Geophysical/Engineering
REQUESTING ARTICLES

AIPG needs quality articles for future issues of The Professional Geologist (TPG). Members are encouraged to submit articles or call Headquarters and recommend individuals who should be asked to submit articles. Submissions should be 800 to 1600 words in length. Articles submitted on diskette along with a hard copy are appreciated. Headquarters uses DOS, WordPerfect 5.1, and can utilize 3 1/2 or 5 1/4 diskettes. Photographs, figures, tables, etc. are welcome. Photographs enhance articles and make great TPG covers. Be sure to send photographs when possible with your articles OR send your favorite photograph for consideration as the cover for a future TPG issue. Submission deadline is twelve weeks preceding month of issue.

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AIPG 1995 ANNUAL DUES STATEMENTS

Statements were sent out the first week of October. In accordance with Article 8, Section 8.2.1, of the Bylaws, Annual Membership dues are due and payable January 1, 1995. Those Members and Affiliates whose dues are not paid by February 15, 1995, shall be suspended and will not be listed in the 1995 Membership Directory.

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Volume 31, Number 12

The Professional GEOLOGIST

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Geophysical Analysis In Geotechnical Studies--
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Front Cover - Dream Lake, Rocky Mountain Park, Colorado.
Back Cover - Boats at Lake Louise, Colorado.
Photographs submitted by Gwen Paton.
A flood control structure in South Fork River Watershed, West Virginia, after a 20-inch rain in early November, 1985. The 200-ft wide auxiliary spillway is underlain by interbedded shales and sandstones of the Portage Formation, dipping 20 deg. upstream. Spillway performed as designed with no threat of a breach. Photo by USDA.
USDA Developments In Earth Spillway Technology

*Introduction*

Since 1935, some 26,000 dams have been installed with technical assistance from the Soil Conservation Service (SCS), US Department of Agriculture (USDA) under Public Law (PL)-566, PL-46, and PL-534, most of which are for flood control in small rural watersheds. The majority of the structures include an earth auxiliary (emergency) spillway system to convey flood flows safely around the structure. The auxiliary spillway is typically an open trapezoidal channel with inlet, control, and exit sections. Because the spillways are designed to operate generally in the 1 to 4 percent frequency range, the design philosophy allows for incidental erosion on the condition that the spillway not breach. Despite extensive use of these vegetated earth auxiliary spillways, the complex physical processes that influence their performance are not clearly understood (Temple, et. al., 1993).

*Research Efforts*

In 1982, the SCS engaged in a cooperative research effort with the Agricultural Research Service (ARS), USDA, to systematically study the performance of earth spillways.
after flood events that result in significant flow or damages to the spillways. These field studies were augmented by laboratory research conducted by the ARS Plant Science and Water Conservation Laboratory, Stillwater, Oklahoma. A joint SCS/ARS team, consisting of research hydraulic engineers, design engineers, and engineering geologists is currently finalizing its 12-year research effort to improve the design and analysis of vegetated earth spillways.

**Emergency Spillway Events**

To date, an estimated 1500 emergency spillway flows have been reported. Most received little to no damage, and experienced reservoir heads less than 3 ft. Of these, five experienced breach of the spillway crest and only 1 resulted in full loss of the reservoir volume. The team has visited over 130 spillways, representing 11 flood events in 14 states between 1982 and 1993. The following ranges in conditions were encountered:

- Reservoir heads: 0.4 - 8.9 ft
- Spillway velocities: 5 - 21 fps
- Flow duration: 8 - 124 hr
- Total discharge/width: 1 - 91 ac-ft/ft
- Spillway bottom widths: 20 - 500 ft
- Exit channel slopes: 2 - 16 %
- Exit conditions: graded to valley floor - vertical drop
- Earth materials: sand - massive, hard rock
- Quality of maintenance: excellent - poor

**General Observations**

Factors accentuating erosion included a road or trail parallel to flow; thin layer of top soil; poor vegetal stand; curve in the exit channel; and major slope breaks in exit channel.

Factors limiting erosion included a mild, continuous slope to flood plain; good uniform stand of vegetation; and a layout that provides uniform energy dissipation.

**Major Product of Research Efforts**

A new spillway breach potential model has been developed that reflects observed physical processes associated with spillway erosion more closely than current design and analysis procedures. The computational procedure uses an iterative reach-by-reach analysis to predict spillway performance in multiple geologic materials, and identifies potential locations and advance rate of headcuts. The model is being incorporated into SCS DAMS2 desktop software (SCS, 1983), TR-48, Structure Site Analysis Computer Program. The conceptual model of the failure process is divided into three sequential phases: (1) failure of the vegetal cover, if any, and the development of concentrated flow; (2) the downward and downstream erosion leading to the development of vertical or steep headcuts (knickpoints); and (3) the upstream advance of the headcut with associated widening and deepening. The first two phases have been described by Temple and Hanson (1993). The third phase involves an attack threshold analysis to predict conditions under which headcuts would be expected to become unstable (Moore, Temple, and Kirsten, 1994). A criterion was developed for prediction of headcut advance threshold, utilizing specific stream power and a headcut erodibility index adapted from Kirsten's (1982, 1988) material classification for ripability. The index applies across the entire range of earth materials, from cohesionless sand to massive, hard rock. The authors are continuing to examine the use of the index as a viable application in other forms of erosion and are preparing papers for release in the near future.

**Input Variables in Model**

The dominant physical processes comprising each phase of erosion are defined by simplified mathematical relations utilizing input variables summarized below:

- **Hydrologic**: the flood hydrograph.
- **Geometric**: spillway width and surface profile; elevation of valley floor and tail-water condition.
- **Surface (vegetal)**: vegetal retardance curve index; vegetal cover factor; potential rooting depth; cover/maintenance condition.
- **Geologic**: surface profiles of all materials; mean particle diameter, plasticity index, percent clay, and dry density

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of soils; headcut erodibility index of all materials—the index is based on material and mass properties, viz., compressive strength, block/particle size, discontinuity shear strength, and ground structure relative to the flow.

Anticipated Benefits of New Spillway Technology

The cost-effectiveness of new designs will be improved while increasing confidence in the stability and integrity of spillways. The new technology will result in faster evaluation of design alternatives. Optimization of costs for construction, maintenance, repair, and rehabilitation will be realized. The identification of the inter-relationships of the excitation-response process in hydraulic erosion is improving and should, therefore, realize benefits in the control of other engineering problems, such as: classic gully erosion on farmland and rangeland, bridge abutment scour, plunge pool and other jet erosion, and scour beyond spillways of dams.

Summary

The Agricultural Research Service and Soil Conservation Service, US Department of Agriculture, have developed a computational procedure for design and analysis of vegetated earth spillways. The procedure is based on both field observations of actual spillway events and laboratory-controlled flume studies. The new technology utilizes relatively easily obtainable parameters that reflect the hydrologic, hydraulic, vegetal, and geologic processes and physical conditions of the site.

The methodology is intended for use as a design tool by professional engineers and geologists exercising a high level of appropriate professional judgment and discretion. The technology has been through a beta test for verification, validation, and useability and is currently being incorporated into SCS software. SCS policy, criteria, and supporting technical literature are being revised accordingly; the software should be available for productive use by late 1994.

References Cited

John S. Moore, CPG-6042, is regional engineering geologist for the Soil Conservation Service, USDA, Northeast National Technical Center, Chester, PA. He has been lead geologist since 1985 on the SCS/ARS team that is conducting research in earth spillway performance.


Requesting Suggestions For Nominations

The AIPG Nominating Committee, chaired by Russell G. Slayback, is looking for suggestions for the slate of officers to be elected in 1995. If you know of a member who you feel is especially qualified for the office of President-elect, Vice-President, Secretary, or Editor-Elect of AIPG, please send his or her name to Russ Slayback along with a brief statement as to why the person should be considered.

The 1995 AIPG Awards Committee is also seeking nominations for future recipients of the Ben H. Parker Memorial Medal, the Martin Van Couyvering Memorial Award, the John T. Galey, Sr. Memorial Public Service Award, the Presidential Certificate of Merit, and Honorary Membership. The qualifications for the first three of these awards are given on page 26 of the 1994 Membership Directory. Nominations for these awards, accompanied by supporting statements, should be sent to the AIPG Committee on Honors and Awards, 7828 Vance Drive, Suite 103, Arvada, CO 80003-2124.
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An Example Of
The Role Of Geology In
A Large Public Agency

Richard J. Proctor, CPG-5091

The use of geologists in large tunnel and dam projects was non-existent in California until the 1920s. In the eastern U.S., geologists such as Berkey and Crosby were working with engineers much earlier. Several geologists and engineers have written about the tardy recognition of the usefulness of geologists on large projects, including Berkey (1929), Burwell and Roberts (1950), Terzaghi (1957), Legget (1979), and Proctor (1981). Question: Would St. Francis Dam have failed in 1928 had a geologic investigation been made prior to its construction? (See Rogers (1992) for a detailed reassessment of this event, which more than any other, launched the profession of engineering geology.)

