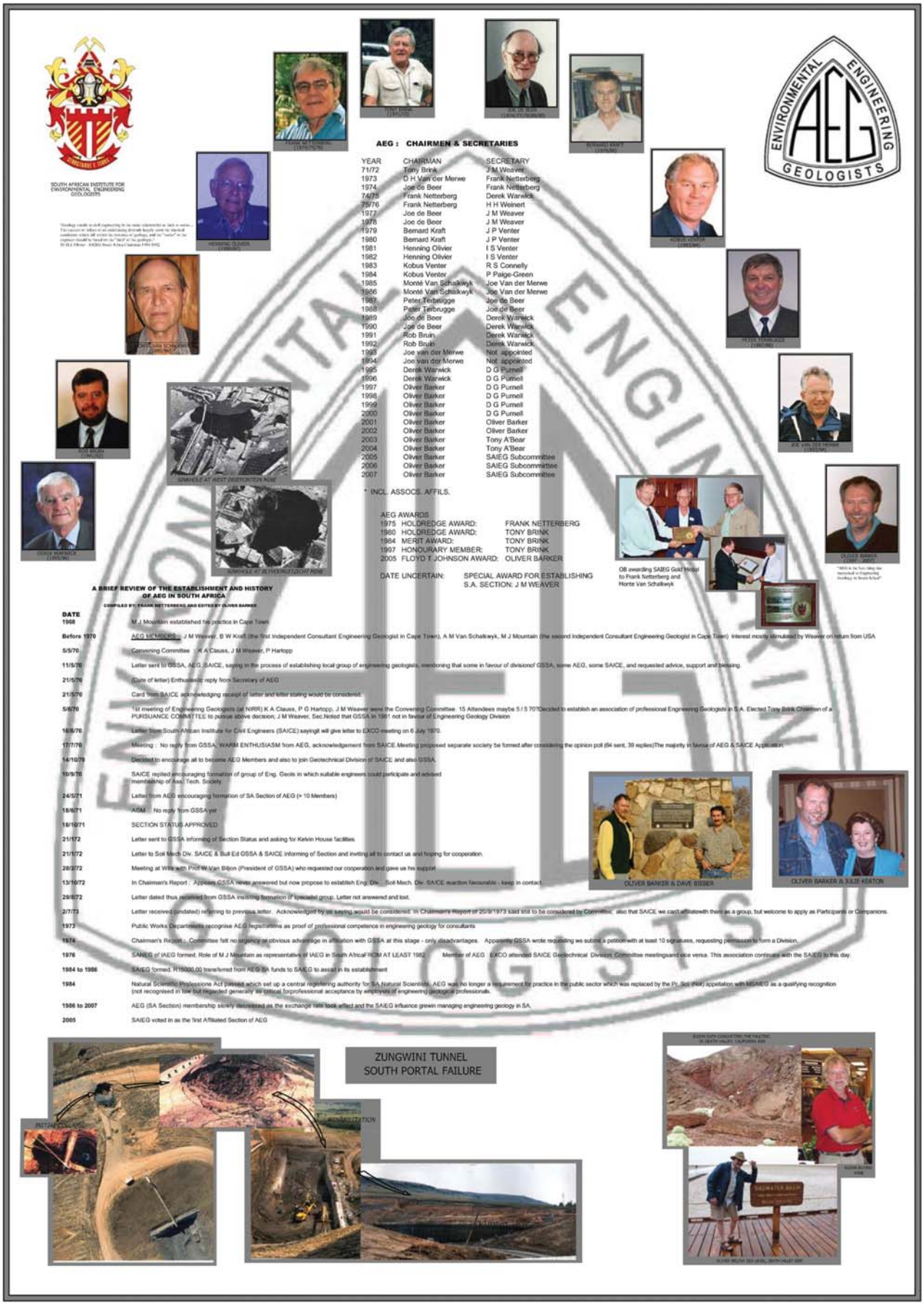
near-instantaneous slope failure collapse of some 300 million cubic meter of steeply dipping strata of the side of Mount Toc at Vaiont Dam. This resulted in a 125-meter-high wave of displaced reservoir waters flooding over the undamaged concrete gravity dam. This caused the destruction of several villages in the Longarone Valley immediately downstream and at least 2,065 lives were lost (See "Memorial to Kiersch" by Allen Hatheway).

For our Past President of SAIEG, Phil Paige-Green, in his early years AEG was the only organization for engineering geologists in South Africa and had regular evening meetings as well as regular site visits to the rapidly expanding infrastructure and developments in South Africa, during the "boom" years. According to Phil, those interactions gave him, as a young professional, extraordinary opportunities to mix with the more senior members of AEG in South Africa, although the total membership at the time was only about 30.

Of special interest were the short courses and lectures presented by AEG members from the USA during their visits to South Africa. The most recent outcome of the involvement of South African Members at the Annual Meetings in the USA have been talks presented in South Africa by AEG members visiting the country.

During Phil Paige-Green's tenure as the Vice President for Africa of IAEG, the IAEG held their annual ExCo and Council meetings at the Landslide Conference in Vail in 2007. In their inimitable way, AEG hosted a memorable dinner during the conference for all the IAEG Executive Committee members. In addition, Scott Burns "hosted" a day tour of some of the wine estates in the Rockies in which he expounded on the virtues of terroir in producing good wines

Oliver Barker took over the reins of the AEG in South Africa in 1997. At this time the Section had been through several years without overseas visitors, the last being John Williams in 1992 for Environmental Geology and Land Use Planning. John gave the one-day course in Pretoria, Cape Town and Durban.



SOUTH AFRICAN INSTITUTE FOR ENVIRONMENTAL ENGINEERING GEOLOGISTS

ENVIRONMENTAL ENGINEERING AEG GEOLOGISTS

AEG : CHAIRMEN & SECRETARIES

YEAR	CHAIRMAN	SECRETARY
71/72	Tony Brink	J M Weaver
1973	D H Van der Merwe	Frank Netterberg
1974	Joe de Beer	Frank Netterberg
74/75	Frank Netterberg	Derek Warwick
75/76	Frank Netterberg	H H Weinert
1977	Joe de Beer	J M Weaver
1978	Joe de Beer	J M Weaver
1979	Bernard Kraft	J P Venter
1980	Bernard Kraft	J P Venter
1981	Henning Olivier	I S Venter
1982	Henning Olivier	I S Venter
1983	Kobus Venter	R S Connelly
1984	Kobus Venter	P Paige-Green
1985	Monté Van Schalkwyk	Joe Van der Merwe
1986	Monté Van Schalkwyk	Joe Van der Merwe
1987	Peter Terbrugge	Joe de Beer
1988	Peter Terbrugge	Joe de Beer
1989	Joe de Beer	Derek Warwick
1990	Joe de Beer	Derek Warwick
1991	Rob Bruin	Derek Warwick
1992	Rob Bruin	Derek Warwick
1993	Joe van der Merwe	Not appointed
1994	Joe van der Merwe	Not appointed
1995	Derek Warwick	D G Purnell
1996	Derek Warwick	D G Purnell
1997	Oliver Barker	D G Purnell
1998	Oliver Barker	D G Purnell
1999	Oliver Barker	D G Purnell
2000	Oliver Barker	D G Purnell
2001	Oliver Barker	Oliver Barker
2002	Oliver Barker	Oliver Barker
2003	Oliver Barker	Tony A'Bear
2004	Oliver Barker	Tony A'Bear
2005	Oliver Barker	SAIEG Subcommittee
2006	Oliver Barker	SAIEG Subcommittee
2007	Oliver Barker	SAIEG Subcommittee

* INCL. ASSOCS. AFFILS.

AEG AWARDS

1975	HOLDREDGE AWARD:	FRANK NETTERBERG
1980	HOLDREDGE AWARD:	TONY BRINK
1984	MERIT AWARD:	TONY BRINK
1997	HONOURARY MEMBER:	TONY BRINK
2005	FLOYD T JOHNSON AWARD:	OLIVER BARKER

