September Issue of TPG to Focus on International Geology

The next thematic issue of The Professional Geologist will be in September, 1991. The issue topic will be "International Geology." If you have an article or paper (professional and/or technical) for this issue, or one of the later thematic issues shown below, please submit it for publication. Articles/papers/opinion papers should range in length from 400-1600 words. High quality photographs (for reproduction purposes I need slides or negatives), figures, drawings and tables are welcome. For the November issue, I am in need of a high quality color photograph reflecting the issue theme to serve as the cover for TPG.

Come on, you geologists who are working in the international arena, I need your assistance! Also, for the environmental geologists, your issue will be in November.

1991-1992 TPG EDITORIAL CALENDAR

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Submit to:

Thomas Z. Jones
AIPG Editor
Office of Vice President for Academic Affairs
Columbus College
Columbus, GA 31993
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On Our Cover
Gatlinburg, Tennessee, nestled in the Great Smoky Mountains, with Mount LeConte overshadowing the city.

Photograph Credit:
Gatlinburg, Tennessee Chamber of Commerce: Cover photograph

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.

Prepared under the direction of national AIPG Editor Thomas Z. Jones and AIPG Headquarters Publications Specialist Wendy J. Davidson.

Articles and announcements must be received by the editor at least 30 days prior to the first of the month of publication. Advertising rates will be furnished upon request. No advertisements will be accepted for products or services which cannot be demonstrated to be based on accepted principles of the physical sciences. Opinions and views expressed by the authors are their own and do not necessarily reflect those of the American Institute of Professional Geologists, its staff, or its advertisers. Material may not be reproduced without written permission. Printed in U.S.A.

This official publication of AIPG is distributed to the Institute's members throughout the United States, Canada, and abroad.
Future Trends in Professional Geology

Daniel N. Miller, Jr., CPG 64

The January 1981 issue of TPG (vol. 18, No. 1) presented a paper entitled "Future Trends in Professional Geology" by Daniel N. Miller, Jr., CPG 64. At the time I am sure Dan’s personal comments and prognosis were viewed with mixed reactions by the membership.

Ten years have passed since Dan wrote his paper. A lot has happened during the intervening time. Consequently, I thought you might be interested on how Dan views things today vis-a-vis 1982, so I have asked AIPG President-Elect, Daniel N. Miller, Jr. to give us an updated perspective. In case you don’t remember what was presented in the 1981 article, it is reprinted below. -Editor

At the risk of offending old friends in Geology and with the distinct possibility of arousing the wrath of others, consider the following personal comments as I launch into a prognosis describing areas where professional geological scientists will be needed after the turn of the century.

I envision two very different scenarios for geology and geologists, either of which has a chance of developing depending upon the social-political route that the nation takes during the next decade. One course of action assumes that "federalism" will dominate following the current trend; in which case independent professional geologists as we know them now, will blend into and become a part of the bureaucracy. All the geological R&D and most of the more important exploration for mineral resources will only be possible through direct authorization and funding from federal agencies. The other course of action assumes that federal agencies will continue to manipulate strategic minerals and regulate activities on public lands, in which case private industry will attempt to operate at arm’s length from government, much as it does now. There are obviously other scenarios involving the geological scientist of the future that could be presented as well; but these two, are fundamental to everything else that might be postulated.

There will be some individuals (those who have spent a life time in government service or in academic positions) who disagree; those who say it really doesn’t matter who, government or private enterprise, provides the funds and who conducts geological investigations as long as sufficient goods and services are provided for the nation in an acceptable manner. Such simplistic reasoning indicates a disregard or perhaps a lack of understanding of the role mineral and energy resources play in world politics or in the national economy. But, there is ample evidence to suggest why this lack of understanding is prevalent among certain groups. For the past several decades geological departments of colleges and universities, state and federal agencies, quasi-private research organizations and many large consulting firms have organized their operations to pursue the federal money tree. The practice has become acceptable, and in some cases a very necessary part of conducting the business of doing geology. Someone has to provide the financial means of paying for the investigations and publication of the results. Therefore, it should be apparent that whoever controls the purse strings charts the geology of the future and the route that professional geologists will have to take to survive.

...geologists in the 21st century under direct federal supervision...

Following the first scenario, I can easily envision geology and geologists in the 21st century under direct federal supervision much as it is today in the majority of other nations. Subjects for investigation will be designed and financed in Washington based on national policies of concern for mineral and energy resources, land use planning and management, environmental concerns, and most importantly, control over the economics of resource development. Federal agencies will establish the priorities and resource needs of the nation, and then exploration, development, transportation, and perhaps even marketing will be handled by separate agencies and/or special quasi-governmental groups that handle federal contracts. All work will be conducted on cue in concert with other federal management programs. Individual projects will be planned and executed by teams of geologists rather than individuals. Each geologist will be assigned specific duties or responsibilities that will limit the scope of knowledge available to any one person or group. Anyone even suspected of consorting with outsiders from industry will be transferred into closet positions, or manipulated into undesirable situations that force resignation. Much of the effort will be directed at continuously updated data banks and national computer networks. All files and records of geological data will flow to and from centralized clearing houses and graded as to confidentiality.

Private files and records will be suspect and unacceptable for use in government reports. The economics of mineral operations will be handled exclusively by federal employees in offices that will be off-limits to the public. Geological and engineering reports of production, mineral values, and taxation will be made public, but represented and handled in such a way that they cannot be substantiated by outsiders.

By that time, most of the important physical and many chemical relationships on the earth’s surface will be constantly monitored by sensors in space. Working models will be used to monitor river flows, volcanic and seismic disturbances, sedimentation and erosion, all mineral and mining operations, and all types of land development. Subsurface investigations of every kind will be supervised directly by federal personnel. Data obtained from geophysical and geochemical investigations and drilling will be carefully screened and available only to qualified personnel. Published reports of geological investigations will flow out of Washington en masse in an effort to attract attention, and compete with other federal agencies for funding. The data contained in published reports or maps will be thoroughly edited for information that could reveal geological relationships other than those discussed in the report.

Independent geologists will for practical purposes become an extinct species.

What will the professional geologist be doing all of this time, you might ask. To this I can only reply that professional geologists will be "federal" geologists totally dependent upon the federal system. Teachers of Geology, or individuals trained in geological subjects will work in advisory capacities doing the leg-work for city, county, and state governments or planning groups. Independent geologists will for practical purposes become an extinct species.

The second scenario assumes that the social-political climate of the nation will change from the path it is on now. Private industry, universities, and other groups will play a more active role and somehow be able to finance geological investigations and research
without federal assistance. For this to happen, the nation may have to experience at least a serious, long-term threat or a major catastrophe wherein problems associated with resource exploration and land development can be better handled by independent experts and private companies rather than government. Obviously, during a time of crisis the Congress responds much faster to the priorities of problems at hand. Unfortunately, Congress also has a very short memory with regard to resource development and will not solicit outside experts and company participation until the problems become crucial.

Certainly we must assume that by the year 2000 and beyond that nations will continue to exercise strategic political maneuvers even to the point of war for mineral and energy resources just as they have done throughout history. However, it should have become clear to both our government and industry by that time, that neither can survive alone, and that international policies and mineral operations must work compatibly or the nation will suffer the obvious consequences.

Between now and the first quarter of the 21st Century Geology as a science, and geologists as professionals, will experience rather traumatic changes. Private sources of funding will be essential to colleges and universities for academic pursuits that influence the availability of undergraduate scholarships, graduate student programs, and faculty administered research projects in specialized fields.

The academic trend will be toward ever increasing technical specialization that in turn will dictate the manner in which geologists of the future approach and synthesize geological problems. Digitized data, electronic data processing and totally automated computer generated maps and scenarios will become the standard modes of operation. For every one geologist who gathers basic field data there will be a dozen other geological interpreters (specialists) who spend their time manipulating and programming data in an attempt to identify meaningful relationships. Geologic time and spatial relationships of rock units will be determined almost entirely on the basis of geophysics and geochemistry that measure infinitesimal bits of time and matter. Drilling and logging operations for example, will automatically record porosity, permeability, temperature and pressure, and fluid and mineral content through established signatures. Mining operations will be programmed from start to finish with alternative options for every conceivable type of circumstance that might be encountered.

