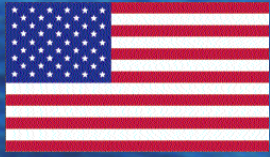


MARCH 2002  
Volume 39, Number 3

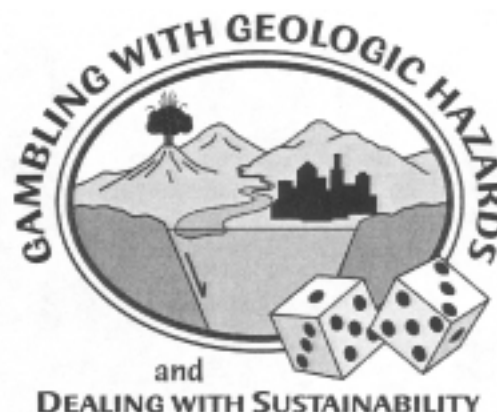


# The Professional **GEOLOGIST**

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**of Geologists**  
**Status of Our Sections**  
**in 2001**

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MARCH 2002

Volume 39, Number 3

The Professional GEOLOGIST

Western Colorado Teachers
Receive Hands on Training in
Colorado Geology . . . . . 2-3

Nancy B. Lamm, CPG-04885

Utah Legislature to Consider
Licensure of Geologists . . . . . 4-5

Janet S. Roemmel, CPG-09248

PEER REVIEWED ARTICLE
Society Has a Voice in Mining Permits . . . . . 6-10

Larry P. Coen, CPG-08394

Membership Development and
Membership Services . . . . . 11

Michael D. Lawless, CPG-09224

Status of Our Sections in 2001 . . . . . 12-13

Robert G. Corbett, CPG-04502

January Executive Committee Meeting . . . . . 34-35

Robert N. Braunstein, CPG-07690

DEPARTMENTS

Table with 2 columns: Department Name and Page Number. Includes: PRESIDENT'S MESSAGE—Downsized and Feeling Down (14), EXECUTIVE DIRECTOR'S COLUMN—Improved Services to Members (15), LEGISLATIVE ACTIVITIES AFFECTING GEOLOGY (16-17), AGI GOVERNMENT AFFAIRS MONTHLY REVIEW—November and December (18-22), PROFESSIONAL ETHICS AND PRACTICES—Column 72 (23-25), BOOK REVIEWS (26-27), SPONSOR A STUDENT MEMBER (28), PROFESSIONAL SERVICES DIRECTORY (29-31), LETTERS TO THE EDITOR (32), MEMBERS IN THE NEWS (33), NEW APPLICATIONS AND MEMBERS (36).

FRONT COVER—Wolfs Head Peak, Wind River Mountains, Wyoming. Photograph submitted by Daniel R. Heidenreich, CPG-10085.

# Western Colorado Teachers Receive Hands on Training in Colorado Geology

**Nancy B. Lamm, CPG-04885**

*The AIPG Foundation has been supporting a variety of educational projects for several years. The income from the endowment is used to fund geological oriented public information and education, research on public issues, and information on forums for professionals. The Foundation supports summer interns in the American Geological Institute Government Affairs program in Washington, AIPG publications, and educational activities on the section level. The Foundation encourages requests for matching funds from the sections for appropriate projects. The following article describes one of the activities that the Foundation supported this last year with matching funds. Of course, the trustees are always hoping for contributions and this past year we were moderately successful with a solicitation of corporate donations. Every dollar makes a difference and, as our endowment grows, we are able to provide more citizens (students, politicians, etc.) with an appreciation of geology and those industries related to geology.*

*Susan M. Landon, CPG-04591*



**Instructors Nancy Lamm, geologist, and Mike Nadiak, high school teacher.**

**C**olorado science teachers received hands-on training in western Colorado geology at the Montrose campus of Mesa State College last June, thanks to a grant from the AIPG Foundation and matching funds from the Colorado Section of the AIPG. Buckhorn Geotech of Montrose, Colorado also provided financial support.

The class was the brainchild of Montrose High School earth science teacher, Mike Nadiak, as a means of further incorporating earth sciences into the middle and high school science curriculum in the Montrose, Colorado area. Mike contacted Gail Rust of the Montrose campus of Mesa State College who, in turn, requested the support of local consulting geologist, Nancy Lamm (CPG-04885), and the project was up and running.

Realizing that preparation and field trip expenses for the class would exceed tuition costs, Mesa State requested a grant from the AIPG Foundation to help defray costs and lower tuition. The AIPG Foundation supported Mesa State's efforts and the Colorado Chapter of the AIPG matched the Foundation grant. Buckhorn Geotech of Montrose, Colorado also supported the implementation of the class with financial aid. With financial support in place, Nancy and Mike laid out the itinerary of two field trips, prepared a class manual, and assembled materials for a series of laboratory exercises.



**Viewing a snow slide area near Ouray, Colorado.**

Although the class was open to the general public, the emphasis of the course material was geared for earth science teachers. Nancy Lamm provided the technical expertise for the lectures and Mike Nadiak provided insight into creating classroom laboratory exercises for teachers to take into their own classrooms. Graduate-level credit for the class was offered through Colorado School of Mines. Registration for the class was brisk.



Studying formations in the lab.

Three lectures addressed the scope of geology from the Precambrian to the present. The first lecture covered the historical geology of the area. Six hundred million years of the earth's history in western Colorado were addressed. Regional bedrock formations, their origin, composition, and area of outcrop were described in order of deposition and insight was given to the environment of deposition and representative fossils. Hand samples of each formation were provided to the students to collect, examine, and label.

The second lecture addressed the Quaternary history of the Uncompahgre and Grand Valleys including the impact of glaciers of the San Juan Mountains and Grand Mesa. Depositional and erosional processes were covered with emphasis on the stair-step glacial outwash terrace sequence present in the Uncompahgre, Gunnison, and Colorado River valleys. After the lecture, a topographic mapping exercise introduced the students to interpretation of landforms from USGS quadrangle maps.

After two days of lecture, the class went to the field in the first of two field trips to review material covered. Beginning literally in the basement, the first stop of the daylong field trip was the contact of Precambrian metamorphic rock with the overlying Triassic Chinle Formation at the Potholes in Escalante Canyon. The subsequent stops progressed up the geologic section along the eastern flank of the Uncompahgre Plateau and ended at the foot of Grand Mesa, looking up at Tertiary basalt overlying the Wasatch Formation and resultant massive landslides that mantle the upper slopes of Grand Mesa. Pleistocene-age erosional and depositional processes also were observed in the sweep of pediments extending down the lower slopes of Grand Mesa and the outwash terraces along the Gunnison River.

The third and final lecture and subsequent field trip addressed geologic hazards of western Colorado including flooding, collapsing soils, landslides, debris flows, rock falls, and avalanches. The lecture portion of the class addressed the location, identification, and relative cost of mitigating hazards. The afternoon field trip provided the opportunity to view geologic hazards in the field. The fine-grained sediments derived from the Mancos Shale and of widespread extent in the Uncompahgre Valley provided an introduction to collapsing soils and piping. The extensive outcrop of the Mancos Shale also provided numerous examples of mass wasting in the Montrose area. The field trip then headed south to Ouray to view active debris fans and efforts to mitigate debris flows



Field trip to Escalante Canyon.



Nancy Lamm instructs students.

within the community. Avalanche paths and areas of rock fall were observed along Highway 550 south of Ouray. The field trip and class concluded at the avalanche shed near Ironton Park below Red Mountain Pass with a discussion of the high cost of mitigating geologic hazards along Colorado highways.

Participant review of the class was positive with an average rating of 4.9 out of a possible 5.0 in areas of course content, teaching methods, and overall benefit. "Very informative course, taught in an understandable way", "It was thrilling to learn about the geology of the area I have moved to", and "Both instructors are very knowledgeable and able to convey their ideas in a clear and precise manner" were some of the critiques provided by the class participants at the end of the class.

Mike and Nancy worked together to create a curriculum addressing the needs of earth science teachers in the middle and high school levels. It was Nancy's goal that each student would be able to look around at the landscape of the Uncompahgre Valley and surrounding mountains with knowledge and insight into the history and forces that created the landscape. It was Mike's goal that each teacher would take this insight into the classroom and impart the knowledge to their students. Through the support of the AIPG Foundation, the Colorado Chapter of the AIPG and Buckhorn Geotech, these goals became a reality.

## Utah Legislature to Consider Licensure of Geologists

Janet S. Roemmel, CPG-09248

House Bill 96, Licensure of Geologists is now on its way through the Utah legislative system. This is a significant milestone for the core group of folks in Utah (and support team elsewhere), after three years of hard work to establish licensure for geologists who practice before the public in Utah.

A core group of volunteers organized the Utah Council of Professional Geologists (UCPG) as a coalition of individuals, organizations, and sponsor companies to support the effort to pass licensure legislation. Organization members of the UCPG includes the Utah Section of the American Institute of Professional Geologists (AIPG), along with other local geological organizations, including the Utah Geological Association (UGA), the Utah Section of the Association of Engineering Geologists' (AEG), and the Salt Lake Chapter of the Association for Women Geoscientists (AWG). The purpose of the UCPG is to act as one unified voice in the geological community. The UCPG is the forum that we have used to formulate the draft legislation and organize support. After the legislation passes, the UCPG will continue to track legislation as it affects geologists, and raise the awareness of the public about how geology affects them, especially in a state with numerous geologic hazards and limited water supplies. The UCPG URL lists information about the organization and links to licensure information at <[www.utahpg.org](http://www.utahpg.org)>.

During the fall of 2001, UCPG testified at two hearings of the Occupational and Professional License Review Committee (OPLRC) in order to present basic information about the profession and practice before the public to protect health, safety, and the environment. The ultimate vote of the committee was 4 to 4 on a motion to NOT recommend licensure to the Utah Legislature. The three citizen members and one senator voted in favor of the motion. The three representatives and one citizen member voted against the motion (i.e., in support of licensure).

Support of the legislation has come from individuals within AIPG, AEG, AWG, and the Division of Professional Affairs (DPA) of the American Association of Petroleum Geologists (AAPG). Polls taken by the UGA show a recent 75% rate of support from the membership, a percentage that has risen steadily over the past several years. The Utah Geological



**The Thistle Landslide above the former Town of Thistle, Utah. Licensure will raise public awareness of how geology affects the public. This landslide began moving in the spring of 1983 in response to groundwater buildup from heavy rains the previous September and the melting of deep snowpack for the winter of 1982-83. Within a few weeks the landslide dammed the Spanish Fork River, obliterating U.S. Highway 6 and the main line of the Denver and Rio Grande Western Railroad. The town of Thistle was inundated under the floodwaters rising behind the landslide dam. Total costs incurred by this landslide exceeded \$400 million, the most costly single landslide event in U.S. history."**

**Photograph by Janet S. Roemmel.**

Survey has agreed to testify in support of the legislation. In addition to geological groups, the American Council of Engineering Companies (ACEC) and the Utah State Engineer have provided support and the ACEC lobbyist provided testimony at the OPLRC hearings. Rep. Ralph Becker (D) signed as sponsor of the bill in the Utah House of Representatives. Rep. Lamont Tyler (R) has agreed to co-sponsor this bill for bipartisan support.

The lack of support from OPLRC citizen committee members reflects the conservative philosophy of many Utahns. The



Picture 1. June 14, 2001



Picture 2. August 20, 2001



Picture 3. August 24, 2001



Picture 4. August 26, 2001

Sequential deformation to a house straddling the main scarp of the Heather Drive Landslide, Layton, Utah. The photographs represent a typical natural geologic hazard in Utah. The Heather Drive Landslide is one of several landslides in that vicinity. Licensure will provide a mechanism for the public to ascertain if a professional geologist is qualified when a geologist is hired to assess issues related to similar types of geologic hazards.

Photograph by Richard Giraud.

opponents of licensure agreed that the geologists were as entitled as engineers to be licensed, but rather all licensing programs should be reviewed and considered for a sunset provision. The argument was “that the more the government gets involved in private enterprise the lower the economy will sink.” Furthermore, licensure will “destroy the ability of the private enterprise to make decisions.” Licensure will “send a message to the legislature that licensure is good, that the momentum of socialism is increased.” Finally, one member encouraged the “legislature to get back to the idea that God has the supreme authority, the right to work comes from Him, not from them.”

The UCPG opted to pursue licensure legislation in light of the non-endorsement from the OPLRC committee. The UCPG drafted legislation initially based on the AEG *Suggested Practice Act*. Subsequently, the text has evolved to include verbiage similar to the Utah Professional Engineers and Land Surveyors Act for citations; and exclude verbiage that is otherwise covered in the Utah Division of Occupational and Professional Licensing Act, UAC 58-1, such as reciprocity, licensure fees, duties of the board, and disciplinary actions for unlawful and unprofessional conduct.

The bill contains an exemption for petroleum and minerals industry geologists who conduct work solely for use within their companies. State and federal employees are not exempted. The text and status of the bill can be obtained at the following URL <[www.le.state.ut.us/~2002/htmloc/hbill-htm/HB0096.htm](http://www.le.state.ut.us/~2002/htmloc/hbill-htm/HB0096.htm)>.

The bill will be considered in the House Rules Committee the week of January 21, 2002 before being assigned to a committee, which is expected to be Business and Labor. The Utah 2002 General Session adjourns during the Olympic Winter Games on February 7, 2001. The 2002 General Session reconvenes following the Olympics, from February 25 through March 6, 2002.



Picture 5. August 29, 2001

# Society Has a Voice in Mining Permits

Larry P. Coen, CPG-08394

## Abstract

Neighboring landowners have had little to say in the matter of mining since the history of mining began in Missouri in the early 1700's. Within the last ten years, however, landowners have come to understand that they do have a voice and they can make a difference in their neighborhoods. Today, every meeting of the Land Reclamation Commission of Missouri includes at least one public objection to a mining permit, and often there are several such objections. Landowners raise concerns about safety, but they also are raising questions about environmental impacts, ground water concerns, and long-term land-use plans.

Mining operators have always been pushed to stay on top of technical advances in mining and mineral investigations. Today, however, to be successful the mine operator must be able to communicate effectively with these neighbors. Those who do not communicate well are not successful, and it is just that simple. Without communication, the operator will find it difficult to get a new permit, add acreage to an existing permit, or even to purchase another mining company. These business decisions all require neighborhood acceptance, or there will be neighborhood rejection.

The regulatory authority is called upon to arbitrate these objections. The Land Reclamation Commission is a seven-member body appointed by the Governor of Missouri to provide that leadership and arbitration for the issues related to mining. The staff of the commission, the Land Reclamation Program, is assigned to the Missouri Department of Natural Resources, Air and Land Protection Division.

While Missouri regulates coal and metals mining, the focus of this report is upon the Land Reclamation Act which regulates construction or industrial minerals such as limestone, clay, sand and gravel.

## History of Mining in Missouri

Mining activity in Missouri began as early as the 1740s. Early settlers used the state's economic reserves of lead, iron and industrial commodities such as limestone, sand, and gravel. Coal mining in the state began in the 1840s. Such mining went virtually unregulated until 1971. By then, more than 100,000 acres of timber and agricultural land had been affected by mining, which left a legacy of acid mine drainage, dangerous highwalls, hazardous water impoundments, dangerous mine openings, barren spoils, coal waste, soil erosion and stream sedimentation at some sites.

Missouri enacted legislation in 1971 to offset the effects of mining. Senate Bill 1 regulated coal, tar sand, and barite mining. The same year House Bill 519 was passed to regulate limestone, sand, gravel, and clay pits. The U.S. Congress enacted a comprehensive coal mine law, Public Law 95-87, in 1977. This law, also known as the Surface Mining Control and Reclamation Act, placed heavy restrictions on the conduct of coal mining. In 1978, the Missouri Legislature amended Missouri's Strip Mine Law to conform to the requirements of that act.

