Minnesota Ground Water Association

Volume 12, Number 2: June, 1993

President's Letter

Partnership with your "client"

We ground water professionals all have clients. Our "clients" may be the public, the legislature, an industry, or an individual. We are the "experts". Our clients hire us to enhance their goals. We provide our services as a means of meeting our goals. All too often this relationship is adversarial.

Some of our clients are authoritarian while others are passive. Many of them operate out of fear, ignorance, or anger. There can be a deep-seated distrust when our client does not participate in, or is isolated from, the process of dealing with ground water issues.

A partnership with our client, rather than antagonism, is a more beneficial model of working together. Partnering results in participation and involvement by both parties.

A beneficial relationship occurs when there is mutual responsibility and mutual education. This includes acknowledgment of assumptions and expectations by both parties. This partnership is manifested as a dialogue instead of a monologue. The results of this model include ownership of ideas, a clear vision and a lasting relationship. A win/win situation is created with mutuality and equity for both parties.

As individual ground water professionals, we can partner our own clients. It will take time and effort, but the results can be lasting and mutually beneficial.

As an organization of ground water professionals, the Minnesota Ground Water Association also has a client, the citizens of Minnesota. The mission of the MGWA is

St. Cloud State Geology Students Hit the Florida Beaches

The first week in March, St. Cloud State geology students absented themselves from the typical dreary end of a Minnesota winter for a field trip to the Florida Keys. Participants included 14 students, a gifted 11 year old and four faculty members. The trip was partially supported by a Minnesota Ground Water Association scholarship.

The group stayed on Big Pine Key for seven days and examined local processes responsible for producing carbonate sediments. Activities in-



cluded a half-day trip to Looe Key, an off-shore reef, to view this special depositional environment. Two days were spent conducting individual or small group research projects, including an analysis of tidal exchange water volumes and a thermal budget through one of the large tidal exchange channels. Carbonate producing organisms were examined an additional day.

According to Garry Anderson, geology professor in the Department of Earth Sciences at St. Cloud State and field trip leader, "everyone had a pleasant time, we all brought back many fond memories, and we all appreciated the financial assistance from the Minnesota Ground Water Association."

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UMD Students Take Southwest Field Trip

This note of thanks was recently received by MGWA:

I would like to thank MGWA on behalf of the UMD Geology Club and the participants on the Grand Canyon spring break trip for the generous scholarship. It helped ease the cost for the enjoyable journey down to a unique part of the country.

There were twelve people, 11 UMD students and one professor, who made the long journey to the southwest. The sightseeing part of the trip started with a stop at Petrified Forest National Park. From there, the group continued onto Flagstaff with the intention of seeing Sunset Crater National Monument. Unfortunately, a late season snow storm prevented the group from seeing the large crater. The storm was soon forgotten once the group arrived at the incredible Grand Canyon. Three wonderful days were spent gazing upon and hiking down into the large crevasse in the earth surface. Calf muscles and knees took some punishment as the group descended eventually reaching their destination at the Bright Angel Campground. From the Grand Canyon, the van headed north towards Arches National Monument with a stop to ponder the forces of nature that created the statues of Monument Valley. One night was spent at Arches before the journey back to the cold Northland.

It was a thoroughly rewarding trip both educationally and personally for all who went. There is no better place than the Grand Canyon to get an appreciation for this wonderful science called geology. Again, we like to thank you and the MGWA for helping make this trip possible.

-Mr. Thomas H. Nylen, UMD Geology Club President



President's Letter, cont.

to advocate for the wise use and protection of ground water, and to provide education to the users of Minnesota's ground water.

As the experts, we must actively educate the public about ground water, speak up and be available to provide insights to our clients, and listen to their issues and needs. We experts and clients have a mutual responsibility to each other to engage in a dialogue and to participate together toward a satisfactory outcome.

The MGVVA has supported partnering by providing funds to college students for ground water related field trips, by presenting educational conferences twice each years, and by supporting our members who provide their individual clients with responsible ground water expertise, to name a few.

However, these actions have been primarily geared toward existing and/or prospective MGWA members. We also have an opportunity/mandate to participate with our MGWA clients, the citizens of Minnesota. Members have already given presentations at schools and churches, volunteered with nonprofit organizations, and have voiced opinions at the legislature.

Still, we can do more to model partnership. We can educate ourselves about common perceptions or misconceptions about ground water issues, actively offer our expertise to address problems, and be conspicuously active in the public dialogue about this vital resource.

Minnesota Ground Water Association members have pledged to advocate for the wise use of ground water. The use of a partnership model when dealing with out "client" can result in mutual benefits for all concerned.

(As this column goes to press, another editorial has been published with a similar theme. See "Ground Water", May-June 1993, Vol 31, No. 3, pp 354-355.)

