AIPG MEMBERS - 1992 Official Officer Election
OFFICIAL BALLOT ENCLOSED

A publication of
The American Institute of Professional Geologists
Symposium Invitation

GEOLOGIC REASON
A Basis for Decisions Affecting Society

The AIPG 1992 Annual Meeting

The Nevada Section invites all geologists to Lake Tahoe, Nevada, to attend the 29th Annual Meeting on September 27-30, 1992.

The American Institute of Professional Geologists is sponsoring the symposium, which addresses geologic and environmental hazard issues critical for both geologists and society in the '90s. The symposium, through invited speakers, panel discussions, and poster sessions will explore:

- The role of the geologist in predicting earthquakes,
- the role of the geologist in siting and cleaning up waste,
- geological common sense regarding environmental hazards,
- management of federal lands, and
- modeling geological phenomena.

Pre- and post-meeting field trips will present many examples of the issues and problems presented facing today's geologists. Field trips will review the 1989 Loma Prieta earthquake south of San Francisco, hazardous and nuclear waste disposal sites and water supply issues in southern Nevada, and contamination of the Carson River from historic mining activity and clean-up strategies.

Professional workshops/short courses held in conjunction with the meeting will focus on such pertinent topics as:

- Rights and responsibilities of the professional geologist,
- Preparation for the California Registration Exam, and
- Mining and the environment.

The short course on deep open pits will include a field trip to examples of large-scale gold mines in Nevada.

Interesting trips are also planned for spouses. Trips will include a tour of the historic mining town of Virginia City, a scenic tour around the Lake Tahoe rim, a learning experience at the Reno Gaming Academy, and an enjoyable evening dinner cruise on Lake Tahoe.

The location of the meeting will be the exciting Caesar's Tahoe Hotel and Convention Center at South Lake Tahoe. In addition to the meeting, Caesar's will play host to a Roman Theme banquet featuring T'S Ary, Director of the U.S. Bureau of Mines as keynote speaker.

The Nevada Section has planned and arranged a program that will interest, challenge, and excite all who attend.

Lake Tahoe is a popular resort area; therefore, it is recommended that all geologists pre-register early to insure workshop/short course and field trip attendance.

For further information, please contact:
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The Professional GEOLOGIST

FEATURES

Special Report...
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COVER - Thistle landslide, Utah. The landslide began to move on April 9, 1983 and marked the first major landslide of the disastrous 1983-84 landslide period of the Southwestern United States. The landslide blocked the principal railroad and highway route between the populated Wasatch Front and the central Utah coal fields and their eastern markets. It built a dam across Spanish Fork and flooded the town of Thistle, Utah.

Photograph was submitted by Christopher C. Mathewson, CPG-2486 - article on page 5.

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The purpose of AIPG is to strengthen the geological sciences as a profession with all reasonable actions, to establish professional qualifications, to certify those qualifications to the public, and to evaluate continuously the ethical conduct of its members. Further, the Institute establishes ethical standards to protect the public and geological sciences from nonprofessional practices, monitors governmental and other activities affecting the geological sciences, and communicates with the public.
Failed wedge above the left abutment of the Libby Dam, Libby, Montana. The entire left abutment was stabilized using tensioned tendons (cable bolts) to reduce the risk of a large scale failure and the potential loss of the dam. The slope was also instrumented with multiple-position extensiometers to monitor slope deformation (movements).

Photo courtesy of Christopher C. Mathewson, CPG-2486.
Geologists And Engineers, A Conflict Between Pure Science And Applied Science

Almost everyone believes that a conflict exists between geologists and engineers. Is this conflict real or is it simply a perception? History shows there has been a close association between geologists (pure scientists) and engineers (applied scientists) that reaches back to the very founding of geology. William "Strata" Smith (1799), an English surveyor working on canal projects, is considered to be the "Father of Historical Geology" and the "Father of Stratigraphy", depending upon who's talking. He noticed that he could correlate the fossil assemblages in the rock units and use them to identify each stratum. The ability to recognize rock units, and therefore map them, enhanced the construction of the canal system by making it possible for engineers to predict the behavior of the rocks to be excavated. Thus, a basic law of geology, superposition, was developed from observations made on an engineering project. How much information could be gained on field trips if it were not for railroad and highway cuts? In fact, engineering needs have driven a significant portion of geological research throughout history. For example, modern concepts of neotectonics were developed to meet the need for seismic safety of nuclear power plants. This long historical association between geologists and engineers has, however, not prevented the conflict between the two. Why?

The traditional, and often overrated, conflict between geologists and engineers can be related to a fundamental philosophical difference between the two. If this conflict is to be understood, it is necessary to define the basic philosophy of science in terms of that portion of the practice that is "pure science" and that portion of the practice that is "applied science". Pure science is knowledge gained through systematic observation, study, and experimentation, while applied science is knowledge gained through the application of scientific knowledge to the solution of a problem for the enhancement of the quality of life. Thus, both the geologist and engineer start at the same point, knowledge. However, each uses this knowledge in a different manner and, therefore, they diverge, leading to the conflict.

To attempt to explain the similarities and differences between pure science and applied science, let us start with the cloud of knowledge shown in Figure 1. Because pure
science is discovery, the scientist will review this cloud and identify some aspect of knowledge that is incomplete, thereby defining a lack of knowledge and a need for scientific work. On the other hand, the applied scientist will review this cloud of knowledge and use it to make a prediction needed to solve a particular problem. The scientific prediction forms the basis of the application of science and, hopefully, leads to a successful solution. In the event that the prediction is wrong, the application fails, the need for new knowledge is defined, and scientific work is required. Some, perhaps many, problems require solutions well before the knowledge is available or our understanding is complete. Thus, advances in knowledge are termed scientific achievements, while incorrect predictions lead to engineering failures.

The basic question for which new knowledge is desired must be defined and asked. This forms the first tier, philosophy. Without a basic question, a need for inquiry does not exist and the knowledge cloud is not expanded.

Once a question has been defined, it must be communicated, thus language and mathematics (the language of physics) form the second tier. The ability to communicate the philosophical aspects of the question, to define possible hypotheses, and determine the current level of knowledge and understanding are all required to design a scientific investigation.

The fundamental science, physics, provides the understanding of the physical processes that form the framework for all other sciences. Physics, in essence, is the foundation of science and the highest level of understanding. Chemistry rests upon physics and supports the “trilogy” of sciences: earth science, life science and social science. Note that the trilogy of sciences in Figure 1 interact with each other because these sciences are the most complex. Our basic knowledge is first defined through observation and experimentation. Scientific knowledge starts with empirical studies and ultimately leads to the discovery of the chemical and physical laws that control the once complex process.

As is shown in Figure 1, all scientists follow the same general process once the basic question has been established. Applied scientists, engineers, medical doctors, and the like, have their roots in knowledge and the responsibility for the application of the knowledge. For example, a civil engineer, specializing in geotechnical studies, has a scientific foundation in the physics of earth materials and its application to the construction of safe and economical structures. Pure scientists, such as geologists, physicists, chemists, and biologists, are also rooted in knowledge but their responsibility is to increase that knowledge base. For example, a structural geologist has knowledge about earth science and builds upon the physics of earth materials to explain the mechanics of faulting, thereby enhancing knowledge of tectonics and the history of the earth.

As scientific and technological advances are made and as society becomes more litigious, the applied scientist must call upon scientists to provide the knowledge needed to make the prediction. As the applied scientist places more and more reliance on the scientific investigation, analysis, interpretation, and prediction made by the pure scientist, the scientist has an increasing impact on the applied scientist.

A short history of the development of engineering geology provides insight into how the geologist (pure scientist) and the civil engineer (applied scientist) have interacted as technology has changed. Professor W. O. Crosby initiated the first training course in geology for engineers in the United States at the Massachusetts Institute of Technology in 1893. A similar course was offered at Cornell University by Professor R. S.
Tarr shortly thereafter. Reis and Watson published the first American text in engineering geology in 1914. These early academic programs and texts established geology as a course of scientific study for engineers. They filled the need for the civil engineers’ education and knowledge in geology so that they could interpret the natural system and make the predictions needed for design purposes.

Structural damage caused by wave scour after failure of the "seawall" by Hurricane Allen, August 1980, South Padre Island, Texas.

The catastrophic failure of the St. Francis Dam in California, on March 12, 1928, was a key event that led to the recognition of the need for additional geological knowledge in the construction of major engineering projects. The scope and magnitude of the St. Francis Dam exceeded the engineers' knowledge of geology. The geologic predictions were wrong and an engineering failure occurred. The floods and landslides following the winter storms of 1951-1952, in the Los Angeles area, further demonstrated the engineers’ need for additional geologic knowledge. Los Angeles Ordinance No. 100, 347, passed in response to these floods and landslides, requires a geologic report (scientific knowledge) of hillside conditions prior to land development. The January 28, 1969, blowout of an oil well in the Santa Barbara Channel, California, brought concern for the environment to national attention. The nation’s eyes were opened to the environmental crisis and the need for additional geological knowledge about the safe use and protection of the environment.

The response to the disastrous landslides and debris flows of the 1970’s and 1980’s in California, Nevada, Virginia, Colorado, and Utah demonstrated the role of engineering geology as pure science. Engineering geologists were involved in the scientific investigation of the phenomena of earth processes which affected the public health, safety and welfare, engineered works, and the environment. Knowledge gained through the observation, analysis, and study of these geologic processes enhanced the engineer’s ability to safely design in other mountainous regions.

Setting rock bolts to support the Eisenhower Tunnel below the Continental Divide on I-70 west of Denver, Colorado.

The apparent conflict between geologists and engineers lies in their philosophic approach to knowledge. The geologist thinks in terms of multiple working hypotheses with the realization that the knowledge base is always incomplete. The engineer thinks in terms of the most cost-effective and safe solution to a specific problem with the realization that the incomplete knowledge base is a fact of life. Geologists tend to forget that the engineers are educated scientists, while engineers tend to forget that they learned their geology from scientists. Society forces the engineer to select one solution, the best, while it demands that the geologist provide multiple hypotheses. Geologists are uncomfortable knowing that engineers are going to "dig up" their mistakes. Engineers are equally uncomfortable knowing that their designs are based on predictions provided by geologists, which, if wrong, will lead to an engineering failure. Engineers, therefore, must seek the best possible geologist and make all efforts to understand and incorporate the geologist’s predictions into their designs. Geologists, on the other hand, must clearly communicate the alternatives and uncertainties in their predictions and quantitatively assist the engineer to

Aerial view of shoreline erosion and damages caused by Hurricane Allen, August 1980, on South Padre Island, Texas.