DATE UNCERTAIN: SPECIAL AWARD FOR ESTABLISHING S.A. SECTION: J M WEAVER

OB awarding SAIEG Gold Medal to Frank Netterberg and Monte Van Schalkwyk

A BRIEF REVIEW OF THE ESTABLISHMENT AND HISTORY OF AEG IN SOUTH AFRICA

COMPILED BY: FRANK NETTERBERG AND EDITED BY OLIVER BARKER

DATE	
1968	M J Mountain established his practice in Cape Town
Before 1970	AEG MEMBERS: - J M Weaver, B W Kraft (the first Independent Consultant Engineering Geologist in Cape Town), A M Van Schalkwyk, M J Mountain (the second Independent Consultant Engineering Geologist in Cape Town) Interest mostly stimulated by Weaver on return from USA
5/5/70	Convening Committee : - K A Clauss, J M Weaver, P Hartopp
11/5/70	Letter sent to GSSA, AEG ,SAICE, saying in the process of establishing local group of engineering geologists, mentioning that some in favour of divisionof GSSA, some AEG, some SAICE, and requested advice, support and blessing
21/5/70	(Date of letter) Enthusiastic reply from Secretary of AEG
21/5/70	Card from SAICE acknowledging receipt of letter and letter stating would be considered.
5/6/70	1st meeting of Engineering Geologists (at NIRR) K A Clauss, P G Hartopp, J M Weaver were the Convening Committee. 15 Attendees maybe 5 / 5 70?Decided to establish an association of professional Engineering Geologists in S.A. Elected Tony Brink Chairman of a PURSUANCE COMMITTEE to pursue above decision; J M Weaver, Sec.Noted that GSSA in 1961 not in favour of Engineering Geology Division
16/6/70	Letter from South African Institute for Civil Engineers (SAICE) sayingit will give letter to EXCO meeting on 6 July 1970.
17/7/70	Meeting : No reply from GSSA; WARM ENTHUSIASM from AEG, acknowledgement from SAICE.Meeting proposed separate society be formed after considering the opinion poll (64 sent, 39 replies)The majority in favour of AEG & SAICE Application.
14/10/70	Decided to encourage all to become AEG Members and also to join Geotechnical Division of SAICE and also GSSA.
10/9/70	SAICE replied encouraging formation of group of Eng. Geols in which suitable engineers could participate and advised membership of Adv. Tech. Society
24/5/71	Letter from AEG encouraging formation of SA Section of AEG (> 10 Members)
18/6/71	AGM : No reply from GSSA yet
18/10/71	SECTION STATUS APPROVED
21/1/72	Letter sent to GSSA informing of Section Status and asking for Kelvin House facilities
21/1/72	Letter to Soil Mech Div. SAICE & Bull Ed GSSA & SAICE informing of Section and inviting all to contact us and hoping for cooperation.
28/2/72	Meeting at Wits with Prof W.Van Biljon (President of GSSA) who requested our cooperation and gave us his support
13/10/72	In Chairman's Report : Appears GSSA never answered but now propose to establish Eng. Div. Soil Mech. Div. SAICE reaction favourable - keep in contact
29/6/72	Letter dated thus received from GSSA insisting formation of Specialist group. Letter not answered and lost.
2/7/73	Letter received (undated) referring to previous letter. Acknowledged by us saying would be considered. In Chairman's Report of 20/9/1973 said still to be considered by Committee; also that SAICE we can't affiliatewith them as a group, but welcome to apply as Participants or Companions.
1973	Public Works Department's recognise AEG registrations as proof of professional competence in engineering geology for consultants
1974	Chairman's Report : Committee felt no urgency or obvious advantage in affiliation with GSSA at this stage - only disadvantages. Apparently GSSA wrote requesting we submit a petition with at least 10 signatures, requesting permission to form a Division.
1976	SAIEG of IAEG formed. Role of M J Mountain as representative of IAEG in South Africa FROM AT LEAST 1982 Member of AEG EXCO attended SAICE Geotechnical Division Committee meetingsand vice versa. This association continues with the SAIEG to this day.
1984 to 1986	SAIEG formed. R15000.00 transferred from AEG SA funds to SAIEG to assist in its establishment
1994	Natural Scientific Professions Act passed which set up a central registering authority for SA Natural Scientists. AEG was no longer a requirement for practice in the public sector which was replaced by the Pr. Sci (Nat) appellation with MSAIEG as a qualifying recognition (not recognised in law but regarded generally as critical forprofessional acceptance by employers of engineering geological professionals.
1986 to 2007	AEG (SA Section) membership slowly decreased as the exchange rate took effect and the SAIEG influence grewin managing engineering geology in SA.
2005	SAIEG voted in as the first Affiliated Section of AEG

OLIVER BARKER & DAVE BIEBER

OLIVER BARKER & JULIE KEATON

ZUNGWINI TUNNEL SOUTH PORTAL FAILURE

The cost at the time was R250 per delegate! To Oliver, this was an eye opener as it spoke to his lifelong belief in holistic solutions and the involvement of environmental issues in our practice of engineering geology. This was a landmark event as AEG and SAIEG moved some ten years later to include the term "environmental geology" in its mantra.

The kickoff of Oliver's first year as Chair of SAIEG was to try and re-establish the earlier connectivity with AEG. The committee included Joe de Beer (once again!), Derek Warwick and Oliver. After some searching it was decided George Kiersh would be a good candidate; however, he could not make it.

At the same time, we suggested that AEG could consider Tony Brink for an honorary membership award, and so it came to pass that the "Roy and Eldon" show hit our shores, awarded Tony and gave talks in Johannesburg and Cape Town to enthusiastic students, town planners, and geologists.

Southern California - Inland Empire Chapter

(Riverside and San Bernardino Counties)

James Burns, Secretary

The Inland Empire Chapter was formed in the spring of 2005 primarily due to the extensive time and travel commitment required to attend meetings in the Los Angeles area, about sixty miles to the west. A supplementary motive was that it would strengthen attendance of the Southern California Section by establishing Chapters, not only in the Inland Empire, but also on the Central Coast and in San Diego. The idea of a local AEG Chapter was very appealing and was realized through the collective organizing efforts of several practicing engineering geologist in the geologically diverse region of the Inland Empire. The following individuals are a partial list of some of the key organizers: Frank Jordan (1st Section Chair), Gary Wallace (2nd Section Chair), David Gaddie, Rick Gundry, Michael Cook, Doug Cook, Mark Spykerman, Richard Orr, and Kerry Cato. These engineering geologists, among many others, performed various functions over the past 12 years including, but not limited to: Chair, Treasurer, Membership Chair, Newsletter Editor, Field Trip Chairman and/or Webmaster. Most, if not all, are still regular attendees at monthly meetings.

The Inland Empire Chapter established itself as a motivated organization promoting the advancement of the Engineering Geology Profession. In the early years, as the Chapter was essentially broke, equipment had to be borrowed from consultants for presentations. Initially, lectures were basically "work presentations," but evolved over time to more scholarly presentations. Financial gains were realized after our first short course and through supplemental fees from professional members in addition to the normal meeting fees.

Our well-attended monthly meetings are held in various venues throughout the region to optimize meeting attendance during the year. Speakers have come from industry, academia, local and state agencies, the California Geological Survey, and the United States Geological Survey. The Inland Empire Chapter has conducted one- and two-day Short Course training seminars covering topics such as rock slope engineering, changes in the California Building Standards Code, landslides and slope stability, risk analysis, and advancement in technology such as GPS mapping systems.

Twelve annual field trips have been conducted to various areas across our incredibly geologically diverse region. For example, trips have been put together and completed to view degradation of the Landers earthquake fault scarp sixteen years after the event, impacts of winter storms in December 2010 in Highland, faulting along the San Jacinto Fault, and development versus faulting within the Temecula area.

Since its inception, the Chapter has made it a point to be closely tied with local Universities such as California State University San Bernardino, The University of California at Riverside, and California State Polytechnic University Pomona. The Chapter has and does hold periodic monthly meetings on campus, promoting mentorship and providing scholarships in the form of Brunton compasses and funds to the geology departments, undergrads and graduate students.

Washington Section/ Puget Sound Chapter

The Puget Sound Chapter of AEG began as the Washington Section on June 10, 1963, and holds the honor of being the first AEG Section formed outside of California. Thirteen members, some with affiliations in Washington State and California, started the Section. By the first technical meeting in August 1963, which was held at the infamous Poodle Dog Restaurant in Fife, WA, the Section had 29 members.

The founding 13 members of the Washington Section: Allen S. Cary (U.S. Corps of Engineers, Seattle), John Fryberger (Robinson and Roberts, Tacoma), Fred O. Jones (Consultant, Spokane), Robert G. Kenly, Jr. (GeoRecon, Seattle), Byron I. Larsen (Consultant, Tacoma), Henry Minch (Metro Engineers, Seattle), Dee Molenaar (WA Department of Water Resources, Olympia), Willard Purnell (Dames and Moore, Seattle), John Robinson (Robinson and Roberts, Tacoma), Robert H. Russell (WA Department of Water Resources, Olympia), Sigmund Schwarz (GeoRecon, Seattle), Eugene F. Wallace (WA Department of Water Resources, Olympia), and Tom V. Zimmerman (WA Department of Highways, Olympia).

The boundary of the Section initially included only western Washington until 1977 when it was expanded to include the entire state. The boundary was expanded again in 1990 to include the panhandle of Idaho and western and central Montana. In 2016, with the change from section to chapter model, the Section voted in our current name, the Puget Sound Chapter. The Chapter currently has 175 members who have renewed through 2017, 55 of which are students. Our Chapter has and does include many members active at the association level, including the current treasurer, former presidents, honorary members, and meritorious service awardees.

The current activities of the Puget Sound Chapter are focused around the Seattle-Tacoma-Olympia urban corridor where most of our members reside. The Chapter also includes three student chapters: Central Washington University (founded in 2011), Western Washington University (founded in 2011), and University of Washington (founded in 2013).

As it has for the past 54 years, our Chapter holds dinner meetings September through May, featuring technical presentations. Beginning in 2011, student presentation's night meetings has become an annual event held each May.

We sometimes partner with other professional groups, such as American Society of Civil Engineers and Association for Women Geoscientists, to share meetings. Our Chapter is currently partnering with Northwest Geological Society for a Pacific Northwest focused symposium in 2018.

The Puget Sound Chapter sponsored many field trips over the years to various engineering projects and construction sites throughout the state, hosted three Annual Meetings of the Association (1968, 1977, and 2013), and hosted a technical forum entitled Time to Face the Landslide Hazard Dilemma: Bridging Science, Policy, Public Safety, and Potential Loss (2015), which was initiated following the SR 530 Landslide (Oso landslide) occurring in Snohomish County, WA, in 2014. The main objective of the forum was to develop strategies for bridging the gap between science and public interests. The presentations included lessons learned from the SR 530 Landslide and other recent landslides; existing landslide hazard assessment programs (domestic and international); laws and regulations in various states, local jurisdictions, and internationally; lessons that can be learned from other hazards; and perspectives from policy makers, and the insurance and real estate industry. The forum included workshop discussions on developing strategies for national action while recognizing state and local rights. A field trip to local slides (including the SR 530 landslide) was sold out early on in registration.

These meetings were well attended and produced excellent field trip guides. From 1986–89, the Section, with the assistance of the state Division of Geology and Earth Resources, produced the award-winning volumes Engineering Geology in Washington to commemorate the Washington State centennial. We have run many short courses, participated in public education and workshops related to geologic hazards, and developed outreach to schools.

