WANTED - TPG ARTICLES
Instructions to Authors

The TPG accepts articles of modest length for publication. Submittals should be no more than approximately 1600 words, or six typed pages double spaced. Longer articles may be broken down into parts (e.g. part I and part II), but this is not encouraged. Articles may be technical or professional in nature. General topics are listed below. Articles containing news of importance to professional geologists will also be considered. Except for news articles, or articles containing dated material, submittals should be sent to AIPG headquarters six months in advance of expected publication. Some technical topic issues are planned up to one year before printing, therefore early submittals will be preferred.

Manuscripts should have the following sections:

Title
Author(s) with CPG number and address
Text
Tables if included
Figures with captions if included
Appendix(es) if included
References Cited

One original and two copies of each manuscript should be submitted. Whenever possible, text should also be submitted on diskette (3.5 inch or 5.25 inch IBM/PC format). Headquarters uses DOS WordPerfect 5.1, which is preferred, but Word (for Windows or DOS), ASCII, or translatable files (such as MacWord) are acceptable. The program or format of the text should be clearly marked on the diskette.

Graphics should be clear, camera-ready, line drawings whenever possible. Photographs (color or black and white) are also encouraged. Whenever possible, drawings may be submitted on diskette in .dxf, .hgl, .pic, .pcx, .bmp, .eps, .GIF, or other standard formats.

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

General Topics:

**TECHNICAL**
- Mining Geology
- Petroleum Geology
- Hydrogeology
- Environmental Geology
- Geophysical/Engineering

**PROFESSIONAL** (any issue)
- Government and the Geologist
- Ethics and Standards of Practice
- Public Perception of Geology and Geologists
- Definition, Certification, and Licensing
- Practicing Geology Internationally

Other suggestions: Forensic Geology, History of Practice in a given field, Book Reviews, Geology and the Military, Unusual Applications of Geology.

Authors are encouraged to communicate with Headquarters via mail, fax, or Internet. Send your article or photograph, or communicate questions to:

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The Professional GEOLOGIST

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FRONT COVER - Grand Teton from Signal Mountain, Grand Teton National Park, October, 1995. Photograph submitted by William V. Knight, CPG

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"At the Interface of the Geological and Biological Sciences"

Robert K. Merrill, CPG-4984

As the 104th Congress convened in January 1995, the U. S. Geological Survey (USGS), U. S. Bureau of Mines (USBM) and National Biological Service (NBS), all faced elimination under budget cuts accompanying the House Republican "Contract with America". The U. S. Geological Survey was not eliminated thanks to a groundswell of support from the geological community. (AIPG actively pursued this support last year along with other societies.) However, the USBM is in the final stages of closure: February 2 was the last day of work for 1200 of the Bureau's 1800 employees. Except for a skeleton crew of 60, the rest were transferred to the USGS, Bureau of Land Management, and Department of Energy. The functions of the NBS are being merged into the USGS, and both of these agencies have experienced reductions in force.

This consolidation is mandated by the House/Senate conference report on the appropriations bill. After pressure to eliminate the NBS, the conference agreed to retain many of the functions of the NBS but place them under the USGS as a separate line item for "natural resources research". In the report language the conferees state that they "intend the merge of these research activities into the USGS to be permanent." In addition, House Interior Appropriations subcommittee chairman Ralph Regula (R-Ohio) sent a letter to Secretary of Interior Babbitt reinforcing Congress' intention to oversee the USGS/NBS merger in a "hands on fashion" and urging significant organizational restructuring, cultural change, and "urging the complete integration of the science functions of the Department." The consolidation is to be completed with a report back to Congress by October 1, 1996. Following President Clinton's veto of the appropriations bill in December, and no subsequent compromise, the Department of Interior has continued at reduced levels through a series of continuing resolutions. The most recent continuing resolution, signed into law January 26 (Public Law 104-99), states that activities related to transferring the NBS functions are to be funded at the conference report level, ensuring the consolidation will continue even though the appropriations bill itself has not been signed. (David Applegate, 1996, written communication)

In late February I represented AIPG at an AGI sponsored workshop to facilitate the consolidation of the USGS and the NBS. The title is a paraphrase of a remark by Dr. Ron Pulliam, Director of the National Biological Service. In some respects it is the theme of this workshop that brought together representatives of the geological and biological communities in an effort to explore the synergies of the two organizations and the best way to consolidate them. As a geologist considering this consolidation, I was concerned that the 113 year history of excellent work by the U. S. Geological Survey would be diluted. I agreed to participate in this conference to do AIPG's part to assure that the mission of the USGS as the primary provider of earth science information on natural hazards, the environment, and mineral and energy resources would continue. I came away from the workshop comfortable that the consolidation would not dilute USGS's mission, but would actually strengthen the ability of the USGS to provide information to its clients within government and the general public.

The Department of Interior considers this workshop an important part of its planning process to implement the mandate of Congress. Secretary Babbitt began the workshop reviewing the Department of Interior's perspective on the consolidation, highlighting the synergy of the two agencies in water, mapping, and geospatial data. He emphasized the role of a scientific organization to provide information for rational decision making and his rationale for creating the NBS, from the biology functions of seven different agencies. He was followed by Ron Pulliam, Director of the NBS, and Gordon Eaton, Director of the USGS, giving their perspectives on their agencies. The individual division chiefs then reviewed the work of their divisions.
The challenge of the NBS was to create a new culture for government biological sciences from seven different cultures. Initially there was no vision of how these groups would combine to satisfy the needs of the Department of Interior. The consolidation mandated by Congress gives "the opportunity to do our job better." To put a perspective on the geological and biological functions of the USGS, the budget of the consolidated organization is about $1.1 billion; which is 83% "physical" and 17% biological. Dr. Eaton characterizes the work of the USGS into four categories that I have depicted as a cube (Fig. 1) divided into three areas: hazards, environment and resources. The other axis is information which includes data management. The data and information that the USGS develops is provided to the Department of Interior, other Federal and State regulatory agencies, and the general public so that appropriate management decisions can be made. The charter of the USGS is to provide quality scientific information without the conflicts of interest inherent in regulatory agencies.

If we are to "seek ways to optimize and maximize the opportunity to integrate the sciences" as Dr. Eaton suggested, where are the synergies? Table 1 outlines the work done by both organizations. Both organizations provide essential information for proper management of the natural resources of America. Most importantly, this information is independent of regulatory bodies. The workshop concluded that the USGS/NES consolidation is an appropriate fit from the scientific viewpoint for long and short term projects, inventories, sources and processes, and will uniquely enhance the stewardship, education and outreach, and recreation responsibilities of the Department of Interior. There will be integration across the geologic and biologic sciences for decision making. Vast quantities of information need to be integrated, synthesized, analyzed and ultimately archived, using the information management tools both organizations are developing and using, including broader use of metadata (information about data), a tool for archiving and accessing data. The USGS will have the flexibility to respond to management questions at different scales and with varying boundaries using new (GIS) tools. Opportunities exist for enhanced quality assurance and continuous improvement of scientific information. Alliances and innovative partnerships can be developed building on the experience of the two organizations, leveraging Department of Interior resources with those of other Federal agencies, and State, academic, and industry resources.

I came away from the workshop feeling that the mission of the USGS will not be diluted but strengthened as an information agency. It will actually be coming full circle, back to its roots in the organic act of 1879 when Congress first formed the agency, charging it with classification and examination of the geological structure, mineral resources, and products of the national domain. This work included responsibility for geology, biology, minerals and water resources, and mapping. This consolidation will allow USGS to provide more complete information to its clients.

The USGS will continue to provide scientific information independent of regulatory bodies. The resources of the two organizations will strengthen the ability of the consolidated organization to archive and provide scientific information, especially spatial data. The ongoing natural hazards programs of the USGS will continue to provide essential information to mitigate the severity of these hazards. The abundance of natural resources and the environmental consequences of their extraction and use is a continuing focus for the USGS, which is especially critical with the closing of the USBM. Environment work is strengthened by integration of the water quality work that both agencies were doing under the National Air and Water Quality Act (NAWQA). A document detailing the results of the USGS/NBS Consolidation Workshop will be available in a few weeks.