Christopher C. Mathewson, CPG-2486, is the Director of the Center for Engineering Geosciences and a Professor of Geology, at Texas A&M University, College Station, Texas.
The Scenario

Both soil and bedrock are involved in the foundation area for a hypothetical proposed earthen dam. The investigation team includes both an engineer, competent and experienced in the geotechnical aspects of engineering, and a geologist with many years of background work in the specialized field of engineering geology. Both the soil and the rock need to be studied and described, and their physical characteristics tested. The team manager must decide which individual will have the responsibility for which part(s) of the investigation. A tough decision, and one which may not ever be entirely agreed to by either the engineer or the geologist involved. Are there written guidelines to assist the manager in making his decisions in this case?

The Solution (?)

In 1972, The Boards of Registration for Engineers and for Geologists in California pondered this and similar questions relating to the problems of fields of expertise of trained and competent individuals in engineering and geology. Under the guidance of the Boards, representatives of the engineering and geology professions met as a Joint Committee to analyze and resolve these questions of responsibility insofar as possible, and to set the results down on paper.

This proved to be a difficult task, to say the least, and the "Fields of Expertise" document which was developed at that time, and which was last updated January 26, 1990, has never been jointly approved in its entirety. It remains truly a consensus document which is still not, and possibly never will be, finalized.

The fundamental usefulness of this paper, then, is to set forth the "gray" zones where engineers and geologists overlap in areas of specified activities, and to list which tasks should clearly be done by each, and which can be performed by competent practitioners in either discipline. This document has no legal status, and can be used, modified, or disregarded, as desired. The latest version, shown below, is still being worked over and revised intermittently by engineers and geologists representing the two Registration Boards. It does not reflect confirmed policy of either Board.

FIELDS OF EXPERTISE

CLASSIFICATION AND PHYSICAL PROPERTIES

Geologists: Rock description and classification, Origins of rock, Source area
Engineers: Testing of earth materials for classification, and physical properties
Both: Visual soil description, Wentworth Unified soil classification systems

ROCK MECHANICS

Geologists: Descriptive, Rock structure and jointing, Qualitative performance of rock masses, Configuration, Attitude in nature (joints, fractures, bedding, etc.)
Engineers: Quantitative performance of rock masses, e.g., rock testing, stability analysis, stress distribution and rebound evaluation
Both: In-situ studies, Regional-Local

SLOPE STABILITY

Geologists: Interpretive stability of natural rock cut slopes, Geologic analyses-geometrics, Spatial relationships
Engineers: Quantitative slope stability analysis utilizing developed material properties, hydrostatic forces and configuration
Both: Excavation in hilly terrain, Causative agents

SOIL AND ROCK MAPPING

Geologists: Geologic mapping, Air photo interpretations, Geomorphology, Subsurface geology
Engineers: Soil type mapping
Both: Geometric relationships

PROJECT PLANNING

Geologists: Development of geologic parameters, Geologic feasibility
Engineers: Engineering analysis of effects of subsurface conditions on proposed projects, Economics
Both: Analysis of effects of geologic conditions on proposed projects

SURFACE WATERS

Engineers: Volume and rate of runoff, Design of works for control, Coastal and river engineering, Hydrology
Both: Stream description, Silting potential, Erosion potential, Source of base flow, Sedimentary processes, Source of material
GROUND WATER

Engineers: Engineering hydrology, Mathematical treatment of well systems, Development concepts, Design of dewatering systems. Regulation of supply, Economic considerations, Laboratory permeability

Both: Drainage, Contamination, Well design, Subsidence, Field permeability, Transmissibility, Specific yield, Storage computation

EARTHQUAKES AND GROUND VIBRATIONS
Geologists: Location of faults, Evaluation of potential fault activity, Qualitative ground vibration analysis

Engineers: Response of soil and rock materials to seismic activity, Seismic design criteria for structures, laboratory soil dynamics tests, Quantitative ground vibration analysis

Both: Seismicity, Historic record of earthquakes

SUBSURFACE EXPLORATION
Geologists: Logging of rock material, Down-hole observations for structure geometry

Engineers: Planning program as related to proposed project and structural loads

Both: Planning, Supervision, Observation, Logging of soil borings, Sampling

CONSTRUCTION OBSERVATION
Geologists: Excavation in rock material

Engineers: Structural foundation conditions, Earth and earth/rock embankments, Pavements

Both: Grouting, Tunnel construction, Conduits

EXPANSIVE MATERIALS
Geologists: Expansive bedrock

Engineers: Lab testing, Evaluation of expansion potential under project loadings, Preparation of parameters for limiting, Development of mitigating solutions

Both: Visual identification, Geochemical effects

EMBANKMENT FILL
Geologists: Qualitative evaluation of removal of unsuitable material

Engineers: Design and construction quality, Evaluation of potential deformations, Evaluation of stability, Seepage control measure, Quantitative evaluation of removal of unsuitable material

Both: Visual classification, Qualitative evaluation of borrow material, Removal of unsuitable material

INSTRUMENTATION
Geologists: Vadose zone monitoring

Engineers: Pore water pressure monitoring, Soil pressure devices, Vibration monitoring and analysis, Pile load testing, Tensioning tie-backs

Both: Water level recorders, Slope inclinometers, Rock stress and deformation devices, Piezometers, and observation wells, Settlement movements, Seismometers and accelerometers, Water quality monitoring, Tiltmeters, Meteorology stations, Steam gages

REGULATORY REQUIREMENTS
Geologists: Provide engineering geology input as required

Engineers: Provide engineering analysis as required

JOINT EFFORTS
Both: Site selections, Planning investigations, Conducting field exploration, Selecting samples for testing, Interpreting data, Describing and explaining site conditions, Stability of natural slopes, Construction observation, Input to Urban Planning, Input to environmental studies

HAZARDOUS WASTE REPORTS
Both: Water wells, Geotechnical borings, Monitoring wells, Toxic pits, Resources Conservation and Recovery Act (RCRA), Toxic fluid monitoring, Underground tanks, Solid waste disposal sites, Waste discharge to land, Broad studies encompassing passing planning; coordination of disciplinary and findings; preparation of conclusions and recommendations

Footnotes
1. Geologist Competent in Engineering Geology.
2. Engineer Competent in Geotechnical Engineering.

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S-Mite, A Non-Explosive Alternative

Frank J. Kenton, CPG-7050
Consulting Engineering Geologist

Introduction

Rock fracturing is often necessary during the application of engineering geology. Whether construction plans require footings founded into indurated bedrock, or fracturing of boulders during construction and/or facility maintenance, the use of explosives can present a variety of problems. The proximity to existing structures, concern about fly-rock, requirements for assumption of additional liabilities and red tape due to multi-regulatory agency approvals all factor into explosive use. S-Mite, a non-hazardous and non-explosive demolition agent was successfully applied to fracture boulders along the right abutment of Santa Felicia Dam.

Figure 1 - Location Map, Santa Felicia Dam, Piru, California.

Figure 2 - Wedge-shaped failure that resulted in boulder accumulation along the right dam abutment.
Piru, California. This dam was constructed in 1955. It is 200 feet high and stores 89,000 acre feet of water for multi-use (see Figure 1).

Statement of Problem

A localized wedge-shaped failure of indurated sandstone bedrock resulted in seven boulders up to 12 feet in diameter, landing on the right dam abutment. Their position created the potential for altering surface water runoff. This would result in accelerated erosion along the abutment (see Figure 2). Another boulder was perched precariously above and appeared ready to fall at anytime. It created a stability hazard and also had to be removed.

Heavy equipment could not be used to move the boulders as the heli-spot was down slope and in a direct path. Uncontrolled boulder movement could have resulted in its damage and closure of dam operation. The use of explosives was considered. Explosive use would have required multi-agency approvals at both the state and federal level due to the size of the dam and assumption of additional liabilities. The concerns were proximity to the dam axis conduit, flyrock and downslope movement of the perched boulder.

Because of the impracticality of explosives, S-Mite, manufactured by Sumitomo Cement, was selected to fracture the boulders to a size that could be safely handled by heavy equipment. S-Mite is a special type of inorganic lime compound. It is non-hazardous and non-explosive. When hydrated, enormous expansive stress is generated.

Application

S-Mite was transported to the site in a powder form packed in 20 kg (44 lb.) containers. Two-inch diameter holes were drilled into the boulders. Spacing and placement were very similar to that used during blasting. S-Mite requires accurate measuring of temperature, water quality and quantity for proper hydration to occur. Ambient air and borehole temperature were measured. The appropriate amount of water was carefully calculated and mixed. Holes were loaded by pouring.

The reaction occurs slowly, usually taking from 10 to 20 hours. This allows the loaded material to "lock" in the hole, pushing out, not up the open hole top. After the expansion is completed, a light gray powder is left. This powder is non-hazardous. Figure 3 shows a boulder that has been loaded with S-Mite and Figure 4 shows the same boulder 24 hours later.

Results

Twenty-two cases of S-Mite B were used. All boulders were fractured to a size that could be easily and safely moved (see Figure 4). The fractures were linear in nature and penetrated the full thickness. No special permits were required. All waste generated was non-hazardous.

Acknowledgements

I would like to thank United Water Conservation District for allowing me to write this article and Benny Barron of W. A. Murphy, Inc. for his assistance.
Geologists And Engineers: Continual Change vs. Constancy

Jeffrey R. Keaton, CPG-6343

The ability to communicate scientific concepts and engineering requirements in understandable terms is critical to the relationship between geologists and engineers. The issues of complexities, randomness, and change often are viewed as central to the differences between these two groups of professionals. Geologists tend to emphasize the uncertainties caused by incomplete information and express them in the scientific method of the multiple working hypothesis. Engineers are forced to simplify so that estimates may be made as the basis of design; these engineers incorporate uncertainties as 'factors of safety'. Geologists who provide information to engineers without quantifying the uncertainties, or by taking too much time to evaluate all possibilities, basically force the engineers responsible for the design of a project to make geologic decisions, or to ignore geology altogether.

Another issue contributing to the differences between geologists and engineers is the 'random variable' issue. Most engineers view geology as an undefined, if not random, variable. Consequently, engineers plan site exploration programs with a pattern of regularly spaced borings, or borings at corners of proposed buildings, hoping that the site characteristics can be defined adequately. Geologists know that geology is not random, and that borings are needed at selected locations to validate a hypothesis or provide a basis for modifying it. The engineer may still need samples to develop engineering parameters, but a site is best characterized by formulating a geologic model and testing alternative hypotheses.