—Larry Johnson, MGWA President

Minnesota Ground Water Association Newsletter

New Country Music Mecca is Threat to Groundwater

When a handful of the nation's leading country western singers became disgruntled with Nashville, Tenn., and decided to build entertainment palaces in Branson, they unwittingly created a developmental nightmare for this particular neck of the Missouri Ozarks.

Previously just a tourist attraction with its lakes and a theme park or two, Branson has suddenly become an entertainment mecca. An assortment of motels, outlet malls, amusement centers, and other assorted "tourist traps" have followed construction of the country music concert halls. Because the rampant development has largely taken place along a single two lane roadway that winds its way along an Ozarks ridge, construction of a highway bypass is being discussed; and the Federal Bureau of Investigation is considering formation of a new unit to deal with an accelerated crime rate.

Last, but not least, the ground water drinking supply of the Branson area is in jeopardy. Not only has runaway development not been accompanied by proper septic codes and general water supply planning, but the area is characterized by karst ground water formations that are particularly susceptible to surface contamination.

"Ironically this area suffers from no state law regulating on-site wastewater systems, only basic county codes apply," said Craig Simmons, an environmental geologist from Republic, Mo., who has conducted a study of the Branson area. Because the entire Ozarks region relies heavily on private and municipal wells for its drinking water supply, said Simmons, it is essential that the threat from failing septic systems "be remedied before the situation becomes irreversible." Undersized, corroded, and improperly serviced septic tanks are rampant in the area, he observed.

—continued on page 10 June, 1993

Legislative Update

Alabama - S.B. 92 would provide for the regulation and licensure of geologists and establish a Board of Licensure for Geologists.

California - S.B. 433 provides that prior to January 1, 1994, professional geological work shall qualify an applicant seeking certification as a hydrologist if performed under the supervision of a geologist qualified in hydrogeology. The bill requires the state board of Registration for Geologists and Geophysicists to define, by regulation, professional geological work for purposes of persons seeking certification in hydrogeology.

Illinois - H.R. 467 creates Board of Registration for Geologists, sets guidelines and licensing procedures, and outlines exemptions.

Kansas - H.R. 2496 provides for the licensure and regulation of geology as a technical profession.

New Hampshire - H.R. 624 would transfer provisions applicable to soil scientists currently under the joint boards of engineers, architects, land surveyors, natural scientists, and foresters to the Unit of Natural Scientists. The term natural scientists is also expanded to include geologists and wetland scientists in addition to soil scientists.

Oklahoma - Several bills proposed relating to geologists. H.R. 1167 defines the terms geology and geologist. S.B. 136 would require that the professional conduct of geologists be governed by the Uniform Code of Professional Conduct and make it a misdemeanor for a person to hold himself/herself out as a geologist who does not meet specified criteria. S.B. 207 is a definition and a practice act.

South Carolina - H.R. 3008 would establish a State Board of Registration for Hydrologists. Hydrology would be defined to include the circulation of water over and under land.

Texas - H.R. 1221 has been introduced relating to the regulation of geologists. At time of publication, we did not have specific information about the bill.

—AGWSE Newsletter, April-May 1993

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Coordinated Monitoring Sought

Federal, state, and local agencies have agreed to do a better job of coordinating their water quality monitoring. The U.S. EPA, USGS, and 14 other federal and state agencies agreed on a strategy to improve information for decision makers.

At the same time, the Department of the Interior has selected 20 study areas for water quality assessments. The sites include river basins and aquifer systems and represent a wide range of environmental settings. The assessments will start next October 1. Assessment of 20 other areas began in 1991 in the ongoing National Water Quality Assessment program, conducted by the USGS.

The coordination strategy encourages agencies to use consistent and comparable procedures and analytical methods. This includes developing water quality indicators using standard field and laboratory methods, and setting up data management and information systems.

Monitoring organizations will be linked at both the national and state levels. A pilot study to test the best methods is being conducted in Wisconsin. An inventory of current activities in the state is being prepared by Bruce Baker, who directs the Water Resources Management Bureau of the Wisconsin **Department of Natural Resources**

Nationwide training programs for personnel from participating agencies, as well as public and volunteer organizations, are also recommended.

The strategy is spelled out in a report, prepared by the Intergovernmental Task Force on Monitoring Water Quality for the Office of Management and Budget. The report, "Ambient Water-Quality Monitoring in the United States, First Year Review-Evaluation and Recommendations," is available from the USGS Office of Water Data Coordination, 417 National Center, Reston, VA 22092.

----US Water News, May 1993

EPA Publication Defines Minimum Elements for Ground Water Quality Data Sets

The EPA has identified the critical need for improved collection, accessibility and utilization of ground water information. EPA's Office of Ground Water and Drinking Water is pursuing this goal by the establishment of a Minimum Set of Data Elements for Ground Water Quality (MSDE). An EPA Order (7500.1) issued in 1989 requires use of these elements by EPA and its contractors. As described in the recent publication 'Definitions for the Minimum Set of Data Elements for Ground Water Quality', EPA 813/B-92-002, July 1992, the 21 elements are divided into four descriptor categories: general, geographic, well, and sample, as shown in the table.

