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<th>NON-MEMBERS</th>
</tr>
</thead>
<tbody>
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<td>$4.50</td>
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<tr>
<td>Hazardous Waste</td>
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<td>Radioactive Waste</td>
<td>$3.00</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Monograph Series</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Guide to Federal and State Appointive Positions</td>
<td>$2.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>Organization and Content of a Typical Geologic Report</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Special Publications</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Guide to a Successful Job Search</td>
<td>$3.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>Technical Writing as a Process within a System</td>
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<td>(call for price)</td>
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</tbody>
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### September Issue of TPG to Focus on International Geology

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

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

### 1991-1992 TPG EDITORIAL CALENDAR

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>TOPIC</th>
<th>SUBMISSION DEADLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. '91</td>
<td>International Geology</td>
<td>August 1, 1991</td>
</tr>
<tr>
<td>Nov. '91</td>
<td>Environmental Geology</td>
<td>October 1, 1991</td>
</tr>
<tr>
<td>Jan. '92</td>
<td>Mining Geology</td>
<td>December 1, 1991</td>
</tr>
<tr>
<td>Mar. '92</td>
<td>Geologists and Engineers</td>
<td>February 1, 1992</td>
</tr>
<tr>
<td>May '92</td>
<td>AIPG Annual Meeting</td>
<td>April 1, 1992</td>
</tr>
<tr>
<td>July '92</td>
<td>Geoscience Education,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Continuing Education and Careers</td>
<td>June 1, 1992</td>
</tr>
<tr>
<td>Sept. '92</td>
<td>Government and the Geologist</td>
<td>August 1, 1992</td>
</tr>
<tr>
<td>Nov. '92</td>
<td>Geologic Hazards</td>
<td>September 1, 1992</td>
</tr>
<tr>
<td>Jan. '93</td>
<td>Petroleum Geology</td>
<td>December 1, 1992</td>
</tr>
</tbody>
</table>

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Reclamation Design

Information is available from the Australian Coal Industry Research Laboratories Ltd. (ACIRL) about its computer-aided Reclamation Landform Design capabilities. The company is moving to develop additional surface design and evaluation tools to allow computer-aided design of mine reclamation earthworks. Such earthworks are necessary to treat the post-mining landscape and produce a stable, non-eroding landform.

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President's Message

Haydn H. Murray

The months of April, May, and June were exceptionally busy months. In April at the AAPG meeting in Dallas, the presidents of the various geological societies met with Bill Fisher, the president, and Chip Grost, the Executive Director of AGI, to discuss a broad ranging advocacy program for the geological sciences. This program was approved in principle and will be implemented by 1992, if possible. This will be primarily an information service and will permit AIPG to determine those issues which we wish to support, provide testimony, and/or wish to defeat. Because AGI will assume this responsibility, AIPG will no longer need a Washington representative. Therefore, the Executive Committee voted to inform Guerry Newton that her services will no longer be needed. AIPG members have greatly benefitted from the excellent report “From Washington” that appeared in TPG that Guerry authored. In the future, this information from Washington will be sent to AIPG Headquarters by the AGI advocacy person and thus will be edited by Bill Knight or one of his associates and sent to our editor for publication in TPG. On behalf of AIPG I wish to commend Guerry Newton for a column that was very well done and very timely. Thanks Guerry.

On May 9 and 10, Bill Knight and I attended a meeting hosted by AGI in Washington at the National Academy of Sciences on earth science education primarily focused on K through 12. This meeting was called a summit meeting for the various earth science society presidents and executive directors. The results of this meeting and the proposals that were put forth will be published in the next AGI newsletter. In my opinion, this was a very worthwhile meeting.

On May 25 and 26, Bill Knight and I attended a meeting in Stockholm, Sweden, of the European Federation of Professional Geologists. Bill Knight will report on this meeting in TPG. It was worthwhile for Bill and I to attend this meeting and learn more about the problems related to a geologist from another European Country practicing in another European Country. Bill will suggest a possible way that AIPG can become associated with the European Federation.

On June 4, Bill Knight, Bob Northcutt, Bob Corbett, and I (representing AIPG) and Lee Gerhard (representing AAPG) and Charles Grost (representing AGI) held an ad hoc meeting at the O’Hare Hilton in Chicago primarily focused on undergraduate curricula in geology. A report will be issued and, if approved by the AIPG Executive Committee, will be published in TPG and after endorsement and revision will be adopted by the AIPG Committee for Cooperative Evaluation of Undergraduate Programs in Geology and made available to these institutions of higher education with a geology or earth science curriculum.

In addition to the above meetings, I have written letters to Representative Rahall and Senator Bumpers regarding the AIPG position on the revision of the Mining Law and have also written to the twenty members of the Senate Committee on Energy and Natural Resources and the nine members of the Senate Subcommittee on Mineral Resources Development and Production supporting the Geologic Mapping Act of 1991 introduced by Senator Bennett Johnson of Louisiana as S-1179. I urge each AIPG member to write the senators in his or her state to support this bill. The United States is behind the other developed countries in this world in that our country is only sparsely covered by detailed geologic maps. Geologic maps will be used in issues such as evaluation and protection of groundwater resources, earthquake hazard mitigation, mineral and fuel exploration, land use planning, building and repairing infrastructure, strengthening and enhancing state and national economies, and use by the military in national defense issues.

The May issue of TPG covers many items of interest concerning the annual meeting in Gatlinburg, Tennessee, Oct. 16-19. Plan to attend if you possibly can. The organizers have put together a very interesting program with some exciting field trips.

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Computer Applications in the Mining Industry

On September 15-18, 1991 mining engineers and geologists will meet in Vancouver, B.C., Canada, to attend the Computer Applications in the Mining Industry Conference. The conference is being hosted by the Department of Mining and Mineral Process Engineering, University of British Columbia. For more information contact: A. L. Mular, Dept. of Mining; Mineral Process Engineering, University of British Columbia, 6350 Stores Road, Rm. 517, Vancouver, B.C., Canada V5T 1W5 (604) 288-5599 FAX.
The Computer and the Single Geologist

William F. Ripley, CPG 7416

One day you are working in a company office as a geologist or geological manager with a staff of secretaries, draftsmen, and geotechnics; and the next day you are setting up an office to try to make a living as a consultant. In recent years many geologists have experienced this either by choice or out of necessity. Chances are the geologist didn’t fully appreciate those staff members and the “information center” or file room. Some may have become dependent to some degree on a computer system, perhaps a workstation tied to the central corporate computer. Their experience with the computer was either positive or negative, depending on how responsive the system was to the individual’s needs and how successful the geologist was at storing his own data and retrieving it in a useful medium in a reasonable time frame.

I am one of those geologists who was tapped in the early 1970’s to go to the corporate computer center and infuse, so to speak, some geologic expertise (or “geo-common sense”) into a staff struggling to build a practical computer system to help the geologist find oil and gas. By “system” I don’t mean just a software/hardware system, but an organization to go with a versatile system; to bring the power of the computer to the individual explorationist, not the other way around.

Those were pioneering days when 80-column tablets, keypunch machines and batch processing were still the primary means of data input. We learned to put run decks of cards together with the appropriate JCL (job control language) to read in the data, or to call up a master file magnetic tape, or to make the maps and reports. The output was mailed back to a distant office where the geologist went on hand contouring his own maps while he waited days and weeks for requests to be filled by the computer center.

The geologist in the field was far removed from the actual computer and the expertise required to edit and input the data or output the maps. All he knew about were the restrictions placed on what he could store in the computer and what he could expect as output. The more the geologists used the computer, the more versatile they wanted the “system”. Their requests were transformed into a monumentally long list of programming requests.

By the late 1970’s progress had been made. There were more geologists using the computer. Some actually were able to show management computer-drawn maps (even today this is forbidden in some offices). Meanwhile, I elected to get back into the oil and gas finding business of geology in one of those offices remote from the computer center. I found that, from the standpoint of the working geologist, nothing much had changed from the early 1970’s to the late 1970’s. Yes, there were remote terminals scattered throughout the company and keypunch machines were obsolete, but the desired interaction between most of the geologists and the computer did not exist.

In 1986 I became one of many geologists to set up an office as a consultant. There I was with a desk, drafting table, empty map cart and no data; not even a scout ticket. I joined the local geology library, picked an area to start on, acquired some base maps, and pulled or copied logs. After spending months correlating logs, recording tops on a ledger tablet, and hand-posting maps with production, tops and sand values; I realized that I had just stepped back in time to the early 1960’s when I first went to work. I knew there was a better way. I began hunting for a computer system to replace the company staff, to be the information center, the draftsmen, the secretary, and the geotech.

While I was kicking around between companies in the early 1980’s, a wonderful thing happened in the computer world—the PC. This is the foundation of the bridge between the individual geoscientist and computer science. The personal computer with it’s power, portability, compatibility, and relatively low cost changed the computer “system” with which geologists could work. An explosion of available software has resulted in a supermarket full of computer application programs from which to choose.

You can attach a printer, a plotter, a digitizer, a modem, even a teletypewriter. With a PC you can store your data, make all of your own base maps, contour the maps, make reports, analyze logs, keep track of your income and expenses, and invoice your clients. Then you can write the cost off on your income taxes.

The best way to get started is to talk to geologists who are already successfully using the computer. See what they can do, how easy they can do it, and how much it costs. Local user groups like COGS sections are a good place to meet some of these geologists. Talk to geologists before you talk to software vendors, and, by all means, before you talk to computer salespersons.

The computer for the single geologist is not in the future, it is now!!! If you don’t think you can afford one, I suggest perhaps you can’t afford to be without one.

(This paper was published in the Nov. 1989 COGS (The Computer Oriented Geological Society) Letter.)
Geo-Graphics Via Mac

Geologists typically are graphic oriented. Maps, cross sections, fence diagrams, stereonets, well logs, ternary plots, histograms, 3D surface plots, graphs and charts are used to illustrate the bulk of the earth scientist's work. Many geologists have found the Macintosh Computer to be a viable work horse for performing these sometimes tedious tasks. Some notable changes have occurred recently concerning Macintosh hardware and earth science software. A new line of less expensive Macs is broadening the user base worldwide. Though still behind PCs and compatibles in terms of units sold, companies are finding room for both systems, as each has its advantages. System 7 for the Mac is ahead of most other operating systems for personal computers, with increased power, connectivity and productivity for its users. Along with these changes, the availability of Macintosh geo-specific software has been increasing as well. The variety includes applications for petroleum geology, mining, archaeology, civil engineering, academic/research, hydrology/groundwater, and geophysics. Most of the products take advantage of the Mac interface: pull-down menus, dialogue boxes, multi-window viewing environment, and MultiFinder compatibility (though now obsolete with System 7).