An additional issue of difference between geologists and engineers is that of continual change versus constancy. The disparity in time scales used by geologists and engineers is well-known. "Engineering time" is basically the design life or the economic life of a project. For many projects, the design life is 30 to 50 or 100 years: For critical or high-hazard facilities, however, engineering time may approach geologic time (e.g., 10,000 years for high-level radioactive waste disposal facilities). Nonetheless, engineers tend to view most geologic processes as constant or in a steady state during the design life of a facility. Some processes, such as flooding, have been experienced often enough for the variability to be quantified, and regulations have been developed prescribing acceptable flood-related risk for most facilities at 1 percent per year (the "100-year flood"). Other processes, such as earthquake shaking, have been quantified to a certain extent, and the acceptable risk for some facilities is 10 percent in 50 years (the "474-year earthquake"). Still other processes, such as surface fault rupture, have not been quantified very much, and the acceptable risk for most facilities is basically pre-Holocene displacement (the "10,000-year fault rupture").

The importance of geologic factors in engineering analyses can be demonstrated in the following case history example. Part of the urbanized area of Utah along the western base of the Wasatch Range was damaged in May and June, 1983, due to snow-melt debris flows. The worst damage was done in Farmington due to a debris slide which mobilized into a debris flow, incorporating over 90 percent of its mass from the channel of Rudd Creek. Flood-like damage caused by the debris flows occurred well outside any mapped floodplain boundaries. Consequently, the accuracy of existing floodplains was questioned, and the Federal Emergency Management Agency (FEMA) contracted with the U.S. Army Corps of Engineers (USCOE) to make an assessment. In the meantime, sediment catch basins (debris basins) were constructed at the mouths of some canyons and debris basins built in the 1930s at other canyons were refurbished. These debris basins cost about $1.1 million each, including the cost of acquiring the land on which they were built.

The area near Farmington damaged by debris flows in May and June, 1983, had several drainages with a previous history of debris flow and flood damage. The USCOE examined the records, found that debris flow damage had occurred in the Farmington area from about 1912 to 1983, and concluded that the damage in Farmington was due to a "100-year debris flow" in Rudd Creek. It turns out that the 1983 debris flow in Rudd Creek was, in fact, the first time in history (beginning in 1847) that it had generated a debris flow or flood of any kind. The debris flows
earlier in the century occurred in other canyons, some of which were 10 to 15 km away from Farmington. The USCOE used conventional hydrology/hydraulics to estimate the 100-year clear-water flood in Rudd Creek, and then applied a sediment bulking factor to increase the volume to what was observed in 1983. This technique was then applied to other canyons, much larger than Rudd Creek. The USCOE mapped "100-year floodplain" boundaries based on the bulked volume. Two important findings were reported to FEMA: 1) the boundaries of the 100-year floodplain encompassed a large part of the urbanized area in some communities, and 2) nearly all of the debris basins built and refurbished in 1983 were too small to provide adequate protection from the 100-year debris flow event. Needless to say, the community leaders were unhappy with these findings.

The damaging debris-flow events of 1983 were caused by rapid, springtime melting of an unusually heavy snowpack. Earlier in the history of Utah, damaging debris flows were caused by summer cloudburst thunderstorms. Following damaging summer cloudburst debris flows in 1930, investigations were made to determine the extent and severity of the problem. The studies, led by the U.S. Department of Agriculture Forest Service (USFS), concluded that the basic cause was human abuse of the watersheds in the Wasatch Range. This abuse included overgrazing and burning underbrush to promote growth of grasses. The early debris basins were constructed by the Civilian Conservation Corps, who also constructed contour terraces on the watershed slopes. Among the discoveries made by the USFS geologists and foresters was the concept that the debris flows of 1930 could not have been a common occurrence. They reasoned that, if the debris flows of 1930 occurred relatively frequently, the alluvial fans at the mouths of the canyons would be major, prominent landforms instead of the minor features they actually are. Had geologists been directly involved in the assessment of flood hazards resulting from the 1983 disaster, undoubtedly this geologic concept, published in 1934, would have been incorporated by the USCOE and FEMA.

Over 90 percent of the sediment discharged into Farmington from the 1983 debris flow in Rudd Creek came from the channel. The debris slide that initiated the debris flow was colluvial deposits composed of silty sandy gravel to gravelly sandy silt. These sediments have very little plasticity, and the initial slug of material that started moving down the channel rapidly imposed a load on the underlying saturated stream channel sediments, which also were basically colluvial materials, resulting in liquefaction. The liquefied sediment became incorporated into the debris flow as it moved down the channel. Consequently, the channel was cleaned of sediment to bedrock. A geologist would note that future similar sediment discharges from Rudd Creek are impossible until the channel again becomes filled with colluvial materials. The amount of time required to refill the channel is unknown, but probably much longer than 100 years. Had geologists been directly involved in the assessment of flood hazards resulting from the 1983 disaster, this geologic concept also would have been incorporated by the USCOE and FEMA.

The 1983 debris flows in Utah resulted from rapid and sustained snowmelt. The pre-1983 debris flows and other flooding events used by the USCOE to justify the 1983 debris flow at Rudd Creek as the 100-year event all resulted from summer cloudburst thunderstorms. Interestingly, snowmelt flooding occurred in Utah in 1922, 1952, and 1983 - a 30-year frequency; however, landslides and debris flows occurred only in 1983. Had geologists been directly involved in the assessment of flood hazards, the geologic aspects of cloudburst versus snowmelt processes would have been incorporated by the USCOE and FEMA. Approximately $12 million was spent in 1983 in Davis County, Utah, refurbishing old debris basins and constructing new ones; less than $30,000 was spent on geologic research to understand the debris-flow processes.

The geologic issues of complexity, randomness, and change are viewed differently by geologists and engineers. Engineers generally need to simplify to complete designs. However, the concepts of randomness and continual change may be disregarded by engineers partly because of the philosophy of the "design life" and partly because geologists have difficulty explaining the concepts in terms which are clear and meaningful. The challenge to geologists is to be alert to the issues of significance in engineering, and to describe geologic factors clearly in useful and useable (quantitative) terms. The challenge to engineers is to have geologists directly involved in their projects, to discuss and explain the concepts so the meaning is clearly understood. Geologists should assist engineers in making geology-based decisions. Geologists who withhold information because not all of the multiple working hypotheses have been fully explored, or who bury the relevant geology in geo-jargon, will force the engineers to make the decisions without adequate consideration of the geology. Similarly, engineers who ignore geologists' reports, or who do not request or require geologic information on their projects, may have completely incorrect characterizations of sites. Such actions on the parts of geologists and engineers will maintain the differences, rather than making progress to overcome them.

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Earth Sciences And Geological Engineering At Waterloo

Maurice B. Dusseault, Ph.D., P.Eng., Professor of Geological Engineering, University of Waterloo, Ontario, Canada N2L 3G1

The Earth Sciences Department at the University of Waterloo had its beginnings in 1965. Geological Engineering is even younger. The first graduating class received their B.A.Sc. diplomas in 1986. Despite being in existence only a short time, Earth Sciences and Geological Engineering at Waterloo have achieved a reputation that is known across Canada, and beyond. This is, in part, the result of the graduate program in Hydrogeology, established by Dr. R. Farvolden, P. Geo., P. Eng., and Dr. John Cherry, P. Eng. This graduate program, of unusual strength, has caused a significant change in the nature of the undergraduate program at Waterloo. We teach fewer courses in palentology and classical geology in the basic Earth Sciences program, and teach more courses in geochemistry, hydrogeology, engineering geology, and mathematics as applied to Earth Sciences. The Geological Engineering program, which leads to a professional degree in Engineering, is a blend of the physical geology courses and the analysis-oriented and soils mechanics courses in Civil Engineering. These undergraduate programs have recently been extended to include a new undergraduate curriculum, that is essentially a hydrogeological option in Earth Sciences, with more geochemistry, analysis, and hydrogeology courses.

Our enrollment did suffer during the 80's but not nearly as much as similar programs across Canada. For example, one of the largest schools in Canada in Earth Sciences recently had to cancel lectures in second year because of the lack of students. Our enrollment has dipped but has recovered significantly. This year, we have in excess of 30 registrants to begin Geological Engineering and a similar number of Earth Scientists. This large enrollment exceeds the undergraduate enrollment in any other university in Canada by a significant margin. Why has this sudden recovery happened, and why hasn't Waterloo been hurt as much by the downturn in the demand for geologists as other schools? This is an important question.

One part of the answer is that our undergraduate program in Earth Sciences is more quantitative and analytical than other programs. We emphasize modeling, quantification, and communication. The majority of our undergraduate students, and the students in Geological Engineering, must complete five work terms and write four work term reports of professional quality. This industry experience gives them a significant advantage over other students in Canada, and this perception spreads among the high schools so that we get a larger number of applicants.

Another factor which has helped a great deal has been the dramatic success of the hydrogeology group at Waterloo. At the present time, there are in excess of 80 graduate students working with various professors in aspects of hydrogeology and shallow aqueous geochemistry. This reputation has attracted students into the undergraduate program as well.

What conclusions does the Waterloo model hold for other Earth Sciences schools? The following list is what I feel every Earth Sciences and Geol-
ogy Department in North America must consider immediately.

1. Students must become familiar with computers in year one and must use all aspects of computer capability in courses in following years. Emphasis should be on graphics, statistics, text processing, and data management, as well as some classical programming.

2. Courses must emphasize physical models and the quantification thereof. Qualitative descriptions no longer suffice. The great era of qualitative descriptive geology is past.

3. Environmental geosciences will be the major interest for the next 25 years at least. In North America we are relatively sensitive at this time. In Europe and in other developed and developing countries, the awareness is just beginning. It does not yet exist in the third world and may not for several generations. Qualitative environmental geosciences based on process models will dominate geology in the future.

4. A strong graduate research program can help the undergraduate program. The reputation of a university today is built largely on the research quality of its graduate students, and this must be leveraged into enrollment at the undergraduate level.

5. Specialization is necessary, but flexibility is essential. For example, a university that specialized in shallow aqueous and contaminant geochemistry in the 1960's would be in a very excellent position today, yet flexibility is necessary to apply this domain to a wide range of engineering problems. Applied Earth Sciences is the wave of the future. Government support for interesting, but nonapplied research projects and educational programs is unlikely to grow, and will probably shrink in the upcoming decades. Departments must show flexibility, relevance, and willingness to teach earth science principles in a modern context.