...an even greater need for exploration geologists...

There will be a far greater need than there is now for resources; including all forms of energy and minerals, heat and water. Technology will have changed to utilize hydrogen and atomic energy as fuels, but all forms of hydrocarbons will be in ever increasing demand by the petrochemicals industry. Helium will be one of the more sought after resources, hence there will be an even greater need for exploration geologists who can locate economically valuable deposits.

By the twenty-first century surely all of the continental margins, thrust belts, and other regions of the world presently blanketed by thick overburden and late Tertiary volcanics will have been explored for hydrocarbons both on the continents and beneath the sea.

The fundamental difference between this scenario and the first one described will be the economic motivation of free enterprise competing within itself for achievement toward a myriad of different national needs. Exploration for a development of resources and related geologic activities will be structured on a local rather than a national scale. Geologists will function more independently and aggressively in pursuit of the proof of their concepts and the monetary return for their labor. Individual companies will continue to compete for geologists with innovative ideas on how to conduct resource assessments and other operations in the most efficient manner. Unlike the federalism concept, geologists will have more individual freedom to think, and to gather, exchange and discuss information. Data and records will be more readily available to a broader spectrum of competent professionals and most important there will be fewer rules and regulations to stifle initiative, motivation, and investment.

But what of those geologists who are not engaged in resource exploration? Those being trained even today for professional careers in paleontology, geomorphology, environmental geology, waste management, etc.; where will they be by the year 2000 and beyond? In my opinion they will be only a memory of a by-gone era, superseded by competent life scientists, chemists and engineers with a general knowledge of geological concepts. The demand in the professional fields will be for specific solutions to individual problems, for quantification of data, proven analytical techniques, and usable end products; not studies, reports, or investigations simply for the sake of knowledge gained. Obviously basic geologic research will still be conducted but opportunities for employment will be very limited.

Development geologists with specialization in one or more mineral or fluid commodities, or types of deposits, will still be in constant demand, but much of the work will be accomplished through instrumentation and data processing far more sophisticated than what we know today.

...structural geology will be tested and found inaccurate or incomplete.

Mapping will assume a totally different role as technology improves to include instant playback TV monitors that can handle the three linear dimensions plus time, with printing capability, linked with computer nets that allow continuous manipulation of data and information as new thoughts are conceived. Most of the traditional concepts of stratigraphic and structural geology will be tested and found inaccurate or incomplete. Whole new concepts of geology utilizing principles like topology will very likely replace our present approaches to reasoning.

As a generalization, the need will be for geologists with a very high level of engineering and technical competence, skilled in the theory of measurement and thoroughly familiar with the organization of quantitative data and programming. In effect, all geology will be quantitative, and those unskilled in precise technology will simply not be able to compete.

As to where professional geological scientists will be needed, I don't believe the fundamental needs of the nation and the world will be significantly different than they are now. The search for economic minerals, fuels, water, and inert gases will continue. Integration of geological concepts with constantly emerging technologies in physics, chemistry, mathematics, and economics will be commonplace.

The major difference between the two scenarios is whether the nations progress and accomplishments are better served by regimented organization and coordinated planning of its affairs, or through the multiplicity of benefits and economic stability that result from the efforts of hundreds of thousands of individuals and companies, competing within private enterprise. Under the concept of federalism that the nation is just now beginning to experience, we have seen how geological organizations and resource management agencies can be manipulated within the law by a few well positioned government officials. And what is even more important we have witnessed the propaganda campaign against the mineral and energy industries that was swallowed hook, line, and two ounce sinker by the public, by the majority of university faculty, and most important, by the youth of the nation who are the only reserve of geologists, geophysicists, mining engineers, and scientists who will still be there in the 21st century. (Reprinted with permission from Houston Geological Society Bulletin, December 1980)
Update of 1981 Prognosis

Ten years have passed since an article entitled "Future Trends in Professional Geology" was published in The Professional Geologist (Jan. 1981). It is now mid-term for the projections made at that time, which were directed toward a prognosis of professional geology and geologists in the twenty-first century.

For the new members of our organization, and perhaps for many of the older ones who did not see the article or don’t remember it, many of the items and activities mentioned then, are more obvious now. The events that have taken place thus far have been traumatic for many thousands of professional geologists. Others in our profession have not yet experienced the influence that these actions are having on our local, state and national economies, and seem oblivious to the changes that are materializing all around us which will directly affect their future during the next decade.

Clearly, the nation has committed itself to what was described in the original prognosis as "Federalism", the first scenario. The authority of federal government agencies has continued to expand out of all proportion to the need. As a result, major employers of geologists in the extractive mineral and fuel industries have directed their operating objectives and budgets to other parts of the world. Smaller organizations have had to shift their business interests to include different types of services in order to survive. Many colleges and some universities have shut down or severely cut their Departments of Geology. State geological agencies in many cases have been reduced to merely service organizations for other state offices, and innumerable individuals and consulting groups have simply gone out of business. For the most part, those organizations and academic departments that have survived have done so, directly or indirectly, through grants and contracts from agencies of the federal government.

This is not the result of depressed market conditions, as many people would have you believe, as much as it is the effect of restrictive and onerous legislation that inhibits exploration and development and other geologically related activity throughout the nation. The bureaucrats and legislators involved are marching to a different drummer and the words "geology, geologists, exploration and mineral development" are not included in their lyrics.

More specific details regarding federal encroachment cited in the original prognosis are already evident and are expanding rapidly. It is quite probable that within the coming decade we will experience a time when certain segments of private enterprise will be deemed by bureaucrats to be incompetent and unreliable without federal guidance and oversight. Watch and listen carefully during the next few years as Congress brings the 1872 Mining Law up again for Congressional review, and continues to sustain broad and more restrictive moratoriums on offshore leasing and drilling for oil and gas. Check out some of the new state laws and referendums that will directly impact mineral industry operations statewide. Examine a few of the newer textbooks on Earth Science being used in our junior high schools and colleges today. Take note of the public media hype that seldom even mentions geologist or the practical application of fundamental geological principles to interpretation of earth history, or exploration and development problems related to mineral resources.

I think now that this trend is irreversible in the United States. Geology and geologists have already lost too many battles. Some of us didn’t fight hard enough, some of us didn’t try. So, be prepared for the next ten years and listen for what many of our recent graduates of academic institutions and research oriented organizations have dubbed "The New Geology". Find out what this means and then brace yourself for the answers.*

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Help Needed

The membership of AIPG and any other interested parties are being solicited for sample copies of contracts covering the consultant-client relationship.

We wish to mold contributed sample contracts into one contract to be printed and sold by AIPG.

The usefulness of a standard contract to be used by consultants both within and without AIPG has been identified by the Executive Committee. Many consultants and companies have contracts in use but there is nothing which approaches an industry standard. A readily available contract provided by AIPG would standardize the client relationship and offer an alternative to the use of a poor contract or no contract at all.

Certainly this is an area that AIPG should enter and which can be a win-win activity. Establishment of a clear, fair, and generally accepted contract will promote the public interest by reducing conflicts and give the Institute good visibility. Since consultancy is one of the most rapidly growing employment areas of the geological profession, the Institute can offer a concrete service to an expanding area of potential membership.

Please send sample contracts plus any comments you have to the undersigned.

Preliminary plans are to prepare a generic contract suitable for use by all geological specialties; then special exhibits would be prepared for the subdisciplines, such as hydrology, environmental, mining, oil and gas, etc. All would have provision for modification by the contract parties to fit special needs.

We intend to have an extensive review of the draft contracts made by attorneys who are experts in the field of contract law in as many geographic and industry areas as possible in order to produce a contract valid nationwide.

Please forward names of attorneys that you personally know to be most knowledgeable in those areas of contract law pertaining to the consultant-client relationship. This will be of prime importance in order that we can produce a reliable contract that avoids known minefields.

This effort can only be accomplished with your cooperation and assistance.