Since the beginning of the Section, state registration of geologists has been high on the list of desired accomplishments with success achieved in April 2000 when the Geologists Licensing Act was signed by Governor Locke. The law included establishment of licensing specialties in both Engineering Geology and Hydrogeology. The licensing law was effective on July 1, 2002. Multiple AEG members have and currently serve on the Licensing Board. In addition, we have provided testimony at the state legislature as needed for critical regulations (i.e., licensing of geologists) and we have had committees to handle specific needs such as forthcoming guidance or regulations for development in active fault zones.

Field Trip – 2013 Annual Meeting in Seattle, Washington

Editors' Note: *Our thanks to all of the Sections/Chapters that took the time to respond to our request for their stories and photos. AEG's history would not be complete without these rememberances.*

Special thanks to longtime AEG Member and Past President Chris Mathewson for providing us with a selection of digital photos from Annual Meetings dating back to 1977.

Richard E. Gray Recognized

Distinguished Alumni by Carnegie Mellon University

The university's Civil & Environmental Engineering (CEE) department presented AEG Past President and Honorary Member Richard E. (Dick) Gray (BS '56) with the Distinguished Alumni Award, which honors an alumnus who has made one or more major achievement to advance the work of professional engineers or to improve people's lives in some way.

Gray is an internationally recognized engineering geology and geotechnical engineering expert who has completed projects ranging from foundation engineering to mine subsidence and stabilization to mine fire control to disposal sites for fly ash. He continues to share his talents with the next generation through DiGioia Gray and Associates, a company he founded with fellow CEE alumnus Tony DiGioia in 2005.

Gray is involved in many technical and professional organizations, including the American Society of Civil Engineers, and the Pittsburgh Geological Society, and he has been chairman or president of three major U.S. engineering and geology groups: The Engineering Geology Division of the Geological Society of America, and the Association of Engineering Geologists, the U.S. Committee of the International Association for Engineering, Geology, and the Environment.

"I accept this award in recognition of a great group of young men, the Civil Engineering Class of '56 and our teachers," Gray said. "I am thankful for the concept of lifelong learning that was instilled in us as students."

The department was honored to host this event and congratulates the recipients for their success and achievements. "We have many impressive, passionate, and supportive alumni, and you all make the strength of our department grow day by day," said Department Head Dave Dzombak. "We are very proud of the accomplishments that all of our graduates have achieved and we're grateful for many of the ways you give back to the department and support our students."

Tunneling News from Seattle, WA…

Bertha Tunneling Machine Pushes toward Finish Line on SR 99 Tunnel Dig

Sevin Bilir, Puget Sound Chapter Secretary

The SR 99 tunneling machine is closing in on the finish line of a 9,270-foot tunnel that will lead to the removal of the Alaskan Way Viaduct. Seattle Tunnel Partners have now excavated more than 7,751 feet of the SR 99 tunnel. Bertha is just east of the intersection of Battery Street and Fifth Ave.

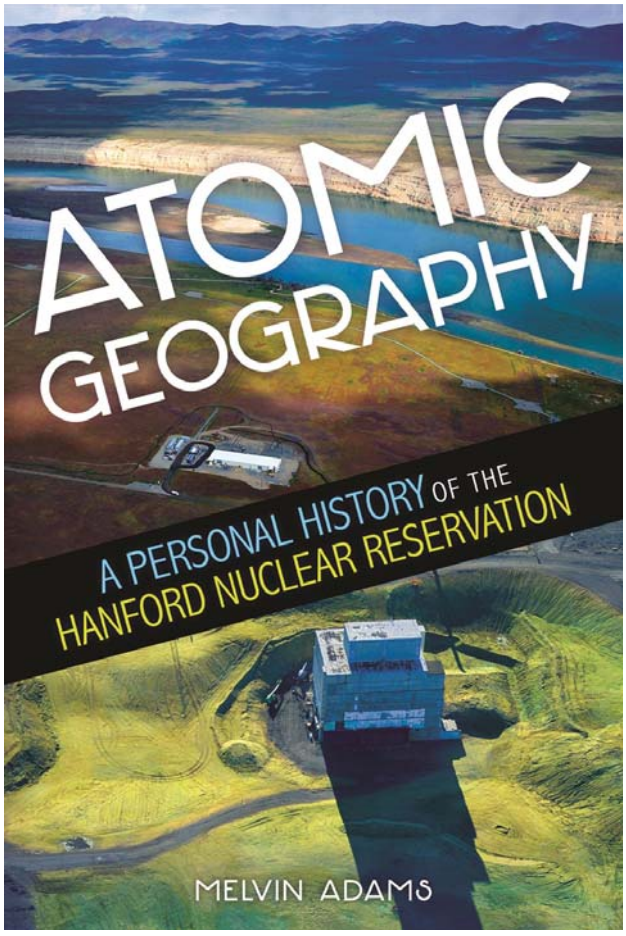
The ground along the tunnel route remains stable as Bertha pushes toward the finish line near Seattle Center. Crews are now less than 1,600 feet from the end of the tunnel drive, and the machine is climbing at a steady rate. The distance between the top of the machine and the surface is approximately 115 feet. The tunnel, at its deepest point, is approximately 215 feet deep.

The finish line—a 90-foot-deep receiving pit near Thomas Street, at the north end of downtown—is largely complete, along with many other aspects of the tunnel portals.

Engineering Challenges at Hanford

Melvin Adams

In my recently released memoir, Atomic Geography, set on the Hanford Nuclear Reservation in the desert of Washington State, I discuss some of the engineering challenges I worked on in my 24 years on the site, as well as the unique natural and cultural history of the 580 square mile area. Hanford was created during WWII to make plutonium for the Nagasaki bomb dropped on Japan and continued throughout the Cold War. The majority of the plutonium used in our nuclear arsenal was made at Hanford. Plutonium production ceased in 1988.



Atomic Geography: A Personal History of the Hanford Nuclear Reservation, Washington State University Press, November 2016. Melvin Adams author.

Today, Hanford is totally devoted to the enormously complex and expensive cleanup of the waste sites and facilities at the site including groundwater, buried solid wastes, soil contamination, and has a variety of facilities including reactors, processing plants, and million gallon tanks containing a variety of chemicals and radioactive isotopes in the form of "salt cake" and "sludge." About 67 of these 177 tanks have leaked to the ground throughout the years. Due to the proximity of the tanks to the Columbia River, disposal of the wastes in these tanks is a primary focus of the cleanup effort. Over 2 billion dollars per year have been spent at Hanford on environmental cleanup for over two decades and this level of expenditure will need to continue for several more decades.

Hanford is unique because of its natural setting but also because of the cultural progression that occurred there. The site was originally used by several native tribes as fishing grounds for the abundant salmon runs in the river. Before WWII, the lands along the river were the location of a number of small farming villages—a beautiful place to live and raise a variety of crops. When the government in WWII began to develop atomic bombs, the site was chosen for the construction of the first full-scale operating reactor in the world (B reactor) to make plutonium. (Hanford would eventually have nine operating reactors.)

Over 50,000 workers were brought to Hanford during WWII to build the first reactor, processing plants and labs. Only a handful knew what they were building. This established a culture of secrecy that framed the cultural life of the community for decades. The nearby town of Richland was built by the government using several standard home designs and even the first churches were sponsored by the government. Today the city of Richland is an independent entity and the homes are now privately held and have become highly modified by the owners. Today Richland and the nearby towns of Kennewick and Pasco are highly diversified and thriving cities due to abundant water and electricity, open spaces and a favorable climate—the same features that attracted the government in the first place.

The extreme irony of Hanford is that despite being a very complex and challenging collection of waste sites containing chemicals and radionuclides in a variety of configurations, the site as a whole is a large, untouched wildlife refuge. Only about 100 square miles of the 580 square miles have waste sites or contaminated groundwater plumes. Lands bordering the Columbia River are now part of the Hanford Reach National Monument established by President Clinton. More recently B-reactor has become part of the Manhattan Project Historic National Park established by President Obama. Because of its isolation and secrecy for so many years, the majority of the site was never touched by development. The site has a number of plants, snails, moths, insects found nowhere else and could be the home of over 15,000 insect species—most not yet cataloged. It has its own thriving elk herd, burrowing owls, nesting eagles along the river, beaver, coyotes and many other species both avian and mammal. The Hanford reach is the last undammed portion of the Columbia River and is one of the most important salmon spawning grounds on the river.

During my tenure at Hanford, I had the pleasure of managing the environmental engineering group. I joined Hanford when the cleanup effort was starting to gain momentum and I saw the transition from plutonium production to cleanup. A diverse staff was required to handle a variety of waste configurations including contaminated groundwater (100 square miles

of several different plumes); burial trenches filled with everything from tools, lumber, railroad locomotives, trucks, boats, and a plethora of other items; contaminated plants and animals spread over many square miles of habitat; contaminated soils; leaking million gallon tanks filled with salt cake and sludge; and facilities ranging from labs to reactors. There are 1,800 waste sites and 1,400 facilities to be dealt with.

Eventually, the environmental engineering group consisted of biologists, geologists, groundwater hydrologists, chemical and nuclear engineers, environmental chemists, historians, geotechnical engineers, geophysicists, drilling engineers (to drill groundwater monitoring wells), agricultural engineers and, of course, environmental engineers. Many of the problems faced by the group were unsolved and unique to Hanford.

During my stay at Hanford and since my retirement, great progress has been made in groundwater treatment primarily with pump and treat systems, soil cleanup including the construction of a massive engineered landfill to hold excavated soils and solid wastes, control of biologic vectors including control of tumbleweeds (Russian thistle) that brought up contamination from soils beneath the surface. The most demanding challenge left at Hanford today is the disposal of the salt cake and sludge in the million gallon tanks. A complex and very expensive vitrification (glass) plant is being constructed to turn these wastes into glass after retrieval from the tanks.