We are going to see more problems in Earth Science's programs in the following decade. A number of universities will attempt to eliminate their Earth Science's programs, restructure them massively, or have them absorbed by Civil Engineering or Geophysics. During the 1960's and 70's, the heyday of Earth Sciences, geology departments often ignored vital areas such as hydrogeology, geophysics, and rock mechanics. Computer applications were often trivialized by saying that computer modeling is not geology. We are now paying the price for this arrogance, and that last ten years have humbled us. Perhaps, we can quantify our science, show that it is a vital and valuable science for society in the twenty-first century, and revitalize our departments with new and relevant programs. Waiting for the axe to fall is not the solution, for fall it will if we cannot meet the challenge.*
FOR PRESIDENT-ELECT 1993

RUSSELL G. SLAYBACK
CPG-2305

Statement of purpose or goals for AIPG: To advance the unity of the profession; to continue and increase active involvement in geologic issues; to promote meaningful continuing education; to increase AIPG's prestige as the public voice of the profession; to enhance the public status of geologists in laws and regulations.

Greens Farms, Connecticut

PROFESSIONAL HISTORY:

Leggette, Brasher & Graham Ground-Water Geologist 1960-69
Senior Hydrogeologist 1969-74
Partner 1975-78
Leggette, Brasher & Graham, Inc. Vice President/Director 1976-84
President/Director 1984-present

AIPG ACTIVITIES:

Northeast Section Executive Committee 1974-1980
Northeast Section, President 1977-78
AIPG National Advisory Board Representative 1977-80
AIPG National Registration Alert Committee, Member 1979-81
AIPG National Consultants Committee, Chm. 1979-81
AIPG National Annual Meetings Consultants Workshop, Convener 1978-81
AIPG National, Executive Committee 1980
Northeast Section Newsletter Editor 1982-present
AIPG National Van Couvering Award, Citationist 1986, 1987
AIPG National Member Services Comm., Chrm. 1989
AIPG National Future Directions Comm, Member 1988
AIPG National Professional Ethics Sooklet Committee, Member 1989-90
AIPG National State Affairs & Registration Committee, Member 1990-91
AIPG National Governmental Affairs Comm., Chrm. 1992-93
AIPG National Board of Trustees, Member 1988-92
AIPG National AIPG Annual Meeting, General Chair 1993

STEVEN M. TESTA
CPG-6464

Statement of purpose or goals for AIPG: To promote the interest and investment of young professionals and new applicants and provide effective support for the President. It is also my aim to enhance the value of AIPG membership in regards to education, professional development and regulatory involvement and ethics.

Laguna Hills, California

PROFESSIONAL HISTORY:

R. T. Franklin & Associates Engineering Geologist 1968-76
Converse Consultants Chieft Hydrogeologist 1983
Darree and Moore Project Manager + Hydrogeologist 1984-86
Engineering Enterprises, Inc. Vice President 1986-90
California State Univ. Fullerton Instructor (part time) 1989-93
University of Southern California Instructor (part time) 1990-91
Laguna Hills, California President 1990-present

AIPG ACTIVITIES:

AIPG National Ad Hoc Committee for Professional Development 1987
AIPG National President 1987-88
AIPG National Newsletter Editor 1988-89
AIPG National Ad Hoc Committee for Continuing Education 1989
AIPG National AIPG Annual Meeting, General Chair 1990
AIPG National Annual Meeting Committee 1991
AIPG National National Screening Committee 1992
AIPG National Environmental Geology Sub-Committee 1992-93

FOR VICE-PRESIDENT 1993

F. W. "RICK" OBERNOLTE, JR.
CPG-6742

Statement of purpose or goals for AIPG: Promote AIPG goals and policies. Encourage membership expansion, particularly into growing fields of practice. Work closer with the educational community and legislative policy makers to further improve the standing of geologists.

Franktown, Colorado

PROFESSIONAL HISTORY:

Consultant 1974
Wyoming Mineral Corp. 1974-76
Rocky Mountain Energy Co. 1976-81
Marathon Oil Co. 1981-present

AIPG ACTIVITIES:

Colorado Section Treasurer 1989
Colorado Section Vice President 1990
Colorado Section Program Committee, Chrm. 1990
Colorado Section Legislative Review Committee 1991
Colorado Section President 1991
Colorado Section President 1991
Colorado Section President 1990
Colorado Section Advisory Board Representative 1992
Colorado Section Advisory Board Delegate 1992

LAWRENCE C. WEBER
CPG-7120

Statement of purpose or goals for AIPG: AIPG should strive for continuous improvement in the competence and professionalism of practicing geologists by supporting continuing education, monitoring and influencing governmental activities relating to geology, recognizing standards of ethical conduct, promoting sound business practices and by disseminating information to the public about the importance and benefits of geologic study.

Nashville, Tennessee

PROFESSIONAL HISTORY:

Geologic Associates, Inc. Staff Geologist 1974-76
The EDG Group Sr. Engineering Geologist 1976-83
The EDG Group Vice President 1983-88
The EDG Group Principal Geologist & Director 1986-88
The EDG Group Principal Geologist 1991-present

AIPG ACTIVITIES:

Tennessee Section Vice President/Program Chair 1988
Tennessee Section Advisory Board Delegate 1989
Tennessee Section President 1990
Tennessee Section Advisory Board Delegate 1991
Tennessee Section Advisory Board Delegate 1991
Tennessee Section Program Chair 1991
AIPG National AIPG Annual Meeting, General Chair 1992
AIPG National State Affairs & Registration Comm. 1992
AIPG National Annual Meeting Committee 1992

COLLEGE:

Colorado School of Mines
University of Denver

DEGREES:

B.S., Geological Engineering
M.S., Environmental Policy and Management

DATES:

1974
in progress

COLLEGE:

Tennessee Technical University
Eastern Kentucky University

DEGREES:

B.S., Geography
M.S., Geology

DATES:

1971
1974

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FOR TREASURER 1993-94

ELLEN F. HODOS
CPG-6966
Statement of purpose or goals for AIPG:
 Improve performance on registration issue,
 otherwise main purpose of society may prove
 redundant.

Carson City, Nevada

MYRNA M. KILLEY
CPG-6033
Statement of purpose or goals for AIPG: As a
 professional who often communicates geologic
 information to non-geologist users in a variety
 of settings, I energetically support outreach goals
 for AIPG. Strengthening areas of common
 interest among AIPG members in various fields
 of practice is also important.

Urbana, Illinois

COLLEGE:
University of Maine
Columbia Univ, Henry Krumb
School of Mines

DEGREES:
B.A., Geology
M.S., Mining Engineering

DATES:
1969
1972

PROFESSIONAL HISTORY:
N. L. Industries, Inc.
Mineral Deposits, Ltd.
Consultant
W.R. Grace Company
Scailko Coal Corp (Shell)
Consultant
Placer Service Corp.
OneStream Resource Manager, Inc.

Junior Geologist
Contract Geologist
Mining Engineer
Mining Engineer
Manager of Geology
Vice President, (co-owner)

1969-71
1971-72
1972
1972-75
1975-76
1980-83
1983-84
1985-present

AIPG ACTIVITIES:
Nevada Section
Nevada Section
Nevada Section
Nevada Section
Nevada Section

Newsletter Editor
Secretary-Treasurer
President
Advisory Board Delegate
Advisor Board Delegate

1987
1988
1988
1989
1990
1991
1992

AIPG ACTIVITIES:
Nevada Section
Nevada Section
Nevada Section
Nevada Section
Nevada Section

Program Chair
Program Chair

1991
1992

PROFESSIONAL HISTORY:
Illinois State Geological Survey
Technical/Research Assistant
1967-76
Educational Extension Section
Assistant Geologist
1978-84
Engineering Geology Section
Co-Principal Investigator
1982
Landslide Inventory of Illinois
Associate Geologist
Environmental Assessment and
Quaternary Framework Sections
1984-present
Principal Investigator
Geotechnical Site Investigation
7 GeV Advanced Photon Source
Argonne National Laboratory
1987-89
Staff Geologist,
Quaternary Framework College
1992-present
Earth Science Instructor (part-time)
1997-present

AIPG ACTIVITIES:
Illinois-Iowa Section
Illinois-Iowa Section
Illinois-Iowa Section
Illinois-Iowa Section
Illinois-Iowa Section
Illinois-Iowa Section
Illinois-Iowa Section
Illinois-Iowa Section

Ad Hoc Committee on Bylaws, Member
Secretary-Treasurer
Reg. & Leg. Committee, Chair
AIPG Liaison to North-Central Section,
Asso. of Eng. Geologists
Vice-President/President-Elect
President
Vice President/President-Elect

1982
1984-86
1988-89
1988-
1998-present
1988
1989
1989
1990-present
1990-present

WANTED

AIPG needs quality articles for future issues of The Professional Geologist. Members are encouraged to submit articles or call Headquarters and recommend individuals who should be asked to submit articles. 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.

Editorial Calendar

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Send your article and/or photograph TODAY to:

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AIPG - Editor
7828 Vance Drive, Suite 103
Arvada, CO 80003

For questions or further information on articles or advertising call Wendy Davidson at (303) 431-0831 • M - F • 7:30 - 4:00 MT.
Geologists And Engineers -- How Deep Is The Stamp On The Forehead?

Edward R. Rothschild, CPG-7360
Chief Operating Officer, Geraghty & Miller, Inc.

Given the apparent dialogue (or lack of dialogue) between engineers and geologists performing environmental services these days, it would appear that the "G" and "E" stamped on technical folks' foreheads is indeed deep. Why is there such a large schism between these two camps of seemingly intelligent species? Do they really think that differently? No -- but most of the organizations around which our day-to-day activities revolve propagate the schism between technical disciplines.

One of the first places that we must address this schism between engineers and geologists is not in the "public eye", but right at home. Registration and the differential treatment between disciplines are important, but the organizations where technical folks work must be fixed first. This schism is perhaps greatest in the area of environmental services, because of the multi-disciplinary nature of the field and because of the mass employment of technical staff. The situation is probably of greatest concern and highest visibility in consulting companies.

The roots of the many hundreds of environmental service companies are varied and deep. There are very few companies of significant size which were derived from a purely "environmental" background. The most common derivations are from: geotechnical engineering; groundwater supply and development; traditional architectural and engineering; and earth moving/construction. As such, each firm has a flavor and culture reflecting its origins. However, the environmental market differs from traditional markets for most of these firms. It is truly multi-disciplinary, and services, unless in a distinct "niche", must span from investigation, to evaluation, to design, to construction. That is, the services provided by this large and important industry are not engineering, hydrogeology, or risk assessment. The services provided are more correctly defined as a solution to a leaking storage tank or a solution to an abandoned landfill, etc.

