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 divided into parts (e.g., part 1 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 materials, submittals should be sent to AIPG headquarters twelve weeks 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 section:

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

One original and two copies of each manuscript should be submitted. Whenever possible, text should also be submitted on diskette. Headquarters uses WordPerfect 7 for Windows '95, which is preferred, but Word, ASCII, RTF, or translatable files are acceptable. The program or format of the text should be clearly marked on the diskette. Articles can also be transmitted by e-mail.

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 .pcx, .bmp, tiff, gif, or other standard formats.

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

General Topics:
- Technical
  - Mining (January)
  - Petroleum Geology (March)
  - Hydrogeology (July)
  - Environmental Geology (September)
  - Geophysical/Engineering (November)
- 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, and Geology and the Military, Unusual Applications of Geology.

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

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J. Dale Nations, Editor
September, 1998
Volume 35, Number 10

The Professional Geologist

PEER REVIEWED PAPER

Digital Image Processing Techniques for Enhancing Wetland, Areas and Turbidity in SPOT Panchromatic Data

Charles D. Fletcher, CFC-0116 and Evan K. Paleologos

Cross Discipline Cooperation can Benefit Geologists

John L. Bognar, CGP-8341

AIGP Opens Dialog with Mexico

Richard Allen, CGP-06010, and Dawn Garcia, CGP-08313

NEW SPONSORSHIP PROGRAM

FRONT COVER - Dark Canyon Campsite was named by John Wesley Powell in 1869. Dark Canyon was the site of the last dangerous rapid on the Colorado River (mile 183.5) in Cataract Canyon. This rapid is now buried deep below the silo inundation of Lake Powell. The calm morning campsite of the Kansas Geological Survey (KGS) field expedition, led by Lee Gerhard and Don Bass, is about 150 feet higher in the narrow, vertical walls of the Pennsylvania Iyonaker Trail Formation than it was in Powell’s time. This expedition was the third in the surveys’ four-part field study of western sedimentary units correlated in the Pennsylvanian ecosystems of Kansas. The surveys’ studies expose along the San Juan River, through the Grand Canyon, Cataract Canyon, and Dinosaur National Monument in Utah, Arizona, and Colorado between 1989 and 1997. A mounted and framed enlarged color print of this image hangs in the lobby of Moore Hall at the KGS. Photograph by John Carlson, KGS photographer, May, 1992. Submitted by Mark Steinhauff, CGP-9839.

DEPARTMENTS

AGI GOVERNMENTAL AFFAIRS PROGRAM MONTHLY UPDATE

PROFESSIONAL ETHICS & PRACTICES - Column 34

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NEW MEMBERS, APPLICANTS, ETC.
PRESIDENT’S MESSAGE - Stephen M. Testa

TELL ME WHAT YOU NEED

During the course of this year, your 1998 Executive Committee reviewed the overall financial health of the Institute, and as previously reported (see TPG, March, 1998), recognized that to rectify this situation, improve the overall financial soundness of the Institute, and continue to provide the services and products our membership expects from us, significant actions had to be taken. The Executive Committee since then has taken several important steps to increase the amount of non-dues income via increasing the number of AIGP publications available for sale (several of which will be available at the annual meeting in Baton Rouge), improving marketing of publications, increasing responsibility on the various volunteer committees, and initiating efforts to seek external funding in the form of grants for certain projects, among others. In addition, the Executive Committee also recently approved a dues increase of $25, making the 1999 annual national dues $110 for CPGs.

Many of the comments received regarding this move have been positive, and in some cases, questions were raised as to why a dues increase was not implemented sooner. However, some Members have voiced discontent with the increase, which makes one wonder whether the membership truly acknowledges and appreciates the services and products that its receives, or whether the membership feels that the benefits received do not fully address their needs. It thus seems appropriate that the membership must recognize what services and products they do receive for the dues they pay each year. I will attempt to summarize these benefits.

The last dues increase was a decade ago! In 1989, dues were increased $10 for CPGs and $15 for others. Since such time, the additional services provided by headquarters have steadily increased along with the overall level of activity the headquarters staff is involved in. Some of these activities include expanding the number of conventions where AIGP staff exhibit; active participation in the examination review and annual meetings of the National Association of State Boards of Geology (NASBBOG); establishing ongoing professional relationships with other domestic and international geological organizations; maintaining involvement in various government affairs programs (e.g., Government Affairs Program of the American Geological Institute, National Council of State Legislators, Geoenvironmental Forum, and Advocates for Professional Judgement in Geoprofessional Practice), implementing an annual Washington D.C. Fly-In program (relying mostly on volunteerism with minimal funding from National) and increasing participation in numerous technical and professional societies, conferences and seminars, and academic institutions (see TPG, May, 1998).

In regards to publications, all typesetting has been brought in-house, including layout and production of TPG and the directory, and the overall quality and aesthetics of the publications in general have been significantly improved. The number of special publications have also increased dramatically in response to the needs of certain segments of the membership. Some of these special publications include the very successful “The Citizen’s Guide to Rock Hazards”, the Issues and Answers Series, ASPE Contract Reference Guide, Government Affairs Manual, and various specialty booklets and brochures. The steadfast pursuit of advertising is also being performed by staff, and let’s not ignore the in-house production of most of the administrative stationery needs of the Institute.

In regard to membership services, AIGP now conducts compensation surveys, and provides health, life and other insurance. Access to Geological Society (UK) Fellowship and “Chartered Geologist” title, and to the European Federation of Geologists “European Geologist” title have also been provided to the membership. Headquarters has intervened on behalf of members in dealing with State Registration Boards and other agencies, when requested. We have also improved screening procedures, and developed a Management Development Program of Continuing Education. At the Section level, Headquarters has provided assistance in reviewing proposed registration bills, and has always provided assistance to Sections through a myriad of services upon request (all one has to do is ask). Headquarters has also expanded membership categories, and establish membership database management and utilization capabilities and a web site.

Although the aforementioned actions only provide a glimpse of some of the more significant changes, it does demonstrate that your Institute has steadily increased its services to the membership over the past ten years despite decreasing resources. To maintain financial solvency, the dues increase is a necessity; however, this does not relieve us of the responsibility to find other sources of revenue, and provide the membership with the products and services it needs. Organizations like ours need members, and professional geologists need an organization like ours. This forms the basis of a mutually beneficial relationship. To take this a step further, with organizations as diverse as ours, different members often have different needs. The mechanism we use to assess whether we are providing the products and services our Members need, in part, is through the Advisory Board Meetings which are held concurrently with the Annual Meeting. Your Section delegate(s), typically your Section President and/or President-Elect, participate in these meetings, and it is through this mechanism that your voice is heard. Issues facing your particular Section and its Members are discussed. Other topics of discussion emphasize which AIGP programs are effective, which programs and services are needed, and which programs and services currently provided are no longer needed. Following these meetings, plans are made by the Executive Committee to implement the recommended programs and services through headquarters and the various committees.

Needs are constantly in a state of change, reflecting changes in the economy, industry and/or regulatory environment. Although Executive Committees are typically well informed as to what services and products the Institute should provide, this does not necessarily equate to the perception that Members have as to what they need or get from an organization like ours. Simply stated, it is our responsibility to monitor the needs of the membership and assist in resolving issues as they arise, but you as Members share in the responsibility to tell us what you need! So I hope that you will give this some thought, and make your delegate aware of your specific needs - This is your Institute and I am confident that if we are not currently providing for your needs, then with good communication we will find a way for your needs to be fulfilled.
Digital Image Processing Techniques for Enhancing Wetland, Areas and Turbidity in SPOT Panchromatic Data

Charles D. Fletcher, CFC-0116 and Evan K. Paleologos

Abstract

This paper examines filter and contrast-related image processing techniques and evaluates their application in studies of coastal areas. Our objective is to acquaint one with the fundamental concepts of image processing analysis rather than resort to excessive technical terminology. The image processing methods are applied on a single band of data, referred to as panchromatic data to limit interpretation challenges typically associated with multi-banded data sets. The digital image processing algorithms presented here are well-established techniques that can be applied to environmental, exploration, or geo-science problems. Remote sensing and digital image processing tools are, currently, used extensively, in the assessment of environmental and ecological changes or hazard issues, by multidisciplinary groups in the oil and environmental industry as well as government agencies such as the United States Geological Survey (USGS) and the National Oceanic and Atmospheric Administration (NOAA).

Two case studies are presented using original data sets of the Charleston and Hilton Head areas of South Carolina. The data sets are used to investigate the application of several digital image processing techniques for the study of the morphological characteristics of turbidity and the enhancement of the internal structure of wetland areas. The resulting images of SPOT (Système Pour l'Observation de la Terre) panchromatic data sets are visually analyzed for spectral advantages and limitations. The two case studies illustrate the application of image processing techniques in natural resource and inlet management projects.

Introduction

Data generated through remotely sensed methods have become an important component for regional environmental and land use assessments. Jensen et al. (1995) has used remote sensing techniques to monitor environmental changes in the Florida Everglades. Schill (1997) has modeled the impact of land development on surface water quality using remotely sensed data in a geographic information system (GIS) environment. Cairns et al. (1997) has experimented with SPOT data to quantitatively monitor surface water quality parameters such as turbidity and chlorophyll. Debengno and Atkinson (1988) have addressed watershed management and non-point source pollution issues using satellite data.

SPOT (Système Pour l'Observation de la Terre) images refer to the satellite system developed by the French Centre National d'Études Spatiales (CNES) in 1986 and are commonly registered to topographic base maps for use as orthophoto maps. SPOT images are increasingly becoming the standard for environmental and resource geographic information system (GIS) applications.

A panchromatic image consists of gray spectrum pixel values and resembles an aerial photograph. The panchromatic mode senses a spectral bandwidth of 0.51–0.73 um while simultaneously registering reflected energy across the visible spectrum (Jensen, 1996; Vincent, 1997). SPOT images are characterized by a spatial resolution of 10 m x 10 m in the panchromatic mode and are collected over a relatively small area (60 km x 60 km) compared to other satellite sensor systems. The data sets utilized in this paper were collected during the years of 1995 and 1996.