Space does not permit a discussion of all the engineering challenges faced by the environmental engineering group so I will just mention one that may be of particular interest to readers of this periodical. Others are discussed in my book *Atomic Geography*.

One of the most interesting projects I worked on was a water-retaining engineered barrier based on natural analogs. There was a need at Hanford for a barrier made of natural materials and based on natural processes. A number of types of waste sites will remain at Hanford after cleanup including the large engineered landfill containing soil and solid wastes and empty million-gallon tank shells. It is important to keep water out of these sites for hundreds if not thousands of years. If the driving force of water can be kept out of the sites, the radionuclides and chemicals cannot be taken to the groundwater below. In addition, plants and animals tend to follow the water and it is important that they not intrude into the wastes.

To design such a barrier, we turned to natural analogs. Most of the surficial deposits at Hanford were placed by the Bretz floods at the end of the last ice age. These floods deposited berg mounds due to grounded icebergs melting and depositing layered mounds. These mounds had survived intact in their layered configuration for thousands of years since the floods. A layered configuration of soils and gravels was needed since vegetated soils above layers of gravel and small rock can transpire water without it breaking through to the layers below. The soil must become completely saturated before it breaks through. We wanted the right configuration of soil on top with graded gravels beneath to essentially make the vegetated soil level a storage device for water until it could be transpired by the plant cover back to the atmosphere.

The berg mounds and nearby caliche layers provided clues we needed. We selected perennial native bunchgrasses as the plant cover because they do not succumb to wildfires and resist the fierce Hanford winds. We also used a gravel mulch to help with wind resistance and to help water storage on the surface. Once we had a preliminary design we began a testing phase including mathematical modeling, wind tunnel testing, water retention testing in full vertical scale lysimeters, testing of animal intrusion using live animals, and testing of double rainfall years. The normal rainfall at Hanford is six inches per year.

For some of the sites, the barrier cover could have voids that may collapse over time. Since it is important for the barrier to maintain its layered configuration, it was necessary for our geotechnical engineers to develop the means to collapse and fill the voids before barrier construction. For burial ground sites, a vibrating hammer made of I-beams was constructed. The I-beams had conduits such that grouts could be injected as the voids were being collapsed by the hammer. This equipment was tested successfully on simulated buried waste sits that had large voids, such as partially filled burial boxes.

The million-gallon tank shells presented a different problem. The domes needed to be filled with gravels to prevent dome collapse or subsidence. A mechanical slinger used to sling sawdust was modified to allow slinging of gravel for dome fills. It was tested on a full vertical scale tank dome and was successfully used to pack fills into the tank. Methods such as these will be used to prevent subsidence or collapse before the barrier is built.

Eventually, a full-scale 5-acre barrier was built over 200-BP-57 crib. A crib is an underground drainage field structure to allow disposal of liquid to the soil. The crib contains monitoring equipment that has been collecting data since 1994. Data collected includes water balance, runoff, water storage, drainage, vegetative cover, plant and animal intrusion and barrier stability. Part of the barrier has been burned and irrigated to simulate twice normal rainfall. To date, the barrier has been performing as expected.

Since its inception, Hanford was dominated by chemical and, to a lesser extent, nuclear engineers. With the advent of cleanup, the skills of geotechnical engineers, environmental engineers, geologists and biologists became more important. The solution of many of Hanford's waste disposal problems involves geotechnical solutions.

About the Author:

Adams is a retired environmental engineer and manager for 24 years at the Hanford Nuclear Reservation in Washington State. He holds degrees in geology, biology and environmental engineering. He is the author of *Atomic Geography: A Personal History of the Hanford Nuclear Reservation* (WSU Press) and *Remote Wonders: An Explorer's Guide to Southeastern Oregon* (WSU Press). He is the author of a number of technical papers on radioactive waste disposal. He currently runs a private school devoted to tutoring elementary school students in science. He holds a California Teaching Certificate in biology, earth science and physics valid for life.

Examination of Surface Water Physical Chemistry around an Industrial Complex Part 1

Jeremy Foote and Darrel Schmitz

Introduction

When the Surface Mining Control and Reclamation Act (PL 95-87) was established in 1977, it focused on surface coal mining operations as well as the acquisition and reclamation of abandoned mines. With the adoption of PL 95-87, scientists examined and continue to examine the possible effect that coal-mining operations have on the surrounding environment. The first major long-term study that examined the effects of surface coal mining on surface water and groundwater was carried out by the United States Department of Agriculture (USDA) Agricultural Research Service and is presented in part by Bonta et al. (1997) and Eberle and Razem, (1985). Bonta et al. (1997) was conducted in collaboration with the North Appalachian Experimental Watershed (NAEW) near Coshocton, Ohio; The Ohio State University/Ohio Agricultural Research and Development Center; and the United States Geological Survey.

This study, which is presented in two parts, is an examination of surface water features in Choctaw County, MS, proximal to an industrial complex, the Red Hills EcoPlex. This study will evaluate temporal changes over approximately 15 years in surface waters on a local scale (i.e. directly surrounding the EcoPlex). This article focuses on changes in the geochemical constituents found in the surface water. The Red Hills EcoPlex takes steps to ensure that the operations do not detrimentally affect the local or regional sources of drinking water, as described by Schmitz (2015, verbal communication).

The primary objective of this study is to examine what, if any, changes have occurred to the surface water physical chemistry (P-chem) of streams that flow through and around the EcoPlex. If there are changes to the surface water physical chemistry, those changes will be defined through statistical analysis and whether or not activities within the EcoPlex are influencing those changes. This article (one of two) focuses on the comparison between the water samples examined upstream of the EcoPlex versus water sample examined downstream of the EcoPlex.

Study Area

This study focuses on streams that flow out of the Red Hills EcoPlex in Choctaw County Mississippi, shown in the Study Area of Weather Station Locations (Figure 1). Morse et al. (1943) described Choctaw County as a hilly county with considerable stream flats. Much of the county is characterized by slopes that thoroughly cut and segregate the wide flats. In comparison to the rest of the state, Choctaw County has greater topographic variability.

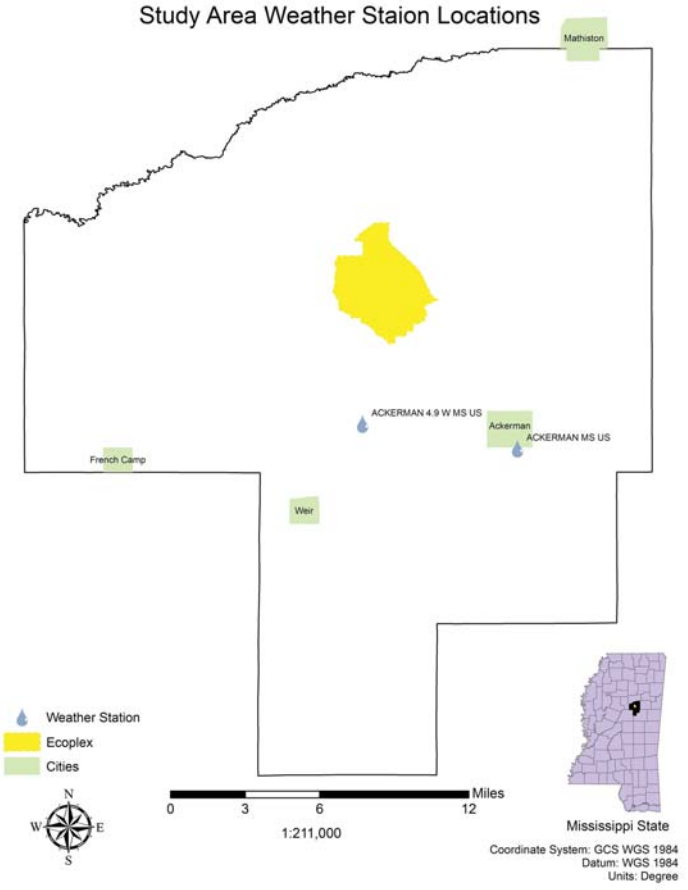


Figure 1: A regional scale map of Choctaw County in Mississippi and the location of the Ecoplex, which is the study are for this project.

The study site is situated on top of the Wilcox Group, which is associated with the Sabinian chronostratigraphic unit, approximately 55 Mya to 60 Mya. (Reken, 1996). The Wilcox Group is one of the more extensive stratigraphic groups in the Mississippi Embayment.

There are seven surface water sites around the EcoPlex that are examined on a quarterly basis, see Figure 2, Surface and Ground Water Monitoring Sites around the Ecoplex. Three of the surface water sites; SW-1, SW-6, and SW-7, were chosen for analysis. Sites SW-6 and SW-7 are upstream of the EcoPlex and site SW-1 is downstream of the EcoPlex. All three sites are on the same stream. By using these sites, a comparison of P-chem analyses of the streams upstream and downstream of the Ecoplex was made.