The traditional (does ten years constitute a tradition?) structure of an environmental services firm is one that is oriented along technical disciplines. That is, the scientists write the proposal, get the job, do the investigative work, hand the results to the engineers, and then bemoan the lack of support provided by the engineers. In turn, the engineers complain about the lack of necessary design data, data not being brought in early enough, and how they have to do the real part of the project -- come up with a solution to the client's problem. Sound familiar? Oh, then there are the risk assessment, modeling, and other specialists who fit within the process. Organization by technical discipline supports this bastardized process for providing a service. Do any of the "Big Three" auto makers go to the public and sell them separate engines, tires, transmissions, and bodies? No, they sell completed units that provide transportation. When, and if, he lands in the emergency room, would Joe Public want to decide if and what type of anesthesiologist, assisting nurses, specialists, etc. should fix his broken leg? No, the hospital provides the full service. The similarity -- industry and service must integrate the components and skills to provide the product. So why does the environmental industry have such a problem doing this?

The problems are clear, but the solutions are tricky. They include:

- Environmental service companies must recognize the broad range of technical skills that must be integrated to provide services (read "solutions to a problem").
- The hands-off attitude between disciplines during service implementation must be eliminated.
- Organizations designed to highlight the differences in disciplines instead of the integration of disciplines must be eliminated.
- It must be recognized that project managers can come from any discipline and can manage from project start to finish.
• Training and development of technical disciplines must continue, but with an integrative approach.
• Differential policies such as separate pay scales, rewards, and promotions must be eliminated.

Developing and maintaining technical capabilities (science and engineering) is a different animal than managing them and selling them (creating a successful environmental services company). The creation of environmental service professionals must come about. These are individuals, regardless of technical background, who recognize how to solve environmental problems by integrating the necessary skills (not necessarily their own skills).

Engineering and scientific failures, especially in the environmental arena, occur because of a lack of integration of the necessary disciplines. How many well-engineered landfills end up sited in geographically poor, "high-risk" areas? How many ground-water treatment systems fail due to a lack of appropriate design data collected during the investigation phase? How much time, effort and money is wasted because the solution to a problem is not thought out from start to finish, but planned only phase by phase by different technical groups? Too many. Professional integrity in the field demands the utilization of qualified individuals with the span of skills to solve the problems that face society, not to propagate the splintered and too often myopic technical specialties. Certainly, integrating skills, while at the same time preserving them, represents a significant challenge. This integration might occur as the environmental field matures, but the issues must be recognized now by the technical specialists involved, the organizations for whom they work, and by the public.

How deep is the "E" and "G" stamped upon foreheads of engineers and geologists working in the environmental field? Too deep. As technical professionals, we must understand and clearly define what we "do" and provide and design our own organizations to reflect the services demanded by society and the marketplace. If we can get our own house in order, perhaps the schism between skills, as reflected by the outside world in registrations, regulations, and recognition, will diminish.

TPG Corrections

April, 1992, Volume 29 - Number 4
Page 9 - Article entitled "The Sleeping Giant Wakes", the photo caption should have read: Hovercraft used to supply Cominco's SNIP property in B.C. leaving Wrangell, Alaska.

June, 1992, Volume 29 - Number 7
Page 6 - Article entitled "Kentucky Professional Geologists Registration Bill Signed", the second bulleted item should have read: ...the GSK (Geological Society of Kentucky)...

NEXT ISSUE

THEME:

Geologists And Engineers - Part 2
• Engineering Geology In The City Of New York
• Architects, Engineers And Geologists
• Changing Roles Of The Geologist And Engineer
• Professionalism vs. Profit - A Guest Column

MINING IN THE COMMONWEALTH
EXCERPT FROM MAY 25-JUNE 1 REPORT

RUSSIA ALLOCATES $120-160 MN TO DEVELOP GOLD MINING IN MAGADAN

The Russian government plans in the near future to allocate $120-160 Mn to develop the gold producing industry of the Magadan region, whose deposits contain 45% of all discovered gold in Russia. The allocated funds, according to an agreement between Viktor Mikhailov, the head of the district's administration, and Russian Vice Premier Yegor Gaidar, are to be used primarily for forming "new structures" in the industry.

Magadan officials assumed the new organizations will work on increasing production in the region's gold deposits.

1-303-825-1510

The MINING IN THE COMMONWEALTH report is available for subscription. Call John Duncan at (303) 825-1510.
SUMMARY: Establishes a task force on the valuation of producing mines to study the current policies and procedures regarding valuation for property tax purposes; provides for membership and initial appointments by 5/1/92; provides for reporting by 11/1/92. STATUS: 4/30/92 INTRODUCED.

IL H 3975  A U T H O R : Blagg     TOPIC: FINANCIAL INSTITUTIONS SUBTOPIC: LOANS & CREDIT SUMMARY: Amends the Mechanics Lien Act; provides that people who perform labor & services on real property removal & disposal of construction debts are entitled to liens under the Act. STATUS: 4/17/92 INTRODUCED.

IL S 2119  A U T H O R : Jones     TOPIC: HEALTH & SOCIAL SERVICES SUBTOPIC: MEDICAL SPECIALTIES & SERVICES SUMMARY: Amends Public Accounting Act; provides that principles of contributory negligence & joint several liability apply to actions occurring on or after the effective date of this amendatory Act that arise out of professional services rendered. STATUS: 4/9/92 INTRODUCED.

LA H 235  A U T H O R : McCains     TOPIC: LAW & JUSTICE SUBTOPIC: CIVIL LAW SUMMARY: Relates to offenses & quasi-offenses; provides that a claim for damages shall be denied if the negligence of the person suffering injury is equal to or greater than the negligence of the tort-feasor; provides that a claim for damages shall not be defeated if the fault of the person suffering injury is less than the fault of the tort-feasor but that the damages shall be reduced in proportion to the degree of fault of the person suffering injury. STATUS: 5/31/92 INTRODUCED.

LA H 1145  A U T H O R : Downer     TOPIC: LAW & JUSTICE SUMMARY: Amends current prohibition against provisions in certain oil, gas or mineral agreements which provide for a defense of or indemnity to the lessee against loss or liability resulting from death or bodily injury caused by negligence; provides that any kind of request or claim made for defense or indemnification with respect to a covered claim constitutes a violation of this prohibition against indemnity agreements. STATUS: 4/12/92 INTRODUCED.

LA S 1311  A U T H O R : Bean     TOPIC: BUSINESS & CORPORATIONS SUBTOPIC: SPECIFIC INDUSTRIES, OCCUPATIONS SUMMARY: Relates to professional liability of architects & engineers; requires the filing of an affidavit alleging negligence. STATUS: 5/21/92 INTRODUCED.

MO 4384  A U T H O R : Dept. of Natural Res., Solid Waste Management TOPIC: ENVIR, PROT. & POLLUTION CNTRL SUMMARY: Relates to the design & operation of landfills & addresses waste acceptance of demolition landfills. AGENCY CONTACT: Director, Solid Waste Management Program, P.O. Box 176, Jefferson City, MO 65102. CITATION: 10 CSR 80-4.010 PROPOSAL DATE: 4/17/92 COMMENT DEADLINE: 5/19/92

NY S 2326  A U T H O R : Agueda     TOPIC: REAL ESTATE & CONSTRUCTION SUBTOPIC: PROPERTY TAXES

SUMMARY: Provides an expanded definitions section; clarifies terms commonly used by the Wetlands Board such as abandonment, bog, conservation commission, corduroy road, developed upland, dock, dredge, dune reconditioning, etc. AGENCY CONTACT: Mary Ann Tilton, Enforcement Officer, 64 N. Main St., Concord, NH 03301, (603) 27-2147. CITATION: Chapter 144 of Title 100 Organizational Rules (Definitions) PROPOSAL DATE: 5/22/92 COMMENT DEADLINE: 6/30/92 HEARING DATE: 6/25/92


NJ A 1322  A U T H O R : Ogden     TOPIC: RES. MGMT. & PRESERVATION SUBTOPIC: LAND SUMMARY: Provides for certification of freshwater wetlands professionals. STATUS: 4/30/92 INTRODUCED.

NJ S 866  A U T H O R : Corman & Sinagra     TOPIC: BUSINESS & CORPORATIONS SUBTOPIC: SPECIFIC IND., OCCUPATIONS SUMMARY: Provides for civil immunity to professional engineers in certain circumstances. STATUS: 5/18/92 INTRODUCED.

NY A 11476 & NY S 8156  A U T H O R : Committee on Rules TOPIC: LAW & JUSTICE SUBTOPIC: CIVIL LIABILITY SUMMARY: Requires that a complaint in architectural & professional engineering malpractice actions be accompanied with a certificate of merit. STATUS: 4/7/92 INTRODUCED.

NY S 8355  A U T H O R : Volker     TOPIC: LAW & JUSTICE SUMMARY: Imposes a seven year limitation on certain actions for damages against professional engineers, architects, surveyors or construction contractors. STATUS: 5/12/92 INTRODUCED.

NC 2104 & NC 2119 & NC 2120  A U T H O R : Dept. of Envtl. Health & Nat. Res. TOPIC: RES. MGMT. & PRESERVATION SUMMARY: Amends the Well Construction Rules regarding permit requirements, variances, casing installation & grouting, & reporting; ef-
Establishes fees for well driller registration; delineates criteria & standards applicable to water supply & certain other type wells.

AGENCY CONTACT: David Hancock, Div. of Environmental Management, Groundwater Section, P.O. Box 29535, Raleigh, NC 27626-0535, (919)733-3221


PROPOSAL DATE: 5/1/92

COMMENT DEADLINE: 5/31/92

OR 6581 AGENCY: Land Conservation & Development Comm.

TOPIC: POLITICS & GOV't.

SUMMARY: Directs local govt. to coordinate with Dept. of Geology & Mineral Industries when planning for & regulating development of mineral & aggregate resources; requires coordination with Dept. of Geology & Mineral Industries when developing programs to comply with Goal 5.

PERMIT PROCEDURES & REQUIREMENTS.

AGENCY CONTACT: Richard Bernal, Director, Dept. of Land Conservation & Development, 1175 Court St., NE, Salem, OR 97310, (503)373-0550

CITATION: Chapter 658, Division 16

PROPOSAL DATE: 5/1/92

COMMENT DEADLINE: 5/21/92

SD 1669 AGENCY: Dept. of Environmental & Natural Resources, Board of Water Mgmt.

TOPIC: RES. MGMT. & PRESERVATION

SUMMARY: Clarifies minimum well construction practices to be followed in SD, including minimum grouting requirements, well construction, well locations, well driller & owner responsibilities, & well plugging requirements.