SPOT panchromatic images of turbidity plumes and wetland areas for the Hilton Head Island and Charleston areas of South Carolina, respectively, were analyzed using digital image processing techniques to evaluate the spectral advantages and limitations of each method. The intent of the article is to illustrate the application of digital image processing techniques on studies of coastal areas as well as to assess the worth of selected methods to provide resolution of wetland
Figure 1. Location map for SPOT panchromatic images of Charleston and Hilton Head Island, South Carolina.
and turbidity structures. Results and techniques are presented here without resorting to excessive terminology in order to provide exposure to a broad audience of trained professionals.

Hilton Head Island is located on the southeastern coast of South Carolina and is approximately 80 miles south of Charleston, South Carolina. Port Royal Sound is located northeast of Hilton Head and the morphology of the plume’s turbidity in the vicinity of the site constitutes the first case study. The second area of interest is the Charleston peninsula pointing to the Charleston Harbor. The peninsula is defined by two rivers, the Ashley River to the southwest and the Cooper River to the north, respectively; both rivers flow southeast into Charleston Harbor. The two areas of study are exhibited on the regional location map of Figure 1.

The Hilton Head Island digital image was selected because of the observed turbidity in the vicinity of Port Royal Sound, an important consideration for management decisions regarding inlet evolution and dredging. The turbidity is attributed to suspended sediments (Cairus et al., 1997). The Charleston image was selected because of the large number of wetland areas associated with Ashley River and the Harbor area. These wetlands provide a buffer from erosion by storms and high waves, act as a natural filter for pollutants, and supply important nutrients to the ecosystems of the area.

Suspected Sediments Structure near Hilton Head Island, SC

Image processing techniques were applied for the analysis of the turbidity plume structure near Hilton Head Island. The original SPOT panchromatic image is shown in Figure 2 together with the results of five additional processing algorithms, each of which provides a different level of information.

Plate A: Original SPOT Panchromatic Image Data

The original SPOT panchromatic image in Plate A shows Hilton Head Island and the turbidity pattern in the vicinity of Port Royal Sound. The suspended sediments are indicated by the gray pixel values and are surrounded by black seawater. Brighter pixel values correlate with greater turbidity or suspended sediment concentrations in the water column. The brightest pixel values in this plate are associated with the beach areas of the island and coastal areas.

Plate B: Embossing North-West Convolution Filter

The embossing north-west convolution filter is a nonlinear edge enhancement technique. The image in Plate B provides a high definition of the edges of landforms along with a northwestern road, connecting the island to the mainland, and a central lobe associated with a drainage feature. The application of this filter has obliterated, however, any distinct sediment pattern, transforming seawater and wetland areas to a uniform coarse gray image.

Plate C: Histogram Equalization

Histogram equalization techniques apply the greatest contrast enhancement to the most concentrated range of brightness values in the image. The contrast between the lightest and darkest parts of the image is reduced according to a truncated normal distribution. The histogram equalization image in Plate C has augmented the brightness of the turbidity in the vicinity of Port Royal Sound with serpentine surface water features also becoming more discernable. Shallow suspended sediment patterns near the beaches have been enhanced, resulting in a wider zone of brighter pixels in these areas. The contrast between regions of high and low sediment content is more pronounced and the flow pattern at the northeast side of the plate is improved compared to Plate A.

Plate D: Piecewise Linear Contrast Stretch

A piecewise linear contrast stretch applies a linear interpolation to selected sections of a histogram of pixel brightness values. This filter, Plate D, has successfully enhanced the details of the fan-shaped structure of the turbidity at the northeast side of the plate with the finger extending further offshore than in the original image. This image has also revealed areas of sediment accumulation (northeast part and bottom of the plate) not previously visible. Of particular interest is the tributary shown in the bottom left corner of the plate. The original image data in Plate A and the histogram equalization in Plate C do not indicate any differences in water quality between the tributary and seawater. However, the piecewise linear contrast stretch in Plate D reveals suspended sediment in and beyond the tributary. This improvement in image resolution is attributed to the flexibility of the method to allow enhancement of selected gray spectrum values.

Plate E: Brightness Inversion

The brightness inversion technique reverses the gray-scale spectrum of brightness values of Plate A. The image in Plate E appears to provide flow and textural information on turbidity near the mouth of Port Royal Sound and furnishes supporting water quality information to that of Plate D. This processing technique provides an improved view of the diffusion pattern of suspended sediments at a level of detail attained only by the piecewise linear contrast stretch.

Plate F: One-Standard Deviation Contrast Stretch

The one-standard deviation contrast stretch sets the minimum and maximum brightness values one-standard deviation from the mean of a pixel brightness histogram. All pixel values between this range are linearly contrast-stretched between the value of zero and a high number (associated with the maximum possible pixel brightness value). The corresponding image in Plate F has only slightly modified the original image of Plate A. Hence, for this case study, this technique has not provided any significant supplementary information to that of the original image.

Wetland Areas Structure near Charleston, SC

Figure 3 exhibits the original panchromatic image of the wetland areas near Charleston, South Carolina, along with the results of five additional image processing techniques. The embossing filter and the one-standard deviation contrast stretch methods have not been employed here because of their limited success in the previous application.

Plates A through D

In the original Charleston image of Plate A the distinction between seawater and the wetland network is not apparent and hence this image appears to be of little use for environmental applications. Plates B, C and D display, respectively, the resolution provided by the piecewise linear contrast stretch, histogram equalization and the brightness inversion (now being applied to the histogram equalization image rather than the original image) methods. All of these techniques have improved the visual quality and detail of the wetland areas compared to Plate A. The brightness inversion technique appears to provide the most interpretable detail of the wetland areas’ internal structure with the most noticeable improvements along the left side of the Ashley River.

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Figure 2. Comparison of image processing results for the Hilton Head Island panchromatic data.
A. Original image data

B. Piecewise linear contrast stretch

C. Histogram equalization

D. Brightness inversion applied to (C)

E. Sobel operator with piecewise contrast stretch

F. 7 x 7 high pass filter with contrast enhancements

Figure 3. Comparison of image processing results for the Charleston panchromatic data.
Plate E: Sobel Operator with Piecewise Contrast Stretch

A Sobel edge operator is a nonlinear enhancement technique appropriate in detecting horizontal, vertical, and diagonal edges. Each pixel is declared an edge if its calculated Sobel value exceeds a specified threshold. This method, as shown on Plate E, was successful at identifying seawater-wetland area interfaces and wetland area-land interfaces as well as drainage features associated with the west side of the Ashley river.

Plate F: 7 × 7 high pass filter with contrast enhancements

High pass filters remove slowly varying components and enhance the high frequency local variations. The 7 × 7 high pass filter with contrast enhancements, as shown on Plate F, was successful in identifying and refining edges representing seawater-wetland area interfaces and wetland area-land interfaces but does not appear to be as interpretable as the Sobel operator for Plate E.

Conclusions

The linear piecewise contrast stretch method appears to be one of the most effective techniques for enhancing images of shallow suspended sediments and for revealing details of their fan-shaped morphology. This technique has provided resolution on suspended sediments flow patterns not identified by the original image. Equally, the brightness inversion technique has enhanced the turbidity dispersion patterns at Hilton Head Island and has also revealed the textural characteristics associated with the internal structure of wetland areas near Charleston.

Other algorithms like the Sobel operator, embossing, and high pass filters were successful at refining the edges of interfaces (represented by changes in pixel brightness values) but did not provide the level of detail revealed by the linear stretch and inversion methods. Resolution of the detailed structure of sediment accumulations and wetland areas is important in decision-making related to environmental and natural resources management projects at coastal locations.

References


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Dr. Evan K. Paleologos is an Assistant Professor in the Department of Geological Sciences at the University of South Carolina. He specializes in hydrologic and subsurface contamination issues, risk assessment and decision-making aspects of scientific and economic projects. He currently serves as Associate Editor for the Journal of Stochastic Hydrology and Hydraulics and can be contacted at epal@geol.sc.edu or by telephone at 803.777.8125.

Acknowledgments: The work reported here has been partially supported by Grant DE-FGO2-97EW9999 to the second author from the U.S. Department of Energy, Office of Environmental Management, and the Center for Water Research at the University of South Carolina. SPOT image data were made available through a site licensing agreement between the University of South Carolina and SPOT Image Corporation. The authors would like to thank S. Schill, P. Braun and W. Shirley, all at the University of South Carolina, for Remote Sensing and GIS logistical support.

Reviewers: Robert A. Stewart, CPG-08332, and Raymond W. Talkington, CPG-07935.
Cross Discipline Cooperation Can Benefit Geologists

By John L. Bognar CPG, National Secretary

It is important for individual members of AIPG to look for legitimate and honest ways to keep our profession alive. I do not advocate excessive regulation in the environmental arena, but we geologists must be diligent and aware of regulatory deficiencies, especially where professional geologic work is required. Environmental regulations require highly technical, complex work to achieve compliance, but do not always specify that a qualified professional should perform or oversee that work. Below, I share a case from my home state of Missouri, where professionals of differing disciplines are working to require that certain regulatory compliance affairs be addressed and accomplished only by professionals.

In many respects, it was as probable as the fabled, feuding Hatfields and McCoys getting together to discuss land use issues when, in 1997, representatives of the four most prominent professional associations, regarding environmental affairs in Missouri, came together:

- The Consulting Engineers Council of Missouri,
- The Missouri Society of Professional Engineers,
- The Association of Engineering Geologists, and
- The American Institute of Professional Geologists - Missouri Section

These professional organizations put aside potential turf battles and other differences and formed the Geology and Engineering Advisory Committee (GEAC) to discuss profession-related issues that affect the health, welfare and safety of the public in the state of Missouri.

Sparks do fly when geologists and engineers meet, and they did during several meetings. However, problems requiring both professional geologic and engineering services are prominent in Missouri and deserved of the GEAC attention. Working together, the two professions have tackled the first issue on the agenda: the serious problem of nonprofessionals performing underground storage tank (UST) services in Missouri. In recent years, UST projects have been at the forefront of environmental concerns nationwide. As a result of the increased concern and required regulatory actions involving UST sites, professionals and nonprofessionals alike are actively providing UST services for compliance with current regulatory guidelines.

In most cases, the individuals involved in UST site work are qualified professionals who have the educational and technical background to evaluate the UST site. Most are capable, and do follow the Missouri Department of Natural Resources (MDNR) UST Guidance Document, and use sound scientific principles in the investigation, remediation, and closure of leaking UST (LUST) sites.