The Metropolitan Water District of Southern California (MWD) is a good example of how geologists became integrated into a large public agency. The MWD has about 2,000 employees and is responsible for the distribution of water to 16 million people. In the early 1920s William Mulholand realized that his 1913 Los Angeles (Owens Valley) Aqueduct could not supply the growing population. He and two surveyors spent several years exploring routes to bring Colorado River water across 250 miles of desert to the Los Angeles region. In 1928, the State legislation created the MWD, whose job was to locate, build and operate such an aqueduct.

The MWD engineers hired several geologic consultants, mostly university professors, to investigate routes across the desert. Most prominent was Frederick L. Ransome, a mining geologist notable for his publications on Arizona copper deposits, and a former USGS geologist. When hired by MWD in 1928 he was a professor at the California Institute of Technology in nearby Pasadena. He spent seven years making trips to the desert for MWD until his death in 1935. He prepared an amazing 108 illustrated geologic reports for MWD, far more than any other consultant.

When Colorado River Aqueduct construction started in 1934, in the heart of the depression, four of the new hires happened to have degrees in geology; however, they were assigned to tunnel excavations as "safety inspectors". They were V.P. Pentegoff, who went on to be Chief of Soils and Foundations of the Los Angeles District of the Corps of Engineers; T.F. Thompson, who became a geologic consultant to World Bank; Ike Henderson, who became an official with the U.S. Boundary Commission in Texas; Edward Zielbauer, who became chief geologist of the Los Angeles County Flood Control District, and president of AEG in 1962. In spite of their early titles, these "inspectors" performed valuable geologic logging for most of the 92 miles of tunnels.

After the aqueduct construction was completed in 1941, there was a lull in MWD activities until the late 1950s. Then a major expansion of the distribution system began in response to construction of the new California Aqueduct. I was hired out of UCLA in 1958 as a Junior Engineer. Four years later my title was changed to Geologist, the first so-titled at MWD. I began hiring a dozen staff geologists to explore and log the 25 miles of tunnels and three dams...
that MWD built in the 1960s and 1970s.

Another construction hiatus occurred at MWD between the late 1970s and the late 1980s. During this period, the MWD had no staff geologists, but relied on local geotechnical firms to do investigations as needed. Then plans began in earnest for major construction of additional water supply lines. One is termed the Inland Feeder, which is needed mainly to increase supplies to San Diego, which, being mostly on granite, is dependent on imported water as there is no significant underground water source. MWD plans call for 23 miles of 17-foot diameter tunnels, many miles of large pipelines, and an 800,000 acre-foot reservoir. Construction will start in 1996. The MWD is relying heavily on large geotechnical firms (e.g., Bechtel, Ebasco, Parsons-Brinkerhoff, Dames & Moore, Woodward-Clyde), plus a select Board of Consultants comprised of engineers, geologists and seismologists. A small geology staff reviews and appraises the work.

References


Geological Survey Receives Grant To Study The Leucite Hills Near Rock Springs

The Wyoming State Geological Survey recently received a $5,000 grant from Union Pacific Resources to examine the Leucite Hills north of Rock Springs, Wyoming, for diamonds. According to W. Dan Hausel, Senior Economic Geologist with the Survey, the Leucite Hills contain some very rare volcanic rocks known as lamproite that are similar to kimberlite (kimberlite is a rock type that geologists commonly associate with diamonds). The present interest in the Leucite Hills stems from the fact that similar lamproites in Western Australia and in Murfreesboro, Arkansas, are diamond-bearing. The Argyle lamproite in Western Australia contains more diamonds per ton than any other host rock in the world.

The State Geological Survey is equipped with one of the only government-owned diamond extraction facilities in North America. The State Survey will process a few tons of olivine lamproite from the Leucite Hills on their grease table (diamonds are grease attractive) for diamonds, and will also collect other heavy minerals for geochemical studies.

At least four companies have acquired mineral rights in the Leucite Hills. Some companies are also exploring to the south near the Utah-Wyoming border where numerous heavy mineral anomalies, possibly associated with diamonds, have been found in ant hills.

Hausel said that both Colorado and Wyoming are currently experiencing a diamond rush. Several companies have also acquired land in the Colorado-Wyoming State Line district south of Laramie where more than 100,000 gem and industrial diamonds have been mined since 1979. According to recent articles in the Denver Post and Los Angeles Times, The optimism is running very high that one or more small-to moderate-sized diamond mines may result from the activity.

Nearly all of the companies have contact the Wyoming State Geological Survey for information because of their extensive data base on potential diamond deposits in Wyoming and Colorado. This data base has been developed over the past 16 years. According to Hausel, the State Survey has information on geophysical, remote sensing, and heavy mineral anomalies that might be related to diamond deposits. More than 300 heavy mineral anomalies have been discovered by the Wyoming State Geological Survey in the Medicine Bow, and Seminole mountain areas.
Geophysical Analysis
In Geotechnical Studies--
Electrical Resistivity Surveys
In The Eagle Ford Shale

Robert G. Font, CPG-3953

Electrical resistivity surveys have proven to be a valuable geophysical technique when applied to geotechnical investigations. Resistivity studies have been used successfully in a variety of field problems including the location of subsurface lithologic contacts, water tables, buried landslide slip surfaces and subsurface faulting.

Foundation problems are common in the Eagle Ford Shale of North-Central Texas. Damage to roads, structures and installations adds up to millions of dollars annually within the region. Much of this damage can be avoided or greatly minimized through on-site geotechnical analyses prior to construction. Electrical resistivity surveys have proven effective in such studies.

The example that follows addresses the use of the electrical resistivity survey at a specific site in North Texas, within the outcrop belt of the Eagle Ford Shale. The site analysis was conducted upon the request of the landowner. The land was picked as the building site of a large structure with a pier-and-beam foundation design. Of prime importance was the determination of the geotechnical properties of the Eagle Ford Shale at the specific landsite.

Especially important was the assessment of the changes in shear strength, water content and potential volume change as a function of depth. It was also imperative to determine the combined thickness of soil and weathered shale, in order to establish the depth to which piers should extend. The result of the study is summarized below.

Samples were examined to a depth of 10 meters. The approximate mineralogical composition of the shale was determined from X-Ray diffraction analyses and indicated 40% smectite, 15% illite, 15% kaolinite, 10% quartz, 10% calcite and 10% miscellaneous constituents. Samples were also tested in the laboratory to determine Atterberg limits and indices, in-situ water content, potential volume change and swell pressures, and unconfined compressive strength. These are summarized in

Figure 1
Geotechnical Properties
Eagle Ford Shale

PVC = Potential Volume Change Minimum
Swell Pressure and UCS = Unconfined Compressive Strength
Figure 1. Five separate electrical resistivity surveys were conducted across the site. A composite curve illustrating the result is shown in Figure 2.

The resistivity surveys precisely determine the depth to the unweathered shale. The critical depth was found to be 5 meters across the landsite. Resistivity values correlate accurately with water content fluctuation (Figure 3) and variation of shear strength with depth (Figure 4). The excellent correlation establishes the potential value of the electrical surveys in the assessment of geotechnical properties within the region. The observed results coupled with past experience shows it is possible to estimate, with acceptable accuracy, the approximate geotechnical properties of the Eagle Ford and other unstable shales within North-Central Texas from their electrical resistivity values. The technique provides us with a simple-to-run and effective predictive tool in geotechnical investigations.

References


Robert G. Font, CPG-3953, P.O. Box 795151, Dallas, TX 75379-5151.
Engineering Geology Of A Portion Of I-565, Madison County, Alabama

Paul Moser, CPG-1982

Much of the central and south-central part of Madison County, Alabama is underlain by the Mississippian Tuscumbia Limestone. This unit consists of a dolomitic limestone, calcareous dolomite, light-gray to light-brownish-gray, medium-grained, cherty, fissiliferous limestone, with varying amounts of bedded and nodule chert.

The Tuscumbia Limestone contains many high-capacity wells. Water-filled interconnected solution features must be penetrated by the drill however to obtain these large yields. When these interconnecting solution features are dry, they may be classified as a cave. An estimated 50 of the total of over 300 caves mapped caves in Madison County occur in the Tuscumbia Limestone.

The 19-mile long I-565 spur extending from I-65 in southeastern Limestone County eastward to Huntsville in central Madison County (Figure 1) is constructed predominantly on the Tuscumbia Limestone.

In the late 1980's during the preliminary subsurface investigation for the design and construction of I-565, it was discovered that the 2,200-foot long Matthews Cave lay directly under the proposed route of the interstate.

The original plan was to collapse the cave, fill the cavity with debris and, if need be, add concrete, thus providing a solid foundation for the construction of the interstate. The Cave Conservation Law of Alabama stipulates that a cave may not be destroyed or damaged, therefore the contractor had to devise an alternate foundation design.

In order to verify the location, size, and extent of Matthews Cave, the contractor drilled a series of small-diameter holes through the regolith, through the solid bedrock, into the cave, and a short distance into the floor of the cave. These holes were marked with PVC casing that was painted orange for easy identification. Survey crews were able to enter the cave, survey the extent of the cave and relate it to the overlying proposed I-565. Five of these orange PVC casings are still in place and are visible inside of Matthews Cave (Figure 2).

