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  - Oriented Fractures
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- Create contour maps of formation tops and isopachs, surface elevation
- Generate strip logs


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American Institute of Professional Geologists (AIPG) is the only national organization that certifies the competence and ethical conduct of geological scientists in all branches of the science. It adheres to the principles of professional responsibility and public service, and is the ombudsman for the geological profession. It was founded in 1963 to promote the profession of geology and to provide certification for geologists to establish a standard of excellence for the profession. Since then, more than 10,000 individuals have demonstrated their commitment to the highest levels of competence and ethical conduct and been certified by AIPG.

The mission of the American Institute of Professional Geologists (AIPG) is to be the superior advocate for geology and geologists, to promote high standards of ethical conduct, and to support geologists in their continuing professional development.
AIPG's 46th Annual Meeting will be held October 3-7, 2009 in Grand Junction, Colorado, located at the boundary between the Rocky Mountains and the Colorado Plateau. The meeting is being co-sponsored by AIPG, the Colorado Section of AIPG, the Grand Junction Geological Society, and Mesa State College. Given the incredibly diverse geology occurring within a half day’s drive of Grand Junction, the meeting’s schedule is designed to allow you to take in this geological wonderland with a variety of field trips and technical sessions. We are also offering a variety of short courses. The following technical sessions, field trips, and short courses are being planned. Fuller descriptions of the field trips and short courses can be found on AIPG’s website, www.aipg.org. Actual registrations will affect which field trips and short courses will actually occur, so please register as soon as possible.

**Technical Sessions** (specific sessions will depend on what abstracts are submitted)

- The challenges of mountain road building and maintenance
- Oil & gas, coal, and uranium development in western Colorado: technical and environmental challenges
- Uses, diversions, and water accounting in the Upper Colorado River Basin
- Landslide problems created by western interior shales
- Acid waters, natural and man-caused: what is natural, what is not, and what can be done about it?
- The impacts of resource development on local communities
- Permitting and regulations affecting development of all types
- Natural resources: geology, development issues, and trends

**Field Trips**

**Saturday, October 3rd**
- Utah's Arches/Canyonlands and Dead Horse Point: Tom Chidsey leader
- Douglas Pass: Eocene Plant and Insect Fossil Collecting: John Foster leader
- Underground West Elk Mine Tour: Wendell Koontz leader

**Saturday, October 3rd and Sunday, October 4th**
- Mass-wasting Features Associated with the Lake City Caldera, San Juan Mountains, Colorado: Joe Fandrich leader

**Sunday, October 4th**
- Urran Mineral Belt/Uranium Mine Tour: Bill Chenoweth, Dick White, Tom Cavanaugh, and Jake Eisel leaders
- Natural Gas Development-Piceance Basin:
  - Geology and Geologic Hazards of the Uncompahgre River Valley Area in Montrose County Area: Jon White and Nancy Lamm, leader

**Monday, October 5th**
- Ouray Hot Springs
- Colorado National Monument Sightseeing: Bill and Sandy Hood leaders

**Tuesday, October 6th (half-day trips)**
- Oil Rig Site Tour
- Water System Operations in the Grand Valley: Dave Merritt leader
- Colorado National Monument: Bill and Sandy Hood leaders
- Grand Valley Winery Tour: Robert Fakundiny leader

**Wednesday, October 7th**
- Origins of the Unaweep Canyon: Bill Hood, Andreas Aslan and Red Cole leaders
- Late Jurassic Dinosaur Localities of Rabbit Valley: John Foster leader
- Mass Movement and Landslides: Jon White leader

**Thursday and Friday, October 8th & 9th**
- San-Juan Geology/Mining History: Rob Blair and Bob Larson leaders
- Colorado River Headwaters and Trans-Mountain Diversions: Peter Barkmann and David Merritt leaders
- Surface Coal Mining and Reclamation NW Colorado: Jim Burnell leader

**Short Courses**

**Friday, October 2nd**
- Subsurface Data Management, Analysis and Visualization using RockWorks (at Mesa State's computer lab) presented by Jim Reed and Allison Alcott.

**Saturday, October 3rd**
- GIS I-Intro To ArcGIS for the Earth Scientist (at Mesa State's computer lab) presented by Jim Russell and Verner Johnson
- Two-Phase Extraction - Innovative Applications with Multiple Remediation Technologies and Recirculation presented by Mehmet Pehlivan and Jim Jacobs

**Sunday, October 4th**
- Techniques for Giving Technical Presentations: Larry Cerrillo and Graham Closs
- Introduction to GPS Technology (at Mesa State’s computer lab) presented by Verner Johnson and James Russell
- In Situ Bioremediation of Chlorinated Ethenes: DNAPL Source Zones presented by Naji Akladiss, Larry Syverson, Hans Stroo, Wilson Clayton, Ryan Wymore and David W. Major
- Natural Resource and Reserve Definitions: Their Evolution, Meaning, and Current Status by David Abbott

David M. Abbott, Jr., CPG-4570
General Chairman, 2009 AIPG Annual Meeting
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<tr>
<th>Time</th>
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<tr>
<td>8:00 am – 5:00 pm</td>
<td>Short Course — Subsurface Data Management, Analysis and Visualization using RockWorks (at Mesa State College in the computer lab)</td>
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<td><strong>Saturday, October 3, 2009</strong></td>
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<td>7:00 am – 5:00 pm</td>
<td>Registration</td>
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<td>7:00 am – 8:00 am</td>
<td>AIPG — Executive Committee Breakfast</td>
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<td>8:00 am – 12:00 noon</td>
<td>AIPG — Executive Committee Meeting</td>
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<td>12:00 noon – 1:00 pm</td>
<td>AIPG — Foundation Luncheon</td>
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<td>1:00 pm – 4:00 pm</td>
<td>AIPG — Advisory Board Meeting</td>
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<td>4:00 pm – 5:30 pm</td>
<td>AIPG — 2009-2010 Joint Executive Committee Meeting and Business Meeting</td>
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<td>7:00 am – 6:00 pm</td>
<td>Field Trip — Utah’s Arches/ Canyonlands &amp; Dead Horse Point</td>
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<td>8:00 am – 5:00 pm</td>
<td>Field Trip — Douglas Pass: Eocene Plant and Insect Fossil Collecting</td>
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<td>8:00 am – 5:00 pm</td>
<td>Field Trip — Underground West Elk Mine Tour</td>
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<td>8:00 am Depart</td>
<td>2-Day Field Trip — Mass-Wasting Features Associated with the Lake City Caldera, San Juan Mountains, Colorado</td>
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<td>8:00 am – 5:00 pm</td>
<td>Short Course — Two-Phase Extraction Methods</td>
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<td>8:00 am – 5:00 pm</td>
<td>Short Course — GIS I-Intro to ArcGIS for the Earth Scientist (at Mesa State College in the computer lab)</td>
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<td><strong>Sunday, October 4, 2009</strong></td>
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<td>8:00 am – 5:00 pm</td>
<td>Field Trip — Urravan Mineral Belt/Uranium Mine Tour</td>
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<td>8:00 am – 5:00 pm</td>
<td>Field Trip — Natural Gas Development - Piceance Basin, Western Colorado</td>
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<td>8:00 am – 5:00 pm</td>
<td>Field Trip — Geology &amp; Geologic Hazards of the Uncompahgre River Valley Area in Montrose</td>
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<td>8:00 am – 12:00 noon</td>
<td>Short Course — Techniques for Giving Technical Presentations</td>
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<td>Short Course — Introduction to GPS Technology (at Mesa State College in the computer lab)</td>
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<td>Short Course — In Situ Bioremediation of Chlorinated Ethenes: DNAPL Source Zones</td>
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<td>1:00 pm – 5:00 pm</td>
<td>Short Course — Natural Resource and Reserve Definitions</td>
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<td><strong>Sunday, October 4, 2009 (continued)</strong></td>
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<td>6:00 pm – 8:00 pm</td>
<td>Welcome Reception — Exhibit Area Open</td>
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<td><strong>Monday, October 5, 2009</strong></td>
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<tr>
<td>7:00 am – 8:30 am</td>
<td>AIPG — Past President’s Breakfast</td>
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<td>8:00 am – 5:00 pm</td>
<td>Technical Sessions</td>
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<td>9:00 am – 5:00 pm</td>
<td>Exhibits Open</td>
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<tr>
<td>8:00 am – 5:00 pm</td>
<td>Field Trip — Ouray Hot Springs</td>
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<td>8:00 am – 12:00 noon</td>
<td>Field Trip — Colorado National Monument Sightseeing</td>
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<td>12:00 noon – 1:00 pm</td>
<td>Luncheon with Speaker</td>
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<td><strong>Tuesday, October 6, 2009</strong></td>
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<td>8:00 am – 3:00 pm</td>
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<tr>
<td>12:00 noon – 5:00 pm</td>
<td>Field Trip — Oil Rig Site Tour</td>
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<td>12:00 noon – 5:00 pm</td>
<td>Field Trip — Water System Operations in the Grand Valley</td>
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<tr>
<td>12:00 noon – 5:00 pm</td>
<td>Field Trip — Colorado National Monument</td>
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<td>12:00 noon – 5:00 pm</td>
<td>Field Trip — Grand Valley Winery Tour</td>
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<td>6:30 pm – 8:30 pm</td>
<td>Awards, Dinner and Entertainment</td>
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<td><strong>Wednesday, October 7, 2009</strong></td>
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<td>8:00 am – 12:00 noon</td>
<td>Technical Sessions</td>
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<td>Exhibits Open</td>
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<td>8:00 am – 5:00 pm</td>
<td>Field Trip — Origins of Unaweep Canyon</td>
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<td>12:00 noon – 5:00 pm</td>
<td>Field Trip — Late Jurassic Dinosaur Localities of Rabbit Valley</td>
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<td>12:00 noon – 5:00 pm</td>
<td>Field Trip — Mass Movement/Landslides</td>
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<td>6:00 pm – 9:00 pm</td>
<td>Meet and Reminisce</td>
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<td><strong>Thursday, October 8, 2009</strong></td>
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<td>8:00 am Departure</td>
<td>2-Day Field Trip — San Juan Geology/Minning History</td>
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<td>8:00 am Departure</td>
<td>2-Day Field Trip — Colorado River Headwaters &amp; Trans-Mountain Diversions</td>
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<tr>
<td>8:00 am Departure</td>
<td>2-Day Field Trip — Surface Coal Mining &amp; Reclamation, NW Colorado</td>
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Field Trips

**Utah's Arches/Canyonlands & Dead Horse Point**

**Date:** Saturday, October 3rd  
**Time:** 7:00 am to 6:00 pm  
**Cost:** $100/$150 (includes box lunch and beverages)  
**Leader:** Tom Chidsey

This trip features a spectacular tour of the classic geology of the Colorado Plateau, including two of Utah's famous National Parks - Arches and Canyonlands, as well as Dead Horse Point State Park. The geologic history, regional facies, structural geology, stratigraphy, geomorphology, and economic geology will be covered. Featured stops include salt-cored anticlines, hikes to some of the most renowned arches, Quaternary river terraces, unconformities, the Moab fault, and Upheaval Dome. Every stop will be surrounded by magnificent panoramic views and lots more.

**Douglas Pass: Eocene Plant and Insect Fossil Collecting**

**Date:** Saturday, October 3rd  
**Time:** 8:00 am to 5:00 pm  
**Cost:** $100/$150 (includes box lunch and beverages)  
**Leader:** John Foster

This field trip will travel north from the Grand Valley up to nearly 9,000 feet elevation above Douglas Pass where outcrops of the Eocene Green River Formation are exposed among brush and conifers. We will be collecting plant and insect fossils from Green River oil shale deposited in ancient Lake Uinta. Some of the fossil types found here include leaves of poplars, sycamores, and maples, plus recognizable crickets, beetles, and flies - all 45 million years old.

**Underground West Elk Mine Tour**

**Date:** Saturday, October 3rd  
**Time:** 8:00 am to 5:00 pm  
**Cost:** $100/$150 (includes box lunch and beverages)  
**Leader:** Wendell Koontz, CPG-10334

West Elk Mine, the West's premier longwall mine, is operated by Mountain Coal Company and located in Gunnison County, Colorado. Coal is mined from the East Seam of the Mesa Verde Formation in the Somerset Coal Field. West Elk Mine has been in operation since 1982 with sufficient reserves to last through 2020.

West Elk has a variety of geologic features of interest including normal tectonic faults, compactional faults, and paleo-sand channels. The mine tour will focus on coal mining processes, longwall mining, coal geology, and structural deformation features exposed in the mine. Depending upon the time available and the interests of the group, additional topics may include roof support, pillar design, and coal exploration.

**2-Day Field Trip-Mass-Wasting Features Associated with the Lake City Caldera, San Juan Mountains, Colorado**

**Date:** Saturday, October 3rd-Sunday, October 4th  
**Time:** Depart at 8:00 am from the DoubleTree  
**Cost:** $325/$350 (includes transportation box lunch, beverages, and single occupancy overnight accommodations)  
**Leader:** Joe Fandrich, MEM-1494

This trip is a two day, one night excursion to the Lake City area of the San Juan Mountains of southwestern Colorado. The Slumgullion earthflow, Lake City landslide complex and glacial outwash debris flows are the primary subjects of this trip. The geomorphologic relationships of mass-wasting, ephemeral lake formation and the creation of flat-floored valleys associated with the Lake City caldera will be observed and demonstrated.

Participants should bring a camera and suitable clothing for mountain elevations up to 11,500 feet. Early October weather can be beautiful in the San Juans; however, snow and/or rain is always a possibility. A jacket and hiking shoes or boots are recommended; a short ¼ mile hike onto the earthflow will be up a steep but negotiable slope. Binoculars can be useful for observing features at a long distance.

*Cancellation of 2-day field trips made between 8/31/09 and 9/16/09 will be assessed $150 to cover hotel cancellation fees and/or room charges.

**Uravan Mineral Belt/Uranium Mine Tour**

**Date:** Sunday, October 4th  
**Time:** 8:00 am to 5:00 pm  
**Cost:** $100/$150 (includes box lunch and beverages)  
**Leader:** Bill Chenoweth, Dick White, Tom Cavanaugh, CPG-10493 and Jake Eisel

This trip will include a description of the mining history of the area as well as the geology. One stop will be at the former site of
the Uravan mill and townsite-The Birth Place Of the Atomic Age. Another stop will view the mines on Atkinson Mesa-all closed, but the dumps remain. Some of these mines date back to the 1920s during the radium boom. The first half of the trip will end in Paradox Valley, a collapsed salt anticline, at the site where a new uranium mill is planned.

Lunch will be at the Monogram Mines on top of Monogram Mesa with views of Paradox Valley and several other mines in the vicinity. From here we will overlook Energy Fuels planned Pinon Ridge Mill Site and the inactive Cotter Open Pit Mine. Local geology will be presented including historical and current mining operations.

After lunch the group will go to another location on Davis Mesa or Monogram Mesa to visit an active uranium mine. The field trip will split into two groups, one going underground to look at uranium - vanadium mining operations and the other going to a nearby location for further discussion of the geology, review of drilling logs and insights into permitting processes for drilling and mining of uranium. The groups will then switch so that all participants have the opportunity to go underground.

Natural Gas Development-Piceance Basin, Western Colorado

Date: Sunday, October 4th
Time: 8:00 am to 5:00 pm
Cost: $100/$150 (includes box lunch and beverages)
Leader: Jon White and Nancy Lamm, CPG-04885

This one-day field trip to Montrose County in west-central Colorado will examine the general geology and resultant geologic hazards that occur within the arid to semi-arid, lower Uncompahgre River valley. The field trip will focus on the mid-Pleistocene to Holocene evolution of the valley, with emphasis on recent surficial deposits and landforms, including glaciofluvial terraces, alluvial fans, stream capture and valley abandonment, mesa formation, and landslides. The Mancos Shale defines valley area. Preferential river incision and topographic lowering in the shale has created a broad, 8-mile wide valley between the monoclinal dip slope of Dakota Sandstone from the Uncompahgre Plateau to the west, and the same sharply-tilted rock exposed on the flank of the Gunnison Uplift to the east. The Mancos Shale, and the soils derived from it, is commonly problematic with land use planning and development. Slope instability and threat of landslides, both expansive and collapsible soils, erosion, and environmental concerns with salinity and selenium concentrations will be discussed. Field trip attendees will receive the new CGS publication, Open-file report 09-01, Geologic hazards mapping project of the Uncompahgre River valley area, Montrose County, Colorado.

Colorado National Monument Sightseeing

Date: Monday, October 5th
Time: 8:00 am to 12:00 noon
Cost: $75/$120 (includes box lunch and beverages)
Leader: Bill Hood, CPG-02185 and Sandy Hood

Join National Park Services volunteers Bill and Sandy Hood for a sight-seeing trip to see the hanging canyons of Colorado National Monument. We will follow the Rim Rock Road across the monument and enjoy the scenic overlooks as we make the 19 mile trip along the canyon rims. We will talk a bit about how this spectacular landscape developed and tell you about colorful John Otto, the person who did more than anyone else to get the area set aside as a national monument. Toward the end of the trip we will stop at the Visitor Center where you can purchase souvenirs, look at the exhibits and perhaps take a short hike.
Field Trips

Ouray Hot Springs

Date: Monday, October 5th
Time: 8:00 am to 5:00 pm
Cost: $80/$120 (lunch is on your own)

This trip will travel southeast to the city of Ouray, which is surrounded by the stunning beauty of the towering San Juan Mountains. In Ouray, we will enjoy the 250 by 150 foot public pool containing over a million gallons of crystal clear natural hot springs water, free from the strong smell of sulfur typical of many hot springs. In addition to several soaking sections at a variety of temperatures ranging from 96 to 106 degrees, the pool has a lap swimming section, a diving area, a large slide, and a shallow section for younger children.

Oil Rig Site Tour

Date: Tuesday, October 6th
Time: 12:00 noon to 5:00 pm
Cost: $75/$120 (includes transportation, admissions, box lunch and bottled water)

This trip will visit a Helmerich and Payne FlexRig 4, a high efficiency rig that is capable of drilling 22 wells from one pad and can drill and complete wells simultaneously. This trip will also tour the Williams Parachute Creek Gas Plant which processes the gas they produce in the Piceance Basin. Long pants and sturdy shoes are required (no sandals).

Water System Operations in the Grand Valley

Date: Tuesday, October 6th
Time: 12:00 noon to 5:00 pm
Cost: $75/$120 (includes box lunch and beverages
Leader: David Merritt

The Grand Junction Valley of Colorado (so named because it grew at the junction of the Grand and the Gunnison Rivers) is the home to five irrigation entities, four municipal/domestic water providers and three endangered Colorado River fishes. On this tour, you will see how all of these interests can coexist to make the best use of a limited and important river.

Colorado National Monument

Date: Tuesday, October 6th
Time: 12:00 noon to 5:00 pm
Cost: $75/$120 (includes box lunch and beverages
Leader: Bill Hood, CPG-02185

Spanning 1.7 billion years of earth history, the rocks of Colorado National Monument tell a remarkable tale of ancient mountains, a northward-drifting continent and millions of years of erosion. A short hike will take us onto an ancient bed of No Thoroughfare Creek, then down into the modern creek to see the results of flash flooding. The drive along Rim Rock Drive will give ample time to discuss the stratigraphy and the formation of the hanging canyons that are the main feature of the monument. We will stop briefly at the Visitor Center to see an animated story on the geologic history then descend to the Grand Valley, crossing one of the faults that elevated this part of the Uncompahgre Plateau. Then we will take a somewhat longer path back to the convention to allow participants to get a good look at the Redlands Fault.

Grand Valley Winery Tour

Date: Tuesday, October 6th
Time: 12:00 noon to 5:00 pm
Cost: $75/$120 (includes box lunch and beverages
Leader: Robert Fakundiny, CPG-04977

This trip will visit several wineries in the Grand Valley where you will enjoy not only the beautiful Colorado scenery, but also the award winning wines of the area.
Field Trips

Origins of Unaweep Canyon
Date: Wednesday, October 7th
Time: 8:00 am to 5:00 pm
Cost: $100/$150 (includes box lunch and beverages)
Leader: Bill Hood, CPG-02185, Andres Aslan and Rex Cole

Unaweep Canyon, a spectacular wind gap that crosses the Uncompahgre Plateau, has been the subject of controversy since it was first described by members of the Hayden Survey of 1875. Which river or rivers flowed through the canyon? How thick is the valley fill? Has the canyon been glaciated? If so, was it Pleistocene glaciation or was it late Paleozoic glaciation? What do Pleistocene lake beds add to the story? What do the Colorado River terraces near Grand Junction tell us about the timing of abandonment of the canyon? On this trip we will enjoy the beautiful scenery of the canyon, review the history of thought about the canyon, look at some of the evidence and tell you about the controversies. Join us for a fun day and come to your own conclusions about this interesting canyon.

Mass Movement/Landslides
Date: Wednesday, October 7th
Time: 12:00 noon to 5:00 pm
Cost: $75/$120 (includes box lunch and beverages)
Leader: Jon White

This field trip offers the opportunity to visit an important active landslide that is affecting Interstate 70 in DeBeque Canyon. The landslide is located in Mesa County of west-central Colorado, 20 miles (32 km) east of Grand Junction. The landslide complex has displaced the south wall of a 500-ft (152-m) deep canyon that was incised by the Colorado River into Cretaceous Mesa Verde Group sedimentary strata. Recent investigations show the landslide complex exhibiting several mechanisms of both rock and soil-type slope failures, including rockmass shearing, block gliding and toppling, and translational and rotational soil-type movements.

This field trip will be visiting an active landslide where there are dangerous high cliffs and ground openings. A moderate to strenuous 1-mile hike is required were we will climb to the top of the landslide. Care is needed by the field trip participant about where they walk on the landslide. The landslide fissures and cliff edges may be unstable and, where furrows exist, unknown soil bridges in overlying loess may be spanning open fissures.

Late Jurassic Dinosaur Localities of Rabbit Valley
Date: Wednesday, October 7th
Time: 12:00 noon to 5:00 pm
Cost: $75/$120 (includes box lunch and beverages)
Leader: John Foster and

West of Grand Junction, almost to Utah, lies Rabbit Valley, an area of exposure of the Upper Jurassic Morrison Formation that contains dozens of bone localities. We will visit several of these, starting with the Mygatt-Moore Quarry, which since 1981 has yielded more than 5,000 bones belonging to at least seven species of Jurassic dinosaurs, including the first Jurassic ankylosaur known from North America, Mymoorapelta. Other dinosaurs found in Rabbit Valley include Apatosaurus, Allosaurus, Stegosaurus, and Camptosaurus. We will then visit the Museum of Western Colorado and see dinosaur material from this area on display, in the research collections, and undergoing preparation in the lab.

2-Day Field Trip-San Juan Geology/Mining History
Date: Thursday, October 8th-Friday, October 9th
Time: Depart at 8:00 am from the DoubleTree
Cost: $425/$450 (includes transportation box lunch, beverages, and single occupancy overnight accommodations)
Leader: Rob Blair, CPG-10779 and Bob Larson, CPG-04682

This Field Trip will begin at Inspiration Point on Loghill Mesa, overlooking the sedimentary stratigraphy on the boundary of the San Juan Volcanic Field and the Sneffles Range. Following this introduction and a summary of the geological history, the
Field Trips

tour will travel to Ouray, Colorado, through the sedimentary, pre-volcanic sequence and visit Box Canon Falls. A short hike will be required to view the classic angular unconformity from the “high bridge” in the Box Canon Park. The tour will then proceed to the Camp Bird Mine via 4-wheel drive tour vehicles, viewing the sedimentary-volcanic contact and the lower units of the San Juan tuff-breccia. The geology and mining history of the Camp Bird Mine will be discussed and we will then travel to the Revenue-Virginius Mine, for similar discussions. We will continue towards Yankee Boy Basin and as time permits discuss geology and the mine history, but allowing for an early evening return to Ouray where dinner and a possible soak in the Hot Springs pool can be enjoyed.

The following morning a bus trip will go south on Highway 550 towards Red Mountain Pass and Silverton, where discussions will be made of the Precambrian through Tertiary volcanic stratigraphy and mining history. The Silverton Caldera will be viewed and the history of the Idarado Mine, the Red Mountain Mining District, and the Silverton area mines will be discussed. The bus will depart from Silverton so that an early evening return can be made to Grand Junction, backtracking over Red Mountain Pass and Ouray to Grand Junction.

*Cancellation of 2-day field trips made between 8/31/09 and 9/16/09 will be assessed $150 to cover hotel cancellation fees and/or room charges.

2-Day Field Trip—Colorado River Headwaters & Trans-Mountain Diversions

Date: Thursday, October 8th-Friday, October 9th
Time: Depart at 8:00 am from the DoubleTree
Cost: $325/$350 (includes transportation box lunch, beverages, and single occupancy overnight accommodations)
Leader: Peter Barkman, CPG-09524 and David Merritt

“Lifeblood of the West”, sourced by snowmelt high along the continental divide, the Colorado River flows west from the Rocky Mountains through Colorado supplying water for much of the region along its way. A thriving agricultural economy on the west slope is sustained by the river and urban regions on both sides of the continental divide tap its waters. This two-day field trip will take participants up river from Grand Junction to the headwaters and back down again through some of Colorado’s finest scenery including the Roaring Fork Valley, Independence Pass, Camp Hale, and Glenwood Canyon. Along the way we will visit important agricultural canal diversions, trans-mountain diversion facilities, and geologic features that characterize this great river system. There will also be opportunity to learn the basics of Colorado Water Law.