Minimum Set of Data Elements for Ground Water Quality

Element Category	Element Names
General Descriptor: describes where the well information is maintained	1. Data Sources
Geographic Descriptors: describe the well or spring in relation to the earth's surface	 Latitude Longitude Method Used to Determine Latitude and Longitude Description of Entity Accuracy of Latitude and Longitude Measurement Altitude Method used to Determine Altitude State FIPS* Code County FIPS* Code
Well Descriptors: describe various features of a well or spring	 11. Well Identifier 12. Well Use 13. Type of Log 14. Depth of Well at Completion 15. Screened/Open Interval
Sample Descriptors: describe different aspects of collecting, analyzing, and recording the results of a ground water sample	 Sample Identifier Depth to Water Constituent or Parameter Measured Concentration/Value Analytical Results Qualifier Quality Assurance Indicator

*FIPS - Federal Information Processing Standard

The 21 elements were selected by a broad-based Work Group according to the following criteria: 1) the minimum elements needed to communicate ground water data across related programs, 2) elements that are common to all programs, 3) elements that provide a road map to other ground water data, and 4) elements that link ground water guality to well location information. The MSDE report provides detailed descriptions of each element along with many examples from a variety of databases.

EPA encourages anyone creating a new ground water guality database or updating an old data base to voluntarily adopt the MSDE.

GIS - Ground Water Applications Focus of MGWA Spring Seminar

Applications of geographic information systems (GIS) for investigating ground water resources was the topic of the spring seminar held at the Earle Brown Center, St. Paul Campus University of Minnesota on April 20, 1993.

Larry Johnson, MGWA President, opened the spring seminar by announcing plans for a joint AIPG/MGWA fall field trip to the Minnesota River valley. A more complete announcement is printed elsewhere in this newsletter.

Bob Nagle from Environmental Systems Research Institute (ESRI) introduced the basics of geographic information systems. As Bob said, GIS is 'a lot more than a computer that generates maps.' GIS is a computer based platform or framework to capture, store and manage, edit and update, manipulate, and display spatially related (geographic) information. Bob explained how information related to a geographic feature is organized within a relational database and is linked back to that geographic feature

Although the initial setup can require significant investment, benefits include cost-savings over the long haul by providing better data management, faster information access, better decision making, operational efficiencies and development of new applications. A major initial cost is data input which can be accomplished a variety of ways including digitizing, import of survey data via a CAD-type system, scanning, remote sensing satellite data and the use of global positioning systems. The power of GIS is in analysis, modeling, data manipulation, query (what if?), and display. Bob reminded those attending that GIS requires investment in people and a commitment to training and support.

Dr. Robert Bixby, St. Cloud State, focused on GIS training and applications for local governments. He noted that land information systems (LIS) such as used for handling property tax records and geographic information systems (GIS) were are often used to handle natural or environmental information such as soils or forest type, were converging into a unified system of both natural and cultural geographic information.

Trends Dr. Bixby mentioned included GIS created at all levels of government, networking and transferring data between agencies, multipurpose GIS and the combination of position, computing and remote sensing information. Additional future directions mentioned were GIS better designed to meet the needs of the local user, openended future and multipurpose options and finally, better support of long-term planning.

One additional trend Dr. Bixby emphasized is the need for 'metadata' or data about GIS data with the objective of providing a measure of uncertainty about every GIS product. He noted that a national GIS meta-data standard for transfer of spatial data has been devised so users can knowledgeably and properly use a GIS particular product, commenting that GIS provided the 'ability to make junky maps faster than any time in the history of mankind.'

Dr. Bixby also reviewed some of the GIS activities and programs coming out of St. Cloud State. The St. Cloud State Center for Geographic Information Systems is providing training, workshops and technical support for GIS. Some current projects he is working on include Stearns County well information and township planning, and landuse and aquifer management in Dakota County. After a quick run through Horwood's Short Laws (which are reprinted on page 6 of this newsletter) and a final harangue on map accuracy and precision and standards, Dr. Bixby closed by noting that high resolution statewide digital orthophoto 7 1/2' quads are in process with Olmsted County available now on CD-ROM.

Mike Kernodle, USGS-WRD, Albuquerque, provided a wonderful travelogue of the southwest United States in addition to describing his work involving merging ground water computer modeling with GIS in New Mexico. Starting with a short review of ground water modeling, he went on to the hydrogeology of New Mexico and the Albuquerque Basin in particular. (Two articles on Albuquerque's ground water problems follow.)