For petroleum geology, the available products include: deviated well hole plotting, borehole and log plotting, petroleum production forecasting, petroleum engineer calculations, production history and cash flow analysis, gridding and contouring, 3D surface modeling, basemap plotting, cross section profiling, log analysis, digital elevation models, and digitizing.

Economic Forecasting

For mining applications, the following are available: digitizing, gridding and contouring, borehole and log plotting, 3D surface modeling, basemap plotting, cross section profiling, digital elevation models, fault modeling, igneous petrology and mineralogy calculations, geostatistics, fence diagram plotting, stereonet plotting, rose diagram plotting, and ternary plots.

Due to Apple Computer's aggressive Macintosh marketing to colleges and universities, the bulk of the available earth science software falls under the academic/research sector: strain and deformation graphics, ternary plots, stereonet plotting, crystal and atom drawing, rose and Mohr diagrams, subsidence stratigraphy, mineral data bases, igneous petrology and mineralogy calculations, strain analysis, geostatistics, gridding and contouring, basemapping, fault modeling, digital elevation models, digitizing, periodic table, 3D surface modeling, log plotting, and point counter.
Computer Software for Designing and Analyzing Aquifer Tests

A user-friendly software package AQTESOLV has been designed to assist the ground-water professional in one of the most important and commonly practiced methods of characterizing and understanding the movement of ground water in aquifers: pumping tests and slug tests.

Since 1935, when C. V. Thies published an analytical solution describing the unsteady flow of water to a pumping well in a confined aquifer, ground-water hydrologists have routinely estimated hydraulic properties of aquifers from pumping tests by matching "type curves" to time-drawdown data measured in an observation well. Traditionally, this "curve-matching" process has involved matching two sheets of graph paper (one for the observed time-drawdown data from the test and one for the "type curve" for an appropriate mathematical solution) on a light table by visual inspection. Nowadays, a large number of solution methods are available for pumping tests and slug tests performed in confined, unconfined, leaky, and fractured aquifers. To apply these different solutions using the curve-matching technique, the practicing hydrologist must prepare by hand or have at his fingertips a huge battery of type curves.

This program eliminates the manual labor involved in the traditional method of curve-matching by computerizing the entry, plotting, and matching of pumping test and slug test data to many different, currently available analytical solutions. The program even automates the entry of data from pressure transducers. After prompting the user for required data, the program offers pumping test solutions for confined, unconfined, leaky, and fractured aquifers. Slug test solutions for confined and unconfined aquifers are also available.

Two methods of obtaining estimates of aquifer properties are offered. First, the program implements the traditional method of visual curve matching directly on the computer screen. Second, it offers a more objective method that uses a nonlinear least-squares parameter estimation algorithm to determine hydraulic properties automatically.

The program increases the accuracy of curve matching by providing an almost unlimited number of type curves for analytical solutions involving three or more parameters (such as the Hantush solutions for unsteady flow to a well in a leaky aquifer). The automatic parameter estimation feature increases the reliability and objectivity of curve-matching results and also provides statistical measures of uncertainty.

The software operates on IBM-compatible microcomputers with 640K RAM, and CGA, EGA, VGA, or Hercules graphics adapter and monitor.

Optional hardware requirements include a math coprocessor, a hard disk, a mouse, a graphic printer, and a plotter. The price of AQTESOLV is $500 which includes complete documentation and support from the vendor, Geraghty & Miller Modeling Group.

(Geraghty & Miller, Inc. advertisement on page 8.)

JULY 1991
Computer Obsolescence: Plan for It To Cope With It

Alan Chapple, Associate Editor (Engineering Times, June 1991)

John Kinney begins his CADD seminar by asking those in attendance, "How many of you have an old TRS 80 model 3 stored away in a box in the closet? How about a real true blue original IBM PC, the funny keyboard, and everything?" If not, perhaps your firm is stuck with an outdated Wang SVP. Regardless of the system, Kinney says, the point is that "equipment becomes obsolete, and computers are no exception."

The North Carolina architecture-turned-consultant, who spoke at the recent A/E/C Systems '91 show, says that in the case of computers there are two basic types of obsolescence: functional obsolescence, when equipment can no longer perform a needed function; and market obsolescence, when a product is no longer the newest or most capable at performing a particular function. "Obsolescence is a slippery beast," says the principal of A/E/C Support Services in Raleigh. "It's not an easy thing to get hold of. Functional obsolescence depends on what you're using the computer for. Market obsolescence is ubiquitous; it's hard to buy a computer today that isn't already obsolete because the manufacturer already has the next designs on the drawing boards and they will be on the dealers' shelves very soon."

Kinney says that one of the best ways of coping with computer obsolescence is to plan for it in advance. "But to do the planning properly," he advises, "you have to give some thought to the functions of the equipment that you're considering to purchase and knowing what might happen to that equipment in the future."

Other Uses

He says an important first step is to "ask yourself whether this new computer you're planning for is likely to be used eventually for some other purpose." Remember, he says, "the typical lifetime of use for a computer is about three years." After that, it's functionally obsolete - or on the verge of it - for the purpose for which you originally purchased it.

Consideration should also be given to whether users of the computer will likely need a lot of peripherals in the future. "If that's the case, then you don't want to buy one of these small footprint computer boxes that only has space for two or three cards," he says. "You want to consider buying a system that accepts the range of use that you have planned for it."

Similar advice is given to those who might be in the market for desktop publishing, then you'd better buy a computer that you can put four to eight megabytes of memory in, Kinney says. "Think ahead." People should anticipate other demands on memory and capacity, according to Kinney. "Unless trends change, the software you'll buy two years from now will require more memory and bigger disk drives, because codes seem to get bigger and bigger," he explains.

Once future uses of a new computer have been considered, Kinney recommends that designers "look at the cost and make sure your new computer can be easily converted to the uses you envision. Compare that cost with the cost of having to scrap the system and start over down the road."

Kinney says most people will find that the cost of buying a system capable of accepting future add-ons will be much less than the cost of another new system two years later. "You'll be comparing hundreds of dollars with thousands," he says. "For a small expense, you can insure yourself against computer obsolescence."

Offering a view of the future, he forecasts, for instance, that before too long "the minimum MS/DOS platform that will be considered a base unit will be a 16 megahertz, 83/86 SX computer with about 8 megabytes of memory and 110 megabyte disk drive, and a high-resolution color display. That's going to be the standard for a first-quality, inexpensive desktop computer over the next couple of years."

Mainstream

A note of caution: "The further you stray from the market mainstream, the less apt your predictions about the future are going to be, and the more likely you're going to be taking risks," he says.

"If you feel you need things that are out of the mainstream, I would at least think about whether those systems can run mainstream software in the event that in the future there's a collapse in the software development in the area you're trying to get to. If there's a collapse of support, that's a good way of getting back to the mainstream without obsolescence."

While computer obsolescence sets in after three years, Kinney says that much of the hardware that's no longer suitable for its original purposes can often be converted to other life-extending uses.

"There's a hand-me-down strategy that you can employ as you try to extend the lifetime of systems," he explains. "The trick is being creative and looking at these systems not as old computers but as potential resources to some other part of the company."

A system that's become inefficient for CADD production might have an adequate graphics package to undertake duty in desktop publishing. Likewise, one too old for accounting might serve word-processing needs.

"And if unsuitable for anything else, a desktop computer can almost always be used as a smart communications terminal, if you have a need for that," he says.

Another way to minimize contributions to the junkyard is to buy software with flexible capabilities. "If you can make the software change in ways that are useful to you," Kinney says, "that's a way to avoid obsolescence. If you're really worrying about where software obsolescence might be going, you might look at how many vendors support your hardware platform."

Regardless of planning, Kinney admits, all computers will some day have their plugs pulled. As an alternative to shipping the outdated equipment to the dump, Kinney suggests that firms consider selling it to companies that specialize in used business equipment. "But don't expect miracles," he warns. "Unless your equipment is desirable in some special way, the resale value is probably going to be pretty paltry. Unless you're very lucky, the effort to try to sell the equipment is probably not worth it."

Better yet, he adds, firms might consider giving outdated equipment to local charities. Another possibility, he says, would be to contact the National Christina Foundation (1-800-274-7846), which maintains a data base of old equipment available for institutions and individuals in need."

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THE PROFESSIONAL GEOLOGIST
Major Advance in Hydrologic Modeling

Richard M. Powers, P.G., CPG 6765

In May of 1988, the Florida Institute of Phosphate Research (FIPR), located in Bartow, Florida, embarked on a four-year research project to develop a state-of-the-art computer model that would accurately predict the hydrologic impacts of phosphate mining on surface and groundwater systems. The research project is directed by a Hydrology Advisory Committee consisting of the consultant, Bromwell & Carrier, Inc. (BCI), FIPR, Florida Department of Natural Resources, Florida Department of Environmental Regulation, Southwest Florida Water Management District, United States Geological Survey, United States Soil Conservation Service, Florida Fresh Water Fish and Game Commission and the phosphate mining industry. The goal of the research project is to develop a user-friendly, interactive hydrologic model that would serve as the standard for evaluating future hydrology permitting activities between the phosphate mining industry and local and state regulatory agencies. The model will provide reclamation planners, engineers, and hydrogeologists a tool to assess pre- and post-mining surface water discharge rates and the groundwater data necessary for reestablishing stream base flow and surface water systems, planning wetland and marsh reclamation projects, and predicting water table levels in the surficial aquifer.

The core of the FIPR Hydrologic Model (FHM) is a highly analytical geographic information system developed by TYDAC Technologies Inc. called "SPANS", which stands for Spatial Analysis System. The GIS portion of the model enables a user to digitally store, displace and manipulate geographical data such as soils maps, topographic elevations, aquifer levels, and land use coverage. The GIS then performs overlay functions which are used to conduct spatial analysis of the various geographic information to generate model input parameters such as slope and soil infiltration. The GIS data are then utilized in the hydrologic model preprocessors to develop the data files needed to conduct sophisticated hydrologic modeling.