In order to provide a solid foundation for the construction of I-565, a reinforced concrete culvert was designed to bridge the cavity of Matthews Cave. The plan was to drive a series of I-beams to reach solid bedrock, thus providing a solid foundation for the construction of the culvert overlying the cave opening. One of these I-beams apparently encountered an open or mud-filled solution cavity, was deflected from the vertical, and entered Matthews Cave (Figure 3). Continued pounding of the I-beam caused the beam to continue veering off from the vertical, until approximately 60 feet of the deformed I-beam is now
visible in the main passage of the cave. The room in Matthews Cave where this I-beam is exposed is approximately 38 feet from floor to ceiling and approximately 75 feet wide.

Further detailed exploration in a narrow and parallel opening to the east of the main passage of Matthews Cave has verified the presence of 3 additional I-beams. These beams were only slightly deformed during the driving process, but still provide support for the overlying culvert. A number of additional I-beams have been driven to solid bedrock to provide adequate support for the construction of the culvert.

The design of the I-565 spur over Matthews Cave indicates that approximately 49 feet of overlying regolith and rock separate the roof of the cave from the finished grade of the interstate. At the highest part of the large room where the I-beam is present, the roof of the room is within approximately 30 feet vertically of the finished grade of the interstate spur.

Matthews Cave extends for approximately 2,200 feet in a north-south direction (Figure 4). Alabama # 20 is located to the north, parallel and adjacent to I-565. The northern part of Matthews Cave extends under Alabama # 20. The vertical distance from the northern part of Matthews Cave to the finished grade elevation of Alabama # 20 is unknown, but is considerably less than that portion of the cave that underlies I-565.

No known collapses have been reported over Matthews Cave on I-565 or Alabama # 20 as of this date.

This article was received before the untimely death of Paul Moser, CPG-1982.
The Mining Law Reform Debate Lives On: Geologists Will Continue to Play a Key Role

Debra W. Struhsacker, CPG-8259

Having just returned from a three-week long stint in Washington, D.C. working on mining law reform, it seems appropriate to ruminate about where we go from here, and to evaluate the role which geoscientists play in this important public policy discussion.

There's Good News and Bad News

First of all, in case you have not yet heard the good news -- WE WON! The collective blood, sweat, tears, and stomach lining of the many people who worked on this issue during the past two years prevailed; we stopped a bad bill from being passed into law. Unfortunately, in case you have not heard the bad news -- no bill was passed this session. Despite the mining industry's hard work and good faith efforts to negotiate responsible mining law reform legislation, last-minute, back-room deals and political maneuvering in the Senate dashed all hopes of passing a fair bill this session.

The Battle is Over - But The War Rages On

So, the beat goes on. We won a very significant battle, but the war still rages. The mining industry continues to be the butt of vituperative print and electronic media attacks, and industry detractors vow to return next year with a vengeance. In addition to levying royalties and eliminating patenting, these anti-mining enviropoliticians are talking about imposing severance taxes and paralyzing the industry with new regulatory restrictions.

Clearly, there will be no rest for the weary mining industry as we remain embroiled in the mining law reform debate. However, there is reason for cautious optimism. Firstly, the tenor of the debate has steadily improved during this session. To be sure, anti-mining ideologues continue to trot out their tired rhetoric and misinformation about how the mining industry is ripping off the American public by patenting land for $2.50 per acre. However, among many members of Congress and their staff, there is a much improved awareness of the realities of the issue. Many of the Congressional offices with whom I have met have come a long way in the past 18 months in understanding issues like net versus gross royalties, patenting, and unsuitability.

Secondly, if the pundits are right, the next session of Congress may be more conservative and sympathetic to business interests. Perhaps the mining law discussion next session will be more factual and less vindictive, and the prevailing atmosphere will allow Congress and industry to reach a consensus on mining law reform. Maybe we can also hope that the agenda to stop mining in the U.S. will be a minority viewpoint on the fringes of the debate - instead of occupying a key position as it did in this session of Congress.

We cannot expect to win the mining law war in a setting in which we continue to be vilified by the press.

Hopefully, an improved understanding and a more receptive attitude towards business next session will allow the industry and Congress to work together to pass mining law reform legislation which achieves the mining law reform goals which the industry has supported throughout this session. These goals include providing a fair return to the American public (i.e., royalties), payment of fair market value for surface patents, prohibiting non-mining uses of patented land, protecting the environment, and preserving mining industry jobs.

It thus appears that the mining industry has been given a golden opportunity next session to develop reasonable and responsible mining law reform, and there is already talk about introducing a new bill next year. However, in order to capitalize upon this opportunity, the industry must dramatically improve its public relations efforts. We cannot expect to win the mining law war in a setting in which we continue to be vilified by the press. Our political fate is inextricably intertwined with public opinion. As an industry, we simply must turn our attention to changing public opinion about mining. This will require television and radio advertisements, public service announcements, and rapid and effective responses to anti-mining editorials. On the grassroots level, changing

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public opinion will require geoscientists and other mining industry professionals to serve as industry spokespersons, and to devote more effort to community involvement activities.

**Geologists Have Made Significant Contributions to the Debate**

In the September, 1994 volume of *The Professional Geologist*, Lee and Driessen present an excellent discussion of several key mining law reform issues, but ask "Where Are the Geologists?". Although I agree that the issues discussed in their paper have not been given adequate consideration in any mining law reform proposals offered to date, I disagree that geologists have been "all but invisible on Capitol Hill as Congress grapples with amendments to the 1872 Mining Law".

---

**The WMC made eight trips to Washington, D.C. during 1993-1994 to discuss mining law reform with Congress and the Administration.**

Geoscientists have played a key role in the mining law debate. Many geoscientists have traveled to Washington, D.C. over the past two years to discuss mining law reform with members of Congress and their staff. These men and women have played a critical role in increasing Congressional understanding and awareness of pivotal mining law issues.

For example, AIPG Secretary Kathleen Benedetto and I, along with the help of Reno geologist Ruth Carraher, founded the Women’s Mining Coalition (WMC). This grassroots group of women in the mining industry includes many geologists. The WMC made eight trips to Washington, D.C. during 1993-1994 to discuss mining law reform with Congress and the Administration. We helped put a face on the issue, and in my opinion, contributed substantively to discussions about the difference between net and gross royalties, the existing environmental permitting and regulatory scheme for mining, unsuitability, and the industry’s commitment to environmentally responsible mining and proactive reclamation.

Other AIPG members, including Russell Babcock, Geoffrey Snow, and William Shepherd (just to name a few), have been actively involved with the mining law debate for many years. Additionally, countless other geoscientists have sent letters and facsimiles to Congress, participated in public meetings, and responded to editorials. Collectively, these efforts have had a positive effect. Based on comments from numerous Congressional staff members, it is clear that the geologic community has contributed to the quality of the debate.

Lee and Driessen are right, however - issues like access to public lands and extralateral rights have been all but lost in the larger debate. By focusing on royalties, patenting, unsuitability, and other issues critical to mining projects, Congress and industry have not paid sufficient attention to issues which will have a dramatic impact upon the future of mineral exploration in this country. Perhaps the most important neglected issue is public lands access; preserving access is critical if mineral exploration is to remain a viable enterprise. (Both the House bill and recent Senate versions would significantly reduce access to public lands by establishing categorical exclusions for large areas of the public land, effectively placing these areas off limits to mining).

As discussed by Lee and Driessen, geologists can provide unique insights into these and other critical mining law reform issues. Given the importance of these issues to the future of the industry (not to mention the career outlook for many geologists), the geologic community must become more involved in the exploration aspects of the mining law reform debate. The geologic community should carefully consider the points raised by Lee and Driessen about these neglected but important mining law reform issues. To their list, I would add streamlining permitting requirements for initial, low-impact test drilling; retaining the law of discovery, and eliminating the doctrine of *pedis possessio* as issues of critical importance to exploration.

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**Geologists’ Role In Developing The Exploration And Mining Law Reform Act Of 1995**

It will be up to geoscientists to broaden the discussions next year to include exploration issues. We must frame future mining law discussions to increase public and Congressional awareness of the importance of passing legislation which encourages mineral exploration. We must convince Congress that a strong mineral exploration industry is critical to the long-term success of the mining industry, and the royalty revenues which Congress hopes to generate from mining. Our legislators must be made to understand that without exploration, and the resulting flow of new discoveries, the royalty stream will eventually dry up. It will be up to us to help develop sound exploration and mining law reform legislation.

To everyone in the geologic community who has participated in the mining law issue over the last two years - THANK YOU. To those who haven’t, there is no time like now to get started. As geologic professionals, we have a responsibility to ourselves and to the American public to be actively engaged in this important public policy discussion. Obviously, the outcome of the mining law reform debate will have a profound effect upon those geoscientists who work in the mining industry. However, in the grander scheme of things, the outcome of this debate has important implications for the future of this country’s economy and America’s continued strength as a nation.