Please send materials to:

Dale O. Reese, Committee Chairman and National Treasurer
6816 Roundrock Road
Dallas, TX 75248-5027

Phone: (214) 991-9117 Office
(214) 387-1482 Home

THE PROFESSIONAL GEOLOGIST
Opinion Paper
Expert Witnessing - A Contrariant View

Graham S. "GS" Campbell, CPG 832

Much helpful information has been published on effective expert witnessing by geologists. Little or no guidance is available regarding ethical and moral considerations confronting the geologist in deciding whether or not to testify in court disputes. A witness in geological matters clearly purports to be expert, scientific, impartial, and professional in treatment and response to all questions from all parties. Ideally, a geologist must answer the same question the same way, regardless of the origin of the question. It follows that a truly scientific stand cannot discriminate in favor of a particular persuasion - plaintiff or defendant.

When an attorney calls to discuss hiring the geologist for courtroom testimony so much as predetermining answers a particular geologist might render in response to certain questions. If the attorney gets satisfactory answers, the hiring process may move forward while a wrong response will likely result in the testing of yet another candidate. This is, of course, in a court system purporting to dispense fair and equal justice to all.

While the legal profession is not mankind’s oldest, it generally ranks as far and away first in infamy, duplicity, and prostitution of noble values. Typically, it is a member of this nefarious class who invites the scientist, often naive in the ways of devious men, to join what is tantamount to a conspiracy where right and wrongness get very short shrift. Recognizing that the attorney intends to use or misuse geology only selectively, to further his argument, justice is not off to a very good start. If, in the worse scenario, the geologist, consciously or not, begins to wish his side would win the case, a condition difficult to avoid, the inequity should be clear to all. The geologist then becomes subjective and as bad as the attorney has been, all along. God help us all!

When a corporation calls its employee-geologists to present a particular point of view, impressing the court with the qualifications that make the witnesses expert, scientific objectivity becomes a farce. The comedy is compounded when the opposing team comes up with its own set of expert witnesses, promoting the opposite view. The professional geologist loses dignity, respect, credibility and honor is this demeaning process, having succumbed to being a pawn in a game run by ill-principled manipulators.

When the court asks a geologist to define a mineral, for instance, it really wants neither geologic nor scientific definition. What it really wants is to extract parts of the scientific testimony to generate a legal definition, which may differ substantially from the scientific and technically accurate definition. For court purposes, the only definition is a legal one, notwithstanding demonstrable scientific fact. The integrity of geologic science suffers in the process. To understand this corruption, where a common denominator is thrust upon both apples and oranges, is to avoid non-productive pitfalls.

So what should the geologist’s position be to maintain professional integrity?

First, it should be acknowledged that when a geologist submits to the legal profession in such a way that he, or she, cooperates in promoting the concept that any means are justified to gain a desired end, the fault is hardly with the attorney. Clearly, the fault lies with the geologist. There is nothing new about attorneys and their appalling lack of scruples. The long-standing and well-understood guilt of the lawyers in no way lessens the geologist’s guilt.

Given that the lawyer-judge syndrome controls the judicial system in a self-protecting and perpetuating arrangement defying all reason, what exactly can the professional geologist do? There are some things the geologist can do.

When an attorney calls to discuss hiring for expert witnessing the geologist can answer no questions whatever which could in any way bear on legal disputes, nor reveal philosophic positions, nor even hint at attitudes, persuasions, nor offer any information which might be projected into the case. The geologist can answer questions with many questions. Lots and lots of questions, revealing little besides name, rank, and qualifications. If the attorney really wants a professional and independent opinion - and some actually do - the hiring process may move forward. Then, terms of remuneration should be negotiated carefully. Then, to the court, it should be the truth, the whole truth, and absolutely nothing else.

Michigan Environmental Consultants and Contractors Association Formation

The Michigan Environmental Consultants and Contractors Association (MECCA) has been formed to promote responsible protection of Michigan's environment and resources. MECCA is a non-profit membership corporation with full and associate memberships. Membership is for companies conducting environmental consulting, contracting and support services within the State of Michigan.

With the growth of the environmental services industry, many new regulations and guidelines have been established at both federal and state levels. The association will provide public education, membership training and a forum for the exchange of technical information. MECCA will have some of the most experienced consultants and contractors from this new industry. We hope to become influential with the development, interpretation and execution of various environmental policies and regulations.

For more information contact: Dave Johnson (616) 845-0371 or Mark Henne (517) 321-4964.

AUGUST 1991

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Hurry To Preregister for the Annual Meeting

If you have not already done so, please take time to preregister for the annual meeting to be held in Gatlinburg, October 16-19, 1991. Preregistration forms have been printed in the May and July issues of The Professional Geologist. The current deadline for the preregistration discount is September 8, 1991.

The annual meeting committee has worked hard to produce a program that should appeal to a broad range of interests. Also, considering the price, this years meeting is an excellent value. In addition to several presentations focusing on the energy and environment theme, portions of the program will highlight professional practice, earthquake studies within the eastern U.S., and Appalachian geology. Of particular interest will be the panel discussion scheduled for 12:30 p.m. to 2:30 p.m. Wednesday the 16th. During that time, a panel of leading geologists will discuss, ethics, professionalism, changing opportunities for geologists and future goals of AIPG. Sitting on the panel will be:

1. Ernie Lehmann, CPG 583, Chairman AIPG, Long Range Goals Committee
2. Lyle Bruce, CPG 7714, Amoco Corporation
3. Don Haney, CPG 4053, Kentucky Geological Survey
4. Robert Northcutt, CPG 2704, Chairman AIPG National Screening Committee
5. To be named.

Part of the panel discussion will be an open forum where AIPG members will have an opportunity to address the audience. This will be done by registration only and each participant will be allotted one and one-half minutes to make concise remarks on relevant issues. Pertinent topics include professionalism, ethics, registration of geologists, the training and competence of practicing geologists, future directions and opportunities for geologists and the purposes and goals of AIPG. To register for a time to speak, please send a post card with your name and CPG number to Larry Weber at ERCE, Inc. 3325 Perimeter Hill Drive, Nashville, Tennessee 37214 or Fax (615) 331-4715. There will also be an opportunity to register at the registration desk, but there are a limited number of time slots available and requests will be honored in the order that they are received.

It should go without saying that your attendance at the annual meeting is important. It is important not only to AIPG, but it also represents an important investment in your career. Attending an annual meeting of a professional society is one of the best ways to stay abreast of current issues, to meet colleagues, and to make professional contacts on a nationwide basis. Often these contacts develop into lasting friendships. Consequently, I encourage those that may never have attended a national meeting to make plans now to come to Gatlinburg and to share what I believe will be an enjoyable and professionally rewarding experience.

We hope to see you in October.

Sincerely,
Larry Weber

Pre-Annual Meeting Education Opportunity

(Advertisement)

Teaching Through Research College of Geosciences

TITTLE OF COURSE: Site Selection For Critical Facilities - The Earth Science Perspective

LOCATION: River Terrace Resort and Convention Center

DAY/DATE/TIME: Tuesday, 15 October, 1991 (From 10:00 am - 5:00 pm)

CONTENT:
Geology or geologically dependent factors dominate selection criteria for the siting of many large and critical facilities. The increasing involvement of geologists in site selection demands that faculty and practitioners understand the principles of this activity. Earth Scientists, Environmental Scientists, and Engineers need to familiarize themselves with the science and methodology for the recognition, specification and application of earth science factors in the site selection process.

Using the siting of a major critical facility as an example, the attendees will review the site identification process, final site, investigations, proposal and government agency review. Attendees will describe an ideal site, from the earth science perspective, for this specific facility. Social economic, licensing, environmental, infrastructure and earth science factors are considered interactively. Ranking methods will be reviewed and established. Using exclusion, preference and avoidance as tools, the favored site is identified.

FACULTY:
Norman R. Tilford, Professor of Geology, Texas A&M University. He has 30 years experience in site selection, feasibility and design studies, construction, and operation aspects of large engineered projects. He is a Registered Professional Geologist in ten States and has participated in licensing proceedings before the USNRC, the International Atomic Energy Agency and various other Federal, State, and International Agencies.

Active in professional societies, he is Past-President of the Association of Engineering Geologists, is editor of the Bulletin of the Association of Engineering Geologists, and is on the Foundations Committee of the U.S. Committee on Large Dams.