*Cancellation of 2-day field trips made between 8/31/09 and 9/16/09 will be assessed $150 to cover hotel cancellation fees and/or room charges.

Surface Coal Mining and Reclamation, NW Colorado

Date: Thursday, October 8th-Friday, October 9th
Time: Depart at 8:00 am from the DoubleTree
Cost: $325/$350 (includes transportation box lunch, beverages, and single occupancy overnight accommodations)
Leader: Jim Burnell, MEM-0205

This NW Colorado coal trip will visit two large surface coal mines in Moffat County, Colorado. The Colowyo Mine (a Rio Tinto company) and the Trapper Mine (Trapper Mining) extract coal from multiple seams of the Cretaceous Williams Fork Formation. Combined, the two mines produce approximately 10 million tons of low-sulfur coal per year. Both mines have won numerous awards for their reclamation, particularly for restoration of habitat for sharp-tailed and sage grouse. On many days, large herds of elk can be seen on the reclamation. The trip will view the mining and reclamation activities on the Trapper Mine on Thursday, stay overnight in the area, visit the larger Colowyo Mine on Friday and return to Grand Junction Friday afternoon.

*Cancellation of 2-day field trips made between 8/31/09 and 9/16/09 will be assessed $150 to cover hotel cancellation fees and/or room charges.
Short Courses

Subsurface Data Management, Analysis and Visualization using Rockworks

**Date:** Friday, October 2nd  
**Time:** 8:00 am to 5:00 pm  
**Location:** Mesa State College Computer Lab  
**Maximum:** Limited to 12 attendees  
**Cost:** $175  
**CEU’s:** 1 CEU from Mesa State College

This hands-on short course will be focused on the management, analysis, and visualization of subsurface data based on boreholes, measured sections, surface samples, etc. Specific topics include the management of geophysical, geotechnical, analytical, lithologic, stratigraphic, hydrologic, and structural data from vertical, inclined, and deviated boreholes and measured sections. Output and analytical topics will include surface models, striplogs, cross sections, fence diagrams, and solid modeling. Special emphasis will be placed on three-dimensional graphics and computing the volume and mass properties of geological features such as contaminant plumes, ore bodies, aquifers, and hydrocarbon reservoirs.

Registration fee includes morning coffee and pastries, box lunch, break, materials.

Instructors for this course are Jim Reed, Director of Research and Development, RockWare, Inc., and Alison Alcott, Trainer and Geological Consultant, RockWare, Inc.

GIS I-Intro To ArcGIS for the Earth Scientist

**Date:** Saturday, October 3rd  
**Time:** 8:00 am to 5:00 pm  
**Location:** Mesa State College Computer Lab  
**Maximum:** Limited to 12 attendees  
**Cost:** $175  
**CEU’s:** 1 CEU from Mesa State College

This course will cover introductory GIS geared towards the earth scientist. The participants will learn how to build ArcGIS database and how to import maps and overlays. The course will be taught at the GIS/GPS lab at the Mesa State College campus. This state-of-the-art facility offers the participants the opportunity to work with the newest technology including ArcGIS 9.3.

Registration fee includes morning coffee and pastries, box lunch, break, materials.

Instructors for this course are Verner Johnson, Mesa State University, James Russell, CPG-07338, Summit Data Services/GIS Coordinator, Gilpin County, CO.

Two-Phase Extraction - Innovative Applications with Multiple Remediation Technologies and Recirculation

**Date:** Saturday, October 3rd  
**Time:** 9:00 am to 4:00 pm  
**Location:** DoubleTree Hotel  
**Cost:** $99

This short course will give attendees a clear understanding of how two-phase and multiphase extraction can be applied in the field. Attendees will be able to make intelligent decisions in selecting remediation alternatives related to two-phase extraction, and will understand how vacuum assisted extraction methods work in subsurface. This workshop will be beneficial for project managers, consultants, geologists, hydrogeologists, engineers, industry representatives, agency representatives, and government representatives who perform or evaluate different remediation techniques.

Each attendee will receive a handout package consists of the course notes, two-phase extraction pilot test procedures and data forms and checklist for selecting two-phase extraction as a remedial alternatives. Attendees are encouraged to bring their case information to discuss if two-phase extraction can be as a viable alternative to consider a pilot test.


Techniques for Giving Technical Presentations

**Date:** Sunday, October 4th  
**Time:** 8:00 pm to 12:00 noon  
**Location:** DoubleTree Hotel  
**Cost:** $45

Throughout the year most of us will attend one or more professional meetings where technical presentations are given. Generally, these presentations range from good to excellent in content, but more toward the poor end in delivery. This workshop is intended to provide us all with some techniques to make our next technical presentation a memorable one. Topics to be covered are the do’s and don’ts of PowerPoint, the use of notes, speaker do’s and don’ts, and more. If you are scheduled to give a presentation anytime soon, this is a must attend workshop that will benefit both young and old professionals.

Instructors for the course are Graham Closs, CPG-07288, Colorado School of Mines and Lawrence A. Cerrillo, CPG-02763, Hydrogeologist/Mediator/Facilitator/Arbitrator.
**Short Courses**

**Introduction To GPS Technology**

Date: Sunday, October 4th  
Time: 1:00 pm to 5:00 pm  
Location: Mesa State College Computer Lab  
Maximum: Limited to 12 attendees  
Cost: $125  
CEU's: .5 CEU from Mesa State College

This workshop will introduce the basics of GPS technology, how it is implemented in a professional environment, and gives attendees hands-on experience in the use of field data collection software and hardware. In addition, this workshop will demonstrate workflows related to field/office data integration with new geographic information systems such as ESRI's ARCGIS Server 9.3.

Registration includes break and classroom materials.

Instructors for this workshop are Verner Johnson, Mesa State University, James Russell, CPG-07338, Summit Data Services/GIS Coordinator, Gilpin County, CO, and Mike George, Northline GIS.

**In Situ Bioremediation of Chlorinated Ethenes: DNAPL Source Zones**

Date: Sunday, October 4th  
Time: 1:00 pm to 5:00 pm  
Location: DoubleTree Hotel  
Cost: $125

This course will review DNAPL source treatment technology which is designed to 1) reduce the mass of contaminants within the source area and 2) prevent migration of contaminants above unacceptable levels. The enhanced ISB technology reduces source mass and controls flux through the enhanced dissolution and desorption of DNAPL constituents into the aqueous phase, and subsequent microbially mediated degradation processes. Enhanced ISB of DNAPL source zones has been demonstrated effectively in the field at a few chlorinated solvent sites.

Instructors for this course are Naji Akladiss, P.E., Maine Department of Environmental Protection, Larry Syverson, Virginia Department of Environmental Quality, Hans Stroo, SERDP/ESTCP, Wilson Clayton, Aquifer Solutions, Inc., Ryan Wymore, Camp, Dresser & McKee, Inc., and David W. Major, Geosyntec Consultants.

**Natural Resource and Reserve Definitions**

Date: Sunday, October 4th  
Time: 1:00 pm to 5:00 pm  
Location: DoubleTree Hotel  
Cost: $99

This ½-day short course will review the evolution of the reserve and resource definitions over the past 100 years. Current areas of agreement, disagreement, and public confusion over current mining, petroleum, and governmental resource and reserve classification systems will be highlighted. Anyone involved in estimating natural resources or reserves or who uses these estimates should attend.

Instructor for this short course is David Abbott, CPG-04570, Consulting Geologist LLC.

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**A Continental breakfast, lunch and afternoon breaks will be available to all registrants FREE-OF-CHARGE at the DoubleTree Hotel. If you are attending a field trip, boxed lunches and beverages will be provided.**

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**Reserve Your Hotel Room Now**

DoubleTree Hotel  
(970) 241-8888  
Meeting Code-Grand Junction 2009  
To receive discounted rates
Social Events

Welcome Reception

Date: Sunday, October 4th  
Time: 6:00 pm to 8:00 pm  
Location: DoubleTree Hotel  
Cost: Included with Registration

This is a chance to get to know your fellow colleagues attending the annual meeting. This Sunday evening reception is the perfect opportunity to renew acquaintances, meet new people, and visit exhibitors. The reception will feature a cash bar and hors d’oeuvres.

Awards, Dinner and Entertainment

Date: Tuesday, October 6th  
Time: 6:30 pm to 8:30 pm  
Location: DoubleTree Hotel  
Cost: $60

Tuesday evening will be a pleasant one in the company of friends and colleagues. The festivities will begin with the AIPG National Awards presentation. Dinner and entertainment will follow. This event is intended to be informal, relaxing, and an opportunity for all attendees to meet and socialize.

Meet and Reminisce

Date: Wednesday, October 7th  
Time: 6:00 pm to 9:00 pm  
Location: DoubleTree Hotel  
Cost: $25

AIPG will celebrate 50 years soon. It has been noted that a few of our members are getting a bit on in years. Unfortunately, many have also gone on to more heavenly pursuits. The 2009 annual meeting in Grand Junction Colorado will include a keg and kicks evening to encourage a gathering of young and old for a non-structured reminisce and ruminate session. Old-timers will have an opportunity to relate stories such as those by past President Russ Slayback in recent TPG articles, and perhaps newer AIPG members can provide their perspectives into today’s approaches to career and association life. All are certainly invited to come and share a relaxing evening. We suspect there are a great many stories with pertinent lessons to be learned from all geologic disciplines. Hors d’oeuvres and a cash bar will be available!

2009 AIPG Annual Meeting  
Grand Junction, Colorado

Please visit the AIPG website for the most current and up to date information.

www.aipg.org

Should I become a CPG?

Have you been thinking about upgrading your membership to CPG? If the answer is yes, what are you waiting for?

To find out if you have the qualifications go to Article 2.3.1 of the AIPG Bylaws. The AIPG Bylaws can be found on the AIPG website or the directory.

The CPG application can be found on the website under ‘How to Join’. Just follow the instructions. The basic paperwork includes the application, application fee, transcripts, geological experience verification and sponsors.

If you have any questions, you may contact Vickie Hill, Manager of Membership Services at aipg@aipg.org or call headquarters at 303-412-6205.

www.aipg.org
Exhibitor Opportunities

YES!! We want to be part of the 2009 Geology and Resources Conference, October 3-7 in Grand Junction, Colorado. The 2009 Conference can count on us as an Exhibitor.

$995.00 Exhibit Booth (Includes one complimentary meeting registration)
$200.00 Additional Exhibitor Registrant

Exhibitor Information

Name (as you wish it to appear on your badge)

Title

Company

Address

City, State/Province, Zip

Phone            Fax

E-mail Address

Website

Additional Exhibitor Registrant
$200 for each additional person.

Name (as you wish it to appear on your badge)

Title

Company

Address

City, State/Province, Zip

Phone            Fax

E-mail Address

TOTAL AMOUNT: $_____

Check enclosed (payable to AIPG)

Please invoice immediately - payment due within 30 days.

Credit Card (circle one): Master Card  Visa  AmEx

Card Number: __________________________

Expiration Date: ________________________

Card Holder's Name: ____________________

Card Holder's Address: __________________

Signature: ______________________________

Exhibit Hours
- Sunday 6:00 pm – 8:00 pm
- Monday 9:00 am – 5:00 pm
- Tuesday 9:00 am – 3:00 pm
- Wednesday 9:00 am - 12:00 noon

Space Requirements
Space will be reserved on a first-come, first-served basis and we will try to honor special requirements.

Indicate your space requirements below:

☐ Electrical
☐ Internet Access
☐ Other

Please note that AIPG is not responsible for any lost or stolen items. The exhibit room will be locked at night but we cannot guarantee security.

AUTHORIZATION
I, on behalf of my company, hereby acknowledge that we have received, read, and understand the 2009 Exhibitor Prospectus and associated Terms & Conditions. Furthermore, we understand that these Terms & Conditions are a part of this contract and that by signing this application, we agree to be bound by all the terms contained therein.

Signature    Date
Sponsorship Opportunities

Join us for the 2009 Geology and Resources Conference hosted by the American Institute of Professional Geologists (AIPG), the Grand Junction Geological Society (GJGS), and Mesa State College in beautiful Grand Junction, Colorado. This conference is designed to appeal to members and non-members alike, who have an interest in the geosciences and its role in the economy and well being of the US and its neighbors. This is a great opportunity to promote your company to hundreds of professionals locally and throughout the US. Following is a summary of available sponsor levels, and the associated benefits to you as a sponsor. Sponsorships at the Monument, Mesa, Canyon, and Plateau levels are available to support the conference.

Monument Level: $7,500
- Company name, address and logo on conference website with a link to your company website
- Company logo on cover of Proceedings of the conference
- Company logo on sign at event entrance
- Complimentary Exhibit Booth
- Company acknowledgement during Opening Remarks
- Company logo prominently displayed on sponsor page of conference program
- Two complimentary registrations to the conference
- Company logo displayed on poster boards in reception area
- Company logo on conference registration bag
- Acknowledgement as conference sponsor on Field Trip Guidebooks
- Marketing material will be included in conference registration packet (if desired)

Mesa Level: $5,000
- Company name, address and logo on conference website with a link to your company website
- Company logo on sign at event entrance
- Complimentary Exhibit Booth
- Company logo on sponsor page of conference program
- One complimentary registration to the conference
- Company logo displayed on poster boards in reception area
- Acknowledgement during technical session breaks
- Marketing material will be included in conference registration packet (if desired)

Canyon Level: $2,500
- Company logo on conference website
- Company logo on sign at event entrance
- Complimentary Exhibit Booth
- One complimentary registration to the conference
- Company logo on sponsor page of conference program
- Acknowledgement during technical session breaks

Plateau Level: $1,500
- Company name on sponsor page of conference program
- Company name on sign at event entrance
- Acknowledgement during technical session breaks
- Company name on conference website

Sunday Evening Welcoming Reception: $1,000
- Company logo on sign at Welcome Reception area and bar during reception

YES!! We want to be part of the 2009 Geology and Resources Conference, October 3-7, in Grand Junction, Colorado. The 2009 Conference can count on us as a Sponsor.

- Monument Level ($7,500)
- Welcome Reception ($1,000)
- Mesa Level ($5,000)
- Student Programs ($1,000)
- Canyon Level ($2,500)
- Field Trips ($1,000)
- Plateau Level ($1,500)
- Other ______ ($1,000 minimum)

TOTAL AMOUNT: $________________ Date:__________

- Check enclosed (payable to AIPG)
- Please invoice - payment due within 30 days.
- Credit Card (circle one) MC, Visa, or American Express
  - Card Number
  - Expiration Date
  - Card Holder’s Name
  - Signature

Sponsoring Individual or Company:_____________________
Contact Name:_____________________
Title:_____________________
Company:_____________________
Address:_____________________
City:_____________________
State:______
Zip:_____________________
Phone:_____________________
Fax:_____________________
Contact’s E-mail:_____________________
Company’s Website Address:_____________________

Send Sponsorship Form Agreement to:
AIPG, 1400 W. 122nd Ave., Suite 250, Westminster, CO 80234
(303) 412-6205 • Fax (303) 253-9220
aipg@aipg.org • http://www.aipg.org/2009/GJ_home.htm

AIPG will contact you upon receipt of this form to complete arrangements.
**FEES AND PAYMENT INFORMATION**

<table>
<thead>
<tr>
<th>ANNUAL MEETING REGISTRATION</th>
<th>On or By 7/1/09</th>
<th>After 7/1/09</th>
<th>Amount</th>
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<tr>
<td>Full Member Registration</td>
<td>$300.00</td>
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<td>Full Non-Member Registration</td>
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<td>Daily Registration</td>
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<td><em>Spouse/Guest (Includes Registration Packet, Admission to Welcome Reception, Breakfast, Lunch, Breaks and Exhibits)</em></td>
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<td>Daily Student Registration</td>
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<td>I Would Like to Pay for a Student's Full Registration</td>
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<tr>
<th>FIELD TRIPS (Must be Registered for the Conference) (All field trips depart and return to the DoubleTree Hotel)</th>
<th>On or By 7/1/09</th>
<th>After 7/1/09</th>
<th>Amount</th>
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<tr>
<td>2-Day Mass-Wasting Features Associated with the Lake City Caldera (Depart Sat., 10/3, 8:00 am – Return Sun., 10/4, 8:00 pm)</td>
<td>$325.00</td>
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<tr>
<td>Utah’s Arches/Canyonlands and Dead Horse Point (Sat., 10/3, 7:00 am – 6:00 pm)</td>
<td>$100.00</td>
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<tr>
<td>Douglas Pass: Eocene Plant and Insect Fossil Collecting (Sat., 10/3, 8:00 am – 5:00 pm)</td>
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<tr>
<td>Underground West Elk Mine Tour (Sat., 10/3, 8:00 am – 5:00 pm)</td>
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<tr>
<td>Uravan Mineral Belt/Uranium Mine Tour (Sun., 10/4, 8:00 am – 5:00 pm)</td>
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<tr>
<td>Natural Gas Development, Piceance Basin, Western Colorado (Sun., 10/4, 8:00 am – 5:00 pm)</td>
<td>$100.00</td>
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<tr>
<td>Geology and Geologic Hazards of the Uncompahgre River Valley Area in Montrose County (Sun., 10/4, 8:00 am – 5:00 pm)</td>
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<tr>
<td>Ouray Hot Springs (Mon., 10/5, 8:00 am – 5:00 pm)</td>
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<tr>
<td>Colorado National Monument Sightseeing (Mon., 10/5, 8:00 am – 12:00 noon)</td>
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<td>Oil Rig Site Tour (Tues., 10/6, 12.00 noon – 5:00 pm)</td>
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<td>Water System Operations in the Grand Valley (Tues., 10/6, 12:00 noon – 5:00 pm)</td>
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<tr>
<td>Colorado National Monument (Tues., 10/6, 12:00 pm – 5:00 pm)</td>
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<td>Grand Valley Winery Tour (Tues., 10/6, 12:00 pm – 5:00 pm)</td>
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<tr>
<td>Origins of Unaweep Canyon (Weds., 10/7, 8:00 am – 5:00 pm)</td>
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<td>Late Jurassic Dinosaur Localities of Rabbit Valley (Weds., 10/7, 12:00 noon – 5:00 pm)</td>
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<td>Mass Movement/Landslides (Weds., 10/7, 12:00 pm – 5:00 pm)</td>
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<td>FIELD TRIPS cont’d (Must be Registered for the Conference)</td>
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<tr>
<td>2-Day San Juan Geology/Mining History (Depart Thurs., 10/8, 8:00 am – Return Fri., 10/9, 5:00 pm)</td>
<td>$425.00</td>
<td>$450.00</td>
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<tr>
<td>2-Day Colorado River Headwaters and Trans-Mountain Diversions (Depart Thurs., 10/8, 8:00 am – Return Fri., 10/9, 5:00 pm)</td>
<td>$325.00</td>
<td>$350.00</td>
<td>$</td>
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<tr>
<td>2-Day Surface Coal Mining and Reclamation, NW Colorado (Depart Thurs., 10/8, 8:00 am – Return Fri., 10/9, 5:00 pm)</td>
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<td>$350.00</td>
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<tr>
<th>SHORT COURSES (Must be Registered for the Conference)</th>
<th>Amount</th>
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<tr>
<td>Subsurface Data Management, Analysis and Visualization using RockWorks (Fri., 10/2, 8:00 am – 5:00 pm)</td>
<td>$175.00</td>
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<tr>
<td>Two-Phase Extraction Methods: Applications and Enhancements for Groundwater and Soil Remediation (Sat., 10/3, 8:00 am – 5:00 pm)</td>
<td>$99.00</td>
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<tr>
<td>GIS I-Intro to ArcGIS for the Earth Scientist (Sat., 10/3, 8:00 am – 5:00 pm)</td>
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<tr>
<td>Introduction to GPS Technology (Sun., 10/4, 1:00 pm – 5:00 pm)</td>
<td>$125.00</td>
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<tr>
<td>Techniques for Giving Technical Presentations (Sun., 10/4 8:00 am – 12:00 noon)</td>
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<tr>
<td>In Situ Bioremediation of Chlorinated Ethenes: DNAPL Source Zones (Sun., 10/4 1:00 pm – 5:00 pm)</td>
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<tr>
<td>Natural Resource and Reserve Definitions (Sun., 10/4 1:00 pm – 5:00 pm)</td>
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<tr>
<th>SOCIAL EVENTS/MEETINGS (Must be Registered for the Conference)</th>
<th>Amount</th>
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<tr>
<td>AIPG Foundation Luncheon (Sat., 10/3, 12:00 noon – 1:00 pm)</td>
<td>$30.00</td>
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<tr>
<td>Welcome Reception (Sun., 10/4, 6:00 pm – 8:00 pm)</td>
<td>Included with Registration</td>
</tr>
<tr>
<td>AIPG Past-Presidents Breakfast (Mon., 10/5, 7:00 am – 8:30 am)</td>
<td>Invitation Only (please circle if attending)</td>
</tr>
<tr>
<td>Awards, Dinner and Entertainment (Tues., 10/6, 6:30 pm – 8:30 pm)</td>
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<tr>
<td>Meet and Reminisce (Weds., 10/7, 6:00 pm – 9:00 pm)</td>
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<tr>
<th>DONATIONS TO FOUNDATION (Voluntary)</th>
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<tbody>
<tr>
<td>AIPG Foundation</td>
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**TOTAL AMOUNT**

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**Organization Meetings (see Program for Dates and Times) – Please Indicate if Attending**

<table>
<thead>
<tr>
<th>Event</th>
<th>Attending</th>
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<tr>
<td>AIPG National Executive Committee Meeting (10/3)</td>
<td>yes / no</td>
<td>AIPG 2009-2010 Joint Executive/Business Mtg. (10/3)</td>
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<tr>
<td>AIPG 2009 Advisory Board Meeting (10/3)</td>
<td>yes / no</td>
<td>Welcome Reception (10/4)</td>
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Full Registration includes: Welcome Reception, Technical Sessions, Exhibits, Student Poster Sessions, Continental Breakfast, Lunch, Refreshment Breaks, and Registration Packet.

I understand that by registering for the AIPG 2009 Annual Convention & Exhibition, I release and agree to indemnify The American Institute of Professional Geologists (AIPG) and its agents, officers, volunteers and employees from all liability for any loss, damage or injury sustained by me while involved in any way with the Convention and Exhibition except that AIPG is not released from such liability to the extent the same is caused by its actual negligence or willful misconduct. I have read and understand this waiver and release.

I also understand that submission of this registration form gives AIPG the authority to utilize any photograph taken of me at the conference for conference related publicity (e.g., photo gallery on cd, web site, TPG, etc.). AIPG agrees not to use my likeness for any other purpose. Please contact Vickie Hill at AIPG if you DO NOT wish to have your image used.

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Taxes, Haiti, and Outreach to Students

Robert A. Stewart, CPG-08332

These three seemingly unrelated topics reflect the fact that most of this issue’s column was written on April 15, the deadline for me to review the May/June TPG, reflect on events since writing the last column, and, of course, get my tax returns in.

This year my wife and I e-filed on the 14th, and mailed a check for what we owed, with a voucher, on the same day. So far, so good, low stress, and convenient, right? Not so fast. At 9:30 p.m. on the 15th we got an email response from the IRS that our e-filing had been rejected, and the reason provided didn’t make sense. Too late to figure it all out, we printed and signed the forms, assembled the attachments and W-2 statements, and I jumped in the car for the half hour drive to the Weston Street post office in Hartford, which is always open until midnight on the 15th. The fastest way to the post office is I-84 east to I-91 north. The confluence of the two interstate highways is in the middle of Hartford, and is a dangerous, messy interchange at the best of times.

Before leaving the house, I checked the Connecticut DOT’s website for motor vehicle accidents blocking the road—all clear. And here’s where the practical joke continues. Although there were no reported accidents, the website notices did not include the presence of DOT contractor with a work crew at the I-91 on-ramp. The DOT had closed two lanes for a mile leading up to the work area, traffic was crawling, and the clock was ticking down toward midnight. The off-ramp to I-91 had been transformed into a 500-foot goulash of police cruisers with red-and-blue lights flashing, highway signs and barriers with yellow warning blinkers, and blinding, white klieg lights with the intensity of the sun pointing at oncoming traffic, presumably not just for the sake of annoyance and confusion, (but I often wonder about these things), but to illuminate the work area. At the end of this mess was a 50-foot gap, open to the ramp, which I almost missed, my night vision almost non-existent, if not for an 18-wheeler in front of me whose driver saw over the work vehicles and made the turn at the last second. The exit for the post office is the first after merging onto I-91, and it quickly became apparent that half of Hartford County was in the same boat with their tax returns. So with the clock winding down, and the post office parking lot as busy as a land office during a gold rush, I found parking with a few minutes to spare. At any rate, I made it in time, had the envelope date-stamped, and resigned my fate to the IRS, which hopefully won’t identify my occupation as a geologist for an automatic audit. And on the way home my Subaru didn’t turn into a pumpkin.

This issue of TPG includes two articles on Haiti. Adamson and Dykstra describe the detailed geological investigation used successfully to identify a favorable location for a water supply well in the northern part of the country. The United States and Canada are blessed with a water supply that is mostly abundant and pathogen-free, although climate change and population growth into arid areas have resulted in stresses similar to those on Haiti. Popkin discusses problems of accelerated erosion and flooding related to land-use practices near Port-Au-Prince, also issues that are shared by the United States. For a highly enjoyable perspective on some of these matters, I recommend John McPhee’s The Control of Nature.