In 1982, the Missouri Legislature passed the Surface Coal Mining Law to update the Strip Mine Law. The most significant change to the reclamation requirements was that prime farmland soils must be removed and replaced to a 48-inch depth. These requirements, known as the Permanent Program Law, continue in effect to the present.

In 1989, the Missouri Legislature passed House Bill 321, which was known as the Metallic Minerals Waste Management Act to regulate the waste produced from metals mining. This is principally lead and iron in Missouri. The Land Reclamation Program has been assigned to coordinate the regulatory activities needed to complete this task of regulating mine waste management.

Missouri's Surface Coal Mining Law was further amended in 1993 to conform to federal requirements. Bonding amounts authorized were increased, and 20 percent of the Phase I bonding is now retained through completion of Phase III reclamation. The permitting requirements for coal mining are exhaustive. They require careful evaluation of diverse and comprehensive environmental topics such as soil characteristics, surface and subsurface water quality controls, fish and wildlife information, cultural resources, and land use planning.

The Land Reclamation Act and the regulations governing tar sand and barite mining remained essentially unchanged during the evolution of the coal mining standards. However, in 1990 House Bill 1584 amended the Land Reclamation Act to encompass all non-coal surface mining activities. This includes limestone, sand, gravel, clay, tar sands, barite, sandstone, granite, and traprock. The law requires a mining permit to provide a much more thorough description of the method of operation and reclamation. Time frames in which to complete reclamation also were addressed. Bonding fees were significantly increased to ensure that the state could complete reclamation in the event a permit is revoked. Grading to a traversable topography as well as the replacement of 12 inches of topsoil also was required. Finally, this law created an oppor-



tunity for the public to review and comment on permit applications.

However, by 1998 there was a growing realization among the public that the Land Reclamation Act was really insufficient to give individuals an opportunity to intervene in a mining proposal, except for limited cases. The 1990 Land Reclamation Act required a hearing petitioner to prove that the mining company was in a state of non-compliance and that this act of non-compliance related directly to a specific threat to the petitioner's health, safety, or livelihood. This is a severe standard to meet, and furthermore, a company just moving into the area has no history of non-compliance, therefore the petitioner has no opportunity at all to be heard for a new site. Therefore, in 2001 the Land Reclamation Act was again amended to open the process up further to benefit the public.

## The Land Reclamation Program

Missouri's Land Reclamation Program is small compared to many other states and regulates all mining activities in Missouri. The program currently employs 36 staff, which are assigned as follows. The numbers include administrative, technical and support staff:

|                      |                              |
|----------------------|------------------------------|
| Coal Mining          | 16 Full Time Employees (FTE) |
| Industrial Minerals  | 7 FTE                        |
| Metallic Minerals    | 2 FTE                        |
| Bond Forfeiture      | 1 FTE                        |
| Abandoned Mine Lands | 10 FTE                       |

Over the last couple of years, the Land Reclamation Program has approved one to two new coal mining permits on 500 to 600 acres each year. For industrial minerals, the figures are substantially higher, where several hundred new sites are permitted totaling 1,000 to 1,200 acres each year. The program also is reviewing one new metallic minerals permit. The focus of this article is the Industrial Minerals process. Please see the appendix sheet for a process checklist.

## The Land Reclamation Commission (Society's First Voice in the Process)

The Land Reclamation Commission is a governing body that represents the Governor of Missouri and the Missouri Department of Natural Resources in matters related to mineral extraction regulations. The seven-member commission comprises representatives from the industry, academia, and the government. Four members are appointed directly by the Governor, one member is the State Geologist, one is the director of the Department of Conservation, and one is the director of the Clean Water Commission.

The Commission is a formal rulemaking body whose decisions are final and binding. The only appeal for a decision of the Commission is to the Missouri Court system. These decisions include the issuance of permits, final enforcement decisions, and the release of liability and bond at the successful completion of a mining site. The Commission also performs an educational role for the public in matters related to mining, and they provide an interactive communication process for issues of public interest. Finally, the Commission arbitrates any disputed decision within its authority to do so.

## Public Notice Process (Society's Second Voice in the Process)

The language of the new law passed in 2001 requires the mine operator to publish a notice four times (once a week) in a local newspaper, notify neighboring landowners by certified mail, and allows for public comment for an additional 15 days after the last publication. Public Notices must be run for New Permits, Expansions and Transfers.

## Public Input and Interest

The public interest quite often relates to these specific issues: truck traffic, blasting, dust, ground water, noise, and inconvenience. Unfortunately, out of this list only dust can be addressed by Missouri environmental regulations. Ground water and noise may be regulated in other arenas, but in Missouri they are not regulated for mining at the state level. The others are all issues important to society, and they are all certainly legitimate issues, but they are not within the regulatory authority of any Missouri environmental government commission.

There are of course issues that we do regulate. These include surface water control, land use plans, vegetation, and final reclamation.

This disparity of public interest versus regulatory authority continues to be a source of frustration for all involved. The Commission is asked to involve itself outside the legal authority on a frequent basis. The program staff are often forced to advise the public that we cannot legally address their issues, and the public quite often feel that the present system of government has failed to protect them from issues of great concern.

This is an area with great opportunity for the industry as a whole to win the public by taking a proactive part in bridging the gap between authority and interest. The industry is free to respond to the issues of truck traffic, blasting, dust, ground water, noise, and inconvenience. Those that do respond win public trust, and those who do not respond quite often receive public scrutiny.

## Informal Public Meetings (Society's Third Voice in the Process)

If a public meeting is requested and the applicant agrees, the director shall order that a public meeting be held. The permit applicant can decline such an informal meeting. However, such a decision would most likely ensure that a formal hearing be held, which the applicant cannot decline. The public meeting shall be held in a reasonably convenient location for all interested parties. The applicant shall cooperate with the director in making all necessary arrangements for the public meeting. Within 30 days after the close of the public meeting, the director shall recommend to the commission approval or denial of the permit. If the public meeting does not resolve the concerns expressed by the public, any person whose health, safety, or livelihood will be unduly impaired by the issuance of such permit may make a written request to the land reclamation commission for a formal public hearing.

## Request for a Hearing (Society's Fourth Voice in the Process)

The Land Reclamation Act allows the Commission to grant a hearing based solely on a petitioner's credible evidence that the petitioner's health, safety, or livelihood will be unduly impaired by the issuance of the permit. This must be scientifically proven, however. The Commission has in fact denied a number of hearing requests where there was no real basis to grant a hearing on the issuance of a permit.

The Land Reclamation Act also allows the Commission to consider the past compliance record of an applicant. The Commission may deny a permit where there is a reasonable likelihood that there will be future noncompliance where public health, safety, or livelihood may be at risk. There is a limitation of compliance reviews to the state of Missouri except for a business that has no Missouri history. There also is a limitation of compliance reviews to five years of history in Missouri. Finally, there is exclusion for the consideration of a single incident EXCEPT for noncompliances that are directly related to human health or environmental pollution.

The Land Reclamation Act separates the issue of noncompliance from the issue of adverse affects. Also the Land Reclamation Act calls for an informal public meeting where this would be of benefit before moving to a litigated hearing. A public meeting can be useful to get all the parties together to express concerns and listen to each other and can be completed in 30 days or so. A public hearing, in this statute, must be a litigated hearing, which cannot be completed in less than three or four months and has taken as long as nine months at a very high cost for all parties.

## The Director's Recommendation

The Land Reclamation Act requires that the director make a formal recommendation regarding the issuance or denial of an applicant's permit prior to any consideration by the commission about pending hearing requests. Rules at 10CSR Missouri 40-10.040(1)(A) require that the director's recommendation be based on several specific items as follows:

1. The application's compliance with section 444.772, Revised Statutes of Missouri;
2. The application's compliance with 10 CSR Missouri 4010.020;
3. Consideration of any written comments received;
4. Whether the operator has had a permit revoked or a bond forfeited; and
5. If a petition is filed and a hearing is held, the commission shall make the decision.
6. New Commission Directive: Past and present noncompliance evaluation.

Missouri statues and regulations can be accessed on the internet as follows:

### Statutes:

<http://www.moga.state.mo.us/STATUTES/STATUTES.HTM>

### Regulations:

<http://mosl.sos.state.mo.us/csr/csr.htm>

## The Commission's Decision (Society's Fifth Voice in the Process)

The Land Reclamation Commission will make a decision based on the information provided in the director's recommendation, the scientific evidence provided by a hearing petitioner regarding future effects to health, safety or livelihood, and finally on the applicant's record of compliance with environmental laws over the last five years.

Prior to the date of the Commission meeting noted above, a full compliance inspection will be performed on the proposed mine site to determine if the permit applicant is presently in a state of noncompliance. This is necessary so that the Land Reclamation Commission can receive the most up-to-date information possible concerning environmental compliance at the proposed site.

## Formal Public Hearings (Society's Sixth Voice in the Process)

First of all, we must understand exactly what is meant by the term "hearing" under the law. This is not an informal or formal meeting that takes place to discuss the merits or drawbacks of the issuance of a particular permit to a mining company. Rather, it is a formal judicial proceeding that occurs before a hearing officer, who functions as a judge, in which all parties are generally represented by legal counsel. A request that a hearing be held is a request that the issuance of the permit be delayed until the matter is heard by the hearing officer. The hearing officer then issues a recommendation to the Land Reclamation Commission for issuance or denial of the permit and the final decision then rests with the Commission. Before a request that a hearing be held can be granted, a person who has petitioned for a hearing must present their petition to the Land Reclamation Commission and demonstrate that a basis for that request to be granted exists. This is known as "standing."

## Permit Approval

Once a permit is approved, either by the director or by the commission, with or without a hearing, a permit certificate is issued to the applicant, which conveys the right to extract mineral from the ground. This must be renewed annually, but renewals are very simple unless a significant change is made that creates the need for a new public notice.

## Inspection and Enforcement (Society's Seventh Voice in the Process)

About once a year or so, staff from the Land Reclamation Program will complete an inspection of the mine site for general compliance. Other circumstances may change the timing of the inspection such as a public or landowner complaint, or a compliance review associated with a permitting process. Noncompliances are noted and discussed with the mine operator. Noncompliances that go unresolved are issued Notices of Violation, which must be resolved more formally.

## Bond Releases (Society's Eighth Voice in the Process)

Once mining is complete, reclamation of the site also must be completed. Generally this is all completed within two years upon completion of mining. After successful reclamation of the site, the operator can apply for a bond release, which releases the operator of any further permit requirements and all liability for having disturbed the environment of the mining site.

At the time of bond release, another public notice is run and the landowner and public who are interested are again given an opportunity to review and comment on the adequacy of the reclamation of the mine site. Anyone who feels that reclamation is not satisfactory may again request a hearing for judicial review of the process.

## Bond Release Hearing (Society's Ninth Voice in the Process)

If a hearing is requested at the time of the bond release, a hearing will be conducted. This again is a formal litigated hearing. A hearing officer will hear the case and report a recommendation to the Land Reclamation Commission on whether or not the mine operator should retain reclamation liability and complete further work at the site.

## The Final Decision of the Land Reclamation Commission (Society's Tenth Voice in the Process)

After the hearing officer recommendation has been delivered to the Land Reclamation Commission, the commission will rule on a final decision in an open public meeting.

## Conclusion Communication is the Key

The greatest public interest in a mine site occurs during the proposal and public notice period prior to any mining activities at the site. This is the time when many people first become aware that there are many unanswered questions, many concerns and fears, and many opportunities for misunderstanding and miscommunication. This is a very key point in time for the operator to sway the public impression by his or her powers of communication.

Public interest also is generated during times of noncompliances, periods of nuisance and finally at the time of final bond release. The public has great opportunity to affect the mine operator's plans and costs during these periods of public scrutiny. Formal litigated public hearings are expensive and take many months to complete. Even before a hearing is held, many weeks or months are exhausted in determining whether or not a public hearing is warranted. For a mine operator, the months of delays are very costly.

An operator who does not communicate effectively with the public, his neighbors, and especially the landowners, will pay dearly in both time and money for this lack of effectiveness. In every case, the mine operator who communicates well has an extreme advantage over all competitors.

## Appendix Missouri's Industrial Minerals Permitting Process

- A completed application form contains at least the following information:
  1. The applicant's name;
  2. The name of an individual in charge of the operation;
  3. The permanent and temporary post office address of the applicant;
  4. The name of a person to contact about the application;
  5. A legal description and the estimated number of acres to be affected by mining;
  6. The source of the applicant's legal right to mine the land affected by the permit;
  7. A list of permits which the applicant or any associated person has;
  8. A list of the names of all land and mineral owners; and
  9. The mineral to be mined;
- The authorized written consent of the applicant to grant access to the commission;
- A signed approval of the postreclamation land use;
- The operation plan for surface mine operators shall include:
  1. A brief description of topsoil availability, and removal;
  2. A brief description and location of spoil placement and disposal;
  3. A brief description of handling of acid materials, if applicable; and
  4. A brief description of the location and arrangement of the pit.
- All applications shall contain a reclamation and operation plan for lands.
- The reclamation plan shall include, at a minimum:
  1. A list of species used for reclamation and the seeding/planting rates;
  2. Methods and timing of seeding/planting;
  3. If required by the commission, references to support revegetation methods;
  4. A brief description of the grading, topsoiling and revegetation schedules; and
  5. The land use that area is to be reclaimed to and the acreage of each.
- Instream operators must describe how they will minimize impacts on the stream:
  1. Confining active mining operations to gravel bars rather than in flowing water;
  2. Restricting haul roads through flowing water; and
  3. Restricting damage to stream banks or bank vegetation.
- Provide either a short term or long term plan for operations and reclamation.
- Two (2) different maps sufficient for the following purposes:

1. One map to locate the mining site in the general area of the county;
  2. One map of sufficient scale and detail to illustrate the following:
    - 1) The names of any surface or subsurface owners;
    - 2) The boundaries and acreage of all areas to be affected over the life of the permit;
    - 3) The approximate location of all public roads;
    - 4) The date of the map, a north arrow and section, township, and range lines;
    - 5) The name of the creek or stream being mined, if the operation is instream;
    - 6) This map must be a USGS, assessor, or county plat map, or ASCS photo; and
    - 7) Terraces, waterways, diversions and land use designations shall be shown.
- Maps must show the company, mine name, scale, and a key for any symbols used; and
  - The boundary of the permit and the area to be disturbed over the life of the mine;
  - Include the appropriate fees, reclamation bonding and a prepared public notice.

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Larry Coen, Staff Director, Land Reclamation Commission, PO Box 176, 1738 East Elm Street, Jefferson City, Missouri 65102.

Peer Reviewed by AIPG Associate Editors: Edward M Baltzer, CPG-08861; Robert A. Stewart, CPG-08332; and Scott A. Tiller, CPG-10016.

Opinions and views expressed by the authors are their own and do not necessarily reflect those of the American Institute of Professional Geologists, its staff, or its advertisers.

## AGI Welcomes Two New Member Societies

ALEXANDRIA, VA — The AGI Member Society Council has unanimously approved petitions from the American Rock Mechanics Association (ARMA) and the Society of Mineral Museum Professionals (SMMP) to join the AGI Federation. This action, which took place on November 5, 2001, at the Council Meeting held in Boston in conjunction with the annual meeting of the Geological Society of America, increases to 39 the number of member societies. “The new members,” said AGI Executive Director Marcus Milling, “further broaden and strengthen our geoscience Federation. The continuing growth of the Federation clearly demonstrates that while our member societies each have unique missions and goals, AGI provides a forum for discussion and collaboration on common interests and issues.”