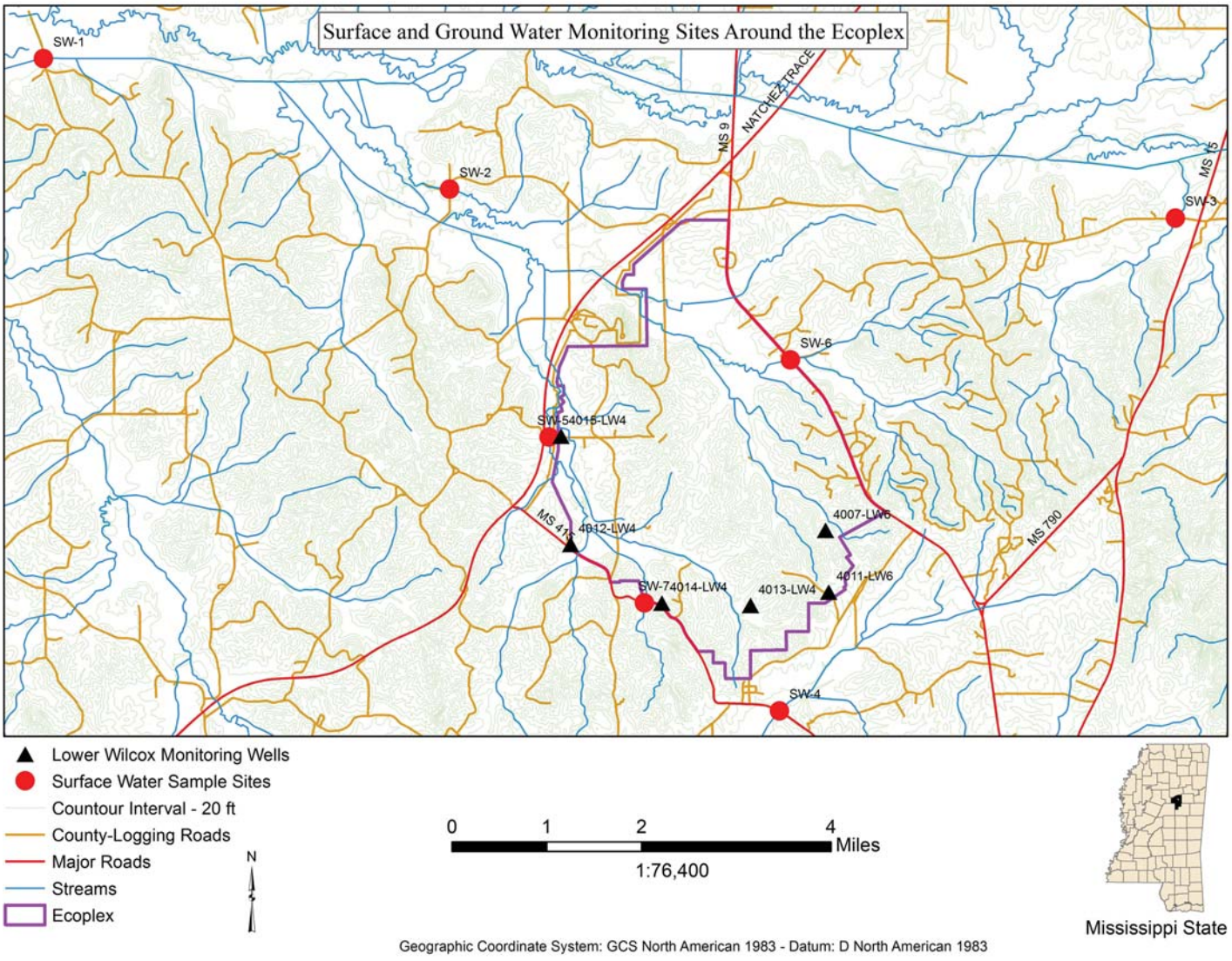


Figure 2: A local scale map of study area with the sample sites and physiographic features.

Methods

Surface Water Physical Chemistry Data Analysis

During the baseline study and subsequent monthly monitoring, seven sites around the EcoPlex are used to monitor the surface water conditions. During each quarterly examination of the surface water sites, several attributes were determined, including pH, conductivity, alkalinity, acidity, total suspended solids (TSS), total dissolved solids (TDS) as well as concentrations of iron, manganese, sulfate, and chloride. The monthly monitoring of the surface water began in 1998 and is still ongoing on a quarterly basis.

The study examined the impact that the surface coalmine within the EcoPlex might have on the surrounding surface water streams. The two surface water sites, SW-6 and SW-7, (Figure 2) that are upstream of the EcoPlex were chosen as the before conditions and one site, SW-1, (Figure 2) that is downstream of both the upstream sites and the EcoPlex was used as the "after" or post-disturbed landscape surface water condition station. By taking this approach, a quantitative analysis of the before EcoPlex and after EcoPlex surface water conditions can be compared. For the upstream versus downstream comparison, the data will be broken down and compared by quarter. This allows for an easier identification of trends and more accurate quantitative comparison. Beyond a quantitative comparison of the upstream and downstream EcoPlex conditions, linear regression was another method of quantitative analysis of the P-Chem data that was performed.

Results and Discussion

Surface Water Physical Chemistry

There are 4,800 results for the surface water P-Chem analyses. Even breaking the results into surface water locations and quarters, that leaves 270 results per site, per quarter. For ease of representing the data, only tables will be presented in this article.

Surface Water Physical Chemistry Linear Regression

After performing the linear regression on the attributes, most attributes show a slight upward trend in concentration. However, the R2 values associated with all of the linear regression tests are extremely low. As an example of the linear regression results, the linear trend of the recoded conductivity for each site during the entire active time of the mine is shown in Table 1 and the measurements recorded during the first quarter are shown in Table 2.

Table 1: The slope and R2 values of the linear regression analysis of data points collected in the 17-year collection history for collection sites SW-1, SW-6, and SW-7

Site	Slope	R^2
SW-1	0.0137	0.0590
SW-6	-0.0032	0.0988
SW-7	-0.0025	0.1868

Table 2: The slope and R2 values of the linear regression analysis of data points collected in just the first quarter over the 17-year collection history for sites SW-1, SW-6, and SW-7

Site	Slope	R^2
SW-1	3.294	0.0825
SW-6	-1.3069	0.4570
SW-7	-1.4716	0.5073

Site SW-1 shows an upward trend in the concentrations, and sites SW-6 and SW-7 show a decreasing trend in both the individual quarter breakdown and full data set analyses. However, the slopes are extremely gentle with a slope of less than 0.02 for each of the sites. The R2 values of the linear trend lines are extremely small, ranging from 0.0141 to 0.172. These R2 values show that the trend lines are not statistically meaningful. This is the same kind of result that each linear examination shows, whether the trend is positive or negative, the largest R2 value is 0.25. The upward trend in the conductivity measured is mostly due to the increased instances of higher than average conductivity readings as shown on Figure 3, Measured Conductivity from Sample Sites SW-1, SW-2, and SW-3. By removing the higher than normal measurements, the slope, as well as the R2, greatly decrease from 0.137 to 0.0026 and 0.059 to 0.0106, respectively, when eight of the 70 data points are removed. Note that this study is labeling higher than normal measurements as measurements that are more than one standard deviation away from the average. The same occurs when we take away the higher than normal measurements from the examination of just the first quarter data points. The slope decreases from 3.294 to 0.496 and the R2 also decreases also from 0.496 to 0.0155 when two of the 18 major outliers are removed. By looking at the changes that occurred from removing the higher than normal measurements points, it shows that the trends are greatly affected.

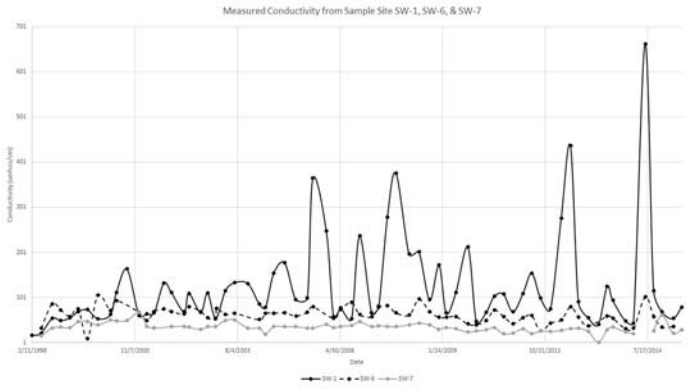


Figure 3: A graph displaying all the field measured conductivity values from sample sites SW-1, SW-6, and SW-7 for the entire 17-year collection history.

When comparing the trends of all of the measured P-chem attributes, the average slope was a positive 0.056 with the maximum slope of 0.53 and the minimum slope of -0.0097 while the average R2 was 0.063 with a maximum value being 0.25 and the minimum value of 0.0065 (Table 3). Therefore, even though there is a positive sloping trend to the majority of the measured P-chem attributes downriver of the EcoPlex, the trends are statistically insignificant.

Table 3: The slope and R2 values for each measured P-Chem attribute at collection site SW-1 for the 17-year collection history.