FEE: $120.00
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Registration Form for course - Tuesday, October 15, 1991:

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Clip and return form to Norman R. Tilford, Texas A&M University, Dept. of Geology, College Station, Texas 77843-3115. Telephone: (409) 845-9682 or (409) 845-6162 Fax.
HOTEL RESERVATION FORM

Complete and Mail to:
River Terrace Hotel Convention Center
River Road, P.O. Box 747
Gatlinburg, Tennessee 37738
Telephone: 1-800-251-2040 (National)
1-800-221-6005 (Tennessee)

Name:________________________________________
Address:______________________________________
City:__________________________State:_________Zip:_____
Telephone No.:________________________Work:Home:_________
Type of Room Desired: Single_________Double_________No. of Rooms_________
No. in Party: ___________Arrival Date:__________Departure Date:__________
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Card Type:__________No.:_____________Exp. Date:__________
Signature:_____________________________________

River Terrace has blocked 60 rooms at a rate of $65/night + tax.

First Night's Room + Tax ($71.79) deposit required - must be received by 9-8-91. After these are filled, rooms will be available at the Comfort Inn in Gatlinburg at a cost of $79/night + tax. Comfort Inn is within walking distance from the convention center hotel.
CANCELLATION POLICY 72 HOURS.

TRANSPORTATION INQUIRY

Gatlinburg is located approximately 30 miles from Knoxville's McGee Tyson Airport.
Car rental is available and is a preferred method of transportation.
If you are interested in a special shuttle service from airport to hotel, please fill out the following questionnaire.

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Departure Date:__________Time:__________Carrier__________Flight No.:__________

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Return this portion to Ron Zurawski with Pre-registration Form.

AUGUST 1991
Valuation of Industrial Mineral Resources

November 13-21, 1991
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Aapg Salary Survey Shows Entry-Level Increase

A dwindling supply of entry-level petroleum geologists resulted in a 16 percent increase in 1990 salaries for new hires, according to the American Association of Petroleum Geologists annual salary survey. Overall, the survey indicated salaries kept pace with inflation with an increase of about 4 percent.

Competition among oil companies to hire the top master's graduates caused the 16 percent jump to $41,000 for geologists with two years or less experience, according to Mike Ayling (MLA Resources), who does AAPG's annual survey. Low enrollments in geology departments have made for few available entry-level geologists, thus the competition to hire and the forced increase in pay.

Ayling also reported that industry hiring practices are inconsistent. "Some companies are aggressively expanding their staffs, while several have been merged out of existence," he said. "Many tell me of future hiring plans in recognition of desperate staffing needs. This is balanced by continued conservative management posture."

Also, Ayling reports that geologists with three to five years experience are going through what he calls "pay growth compression". But, he adds that not many geologists are employed at that level due to reduced industry hiring over the past few years.

Geotimes, June 1991

Comments on the content of a proposed water well inspector's training program are being sought by the Regulatory Officials Committee of the National Water Well Association (NWWA). The Committee will use these comments to help develop a model well inspector curriculum. The model curriculum would list core subjects that should be covered in any training program for well inspectors. Possible curriculum topics already identified by the Committee include well drilling methods, contamination sources, water sampling, and pumping systems. Instructors could supplement the Committee's core topics with additional information specific to the region, locality or the inspector's job responsibilities. However, inclusion of the Committee's model curriculum would help assure that new ground water regulators and others doing well inspections throughout the country receive a uniform, minimum level of training. The Committee plans to develop an instructor's guide and attendant materials to accompany the model curriculum.

Comments, suggestions, or questions about the Well Inspector Education Project should be directed to Chris Reimer, Regulatory Officials Committee staff liaison, NWWA, 6375 Riverside Drive, Dublin, Ohio, 43017, (614) 761-1711, ext. 1596.
FROM WASHINGTON

E. G. Newton & Associates, Inc.

In the Land of Smoke and Mirrors Senate Energy Legislation Slips and Slides through Suspect Terrains

The Senate's much analyzed National Energy Strategy bill, S. 341 has been reintroduced as a "clean bill," titled the NATIONAL ENERGY SECURITY ACT OF 1991, and renumbered as S. 1200. This bill emerged from a late-May "markup" with most of the major elements still in place [FROM WASHINGTON 4-91; 6-91; 7-91], and is now ready for floor action.

The bill, S.1220, has been placed on the Senate calendar, but the schedule for debate and floor action are not certain, and drifting. Three committees have requested joint referrals of the energy bill. The Environment and Public Works Committee oversees regulation of wildlife refuges, commercial nuclear power and other areas covered by the bill. The Commerce, Science and Transportation Committee has oversight for automotive fuel economy standards. The Banking Committee maintains jurisdiction over those provisions of the bill that are designed to re-regulation of the electric power industry under the Public Utilities Holding Company Act (PUHCA).

The best "guess-estimate" for energy legislation in this Congress remains "hopefully, sometime in 1992". The House plans to start its serious energy legislation efforts after the fourth of July break. The House legislative efforts promise to be equally as complex as the Senate situation. The complexities of the legislation, the political climate, both inside and outside both chambers, and the level of public interest (or lack thereof) are major factors that will influence the outcome for any piece of energy legislation.

Geologic Mapping Legislation - A Geo-Civic Opportunity May the Force Be with You

In a rare legislative move, some "pure" geological legislation has been introduced in Congress. Two bills, one House and one Senate, have been introduced to support funding for state/federal geologic mapping programs. The Senate bill, S.1179, THE GEOLOGIC MAPPING ACT OF 1991 was introduced by Senator Bennett Johnston (D-LA) on May 23, 1991. Co-sponsors of the bill are Senator Jeff Bingaman (D-NM) and Senator Larry Craig (R-ID). A similar bill, H.R. 2763, entitled the NATIONAL GEOLOGIC MAPPING ACT OF 1991, was introduced by Representative Nick Joe Rahall, II (D-WV) in the House of Representatives on June 25, 1991. Co-sponsors of the House bill are Reps. Barbara Vucanovich (R-NV), Bill Brewster (D-OK), and Dave McCurdy (D-OK).

According to the "grapevine", these legislative proposals owe their origins to the American Association of State Geologists (AASG). Charlie Mankin, CPG 1415, State Geologist of Oklahoma is mentioned as one "prime architect" of the proposals. The member societies of the American Geological Institute (AGI) were asked by AASG to indicate their corporate/individual support for the Senate bill when it was introduced in May. Other geo-heavy hitters received a bono fide "Washington-insider" opportunity. Even before the legislation was introduced, these geo-movers and shakers were asked to provide technical support for the House bill. Information will be used by staff for the committee and floor negotiations to focus the destiny of the bill.

The legislative power grid doesn't operate on "round-tuits". For the good of the cause, let's hope that the geo-specialty circuits actually "make contact" for this effort.

Superfunded Grime-Time at EPA Contractor Overhead get Underfoot

One current "Superfund" mess under examination at the Environmental Protection Agency (EPA) does not owe its source to something hazardous at a dump site. The present EPA much-flap, rather, has its origins in that benign management term, "program administration" aka "overhead". Contractor overhead payments for Superfund cleanup projects to be specific. Payouts made to private contractors, hired to administer Superfund cleanups, for "program administration" are being investigated at the request of EPA Administrator William Reilly. The investigation results from a recent report on costs incurred by contractors to actually cleanup Superfunded sites. As reported by THE WASHINGTON POST, nearly one-third of the $200 million spent by Superfund since 1988 for contractor cleanups was for "program administration" compensation. The $62-million expenditure included startup funds for contractors that had no projects to manage; bonus payments to contractors whose work had been found unacceptable by EPA; petty cash payments for office niceties like potted plants; and payments to contractor-employees for attendance at professional meetings.

More Mining Law Reform Legislation Answering a Need or Creating a Congressional GOB Heap?

Two more pieces of mining law "reform" legislation have been introduced in Congress, making the tab, to date, about six. Within the "corridors of power", the truly elegant and always pristine marble halls of Congress, its beginning to resemble something akin to legislative gangue pile. The legislative efforts contain some valuable ore mixed in with the mass of waste.