Debra Struhsacker is an environmental permitting and government relations consultant specializing in mining issues. Through her involvement with the Women’s Mining Coalition, she has actively participated in the mining law reform debate during the past two years.*
WHAT AIPG DOES

* PROFESSIONAL CERTIFICATION - Certifies Professional Geologists based on their Competence, Integrity and Ethics.

* OMBUDSMAN - Intervenes with regulatory boards and agencies on behalf of individual geologists, at the geologist’s request.

* LOBBYING - Presents testimony and position papers to Federal and State Legislators and agencies on matters affecting geologists and geologists’ employment opportunities.

* JOB BANK - Provides access to an employment referral service.

* PUBLICATIONS - Publishes a monthly magazine, an annual directory and a variety of publications for both the profession and the general public.

* LIABILITY INSURANCE - Provides access to insurance for errors and omissions, designed specifically for geologists.

* CONTINUING EDUCATION - Through publications, seminars, short courses and field trips, provides educational opportunities for geologists, other scientists and engineers and the general public.

* HEALTH, LIFE AND ACCIDENT INSURANCE - Provides access to a full line of health, life and accident insurance.

* INTERNATIONAL COMITY - Through agreements with professional societies in other countries, provides access for its Members to professional registration, certification, or chartered status in those countries.

* STATE & SECTION ACTIVITIES - State and regional sections work on local political issues and the professional status of geologists in their geographic areas.

For information call (303) 431-0831
UNITED STATES 308
AGENCY: Federal Emergency Management Agency
TOPIC: INSURANCE -- 12
SUMMARY: Modifies base (100 year) flood elevations for certain communities. States that these modified elevations will be used to calculate flood insurance premium rates for new buildings and their contents.
AGENCY CONTACT: Michael Buckley, Chief, Hazard Identification Branch, Mitigation Directorate, 500 C St. SW, Washington, D.C. 20472, (202)646-2756
CITATION: 44 CFR Part 65
ADOPTION DATE: 08/22/94
EFFECTIVE DATE: 08/29/94

UNITED STATES 402
AGENCY: Environmental Protection Agency
TOPIC: INSURANCE -- 12
SUMMARY: Identifies communities participating in the National Flood Insurance Program. These communities have applied to the program and have agreed to enact certain floodplain management measures.
AGENCY CONTACT: Robert Shea, Jr., Division Director, Program Implementation Division, Mitigation Directorate, 500 C Street, SW, Room 417, Washington, DC 20472, (202)646-3619
CITATION: 44 CFR 64
ADOPTION DATE: 08/29/94
EFFECTIVE DATE: 08/29/94

UNITED STATES 404
AGENCY: Federal Emergency Management Agency
TOPIC: RESOURCE MANAGEMENT AND PRESERVATION -- 18
SUMMARY: Lists communities where modifications of the base (100 year) flood elevations is appropriate because of new scientific or technical data. New flood insurance premium rates will be calculated from the modified base (100 year) flood elevations for new buildings and their contents.
AGENCY CONTACT: Michael Buckley, Chief, Hazard Identification Branch, Mitigation Directorate, 500 C St. SW, Washington, D.C. 20472,(202)646-2756
CITATION: 44 CFR 65
ADOPTION DATE: 08/29/94
EFFECTIVE DATE: 08/29/94

UNITED STATES 764
AGENCY: Federal Emergency Management Agency
TOPIC: RESOURCE MANAGEMENT AND PRESERVATION -- 18
SUMMARY: Lists communities where modification of the base (100 year) flood elevations is appropriate because of new scientific or technical data. New flood insurance premium rates will be calculated from the modified base (100 year) flood elevations for new buildings and their contents.
AGENCY CONTACT: Michael Buckley, Chief, Hazard Identification Branch, Mitigation Directorate, 500 C St. SW, Washington, D.C. 20472, (202)646-2756
CITATION: 44 CFR 65
ADOPTION DATE: 08/29/94
EFFECTIVE DATE: 08/29/94

UNITED STATES S 2519
AUTHOR: Ford
SUMMARY: Amends Title IV of the Surface Mining Control and Reclamation Act of 1977, provides for acquisitions and reclamation of land adversely affected by past coal mining practices.
STATUS: 10/06/94 INTRODUCED

UNITED STATES S 2520
AUTHOR: Ford
SUMMARY: Amends Title IV of the Surface Mining Control and Reclamation Act of 1977, encourages the mining and reclamation of previously mined areas by active mining operations.
STATUS: 10/06/94 INTRODUCED

ALABAMA 3012
AGENCY: Board of Registration for Professional Engin. and Land Surveyors
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Relates to certification for professional engineers and land surveyors.
AGENCY CONTACT: Sarah E. Hines, Executive Director, 501 Adams Avenue, Montgomery, AL 36104.
CITATION: AAC 330-X-2-01 Definition of terms.
PROPOSAL DATE: 07/29/94
ADOPTION DATE: 10/19/94

ALABAMA 3014
AGENCY: Board of Registration for Professional Engin. and Land Surveyors
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Removes restrictions regarding who shall apply for initial registration or certification in this state.
AGENCY CONTACT: Sarah E. Hines, Executive Director, 501 Adams Avenue, Montgomery, AL 36104.
CITATION: AAC 330-X-3-03 Applications from Non-residents
PROPOSAL DATE: 07/29/94

ALASKA 1394
AGENCY: Department of Commerce and Economic Development
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Clarifies the acceptable experience an applicant must document to be eligible for the fundamentals of engineering examination. Clarifies the education and experience requirements an applicant must meet to be eligible for the professional engineering examination. Clarifies the education and experience requirements an applicant must meet to be eligible for the fundamentals of land surveying examination. Clarifies the requirements an applicant must meet to be eligible for the professional land surveying examination, including the requirements for acceptable education. Changes the deadline for requesting postponement of an examination and to clarify the results of failure to take or postpone an examination.
AGENCY CONTACT: JoAnne Cummings, Regulations Specialist, Division of Occupational Licensing, Department of Commerce and Economic Development, P.O. Box 110836, Juneau, AK 99811-0836.
PROPOSAL DATE: 10/05/94
COMMENT DEADLINE: 11/09/94
HEARING DATE: 11/18/94

CONNECTICUT 2162
AGENCY: Department of Consumer Protection
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Concerns the rules of professional conduct for professional engineers and land surveyors. Extends the objective and completeness of truthful standards that currently exists to include all documents completed by the engineer or land surveyor.
AGENCY CONTACT: Joseph Lembo, Director of the Legal Division Department of Consumer Protection, Room 173, State Office Building, 165 Capitol Avenue, Hartford, CT 06106.
CITATION: Sections 20-303 Rules of Professional Conduct for Professional Engineers and Land Surveyors.
PROPOSAL DATE: 04/19/94
COMMENT DEADLINE: 05/19/94
HEARING DATE: 05/24/94
ADOPTION DATE: 06/07/94
EFFECTIVE DATE: 08/23/94

FLORIDA 14456
AGENCY: Dept of Business and Prof. Regulation/Board of Prof. Engineers
TOPIC: BUSINESS AND CORPORATION -- 2
SUMMARY: Specifies the applicable procedures with regard to the responsibility rules of professional engineers; imposes discipline on professional engineers who do not comply with the procedures in the responsibility rules adopted by the Board of Professional Engineers.
AGENCY CONTACT: Angel Gonzalez, Exec. Dir., Board of Prof. Engineers, Northwood Centre, 1940 N. Monroe Street, Tallahassee, FL 32309-0750.
CITATION: FAC 61G15G-19 001 Grounds for Disciplinary Proceedings
PROPOSAL DATE: 09/09/94
COMMENT DEADLINE: 09/30/94
HEARING DATE: 10/04/94

FLORIDA 14459
AGENCY: Dept of Business and Prof. Regulation/Board of Prof. Engineers
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Deletes from the list of items professional engineers may sign their name and affix their seal.
AGENCY CONTACT: Angel Gonzalez, Exec. Dir., Board of Prof. Engineers, Northwood Centre, 1940 N. Monroe Street, Tallahassee, FL 32309-0750.
CITATION: FAC 61G15-23.002 Seal, Signature and Date Shall be Affixed.
PROPOSAL DATE: 09/09/94
COMMENT DEADLINE: 09/30/94
HEARING DATE: 10/04/94