The models incorporated into the GHM consist of EPA's Hydrology Simulation Program - FORTRAN (HSIP), which is a surface water model and the McDonald-Harbaugh groundwater model (MOD-FLOW) as the basis for hydrologic analysis. In addition, an evapotranspiration (ET) model was also incorporated into the model to better estimate daily and total ET. These three models working with the GIS system allow a user to conduct either event or continuous annual hydrologic simulations for most areas within the state of Florida. Currently, a user is able to step through the GIS portion of the model in approximately 2 hours and complete an annual simulation of a project area within 2 to 3 hours. Event simulations generally are completed in about 5 minutes utilizing a 386 computer running at 25 MHZ.

During the research project, extensive data gathering and calibration activities were completed to develop the appropriate ranges and default values necessary to automate the hydrologic model. A total of 23 sites were monitored for different types of landforms and vegetation and that data then used to calibrate the model. Typical data collected and analyzed consisted of ET, precipitation, surface water run-off and base flow, stream stage, infiltration rates, soil types and physical characteristics and aquifer levels and characteristics.

The FHM represents a major advancement in hydrologic modeling by linking a GIS, surface water, groundwater, and evapotranspiration model. Users of the model are able to conduct event simulations for any specific type of rain fall event and are also able to run continuous annual simulations using various annual temperature and precipitation data. With the FHM it is possible to analyze groundwater and surface water conditions on an annual basis for range of climatic conditions ranging from a cold, wet year through a hot, dry year.

The model also provides the user with a tremendous amount of analytical data based on a specific grid pattern. A typical question which can be addressed by the model is, "Will this designed wetland contain enough water to support the types of vegetation selected for reclamation?" Utilizing the continuous annual simulation, the hydrologist can develop point water level elevation data for each of 52 weeks and then assess if the appropriate hydroperiod is maintained for a successful wetland reclamation project. In addition, base flow to streams can be assessed and design changes made prior to reclamation activities to best yield a productive, environmentally compatible reclamation design.

The FIPR hydrologic model is currently in its final developmental stages and will be ready for distribution to the hydrologic community during the early spring of 1992. The consulting team responsible for development of the FIPR hydrologic model consisted of Bromwell & Carrier, Inc., Lakeland, Florida; University of South Florida College of Engineering, Tampa, Florida; Schreuder & Davis, Inc. of Tampa, Florida and Dr. S. Snedaker of the University of Miami. For additional information concerning the FIPR Hydrologic Model, please contact Richard M. Powers, Executive Vice President, Bromwell & Carrier, Inc., P.O. Box 5467, Lakeland, Florida 33807.

Mine Planning Software

An enhanced version of the Eagles-PC geology and mining software has been released. This version has an all-new graphic interface with easy-to-use, task-oriented, bar-type menus; pop-up windows for data entry; mouse support; and on-line help. A descriptive reference manual provides additional information on the programs and operation of the system. (Morrison Knudsen Corp.)

Geographic-Information System

A regional geographic information system is being established at Western Washington University in Bellingham, Washington. This system will let researchers display land parcels on the screen and use many criteria - population, land use, aquifers, soil types, and more - to examine them.

The new system will be used for environmental studies, land-use planning, and basic research. Also, researchers will be able to tap directly into many other data bases, such as those at the U.S. Environmental Protection Agency and at research universities, and use the information to create new data bases. An example of the system's potential would be to examine the impact on an aquifer of a 10% population increase over a five-year period.

For further information contact Thomas Storch at Western Washington University (206) 676-3510.
Geosoftware

Exciting geosoftwar is continually being developed. Its impact on the geologic profession is tremendous. AIGP members need to keep abreast of current offerings and utilize the software best suited to enhance job performance. Following is a brief listing of some current programs. Contact your local computer dealer for further information.

- EntryPag - an all-HyperTalk expert-system shell for building knowledge bases for the Macintosh. Capabilities include full support of rule and object-base programming. EntryPag has features of hybrid expert-system shells, including full support of frames (classes), instances, slots, and slot attributes (facets); frame-based graphics (image-classes); slot method and data inheritance; structured and unstructured rule clauses; grouping and firing of rules in discrete rule sets; knowledge trees for object-inheritance rule sets; knowledge trees for object-inheritance hierarchy; and integrated displays for rules, objects, slots, and facets.

- G-Hancer - a set of software programs for enhancing anomalies in geochemical exploration data, and for filtering data to reduce the effects of erratic values. The programs use parametric and non-parametric statistical methods to compare values in a circular cell centered at each data point with the values in a circular band (annulus) surrounding the center cell. The radius of the center cell and the inner and outer radii of the annulus are set by the user. Unlimited possibilities allow the user to develop the kind of anomaly enhancement that is best for any specific area with variable geochemical background.

- MapInfo - Desktop Mapping software for the IBM PC. MapInfo displays large maps or drawings created by the user, or supplied with the program. The combination of merging data with maps allows the user to do geographic analyses and data manipulation. MapInfo works with text data bases and graphically displays data existing in dBASE, FoxBASE or other DBF format files without importing. Data can also be imported from other packages through an ASCII file. MapInfo searches data-base records on any geographic data. Analytic features allow a search for points in any given radius or boundary, and display the records found in the search send to a printer, an ASCII file, or data base. MapInfo can locate, map data to, or find the area and perimeter of boundaries. It determines which data-base records are within a boundary and counts, sums or averages values from a specified field; colors or shades boundaries based on these data, and create a thematic map.

- PlotIT - a stand-alone, plotting and statistical program that handles the needs of scientists and engineers. It can help produce quality graphs and sophisticated analysis of data. Thirty-five possible graph types are available, including histograms, trace and point graphs, contour graphs, pie and bar charts, needle and fill graphs, triangular and linear regression graphs, 3-D vertical and horizontal bar graphs, 3-D fishnet surface graphs and notchbox graphs; log, semi-log and linear scales, automatic or manual axis scaling and much more. Interactive statistical procedures include summary statistics, time series and trend analysis, cubic spline approximation, linear and polynomial regression analysis, non-linear regression analysis, stochastic distribution fitting, grid generation, multiple linear regression analysis, goodness of fit testing, and random number generation.

- REF-11 - a data-base management system for bibliographic references. A data base of references can be created, searched, updated, and output in various forms. REF-11 helps in data entry to help create new references or to help update existing references. The data base is stored in large data files called reference volumes. Variable length direct-access records are used within a reference volume to store the information. References can be located by searching for any combination of authors, years of publication, reference title, publication title, comments and keywords. A reference also can be located by an assigned unique ID number.

- SlideWrite Plus 4.0 - creates publication-quality reports, charts, graphs, and slide presentations for scientific and business purposes. Special graphing features include dual Y axis plotting; log-log and semi-log axes; linear, log, root, spline, exponential and polynomial curve fitting; data plotting from Lotus and ASCII files; and equation plotting of the form y=f(x). Creates text, graphs, and drawings with up to 4,000 points and 12 data points per graph; and provides facilities for graphs with label size, font, and color, line types and thickness, scaling, offset axes labels and much more. An industry standard Graphical User Interface is provided.

- TVD Utility - a new computer program to help analyze well data from deviated and horizontal wells. The program computes and displays the well course after the user inputs the directional survey record including well drift angles and directions. Along with the well locations, the true vertical depth (TVD), true stratigraphic thickness (TST), and true vertical thickness (TVT) are computed and can be added to a file containing data from well logs. Examples of various outputs include vertical TVT, or TVT logs, and projected wells onto cross-sections of different directions. Well logs from different wells can also be displayed side by side across a specific plane for correlating.

- AGTESOLV - is watershed in-aquifer testing-analysis program for groundwater professionals to determine pumping-test and slug-test analysis. Designed to handle complicated hydrogeologic conditions, the program can do curve generation and aquifer parameter estimations. Data are entered once using a simple data manager. AGTESOLV computes and plots type curves for many different analytical solutions. Constant-rate pumping tests include those for confined aquifers, unconfined aquifers, leaky aquifers, and fractured aquifers. AGTESOLV generates a virtual number of type curves for solutions involving three or more aquifer parameters.

- DADISP, Data Analysis and Digital Signal Processing - an interactive graphics worksheet and visually oriented software tool for the display, analysis, and management of scientific and technical data. It is a spreadsheet for waveforms, signals or graphs. Instead of cells, DADISP has windows of entire waveforms and takes any type of data, (including signals, waveforms, and tables) and plots it in on-screen in color. It provides more than 200 different analysis routines including signal arithmetic and calculus, waveform generation, Fourier analysis, frequency domain analysis, correlations, trigonometric and statistical functions, and digital filtering. Complex numbers and engineering unit-conversions are supported.

- DI-MAN, DI-MAT, DI-GRAPH - DI-MAN is a fractals-graphics program that allows the user to create detailed (640x480) blow-ups of the Mandelbrot Set. It uses 80-bit high-precision numbers, and magnifications of 1,014 are possible. Maximum number of iterations can be set to 32,000. DI-MAN lets the user specify an initial frame, a final frame, and the number of frames wanted. When the recorded frames are played back, the effect is movie-like. The program can dump screen-resolution color pictures to a specific printer. DI-MAT is a library of speed-optimized matrix routines written in 32-bit protected mode assembly language. DI-MAT routines support single- and double-precision real and complex variables. DI-GRAPH is a scientific plot package that makes quality graphs.

- G-EXWHY - four programs designed to examine geotechnical data transforma-
tions, compute singular values, and multiple correlation coefficients, and fit up to seven different types of bivariate regression curves. It displays XY plots and fitted curves on a PC screen or dot-matrix printer. Transformations include

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THE PROFESSIONAL GEOLOGIST
2- and 3-parameter log distributions and power transformations. Effects of the transformations can be examined by comparing histograms, or by before-and-after estimates of skewness and kurtosis. Regression curves include linear, exponential, logarithmic, learning, inverse, hyperbola and inverse hyperbola.

- **GMA-STRUCT** - designed to aid the explorationist in relating a geologic-depth section (layered model) to a seismic-time section. It allows the generation of normal-incidence diffraction and ray-tracing models. This program is also useful in analyzing stratigraphic traps with little or no control. Layered models are either digitized or entered from the keyboard. Modeling options include vertical incidence, normal incidence (ray tracing), and diffractions, with up to 250 traces, up to 30 layers, and up to 20 velocity/density control points per layer (10 top and 10 bottom).