Representative Ron Marlenee (R-MT) introduced on June 13, 1991, H.R. 2635, THE MINERAL POLICY REVIEW COMMISION ACT OF 1991. This bill is the House companion bill to the previously introduced Senate bill S.785, sponsored by Senator Conrad Burns, also a Montana Republican [FROM WASHINGTON 7-91]. Congressman Peter DeFazio (D-OR) has introduced H.R. 2614, THE COMPREHENSIVE MINING LAW REFORM ACT. Mr. DeFazio's bill proposes to eliminate patents on public lands, and would exclude corporations with more than 10% non-US ownership or non-US citizens from mining on public lands.

The mixed nature of both ore and waste material contained in this heap of mining law "reform" legislation that now looms over the current congress suggests that caution conditions now exist. The sheer weight of intense interest in mining law "reform" could just overtop the entire issue. Remember. A "legislative tipple" can topple just like a mine tipple, if the loading of the burden is poorly engineered.

Center for Landslide Information Established

The U.S. Geological Survey has established a National Landslide Information Center (NLIC) in Golden, Colorado. The Center is designed to respond to all interests involved with landslide analysis and hazard mitigation: including researchers, geo-tech. practitioners, as well as policy-interests. NLIC will collect, analyze, and distribute information on all aspects of mass-wasting phenomena through out the world. Contact William M. Brown, III (800-654-0200) for information about the Center and its programs.

A Modern Fable - The Tale of Two Committees or Geological Wipp-Lash House Staff irked/DOE Chain Jerked

Several House committees share jurisdiction over the WASTE ISOLATION PILOT PLANT (WIPP) near Carlsbad, New Mexico. The Department of Energy (DOE) wants to use the WIPP-site, as a repository for transuranic waste. But first, DOE must obtain congressional okay from four separate House committees in order to commence the startup operations. This initial phase is designed to determine the suitability of commencing a nine-year experiment to examine geo-environmental consequences associated with burial of the transuranic waste at WIPP.

For some time now, DOE has had a major ongoing effort to persuade the House Interior Committee, with jurisdiction over the land-use aspects of the WIPP-site, to modify certain environmental requirements associated with development of the WIPP-site. The DOE justification for its position, regarding the modification of the environmental regulations, has consistently leaned on DOE-data that suggest sound and stable
geological conditions throughout the entire WIPP-site locale.

Recently, however, a DOE geotech-contractor contradicted DOE’s geo-racey position in expert testimony before another House committee, that also has WIPP jurisdiction, the Government Operations Committee environmental subcommittee. The contractor’s findings suggest that ceiling conditions of the initial experimental burial chambers are not stable and are subject to collapse within about two to three years after waste-placement. It is DOE’s position that should this geo-possibility occur, it can be accommodated. DOE anticipates moving the containers of waste and modifying one of the burial chambers, should ceiling collapse occur.

But, alas! DOE failed to share the information contained in the contractor’s report to the one committee with the other committees, notably, the House Interior Committee. Now committee members and staff are super ticked. According to Interior Committee staff, the DOE failure to advise them about the contractor’s findings seriously undermined “DOE’s credibility and hurt their chances to deal effectively with this Committee”.

MORAL: The political consequences of planning to fool around with mother nature, without benefit of geo-consent can be serious indeed.

Come fill the Cup with a Geo-Magic Elixiuer EC-’92

Geotendities in Washington are learning how to appreciate a primo potion, that fine new vintage known as "EC ‘92". The savvy Geo-community-geotechnical, oil companies, engineering firms mining interests, environmental groups and scientific organizations are now keying in on "a new way to do business". How to pursue their particular interests in the twelve nations that will comprise the European Community (EC) on January 1, 1993. These late-bloomers have joined U.S. legal, trade and financial interests who caught the trend a bit earlier.

Among the challenges to be met are-languages; grappling with parliamentary government processes, an absence or plurality of laws and regulations; national vs EC issues, national pride and customs; and, yes, more than a midden of yankee-stay-home syndrome. The opportunity of course is outstanding. Many EC geo-issues really need U.S.-know-how-particularly environmental and energy and minerals resource management.

As a vintage, "EC-’92" is still a bit young and chewy. If gazzled by the geo-unsmart, it will cause headaches, and other adverse side effects. Geo-guaffing of "EC-’92" as it develops and matures, however, is a boon to universal "geo-well being”.

As one would say in the official languages of the EC - A NOTRE SANTE!! CHEERS!! SKOAL!! PROSIT!!

Correction

The following paragraph appeared incorrect in the June, 1991 issue of The Professional Geologist.

The bill, although sweeping in both concept and scope apparently would address only locatable mineral issues. Coal management issues, for example, are specifically excluded from the Act.

Selected Federal Register Notices - (06/91)

Environmental Protection Agency

Final rule 40 CFR Parts 141 and 142 Maximum contaminant level goals and national primary drinking water regulations for copper and lead. Effective date: June 6, 1991. Contact: Jeff Cohen (202) 382-5456. 56 FR 26460.


Notice of availability and request for comments coastal non-point source pollution management measures guidance. Contact: Don Weitman 9202) 382-7085. 56 FR 27618. [Re: Coastal Zone Act, Reauthorization amendments 1990, section 6217 (g) (3) (A) - discharge-agricultural, construction and water management].

Notice of availability of preliminary draft list of categories and subcategories under section 112 of the Clean Air Act. Contact: Robert Rosenstiel (919) 541-5608. 56 FR 28258. [Re: mineral, metallurgical and fossil energy fuel processing].

Proposed rule and request for comments 40 CFR Part 300 National oil and hazardous substances pollution contingency plan; Lender liability under CERCLA. Contact: John Fogarty (202) 382-3050. 56 FR 28798.

Office of Surface Mining Reclamation and Enforcement

Final rule 30 CFR Parts 722, 723, 724, 842, 844, and 846 Surface coal mining and reclamation operations; initial regulatory program and permanent regulatory program; service of documents. Effective date: July 22, 1991. Contact: George Stone (202) 208-2550. 56 FR 28442. [Re: operational violations and penalty processes].

Proposed rule 30 CFR Parts 701, 780, 784, 816, and 817 Surface mining and reclamation operations; permanent regulatory program; performance standards; permanent and temporary impoundments. Contact: Robert Wiles (202) 343-1502. 56 FR 29774.

Office of the Nuclear Waste Negotiator
Operating procedures. Contact: Charles Lempesia (208) 334-9876. 56 FR 25703. [Re: federal/state nuclear waste issues].

Department of Interior
Notice of availability. Coastal Barrier Improvement Act; availability of maps. Contact: Frank McGilvery (703) 358-2301. 56 FR 26304.

Bureau of Land Management
Notice Mineral Leasing Act common carrier requirements. California. Contact: Rob Nauert (916) 978-4761. 56 FR 26136.

Notice of establishment of eastern Oklahoma federal coal area under category 5. Contact: Darwin Pogue (505) 988-6186. 56 FR 27771. (Re: coal royalty reductions).

Department of Transportation

Department of Health and Human Services
Notice availability of final toxicological profiles. Contact: Susie Tucker (404) 639-6000. 56 FR 27261. [Re: Superfund sites; asbestos, copper, plutonium, radium, radon, silver, thorium and uranium].

Department of Energy

Federal Energy Regulatory Commission
Suite Oil and Gas Board of Mississippi; Notice of determination designating tight formation. Notice date: June 4, 1991. 56 FR 28146.
EXECUTIVE DIRECTOR’S COLUMN

Intersociety Conference on Registration of Geologists

William V. Knight

President Haydn Murray has invited the Presidents of each of the organizations who are members of the American Geological Institute (AGI), plus the Association of Ground Water Scientists and Engineers, the North West Mining Association and the Society of Exploration Geophysicists, to send two representatives to a conference on registration of Geologists. The conference is scheduled for September 27, 1991, at the Red Lion Hotel, across the street from Denver’s Stapleton International Airport.

The purpose is not to promote registration, nor to write yet another “model law”. Legislators, not constituents, phrase laws. They have already been provided with more than enough sample clauses to work with. What is sought is a consensus on the features that any registration law should, and should not, contain, in the event one is proposed for a state.