Mike's special interest is modeling surface and ground water interactions and applying GIS as a tool for aquifer management. Ultimately, he would like to be able to interactively draw in a new well and predict the impact on its neighbors and surface water. With a large USGS grant, mini-mainframes, technical support staff and a billion array entries he plans to accomplish this in the near future.

Global positioning systems (GPS) are a hot topic now and are closely related to GIS as a mechanism for location data verification and electronic transfer. Justin Blum. Minnesota Department of Health, has worked the last couple years to set up a GPS to support MDH programs. Justin described how special instruments can read certain military-controlled satellite time signals and convert those signals to a ground position in latitude and longitude. Depending on how many instrument channels, how many satellites, which signals, signal interferences, the use of a base station and other factors. MDH equipment can provide a horizontal position of +5 meters. According to Justin, users can expect to achieve even better horizontal positions as well as accurate vertical positions in the near future.

—Jan Falteisek, Editor and Cub Reporter



Horwood's Short Laws of Data Processing and Information Systems

1. Good data is the data you already have

2. Bad data drives out good

3. The data you have for the present crisis was collected to relate to the previous one

4. The respectability of existing data grows with the elapsed time and distance from the data source to the investigator

5. Data can be moved from one office to another but it cannot be created or destroyed.

6. If you have the right data you have the wrong problem; and vice versa

7. The important thing is not what you do but how you measure it

8. In complex systems there is no relationship between information gathered and the decision made

9. Acquisition of knowledge from experience is an exception

10. Knowledge grows at half the rate at which academic courses proliferate

Albuquerque Plans to Clean Up Aquifer

After studying ground water pollution for three years and paying consultants some \$1.3 million, Albuquerque officials and their counterparts of Bernalillo County have determined that it's a lot cheaper to prevent well contamination that it is to clean it up. A city-county water protection report says that up to 30 square miles of land throughout New Mexico's most populated county may be situated atop polluted ground water.

The essence of the problem, very simply, is that we live on top of our water supply and many of our activities are not clean." said Norm Gaume, technical programs manager for Albuquerque's Water Utility Division. Since Albuquerque is largely situated in the Rio Grande Valley, Gaume observed, the supply from city wells is pumped uphill to the foothills, then redistributed to help create water pressure. In view of this structure, he said, a pollution problem in one part of the city is essentially a problem in another.

The New Mexico Environmental Department estimates that 20 public supply wells and another 450 private wells in Albuquerque and the surrounding county are contaminated by septic tanks and industrial waste. In addition, levels of naturally-occurring arsenic, common in volcanic rock, are rising in some city wells to the point where one well has been shut down.

A Groundwater Protection Policy and Action Plan, now being considered by city and county officials, would regulate septic tanks and restrict the storage and use of hazardous chemicals and waste near shallow ground water. In vulnerable areas, double walled storage tanks would be required.

----US Water News, May 1992

Tainted Groundwater Makes Land Unsalable, N.M. Lawsuit Contends

Charging that tracts of land overlying the aquifer from which Albuquerque draws its drinking water have been polluted to the point of being no longer salable, a pair of suits filed in state district court seek a multimillion dollar cleanup order, in addition to unspecified cash damages and public health monitoring. The suits, filed on behalf of Schwartzman Inc., claim several oil refiners and General Electric Co. have sole responsibility for ground water cleanup beneath some 725 acres of land Schwartzman owns in Albuquerque's South Valley district.

After a potential buyer had defaulted on purchase of the land,

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Join the Minnesota Ground Water Association!

If you are reading this newsletter second-hand, we'd like to take this opportunity to invite you to become a member of MGWA for 1993. Annual dues are \$15 for professional members and \$10 for students. Additional donations toward the use of 100% recycled paper will be gratefully accepted.

Just complete the form below and mail to: MGWA, c/o WRI, 4779 126th St. N, White Bear Lake, MN 55110.

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Name	
Affiliation	
Mailing Address	
City, State, Zip Code	
Work Telephone Number	
Home Address (optional)	•
City, State, Zip Code	
Home Telephone Number	
Which Address should we use for Directory Listing?	
Which Telephone Number should we use for Directory Listing?	

Unsalable Property in New Mexico, cont.

the suits allege, Schwartzman and its stockholder trust "have attempted to sell the property but have been unable to do so because the conduct of defendants ... has made certain tracts of the property unmarketable and has diminished the value of the remainder of the property."

At one point, the suits claim, Albuquerque officials expressed interest in buying a portion of the property for an interstate highway interchange to the city airport. While such purchase would have greatly appreciated nearby land values, it is noted, the city and state have dropped plans for the interchange due to the pollution liabilities involved.

One of the suits was filed against Chevron USA Inc. and Chevron Pipeline Co., Texaco Inc. and Texaco Pipeline Co., Duke City Distributing Inc., West Emerald Pipeline Corp., Diamond Shamrock Inc., and the ATA Group, which built and operates a joint petroleum pipeline.