ARMA members share a strong interest in rock mechanics and rock engineering. “As a small organization focused on rock engineering,” said Peter Smeallie, Executive Director of ARMA, “we recognize the importance of interfacing with geologists and others in related fields. As a member of AGI, this interface is more readily accessible to our 300 ARMA members.” Serving professionals, companies, teachers, and

students whose backgrounds include soil mechanics, civil engineering, engineering geology, geophysics, petroleum engineering, and mining engineering, ARMA promotes the development and use of rock mechanics and rock engineering. The organization advocates for firms and individuals who represent all aspects of rock mechanics and rock engineering; provides a communications forum and information resource for members, related organizations, and the public; disseminates information through meetings, publications, and the web; conducts educational workshops; and sponsors the annual U.S. Rock Mechanics Symposium. For more information about ARMA, visit <http://www.ARMArocks.org>.

SMMP serves the needs of mineral museum curators. President Anthony Kampf said, “We see AGI membership as being of particular benefit in educating the larger geological community about the importance and usefulness of institutional mineralogical and geological collections and about the critical issues which they face.” The goals of the society are to foster recognition of mineral science collections as essential scientific, educational, and cultural resources; promote support for the

growth, maintenance, and use of collections and exhibits; and advance museum practice through cooperation in the development, review, and dissemination of information. Additional information about SMMP is available on the web site, <http://www.agiweb.org/smmp>.

The American Geological Institute is a nonprofit federation of 39 geoscientific and professional associations that represent more than 120,000 geologists, geophysicists, and other earth scientists. Founded in 1948, AGI provides information services to geoscientists, serves as a voice of shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in mankind’s use of resources and interaction with the environment. More information about AGI can be found at <http://www.agiweb.org>. The Institute also provides a public-outreach web site, <http://www.earthscienceworld.org>.

# Membership Development and Membership Services

Michael D. Lawless, CPG-09224



**T**he National Membership Development and Membership Services Committee is looking forward to an active and productive 2002. Members of the committee include Mike Lawless, Chair, Larry Cerrillo, Ex Officio, Tom Berg, Duke Clem, Rick Powers, Larry Rhodes, and Dave Sadoff. All chairs of Section Membership Committees also are members of the National committee, and if you have not heard from one of us yet you will shortly. The 2002 Committee will be building on the excellent work started last year by Tom Berg. We intend to provide strong leadership and support at the National level for effective efforts at the Section level.

The committee charge is to recruit new members and improve direct services to the membership. Recruitment efforts are typically most successful at the Section level, but without support from National these efforts can be ineffective. The members of the committee each have been assigned several sections they will be working closely with to offer ideas for recruiting members and providing assistance with implementing those ideas.

During last year's Long Range Planning efforts various strategies to increase membership were discussed. It should come as no surprise that increasing membership is critical to AIPG's long-term success. Our recruitment efforts will focus on specific groups of

potential members in specific areas of the country. In this way the efforts can be focused where they will have the most significant results.

Sections should consider initiating a recruitment program aimed at high school students. Many high schools throughout the country do not teach geology. By promoting geology to high school students, AIPG will potentially increase the number of high school graduates entering college considering geology as a major. Additionally, and equally as important, we will raise the awareness of geology and the role it plays in our society to future business and political leaders (and voters). Such a recruitment effort should include discussions of the wide variety of potential careers, potential income, opportunities for travel and adventure, and the opportunity to make discoveries, work with exciting technologies and confront many challenges. The recruitment effort should identify the relevance of geology and geologists in today's world; geology plays a role in everything, particularly with respect to our standard of living. The skills required to be a successful geologist should also be identified including "people skills," math skills, technical aptitude, knowledge of other sciences, and business acumen. A career in geology provides an opportunity to work as an individual as well as on a team, and also can provide the opportunity to "be your own boss."

Successfully increasing membership also must include recruiting current professional geologists who are not members. To do this AIPG must effectively market itself. The marketing effort must convincingly combat the perception among professional geologists that with state registration, AIPG and AIPG certification, has become obsolete. Several points to make are AIPG helped create state registration, state registration is generally nontransferable to another state, and most importantly

state registration protects the public, whereas AIPG promotes and protects the profession and the individual geologist.

The recruitment efforts, which will target high school students, college and university students, graduate students, and professional geologists from academia, industry, and government, should be closely tied to a focused marketing program. The marketing program will likely include a marketing plan that identifies targets, proposes an advertising program, and promotes member participation in AIPG. This is the area where National will offer strong support to the direct recruitment efforts carried out at the section level. We will be preparing a brochure, form letters, a recruitment presentation, and other materials that can be used by Sections in their recruitment efforts.

One of AIPG's strengths and most important roles is its advocacy for the profession of geology. Prospective members should be made aware of the importance of this function. Advocacy activities include the annual Washington, D.C. Fly-In state fly-ins, legislative receptions, and lobbying efforts conducted at the section level, letter campaigns related to specific issues, position papers on important issues, participation in Earth Science Week, international coordination, and legislative monitoring. These activities not only affect the profession of geology, but also can greatly affect the career path of the individual geologist and the ability of individual geologists to practice their chosen profession.

The committee members are enthusiastic about our recruitment opportunities for this year. If you have additional suggestions or ideas for assisting us in these efforts, please feel free to contact a member of the Membership Development Committee or the National Executive Committee; by working together we can make this membership drive a success.

# Status of Our Sections in 2001

Robert G. Corbett, CPG-04502, 2001 Vice President, AIPG, rcorbett@ilstu.edu



**T**he prime charge to AIPG's national Vice President is to maintain liaison between the sections and the Executive Committee. I met these responsibilities by conducting a survey, consisting of six (or in some instances seven) questions (Table 1). At the May Executive Committee meetings I presented a preliminary report based on a 71% return rate. A 100% return rate was attained for this final report and also for a longer report including information specific to each section presented to the October Executive Committee meeting. My thanks to all those AIPG members who responded to the survey. I learned a great deal about the sections and their challenges, frustrations, and successes from e-mail and phone conversations with my AIPG colleagues across the country, and I share an overview of this information with you in this report.

First and foremost, communication is of vital importance. We are largely a volunteer organization. Incoming officers need to have an appreciation of what has gone before, what is expected, and where support and assistance are available. This should start with timely notification to the national office of names and addresses of new officers. A next step should involve section officers notifying the national office about what challenges they face and what assistance they would welcome. "Can you supply me with..." or "Where can I get information about..." are easy ways to save time-consuming and often frustrating re-invention or collation of data.

I have passed such questions to the national office. Here are two examples:

- Can you supply me with information concerning establishment of chapters within a section?
- Where can I get a list of names, addresses, and mailing labels of all current members within my section?

Other information sought by section officers is already available on the AIPG Web site, but not known to be there by the person inquiring, such as posting of job opportunities. One of my suggestions to the national office is to prepare and distribute to new and continuing section officers a concise list of services available to section officers and members.

Our sections, based on opportunities they provide for members, fall into five groups. Sections range in activity from absolutely nothing provided (inactive) to exemplary. Some of the activities that distinguish how well a section is thriving are listed below.

- annual or more frequent meetings,
- web site,
- newsletter,
- field trips, and
- active advocacy on issues of significance to the section members.

How many characterize your section? If you want your section to provide greater opportunities, notify an officer of your willingness to help. Your call will be welcomed and appreciated.

Here is my report on the current status of sections:

**Inactive:** One section is inactive. Staff members at the national office have had no response from any officer in four years.

**Maintained:** Eight sections are maintained, but do not have an annual meeting of members. These sections can be characterized as either: 1) their members seem generally satisfied with AIPG, finding certification valuable, appreciating *The Professional Geologist*, and valuing their occasional contacts with other AIPG members (but they are reluctant to initiate greater activity), or 2) one or two persons have maintained the section for several years, and urgently seek colleagues to step forward and help meet some of the challenges and create opportunities for their members, or 3) new officers are currently working to reinvigorate the section after several years of no annual meeting. Those colleagues maintaining a section want and need support from members of their section.

**Thriving:** Eighteen sections are thriving. They have from one to four meetings annually and engage in at least one other activity that is valued by the membership. Nine maintain web pages.

**Vigorous:** Five sections are vigorous. They have between five and ten meetings for the membership each year and provide several of the activities listed for the thriving sections. Three maintain Web pages.

**Exemplary:** Three sections are exemplary. They have eleven or more activities for their members each year, and each maintains a web page.

A concern expressed by an officer of a thriving section was about enlisting new officers capable of and dedicated to “maintaining the momentum” that has been established by the current officers. This question is one of central importance for volunteer organizations. From personal experience in two chapters of another organization, I have seen the local organization go from vigorous to inactive in two years. I have worked successfully as a former officer in rejuvenating each (at least for a while). The key is to remove from leadership persons who are unable to be effective in carrying forth the charges of the office. I have empathy for the dedicated members of AIPG who maintain, but are unable to build a section. They need help and support from other members of the section. They also need to realize that help is available through the national office.

I urge every member who can spare at least a little time for the betterment of the profession to volunteer your services to a section officer. You might be surprised to learn how many of your colleagues in the section are already serving on national committees. For this, go to <<http://www.aipg.org>>, click on About AIPG, and then on National Committees. While at the site, you might want to surf through the many other topics of interest there. Be sure to look at the Web sites of other sections.

I suggest that each section president survey the members and determine what they value, and what more they would like in the way of section activities. You might look for some ideas through visiting the Web pages of other sections. Then don't hesitate in enlisting members' help as well as help from the national office and/or the Executive Committee (Table 2). Finally, I value my opportunity to have served as your vice president. It has been both an honor and a personally rewarding activity. Thanks to all who provided me with encouragement and support.

**Table 1. Questions in the survey.**

1. How many times a year does your section meet?
2. How many times a year do the officers meet or otherwise communicate?
3. Are these sufficient to meet needs and expectations of members in the section?
4. What are the most pressing issues and challenges in the section?
5. How can the national office help with these issues?
6. What concerns would you like me to take to the Executive Committee?
7. Please name the section events or activities that are highly regarded by your members.

**Table 2. 2002 Executive Committee Officers**

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## Downsized and Feeling Down

Lawrence A. Cerrillo, CPG-02763



**E**xecutive Director, Bill Siok, tells me he has received messages that a number of you have recently been let go, downsized, laid off—bottom line without employment. Depressing, frustrating, heart breaking, and leaving you feeling lower than you know what on the bottom of the ocean. So go ahead, take five, feel sorry for yourself, and then sit down and do a number of things, such as making lists. List all the things you are good at or would like to try that your job prevented you from doing—do not dwell on these and find excuses why not—list them with the thought that it is impossible to fail; list all your friends and acquaintances; list all the places where you and your family would be willing to live; and list companies, agencies, persons, etc. that you think you might like to work with. Prioritize your lists.

Prepare a personal mission statement that summarizes your skills and desires if someone asks, and that you can use when introducing yourself. Prepare a daily plan of activities for each day, but be flexible as information you gain changes, such as interview opportunities. Start working your lists, that is begin calling friends and acquaintances and letting them know your situation without lamenting about the circumstances. Try—I have just been given the opportunity to seek—a career change, higher paying position, new work location, whatever.

Networking. We often hear the word networking, but few know the real meaning of the word. Remember, it is networking—not net-eating or net-drinking. It also is not buttonholing everyone you meet with a request for a job. (This may work at your AIPG section meeting amongst friends.) Networking should be your effort to help others while gaining information. The old-saw goes “help others get what they want, and you will get what you want.” Besides, it takes the focus off your immediate problem, lets you relax more, and come across as a positive person.

Bottom line is, when you find yourself looking for a new position, use ALL your contacts. You never know where a lead may develop. Getting re-established is hard work. It cannot be done by sleep-

ing-in and reviewing the morning paper. Develop a plan for each day and work your plan. There are a great number of good books on the subject at your local library, and most librarians have good suggestions on where to search.

From the skills lists you made and prioritized, write the kinds of industries or organizations that would use those skills. For example, if you are an economic geologist that has been with a mining company, you might try banks that loan to mining companies, insurance companies, companies that do appraisals estate settlement, etc.

I am sure most of you are more computer savvy than I will ever be, and know how to search positions and information there. Whatever you do, use the computer only for data gathering. Make your actual inquiries personal and face to face. E-mailing resumes are a low percentage game.

Finally, go to section meetings; use your AIPG directory, AIPG web page, and let AIPG headquarters know. There is not enough staff, nor is it their role to be a placement agency, but they may have heard of companies that are looking for help. I am sure all AIPG members would be more than willing to help a fellow member. We have all been there—done that! Keep prospecting, keep positive, YOU WILL SUCCEED! Make it a great day!

## AIPG STUDENT SPONSOR APPLICATION

To sponsor a student membership, simply complete the form below, provide the name of the student along with your own, and return with the appropriate payment of \$20 to AIPG, 8703 Yates Dr. #200, Westminster, CO80031. If you do not personally know a student to sponsor, but are interested in the program, the AIPG Executive Committee has compiled a list of students, and one will benefit from your generosity.

### STUDENT

Name \_\_\_\_\_  
(If left blank a student will be assigned.)  
University \_\_\_\_\_  
Dept. \_\_\_\_\_  
Address \_\_\_\_\_  
City, State, Zip \_\_\_\_\_  
Phone \_\_\_\_\_  
Fax \_\_\_\_\_  
E-mail \_\_\_\_\_

### SPONSOR

Name \_\_\_\_\_  
Company/Agency \_\_\_\_\_  
Dept. \_\_\_\_\_  
Address \_\_\_\_\_  
City, State, Zip \_\_\_\_\_  
Phone \_\_\_\_\_  
Fax \_\_\_\_\_  
E-mail \_\_\_\_\_



## Improved Services to Members

William J. Siok, CPG-04773



### AIPG

Sections represent the grassroots level at which AIPG is most successful. It's appropriate then for AIPG to strive to improve services to members, services which will enhance the ability of Sections to attract new members to help in the advocacy activities critical to all practitioners.

You have undoubtedly been made painfully aware of the recent very significant increase in the cost of health care insurance. The steep rise in premiums is likewise affecting individuals as well as owners of corporations.

President Larry Cerrillo and I have been devoting some time to researching programs which might provide improved benefits to AIPG membership. It is the intent of the national Executive Committee to find and make available a

series of programs for members practicing independently and for member/owners who wish to continue providing benefits to employees.

AIPG is currently affiliated with a health insurance program which has produced mixed results for AIPG members who subscribe. AIPG has been discussing with the American Association of Petroleum Geologists (AAPG) about joining its healthcare program. The AAPG program, called GeoCare, will provide more comprehensive, less expensive, and more responsive health coverage and life insurance coverage to AIPG members. On the Friday prior to the January 19 Executive Committee meeting, AIPG headquarters was advised that AIPG had been admitted to the program already subscribed to by AAPG, the Society of Exploration Geophysicists, Society for Sedimentary Geology, the Geological Society of Washington, and the American Association of Professional Landmen. This notice is but a preliminary announcement. In March all AIPG members will receive a brochure from the broker with program details. Also be on the lookout in *TPG* for additional information.

AIPG also has held discussions with AAPG to participate with AAPG in a Professional Errors and Omissions (E&O) insurance program. Although this particular benefit is not available presently, it is anticipated that it will be

available by the end of 2002. Although there is no specific information to report, AIPG is hopeful that E&O will actually be available to AIPG members, including members who own small companies.

During its January meeting, the national Executive Committee devoted a great deal of time discussing the overall issue of member services. All members of the committee agreed that the two programs identified above are important features of an overall benefits package. While it is often difficult to provide a sufficiently broad spectrum of services to satisfy the need of all members, these two are clearly important pieces of the overall benefits program.