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The Ethics of Technical Impracticability and Pragmatic Site Remediation

J.W. Jengo, CPG-8139

One of the many challenges of environmental consulting is establishing common ground between one's industrial clients and the State and/or Federal employees responsible for the environmental regulatory oversight of these industries. In most cases, trust builds slowly between these diametrically opposed parties as they work toward consensus, particularly when each side begins to recognize and appreciate the obligations that must be met by their counterparts. Occasionally, however, a situation arises where the common ground turns into a battle ground, such as when proposals put forth by the industrial client and their consultant are soundly rejected. This is normal, initially at least, when proposing innovative remedial solutions or a site containment strategy that a regulator may not be familiar with. As illustrated in the following example, it is another matter entirely when the integrity of the consultant is called into question solely because the proposed solution does not fit the pre-conceived and unrealistic ideals of the regulator.

I never expected ethics and integrity to be an issue during a technical meeting between my industrial facility client, myself, and the oversight case team assigned to our project. The objective of this meeting was to outline our plan to manage the site contaminants within the property boundaries of my client's 500-acre facility and to perform site-specific risk assessment to develop non-residential soil and groundwater cleanup criteria. My client had spent several million dollars over a three-year period investigating the site thoroughly and we had successfully delineated every contaminated groundwater plume, even those less than 100 feet across. We performed pilot tests and treatability studies to determine the most effective method to recover hydrocarbons from the thick silt and clay formation underlying the site. We addressed those areas that could have potentially impacted off-site natural environments, drinking water wells, and employee receptors throughout the facility. Because of our thorough understanding of the site and its complexities, we also recognized the impossibility of cleaning the site to its former pre-1900 pristine state. I had just begun to outline our free-phase recovery and long-term contaminated groundwater management strategy when I was interrupted by the oversight case manager and asked why I didn't want to do the "right thing"? When I asked what was considered the "right thing", another question was posed, "how can you recommend anything less than a complete restoration of this site, don't you geologists have an ethical standard or something?"

Such a statement and the rigidly held ideology that spawned it has made me consider how the ethical standard can be misused when discussing issues like less than pristine cleanup criteria. Given the importance of ethics in our professional careers, it is an insultation and challenge that no one should take lightly. Why would someone consider less-than-pristine remediation goals or containment of site contaminants within a facility's boundaries to be in conflict with our ethical code of conduct?

It should be stated that I have taken into account that some regulators consider themselves the only defender of the environmental true faith and they regard consultants as infidels; barbarians at the gate who

ARTICLES NEEDED

Share your expertise, knowledge and opinions with other professional geologists. Submit an article, paper (professional and/or technical), or guest column based upon your experiences or activities in geology. Submissions should be 800 to 1600 words in length. Photographs, figures, tables, etc. are welcome. See the inside cover of this issue for more detailed author instructions.
have sold their souls to the devil that is American industry. But I have noticed that this is a fairly common attitude in many inexperienced regulators. I emphasize "experience" because nearly all the veterans in environmental consulting, who have tried virtually every conceivable cleanup technology, concede that there are many sites that will never be restored to their pristine state. The Rubicon that regulators are unable to cross is accepting the technical impracticability of remediating, for example, DNAPLs in fractured bedrock 1,000 feet below ground surface, because they want to believe that something can be done, regardless of its cost and lack of effectiveness.

The rift that immediately opens up between consultants and regulators is that the regulators have the luxury of occupying the moral high ground that is both ultra-conservative and virtually risk-free in terms of their careers. No doubt these oversight case workers realized that if they never varied from the most conservative approach, they could do no wrong. Although I disagree with that approach, I can almost see the logic in it. What I do not accept is the tendency to consider this stance morally more correct than the actual workable and pragmatic solutions that the rest of us are trying to implement. Ironically, I believe their ultra-conservative posturing is actually anti-environmental because it greatly reduces the likelihood of site containment or partial restoration because (1) it drives potentially cooperative industries into recalcitrant behavior to do nothing and (2) makes attractive the option of closing down operations at that location and industrializing another state's or country's virgin property. Where is the ethics in that?

In trying to understand their point of view, I believe that regulators share with many people a general sense of helplessness about the state of the environment today. Probably educated as environmental scientists, they have been exposed to the woes of environmental degradation since college and are understandably eager to do something about it. With the loss of rainforests accelerating, the Endangered Species Act under fire, with population growth out of control, and with every open farm field seemingly being converted into office parks or subdivisions, there must be an overwhelming desire to draw a line somewhere in the sand, even if it is on the wrong beach. In other words, with loggers, whalers, religious organizations, and developers generally unavailable for direct regulatory pressure or punishment, the only remaining target is the local industrial concern. These industries are then burdened with all the frustrations and animosity that regulators feel about the general state of worldwide environmental degradation. Thus, the desire for more regulation and an unyielding force-fitting of the existing rules to every unique situation.

Where did regulation go too far? When was the line crossed that separated good sense and much-needed

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**The Puzzle But**

**You Don't Have**

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regulation concerning pollutant discharge monitoring, hazardous waste manifesting, wastewater treatment, tank testing, etc. with that of over-regulation such as the requirements which dictate the precise number, spacing, and frequency of analytical samples regardless of the size of the area of concern or the requirement for a full suite of analyses to characterize spills of known origin? In New Jersey, I think it was around the time the State went from telling industry what to do to telling them how to do it. Environmental investigative templates like New Jersey’s Technical Requirements for Site Remediation are required to be applied for investigating both half-acre gasoline stations and 1,000-acre refineries. Try suggesting to your refinery manager client that soil samples must be collected every 15 feet along every operating pipeline and you will get an unprintable earful about over-regulation. Most importantly, although oversight case managers have the authority to grant variances from these rules, they rarely exercise it, in fear of deviating from the most ultra-conservative and risk-free approach.

When did the regulators cross the line between common sense and no sense? I think it is simply a matter of inexperience. Any geologist who has tried recovering more than 40 percent of the hydrocarbons from any stratigraphic unit, be it the Wilcox at 10,000 feet in Louisiana or the Potomac-Raritan-Magothy aquifer at 45 feet in New Jersey, learned soon enough about the concept of technical impracticability of retrieving residual hydrocarbons. Yet, that is what inexperienced regulators expect when they insist upon residential or background cleanup standards for heavily used industrial sites. Although the AIPG Code of Ethics dictates that it’s members “cooperate with others in the profession and encourage the dissemination of geological knowledge”, it is very difficult for us to educate inexperienced regulators if they continue to assume that any remedial solution short of a complete restoration is merely a ploy to avoid doing the “right thing”. On the contrary, to suggest that 100 percent recovery of hydrocarbons is achievable would be to “make false, misleading, or deceptive representations...in regard to the profession of geology”. What regulators need to realize is that an important element of ethical behavior consists of ascertaining the best solution to a problem but also being honest with yourself and your client that there are limits on what technology can do and how much money should be spent doing it.

None of the aforementioned comments should be construed as a demand for dismantling our country’s important environmental regulations. Under no circumstances should industries conduct business as they did prior to RCRA, because left to their own devices, no one will safeguard the environment as they are required to do now. The solution lies in a more reasonable application of the existing rules and a more realistic and objective perspective by regulatory oversight.

Regulators need to accept the concept of diminishing returns in contaminant remediation and recognize that industrial corridors of impacted environments can be managed so they can co-exist safely with the communities in which we live. To aid in their practical education, regulators should start spending some quality time at the sites they are responsible for, not as auditors but as participants. New regulators should not be hired unless they have spent several years in industry trying to comply with the very same regulations they soon will enforce upon others. This experience will come in handy because, in New Jersey at least, industry pays for the regulator’s time and thus is entitled to expect rational and pragmatic thinking, not a pedantic recital of unimplementable rules. Perhaps regulators could even start treating their “cases” as customers who would most certainly welcome and benefit from a closer and more trusting relationship with those who write and enforce the rules. A good first step would be to stop treating consultants or our clients as soulless pariahs when such reasonable ideas as site containment or non-residential cleanup standards are proposed. They should also recognize that to be certified as an AIPG geologist, we have promised to “uphold the public health, welfare, and safety in the performance of professional services”. The environment and the industries that we rely on will both benefit when regulators come out from behind the ethical smokescreen and join us in pragmatically solving today’s environmental problems.