The suit claims that the firms' petroleum storage tanks in the South Valley and pipelines to the companies' Albuquerque terminals have leaked gasoline and other fuels for years. The second suit charges that General Electric and two previous owners of land that is now included in the San Jose Superfund site polluted Schwartzman's land and the ground water with chlorinated solvents.

Separate suits were filed because each involves pollutants that are regulated by different government agencies. While the U.S. Environmental Protection Agency (EPA) oversees cleanup of solvents under the federal Superfund law, the New Mexico Environmental Department has jurisdiction over environmental contamination by petroleum products.

New MDH Fee Schedule Proposed

Modifications to Minnesota Rules, Chapter 4725, the Water Well Construction Code, were published for public comment May 24th in the State Register. Among the rules changes proposed by the Minnesota Department of Health are increases in existing well permit fees.

The table shows current and proposed permit fees. Contractor licensing and registration fees will not be changing. The 30-day public comment period will close June 24th. If requested, a hearing on the new rules would be held July 8th at MDH.

The increase in the permit fees is required for the MDH to operate with a balanced budget beginning July 1, 1993. Written comments should be forwarded to Minnesota Department of Health, Well Management Unit, 925 S.E. Delaware St., P.O. Box 59040, Minneapolis, MN 55459-0040.

Type of Permit	Current fee	Proposed fee
Well Construction Notification	\$50	\$100
Heat Pump Permit	\$50	\$100
Heat Loop Permit	\$50	\$100
Monitoring Well Permit	\$50	\$100
Monitoring Well Petroleum Site Permit	\$50	\$100
Elevator Shaft Permit	\$50	\$100
Water Well Maintenance Permit	\$50	\$100
Monitoring Well Maintenance Permit	\$50	\$100
Monitoring Well Petroleum Site Permit	\$50	\$100
Dewatering Well Construction Permit	\$50	\$100
Dewatering Well Maintenance Permit	\$25	\$100
Well Disclosure Fee	\$10	\$20
License/Registration Renewal LATE Fe	e \$10	\$50

Elevated Levels of Arsenic Found in Outagamie County, WI Wells

Last October, a ground water study conducted by the Wisconsin Department of Natural Resources identified nine private wells in Outagamie County (near Green Bay and Appleton) that showed arsenic levels higher than the drinking water standard of fifty parts per billion.

All of the arsenic detections that were higher than the drinking water standard were on a line running from south of Seymore southwest to Grand Chute and Hortonville.

Rick Stoll, WDNR hydrogeologist, said the wells appear to be on a line of subsurface exposures of the St. Peter Sandstone and the Platteville/Galena dolomite.

Stoll said none of the wells sampled by the WDNR in adjacent Winnebago County had arsenic levels above the standard. Stoll emphasized there is no reason to believe that any of the arsenic found in wells in this area is anything other than naturally occurring.

Laboratory analysis of cuttings from wells in the area showed arsenic concentrations ranging from 1.7 to 676 milligrams per kilogram. Residents of the two counties have been encouraged to participate in well water testing to further define the area of the elevated concentration of arsenic in the ground water.

—Summarized from Wisconsin Water Well Association Newsletter, November 1992

----US Water News, February 1993 June, 1993

Proposed Licensing of Geologists in Minnesota

Proposed legislation for licensing of geologists in Minnesota is scheduled to be introduced early in the 1994 legislative session. Twelve other states already have legislation governing the professional practice of geology and similar legislation has already been initiated in sixteen additional states. The proposed language reflects input from a broad spectrum of the professional community. Surveys were conducted to solicit comments from MGWA and AIPG members, meetings were held with AIPG, MSPE, and Mesabi Range Geological Society to provide forums for debate of the issue, and meetings of the Ad Hoc Committee on Professional Practice of Geology were open to all interested parties, with minutes also provided to those who could not attend.

Two portions of the initially proposed language provoked strong comments; the first was the structure of the registration board, the second was the prohibitions of incidental practice across disciplines. Many comments were received favoring creation of a separate board to administer registration of geologists, rather than geologists being incorporated in to the existing Board of Architecture, Engineering, Land Surveying and Landscape Architecture. However, political and economic realities preclude formation of a separate board. The makeup of the existing board includes three architects (with a professional population of approximately 3,100), five engineers (9,000), two land surveyors (440), one landscape architect (320) and six public members. The initial proposal for licensing of geologists provided for a single geologist on the board. The language to be submitted to the legislature has been revised to incorporate two geologists as members of the board of registration to better reflect the number of geoloaists and aeologic specialties practiced in Minnesota.

Results of Geologist Registration Survey

MGWA members provided valuable input on the proposed Geologist registration language. Seventy four percent of the MGWA respondents said that they would strongly or probably favor registration (see table). These results were very similar to the response from AIPG members, who also overwhelmingly favor registration. We were also able to break out the responses from the MPCA and MDH. While the responses from these groups also tended to favor registration, the support did not appear to be as strong as in the responses from MGWA and AIPG members.