Please be on the lookout for the information you'll be receiving sometime this month.

### ATTENTION TEXAS SECTION MEMBERS

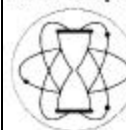
To facilitate timely communication to ALL members of the Section it is critical that we have your CURRENT, WORKING e-mail address. We currently having WORKING addresses on slightly over half of our members. If you have NOT received any Section-wide e-mail communications in the last 6 months, we DO NOT have an e-mail address for you. Please send your e-mail address ASAP to the Section Secretary/Treasurer at <geos-jkm@swbell.net>. Also, a GeoForum page has been established on the Section website <www.aipg-tx.org>, where discussions can be carried out on topics relevant to all of us, such as the development of rules to implement the new Texas Geoscience Practice Act (licensure). Check it out and contribute your thoughts and suggestions. Thanks.... The Texas Section Executive Committee.

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# Congress Slashes Science Education Funding

Submitted by John J. Dragonetti, CPG-02779



## Background

There are numerous federal programs for elementary and secondary education, but there has been only one set of programs targeted specifically at math and science teachers—the Eisenhower programs in the Department of Education. Established in 1985, Eisenhower was designed to provide grants and resources to states and local school districts for professional development of math and science educators. Eisenhower supporters have struggled over the years to keep it alive and fully funded. Despite threats over the years to abolish the program, Congress funded Eisenhower at a healthy \$485 million for the fiscal year (FY) 2001. But during the reauthorization of the 1965 Elementary and Secondary Education Act (ESEA) this past fall, Congress abolished the Eisenhower programs and replaced them with a new math and science partnership initiative. These partnerships will allow state and local education agencies to work with businesses, nonprofit organizations, and universities to enhance professional development for science educators and will be administered through the Department of Education.

## Administration Proposal

President George W. Bush introduced his “No Child Left Behind” proposal very early in his administration, following up on a key campaign promise. The proposal—many of the elements of which were incorporated into the final ESEA bill (H.R. 1)—outlined a vision of how to restructure the federal role in education. The proposal emphasized improved literacy through the Reading First initiative, increased flexibility in funding and technology grants, and increased accountability for teacher and student performances. States and school districts would be held accountable for federally funded improvement programs, teaching staffs would be evaluated, schools in need of improvement and corrective actions would be identified, school performance and teacher quality would be evaluated, improved literacy programs for K-3rd grade children would be increased, and grants would be available for states to work with institutions of higher learning. President Bush’s proposal endorses math and science partnerships and “making math and science curricula more rigorous, improving math and science professional development, attracting math and science majors into teaching, and aligning high school math and science standards to foster college placement.”

## Congressional Action

Signifying the importance of ESEA reauthorization, House Education and the Workforce Committee Chairman John Boehner (R-OH) introduced H.R. 1 on the first day of the 107th Congress. The corresponding bill in the Senate (S.1), the Better Education for Students and Teachers Act, was introduced by the then-chairman of the Health, Education,

Labor and Pension Committee, Sen. James Jeffords (I-VT). A major difference between the House and Senate versions was that the Senate bill required states to develop assessment systems for accountability in reading, math, and science. The academic progress of states was to be determined by the National Assessment of Education Progress. In the final version of the ESEA reauthorization bill, the Senate assessment provision prevailed so science testing will be added to the testing regime over time. Both the congressional bills and the president’s proposal would reduce the number of specific K-12 programs at the Education Department. The final version of H.R. 1 that was signed into law by President Bush on January 8th will allow state and local education agencies greater freedom in using federal dollars by incorporating previously targeted programs into large block grants.

Reauthorizing the ESEA was just the first step, especially for the restructured math and science program. As is often the case, the difference between authorization and appropriation can be substantial. Congress authorized up to \$450 million for math and science partnerships in H.R. 1. The actual funding for the program, however, was determined by the FY 2002 Labor/HHS Appropriations bill (H.R. 3061). The House-Senate Conference Committee on the Labor/HHS bill appropriated only \$12.5 million for the newly established math and science partnerships — a major blow considering that the Eisenhower programs had been funded at \$485 million the previous year. Conference report (H. Rept. 107-334) language acknowledges that the conferees knew that this low funding was not sufficient and added a provision that would authorize the Secretary of

## LEGISLATIVE ACTIVITIES AFFECTING GEOLOGY (continued)

Education "to award grants, on a competitive basis, to eligible partnerships to carry out the authorized activities" when the allocation is less than \$100 million.

### Conclusion

The congressional action is particularly distressing in view of the effort by the American Geological Institute and other science, engineering, and education societies urging the H.R. 3061 Conference Committee to fully fund the Department of Education's math and science partnership program. Although the president's campaign promise was to strengthen math and science education,

he nevertheless signed H.R. 3061. On a more positive note, the FY 2002 VA/HUD and Independent Agencies Appropriations bill, which includes the National Science Foundation, includes \$160 million provided to support partnerships between state and local education agencies and institutions of higher learning. These grants are designed to raise statewide math and science standards, as well as to develop and implement local plans. But the combination of the Department of Education and the National Science Foundation programs still does not come close to the \$485 million allocated to the Eisenhower programs in last year's budget.

The president is due to release his FY 2003 budget on February 4th, kicking off the next appropriations cycle. It will take a major effort to ensure that the new partnerships are funded at their authorized level.

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This column is a bimonthly feature written by John Dragonetti, CPG-02779, who is Senior Advisor to the American Geological Institute's Government Affairs Program.

Opinions and views expressed by the authors are their own and do not necessarily reflect those of the American Institute of Professional Geologists, its staff, or its advertisers.

## Southern Ocean Iron May Have Come from the Depths, Not the Atmosphere, Researchers Conclude

WASHINGTON—Scientists believe that increases in plant life in the Southern Ocean are associated with increases in iron, which acts as a fertilizer, in the ocean water. This "Iron Hypothesis" was put forward a decade ago by the late John Martin. Iron is usually in short supply but, according to Martin, could have been delivered in greater amounts via dust falling into the ocean during intervals between glacial periods. Two researchers from Indiana University—Purdue University Indianapolis (IUPUI) now cast doubt on dust as the principal source of iron and propose an alternative source of iron in the Southern Ocean.

Jennifer Latimer, a doctoral student, and Professor Gabriel Filippelli suggest that increased amounts of iron may have been delivered predominantly from deep ocean waters that rose, or upwelled, to the surface. They presented their results at the American Geophysical Union's Fall Meeting in San Francisco and in a peer reviewed paper to be published in *Paleoceanography*, an AGU journal, both in December.

The researchers found that increases in biological productivity during intervals between glacial periods in portions of the Southern Ocean, which surrounds Antarctica, coincided with increases in biologically available iron and the input of material from continents. This input may have been closely linked with increased weathering and delivery of material from continental shelves, which are exposed during glacial periods, when sea level is lower. Material from the continents runs off into the ocean, and the intensified ocean circulation associated with glacial periods helps to mix the material, bringing nutrients from deep ocean waters to the surface through

upwelling. Latimer and Filippelli conclude that the major source of iron in the Southern Ocean was not from wind-blown dust falling from the atmosphere, but from deep ocean waters below, which they call the "Upwelled Iron Hypothesis."

Latimer and Filippelli performed an extensive array of geochemical tests on sediments from cores collected across the Polar Front Zone in the South Atlantic and Indian Oceans. They sought to identify the potential sources for minerals from land masses found in these core samples, the availability of iron for organisms from this matter, and its biological effect. They are currently analyzing sites spanning a wider range of latitudes in the Southern Ocean. Together with other scientists, they hope to examine the duration of this phenomenon by using several cores recently extracted from the South Atlantic, containing continuous sediment records spanning the last several million years.

The implication for this increased iron-fertilized plant growth is far-reaching. During these periods of increased phytoplankton growth, the larger number of organisms engaged in photosynthesis in the ocean might have tipped the carbon balance such that atmospheric carbon dioxide decreased. (In photosynthesis, carbon dioxide and water combine in green plants to form simple sugar and oxygen.) This may in turn have provided a positive feedback leading to cooler global conditions.

American Geophysical Union  
December 19, 2001  
AGU Release No. 01-33

# AGI GOVERNMENT AFFAIRS MONTHLY REVIEW

Monthly review prepared by Margaret Baker, David Applegate, MEM-0002, AGI Government Affairs Program, and AGI/AAPG Geoscience Policy Intern Catherine Macris

## NOVEMBER 2001

- Power Politics on Energy Policy
- Appropriations Process About to Wrap Up
- Congress Works Through Education Jam
- NSF Wins Praise from OMB
- Bush to Fill the Strategic Petroleum Reserve
- New NASA Head Nominated, NOAA Head Confirmed
- Congressional Report Criticizes Yucca Mountain Project
- House Hearings on Water Infrastructure Vulnerability, Clean Water Regulations
- Senate Panel Considers Regulation of Carbon Dioxide
- New Material on Web Site (<http://www.agiweb.org/gap>)

### Power Politics on Energy Policy

The newfound bipartisanship that Congress experienced after September 11th has been hard to find when it comes to energy policy. Debate has turned to battle in the Senate with filibusters as the weapon of choice. Senate Majority Leader Tom Daschle (D-SD) has refused Republican demands to bring comprehensive energy legislation to the floor before Congress adjourns this session in December, arguing that the economic stimulus package, anti-terrorism and bioterrorism legislation, a farm reauthorization bill, and the remaining appropriation bills are more pressing. In response to Daschle's promise to take up the energy issue soon after Congress reconvenes next year, Sen. Frank Murkowski (R-AK) responded, "next year is not good enough." Murkowski announced plans to use whatever procedural means necessary to bring energy legislation to the Senate floor before Christmas. Senate Republicans lived up to this threat, making several attempts to attach the House-passed energy bill (H.R. 4), which includes a provision to allow drilling in the Arctic National Wildlife Reserve (ANWR), as an amendment to pending legislation. They first targeted the economic stimulus package, but when that stalled, all eyes moved to the Farm Bill (S. 1731). When action on that was delayed, Senate Minority Leader Trent Lott (R-MS) filed H.R. 4 as an amendment to a railroad pension bill (H.R. 10) that Daschle had put on the floor for consideration. A scheduled cloture vote on December 3rd will decide whether the energy amendment will be considered. Unlike a normal vote, the cloture vote requires a three-fifths majority to pass the Senate, reflecting a Democrat-threatened filibuster to block a vote on ANWR. Republicans have used this tactic as well—Murkowski has threatened to filibuster other bills if Daschle does not schedule floor debate on energy legislation before adjournment. More on the energy policy debate at <http://www.agiweb.org/gap/legis107/energy.html>.

### Appropriations Process About to Wrap Up

As reported in a November 20th Special Update, most of the geoscience-related appropriation bills have made it through the budget process. The president has signed eight of the 13 appropriations bills into law. Most of the numbers for geoscience-related programs are at or, in some cases, well above the president's request, reflecting a mutual desire between

the administration and Congress to complete action on these bills and move on to economic stimulus and other security measures related to September 11th. In geoscience-related funding: the U.S. Geological Survey is up 3% over FY 2001, the Department of Energy's (DOE) Fossil Energy program is up 35%, DOE's Basic Energy Sciences program is up 1%, the National Science Foundation is up 8%, NASA Earth Science is up 6%, EPA Science and Technology is up just under 1%, and NOAA is up 5%. One remaining appropriations bill of interest to the geosciences is Labor/HHS (H.R. 3061), which funds the Department of Education. It has been delayed in conference waiting for the reauthorization of the Elementary and Secondary Education Act—more information is available below on that bill's progress. All signs point to Congress completing their action by the end of the first week in December and adjourning until late January. More at <http://www.agiweb.org/gap/legis107/appropsfy2002.html>.

### Congress Works Through Education Jam

Action on the Elementary and Secondary Education Act reauthorization bill (H.R. 1) has been stalled in Congress for months. Since August, a House-Senate Conference Committee has met to hammer out differences between each chamber's version of the bill, which is the principal authorizing legislation for K-12 education program at the Department of Education (DoEd). They have been unable to get around several roadblocks, particularly with regard to testing and funding control. An agreement was reached in the last week of November that will allow the ESEA bill to move forward, which in turn will allow the FY 2002 Labor/HHS appropriations bill to be passed by both chambers. According to a Washington Post article from November 28th, the compromise legislation would require millions of students to "undergo annual math and reading tests and school districts would gain more leeway in using federal education funds." The article goes on to explain that the final version of the bill will include a Senate-introduced provision requiring states to administer the National Assessment of Educational Progress (NAEP) to a sample of fourth- and eight-grade students every other year. Results from these students will be used, as a Republican summary states, to authenticate "the results of the statewide assessments" required by all students. As part of the compromise, federal funding for states will not be associated with NAEP results. The compromise also would reduce the federal control over funding specific programs. State and local education agencies, instead of DoEd, will have the final say over how funds are allocated by schools to meet their goals and needs. In the new bill, professional development and science education programs formerly under the Eisenhower programs have been either eliminated or transformed into new programs. No definitive word yet on whether Sen. Rick Santorum's (R-PA) Senate-passed resolution on evolution is in the bill. Negotiations have involved a small group of lawmakers with a lockdown on information about specifics. Even if the conference reaches a compromise, it is still far from certain that both chambers would act on the bill and send it to the president before adjourning.

## NSF Wins Praise from OMB

At a time when the White House Office of Management and Budget (OMB) is looking at tightening the federal purse strings, OMB Director Mitch Daniels praised the National Science Foundation (NSF) and the National Weather Service as examples of excellent federal programs. In remarks to the National Press Club, Daniels noted that NSF allocated more than 95 percent of its funding "on a competitive basis directly to researchers pursuing the frontiers of science" with "a very low overhead cost." Daniels continued by saying: "Programs like this, and there are many, many others, that perform well, that are accountable to you as taxpayers for reaching for real results and measuring and attaining those results, deserve to be singled out, deserve to be fortified and strengthened." The big question is how (or whether) this praise will translate when it comes times for funding NSF next year. OMB already has made clear that federal programs not related to the war effort will face substantial cuts in the FY 2003 budget request, which is due out in February 2002. Daniels's full remarks are available at <http://www.whitehouse.gov/omb/pubpress/2001-61.html>.

## Bush to Fill the Strategic Petroleum Reserve

On November 13th, President Bush ordered Secretary of Energy Spencer Abraham to fill the Strategic Petroleum Reserve (SPR) to its full capacity of 700 million barrels. The President's directive will result in the addition of up to 108 million barrels of crude oil to the nation's emergency oil stockpile by way of an ongoing "royalty-in-kind" program, which allows producers operating leases on the federally owned Outer Continental Shelf to pay their royalties to the government in the form of oil instead of cash. According to a press release issued by the Department of the Interior, the first deliveries of about 60,000 barrels of crude oil a day are set to begin in April, and will increase to about 130,000 barrels a day by October. Secretary Abraham said that potential terrorism and the current military campaign in Afghanistan were not key factors in Bush's decision, which he referred to as "a wise policy" that is not associated with "any kind of specific disruption threat." A statement by President Bush reported that "our current oil inventories, and those of our allies that hold strategic stocks, are sufficient to meet any potential near-term disruption in supplies," and that filling the reserve will "strengthen the long-term energy security of the United States." More at <http://www.agiweb.org/gap/legis107/spr.html>.