ILLINOIS 6002
AGENCY CONTACT: Department of Professional Regulation
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Requires structural engineers, starting with the 1996 license renewal to submit to the Department of Professional Regulation, satisfactory evidence of knowledge in seismic design.
AGENCY CONTACT: Jean Courtney, Dept. of Prof. Regulation, 320 W. Washington Street, 3rd Fl., Springfield, IL 62706, (217)785-8600, FAX (217)785-7645.
PROPOSAL DATE: 05/15/94
COMMENT DEADLINE: 05/15/94
ADOPTION DATE: 06/30/94
EFFECTIVE DATE: 09/19/94
LOUISIANA 4552
AGENCY: Dept. of Transp. & Dev./D. of Registr. for Prof. Engin. & Surveyors
TOPIC: TRANSPORTATION  20
SUMMARY: Relates to the general provisions of the Board of Registration for Professional Engineers and Land Surveyors; includes definitions.
AGENCY CONTACT: Board of Registration for Professional Engineers and Land Surveyors, Department of Transportation and Development, 1005 St. Charles Ave., Suite 415, New Orleans, LA 70130
CITATION: LAC 46:LXI 105 Definitions
PROPOSAL DATE: 05/20/94
COMMENT DEADLINE: 07/15/94
HEARING DATE: 07/01/94, 07/26/94
ADOPTION DATE: 08/20/94
EFFECTIVE DATE: 09/02/94
MARYLAND 4959
AGENCY: Department of the Environment
TOPIC: RESOURCE MANAGEMENT AND PRESERVATION  18
SUMMARY: Encourages remaining. States that remaining of previously disturbed areas provides an opportunity to eliminate or reduce abandoned highwalls, to reclaim abandoned outcrops and spoil piles, to reduce or eliminate sources of suspended solids and acid mine drainage and to improve drainage control and water quality in the watershed. Improves aesthetics, restores land to a more productive use and confinement of mining activities to areas which have already been historically degraded. States that remaining is consistent with the Department of the Environment's objectives of pollution prevention when existing sources are reduced or eliminated.
AGENCY CONTACT: Deanna Miles-Brown, regulations Coordinator, 2500 Broening Highway, 3rd Floor, Baltimore, MD 21224, (410)363-3173
CITATION: COMAR 26.08.01 .01; General: COMAR 26.08.02 .03; Water Quality: COMAR 26.08.03 .08; Discharge Limitations
PROPOSAL DATE: 03/20/94
COMMENT DEADLINE: 01/17/94
HEARING DATE: 03/26/94
MISSISSIPPI 584
AGENCY: Board of Professional Engineers and Land Surveyors
TOPIC: BUSINESS AND CORPORATIONS  2
SUMMARY: Concerns the Board of Professional Engineers and land Surveyors sealing requirements.
AGENCY CONTACT: Rosemary Brister, Board of Professional Engineers & Land Surveyors, Jackson, MS (601)359-6160.
CITATION: Sealing Requirement
PROPOSAL DATE: 09/09/94
MISSISSIPPI 616
AGENCY: Board of Professional Engineers and Land Surveyors
TOPIC: BUSINESS AND CORPORATIONS  2
SUMMARY: Allows one year experience credit for completing a specific correspondence course for professional engineers and land surveyors.
AGENCY CONTACT: Rosemary Brister, Board of Professional Engineers & Land Surveyors, Jackson, MS (601)359-6160
CITATION: Correspondence Course
PROPOSAL DATE: 09/20/94
NEVADA 1121
AGENCY: Department of Minerals
TOPIC: ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL  8
SUMMARY: Relates to domestic geothermal wells; includes estimated depth of wells, commercial wells, industrial wells, type of drilling used.
AGENCY CONTACT: Russell A. Fields, department of Minerals, 400 West King Street, Suite 106, Carson City, NV 89710
CITATION: NAC 534 Domestic Geothermal Wells
ADOPTION DATE: 08/22/94
EFFECTIVE DATE: 08/22/94
OREGON 10724
AGENCY: Board of Engineering Examiners
TOPIC: BUSINESS AND CORPORATIONS  2
SUMMARY: Increases the price the Board of Engineering Examiners adjusts current rates; increases Structural Examination Part II from $50 to $60 to coincide with all other Professional Engineering Examinations; increases examination for certification for engineer-in-training from $30 to $40 and rate examination for Part II is still $100.
AGENCY CONTACT: Ed Graham, Board of Engineering Examiners, 750 Front Street, NE 4240, Salem, OR 97310, (503)378-1180
CITATION: OAR 620-10-305(1), 820-10-305(2) Examination Rate Increase
PROPOSAL DATE: 07/01/94
ADOPTION DATE: 07/22/94
EFFECTIVE DATE: 07/22/94
TENNESSEE 3870
AGENCY: Board of Architectural and Engineering Examiners
TOPIC: BUSINESS AND CORPORATIONS  2
SUMMARY: Relates to rules of professional conduct of Board of Architectural and Engineering Examiners, concerns the requirement that any portions of working drawings, plans, reports, or other documents prepared by registered consultants shall bear the seal and signature of the consultant responsible therefor.
AGENCY CONTACT: Board of Archit. and Engin. Examiners, Nashville, TN
CITATION: TAC 0120-2.08 Seals
COMMENT DEADLINE: 10/15/94
HEARING DATE: 10/20/94
UTAH 5909
AGENCY: Dept. of Envir. Quality/Div. of Environ. Response and Remediation
TOPIC: ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL  8
SUMMARY: Relates to underground storage tanks; clarifies rules mandated by changes in the underground Storage Tanks Act; includes definitions.
AGENCY CONTACT: Gary Astin, Division of Environmental Response and Remediation, Department of Environmental Quality, 188 North 1950 West, 1st Floor, Salt Lake City, UT 84116, (801)536-4100
CITATION: R 311-200-1 Underground Storage Tanks; Definitions
PROPOSAL DATE: 09/15/94
COMMENT DEADLINE: 10/17/94
UTAH 5910
AGENCY: Dept. of Envir. Quality/Div. of Envir. Response and Remediation
TOPIC: ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL  8
SUMMARY: Relates to underground storage tanks; specifies installation activities for tank installation permit fee; specifies conditions under which the Executive Secretary may waive the tank registration for penalty.
AGENCY CONTACT: Gary Astin, Division of Environmental Response and Remediation, Department of Environmental Quality, 188 North 1950 West, 1st Floor, Salt Lake City, UT 84115, (801)536-4100
CITATION: R 311-203-1 - 311-203-4 Underground Storage Tanks
PROPOSAL DATE: 09/15/94
COMMENT DEADLINE: 10/17/94
UTAH 5911
AGENCY: Dept. of Envir. Quality/Div. of Envir. Response and Remediation
TOPIC: ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL  8
SUMMARY: Relates to underground storage tanks; clarifies situations under which certificates of compliance lapse or may be revoked; states that certificate lapse on the 61st day after the end of the quarter in which a tank is removed; states that the Executive Secretary may revoke a certificate of compliance if a tank owner or operator does not satisfy all clean up requirements.
AGENCY CONTACT: Gary Astin, Division of Environmental Response and Remediation, Department of Environmental Quality, 168 North 1950 West, 1st Floor, Salt Lake City, UT 84115, (801)536-4100
CITATION: R 311-206-1 - 311-206-6 Underground Storage Tanks
PROPOSAL DATE: 09/15/94
COMMENT DEADLINE: 10/17/94
WYOMING 425
AGENCY: Department of Environmental Quality
TOPIC: ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL
SUMMARY: Relates to the Advisory Board members of the Division of Land Quality; includes solid waste rule package, shrub density rule, governors' compensation plan. Relates to coal operators; studies sets criteria for mine generated solid waste.
AGENCY CONTACT: Division of Land Quality, Department of Environmental Quality, Herschler Building, 122 West 25th Street, Cheyenne, WY 82002, (307)777-7756
CITATION: Land Quality Rules

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F. B. "Ted" Mullin, CPG-1716

This is the first writing since the National Meeting in Flagstaff, the Federal Register presses rolled on.

There is an interesting article in the September 6, 1994 issue. Vol. 59, No. 171, 9-6-94, Part III, pg 46110. Department of Interior, Minerals Management Service. Russian Federation Committee on Geology and Use of Mineral Resources; Notice. This notice is to solicit comment from oil and gas companies doing business in the U.S. Chukchi Sea regarding the feasibility of joint operations with Russia.

"Oil and gas companies are asked to provide their current interest in leasing and exploration within the U.S. Chukchi Sea and Hope Basin Planning Areas as well as in the Russian Northern Chukchi and Southern Chukchi Planning Areas depicted on the map. Other interested parties are also asked to provide comments about particular geologic, environmental, biological, economic, archaeological, or socioeconomic conditions, potential conflicts and other information that might bear upon potential leasing and development of these areas. Other information of interest includes new geologic, geophysical, biological, archaeological, environmental, or socioeconomic data; new interpretations of existing data; new or developing technological advances; and new estimates of timing and costs of production."