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A Mining Environmental Ethic: The 90's and Beyond

Mark R. Nelson, CPG-9698

A new environmental ethic for the mining industry has been developing in response to many factors. The most obvious factor is the ever increasing plethora of governmental mining regulations. More subtle reasons are the coming to age of a new generation of mining professionals who see protection of the environment as a desirable goal of mineral development independent of the regulatory requirements, and an increased acceptance by members of the older generation that environmental practices once common in the industry will no longer work in this changing world. As these professionals continue to rise into the ranks of senior mine management and corporate officials, the modern mining environmental ethic will continually evolve and its application to operations worldwide will become standard if the corporations are to remain profitable in the long term.

A major goal of all corporations is to maximize shareholder value by increasing earnings and cash flow. It is now widely accepted within the mining industry that costs associated with environmental compliance can have a major effect on the bottom line. While it may seem appropriate to defer costs relating to long term environmental compliance to the end of a project, in most cases a significant savings can be realized by mitigating these concerns concurrently with mine development. These costs include permitting requirements, monitoring and reporting requirements during operation, and closure. The potential of extremely high mine closure costs resulting from irresponsible mining practices, improper mine design, and other unforeseen circumstances emphasize the importance of a proactive approach to environmental compliance at all stages of an operation. Accurate estimates of closure costs are rarely incorporated into feasibility studies, and in some cases these costs may even exceed capitalization costs of a project.

In order to maintain this proactive approach, it is necessary for mining companies to develop a focus on "doing the right thing" versus strictly maintaining compliance with the continually changing environmental regulations. While a detailed understanding of governmental regulations is necessary, the lack of a regulation applicable to a potential problem is no guarantee that a new regulation will not be developed. The ethical application of mining practices protective of the environment is therefore necessary both from an intellectual standpoint and from a practical standpoint. This is being applied in several ways, including the retention of full time environmental staff at mine sites, the development of corporate-level environmental departments, and the use of internal environmental audits which address both compliance with regulatory requirements and compliance with evolving environmental management standards and practices.

There is a need for this modern environmental ethic to be applied to all mining operations worldwide. The globalization of the mining and exploration industry is continuing rapidly. This is certainly related to the increasing environmental regulations in the United States, but is also related to the existence of relatively unexplored resources in other parts of the world. Many third world countries have less restrictive environmental regulations than the US and fewer resources for the enforcement of these regulations. While there is a temptation for the maximization of profits and cash flow through a reduced emphasis on environmental protection, this will be a temporary phenomenon. An example of this fact is the recent cancellation by the Overseas Private Investment Corporation of 100 million dollars of political risk insurance to a major Indonesian operation partially as a result of alleged environmental impacts to water resources. (Northern Miner, Jan. 1, 1996).

The world is getting smaller at a breakneck pace through the rapid development of electronic communica-
tions. It is already possible for foreign mining regulators with Internet access to E-Mail our mining regulators here in South Dakota to learn of a corporation’s environmental record. E-Mail servers and newsgroups specific to the mining industry such as the Enviromine mail server will also assist in the rapid dissemination of industry-specific information to a global audience. In addition, computer programs which translate correspondence into Spanish or other languages currently exist and are continuing to be developed. While the direction and pace of the development of electronic communications is hard to predict, one can’t deny the profound changes this will have in our society.

In order to effectively implement these modern environmental ethics on a local basis, it is necessary to review the mine site reporting responsibilities. It is desirable for the mine site environmental coordinator to report directly to a corporate-level environmental director in addition to the general manager. At some mine sites, the environmental coordinator reports only to mid-level process or mining superintendents. A conflict of interest may occur due to the conflicting responsibilities of optimizing mineral production and proactively managing environmental concerns. The costs associated with proactive environmental management do not impact short term production or process budgets in a positive way. These costs are only rationalized when viewed in terms of long-term issues of mine closure and reclamation bond release. This management style may bother many managers of the old school, but it provides a valuable safety valve to insure long term environmental compliance and the continued profitability of the corporation.

It is also necessary for a mining professional to develop a realistic view of his own qualifications. In the corporate world much time and energy is spent promoting one’s qualifications in order to continue climbing up the corporate ladder. It is against human nature to admit a lack of qualifications with respect to a specific issue, but it is a professional responsibility to call in expert outside help when it is warranted. This also occurs in the consulting world as the emphasis moves from technical issues to business development and marketing. A recommendation calling for the additional expert help of consultants should be considered without compromising an individual’s reputation or level of responsibility. No single person can have all the answers.

Modern mining methods give mankind awesome power to move mountains or tunnel miles into the earth. With this power comes responsibility. No mining corporation will successfully operate over the long run without understanding and utilizing all modern technology for the protection of the environment. This technology must be implemented at all phases of a project including exploration, feasibility studies, production and final mine closure. The world’s voracious appetite for minerals shows no signs of decreasing and, while mining districts come and go with the whims of metal prices and political change, the industry will continue to advance. And, advance it must in order to meet the new challenges of a changing world.

Mark R. Nelson, CPG-9698, LAC Minerals (USA) Inc., Richmond Hill Mine, P.O. Box 892, Lead, South Dakota.
Report from the National & International Affairs Committee

James D. Shotwell, CPG-8290, Chairman, National & International Affairs Committee

The AIPG National and International Affairs Committee (NIAC) is charged with monitoring and acting upon issues which impact the Membership on a national and global scale. NIAC attempts to provide insight to the AIPG Executive Committee with respect to national and international legislative initiatives or governmental directives. The NIAC goal is to impact legislation, regulations, budgets, and other government directives in a proactive manner for the benefit of the profession.

One issue before NIAC is the National Geologic Mapping Act Reauthorization of 1996, sponsored by Congressman Ken Calvert (R-CA) in the House of Representatives and by Senator Larry Craig (R-ID) in the Senate. The Act was initially passed in 1992 when Congress recognized that geologic mapping and map production had been drastically curtailed in the 20 years preceding enactment.

Congress declared that geologic maps are the basic dataset for 1) the exploration and development of mineral, energy and water resources; 2) land use and evaluation for environmental planning; 3) earthquake hazard reduction; 4) volcanic hazards prediction; 5) landslide mitigation; 6) coastal and stream erosion hazard identification and mitigation; and 7) basic earth science research.

The Geologic Mapping Act of 1992 authorized the establishment of an Advisory Committee comprised of representatives from the United States Geological Survey (USGS), State Geological Surveys, Academia and the Private Sector. The Advisory Committee is charged with overseeing the mapping and non-mapping databases. The mapping databases are geological, geophysical and geochemical databases and the non-mapping databases are geochronologic and paleontologic databases. Both the original Act and the Reauthorization specify an education component for the purpose of developing academic programs that teach earth science students the fundamental principles of geologic mapping and field analysis.

The practical implication of the Reauthorization Act is that the maximum authorized budget will be set at $108 million for four Fiscal Years ending in the year 2000. The 1992 Act specified a maximum budget of $184.25 million for four Fiscal Years ending in the year 1996, so the Reauthorization represents a 41% reduction in the authorized amount. The actual amount spent during the first four years of the Act’s existence was approximately $89 million.

Other issues under surveillance by NIAC, which will be the basis of future columns in TPG include:

- K-Ar age determinations
- 14C age determinations (including A.M.S.)
- Rb-Sr age determinations
- U/Pb age determinations
- Tritium analyses
- Pb isotope analyses
- Sr isotope analyses
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Sponsored by the American Geological Institute (AGI) in its offices in Alexandria, Virginia on February 22 and 23. AIPG is a member society of the AGI. The workshop focused on the development of a broad consensus within the geological and biological communities on the mission and focused of the new USGS. Dr. Gordon Eaton, Director of the USGS and Dr. Ron Pulliam, Director of the NBS par-
ticipated in the workshop. The merger of the USGS and the NBS will be implemented later in 1996, so the opportunity exists to ensure that the affected communities will have an impact on the future of these two premier scientific agencies.

A National Risk Assessment initiative, referred to as the "Annapolis Accords," was written at the Annapolis Center to address risk assessment with respect to human health and the environment. The goal of the Annapolis Accords is to provide a framework for the Environmental Protection Agency for prioritizing the expenditure of public and private dollars and economic activity based on scientifically valid toxicity and exposure assessments, rather than legislatively-driven cleanup criteria. The Annapolis Accords could have significant impact on the geologic profession.