- **PLANIMETER** - can aid petroleum engineers, geologists, and geophysicists in computing the areas and volumes of reserves based on thickness maps, structure maps, or time-structure maps. PLANIMETER is an efficient means to planimeter contour maps. Maps are entered into the computer using a digitizing tablet. Results include the area of each contour, reservoir volume computed by eight integrating techniques, and oil and gas reserves. The program includes redigitizing specific contours, editing contours, and analyzing parts of maps (such as leases). Users can define map scale and units, and specify the units for calculated areas and volumes.

**Computer Aided Design for Ground-Water Modeling**

Applied ground-water modeling is both science and art. A software package, named ModelCad, has been designed to bridge the gap between the scientific aspects of modeling and the creative design of a model. It allows the modeler to be creative by providing a flexible, interactive graphical method of designing a finite-difference ground-water flow or solute transport model. The model is created by visualizing the model design in relation to the system being modeled, not by fitting numbers into a matrix or by answering a series of questions.

The program was designed to both speed the modeling process and to reduce the number of errors introduced into the model data set. Modeling is made more efficient by providing a flexible graphical interface which is easy to use. In addition, changes to the model structure are quickly incorporated into the data sets. Errors are reduced because the finite-difference grid is checked visually before the data sets are produced. The program also performs extensive error-checking of model input both during interactive design and when the data are translated into the model-specific format.

The program provides numerous "CAD-like" features to facilitate the design process. Several commands are available to "zoom" in on areas where detailed design work will be performed. This also overcomes the limited resolution on most graphics monitors by blowing up portions of the mesh.

It supports the use of digitized base maps which become overlays for the finite-difference grid during design. These digital maps may be created in almost any CAD system. Plotting the model grid directly over a geographical representation of the model domain makes graphical design much more effective. The finite-difference model grid is graphically generated and saved in a model-independent format. The modeler visually adjusts the grid spacing, boundary conditions, and aquifer properties and instantly generates the model input data files. The model-independent data format makes it easy to produce input files for any finite-difference ground-water flow or solute transport model. Both block-centered and mesh-centered techniques are supported. Translators are provided for four of the most commonly used models: (1) the USGS Modular Three-Dimensional Finite-Difference Ground-Water Flow Model (McDonald and Harbaugh, 1988) commonly referred to as MODFLOW, (2) the USGS Method of Characteristics Model (Komikow and Bredhoeft, 1978), (3) the Prickett and Lonnquist Aquifer Simulation Model (Prickett and Lonnquist, 1971) otherwise known as PLASM, and (4) the Illinois State Water Survey's Random-Walk Solute Transport Model (Prickett, Naymik, and Lonnquist, 1981).

The software requires an IBM-compatible micro-computer running under DOS 2.0 or higher with at least 512K RAM, and VGA, VGA, or Hercules Monochrome graphics. A color monitor is highly recommended. The ModelCad package costs $350 and includes extensive documentation and complete technical support from the vendor, Geraghty & Miller Modeling Group.

(Geraghty & Miller, Inc. advertisement on page 8.)

**Leeds Holds "Computer Solutions" Meeting**

"Computer Solutions in Mining and Processing" will be held at the University of Leeds, England, September 23-24, 1991. The conference theme will be off-line applications for planning and analysis in the minerals industries. Attendees will receive a copy of the proceedings to be published after the conference. For information contact: The Conference Office, The Institution of Mining and Metallurgy, 44 Portland Place, London, WIN 4BR, England.

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Call for 1991 Annual Meeting Exhibitors/Sponsors

The 1991 Annual Meeting of the American Institute of Professional Geologists will be held in Gatlinburg, Tennessee, October 16-19. Meeting headquarters will be the River Terrace Resort & Convention Center. This year's theme is Energy vs. Environment, and the technical program will include such topics as acid rain, clean coal technology, future energy possibilities, including nuclear policy, bioremediation, environmental restoration, seismic activity, and structural sessions. Single booths will be 8’ wide x 10’ deep, with pipe and drape provided, and electrical outlets available. Cost will be $200 for a single booth; larger space can be reserved at a cost of $100 per each additional 8’ x 10’ area, up to a maximum charge of $400. Booths should be set up Tuesday evening (Oct. 15) and taken down Friday evening (Oct. 18).

Sponsors will be recognized at an ice breaker on Wednesday evening (Oct. 16) and at a cocktail hour Thursday evening (Oct. 17). If you or your organization would like to reserve space for an exhibit, or would like to be recognized as a sponsor at the 1991 Annual Meeting, please fill out the form below and return it to Ron Zurawski no later than September 8, 1991, at the following address:

Ron Zurawski -
Exhibits/Sponsors Committee
Tennessee Division of Geology
701 Broadway - Suite B30
Nashville, TN 37242-0445
Telephone: (615) 742-6692

I would like to reserve exhibit space (8’x10’ @ $200) _______ (16’x10’ @ $300)_______
(24’x10’ @ $400) _______ at the AIPG Annual Meeting, to be held in Gatlinburg, Tennessee, October 16 - 19, 1991.

Payment Enclosed__________ Bill Me Later__________
(Make checks payable to AIPG Tennessee Section)

I would like to be recognized as a sponsor at the ice breaker on October 16, and at the cocktail hour on October 17, 1991. ($100 minimum is suggested)

Payment Enclosed__________ Bill Me Later__________
(Make checks payable to AIPG Tennessee Section)

TOTAL__________

Company Name:________________________________________

Address:________________________________________________

City:____________________________________________________

State:_________________ Zip:_________________

Contact Person:________________________________ Telephone:_________________
Fred L. Fox, CPG 1273

Registration still is a hot item, and probably will remain so until it is fait accompli. Frankly, I think the registration issue is/should be a strictly legal issue. If states want it, fine. If not, fine. It is, after all, for the protection of the public. IT IS NOT FOR THE SELF-AGRANDIZEMENT OF THE PRACTITIONER. The issue becomes severely clouded when the ethical issue is thrown into the pot. REGISTRATION HAS NOTHING TO DO WITH ETHICS. It has to do with the law. Ethics is a PROFESSIONAL (not a legal) phenomenon.

Another glistening facet of the problem has to do with the fact that our roots are scientific, not social, political or whatever. We are accustomed to reading and writing in scientific publications, and tend to assume that everything we write must be in those terms. This is truly unfortunate. Everything we think or write does not have to be documented, referenced and anchored to Black’s Legal Dictionary, especially if those things we write about (like thought) are neither scientific nor legal.

I mention this because it gets in our way when we discuss the registration issue. It’s a fact that some definitions are distinctly indefinite, arbitrary and/or ambiguous and, when we attempt to cross legal/ethical, or social/scientific lines, we drag definitions that don’t fit back and forth between them and end up comparing apples with cauliflower.

Example: “Professional Engineer” is a term usually denoting a registered engineer. Being registered does not automatically make one professional. The fact that the term (professional) has been contaminated by legal denotation definitely gets in our way when discussing such issues as registration. When the tail wags the dog, strange things happen.

The results of these vagaries are everywhere evident, even in writings by otherwise learned people. They become trapped by what others have written and say, which cripples their own ability to think and reason. Why in the world isn’t what you think valid? Must it always be subject to precedent? This phenomenon stifles creative thought in a way unmatched by any other. If I may digress just a sooch, it’s a major problem with our society today and a major reason why the legal system is in chronic disrepair.

We find our peers going to the dictionary to argue registration. Ridiculous. All this does is further cloud the issue(s). THINK! And you don’t have to back up every thought with reference. Take a chance! Uncya!

Recently I ran across a line of thought that "proves" that applied geology is not what many of us think it is, but is instead geological engineering. This is done scientifically via the definition route. It’s obvious that some lines have been crossed here. It’s simply not so, no matter what the dictionaries, law or any authorities say. I know it’s not so, because I practice applied geology every day, and I’ve been an engineer, and there’s nothing in common here. I don’t have to prove it to you or anyone else.

One more and I’m through (for now). The issue of registration usually raises the specter of specialties (because some “need” legal protection, while most do not). It’s probably true that some specialties impinge on society’s safety and welfare to a degree where the public needs some protection. Lord knows that our profession can use some protection too. But please remember that protection of the public and protection of our profession are two distinctly different issues and should not be mentioned in the same context, or even the same breath.

It has been my experience (considerable, and lengthy) that an engineering geologist should be first and foremost a good geologist. And that a good hydrogeologist must be first and foremost a good geologist. And that a competent applied geologist must be first and foremost a good geologist. Does this sound silly? It’s not. Recently I’ve met a couple of "hydrogeologists" that don’t know about the method of multiple working hypotheses. I trust that all of you have. How, I ask you, can a person be a competent hydrogeologist when that person does not even know how a geologist thinks? Sure. They can model, and do lots of other neat commercial things. But when the results show water running uphill and they don’t wonder "why?" or question it, strange things happen.

This problem started when education began concentrating on preparing us for a trade, rather than preparing us to think for ourselves (or even being able to communicate via the properly-spelled written word). Sound far out? It’s not. It’s a major problem with global impact. I don’t have to prove this statement.

To close the loop on this column, the magic word of the day is THINK. Don’t tie yourself down to what others have written, defined or even have proven. In order to make headway with the registration "issue", we need some individual creative thought to get us past the mess created by "others". If we don’t, we’ll continue to thrash about without even knowing that we’re doing it. The more you do of what you’ve done, the more you get of what you’ve got. And you can quote me.*

LETTER TO THE EDITOR

Continuing Education for Professionals

The question of current membership totals comes up constantly and, doubtless, can be answered by contacting National Headquarters. However, is there any reason that this information should not be published in every issue of The Professional Geologist? Surely, some small spot say on the mast head page could be dedicated for this purpose and if so, it sure would be hand even if not accurately up dated in each and every issue.

Relative to the May 1991 issue page 18, I would like to say that Susan M. Landin’s letter to the editor hit the nail right on the head and I hereby heartily endorse her position and suggestion to the Executive Committee to consider establishment of required continuing education for certification by AIPG. As true professionals, we owe nothing less to the public and to ourselves. Independence is a virtue certainly but what good is independence after geology and geologists have been effectively frozen out of the market place??

Time is of the essence here.
Let’s not dally with the issue!

Walter E. Heinrichs, Jr.,
CPG 688

Editor’s Response: Good suggestion; see page 23 for membership totals.

JULY 1991
FOR PRESIDENT-ELECT 1992

WILLIAM L. FISHER
CPG 2398
Statement of purpose or goals for AIPG: To advance professionalism in the geological sciences and to advocate the greater utility of the geological sciences in public policy formulations.