Please provide your comments no later than 90 days following publication of this document in the Federal Register and Mineral Resources of Russia. Consideration of the information will be facilitated if the envelopes are marked "Comments on US/Russia Proposed Simultaneous Leasing in the Chukchi Sea." Any data or information that you consider confidential/proprietary should be marked. The phone number and name of the person to contact is the respondent's organization for additional information should also be included. Letters should be mailed or hand delivered to: Regional Supervisor, Leasing and Environment, Alaska, OCS Region, 949 East 36th Avenue, Room 603, Anchorage, Alaska 99508-4302, US. Telephone responses may be provided to the Regional Supervisor at (907) 271-6045, or faxed to (907) 271-6507, or by E-mail to AWMMSS@TUNDRA.ALASKA.EDU. Further information can also be obtained from the Regional Supervisor. Vol. 59, No. 180, 9-19-94, pg 47815. Department of Interior, Bureau of Land Management, 43 CFR Parts 3720, 3730, 3800, 3810, 3820, 3830, 3850. Mining Claims; Maintenance and Location Fees; Lands Open to Location, National Parks, King Range National Conservation Area, Indian Reservations, Surface Management; Removal of Obsolete or Expired Regulations, Consolidation of Remaining Sections: Final Rule. Correction. The original document contained an error in the FR dated 8-30-94, Doc. 94-21388. The correction is as follows: On page 44842, in the first column, in paragraph 3833.1-7, paragraph (e) (1), line 12, the cross-referenced paragraph "3833.0-5(y)" is corrected to read "3833.0-5(x)". Same Volume, at page 47980. Environmental Protection Agency, 40 CFR Part 268. Hazardous Waste Management System; Testing and Monitoring Activities; Land Disposal Restrictions. Correction. This action corrects the final regulations which were published Tuesday, August 31, 58 FR 46040. This action corrects unintended removal of text from 40 CFR 268.7(a), which sets out generator waste analysis and record-keeping requirements.

For further information contact: Kim Kirkland at (202) 260-4761, Office of Solid Waste, (mailcode 5304), USEPA, 401 M Street SW, Washington, D.C. 20460, or phone the HOTLINE on (800) 424-9346 (Toll-free).

Vol. 59, No. 181, 9-20-94, pg 48314. EPA. Draft NPDES General Permit for Offshore Oil and Gas Operations on the Outer Continental Shelf (OCS) and State Waters of Alaska: Arctic NPDES Permit. For further information contact: Anne Dailey at (206) 553-2110 or Eileen Hileman at (206) 553-6513.


And now, from the 9-28-94 issue, Vol. 59, No. 187, pg 49377-49384, Department of Commerce, NOAA, Coral and Coral Reefs of the Gulf of Mexico and South Atlantic. Here are some interesting phrases that will draw your attention to the South Atlantic EEZ.

Amendment 2
-- will prohibit the taking of wild live rock--
-- will prohibit the taking of wild live rock by chipping--
-- all landings of live rock to date have been of "wild live rock", that is non-aquacultured live rock--

Definitions given:
Aquacultured live rock means live rock that is harvested under an aquacultured live rock permit--

"Live rock means living marine organisms, or an assemblage thereof, attached to a hard substrate, including dead coral or rock--"
"wild live rock means other than aquacultured live rock--"

And you thought that people and animals went wild. Does that means that if a rock turns into a wild rock it suffers from rock failure??? What kind of training does a wild rock geologist need? Oh, never mind...•

PRESIDENT'S MESSAGE

December Is AIPG Foundation Month

One should issue at least one proclamation while President of anything, and so I do proclaim that December is AIPG Foundation Month.

The AIPG Foundation was initially organized in 1982, and reorganized in 1985. Its purpose is to act as a recipient of tax-deductible contributions, to build an endowment and supplement the activities of the Institute in areas of geologic and public education. It is a 501(c)(3) organization under the IRS code.

Its goal is to establish a minimum one million dollar endowment, whose income will be used to fund geologically oriented:

• Public Information and Education
• Research on Public Issues
• Information Forums for Professionals

So far, the AIPG Foundation has amassed a fund of $130,000 from individual contributions. Beginning this year, the Foundation is working with the St. Paul Foundation to provide the opportunity for accepting deferred gifts. Persons can contribute substantial funds to the AIPG Foundation through the St. Paul Foundation and receive the income generated from these contributions for their lifetime (and/or their spouse's lifetime), and the principal will devolve to the assets of the AIPG Foundation upon their demise. Use of such tax-deductible contributions can have an enormous impact on reducing the tax liabilities on estates, commonly increasing the monies that heirs receive, clearly a win-win opportunity.

AIPG has a large role to play in educating politicians and the public about geology, geologists and geologic issues. Fulfilling that role, which is critical to our profession, takes more money than our dues generate. In this holiday season, won't you please consider making a contribution to the AIPG Foundation in December? After all, this is a Presidential proclamation.

You can contribute to the AIPG Foundation by:
• Checking off the box on your Annual Dues Statement, and increasing the amount of your check
• Sending a check payable to the AIPG Foundation Treasurer Kelvin Buchannan, Henkle Buchannan Group, 243 Stewart Street, Box 2391, Reno, NV 89505-2391.
• If you are interested in learning more about deferred estate-tax-deductible gifts, contact Foundation Chairman Ernest Lehmann, North Central Mineral Venture, 12 S. 6th Street, Suite 622, Minneapolis, MN 55402-1506.•

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Executive Director's Column


William V. Knight, CPG-153

"The minimum qualifications for membership in the Institute are:...Membership in a scientific society..."

This provision was once a part of AIPG's Bylaws. It is no longer, much to the displeasure of a number of our Members. It was progressively modified, then abandoned several years ago, reportedly to reduce the costs of membership. Many believe that it also reduced professional responsibility.

The founders of AIPG understood the distinction between a professional society and a scientific (or "technical") society. Unfortunately, that understanding seems to have become blurred in the minds of many geologists...and others.

As distinguished by AIPG, a "professional" society is concerned primarily with the legal and public standing of a particular occupation and with the quality of the services which its practitioners offer to the public; whereas a "scientific" society is concerned primarily with scientific inquiry.

It is important for "professionals" to be interested, and to participate, in the science which they practice. Thus, they were (and are) expected to be active in the scientific organizations appropriate to their line of endeavor. A "professional" is an active member of a scientific society for the purposes of encouraging scientific inquiry and of sharing, and learning, the results of that inquiry in order to foster constant improvement in the quality of the professional services offered to the public.

The scientific society concentrates on promoting scientific investigations and publishing their results. Communication consists primarily of sharing scientific information with the investigator's peers and secondarily in sharing it with the public. Attention paid to relations between the scientist and the public is subordinated to that between scientific colleagues and peers. Thus, most of the society's publications are aimed at disseminating scientific information among that particular science's practitioners.

The professional society, by contrast, generally leaves scientific inquiry to the scientific societies and concentrates on delivering to the public usable services derived from that inquiry. Communication usually consists of (1) providing to the public a method of assuring quality of professional services, e.g., "certification"; (2) educating the public to the value of those services, i.e., "lobbying" both the general public and the government; and (3) promoting the professional and civic development of its practitioners. The hoped-for ultimate result is expanded employment opportunities for its members.

In order to do this properly, it is necessary for the professional society's members to be scientifically competent, to conduct themselves ethically and to meld competence and ethics together in integrity, i.e., soundness. One may be competent and one may be ethical, but unless one is both and brings them together effectively, one is not necessarily sound.

AIPG is the only organization in the United States, serving all geologists,
whose primary purpose is "professional". All of the others are primarily "scientific", or "technical", or otherwise limited in their scope.

As the society serving the profession (as contrasted with the science) of geology, AIPG is in the forefront of efforts to (1) provide standards by which geologists can be measured and to identify to the public those geologists who are scientifically competent, and ethically and professionally sound; (2) inform the public and government; and (3) keep geologists aware of scientific, business and political developments in their field.

To accomplish this, AIPG’s principal activities are in (1) professional certification, (2) public affairs and (3) the education of geologists in professional, business and public affairs (as contrasted with purely scientific education). This is a unique role in our profession. No other geological society serving the whole profession has these activities as its principal focus. Yet, these activities are important, indeed essential, to the future of geology as a viable occupation. For, without them, we could conceivably become merely an intellectual curiosity. Most of the services which we provide to society would then be provided (probably less competently) by others who would combine minimum geologic knowledge with other skills. We could cease to be an "applied" science and become solely a "pure" science, with progressively fewer practitioners. And, the public would then be poorly served. (If tempted to regard this as an exaggeration, consider the statement of one prominent engineer in addressing an AIPG meeting. He declared that geologists have, by default, given away more work than they will ever have. If geologists had not been so self-limiting and surrendered the fields, such professions as reservoir engineering, geotechnical engineering, mining engineering and soil science would not now be doing so much of the work that is naturally geologists’.)

Scientific societies frequently have difficulty communicating with the public. On the other hand, professional societies, such as AIPG, are designed with that as their primary purpose. When the functions of both are combined in one society, often the result is either (1) neither function is performed well, or (2) one function is performed well, while the other suffers neglect. In the case of (2), the function emphasis tends to change as the composition of the governing body changes, bringing the overall result back to (1). It is an old truth that two masters cannot concurrently be served effectively. One of them will always demand preference. Thus, both professional and scientific societies are needed.

All professional geologists should support both a scientific society and a professional society. They likely will participate more in one than in the other. And, the focus of their participation will change from time to time, as their circumstances change. While the functions which the two societies are designed to serve in a professional’s life are distinctly different, both are essential.