AGENCY CONTACT:

Chief Engineer, Division of Water Rights, Joe Foss Bldg., Rm. 413, 523 E. Capitol, Pierre, SD 57501

CITATION: (To Be Codified) Well Construction

PROPOSAL DATE: 4/13/92

COMMENT DEADLINE: 5/6/92

TX 10060 AGENCY: Water Commission

TOPIC: ENVIR. PROT. & POLLUTION CTRNL

SUMMARY: Concerns underground injection control; incorporates rules promulgated by the Environmental Protection Agency; delineates criteria for regulating development of wells for injection of wastewater by existing underground injection wells.

AGENCY CONTACT: Bob Wines, Staff Atty., Legal Division, Water Commission, P.O. Box 13067, Austin, TX 78711-3087, (512)463-8069

CITATION: 31 TAC 331.147

PROPOSAL DATE: 4/24/92

COMMENT DEADLINE: 5/24/92

TX 10103 AGENCY: Board of Irrigators

TOPIC: RES. MGMT. & PRESERVATION

SUMMARY: Concerns applications for registration to become a licensed irrigator or installer; delineates eligibility requirements; dictates who must apply for certificate of registration & procedure for obtaining certificate of registration; sets amount & form of payment paid by irrigator or installer in applying to take exam; describes process for applying to take irrigator's or installer's licensing exam; defines procedures for registration; provides conditions under which Board may reject application; relates to written exam; concerns appearance for exam & failure to appear; determines minimum passing score.

AGENCY CONTACT:

Kathy Kells, Staff Atty., P.O. Box 13087, Austin, TX 78711-3087, (512)265-8567


PROPOSAL DATE: 5/8/92

COMMENT DEADLINE: 6/7/92

W 7567 AGENCY: Public Service Comm.

TOPIC: ENVIR. PROT. & POLLUTION CTRNL

SUMMARY: Implements the WI Environmental Policy; describes the process to be followed in preparation of Environmental Impact Statements & screenings.

AGENCY CONTACT: Public Service Comm., 4802 Sheboygan Ave., P.O. Box 7554, Madison, WI 53707, (608)266-3371

CITATION: PSC 2.90 to 2.95

PROPOSAL DATE: 5/15/92

COMMENT DEADLINE: 6/6/92

HEARING DATE: 6/18/92

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TODAY IN WASHINGTON

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

Let's start right off this month with a note intended for all you oil and gas people. In the Federal Register, Vol. 57, No. 95 on page 20747, the I.R.S. has listed final and temporary regulations relating to the limitation on passive activity losses and credits (26 CFR Part I). This part covers income from oil and gas properties. And, as usual, these regulations are unbelievably clear--on page 20756, it states "(C) if any oil or gas well or other item of property (the item) is included in two or more properties described in paragraph (C) (6) (I) of this section (the properties), the taxpayer must allocate the passive activity gross income determined without regard to this paragraph (c)(6) and paragraph 1.469-27(f) from the item and the passive activity deductions reasonably allocatable to the item among the properties."

My interpretation - no matter how you split it, we'll take the income!

**Part II of Vol. 57, No. 95 (5-15-92)**  
- Has The Department of Labor, Mine Safety and Health Administration Safety Standards for Underground Coal Mine Ventilation, Final Rule [30 CFR Parts 70 and 75], Pages 20868 - 20929.

**Vol. 57, No. 96, Page 21138** - Here is a proposed amendment from the Nuclear Regulatory Commission to "terminate the Cooling Tower Drift Program".

I can see the headlines next. NRC SUCCESSFUL IN TERMINATING COOLING TOWER DRIFT - TACKLES CONTINENTAL DRIFT NEXT.

**Vol. 57, No. 97, (5-19-92), Page 21304** - On April 30, the Director of the Office of Trade Adjustment Assistance granted eligibility for adjustment assistance under Section 223 of the Trade Act to all Mobile Exploration and Production U.S. Inc. (MEPUS) who were totally or partially separated on or after 1-1-92.

Vol. 57, No. 98, Part III - EPA, 40 CFR Parts 260, 261, 262, 264, and 268  
Hazardous Waste Management System; Identification and Listing of Hazardous Waste; PROPOSED RULE, Page 24150 - 21522

Public comments accepted until 7-20-92. For further information, contact: RCRA/Superfund Hotline at 800-424-9346 or at 202-260-3000.

Vol. 57, No. 102 (5-27-92) Page 22330 - 22408 - Part III has EPA's newest forms and instructions for reporting discharges, stormwater run-off and other "stuff". (EPCRA section 313). For further information, contact: Emergency planning and Community Right-To-Know Act (EPCRA) toll free 800-535-0202.

**From the Public Land News**

In Washington, the House Energy Bill (HR 776) was chopped up by the House Rules Committee. What is left is an extension of the Abandoned Mine Land Fund from 1995 to 2010. The catch is that Chairman George Miller (D-CA), House Interior Committee Chairmen, and House Subcommittee on Mining Chairman, Nick Joe Rahall, are going to offer a package of amendments. The amendments include - a standard five year oil and gas lease term - an increase in revenues for the Feds from oil shale claims - an assessment of the impact of western coal mines on eastern mining - and a study of alternative coal royalty rates.

Eight other committees approved versions of HR 776 and the House Rules Committee gave permission for 21 major amendments, or packages of amendments, to be considered on the House floor. Word has it that the oil and gas industry is not optimistic about defeating the five year lease term in spite of its lobbying effort. The five year term comes from that staunch supporter of the minerals industry, Nick Joe Rahall. Rahall and Miller are proposing the competitiveness requirement which would force the BLM to consider the impact of a lease of western coal on competition in the east before issuing a lease. So much for the energy bill.

As usual, as you have probably heard, the timber industry wants timber, the cattle industry wants grazing continued, the minerals industry wants to continue mining and oil and gas exploration. The environmental groups want to preserve the forests, save the owls, make more wilderness, and save all the resources for future generations. The Forest Service has a "New Perspective" which means the Forest Service is going to use an ecological approach to achieve the multiple-use management of the National Forests and Grasslands. The saga continues...

A quote in closing from Edward Langley--"What this country needs is more unemployed politicians".

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What Does AIPG Do For Its Members? - Professional Liability (Errors And Omissions) Insurance

William V. Knight, CPG-0153

As you all should be aware, in 1991 AIPG worked with the insurance industry to develop a professional liability (E&O) insurance policy designed specifically for geologists. Heretofore, geologists had nearly always had to look to the engineering profession for such insurance. The result was that geologists were paying for insurance that covered many things they did not do. Because of this, the cost was often far out of range for most geologists. It still is not cheap, but it is less expensive than the alternatives and considerably less expensive for AIPG Members than for the profession in general. The difference more than pays for a Member's annual cost of membership.

The policy that was developed is still evolving to fit the needs of geologists as these needs are continually being identified and redefined. Further, it is coming down in price as experience is gained. One of the problems in developing any insurance policy is that of estimating risk. If very little history has been recorded, then the underwriters have a very small experience pool upon which to base their calculations of risk. Naturally, they always try to err on the conservative side.

Recently, we have been talking to the insurance underwriters about another possible service which could expand employment opportunities for our Members. When you buy a piece of real estate, you frequently buy something called "title insurance." Its purpose is to minimize your risk of loss because of a faulty property title. With the new awareness of risks associated with environmental problems on property one buys, a whole new line of work for geologists is growing rapidly. This is the Preacquisition Site Audit (PSA). While all of the tasks involved in a PSA are not necessarily geological in nature, most of it is related to geology. Thus, a geologist should always be significantly involved. Banks have been requiring these PSAs on property they finance because, if they have to foreclose, they may have to pay for cleaning up contamination that occurred even before they got involved (Actually, everyone in the chain of title is at risk. The banks often are singled out because they are perceived to have "deep pockets").

Enter AIPG:

We inquired of several bank officers and directors as to their level of comfort with the present system, wherein a contractor performs a PSA, presents a report to the bank, gets paid, and walks away. This still leaves the bank with considerable risk. They like to see their contractors carry insurance. But, not all do. And, what if the contractor turns out to be careless and several of his audits are attacked? Where does this leave the banks and others in the title chain? They realize that the contractor's one insurance policy will not cover very many sites.

So, we asked the carrier of our professional liability (E&O) insurance if there is such a thing as site-specific insurance to cover this risk. The answer was, "yes, but it is very expensive." Then, because of their apparently good experience with our Members, we asked if it could be made less expensive if the geology in the PSA were done by one of our Members who carries E&O insurance. The reply was, "very likely. We will look into it."

AIPG certification has a number of benefits. E&O insurance is one of the most tangible. And, it is not limited to environmental work. It extends to a myriad of things geologists do. In this litigious society, we need all the protection we can get. Likewise, in this highly competitive society, we need all the advantages we can get. If AIPG certification can increase the protection and the advantages for those who hold it, it will have served well. And, this is only one of the many ways AIPG serves the profession and the public.

For more information on liability insurance plans designed for AIPG Members, contact Ed Belsky at Johnson & Higgins, 1215 - 4th Ave., Seattle, WA 98161, Phone (206)233-2205 or FAX (206)621-1168.*

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### Executive Director's Itinerary

(subject to change)

The Executive Director is visiting various Sections, agencies, campuses, and other organizations. He is talking, listening, and exchanging information and ideas. Members are encouraged to attend these meetings wherever and whenever possible. His itinerary for the next several months, as presently scheduled, is:

- Jul. 18: AIPG Executive Committee, Arvada, CO
- Jul. 26-28: National Conference of State Legislators, Cincinnati, OH
- Jul. 28-31: [Tentative] Council of Eng. and Scientific Society Executives, Detroit, MI
- Sep. 11: Univ. of Northern Colorado, Greeley, CO
- Sep. 17-30: AIPG Annual Meeting, Lake Tahoe, NV
- Oct. 5: Geoenvironmental Forum, Denver, CO
- Oct. 17: American Institute of Hydrology, Portland, OR
- Oct. 20: Colorado Section, Denver, CO
- Oct. 21-23: Ohio Section and campuses, Cincinnati, Dayton, and Columbus, OH
- Oct. 24-28: Geological Society of America, Cincinnati, OH
- Nov. 13-14: Association of State Boards of Geology, Portland, OR

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In last month's column, we discussed a series of techniques for a job search. In this, and subsequent columns, we will discuss several of these techniques in more detail.

RESUMES

A resume is a marketing tool which contains selected and targeted information about your education, skills, experience, accomplishments, and personal traits.

A high-quality resume is essential for your job search. While a resume will not get you a job, it will introduce, inform, and remind prospective employers as to your qualifications.