## New NASA Head Nominated, NOAA Head Confirmed

Making quick work of filling the top spot at the National Aeronautics and Space Administration (NASA), President Bush announced his intention to nominate Sean O'Keefe to the position on November 14th. As Bush's Deputy Director of the White House Office of Management and Budget, O'Keefe has been vocal in hearings on Capitol Hill about keeping NASA accountable for the sky-rocketing costs associated with several of the larger missions, especially the International Space Station. O'Keefe served in the previous Bush administration as both the Chief Financial Officer of the Defense Department and as Secretary of the Navy. Between his stints in government, O'Keefe was a professor of business and government

policy at Syracuse University. No stranger to Capitol Hill, O'Keefe worked for the Senate Appropriations Committee for several years before going to the Defense Department under then-Secretary Dick Cheney. O'Keefe's confirmation is expected to move quickly through the Senate process once it is scheduled after the turn of the calendar year. More information on O'Keefe and his previous testimony to Congress on NASA's spending is available from the American Institute of Physics at <http://www.aip.org/eneews/fyi/2001/141.html>.

In related news, the Senate has confirmed retired Vice Admiral Conrad C. Lautenbacher Jr. as Under Secretary of Commerce for Oceans and Atmosphere, heading up the National Oceanic and Atmospheric Administration (NOAA). After retiring from the Navy last year, Lautenbacher has been serving as president of the Consortium for Oceanographic Research and Education.

## Congressional Report Criticizes Yucca Mountain Project

Early in 2002, Energy Secretary Spencer Abraham is expected to make a recommendation to President Bush on Yucca Mountain as the site for the nation's high-level nuclear waste repository. Although many view a positive recommendation as a foregone conclusion, a critical report from the General Accounting Office (GAO) will add a new layer of controversy.

GAO, the investigative arm of Congress, provides assessments of federal programs in support of the legislative branch's oversight role. The report, a draft of which was released to the Washington Post, concludes that the Department of Energy's timelines for the project are unrealistic and not based on adequate data. In particular, the report asserts that the project's principal contractor, Bechtel SAIC, has informed DOE that at least four years of additional work are required to address various unresolved issues before obtaining a presidential site recommendation or applying for a license from the U.S. Nuclear Regulatory Commission can proceed. Such a delay would push the repository's opening date well back from the currently planned 2010 target.

Abraham has called the GAO report "fatally flawed," accusing the agency of being heavily influenced by Senate Assistant Majority Leader Harry Reid (D-NV), who asked GAO to conduct the study. For his part, Reid has referred to its findings as "the beginning of the end" for the project. Earlier this year, GAO and the administration fought over the release of records from Vice President Cheney's energy task force, a dispute that was placed on hold after September 11th. The Yucca Mountain report should be available at <http://www.gao.gov> after its official release on December 11th. More at <http://www.agiweb.org/gap/legis107/yucca.html>.

## House Hearings on Water Infrastructure Vulnerability, Clean Water Regulations

On November 14th, the House Science Committee held the fourth in a series of hearings on terrorism, this one on development of anti-terrorism tools for water infrastructure. Scientists, water agency officials, and the Director of New York State's new Office of Public Security gave testimony supporting the Water Infrastructure Security and Research Development Act, H.R. 3178. They also discussed the need for

increased research aimed at the prevention and mitigation of physical and cyber threats facing drinking water and wastewater systems, and how to respond if a threat became a reality. The bill, introduced by Committee Chairman Sherwood Boehlert (R-NY) and Rep. Brian Baird (D-WA), would authorize \$12 million per year for the Environmental Protection Agency (EPA) to provide research grants for security of the nation's water infrastructure. The Science Committee approved the bill in a session held the following day, and Boehlert said that he will try to get the bill to the House floor before the end of the year, possibly by attaching it to other legislation. A companion bill introduced by Senate Environment and Public Works Committee Chairman Jim Jeffords (I-VT), S. 1593, differs from the House version in that it would run for six years instead of five and includes a \$20 million authorization to aid smaller communities in meeting the new 10 parts per billion (ppb) arsenic standard.

On November 15th, the House Transportation and Infrastructure Subcommittee on Environment and Public Works held a hearing on the future of the Total Maximum Daily Load (TMDL) program. The Assistant Administrator for the EPA Office of Water, G. Tracy Mehan, was the only witness. Mehan described EPA's re-evaluation of a controversial July 2000 rule and told the subcommittee that the agency plans to propose a new rule to comprehensively amend the TMDL program by the spring of 2002, and "promulgate a final rule before April 30, 2003." In designing the new rule, EPA plans to provide states and tribes with "greater flexibility" and the ability to make use of market-based approaches, such as water pollution trading and economic incentives for early reductions, to minimize the cost of implementation. EPA's rule-making strategy also includes a series of listening sessions to gather ideas from the public on how to improve the TMDL program. More on both hearings at [http://www.agiweb.org/gap/legis107/clean\\_water.html](http://www.agiweb.org/gap/legis107/clean_water.html).

## Senate Panel Considers Regulation of Carbon Dioxide

The Senate Environment and Public Works Committee held two hearings on legislation that would amend the Clean Air Act to require strict reductions in nitrogen oxides and sulfur dioxide, and would reduce mercury and carbon dioxide emissions from power plants for the first time. The Clean Power Act (S. 556), referred to as the "four-pollutant" bill, was introduced by committee chairman Jim Jeffords (I-VT). A November 1st hearing explored how the legislation would affect the environment and the economy. A companion bill, H.R. 1256, was introduced in the House by Science Committee Chairman Sherwood Boehlert (R-NY), also requiring large reductions in all four substances. The Bush Administration, however, "strongly opposes" regulating carbon dioxide as a pollutant because of the possible effect it could have on the coal industry. Jeffrey Holmstead, top EPA air official, testified that the Administration will introduce its own multi-pollutant legislation "relatively soon," which will not include emissions cuts in carbon dioxide. At the second hearing, which took place on November 15th, Jeffords announced that he will delay a markup of his four-pollutant bill until February 2002, by which time the Bush Administration's three-pollutant legislation should be completed. Witnesses testifying at the hearing includ-

ed representatives from electric utilities that would be directly affected by the bill, environment and public health advocates, coal miners, and pollution control technology companies. Committee members opposed to S. 556 argued that the bill does not recognize important regional differences and would unfairly penalize Midwestern and Western states. According to Sens. James Inhofe (R-OK) and George Voinovich (R-OH), the legislation would cause power plants to switch from coal to natural gas, resulting in massive job losses, economic damage, and price increases for electricity and natural gas. More at [http://www.agiweb.org/gap/legis107/clean\\_air.html](http://www.agiweb.org/gap/legis107/clean_air.html).

## New Material on Web Site

The following updates and reports were added to the Government Affairs portion of AGI's web site <http://www.agiweb.org> since the last monthly update:

- Geotimes Political Scene: A Fellow's Welcome to Washington (by AGI 2001-2002 Congressional Science Fellow David Curtiss; 12/01)
- High-Level Nuclear Waste Disposal (12-3-01)
- Labor/HHS/Education Appropriations Bill (12-3-01)
- Overview of Fiscal Year 2002 Geoscience Appropriations (12-3-01)
- Arctic National Wildlife Refuge (ANWR; 11-29-01)
- Energy Policy Overview (11-29-01)
- Clean Air Act (11-27-01)
- Clean Water Issues (11-26-01)
- Climate Change Policy Overview (11-20-01)
- Special Update: Geoscience Appropriations Nearing the Finish Line (11-20-01)
- Mining Law and Regulatory Reform (11-19-01)
- Public Lands Issues (11-19-01)
- Commerce, Judiciary & State Appropriations Bill (11-16-01)
- Energy & Water Appropriations Bill (11-14-01)
- Strategic Petroleum Reserve (11-19-01)
- VA/HUD & Independent Agencies Appropriations Bill (11-13-01)
- Reformulated Gasoline and MTBE (11-7-01)
- Challenges to the Teaching of Evolution (11-12-01)
- Interior and Related Agencies Appropriations Bill (11-8-01)
- Outer Continental Shelf Leasing and Royalties (11-2-01)
- Most Recent Energy Hearing Summaries (11-1-01)

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Sources: American Institute of Physics, CNN, Congressional Greensheets, Denver Post, E&E News, House Appropriations Committee website, House Education and the Workforce Committee website, Last Vegas Sun, Senate Appropriations Committee website, USBudget.com, Washington Post, and White House website.

## DECEMBER 2001

- Transfer of Research Programs to NSF in Question
- Science Education Funding Receives Major Blow
- Santorum Resolution Removed from Education Bill, But Language Remains
- Water Infrastructure Bill Passes House
- House Votes on Brownfields Reform
- Energy Policy Stalled in Senate
- President's Science Advisory Council Coming to Life
- Science Scholarship Fund For September 11th Families
- New Material on Web Site

### Transfer of Research Programs to NSF in Question

An AGI Special Update on December 19th reported that the White House Office of Management and Budget (OMB) was planning to use the upcoming fiscal year (FY) 2003 budget request to transfer research programs and facilities at EPA, NOAA, the Smithsonian Institution, and the U.S. Geological Survey (USGS) to the National Science Foundation (NSF). Word of the plan, which was leaked to the press in early December, followed a recent speech by OMB Director Mitchell Daniels praising NSF as a model agency. Although the transfers were billed as a reward for NSF, critics questioned the appropriateness of the transfer given the targeted, applied nature of many of these programs and the effect that the transfer would have on the programs themselves. The bulk of the media attention, including a New York Times masthead editorial on Christmas Eve, focused on three Smithsonian research facilities, and it now appears that OMB will not seek to transfer them to NSF. The fate of the other programs, including water research at USGS, remains unclear. The administration's budget request will be released on February 4th, beginning the congressional appropriations cycle. Preliminary indications suggest that the House and Senate Appropriations Committees would reject the transfers. The update is at [http://www.agiweb.org/gap/legis107/R&D\\_update1201.html](http://www.agiweb.org/gap/legis107/R&D_update1201.html).

### Science Education Funding Receives Major Blow

As reported in an AGI Action Alert on December 10th, Congress has completed action on the Elementary and Secondary Education Act reauthorization bill (H.R.1), which overhauls federal education programs and was a major priority of President Bush. The House and Senate passed the final bill in the third week in December, and the president is expected to sign it into law any day now. The bill authorizes up to \$450 million for math and science partnerships, but Congress turned around and approved a mere \$12.5 million for those programs in the FY 2002 Labor/HHS Appropriations bill (H.R. 3061), which like H.R.1 awaits the president's signature. In the past, the Department of Education's (DoEd) Eisenhower programs have been the vehicle for science education, but H.R.1 terminates Eisenhower and replaces it with the partnerships. Administered through DoEd, the partnerships allow state and local education agencies to work with institutions of higher education as well as corporations and nonprofit organizations to raise math and science standards

for both students and teachers. Despite the extremely low funding for partnerships (Eisenhower was funded at \$485 million last year), the appropriators noted in the Conference Report (H. Rept. 107-342) that "in no way do the conferees intend to discourage the Secretary [of Education] and States from using other federal funding for math and science instructional improvement programs." A colloquy on the House floor between Labor/HHS Subcommittee Chair Ralph Regula (R-OH) and partnerships supporters Reps. Vern Ehlers (R-MI) and Rush Holt (D-NJ) made the same point. It remains to be seen how the Bush administration will spend the dollars. More at [http://www.agiweb.org/gap/legis107/education\\_alert-1201.html](http://www.agiweb.org/gap/legis107/education_alert-1201.html) and [http://www.agiweb.org/gap/legis107/science\\_edu.html](http://www.agiweb.org/gap/legis107/science_edu.html).

### Santorum Resolution Removed from Final Bill, But Language Remains

The final version of H.R.1 does not include a resolution singling out biological evolution as a controversial theory. The resolution, introduced by Sen. Rick Santorum (R-PA), was included in the Senate-passed version of the bill last June and had been widely hailed by creationist groups. In August, the leaders of over 100 scientific societies called on H.R.1's House-Senate conference committee to remove the Santorum resolution from the bill. A modified version of the resolution's language is included in the bill's explanatory report, which has no force of law. As noted by the National Center for Science Education, that language reflects the House-Senate conference committee's desire to keep "religious and philosophical claims that are made in the name of science" out of science classrooms. More at <http://www.agiweb.org/gap/legis107/evolution.html>

### Water Infrastructure Bill Passes House

The Water Infrastructure Security and Research Development (WISARD) Act passed the House on December 18th. Introduced by Reps. Sherwood Boehlert (R-NY) and Brian Baird (D-WA), H.R. 3178 aims to enhance security at water supply or wastewater treatment systems. The bill would authorize \$12 million per year over five years to the Environmental Protection Agency for research grants on ways to prevent, detect, and respond to threats to the water supply infrastructure. Sens. James Jeffords (I-NH) and Robert Smith (R-NH) introduced a Senate companion bill, S. 1593, in November. Both the House Science Committee, which Boehlert chairs, and the Senate Environment and Public Works Committee, which Jeffords chairs, held a hearing in November. The Senate version still awaits time on the chamber floor and a final vote, but once that happens, the two sides will begin a conference committee to work out any differences. A summary of the House Science Committee hearing is available at [http://www.agiweb.org/gap/legis107/clean\\_water.html](http://www.agiweb.org/gap/legis107/clean_water.html).

### House Votes on Brownfields Reform

Placed on the back burner for a few months while Congress worked on other more pressing issues, the House version of brownfields reform was brought up for floor consideration in the wee hours of the morning on December 20th. H.R. 2869, introduced by House Environment and Hazardous Materials Subcommittee Chairman Paul Gilmor (R-OH), combines a

\$250 million brownfields reform provision with a Superfund relief package for small businesses. Earlier in the year, both chambers were working on Superfund reform, particularly the popular brownfields measures, with the House focusing more on small business liability issues and the Senate focusing on brownfields stimulation programs. Gilmore's H.R. 2869 combines these two approaches in a way that may pave the road for a reform bill to be passed on to the White House early in 2002. The House approved the combined bill in a voice vote, and the Senate Environment and Public Works Committee has indicated that it will bring the bill up for consideration shortly after reconvening in January. More at <http://www.agiweb.org/gap/legis107/brownfields.html>.

## Energy Policy Stalled in Senate

Despite Republican efforts to attach comprehensive energy legislation to other bills on the Senate floor, Congress adjourned for the holidays without further action on energy policy. On December 3rd, Senate Minority Leader Trent Lott (R-MS) brought up a procedural motion that would have made it possible to attach the House-passed H.R.4 to a pension reform bill, but he failed to get the 60 votes required to overcome a threatened filibuster of H.R.4's provision to open the Arctic National Wildlife Refuge (ANWR) to oil exploration. Although Lott and Sen. Frank Murkowski (R-AK) had been calling on Majority Leader Tom Daschle (D-SD) to allow a straight up-or-down vote on H.R.4, the motion failed to get even the simple 50-vote majority needed to win such a vote (Vice President Cheney would break a 50-50 tie). Two days later, Senate Democrats unveiled their own comprehensive energy package, S. 1766, which emphasizes efficiency, conservation, and the development of alternative and renewable energy resources. It would not open ANWR for exploration. Daschle has promised action on energy policy early in 2002. More at <http://www.agiweb.org/gap/legis107/energy.html>.

## President's Science Advisory Council Coming to Life

With Science Advisor John Marburger confirmed and on the job for over a month, President Bush announced the 24 members of his President's Council of Advisors on Science and Technology (PCAST) on December 13th. Overseen by the White House Office of Science and Technology Policy, which Marburger heads, PCAST has been challenged with four key issues for its review: science in national security, energy efficiency, broadband Internet connection, and the structure of federal support for research. A subcommittee will handle each topic. President George H.W. Bush officially established PCAST in 1990. In both that administration and the Clinton administration, a majority of the panelists were academic scientists and engineers, but two-thirds of the new panel come from industry, particularly the information technology sector. All but one of the academic representatives are university presidents or chancellors. More on PCAST at <http://www.ostp.gov>.