Austin, Texas

COLLEGE:
Southern Illinois University
University of Kansas

DEGREES:
B.S., B.Sc.
M.S., Ph.D.

DATES:
1954, 1958
1958, 1961

PROFESSIONAL HISTORY:
University of Texas at Austin
Bureau of Economic Geology

Research Scientist
Associate Director
Director
Professor
Chairman

1960-68
1968-70
1970-present
1985-present
1984-90

University of Texas at Austin
Dept. of Geological Sciences

U.S. Department of Interior
Geology Foundation

Director
Deputy Assistant Secretary
Asst. Secretary for Energy & Minerals

1984-present
1975-76
1976-77

University of Texas at Austin
Dept. of Geological Sciences

Leondias T. Barrow Chair in
Mineral Resources

1988-present

AIPG ACTIVITIES:
Texas Section
Texas Section
AIPG National
AIPG National
AIPG National

Executive Committee
President
Advisory Board Representative
Environmental Geology Committee
Committee on Access to Public Lands
for Scientific and Educational Purposes
Public Service Award

1975
1979
1979
1978-80
1978-81
1980
1985-89
1985

FOR VICE-PRESIDENT 1992

PHILIP E. LAMOREAUX, SR.
CPG 880
Statement of purpose or goals for AIPG: Emphasis on responsible professional leadership in geology. To provide the best possible information on geology, water, minerals, and the environment to all levels of the public, state and national government. To provide a professional ethic to the science of geology.

Tuscaloosa, Alabama

COLLEGE:
Denison University
University of Alabama
Denison University

DEGREES:
B.A.
M.S.
Honorary Doctorate

DATES:
1943
1949
1972

PROFESSIONAL HISTORY:
U.S. Geological Survey
Geological Survey of Alabama

Geologist, Chief of
GWI Branch

State Geologist, Oil and
Gas Supervisor

President/Chairman of Board
Senior Hydrogeologist

1943-61
1961-78
1976-present

P.E. LaMoreaux & Assoc., Inc.

AIPG ACTIVITIES:
AIPG National
AIPG National
AIPG National

Relations with Governmental Agencies
Advisory Board Representative
Governmental Affairs Committee, Chr.

1967-70
1970
1990

RICHARD C. FOUNTAIN
CPG 1750
Statement of purpose or goals for AIPG: It is my desire to see AIPG continue to bring the geological professions together and to aid in the implementation of continuing education within the profession to upgrade our product and protection of the general public.

Winter Haven, Florida

COLLEGE:
Casper College
Chadron State College

DEGREES:
A.S.
B.A.

DATES:
1968
1970

PROFESSIONAL HISTORY:
Chad & Associates
Runge & George
Associates in Geology

Technician/Geologist
Associate Partner
Consulting Geologist

1971-74
1974-78
1975-present

AIPG ACTIVITIES:
Wyoming Section
Wyoming Section
Wyoming Section
AIPG National
AIPG National
Wyoming Section

Secretary/Treasurer
Vice President
President
Advisory Board Representative
Ad Hoc Comm. USA/Canada Reciprocity
Ad Hoc Comm. Chair, Registration Bill
for Wyoming Geologist

1986
1987
1988
1989
1989
1990

RICHARD A. BAUGH
CPG 4607
Statement of purpose or goals for AIPG: I believe the AIPG is and should be "the" professional organization to represent all geologists, not just specialty segments.

Casper, Wyoming

COLLEGE:
University of Florida
Emory University

DEGREES:
B.S., Geology
M.S., Geology

DATES:
1955-59
1959-61

PROFESSIONAL HISTORY:
J. M. Huber Corp.
International Minerals & Chemical Corp.

Consulting Geologist/Owner

1962-65
1965-73
1973-present

Richard C. Fountain and Associates

AIPG ACTIVITIES:
Florida Section
AIPG National
Florida Section
AIPG National
AIPG National
Florida Section
Florida Section
AIPG National
Florida Section

Steering Committee, Chairman
Nominee for National President
Vice President
Southeast Region Membr. Comm., Chr.
Committee for State Screening, Chr.
National Ethics Committee
Vice President
President
Advisory Board Representative
Geologist of the Year

1969-70
1971
1971-72
1972-73
1973-76
1976-78
1989
1990
1990
1990
FOR SECRETARY 1992-1993

MYRNA M. KILLEY
CPG 6033
Statement of purpose or goals for AIPG: AIPG should continue to strengthen its emphasis on areas of common interest among geologists working in all fields of practice, and I will work toward this goal. I take special interest in AIPG's advocacy program and support strengthening AIPG's ties to the international geological community.

Urbana, Illinois

COLLEGE:
Earlham College
Ball State University

PROFESSIONAL HISTORY:
Illinois State Geological Survey

DEGREES:
B.A. 1983
M.S. 1980

AIPG ACTIVITIES:
Illinois-Indiana Section
Illinois-Indiana Section
Illinois-Indiana Section
Illinois-Indiana Section
Illinois-Indiana Section
Illinois-Indiana Section

ROBERT K. MERRILL
CPG 4984
Statement of purpose or goals for AIPG: (1) continued activism on geological issues, (2) full implementation of the continuing education program, (3) expansion of inter-profession and inter-society communication, and (4) pursuing effective ways to communicate geological information to the public and private sectors and communicating these techniques to professional geologists.

Edmond, Oklahoma

COLLEGE:
Colorado College
Arizona State University

PROFESSIONAL HISTORY:
American Stratigraphy Company
Arizona State University
Cities Service Company
Oxy USA
UNOCAL

DEGREES:
B.A., Geology 1967
M.S., Geology 1970
Ph.D., Geology 1974

AIPG ACTIVITIES:
Colorado Section
AIPG National
Colorado Section
AIPG National
Oklahoma Section
Oklahoma Section
Oklahoma Section

FOR EDITOR-ELECT 1992-1993

SCOTT C. BLAUVELT
CPG 6852
Statement of purpose or goals for AIPG: To assist AIPG in the continuing efforts to advance the profession of geology through education and leadership.

Murrysville, Pennsylvania

COLLEGE:
Allegheny College

PROFESSIONAL HISTORY:
Moody and Associates, Inc.
Hart Environmental Management
Earth Sciences Consultants, Inc.

DEGREES:
B.A., Geology 1975-79

AIPG ACTIVITIES:
Pennsylvania Section

CHARLES W. DIMMICK
CPG 3886
Statement of purpose or goals for AIPG: As more states now register or license geologists, we should press for more uniform standards and reciprocity. AIPG should be seen as "the" entity able to say what constitutes a qualified geologist in the public sector.

Cheshire, Connecticut

COLLEGE:
Colorado School of Mines
University of Florida
Tulane University

PROFESSIONAL HISTORY:
S. F. Austin State University
Austin Peay State University
Central Connecticut State University
Environmental Management Corp.

DEGREES:
Geo. E. 1982
M.S. 1984
Ph.D. 1969

AIPG ACTIVITIES:
Northeast Section
Northeast Section
Northeast Section
Northeast Section
E. G. Newton & Associates

Great Lakes Pollution Prevention Plan

The Environmental Protection Agency (EPA) and the Council of Great Lakes Governors recently announced a voluntary pollution abatement plan to clean up the Great Lakes. The plan calls for a 50% reduction in discharge quantity of 17 selected toxic materials by the end of 1995. The plan will call for changes to be made in manufacturing processes in order to reduce the amount of pollutants generated. This approach represents a departure from the traditional clean up method of post-process pollutant removal.

Industries that participate in the program will receive official public recognition of their efforts from both EPA and from the governments of the Great Lakes states. The participants in the plan also, will be permitted to develop advertising and marketing campaigns around their volunteer efforts. Compliance with existing EPA and state regulations, however, will continue to be enforced.

The plan is generally regarded as a positive "first step" toward cleaning up the Great Lakes, considered to be the world's largest collection of fresh water bodies. There is concern, however, that the program may represent only "the appearance of an effort" that is much needed to address a critical U.S. environmental issue.

Plans to Broaden DOE Research Role

Legislation is planned that will permit the Department of Energy (DOE), through its national laboratories, to take a greater role in fostering research on technologies essential to the United States. The legislation, "Department of Energy Science and Technology Partnership Act", has bipartisan sponsorship, Senate Energy Committee Chairman, Bennett Johnson (D-LA) and Senator Pete Domenici (R-NM). As proposed, the existing research mission of the national labs is to be augmented by this effort, not changed.

The legislative proposal calls for a five-year experimental program to establish "partnerships" between DOE national labs, industry, and academia. Specific areas for geo-scientific investigations are to be: energy efficiency; energy supply technologies; environmental research; transportation and supply; and education and training.

New House Committee Chairs for Geo-Issues

New chairmen have been named for two committees in the House of Representatives that have broad authority over a number of geoscientific issues.

Representative George Brown (D-CA) has assumed the leadership of the House Science, Space and Technology Committee. The committee jurisdiction includes energy and environmental research issues, space research, scientific research issues, civil aviation, the Bureau of Standards, the National Science Foundation, National Aeronautics and Space Administration, the National Weather Service, and non-military research and development. Representative Brown, who is a physicist, is known for his support of research and development programs, particularly high-tech., and space exploration. Rep. Brown has filled several key staff positions on the committee with scientific types, physicists, naturally.

The House Committee on Interior and Insular Affairs, also has new leadership. Congressman George Miller (D-CA) has assumed the chairmanship upon the retirement from congress of Representative Morris K. Udall (D-AZ) (FROM WASHINGTON June 91). Jurisdiction of the committee encompasses public lands, national parks and natural resources issues, the Geological Survey, minerals and mining issues, water resource management including irrigation and reclamation, Indian affairs, petroleum conservation on public lands, regulation of Domestic nuclear energy, including waste management, and U.S. territorial affairs. According to Representative Miller, the Interior committee, under his leadership, will "be a relentless watchdog over the public pocketbook to assure that when resources are developed, the environment is protected and the public receives a fair return."

Energy Legislation Getting to Yes--Maybe

The last action of the Senate Energy Committee just prior to the Memorial Day recess was to vote out of committee, S.341 "The National Energy Security Act of 1991". This omnibus energy bill, called a "national energy blueprint" was the subject of five weeks of almost back-to-back hearings to receive comments from what seemed to be "most of the immediate world" on the numerous proposals contained in the bill [FROM WASHINGTON April and June, 91]. The vote came down as a comfortable 17 yeas to 3 nays, in favor of reporting out the bill. The markup sessions for certain "geo-interest" parts of the bill, however, were real cliff hangers. One of the most sensitive issues in S.341, is Title XI-the provision to allow a small portion of the Arctic National Wildlife Refuge (ANWR) to be leased for oil and gas exploration. Title XI-ANWR managed to squeak through by three votes. One "geo-trade-off" was a committee agreement to extend until the year 2000, the hold on OCS leasing off parts of California, Florida, and New Jersey.