I represented AIPG at the Northeast Section meeting of the Geological Society of America in Portland, Maine this past March. Exhibit booths are always more successful if you can provide swag that appeals to your audience. I brought along a few dozen small samples of rock salt, in small plastic packets, from the Waste Isolation Pilot Project (WIPP) in New Mexico. I acquired these samples from a WIPP exhibit booth at an AEEG meeting a few years ago, thinking I could recycle them somehow for students—the samples were wildly popular at the GSA meeting and made for a good conversation starter, and my garage is slightly less cluttered. Tim Stone, CPG, joined me for a day, and saved me the embarrassment of puzzling over the assembly of the AIPG display, despite plenty of early-childhood experience with Tinkertoys. The GSA meeting included two excellent luncheon opportunities for students: the John Mann Mentors in Applied Hydrogeology Program, and the Roy J. Shlemont Program in Applied Geoscience. These events give geoscience students an opportunity to meet with geoscience practitioners, mostly from outside academia. The AIPG booth was near the luncheon area, and the many interested students got the opportunity to learn about our organization and its importance for students and young practitioners in terms of networking and professional advancement. Professional meetings are great venues to publicize AIPG to students and others, and I urge you to try it if possible. Your presence and experience will be appreciated.
Arizona Section

Greetings Arizona Section Members, Supporters, Guests and Fellow Geologists: This first newsletter of 2009 brings you a wealth of information on AIPG Arizona Section and AIPG National activities, and what is happening in the State of Arizona, regionally and nationally related to the geology profession. On February 13, 2009 the Arizona Section hosted a dinner with the AIPG National Executive Committee and Headquarters staff. The next morning the Arizona Section held its annual meeting in Tucson at the Arizona Geological Survey office. The Section hosted 15 members and 20 guests, including the AIPG National Executive Committee and Headquarters staff, and several distinguished guests within the profession.

Arizona Board of Technical Registration. On behalf of the section, Erick Weiland provided a letter to the Arizona Board of Technical Registration in coordination with the Association of Environmental and Engineering Geologists (AEG), recommending a swift nomination for the replacement of Dawn Garcia as the geologist representation on the Board, as her term has expired. AIPG would like to express our thanks to Dawn Garcia for her time and efforts on behalf of the geologists in the State as our representative to the Board of Technical Registration and through it to the Association of State Boards of Geologist (ASBOG) and the administration of the geology exam that it provides. Thank you Dawn – your efforts are much appreciated!

California Section

Welcome To Mark Rogers. The California Section of AIPG welcomes Mark Rogers to California. Mark now lives in the Long Beach area. He has been on the AIPG National Executive Committee, the Advisory Board and has held other leadership posts as well. He was active in the Alaska and Hawaii Sections prior to coming to California. He has agreed to serve the California Section as Secretary. We are grateful to have Mark as a member and our gain is the loss for the Hawaii Section.

Georgia Section

Last Field Trip. We had a great turn out of students from Georgia State, West Georgia, and University of Georgia to attend our caving field trip to north-west Georgia on February 4, 2009. We spent most of the time crawling around in Howard’s Waterfall Cave. When we would stop to rest and talk about the geology of the cave, the young kids that came along would want to turn out the lights. Late in the afternoon we drove over to Pettijohn’s Cave and only spent a few hours there. The rocks were really slick so we didn’t go very far into the cave. We all had a great time and I would like to thank Cal Johnson for again leading this field trip.

Hope to see more of our members on future outings. You can’t stay at your desk and not get out!

Student Members. Each year our section asks each of the universities that offer a geology degree to nominate one student that our section will pay their student membership. The five students for 2009 are: Andrea McHugh - Georgia Southern, Morgan Warren - Georgia State, Justin Griffin - Georgia Southwestern, Mike Koocs - University of Georgia, Rochelle Petruccelli - University of West Georgia. I have met two of the students so far and have ordered membership certificates that we will frame and deliver to each university. I’ll probably start visiting the universities in either late March or in April. Georgia Southern has asked me to come to their award picnic on May 1, 2009. If any member is an alumni and would like to come along, let me know.

I usually sit down with the chairman and find out what is new with them and tell them some of the activities we are doing.

Ron Wallace,
Georgia Section President

Illinois/Indiana Section

Fall 2009 Illinois-Indiana Section Meeting. The Illinois-Indiana Section of AIPG is pleased to announce that the Fall 2009 meeting will be held at the Morton Arboretum on October 21, 2009. This meeting will be our Annual Vendor Networking Night. The Morton Arboretum is not only a terrific venue, it also has the advantage of being centrally located within the Chicago area. Moreover, it is convenient to have our meetings in a well-known location. Our meeting will be in the new Visitor's Center which has a wonderful view of the lake and the majestic surroundings. This will be an evening meeting to accommodate everyone’s busy schedules with a start time of 6 pm and wrapping up at about 9 pm. As with our previous meetings, there will be no charge for AIPG members (non-members are asked for a donation). Snacks will be provided, along with a cash bar for refreshments.

The Value of AIPG. Ramona Cornea, CPG-08983, LandTech, Inc. I graduated from the Institute of Oil, Gas and Geology in Bucharest, Romania in 1970, with a MS degree in Geophysical Prospecting. This was a technical institute preparing, among others, professionals for geological and geophysical engineering. For the next 22 years I worked full time as a geophysical engineer in Romania with various geological enterprises. I also obtained a PhD degree from the University of Bucharest, Romania in 1986. After my immigration to the USA in 1992, I was determined to meet American geologists and, if possible, to continue working in the geological field. Thus I contacted the American Institute of Professional Geologists (AIPG), the only national organization at that time that could officially certify my credentials in the geological sciences. AIPG had given me the names of its members residing in Aurora, Illinois area, and in this way I had the chance to meet Dr. William Lang. Despite my heavy accent, Bill kindly took the time to listen to my geological expertise and invited me to the AIPG Illinois Section, AEG meetings
and ISGS workshops. I got immediately accepted by fellow geologists as we discovered many professional affinities. I felt like I was back home among my Romanian geologist friends when in American geologists’ company. I realized that before belonging to a nation or nationality we, geologists, belong to a large geological family. It was so comforting!

Dr. Lang offered me not only a job at his environmental geology business, Strata Power, but a recommendation to become a Certified Professional Geologist (CPG). I presented my application, proof of studies and experience to the AIPG and I was granted the CPG certification in no time. I cannot express how happy and proud I was to belong to the largest American association dedicated to promoting geology as a profession.

As a CPG member, I participated to the Illinois-Indiana Section and got to know other brilliant geologists like Dick Berg, Myrna Killey, Bill Dixon, and Beverly Herzog. We have gotten to know each other during field trips and had lots of fun sharing our professional experiences.

Then I started participating to the AIPG national annual meetings and met geologists from other states. I immediately had the same feeling of coming home. These annual meetings provided me with the chance to take field trips led by prominent geologists of the host state, and learn the applied geology specific to each state. So far, I have learned about the geology of Wisconsin, New York, Kentucky, Minnesota, and Michigan. During these trips I also felt as if I was traveling back in time because I felt like a geology college student again. I was most impressed by the quaternary geology that is not well represented in Romania, but also with the crystalline structures of Minnesota and Michigan, the caves and sinkholes of Kentucky, and basement rocks of the Big Apple were also quite impressive. And I’m not even mentioning the beauty of the nature in fall colors and the fun.

The AIPG annual meetings have given me the chance to continue my professional activity by holding presentations at the technical sections and being informed on the geological advancements in other geological fields.

Also, I met the people in the headquarters and the Board of AIPG which inspired me to join the section board where I have held the position of treasurer for the last two years. I’m proud that our section has become active again, having so many participants to our semiannual meetings. Thus, each year at the time of renewing the membership application, I’m doing it without asking myself what AIPG is doing for me. I renew without any hesitation, but with pride and confidence that I belong to the right group of geology professionals.

Why AIPG? Jeff Groncki, CPG-11118, Malcolm Pirnie, Inc. “Why AIPG?” is a question that each of us have had to answer at some point in our career. The short answer is Value. Providing value to members is possibly the biggest challenge AIPG faces. It is important to understand the resources and benefits available to you as member of AIPG or as a Certified Professional Geologist (CPG); this will allow you to help promote AIPG as a group and encourage professionals and students to get more involved in AIPG activities. As an organization, one of AIPG’s missions is to promote high standards of ethical conduct within the geological profession. AIPG National provides value to members by offering the following core services:

- Certifying professional geologists based on their competence, integrity, and ethics. Earning the title of CPG enhances your credibility with clients, regulators, legal counsel, and your employer and demonstrates your personal commitment to achievement and continuing development.
- Providing a collective voice for geologists to the state and federal government on issues that affect geologists.
- Publishing and distributing a bimonthly magazine to all members that presents a wide range of articles that deal with real issues routinely faced by geologists and a thought-provoking ethics column that consistently offers guidance to young professionals and is paramount to maintaining an organization that promotes integrity and ethical behavior.
- Providing liability insurance and a full line of health, life, and accident insurance.
- Hosting annual meetings where industry leaders present publications to keep you on the leading edge of the industry.
- Offering an online job board where you can post a resume or new employment opportunity.
- Offering discounts on AIPG publications.
- Providing access to resources that will keep you on the forefront of emerging legislation and policies that will help you serve your clients by being able to foresee their problems and correct them before they realize.
- Offering award recognition for outstanding professionals and scholarship opportunities for students.
- Providing individuals opportunities for networking with other geologists that have similar professional and ethical standards.

In addition, the Illinois/Indiana Section provides value by offering the following additional value:

- Hosting biannual meetings that feature technical presentations, legal issues, and regulatory updates. At one of the biannual meetings we also invite contractors, including drillers, remediation vendors, laboratories, waste disposal companies, and others to attend and participate in an evening of networking. By making the meetings free to AIPG members.
we continue to provide an incredible opportunity for professionals to network and learn.

- Publishing a semi-annual newsletter to keep members informed about Section business and upcoming events.
- We invite you to submit any recently published articles to the AIPG Section board for inclusion in a future newsletter.

Our Section is here to serve its membership, so please feel free to contact any board member regarding any issues of concern or any hot topics that you would like to see featured at one of our meetings or in one of our newsletters.

Increasing your involvement in AIPG will open up many doors and increase your visibility in the professional arena. In addition, obtaining CPG status will, by association, include yourself in a group of professionals known for competence, integrity, and ethics that will make you more marketable in the geologic community. I encourage you to get involved and make an effort to take advantage of the value that AIPG offers.

Michigan Section

Reminder of Section Awards Nominations

Michigan Section Members enjoying dinner before the presentation by Patty Brandt of the MDEQ-RRD.

Students examining Michigan rocks at Wilcox Elementary School in Holt with their new books.

**Continuing Education**

AIPG encourages all members to further their careers by keeping up to date with their chosen field. For recent CPGs continuing education is a must. Most professional fields are requiring it or are leaning toward it. Check with the AIPG website to find out how easy it can be updated your resume. AIPG offers some on line courses and outlines what constitutes continuing education to keep up with your certification as well as requirements for state licensing. Always remember that AIPG is here to support you and help you. There is a great staff available to answer or help you with continuing education - just call or email.

**South Dakota Section**

2009 John Paul Gries “Geologist of the Year” Award. The South Dakota Section of the American Institute of Professional Geologists is pleased to announce that Dr. Jack A. Redden, emeritus professor at the South Dakota School of Mines and Technology, has been selected to receive the 2009 John Paul Gries “Geologist of the Year” Award for his exceptional work in the field of geology. Dr. Redden recently published a landmark publication through the U.S. Geological Survey (USGS) titled “Maps Showing Geology, Structure, and Geophysics of the Central Black Hills, South Dakota” which represents the culmination of over fifty years of geologic mapping and interpretation in the Black Hills region. Release of this publication elevates comprehension of Black Hills geology to a level of detail and accuracy never before achieved, and this publication will serve as the standard portrayal of Black Hills geology at this scale for years to come.

**Pennsylvania Section**

Growing Greener Program

Governor Rendell is still pushing an aggressive agenda for this Pennsylvania program. As you know, On May 17th, 2005 the state’s voters approved expanding and continuing the existing program. Hundreds of millions of dollars are being spent to clean our environment and quality of life. Much of these dollars will be distributed through municipal governments to create new growth in core communities as well develop new opportunities for PA citizens. Are there still opportunities for your firm? Just research the programs.

The award was presented to Dr. Redden at the Journey Museum on March 21, 2009.
This photo was taken March 18, 2009 during the AIPG South Dakota Section Annual Meeting in Pierre. The shot includes some of the attendees. Starting from the right: J.F. Sawyer, 2009 President, Gary Haag, Tom Durkin, Tim Kenyon, Derric Iles, Jeff S. Hart, Larry Stetler, Bob Townsend, Pat Emmons, Joanne Noyes, and Mike Meyer. Not shown are Damon Powers, John Foster, Sheldon Hamann, and Bill Siok.

In addition to this latest publication, throughout his career Dr. Redden has published numerous outstanding publications on Black Hills geology and has become a leading expert on the stratigraphy, structure, and ore deposits of rocks exposed in the Black Hills uplift. Dr. Redden also has influenced and assisted thousands of students, colleagues, professional geologists, and interested lay persons, and he continues to serve as a wonderful source of geologic knowledge for those around him in his current position as emeritus professor at the South Dakota School of Mines and Technology.

Tennessee Section

Yesterday afternoon, MTSU President Sydney McPhee released his response to the MTSU ‘Positioning the University for the Future’ steering committee’s recommendation that the Department of Geosciences be eliminated or merged with another department. I am very happy to report that President McPhee disagrees with the recommendation, and instead proposes that Geosciences continues to operate as a single academic department. He also proposes that Geosciences be moved to a newly realigned College of Arts and Sciences, which should greatly increase the Department’s visibility both on and off campus. Furthermore, he supports the formation of a university-wide ‘E+4 Consortium’ (energy-environment-education-economics), through which Geosciences can play a leading role in developing MTSU interdisciplinary programs in energy, environment, and K-12 science education. The President’s recommendations will not be finalized until May 1, so until that date we will work with the Provost to make certain that the Department’s position is secure.

From all our faculty, staff and students, I thank each of you who wrote letters and emails on our behalf. During a meeting with President McPhee last Tuesday, he mentioned to our faculty the many supporting emails and letters he received on behalf of Geosciences. They made a big difference during his review of our department. I also thank all of you who called or visited to provide advice and encouragement. We are very fortunate to have you all as loyal friends.

During the next two years, we will review all aspects of the Department, including student recruitment, curricula, and outreach to government and industry. Please contact me at any time to offer suggestions as to how we can continue to grow the Department and prepare our students for post-graduate academic and professional careers. I will undoubtedly solicit your advice as we proceed through the review process.

If you get the chance, another short email to President McPhee (smcphee@mtsu.edu) and Provost Kaylene Gebert (kgebert@mtsu.edu) in support of the decision to retain Geosciences would be beneficial and appropriate. I believe that the President’s recommendation to retain our department clearly shows the MTSU administration values geosciences as a core academic discipline.

Again, I thank you all for your support.

Warner Cribb
Professor of Geology
Middle Tennessee State University
Department of Geosciences
MTSU PO Box 9
Murfreesboro TN 37132
615-898-2379

Professor Cribb,

With your permission, I would like to forward this letter to our AIPG headquarters for possible inclusion in our publication The Professional Geologist. The position taken by your university president is a positive example of how a proactive response from the profession can make a difference. I am thankful that several AIPG members took the time to get involved and demonstrate the importance and relevance of geosciences to the administration at MTSU. We should now be about acknowledging and commending Dr. McPhee’s decision to support the department. This is a very fortunate turn of events for which we can take some gratification - but no rest. This issue will likely come back and will need the continued involvement of professional geoscientists to secure a future for the department.

Thank you again for bringing this to our attention and agreeing to work with us to build a stronger relationship between academics and the profession.

Larry Weber, PG, CPG
AIPG - Tennessee Section President
Past National President

Letter to the Editor

Hello all,

I just received a 25-year service pin and a kind letter from John and Bill. Very nice; thank you.

Best regards,

Michael Root, CPG-06386
MEMBERS IN THE NEWS

LBG Names Three New Vice Presidents

Shelton, Connecticut -- Leggette, Brashears & Graham, Inc. (LBG), a professional ground-water and environmental engineering services firm, has named Michael Manolakas, CPG Applicant, John Benvegna, CPG-08276 and James Beach vice presidents of the firm.

Based in LBG’s Shelton, Connecticut office, Mr. Manolakas’ 15 years of experience includes completion of numerous Phase I through Phase III environmental site assessments as well as treatability studies, design of remedial systems, remedial cost estimating, remediation of soils and ground water, ground-water flow and solute transport modeling, database management and GIS modeling. He has managed sites undergoing investigations and remediation as part of the RCRA Corrective Action, CTDEP Property Transfer Act Program, CTDEP Consent Order, CTDEP Voluntary Remediation Program and NYSDEC Voluntary Cleanup Program.

Mr. Manolakas is a Licensed Environmental Professional in Connecticut. He holds a B.S. degree in geological sciences from The Ohio State University and is a member of the Association of Ground-Water Scientists and Engineers (National Ground Water Association) and Environmental Professionals of Connecticut.

Based in LBG’s White Plains, New York office, Mr. Benvegna has over 23 years of experience in the environmental consulting field. He learned from the ground up at LBG, starting as an intern in 1985, and he has a variety of contamination and water supply project experience. Over the course of his career he has been involved in all aspects of these projects from basic field work, data evaluation and reporting, to overall project/client management including budgeting, client representation and regulatory negotiation.

A Certified Professional Geologist by the American Institute of Professional Geologists, Mr. Benvegna received a B.S. degree in marine geology from Southampton College, Long Island University. He is a member of the American Institute of Professional Geologists, and the Association of Ground-Water Scientists and Engineers (National Ground Water Association).

Mr. Beach is located in the Austin office of LBG-Guyton Associates. He is a Professional Geoscientist with 20 years of experience in ground-water and surface-water hydrology, water resource planning and development, environmental assessments, numerical flow and solute transport modeling, quantitative contamination evaluations, and litigation support. He specializes in application of numerical models to evaluate water resources as well as contaminant flow and contaminant transport in the subsurface, and has experience in field hydrology and hydrogeology, and application of quantitative hydrology in the water resources arena.

Mr. Beach earned an M.S. degree in hydrology from the New Mexico Institute of Mining and Technology and a B.S. in hydrology from Tarleton State University. He is a member of the American Geophysical Union and the Association of Ground-Water Scientists and Engineers (National Ground Water Association).

Leggette, Brashears & Graham, Inc. was the first consulting firm in the United States to specialize in ground-water geology. Over the last 60 years the firm has completed projects in 48 states and 19 foreign countries. The firm has expertise in almost every aspect of water supply, contamination and mine dewatering hydrogeology. Headquartered in Shelton, CT, LBG has 19 regional offices throughout the United States.

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1. “Serpentinization” is best represented by which one of the following equations?

a) $\text{Fe}_2\text{SiO}_4 + \frac{1}{2} \text{O}_2 + 2\text{H}_2\text{O} \rightarrow \text{Fe}_2\text{O}_3 + \text{Si(OH)}_4$

b) $\text{CaCO}_3 + \text{SiO}_2 \rightarrow \text{CaSiO}_3 + \text{CO}_2$

c) $5\text{Mg}_2\text{SiO}_4 + 4\text{H}_2\text{O} \rightarrow 2(\text{OH})_4\text{Mg}_2\text{Si}_2\text{O}_5 + 4\text{MgO} + \text{SiO}_2$

2. We are evaluating the short-term slope stability of a 100% water-saturated clay. Which strength value is best to use?

a) The value of the “unconfined compressive strength”.

b) One-half the value of the “unconfined compressive strength”.

c) Twice the value of the “unconfined compressive strength”.

3. We have found specimens of the mineral “siderotil”. Which of the following best applies?

a) We have found a manganese silicate.

b) We have encountered a hydrous sulfate of iron and copper.

c) We have established the presence of iron carbonate.

4. This country is located just about entirely above the 60° north latitude line, is typified by very old bedrock of mainly Archean and Proterozoic age, has a complex history of Pre-Cambrian plate tectonic activity and associated rock deformation, plutonism, volcanism and metamorphism, includes metallic ores (such as chromium, gold, silver, zinc and cobalt) as well as diamond-bearing “kimberlite” intrusive pipes as its natural resources and has four distinct geographical provinces:

a) Norway

b) Estonia

c) Finland
I am honored to be selected as a candidate for President-Elect of AIPG. The underlying philosophy of AIPG is fundamental to the manner with which I have conducted my professional practice, and I strongly believe it is fundamental to the survival of our profession as we face many economic, resource, environmental and political changes. The daily news is filled with issues related to services that geologists provide, whether our services include protection of the environment, development of natural resources, guiding public policy members, or educating the public. Geologists are, or should be, in the forefront of these activities, and AIPG is the professional organization that is best suited to support geologists in those efforts.

The current economic downturn likely will shrink geological employment at a time when we need more practicing professionals. The need for water resource development and protection, environmental impact mitigation and forecasting, mineral resource evaluation and development, and energy resource development, to name a few, are more important than ever in our history. Anything that AIPG can do to improve the qualifications of the practicing professional will make us stronger and enable us to be available when we are needed most by society. The AIPG strategic objective of focusing on continuing education is a key element. This is much more than giving geologists another plaque on the wall or credential on their resume, but rather helping our colleagues be better equipped to address current issues, while helping them meet educational training requirements for their respective state licensure and professional registrations. It is through this type of service to our membership that we will strengthen our sections and increase membership.

These are not mere platitudes. I have always stressed continuing education in our geological consulting business and I recently encouraged our staff to seek additional training opportunities regardless of our work load and the economic downturn. We must strengthen ourselves even during difficult times. This philosophy has served us well as we guided our company through two previous recessions.

I also work actively with our local and statewide professional geology organizations to develop educational opportunities that are integrated with the goals of increasing revenues and membership for those organizations. I have extensive experience with these challenges as a co-founder and past president of the Hudson Mohawk Professional Geologists Association (HMPGA) and past-president and current member of the Board of Directors of the New York State Council of Professional Geologists (NYSCPG), which is pursuing licensure for geologists in New York State. At our most recent annual meeting of NYSCPG, which was attended by current and past members of the NEAIPG Executive Committee, we formulated a conceptual program for continuing education that may be a good model for AIPG. As the national oversight organization, AIPG would work with local geology groups, statewide licensing organizations, and regional AIPG sections that provide the “boots on the ground” to adopt and apply this program. AIPG can provide the administrative continuity while the local groups can identify the educators and the course content that are germane to their particular regional issues. This approach will provide an opportunity for revenue sharing between AIPG and the local groups, and it will complement our ongoing effort to support the state licensed/registered PGs. My current activities and past experiences with local organizations will bring value to National AIPG.

It is important for AIPG to continue to educate our membership, vet controversial and relevant issues in the TPG, and develop position statements. This is necessary to maintain the relevance of AIPG and our profession as a whole. The importance of these actions were underscored in my recent experience as the Chairman of the AIPG Ad Hoc Committee on Climate Change. One of the many significant things that I learned from this effort is that geologists do not always appreciate the value that our profession brings to the table on many key issues such as climate change. I sensed an undercurrent from our membership that the opinion of geologists is of little value and we should yield to our more esteemed colleagues in the other sciences. This is simply not true. In regard to the climate change issue, geologist’s expertise and opinions are critical to the discussion through chronicling the past conditions, observing current conditions, and building on our knowledge to forecast future conditions. Geology is fundamental to the discussion.

I offer the issue of climate change only as an example. A lack of appreciation of geologic relevance is evident in many applied projects and when we present ourselves to the public. It is incumbent on AIPG, the advocate for the profession of geology, to continue to foster a stronger sense of value within our profession. This will strengthen our profession and give us a better voice.

Thank you for the opportunity to express my thoughts. I look forward to an opportunity to give back to a profession that has been beneficial to me by leading AIPG to remain a strong, forward looking and ever evolving organization.
I am honored to be nominated for the position of President-Elect for 2010. I have served the AIPG at both the National and State levels for the past 12 years. From 2006 to present, I served on the National Executive Committee as Secretary, then as an Advisory Board representative for the past two years. I have served (and continue to serve) on several AIPG committees from 2004 including the Continuing Professional Development (CPD), Section Membership, Seminar/Short Course and CPG Practicality Committees. From 1997 to 2003, I kept in close contact with the Executive Committee through my involvement as Section President for Alaska and Hawaii. In 2008, I worked with a group of dedicated CPG's in screening applicants for the Hawaii Section. In 2009, I relocated from Hawaii to California to continue managing environmental/ construction projects as a civilian contractor for the Department of Navy. I continue to serve on AIPG's National Screening Committee. Other AIPG activities for 2006-2008 included working with CPG's and State government representatives in preparing legislative resolutions for establishing the Geological Survey and State geological registration in Hawaii.

It would be an honor and privilege to continue serving AIPG on the National Executive Committee as President-Elect, and President.