The National Geoscience Data Repository was conceived and is being implemented by the AGI to house "tens of billions" of dollars worth of geological and geophysical data. Dr. Marcus Milling, CPG-4518, Executive Director of the AGI, reports that these data are in jeopardy of being irretrievably lost or destroyed as a consequence of the downsizing of the domestic energy and minerals industries. The status of the implementation and government funding of the project is being monitored by NIAC.

Additionally, comity with the European Federation of Geologists and registration legislation governing individual European countries (reported by Russ Slayback, CPG-2305 in the January, 1996 issue of the TPG), the possible abolition of the Foreign Tax Credit (as a budget reconciliation item on Capitol Hill), and the consensus reached at the AAPG's Hedberg Conference with respect to interaction with AGI's Government Affairs Program, are some of the issues upon which AIPG, through the NIAC, will comment.

The chairman of NIAC is actively seeking comments from AIPG's general membership on these and any other national or international issues which will impact the profession. It is vitally important that AIPG membership become involved in representing the Institute in public forums and to help effect positive change for the profession. As Dr. Jon Price, CPG-7814 and AIPG President-Elect said in December of 1995, "... the American Institute of Professional Geologists is at a significant juncture in its history. [AIPG] should be encouraging those geologists who are interested in political issues and willing to 'take their place in the public debate' to join AIPG." Communicating with NIAC would be an excellent start.

Footnote
1. President Merrill's report of this workshop begins on page 4.

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Oregon Department of Geology and Mineral Industries releases coastal maps showing tsunami inundation line

The Oregon Department of Geology and Mineral Industries (DOGAMI) has just released 58 maps showing the tsunami inundation zone along the Oregon coast. Each map has a line that shows how far inland and uphill a tsunami caused by a magnitude 8.8 underwater earthquake is expected to go. The new maps were developed to implement Oregon Revised Statutes 455.446 and 455.447, a law passed by the 1995 Legislature to restrict construction of certain types of essential facilities and special occupancy structures within the tsunami inundation zone.

The line was developed from studies of prehistoric tsunami deposits found along the coast, computer modeling by Dr. George Priest of DOGAMI and Dr. Antonio Baptista of the Oregon Graduate Institute of Science & Technology, and scientific studies of other tsunamis that occurred in Nicaragua and Japan.

Each of the blue-line diazo maps is on a US Geological Survey 7 1/2-minute topographic map base and is at a scale of 1:24,000. Each map is printed as a separate open-file report, with an individual number. On the reverse side of this sheet is an index map showing the names and locations of each of the tsunami maps. Cost of each map is $3. A complete set of all 58 maps costs $160. Included with each map is a copy of Oregon Revised Statutes 455.446 and 455.447, Oregon Administrative Rules 632-05 that implement the maps, and a map index.

The method used to develop the inundation line is explained in a newly released DOGAMI open-file report entitled Explanation of Mapping Methods and Use of the Tsunami Maps of the Oregon Coast. This new report, numbered Open-File Report O-95-67, has 100 pages and contains an explanation of the methodology used to develop the tsunami inundation line, detailed graphs showing tsunami run-up for areas along the open coast, and the sequence and timing of tsunami waves (time histories) at selected coastal population centers. The cost of this report is $9.

These maps and open-file report may be purchased over the counter or by mail, fax, or phone from the Nature of the Northwest Information Center, Suite 177, 800 NE Oregon Street #5, Portland, OR 97232-2162, (503) 872-2750, fax (503) 731-4066. Orders may be charged to Visa or Mastercard. Orders under $50 require prepayment except for credit card orders.

Oregon Department of Geology and Mineral Industries,
March 1, 1996

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CALIFORNIA A 3083
AUTHOR: Oberg
INTRODUCED: 02/23/96
SUMMARY: Authorizes the State Mining and Geology Board to adopt regulations specifying additional financial assurance mechanisms; requires the board to adopt regulations to authorize a public agency to use a contractor's performance bond as a financial assurance mechanism.
STATUS: 02/23/96 INTRODUCED.

COLORADO H 1171
AUTHOR: Prinzler
INTRODUCED: 01/12/96
SUMMARY: Concerns privatization of the regulation of professions and occupations. Requires the delegation to private trade organizations of the supervision of professions and occupations now performed by the various boards and agencies within the Department of Regulatory Agencies, within 2 years. Sets standards for the initial registration of such self-regulatory organizations [SROs] with the Secretary of State. Provides for streamlined oversight by the Department.
STATUS: 02/07/96 From HOUSE Committee on BUSINESS AFFAIRS AND LABOR. Postponed indefinitely.
AIPG COMMENTS: Even though this has been "postponed indefinitely", the concept may have interest for AIPG Sections.

FLORIDA H 1199
AUTHOR: Saunders
INTRODUCED: 02/15/96
SUMMARY: Authorizes the Department of Business and Professional Regulation to contract with a nonprofit corporation to conduct the activities of the Board of Professional Engineers; provided for the adoption of rules.
STATUS: 02/15/96 PREFILED.
AIPG COMMENTS: Concept similar to Colorado HR 1171.

IOWA H 2318
AUTHOR: Committee on Commerce
INTRODUCED: 02/26/96
SUMMARY: Authorizes the Department of Finance to contract with a nonprofit corporation to conduct the activities of the Board of Professional Engineers; provided for the adoption of rules.
STATUS: 02/26/96 INTRODUCED.

IOWA 6027
AGENCY: Engineering and Land Surveying Exam Board
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Adds a definition of the practice of engineering as new subsection 1.1(3). Implements legislation passed in the last session. Changes the deadline for responding to a petition for declaratory ruling from 30 to 90 days.
AGENCY CONTACT: Patricia Peters, Engineering and Land Surveying Exam Board, 1918 S.E. Hulsizer, Ankeny, IA 50021, (515) 281-7360 or FAX (515) 281-7372
CITATION: 1993 IAC 1.1(3) to 1.2(3) Administration
PROPOSED DATE: 11/22/95
ADOPTION DATE: 02/14/96
EFFECTIVE DATE: 03/09/96

KANSAS 2055
AGENCY: Board of Technical Professions
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Authorizes the Department of Technical Professions. Clarifies that certificates of authorizations may be renewed in even-numbered years. Strikes the phrase "including but not limited to", and is adding at the end of the regulation language that allows for consideration of other factors that the board believes may be relevant to the issuance of an initial license. Limits the statutes, rules and regulations to those under the jurisdiction of the Board of Technical Professions, rather than the general statutes, rules and regulations of the state of Kansas. Deletes the residency requirements for original license applications. Updates the adoptions of a document by reference to the current version of the publication.
AGENCY CONTACT: Board of Technical Professions, Suite 507, Landon State Office Building, 900 S.W. Jackson, Topeka, KS, 66612, (913) 296-3053
CITATION: KAR 65-6-6, 66-7-3, 66-8-1, 66-10-1 and 66-12-1 Renewal of Licenses and Certificates of Authorization.
PROPOSED DATE: 09/26/95
COMMENT DEADLINE: 12/15/95
HEARING DATE: 12/15/95
ADOPTION DATE: 02/15/96
EFFECTIVE DATE: 03/01/96

KENTUCKY S 209
AUTHOR: Green
INTRODUCED: 02/06/95
SUMMARY: Relates to licensure of professional engineers; permits graduates of accredited engineering technology programs to become licensed as professional engineers.
STATUS: 02/07/96 To SENATE Committee on LICENSING AND OCCUPATIONS.

LOUISIANA 5315
AGENCY: Dept. of Transp. & Dev./Bd. of Reg. for Prof. Engineers & Surveyors
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Authorizes the regulations of temporary permits to practice engineering.
AGENCY CONTACT: Louisiana State Board of Registration for Professional Engineers and Land Surveyors, Office, 10500 Coursey Blvd., Suite 107, Baton Rouge, LA 70816, (504) 225-5352
CITATION: LAC 46:3.X.309 Temporary Permits
PROPOSED DATE: 01/20/96
COMMENT DEADLINE: 02/18/96

NEVADA 1349
AGENCY: State Environmental Commission
TOPIC: ENVIRONMENT, PROTECTION AND POLLUTION CONTROL -- 0
SUMMARY: Authorizes the Consultant Certification program. Adds a written statement and original signature to all documents submitted to the State and local political subdivisions. States that the consultants would be required to attest that documents submitted to the state have been prepared under the responsibility of an individual certified by the Div. of Environmental Protection.
AGENCY CONTACT: NV State Environ. Commission, 333 W. Nye Lane, #128, Carson City, NV 89701, (702) 687-4670, ext. 3118, FAX: (702) 687-5856
CITATION: NAC 459.970 to 459.9729 Consultant Certification Program
PROPOSED DATE: 02/20/96
COMMENT DEADLINE: 03/20/96
HEARING DATE: 03/28/96

NEW YORK S 6176
AUTHOR: Connor
SAME AS: A 8952
INTRODUCED: 02/28/96
SUMMARY: Provides that for certain highway and bridge construction projects the services of a qualified, licensed professional engineer shall be required to provide technical assistance on the project.
STATUS: 02/29/96 INTRODUCED
02/28/96 To SENATE committee on TRANSPORTATION.