Thus, the purpose of the conference is to (1) exchange information on the subject of registration of geologists, including any currently active movements of which any of the organizations may be aware; (2) identify points of agreement on the subject; (3) seek ways to resolve differences on the subject; (4) develop a draft set of principles on the subject to which all can agree and which should be reflected in any registration act that any of the organizations seeks; and (5) present these principles to the respective societies for review and comment.

AIPG fully expects that additional conferences will be required to review the comments and modify the principles to eventually produce a final document that is acceptable to all. This goal may be impossible, but we have to try.

A little background on the subject is in order.

On November 11, 1989, and May 12, 1990, representatives of Aapg/DPA, AASG, ABG, AIPG, and SipES met as the Council of Professional Geological Organizations (CoPGO) in Dallas, Texas. They drafted a “Model Law” for registration of geologists. This was presented to the societies represented in CoPGO for their review, comment and action. It was the reported expectation of some of the representatives and represented societies that comments would be gathered from the societies, to then be reviewed by the CoPGO representatives. An effort would then be made to reconcile any differences which might arise before any of the societies undertook any action.

This expectation has not been realized. Several local and national organizations in the geologic community have moved forward with various registration efforts. Communication between organizations has been poor, with many being left out of the “loop”. Some very serious concerns apparently are not being addressed as these efforts progress. Further, much information and misinformation is being bandied about among the members of our profession.

AIPG was long ago designated by AGI as the Member Society responsible for professional matters. It is regrettable that it has not always performed well in this assignment. But, AIPG believes that it has the responsibility to provide a forum for the exchange and consideration of information on these current registration drives, and to find a way to peacefully resolve those differences that now divide us. Therefore, this meeting has been arranged.

Before the conference, AIPG will attempt to gather and document information from other professions on the various ways in which this subject is handled by them. This will be distributed in advance of the meeting insofar as practicable, so that the attendees will have the benefit of this knowledge. We have heard many things from many sources regarding what other professions do. We hope this will clear up some misconceptions and provide the attendees with some solid information with which to work.

In the past AIPG and other organizations of our profession have been accused (perhaps, with some justification) of operating in a vacuum, not letting others know what is going on. This conference and this column both are attempts to shed light on a subject that is important to us all. As a professional, each AIPG Member has a responsibility to be certain that all local geological organizations are aware of this conference. Observers will be welcome, to the extent that the meeting room will accommodate them. Invited representatives will have priority seating. Observers will be asked to share in the cost of the facilities.

Stay tuned.

Executive Director’s Itinerary
(subject to change)

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

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<tr>
<th>Date</th>
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<tr>
<td>Aug. 19</td>
<td>American Geological Institute, Alexandria, VA</td>
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<tr>
<td>Sep. 11 - 12:</td>
<td>American Petroleum Institute, Dallas, TX</td>
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<td>Sep. 16</td>
<td>Colorado Section, Denver, CO</td>
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<td>Sept. 27</td>
<td>Intersociety Conference on Registration of Geologists, Denver, CO</td>
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<td>Sep. 30</td>
<td>Geoenvironmental Forum, Chicago, IL</td>
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<td>Association of Engineering Geologists, Chicago, IL</td>
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<td>Oct. 20 - 24:</td>
<td>Geological Society of America, San Diego, CA</td>
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<td>Nov. 10 - 14:</td>
<td>Society of Exploration Geophysicists, Houston, TX</td>
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<td>Nov. 16</td>
<td>Association of State Boards of Geology, Little Rock, AR</td>
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<td>Dec. 4 - 6:</td>
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<td>Jan. 25</td>
<td>AIPG Executive Committee, Arvada, CO</td>
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Personal Liability, Professionalism, And Ethics In Geological Practice - Part 2

David M. Abbott, Jr. 456, CPG 4570, Regional Geologist

The Use And Misuse Of Geologic Reports In Frauds

The first two subsections of Section 2 of the Code of Ethics enjoin the professional geologist from making unwarranted, exaggerated, or unsupported statements that might induce participation in an unsound enterprise and from knowingly permitting the use of his or her reports, maps, etc. for any unsound or illegitimate undertaking. I have a lot of experience with these types of enterprises in my work with the Commission’s Enforcement Division. In most cases I am familiar with, the geologic information contained in the fraudulent offerings or statements about a company were not prepared by geologists who are members of technical societies, particularly the peer-review societies such as AIPG, AAPG, SIEPS, and SEGe.

The most common types of problems with reports prepared by reasonably competent geologists in connection with the fraud cases I see involve one or more of the following factors:

- The report is incomplete or has been high-graded. Only selected parts are included in a summary. Important caveats are left out.
- The report has been changed. Numbers have been altered, pages are substituted. Lots of things can be done with photocopiers; we do them ourselves for legitimate reasons. In one case, a report which contained fractions of an ounce per ton had digits added to the left of the decimal point. In another, the type font on one page was distinctly different from the other pages suggesting additions, deletions, or significant changes to the text.
- Additional sections are added to the report. One petroleum geologist got repeat business from an oil and gas promoter. In his first job for this client, the geologist’s report had been accurately reproduced in the offering material. However, in the second job, a reserve estimate had been added.

- In the most blatant case I’ve heard of, a consultant’s stationery had been stolen and a report written on it. In cases like these, absolving the geologist of liability was relatively easy. Indeed in such instances, the geologist whose work has been misused becomes a witness for the prosecution.

But there are more subtle problems. For example, consider the short (page or two) oil prospect write-up intended for other geologists familiar with the area of the play. This type of letter report contains all the reasons why the well should be drilled and none of the negative aspects of the area. The person for whom it was written already knows them. There are two problems with this type of report. First, it assumes knowledge of the negative factors on the part of the intended recipient, which may not be a warranted assumption. Second--and more common--is the situation where this report gets into the hands of unintended recipients. Say the proposed well is not drilled by the company to whom the prospect was proposed. Instead, the prospect gets farmed out and along with the farm-out goes the report which comes into the hands of a promoter who has found the report of his dreams. He doesn’t have to alter it at all before showing it to the mutter." Another type of all too common and problematic type of report involves careless use of terminology. Reserve is a term with a definite, economic meaning. When you state that reserves exist, of you are talking about a mineral commodity you know can be extracted at a profit, and you have the detailed data to support your belief. Be very careful with reserves or any other terms or language implying economic viability.

Discussions of safety factors in an engineering project carry the same sort of potential legal consequences. Again be very careful of terminology.

A different group of problems results from the report that covers only part of the whole project. For example, you do a report on the reservoir or fluid movement property of a particular sandstone for an enhanced recovery project or for a pollution control program. Your report is not intended to consider the economic or political aspects of the project. The NIMBYs (the "Not In My Back Yard" folks) will be out in force if the project is proposed, but that isn’t your concern and you say nothing about these non-geologic aspects in your report. Again we have a situation that could be exploited by the unscrupulous.

The foregoing examples barely scratch the surface of potential liabilities the types of lurking within a geologist’s report. However, they are sufficient to suggest the following considerations for professional report writing:

1. All your reports should state:
   - for whom they were prepared;
   - the questions you were asked to answer; and
   - the questions you were--and were not--able to answer.

2. State what you did and how you did it.
   - If you used someone else’s work, state what you did. For example, state that you used client-supplied data or that you obtained some data from another consultant’s report. Use of someone else’s data is common enough, but state its source. In addition, examine the data and if you notice that the data appear inconsistent with what you know, check it out. The “oristrich” defense may be a very limited one.
   - If the report’s distribution should be limited to particular readers, say so. For example, if it is not intended for non-industry readers, say so.

3. Write clearly and simply. Emphasis is pompous, particularly if not warranted—you are not writing a doctoral dissertation. Clearly distinguish between facts, interpretations, and opinions.

4. Include the negative information along with the positive information. Don’t assume that the reader knows it. That is, include an assessment of the risks along with the potential for success.

5. Be very careful with loaded terms: those having economic, degree of assurance, safety limit, or similar implications. Define the terms you’ve used, and use orthodox, generally accepted definitions. Can you support your statements? Would you care to defend the report in court? Remember you might have to.