If elected, I intend to promote continuing efforts in the following programs:

**Promote increased CPG value and practicality** - I have worked with past and current AIPG presidents and the CPG Practicality Committee in responding to the needs and issues of the general membership to better serve the AIPG Sections. My goal would be to help the National Executive Committee (ExCom) bring value to the CPG title as measure of high competence, integrity and ethical conduct. To this end, I support promoting the profession of geology and the critical roles geologist play in the society by increasing public awareness in environmental hazards, educated land planning and development, construction materials, exploration and mining activities, and the responsible development of earth resources for alternative and/or renewable energy. This year in California, I will be working in conjunction with the National ExCom to promote CPG value and geologists’ role in society by coordinating with local geological societies and Assoc. for Women Geoscientists (AWG) to host a regional conference in either the Bay Area and/or Los Angeles. This work will continue to the local government agencies towards establishing mutually acceptable terms for all entities to recognize the CPG designation and its professional development programs as an invaluable asset to state-sanctioned PG/CHG/CEG or similar designations.

**Promote increased participation in the CPD program** - I support increased participation in the CPD program by working to make the process more “user friendly” and providing more available resources to the membership (i.e., college out-reach, and on-line seminars/short courses for CEUs). I am working with the National ExCom to prepare seminars or short courses in conjunction with local universities to bring local membership more CPD programs as an invaluable asset to state-sanctioned PG/CHG/CEG or similar designations.

**Increased membership** - I support the continued use of the member and student categories as a means to bring in new members to AIPG. Increasing membership is vital to AIPG’s financial stability as well as promoting fresh/new ideas to better serve its members. The member category is an excellent way for those geoscientists to continue their professional development until such time that they qualify for CPG status. Additionally, I encourage continued development of student sections at the university level and promotion of earth science and geologic hazards awareness at the lower age groups (K-12 school levels). As CPGs, we provide a very valuable network resource for university students as interns or for those venturing out into the job market. The National Executive Committee has performed well on the programs noted above and my goal is to continue the momentum. As president, I will strive to preside at all meetings of the Institute and of the Executive Committee, and shall perform the duties customary to the office.

As President-Elect, I would be honored to serve on the Executive Committee and undertake special projects requested by incoming 2010 President Mike Lawless. My current work as Advisory Board Representative with the National ExCom will allow me to maintain a smooth transition with President Lawless in continuing and/or enhancing AIPG’s programs. Thank you.

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**Candidate for AIPG National President-Elect**

**Mark W. Rogers, CPG-08926, Long Beach, California**
Candidate for AIPG National Vice President

Charles W. Drake, CPG-11179, Orlando, Florida

During my two years serving as an Advisory Board member, and now serving on the Strategic Plan review committee, I have learned the importance of the AIPG at the national and local levels. The importance of AIPG as an organization and the members who comprise the organization is undeniable. I have seen the positive results of concerted efforts of geologists across the country to contribute, at the national and local levels, to promoting geology and the geological sciences and assist municipal and state regulators with writing of ordinances and law.

Because of the impact that I see the AIPG has, I am honored to be a nominee of for the office of Vice-President. The first responsibility of the Vice President is to assume the office of President under certain circumstances; to that end I will maintain close contact with the President so that I understand the issues and work being conducted by the President. Perhaps more important will be to maintain the liaison between the Executive Committee and Section Presidents. As the current Florida Section President, I understand the issues that the sections face, and how National has helped each section with those issues. Similarly, the sections can and have helped National with larger issues.

Having the experience of being on the Advisory Board as well as President of the Florida section and currently serving on the Strategic Plan review committee will allow me to immediately be a benefit to AIPG. I am committed to working with the section presidents in any way possible, whether it is to increase membership, assist with legislative activities, or local regulations that may adversely impact us geologists. I will welcome calls or emails from each section president, or member for that matter, to learn how National can help with section issues and also to enlist the aid of the sections at the National level.

An additional responsibility of the Vice President is to undertake special projects as assigned by the President. As John Bognar has assigned the Strategic Plan review, I expect to work closely with Mike Lawless when he assumes the office of President. As I just mentioned, I am serving on the Strategic Plan review committee, and traveled to Tucson this past February to meet with the other committee members to discuss the Strategic Plan. The Strategic Plan is important to AIPG because it will guide us over the next few years in how we meet our vision and mission as the geosciences and geology practices change. There will likely be many tasks that will come from implementation of the Strategic Plan, and I will gladly take on that responsibility if asked.

I believe that it is the responsibility of professionals, whether geologists, engineers or architects, to provide service to that profession in some way. I will continue to support our profession, and believe that I have done that for the Florida Section, with the help of many other geologists. It is my ability to react quickly to issues and contact AIPG members to assist that I think is one of my stronger suits. In Florida, we have had geologists added to the Florida Water Resources Act to allow us to sign and seal certain documents where historically, only engineers were allowed by statute to do so. We have also lobbied successfully to be part of a springs of Florida task force and write portions of legislation. At the county level, many geologists responded to a draft geologic hazards ordinance where some engineers were trying to exclude geologists from identifying geologic hazards. We were successful in working with county staff and presenting the county commissioners our support of including geologists. The ordinance passed with geologists being included.

I commit to the members of the AIPG that I will continue to provide leadership and support to meet the vision and mission of the AIPG, and as a result to make our profession more visible in the public’s eye and make us stronger professionally. I take this responsibility seriously, as do all of your executive committee members, and look forward to continuing to work for the betterment of our members.
Candidate for AIPG National Vice President

Ronald J. Wallace, CPG-08153, Roswell, Georgia

First of all I would like to thank the Nominating Committee and Executive Committee for recommending and approving my nomination as Vice-President. During these tough economic times, AIPG needs to be a strong and unified force where geologists can network for employment, gain new and insightful ideas, and receive encouragement as they reach important milestones throughout their career. Although there will be a number of challenges, I willingly accept each one knowing full well that there are few rewards greater than serving the members of AIPG.

The main duty of the Vice-President is to act as a liaison between the Executive Committee and the Section Presidents. This will require direct communication, at least once annually, with each Section President in order to convey problems, concerns, ideas, and requests to the to the appropriate sections of the Executive Committee. I personally feel that annual contact with each section does not clearly represent the views and concerns of each Section. There are a number of very strong Sections such as the Northeast, Michigan, Colorado, Minnesota, and Kentucky. However, there are a number of other sections that are clearly struggling and may need additional support, cooperation, and encouragement from the Executive Committee. Before I became Section President in 2002, we typically had two field trips and two newsletters each year. Now, we typically have six newsletters and six meetings annually. In order to promote our section, I made it a point to highlight our activities and to note any special accomplishments by any of our members in both “The Professional Geologist” publication and our Section website. As a result of my proactive approach, membership has grown from 40 members to approximately 120 members. If I am elected as Vice-President, I will use this same approach to reach out to all Section Presidents, as often as it is needed, in order to ensure that each section reaches its highest potential.

Although I’ve been President of the Georgia Section since 2002 and spent much time with Georgia members, I felt that it was imperative that I also accept a role in which I could also serve national members. From 2006-2008, I’ve served as State Affairs Chairman. This role required that I communicate to each section regarding legislative activities that involved the field of geology. In a 2006 issue of “The Professional Geologist” I authored an article in which I outlined various state legislative initiatives dealing with PG licensing and what we can learn from this.

As I stated before, we are experiencing tough economic times. Therefore, it is critical that we find unique and creative ways to generate funds for AIPG. For several years, the Georgia Section has offered a one-day short course on fate & transport groundwater modeling. This fee-based course has been a great success. In May 2008, the Georgia Section held its first “Innovative Remediation Technology Conference”. The conference was a huge success, with a large number of sponsors, exhibitors, and guests attending. Our 2nd conference is currently planned for September 2009. Not only do these conferences help sharpen the skills for working professionals, they generate much needed revenue. A number of the members on the Executive Committee including myself helped National to organize their own “Innovative Remediation Technology Conference” that was held last fall in Denver.

I believe that the continued success of AIPG hinges on the development of its student members. I was very fortunate to have some energetic and very bright students from Georgia State University initiate a student chapter. We are now in our 5th year, and we have had two members receive AIPG scholarships. I am very proud of them, and we should do all that we can to encourage young students at other universities to follow in the footsteps of those at Georgia State University. The Georgia Section invited all students to attend field trips in which we visited contaminated sites to explain various types of remediation, demonstrate proper field techniques, and demonstrate various drilling techniques. These students are very fortunate to learn this “hands on” experience before writing their first professional resume. The Georgia Section pays for one student membership from each university that offers a geology degree. I personally present a membership plaque to the department chairman so those students selected for student membership are recognized by their peers.

I encourage you to visit my website at http://sites.google.com/site/ronwallacegeologist/ for more information about me and how I can best serve you as Vice-President of AIPG.

Plan to Attend 2009 AIPG Annual Meeting Grand Junction, Colorado October 3-7, 2009
Candidate for AIPG National Secretary

Ramona M. Cornea, CPG-08983, Rockford, Illinois

I was pleasantly surprised when I was called by Mr. William J. Siok asking if I’d consider a nomination for National Secretary. I accepted without hesitation and with great honor and pride. Previously I was Board secretary to the Rockford Network for Professional Women and I’ve known how difficult this position can be especially for someone having English as a second language. Still I accepted your nomination, because I feel an obligation to commit myself to working first hand with the leaders of the American geologists and to promoting this profession especially to young people who are considering becoming geologists.

I would like to explain my connection to geology. I decided to become a geologist early in high school not knowing anything about the profession other than it provided opportunities for working outdoors that appeared fascinating. During my time in Romania, when one was accepted to a certain college based on a very tough and competitive exam, students had to follow a mandatory college syllabus established by the dean and faculty, then after graduation, required to work until retirement in that field. In Communism, education was free but the commitment was for life. Therefore, selecting a certain college was like being married to the profession and this decision had to be made at a very early age.

My choice for college was the Institute of Petroleum, Gas and Geology (IPPG) in Bucharest, Romania, the only technical institute preparing engineers for applied geology and geophysics. The curriculum included required courses, laboratories and seminars, for five years, from October 1st through June 15th, with a two-week break between semesters; six days a week, 8 hours a day. In the summer we had field practice for two months. The syllabus included math, physics, chemistry and technical geology. The third to fifth year was exclusively dedicated to specialization in geological/geophysical prospecting. The American equivalence of geology courses was 150 semester hours. My strong commitment to Geology began therefore, in my college years.

I graduated from IPPG in 1970, with an MS degree in Geophysical Engineering. For the next 22 years I worked full time as a geophysical engineer in Romania with various geological enterprises, enjoying very much my jobs that varied from processing and interpretation of geophysical data of potential and induced fields, geothermal reservoir engineering, and geomagnetic observatory data management. Meantime I continued my education and I obtained a PhD degree in geophysical engineering from the University of Bucharest, Romania in 1986.

After my immigration to the USA in 1992, I was determined to meet American geologists and if possible, to continue working as a geologist. Thus I contacted the American Institute of Professional Geologists (AIPG), the only national organization at that time that could officially certify my credentials in the geological sciences. AIPG gave me the names of its members residing in the Aurora, Illinois area. Through this service, I met Dr. William Lang. Despite my heavy accent, Bill kindly took the time to listen to my geological expertise, and invited me to the AIPG Illinois-Indiana Section and AEG meetings and ISGS workshops.

Dr. Lang also offered a recommendation to become a Certified Professional Geologist (CPG). I presented my application, proof of studies and experience to the AIPG and I was granted the CPG certification. I cannot express how happy and thrilled I was. Primarily I was proud to belong to the largest American association dedicated to promoting geology as a profession.

Shortly after my coming to the USA I was hired as a geologist in the Chicago area with various environmental consulting companies thereby allowing me to fulfill my American dream using exclusively on my geological expertise.

As a CPG, I participated in the Illinois-Indiana Section meetings and the AIPG annual meetings. These national annual meetings provided me the opportunity to take field trips led by prominent geologists of the host states, such as Wisconsin, New York, Kentucky, Minnesota, and Michigan. The AIPG annual meetings also gave me the chance to continue my professional activity by lecturing at the technical sections, and being informed on advancements in other geological fields. Also, I met people at the headquarters and the National Board of AIPG, and I was inspired to join the section board, where I held the position of treasurer for the last two years.

I gladly and proudly accept the nomination to run for a position at the AIPG national level. I’m confident that I will be able to perform the duties of a national secretary and I’d appreciate your vote that will allow me to be more involved in promoting geology and in giving back to the profession and organization that has been so generous to me. Thank you!
I was honored and a bit surprised to receive a call from AIPG National several weeks ago asking whether I would accept a nomination for National Secretary. I had to give the matter a bit of thought, as I wanted to be sure that I would be able to devote the time required to the position and do my best for AIPG. As with anything, however, if something is important enough, there is always a way to devote the necessary time and energy to it. In keeping with my decision to be active in AIPG, I decided that I would accept the nomination.

I have been a member of AIPG for just over 10 years now. When I first joined, my supervisor, who is not a member of AIPG, said that he hoped that I would be someone that would actively participate in the organization now that I had my certification. I assured him that would be the case. I feel that you only get out of an organization what you put in. I have actively participated in Section activities from the beginning, and in 2007 helped organize a successful national annual meeting. I attended my first annual meeting in 2000, and began networking with members from all over the country.

As a current member of the National Advisory Board, I am on the subcommittee reviewing AIPG’s strategic plan. One of the main goals of the Executive Committee as stated in the plan is to provide additional value to members. This goal has been recognized to be the most important of the issues facing AIPG. As this goal is met, the other goals, including increasing membership, increasing non-dues revenue, and so on will all fall into place. Once individuals believe that their membership is valuable, they will take advantage of more of what AIPG has to offer.

I believe that AIPG already provides good value to its members, particularly those with the CPG designation. Many companies recognize the value of the CPG designation, rank it equally with other licensed professionals (PEs, CPAs, etc.), and give those individuals higher respect, compensation, and internal recognition than they might otherwise get. In addition, various regulating or licensing agencies recognize the designation, and allow reduced years of experience to acquire a license or certification. I have found that it is actually easier to attain state licensure since I have AIPG certification. Several states require continuing education for professionals once they are licensed. AIPG offers many opportunities to attain the required hours.

I would like to relate a recent example of what AIPG can do for an individual. I was contacted by my undergraduate advisor, who, on behalf of one of his students, was looking for information on prospective job openings in Michigan. Since the economic climate, particularly in Michigan, was (and is) less than ideal, I told him that I didn’t have any specific leads. I suggested that the student send me a short bio to include in the Michigan Section newsletter. Within two weeks of the issue of that newsletter, the student was contacted by a prospective employer, interviewed, and offered a position. Without AIPG, this wouldn’t have been possible, and the student would likely still be looking for a job. Consequently, this individual plans to join AIPG, having seen its value.

In addition, we must also look to the future. We should always be open to new ways of doing things. It is easy to point to what AIPG has to offer as it stands. We must continue to look for new opportunities to provide added value to both current and prospective members. If elected, I intend to help the rest of the Executive Committee find ways to promote AIPG and provide additional value to its current and prospective members. The National Secretary is responsible for keeping records of the Institute and the National Executive Committee. In addition to managing these records for the sessions that occur during the upcoming term, I would like to look back at previous year’s records to see what ideas may have worked, what didn’t, and what ideas may have been overlooked.

Thank you for your consideration.
Samuel W. Gowan
CPG-07284
Clifton Park, New York

Statement of purpose or goals you have for AIPG: To continue the development of education programs that support state licensed professional geologists, provide service to our members, and expand our revenue sources. Another important goal is to expand the membership from those segments of our profession that are underrepresented within AIPG. This will require continued efforts to strengthen our relevance beyond AIPG certification.

Universities Attended
- Coblly College
- Texas A&M University
- Texas A&M University

Degrees Granted
- B.A., Geology 1976
- M.S., Geology 1981
- PhD., Geology 1985

Company
- North American Exploration Inc.
- EarthTech, Inc.
- FARCO Mining Company
- Dunn Geoscience Corporation
- Alpha Geological Services, Inc.

Title
- Geologist
- Independent Geological Consultant
- Independent Geological Consultant
- Geologist/Associate
- Geologist/President (1998-present)

Dates
- 1976-1978
- 1981
- 1982-1984
- 1985
- 1986-1992
- 1992-present

AIPG Activities:
- AIPG Northeast Section Executive Committee Member
- AIPG Northeast Section Scholarship Committee Member
- AIPG Northeast Section Legislative Liaison and Registration Committee Member
- AIPG Northeast Section Annual Meeting Committee Member
- AIPG National Climate Change Committee Chair
- AIPG National Presidents Award

Mark W. Rogers
CPG-08826
Long Beach, California

Statement of purpose or goals you have for AIPG: To continue implementing the initiatives begun by recent presidents which includes promoting the profession of geology, supporting continued professional development (CPD) and the careers of geologists, fostering cooperation and support between the State Sections and National, and improving the financial stability of AIPG at the State and National levels through expanded revenue sources (i.e., increased membership and Regional Conferences/Seminars). Another important goal is to provide better value to members and potential members through use of On-Line CPD Courses, job fairs, and improved coordination/networking/strategic alliances between AIPG and other science organizations (i.e., AEG, AWG, GSA, NOAA, and USGS).

Universities Attended
- University of Idaho
- University of Alaska-Anchorage

Degrees Granted
- B.S., Geology 1983
- Graduate Studies in Environmental Science 1997-99

Company
- Alaska Gold Company
- Smith-Emery Company
- WestGold Explor. & Mining, Ltd.
- WGM Mining Consultants
- Dames & Moore Consultants
- RZA AGRA, Inc.
- GeoEngineers, Inc.
- Dawson Group, Inc.
- Parsons Infrastructure & Tech.
- Environmental Chemical Corp.
- ERRG, Inc.

Title
- Geologist
- Independent Geological Consultant
- Independent Geological Consultant
- Geologist/Associate
- Geologist/President (1998-present)

Dates
- 1981
- 1982-1984
- 1985
- 1986-1992
- 1992-present

AIPG Activities:
- Alaska Section Executive Committee 1997-01
- Alaska Section State Geology Registration Chairman 1999-01
- Alaska Section President-Elect 2000-01
- Hawaii Section President 2003-05, 2008
- Hawaii Section State Geology Registration Committee 2003-present
- Hawaii Section Screening Committee Chairman 2004-present
- California Section Secretary 2009
- Western States National Screening Committee 2008-present
- AIPG National Technical Presenter at 41st Annual Meeting 2004
- AIPG National Certificate of Appreciation, CPG Practicality Committee 2005
- AIPG National Secretary 2006-2007
- AIPG National Advisory Board Representative 2008
- AIPG National Advisory Board Representative 2009

AIPG 2009 National Award Recipients

Dr. Robert Fakundiny
Daniel St. Germain

Dr. Patrick Leahy
Stephen Testa

Dr. Fred Spilhaus

AIPG 2009 National Award Recipients

Ben H. Parker Memorial Medal
Dr. Robert Fakundiny, CPG-04977
Rensselaer, New York

Martin Van Couvering Award
Daniel St. Germain, CPG-07858
Cornwall, New York

John T. Galey Sr.
Dr. Patrick Leahy, CPG-10507
Alexandria, Virginia

Honorary Membership
Stephen Testa, CPG-06464
Mokelumne Hill, California

Outstanding Achievement
Dr. Fred Spilhaus
Washington, DC
**CANDIDATES FOR AIPG NATIONAL VICE PRESIDENT 2010**

### Charles W. Drake

**CPG-11179**  
**Orlando, Florida**

**Statement of purpose or goals you have for AIPG:**  
My goal is to work as needed to meet the goals of the By-Laws and further defined in the Strategic Plan. This will provide service to our members in many ways, and allow our profession to grow not only in numbers but in stature and the way we are viewed by the public. I want geologists to be recognized nationally for all of our technical abilities.

**Universities Attended**  
- University of Florida: B.S., Geology, 1979-1982

**Company**  
- Dyer, Riddle, Mills & Precourt, Inc.: Hydrogeologist, 1985-1985
- Hartman and Associates, Inc.: Hydrogeologist/Vice-president, 2002-present
- Tetra Tech, Inc.: Hydrogeologist/Vice-President, 2002-present

**AIPG Activities:**  
- Vice-President of Florida Association of Professional Geologists
- Legislative Action committee
- President of FAPG a section of AIPG
- Florida Section Legislative action committee
- AIPG National Advisory Board Member
- AIPG Strategic Plan Review Committee

### Ronald J. Wallace

**CPG-08153**  
**Roswell, Georgia**

**Statement of purpose or goals you have for AIPG:**  
We need to communicate with the Section Presidents more often than only at the Annual meeting and to have a continuous dialogue throughout the year. We need to use our collective knowledge from all sections to help the sections that are struggling. The sections need to communicate with the universities and give geology students the opportunity to attend section meetings and to learn what we as professionals do in our jobs.

**Universities Attended**  
- Lamar University: B.S., Oceanographic Technology, 1973
- University of Kansas: M.S., Geology, 1979

**Company**  
- Exxon Company, USA: Geologist, 1979-1990
- Exxon Company, USA: Marketing Engineer, 1990-1992
- Engineering Science: Senior Geologist, 1992-1995
- Project Geologist, 1997-1998
- Sierra Piedmont: Senior Geologist, 1998-1999
- Senior Geologist to Advanced Geologist, 1999-present

**AIPG Activities:**  
- AIPG Georgia Section Executive Committee, 1997-1998
- AIPG Georgia Section Vice President, 1999-2001
- AIPG Georgia Section President, 2002-2009
- AIPG National Advisory Board Representative, 2004-2005
- AIPG National State Affairs Committee Chairman, 2006-2008
- Presidential Certificate of Merit Georgia State University Student Chapter, 2006
- AIPG National Treasurer, 2007-2008
- AIPG National Advisory Board Representative, 2009
- AIPG National Energy Statement Committee – Chairman, 2009

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**Position Available**

I am recruiting on a retained basis for an international mining company that is now looking for an experienced senior mining professional.

I would be interested in speaking to an engineering professional who has operated at a high level, ideally within coal mining. This role would involve managing a large region of mines operating at the COO level for numerous mine sites throughout the country. The total compensation should be around AUS$325K as well as arranging employee sponsorship (if applicable), company car, 5 weeks vacation, relocation assistance and the prospects are very strong globally.

I have a more detailed job description on my web site should you wish to review it and please feel free to forward or share my contact information within anyone who could have an interest in this position. I appreciate your assistance!

Thank you,

Paul Feeney  
Managing Director
Sanford Rose Associates - Wayne
Tel: xx1-201-962-2122  
pfeeney@sanfordrose.com  
www.sanfordrose.com/wayne
CANDIDATES FOR AIPG NATIONAL SECRETARY 2010

Ramona M. Cornea

CPG-8983
Rockford, Illinois

Statement of purpose or goals you have for AIPG:
Promoting geological and geophysical prospecting as a profession among college students interested in applied geological sciences.

Universities Attended
Degrees Granted
Institute of Petroleum, Gas and Geology
Geology and Geophysics Faculty
Geophysical Prospecting Section
Bucharest, Romania
M.S., Geophysical Prospecting
University of Bucharest, Romania
PhD. Geophysical Prospecting

Company
Title
Institute of Applied Geophysics
Geophysical Engineer/Scientific Researcher
Enterprise of Drilling and Geophysical Exploration
Manager, Scientific Researcher
Strata Power
Senior Geologist, Gas Chromatograph Operator
Wang Engineering, West, Sr.
Project Manager, Geotechnical Laboratory Technician
ATC Associates Inc.
Project Manager/Environmental Geologist
Environmental Consulting Succs.
Sr. Project Engineer/Environmental Geologist
LandTech, Inc.
Sr. Project Engineer

AIPG Activities:
IL-IN Section-Treasurer

Adam W. Heft

CPG-10265
Holt, Michigan

Statement of purpose or goals you have for AIPG:
I intend to help find ways to promote AIPG with the goal of providing additional value to its members and prospective members.

Universities Attended
Degrees Granted
Central Michigan University
B.S., Geology/Earth Science
Michigan State University
M.S., Geology

Company
Title
Peterson Environmental Services
Field Geologist
Fitzgerald Henne & Associates, Inc
Senior Project Geologist
Parsons Brinckerhoff
Senior Supervising Geologist

AIPG Activities:
Michigan Section Assistant Newsletter Editor
2007 Annual Meeting General Chairman
Michigan Section Newsletter Editor 2007 - present
Michigan Section Significant Contribution Award
AIPG Presidential Certificate of Merit
AIPG National Advisory Board Member

AIPG Student Chapters

Bowling Green University
Founded in 2004
Chapter Sponsor:
Robert K. Vincent, MEM-0216

Central Michigan University
Founded 2003
Chapter Sponsor:
David J. Matty

Colorado School of Mines
Founded 1999
Chapter Sponsor:
Graham Closs, CPG-07288

Eastern Michigan University
Founded 2006
Chapter Sponsor:
Walter J. Bolt, CPG-10289

Georgia State University
Founded 2005
Chapter Sponsor:
Ronald Wallace, CPG-08153

James Madison University
Founded in 1998
Chapter Sponsor:
Cullen Sherwood, CPG-02811

University of Nevada-Reno
Founded in 2008
Chapter Sponsor:
Jonathan G. Price, CPG-07814

Ohio State University
Founded in 2004
Chapter Sponsor:
Thomas Berg, CPG-08208

Temple University
Founded 2006
Chapter Sponsor:
Dennis Pennington, CPG-04401

Wright State University
Founded in 1996
Chapter Sponsor:
Thomas Berg, CPG-08208

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In my candidacy letter as I ran for president-elect of AIPG, I spoke of my plans once president, to keep some of the initiatives of past presidents alive. The first of these is the AIPG’s strategic plan reviewed most recently by Past Presidents Robert Fakundiny (2001) and Larry Weber (2006). Given Past President St. Germain’s (2008) yet to be solved agenda item “What do we want to be when we grow up?”, the time for an overhaul of the strategic plan was past due. Current President-Elect Mike Lawless is heading up a committee that includes the Executive Director Bill Siok, immediate Past President, Dan St. Germain, Treasurer David Rhode, Advisory Board Representatives Robert Gaddis and Adam Heft, myself and Chuck Drake of Florida, a volunteer from the membership. In February, the strategic plan committee met in person for the better part of day and hammered out a basic revision, with some work remaining at the subcommittee level. The revised plan which removes some antiquated items and will look more specifically into the future than its predecessor, is to be presented to the Executive Committee for ratification in June.