TENNESSEE H 2994
AUTHOR: Kernell
SAME AS: S 2691
INTRODUCED: 02/02/96
STATUS 02/02/96 INTRODUCED.

UTAH S 235
AUTHOR: Peterson C
INTRODUCED: 02/06/96
SUMMARY: Authorizes Career Licensing and Engineer Licensing amendments.
STATUS 02/14/96 To SENATE Committee on BUSINESS, LABOR AND ECONOMIC DEVELOPMENT.

WEST VIRGINIA S 348
AUTHOR: Love
INTRODUCED: 02/09/96
SUMMARY: Exempts professional engineers from licensing requirement.
STATUS: 02/09/96 INTRODUCED 02/09/96 To SENATE Committee on GOVERNMENT ORGANIZATION.

WISCONSIN 8534
AGENCY: Architects, Prof. Eng., Designers and Land Surveyors Exam Board
TOPIC: BUSINESS AND CORPORATIONS -- 2
SUMMARY: Relates to the examination review procedure, renewal of credentials, requirements for registration as professional engineer, and education as an experience equivalent for registration as a professional engineer.
AGENCY CONTACT: Office of Administrative Rules, Department of Regulation and Licensing, P.O. Box 8935, Madison, WI 53705
CITATION: A-E 3.05(6)(b) thru 10.05(6)(b) (non seq) Examination Review Procedure, Renewal of Credentials
PROPOSED DATE: 08/15/95
COMMENT DEADLINE: 09/15/95
HEARING DATE: 08/29/95
ADOPTION DATE: 02/14/96
EFFECTIVE DATE: 04/15/96

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Rich man, Poor man, Beggar man, Thief -- No, it's not a nursery rhyme, it's a description of the candidates. Thank goodness we have a choice. Most of the world doesn't.

By now all of you should have received your Income Tax Refunds for 1995. If you haven't, I guess it's the I.R.S.'s fault this year -- budget cuts and all that! I'll bet that if you are too slow in filing you will hear about it post haste.

part of what you so willingly contribute to the government each year helps to produce the Federal Registers which are so informative -- a portion of which follows:


Notice of Intent to Develop or revise standards and request for public comment and participation in standards development.

Some of the standards included will be of interest to those working the oilpatch -- Oilfield equipment and Materials Standards, Drilling and Production Practices, etc.

For further information contact: David Miller/Tim Sampson, Exploration and Production Department, American Petroleum Institute, 1220 L. Street, NW, Washington, D.C. 20005.


MMS has added new requirements which will increase the reporting burden; and, reduced recordkeeping hours due to corrected re-estimates.

For further information contact: Andrew Radford, Engineering and Standards Branch, MMS, (703) 787-1144.


Final Rule -- Effective 3-11-96

Inquiries should be sent to: Director (140), Bureau of land Management, Room 5558, Main Interior Building, 18499 C Street, N.W. Washington, D.C. 20240, or call John W. Bebout, (202) 452-0340.


For further information contact: Betsy Forinash, Mary Kruger or Martin Offutt at (202) 233-9310.

Part VIII, pg 5256, DOI, Minerals Management Service

Outer Continental Shelf, Proposed 5-Year Outer Continental Shelf Oil and Gas Leasing Program for 1997-2002 and Draft EIS for Proposed Oil and Gas Leasing Program, 1997-2002; Notices.

Information on the availability of the EIS can be obtained from Chief, Environmental Projects Coordination Branch, MMS, 381 Elen St., MS 4320, Herndon, VA 22070-4817, (703) 787-1674.


For further information contact: David S. Guzy, Chief, Rules and Procedures Staff at (303) 231-3432.


Advance notice of proposed rulemaking. This will arrive too late to comment upon as commenting period ends on April 8, 1996. However, for information contact Walter Cruickshank, Analysis Div., MMS, at MS 4013 1849 C Street, NW, Washington, D.C. 20240, (202) 208-3822.

To conclude this month -- I have a tidbit for the birds from the same issue at page 6966.


Summary: Data will be collected in an attempt to evaluate linking of revealed and stated preference information in estimating the demand for, and nonmarket use values of, natural resources.

Need and use of the information: What will be learned from this experiment can be used in better designing and implementing future valuation work in a wide array of efforts around the country.

Description of Respondents: Individuals or households. Number of respondents: 33,500. Frequency of reporting -- on occasion. Total burden hours: 4,965.

EMERGENCY PROCESSING OF THIS SUBMISSION HAS BEEN REQUESTED BY MARCH 1, 1996. (Caps added for emphasis). This project really sounds like an emergency.

Some research is better done without!!!

F. B. "Ted" Mullin, CGP-1716, is currently a Supervisory Geologist for the Rocky Mountain Region, United States Forest Service. The Today in Washington column is a monthly feature and has been written by Ted since September, 1991.
POTPOURRI - a miscellaneous collection (Webster)

William V. Knight, CPG

Over the past several months, a number of subjects have been touched on in this column and elsewhere in The Professional Geologist. In this column, I will try to bring you up to date on a few matters.

Pennsylvania - Epilogue (not quite):

In February, we printed a letter written to the State Registration Board for Professional Engineers, Land Surveyors and Geologists. It addressed AIPG's principal concerns with both the underlying statute and the proposed Rulemaking pertaining to Professional Geologists.

In late February, the Independent Regulatory Review Commission of the Commonwealth of Pennsylvania replied. A copy of its comments relative to its review of the proposed Rulemaking was attached. Six matters were addressed. It is much too long to reproduce here.

Most of our concerns with the proposed Rulemaking seem to have been addressed. The one major exception is in the underlying statute, which apparently is beyond the scope of the Commission's charge.

Our concern is with Section 5(b) of Act 367 as amended. This section states the qualifications for exemption from registration for nonresidents who are registered in other states and who wish to practice only a few days in Pennsylvania. Now, the act requires that such a geologist not resident in Pennsylvania be "legally qualified to engage in the practice of ... geology in the state or territory of his residence: Provided, the standards of such state or territory are at least equal to the standards of this Commonwealth." (emphasis added)

We have again pointed out that this residency requirement appears to disqualify the vast majority of the geologists in the United States who live in jurisdictions not covered by registration laws "at least equal" to those of Pennsylvania.

"Housekeeping" legislation would be required to overcome this problem.

California - Sunsets and Grandpas:

The California Board of Registration for Geologists and Geophysicists has survived another "sunsetting" threat. So, it appears safe for another four years. We are told that next year the engineers board is scheduled for "sunset" review. Wouldn't it be interesting if it did not survive? Anything seems possible in the current political climate, but this one seems highly unlikely.

We have received complaints from California geologists who express dismay that the law providing for certification of hydrogeologists apparently does not permit "grandfathering". Geologists working with legislatures in other states might bear this in mind when drafting legislation. Grandfathering may sometimes result in unqualified persons being registered or certified. But, for newly registering states, it can provide a financial base for developing or buying an examination. Based on experiences in several States, the cost of the latter can run into tens of thousands of dollars.

Politics - Where does it all lead?

As this is being written, Dole has swept the eight states of "Junior Tuesday", voting is occurring in New York, and the candidates still in the race are campaigning hard for "Super Tuesday." It is not the policy of AIPG, nor in its best interests, to endorse any candidate or party. But, all of this activity serves to again remind us that one of our principal activities is promoting our profession in the political arena. Elsewhere in this issue, there are articles reporting on some of these activities. This is an election year, obviously, and the results in November, no matter which way they go, will have a heavy impact on the future of the geologic profession in the United States (both individually and collectively) and throughout the world.