6. If the report covers only part of the topic, note that additional information is required to complete the picture. For example, “This report covers only the geologic aspect of the proposed project. It does not consider the engineering and economic factors required for determination that reserves exist.”

7. If you become aware of a factor outside your area of study that would affect the project, note it and suggest appropriate work. In one of my earlier examples, I mentioned the NIMBYs. If during your work you become aware of such a problem or even potential problem, report that the issue should be addressed. Perhaps the client hasn’t recognized the problem or the degree of its importance.

8. Date and sign the reports. It may become important to know who knew what and when.

9. Try to put all your opinions in writing. At least keep good notes of your meetings and discussions with clients. Make memoranda of phone conversations.

10. Keep copies of your reports. If a question is ever asked about what you did, you will have a copy. This is your best insurance against those who are creative with copy machines.

11. If someone is going to use your report to raise money, obtain copies of the offering documents and review them before consenting to the use of your name, opinions, or report in the offering. Review the offering documents, looking not only for correct summarization of your work but also for factors that might invalidate your conclusions. For example, the prospect might be good if costs are strictly controlled, but you notice a heavy promote.
extra overrides, etc. Require changes or other necessary disclosures—
change your conclusions if necessary—before consenting to the use of your work.

Before leaving the subject of reports, I want to briefly address what you can do if your reports are misused. The first issue is knowing that your report is being used. You know, or should know, what use will be made of the report by the person for whom it was written. But, as I have suggested, reports go in files and get resurrected along with previously deceased projects. If your report is being widely used, particularly to raise money for a prospect from a lot of people, some officer is likely to call you asking if you wrote the report. If the dam you did foundation work on two years ago fails 5 years from now, the post-mortem investigation will dust off the old files. This is a situation where having kept good notes and memoranda will be very useful to you.

When you learn of a problem, question the persons misusing your information. Write them a letter asking for prompt clarification. If there is a problem, scream—loudly and often. Write letters requesting specific action, and send copies to the SEC or other appropriate agencies noting at the bottom of the letter that a copy is being sent to these agencies. Clearly set out how your work is being misused. Withdraw your consent in writing, if you gave one, for the report’s use. Notify whoever you feel needs to know about the problem by phone and in writing. In writing complaint letters, clearly set out the facts. Let the appropriate investigators determine which laws, if any, are being broken—you don’t want to open yourself up to a libel suit.

By distancing yourself from and alerting others to the potential prob-
lem, you are removing yourself from liability for fraud committed without your knowledge or consent. If you don’t act, your inaction places you at risk of aiding and abetting the fraud, of being a knowing particip-
ant, and of being a potential defendant.

Conflicts of Interest

Let me turn now to another aspect of Section 3 of the Code of Ethics, addressed in several subsections—the issues of conflicts of interest and confidentiality. These two issues are closely related. In the course of your professional practice, you will learn a wide variety of types of confidential information that are not to be used or disclosed without the consent of the party from which you obtained it. (There is an exception to this general rule involving your duty to disclose illegal activities or public safety issues, but I won’t go into this issue.) Confidential information includes specific geologic data, proprietary geologic methodology and concepts, business data, business plans and strategies, areas of interest, information about various actual and proposed deals, etc. Not only do you have the obligation not to disclose confidential information, you also have the obligation to disclose to your employer or client the existence of any conflicts of interest you may have. This includes such things as interests in adjoining leases, knowledge of information from a former employer or client which you are not free to use, etc. Many larger companies have non-compete clauses in employment contracts or as other conditions of employment. Be sensitive to the possibilities. If you have the slightest doubt about an issue, discuss it with the parties involved.

For example, suppose you worked in an area for one employer or client. Some time later another client or employer, or you as an individual, want to work in the same area. Even if you don’t have the data you worked on originally, you will remember certain critical pieces of information. Your memory cannot be erased like a computer disk. Ask the previous employer if there is a problem. One common solution in the oil industry is for former employer and employer to agree where a particular area to obtain a farm-out on the area from their former employer.

A particular form of the misuse of confidential information for personal gain has been a hot topic in the financial news, and even in the movies, during the past few years. This is insider trading. I would like to remind you that the classic case that set the foundation for the current crop of insider trading cases was SEC v Texas Gulf Sulphur (SEC v. TGS) (258 F. Supp. 262 (1966) and 401 F2d 833 (1968)) which revolved around the discovery of the Kidd Creek massive sulfide deposit near Timmons, Ontario.

In SEC v. TGS, four earth scientists—two geologists, a mining engineer, and a geophysicist—who lead Texas Gulf’s massive sulfide exploration program were among the very limited number of people who knew, that after several years of looking at hundreds of prospects and drilling barren to marginal holes on 65 prospects, the initial 655-foot drill hole on the 66th prospect went through glacial overburden and into 599 feet of solid massive sulfides with average visually estimated grades of 1.15% copper and 8.64% zinc. Subsequent assays revealed average contents of 1.18% copper, 8.26% zinc, and 3.94 troy ounces per ton silver over 602 feet of core (SEC v. TGS, 410 F2d 833 (1968), p. 843). After learning of the results of this hole and later, similarly encouraging information and before the public announcement of the discovery, these four defendants either personally or through agents purchased TGS stock or called thereon. In addition, one of the four told others about the discovery and the tippees purchased TGS securities as well (SEC v. TGS, 410 F2d 833 (1968), p. 842-843). The four earth scientist defendants’ violations of the securities laws stemmed not from the fact of their knowledge of the drilling results, but from the fact that they turned this confidential, non-public information to personal gain by purchasing Texas Gulf stock or calling or by tipping friends to buy. These activities led to findings that illegal insider trading had occurred.

Another case of insider trading involved the geologists and petroleum engineers who were the officers of a new, public oil and gas company. They were on the rig floor when the logs were run on a well in which their company had a 25% working interest. The logs indicated that this was the potential company-maker log, and that their broker before they called their public relations firm. In their defense, they argued that they felt they measure electrical and radiation properties of rocks, not the amount of oil that can be produced. The Commission’s staff agreed with the defense’s characterization of geophysical measurements but pointed out that well logs are routinely used to determine whether holes should be completed and to make initial reserve estimates. And the defendants considered the scientifically derived squiggly lines to be sufficiently important enough to make the decisions to buy the company’s stock. Based on their actions, the geophysical results were material information. That is, information that alone or in important part triggers an investment decision. Use of inside—that is, undisclosed material information—is illegal.

For those of you in the environmental business, consider what you have when you monitor your well suddenly shows contaminants leaking out of your client’s site. If you own some of your client’s stock and sell it (or sell it short) before that information is released, you can be fined for up to three times the losses you avoided by selling early. You might even, like Ivan Boesky or David Winans, go to jail.

Conclusion

I’ve touched on several issues, but there are many more that haven’t been mentioned. I hope I have impressed upon you the fact that unprofessional and unethical practice results in negative economic consequences, ranging from lost income to time in jail. I urge you to regularly read the Code of Ethics and to carefully consider how each of its provisions bears on the work you are doing. I will even recommend that you write up summaries of your musings on particular issues and send them to the TPG Editor. I can think of no better way for the AIPG to demonstrate its commitment to educate its members and foster ethical and professional practice.

Footnotes

4. For those unfamiliar with oil-patch jargon, mallet is a "[humorous and patronizing reference to an investor with money to put into the drilling of an oil well with the expectation of getting rich; a sucker; a person who knows nothing about the oil business or the operator with whom he proposes to deal"] (R.D. Langenkamp, 1977, Handbook of Oil Industry Terms and Phrases, 2nd ed.: Petroleum Publishing Co., Tulsa, OK).

5. The AIPG’s 1986 pamphlet, Organization and Content of a Typical Geologic Report, contains many excellent suggestions and recommendations. There is, however, not a great deal of overlap between the pamphlet’s suggestions and mine. This lack of overlap results from the different approaches to report writing taken by the pamphlet’s authors and myself. Use the pamphlet and this paper together when writing your reports.