Past President Dan St. Germain would be the first to tell you that he had no intention of tackling global warming or climate change during his tenure, but he did as the issue reared its ugly head. Dan and his committee came up with an AIPG position on the subject. A lot of work, gnashing of teeth and wringing of hands went into this effort. To follow-up with Dan’s work, I sent a letter to the new president, the majority and minority leaders of both houses of Congress and the Secretary of Energy. The letter contains the AIPG climate change position while also explaining the fact that geologists more than any other group of scientists know climate change. I have articulated AIPG’s unbiased status by telling these folks in the letter that the AIPG is uninfluenced by money from outside. I sent this letter for two reasons, first, I felt as though so much hard work had gone into creating the policy that we owe it to the membership not to let the work languish and second, the most important reason, our elected officials need to hear from that group of scientists (the geologists) most knowledgeable on the subject. Because climate change is a completely politicized concept being woven into the political agenda of those currently in power, I do not believe those particular elected officials will want to hear more from us. While the letter offers further assistance, given the political momentum on pending carbon cap and trade legislation has, (tongue in cheek here) they may not want to cloud the issue with facts. Copies of these letters are posted on the AIPG web site.

Another man doing great work for AIPG is Advisory Board Representative Ron Wallace in charge of the Energy Position Statement Committee. At our Executive Committee meeting in February, Ron reported much progress has been accomplished by an exuberant group of talented expert workers. The goal is to have the draft position statement presented to the Executive Committee for review and hopefully ratification at our annual meeting. It is my intention to send this position statement to the aforementioned group of elected officials.

The Institute has been working with the American Society of Civil Engineers (ASCE) GeoInstitute and the Association of Engineering and Environmental Geologists (AEEG) for five or six years now to compile a document called the Joint Task Force on Areas of Practice. The document spells out the type of work professionals such as geologists, engineering geologists, geological engineers, and engineers are able by education and experience to do in responsible charge. The drudgery of this work has been the seemingly endless cycles of review and revision. It is my hope that the document will be published soon, but then again, that has been my hope for three years now. Stay tuned on this as I push for its publication.

The fiscal health of AIPG is good. There are two items warranting discussion. First, Executive Director Siok last year implemented a policy that AIPG headquarters will be the primary pecuniary and organizational manager of the annual meeting and dedicated staffer Cathy Duran full time to the job. Doing so last year for the Flagstaff meeting, brought in $80,000 dollars to the national treasury. That is a lot of bang for the buck. The other item is that our long term stock market investment has suffered, for now, the same impact that most of us have personally endured to our retirement accounts and other stock market investments. The good news is, we are closely watching the fund managers and investment firms with whom we have trusted our assets. AIPG places well deserved trust in Treasurer Rhode, who happens to be a professional investment advisor. He has kept a critiquing eye on the investment and has recommended to the Executive Committee to stay the course. His recommendation has been accepted.

Finally, do not let the bleak economy eliminate your plans to attend the AIPG annual meeting this fall in Grand Junction as it promises to be splendid. Keep on the positive thinking path. Your attendance at this meeting will benefit you. Making new and seeing old friends
PRESIDENT’S MESSAGE

is always a gift and a lift, regardless of economic conditions. By now many of you section leaders have been contacted by Vice President Tim Crumbie as he proselytizes on behalf of the annual meeting. Please heed his call to participate. With your attendance and insightful contributions at the annual meeting you will make AIPG even stronger tomorrow than it is today.

STUDENT APPLICATION FORM

American Institute of Professional Geologists
1400 W. 122nd Ave., Suite 250, Westminster, CO 80234
303-412-6205 • Fax 303-253-9220 • aipg@aipg.org • www.aipg.org

Date received: ____________________________  Member #: ____________________________
Amount paid: ____________________________  Date approved: ____________________________
For Headquarters Use: Drawn with above 8 text.

Application for Affiliation as a Student Adjunct

Complete ALL sections. Read the Bylaws and Code of Ethics. If applying between November 1 and June 30, the application fee is $20; if applying after June 30, the fee is $10. Please PRINT or TYPE.

Current academic standing: □ Sophomore □ Junior □ Senior □ Masters □ Doctoral □ Doctoral Candidate □ Post-Doctoral

Last Name: ____________________________  First Name: ____________________________  Middle Initial: __________
College/University: ____________________________  Geological Degree: □ BA □ BS □ MA □ MS □ PhD □ None Year: __________
Address: ____________________________  City: ____________________________  State/Zip: ____________________________
School Phone: ____________________________  Home Phone: ____________________________  E-mail: ____________________________

ATTESTATION: I attest that I meet the requirements for AIPG Student Adjunct (currently enrolled in a geological science degree program) and agree to abide by AIPG Bylaws and Code of Ethics.

Applicant Signature: ____________________________  Date: ____________________________

Have your faculty sponsor complete the statement below before submitting OR AIPG will contact your sponsor(complete name & ph. #)

Faculty Sponsor’s Statement

I certify that I am a member of the faculty of the ____________________________ department at ____________________________, with the rank of ____________________________, and that the statements made by the applicant in this application are true to the best of my knowledge or belief. I am ___/am not ____ the applicant’s faculty advisor.

Name: ____________________________  Phone: ____________________________
Sponsor: Signature: ____________________________  Date: ____________________________
These are interesting times. Some political pundits and hacks alike are constantly advising us that the present economic turmoil is as bad as the Great Depression (1929 to ~1942). Perhaps it is, but then maybe it’s not. The fact is that I am no expert either way, but I am of the opinion that as individuals, as members of a profession, and as a nation we must, in spite of all the confusion, anger over the loss of jobs and savings through no fault, and market uncertainty, continue to work diligently and with conviction to accomplish our personal and professional goals.

Some members of AIPG (and of AIPG sister societies) have lost jobs. This is not a pleasant or joyful experience, but one which can and will be overcome. Most geologists who have been in the marketplace for a while appreciate the “inside” wisdom that layoffs during a career are inevitable. Certainly this is not everyone’s experience, but it happens to enough of our colleagues to make it a high probability that each of us will be laid off at least one time during our individual careers.

Referring back to another time when the citizenry of the USA was struggling with similar economic and social malaise, the first poet laureate of Georgia, Frank L. Stanton (1925), published a piece designed to encourage discouraged citizens. You can judge whether it has a place in today’s marketplace:

“Keep a-Goin”
Frank L. Stanton
If you strike a thorn or rose, Keep a-goin’!

If it hails or if it snows, Keep a-goin’!
’Taint no use to sit an’ whine
When the fish ain’t on your line;
Bait your hook an’ keep a-tryin’—
Keep a-goin’!
When the weather kills your crop, Keep a-goin’!
Though ’tis work to reach the top, Keep a-goin’!
S’pose you’re out o’ ev’ry dime,
Gittin’ broke ain’t any crime;
Tell the world you’re feelin’ prime—
Keep a-goin’!
When it looks like all is up, Keep a-goin’!
Drain the sweetness from the cup, Keep a-goin’!
See the wild birds on the wing,
Hear the bells that sweetly ring,
When you feel like surgin’, sing—
Keep a-goin’!

Maybe this piece of folk poetry is simple, but it does offer encouragement. And to offer additional sources of supportive information, there are numerous society sites available.

AIPG members should avail themselves of the very reliable and solid resources provided by the American Geological Institute (AGI) regarding the state of the profession at any moment in time. A particularly informative document currently available on the AGI website (www.agiweb.org) is the insightful document “2009 Status of the Geoscience Workforce Report Summary”.

An excerpt from the Workforce Report, Introduction: “The report is based on original data collected by the American Geological Institute, and on existing data from federal data sources, professional membership organizations, and industry data sources. It provides a framework for identifying the strengths and weaknesses in the geoscience human capital system.”

If you’re dealing with unemployment, please avail yourself of the resources, both informational and promotional, posted on both the AIPG website (www.aipg.org) and that of AGI.

Keep a-goin’!
Can One Keep a Client’s Asset as Insurance that a Bill Will Be Paid?

Odin Christensen, CPG-08676, contributed a different view from those expressed in column 120, (March/April 2009). Christensen commented “I have had opportunities to hold reports or assets until being paid, and I have always returned everything belonging to the client and delivered all reports promised. While I have had clients fail to pay, I find considerable comfort and pride that my performance has been ethical and professional. This may be a poor way to run a business, but it is a good way to live a professional life. In the long run, it is always better to take the high road in my opinion.”

Christensen acknowledges that his approach doesn’t result in getting paid but contributes to his personal well-being, which is worth consideration. The size of the outstanding bill and the amount of work one has from other clients may affect whether one wishes to take this approach.

Resume Honesty—Being Minkowed

A recent newspaper article highlighted the activities of Barry Minkow’s Fraud Discovery Institute to expose corporate officials who have dishonestly padded their resumes that are published in SEC filings, usually by claiming to have degrees that were never granted. The new verb for such exposure is being “Minkowed,” that is, having the padding in one’s resume publicly exposed. “Been there, done that!” was the title of an article by John Howard, CPG-08740, in the November 1996 TPG. I’m returning to the topic because it seems that there is a greater tendency to pad resumes in tough economic times. A resulting problem is that un-padding a previously padded resume is increasingly difficult, especially when degrees were claimed that were never awarded.

But claiming un-awarded degrees is not the only problem. As Howard noted, “Phrases like ‘project manager’, ‘remedial design’, ‘remediation management’, ‘RI/FS’, and other technical jargon are littered throughout the resumes in the attempt to provide validity and substance to a mediocre resume? Now it appears that collecting groundwater samples for a project involving environmental remediation qualifies as remediation design or management. Overseeing a UST removal project in the field falsely seems to qualify as project or construction management experience.”

Howard’s article prompted a number of comments that appeared in columns 14, 15, and 16 (January, February, and March 1997). In particular, Andrew McCorkle, CPG-08949, noted that terms like “project manager” are open to wide interpretation. For example, if one completed a thesis, couldn’t one claim to have been the manager of the thesis project? Such a claim is far different from those who have received a Project Manager Program (PMP) certification—I know of at least one CPG who has done so and there may well be others.

Then there is the problem of letters of reference. It seems that if you don’t write a glowing letter of reference but instead write, “Leadbelly is the least competent geologist with whom I have ever worked,” you are likely to be sued for your honesty.

Assuring the Reliability of Your Sampling Results: the LA Abrasion Test

My article, “Assuring the reliability of your sampling results,” was published in the November/December 2007 TPG. Marty Andrejko, CPG-08512, added to the discussion in his “Data/Results Reliability” discussion in his Professional Liability and Risk Management, column 22 in the January/February 2008 TPG. In column 114, in the March/April 2008 TPG, I discussed the problem presented when samples are collected from high-nugget or statistically inhomogeneous sites. This problem occurs in coarse-grained precious metal deposits because the precious metals occur in relatively large, discrete particles or minerals that are not evenly distributed over the area from which a sample is collected. Collecting duplicate field samples or from split cores that will have essentially the same analytical results may be practically impossible. While sampling issues are an important part of assuring the reliability of sampling results, the reliability of the analytical or testing method can also be an issue.

The LA Abrasion test (ASTM C 131, AASHTO T 96) has for many years been one of the standard tests used by highway departments and others to characterize the suitability of an aggregate deposit for road construction. In the LA Abrasion test, a dried sample of aggregate that meets a specified size requirement, including minimum size, is placed in a drum

1. In Geologic Ethics and Professional Practices 1987–1997, AIPG Reprint Series #1, the title of Howard’s article was expanded to “Resume honesty: been there, done that!” and that is the title used for the CD, Geologic Ethics & Professional Practices, AIPG Reprint Series #2, which includes the earlier book.
2. The LA Abrasion and Micro-Deval tests discussed in this topic are designed to measure degradation. Other standard aggregate quality tests measure, soundness (exposed to repeated wetting and freeze-thaw cycles), skid resistance, and alkali-silica reactivity in cements. The efficacy some of these other tests of aggregate quality have also been questioned.
along with a specified number of steel balls. The test can be run on several specified sizes and the number of steel balls is varied depending on the sample weight being tested. The drum contains a single internal lifter to assure that the sample is thoroughly exposed to tumbling and the impacts of the contained steel balls and other aggregate particles. The drum is rotated at a 33⅓ rpm for 500 rotations. The sample is then removed from the drum and screened for the minimum size required. The weight percent of the sub-minimum size material is the reported test result. For example, an LA Abrasion test result of 20% means that 20% weight percent of the sample tested was reduced below the minimum size specification.

Those of you familiar with mineral processing will recognize that the LA Abrasion test is a variation on a ball mill grinding test for the Bond Work Index. The problem with the test is that it does not do a very good job of simulating actual aggregate degradation in highway use. The only times when aggregate is subjected to tumbling like that imposed by the test is during loading and unloading of the aggregate. Experience has shown that aggregate that passes a highway department LA Abrasion test limit—these vary from state to state—may or may not prove to be a suitable aggregate.

In recent years, an alternative, the Micro-Deval test (AASHTO TP 58-00), has been tested by a number of highway departments and has been found to be a better predictor of aggregate performance.

The Colorado Department of Transportation (CDOT) tested 19 aggregates using both the LA Abrasion and the Micro-Deval tests. In the Micro-Deval test, a sample of aggregate of a specified size range is soaked in 2 liters of tap water for a minimum of one hour. The sample is then rotated in a jar mill with a charge of 5,000 grams of 9.5 mm diameter steel balls at 100 rpm for 2 hours. The loss is the amount of material passing the 1.18 mm sieve, expressed as a percent by mass of the original sample. The differences between the Micro-Deval and LA Abrasion tests are:

• In the Micro-Deval test the sample is soaked prior to and during testing
• The number of rotations is 12,000 rather than the 500 used in the LA Abrasion test.
• The rotating drum used in the Micro-Deval is much smaller than that used in the L.A. Abrasion test.
• The steel balls used in the Micro-Deval test are much smaller than those used in the L.A. Abrasion test.
• While the Micro-Deval test tends to polish (smooth and round) aggregate particles while the L.A. Abrasion test tends to break them.

The first question to ask of any testing or analytical method is, “Are similar results obtained from duplicate samples?” Figure 1 is a scatter plot of CDOT’s duplicate Micro-Deval tests on the 19 aggregate samples, which were selected from among good, fair, and poor aggregate sources.

The 0.996 R² correlation coefficient for these 19 samples demonstrates excellent repeatability. The 19 aggregate samples were also run through the LA Abrasion test. Table 1 presents the results of both test methods.

Table 1: Comparison of Micro-Deval and LA Abrasion Tests

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<tr>
<th>Aggregate LA Abrasion Rank</th>
<th>Aggregate LA Abrasion % Loss</th>
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<td>44</td>
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The left-hand two columns of Table 1 present the results of the comparison test in the order of the Micro-Deval test ranking. The right-hand two columns of Table 1 are ranked by the sample’s LA Abrasion test, with the lowest numbers being the best aggregate and the highest numbers worst aggregate. Cells with no shading were rated as good quality aggregates, those with medium shading were rated as fair quality aggregates, and those with darker shading were rated as poor quality aggregates. In general, the Micro-Deval test provides better...
prediction of aggregate suitability than the LA Abrasion test. There is no correlation between the two tests.

The test aggregates ranked 1 through 13 on the Micro-Deval test were all of good or fair quality. There also was a distinct break in the results between the samples ranked 13th and 14th. The sample ranked 13th experienced an 11% Micro-Deval loss while the sample ranked 14th had a 15% Micro-Deval loss. CDOT concluded that a 15% maximum Micro-Deval loss would be a good specification standard for judging aggregate quality.

While the CDOT study and a number of similar studies demonstrate that the Micro-Deval test is superior to the LA Abrasion test for judging aggregate quality, the Micro-Deval test is still a tumbling test that does not necessarily reflect actual aggregate wear during use.4 Dr. William H. Langer of the US Geological Survey has proposed that petrologic examination of aggregates provides an even better predictor of aggregate quality.5

We rely on measurements as the bases for our interpretations. But we must check the reliability of those measurement methods in order to ensure that our interpretations have a reliable foundation. We must ensure both that the samples we are testing are representative of the material being tested, i.e., that they are statistically homogeneous to the extent possible, and that the testing method(s) chosen measure what we are seeking to measure. If the collected samples are not representative and/or the testing or analytical methods do not measure what we think (hope?) they measure, then our interpretations have a weak basis and our conclusions may be wrong.

**Ethics Question #6: Electronic Professional Seals or Stamps**

In column 110 (July 2007) I wrote about the use of professional seals, electronic and otherwise, which included comments from a number of members of the AIPG Ethics Committee. Marty Andrejko, CPG-08512, commented on this discussion in his Professional Liability and Risk Management column 21 in the September 2007 TPG. Several of the commenting Ethics Committee members expressed their distrust of some people in cyberspace who might capture and misuse electronic signatures and seals contained within electronic copies of professional reports and preferred hard copies containing manual signatures and seals. I’m bringing up this subject again to ask about changes that may have occurred in the past 18 months or so and to solicit comments from readers about their experiences with the use of electronic seals and stamps.

Andrejko noted that, “that four Canadian Provinces (Quebec, Alberta, Manitoba, and New Brunswick) allow E-sealing.” He also quoted rules issued by the Association of Professional Engineers, Geologists and Geophysicists of the Province of Alberta (APEGGA) regarding the use of electronic professional seals and signatures. This past fall I was part of a team that issued a Canadian National Instrument 43-101 report for a Saskatchewan mining company seeking public financing. The required Certificate of Qualifications page for that report, which is where the Qualified Person’s signature and seals are placed, contained the phrase, “Original Document signed and sealed by…” but contained neither an electronic or manual signature nor an electronic copy or manual imprint of our professional seals. The Canadian colleagues with whom I worked on this project assured me that quoted phrase was acceptable to Canadian securities regulators. What have your experiences been with both Canadian provinces and US states?

4. The Micro-Deval test better reflects what happens to loose aggregate placed on a road surface, or a graveled road, but aggregate contained with asphalt or concrete is subjected to different stresses.
Did You Get Paid by the Client?

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In David Abbott’s “Professional Ethics and Practices” Column 120 (March/April 2009) the primary discussion was around whether or not one can keep a client’s asset as insurance that a bill will be paid. Several risk management issues came to mine as I read the discussion thread.

One of the commenters that Abbott quotes was Fred Fox, CPG-01273, who, in referring to a project for a housing development, stated “We both knew that the particular client was tough to collect from.” and stated “…after we did the job the client didn’t pay but instead shut down, opening the next week under another name.” The first danger sign of this project that Fox was involved in, was that it was a residential project. In general, residential projects tend to be tougher project types from a risk standpoint. There are several reasons why this is the case. The first is that typically the clients for residential projects are developers and in general, developers are a tough client type. The developer will typically set up a business entity for one specific project separate from the parent company so that, if the project fails, the assets of the parent company are protected. Be careful if you are working for a client that is an LLC, as LLCs are typically setup for a single project. It appears that in the case of Fox’s project, this may have been the case as the client shut down the one company and opened under a new name the next week. The second warning sign was that Fox knew up front that this client might become a collection problem. Sometimes, in spite of our instincts, we go forward with a project but don’t do anything to protect us from what we think might go wrong. I am not intending to single Fox out in this case. Most of us have taken on projects in our career where we thought there might be problems but because of the interesting technical aspects of the project or the need to keep staff busy, we take on the project. As an underwriter, there have been times that I have written an account, in part, because of the “cool” stuff that the account worked on. Several years back I was excited to write the coverage for an architect that was the design architect for the that season’s “This Old House” project on PBS. I didn’t experience any losses on the account but even underwriters can have subjective thoughts impact their work.

So what can you do in these cases where you have concerns about the client paying you for the job? One thing you can do is request a business credit report on your potential client which will give you information about their payment history, existing credit obligations, legal filings, etc. Keep in mind that these credit reports are not a panacea as some info may be missing and if there are any errors your recourse against the credit report vendor is fairly limited as per the purchasing agreement. Absent a business credit report, you may want to look at how your contract deals with payment issues. At a minimum, you should include specific language dealing with billing and payment. Some sample language for a billing and payment clause is included in the ASFE Contract Reference Guide that was co-sponsored by AIPG back in 1997. As with any of the sample language contained the Guide, you should consult with competent local counsel. Another possibility is to require a retainer up front for the project and/or require payment from the client prior to releasing your work product. Once you release the work product to the client, you lose a lot of leverage.

Another commenter quoted in Abbott’s column was Mike Ruddy, CPG-09741 who commented “If there is a history, or even a hint of previous contract situations such as this (nonpayment), then this client should have never been considered, at all.” Sometimes this is toughest thing to do, walk away from potential work. As an underwriter, there are times that your instinct tells you to stay away from a certain account. That is a tough thing at times because you want to bring in the premium but you are worried about significant claims potential where this account might not be profitable for your firm. This is where that line from Kenny Roger’s “The Gambler” comes in, “You got to know when to hold em, know when to fold em, know when to walk away and know when to run.” Sometimes you need to trust your instincts and walk away from a project that may cost your firm money.

In Fox’s case, he noted that his firm lost $20,000 in fees and another $5,000 in equipment. So he had to write it off (I have a Seinfeld episode running through my head, “Jerry all these big companies they write off everything”). But think about the true cost of a write off. A typical consulting firm generates under 10% annual profit, but for the sake of argument (and simpler math) let’s use a 10% profit margin. A firm would have to generate $250,000 in fees to replace this lost $25,000. That is just to get you back to even. That $25,000 that was lost could have been used for additional employee training, employee bonuses, or updating of equipment. So you can see how these non-payment situations have a larger impact on a firm and their staff. If the typical profit margin is lower, that break even amount gets larger.

Ron Yarbrough, CPG-06545, is quoted in Abbott’s column and discusses how he is “…in the process of suing one former client and another had not paid me for work performed
“I would urge caution when deciding whether or not to sue a client for non-payment. Approximately one-third of professional liability claims are triggered as a result of the design professional filing a non-payment claim against a client. Admittedly, many times the client isn’t paying because they were displeased with the services and might have filed the claim anyway. But filing the non-payment claim almost guarantees that the client will come back with a negligence claim. When this happens you’ll find yourself paying legal fees for two law firms, the first being the firm that you used to file the non-payment claim and the second being the firm that your professional liability carrier will assign to defend the professional liability claim.”

Send comments to Martin J. Andrejko, 665 Norwood Road, Downingtown, PA 19335, mjandrejko62@gmail.com, phone (484) 888-6747.

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American Institute of Professional Geologists (AIPG)  
Georgia Section Presents:  
2nd Conference on: Innovative Environmental Assessment and Remediation Technology

SCHEDULE:  
Wednesday September 23, 2009 and Thursday, September 24, 2009

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Kennesaw, Georgia 30144

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AIPG Georgia Section, 3650 Carrards Crossing, Roswell, GA 30075

Email:  
Ronald_Wallace@dnr.state.ga.us

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Social Networking: Should You Care? (Part 1)
Duane A. Carey, CPG-10305

So-called social networking sites are all the rage. Will they fulfill all of their hype as marketing tools? Maybe. Can they be good business tools? Definitely. Read on for a quick summary of two of the more common ones and some thoughts on how you might put them to use. In the next issue, we’ll explore a few more.

Not long ago, I’d come home to find that the baby sitter had been on my computer while we were away. Always the paranoid dad, I would check the browsing history and find sites such as MySpace and Facebook. I didn’t know much about them, beyond the fact that they were places where teenagers and twenty-somethings wasted inordinate amounts of time. They seemed innocuous enough, so they weren’t of much concern. Now just a few years later, they are places where grown-ups waste inordinate amounts of time. I bucked the trend for a while, but recently signed up for a few of the more predominate ones in order to speak more intelligently about them when clients asked if/how they should engage this growing medium.

Facebook. The Facebook numbers are simply staggering, with the site now boasting 175,000,000 active users. As many of you may have noticed, the fastest-growing group is adults over 35; indeed, although the kids knew about this years ago, we folks with creaky knees and backs have just discovered it, and are embracing it like we’re back in the 70’s and the CB radio was just introduced! These days, not a day goes by that my inbox doesn’t have a new message from an old friend or relative asking to be my Facebook “friend” – and that includes a good family friend in his mid-70’s, demonstrating that this phenomenon is not limited to the youngest among us.

By far, the greatest thing about Facebook is the ability to catch up with old friends – to see what they look like, how many kids they have, and where they now live. If you haven’t tried it, go ahead and check it out (www.facebook.com) and sign up for a free account. The site will make it very easy to find folks from your home town, college, high school, etc.

In my opinion, Facebook has some utility as a marketing tool at both the local and national/international levels for small businesses. Let me give you two quick examples. In one, we set up a promotion on the local classic rock radio station for three of our clients, all of whom were advertising on the station at the time. It was a favorite pet contest, in which people sent in photos of their pet and the best one won lots of cool prizes. On the opening day of the contest, I posted a message on my Facebook page and sent it to all of my “friends” in order to give the promotion lots of traction and interest. Sure enough, in probably less than eight hours, dozens of great photos were on the radio station’s web site, inspiring others to follow suit. So at the smaller scale, you can use a tool like this to turn out bodies for some type of event. Is your firm raising money for your local Rotary club? Imagine how much more money you could generate by tapping into hundreds of contacts in this manner.