A well-designed resume demonstrates a best fit of your qualifications with the needs of a defined job target. Thus, a separate resume should be prepared for each distinct job target. Examples of job targets for geologists are: 1) Geologist in the Petroleum Industry, 2) Teaching Position in Structural Geology, or 3) Geologist for the U.S.G.S.

Begin preparation of the resume by taking an overall look at your skills, etc. What do you really offer to a prospective employer? Next, visualize yourself in the position of hiring authority. Ask yourself what person would want to know and what attributes would make you stand out.

Make lists of your education, skills, experience, accomplishments, and personal traits. These will become building blocks for the resume.

In the education list, include schools, dates, and degrees obtained. Also, mention any special projects or study emphasis. Give the topic of your thesis, dissertation, or other major research projects. Include seminars and other special training.

In your skills list, include special abilities such as working with a petrographic or scanning electron microscope.

The experience list should include professional positions, summer jobs, part-time work and graduate, or teaching assistantships.

Accomplishments are particularly important as they demonstrate an ability to obtain tangible results in work, project, or research situations. Include accomplishments from: 1) thesis, 2) dissertation, 3) other research papers, 4) all relevant job positions, 5) academic awards or scholarships, and 6) percentage of university expenses earned (if relevant).

Begin accomplishment statements with action verbs such as analyzed, conducted, discovered, earned, innovated, organized, solved, etc. Extensive lists of these and similar action verbs may be found in most job search books in your local library.

With these lists prepared, you are now ready to format and assemble the resume. A recommended format for students and recent graduates is shown below:

Name __________________________ Address __________________________
Telephone __________________________

Summary Of Qualifications:

Education:
Degree, Major, School, Year
Title of Thesis/Dissertation (G.P.A. if Outstanding)
Minor
Degree, Major, School, Year
(G.P.A. if Outstanding)
Minor

Accomplishments And Skills:
• Accomplishment #1
• Accomplishment #2
• Etc.
• Awards
• Scholarships
• Skill #1
• Skill #2
• Etc.

Work History:
Job #2 (most recent) Dates
Job Title
Job #1 (earlier) Dates
Job title
Etc.

Associations
The following paragraphs contain specific suggestions for content of your resume.

The "SUMMARY OF QUALIFICATIONS" section should be attention-getting and should contain a summary of data from the body of the resume. Thus, include brief statements as to degrees obtained, specialty, skills, experience, accomplishments and personal traits. For example:


The "EDUCATION" section is placed immediately after the summary for a recent graduate or applicant for a teaching position because it is the most current and relevant information.

Select highlights and relevant portions of lists you prepared (as resume building blocks) for contents of the "EDUCATION", "ACCOMPLISHMENTS AND SKILLS", "WORK HISTORY", and "ASSOCIATIONS" sections.

Experienced geologists should vary the above format by: 1) placing
the "EDUCATION" section after "WORK HISTORY", 2) deleting "AC-
COMPLIMENTS AND SKILLS" sec-
tion and 3) moving individual
accomplishments and skills items to
the appropriate part of the "WORK
HISTORY" or "EDUCATION" sections.

Several general suggestions are
listed below:

1) Don’t exceed two pages. (Two
pages pleasantly spaced is better
than one crowded.)

2) Always be honest and accurate

3) Present yourself positively

4) Use a variety of type sizes and
boldness and underline for em-
phasis.

5) Don’t say "Resume of" at the top.

6) Don’t say "References available
upon request" at the end.

7) Use high-quality paper in white,
light cream or light gray.

A cover letter should always be
included when a resume is mailed.
The cover letter is a marketing device
which is used to show how hiring
you would benefit a prospective employer.
A cover letter should contain: 1) a
statement of your job search objec-
tive, 2) strengths and accomplish-
ments, 3) statements as to how hiring
you will benefit the employer.

In summary, a resume is a very
important marketing tool for your job
search. While it will not get you a job,
it will help by introducing, informing,
and reminding prospective employers
as to relevant qualifications. Finally,
always focus content and format of
the resume on your job target.

Next month we will discuss
another important job search topic:
"Networking".

Tom Warren, CPG-7833 an AIPG
Member in Golden, Colorado, now
works as a career and outplacement
consultant.

Hazardous Waste Action Coalition Membership Alert

Issue
Recent lawsuits seeking substantial
damages for the actions of environ-
mental restoration firms highlight the
need for indemnification in cleanup
contracts in amounts sufficient to
cover potential contractual and other
liability risks, as well as the need for
a clear assessment of liability risks
when entering such contracts.

Discussion
HWAC is aware of two recent lawsuits
of particular concern. A general
statement of the facts in these cases
follows:

* ARCO, a PRP at a Superfund site
in Montana, has sued two firms
that performed cleanup services
at the site in 1985 under EPA
contracts. The suit seeks con-
tribution for environmental
restoration costs and natural
resource damages, as well as
recovery based on negligence
and/or gross negligence, based
on the allegation that the work
performed at the site allegedly
spread site contamination. The
suit also alleges that the project
constructed at the site
constitutes a CERCLA "facility," and
that the firms are the "operators" of the facility. Be-

cause work under EPA contracts
is involved, this case may be-
come the first significant test of
EPA's promise to indemnify en-
vironmental cleanup firms
against claims.

* Residents adjoining a Super-
fund site in Corpus Christi,
Texas have sued an environ-
mental engineering firm as well
as others that sent wastes to the
site. The suit seeks recovery
from the engineering firm for
personal injury, property
damage, and cleanup costs
based on theories of negligence,
nuisance, and trespass, as well
as strict liability for allegedly
transporting the waste onto off-
site property. A claim that
hazardous waste constitutes an
"ultrahazardous" activity is also
contained in the lawsuit. The
suit alleges that the firm's
development and oversight of a
state-approved closure plan
resulted in the migration of
waste onto off-site property.

HWAC Actions
Three activities are currently underway
within HWAC to address these cases:

* HWAC, in an effort to ensure
that EPA's final Superfund Sec-
tion 119 indemnification
guidance provides meaningful
indemnification to cleanup
firms, will continue to en-
courage EPA to republish its
proposed Section 119 indemni-
fication guidance for public
comment.

* HWAC's Federal Action Com-
mittee and Legal Services
Committee will closely monitor
these lawsuits, and will report
on significant developments as
they occur.

* HWAC's newly-constituted
"Legal Counsels Forum," which
will meet at HWAC's Annual
Meeting on June 10, 1992 in
Boston, will discuss the
ramifications of these and other
recent cases in detail.

Any HWAC member who is aware,
or who becomes aware, of any other
lawsuits raising similar liability is-
issues should forward relevant case
information to Carolyn Kiely of the
HWAC staff.

Footnote
1. The two cases noted here are: Atlantic
Richfield Co. v. Osas, et al., Civil Action
No. CV-90-75-BU-PGH (USDC D. Mont.,
Butz Div.) and Dunes v. Houston Light-
ing & Power Co., et al., Case No. C-90-330
(USDC S.D. Tex.).

HWAC, 1015 Fifteenth St., N.W.,

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September 13-18, 1992. Symposium on Dolomites: From Process and Models to Porosity and Reservoirs, Banff, Alberta. Contact: Mrs. Pat Larham, Faculty of Extension, University of Alberta, Edmonton, Alberta, Canada T6G 2G4, Ph.: (403) 492-5038, Fax: (403) 492-1762.

September 17 & 18, 1992. Common Practices in Western US Surface Hardrock Mines - An Operators' Conference, Reno, NV. Contact: Meetings Department, SME, P.O. Box 625002, Littleton, CO 80162, Ph.: (303) 973-9550, Fax: (303) 973-3461.


October 12-18, 1992. Unconventional Hydrocarbon Sources Problems of Exploration and Production, St. Petersburg, Russia. Contact: Secretariat of Organizing Committee, VNIGRI, Liteiny, 39, St. Petersburg, 191104, RUSSIA, Ph.: (812) 272-3677, Fax: (812) 272-3787.

October 13-15, 1992. FOCUS Conference on Eastern Regional Ground Water Issues, Newton, MA. Contact: NGWA, P.O. Box 182039, Dept. #017, Columbus, OH 43218-2039, Ph.: (614) 761-1711.

October 16-22, 1992. Interdisciplinary Approaches in Hydrology and Hydrogeology, Portland, OR. Contact: Helen Klose, AIH, 3416 University Ave., S.E., Minneapolis, MN 55414, Ph.: (612) 379-1030.

October 26-28, 1992. International Conference on Extractive Metallurgy of Gold and Base Metals, Kalgoorlie, WA, Australia. Call for papers. Contact: Dr. V. N. Misra, Conference Chairman, Kalgoorlie Metallurgical Laboratory, P.O. Box 881, Kalgoorlie, WA 6430, Australia, Ph.: (090) 220 120, Fax: (090) 912 762.


November 4-6, 1992. Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection, and Restoration, Houston, TX. Contact: NGWA, P.O. Box 182039, Dept. #017, Columbus, OH 43218-2039, Ph.: (614) 761-1711.


1993

February 23-26, 1993. International Erosion Control Association, Indianapolis, IN. Call for papers. Contact: Jerald S. Fife, IECA Program Chair, HydroDynamics, Inc., P.O. Box 1327, 19030 E. Plaza Drive, Parker, CO 80134, Ph: (303) 841-0377, Fax: (303) 841-6386. Abstract deadline: July 1, 1992.

March 14-17, 1993. AAPG/SVG International Congress and Exhibition, Caracas, Venezuela. AAPG Convention Dept., P.O. Box 979, Tulsa, OK 74101-0979.


March 30-April 4, 1993. AusIMM Annual Conference celebrates the Centenary of The Institute, Adelaide, South Australia. Call for papers. Contact: R.K. Johns, C.-Department of Mines and Energy, 191 Greenhill Road, Parkside, South Australia 5063, Ph.: (08) 274-7500, Fax: (08) 272-7597. Abstract deadline: May 1, 1992.

April 17-20, 1993. SECG Conference '93, Integrated Methods in Exploration and Discovery, Denver, CO. Call for papers and posters. Contact: SECG Conference '93, P.O. Box 571, Golden, CO 80402, USA, J. Alan Cope, Ph: (303) 892-6534 or (303) 7911-2731 or Richard L. Nielsen, Fax: (303) 279-3118.


May 5-8, 1993. Protecting the Earth: Challenges to Science and Technology, Congress Center East of Köln Messe. Contact: Köln Messe, Messe- und Ausstellungs-Ges.m.b.H. Köln, Messeplatz 1, Postfach 21 07 60, W-5000 Köln 21, Ph.: +402 21/821-0, Fax: +402 21/821-2574.