Attribute	Slope	R^2
Conductivity	0.137	0.059
pH	0.00004	0.0255
Acidity	0.0002	0.0179
Alkalinity	0.0012	0.0495
TDS	0.003	0.0065
TSS	-0.0097	0.0858
HCO3	0.5321	0.0452
CO3	0.0007	0.0495
Cl	0.0018	0.2483
SO4	0.0027	0.0302
Fe	-0.0005	0.0773
Mn	-0.00001	0.0607
Average	0.056	0.063

Quantitative Comparison of Upstream sites versus Downstream site

Examining the P-chem of the surface water, three patterns emerge between the various P-Chem attributes when the three surface water sites are compared against one another. These three patterns include: changes that are recorded downstream of the EcoPlex for three or more quarters, changes recorded upstream of the EcoPlex for three or more quarters, and changes that are recorded upstream two of the four quarters

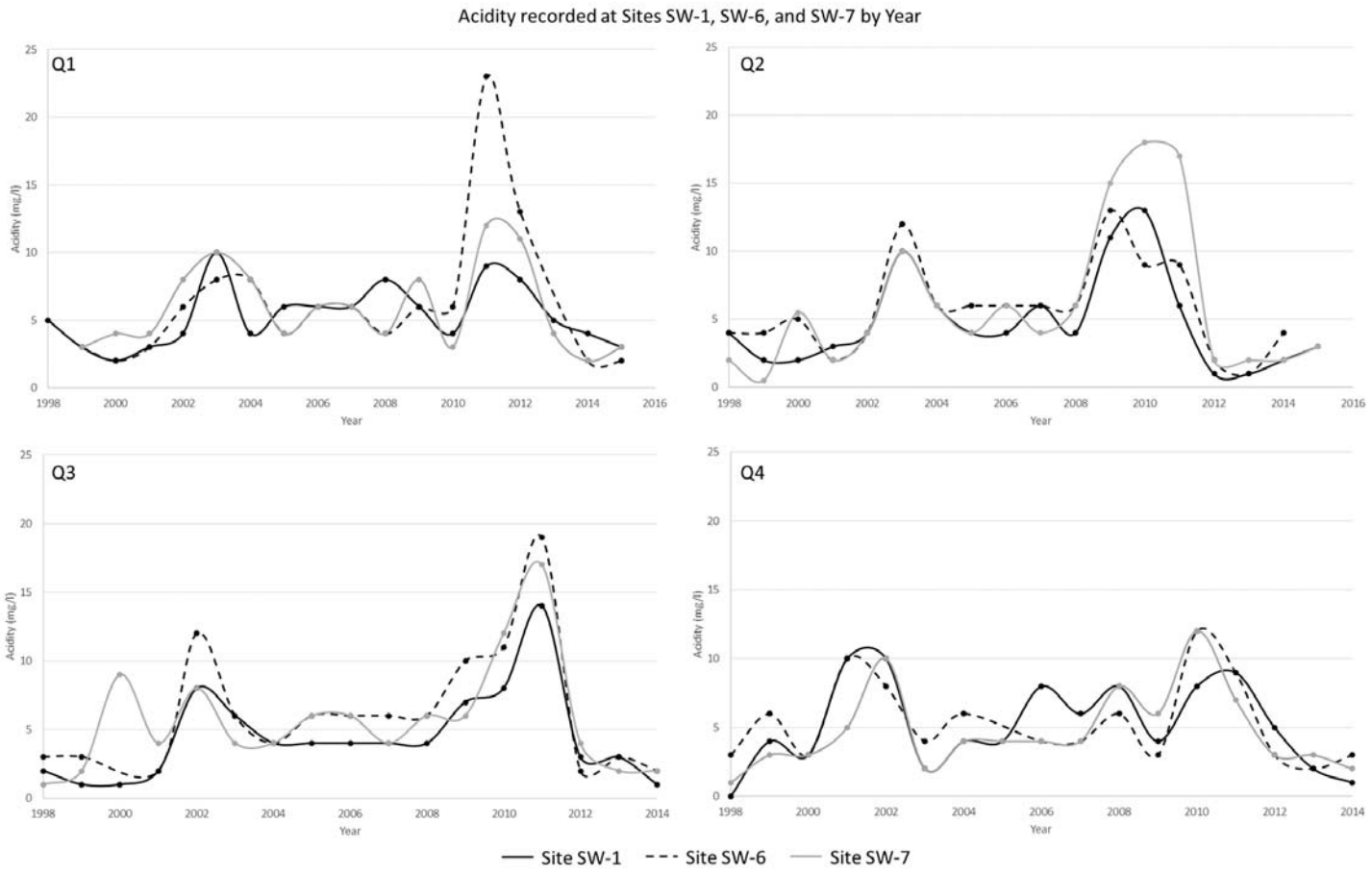


Figure 4: A graph that is depicting the difference in measured acidity for sample sites SW-1 (downstream of EcoPlex), SW-6, and SW-7 (upstream of EcoPlex) separated by measurements taken in their respective calendar quarters over the 17-year sample collection history. Q1-Q4 indicate calendar quarter 1 through quarter 4.

and downstream the other two quarters. Of the various P-Chem attributes tested and examined, the only attribute that has consistently recorded greater changes upstream of the EcoPlex is acidity (Figure 4). The trend presented by the four acidity graphs in Figure 4, indicate that the changes in the acidity of the surface water are natural occurrences instead of any activity from the EcoPlex.

From 2010 to 2011, there was a recorded spike in the acidity of the surface water around the EcoPlex, this is presented in each of the graphs in Figure 4. The spikes have a higher intensity at sites SW-6 and SW-7, which are upstream from the EcoPlex, and a less pronounced spike at SW-1, which is downstream. This indicates that the increase in the acidity of the surface water at those three sites occurred naturally. The total flow of water at SW-1 is larger than the total flow at SW-6 or SW-7, which may impart, explain the decrease in the intensity of the acidity concentration. However, this study does not have any data to suggest what natural causes might be associated with such a rise in the acidity of the surface water.

Another outcome from this analysis is a mixture of results for the upstream and the downstream changes of a P-Chem attribute. One of the attributes of the P-Chem analyses that has differing results from quarter to quarter is manganese (Mn) (Figure 5). The recorded manganese concentration is a mixed bag of peaks and troughs with no site maintaining the highest concentration. For example, during the first quarter, each year shows a different hierarchy of highest recorded concentration to lowest concentration. Of the 17-year record, the hierarchy of highest concentration to lowest concentration changes 13 times.

Of the 48 attributes tested though the P-Chem analyses, 10 of them have an output much like the report of the four quarters of Manganese. Those 10 analyses that share an inconsistent hierarchy of high to low concentrations make it difficult to pinpoint or discuss the cause or the relative location (upstream or downstream) of the change in the waters physical chemistry. The majority of the examinations indicate that most of the changes in the surface water physical chemistry are recorded downstream of the EcoPlex.

When the water is analyzed for the P-Chem parameters, the majority of the higher concentrations during each particular test period are recorded at site SW-1, downstream of the EcoPlex. When comparing the surface water physical chemistry analyses, 34 of the 48 attributes show that there is larger difference or a spike in the concentration recorded at the downstream location of the EcoPlex. An example of this is the change in the concentration of sulfate (SO4) recorded during the 17 years of operational history of the EcoPlex (Figure 6).

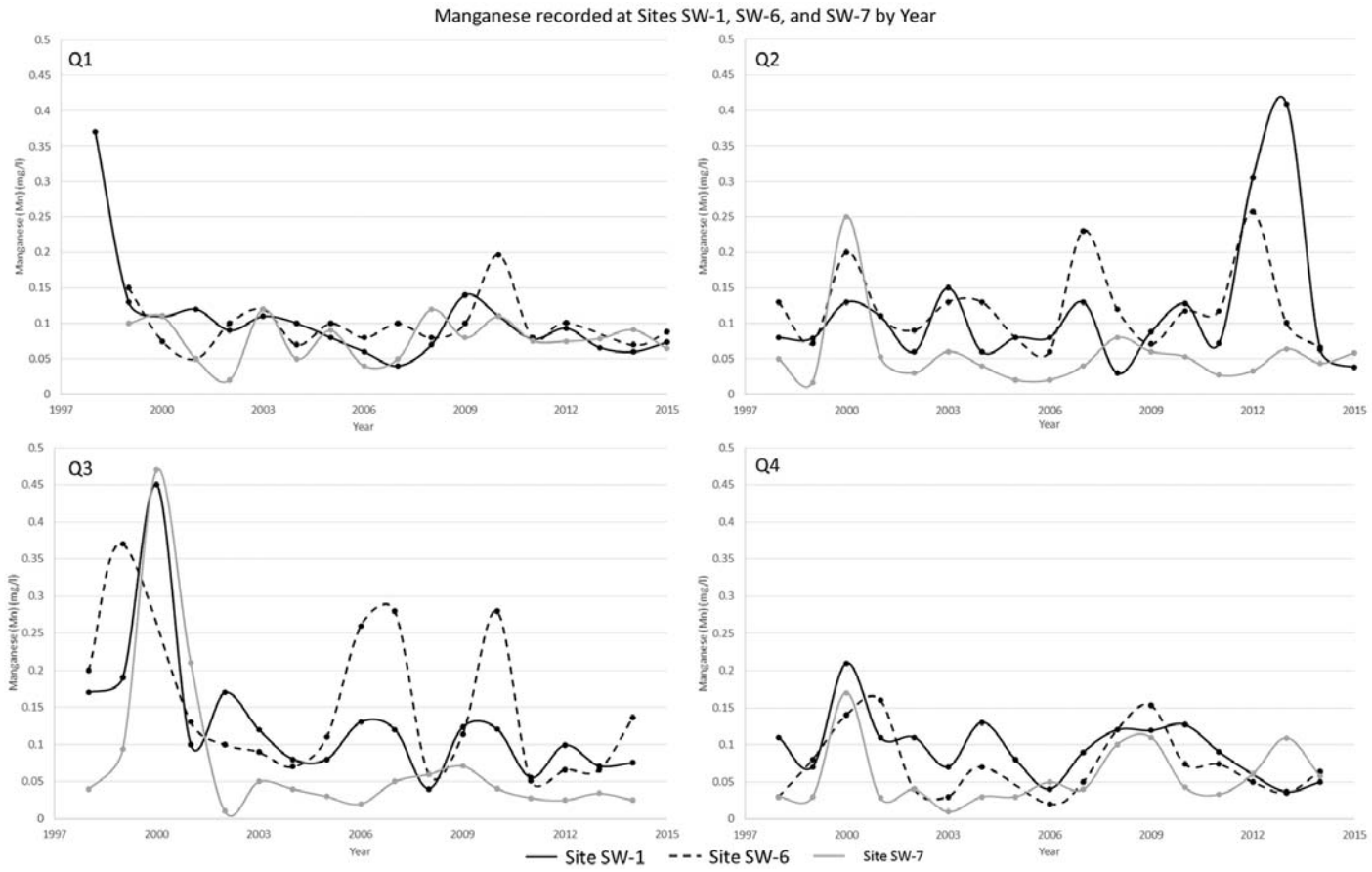


Figure 5: A graph that is depicting the difference in measured manganese concentration for sample sites SW-1 (downstream of EcoPlex), SW-6, and SW-7 (upstream of EcoPlex) separated by measurements taken in their respective calendar quarters over the 17-year sample collection history. Q1-Q4 indicate calendar quarter 1 through quarter 4.