On a more national scale, I was recently contacted by a woman in California who makes baby clothes branded with the logos of two prominent universities in the southwest. She was disappointed with the number of sales from her website and needed some help. So I looked into Facebook’s advertising tool, which at first glance appears similar to Google’s adwords, where you can buy pay-per-click ads that are context-specific in accordance with the search terms someone enters. But here’s where Facebook is so different: it displays ads (unobtrusively, by the way) not by search terms, but according to the demographics of the Facebook user. So a 60-year-old married male user might see an ad for Viagra, while a 30-year-old married female with no children might see an ad for fertility treatments. For our baby-clothes maker the answer was simple; target only those users who listed one of the two schools as their alma mater. A quick search of Facebook’s advertising tool showed that almost 50,000 users over age 22 had graduated from those schools. So we recommended a pay-per-click ad campaign where the client’s ad would show up only on the pages of those alumni, with a headline such as “USC Baby Clothes” and a cute accompanying photo. At an average cost of well less than a dollar per click (probably more like 20 or 30 cents), depending on competition for that demographic, Facebook turned out to be a great example of very targeted marketing when you consider that just about every alumnus is a good prospect. Recent grads may be having babies themselves or have friends who are, and older grads may have grandkids on the way. In this way, Facebook is one of the best deals out there, because opportunities to target your marketing according to a user’s demographics are few and far between.

Linked-In. Compared to Facebook’s gaudy 175 million-user statistic, Linked-In’s 30 million seems puny, but its demographic profile is much more impressive. Around 60% of its users have incomes of at least $93,000, and those with $200,000 to $350,000 incomes are seven times more likely to have 150 connections than lower-income users. So what does this mean for your business development? Honestly, I have no idea. For several years now, I’ve been part of this network, accepting connections when a colleague requests to link together, but I’ve never really seen the benefit to someone who is fully- or self-employed. As far as I can tell, the theory is sort of like six degrees of separation (or six degrees of Kevin Bacon, for those of you who know about that). If I want to contact the CEO of IBM, I supposedly contact his golfing buddy who’s linked to the VP of sales at the company that makes the hinges for...
laptops, who is connected to a banker, who goes to church with a guy I used to drink beer with in college. Now really, what are the chances that anyone in that chain is going to take my call or respond to my email?

On the other hand, I have seen LinkedIn help people in search of jobs. Just last month a friend called to say that his company was interviewing someone for a job. When they did a Google search for this person, they noticed that I was linked to her via LinkedIn and contacted me for a reference. I had great things to say about her, which only confirmed their own assessment. Ultimately, she got the job. But imagine what would have happened if I had a negative view? She could have performed well in the interview, presented a good resume, and given excellent references for them to call. But if they discovered multiple negatives through their search of the various social networking sites, she might have lost the job and never known why.

And this brings us to the final point of this column. Although there are many great tools available in the social media world, they potentially lay bare your whole personality, religious views, and political orientation, which can derail many business endeavors. So as you explore these many tools, be careful to think about the consequences of anything you post on any site. The old adage used to be “don’t write anything you wouldn’t want to see on the front page of the newspaper”. That holds true, only now your words live for eternity in cyberworld and are only a couple of clicks away.

In the next issue, we’ll discuss a few more of the so-called Web 2.0 tools, including Twitter and YouTube. Until then, drop me a note and let’s “connect”!

Duane Carey is President of IMPACT Marketing & Public Relations in Columbia, Maryland. He was a consulting hydrogeologist for 11 years prior to launching a marketing consulting firm in 2003. He earned his MBA at Johns Hopkins University (JHU), and is a Certified Professional Geologist (#10305) and past President of the Capitol Section of AIPG. In late 2005, he took over the helm of IMPACT, which was founded in 1990 by one of his professors at JHU. He can be reached at 410-312-0081 or duane@MilkYourMarketing.com.

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Beneath the arid piedmont slopes of the southwestern United States, the regional water table often lies well below the alluvium/bedrock contact. However, in the rainy season, water infiltrating from ephemeral runoff may become perched temporarily in the alluvium and move along the bedrock surface as underflow. This conceptual model is important for adequately monitoring contaminated sites on arid piedmont slopes, such as waste-rock piles on bedrock at abandoned metals mines and arroyos crossing dump or spill sites underlain by shallow bedrock. Water can move through buried waste or contaminated soils, pick up contaminants, and transmit them at first horizontally offsite and later vertically to the regional saturated zone, often at some unexpected distance from the source.

Characterizing such settings requires an underflow piezometer. That is simply a tube with a short screen at the bottom (in the alluvium) placed in a small-diameter well drilled to the top of bedrock. A recording water-level instrument installed in the piezometer will indicate when underflow occurs. If perched water is detected, conventional monitoring wells (completed in the regional system) can be strategically placed to determine the nature and extent of the contamination, as spread by the underflow.

Once when with a state environmental agency, I reviewed a site where the soil was contaminated with fuels that had been spilled over the years. Since the setting consisted of a piedmont slope with alluvium overlying Precambrian bedrock and was crossed by an arroyo that now ended at the site, it was a perfect candidate for an underflow piezometer, so I ordered that one be constructed. The water-level indicator installed by the reluctant owner apparently never worked, but manual water-level measurement when the instrumentation was removed detected mud at the bottom, confirming underflow had occurred.

A journal paper in which I urged that underflow be considered in monitoring was rejected by a reviewer in an eastern state because hydrologists there have never heard of underflow and apparently even have trouble visualizing it. There are several reasons for this: most obvious, it rains there. As a result, wetting of the alluvium is perennial and water tables are generally shallow. In the west, however, water is not only lost from streams but does not always go directly to the regional water table. Tip: Don’t overlook underflow in designing a monitoring plan where bedrock is shallow but water table is deep.

Dr. Stone has more than 30 years of experience in hydroscience and is the author of numerous professional papers as well as the book *Hydrogeology in Practice – a Guide to Characterizing Ground-Water Systems* (Prentice Hall). He may be contacted at wstone04@gmail.com.
1. The answer is equation “c” or \[5\text{Mg}_2\text{Si}_4\text{O}_9 + 4\text{H}_2\text{O} \rightarrow 2(\text{OH})_2\text{Mg}_3\text{Si}_2\text{O}_5 + 4\text{MgO} + \text{SiO}_2\].

“Serpentinization” is a low-temperature metamorphic process that involves heat and water and by which mafic and ultramafic rocks are hydrolyzed and oxidized into “serpentinites”. “Serpentinization” may be expected to occur at tectonic plate boundaries, at or near the sea floor as well as in mountain chains, where ultramafic rocks are changed into “serpentinites”. “Serpentinites” are rocks composed mainly of “serpentine” minerals. “Serpentines” are typically green, greenish-gray or greenish-yellow secondary minerals formed by the hydrothermal alteration of magnesium-rich silicates. “Serpentines” can occur in both metamorphic and igneous environments. They tend to exhibit silky or greasy luster and conchoidal fracture. They may a have a somewhat soapy feel and are often veined or spotted with green and white shades.

The metamorphic reaction responsible for the generation of “wollastonite” (CaSiO₃) is shown in equation “b” \[\text{CaCO}_3 + \text{SiO}_2 \rightarrow \text{CaSiO}_3 + \text{CO}_2\]. “Wollastonite” may form as limestone is metamorphosed through a temperature increase at relatively constant pressure.

Equation “a” or \[\text{Fe}_2\text{SiO}_4 + \frac{1}{2} \text{O}_2 + 2\text{H}_2\text{O} \rightarrow \text{Fe}_2\text{O}_3 + \text{Si(OH)}_4\] illustrates the weathering a ferrous silicate into hematite (Fe₂O₃) and soluble silicon hydroxide.

2. The answer is “b” or “one-half the value of the “unconfined compressive strength”.

Short-term slope stability of a 100%-saturated clay is best analyzed using the un-drained shear strength. Saturated clays behave as if the angle of internal friction (Ø) is zero (e.g., Ø = 0).

Given the Coulomb-Mohr equation of shear strength and the relationship between the major principal stress (P₁) and minor principal stress (P₃) at failure:

\[S = C + P₃ \tanØ \quad \text{(eq. 1)}\]
\[P₁ = P₃ \tan^2(45° + Ø/2) + 2C \tan(45° + Ø/2) \quad \text{(eq. 2)}\]

then, if Ø = 0:

\[S = C\]
\[P₁ = P₃ + 2C\]
\[C = Cu = (P₁ - P₃)/2\]

where Cu is the “un-drained shear strength”.

Un-drained shear strength is obtainable via the “unconfined compression test”. In this test, the material is loaded to failure under no lateral confinement. Substituting Ø = 0 and P₃ = 0 into equations 1 and 2 above:

\[S = C = Cu\]
\[P₁ = 2C = 2Cu = \text{UCS}\]

(where UCS is the “unconfined compressive strength”).

Thus,

\[\text{UCS} = 2Cu\]
\[Cu = \frac{1}{2}\text{UCS}\]

3. The answer is “b” or a hydrous sulfate of iron and copper \[(\text{Fe,Cu})\text{SO}_4.5\text{H}_2\text{O}\]. “Siderotil” is basically a hydrous iron sulfate \[(\text{Fe}_2\text{SO}_4.5\text{H}_2\text{O})\] where some copper may be needed to balance the structure. “Chalcanthite” is hydrous copper sulfate \[(\text{CuSO}_4.5\text{H}_2\text{O})\].

“Rhodonite” constitutes an example of a manganese silicate (MnSiO₃) and is either a rose, red or brownish-red triclinic mineral specimen that has been used as an ornamental stone, especially in Eastern Europe. “Siderite” or iron carbonate (FeCO₃) is a rhombohedral mineral specimen of the calcite group.

4 The answer is “c” or Finland.

Recent glacial activity has shaped the surface of Finland, dictating its present-day geomorphology. Quaternary-age surface sedimentary deposits of glacial drift in the form of moraines, eskers, drumlins and kames are typical. Also, thousands of kettle lakes are present in the southern section of the country. Isostatic rebound due to glacial melting and retreat has giving rise to uplift and new land emergence. The four main geographical provinces are 1) Archipelago Finland, where rock and water predominate, including the Åland islands at the entrance of the Gulf of Bothnia, 2) Coastal Finland, with broad plains of clay strata where agriculture plays a significant role, 3) the Interior Finnish Lake District that supports extensive forests and 4) Upland Finland, including the Lapland region.

The southernmost portions of Norway (south of Oslo and Bergen) including the areas of Stavanger, Arendal and Kristiansand lie below the 60° north latitude line. Norway also has six distinct geographical areas including that of the Scandinavian Mountains (the most dominant), the southern Skagerrak coast, SE Norway, the Western Fjords, the Trondheim area and Far NE Norway including the Finnmarksvidda Plateau. The Svalbard Archipelago and Jan Mayen Island also belong to Norway. Estonia lies south of Finland across the Gulf of Finland and is entirely below the 60° north latitude line.
The sweet serenity of spring break has afforded me the opportunity to catch up on some long overdue reading. The top of that list includes The First Billion is the Hardest by T. Boone Pickens, courtesy of mom and Santa. This little gem made it onto my list not only because I needed the assurance that the second and third billion would come easier after this uphill battle to make my first (the going is slow, let me tell you), but because “Boone” is one of my heroes.

I’m sure there are conflicting opinions of the man out there, as he’s a fairly controversial figure. Heck, some of you may even have worked for Gulf, Citgo, or one of the other companies he “raided” during the 80’s. But as I said, I’m a big fan, and I’ll tell you why. Last spring, as gasoline prices hit an all time high, there was a lot of talk about the problem but no solutions. When the President of the United States (the best country in the world, for the record) is reduced to begging for assistance, and is denied, you are in trouble.

All the sudden, in a veritable media blitzkrieg, comes T. Boone Pickens: an American oil baron, with the only US energy plan being espoused publicly anywhere. He considers the real issues, the oft neglected wealth being transferred to our enemies, and the long term projection for where that leaves our country.

In case you missed it, the basic idea was to shift natural gas from electricity generation to transportation, and replace its absence in electricity production with significant investments in renewable energy, specifically wind. Then, rather than complaining about nobody following his lead, he is developing both industries himself as this is printed. It’s one thing to be a proponent of a specific economic model, but entirely different to go out on your own and put your money where your mouth is.

Sure, it can be said that his campaign was aimed at supporting his own business, and I’m sure many would debate the validity of the plan itself for years. But, at the end of the day it’s still taking tangible steps to accomplish his goal of decreasing America’s dependence on foreign oil. He knows it’s not a perfect plan, he says that. It’s taking steps in the right direction though, and I dig that.

From a bigger perspective though, the book reads like a 200 page tome of advice for somebody considering entrepreneurship in the energy business. He’s been on the scene for 60 years, and short of sitting down for a conversation with the man, reading his work is the closest you can get to his insights. Few people out there know as much about the business as he does and even fewer are as accessible; one click on Amazon and you’re golden. But one of the greatest benefits of being a young member of an organization like this is that we can do better than that.

Preparing to kick off a career now, it will benefit us tremendously to know as much as we can about the work there is to be done. Now in my senior year, I really don’t know nearly enough about what geologists do on a daily basis, in any of the many disciplines in which we work, never mind mastering those things. Coming to the close of my formal undergraduate education, it’s time to begin the next phase of my education: learning as much as I can from the experienced geologists I know.

They know everything we can hope to learn in our careers, from the daily routine, to best practices, to the ups and downs of the industries. They’ve had great victories, and they’ve made mistakes. Learning all of that will help us to duplicate the former, and minimize the latter. Literally centuries of tacit knowledge is out there, held by the men and women who have paved the way in our profession right up to today. All of that knowledge we can accumulate will be invaluable in tackling the next generation of geologic problems: shrinking water supplies, damage to soils, finding the increasingly high hanging fruit in the petroleum world, and dealing with the potential effects of climate change.

Unfortunately, not every wise and accomplished geologist has had the support to write accounts of their work like Mr. Pickens has. Mr. Russ Slayback has done us a tremendous favor with his “Looking Back” articles, which if you have not read yet you should. I wish we could just sit down and read the stories and insights of all the other great geologists of our time. In our own organization, there are a plethora of veterans whose experience collectively could fill terabytes. I would love to sit and learn the complete stories of my friends Larry Woodfork in West Virginia and Bob Fakundiny in New York. If you’ve ever even attempted to complete one of his humbling TPG quizzes, you know that just a glimpse of the immense compendium of a geologic reference that is Robert Font’s mind would likely be enough to ace the ASBOG exam.

According to the AGI Status of the Geoscience Workforce 2009, “the majority of geoscientists in the workforce are within 15 years of retirement age.” The overall demand for geoscientists in the near future is flat out unmet by the number of students going into geosciences. Specifically, there’s a diverging line between the supply and demand of geoscientists in the oil and gas industry, starting about now and steepening until when in 2030 there will be 30,000 geoscientists less than needed.

My friends, we are in a minority, and we’re going to have to pick up the slack big time to do the work that society needs of us. The worst potential symptom of this problem is our veterans retiring in the next fifteen years, before we
were able to take and apply as much as we can learn from them. With such an increased workload to shoulder, it’s undeniable that we’ll need as much help as we can get.

Being a student member of this organization is definitely a step in the right direction for learning as much as you can about the profession you are about to enter. As I’ve mentioned here time and again, the members of this organization are generally excited to help out inquiring students. The vast majority of people you’ll come across are genuinely glad to see new blood entering the profession, and will share with you as much as you are interested in learning. Take advantage of that. Communicate with those professionals you know, and develop relationships that will continue.

Keep your eyes posted for any new updates on professional-student mentorship within the organization. If anyone is interested in helping to facilitate a mentorship program, or participating in one, please feel free to get in touch with me- I think it would benefit our organization tremendously, and I know the interest is out there for making it happen.

In the mean time, students: it’s our job to take care of business and carry our profession well into this century. Knowing what we’ve learned about the earth in classes is half the battle. Knowing what we can about what’s worked before is the other. It’s our duty to the profession to take the next step in our educations and learn as much as we can from our geologic mentors. Like me, you may be coming up on graduation. But you’ll never stop being a student.

Joey is a Senior at Northeastern University and the former Student Body President.

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IN MEMORY

Douglas J. Mullett, CPG-10146 lost a courageous battle with Mantle Cell Lymphoma on January 5, 2009 at the age of 52. He fought the good fight, always had a positive attitude, and never surrendered. Doug was employed by the Ohio Division of Geological Survey as the supervisor of the Energy Resources Group from February 2007 until his death. While Doug may not have been at the Survey long, he has made a huge impact on the lives of all our staff, and we miss him dearly. Doug received his BS degree in Geology from Mount Union College in 1978 and went right into the Ohio oil fields first working for Appalachian Exploration in Gnadenhutten, then New Frontier Exploration in North Canton. He then decided to return to school and received his MS in geology from Wright State University in 1981. Doug then went to work for Cities Service in Tulsa, Oklahoma from 1981 thru 1985 when he returned to Ohio to work for Lomak Petroleum in Hartville. Shortly after the bottom fell out of the oil market in 1986 Doug returned to school once again, this time to Kent State where he completed his PhD work in geology (abd) and was employed as a geology instructor through 1991. Doug changed course in 1991 by moving to Michigan and entering into the environmental geology field where he remained for the next 16 years. In Michigan Doug worked for five different firms, always at increased responsibility levels, and handled work including tank removals, RCRA regulation support, superfund site remediations, and staff and contractor supervision. He was beloved by his co-workers. In 2007 Doug found his “dream” job at the Ohio Geological Survey. He was thrilled to be working on “real” geology again and we were thrilled to have him on our team. Mr. Mullett was active in the Boy Scouts of America for the last 30 years in many capacities, including Den Leader and Cub Master for Pack 45 of Longacre Elementary. He was a member of the American Association of Petroleum Geologists, the Ohio Academy of Science, and the American Institute of Professional Geologists. He will be remembered for his kindness, gentle soul, generosity, and devoted love for his family.

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Applicants for certification must meet AIPG’s standards as set forth in its Bylaws on education, experience, competition, and personal integrity. If any Member or board has any factual information as to any applicant’s qualifications in regard to these standards, whether that information might be positive or negative, please mail that information to Headquarters within thirty (30) days. This information will be circulated only so far as necessary to process and make decisions on the applications. Negative information regarding an applicant’s qualifications must be specific and supportable; persons who provide information that leads to an application’s rejection may be called as a witness in any resulting appeal action.

*Due to the availability of AIPG’s online directory, new member address information will no longer be printed in TPG. If you need assistance locating this information please contact Headquarters.

**Applicants for Certified Professional Geologist**

CA-Boris B. Kotlyar
CO-Dean M. Miantoni
CO-Dorinda K. Bair
MA-Bruce C. Ross
MA-Mary L. Bruno
MA-Robert Peter Danckert
MI-Susanahh Duly
NV-Quentin J. Browne
NV-Paul D. Noland
NV-Deborah M. Osterhoudt
OH-Thomas G. Powell
SD-Linda J. Watte

**Applicants Upgrading to CPG**

NV-Hugh R. Smith MEM-1628
NY-Lee B. Kaplan MEM-1608

**New Certified Professional Geologists**

AK-Jim Halloran CPG-03665
AK-Paul W. Jensen CPG-11258
CO-Matthew E. Bidwell CPG-11243
CO-Karen J. Werlich CPG-11251
MI-Andrew J. Graham CPG-11257
NV-Richard G. Walker, Jr. CPG-11256
NV-Nortert M. Dirks CPG-11248
NJ-Lynette Alor-Matthews CPG-11253
NY-Peter D. Muller CPG-11255
OR-Doann M. Hamilton CPG-11254
Chili-Darby I. Fletcher CPG-11259
Peru-Alonso Sanchez CPG-11250

**New Members**

AL-William H. McCroskey MEM-1625
CA-Ian Jones MEM-1610
CA-John D. Mattie MEM-1623
CA-William Baler, IV MEM-1624
CA-Nadine L. Langley MEM-1619
CO-Kurt F. Stauber MEM-1615
CO-Rebecca W. Klein MEM-1644
CO-James F. Venendaal MEM-1612
CO-Dean A. Feller MEM-1613

FL-Eve M. Huggins MEM-1629
FL-David P. Cadwell MEM-1647
GA-Carl R. Froede, Jr. MEM-1616
GA-David E. Smoak MEM-1642
GA-Peter Clyde Johnston MEM-1621
HI-Wendell Wen MEM-1626
KS-Jeffrey L. Binder MEM-1632
KY-O. Michael Gragg MEM-1630
LA-Lloyd R. Miner MEM-1631
MD-Ira P. May MEM-1620
MI-Justin J. Johnson MEM-1614
MI-Jon M. Hermann MEM-1641
MN-Valerie E. Reverty MEM-1627
MN-Kathryn A. Glusiec MEM-1611
NJ-Darin Vogel MEM-1643
NV-Donald M. Hudson MEM-1609
NV-Douglas W. Willis MEM-1646
OH-Edward Haber MEM-1617
OR-James D. Gless MEM-1636
PA-Kathy D. McGuire MEM-1638
PA-Susan L. Brown MEM-1618
TN-Deborah E. Sanders MEM-1633
TN-Jessica Preston MEM-1639
TN-Gene D. Lockyear MEM-1622
TN-Charles D. Williamson MEM-1645
TX-Janis K. Franklin MEM-1648
WV-Donald L. Streib MEM-1637

**New Student Adjuncts**

AK-Michael R. Breeze SA-1510
AL-Lauren B. Phillips SA-1502
CA-Sara C. Denise SA-1503
CA-Laainam Chapponnaw SA-1507
CA-Megan E. Martin SA-1508
CO-Lauralee Bossen SA-1490
GA-Mike Kocis SA-1500
GA-Matthew A. Threlkeld SA-1513
IL-Julia M. Waldsmith SA-1494
MA-Gelaia N. Will SA-1516
MA-Leesley E. Werbin SA-1517
MA-Thomas J. Naughton SA-1518
MA-Stephanie M. Kealy SA-1519
MA-Anna M. Gillmor SA-1520
MA-Andrea Dunham SA-1521
MA-Marsha K. Allen SA-1522
Mi-Lee A. Copp SA-1489
Mi-Katie S. Schon SA-1511
Mi-Matt R. Beyer SA-1512
MN-Jennifer L. Tresvig SA-1496
MT-Jamiie M. Kern SA-1509
NY-Daniel C. Slane SA-1492
OH-Kimmaree M. Horvath SA-1493
OH-Stephanie K. Jarvis SA-1495
PA-Breana M. Hashman SA-1506
TX-Timothy A. Shin SA-1498
TX-Cathrina L. Gunn SA-1504
VA-William O. Nachlas SA-1501
VA-Lucy K. Walsh SA-1505
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WI-Allison W. Mills SA-1497
WI-Susan R. Krans SA-1491

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AGI and the American Association of Petroleum Geologists plan to sponsor an intern during the spring semester. The internship lasts 14 weeks and carries a $4,500 stipend. Interns are strongly encouraged to obtain course credit for their work.

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AGI and the American Institute of Professional Geologists will sponsor three interns during the summer. The internship lasts 12 weeks and carries a $4,000 stipend. Starting date is negotiable based on the schedule of the successful candidate.

FALL Application Deadline: April 15
AGI and the American Association of Petroleum Geologists plan to sponsor an intern during the fall semester. The internship lasts 14 weeks and carries a $4,500 stipend. Interns are strongly encouraged to obtain course credit for their work.

Applications for the internship should include official copies of college transcripts, a resume with the names and contact information for two references, and a cover letter stating your science and policy interests and what you feel you can contribute to the program. Inquiries only to gov@agiweb.org.

For further information about AGI and the Government Affairs Program, visit www.agiweb.org/gap/. AGI is an equal-opportunity employer. All application materials must be postmarked by the above deadline and sent to this address:

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4220 King Street
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www.agiweb.org/gap/
Applications for the Forms Challenged

Lawrence M. (Larry) Austin, CPG-05181

We have educational requirements and we’re sticking to them. However what should be a relatively simple process often is not and often is made more difficult as more people get involved. So, my objective here is to help both our applicants and our membership in the promotion of and assistance with the application process. I’m going to concentrate on the CPG application process although, to a great degree, the comments also apply to our other categories of membership.

First of all, let me introduce myself. I’m one of the gatekeepers. My official position is that of chairperson of the National Screening Committee (NSC), a position I’ve enjoyed for several years now. I work with a team of your colleagues who are endowed with phenomenal patience and unswerving dedication. They contribute untold hours to the process. Herein I hope to lessen that load a bit.

Let’s start with Article 2.3.1 of the AIPG Bylaws:

**2.3.1 Requirements to be a Certified Professional Geologist**

Any person whose application for certification as a Certified Professional Geologist was received prior to May 14, 2005 and who has met the requirements for such certification as they existed on the day that such person’s application was received shall be categorized as a Certified Professional Geologist upon approval pursuant to the procedures in effect on the day prior to the date the application was received.