A number of concerns were raised by people responding to the survey. Many felt that the hydrogeologists had the strongest basis for registration and favored specialty registration of hydrogeologists over registration of geologists. A number of responses questioned the appropriateness of CEC, an organization of consulting engineering firms, leading the effort to register geologists. Similar anxieties were also voiced about having the geologist registration be administered by a joint professional board rather than an independent board, and of having only a single geologist on the board.

Grandfathering was also a sensitive issue. It is clear that few people relish the prospect of taking a registration exam and favored grandfathering. However, more than 75 percent of the responses indicated support for registration even if they were ineligible for grandfathering and were required to take an exam.

The feedback from the surveys has been used to fine-tune the language of the proposed registration bill. An accompanying article discusses changes in the proposed language that have been made based on the survey response.

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MGWA	AIPG	MPCA	MDH	
31%	30%	24%	0%	
43%	57%	56%	40%	
9%	2%	0%	20%	
8%	6%	9%	20%	
9%	2%	12%	30%	
	MGWA 31% 43% 9% 8% 9%	MGWA AIPG 31% 30% 43% 57% 9% 2% 8% 6% 9% 2%	MGWA AIPG MPCA 31% 30% 24% 43% 57% 56% 9% 2% 0% 8% 6% 9% 9% 2% 12%	MGWA AIPG MPCA MDH 31% 30% 24% 0% 43% 57% 56% 40% 9% 2% 0% 20% 8% 6% 9% 20% 9% 2% 12% 30%

-Kevin Powers, Leggette, Brashears & Graham, Inc.

Licensing in Minnesota, cont.

The second portion of the initially proposed licensing language which provoked vigorous comment was that governing incidental practice across disciplines. In the current statute governing professional practice of architecture, engineering, land surveying and landscape architecture, incidental practice across disciplines is not consistent for all disciplines. Many comments were received which noted the potential for friction at the sometimes overlapping interface of engineering and geology, and recommended that language governing the incidental Practice of geology by engineers should mirror language governing the incidental practice of engineering by geologists. Rather than including specific language addressing this issue in the proposed geologist registration bill, the Ad Hoc Committee on Professional Practice of Geology elected to support language which has been proposed by the Joint Professional Committee of the Board of Registration which would standardize the language prohibiting incidental practice across disciplines in the registration statute.

With these changes, it is anticipated that the proposed legislation will have even stronger support of the geologic community and the professionals that interact with geologists. Any comments or questions can be addressed to Bob DeGroot, STS, (612)559-1900, Chair of the CEC/MN Ad Hoc Committee on Professional Practice of Geology, or Terry Swor, American Engineering Testing (612)659-1330, Chair of the AIPG Licensing Committee.

-Kevin Powers, Leggette, Brashears & Graham, Inc.

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The Lab Isn't Nature

The viability of anaerobic test methods to determine a substance's biodegradability was called into question by a U. S. researcher at an international symposium in Lisbon. The anaerobic tests, routinely called for by state and federal regulations, "fail to take into account conditions present in nature that allow for biodegradation despite the lake of oxygen," said Larry Britton, senior research group leader of Vista Chemical Co. of Houston, Texas. "Lab tests alone do not provide enough information to determine the ultimate fate of a substance in nature," said Britton.

Anaerobic biodegradability test are used to predict whether chemical compounds are likely to stay intact or break down over time in environments that lack oxygen. Standard laboratory test methods call for a substance to undergo measurable biodegradation in a simulated anaerobic sludge digestor system, which introduces microbes in an enclosed process. If a substance does not biodegrade sufficiently under laboratory conditions, it is not considered biodegradable in natural anaerobic environments.

Britton raised the possibility that some substances will not biodegrade in the laboratory test, but will break down in natural environments that are typically considered anaerobic. "Laboratory tests are designed to physically exclude oxygen," he pointed out, "whereas in nature, anaerobic environments are those in which oxygen consumption exceeds the level of oxygen entering the environment." This "critical difference" he said, is vital in seeking to determine the safety of a particular chemical compound.

"While the standard laboratory procedures can be useful in identifying compounds that do not require molecular oxygen to break down," he said, "they should not be use exclusively to predict environmental fate or acceptability of substances that typically require oxygen for biodegradation."

—US Water News, May 1993

Illinois Hazardous Waste Rules Contain Definition of Qualified Ground Water Professional

The Illinois Pollution Control Board recently revised its hazardous waste rules to conform to federal RCRA requirements. The revisions included a definition of "qualified ground water scientist." the Board noted that certification under the National Ground Water Association's Certified Ground Water Professional Program is included within the meaning of professional certification. Profession certification is one way to demonstrate that an individual is a qualified ground water scientist.