The sulfate concentration that was recorded during the P-Chem analyses shows that the upstream locations, SW-6 and SW-7, maintain a steady, low concentration. However, the sulfate concentration recorded at the downstream site, SW-1, has a much higher intensity of peaks and troughs then those examined at sites SW-6 or SW-7. This would indicate that the rise and fall of the sulfate concentration that is occurring to the surface water might be attributed to activity that is occurring within the EcoPlex.

The results that are presented in Figure 6 (page 38) are considered normal by this study. As was previously mentioned, 34 of the 48 attributes tested indicate that the concentrations of the various water physical chemistry attributes are higher downstream of the EcoPlex, then those upstream of the EcoPlex. This leads this study to maintain the position that activity within the EcoPlex is altering the surface water physical chemistry. However, it should also be noted, that even though there are changes to the surface water physical chemistry that can be associated with operations within the EcoPlex, none of the fluctuations exceed the standards of safe minimums of natural criteria described by the EPA.

Conclusion

Through quantitative comparisons and statistical analysis, part one of this study has shown that, even though the increase in the P-chem solutes measured over the 17 years of quarterly measuring is negligible, the downstream site had consistently higher concentrations then the two upstream sites, indicating that activity within the EcoPlex is causing the higher concentrations of the measured P-chem solutes, or that the increase could be from the portion of the watershed that does not include the EcoPlex. This study has also shown that, there is a consistent increasing trend of the P-chem solutes measured at the downstream site from the EcoPlex; however, since the correlations are so weak, those trends are statistically insignificant.

Part two of this study will quantitatively examine different variables, coal production within the EcoPlex, and precipitation; and how they affect the rise and fall of the measured P-chem solutes to indicate what, if any, impact they have on the changes of the water chemistry.

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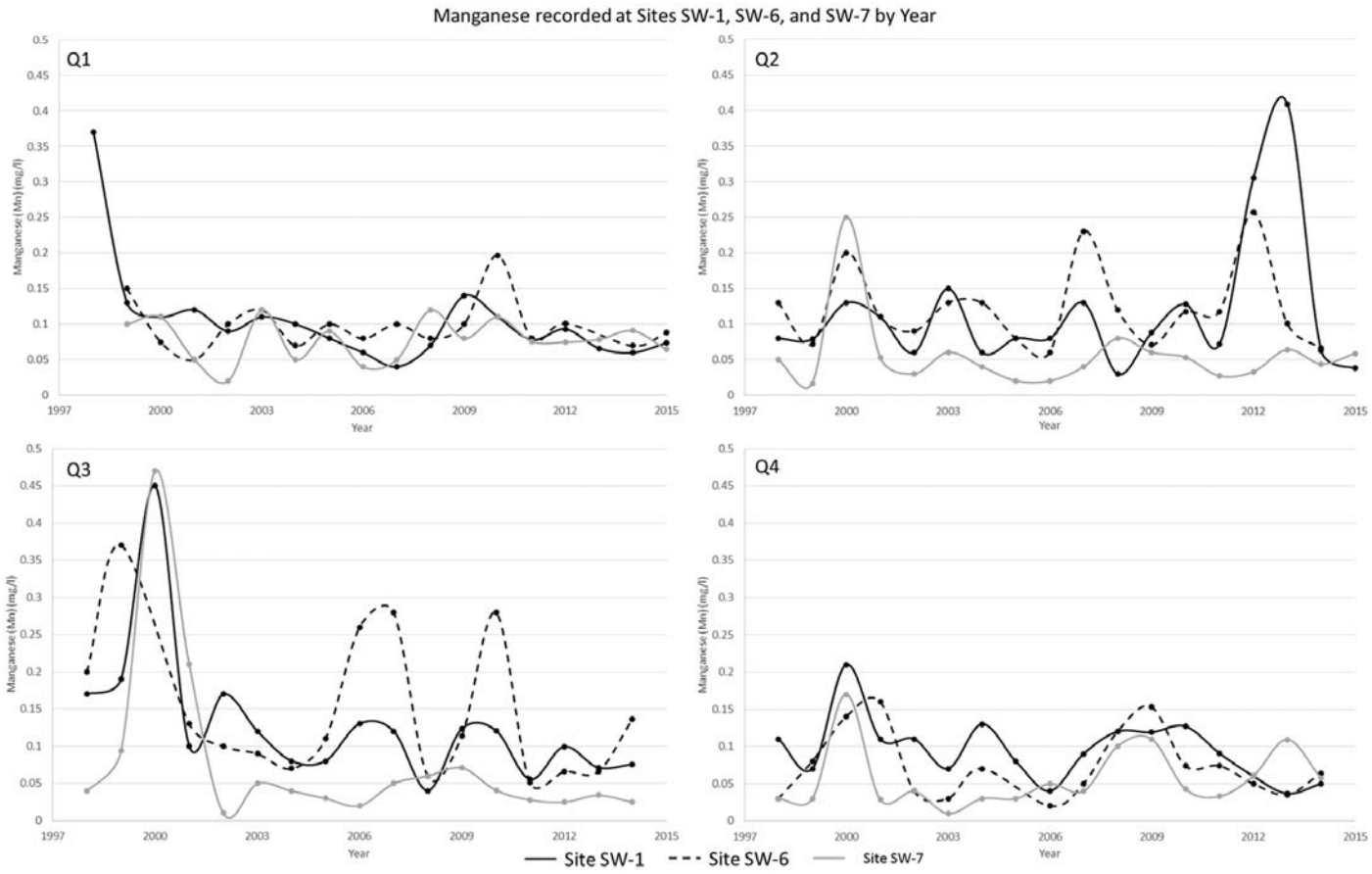

Figure 6: A graph that is depicting the difference in measured sulfate concentration for sample sites SW-1 (downstream of EcoPlex), SW-6, and SW-7 (upstream of EcoPlex) separated by measurements taken in their respective calendar quarters over the 17-year sample collection history. Q1-Q4 indicate calendar quarter 1 through quarter 4.

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Call for Professional Contributions…

AEG News is looking for professional contributions on a variety of topics, **especially engineering and environmental geology**. We would like the articles to be 4–6 pages in length. Examples of previous published work include research, case studies, and industry innovations. See page 3 for details.

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Carolinas Chapter

Maddie German, Chair

In November, the Carolinas Chapter was a major sponsor of the North Carolina Science Teachers Association meeting in Winston-Salem, NC. We distributed 500 AGI Earth Science Toolkits to teachers from across the state, and funded two awards that recognize exemplary accomplishments in earth science education: the Outstanding Earth Science Educator (OESE) Award and the Outstanding Earth Science Teacher (OEST) Award. This year's recipient of the OEST award was Lindsay Knippenberg, an earth science teacher at Mooresville Senior High School in Iredell County. The OESE winner was Roger Shew, a professor at the University of North Carolina at Wilmington, and May 2016 field trip leader. Special thanks to Rich Lovett, Jane Gill-Shaler, and Paul Weaver for handing out the toolkits and representing AEG at the conference.

Our Jahns Lecture Tour with 2015–16 Jahns Lecturer Jerry DeGraff was a great success. He presented his way through a packed schedule, speaking at nine schools and one Chapter meeting. He also attended a brewery social on Friday, October 28, 2016, at Clouds Brewing in downtown Raleigh, where a half-dozen members enjoyed personalized conversation and advice.

The following evening, the fall Chapter meeting was held at the Natty Greene's in downtown Greensboro, where DeGraff presented *What Does it Take to Effectively Monitor for Environmental and Engineering Geology Projects*. In his talk, he discussed monitoring of surface crack development over an active coalmine, herbicide movement in groundwater, and long-term temperature and pH trends in areas of hot springs. This meeting was well attended by about 60 professionals and students.

The winter Chapter meeting was held in downtown Charlotte at Draught on Thursday, January 19, 2017, and was a joint meeting with the North Carolina Southern Branch of ASCE. Dale Andrews, the current AEG President and a Principal Geotechnical Engineer at BCG Engineering in Golden, CO, presented *Chemical Modification of Soils* to nearly 100 professionals and students.

Upcoming Events

At our Chapter meetings we hold a 50/50 raffle to raise money for the Carolina' scholarship; the Greensboro raised $90 and the Charlotte meeting raise $200 for the Carolinas Chapter Scholarship. We plan to make our awards in the spring of 2017.

Sue Buchanan has been working hard to prepare a spring 2017 field trip. It will be a geological hike along the Haw River in Chatham County, NC. This field trip will involve a hike along two separate stretches of the river on either side of HWY 64 within the Lower Haw River State Natural Area. This portion of the Haw River is located within the Hyco Formation of the Carolina terrane. During the first hike, we will visit outcrops of metamorphosed dacites, andesites and basalts of the Hyco Formation. After lunch, we will visit outcrops of dacites and volcano-sedimentary rocks. Lunch will be at Carolina Brewery in Pittsboro, and there is a rumor a brewery tour is also included. Phil Bradley, a senior geologist with the North Carolina Geological Survey, will be leading the trip. This field trip will be worth five hours of continuing education credits.