In the House of Representatives, hearings for energy bills have been scheduled to begin after the Memorial Day pause. According to key House committee staffers, there will be a House energy bill this session of Congress. Representative Philip Sharp (D-IN), chairman of the House subcommittee on energy and power foresees comprehensive energy legislation from both the House and the Senate by the end of the year. Rep. Sharp however cautions that the House-Senate conference, to merge the two bills into a single legislative package that can be passed into law, will extend well into 1992.

The magnitude of congressional interest in energy legislation is impressive. In the initial 100 days of the 102nd U.S. Congress, more than 140 separate bills and resolutions on energy-related issues were introduced. The bills presently being considered, can be categorized as: comprehensive bills; conservation and energy efficiency bills; renewable energy bills; bills that address fossil and alternative fuels development and use; transportation bills; and bills that focus on nuclear energy.

Clearly, this congress is interested in energy issues. But the most pressing question is, will this Congress really be able to enact major energy legislation during its term?

It is a matter of record, that major legislative issues take about eight to ten years to be developed and passed into law. The Clean Air Act of 1990, as a recent example, took eight years for passage.

Any prospect for getting a prompt YES on national energy legislation, at present, is a very large MAYBE!

[FYI - The Environmental and Energy Study Institute (EESI) has prepared a special publication, ENERGY LEGISLATION SUMMARY for energy-issue devotees who want to scope out all 140 existing energy bills. The publication is available for $45.00 per copy prepaid from EESI, 122 C Street N.W., Suite 700, Washington, DC 20001.]
Mining Legislation Hearings

The Senate subcommittee on Mining Resources Development and Production, chaired by Senator Jeff Bingaman (D-NM) has scheduled a hearing on two key pieces of mining legislation. The subcommittee plans to receive testimony on Senator Dale Bumpers (D-AR) bill S.433, entitled the "Mining Law Reform Act of 1991." The subcommittee plans also to receive testimony on the bill introduced by Senator Conrad Burns (R-MT), S.785, entitled the "Minerals Policy Review Commission Act" [FROM WASHINGTON - June 91].

This hearing will follow on the heels of a series of field hearings recently conducted by the House subcommittee on Mining and Natural Resources. Representative Nick Joe Rahall (D-WV), subcommittee chairman, conducted hearings in several important mining states over the spring months on his bill H.R. 918, entitled the "Mineral Exploitation and Development Act of 1991." [FROM WASHINGTON - June 91]. A hearing on Mr. Rahall's bill is also planned before the summer recess in Washington, D.C.

BLM Riparian-Wetland Plans

The Bureau of Land Management (BLM) has announced a plan for managing riparian-wetlands on public lands. The plan called "Riparian-Wetland Initiatives for the 1990's" outlines goals for the management of the 24 million acres of riparian-wetlands under BLM administration. Features of the plan include creation of an inventory of riparian-wetland conditions, projects to protect these resources, and the acquisition of riparian-wetlands through a voluntary land exchange program. Each resource management level within a BLM state organization will develop its own strategies to meet the plan objectives. These initiatives will be used in concert with other BLM multiple-use resources management activities.

DOE Funds Colorado Enviro-Research

The Department of Energy (DOE) has awarded the state of Colorado a grant of over one million dollars for joint research on global environmental issues. The new Colorado Center for Environmental Management, a multidisciplinary consortium, was established to coordinate the research and development capabilities of Colorado universities. The Center will also serve as a clearinghouse for information on environmental research.

Bush Budget Promotes Public Land Policy Review

Buried deep in the Administration's 1992 budget (section 2, page 345) is a proposal for "a comprehensive review of public land management principles and practices." The one paragraph sleeper calls for an expenditure of two million dollars to support an activity that would actually commence with FY-93. The recommendation is thought to be one part of an effort by the Director of the Office of Management and Budget (OMB), Richard Darman, to get a comprehensive review of public land management issues that have jurisdiction within several federal agencies. According to one source, "Darman wants to take a systematic look at public lands."

The Administration's interest in this particular issue is certainly an item for geo-geologists to keep tabs on.

Earning The Good Housekeeping Seal of Approval

A Tale of True Grit

What must be considered as the most thorough housecleaning ever undertaken has just come to an end in Philadelphia, PA. The house, one of the few private residences to be placed on the National Priorities List of Superfund sites, is about to be officially certified as CLEAN by the Environmental Protection Agency (EPA).

The residence in question was the home of a couple, who for over 20 years, starting in the 1920's, maintained a radium-extraction plant in their basement as a moon and pop cottage industry. The refining methods used were crude and sub-standard even in those less environmentally sensitive times. Tailings were dumped in flower beds; waste was disposed through kitchen and bathroom drains; and radium impregnated dust was tracked throughout the house. About 90% of the radium contamination was cleaned up in the 1960s. When EPA acquired ownership of the property in the early 1980's, the site radiation levels, however, were still much in excess of natural background levels. Argonne National Lab studies estimate that the quantity of radium involved, as the source of the problem, and the cause for the housecleaning, and wasteful mineral extraction practices, was so severe that a proper clean up required the talents of both Uncle Sam and Mr. Clean. In 1989, the U.S. Army Corps of Engineers was brought in to really clean house.

And bust dust they did! The site was excavated, in some places to a depth of 11.5 feet. More than 4000 tons of soil, and 1000 tons of rubble were transported to Utah for final disposal. The total cost of expunging the residuum of careless housekeeping and crummy mineral processing is a Super-funded squeaky clean 11.5 million dollars.

Just how clean, now, is this level of CLEAN? Well, According to EPA, the site now is "probably the cleanest spot in southeastern Pennsylvania.

Selected Federal Notices

(5/91)

Department of Energy

Notice of intent to prepare environmental impact statement (EIS) for the proposed expansion of the Strategic Petroleum Reserve (SPR). Contact: Hal Delaplane (202) 586-4730. 56 FR 20417.

Energy Information Administration

Request for comments Forms EIA-23, 23P and 64A, Oil and Gas Reserves Surveys. Contact: Paul Chapman (214) 767-2200. 56 FR 20420.

Environmental Protection Agency


Interim final rule and request for comments 40 CFR Parts 261, 271, and 302 Hazardous Waste Management System: Identification and listing of hazardous waste; CERCLA Hazardous Substance Designation; Petroleum refinery primary and secondary oil/water/solids separation sludge listings (F037 and F038). Effective date: May 2, 1991. Contact: John Austin (202) 382-4789. 56 FR 21955.

Advance notice of proposed rulemaking 40 CFR Part 268 Land disposal restrictions; potential standards for newly identified and listed wastes and contaminated debris. Contact: Waste Treatment Branch, Office of Solid Waste (703) 308-8434. 56 FR 24444.

Proposed rule 40 CFR Parts 51, 52, and 60 Standards of performance for new stationary sources and guidelines for control of existing sources, municipal solid waste landfills. Contact: Alice Chow (919) 541-5626. 56 FR 24468.

Bureau of Land Management

Proposed rule 43 CFR Part 3160 On shore oil and gas operations; Federal and Indian leases and gas leases; Onshore Oil and Gas Order No. B; Well Completion/Workovers/Abandonments. Contact: Joe Lara (505) 622-9042. 56 FR 20568.

Availability notice Wilderness study areas in Wyoming; mineral survey reports [Cedar Mt. WSA; McCullough Peaks WSA; Buffalo Hump and Sand Dunes Addition WSA; Adobetown WSA; Raymond Mt.
WSA; Oregon Buttes WSA; and Devils Playground and Twin Buttes WSA (Admin. Rep.]). Contact: Wayne Erickson (307) 775-6107, 56 FR 21171.

Notice of intent to prepare rulemaking 43 CFR Part 3160 Assessments for violations of oil and gas operating regulations, orders, and lease term conditions. Contact: Rudolph Bai er (202) 653-2153, 56 FR 21464.

Proposed rule 43 CFR Parts 3100, 3150, 3160, 3180, 3200, 3260, 3500, 3510, 3520, 3530, 3540, 3550, 3590, 3600, 3800, 3860 Public availability of mineral resources information. Contact: Sid Vogelpohli. (505) 761-4503. 56 FR 24766.

Federal Energy Regulatory Commission

Final rule 18 CFR Parts 4, 16, 375 and 380 Regulations governing submittal of proposed hydropower license conditions. Effective date: June 19, 1991, Contact: William Wakefield (202) 219-2784 (technical);

Merrill Hathaway (202) 208-0825 (legal), 56 FR 23108.

International Boundary and Water Commission

Internal Revenue Service
Final regulations 26 CFR Parts 1 and 602 Limitations on percentage depletion in the case of oil and gas wells. Effective date: amendments are effective on January 1, 1975 and apply to oil and gas produced after December 31, 1974. Contact: Lisa Fagen (202) 566-4821, 56 FR 21936.

Minerals Management Service
Final rule 30 CFR Part 250 Oil and gas and sulphur operations in the Outer Continental Shelf. Effective date: June 12, 1991. Contact: John Mirabella (703) 787-1600, 56 FR 21953. [Re: civil penalty assessments]

Nuclear Regulatory Commission
Notice of availability. Draft staff technical position; Investigations to identify fault displacement and seismic hazards at a geologic repository. Contact: Michael Lee (301) 492-0421, 56 FR 22020.

National Science Foundation

Office of Management and Budget
Notice Proposed revisions to Circular A-21 Cost principles for education institutions. Contact: Jack Sheehan (202) 395-3050. 56 FR 22618. [Re: exclusion of certain indirect costs (overhead) from federal research funds paid to colleges and universities]

National Park Service

Federal Trade Commission
Proposed rule 16 CFR Chapter 1 Petitions for environmental marketing and advertising guidelines. Contact: Devenette Sneed (202) 326-3360, 56 FR 24968.