## Science Scholarship Fund Established for September 11th Families

Several dozen scientific and engineering societies have established a Science and Engineering Scholarship Fund to help "financially needy dependents of both domestic and foreign victims of the terrorist attack... pursue science and engineering degrees at U.S. colleges and universities." The fund is part of the broader Families of Freedom Scholarship Fund, an effort jointly led by former President Bill Clinton and former Senate Majority Leader Bob Dole. Additional information on the scholarship fund and how to make donations can be found at <http://www.aps.org/sciencefund.html>.

## New Material on Web Site

The following updates and reports were added to the Government Affairs portion of AGI's web site <http://www.agiweb.org> since the last monthly update:

- Superfund and Brownfields (1-3-02)
- Geotimes Political Scene: A Decade in the Game: AGI's Government Affairs Program (1/02)
- Challenges to the Teaching of Evolution (12-22-01)
- Natural Hazards Mitigation Policy (12-22-01)
- Special Update: OMB Plans Transfer of Research Programs to NSF (12-21-01)
- Overview of Fiscal Year 2002 Geoscience Appropriations (12-19-01)
- Science Education Policy (12-19-01)
- Action Alert: Congress Moves Ahead with Education Reform (12-10-01)
- Arctic National Wildlife Refuge (ANWR; 12-5-01)
- Energy Policy Overview (12-7-01)
- National Science Education Acts of 2001 (12-4-01)

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Sources: The Chronicle of Higher Education, Department of Education, E&E News, House Appropriations Committee, House Education and the Workforce Committee web site, House Science Committee Press Release, Library of Congress, National Center for Science Education, National Science Teachers Association, and Senate Health, Education, Labor and Pension Committee website.

Opinions and views expressed by the authors are their own and do not necessarily reflect those of the American Institute of Professional Geologists, its staff, or its advertisers.



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## Global Warming—Letters to the Editor (column 70, Dec '01)

**Andy Koenigsberg**, CPG 7973, wrote, “Thank you for your well-worded critique of my letter to the editor [letter in the October 2001 *TPG*, critique in column 70]. All are valid points. You have legitimately questioned my rhetoric, but Halbouty and Westbrook were not exactly presenting a balanced view point from my perspective, especially with the remark that excess carbon dioxide from fossil fuel combustion was justifiable due to the positive effect on crop yields. I could not, in good conscience, let such a remark go unchallenged.

“I was employed, for my first five years as a development geologist with Shell, so I claim to know a bit about the industry and the attitudes that pervade it. Most petroleum geologists also know that the amount of oil we could extract from ANWR would not meet this country’s needs for any extended period of time. It also is true of most potential untapped resources off the coasts of this country as well. We cannot drill our way to energy independence.

“It may well be that the apparent global warming we observe now is just part of a trend that has been going on for centuries, as was actually detailed in a column in *TPG* a few years back which described temperature trend data derived from delta  $^{18}\text{O}/^{16}\text{O}$  ratios from the Sargasso Sea—but it may not. However, I did go on to say that there are many other reasons why we should be using less oil, not more of it, and I wrote that letter last summer, well before September 11<sup>th</sup>.

“I absolutely agree with you that a good scientific debate on this issue of global warming is essential and that opposing viewpoints should be heard. My understanding is that such debates on this issue have been held for nearly two decades. Despite the limitations of the climate models and the science in general, the consensus has been that the temperature trends we are seeing are real, not just background climatic noise.

“I do wonder though, if I was that far off the mark, I thought I would have had more feedback by now. Interestingly enough,

yours is the only response to my letter that I have seen in *TPG*. Nor have I received any e-mails. I truly thought I would have received more than that by now. Back in 1995, I was deluged with responses to my guest column, ‘The Umpteenth Coming of Creationism’ and most of it was very unpleasant (see *TPG* July and September, 1995, if you don’t have them, I would be happy to fax them to you). Based on my experience, if AIPG members are really uncomfortable about some issue, scientific or political, they’ll let you know it—with both barrels.”

In a related aside to the global warming debate, I’ve seen several articles recently discussing hydrogen as the solution to “evil” hydrocarbon-based vehicle fuels. All we need to do according to the articles is dissociate methane to get hydrogen. Clearly these hydrogen proponents fail to understand the major source of methane and the Second Law of thermodynamics.

## Conflicts of Interest—Office Romances, Relatives, Harassment, Etc.

“Office romances are the boss’ business” read the headline (*Rocky Mountain News*, 11-24-01, p. 2C). Any place people come together, the possibility of romantic relationships occurs. Most of us have probably encountered at least one example of an office romance. The problem with these relationships from the boss’ perspective occurs when coworkers of the couple believe that one member of the couple is favoring the other partner unfairly in hiring, layoffs, promotion, bonus awards, etc. These are legitimate business concerns affecting the work environment and are therefore, the boss’ business. The initial problem with office romances is a perceived conflict of interest. Similar situations occur when it’s a relative of the boss (child, sibling, in-law, etc.) rather than a romance. Likewise, sexual or ethnic harassment can be viewed as a form of conflict of interest, although in these cases the favoritism perceived in the other situations is negative rather than positive in most cases. *The Rocky Mountain News* article noted that unresolved office romance issues can lead to sexual harassment cases. In all these situations one or more individuals is, or is perceived to be, selected for attention and consideration for reasons other than job qualifications and performance.

Developing hard and fast rules on conflicts of interest based on personal relationships of one sort or another can be very difficult. Romances occur. Outright bans on office romances or other sorts of activities are not sufficient to prevent them from happening and may lead to undesirable consequences. For example, the general rule banning faculty from sleeping with students provides another example where the student member of the couple is viewed as receiving favorable treatment as a result of the relationship.<sup>1</sup> But there are exceptions, the

1. Power differentials is another issue involved in harassment and faculty sleeping with students cases. Nevertheless, these cases can be examined in a conflict of interest context because the result is an actual or perceived unwarranted differential in treatment between otherwise similar individuals or groups.

primary one being when the student and faculty member are married. Column 62, (Mar '01) addressed the situation where a pre-existing relationship between two students became a conflict of interest when one of the students was promoted to instructor. Because the promoted student discussed the situation with the dean prior to accepting the instructorship, the relationship was "grandfathered."

A cousin of mine teaches math at small, rural college. As is common for such schools, top local high school students are allowed to take courses like beginning calculus at the college. Thus my cousin's son enrolled in one of his classes. My cousin arranged for another faculty member to grade his son's exams to help ensure no favoritism in grading occurred.

The AIPG Code of Ethics suggests disclosure of the potential conflict of interest to relevant parties as the first step in dealing with conflict of interest rules. What happens following disclosure depends on the circumstances of the particular situation. In the example of my cousin teaching his son, having another faculty member grade the exams was the resolution reached. Resolution of office romances may be more difficult because of long-term consequences in addition to short-term ones. Two employees at equal level may not present a problem now, but what happens if one is promoted to a supervisory position? Asking one of the couple to leave may unfairly hinder a career. Or it may deprive the company of a valued employee. The leaving employee may well be employed by a competitor, which brings up the possibility of loss of confidential information on projects or strategies. Another problem stems from unpleasant relationship breakups resulting in potential unwarranted adverse attention, the reverse of the initial problem of favoritism.

I don't have all the answers. I do suggest that you can't hide from the problem hoping it won't occur; it will. My examples suggest that the answers aren't easy. I invite you to contribute possible solutions.

## Testing Lab Case Defendants Acquitted

I discussed the insertion of duplicates, standards, and blanks in a sampling program as an exception to the general rule on honesty in column 60 (Dec '00). Footnote 2 to that column noted that 13 employees of Intertek Testing Services Ltd. were criminally indicted for failing to properly clean, maintain, and calibrate analytical equipment and calling into question up to 250,000 air, water, and soil sample analyses (U.S. v Jeffus, et al., U.S. District Court for the Northern District of Texas, Dallas Division, case 300-CR-375-D). Eight of the 13 defendants were acquitted after a trial that concluded in late November 2001. The other five defendants had pleaded guilty prior to the trial. The not-guilty verdicts were reached in part because the sample log-in and other procedures were so lax that the government was unable to prove who was operating which piece of analytical equipment when.

The moral of this story is that you better be sending check samples to other labs and engaging in other procedures to ensure that you can demonstrate the validity of your sampling program.

## Copyrights, Ethics, and Use of RMAG Publications

by Mark Longman, (reprinted with permission from the Rocky Mountain Association of Geologists' *The Outcrop*, December 2001, p. 10-11)

"Have you ever used a figure or text from an RMAG publication in a presentation of some sort and wondered whether you should get permission from the RMAG to use that information? It seems that some people have, and also that there is some confusion among our members as to which uses of copyrighted information require permission and which do not. Here are some general guidelines.

"If you plan to *republish* a figure from a copyrighted paper, or *reprint* a paragraph or two of text verbatim (or an entire paper) in a formal publication, ethically and legally you are required to obtain in writing (or via hard copy of an e-mail message) permission from the copyright-holding organization. This is normally done by submitting a formal 'letter of request' to the copyright holder, which has a duty to reply promptly and reasonably to the request. In some cases, particularly if the number of figures or amount of text to be republished is high, the copyright holder may request some sort of payment for use of the material, but normally such requests are granted freely and considered as serving the advancement of science through the sharing of copyrighted material.

"If you plan to use RMAG's copyrighted material in a private or *unpublished* forum such as a luncheon talk, prospect 'show and tell,' poster display, or privately circulated company report or consulting study, official permission from RMAG to use the material is not required. Instead, it is the obligation of the user to accurately cite the author and date of the publication from which the material is taken. Such citations not only are a sign of professionalism, but they help gain the respect of your audience. Use of copyrighted material, even in an informal presentation, without proper credit is, at the very least, unethical, and, at worst, illegal. Needless to say, 'stealing' someone's professional ideas, whether they be in the form of figures or published interpretations, without offering credit for the figures or information is not only unfair to the person responsible for those ideas, but it also reflects poorly on the unauthorized user.

"There is another question about using copyrighted papers that arises from time to time. RMAG's policy, and that of most other scientific organizations, is to allow people to make one copy of a copyrighted paper, be it from a journal, book, seminar, etc., for personal use, but what if a professor or prospect generator or someone wishes to make and distribute multiple copies of a specific copyrighted paper? Fortunately, a recent (10-year-old) newcomer to the world of professional publications has been created precisely for this problem. Known as the Copyright Clearance Center, based in Danvers, MA, this non-profit organization deals with the question of reproducing multiple copies of copyrighted works. Organizations such as RMAG, AAPG, GSA, and so on can join the Copyright Clearance Center (CCC) with a specific contract outlining obligations and fees, and authorize the CCC to collect a certain fee for each paper copied.

## PROFESSIONAL ETHICS & PRACTICES (continued)

"In the case of RMAG publications, this fee has been set at \$3/copy. A statement of these terms, along with the address of the CCC, is included near the front of each copyrighted RMAG publication. The individual, university, or company making multiple copies of a paper is therein requested to submit directly to the CCC payment covering the fee(s), and to specify which papers were copied. The RMAG need not be contacted in this transaction. Depending on the amount of fees collected, the CCC then sends a percentage of these payments to the copyright holding organization once or twice a year. The CCC, of course, earns a percentage of the fee(s) by being the clearinghouse for such transactions. Last year, the RMAG received approximately \$1500 from the CCC, so the system is working and is being used.

"A final and still evolving use of copyrighted materials involves electronic republishing and use of materials on the Internet, whether it be in a personal web-site, an Internet course, a digital publication, or on a company Intranet. Generally speaking, the same rules for republishing figures in a hard-copy publication apply to Internet usage. If the figure is to be in a formal digital publication, permission from the copyright holder is required.

"So how hard is it to follow these guidelines? RMAG is presently attempting to streamline its 'Permissions Policy' by making its Executive Director, Sandi Pellissier, the focal point for all such permission requests. Authors, whether they be students, professors, consultants, or whatever, who wish to use copyrighted RMAG figures or text in a formal publication, should address their requests to Sandi at the RMAG office, either in a letter or by e-mail (phone calls are unacceptable), and specifically spell out what copyrighted material(s) they wish to use. It is hoped that all such requests will be answered within a week, although requests to republish large volumes of materials may need to be passed by the RMAG Publications Committee and RMAG Board for a review and recommendation.

"In conclusion, the RMAG wants to see its publications used in any way possible to aid its members, the geologic profession, and the advancement of science as a whole. However, it also wants users of copyrighted information to follow current copyright laws and recognize the rights of the scientists who so willingly shared their time and energy in publishing scientific ideas and figures. With just a little effort, and knowing the proper guidelines, all of us should be able to use copyrighted scientific information to aid us in our various endeavors."

Standard 4.1 and Rules 4.1.1 and 4.1.2 of the AIPG Code of Ethics state that we must give our professional colleagues credit for their ideas. Permission to reprint Longman's article was obtained from both Longman and the RMAG. The specifics of obtaining permission vary from publication to publication, so always check on the details and keep copies of all relevant correspondence.

Although Longman specifically addresses the use of RMAG copyrighted material, his thesis applies generally to all copyrighted material, including material in *TPG*. The copyright notice in each issue of *TPG* states that you can republish material in *TPG* if you ask for permission, the granting of which requires that the source be acknowledged.

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#### **Topical Index to the Professional Ethics and Practices Columns**

I have prepared a topical index covering columns 1 through 72 that has been placed on the AIPG web site in the ethics section. The index is in PDF format. The original file is in Microsoft Excel format. If you would prefer the Excel file, send me an e-mail and I'll send it to you. I'll update this index periodically and post the new copy on the AIPG web site. If you have suggestions on organization, please let me know.

David M. Abbott, Jr., CPG-04570, Ethics Committee Chairman,  
2266 Forest Street, Denver, CO 80207-3831, 303-394-0321, fax 303-394-0543, DMAgeol@aol.com

#### **GPS and Geologists - A ruling from the State DCA**

The California Council of Geoscience Organizations (CCGO) worked hard to push the Global Positioning System (GPS) issue and CCGO is proud of the response that was received from the Department of Consumer Affairs lawyer ([www.dca.ca.gov/geology/hot\\_topics/topics/gps.pdf](http://www.dca.ca.gov/geology/hot_topics/topics/gps.pdf)). The arguments used can be used by other sections to protect the geology profession and GPS related to geologic work.

### *Barren Lands: an epic search for diamonds in North America*

by Kevin Krajick, 2001: Times Books, 442 p., ISBN: 0-7167-4026-5

David M. Abbott, Jr., CPG-04570

Books about the Lac de Gras diamond rush in the Northwest Territories, now Nunavut, in the early 1990s are starting to appear. In *Barren Lands: an epic search for diamonds in North America*, Kevin Krajick tells more than just the colorful stories of the people involved and their equally colorful exploration programs, he covers the history of diamond exploration in Africa, South America, and North America as well, although the emphasis is on North America. This history adds a great deal to understanding the story of Chuck Fipke's search for diamonds that ultimately led to the Lac de Gras discoveries. The missing piece in the review of diamond exploration is the Australian discoveries in the 1980s.

The Barren Lands are not permanently settled. The Inuit live on the coast and forage south for migrating caribou during the summer. The Athapaskan Dene tribes live in trees and migrate north following the same caribou herds. Few whites ventured into this unforgiving and difficult to cross country of lakes and bogs. *Barren Lands* briefly covers the limited European exploration in the area and the little known of native history in the area. Although a subsidiary story, this portion of the book is interesting in its own right.