Each Member of AIPG is encouraged to become actively involved in the political process at all levels in some way. In past issues, the why and how of this has been discussed ad nauseam. In fact, we are becoming persistent "nags" on the subject. Your State Affairs Committee, under the leadership of Tom Falls, is putting the finishing touches on a "Government Affairs Manual for AIPG Sections". This should be extremely helpful to Sections and to individual Members. Watch for it, get it and use it. Your professional future may depend on it.

Membership Trends - So far so good:

The annual attrition rate for professional societies, we are told, commonly runs about 10% to 15%. That is, about 10% to 15% of the society's members drop out each year. If these are not replaced, the society's membership declines. Geologic organizations tend to have wide swings in this rate. This is thought to result primarily from the cyclical nature of employment in our profession. For example, AAPG (the American Association of Petroleum Geologists) enjoyed phenomenal growth in the late 1970s and early 1980s, only to suffer severe declines thereafter, when the boom collapsed. Happily, its membership seems to be stabilizing. AGWSE (the Association of Ground Water Scientists and Engineers) has followed a few years behind AAPG in its growth pattern. This is thought to
result from increased activity in the hydro-environmental field. As the backlog of environmental projects has been working down, this is expected to stabilize, as well.

The rate of attrition of AIPG Members has ranged from about 3% to 9% during the 1990s. Meanwhile, we have successfully replaced these so that we have experienced a net gain each year. As we become increasingly active in political affairs, it is important that we continue this trend. The geologic community lacks political (not technical) credibility. Politicians count votes and few people means few votes. But, we cannot allow our drive for numbers to distract us from our standards of Competence, Integrity and Ethics.

Privatizing Registration - Hmmm:
Several bills have been introduced in State legislatures this year to eliminate professional "registration" boards. These seem to be going nowhere, but experience suggests that we will see them again. The general idea is to let private organizations do the professional credentialing and disciplining, as in Alberta, Ireland, the United Kingdom and several other places. Usually, this would be under the supervision of an umbrella state agency for professional regulation (which many States already have in one form or another). If this appears in your State, please let us know ASAP. It could have several ramifications for AIPG, some good and some bad, depending on how it is written. Your Executive Committee has not formulated a policy directed specifically to this matter, but it would seem to fall under the Policy Regarding State Registration/Licensing Of Geologists (1995 AIPG Directory, page 38).

Diamonds Discovered in Southwestern Wyoming

On Thursday, February 29th, Guardian American Minerals, Inc. of Reno, Nevada, a wholly-owned subsidiary of Guardian Enterprises Ltd., announced the company had recovered diamonds from a core sample from their newly discovered DK kimberlite pipe in the Green River Basin. Two of the diamonds were recovered from a 200-pound core sample.

According to Guardian American Minerals, the diamonds included a 1.07 mm diamond and a 0.13 mm diamond. A company geologist picked a third diamond, a small gem-quality stone approximately 2.2 mm across, off the ground adjacent to another pipe.

W. Dan Hausel, Senior Economic Geologist for the Wyoming State Geological Survey, indicated that several years ago the Survey had identified the Green River Basin as a region with high potential for diamonds. According to Hausel, several diamonds had reportedly been found in the Green River Basin, and hundreds of others mantle minerals have also been found in the basin over the past 15 years.

The newly discovered diamonds are quite small, but Hausel pointed out that the first diamonds found in the State Line district in southeastern Wyoming in 1975 were microscopic. Through the efforts of the Wyoming State Geological Survey, many companies were attracted to the area. Although it took 20 years, the first diamond mine in North America opened on the Colorado side of the State Line district last fall.

The state Geological Survey is currently working with Guardian American Minerals to test samples from their Green River Basin discovery. Last December, Guardian sent the Survey a large, 1.5-ton bulk sample from the pipes. Survey personnel are searching the bulk sample for diamonds and diamond indicator minerals. The indicator minerals recovered to date include both yellow-orange eclogitic pyrope garnets, and lavender to purple peridotitic pyrope garnets and chromian diopside.

According to Hausel, there are many portions of the State of Wyoming with a high potential for having diamond deposits. The State Geological Survey has already identified the central and southern Laramie Mountains, the Medicine Bow Mountains, the Seminole Mountains, the Sierra Madre, and much of the Green River Basin. Other areas that need to be examined include the northern Laramie Mountains, the Wind River Range, the Gros Ventre Range, the Granite Mountains, and the Bighorn Mountains. Now that diamonds have been found in a basin, there are whole new territories for possible diamond discoveries. For example, several years ago, a couple of tiny diamonds were found in a coal bed near Gillette in the Powder River Basin; the source of those diamonds has since been considered a mystery. In another area of the State, a second company recently contacted Hausel about an unrelated diamond discovery. The undisclosed location of this discovery was in an area the Survey had previously identified as having high potential for diamonds.

From the office of the Wyoming State Geologist, Gary B. Glass, CPG, State Geologist - March 1, 1996
More views on the extent of AIPG's Code of Ethics

William Dixon, CPG-3659, contributed his opinion of the views expressed by Kurt Bogner and Fred Fox in column 2 and 3 regarding the boundary between the ethical and unethical practice of geology.

"My opinion falls closer to that of Kurt Bogner than to that of Fred Fox, ..." He cites the AIPG Bylaws, Article 2, Section 6.3 which provides for termination of membership for one or more of the following: Item 5, "conviction of a felony or of any other offense related to the practice of geology or having bearing on the Member's or Affiliate's professional integrity and competence."

Dixon continues, "In the hypothetical scenario of a Member convicted of sexual assault, the bottom line is: would this have a bearing on the Member's professional integrity? The level of personal integrity of anyone who would be convicted of beyond a reasonable doubt of this serious felony would, in my opinion, simultaneously taint that person's professional integrity to the same degree. The question then becomes how 'serious' is serious? A crime committed with malice aforethought should not be tacitly dismissed as not affecting a Member's professional integrity, but justifiable homicide, for instance, might not necessarily blemish a Member's professional integrity. The Executive Committee has been charged to decide each case on its merits.

"In response to Fred's belief that a jailbird cannot simultaneously function in the outside world: this last week [the end of January] an Illinois state prison inmate has been charged with directing the drug operations of a Chicago street gang from within a state prison for a period of longer than 10 years. If indeed a crook could pull this off, then a geologist ought to be able to direct his firm from behind bars, admittedly with difficulty. [Note: the Illinois prison system is not unique. A few years ago a Colorado inmate was discovered running an investment advisory service from prison until this was discovered.]

"Sometimes people change. Sometimes people don't change, but the way in which they are perceived changes. The changes can be for better or worse. AIPG will have to rely on the good judgment of the Executive Committee to render just opinions in disciplinary actions, and to maintain strict confidentiality of the records."

Abbott's Observations

While it is true that the Executive Committee has the ultimate authority over the disciplinary procedures, it has delegated a good deal of responsibility to the Ethics Committee Chair for these matters, which is one of the reasons I have a more than passing interest in the various views expressed in this and similar discussions. And I believe that Executive Committee members are probably just as interested in your views as I am, particularly if a related matter comes before them.

Clearly, the existence of a finding by some judicial body that a member has committed geological malpractice, as in the example I cited last month in which a member was found to have committed geological malpractice by the SEC, may make the decision easier. AIPG has used such findings as grounds for termination. However, another geological association with a similar Code of Ethics did not terminate a member in the same case that AIPG did terminate the same individual, who was a member of both organizations. Nor was this an isolated example of that association's approach to professional ethics.

I bring this up to show both that there are divergent views on such issues and that AIPG has a history of taking a harder line in such cases. I personally view this as evidence that AIPG's Code of Ethics really means something. Dealing with ethics complaints is not easy, but must be done. Your providing of your views on the issues presented in these columns does contribute to a broader understanding of and consensus on what is and is not acceptable professional practice.

As always, discussion is welcomed. When responding, please note the changes of address at the beginning of the column. I've changed jobs and thus addresses and phone numbers.
How Readable Is Your Writing?

Hugh Hay-Roe, CPG

Readability is the product of many elements in your writing. Average sentence length and average frequency of "hard" words will give you a very rough (sometimes misleading) idea of how easy or difficult your writing is to read. One of the best ways to improve readability is to use plenty of active verbs.