Amnesty for Newly Registered USTs

In the State of Missouri there are approximately 12,000 USTs containing or formerly containing petroleum products, many of which have not been in service for years and have not been properly maintained or closed. Missouri recently passed UST amnesty and insurance legislation, which allows owners to register their USTs without penalty and become eligible for Missouri’s Petroleum Storage Tank Insurance Fund (PSTIF) if there is a spill related to their USTs.

Over 7,000 new tanks were registered as a result of this legislation. EPA and MDNR require that all regulated USTs be upgraded by December 1998 to meet new specifications or be properly closed.

The problem is that many of these newly registered USTs are owned by individuals or companies who are unsophisticated and unfamiliar with proper UST closure practice. Some have hired contractors to remove tanks who also are unenlightened in proper UST closure practice. A good number of these improperly closed USTs require MDNR intervention which can result in non-reimbursement by the PSTIF to the UST owner. Using nonprofessionals for UST services can be costly in other respects, including the potential for violating any number of federal laws, such as the Resource Conservation & Recovery Act (RCRA) and Clean Water Act, and incurring related fines.

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A Simple Solution

The solution is simple: require that UST/LUST work be performed by a knowledgeable environmental professional under the direct responsible charge of a Professional Engineer or Registered Geologist who will sign and seal the reporting documents and correspondence. When certifying that the work was done properly, the professional puts his reputation and license on the line. The regulatory bodies and the licensing boards hold the power to revoke a professional license if work is improperly done. The reasoning is straightforward: requiring professionalism in UST closure, related investigations and reporting will protect the environment; protect public health, safety and welfare; protect tank owners; and protect Missouri’s UST insurance fund.

The Geology and Engineering Advisory Committee has drafted a position paper advocating regulations to do just that. The Committee anticipates that all four of its member organizations will ratify this position paper, which will then be submitted to the Director of Hazardous Waste of the State of Missouri. By coming together on this important issue, the two professions have shown that with matters of public health and safety a little cooperation can go a long way. The important point is not that geologists and engineers have turf battles, they probably always will, but rather, if professionals of differing disciplines keep an open mind, an open dialog and present a united policy on issues affecting public health safety and welfare, much can be accomplished regarding regulatory affairs. Both professions will benefit as a result.

If not already happening, every AIPG Section should consider opening a dialogue with other significant professional organizations, especially ones with whom turf battles may arise. Local AIPG sections will find as we have in Missouri, that once a dialogue is opened, other professionals are interested in and willing to listen to the geologist’s point of view. AIPG-Missouri has found among different professions, that there is an amenable will to negotiate rather than fight, especially when it comes to regulatory affairs. AIPG members will find that working together with other professional organizations, laws and policy can be shaped to the benefit of geologists where their inclusion may not otherwise have even been considered. It is up to you the individual member.

John Bognar can be reached for comment at (314) 845-0555 or emailed at lbgstl@netscad.net or written at Leggette, Brashears and Graham, Inc., 4175 Crescent Drive, Suite C, St. Louis, Missouri 63129.

The Wyoming State Geological Survey
Searching for Diamonds
Northwest of Cheyenne

The Wyoming State Geological Survey (WSGS) continued investigations related to diamonds. According to W. Dan Hausel, Senior Economic Geologist, the WSGS is currently working on an exciting project in the Iron Mountain kimberlite district, 35 miles northwest of Cheyenne, Wyoming. The district contains a large group of kimberlite intrusives (one of only two known host rocks that sometimes contain commercial amounts of diamond) located on the Wyoming Craton, that are relatively unexplored. Earlier studies in the district indicated that these kimberlites contained diamond stability peridotite and eclogite pyrope garnets, suggesting good potential for the discovery of diamonds. The WSGS is currently evaluating the intrusives for diamonds, and has recovered numerous samples for geochemical analyses and for diamond testing. The WSGS has one of the only known diamond extraction laboratories in the United States.

In the past, the Iron Mountain district was considered to be a poor exploration target, because of the impression that all of the kimberlites were small and had already been tested for diamonds. However, recent mapping by the WSGS has resulted in very encouraging results. "We are currently in the process of mapping a relatively large, continuous, dike-blow system in the eastern portion of the district. This kimberlite complex has now been traced for 2.5 miles along strike and exhibits several "blows" (enlargements) that are up to 1,000 feet across. Several other kimberlites in the western portion of the district are scheduled for detailed sampling and mapping in the near future" according to Hausel. Additionally, the WSGS has scheduled EM and magnetic surveys over several suspected targets in the district, as Hausel has found evidence of possible identified kimberlitic indicator mineral anomalies upstream from any known anomalies immediately west of the district that are also under investigation by the agency.

The Iron Mountain district is located only 40 miles northeast of the Colorado-Wyoming State Line district, where more than 40 known diamondiferous kimberlites have been identified. The State Line district has produced more than 130,000 diamonds ranging from tiny diamonds to gemstones heavier than 28 carats.

For further information contact W. Dan Hausel (dhause@wsgs.edu)
Update prepared by David Applegate, MEM-0002 and Kasey Shewey

- President's Science Advisor Energy Secretary Confirmed
- New Science Doubling Bill Passes Senate Committee
- Senate OK's Strategic Petroleum Reserve Purchase
- Babbitt to Open National Petroleum Reserve - Alaska
- USGS, EPA Nominations
- NSF Survives Ill-Conceived Attempt to Block Funding
- Update on Appropriations
- Tentative Schedule of Upcoming GAP Activities
- New Material on Web Site

President's Science Advisor, Energy Secretary Confirmed

On July 31st, the Senate confirmed Neal Lane as Assistant to the President and Director of the Office of Science and Technology Policy. A letter from scientific society presidents was sent earlier that week to Majority Leader Trent Lott (R-MS) asking for swift confirmation. Several AGI member society presidents were among the signatories. Lane's confirmation allows his successor at NSF, Dr. Rita Colwell, to assume her duties there. Although confirmed in May, she has been unable to start until Lane was confirmed in his new job.

That same day, the Senate also confirmed Bill Richardson as Secretary of Energy. Both nominations passed without objection. Senator Larry Craig (R-ID) had threatened to block the Richardson nomination unless the President provided a letter indicating that Richardson would have authority to deal with the issue of high-level nuclear waste. The Administration provided such a letter last week, allowing the nomination to move forward. Richardson was most recently US Ambassador to the United Nations and before that was a Member of Congress from New Mexico.

New Science Doubling Bill Passes Senate Committee

The Senate Committee on Commerce, Science, and Transportation passed S. 2217, the Federal Research Investment Act, by voice vote on July 29. Subcommittee on Science, Technology, and Space Chair Bill Frist (R-TN) and subcommittee ranking member John Rockefeller (D-WV) — cosponsors of the bill — as well as most other members spoke in favor of the bill and the need to increase science funding. The only dissenting remarks were by Sen. Slade Gorton (R-WA), who expressed concerns about finding the funds to pay for the bill, and Senator Ted Stevens (R-AK), who questioned the cost. The bill would double non-defense R&D funding over 12 years and includes research in the Departments of Agriculture, Education, Energy, and the Interior, NIH, NSF, NIST, NASA, NOAA, and EPA.

Senate OK's Strategic Petroleum Reserve Purchase

In an effort to provide some price relief for the domestic petroleum industry, the Senate has passed a provision giving the Secretary of Energy emergency authority to purchase oil for the Strategic Petroleum Reserve (SPR). An amendment to the Treasury and General Government appropriations bill would provide $420 million for the purchase, which could amount to as much as 35 million barrels of oil. The amendment was offered by Senators Jeff Bingaman (D-NM) and Frank Murkowski (R-AK). The House version of the legislation, which passed in mid-July, does not include a similar provision, and a House-Senate conference will decide whether it will be included in the final bill sent to the President. If enacted, the purchase will reverse the trend in recent years to sell SPR oil to reduce the deficit. The last such sale was cancelled this past May in response to falling prices.

Babbitt to Open National Petroleum Reserve - Alaska

In other energy news, Interior Secretary Bruce Babbitt announced the opening for exploration of 4.6 million acres in the northeast corner of the National Petroleum Reserve - Alaska (NPR-A). The American Association of Petroleum Geologists recently adopted a position in favor of exploration and development in NPR-A. The Minerals Management Service estimates that the northeast corner contains a mean of 3.1 billion barrels of technically recoverable oil and 9.9 trillion cubic feet of gas.

USGS, EPA Nominations

As reported in an earlier special update, President Clinton has nominated Charles G. "Chip" Groat to be the next Director of the U.S. Geological Survey. Sources at the Senate Committee on Energy and Natural Resources indicate that committee chairman Frank Murkowski (R-AK) hopes to conduct hearings on Groat before Congress recesses for the year in October. Groat must be confirmed by the Senate before assuming his new position. He is currently Associate Vice President for Research and Sponsored Projects at the University of Texas at El Paso.

Another nomination of interest to the geoscience community is that of Norine E. Noonan who has been nominated for Assistant Administrator for Research and Development at the U.S. Environmental Protection Agency. Noonan is currently the Vice President for Research and the Dean of the Graduate School at the Florida Institute of Technology. Previously, she spent a decade with the White House Office of Management and Budget, the last five (from 1987 to 1992) as Chief of the Science and Space Programs Branch.

NSF Survives Ill-Conceived Attempt to Block Funding

On July 29, the House passed the VA, HUD, and Independent Agencies appropriations bill, which provides an 8 percent increase for NSF. The agency's funds were threatened during the floor debate when Rep. Mark Sanford (R-SC) offered an amendment to cut NSF's budget by $270 million, an amount he feels is funding frivolous research. In a "Dear Colleague" letter, he mentioned several projects he felt were particularly egregious. These projects included research to study "billiards," "collaborative activity on poker," "cheap
talk," and ATM's. Early support for his amendment vanished after several Republican colleagues took to the floor to defend NSF, including physicist Vern Ehlers (R-MI), who explained that "billiards" means the theory of rigid body collisions used in turbulent flow. Moreover, "poker" refers to research on social interaction used to study decision-making processes, economic models use "cheap talk" in describing the cost of information, and ATM's are asynchronous transfer modes critical to the Internet's future. Another colleague, Rep. Sherwood Boehlert (R-NY), noted: "The poet Alexander Pope remarked centuries ago that a little learning is a dangerous thing. This amendment is a good example of that principle...... Let us not make the mistake of judging a grant by its title." The Appropriations subcommittee chair, Rep. Jerry Lewis (R-CA), made his intentions clear when he said: "Let me suggest simply that the National Science Foundation is among the committee's and the Congress's very high priorities." The Sanford amendment was defeated by voice vote.