Diamonds were first found in alluvial deposits in India and only slowly trickled into Europe. Diamond's hardness was early recognized and early treatises also stated that diamonds couldn't be broken, a confusion of hardness and cleavage. In-situ diamond deposits were first discovered in South Africa on the farm owned by the two brothers, De Beer, whose name was adopted by the great diamond firm founded by Cecil Rhodes.

Scattered diamond finds have been made, often by children, over the years in the U.S. and eventually in Canada in a large number of states and provinces. By and large these diamonds were alluvial and frequently, though not always, came from glacial deposits. Georgia, North Carolina, and California are among the exceptions. Although kimberlitic-like intrusions (diatremes) have been found in a number of states and provinces, only the Crater of Diamonds at Murfreesboro, Arkansas produced diamonds prior to 1990 and the Crater of Diamonds has only been commercially successful as tourist attraction where you can dig and keep anything you find. Diatremes were identified in Colorado in the mid-1960s but initial enthusiasm for them stemmed from the fact that xenoliths in the diatremes yielded the first Silurian fossils in Colorado indicating that Silurian rocks had been deposited and subsequently eroded.

Diamonds weren't found in Colorado until 1975 when microscopic diamonds scratched thin sectioning equipment at the USGS. It wasn't until the 1990s that the Kelsey Lake deposit was discovered and placed into sporadic production. I remember the Prospectors and Developers Association meeting in Toronto in 1997 where many Canadian diamond ventures were

being touted but Howard Coopersmith of the Kelsey Lake Mine had macroscopic diamonds to show people.

No history of diamond exploration in North America would be complete without discussing the Great Diamond Hoax of 1872 exposed by Clarence King's 40th Parallel Survey geologists. The interesting footnote to this story is that chrome diopsides and pyrope garnets, recognized by the 1970s as diamond indicator minerals, were recovered from ant hills along the Colorado-Wyoming border in the southwestern Green River Basin. Tom McCandless, the geologist who pursued these anthills, deserves recognition because he lost the use of both his legs prior to entering a geology program at the University of Utah. McCandless didn't let his disability prevent him from doing field work. During McCandless' search for diamond deposits in the area, he and his colleagues stumbled on the remains of the diggings for the Great Diamond Hoax.

The historical information is fascinating, but the main focus of *Barren Lands* is on Chuck Fipke's and Stew Blusson's efforts to find diamonds and a colorful tale it is. They looked all over the US and Canada, including the Crater of Diamonds in Arkansas. Some of their more hair-raising exploits occurred in the mountains of British Columbia and the Yukon in the early 1980s. They found many diatremes, but no diamonds. Eventually they started working east from the Yukon crossing the Mackenzie River. They were looking at indicator minerals in glacial deposits and realized that the up-glacier direction was to the east. So they scoured the Geological Survey of Canada's maps and photos of the Barren Lands, the great expanse of country between the edge of the tree line and the Arctic coast, looking for indications of which way the ice moved from the glacial center west of Hudson Bay and found complicated, confusing data. This didn't stop them.

The tale of Fipke's exploits and his efforts to keep ahead of rivals, including De Beers, along with raising the money to hire air support, drills, and other crucial items in exploration reads something like a thriller. But this isn't fiction. Krajick spent time interviewing all the players and develops the story well through the opening of the Ekati Mine at Lac de Gras. It is the story of an exploration rush with all the characters, successes, failures, happy, and sad endings found in any such tale.

In summary, *Barren Lands* is a good read with many aspects of history, geography, and geology combining with the story of the people involved into an excellent story. Regardless of one's geologic specialty, stories of exploration, like stories of the dinosaur hunters, are fascinating. *Barren Lands* is a welcome addition to the genre.

## Living with Karst: A Fragile Foundation

George Veni and Harvey DuChene, eds. pp. 64. American Geological Institute, 4220 King Street, Alexandria, Virginia 22302. Published 2001 in collaboration with National Speleological Society, American Cave Conservation Association, Illinois Basin Consortium, National Park Service, U.S. Bureau of Land Management, USDA Forest Service, U.S. Fish and Wildlife Service, and U.S. Geological Survey. Price: Not Specified.

### Neill H. Ridgley, CPG-05138

Karst terrains—defined in this pamphlet as landforms produced primarily through the dissolution of soluble rock—are under-appreciated for both their geographic extent, and the impact that humans have on karst and vice versa. Approximately 20% of the conterminous U.S. is directly or proximately underlain by karst, as demonstrated by an excellent map which identifies karstic areas as to both origin and depth. At a glance, one discerns that the principal karst areas of the U.S. are exposed carbonates in the platform areas of West Texas, eastern New Mexico, and south-central Missouri, and the upturned carbonate sequences of the Appalachian fold-belt and the InterMountain West; buried carbonates of the upper Mississippi Valley and the southeastern Coastal Plain; and scattered “pseudokarst” volcanic regions of the Pacific Northwest.

This pamphlet addresses a rarely-asked question: Why Worry About Karst? The answer can be succinctly stated: Ground water flow rates in karst areas are high because karst areas are full of fractures and/or solution channels; any **negative** influence in a recharge area or intermediate channel area is quickly propagated and manifested downstream, often catastrophically, in the discharge areas. On the other hand, these same high flow rates can allow effective remediation, since the plumbing system is, to a certain extent, self-cleansing.

At the same time, human interventions (construction and drilling) can instantaneously alter the local hydrologic regime, with unforeseen consequences; such as increases in immediate runoff beyond the capacity of the local drainage network; soil accumulations in formerly free-running watercourses; the creation of new (unstable) standing bodies of water, or their converse, washouts and sinkholes.

This large-format pamphlet is the 4th in AGI's Environmental Awareness Series. Eight authors, individually specialists in ground water, landform development and speleology, have collaborated to bring to the scientifically-literate public an engaging account of the impacts of human habitation on karst terrain, and vice versa.

The layout of the pamphlet is quite intelligent, with a preliminary chapter (1) on why karst can be a problem issue, followed by five more concisely written and well-illustrated chapters on (2) what karst is, (3) why it's important, (4) environmental and engineering issues, (5) guidelines for inhabiting karst areas, and (6) sources of further information. The only

shortcoming in this plan is that one must wait until page 11 to find out what karst is, as it is not really defined or explained well before then.

Chapter 2 is a comprehensive examination of the nature of recharge and discharge areas, supplemented by good, well-captioned photos of cave-related features, and a diagrammatic cross-section of a karst system (which does, however, lack labels for the vadose and phreatic zones).

Chapter 3 summarizes quickly the importance of karst (read: cave systems) as a source of water and mineral resources; as a repository of human archaeological information; and as a laboratory for evolution under circumscribed conditions.

Chapter 4 addresses the control and prevention of sinkholes, good drainage design, and prevention of urban and rural contamination of ground water (it turns out that rural sinkholes are historically a preferred site for dumping dead cows!).

Chapter 5 outlines “Best Practices” that can reduce the hazards of living in a karst area. These revolve around leaving as much ground cover as possible for filtration; minimizing or dispersing runoff (or building retention basins to capture it); sealing well casings properly; spacing septic systems adequately, and tailoring ground water consumption to match inputs.

Chapter 6 is a laundry list of the various conservation, speleological, scientific, and regulatory entities that have an interest in protecting or managing karst-related features.

The audience for this pamphlet would logically include anybody materially involved in land-use decisions, whether they be regulators and planners in the public sector, or realtors, engineers, and finance or insurance agents in the private sector. The writing is superb and pretty much free of jargon, except those terms requiring definition. Nearly all technical terms – except for five I could identify (recharge [area], discharge [area], tower karst, show cave, and wild cave) appear in both the glossary and index.

This pamphlet calls to mind a similarly structured effort published in 1993 by AIPG, *The Citizen's Guide to Geologic Hazards*, a book expressly intended for that audience, as well as for homeowners. The disadvantage faced by any ‘non-technical’ book, like this effort from AGI, or the earlier effort from AIPG, is that there has to be a presumption that the intended audience has a high enough level of both general and scientific literacy to “get” the essential arguments of the text. In addition, in the case of geologically-oriented material, the presumption also must extend to include some understanding of Earth processes operating over extended time periods, and some ability to visualize 3-D relationships.

In short, this AGI pamphlet, produced in collaboration with other worthy organizations, explains the ramifications of *Living with Karst* in a comprehensive, yet succinct manner. It is a wonderful contribution to the literature of publicly accessible geologic writing (think John McPhee), and a thoroughly enjoyable treat for someone possessing the appropriate conceptual foundation. It might, however, be technically beyond the grasp of individuals without a frame of reference, familiarity with the hydrologic cycle, or a basic understanding of ground-water occurrence.

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Lawrence A. Cerrillo,  
AIPG 2002 National President

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## TPG ARTICLES NEEDED

TPG accepts articles of modest length for publication. Articles may be technical or professional in nature. General topics include: mining, petroleum, hydrogeology, environmental geology, and geophysical/engineering. Articles containing news of importance to professional geologists also will be considered. Deadline date for submissions is the fifteenth of the month two months before date of issue. For example, the deadline for the November issue is September 15. Articles are reviewed by at least three associate editors before they are approved for printing.

Manuscripts should have the following sections: title, author(s) with CPG number and address, key words, abstract, text, tables if included, figures with captions if included, appendix(es) if included, acknowledgments, references cited, and a brief biography.

One original and three copies of each manuscript should be submitted. Whenever possible, text also should be submitted on diskette. Headquarters uses WordPerfect 9 for Windows '98, which is preferred, but Word, ASCII, RTF, or translatable files are acceptable. Articles also can be transmitted by e-mail.

Graphics should be clear, camera-ready, line drawings whenever possible. Photographs (color or black and white) also are encouraged.

TPG wants color slides and photographs. Slides and photographs alone may be submitted for the cover. They should have a geologic theme and an informational caption.

Authors are encouraged to communicate with Headquarters via mail, fax, or e-mail. Send your article and/or photographs or communicate questions to:

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# LETTERS TO THE EDITOR

## Thank You for Montana Tech

Dear Sir:

The Financial Aid Office at Montana Tech of the University of Montana has received the scholarship that was awarded to Dean Brower in the amount of \$1,000.00 for the 2001-02 academic year. Please consider this letter as acknowledgment of the receipt of these funds. The award will be credited toward the student's tuition and fees for the spring semester, 2002. Any additional funds that are remaining after tuition and fees are paid, are released to the student for the purpose of purchasing the books and supplies required for classes.

We are pleased to find that there are such wonderful supporting organizations that offer so much needed help to worthy students. On behalf of Dean and Montana Tech, we would like to thank you for the fine scholarship support you have given to our students.

Shauna Savage  
Administrative Assistant  
Financial Aid Office  
Montana Tech, The University of Montana

## Thank You from AIPG Michigan Section

Good Morning Bill,

I wanted to take a moment and thank you once again for speaking at last weeks Michigan Section meeting. The attendees were pleased that someone from National, particularly the Executive Director, came to our meeting and provided us with an insight as to the direction that we as an organization are heading. The students in attendance left the meeting reinvigorated to start a student chapter at their school (Central Michigan University in Mt. Pleasant), and we on the sections' executive committee agreed to hold a quarterly meeting in Mt. Pleasant.

Again, thanks for your help, Bill. Hope you had an enjoyable stay during the remainder of your trip to Michigan.

Jim Ferritto, CPG-10319

## AIPG•AEG PREMEETING FIELD TRIP ONE DAY TRIP TO YUCCA MOUNTAIN, NEVADA MONDAY-SEPTEMBER 23, 2002

*Led by John Peck, AEG and Bob Levich, AIPG*

Participants in this field trip will travel by bus from Las Vegas, Nevada to the U.S. Department of Energy's (DOE) Yucca Mountain site, located ca. 150 km (90 miles) northwest of Las Vegas on and adjacent to the Nevada Test Site. On 10th January, 2002, the Secretary of Energy informed the Governor of Nevada that he intends to recommend the Yucca Mountain Site to President Bush for a mined geologic repository for spent nuclear fuel and high-level radioactive waste. The potential repository is located more than 200 m above the water table in unsaturated rhyolitic tuffs of Miocene age. Field trip participants will visit the underground Exploratory Studies Facility, which includes an 8 km main exploratory tunnel, a 3 km Cross Drift and a number of alcoves and niches for conducting tests. We will examine the welded tuff of the proposed repository horizon 200 – 350 m below the land surface and visit several locales where Project scientists conducted hydrologic, geochemical, and thermal tests.

The field trip also will visit the crest of Yucca Mountain where participants will view and discuss the surface geology of the site including the volcanic and pre-volcanic stratigraphy, the tectonic setting including several faults and nearby basaltic eruptive centers of Pliocene to Recent age. The field trip will emphasize the hydrogeology of the unsaturated and saturated zones and its effect on the ability of the potential repository to isolate radionuclides from the biosphere. A symposium on Yucca Mountain will be held in Reno during the annual meeting. This trip will acquaint participants with the regional and site geologic and hydrogeologic settings.

A major topic will be the engineering geology of tunnels and alcoves in the densely welded rhyolitic tuffs of Miocene age. The main tunnel was constructed using a 25-ft diameter tunnel-boring machine (TBM). A smaller (16.5 ft.) TBM was used for the second exploratory tunnel, known as the Cross-Drift. The trip also will visit the sites of various surface investigations.

Participants should plan to arrive in Las Vegas on or before Sunday, September 22nd. The field trip will depart at ca. 6:00 am on the morning of Monday, September 23rd. The trip will last all day and will return to Las Vegas late on Monday afternoon. AEG-AIPG Annual Meetings participants should plan to fly to Reno on Monday evening or early Tuesday morning. Robust footwear, long pants and sleeved shirts are required for underground access. Hard hats, eye and ear protection, lamps and self-rescue gear will be provided at the tunnel entrance.

This trip is on a DOE restricted-access facility. Non-U.S. citizens are welcome on the trip, but must provide ALL requested information at least eight weeks prior to the trip for access approval. U.S. citizens need to provide a photo-ID, social security number, date and place of birth, and current address on the day of the trip.

For additional or clarifying information contact John Peck at peckj1@juno.com [phone: (702) 255-5285] or Bob Levich at bob\_levich@ymp.gov [phone: (702) 794-5449]. More information on the Yucca Mountain site and the Yucca Mountain Project can be found on the web at <http://www.ymp.gov>

## MEMBERS IN THE NEWS



Member Pete Beblowski, CPG-9547 (on left) poses during a break in a New Hampshire production of "It's a Wonderful Life." Beblowski played Ernie the cab driver.



**Larry R. Rhodes**, CPG-02250, (AIPG Past National Secretary), was recently sworn in as member of the Kentucky Board of Registration for Professional Geologists. Larry is the owner of Rhodes Incorporated, a long-established company providing services for various geotechnical and environmental investigations. Rhodes Incorporated also provides geologic expertise and engineering services. Larry is Kentucky Professional Geologist #0008.

*Kentucky Geologists*, Volume 3, Issue 2, November 2001

**Alison Dunn** CPG-06686, received a plaque from the chairman of the Kentucky Board, Dr. John Philley, CPG-04322. The plaque commemorates Alison's tenure as a board member. She also was an active participant in the work of the National Association of State Boards of Geology (ASBOG) in creating a national geology examination.

*Kentucky Geologists*, Volume 3, Issue 2, November 2001

**Dr. Robert J. Weimer**, CPG-00098, (AIPG Charter Member), Professor Emeritus of Geological Engineering at the Colorado School of Mines, received the 2001 Hollis Hedberg Award in Energy on November 8, 2001, in Dallas, Texas.

Weimer has been a major influence in the exploration for energy resources and the training of students to enter the field. His research accomplishments and publications have earned him many awards, including the Sidney Powers Medal of the American Association of Petroleum Geologists, and the Twenhofel Medal of the Society of Economic Paleontologists and Mineralogists. He has served as President and on the governing boards of numerous scientific societies.