STATE NET

U.S. 10096
AGENCY: Department of the Interior/Bureau of Land Management
TOPIC: ENERGY
SUMMARY: Implements and supplements the requirements relating to offshore oil and gas operations. Specifically, the order would require all and gas operators to comply with minimum standards of performance when conducting well completions, workovers and abandonment on Federal and Indian lands (except Osage). The Bureau of Land Management's existing guidelines on well completions, workovers and abandonment have never been formalized and published. Thus the order has no direct predecessor.
AGENCY CONTACT: Joe Larsen (305) 820-9042 or Rudy Bear (202) 653-2153.
CITATION: 43 CFR 2160
PROPOSAL DATE: 05/06/91
COMMENT DEADLINE: 07/06/91

U.S. 19165
AGENCY: Department of the Interior/Bureau of Land Management
TOPIC: ENERGY
SUMMARY: Establishes additional automatic suspensions under certain circumstances and to increase assessment amounts for violations of the operating regulations, orders and terms and conditions of Federal oil and gas leases. These proposed amendments are intended to result in more conscientious and timely compliance by operators of Federal oil and gas leases, protect the environment and public health and safety more fully, and increase the likelihood that all production from Federal oil and gas leases will be properly accounted for.
AGENCY CONTACT: Rudolph Bai er (202) 653-2153.
CITATION: 43 CFR 3180
PROPOSAL DATE: 05/06/91
COMMENT DEADLINE: 07/06/91

U.S. 19164
AGENCY: Department of the Treasury/Internal Revenue Service
TOPIC: ENERGY
CITATION: 26 CFR PART 1
PROPOSAL DATE: 05/13/91
HEARING DATE: 07/06/91

U.S. 19147
AGENCY: Department of the Interior/Bureau of Land Management
TOPIC: RESOURCE MANAGEMENT AND PRESERVATION
SUMMARY: Amends its regulation in group 3000 of Title 43 of the Code of Federal Regulations (CFR) addressing public availability of mineral resources information; removes conflicts between the regulations implementing the Freedom of Information Act and existing regulations which relate to public availability of mineral resources information.
AGENCY CONTACT: Sid Vogelpohli, BLM Albuquerque Division, District of Mineral Resources, (505) 761-4503, or Dorothy Corder, FOIA Coordinator, (202) 653-8003.
CITATION: 43 CFR 3100, 3150, 3160, 3180, 3200, 3260, 3500, 3510, 3520, 3530, 3540, 3550, 3560, 3570, 3580, 3590, 3600, 3660
PROPOSAL DATE: 05/01/91
COMMENT DEADLINE: 07/09/91

U.S. 1179
AGENCY: Johnson
TOPIC: BUSINESS AND CORPORATIONS
SUBTOPIC: SPECIFIC INDUSTRY, OCCUPATIONS
SUMMARY: Stimulates the production of geologic-map information in the United States through the cooperation of Federal, State, and academic participants.
STATUS: 502391 INTRODUCED. To SENATE Committee on ENERGY AND NATURAL RESOURCES.

U.S. 1228
AGENCY: Headquarters
TOPIC: RESOURCE MANAGEMENT AND PRESERVATION
SUBTOPIC: WATER SUPPLY AND PRESERVATION
SUMMARY: Provides for a comprehensive review by the Secretary of the interior of western water resource problems and programs administered by the Geological Survey, the Bureau of Reclamation, and other operations of the Department of the Interior.
STATUS: 6506/1 INTRODUCED. To SENATE Committee on ENERGY AND NATURAL RESOURCES.

U.S. 2763
AGENCY: Rehab
TOPIC: BUSINESS AND CORPORATIONS
SUBTOPIC: SPECIFIC INDUSTRY, OCCUPATIONS
SUMMARY: Enhances geologic mapping of the United States.
STATUS: 6252/1 INTRODUCED. To HOUSE Committee on INTERIOR AND INSULAR AFFAIRS.

AK H 332
AGENCY: Commission on Judicial
TOPIC: INSURANCE
SUBTOPIC: LIABILITY INSURANCE
SUMMARY: Relates to medical malpractice insurance for certain persons who are in a regulated occupation of professions.
STATUS: 0426/91 INTRODUCED. To HOUSE Committee on LABOR AND COMMERCE, JUDICIARY.

AL S 505
AGENCY: Wilson
TOPIC: RESOURCE MANAGEMENT AND PRESERVATION
SUBTOPIC: RESOURCE MANAGEMENT AND PRESERVATION-MISC.
SUMMARY: Relates to the acquisition, maintenance and protection of lands and water areas in this state having unique ecological systems, plant and animal life, geological formations, wildlife habitats, recreational values and scenic beauty; establishes the Forever Wild program for such purposes to be administered by the State Conservation and Natural Resources Department; makes certain declarations of purposes and states policies regarding the protection of such lands and waters in this state.
STATUS: INTRODUCED. To SENATE Committee on CONSTITUTIONS AND ELECTIONS.

AL H 601
AGENCY: McDowell
TOPIC: BUSINESS AND CORPORATIONS
SUBTOPIC: BUSINESS-MISC.
SUMMARY: First Amendment. 05/20/91
SUMMARY: Provides for the licensing and leaching of courting permit for every fortune-teller, drayman, pamphil, salutator, physiologist, character reader, spirit medium, diviner, treatment healer or mental healer and every person engaged in any occupation of a similar nature.
STATUS: 50761 INTRODUCED. To HOUSE Committee on HIGHWAY SAFETY.
AIRG COMMENT: We hope this does not apply to exploration geologist.
REPRISE GATLINBURG

William V. Knight

A few years ago my brother and I were chuckling over the (amusing to us) fact that, as a native of Appalachia living in southwestern Ohio, he was eligible for certain types of Federal "entitlements" as one who was somehow "deprived" by his provenance.

There certainly were a number of deprivations that we experienced as we grew up in those hills. One could name such things as big cities (where there might actually be fellow citizens we did not know), tall buildings (other than my tipples), cleared flat land (where we could see farther than we could shout) a complete diet of factory-prepared food, and all those things we only knew of through the books we read and the pictures we saw (Oh, yes, we had lots of books—read, shared, traded and enjoyed, with some favorite passages memorized.).

All we had to look at, day after day, were such things as outcrops, anticlines, synclines, monoclino faults, water falls, incised meanders, captured streams, wind gaps, water gaps, high terraces, unstable slopes, sinkholes, mines, quarries, wells, squirrels, rabbits, deer, wolves, cows, hawks, bluebirds, cardinals, robins, big families of sparrows, rhododendron, laurel, dogwood, redbud, violets, and trees, trees and more trees. We did not have the privilege of having to go to distant places to find white water and tall timber; they were just a few steps from our door, complete with enough fish and game to keep us entertained and fed. We did get to enjoy some store-bought groceries, but mostly we had to subsist on the things our family (or kin or friends) grew and preserved or canned: lots and lots of raspberries and blackberries, tomatoes, potatoes, corn, beans, peas, squash, pumpkins, rutabaga, sugar-cured ham, home-ground sausage, eggs and milk fresh that very day, and that old staple of the hills, white lightning.

Some years after moving to the "flatlands", I took my family on a vacation to the Smokies. We visited Cades Cove, travelled around and through the mountains, smelled the flowers, waded in the streams and watched the birds. We stayed in Gatlinburg (My wife belongs to an organization that for many years has supported a mountain crafts industry and shop there, called "Arrowmont"). Of course, the usual "touristy" stuff was there (Where is it not?). But, we all thoroughly enjoyed the visit to Gatlinburg and the Smokies. To me, in many respects, it was a lot like a trip back to my Appalachian childhood. I saw things there that I had all but forgotten. To my children, it was "near" or "cool" (or whatever the expression of the time happened to be). It was a visit to a world they had never seen before.

All of us have returned from time to time, each of us for our own reasons. My children have taken their families there, travelling hundreds of miles to do so. It is a place that is different from the usual. It is a place that must be experienced. The Smokies are well worth visiting. The geology is fascinating. And, in October? The foliage should be gorgeous!

I hope we see you there.*

MEMBERS IN THE NEWS

L. Michael Johnson, CPG 7514, has formed Peer Environmental & Engineering Resources, Inc., Minneapolis, Minnesota. Mr. Johnson has over eleven years of professional and supervisory experience directing projects in hazardous waste, landfill design and ground water assessment. PEER will focus on soil and ground water contamination investigation and remediation.

Frank E. Kottkowski, CPG 56, retired in April and is now emeritus director/state geologist of the New Mexico Bureau of Mines and Mineral Resources. Charles E. Chapin is the new director and state geologist NNBMMR.

Robert Schneider, CPG 6728, Consulting Hydrogeologist, Arlington, Virginia, has been elected for a four-year term as a member of the U.S. National Committee for the International Association of Hydrogeologists. He has been consulting since 1984 when he left the U.S. Geological Survey. His work, mostly for other consultants and attorneys, has involved a variety of ground-water and soil contamination problems with hydrocarbon fuels, solvents, and pesticides in all parts of the conterminous United States, Alaska, and Israel.

Call for Papers for TMS Processing Symposium

The Extraction and Processing Division of The Minerals, Metals & Materials Society (TMS) will sponsor an international symposium on "Processing of Residues and Effluents" at its 1992 Annual Meeting in San Diego, CA, March 1-5, 1992. The Iron and Steel Society (ISS) will be the co-sponsor.

The symposium will provide an update of fundamentals, industrial practice and developments, environmental and economic issues that influence process selection for metallurgical byproduct streams.