Update on Appropriations

Since the GAP mid-July update on appropriations, Congress has been busy trying to pass bills before its August recess. More information on these bills is available on the AGI website <http://www.agiweb.org/legis105/apppsy99.html>. The House passed the VA, HUD, and Independent Agencies spending bill for NASA, NSF, and EPA on July 29. The amounts agreed to by the House follow the Appropriations Committee recommendations of $13.3 billion for NASA, $3.7 billion for NSF, and $7.4 billion for EPA.

The Interior and Related Agencies bill passed the House on July 23, with no major changes to the USGS budget of $774.8 million. Several amendments decreased funding for fossil energy R&D by $85 million. The bill is under a veto threat from the Administration, and Interior Secretary Bruce Babbitt held a press conference to denounce the bill, saying: "They're...starving our parks, refuges, public lands, science, Indian schools and natural resources. And they're doing it quietly without any debate."

On July 23, the Senate passed S. 2260 (S. Rpt. 105-235), its version of the FY 1999 Commerce, Justice and State Appropriations bill. The bill provides $2.2 billion for NOAA, above the Administration's request of $2.1 billion. The committee also appropriated $3.5 million for establishing a Commission on Ocean Policy approved by the Senate in S.1213, the Oceans Act of 1997. On July 15, the House Appropriations Committee approved H.R. 4276, which provides a marginal increase in overall spending for NOAA to a total of $2.01 billion.

Tentative Schedule of Upcoming GAP Activities

The next meeting of the GAP Advisory Committee will take place at AGI headquarters on September 17-18. The committee will also hold an informational session on Canadian geoscience and public policy on Saturday, October 24, at the GSA Annual Meeting in Toronto.

- Sep. 16, NSGIC Meeting, Annapolis MD
- Sep. 20-23, AASG Liaison Cmte., Washington DC
- Oct. 4-7, AIFPG Annual Mtg., Baton Rouge LA
- Oct. 11-14, AAPG/DEG Conference, Taos NM
- Oct. 11-17, National Earth Science Week

New Material on Web Site

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

- Special Update: Groat Nominated for USGS Director (7-31-98)
- National Institute for the Environment Update (7-29-98)
- Education Policy Update (7-27-98)
- Eisenhower Professional Development Program Update (7-27-98)
- Methane Hydrate Research and Development Act Update (7-27-98)
- American Heritage Rivers Initiative Update and Hearing Summary (7-23-98)
- Database Protection Update (7-22-98)
- Department of Defense Fiscal Year 1999 R&D Funding for the Geosciences: Special Report (7-21-98)
- Clean Water Act Issues Update and Hearing Summary (7-21-98)
- Wetlands Restoration and Improvement Act Update (7-21-98)
- Special Update: House and Senate Appropriations Bills Take Shape (Posted: 7-18-98)
- Summary of Post-Kyoto Hearings on Global Climate Change (7-18-98)
- Science Authorization Bills Update (7-16-98)
- Western Water Policy Report Summary (7-16-98)
- Royalty-In-Kind Update and Hearing Summary (7-14-98)
- FY 1999 Science Appropriations and Budget Process Update (7-9-98)
- Hardrock Mining Regulations Update and Hearing Summary (7-8-98)
- Electricity Deregulation Update (7-7-98)
- Reports on Potential Economic Impacts of Binding Emissions Reduction Standards (7-1-98)
- Geotimes Political Scene: Anticipating the Issue Cycle: Oil estimates and ANWR (7/98)
- Geotimes News Note: Polar Research Heats Up (7/98)
- Summary of Post-Kyoto Hearings on Global Climate Change (7-1-98)

This monthly update goes out to members of the AGI Government Affairs Program (GAP) Advisory Committee as well as the leadership of AGI's member societies and other interested geoscientists as part of a continuing effort to improve communications between GAP and the geoscience community that it serves. Prior updates can be found on the AGI web site under "Government Affairs" <http://www.agiweb.org>. For additional information on specific policy issues, please visit the web site or contact us directly at <govt@agiweb.org> or (703) 379-2480.
Proposed New Section in the Code of Ethics

The sometimes heated character of debate highlights the need for an addition to the AIPG Code of Ethics dealing with the need to condemn the making of false, misleading, or derogatory statements regarding a professional colleague regardless of form or forum. Several situations have come to my attention over the past year to which the proposed new section would apply. These situations involved debate over scientific issues, political issues, and Institute issues. They involved individuals more than employers or clients thus rendering Section 2.2 less directly applicable. The proposed Standard 4.2 and Rule thereunder is based on Standard 2.2 and the Rules thereunder.

Proposed STANDARD 4.2

Members should be accurate, truthful, and candid in all communications with others regarding professional colleagues.

Proposed Rule 4.2.1. A Member shall not issue any false statement, misleading statement, or sensational, exaggerated, defamatory, and/or unwarranted statement regarding a professional colleague. Differences of opinion occur and statements regarding opinions should be restricted to and based on logical and scientific principles, and should be made in a respectful and professional manner.

The AIPG Code of Ethics should represent a consensus of the membership. Please submit your comments on the proposed language by the end of September so that I can present a consensus version to the Executive Committee at the Annual Meeting in Baton Rouge.

Another change in the Code of Ethics has already been submitted to the Executive Committee. Last year, the categories for membership in AIPG were changed and there are now two main categories, Members and Adjuncts (Bylaws, Article 2). However, the Preamble to the Code of Ethics still used the old categories of Members and Affiliates. Changing “Affiliates” to “Adjuncts” was one of those house-keeping items that needed to be done and that had escaped previous notice.

As shown by the foregoing proposed and actual change, the AIPG Ethics Code can be changed. In column 32 (July), I described-several features of the American Statistical Association’s draft ethics code noting that features of some of them might be considered for AIPG’s Code. You may have some provisions you would like to see added. If so, please let me know so that they can be considered.

How Much Exploration/Examination/Testing is Enough?

(Column 33, Aug. ’98)

An interesting exploration of this question was recently presented by Thomas W. Bjerstedt in his paper, “Expectations of geological science: Yucca Mountain site characterization, Nevada” in Charles W. Welby, CPG-1033, and Monica E. Gowan, CPG-9958, eds., A paradox of power: voices of warning and reason in the geosciences; Geological Society of America Reviews in Engineering Geology v. XII, p. 165-176. Bjerstedt presents a case history of the Department of Energy’s (DOE) efforts to comply with the Nuclear Regulatory Commission’s (NRC) requirements for licensing the Yucca Mountain site as a radioactive waste repository. The case history confronts not only the difficulties, misunderstandings, etc., involved with Yucca Mountain but also “how well geology’s epistemological limitations meet regulatory expectations for licensing a facility required to perform successfully for millennia.” As Gowan points out in her Preface, “We live and work in a world of ideological conflict over ‘true’ environmental enlightenment where clashes between epistemological and theological belief systems can produce seemingly intractable situations. Often these conflicts are a struggle for power rather than enlightenment.” In many situations with environmental consequences then, the answer to the question, How much is enough?, is not based on scientific rationale but on some other belief system. How else can one explain the conclusion reached by a Denver judge some years ago that any amount of radiation was too much?

Bjerstedt’s Yucca Mountain example is but one type of case involving the question, How much is enough?, in this case for a regulator who wanted more information than originally provided. Ronald E. Yarbrough’s, CPG-6545, example last month in column 33 involved the client who really didn’t want negative information. What have your experiences been?

A Paradox of Power: Voices of Warning and Reason in the Geosciences

As noted in the preceding section, Charles W. Welby, CPG-1033, and Monica E. Gowan, CPG-9958, were the editors of the recently published A paradox of power; voices of warning and reason in the geosciences; Geological Society of America Reviews in Engineering Geology v. XII. If you like the topics discussed in this column, you’ll like this book.

The 13 papers collected in this book examine four basic perspectives in a variety of ways. The first group of papers examine public decision-making despite geologic complexity and uncertainties. The second group of papers discuss case histories involving public awareness of geologic hazards. The third group addresses geologic reason involved in the avoidance and mitigation of geologic hazards. The final three papers discuss geology and legal requirements in the cases of the Love Canal, the Yucca Mountain site characterization (see above), and the general problem of providing valid long-term projections for public policy decisions.

Just as important as the papers are Gowan’s Preface and Afterword which place the case histories described in the papers in the larger societal and ethical perspectives. The motivations of participants in public policy debates may have nothing to do with science. If scientific support for an espoused position is available, it will be used; if unavailable, science
will be discarded as irrelevant, or inappropriate, or too uncertain, etc. As Gowan points out, when we, as geologists, are asked for answers, we are placed in a position of power. That power can be used well or poorly. Ethical considerations are clearly involved. Should the motivations of those who employ us have an impact on whether we accept an assignment? What are our own biases and beliefs and how do they affect our approach to what we do?

Lee C. Gerhard's, CPG-3461, opening paper, "The dilemma of the geologist: Earth resources and environmental policy," addresses the discrepancy between political motivation and science head on. Gerhard notes that environmental policy has been driven by a preservation ethic for the past 25 years, an ethic which opposes the development of the Earth's resources needed by society. Yet in the same 25-year period, most geologists were employed in the search for and development of those resources. In a message to me, Gerhard noted that, "The ethics of geology derive, I think from our science, which is environmental in nature, and extractive in some portion of geologic practice. The ethics are the same, although we may want to consider the balance between providing the basic resources that sustain humanity and the environmental quality that humanity aspires to, at least some part of it. Many environmental issues revolve around recreation and esthetics rather than human health and safety, and that is a science ethics issue. Can we justify pleasing scenic views if people are starving or sick from lack of resources contained in pleasing scenery?" Gerhard's paper argues that because geologists, as a profession, understand the need for and limited availability of Earth's resources, we have a prominent role to play in working towards a balance between environmental preservation and providing the resources society needs to stay healthy.