Readability, like beauty, is in the eye of the beholder. Even when you're comparing the reactions of competent professionals in the same field, some will find quite readable a paragraph that others consider confusing, difficult, or incomprehensible. And you can bet that the range in reactions will continue to grow as the ranks of professionals receive more and more TV-oriented younger people -- sometimes referred to as "televidiots" by crusty elders more accustomed to getting their information from the printed page.

It seems to be true: people's tolerance for long sentences and big words continues to diminish, both in reading and in listening. If Samuel Johnson and his educated contemporaries could read our writing and hear our conversation, they might conclude that we are well on the way to becoming a race of monosyllabic simpletons; but they would be mistaken.

A main reason that even intelligent people today don't want to read lengthy and flowery statements is that they have a very different time sense from the readers of a century or two ago. "It was a dark and stormy night" identifies the 58-word opening sentence of a Victorian novel that has lately become notorious for its supposed badness. But in fact, Edward Bulwer-Lytton was a very popular writer in his day. He had better control of English syntax, and a richer vocabulary, than many novelists working now. His readers were not in a rush; they didn't object to strolling through sentences of 58 words or even more. They didn't mind a writer who called a bedroom a "sommambular accommodation," or described someone as "applying the Promethean spark to his tube" when the character was just lighting a pipe.

Our tolerance is different. We readily put up with two hours of mediocré television riddled with commercials, but most of us have no time for the kind of mental push-ups involved in reading Victorian or earlier prose. We want written communications (especially on the job) to be closer to the Hemingway, or telegraphic, model. Well before TV began seriously to soften our brains, Dr. Rudolph Flesch had already begun studies in readability that led to his famous Reading Ease nomogram.

To land in the middle of Flesch's "Easy" range, if your sentences averaged 30 words in length you would have to hold the number of syllables down to 10.8 for every 10 words (that is, about nine 1-syllable words and scarcely one 2-syllable word). However, if you cut the average sentence length to 10 words you could average over 13 syllables per 10 words, and still fall in the middle of the "Easy" range.

Although later measures of readability have become more sophisticated, the basic idea still holds: you calculate average sentence length and combine it in some way with the average frequency of "hard" or "big" words. Probably the most well known measure is Robert Gunning's Fog Index, which has the advantage of being designed so that it is expressed as the number of years of schooling a person would need in order to understand the writing sample. In business writing, anything with an index over 12 (i.e., high school grad) is considered foggy. Writing consultant Jerry Murray reports having seen technical reports with Indices as high as 24 — "virtually unreadable," she says.

It goes without saying that you can't let readability indices lead you about by the nose. There are plenty of "hard" 2-syllable words around (like schism and xebec), and plenty of longer words that are easy. Moreover, a writer's style can be readable or difficult, independent of sentence and word length.

One crucial characteristic, for example, is verb use. Because the active voice is the basic, common voice of transitive verbs in English, writing with lots of active verbs will likely impress us as vigorous and direct. Conversely, writing loaded with passive verbs may put us to sleep — regardless of its readability quotient.

This warning about readability measures also applies, of course, to the calculations that are automated by a growing number of software programs. They have been characterized as "style-checkers" and "grammar-checkers," but I call them "sentence-checkers" because most of their analyses are performed on sentences or smaller units (clauses, phrases, individual words).

At last count there were close to a dozen of these programs available for IBM-compatible microcomputers. If you have serious problems with grammar and punctuation, and do your writing on a word processor, you may want to consider investing in a sentence-checker (for well under $100). The best known programs are probably Right Writer, Grammatik, and Readability Plus.

Of course, there's a limit to what such programs can accomplish in making your prose more readable. Plenty of bad writing habits are not the sort to be identified by a "big, dumb, but extremely fast adding machine" (as someone once characterized the computer). It's true that as computer memories become larger and programmers more cunning, sentence-checkers do get smarter. It's also true that they're still a long way from matching Miss Pennywhistle, your highschool English teacher.
AIPG MEMBERSHIP BENEFITS

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

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

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

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

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


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

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

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

REQUEST FOR APPLICATION AND ADDITIONAL INFORMATION

NAME__________________________
EMPLOYER______________________
STREET_________________________
CITY________STATE____ZIP_____
DAYTIME PHONE_________________

Mail, fax, e-mail, or call:
AIPG
7828 Vance Drive, Suite 103
Arvada, CO 80003-2124
(303) 431-0831 - FAX (303) 431-1332
E-mail address: aipg@ix.netcom.com

Please send me information on:
☐ Certification - (degree and 36 semester hours in a geological science, plus five years of experience).
☐ Candidate for Certification - (degree and 36 semester hours, but less than five years of experience).
☐ Student (declared a major in a geological science).
☐ Continuing Education  ☐ Advertising Rates
☐ Insurance  ☐ TPG Subscription
☐ Publications  ☐ Insignia Items
MEMBERS IN THE NEWS

Leggette, Brashears & Graham, Inc. (LBG), a professional ground-water and environmental engineering services firm, has named Robert F. Good, Jr., CPG-9454; Edward J. Destefanis, CPG-8940; and Andrew B. Graham, CPG-9035 associates. Previously a senior hydrogeologist with LBG, Mr. Good has over 15 years of professional experience. His expertise includes hydrogeologic investigations, conceptual design for ground-water supply projects, monitoring and remediation of soil and ground-water contamination, dewatering for construction projects, economic minerals investigation and geological mapping. Mr. Good is a member of the National Water Well Association and the American Institute of Professional Geologists (AIPG). He earned a B.A. in geology from Franklin and Marshall College.

Mr. Destefanis has worked in the environmental field for over nine years. He is now based in LBG’s White Plains, NY office. His experience includes field investigations and a wide range of remedial system design and installation. A certified professional geologist by the AIPG, he received a B.S. in geology from Southampton College.

Mr. Graham manages LBG’s Madison, Wisconsin office. His experience includes the design of ground-water treatment and multi-phase extraction systems, municipal water supplies, CERCLA feasibility studies and aquifer testing programs. Mr. Graham is a registered professional engineer and geologist, a member of AIPG and the American Society of Civil Engineers. He received a B.S. in geology, a B.S. and M.S. in civil engineering and an MBA in management from the University of Connecticut.

Manti Resources, Inc., headquartered in Corpus Christi, Texas is a privately held independent oil and gas company engaged in exploration, development and production. The company’s primary activities are concentrated in South Texas, an area in which it has accumulated detailed geological knowledge and developed significant engineering expertise.

Connecticut Governor John G. Rowland has named Russ Slayback, CPG-2305, to the state Board of Examiners of Environmental Professionals. Mr. Slayback’s appointment was based on his hydrogeology expertise. He will serve a term coterminal with the Governor’s term in office.

Mr. Slayback is president of Leggette, Brashears & Graham, Inc. (LBG), a Trumbull, Connecticut-based ground-water and environmental consulting firm. He is a nationally recognized hydrogeology expert. In 1994, he served as President of the American Institute of Professional Geologists. He is a member-at-large of the Executive Committee of the American Geological Institute and a life member of the American Water Works Association.

Mr. Slayback has authored over a dozen technical papers on ground-water and environmental contamination issues. He is a qualified expert witness and has provided expert testimony before environmental agencies, planning and environmental boards and commissions in Connecticut, New York and New Jersey.

A graduate of Rensselaer Polytechnic Institute with a bachelor of science degree in geology, Mr. Slayback joined LBG in 1960. He was named a partner in 1975 and has served as president since 1984.

Leggette, Brashears & Graham, Inc., the first consulting firm in the United States to specialize in ground-water geology, recently celebrated its 50th anniversary. With completed projects in 48 states and 19 foreign countries, LBG has expertise in almost every aspect of water supply, contamination and mine dewatering hydrogeology.

Douglas J. Newton, CPG-7959, joined Bell Environmental Consultants, Inc. (BELL) at its Willow Grove, Pennsylvania office. Mr. Newton has extensive experience in such areas as project management, contaminant hydrogeology, soil and ground water remedial investigations, design of remedial systems, and remedial system operation and maintenance. Prior to joining BELL, Mr. Newton served as a Principal Scientist with a large environmental consulting firm managing soil and ground water investigations, developing implementing ground water sampling/monitoring programs, designing remediation systems, and managing operation and maintenance projects. Mr. Newton is an AIPG Certified Professional Geologist and a Registered Geologist in Pennsylvania, Indiana, and Delaware (pending).