MEMBERS IN THE NEWS

SEPM recently announced the recipients of the Society’s 1994 Medals and Awards. Robert J. Weimer, CPG-0098, (Colorado School of Mines -Golden, CO) will receive the William H. Twenhofel Medal, the Society’s highest award, for sustained excellence in outstanding contributions to sedimentary geology. Honorary Membership in SEPM, the Society’s second highest honor, will be conferred upon Peter A. Scholle (Southern Methodist University - Dallas, TX), Roderick W. Tillman, CPG-7370, (Tulsa, OK), and John L. Wray, CPG-2113, (Colorado Springs, CO), who have demonstrated excellent professional achievement and extraordinary service to the Society.

Honorees will receive their awards at a reception to be held in their honor by SEPM President Noel P. James at the Society’s Annual Meeting in Houston, Texas, March, 1995 (in conjunction with the AAPG Annual Convention).

On September 6, 1994, Dr. Jonathan H. Goodwin, CPG-5173, was appointed Acting Chief of the Illinois State Geological Survey, following the retirement of Dr. Morris W. Leighton, CPG-3572, who served as Chief and State Geologist for the last 11 years. Goodwin will serve in this capacity until a new chief is named. A search for Leighton’s successor is under way.

Goodwin is Senior Geologist and Head of the Technical Services Group, comprising Educational Extension; the Geological Records and Samples libraries; the Publications, Graphic Arts and Photography Unit; Technical Information Services and Special (computer) Services. He joined the ISGS in 1976.

Randall T. Chew, III, CPG-3575, Retired Member, Certificate of Merit, 1983, has retired from Potomac State College. He and Ruth are serving a two-year educational mission in the Marshall Islands for the Church Educational System of the Church of Jesus Christ of Latter-Day Saints (The Mormons), where they are administrate and coordinate the Church teaching programs on Majuro, Kwajalein, and Ebeye. Their new address is Box 688, Majuro, MN 96860 and letters only need a 25-cent stamp.

James E. Geitgey, CPG-8407, and Paul R. Barwis have started Range Exploration, Midland, Texas. Both previously were area exploration managers, Arco Oil and Gas, Midland.

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NOVEMBER 1994 • The Professional Geologist 23
State Policies And Regulation

Lynn Graf, AIPG Legislative Affairs Advisor

November of 1994 will have a political shift away from campaigns and elections to 1995 legislative agendas. Legislative agendas are generally implemented through bills that contain policy statements for operation of state governments. When these policies are adopted by the legislature they become the basis for developing new regulations. This article is intended to give an overview of how to identify issues that impact the geologic community through state policy legislation.

The health, safety and economic welfare of all citizens is dependent, in part, on input from professional geologists when relevant policy decisions are discussed. Locating issues in the government that require geologic review and input is an important role for the future of the profession. Assurance of quality geologic decisions can only be provided by geologists.

A great many issues are out there for AIPG Members to discover. A problem is that members are often required to undertake time-consuming research and hours of network building to be allowed to sit at the table during policy discussions. People who do not understand the role of geologists cannot be expected to seek geologists out for information and scientific oversight they are not aware they need.

Understand The Issues
AIPG Members across the U.S. are helping me develop an overview of the key natural resource, environmental and professional issues affecting geologists in their state. Currently, 41 Members in 32 states have contributed to a profile that is probably familiar to many geologists. This profile includes the following four general areas:
1. Members identified the top priority issues as water, environment, and resource development.
   • Water & environment is an issue in 88% of states contacted. Issues can involve groundwater, wetlands, surface water, geothermal, sea ports, fresh or salt water, urban runoff, diversion, allocation, depletion, shortage, dredging, salt intrusion, overregulation, rights, interstate agreements, pollution, water quality, and takings. Environmental issues include water, underground tanks, industry waste, superfund, agricultural chemicals, and definition of ecosystems.
   • Resource development is an issue in 75% of the states contacted. This generally includes mining, oil & gas, and tourism; the activity affects revenue to states. Issues include off-shore, small miner, declines or shut-down, economic development, state survey information, incentives, fragmented efforts, liability insurance, strong environmental influence, siting, alternative fuels, exploration, and taxes.

2. Water, environment, and resource development are impacted by public policy and regulations related to land use.
   • Policy and regulations are issues in 41% of the states contacted. Members feel the issues are present in all levels of government including local, state, and federal. Problems include delays, court losses, lawyers answering technical questions, engineers answering geologic questions, tort reform, lack of science and facts, too many rules, overregulation, ineffective and expensive suggestions, poor ethics, lack of guidelines and timely notice.
   • Land use is an issue in 78% of states contacted. These issues include geologic hazards, land fill sitings, oil & gas, mining, sand & gravel sitings, hazardous waste disposal, abandoned dumps, reuse of industrial sites, takings, surface rights, ownership, strong environmental influence, fragmented efforts, natural resource management, industry locations, state surveys and mapping.

3. Geologists are certified, qualifying them to be involved in relevant policy and regulatory decisions. Certification is provided through state regulation, AIPG certification, or other certification of geologists.
   Registration, licenses and other regulation of geologists is an issue in 81% of the states. Reciprocity and specialty licenses (e.g., environmental audits, underground tank specialist, or pump installer) were mentioned by several members. These licenses often create inadequate, burdensome and expensive regulations.

4. AIPG needs to use education programs to ensure that people know when to include geologists in policy and regulatory decisions.
   Education is an issue in 50% of the states surveyed. Key audiences include legislators, universities, geologists, public, geology interns, K-12, mapping, media, ethics, oil patch, and engineers. Topics include geology, ethics, alternative fuels, environmental and geologic hazards.

Locate The Issues
Sources of information on policy issues impacting AIPG Members include legislators and their staffs, lobby groups,
political parties, professional organizations, business and industry associations, media and community groups.

The health, safety and economic welfare of all citizens is dependent, in part, on input from professional geologists when relevant policy decisions are discussed. Locating issues in the government that require geologic review and input is an important role for the future of the profession. Assurance of quality geologic decisions can only be provided by geologists.

Legislators, especially those on the natural resource and environmental committees, are an important information source when looking for new legislation. It is helpful to have AIPG members who are constituents (live in the same district) of committee members and who know their legislators so they can keep close tabs on the progress of legislation.

The best time to ask a legislator to include AIPG policies in their bill is before the bill is introduced in the legislature. This means it is important that the legislators and their staff know you and trust your information, and your understanding of the issues when they start to develop their legislation.

Guidelines On Types Of Issues

The AIPG organization provides a relevant and thoughtful framework to use when developing legislative issue positions. These national policies are most recently found in the TPG, April 1994 as follows:

- The AIPG purpose statement is located on the bottom of page 3.
- The Code of Ethics is located on page 36.
- The Policies and Procedures start on page 38 and include registration/licensing, environmental and multi-discipline registration and certification, environmental investigations and audits, appraisals of mineral and related interests, and a general policy of advocacy.

In Summary

State legislators have already begun to develop their agendas for 1995. Shortly following the election, they will finalize their plans and complete legislation they hope to pass next year. AIPG members can have direct input into the legislative proposals by creating effective networks, identifying sources of information, understanding the geologic issues, and developing a program of advocacy.

Please call Lynn Graf, (303) 431-0831, if you have additional information to add to the survey discussed in this article.

Lynn Graf is a government relations consultant with over 20 years of experience in community and government relations. She has served as lobbyist for the AIPG Colorado Section since 1990 and worked on a variety of issues including oil and gas, mining, geologic hazards, water, financial planning, water/mineral appraisals, land use planning, economic development, and professional licensing/registration.

Geologist Registration In Wisconsin

On April 28, 1994 Wisconsin Governor Tommy Thompson signed Assembly Bill 1075, the Geologist Registration Bill, into law. This was after years of efforts by the Wisconsin AIPG Regulatory and Legislative Committee. Over the past four years, Mark Osten, Chairman of the Committee headed the efforts to educate many organizations and legislators on the merits of Geologist Registration and the importance of the application of geology to protect the public health, welfare and environment.

Numerous AIPG members and our lobbyist, Mr. Peter Peshek, worked to rally support from various organiza-

*April 28, 1994, Governor Tommy Thompson signing Bill 1075 - Geologist Registration.*
tions and legislators to achieve passage of the registration bill. The Bill received support from the Wisconsin Department of Natural Resources, Wisconsin Groundwater Association, American Institute of Professional Geologists, Wisconsin Association of Consulting Engineers, Wisconsin Society of Professional Engineers, American Society of Civil Engineers, Wisconsin Water Well Association, Association of Engineering Geologists, American Institute of Hydrologists, Wisconsin Manufacturers in Commerce, as well as, numerous environmental consulting firms.

Finally after years of effort, in February 1994, the Bill went before the Assembly Environmental Resources Committee and passed by a vote of 13-0. In early March 1994 the Bill passed through the Senate Business, Economic Development and Urban Affairs Committee by 5-0 vote. The Bill then passed through the final legislative committee, the Joint Finance Committee on March 23, 1994 by a vote of 13-3. On March 24 the Bill passed through the Assembly on a voice vote. On the last day of the legislative session, with ten minutes left in the session (at 4:50 p.m. end of session at 5:00 p.m.) the Bill passed through the Senate on a voice vote! Governor Thompson then signed the Geologist Registration Bill into law April 28, 1994.