A paradox of power: voices of warning and reason in the geosciences may be part of the Reviews in Engineering Geology series, but its subject matter is far greater than engineering geology. It affects all of us in one way or another. All of us should read and think about the messages in this book. For those of you who teach geologic ethics, this is an important source book.

"Deja Vu All Over Again": while writing the foregoing review, I was reminded of two books I read over 25 years ago. In the first, Minerals and Men: an Exploration of the World of Minerals and its Effect on the World We Live in (1965), author James F. McDivitt described recycling of minerals. He noted that in 1960, 44% of all lead used in US manufacturing was recycled, and this was at a time when 15% of "manufactured" lead was used in gasoline and 10% was used in pigments, uses which have by and large ceased. A remaining major use of and the primary source of recycled lead then and now is automotive batteries. In the other, Encounters with the Archdruid (Narratives about a Conservationist and Three of His Natural Enemies) (1971), author John McPhee describes encounters between David Brower, described on the back cover of my copy as "the most militant conservationist in the world," and three others, including Charles F. Park, at the time one of the deans of American economic geology, and Floyd Dimony, a builder of giant dams. McPhee's narrations of the encounters between Brower and his "enemies," particularly the encounter between Brower and Park, demonstrate the similarities in background and appreciation of nature that men share along with their diametrically opposed views about what should be done in the future. As Gerhard reminds us, it is time to revisit and reevaluate the consequences of the encounters between the natural resources industries and the archdruids.

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**First Annual Earth Science Week Set for October**

The countdown to the first Earth Science Week has begun. Mark your calendars now for the October 11-17 celebration. Earth Science Week is one of the American Geological Institute's most ambitious 50th anniversary initiatives, and it offers the geoscience community new opportunities to demonstrate the importance of the earth sciences. Geoscience organizations have responded enthusiastically to the idea, and AGI member societies and state geological surveys are planning Earth Science Week activities and events. "The goal for Earth Science Week," says AGI President Susan Landon, CPG-04591, "is to have every geoscientist in the country do something in his or her community to promote the earth sciences." AGI's role in sponsoring an annual Earth Science Week is to provide a clearinghouse for ideas, activities, and special events and to provide support materials that make it easy for geoscientists to participate. Information about Earth Science Week is available from the American Geological Institute and on the World Wide Web at [http://www.earthschweek.org](http://www.earthschweek.org).

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**Wyoming State Geologist**

The State of Wyoming is seeking applicants for the gubernatorial appointment, at-will position of State Geologist and Director of the Wyoming State Geological Survey, located in Laramie, Wyoming. Appointee also serves on the Oil & Gas Conservation Commission and Board of Professional Geologists. The applicant must be a Professional Geologist licensed to practice in Wyoming and may not hold a pecuniary interest in a producing or prospective ineral property of any kind, including oil and gas, in Wyoming. Salary range is $59,000-$69,000/year. A complete State Benefits package is available. For further details, contact the Wyoming State Geological Survey at 3005, Laramie, WY 82071 or call (307) 766-2286. Open until filled. An EEO/ADA Employer. Application can also be obtained over the Internet at: [ftp://wogccftp.state.wy.us](ftp://wogccftp.state.wy.us).

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**WE NEED YOUR HELP**

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- Submitting an article for *The Professional Geologist*
- Sending a slide or photograph for the cover of the magazine
- Volunteering to become an Associate Editor (peer-review articles)
- Advertising in *The Professional Geologist* and/or the annual Membership Directory

For more information contact National Headquarters at (303) 431-0831 or e-mail: aipg@aipg.com

We hope to hear from you soon.
AIPG Opens Dialog with Mexico

Richard Allen, CPG-06610 and Dawn Garcia, CPG-08313

Representatives from the Arizona Section of AIPG recently traveled to Sonora, Mexico to establish a dialog with the geologic community in the Republic of Mexico.

Richard Allen, current Section president, and Dawn Garcia, Section past president, met with several professors from the Geology Department at the University of Sonora, as well as AIPG's only two Mexican members, both currently working for the State of Sonora.

The meetings took place in Hermosillo, the capital of Sonora, on June 19 and 20.

The Mexican participants were AIPG member Dr. Guillermo Armando Salas Pizá, Director of Fomento Minero (the state agency which promotes mining geology and is responsible for geologic mapping - similar to a state geological survey, but with a marketing twist also), Sergio A. Treles Monge, a Senior Geologist at Fomento Minero and also an AIPG member, Dr. Rogelio Monreal Saavedra, a specialist in stratigraphy at the University of Sonora, and Juan J. Palafox Reyes, a remote sensing specialist also with the University.

We were very warmly received, shown various facilities, given a tour of the city, and ate some really great food! There appears to be a strong interest to develop more activities with professional groups and to increase industry in Sonora.

Dr. Salas, CPG-03382 and Sergio Treles, CPG-10304 were both very hopeful that AIPG could extend its activities to include not only them, but also new members and prospects. AIPG National Bylaws restrict Sections to US States; however, some sort of affiliation between individuals or Mexican Geologic Groups is possible and will be explored.

We encourage AIPG members to attend the next joint meeting between AIPG Arizona and Sonoran geologists at a large mining symposium scheduled for October 13-17 in Hermosillo. Direct flights are available from Tucson, which is about a six-hour drive from Hermosillo.

"III Seminario Minero Sonora 2000" is organized by the Asociacion de Ingenieros de Minas, Metalurgistas y Geologos de Mexico, A.C. The symposium will include regional and international talks on geology, mining, metallurgy, legislation, and ecology, plus field trips. The symposium will be held at Casino de Hermosillo, Hermosillo, Sonora. The symposium will start with a welcoming social event on Tuesday, October 13, followed by technical talks on Wednesday, Thursday and Friday, concluding with a round table discussion on Friday afternoon. An Arizona section member, Peter Megaw, CPG-10227, will be presenting a talk at a technical session.

There are several field trips planned. There are two field trips scheduled from Sunday October 11 through Tuesday October 13. One is designated the "Gold Route" (Ruta del Oro) and the other is the "Copper Route" (Ruta del Cobre). The Gold Route trip will visit the following mines: La Choya, La Herradura and San Francisco, plus exploration projects El Chanate and Sierra Pinta. The Copper Route trip will visit the following mines and plants: Mariquita, Mexicoana de Cananea, La Caridad and Molymex in Cumpas. The field trip price of $450 includes transportation and lodging. There is an additional one-day field trip scheduled for Saturday October 17. It will be to the Pilares Mine (wollastonite and nickel). There is no charge for this one-day trip.

The registration fee is $95. Contact the association president, Mario Campos, for further information: Telephone (62) 10-55-10, Fax (62) 14-16-66, e-mail: idgsa@impacrical.com.mx. It was indicated that simultaneous translation would be provided if there is sufficient interest. Most professionals speak English and reading English is a necessity for professionals. We did not find that language was a barrier during our visit to Hermosillo. AIPG has been invited to participate during the symposium. We are organizing a dinner meeting to discuss joint interest between AIPG and the Mexican Geologic Community. Steve Testa, CPG-06464, AIPG President, is scheduled to attend the symposium on Thursday and Friday (October 15-16). There will be an AIPG dinner on Thursday evening with Steve as the speaker.

Our Mexican hosts also generously presented us with numerous publications and maps, now on file with our Section officers. We look forward to expanding our contacts and activities and will have more to report in future issues of TPG.

Any questions can be directed to Richard Allen, (602) 481-9001 or Dawn Garcia, (520) 544-3150.
The Persian Messenger Complex - Part 1 of 2

The urge to "CYA" is understandable, but it can lead you into a variety of bad writing habits. Good advice: recognize when you have this problem, and devise a strategy to deal with it.

Hugh Hay-Roe, CPG-3291

“The Persian Messenger Complex” is a mental state we’ve often observed in on-the-job writing classes. It is brought on by fear of how the boss will react to bad news of some kind. Sufferers from the complex behave much like the Persian messenger of ancient times, who reportedly risked sudden death at the hands of an autocratic emperor infuriated by news of a battle lost.

In writing about bad news, their behavior is very much what one would imagine of those early messengers trying to CYA (politely decoded as “Cover Your Area”): they stall and obfuscate. It doesn’t occur to them that a manager who has to waste time searching for the news in a report is going to be even more upset when he finally realizes that (1) it’s bad news, and (2) they’ve been hiding it from him.

I can’t forget the dictum of an oil company president: “Management is not a cheering section. Of course we enjoy hearing good news, but we need to hear bad news while there may still be time to do something about it.” (An extreme illustration of this truth would be an oil spill that went unreported for, say, 24 hours, because the people on site were afraid of senior management’s reaction.)

Whether the problem is bad news or something else, here are half a dozen approaches to consider when you feel a need to CYA:

1) Analyze your readers and decide whether you could manage a short delay of your main point while you soften readers up with a justification for that point.

2) If that wouldn’t solve the problem, consider whether it would help to get someone higher in the organization to sign the document. People will sigh and accept from a vice-president a message they might not accept from you.

3) Maybe it’s safer not to write anything yet: sometimes you can call a meeting of the people who are to receive your message, and tell them orally—perhaps even enlist the help of some of them in phrasing your difficult message for other readers.

4) To avoid finger-pointing when you write, emphasize reasons rather than decisions reached. If you can’t do that, you may try some passive verbs: “It was decided that...” “The decision had to be based on...” (Yes, normally one should avoid this wimpish sort of writing; but here we are dealing with a special problem.)

5) State proposed changes in positive language, not negative. Example: “Analysis confirms that an additional $85,000 will be needed,” not “The budget has proved unrealistically small.”

6) If the task makes you frustrated and upset, try to allow enough time so that, after preparing a rough draft, you can back away and give yourself a chance to cool off. Then come back to your text 24-48 hours later and edit ruthlessly. It’s amazing how much more objective you can be when calmness has returned.

In addition to bad news, other situations can bring out the tendency to CYA. We’ll discuss examples in a future follow-up. Since difficult situations and difficult people are all different, no single piece of advice will apply in every case — except this:

Recognize when you have a problem. Don’t start writing until you have analyzed it and picked the best (or least bad) solution. If necessary, “kick it around” with knowledgeable people you trust.

The Persian Messenger Complex - Part 2 of 2

Not only bad news, but other problems like saying “no” to a VIP, office politics, and defensive writing situations can trigger the urge to “CYA.” Before you start to write, analyze your specific problem and try to develop a strategy for handling it.