Rex Monahan, CPG-0424, an oil producer in Sterling, has received the Colorado Engineering Council’s annual Certificate of Honor award. Monahan received the award for his distinguished service to the engineering and scientific communities and for philanthropic and community service work.

Rex is the largest contributor to the Colorado Section’s scholarship fund. He made the initial donation to start the fund in 1992.

Versar, Inc. has hired Gordon M. Stevens, CPG-8177, as Senior Hydrogeologist/Project Manager in their Midwest Regional Office. Mr. Stevens has extensive experience in contaminant hydrogeology remedial investigations, mining hydrology and water supply investigations. Previously, Mr. Stevens held the position of Senior Hydrogeologist at Rust Environment & Infrastructure and Regional Division Director of Hydrogeology at Dunn Geoscience Corporation.
The OHIO Section of the American Institute of Professional Geologists is pleased to announce that the 33rd ANNUAL MEETING will be held at the GREAT SOUTHERN HOTEL in Columbus, Ohio

October 7 - 12, 1996

Theme of the meeting will be:

"The Future of Geology: Politics, Economics and Technology"

General Chairman: Curtis J. Coe  
c/o Certified Oil Company  
949 King Avenue  
Columbus, Ohio 43212  
614-421-7500  
614-421-6525 Fax

Co-Chairman: Tom Jenkins  
c/o Burgess & Niple, Limited  
5085 Reed Road  
Columbus, Ohio 43220  
614-459-2050  
614-451-1385 Fax
1996

Apr. 28-May 1. In Situ and On-Site Bioremediation, New Orleans, LA. Contact: Bioremediation Symposium, Battelle, 505 King Avenue, Columbus, OH 43201, Fax (614) 424-3687.


May 6-9. Offshore Technology Conference, Houston, TX. Contact: AAGP Convention Dept., Box 979, Tulsa, OK 74101, Ph.: (918) 584-2555.


May 15. Call for technical papers - The AEG 1996 Annual Meeting, Engineering Geology in the Metropolitan Environment, New Brunswick, NJ. Contact: Dan Raviv, c/o DRAI - AEG '96, 57 East Willow St., Millburn, NJ 07041, Ph.: (201) 564-6006, Fax (201) 564-6442.

May 19-21. 32nd Annual Forum on the Geology of Industrial Minerals, Laramie, WY. Contact: Ray E. Harris, General Chr., WY State Geological Survey, P.O. Box 3008 University Station, Laramie, WY 82071-3008, Ph.: (307) 766-2286.


VISIT THE AIGP BOOTH: 11553


Jul. 7-12. IFAI Professor Training Course for Geosynthetics, Auburn, AL. Contact: Danette R. Pettig, IFAI Geotextile Div., 345 Cedar St., Ste. 800, St. Paul, MN 55101, Ph.: (612) 222-2508, Fax (612) 222-8215.


Sep. 22-27. American Institute of Hydrology - Third USA/CIS Joint Conference on Environmental Hydrology and Hydrogeology, Tashkent, Uzbekistan. Contact: AIH, 3416 University Avenue SE, Minneapolis, MN 55414-3328, Ph.: (612) 379-1030, e-mail: aihydro@aol.com.


Oct. 8-12. AIGP 33rd Annual Meeting, Columbus, OH. Contact: Curtis Cee, c/o Certified Oil Co., 949 King Ave., Columbus, OH 43212, Ph.: (614) 421-7500, Fax (614) 421-6525.

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NOTICE

NATIONAL SCREENING BOARD MEMBERS WANTED

CPGs willing to review member and affiliate applications are encouraged to contact Steve Testa at (714) 248-9328.

REVIEWERS WANTED

CPGs willing to review technical articles in their field of expertise are encouraged to contact the publications manager.

ASSOCIATE EDITORS WANTED

CPGs willing to work on theme issues of the TPG, or special publications in their field of expertise, should contact the publications manager.

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AIGP ANNUAL MEETINGS

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AIGP Membership Totals

As of 2/27/95  As of 2/19/96

Active 4,476 4,576
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Honorary Members 3

TOTALS 5,098 5,214

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

Full Membership

NEW MEMBERS

NY - CARR, Michael B., CPG-9770 15 Jennifer Road, Scotia NY 12302 (518)370-5631
OH - DUPUIS-NOURIE, Eva M., CPG-9771 3504 Creighton Place, Cincinnati OH 45226 (513)648-3813
PA - TENDLER, Frank, CPG-9775 2105 Harmony Lane, Jamison PA 18929 (215)691-9339
NJ - GUCKSTEIN, Julius, CPG-9772 19 Breekrwater Square, Freehold NJ 07728 (908)294-8278
AL - HENRY, Alexander P., CPG-9774 1505 North Primrose Lane, Jasper AL 35505 (205)384-5553
NC - ISHAM, John R., CPG-9773 601 Hunters Road, Huntersville NC 28078 (704)338-1800
NY - SCHEURING, David, CPG-9776 64 Orchard Lake Drive, Monroe NY 10950 (201)338-6580
NJ - SPALACI, Eric B., CPG-9777 74 Brunswick Avenue, Lebanon NJ 08833 (908)666-5599
PA - WERNER, Richard S., CPG-9778 508 London Road, Melrose Park PA 19027-3313 (215)567-0140
NY - WIEDERKIRK, Edward R., CPG-9779 63 Walnut Street, Farmingdale NY 11735 (914)694-2154
NC - WYATT, Robert J., CPG-9780 6229 Hampton Ridge Road, Raleigh NC 27603-9288 (919)469-9795

NEW STUDENT AFFILIATES

OH - CRAIG, Patrick S. SA-0058 1610 Woodmore Drive Apt. B-8, Dayton OH 45432 (513)873-3455
OH - HUFFMAN, Justin, SA-0057 255 W. Dayton Yellow Road #5, Fairborn OH 45324
MI - KIMBER, Eric, SA-0056 5/78 Amberwood Drive, Grand Rapids MI 49529 (616)873-3455
OH - SCHOLTZERBECK, Beth, SA-0056 3348 Waltham Avenue, Kettering OH 45429 (513)873-3455
OH - SESSLER, Erin E., SA-0054 4319 Comanche Trail, Jamestown OH 45334
OH - YATES, Monte W., SA-0053 613 C. Dodge Court, Dayton OH 45431 (513)873-3455
OH - ZIMMER, Amber C., SA-0059 270 Monroe Concord Road, Troy OH 45373

Colorado Section News

Geologic Heritage Awards for Legislators 1996

The 1996 Geologic Heritage Awards for Legislators were awarded at the February 27th luncheon held at the University Club. The recipients were Senator Thomas E. Norton of Greeley, Senator Michael F. Feeley of Lakewood, Representative Charles E. Berry of Colorado Springs, Representative Bryan S. Sullivant of Dillon, and Past Representative George H. Fentress, CPG-521, of Lakewood.

All recipients praised the work Lynn Graf, Section Lobbyist, does for us in the Legislature. Senator Feeley noted that he and George Fentress represent some of the same area and many of the same people and issues were familiar to both.

John Kaufman conducted a straw presidential poll which consisted of passing hats reflecting the views of the various candidates. Votes were supposed to be $1 but most candidates received dollars and cents totals. It was a lot of fun.

Remember to come next year and to reflect on who you believe deserves the award next year.

The Colorado Professional Geologist Newsletter, March 1996
Geologic Hazards Kill Over 100,000 People Each Year

— Billions of dollars are wrenched from the world’s economy by these disasters —

Help prevent these tragedies by becoming an informed citizen and by insisting on professional geologic research. Public policy, educated planning, and sensible development can make 90% of these losses avoidable.

The CITIZENS’ GUIDE to Geological Hazards by Edward B. Nuhfer (University of Colorado at Denver) and others. Over 100 color illustrations, extensive bibliographies of books, journal articles, and videotapes; data tables, index and two appendices. Provides concise explanations of asbestos, radon, reactive minerals, earthquakes, volcanoes, landslides, subsidence, floods and coastal processes as geological hazards. Roles that geological scientists play in mitigating these hazards are explained (134 pages). Also available: 35mm slide sets for class use.

The CITIZEN’S GUIDE to Geologic Hazards is a "must" read for everyone. It will make a difference in your life and in our communities. This detailed book is especially designed to benefit:

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$15.95 for AIPG Members and $19.95 for Non-Members. Slide set of fifty 35-mm slides available for $65.00.

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