6. The legal opinions in SEC v. TGS address a number of aspects of the defendant’s activities which are not addressed in this paper. Some of these activities resulting in findings that insider trading occurred, others did not. I suggest that, if you are interested, that you read the opinions. My point in this article is to raise the issue of insider trading; it is not to exhaustively discuss the subject. •
U.S. Trade/Investment
Mining Mission to Bolivia


The World Trade Center Denver organized a successful conference in Denver in February 1991 on investment opportunities for U.S. companies in the mining sector in Latin America. UNIDO has an office in Bolivia that identifies and evaluates investment opportunities in that country.

Bolivia has deposits of tin, sulfur, tungsten, zinc, antimony, lead, silver, manganese dioxide, lithium, and gold. The country also has precious and semi-precious stones, such as amethyst, emeralds, topaz, and citrine.

In April of this year, the Bolivian government enacted into law a new mining code that further liberalizes policies to attract foreign investments into that sector. The main amendments to the existing mining code revolve around allowing foreign companies to operate in the 50-kilometer border belt in joint ventures or small contracts with Bolivian companies, providing an alternative to the royalty system with a tax on profits and consequently obtaining credits in their home countries.

The governments of Bolivia and the U.S. are currently involved in the process of finalizing a Bilateral Investment Treaty which will guarantee U.S. companies national treatment.

For more information, please contact Karin Millett at World Trade Center Denver.

Telephone: (303) 592-5364, FAX: (303) 892-3820.

GeoTech/Geochautauqua ’91

Nine hands-on workshops are planned for the 1991 Denver GeoTech/Geochautauqua meeting, which will be held September 21-24 at the Sheraton Hotel and Conference Center in Lakewood, Colorado. The workshops have been organized by several recognized industry leaders in their fields, and will focus on practical aspects and significant problems faced in Geocomputing. The planned workshops include: Making Maps with AutoCad, Computer Applications in Oil Exploration; Designing Geologic Databases; Geographic Information Systems; Introduction to Microcomputers for Earth Scientists; Inexpensive Software of Geologists, Contouring with Microcomputers; and Geostatistical Solutions for Environmental Problems; and, Introduction to GIS for the Petroleum Industry. All workshops will be held in advance of the regular meeting sessions on Saturday and Sunday, September 21-22, at the Sheraton.

In addition, nine technical sessions are scheduled which will feature 68 papers authored by national and international speakers. The technical sessions will be held Monday and Tuesday, September 23-24.

For additional information or registration materials, contact: ExpoMasters, 11100 E. Dartmouth Ave., Suite 190, Aurora, CO 80014.

(303) 752-4951/Fax (303) 752-4979.

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Ocean Drilling Program’s Drill Ship Returns to Continental United States

A special ship sailed into San Diego Bay July 5. JOIDES Resolution, drill ship for the internationally-funded Ocean Drilling Program, returns to the continental United States after seven years of drilling around the world.

ODP is an international basic research program that explores Earth’s geologic processes through scientific ocean drilling.

"Our mission is to learn how Earth has evolved through time," said Dr. Philip D. Rabinowitz, director of ODP, and professor of oceanography and geophysics at Texas A&M University. Texas A&M is Science Operator for the program.

Since the ship left Norfolk, Virginia, in April 1983, she has circumnavigated the globe, drilling in all the world’s oceans and the Sulu, Celebes, Norwegian-Greenland, Labrador, Weddell, Mediterranean and Japan seas. The ship has called at ports as far south as the Falkland Islands and as far north as Stavanger, Norway. She has sailed through the Panama Canal, drilled within the Arctic and Antarctic circles, and has anchored into and come with this insight of all seven continents.

ODP, funded through the U.S. National Science Foundation, sponsors the international partnership of scientists and governments. During the year-round cruises, scientists retrieve sediment and rock samples from the layers beneath the seafloor. The cores contain clues to Earth’s origin, evolution and present-day structure. Scientists examine the cores to learn about Earth’s basic processes including rearrangement of the continents; evolution of life in the sea; and changes through time in Earth’s climate, ocean currents, sea levels and magnetic field.

ODP’s 37th cruise, which ended May 1, marked the ship’s circumnavigation. JOIDES Resolution had:

* sailed 117,888 nautical miles
* welcomed aboard 887 scientists from 28 countries
* penetrated as deep as 1,621 meters (a letter more than a mile) into the seafloor
* drilled in water as deep as 5,980 meters (3.7 miles).

Drill Site 690

* drilled 525 holes at 228 sites
* recovered 60 kilometers of core

When ODP began in 1984, it had four members; the United States, Canada, France, and the Federal Republic of Germany. It has added 15 more countries: Japan and the United Kingdom joined in 1985; Australia joined with Canada; and 12 European countries formed a consortium. ODP welcomed its newest member aboard, the U.S.S.R., in May of this year.

ODP remains in the Pacific until the end of 1992. It then will head through the Panama Canal and back into the Atlantic in January 1993.
Super Plume Connection to Cretaceous Warming

A global warming event that took place during the Cretaceous period (120 million years ago) may have been caused in part by a "super plume" from the Earth's interior that released massive amounts of carbon dioxide (CO₂) into the atmosphere, according to a paper published in the June issue of Geophysical Research Letters, a publication of the American Geophysical Union.

In this paper, Ken Caldeira and Michael Rampino of New York University used global biogeochemical carbon-cycle models to calculate the climatic effects of a large injection of CO₂ into the atmosphere/ocean system. The primary sources of CO₂ that they studied included mantle degassing at mid-ocean ridges and metamorphic decarbonation of sediments at subduction zones.

Mantle plumes are assumed to exist under volcanic hotspots and may be a driving source for plate tectonics. In their paper, super plumes are assumed to be plumes of extraordinary size and power that have profound effects on the topography and chemistry of the planet.

Caldeira and Rampino suggest that a super plume of material originating near the core/mantle boundary of the Earth at about 120 million years ago rose through the mantle and erupted beneath the mid-Cretaceous Pacific Basin. This may have been the cause of a major pulse of ocean-crust formation and volcanism. The timing of this proposed super plume corresponds to a known increase in global temperatures during the Cretaceous.

It was previously estimated that the average global surface temperatures during the mid-Cretaceous were 6-14 degrees Celsius higher than at present. The paleogeographic factors that were previously examined can explain about 4.8 degrees of this temperature change. That left about 1 to 9 degrees Celsius of warming to be accounted for. The model presented by Caldeira and Rampino indicates that CO₂ releases from increased sea-floor accretion, possibly resulting from a super plume, could have caused a global warming between 2.8 and 7.7 degrees Celsius over modern day temperatures.

In the paper, it was concluded that CO₂ emissions resulting from super plume tectonics, along with paleogeographic and paleoceanographic factors, could have caused the exceptional mid-Cretaceous global warming.

Society for Mining, Metallurgy, and Exploration
1992 Annual Meeting
February 24-27, 1992
Phoenix, Arizona

Rapid changes and increased challenges in the minerals industry have created new demands on the working professional. The Society for Mining, Metallurgy, and Exploration (SME) seeks to satisfy the industry's growing needs through advanced technical exchange during the 1992 Annual Meeting and Exhibit, February 24-27, Phoenix, Arizona.

The theme for the meeting is "Mineral Resources - The Cornerstone" which appropriately illustrates the meetings three specialty symposia: Comminution - Theory and Practice, Emerging Process Technologies for a Cleaner Environment, and New Technology in Mine Health and Safety.

For more information on the 1992 SME Annual Meeting and Exhibit contact Meetings Department, Society for Mining, Metallurgy, and Exploration, Inc., P.O. Box 625002, Littleton, CO 80162 or call (303) 973-9550, Fax (303) 979-3461.

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(as of July 31, 1991)

Applicants for certification must meet AIPG's standards as set forth in its Bylaws on education, experience and 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 Headquarters within thirty (30) days. This information will be circulated only so far as necessary to process and make decisions on the applications.

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IN MEMORIAM


Doris Malkin Curtis, CPG 4117, 77 years old died May 26, 1991 of pneumonia. Doris was serving as President of the Geological Society of America; she was Past President of the American Geological Institute; and served as Chair of AIPG’s Long-range Planning Committee. Doris served with Shell Oil Company as a geologist, as Professor of Geology at Rice University, and most recently with Curtis and Echols Petroleum Consulting Company in Houston, Texas.


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