In Part 1, we talked about how the obligation to report bad news can cause the symptoms of the Persian Messenger Complex, characterized by the urge to (1) stall in writing (bury the bad news in the last paragraph) and (2) obfuscate (hide the news in ambiguous language). Now let’s continue by mentioning other problems that cause people to play "Cover Your Area" (CYA) in writing:

• Having to say “No” to a VIP
• Office Politics
• Legal traps and the need for defensive writing.
Saying "No" to a VIP

If you have to say "No" in writing to an important person, here are three useful approaches:

1. If it’s appropriate, delay your main point slightly in order to indicate why the answer is "No". You can often do your explaining in an opening clause, so that the main point is still in the first sentence: "Because this year’s budget for professional meetings is already spent, it will not be feasible to program the trip to San Juan outlined in your recent memo…"

2. Phrase a denial objectively, so that the “blame” is attached to God or the Feds: "A new IRS regulation now in effect eliminated the possibility of using a company limousine to meet your father-in-law at the airport…"

3. Tactfully point out that some matters have higher priorities than others: "As the Geochemical Section is running two weeks late on Priority A work, your Priority B request will have to be handled as follows…"

Every difficult person and every difficult situation is different, so there’s no one single piece of advice that will work for all of them — except this:

Recognize when you have a problem. Don’t begin writing until you have analyzed it and arrived at the best (or least bad) solution. You may get some good ideas from the approaches listed in Part 1.

Office Politics

Unfortunately, we can’t get specific in the matter of in-house conflicts. Writing difficulties that arise from office politics are as varied as the political situations themselves, so there’s no standard, "generic" answer. Each problem calls for its own solution.

Defensive Geowriting

"Defensive writing" is an important concept for geoscientists who might be sued (as an organization or as individuals) because of what they have written. In the future this may well be of increasing concern to geologists in environmental work, and to engineering geologists working in seismically active areas.

As is the case with office politics, problems in defensive writing are too specialized to favor generic solutions. Two guidelines, however, are pretty obvious for specialists who have to deal with laymen:

- Make an extra-clear distinction between fact (observation), inference, and interpretation or opinion.
- Do not write merely to be understood. Write so that you cannot be misunderstood.

NEW SPONSORSHIP PROGRAM

Dear AIPG Member:

The unifying purpose of AIPG is to strengthen geology as a profession. Your AIPG is changing and becoming more involved in national affairs affecting our member’s disciplines. As we work harder and become a stronger advocate for our members, it is obvious that AIPG needs your continued support beyond existing programs.

Members have responded to the needs of our profession in part through the AIPG Foundation; in funding public information and education; research on public issues; and information forums for professionals.

Your support is needed beyond the AIPG Foundation and dues to fund expanding needs of our membership if we are to:

- Expand our governmental affairs program
- Expand support to State sections
- Develop more technical services and programs
- Keep dues at an affordable rate

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Please call me with any questions or to discuss additional opportunities for support. Your interest has been and continues to be appreciated, thank you for your participation.

Dennis Pennington, CPG, Sponsorship Chairman, (215) 723-9300, e-mail: netc@enter.net

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MEMBERS IN THE NEWS

JOHN BOGNAR, CPG-08341, of Leggette, Brashears, & Graham, Inc. (LBG) has been named an associate of the firm and manager of its new St. Louis, Missouri office. Mr. Bognar is a Registered Professional Geologist in Missouri and a Licensed Geologist in Illinois. He was one of the key individuals in bringing about the Missouri Geologist Registration Act. He comes to LBG from his own environmental firm, where he handled hydrocarbon remediation and landfill consulting work. Prior to that, he was an oil and gas exploration geologist in the Gulf Coast region and an environmental hydrogeologist with a St. Louis firm. Mr. Bognar is certified by, and is active in, AIPG, where he currently serves as National Secretary. His other professional affiliations include the Association of Missouri Geologists and the National Ground Water Association. A graduate of Southwest Missouri State University, Mr. Bognar holds a B.S. degree in geology.

PEGGY L. CARPENTER, CPG-09116, has been named General Manager of the Pittsburgh regional office for ToTest. Ms. Carpenter has more than 12 years of experience in the environmental consulting field. She is certified with the National Registry of Environmental Professionals as a Registered Environmental Manager.

Ms. Carpenter is a graduate geologist, a Registered Professional Geologist, and a certified Underground Storage Tank Installer in Pennsylvania. She is AIPG certified, served as president of the AIPG Pennsylvania Section in 1997, was elected to the AIPG National Advisory Board and to the National Executive Committee for 1998.

GARY R. HENNINGSSEN, CPG-08920, of Northern Environmental Technologies was appointed Director of its Mequon District. Mr. Henningsen will be overseeing all business operations. Henningsen joined Northern Environmental in 1989 as a Geologist and has held several positions within the firm including Senior Project Manager and Director of Field Operations. He has managed projects for Northern Environmental throughout Wisconsin and has worked with such clients as Kettle Lakes Coop, Advanced Transportation, and the City of Sheboygan. Mr. Henningsen obtained a Bachelor of Science degree in Geology from the UW-Oshkosh in 1981, and a Master of Science in Geology from Texas Tech University in 1985. He is a Registered Professional Geologist in Wisconsin and a Certified Professional Geologist in Indiana.

THOMAS M. JOHNSON, CPG-06439, has been elected Chairman of the Board of Directors of the National Ground Water Association (NGWA), Association of Ground Water Scientists and Engineers (AGWSE). Mr. Johnson is Vice President, Principal Hydrogeologist and Corporate Director of Technical Services for the environmental consulting firm of Levine Fricke Recon, Inc., based in Emeryville, California. Prior to joining Levine Fricke in 1986, he was Head of the Ground Water Section at the Illinois State Geological Survey, where he worked for 11 years. He obtained his B.A. in geology from Augustana College, Rock Island, Illinois, M.S. degrees in geology and water resources management from the University of Wisconsin-Madison.

BRIAN C. KIMPEL, CPG-08818, has been named a senior hydrogeologist and head of the new Illinois field office of Leggette, Brashears & Graham, Inc. (LBG). Mr. Kimpel comes to LBG with extensive expertise in landfill design, site remediation, hazardous site investigations, groundwater modeling, and remedial technology feasibility studies. His experience includes three years with the Illinois State Water Survey in Champaign, Illinois.

GEORGE D. KLEIN, CPG-01487, has relocated his consulting firm to Houston, Texas, and now does business as SED-STRAT Geoscience Consultants, which provides consulting services in clastic reservoirs and facies, sequence stratigraphy, basin analysis and petroleum geology.

JEFFREY B. LENNOX, CPG-07952, of Leggette, Brashears, & Graham, Inc. (LBG) has been named vice president of the firm. A Certified Professional Geologist and Connecticut Licensed Environmental Professional, Mr. Lennox's 16 years of professional experience has focused on a variety of hydrogeologic investigations. His background encompasses supervising investigations and remediation of contaminated sites, managing RCRA and CERCLA site studies, and management and development of public supply well fields. Prior to his promotion to vice president, Mr. Lennox was a senior associate of LBG. He is located in LBG's corporate headquarters in Trumbull, Connecticut, where is responsible for development of the water supply portion of the business. Mr. Lennox is a member of the Association of Ground-Water Scientists and Engineers, the Connecticut Groundwater Association, and the American Water Works Association. He received a Master of Science degree in civil engineering from Colorado State University where he concentrated in ground-water hydrology, preceded by a Bachelor of Science degree in hydrology from the University of New Hampshire.

JAMES C. MAREK, CPG-08688, PG, has been appointed Branch Manager of Apex’s Des Moines, Iowa office. Formerly with Fluor Daniel GTI, Mr. Marek is a Certified Groundwater Professional in Iowa and comes to Apex with 12 years of experience in site assessment remediation at industrial facilities including RCRA corrective action sites in the Midwest.

THOMAS J. MIGNERY, CPG-08858, has been elected an Associate of Burgess & Niple, Limited (B&N). Mr. Mignery joined B&N in 1987, and serves as Director of the Hydrogeological Investigations Section. He has been responsible for assisting clients in brownfield redevelopment under Ohio EPA’s Voluntary Action Program (VAP), computer groundwater flow modeling of well field and landfill operations, and hydrogeologic investigations at solid and hazardous waste sites. A graduate of Miami University with a Bachelor's degree in Geology and Kent State University with a Master’s degree in
MEMBERS IN THE NEWS - continued

Hydrogeology, Mignery is an Ohio EPA VAP certified professional for brownfield redevelopment. He is a member of the National Groundwater Association.

JAMES V. TARANIK, CPG-02669, was appointed Regents’ Professor by the Board of Regents of the University and Community College System of Nevada on June 18, 1998. At the same time the Board designated Dr. Taranik, President Emeritus of the Desert Research Institute. Dr. Taranik also holds the Arthur Brant Chair of Geophysics in the Mackay School of Mines at the University of Nevada, Reno, and is now teaching aerospace remote sensing and mining geophysics in the Department of Geological Sciences. He also serves on the Board of Directors of Newmont Gold Company based in Denver, Colorado. Dr. Taranik was Desert Research President for 11 years and Dean of the Mackay School of Mines from 1982 to 1987.

JANE M. WILLARD, CPG-06979, President, En Pro Assessment Corp. has been granted the first geologist’s license by the Minnesota Architects, Engineers, Surveyors, Landscape Architects, Geoscientists, and Interior Designers Board. The Minnesota legislature added geoscientists, comprising geologists and soil scientists, to the board in August of 1995 and the rules were adopted in the spring of 1997.

JOHN L. WILLIAMS, CPG-10161, of Golder Associates Inc. has accepted the position of Florida Operations Manager for the company. Based in Gainesville, Florida, where he will also serve as Office Manager, Mr. Williams will lead the Florida management team responding to that growth. Mr. Williams, who managed Golder Associates’ services for the federal sector, has been with the company since 1993. Over the last few years, he has been extensively involved in directing environmental restoration projects for the U.S. Department of Energy including RCRA Facility Investigations, Expedited Cleanups, Voluntary Corrective Actions, and Interim Actions at over 100 potential release sites. Prior to joining Golder Associates, he was Technical Group Leader for the Westinghouse Idaho Nuclear Company in Idaho Falls, Idaho where he managed numerous RCRA and CERCLA characterizations, remediations and groundwater/perched water monitoring activities at the Idaho National Engineering and Environmental Laboratory. He has also served as Senior Geologist/Project Manager responsible for the drilling and evaluation of oil and gas wells in the Rocky Mountain Region for Occidental Oil & Gas. A geology graduate of the University of Idaho, Mr. Williams has authored articles and participated in symposiums for a peer group audience. He is a Professional Geologist and Registered Environmental Professional.