—AGWSE Newsletter, April-May, 1993

Virginia Recognizes Certified Ground Water Professionals

The Commonwealth of Virginia states that Certified Ground Water Professionals (CGWP) by NGWA will be considered "qualified ground water scientists" by the state's Department of Waste Management.

The Virginia Solid Waste Management Regulations, Amendment I was approved by the Waste Management Board on January 8, 1993. The amended regulations include the following definition for a "qualified ground water scientist": "Qualified ground water scientists" means a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in ground water hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university programs that enable the individual to make sound professional judgments regarding ground water monitoring, contaminant fate and transport, and corrective action.

-AGWSE Newsletter, April-May, 1993

AIPG - MGWA Fall Field Trip and Seminar

Mark Your Calendars Now!

The 1993 Fall Field Trip and Seminar, co-sponsored by the American Institute of Professional Geologists (MN Section) and the Minnesota Ground Water Association will be September 10-11, 1993 in the New Ulm - Redwood Falls area. The seminar will be held on Friday, September 10, at the New Ulm Holiday Inn. Speakers committed to date, and their tentative topics include:

- Robert Beltrame (Camp, Dresser, & McKee, Inc) - Pre-Cambrian Geology of the Minnesota River Valley.
- Dale Setterholm (Minnesota Geological Survey) - Cretaceous Geology of the Minnesota River Valley.
- Tim Larson (Minnesota Pollution Control Agency) - Water Quality Status of the Minnesota River.
- Bonnie Holz (Brown-Nicollet Community Health Services) -Ground Water Quality Findings -Issues in the Brown-Nicollet Region.
- Dr. Guy Gibbon (University of Minnesota - Anthropology Department) - Jeffers Petroglyphs.

We are still trying to arrange speakers on the glacial geology of the region and on the kaolin development in the Minnesota River Valley. A dinner will follow the seminar on Friday evening. The field trip will take place on Saturday in the New UIm - Redwood Falls area. Informational flyers and registration forms will be mailed to each member in the latter part of June.

More information will be available from either Rita O'Connell of the MPCA, (612)296-8568, or Mike Convery of the Minnesota Department of Health, (612)627-5115, but we suggest you hold off on inquiries until late June, when the program will be finalized.

Directory Update

These corrections and additions are current through June 3, 1993. Please let us know when your information changes!

Listing Format:

Last Name, First Name Employer Preferred Mailing Address (not necessarily at work) City, State Zip Work Phone Fax Number

Clark, Tom MPCA Ground Water and Solid Waste Ground Water Monitoring and Assessment Program 520 Lafavette Rd St. Paul, MN 55155 Work: (612)296-8580 Dustman, John Summit Envirosolutions, Inc. 10201 Wayzata Blvd Suite 100 Minneapolis MN 55305 Work: (612)595-8888 Fax: (612)595-0888 Fredin, James Red Rock Rural Water System P.O. Box 160 Jeffers MN 56145 Work: (507)628-4201 Fruehe, Cathy **RUST Environ**, and Infrastructure 3033 Campus Dr #175 Minneapolis MN 55441-2648 Work: (612)551-1001 Fax: (612)551-2499 Gunderson, Larry **Brown-Nicollet Community** Health Department 301 S Washington St. Peter MN 56082 Work: (507)931-4140 Hanson, Michael Environmental Health Office Cottonwood Co Courthouse Windom MN 56101 Work: (507)831-2060 Hartfiel, Martha S. 725 County Rd 6 Wayzata MN 55391-9611 Work: (612)449-0092 Fax: (612)449-0592 Hayden, Brian Northeast Technical Services 315 Chestnut St PO Box 1142

Virginia MN 55792 Work: (218)741-4290 Fax: (218)741-4291 Johnson, Lisa Braun Intertec Environmental 1345 Northland Drive Mendota Heights MN 55120-1141 Work: (612)683-8733 Fax: (612)683-8888 Knaack, Mark Robert LBG Vantage Place I 6441 Enterprise Lane Suite 102B Madison WI 53719 Kurtz, Craig 1497 10th Street NW Apt 101 New Brighton MN 55112 Leonard-Mayer, Patricia 268 Cecelia Place St. Paul MN 55105 Lord. Richard D. RUST Environ. and Infrastructure 3033 Campus Dr #175 Minneapolis MN 55441-2648 Work: (612)551-2144 Fax: (612)551-2499 Morin-Jansen, Ann 5032 Clear Spring Rd Minnetonka MN 55345 Work: (612)939-6091 Olmanson, Leif 806 Golden Meadow Road Eagan MN 55123 Work: (612)730-9106 Raedeke, Donna Petersen Drilling, Inc. 6961 Hwy 169 Virginia MN 55792 Work: (218)741-4070 Fax: (218)749-6368 Rzepecki, Piotr A. **RUST Environ, and Infrastructure** 3033 Campus Dr #175 Minneapolis MN 55441-2648 Work: (612)551-1001 Fax: (612)551-2499 Sabetti, Bruce Northeast Technical Services 315 Chestnut St PO Box 1142 Virginia MN 55792 Work: (218)741-4290 Fax: (218)741-4291 Slaby, Rachel Braun Intertec Environmental 520 Fisherman's Rd La Crosse WI 54603 Work: (608)781-7277 Fax: (608)781-7279