Beginning on May 14, 2005, the requirements for certification as a Certified Professional Geologist shall be:

1. a baccalaureate or higher degree in a geological science, and a minimum of thirty-six semester hours or fifty-four quarter hours in geological sciences as recognized and approved by the Executive Committee; and at the discretion of the Executive Committee; acceptable continuing education to demonstrate a currency with technical, regulatory, and economic factors affecting the profession, and

2. eight years or ninety-six months of experience in the practice of geology acceptable to the Executive Committee. A master’s degree in a geological science shall credit the applicant with one year or 12 months of professional experience, or a doctorate in a geological science shall credit the applicant with three years or thirty-six months of such experience. In lieu of 1 and 2 above, evidence satisfactory to the Executive Committee of the applicant’s sound knowledge and proficiency in a field of geological science may be substituted.

Applicants for Certified Professional Geologist shall affirm their adherence to applicable professional and ethical standards and shall provide acceptable references from either (1) at least three professional geologists who have personal knowledge of the applicant’s qualifications, integrity, and conduct, at least two of whom are Certified Professional Geologists, or (2) a professional society that is specifically recognized for this purpose by the Executive Committee. In extraordinary circumstances, as an alternative to all or part of the foregoing, the Executive Committee may require acceptable references from no fewer than six professional geologists who have personal knowledge of the applicant’s qualifications, integrity, and conduct.

These are the requirements for CPG certification. There are somewhat different requirements for other categories of membership and the reader is referred to Articles 2.3.2 through 2.3.4 for those other requirements.

Now let’s look at the process of assembling the information, filling out the forms and actually submitting an application for CPG with the expectation that it will be acceptable. The forms are available on-line in a package intended to provide the applicant with everything he/she needs to submit a complete package. They’re under “Member Forms” and available in both .PDF and MS Word formats. I’d recommend the Word format if you intend to fill it out on the computer unless you have a .PDF editor available. There’s also a flow chart if you wish to see how the process unfolds. Note to members: If you’re assisting someone in the application process, be sure to have them send you, preferably via email, whatever they have at the time the question(s) arise. Now, if you’re like me, print all 10 pages so you have something in front of you to review. Just remember, if you’re looking over a partially completed application, destroy your copy when done to ensure confidentiality.

We start on the cover page, Section I: Most of this is relatively straightforward personal and current employment data. We need it for purposes of contacting the applicant should any questions arise and they do. Just let us know how and where to best contact you, the applicant. One item that’s a little more confusing is the “Major Fields of Geologic Practice.” For brevity we use a series of abbreviations given on the second to last page of the packet. Pick the three that best apply to what you’re doing.

Now let’s go to Page 2, Section II, Record of College Training. This is where you list your education so that we can compare it to the requirements of the Bylaws and the college transcripts. The applicant should list each college or university attended in order beginning with the most recent. They should include all studies, even those that did not involve geological sciences as we’ll delve into any gaps we perceive in the history. Just note on the form that the major subject was something else. Hours of geology can be provided in either Semester hours or Quarter hours but tell us which units you’re using. And do the same for postgraduate continuing education courses.
Although here we don’t need a record of non-career related courses.

Official transcripts must be submitted for all geological sciences education and come directly from the educational institution to AIPG Headquarters as proof of your education. If your list includes non-geological educational work at a different educational institution, simply indicate on the form or submit a statement with the application that your studies at that institution did not include any applicable coursework and that a transcript is therefore not being submitted for those studies.

Section III concerns documenting the record of experience for the individual. On the application form we require a complete record of your work history from college onward. And yes, this includes non-geological work experience although we do not need verification of the non-geological work experience. Please double check this history for continuity in dates and make sure all relevant experience summaries are requested. And yes, we need to know if you took a six month stint as a cashier at the local grocery store one time when you were out of work. Otherwise we’ll assume you were in prison for seven years or some similar nonsense and you’ll end up explaining it seven ways from Monday. Save us all the grief, BE THOROUGH!

Experience Verification forms are extremely critical yet poorly understood. There is a portion for the applicant to fill out and a portion for the person verifying the experience to fill out. As an applicant, only fill out the part that pertains to you and the header, name and address, for the person who will verify the information. When you describe your experience, please tell us what you did in terms of geologic analysis, what tools you used (i.e. cross sections, geologic mapping, borehole logs, etc.), what you did in terms of geologic experience, please tell us what you are interested in the subject or suspect something is amiss. Be concise. Your verifiers should review the information you provided. Is it accurate? Please note that the verifier does not have to be your immediate supervisor although we’d prefer they be if appropriate. However it should be someone who is familiar with your work and preferably has the geologic knowledge that is necessary for a qualified review. It does not have to be someone from within your employer, and often is not in the case of self-employed consultants. However, avoid using subordinates or relatives as this seriously detracts from the credibility of the verifier and likely will be rejected.

Please avoid the temptation to list all your career responsibilities on one experience form and then forward it for verification of the appropriate portion from several employers. Unless you’ve taken the time to clearly indicate who should verify what portion and advised each verifier to clearly state what portion they are verifying, it leads to confusion for both the verifiers and the reviewers. Often it results in denial of verification of at least some portion of each form by each verifier. If a screener is pressed for time at that point it may be easier for them to just say no and let you go back and re-do it, adding weeks or months to the review process. Again, save us all the grief. Make extra copies of the form and separate each position so that each verification is for all and only the data on that form. It may take a little more time to do it this way but it saves time for the screeners later and thus, processing time for the application.

Section IV requests a listing of sponsors. For CPG, two must be AIPG members and one can be another geologist who meets the criteria for a professional geologist sponsor as indicated on the sponsorship form (Baccalaureate degree or higher with 30 semester hours or equivalent in geological sciences and at least 5 years of post-degree experience in the practice of geology as a vocation.) This is often a major stumbling block for potential applicants. However it’s mostly because we haven’t yet enacted a requirement to have AIPG branded into our foreheads. There are likely a considerable number of your colleagues that are members but don’t consistently advertise it. A quick call or email to Vickie at HQ will get you a list of section members in your area and contact information. If you contact me, I’ll try to put you in touch with anyone I know from the Institute in your general area and arrange a meeting. For the most part, we’ll do whatever we can to make it easy for you to procure the appropriate sponsors.

Again, some common sense is in order when selecting sponsors. No more than two may be from the same organization at the time of submission. Please refrain from using close relatives or subordinates as these will not be acceptable. It becomes a “do over” that comes back to screeners whose attention is now focused for any little typo on your application. Don’t do it!

In Section V we ask if you’ve held any state certification, license or registration and, if so, to list them. Also, to indicate if any have been refused, revoked, suspended or otherwise acted against and, if so, to provide an explanation. How you respond to this question is extremely important. The NSC members will check up on claimed licenses, certifications or registrations. Much of this information is on-line. Proof is required for current ones. Very important, if you’ve held a temporary work permit, be sure to list it as such as not all states list temporary permits on-line. If we check for a license and the state doesn’t have it listed, we’ll have to investigate as to why it was claimed or the application may be denied.

We ask for your legal history in Section VI. We’re not particularly interested in speeding tickets but we are interested in any crime or action related to geology, subject to investigation, injunction, fines or penalties related to consumer, investor or securities fraud or indicted or convicted of a felony. If so, be sure to add an explanation, the final judgement and why the charge(s) and judgement(s) are not pertinent to the application.

Sections V and VI relate to items AIPG considers extremely important relative to ethics. If you have any questions at all regarding these specific questions, contact us, either myself or Mr. David Abbott of the Ethics Committee. We’d rather clear them up ahead of time than have to deal with sensitive questions and bruised feelings later.

Section VII asks for a list of geologic societies and organizations of which you are an active member and Section VIII asks for a list of publications you have authored or co-authored. A complete list is not necessary here but manuscripts accepted for publication should be listed as such. There are no right or wrong answers here.

In Section IX you have an opportunity to present other pertinent information. You are also invited to attach curricula vitae and resumes. However,
APPLICATIONS FOR THE FORMS CHALLENGED

please refrain from overburdening the application with copies of publications, theses, reports and the like as they may not receive the attention anticipated. Our screeners are, after all, volunteers. Please respect their time.

Section X is your affidavit attesting to the accuracy and completeness of the application. Note that the notary’s seal and statement is required for a CPG application. If the application is being submitted from an area where a notary is not available, please contact HQ for guidance as we will work with you to gain equivalency.

Accompanying the application package are the Geological Experience Verification forms and the Sponsor’s Statement forms. I’d like to emphasize again that separate experience forms and sponsorship forms should be filled out in as appropriate and furnished to the individuals who then send the forms directly to AIPG-HQ for inclusion in the application. Note that each of these forms has a section for the applicant to fill out and a section for the verifier/sponsor to complete. Please do not fill the verifier/sponsor sections out for them! This is readily spotted in the review process and seriously detracts from the credibility of the application! If they’ve agreed to assist you, they should be willing to write the few sentences necessary to complete these simple forms.

Finally, send the appropriate forms to your verifiers and sponsors, contact your colleges and universities for transcripts and forward the rest of the package to AIPG Headquarters. It will be held there until all the pieces are in (administratively complete) and then forwarded either for Section Review and then NSC review or directly to the NSC for review depending on the status of the Section Screening Committee and any prior membership you’ve held with AIPG. At a minimum the process is likely to take 60 days and you will be notified of where your application is within the process at key milestones. Please be patient but also don’t hesitate to contact us should you have any questions.

AIPG’s application process can be an intimidating experience for those seeking the CPG status. However since some states require it for the practice of geology (e.g., Alaska ), others use it in their own certifying processes (e.g. Michigan for the title Certified Underground Storage Tank Professional), and we believe it to signify a significant life achievement, it’s important that we be accurate, thorough and consistent. After all, we seek to sustain the significance of those three letters appended to your name at the bottom of the page.

Larry Austin has been involved with the practice of geology since 1975. He has been actively involved in AIPG’s National Screening Committee (NSC) for many years and is the current Chairperson. He has also served two terms on the Executive Committee. Privately he is President of Aqua-Tech Consultants, Inc., an environmental, hydrogeological and geotechnical consulting firm in Grand Rapids, Michigan.

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Field Collecting in the Pikes Peak Batholith

Steven P. Maslansky, CPG-04431

Introduction

Like many of you, my “geological roots” run deep. My interest in geology started at the early age of eight, with my first rock set. It was later honed in high school when I began collecting in the pegmatite deposits of southern New York and western Connecticut. Back then I wanted to be a mineralogist and field collector, and a job offer to be a geologist at a gem mine in Africa seemed too unbelievable to be true. It was, for the offer was abruptly withdrawn when the current mine geologist was hacked to death and the mine taken over by rebels. I switched career paths and have spent 35 plus years in hydro- and engineering geology, but my first love has been mineral collecting.

This past summer I had the opportunity to field collect and to do some geologic reconnaissance in the Crystal Peak Mining District of Colorado, an area north of Lake George in Park County, and Florissant in Teller County. The district covers an area of about 45 square kilometers: its most prominent feature is Crystal Peak (2937 m), which has completely lived up to its name. Much of the land within the district is now in private hands, but currently there are about 175 unpatented mining claims within the Pike National Forest, mostly north and west of Crystal Peak (Dorris, 2008). This area is most famous for the extremely aesthetic and exceedingly rare combination of smoky quartz and the blue-green variety of microcline known as amazonite. Any mineral collector can instantly recognize a “Pikes Peak” specimen. Amazonite mining in the District has been ongoing since the 1870s, most notably in the early days by the Foote Mineral Company of Philadelphia (Odiorne, 1978). Dr Albert E. Foote, M.D. (1846-1895) was one of the most prolific collector/dealers in the world at that time, or even by today’s standards. Foote employed 19 men to work the area. Smoky quartz found at that time was sent all the way to Germany to be cut as gemstones.

Geology

The Crystal Peak Mining District is located in the Pikes Peak batholith, an anorogenic, epizonal pluton, exposed over an area encompassing approximately 3100 km² within the Colorado Front Range. The batholith was intruded between 1074±3 Ma and 1092±2 Ma and is composed primarily of granite to quartz monzonite (Unruh et al, 1995). Two theories exist for the tectonic setting of this batholith, one by extension (rifting) and one by mantle plume (“hot spot”). Both potassic and sodic rocks exist within the batholith. The potassic series accounts for 98 percent of the batholith’s exposures and is dominated by the Pikes Peak Granite, a predominately pink coarse-grained biotite-hornblende syenogranite, and minor gray monzogranite. Rocks of the sodic series account for the remaining 2 percent and are found in or immediately adjacent to the batholith. The Pikes Peak batholith is a type example of an A-type granitic system (Anorogenic). It is distinguished from the S-, and I-type granitoids (Sedimentary protolith, Igneous protolith) by its higher alkali and iron and lower calcium and magnesium content (Smith, et al 1999). Three separate but texturally intergrading zoned intrusive centers (Pikes Peak, Buffalo Park, and Lost Park) comprise the batholith. These intrusive centers are located on the outer edges of the batholith with crystallization commencing from rim to core for each of them. (Hutchinson, 1987).

A large part of the district is located within a smaller and slightly younger pluton, the Lake George Ring Complex, a composite structure that, with several other intrusions, was emplaced into the larger batholith (Figure 1). Seven of these intrusions (including part of the Lake George Ring Complex) are sodic in composition, and are distinguished from the potassic rocks by their ferromagnesian silicate mineralogy (the presence of fayalite, the iron-rich member of the olivine group, and/or sodic amphiboles)

Figure 1: Geologic Map of the Pike Peak Batholith (after Smith, et al. 1999).
and by whether diabase dikes, gabbro and/or syenite are found associated with the granitoids (Smith, et al, 1999). The Lake George Ring Complex is roughly elliptical with approximate dimensions of 6.5 by 8 km. It is believed that an earlier and slightly larger fine to medium-grained granite stock (potassic trend) cut the coarse-grained granite of the batholith. These granitoids are thought to be textural variants of the Pikes Peak Granites caused by differential cooling rates. The stock was later intruded by partial ring dikes of quartz syenite to fayalite granite, and a smaller central stock of quartz syenite to syenomonzonite (sodic trend); its geometry was controlled by ring-dike and possible cauldron-subsidence mechanisms (Wobus and Anderson, 1978). The arcuate ridge structure of the complex shows up very nicely on aerial photos including Google Earth™. The granitic rocks are strongly porphyritic in many areas. As the later plutons intruded into the Pikes Peak Granite, tensional stresses caused fractures that allowed for the development of pegmatites crystallizing out of later stage magmatic fluids. Many of these pegmatites are characterized by miarolitic cavities (commonly called “pockets” or “vugs”) that appear to be most abundant in and around the late-stage plutons. Most of the crystal production is from such cavities associated with pegmatite dikes; these can bulge out into pockets reaching a meter high and several meters in length and depth. Most cavities are, however, grapefruit to watermelon in size, and are typically clay-filled and collapsed.

The pegmatite dikes within the batholith can be as much as 50 m in length and several meters in thickness and depth, but most are generally much smaller. The dikes may pinch and swell over very short distances. Most of the pegmatite dikes occur between approximately 2100 and 2700 m in elevation, cut the coarse-grained granite of the batholith. These granitoids are thought to be textural variants of the Pikes Peak Granites caused by differential cooling rates. The stock was later intruded by partial ring dikes of quartz syenite to fayalite granite, and a smaller central stock of quartz syenite to syenomonzonite (sodic trend); its geometry was controlled by ring-dike and possible cauldron-subsidence mechanisms (Wobus and Anderson, 1978). The arcuate ridge structure of the complex shows up very nicely on aerial photos including Google Earth™. The granitic rocks are strongly porphyritic in many areas. As the later plutons intruded into the Pikes Peak Granite, tensional stresses caused fractures that allowed for the development of pegmatites crystallizing out of later stage magmatic fluids. Many of these pegmatites are characterized by miarolitic cavities (commonly called “pockets” or “vugs”) that appear to be most abundant in and around the late-stage plutons. Most of the crystal production is from such cavities associated with pegmatite dikes; these can bulge out into pockets reaching a meter high and several meters in length and depth. Most cavities are, however, grapefruit to watermelon in size, and are typically clay-filled and collapsed.

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The genesis of a miarolitic pegmatite is not well understood; it is the rarest of the pegmatites. It is believed that miarolitic pegmatites begin as a silicate melt with generally a granitic composition. The melt contains gases of H₂O and CO₂ as well as other volatile components that dissolve into the melt at pressures of 200 to 300 MPa. Cavities are typically found in the center of the dikes where their minerals were the last to crystallize. Various scenarios for cavity formation have been postulated. The most current research (London, 2008) hypothesizes that at the time of their formation, cavities were not simply gas bubbles, but rather consisted of a very dense hydrous silicate fluid or gel. Soluble fluxes (e.g. boron, phosphorus, and fluorine) and salts that were not utilized in pocket crystal or clay formation migrated to the adjacent host rocks where they metasomatically produced new minerals (e.g. tourmaline, zinnwaldite). At some point the pocket or pockets that interconnected via the dike centerline were overpressurized and ruptured. It is assumed, based on low temperature minerals found in the pockets, that the cavities formed at very low temperatures relative to a normal magmatic environment - perhaps less than 350°C.

Collecting

Although one can follow surface float to locate areas showing pegmatites (and sometimes amazonite and/or smoky quartz) and mechanical excavation certainly reveals the pegmatite dikes, they are uncommon. Miarolitic cavities are even more rare. Hundreds of linear meters of pegmatites can be exposed and no cavities encountered. The cavities in the Pikes Peak batholith are typically classified by the predominant minerals found in them (e.g. common microcline only,amazonite only, smoky quartz only, combinations, etc.). Forty percent will be predominately quartz, 25 percent common microcline, 18 percent quartz and common microcline, 9 percent amazonite, 3 percent amazonite and quartz, with the remainder pockets containing rarer mineral species (Muntyan and Muntyan, 1985). It has been estimated that in the Crystal Peak Mining District, 55 percent of the pockets will be com-
mon microcline, 18 percent will be amazonite of various shades of blue-green, 16 percent will be smoky quartz, 10 percent will be smoky quartz and common microcline, and only one percent will be an association of amazonite and smoky quartz. Among the pockets with amazonite and smoky quartz, about 30 percent will have matrix pieces; the remaining majority will be filled with loose single crystals or shards. Of the matrix pieces, perhaps 5 percent are of good museum or show quality (Dorris, 2008). Weeks of hand digging and days of mechanical excavation, even in an area of "productive" pegmatites, may never produce a quality matrix combination piece (Figure 2).

The miarolitic pegmatites of the batholith characteristically show a zonal structure with an outer zone of graphic granite (an intergrowth of skeletal quartz and potassic alkali or sodic plagioclase feldspar), followed by increasingly larger anhedral crystals, and finally a pocket containing the euhedral crystals. Some of the "pockets" are "frozen" in that the amazonite crystals are embedded in a mass of milky quartz. However the majority of the cavities have ruptured and collapsed and are filled with clay composed of beidellite (a smectite), illite, and kaolinite (Kile, 2005). These clays were introduced during the final stages of pocket formation and have led to the protection and slow settling of broken crystals. It is understood (London, 2008) that the clays represent the last remnants of the hydrous silicate medium originating in the pocket. Although it was once thought that pocket rupturing was due to freezing, it is now commonly believed that the inward rupturing occurred during the last stages of pocket crystallization. Many of the loose quartz crystals found show recrystallization on the broken surfaces, sometimes to the extent they recrystallize into doubly-terminated crystals.

Since many pockets exhibit loose crystals or at least crystals that separate upon removal, many specimens that are on display or for sale are repaired, and many others are also restored - this is particularly true of the cabinet size (>12.7 cm) specimens. Repairs are simply the gluing of separated crystals back together. Amazonite crystals can cleave or separate from an adjacent crystal relatively easy, so the most common repair is the reassembling of the microcline. Microcline feldspar is triclinic [orthoclase, also KAlSi₃O₈, is in the monoclinic system] and has two perfect cleavage planes essentially at right angles. Thus it cleaves most easily parallel to the horizontal axis rather than the vertical. Most combination pieces have the amazonite and smoky quartz entwined and forming the matrix with easy separation at the crystal faces. Lucky are those who find groups attached to the graphic granite matrix. Prudent collectors photograph the pocket contents and wrap distinct groups together to aid in reassembly. Most crystals have also been covered in clay, as well as iron oxides that stubbornly coat their surfaces and necessitate days of cleaning. Some specimens for sale have also been restored. Restoration is the addition of fillers to, for example, restore a broken quartz crystal tip. Many times the restoration is very minor, but at other times the entire tip of the crystal has been replaced. It is important to note that this is not the same as fakery where, for example, a loose crystal has been embedded into another specimen from which it did not originate.

Often the cleaning process changes the original luster of a specimen. According to Kile and Wilson (1997), the purpose of restoration is to return a specimen to its original appearance. Sometimes the luster of the amazonite has been enhanced (e.g. oil coatings, floor wax, silicone, etc.). This is certainly not restoration, but rather an unethical practice, unless it has been disclosed to the buyer. Because good preparation of a specimen, in particular cleaning and trimming, can add greatly to its value (sometimes thousands of dollars), many professional specimen preparation services have appeared in the last few years. As a result, the broadly used terms of repair and restoration have been refined and replaced with the 4 R’s. Reinforcement is simply using glue to stabilize a crystal, repair is putting a loose crystal back or gluing portions of broken crystals together, restoration is "gap filling" where parts of crystals are missing, and reconstruction is the replacement of, for an example, a broken or missing tip of a crystal. All cabinet size amazonite specimens, as well as any combination pieces sold by reputable dealers, will have an indication (usually on both the label, as well as the back of the specimen) that it has been repaired, reconstructed, and/or restored and the number of separate instances of each.

Mineralogy

Although amazonite (also called amazonstone) and smoky quartz are the most famous specimens found in the pegmatites of the Pikes Peak batholith, at least 60 species (both common and rare) have been found. Those that form exceptionally large crystals include albite (particularly the platy variety known as cleavelandite), fluoro, goethite, hematite, 3 micas (biotite, muscovite, and zinnwaldite), microcline, quartz, and topaz. Other accessory minerals form exceptionally fine euhedral crystals (albeit small) including allanite, barite, calcite, barylite (rare beryllium mineral), bastnäsite [(Ce, Y, La)(Co₃)F], bertrandite (another rare Be mineral), ferrocolumbite, phenakite (another rare Be mineral), riebeckite (an amphibole), and zircon (Muntyan and Muntyan, 1985).

The color of the amazonite in a given pocket appears to be very consistent; however great variability can exist even between nearby pockets. The origin of the color of amazonite has been controversial for decades. As with many blue-green minerals, copper was originally thought to be the cause. After chemical analyses ruled out copper, iron was suggested. Work in the seventies suggested a lead-potassium substitution (Foord and Martin, 1979). Later work suggested that lead in conjunction with structural water and ionizing radiation, or by the substitution of fluorine for oxygen may be the source of the famous blue-green color.

Twinning (Figure 3) of the microcline is relatively common compared to other species, but still fairly rare. Even rarer are "white caps". The white caps are thin growths (1-10 mm) of microcline on either a dome face (c, 001) or as a selective overgrowth on an alternate prism
amazonite and smoky quartz specimen, known as “The Legend”, measures 57 by 32 by 30 centimeters. It was removed from the Legacy Pocket (yes, these finds can be so rare and spectacular that even the pockets get named), which measured approximately 1.7 meters long by 0.9 meters wide by 0.6 meters high. Other notable finds in recent years include the 1997 strike when a large cavity was discovered on the Two Point Claim by Bryan Lees of The Collector’s Edge. Named the Tree Root Pocket because a tree root had penetrated a couple of meters into the miarolitic cavity, the cavity was 2 meters wide, 1.7 meters deep and 0.2 meters high. It is not uncommon for tree roots to penetrate a shallow miarolitic cavity (because it provides space and moisture), and many field collectors look for detached specimens brought up by the roots. The Tree Root Pocket had collapsed and many specimens required considerable repair and reassembly. Approximately 100 combination specimens were recovered, as well as hundreds of small groups and single crystals. The amazonite was of the best color and the smoky quartz crystals (up to 17 cm) of the finest luster. Unfortunately no additional pockets yielding specimens of significance were found in the vicinity (Kile, 2008). Considerable effort has been expended around the Tree Root Pocket location looking for more spectacular pockets with about a half hectare excavated and up to 10 meters of material removed, but the Tree Root appears to have been “a one of a kind” find for that site (Dorris, 2008). In 2001, a 14.6 by 12.4 cm amazonite and smoky quartz specimen from the Tree Root Pocket sold at a Sotheby’s auction for $41,000. Fortunately, for the museum and mineral collecting community, specimens of equally outstanding color and quality have recently been discovered at the Smoky Hawk Mine, which shares the same trend as the Two Point Claim and its Tree Root Pocket.

While collecting this past summer, I spent most of my time at the Smoky Hawk Mine and surrounding claims. This area was burned over by the 2002 Hayman Fire, which, although it made reconnaissance easier, greatly affected the natural beauty of the area. Mining operations at this claim have uncovered about 300 miarolitic cavities since mining began in 2002. This is a remarkable accomplishment in that only about 1 hectare of the mine site has actually been excavated. Even more remarkable is that most of the microcline found has been of the amazonite variety. Work can be slow, even though heavy earth moving equipment and blasting is employed, because excavated material must be moved. Operations at this site have removed up to 12 meters of decomposed granitic rocks and competent boulders (Figure 5).

Reclamation and safety considerations require relocating excavated material many times. It was once believed that commercial operations would be at best a “break-even proposition” due to the random nature of the pockets, the small size of the cavities, and fear of damage to fragile specimens (Muntyan and Muntyan, 1985). Operations at this site and others nearby have proven this to be untrue. The equipment operators are able to perform precision “surgical” removal of over- and side-burden materials so that pockets have remained relatively intact when encountered.