As a Fulbright Lecturer, popular international speaker, and visiting professor, Dr. Weimer has informed audiences across the globe. A member of the National Academy of Engineering, he has served on the Energy Research Advisory Board and other committees to the U.S. Department of Energy. Dr. Weimer's reputation as a stimulating teacher is widespread, and he has mentored many students who themselves, have gone on to successful careers and academia.

The Hollis D. Hedberg Award in Energy was established in 1983, and since 1988, has been given by the Institute for the Study of Earth and Man (ISEM) at Southern Methodist University. The Award is given for exceptional contributions to the understanding of the earth and its resources. Dr. Hedberg's standard-setting activities spanned both industry and academia, in both pure and applied research. He made substantive contributions to many fields related to Petroleum Geology, but perhaps his greatest contribution was in the leadership he provided in formulating and establishing the International Code of Stratigraphic Nomenclature, and the Law of the Sea guiding mineral exploration.

*Outcrop*, Volume 51, No. 1, January 2002, page 12  
Rocky Mountain Association of Geologists

### Director and State Geologist Larry Woodfork Retires

**Larry D. Woodfork**, CPG-2370, (AIPG Past President and an Honorary Member), State Geologist and Director of the Survey, has announced his retirement effective December 31, 2001. A native of Vincennes, Indiana, Woodfork received his undergraduate and masters degrees in geology from Indiana University. His 33 years of professional work included employment with the Indiana Geological Survey, Chevron, and Humble Oil and Refining. He became West Virginia Assistant State Geologist in 1970 and was appointed State Geologist and Survey Director in 1989. Woodfork also holds appointments as an adjunct professor of petroleum engineering and adjunct professor of geology at West Virginia University.

In his long career, Woodfork was a member of, or held office in, many organizations and professional societies including the American Institute of Professional Geologists, American Association of Petroleum Geologists, Association of American State Geologists, Geological Society of America, Appalachian Geological Society, American Geological Institute, Sigma Gamma Epsilon, and the Society of Sigma Xi. Among his many awards are West Virginia Oil and Gas Man of the Year 1991, and the American Association of Petroleum Geologists' Distinguished Service Award and the John T. Galey medal.

During Woodfork's directorship, the Survey greatly expanded its roles in geologic research, outreach, geoscience education, and the computerization of geologic data and mapping. These efforts greatly modernized operations and increased efficiencies, well-positioning the Survey for its second century of service to all West Virginians.

# January Executive Committee Meeting

Robert N. Braunstein, CPG-07690, AIPG National Advisory Board Representative

The first meeting of the 2002 Executive Committee was held at AIPG headquarters in Westminster, Colorado on January 19, 2002. For many of us on the Executive Committee, this was our first visit to the new headquarters location. We were all very impressed with the facilities and the hospitality of our local hosts. Even more impressive, were the enthusiasm and the dedication of the members and visitors at the meeting. Rather than identifying the Executive Committee members present at the meeting, I will refer you to the inside cover of this issue; all members were present. In addition, two visitors were present including Tom Fails, Past President, who made a presentation on continuing professional development (including continuing education) requirements, and David Abbott, Chairman of the Ethics Committee. Rounding out the list of attendees were Bill Siok, Executive Director; Wendy Davidson, Publications/Web site Manager; and Catherine O'Keefe, Membership Services Manager, all of who comprise our hard-working headquarters staff.

The two largest issues that were addressed at the meeting included an ongoing problem for the Institute (declining membership) and a relatively new proposal for continuing professional development (including continuing education) requirements for CPGs. I will briefly describe other issues discussed at the meeting, followed by a detailed summary of these two major topics. Where input is requested, please refer to the inside front cover of this issue for contact information, except as noted. The following issues were discussed and actions were taken:

- The minutes from the October 2, 2001 Executive Committee meeting were approved.
- M.B. Kumar, Treasurer, provided the Treasurer's report; although the Institute is currently in a sound financial position, projections for future membership decline make it important to closely monitor expenditures and develop new sources of income. The Institute needs the help of all of its members to recruit new members! It also was reported that the 2001 annual meeting in St. Louis was a



2002 Executive Committee hard at work.



A short break is taken during the meeting.

Photo on left: William Siok, Executive Director; Lynn Kantner, Secretary; and Barbara Murphy, Advisory Board Representative. Photo on right: Larry Cerrillo, President; Tom Fails, Past President; and M.B. Kumar, Treasurer.

financial success (in addition to being a well-run overall success). It is expected that the St. Louis Section will be able to contribute \$5,000 from the meeting's profits to AIPG National Headquarters. Finally, the Treasurer reported that the majority of AIPG's income is currently derived from annual dues.

- The Editor's report was presented by Virginia McLemore, Editor; it was indicated that our monthly journal, *The Professional Geologist* (TPG) will be distributed in ten issues in 2002. As always, TPG needs articles to insure its success. If you would like to have an article considered for publication, please provide it to Virginia (see submittal instructions on page 31 of this issue). In addition, the sections are encouraged to write articles

describing section events, issues, etc. Furthermore, please consider sponsoring a year's subscription for a colleague or a client. At a cost of only \$20/year, this is a great investment. Finally, TPG provides a great venue to advertise your services, with a circulation of more than 5,000. For more information on advertising, please contact Wendy Davidson. It also was reported that 2003 marks the 40th anniversary of AIPG. A theme celebrating this occurrence is currently in the planning stage. Anyone with ideas for this commemoration should provide them to Virginia McLemore.

- Ed Nuhfer, Colorado member and former national editor, is preparing a publication titled "Understanding Science Through Geology". From the condensed summary that was provid-

- ed to the Executive Committee for review, this publication should be very interesting to both members of AIPG and the general public. For more information, or to supply review comments or photographs, please contact Ed Nuhfer.
- The Past President's report was provided by Bob Fakundiny; it was indicated that a business plan will be developed for the Institute, with the initial draft being prepared by Executive Director Siok, President-Elect Powers, and Vice President Shotwell. In addition, it was announced that a Committee has been formed to create concise handbooks for professional activities, for example, soil and ground water sampling procedures. These handbooks are anticipated to cover approximately 50 topics. Anyone with ideas for handbook topics, or wishing to assist in authoring these documents, please contact Bob Fakundiny.
  - The Vice President's report was provided by Jim Shotwell, Vice President. Mr. Shotwell indicated that he will remain in close contact with the sections, serving as a liaison with the Executive Committee. Input will be solicited from the sections concerning issues that should be addressed during the Washington D.C. Fly-In, AIPG's annual advocacy trip to Washington. In addition, sections are encouraged to send newsletters to Jim Shotwell to promote his ability to serve in the liaison capacity described above. A consensus was reached by the Executive Committee to establish a non-monetary award, to be tentatively called the Granite & Gold Award. The award will be presented during the Fly-In to a national legislator in recognition of extraordinary support for geology-based federal programs that contribute significantly to national interests. The award will be made no more than annually, but not necessarily annually. A committee is required to design the award and make recommendations to the Executive Committee.
  - The President's report was presented by Larry Cerrillo, President. Mr. Cerrillo shared his goals for 2002. These goals include bringing closure to Ethics Committee questions and continuing professional development issues, continuing efforts to rebuild our membership, seeking additional services, establishing a speakers bureau in each section, providing continuing education opportunities for our members, and possibly providing technical support to assist members with computer problems.
  - Bill Siok presented the Executive Director's report. Mr. Siok highlighted the many activities undertaken by our busy headquarters staff. He also discussed his concerns about declining membership, and the associated financial impact. On a very positive note, he announced that actions are underway to allow AIPG to participate in the American Association of Petroleum Geologists (AAPG) health insurance program, GeoCare. The program is expected to be inaugurated soon, and will be available to AIPG members, companies owned by AIPG members, and AIPG staff. An announcement will be printed in *TPG* as soon as the plans for making this insurance available are finalized. We are also looking into the possibility to participate in AAPG's Professional Errors and Omissions program, which could be in place by the end of the year.
  - A report was given concerning future annual meetings. The meetings are scheduled to be held in Reno, Nevada (2002), Glenwood Springs, Colorado (2003), Saratoga Springs, New York (2004), Victoria, British Columbia (2005), and Tucson, Arizona (2006). From the information available for the next few meetings, it sounds like some exciting events are in store.
  - A report was provided concerning recommendations for individuals to receive honors and awards for 2002. A number of very qualified individuals were recommended. The recipients will be announced at a later date.
  - A motion was approved to establish reciprocity with the Geological Society of London (GSL), pending a quid pro quo recognition by the GSL of the equivalency of AIPG's Certified Professional Geologist title to the GSL's Charter Geologist title. The Executive Committee also unanimously agreed to pursue petitioning the European Federation of Geologists for AIPG to become a licensed body of that organization.
  - A motion was approved to accept revised Bylaws for the Colorado Section.
  - A fairly lengthy discussion was held concerning whether the Institute should continue to prepare position papers on various subjects. It was the consensus of the Executive Committee that such position papers should be very closely tied to geological issues, and that preparation of these papers would be determined on a case by case basis.
  - Nominations were accepted for 2003 officers. The slate of very qualified candidates will be announced at a later date.
  - A discussion concerning potential merger of the Virginia and West Virginia sections was held. For more information, please contact Ira Merin.
  - A suggestion was made to form an AIPG "Emergency Response Team". After some discussion, it was determined that it would be better to develop a list of expertise available to help in the event of some disaster.
- As described above, the first major item of discussion at the meeting was the problem of declining membership. Many ideas were exchanged for addressing this problem, including the promising plan of adding corporate memberships, and possibly, corporate certification. It is anticipated that the addition of this category of membership and possibly certification, will be a significant source of revenue in addition to increasing our membership base. Although this plan is still in the development stage, a brief summary of the current proposal follows.
- Two categories of corporate involvement would include Membership and Certified Professional Geologic Corporation. The requirements for corporate membership would be rather simple and would probably include some percentage of work that the corporation performs in the geologic arena and possibly, the presence of CPGs in the company. The Certified Professional Geologic Corporation category would probably have the same requirements as the member category, plus a peer review to determine if the corporation meets the standards established by a review committee. Both categories would be assessed annual dues. The Executive Committee agreed that a committee should be established to research this issue further and develop a plan for implementation. If you have any thoughts on this topic, or would like to join the committee that is researching this issue, please contact President-Elect Richard Powers.
- The second major topic of discussion at the meeting was the idea of continuing professional development (including continuing education). In a nutshell, the proposal recommends that a continuing professional development requirement be established for newly certified CPGs. For a more detailed update, please refer to the March 2001 issue of *TPG*.
- The next Executive Committee meeting is scheduled to coincide with the Washington D.C. Fly-In during May 5-8, 2002.

# NEW APPLICATIONS AND MEMBERS - (12/05/01-01/25/02)

Applicants for certification must meet AIPG's standards as set forth in its Bylaws on education, experience, competence, 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.

## Applicants for

### Certified Professional Geologist

#### MD-Robert K. Denton, Jr.

Specialized Engineering, 9607 Dr. Perry Rd., Ste. 102, Ijamsville MD 21754. Sponsors: Lance Mead, David Wiegand, David Parris.

#### AK-Robert C. Hazlett

2731 Monmouth Ave., Anchorage AK 99502. Sponsors: Scott Blount, Victor Harris, Richard Hill.

#### CA-Robert C. O'Neill

Micro-Chem Laboratories, P.O. Box 485, 635 Bret Harte Dr., Murphys CA 95247. Sponsors: James Schmitt, Bernard Erlin, Donald Campbell.

#### OH-Kevin M. Reaman

1429 Jefferson Ave., Cuyahoga Falls OH 44223. Sponsors: Guy Wilson, David Claus, Mark Deering.

#### IN-John C. Steinmetz

Indiana Geological Survey, 611 N. Walnut Survey, Bloomington IN 47405. Sponsors: Jonathan Price, Thomas Berg, William Shilts.

## Applicant Upgrading to CPG

#### MI-Sara K. Pearson

10010 Eaglewood Ct., Sparta, MI 49345. Sponsors: James Quince, Richard Verstrate, Mark Parrish.

## Applicants for Registered Member

#### NC-Brian K. Banks

5605 Wispy Willow Ln., Raleigh NC 27609. Sponsors: Charles Welby, Brian Bellis.

## Applicants for Member

#### MI-Adam R. Biteman

Soil & Materials Engineers, Inc., 2663 Eaton Rapids Rd., Lansing MI 48911. Sponsors: Kurt Cunningham, Brian Burke.

#### OH-Brent D. Kelley

338 Ponderosa Dr., Oregon OH 43616. Sponsors: Thomas Peters, Walter Bolt.

#### OH-Judd A. Wanner

Malcolm Pirnie, Inc., 1900 Polaris Pkwy, Ste. 200, Columbus OH 43240-2020. Sponsors: Daniel Bremer, Linda Aller.

## New Certified Professional Geologists

#### TX-Ralph Ashby Barnes CPG-10630

C/o Rosengarten, Smith & Assoc., 2222 Western Trails Blvd., #300, Austin TX 78745, (512) 707-1777

#### AK-Terry L. Barber CPG-10635

3577 Spinnaker Dr., Anchorage AK 99516, (907) 269-6200

#### LA-Charles A. Brannon CPG-10639

7006 Longvue Dr., Mandesville LA 70448, (504) 582-4428

#### IL-George Kougius CPG-10640

3833 Oak Park Ave., Berwyn IL 60402, (312) 733-6262

## New Students Adjuncts

#### MI-Amy L. Agren SA-0228

1010 E. High St., Mt. Pleasant MI 48858

#### MI-Nathan J. Brandner SA-0229

2640 Timpson SE, Lowell MI 49331, (989) 773-4321

#### MI-James M. Chapman Jr. SA-0230

3060 Seebaldt, Waterford MI 48329-4147, (989) 774-5418

#### MI-Aaron F. Diefendorf SA-0231

P.O. Box 2826, Ann Arbor MI 48106

#### CO-Kelly K. Greaser SA-0232

809 Partridge Cir., Golden CO 80403

#### CO-Cayce A. Lillesve SA-0233

12976 W. Maple Pl. 6-302, Lakewood CO 80228, (330) 273-3067

## AIPG ANNUAL MEETINGS

Sept. 22-28, 2002  
Reno, Nevada

2003  
Glenwood Springs,  
Colorado

2004  
Saratoga Springs,  
New York

2005  
Victoria, B.C.

## Request for an Application and/or Additional Information

Name \_\_\_\_\_

Employer \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Country \_\_\_\_\_

Daytime Phone \_\_\_\_\_

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(303) 412-6205 • fax (303) 412-6219 • e-mail: aipg@aipg.org  
web site: <http://www.aipg.org>

## AIPG Membership Totals

|                  | As of<br>2/01/01 | As of<br>01/28/02 |
|------------------|------------------|-------------------|
| CPG - Active     | 4,089            | 4,011             |
| CPG - Retired    | 540              | 523               |
| Member           | 13               | 81                |
| Registered Memb. | 21               | 21                |
| Associate Memb.  | 8                | 9                 |
| Student Adjunct  | 92               | 127               |
| Honorary         | 20               | 21                |
| <b>TOTALS</b>    | <b>4,839</b>     | <b>4,793</b>      |

## ADVERTISERS INDEX

|                                 |       |
|---------------------------------|-------|
| AIPG 2002 Annual Meeting        | IFC   |
| AIPG 2002 Annual Meeting        | IBC   |
| Krueger Enterprises, Inc.       | 13    |
| Professional Services Directory | 31-33 |
| RockWare, Inc.                  | B C   |