MARCUS E. MILLING, CPG-04518, AGI Executive Director, is one of four leaders in the geoscience community who received an Honorary Membership Award from the American Association of Petroleum Geologists (AAPG) during its 1998 annual meeting in Salt Lake City. The award is one of AAPG’s most distinguished and recognizes outstanding service and contributions to the profession of petroleum geology. Dr. Milling has been Executive Director of the American Geological Institute (AGI) since 1992, when it had 19 member societies. Under his leadership, the Institute’s membership has increased to 32. “He applied effectively the basic skills and wide public and private contacts he had developed over a varied career to engineer a truly unprecedented turnaround in AGI,” says William Fisher, CPG, Professor of Geosciences at the University of Texas-Austin. A member of AAPG since 1966, Milling came to AGI after a 20-year career in the upstream oil and gas industry. Before joining AGI, he served as Associate Director of the Bureau of Economic Geology at the University of Texas-Austin for five years. From 1980 to 1987, he worked as General Manager of the Geological Research Group for ARCO Oil and Gas Company. He joined ARCO after serving as a researcher and research supervisor with Exxon Production Research Company, his first position after earning his Ph.D. from the University of Iowa in 1968. He also worked with Exxon’s exploration and production line-operation groups in Texas and New Orleans and played a significant role in important petroleum discoveries for both Exxon and ARCO.

JOAN UNDERWOOD, CPG-06640, PG, PHG, a senior hydrogeologist with Rust Environment & Infrastructure, assumed the presidency of the National Association of State Boards of Geology (ASBOG). Underwood became active in ASBOG after she was appointed in 1994 by Governor Tommy Thompson to the Geology Section of Wisconsin’s Joint Board of Registration.

JOHN A. WILEY, CPG-07086, has been named head of the Tampa, Florida office of Leggette, Brashears & Graham, Inc. (LBG), a national ground-water and environmental engineering services firm. Mr. Wiley’s experience with LBG encompasses all phases of project management, including hydrogeology evaluations for water resource projects, water use permitting, computer modeling, contamination assessments, environmental assessments, surface water studies, and mine dewatering projects.

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John William "Billy" Eggers, CPG-01568, passed away on July 3, 1998. A retired geologist with the Louisiana Office of Mineral Resources, he died Friday morning, July 3, 1998, at his residence in Baton Rouge. He was 76 and a native of Lake Charles. He was a pilot in the U.S. Navy Air Corps with the rank of lieutenant, having served during World War II. Survived by his son and daughter-in-law, John Scott and Julee Doiron Eggers, Baton Rouge; a sister, Betty Jane Lanster; two brothers, Preston Eggers, Baton Rouge, and Dr. Earl Eggers, Mobile. Preceded in death by wife, Garnie Belvin Eggers; and parents, Statie P. and Gladys Sweeney Eggers. He was a member of Broadmoor United Methodist Church, St. James Lodge No. 47, F&AM, Baton Rouge Scottish Rite, Lafayette York Rite Bodies, Acacia Shrine Temple, Sons of the American Revolution, U.S. Navy League, American Legion, VFW and American Association of Petroleum Geologists. Memorial donations may be made to Garnie Belvin Eggers Scholarship Fund, c/o Baton Rouge General Medical Center, 3600 Florida Blvd., Baton Rouge, Louisiana 70806.

Robert Lee Sprinkel, Jr., CPG-02602 was born on October 11, 1907 in Kinta, Indian Territory (Oklahoma), the oldest child and only son of Adelia Jane Aston Sprinkel and Robert Lee Sprinkel. He had two sisters, Beatrice Jane Sprinkel, born in 1910, now residing in San Francisco, and Olga Delight Sprinkel Shearer, born in 1918, who died in 1996. Bob Lee, as he was known when he was growing up, graduated from high school in Muskogee, Oklahoma, where he played tuba and violin, creating in him a love of music which he retained throughout his life. He was commissioned in the U.S. Army Reserve in 1929, rising to the rank of Lt. Colonel before his retirement in 1972. Bob graduated from the University of California at Berkeley, in 1930, in the depths of the Depression, with a degree in Mining Engineering. Bob went to work for his former Berkeley professor, Andrew Lawson, doing the geological soundings for the San Francisco-Oakland Bay Bridge. In 1987, on the occasion of the 50th Anniversary of the Bay Bridge Bob was honored as a Bay Bridge Pioneer. Bob then worked as a hydrologist with C & H Sugar Refinery in Crockett, California. In 1932, Bob married Marian Boyles, a classmate at Berkeley. The following year the newlyweds had their first great adventure: off to the Philippines where Bob worked as a mining engineer with the Big Wedge Mining Company in Baguo, P.I. Their first child, Robert Lee Sprinkel, III, was born in Baguo on April 13, 1935.

Returning to the U.S. in late 1935, he worked for the City of San Francisco on a water table project at Fleischhacker Zoo. He joined Shell Oil Company as a geologist in Los Angeles in 1938, the year their daughter, Kay Marianne Sprinkel Beaumont, was born on June 19. Bob was with Shell Oil until 1952, except for his time on active duty during World War II. Bob left for active duty in 1942 and was deployed to England, France and Belgium. He was part of Operation Overlord, the D-Day invasion of France in June, 1944. During the war, he commanded an Ordnance Battalion, achieving the rank of Captain. He was separated from active duty in March, 1946, and returned to Sacramento. Afterwards, Shell moved him to Ventura and then to Long Beach. In 1952, he joined the Northern Pacific Railway in their oil development department in Billings, Montana, working in the Williston Basin Oil Fields. He joined Seaboard Oil in 1955, remaining in Billings until 1956, when he moved to Denver with Texaco. From 1962 - 1965, bob and marian lived in bogota, colombia, where he was chief geologist for colombia and northern ecuador for texaco. They returned to Denver, and Bob continued to work with Texaco until his retirement in 1973. Retirement was too confining for Bob, and in 1974 he began 20 years of consulting in the energy industry including work with his son in England in the minerals business. In 1993, Bob and daughter Kay made a pilgrimage to Normandy, where he revisited the memories and beaches of the 1944 landing at Omaha Beach. Bob was a member of the Reserve Officers Association Petroleum Pioneers, Rocky Mountain Association of Geologists, American Association of Petroleum Geologists, Colorado Mining Association, Sigma Phi Epsilon Fraternity, Society of Mining Engineers, Society of Petroleum Engineers, Montana Geological Association. He took great pride in his 11 grandchildren and 12 great-grandchildren.

Paul T. Walton, CPG-00829 and one of the founding members of the Utah section of AIPG, passed away on July 27, 1998 in Salt Lake City. Paul was 84.

A zest for travel took Paul to Saudi Arabia not long after he received a B.S. in Geological Engineering from the Utah School of Mines and Engineering in 1935. He worked for Standard Oil and took the first gravity meter readings ever done in that country. These particular studies focused on two areas where discovered geologic structures later produced oil. Unfortunately, the environment was not as kind to the body, and Paul developed rheumatic fever, returning to the US in 1938.

On his return, he enrolled at the University of Utah, received his Master's degree in Geology, moved to Boston and received his Ph.D. in Geology from Massachusetts Institute of Technology in 1942.

Shortly before the end of World War Two, Paul was hired by J.Paul Getty Companies to explore for oil reserves in the Rocky Mountains, and in 1948, deciding that Paul had recovered from his previous illness, sent him back to Saudi Arabia. Paul was successful in doing a sit-down face to face negotiation with King Saud, negotiations which resulted in Getty acquiring the huge Wafra Oil field in what is now Kuwait. The Wafra was the first field torched by Saddam in 1992.

Paul became what is known in the oil patch as, "an independent", forming a partnership with N.G. Morgan Sr. to explore for oil and gas. This association led to the discovery of gas on the Wasatch Plateau and the subsequent construction of a gas pipeline. In 1953, Paul became partners with Tom Kearns and Kearns Oil Co. Over the next 30 years, this consortium conducted world wide exploration for natural resources. Paul launched many ventures including geothermal exploration and iron ore acquisitions from his office in Geneva. However, in the end, the most successful of his discoveries were always in the USA.

Paul continued, till the time of his death, to maintain offices in the Walker Bank Building in Salt Lake City. He split his time in later years between Jackson Hole, Wyoming where he operated a cattle ranch and Salt Lake City. He is survived by his wife Betty, by three children, Holl Walton Buchanan, Reno, Nevada, Paul Talmage Walton, Jr., Indio, California and Ann Elizabeth Walton of Fort Collins, Colorado, and by two grandchildren, Lara Brinton, enrolled in Veterinary Medicine at Colorado State University and Aspen Brinton, a student at Oxford and Amherst College in Massachusetts.

Kelvin J. Buchanan, CPG-6058
PROFESSIONAL SERVICES DIRECTORY

This service is open to AIPG Members as well as non-members. The Professional Services Directory is a 12-month listing offering experience and expertise in all phases of geology. Prepayment required. Advertising rates are based on a 3 3/8" x 1 3/4" space.

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Executive Committee and Headquarters Activity

Members of the Executive Committee and/or of the Headquarters staff will participate in the following meetings, which provide opportunities for AIPG Members to exchange ideas with the Executive Committee and staff. We also welcome invitations from AIPG Sections to discuss AIPG programs and goals. If your Section would like to meet with members of the Executive Committee or Headquarters staff, please contact Headquarters to schedule a convenient time. Thank you.

Sep. 28 - Oct. 2: Seattle, Washington
Oct. 3-8: Baton Rouge, Louisiana
Oct. 11-14: Taos, New Mexico
Oct. 16-18: Charleston, South Carolina
Oct. 25-29: Toronto, Ontario, Canada
Nov. 11-13: Las Vegas, Nevada

AEG Annual Meeting (President Testa)
AIPG Annual Meeting (Executive Committee and staff)
AAPG-DEG Conference and AIPG New Mexico Section (President Testa and President-Elect Fails)
ASBOG Annual Meeting (Executive Director Knight)
GSA Convention (President Testa, President-Elect Fails and staff)
NGWA Convention (President Testa)
1998

Oct. 3-8. AIPG National Annual Meeting, Professional Geology, Mineral Resources and Our Environment, Baton Rouge, LA. Contact: M.B. Kumar, Gen. Chr., PO Box 13151, Baton Rouge, LA 70893, Ph.: (504) 342-5501.