The mine’s host rock is a medium-grained equigranular to porphyritic biotite granite that is pink to buff in color when unweathered. It is composed primarily of perthitic microcline and quartz with lesser amounts of biotite, and oligoclase. This unit, as previously discussed, cuts through the coarse-grained granite (Pikes Peak Granite) that is adjacent to the mine and nearby claims. The Pikes Peak granite rock type is an equigranular to seriate (complete range of grains between groundmass and phenocryst) porphyritic granite and pink in color when fresh. This formation shows the typical rounded outcrops and weathers (as does the medium-grained granite) by hydration of the complex silicates (e.g. biotite) and expansion forming a thick pale orange, coarse and thick grus. The transition from the granite to the pegmatites is sharply delineated. The optimal scenario for finding a large cavity appears to be when two or more dikes

**Notable Finds within the Crystal Peak District**

Most collecting in the batholith has been conducted by hand-digging in weathered granite after finding a promising location (pegmatitic float or erosional highs). A few commercial operations have been undertaken over the years. Currently the major commercial mine within the Crystal Peak Mining District is the Smoky Hawk Mine operated by Joseph L. Dorris of Glacial Peak Mining. The mine sits at an elevation of between 2600 and 2700 m. In 2005, Joe and his sons Scott and Tim removed perhaps the largest and most spectacular combination specimen ever found (Figure 4). This face (MSA, 2003). Thicker albite caps have also been observed.

**Figure 3b: Manebach twin**

**Figure 4: “The Legend” considered the largest amazonite and smoky quartz specimen ever found.**

**Figure 5: Working decomposed granite at the Smoky Hawk Mine.**
crystals tend to grow larger in proportion that was initially governed by the size in each pegmatite can be studied. They concluded that the small variation in and around the Lake George Ring Batholith, Colorado. Geological Society of America, Centennial Field Guide, Rocky Mountain Section.


Mineralogical Society of America (MSA). 2003, Pegmatite Interest Group, Comments and Questions at www.minsocam.org/MSA/Special/Pig.


Reviewed by AIPG Associates

Editors: Neill Ridgley, CPG-05138, Ray Talkington, CPG-07935, and John Berry, CPG-04032.

Steve Maslansky has 35 years experience in a broad range of geotechnical and environmental projects, with special concentration in emergency, investigatory and remedial responses to hazardous substance releases. Besides his CPG, he is a registered geologist in four states, chartered in the United Kingdom, and qualified by the European Federation of Geologists. He is also certified as a hydrogeologist by the American Institute of Hydrology, and by the State of Arizona as a remediation specialist. He has completed assignments in 39 states, Canada, Greenland, Great Britain, and Asia. Since 1982, Mr. Maslansky has been a principal of Maslansky GeoEnvironmental, Inc. in Prescott, Arizona (formerly GeoEnvironmental Consultants, Inc., White Plains, NY). He looks forward to spending some quality time this summer mineral collecting.
Geologic Models as Teaching Aids; Some Personal Examples

Paul A. Lindberg, CPG-06344

There is an old saying that “a picture is worth a thousand words.” Since a picture is a two-dimensional image, a model in three-dimensions can speak many volumes. A wide variety of geologic models have been used historically to portray technical information visually, most often in the form of static museum displays. Models can range from a simple demonstration, such as how a rock fold or has been offset by a fault, to a more elaborate portrayal of an entire district. Models of underground mines are especially effective because the ore body, tunnels, stopes, faults and drill holes lay hidden below the ground surface. Models of that type are useful for mine planning as well as visitor edification. Many national parks now display recently built topographic models where a large terrane can be viewed from all sides. Excellent examples can be found at Grand Canyon National park in Arizona and Denali National Park in Alaska. Another outstanding topographic model is located at Glen Canyon Dam in Arizona. It shows not only the intricately sculptured landscape surrounding Lake Powell but it accurately portrays the many subtle rock strata colors so well that geologists can identify specific rock formations.

In order for a geologic or terrane model to be an effective educational tool it should capture the attention of the viewer, be visually attractive, straightforward in its presentation and allow the whole area to be appreciated. A model should also be versatile enough in its design to provide educational value to a wide range of viewers, irrespective of their technical training. A three-dimensional model minimizes the need for wordy explanations of the subject matter and should not skimp on technical accuracy. In other words, a geological model, or other visual display, should not be “dumbed-down” or “sugar-coated” to pacify an ill-informed public. The key function of a well-designed model should be to educate all levels of viewers.

Long before receiving a degree in Geological Engineering from the University of Minnesota in 1956, I developed a flair for making three-dimensional drawings and building model airplanes. Like my engineer father before me, I enjoyed taking things apart and reassembling them in an effort to understand the inner, hidden workings of an apparatus. That three-dimensional experimentation stood me in good stead later in my professional career when I prepared many detailed geologic and mine maps, technical drawings, block diagrams and mine models. All that took place before the advent of the computer age with all its bells and whistles. In more recent years I began constructing customized geologic models of both the static museum type and those that were portable and employing moveable and removable parts. In portable models the rock strata can be tilted, faulted, eroded and added to just like a real evolving landscape. While today’s computers are capable of performing spectacular feats of electronic wizardry, a portable model can be taken to its corresponding field site and used to display the area’s geologic evolution on a one-to-one basis. Such devices are effective educational tools that can be appreciated by people with a wide range of geological understanding. The beauty is that as the pieces are placed or removed on the model, the pace of construction can be adjusted to meet the requirements and questions of the age and abilities of the viewers.

During the recent September 2008 AIPG conference in Flagstaff I led two field trips to nearby favorite geologic localities that I have studied for many decades. One field trip went to the Verde mining district at Jerome, Arizona and the second trip went to the Grand Canyon to examine the geology of one of the world’s more famous geological wonders. On each of those trips I brought along a personally built, one-of-a-kind portable geologic model to help illustrate the structural history found at each of the sites.

My professional work in the Jerome area began in 1971 and over the next 30 years I was involved with intermittent mineral exploration and resource assessment of the separately owned mine sites of the United Verde and United Verde Extension (UVX) ore deposits that lie on opposite sides of the Verde fault. While the United Verde mineralized outcrops were exploited by Hopi Indians for colorful pigments in prehistoric time, the UVX deposit lay hidden from view until its discovery by underground exploration in 1914. I had the unique opportunity of conducting district-scale geologic and structural mapping, correlating a century’s worth of mine records, supervising exploration drilling and integrating a large amount of recorded mining company information of ore deposits in the district. During the mining life of the Jerome ore bodies the deposits were believed to have been formed by “hydrothermal replacement” of pre-existing Precambrian volcanic and sedimentary strata (Anderson and Creasey, 1958). By the early 1970s, however, geologist Paul Handverger and others had recognized that the deposits were of the volcanogenic type and not replacement ores.

The complex volcanic and structural history of the Verde mining district has been summarized in the post-mining era (Lindberg and Gustin, 1987; Lindberg, 1989). A recent high-precision U-Pb age date by Sam Bowring at MIT for a USGS jasper study places the age of the Jerome Cu-Zn-Au-Ag massive sulfide deposits at ~1,738.5 ±0.5 Ma in Early Proterozoic time (Slack et al. 2008). High grade ores were mined at Jerome between 1893 and 1953 when most mining operations...
ceed. Because of the very well exposed volcanic host rocks and sulfide mineralization at Jerome, that location has long been a favorite destination for geology tours by students, government agencies and mining geologists from all over the world. Permitted tours were done under strict safety guidelines and I provided a number of posters, block diagrams, maps and sections for use in explaining the area’s geology. The general public, however, was largely unaware of the remarkable story that the ore deposits had to tell.

In 1991 I prepared a permanent display of the Jerome geology for the Jerome Historic State Park museum. The 1”=300’ model shows the surface geology and cutaway sections into the ore deposits down to the deepest mine level at 4500 feet. Accompanying the display are the main rock and ore specimens that are keyed to the model. Included in the collection is a rare and exquisitely preserved Precambrian “black smoker” specimen (deep sea hydrothermal sulfide column) from the United Verde deposit that is one of the oldest and best preserved examples on the planet. The model portrays the best available geology based on surface, mine and drill hole records and does not simplify structural detail. During the recent AIPG field trip this model provided the participants with an introduction to the geology of Jerome ore deposits.

At the edge of the nearby United Verde open pit, astride the trace of the Verde fault, the tour was shown a portable model that displays the complex faulting history of the Verde fault system that has taken place since the time of the Laramide Orogeny and regional uplift. The 1”=400’ model incorporates two parallel east-west sections that pass through the two ore deposits lying on opposite sides of the Jerome anticline and Verde fault plane. Selected mine level plans are also included. The model allows for movement on the Verde fault plane during its Laramide age high-angle reverse phase ~75 Ma as well as an associated décollement fault (gravity slide) that exposed the apex of the UVX ore deposit, and subsequent reactivation of the Verde fault plane during the development of the Verde graben 8-10 Ma. Prolonged erosion directly over the UVX deposit throughout Tertiary time allowed for groundwater to generate the bonanza grade supergene enrichment of the Precambrian age ore deposit. By demonstrating the complex geologic history with the aid of the model on site, the evolution of the district from its burial by Paleozoic sediments to the present day can be readily demonstrated.

For the Grand Canyon tour I also brought along a one-of-a-kind geologic model to make its geologic history a bit more comprehensible. Casual visitors to the Grand Canyon are often overwhelmed by the grandeur of the scene presented so abruptly before them. After a quick look into the abyss most tourists take the requisite photos of the canyon, often recruiting the help of passersby to have their pictures taken with the canyon as a backdrop. Even though there is no consensus by the geologic community as to exactly how the Grand Canyon evolved, its geology has been well described (Beus and Morales, 2003). And the history of investigators and theories of canyon genesis have also been recorded (Ranney, 2005).

Over the years I have watched tourists attempting to understand the signs that describe geologic features spread before them, but all too often their eyes quickly glaze over without fully absorbing the amazing story laid so dramatically before them. What the casual visitor observes from the canyon rim is the end product of a long and complex geologic evolution that took almost two billion years to construct. Nearby rim rocks might be somewhat more understandable to most viewers, but the rock strata in the depths of the canyon blur into more of an art form than something having scientific meaning.

Years ago I recognized the need for a straightforward educational model that would portray the geological evolution of the Grand Canyon rocks as it would have been built from the bottom to the top long before canyon itself had been cut by Colorado River erosion. The resulting model shows three major episodes of deposition, tectonic uplift and erosion that has shaped the canyon country since Early Proterozoic time. Only after the Laramide uplift had raised the crustal rocks of the Southwest to their current elevation can the erosion of the canyon be shown on the model by using an overlay to represent rock units that were stripped away.

The design and construction of interactive and portable geologic models has proven to be an effective educational tool that I have been able to share with Elderhostel tours, local clubs, colleagues and friends. It is evident that by demonstrating the step-by-step evolution of a landscape, most people can readily understand how geological processes have shaped the landscape presented before them. For me it has been personally satisfying to be able to share some of the geological knowledge I have gained over my professional career with others.

References

Paul Lindberg received a Bachelor of Geological Engineering degree from the University of Minnesota in 1956 that was followed by 20 years as a mineral exploration geologist with the Anaconda Company in Western U.S. and Canada. Over the next two years he was the Exploration Manager for McIntyre Mines Ltd.out of Toronto Canada. Since 1978 he has been an independent consulting geologist with field experience throughout Western U.S., Western Canada and Alaska. Paul’s main field of interest is in unraveling the complexities of structurally deformed ore deposits.
Nouveau Kiskeya has become synonymous with the words “hope” and “change” in northwest Haiti. Nouveau Kiskeya, meaning “new Haiti” in Creole, is an innovative mixed use land-development project underway on the north coast of Haiti. The key to Nouveau Kiskeya’s success was clean water, which was needed for the development and the people of the area.

In May of 2007, we found that water – clear, clean and plentiful – and it was accomplished in spite of many who doubted it could be done. The discovery has instantly delivered pride to the people of northwest Haiti and is propelling the project forward.

Haiti shares the island of Hispaniola with its much larger neighbor to the east, the Dominican Republic. Haiti was once considered the jewel of the Caribbean, but now is viewed by many as a hopeless case with one of the worst water availability indices in the world. Haiti is poor; there is little economic activity, no utility or sanitation services and no infrastructure. Disease is rampant, infant mortality is high and modern sanitation is nearly non-existent. Clean water is at a premium, especially in northwest Haiti, considered to be one of the driest areas of the country.

We were brought into the project with one objective, to find clean water, enough to supply the development and the local communities. We conducted months of geologic research, including a visit to the USGS library and hundreds of phone calls with Caribbean and Haitian geology authorities. We also tasked satellites to obtain high resolution imagery of the area to analyze the landscape for geologic features. The research left us with mixed emotions; we were optimistic about groundwater prospects based on our research but many of the experts we contacted wished us luck but dismissed the idea of finding quality groundwater. We were also discouraged by the reports and stories full of horror about the living conditions and poverty that blanket Haiti. Everything we read encouraged us to think that Haiti was an awful place, with a hopeless outlook and a dispirited population.

We packed up all of our field equipment, dusted off our Brunton compasses and rock hammers, and headed to Haiti to start our field work. We arrived only to find a beautiful country with people who radiate happiness and hospitality despite their impoverished conditions. All the people we met were open and welcoming and gave us complete freedom to wander their land. Grasping what we were trying to do, they appeared to be truly honored to work with us and be part of the search.

We spent nearly six weeks performing a geologic survey of an area greater than 200 square kilometers. We conducted geologic transects, observed springs, rock outcrops, faults and stream cuts. Road limitations provided us with about 150 km of rugged hiking in heat that often exceeded 100 degrees. Whenever we stopped to rest, the local people would offer what they had to eat and race to bring us hand woven chairs. When it rained, they would scramble to offer us cover. Ultimately, this special treatment made us uncomfortable, as the Haitians we met were unfailingly gracious despite their living conditions.

Work continued in the office analyzing all of our geologic maps and field data to target some drilling locations. The geology of the area is complex; the northwest of Haiti is one of the most tectonically active areas of the Caribbean. Faults strike through the landscape exposing confusing unconformities, folds had to be interpreted, and the varying rock formations had to be characterized and understood.

From all of our research and field data we developed cross sections and a conceptual geologic model of the area. We determined that a steeply dipping Eocene fractured limestone was the most likely stratum to contain water. It is positioned above relatively impermeable layers of Cretaceous andesite and conglomerate. Further, the nature of some regional faulting and intrusive dikes hinted that groundwater could be trapped from immediately discharging to the ocean.

There was another challenge to finding water; a very thick unit of clayey marl above our target aquifer. The marl was deposited unconformably over a steeply
dipping limestone with a highly irregular upper surface, impeding our ability to estimate the depth to the limestone. Our data indicated that horizontal differences of 100 feet could attribute to an extra 300 – 500 feet of drilling length to reach the aquifer. We only had 320 feet of drill stem, so we had to carefully and precisely choose a location. There were very few locations that met our criteria; all of them required a road be built for drill rig access.

It took three days to drill the well. Every day we attracted a crowd reaching up to 100 people that circled the drill rig. Enterprising women set up a food vending area where they made and sold coffee, fried bananas, bread and spicy peanut brittle. During the drilling, the locals would constantly study our facial expressions and try to interpret whether things were promising or discouraging.

After about 300 feet of nerve-wracking drilling, things started changing. We had encountered our targeted limestone unit and were very excited. Suddenly, we lost circulation of the drilling mud as we had hit a crack in the limestone below. We had found the water!

We soon began airlifting the water from the borehole; the crowd could not believe that it was groundwater. Some thought it was just water that we used for the drilling, but water kept coming and coming. Rivulets gathered to form a small stream that flowed into the fields around the well. The celebration exploded upon our initial smiles and acknowledgment of success.

Women danced and chanted in Creole, people clapped while others watched in awe as water shot from the well. The drilling-team director, a 20 year veteran of such work in Haiti, said it was the best well he had drilled. Turning to us he said, “We have changed northwest Haiti forever.” The news of the discovery had reached out within minutes to people all over Haiti and the U.S.

The completed test well is a small diameter well, and although it just penetrates the aquifer, yields 620 gallons per minute. The test well came to represent much more as the project proceeded. Even though it was intended to be exploratory, it required significant investment and risk to complete. It became a verdict of whether we had done our job.

The work is just beginning, we now have a 26 gpm pump installed and have constructed a 6,000 gallon reservoir to provide water to approximately 1,000 locals near the well. The aquifer is carefully being studied to determine sustainable yields and a 15 km pipeline is planned to deliver water to Nouveau Kiskeya and the local communities along the way.

Nouveau Kiskeya has large hurdles ahead but the promise of a changing Haiti is there. The project’s backbone is a beautiful country and people, and now there is some water to contribute to the success of the project, the country and people of northwest Haiti.

James Adamson (jadamson@v3co.com) is a Sr. Hydrogeologist and Stuart Dykstra is a Principal and Hydrogeologist with V3 Companies Ltd. This project was recently awarded a 2009 Engineering Excellence Honor Award by ACEC (American Council of Engineering Companies) – Illinois.
“OK, everybody – hang on! We’re going BIG and you’re gonna get wet!”

Twenty-one “river rats” splashed through the rapids of the Colorado River, on a six-day trip in September, organized by AIPG. Colorado School of Mines professor Steve Sonnenberg, CPG-06201, expertly guided us on an excellent journey through 1.8 billion years of geologic time, from the Upper Permian back to the Pre-Cambrian. As our motorized pontoons churned slowly through the deep canyon, we marveled at the limestone and sandstone cliffs soaring above us, many over 3,000 feet high. Huge caverns were scoured out of their sheer walls.

Soon the sedimentary formations were replaced by a jumble of tilted and folded Pre-Cambrian metamorphic rocks -- basalt, schist, and granite -- forming a highly visible line across the cliff face. This was the Great Unconformity.

We hiked up into a canyon to inspect this 980-million-year-old break in the rock record, trying to imagine the forces that erased ancient mountains and formed a huge Paleozoic sea on this site, squarely on top of ancient bedrock.

Then came proof of a more violent past: a huge rock blocked the middle of the channel, a 50-foot high lava plug called Vulcan’s Anvil, formed just 200,000 years ago. Pleistocene cinder cones and volcanoes spewed enough lava to block the ancient river and creating a huge, albeit temporary lake.
The few narrow beaches of sugary white sand along the riverbank are studded with tamarisks and willows, sheltering birds, deer, spotted skunks, ring-tail cats, and bighorn mountain sheep (even an albino ewe!) from the relentless sun. A handful of these sandy strips hosted our campsite at night, providing a dandy cushion for our sleeping bags and a handy beach for preparing dinner and washing dishes.

Each day found us climbing up through narrow, boulder-filled canyons, where we found treasures such as reptile tracks on Coconino sandstone or ancient Anasazi ruins and petroglyphs. Some trails led to hidden waterfalls cascading into clear, beautiful pools, perfect for swimming.

Dr Holly Walton-Buchanan received her PhD at the University of Nevada, Reno. Her most recent book recounts the history of the University’s Mackay School of Mines. She has also published histories of Reno’s historic houses and buildings and the University’s College of Education. She lives in Reno with husband Kel Buchanan.

American states as well as three Canadian provinces: AIPG members Luanne Whitbeck and husband Dean Long (NY); Steve Sonnenberg (CO); Kel Buchanan and wife Holly (NV); Ben Everitt and wife Cynthia (UT); Peter Schreuder and wife Kim Haag (FL); Michael Hoge (OH); Lynn Padgett (CO) and guest Jeff Litteral (KY); Ginger McLemore and guest Coralee Carrier (NM); John O’Leary (MA); Michael Russ and Randy Shields (KY); Charles Wallis (British Columbia); and Jean Beaulieu (Quebec). AAPG members Jon Noad and Yvette Hagemans joined us from Alberta.

Because of the success of this raft trip and its value in public relations for AIPG, all participants voiced a desire to continue the tradition with a similar trip each year where possible. Special thanks go to Bill Siok of the AIPG office for setting up the trip, to Steve Sonnenberg for being our guide, and to Ron Parratt of TXAU in Reno for assisting with the finances of the trip.

Remember, if you signed up for an electronic copy of the TPG, you will need to vote on-line at www.aipg.org. You will need your login and password to vote. Contact AIPG Headquarters if you need assistance.
Anthropogenic Hillside-Erosion and Floodplain Inundation, Cul-de-Sac, Haiti

Barney P. Popkin, CPG-06547

Haiti, slightly smaller than Maryland, is the largely volcanic, mountainous western end of the old Caribbean tropical island of Hispaniola. The Cul-de-Sac watershed, the subject of this paper, occupies an area between the national border with the Dominican Republic and the coast adjacent to Port-Au-Prince (Figure 1). Haiti is the poorest country in the Western Hemisphere, with 80 percent of its population in poverty, and 54 percent in abject poverty. It has suffered extensive difficulties, if not calamities, with awesome challenges in recent times. These include, aside from hurricanes and Creole language, for example, wide-spread illiteracy and poverty, rapid growing population and unemployment, HIV/AIDS explosions, declining incomes and diminishing wealth, extensive brain drain immigration of both workers and elite (especially skilled and educated people), rising crime, insecurity and lawlessness, corruption, land tenure uncertainties, absentee large-scale landholders, dysfunctional government, and rapid and intensified hillside erosion from unchecked deforestation and non-sustainable agricultural practices, peri-urbanization, and urbanization.

Approximately 70 percent of Haiti’s nine million people work in the agricultural sector, primarily for crops-for-cash, household vegetable gardens, and important exports – coffee, cacao, and mango, but these are limited by quality, seasonal storms, and post-harvest challenges such as poor roads, insufficient delivery and storage, and spotty customs office and uncertain shipping. At the same time, the migration from Haiti’s rural areas to its cities, especially its capital Port-au-Prince and secondary cities such as Gonaïves, is increasing at alarming rates contributing to more slums and urban unemployment.

Most agriculture is dryland, historically on the thick, alluvial, well-drained calcareous soils in the plains, derived from upland volcanic rocks and midland carbonate rocks. Urbanization in the plains, even where below or near sea level, and absentee large-scale agricultural land owners, has led to declining agricultural production with catastrophic flood crises due to recurrent flooding from hurricanes, exacerbated by upper watershed deforestation, destruction of irrigation and drainage canals, and poor hillside agricultural practices.

The crushing demands of poverty, coupled with diminishing available alluvial farmland, have forced small farmers to the hillsides (Figure 2). This migration has lead to extensive deforestation for timber, firewood, charcoal, and land clearing for quick cash, followed by seasonal vegetable farming for cabbage, potatoes and yams, on bright-red, lateritic soils, with little organic matter, on 40-60° slopes (Figure 3). It is now cheaper to import rice and sugar than to produce it in Haiti, contrary to when Haiti exported these crops. Hillside farmers often use ropes as lifelines to reach their small, steep fields to tend their crops. As increasing poverty and urbanization increases pressure for food, many observers anticipate continued degradation of the hillsides by replacement of the few remaining forests or forest areas with seasonal vegetable
crops, leading to further accelerated erosion and flooding, and related human tragedy.

These challenges are magnified in the large Cul-de-Sac watershed, which contains Port-au-Prince and much of the Haitian population, but several are not insurmountable, theoretically. Improved hillside agricultural practices are theoretically promising, such as soil restoration and replacement, terracing, on-contour farming, alternating and intercropping of fruit trees, charcoal plantation trees, and vegetable crops. Floodwaters could be viewed as a resource, and harvested for hydroelectric power and groundwater recharge. Deposited sediments are also a potential resource as engineering and road-bed materials. Urban runoff could be captured for groundwater recharge with roof-top harvesting and recharge basins. These interventions require a national commitment from the Haitian government, not merely emergency responses common with the donor community, non-governmental organizations (NGOs), humanitarian aid groups, and local communities.

Although Haiti has been in the news lately due to recent hurricanes and other tragedies, it has several international donors, NGOs, humanitarian organizations, and local communities poised to improve the situation. Unfortunately, foreign assistance has not led to sustained development, although some short-term income and improvements have resulted (such as ASSET, DEED, HAP) on a discontinuous, often non-integrated project basis. Most assistance has led to dependency rather than the opposite.

What, then, does the future hold for Haiti, as continued anthropogenic environmental degradation and urbanization accelerates erosion through increased peak flood heights, flood duration, and flood volumes? Some believe that Haiti’s agricultural future must diminish and that a massive lintex will result (such as ASSET, DEED, HAP) on a discontinuous, often non-integrated project basis. Most assistance has led to dependency rather than the opposite.

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Mr. Popkin is a California Professional Geologist, Registered Environmental Assessor, former USGS Hydrologist and USAID Foreign Service Officer. He has over 40 years of experience in water, sanitation, wastewater, solid and hazardous waste management, environmental assessment and mitigation in the U.S., Asia, Latin America, Caribbean, Middle East, and North Africa. He has taught at U.S. universities and colleges, and, trained over 2,000 U.S., host-country, and foreign-agency staff in environmental engineering for USAID. Mr. Popkin is currently a consultant and may be contacted at barney@popkin.biz.

1. Respectively, these abbreviations are: Agricultural Sustainable System and Environmental Transformation (ASSET), Development Economique pour un Environnement Durable (DEED), and Hillside Agricultural Program (HAP); each program originates with the USAID Agency for International Development (US AID), and is typically administered by one or more NGOs. An overview of these and other US AID programs can be found at the website of the latter – www.usaid.gov.
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