June 24-25, 1993. ASTM Symposium on Analysis of Soils Contaminated with Petroleum Constituents, Atlanta, GA. Contact: Symposium Chairman Tracey O'Shay, Gordon and Lawton, P.O. Box 80072, Austin, TX 78727-0072, Ph.: (512) 475-2302. Abstract deadline: June 23, 1993.


1994

John Rold, Colorado State Geologist Retires

The Colorado Department of Natural Resources announced that John Rold will retire from his position as State Geologist and Director of the Colorado Geological Survey effective July 31, 1992.

John has been the Director of the Survey since February 1969, shortly after the State recreated the Geological Survey after nearly 40 years of dormancy. Prior to joining the Survey, he had been a petroleum geologist with The California Company (now Chevron) since 1949. In accepting John’s retirement notice, Ken Salazar, Executive Director of the Department of Natural Resources, said, “John Rold has served the State of Colorado with distinction. He has been involved with many of the natural resource issues that have faced the State in each of the last four decades. It will be difficult to replace him.”

The Colorado Legislature issued the following proclamation:

The Members
of
The Colorado Legislature
Hereby extend heartiest congratulations and commendation to
John W. Rold
for

23 years of dedicated service to the State of Colorado as State Geologist and Director of the State’s Geological Survey. John W. Rold began his career in 1969 with the newly created Colorado Geological Survey and had an instrumental role in developing an agency uniquely suited to provide the research and information to ensure timely, effective, and environmentally sensitive development of Colorado’s mineral resources. We all wish you the best of health and happiness during your retirement.

On request of Senator Richard Mutzebaugh and friends in the
Colorado Legislature
On this 6th day of May, 1992, State Capitol, Denver, Colorado

John is nearly a native Coloradan, having been raised on a ranch near Salida, Colorado on the banks of the Arkansas River. He received an AB and MS in geology from the University of Colorado. He and his wife, Phyllis, have four children and several grandchildren. Fishing on the Arkansas and playing with grandchildren are high on John’s list of retirement activities. He also indicates he will do some limited consulting...[We didn’t think he would give up geology entirely].

John has also been very active during these past years in several organizations and professional activities, including AAPG, AAGS, and GSA. Within AIPG, John has been very active in the Colorado Section as well as on the national level. He served as national AIPG President in 1981.

We wish John the best in his retirement years and welcome his continued participation in AIPG.*

Susan M. Landon
MEMBERS IN THE NEWS

Macklin M. Armstrong, CPG-7485, has joined Enviros, Inc., in Raleigh, North Carolina as vice president and principal geologist. He was previously a senior geologist with Remediation Technologies, Inc. in Chapel Hill, North Carolina.

Lance Duncan, CPG-8127, has joined URS Consultants, Inc., in Anchorage, Alaska as senior project manager.

Patrick J. F. Gratton, CPG-2890, of Dallas, Texas was the recipient of the Dallas Geological Society's Professional Service Award at a luncheon on May 12, 1992.

Donald C. Haney, CPG-4053, of the Kentucky Geological Survey, has been elected president of the American Geological Institute. Congratulations Don!

James A. Hartman, CPG-3783, of New Orleans, Louisiana will be awarded honorary membership in AAPG at the Association's annual convention in Calgary, Alberta.

L. L. "Vern" Vigen, CPG-2400, to consultant, Deadwood, SD. Previously chief development geologist, Kerr-McGee, Oklahoma City.

Congratulations!

SIPES New Officers - AIPG Members
Vice President - George E. Farman, CPG-1924
Director - E. Stuart Hastings, CPG-1451
Director - Charles J. Hoke, CPG-2835
Director - Jack F. Sulkik, CPG-2238
Director - Frank M. Brooks, CPG-1766

New Officers Elected for SIPES Foundation - AIPG Members
Vice President - Frank M. Brooks, CPG-1768
Secretary - Daniel L. Smith, CPG-2336
Director - George B. Vockroth, CPG-5037

AAPG New Officers - AIPG Members
President - Harrison L. Townes, CPG-4348
President-Elect - Don F. Tobin, CPG-3932
Treasurer - Susan M. Landon, CPG-4592
Outgoing President - Robert J. Wetmer, CPG-0098

SECTION NEWS FROM OHIO

Kathryn Epp, CPG-6787

The Ohio Section of AIPG is committed to passage of legislation for geologist registration in Ohio. The Geologist Registration Committee is working very hard to finalize a state registration bill. The proposed language modifies the previously proposed registration bill and incorporates various provisions of both the model AEG/AAPG and model AIPG legislation. It will soon be available to other Ohio geology organizations and AIPG Ohio Section members for comment. It is anticipated that the language will be finalized and the bill will be submitted to the Ohio Legislature this year. The Ohio Section wishes to acknowledge the tremendous efforts of Brent Huntsman, CPG-4620, 1991 and 1992 Chairperson of the Geologist Registration Committee and Curtis Coe, CPG-6240, author of the previous bill.

The Ohio Section of AIPG has established an awards committee to recognize the contributions of Ohio geologists to our profession and to our organization. Committee Chairperson Dennis Hull, CPG-6073, and committee members Don Palmer, CPG-2742, Bill Schafer, Bill Kneller, CPG-6365, and Herb Eagon, CPG-2657, with Dave Joke, CPG-2784 as executive committee liaison, will recommend types of awards and develop selection procedures. The first ever Ohio Section Awards will be given at the 1992 Ohio Section annual banquet which will be held on Friday, November 13, 1992 at Confluence Park Restaurant in Columbus, Ohio.
IN MEMORIAM - John T. Galey, Sr.

John Taylor Galey, CPG-0511, Past President (1968) of AIPG, Ben H. Parker Medalist (1978), consulting geologist, and independent natural gas producer, died Tuesday, May 5, 1992, in Latrobe Pennsylvania Area Hospital, after choking during a dinner party at the Rolling Rock Club in Ligonier Township. He was 84 and is survived by his wife of 54 years, Blanche "Bege", daughter Margaret "Peggy", son John T. Jr., and two granddaughters.

Probably no other AIPG member, past or present, embodied the combination of personal achievement and family heritage in the American oil and natural gas industry to match John's. His passing truly was the end of a legacy the like of which will not occur again.

John, a native of Beaver, Pennsylvania, was a fourth generation oil and gas man. His heritage in the oil industry goes back to its very inception when his great uncle, the intrepid John H. Galey, often referred to as the "greatest wildcatter of the 19th century", drilled the famous "Maple Shade Gusher" in 1860 near Pleasantville in Venango County, Pennsylvania. John's grandfather, Robert, father, George, and various uncles were all also successful drillers, oil and natural gas operators, and developers. Carrying on the family tradition, in 1935, John, operating with his uncle John "Big Red" Duff, who later became Governor of Pennsylvania, discovered the Blackhawk pool 10 miles west of Beaver Falls, the first Oriskany sandstone natural gas production in western Pennsylvania. Over the next 40 years, he explored for and developed natural gas production in eastern Ohio, western Pennsylvania, northern West Virginia, and western Virginia.

A 1932 graduate of Princeton University, John was a founder of the Pittsburgh Geological Society and was its president in 1948. Over his long and highly successful professional career, he was active in many professional and civic organizations. AIPG was not the only geological organization to be the beneficiary of John's intellect and energy. AAPG honored him with its highest award, the Sidney Powers Medal, in 1990. The AAPG national organization had previously bestowed two other high honors on him, the Distinguished Service Award in 1974 and Honorary Membership in 1980. John was widely recognized for his pivotal role in establishing the Eastern Section of AAPG. In recognition of that, the Eastern Section bestowed a unique, one-time-only, "Founder's Award" upon him in 1987. He was also a fellow of the Geological Society of America.

John's long and full life touched many people in many ways. However, nearly everyone who ever knew him will undoubtedly recall one thing--his characteristic hearty parting wish of "Happy Day!" at the end of almost every meeting, conversation, or telephone call. Indeed, one's days were happier for having had the opportunity to know John.

The John T. Galey Memorial Fund has been established in his memory. Contributions can be made to the John T. Galey Memorial Fund, AIPG Foundation, c/o Adolf U. Honkal, 13415 Woodlawn Ridge, Midlothian, VA 23113.
Applicants for certification must meet AIGP’s standards as set forth in its Bylaws on education, experience, competence, and personal integrity. If any Member 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 Headquar ters within thirty (30) days. This information will be circulated only so far as necessary to process and make decisions on the applications.

NEW MEMBERS
(Call and welcome as professionals and add them to your directory)

ALTBACH, Lanette L., CGP-8497
1801 Packerland Dr., Green Bay, WI 54304, (414) 697-2500.

ANDERSON, Dennis M., CGP-8498
3990 Timberline Dr., Carson City, NV 89703, (702) 987-5050.

ANDERSON, James P., CGP-8513
1925 Antwerp Ave., Plano, TX 75025, (214) 987-7777.

ANDRIPE, Martin J., CGP-8512
500 Essex Road, Northwood, PA 18074, (215) 885-3000.

BAILEY, Henry, CGP-8497
Day Star Environmental, 811 Dallas Street, Suite 222, Houston, TX 77002, (713) 929-9534.

BARNER, Wendell L., CGP-8499
1406 Van Voorhis Rd., Morgantown, WV 26505, (304) 792-5100.

CARPENTER, Philip J., CGP-8495
1451 Countyline St., Apartment #1, Route 38W, DeKalb, IL 60115, (815) 763-1925.

CORDELL, Thomas G., CGP-6880
11771 Saratoga Circle, Orange, CA 92614, (714) 330-2202.

CAPP, James A., CGP-8463
2911 Pine Lane, Hemet, CA 92544, (909) 866-8637.

CARR, Robert B., III, CGP-8465
2245 Pine Lane, Hemet, CA 92545, (909) 251-8277.

CAUGHR, Ted W., CGP-8501
116 Cambridge Dr., Lake Ozark, MO 65049, (314) 365-5000.

CROWL, Mary A., CGP-8415
203 6th Road, Olmsted Falls, OH 44138, (216) 923-6365.

CURILIVE, James E., CGP-8502
15980 E. Del Sol, Dallas, TX 75249, (214) 404-9473.

DICKY, Douglas B., CGP-8503
1030 S. Farmington, Mail #140, Blue Ash, OH 45212, (513) 496-9000.

DOBSON, Thomas F., CGP-8504
7115 South Street Rd., St. Clair, MI 48079, (313) 359-6688.

FRISCHMANN, Jay R., CGP-8491
2345 Woodridge #22B, Roseville, MN 55113, (651) 294-2277.

GALYEN, Robert L., CGP-8505
P.O. Box 307, Williamsburg, VA 23185, (804) 829-4391.

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