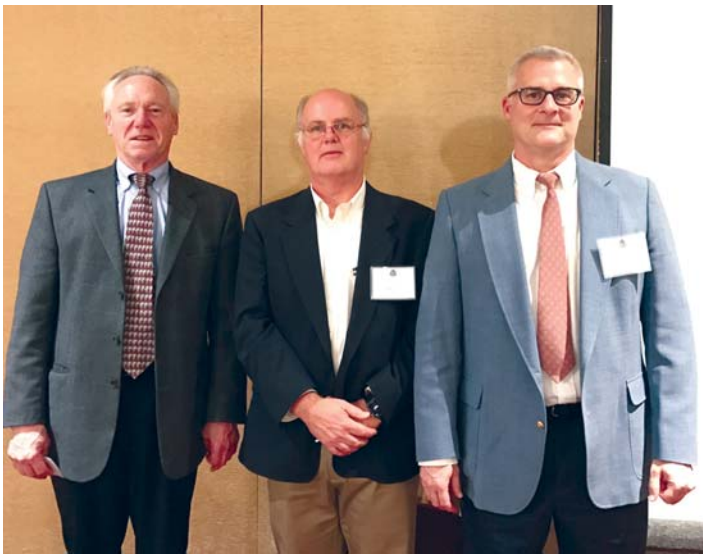
The Carolinas Chapter is looking forward to another year of great meeting speakers, fantastic field trips and worthwhile social gatherings.

The Carolinas Chapter has great support from local companies that sponsor and support their meetings.

New York-Philadelphia Chapter

Brionna O'Connor and Joe Torlucci

The New York-Philadelphia (NY-P) Chapter today has over 300 members, including 143 full members and many active student members. Our members are involved with professional meetings nearly monthly, engage students with an annual student night established in 2015, attend the AEG Annual Meeting, and get together for educational and social field trips throughout the year. Just this December, Scott Morgan, Principal Hydrogeologist at AECOM, Inc. (Newark, Delaware), led a discussion on the Chemours (former Dupont) Chambers Works Facility, presenting the unique remediation history of this site, and sharing the successes and shortcomings of using specialized technology in addressing bedrock DNAPL. Then in January, Mark Zdepski, former chair of AEG NY-P and President/ Principal Geologist at JMZ Geology, gave a talk, titled *Industrial Development, Urban Land-Use Practices and Resulting Groundwater Contamination,* a conversation on Newark, NJ, where many of NY-P's environmental consultants have worked throughout their careers.



L to R: Ed Lutz, Scott Morgan, and Scott Norcross at the December 2016 Dinner Meeting after presenting on the Chemours Chambers Works DNAPL Site at a recent New York – Pennsylvania Chapter meeting.

Oregon Chapter

Benjamin George, Secretary

2017 began with record snowstorms blanketing the Portland Metro and surrounding areas with 8–12 inches slowing daily life and making travel quite difficult. The snow has been replaced with heavy rain and several road closures due to landslides including US Highway 26 just west of the Vista Ridge Tunnel. Our loyal legion of AEG supporters braved the weather and roads to maintain a good attendance at our recent meeting.

In January, we held our annual joint meeting with the American Society of Civil Engineers (ASCE) Oregon Section Geotechnical Group, where the Richard H. Jahns Distinguished Lecturer for 2016–17, Dr. Scott A. Anderson of BGC Engineering (formerly of the Federal Highway Administration), gave a "solid" presentation on how engineering geology relates to transportation management. Dr. Anderson discussed risk-based strategies for management of geotechnical assets and the challenges that may be coming in our industry to adjust approaches for selection of projects, design of geotechnically related elements, and ultimately, the allocation of funds that are becoming more and more limited. In February, Colgan (Cole) Smith of Elevate UAS, LLC presented on the use of unmanned aerial systems (UAS) for innovative remote sensing solutions and detailed site characterization to access near real-time geospatial data. We look forward to hearing from the upcoming speakers we have scheduled for the remainder of the year.

Don't See Your Chapter?

Ask your officers to submit an article and/or photos about your recent meetings and field trips!

Puget Sound Chapter

Sevin Bilir, Secretary

The Chapter had a number of successful meetings from September 2016 through February 2017, featuring an assortment of speakers and topics.

In September, a joint meeting with ASCE, welcomed Michael J. Marasa, PE, BDM, Senior Engineer, Hayward Baker Inc. who spoke on Sinkhole Remediation at the National Corvette Museum. October's meeting saw Eliya Gangar, CESCL, GIT, Geologist, GeoEngineers and Dave Cook, Aspect Consulting and Engineers Without Borders President, present on Geohazard Reconnaissance and Preliminary Recommendations for Post-Earthquake Villages of Duguna Ghadi, Sindhupalchowk, Nepal. Closing out 2016, November's meeting offered Kate Mickelson and Stephen Slaughter with the Washington Geological Surveys Landslide Hazards Program at the Washington Department of Natural Resources speak on The New WA State DNR Landslide Hazards Program: Overview of the Program and Our First County-Wide, Landslide Mapping Project.

We opened 2017 with John Bethel, WA LEG, River and Floodplain Management Section; and Sevin Bilir, WA LHG & CA CHG Science and Technical Support Services; King County Department of Natural Resources and Parks, Water and Land Resources Division, presenting on Mapping of Potential Landslide Hazards along the River Corridors of King County. In February, Tait Russell of AeroScan spoke on Drones and Structure from Motion.

San Francisco Chapter

Maggie Parks, Secretary & Morley Beckman, Chair

To close out 2016, in December we held our annual Joint Holiday Mixer with the Northern California Professional Marketing Association (PEMA) and the Groundwater Resources Association of California (GRA). Merriment and good times were had by all, with many great raffle awards given out and some surprise holiday carols sung by some local teens.

In February, we held our first meeting of the year at a special South Bay location, the Old Spaghetti Factory in Redwood City. We welcomed Volkan Sevilgen, MSc, of Temblor, Inc., who gave a talk entitled, T*emblor.net – a Free Mobile & Web App, and Blog to Promote Resilience to Earthquakes and Floods*. Our meeting took place on the night of the first news reports about the Oroville Dam spillway damage, so pre-dinner conversation was quite intense.

In March, we joined the American Society of Civil Engineers San Francisco Geo-Institute (SFGI) to hold a joint meeting with AEG 2016–17 Jahn's Lecturer, Scott Anderson. His talk, *Natural Hazards, Risk, and Resilience of the Built Environment*, was an apt discussion for the current times and the serious winter we have had this year in Northern California.

We want to give a hearty thank you to our new 2017 San Francisco Chapter/Sacramento Chapter sponsor, Gregg Drilling. And continued thanks to our other chapter sponsors: California Push Technologies, Soil Tectonics, and San Jose State University.

We're happy to have found a solid South Bay meeting venue, and we plan to hold one or two South Bay meetings per year starting in 2017. We are still looking for a new San Francisco or East Bay meeting venue to replace Sinbad's and Pyramid Brewing, which closed last year. If anyone has a great idea, please forward it along!

As always, check our Chapter website for a copy of our latest newsletter, up to the minute news, meeting information, local job postings, and events: www.aegsf.org.

Texas Chapter

Stephanie Coffman, Chair

The AEG Texas Chapter Winter Meeting was held on January 21, 2017, at Stephen F. Austin State University (SFA) in Nacogdoches, TX. A total of 36 people (23 members, 2 non-members, 11 student members) attended the day-long meeting. Many, many thanks go to SFA, especially Assistant Professor of Geology, Dr. Kevin Stafford and the SFA AEG Student Chapter, for making the meeting a huge success. Their hospitality was much appreciated. The meeting was held on Campus at the beautiful Ina Brundrett Conservation Education Building. We held the Friday night Icebreaker at MacKlemore's Ale-House & Bistro and had over 20 participants.

The meeting began with Stephanie Coffman, Texas Chapter Chair, updating membership with upcoming events and announcing the purpose of the scholarship fundraiser event, and the importance to profession and AEG. Jeff Neathery, Regional Director for Region 6, South Central, gave an update from the annual board meeting and discussed some goals for the upcoming year. Bill Flanigan, AEG Foundation Director, followed with an update on the Foundation and available scholarships.

Next came presentations on evaporate karst geohazards given by Dr. Kevin Stafford and four graduate students, Aaron Evans, Jon Ehrhart, Adam Majzoub, and Jonathan Woodard. Following the presentations there was a silent auction to raise funds for student scholarships, particularly the Christopher C. Mathewson Scholarship. During this time the poster presentations were set up. Meeting participants visited each poster while the students spoke about their research projects. There were five posters given by six graduate students: Katelin Askelson, Jessica Shields, Jonah Morris, Lillian O'Shay, Aaron Eaves, and Jennifer Willis. Meeting participants scored each presentation and poster to determine the winners of monetary prizes—a total of $900 given in all.

After lunch, Stephanie Coffman announced the winners of the silent auction items. Next, we heard from SFA's Professor of Hydrology, Dr. Matthew McBroom on the topic of water resources and watershed management, specifically the treatment of water using bio swales and similar rain garden best management practices. After his presentation, we took a tour of the various water quality features located on campus in the SFA Gardens and near the Ina Brundrett Conservation Education Building.

Many thanks go to SFA for planning the topics and hosting the location of the meeting and Freese and Nichols, Inc. for sponsoring our printed materials, and to all the participants and members who donated toward the fundraiser event. This meeting would not have been possible without your generosity and support.

Winter meeting presenters, l to r: Jon Ehrhart, Adam Majzoub, Jennifer Willis, Katelin Askelson, Jessica Shields, Lillian O'Shay, Aaron Evans, Jonathan Woodard, Jonah Morris, Dr. Kevin Stafford

Texas Chapter Winter Meeting attendees

Dr. McBroom speaking about water quality features at the Texas Chapter Winter Meeting

Sustaining Members

Sustaining Membership is a new option that has been provided during the renewal process for all AEG members. These funds are used to continuously enhance membership benefits and further AEG's strategic plan. AEG would like to thank the following members for contributing above and beyond to the association. Thank you!

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You can find AEG's E-Store online at www.aegweb.org under E-Store located in the main menu on the left.

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