Deadline for submission of papers for editorial review is August 15, 1991. Submit abstracts to W. P. Imrie, Bechtel, 50 Beale St., San Francisco, CA 94119, phone (415) 768-4313, fax (415) 768-3398 or R. G. Reddy, Mackay School of Mines, University of Nevada, Reno, NV 89557-0047, phone (702) 784-4613, fax (702)784-1766. The proceedings of the symposium will be published by TMS.*

Executive Director's Itinerary

(subject to change)

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

- July 24 - 25: Council of Engineering and Scientific Society Executives, Minneapolis, MN
- July 26: Montana Section, Billings, MT
- Aug. 15: American Geological Institute, Alexandria, VA
- Sep. 11 - 12: American Petroleum Institute, Dallas, TX
- Sep. 16: Colorado Section, Denver, CO
- Sep. 20 - Oct. 4: Geoenvironmental Forum, Chicago, IL
- Oct. 20 - 24: Geological Society of America, San Diego, CA
- Nov. 10 - 14: Society of Exploration Geophysicists, Houston, TX
- Nov. 16: Association of State Boards of Geology, Little Rock, AR
- Dec. 4 - 6: Northwest Mining Association, Spokane, WA
- Jan. 25: AIPG Executive Committee, Arvada, CO
# Pre-Registration Form

**AIPG 1991 Annual Meeting**  
**October 16-19, 1991 - Gatlinburg, Tennessee**

Name: _______________________________  CPG No.: __________________

Name as you want it on badge: ____________________________________________

Spouse/Guest Name: ______________________________________________________

Company: _______________________________________________________________

Address: __________________________________________________________________

City: ____________________________________________________________________

State: ___________________  Zip: ___________  County: _______________________

## REGISTRATION:

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## EVENTS

1. Awards Luncheon (Thursday noon)  $20.00  __________

2. Banquet (Thursday Evening)  $40.00  __________

3. Dixie Stampede Dinner Party (Friday evening)  $27.00  __________

4. Field Trip No. 1 (Clingman’s Dome)  $15.00  __________

5. Field Trip No. 2 (Cades Cove-Hayride/Picnic)  $25.00  __________

6. Field Trip No. 3 (Oak Ridge)  $40.00  __________

7. Field Trip No. 4 (Biltmore)  $48.00  __________

8. Spouse Tour No. 1 (Pigeon Forge) (Site-Seeing/Shopping)  $15.00  __________

9. Spouse Tour No. 2 (Knoxville; Museum of Appalachia)  $35.00  __________

**TOTAL PAID** __________

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**NOTE:** All trips subject to minimum/maximum registration as described with trip.

RETURN form with payment (checks payable to AIPG Tennessee Section) to:
Ron Zurawski - Conference Finance Chairman
Tennessee Division of Geology
701 Broadway, Suite B-30
Nashville, Tennessee 37243-0445.
SECTION NEWS

Kentucky-Illinois-Indiana AIGP Sections Hold Joint Meeting

On May 18 a joint meeting with the Kentucky-Illinois-Indiana AIGP Sections was held in Louisville. The meeting was held on the Star of Louisville cruise ship and included a seminar on solid waste management. Speakers included: John Kiefert, Assistant State Geologist, Kentucky Geological Survey - "Introduction and Discussion of the Governor's Waste Management Plan for Kentucky" and "Geology of Landfills and Waste Management", Lyle Sendlein, Director of IMM, University of KY - "Landfills Versus Water Resources; GIS Landfill Siting Techniques, William Shassere, Director of the Indianapolis Public Works - "Resource Recovery", Susan Bush, Natural Resources and Environment Protection Cabinet, State of Kentucky - "Landfill Regulations".

Welcome to the Re-Organized Louisiana Section

The Louisiana Section of the American Institute of Professional Geologists was re-established by proclamation by the national Executive Director of the Institute, Mr. William V. Knight, at a re-organization meeting held in Baton Rouge, Louisiana on Tuesday, March 5, 1991. The Louisiana Section is not in it's infancy, but was actually chartered in November of 1964 with the appointment of Vito G. Goutasas, CPG 34, by Martin Van Couvering, CPG 1. In October of 1965, the Louisiana Section became the tenth (10th) AIGP section to be chartered.

Oklahoma Section

The Oklahoma Section of AIGP is organizing a Geologic Mapping Seminar, as a service to the profession, to be held in late 1991 or early 1992.

Several vendors of the lower priced geologic software have been invited to participate in a program which will be presented in two phases (sessions). The first phase will be a lecture format in which each vendor will be allotted a specific amount of time in which to make a presentation of its product to the attending group of geologists and other interested professionals. Each vendor can set up a display and demonstration area (booth), and during the second phase, the attending professionals can visit the booths for more personal and detailed presentations.

The Oklahoma Section has noticed that many geologists who are consultants or are employed by small to medium sized firms are not reached personally by many vendors. A seminar of this type offers an opportunity to both the vendors and the professionals at an affordable cost. The participating vendors will underwrite the cost of room and equipment rental (and, perhaps, lunch). AIGP will charge a small admission fee for organizing the seminar, and the profit will be used to support the activities of the Oklahoma Section in serving the profession.

For more information on participating either as a vendor or as a professional, please contact Clyde F. Wooten, 7134 South Yale Avenue, Suite 600, Tulsa, Oklahoma 74136. (918) 496-2626.

Robert E. Fox, CPG 7268, President-Elect of KY Section, and James E. McNulty, CPG 2639, IL-IN Section Member.

U.S. Trade/Investment Mining Mission to Bolivia


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

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

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

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

For more information, please contact Karin Millett at World Trade Center Denver (303) 592-5364 or (303) 892-3820 FAX.

SEPM Provides Educational Materials

Many professional geologists are occasionally (or at times frequently) called upon to give presentations to elementary or secondary school groups.

If your one of these geologists, then two recent publications from SEPM may be of interest to you.

The first publication is "A Sedimentary Geologists' Guide to Helping K-12 Earth Science Teachers: Hints, Ideas, Activities, and Resources." It is intended for geologists and includes suggestions for effective classroom presentations, simple activities to do yourself or to give a teacher, possibilities for large-scale programs, and resources for teachers, parents and other interested people.

The second publication is "Hands-On Geology: K-12 Activities and Resources." It is a collection of 22 geology activities written by scientists and teachers for use in earth science classes. Activities range from basic sedimentary geology and paleontology to applied geology. A materials and information resource list also is included.

Further information on these helpful publications may be obtained by writing SEPM (Society for Sedimentary Geology), P.O. Box 4756, Tulsa, Oklahoma 74159-0756, or by calling them at (918) 743-9765.
Applications Received

(as of June 30, 1991)

Applicants for certification must meet AIPG's standards as set forth in its Bylaws on education, experience and competence, and personal integrity. If any Member has any factual information as to any applicant’s qualifications in regard to these standards, whether that information might be positive or negative, please mail that information to Headquarters within thirty (30) days. This information will be circulated only so far as necessary to process and make decisions on the applications.

Full Membership


BERNSTEIN, Paul Sr., 7 South 415 Creek Drive, Naperville, IL 60540. Sponsors: Monte Niezenker, Timothy Black, Jon Dahlgren.

BROWN, Elissa J., 14 Hillcrest Avenue, Atlanta, GA 30317. Sponsors: James O'Brien, Frederick Baddour, Lisa Robbins.

FLEMING, Martha E., 247 Highland Road, Northgate, PA 15235. Sponsors: Ronald M. Morosky, John A. Quagliotti, Jr., Kristina Uhrman.

GHAZIADZE, Mahmoud, 1407 Yale Blvd., Richardson, TX 75081. Sponsors: Walter L. Helton, Mark Hostetter, Mike Graham.

LARSON, Thomas A., 7823 South Newland Street, Littleton, CO 80123. Sponsors: Lisa Komor, Tom Murphy, Gary Bell.


LEVY, William P., 40 E. Morris Avenue, P.O. Box 75, Mount Tabor, NJ 07578. Sponsors: H. Leonard Rezrode, Jr., Glenn Wygant, William Schwa.

MCCUTCHEON, Kirk F., 2200 Strawberry Lane, West Bradford, PA 19320. Sponsors: Jocelyn Serwick, Don Fornery, Todd Houshal.


MEYER, David C., 5523 Scenic Ridge Drive, St. Louis, MO 63128. Sponsors: David Taylor, Rod Bloom, Curt Fahnstock.


MORRISON, Bradley P., 209 Meadow Lane, Oneonta, AL 35121. Sponsors: Gary L. Sides, Sharon Henson, Denny N. Beare.

NELSON, Bruce R., Box 353, Altamont, NY 12009. Sponsors: John Isbister, Paul Book, Linda Hoberg.

RICHNER, Mark E., 713 Hartland Drive, Mars, PA 16046. Sponsors: Craig D. Parke, James Kilburt, Harry Cowie.

SLAVIK, Harold J., Jr., 611 East K Street, Benicia, CA 94510. Sponsors: Donald K. Cohen, William E. Motzer, Jerry D. Lewis.


SPICUZZA, Douglas E., 1050 Main St., #13, West Warwick, RI 02893. Sponsors: Craig Heindel, Kenneth Bannister, R. Andrew Simmons.

STEPHENSON, George C., P.O. Box 117, Bluefield, VA 24705. Sponsors: Marshall Miller, Scott Nelson, John Deubio.


Candidate for Certification

ROESCH, Gregory D., 328 Leeward Drive, Jupiter, FL 33477. Sponsors:

New Members

ADKINS, Anthony R., CPG-8159, Libby, MT
ADKISON, David W., CPG-8160, Houston, TX
BULL, Louis P., CPG-8161, Huntington Beach, CA
CARR, Richard S., III, CPG-8162, Reno, NV
CRAMER, Curt A., CPG-8163, Arnold, MD
EVANS, Martin E., Jr., CPG-8164, San Rafael, CA
FRANCY, Thomas C., CPG-8165, Columbus, OH
GOLDEN, John A., Jr., CPG-8166, Edison, NJ
HAGEMEIER, Paul D., CPG-8167, Wichita, KS
HEATON, Kevin P., CPG-8168, Tulsa, OK
HENDERSERSON, C. Douglas, CPG-8181, Davis, WV
HORE, Tim B., CPG-8169, Middlesex, NJ 08846
ISACKS, Thomas S., CPG-8170, Baton Rouge, LA
KLEKAMP, Thomas C., CPG-8171, Mandeville, LA
MCCARTY, Kevin P., CPG-8172, Blauvelt, NY
PALTERTON, David L., Jr., CPG-8173, Williamsburg, NY
PARKSLEY, Jeffrey V., CPG-8174, Reno, NV
REDDY, Venkat C., CPG-8182, Gaithersburg, MD
SHELDON, David R., CPG-8183, Kingston, RI
SITTLER, Steven P., CPG-8175, Stafford, TX
STAGGS, Julia G., CPG-8176, Oklahoma City, OK
STEVENSON, Gordon M., CPG-8177, Schoharie, NY
WIDMAN, Sally A., CPG-8178, Columbus, OH
WOLTZ, David, CPG-8179, Elyria, OH
ZELLEY, Robert L., CPG-8180, Plainfield, NJ

New Candidates For Certification

ELGIN, Richard J., CFC-0003, Wichita, KS
WHITESIDES, Dietrich H., CFC-0004, Aurora, CO

New Student Affiliates

HOFF, Kevin W., SA-0009, 7119 Aboitwood Drive, Charlotte, NC 28226.

AIPG Membership Totals

As of 6/30/91

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