Wisconsin geologists owe a great deal of thanks to Senators Brian Burke, Carol Buettner, Margaret Farrow, Mary Panzer, Fred Risser and Representatives Greg Huber, Peter Bock and Al Ott. Without their help we would not have gotten the Bill passed.

The law requires that geologists who wish to practice geology in Wisconsin be registered. The basic requirements are:

1. 30 Semester or 45 quarter hours in geology.
2. A bachelor's degree.
3. Five (5) years geological experience under a person who is qualified to have responsible charge of geologic work.
4. Five (5) letters of recommendation - three (3) from persons who have personal knowledge of your geologic work.
5. An exam.

Those meeting the basic registration requirements during the first year will not have to take the exam. The effective date of the law is December 5, 1994.

This law will affect some 500 consultants practicing or wishing to practice geology in Wisconsin. Prior to this law, there were no statutory requirements for professionals responsible for interpreting and/or evaluating Wisconsin's valuable soil, rock and groundwater resources. The Wisconsin Department of Natural Resources has publicly outlined the tremendous costs associated with ineffective characterization of the state's subsurface resources. These costs impact not only state agencies, but also state industries and municipalities. Inadequate interpretation has also led to environmental or public harm.

Geologists should applaud Wisconsin's Governor and legislature for understanding the need for geologist registration. Geologists must accept the responsibility and privilege as registered professionals to help protect Wisconsin's valuable environmental resources as well as the health and welfare of the public.

Janis Schallhorn Kesey, President, AIPG - Wisconsin Section
Mark Osten, Chairman, Regulatory & Legislative Committee

UPDATE
How To Get Registered In Wisconsin

Wisconsin Act 463 requires geologists wishing to practice in Wisconsin to be registered with the state's Department of Regulation and Licensing. Application forms have been developed and are being sent to those interested in becoming registered. The basic requirements for registration are: 1) 30 semester or 45 quarter hours in geology, 2) a bachelor's degree, 3) five years of experience with two of those years under the supervision of a professional geologist, 4) five letters of recommendation, and 5) an exam. The exam is waived for the first year for those meeting all of the other requirements. The application fee is $34. The exam fee will be extra. The details of what must be submitted with the application are included in the application forms.

For further information, contact Jan Bobholtz at the Wisconsin Department of Regulation and Licensing at: Wisconsin Department of Regulation and Licensing P.O. Box 8935 Madison, Wisconsin 53708 (608) 266-1398 (Direct No.) (608) 266-1397 (General No.) If you have any questions, please call me at (608) 831-4444.

Mark A. Osten, AIPG Wisconsin Section
A Note From The Editor Concerning Letters To The Editor

In my first three months as editor, starting January of 1993, I received only one letter from the readers of TPG, making me wonder if anyone out there was really reading the magazine. Partially in response to this, I began running from time to time articles which were at least slightly controversial. The results were immediate; I started getting three or four letters a month. Some, but by no means all, of these letters have been published in subsequent issues of TPG. My decisions to print or not to print these letters have been based on several factors: letters which are strictly fan mail or hate mail usually are merely filed (although I will occasionally write a personal reply or pass the letter on to another Member of AIG if appropriate); letters which point out an important omission or error in an article or another side of an issue are usually published if space permits (although if I receive comments from two or more persons on the same article, I may only print one of them).

While I have your attention, let me point out that, with three exceptions, the choice of which articles are printed in TPG is solely the decision of the editor, for good or for bad. The three exceptions are requests by the President, the Executive Director, or the Executive Committee to publish material which they feel is important to bring to the attention of the Members of AIG. Some people have pointed out that the articles I choose vary in quality from very good to not so good. I am aware of this; I know quality when I see it, but I also believe in letting our members have an outlet for publication when they feel they have something important to contribute. Of course, some of what is submitted is totally unfit or inappropriate for TPG, and is disposed of accordingly.

LETTER TO THE EDITOR

Dear Editor:

It is not surprising that Melinda Ebert (Problems of a Geologist with Laymen Friends. TPG, June) has such a hard time explaining her passion for geology to her acquaintances. To judge from her cited examples of communications difficulties (origin of limestone; prograding depositional systems; mineral identification; orogenesis & subduction), she is guilty of at least three and possibly four cardinal sins.

First, she is indulging her preference for jargon when simpler words will do. Second, she is seemingly providing more (unwanted) detail to the questioner than was originally sought. Third, she is implicitly forgetting that, except among specialized audiences, Americans in general lack the familiarity with technical and scientific concepts that we all might prefer to see.

Most disturbing of all, however, is the general air of condescension to the uninitiated that permeates her essay. We, as professionals, are not supposed to be “doing someone a favor” when we attempt to help them understand our planet. The very fact that she “wants her friends to stop bringing over their rock fragments” is more of an indictment than anything I could invent.

Or was the whole essay an April Fool’s item that missed the publisher’s deadline?

Neil H. (Vic) Ridgley, CPG-5138

Correction

In the September issue of The Professional Geologist, a memorial was written by Bobby J. Timmons, CPG-2736, for Robert Latimer Bates, CPG-827. In the article that was printed Mr. Bates’ middle name was typed incorrectly. My apologies to Mr. Timmons as well as Mr. Bates’ family.

Wendy J. Davidson, Publications Manager

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AIPG certifies the qualifications of professional geologists prior to admitting them into membership. By means of a rigorous and thorough peer review process, the Institute investigates applicants who voluntarily apply for self-regulation through the Institute. This screening carefully evaluates their education, experience, technical competence, and ethical conduct. If they meet AIPG's high standards, applicants are granted Certification and the title of "Certified Professional Geologist" (CPG). When the letters CPG follow an individual's name, they proclaim to the public that this person has met the standards and subscribes to the Institute's Code of Ethics and By-laws.

Representation
Members are represented by qualified geological professionals. Congress, Legislatures, and Federal and State agencies are lobbied on specific mining, petroleum, water, environmental and other issues of special interest to geologists.

A portion of AIPG's monthly magazine The Professional Geologist (TPG) is devoted to reporting developments at all government levels. Thirty-six sections of AIPG provide group representation on a state or regional level and offer opportunities to meet, work and exchange ideas and information with colleagues.

Education
At the national and section level, AIPG provides materials designed to enhance the professional knowledge and skills of its members. Educational opportunities range from seminars and short courses to sectional and national meetings. To encourage high standards of educational programs, the Institute recently established a program of Accreditation of Continuing Education opportunities offered by other organizations.

The Institute prepares and distributes comprehensive publications giving background and scientific explanations on geologically-related matters of public concern. Topics include: ground water, radioactive waste, and hazardous waste.


Insurance
Professional liability, health, and life insurance are available to members.

Information
AIPG disseminates information to its members and to the public in a number of ways on a wide variety of topics. The Institute publishes a monthly magazine The Professional Geologist (TPG). It is mailed to members and interested individuals, businesses, and political leaders. Subscriptions are available to non-members.

A comprehensive Membership Directory is published annually. Copies are sent to federal, state, regional and local governments, libraries, consulting firms, corporations, and other potential users of geologic services throughout the United States and abroad. The Directory may also be purchased by non-members.

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Nov 1-4. Covers and Liners for Landfills. Mobile, AL. Contact: Dan Thompson, The University of AL, Box 870386, Tuscaloosa, AL 35487. Ph.: (205) 348-9637.


Nov 28-29. NWMA 100th Annual Convention, Short Course & Trade Show, Spokane, WA. Contact: Northwest Mining Association, 10 N. Post, Ste. 414, Spokane, WA 99201-0772. Ph.: (509) 624-1158.


1995


Mar 6-9. SME/AIME 124th Annual Meeting & Exhibit, Denver, CO. Contact: Meetings Dept., SME, P.O. Box 68900, Littleton, CO 80162-5002. Ph.: (303) 973-9550.


Apr 2-5. 5th Conf. Slinoholes, Engg. & Env. Impact, Kastar, Glattingen, TN. Contact: B.B. Back, P.E. LaMoreaux & Assoc., Inc., Box 4412, Oak Ridge, TN 37831-4412.


Jun 3-4. International Field Conference on Carbonate-hosted Lead-Zinc Deposits, St. Louis, Missouri. Contact: Martin Goldhaber, U.S.G.S., P.O. Box 25546, MS 973, Federal Center, Denver, CO 80225. FAX: (303) 226-3200.


Jun 18-23. Companion Carbonate-hosted Field Conferences in Ireland and Australia, Contact: J. R. Vearncombe, Dep. of Geology, Univ. of Western Australia, Nedlands, Western Australia 6009. Ph.: (61) 9-850-2857.


Sep 10-14. Geohazards and Engineering Geology, Coventry University, England. Contact: The Engineering Group of the Geological Society, Conference Secretary, Steve Penn, Coventry Univ., School of the Built Environment, Priory St., Coventry, UK CVI 5BF.


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