Oct. 13-17. III Seminario Minero Sonora 2000, sponsored by the Association of Mining Engineers, Metallurgists and Geologists of Mexico, Sonora Section, Hermosillo, Sonora, Mexico. Contact: Mario H. Campos, President, Ph.: (62) 10-55-10, e-mail: idgasa@imparchal.com.mx.

Oct. 19-22. Australia's International Mining & Exploration Exhibition (AIMEX), Sydney, Australia. Contact: Gene Sanders, REC, 363 Main Ave., Norwalk, CT 60681, Ph.: (203) 840-5570.


Oct. 21-23. GCAGS 48th Annual Convention - Bridging the Gulf: To New Growth, To the New Millennium, Corpus Christi, TX. Contact: AAPG Convention Dept., P.O. Box 979, Tulsa, OK 74101-0979.

Oct. 26-27. The 2nd Annual Oil Field Services & Equipment Mergers & Acquisitions Institute, Houston, TX. Contact: 1-800-869-4302.


Nov. 5-7. AAAS Conference in South Dakota to establish network of researchers in Great Plains states, Sioux Falls, SD. Contact: Ellen Cooper, Ph.: (202) 326-6431.


Nov. 12-17. AAAS Epic of Evolution Conference, Chicago, IL. Contact Dave Amber, Ph.: (202) 326-6334 or http://www.aaas.org/epic/conference.htm.

Nov. 21-23. AAAS Conference on Guidelines for Anonymizing Interplay on the Internet, Irvine, CA. Contact: Dave Amber, Ph.: (202) 326-6334 or http://www.aaas.org/epic/conference.htm.


1999

Jan. 11. International Distance Learning Courses, Site Remediation Course, Ground Water Hydrology Courses, and Environmental Geophysics Course Offered, Wright State University, an international learning program For more information, Ph.: (937) 775-3648, e-mail: IRS07@wright.edu, http://www.geology.wright.edu/iris.html


Send notices of meetings of general interest, in format above, to Editor, TPG, 7828 Vance Drive, #103, Arvada, CO 80003, e-mail: wjd@aipg.com.

AIPG ANNUAL MEETINGS
October 3-8, 1998
Baton Rouge, Louisiana
October 5-8, 1999
Anchorage, Alaska
October 11-15, 2000
Milwaukee, Wisconsin

AIPG Membership Totals
As of 09/04/97 As of 08/24/98

| CPG - Active | 4,488 | 4,406 |
| CPG - Retired | 492 | 500 |
| CFC | 51 | 64 |
| MEM | 0 | 7 |
| RM | 0 | 13 |
| AP | 6 | 0 |
| AS | 0 | 4 |
| SA | 42 | 70 |
| Honorary | 13 | 14 |

TOTALS 5,060 5,078

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## TYPES OF MEMBERSHIP AND REQUIREMENTS

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**EDUCATION:** 36 semester or 45 quarter hours in geological sciences* with a baccalaureate or higher degree; certified copy of official transcripts must be sent by each college or university

**EXPERIENCE:** 8 years beyond bachelor's degree, or 7 years beyond master's degree, or 5 years beyond doctorate

**SPONSORS:** 3 required from professional geologists, 2 of whom must be CPG's (see Section 2.3.1.4 of the Bylaws for exceptions)

**CERTIFICATION/REGISTRATION:** None required

**SCREENING:** Section and National

**APPLICATION FEE:** $50 (to upgrade from Registered Member or Member to CPG, the fee is $35)

**ANNUAL DUES:** $85 plus Section dues; both pro-rated for remainder of year when accepted

### REGISTERED MEMBER

**EDUCATION:** 30 semester or 45 quarter hours in geological sciences* with a baccalaureate or higher degree; certified copy of official transcripts are required for this application if they are not required by the state for registration/certification/licensure

**EXPERIENCE:** No proof required

**SPONSORS:** 2 required from professional geologists, one of whom must be a CPG, Registered Member or Member; sponsor letters in state registration application may serve as sponsor statements if approved by Executive Committee

**CERTIFICATION/REGISTRATION:** Proof of current registration/licensure/certification must be submitted with application and with annual renewals and must include expiration date

**SCREENING:** National

**APPLICATION FEE:** $30

**ANNUAL DUES:** $60 plus Section dues; both pro-rated for remainder of year when accepted

### STUDENT

**EDUCATION:** Currently enrolled in a geological science* degree program

**EXPERIENCE:** None required

**SPONSOR:** 1 letter from geological science faculty member

**CERTIFICATION/REGISTRATION:** None required

**SCREENING:** Headquarters can approve

**APPLICATION FEE:** $5

**ANNUAL DUES:** $15

### ASSOCIATE

**EDUCATION:** None required

**EXPERIENCE:** None required

**SPONSORS:** 1 CPG, Registered Member or Member

**CERTIFICATION/REGISTRATION:** None required

**SCREENING:** Headquarters can approve

**APPLICATION FEE:** $5

**ANNUAL DUES:** $50 plus Section dues; both pro-rated for remainder of year when accepted

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*As defined by the American Geological Institute, a geological science is any of the subdisciplinary specialties that are part of the science of geology, e.g., geophysics, geochemistry, paleontology, petrology, etc.

Note to those who received their degrees from non-U.S./Canadian universities. If you received a degree from a university or college outside the U.S. or Canada, and the school is unable to provide an acceptable transcript, you must submit a copy of your diploma and a list of courses taken. The Screening Committee may ask you to provide additional information or an equivalency evaluation, at your expense.
Applicants for certification must meet AIPG’s standards as set forth in its Bylaws on education, experience, competence, and personal integrity. If any Member or board has any factual information as to any applicant’s qualifications in regard to these standards, whether that information might be positive or negative, please mail that information to Headquarters within thirty (30) days. This information will be circulated only so far as necessary to process and make decisions on the applications. Negative information regarding an applicant’s qualifications must be specific and supportable, persons who provide information that leads to an applicant’s rejection may be called as a witness in any resulting appeal action.

Applicants for Certified Professional Geologist

MI-Curtis, Loren J.
MI Dept of Environmental Quality, 10650 Bennett Dr., Monroe MI 48162. Sponsors: Lee Anne Glauchery, Eric Wails, Becky Kostis.

NM-Gorin, Stephen R.
PO Box 671, Sandia Park NM 87047. Sponsors: Tom Tharp, Paul Darr, Mike Skelly.

IL-Lueck, Larry
800 S. Wells St. #1347, Chicago IL 60667. Sponsors: Mark Vandell, Craig Carlson, Craig Smith.

MI-Park, Scott G.
3501 Delta River Dr., Lansing MI 48906. Sponsors: Jamie Mathis, Roger Noyce, James Ferrito.

OH-Rochotte, Mary L.
152 E. Allen St., Lancaster OH 43130. Sponsors: Thomas Berg, Dennis Hurl, Billy Houman.

TX-Ryan, Maryann

OK-Schultze, Peter L.

New Certified Professional Geologists

TN-Backus, Dave CPG-10317
633 Windsor Dr., Collierville TN 38017, (901) 372-7662

MI-Bruening, Vincent E. CPG-10318
7645 Thunder Bay Dr., Pinckney MI 48169, (517) 655-4391

OH-Caetta, Mark A. CPG-10321
Vadose Research, Inc., 1435 Market Ave. N., Canton OH 44714-2609, (330) 454-6706

MO-Devon, John W. CPG-10323
245 Portico Dr., Chesterfield MO 63017, (314) 984-9800

MI-Ferritto, James J. CPG-10319
9827 Ponderosa, South Lyon MI 48178, (810) 349-7230

MI-Kasenow, Michael C. CPG-10324
1801 Little Clear Lake, Battle Creek MI 49014, (734) 467-0218

NY-Kavanagh, Charles C. CPG-10325
31 Glass Lake Rd., Averill Park NY 12018, (518) 453-4500

NV-Hodges, Wade A. CPG-10309
801 Aclaine St., Carson City NV 89703, (702) 841-4392

MI-McMahon, David A. CPG-10315
2428 Lake in the Woods Blvd., Apt. 860, Ypsilanti MI 48198, (313) 934-8868

PA-Schantz, David M. CPG-10327
602 Catwil Rd., Wayne PA 19087, (610) 225-2617

CO-Cherry, Christian R. CPG-10337
7318 F.S. Kenia Circle, Englewood CO 80112, (303) 694-8660

NV-Smith, Larry B. CPG-10313
5775 Stone Valley Dr., Reno NV 89523, (702) 747-0349

NV-Thomas, Robert D. Jr. CPG-10314
5040 Pleasant View Dr., Sparks NV 89434

NY-Urbane-Mead, Russell B. CPG-10328
106 Mills Cross Rd., Staatsburg NY 12580, (914) 454-3980

New Registered Members

PA-Evenson, Edward B. RM-0013
Dept. of Earth/Environmental Sci., 51 Williams Dr., Bethlehem PA 18015-3186, (610) 759-3659

CT-Tsacoyannis, Nicholas C. RM-0012
76 Cross Hwy., Westport CT 06880, (203) 452-3100

New Members

MI-DeWyre, Robin S. MEM-0007
2123 Pleas Dr., Brighton MI 48114, (810) 225-6271

AK-Olson, Ian MEM-0005
P.O. Box 80280, Fairbanks AK 99708-0280, (907) 457-5159

New Candidates for Certification

NJ-Fowler, Gene P. CFC-0160
310 Plymouth Rd., North Brunswick NJ 08902, (732) 225-4116

MI-White, Todd M. CFC-0161
313 V. Chapel Ln., Midland MI 48640-7325, (817) 892-1199

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35th Annual AIPG National Meeting

Hosted by
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Baton Rouge Geological Society

October 3 - 8, 1998

Professional Geology, Mineral Resources and Our Environment

For more information contact:
Madhurendu B. "MB" Kumar
General Chairman
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