Slawinski, Dirk University of Minnesota 108 Pillsbury Hall 310 Pillsbury Dr SE Minneapolis MN 55455 Work: (612)626-8784 Fax: (612)625-3819 St. George, Lynette 229 Heller Hall 10 University Drive Duluth MN 55812 Work: (218)726-7935 Starz, Jane Brown County Recycling PO Box 248 Courthouse New Ulm MN 56073 Work: (507)359-7900 Stevens, Matt S. Summit Envirosolutions, Inc. 1021 Wayzata Blvd Suite 100 Minnetonka MN 55305 Work: (612)595-8888 Fax: (612)595-0888 Sunderman, Allen H. SEH Inc. 3535 Vadnais Center Dr St. Paul MN 55304 Work: (612)490-2135 Fax: (612)490-2150 Suryanarayanan, Shanti 1861 Moore St Falcon Heights MN 55113 Thompson, David Environmental Health Office Cottonwood County Courthouse Windom MN 56101 Work: (507)831-2060 Victory, Denise A. MN DNR - Division of Waters 500 Lafavette Rd St. Paul MN 55155-4032 Work: (612)296-0529 Fax: (612)296-0445 Branson, cont. Enactment of state and county

residential wastewater system regulations is vital for the elimination of the ground water contamination threat, he said. However, added Simmons, public approval of such legislation will be difficult without an extensive educational program.

In recent months, the Missouri Department of Natural Resources, after a public hearing process last year, has proceeded toward drafting an environmental plan for the

-continued on next page

Minnesota Ground Water Association Newsletter

Calendar

June 10-11, October 6-7, 1993. The SESOIL Modeling Workshop for Soil Contamination. Sponsored by University of Wisconsin, Milwaukee, Center for Continuing Engineering Education. FFI: Stephen J. Scott, Program Director, ph. (414)227-3115.

June 20-26, 1993. Karst Hydrology Course/Workshop. This will be the 14th Annual Karst Hydrology Course offered by Western Kentucky University and Mammoth Cave National Park. For information, contact Dr. Nick Crawford, Western Kentucky University, Bowling Green, KY 42101, or phone (502)745-4555.

June 21-23, 1993. Water Pollution '93, Milan, Italy. Sponsored by Wessex Institute of Technology. FFI: Pamela Spalding, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southhampton, SO4 2AA, UK, ph. (0703) 293223, fax (0703) 292853, Email: CMI@uk.ac.rl.ib, intl. ph, 44 703 293223, intl. fax, 44 703 292853.

June 24-25, August 12-13, 1993. Urban Stormwater Management Workshop. Sponsored by UW Milwaukee, Center for Continuing Engineering Education. FFI: Stephen J. Scott, Program Director, ph. (414)227-3115.

June 28-30, August 9-11, 1993. Modeling Workshop for Landfill Design and Evaluation. Sponsored by UW Milwaukee, Center for Continuing Engineering Education. FFI: Stephen J. Scott, Program Director, ph. (414)227-3115.

July 12-16, 1993. Safety at Hazardous Materials Sites: A 40-hour Hands-on Workshop. To be held in Valhalla, NY by NGWA.

July 12-16, 1993. San Francisco, August 2-6, Orlando, 1993, *Groundwater Pollution and Hydrology* (The Princeton Course). FFI: (813) 855-6898.

July 17-24, 1993. Geological and Landscape Conservation International Conference, Great Malvern, UK. Contact D. O'Halloran, JNCC, City Road, Peterborough, PE1 1JY, UK, ph. 44-733-62626, fax 44-733-893 971. August 9-11, 1993. Probability, Statistics, and Geostatistics for Environmental Professionals. To be held in Chicago, IL by NGWA.

August 10-13, 1993. 1993 Midwest Environmental Education Conference, Stevens Point, WI. Contact Wisconsin Assoc. for Environ. Education, 7290 County MM, Amherst Jct, WI 54407, ph. (715)824-2428.

August 15-20, 1993. IBM PC Applications for Ground Water Pollution and Hydrology. To be held in Princeton, NJ by NGWA.

August 29-September 2, 1993. AWRA 29th Annual Conference and Symposium, Sheraton Tucson El Conquistador, Tucson, AZ, Contact AWRA.

September 11-15, 1993. American Council of Independent Laboratories, 56th Annual Meeting, Hyatt Regency Beaver Creek, Vail, CO. FFI: Dana Heyman, American Council of Independent Laboratories, ph. (202)887-5872, fax (202)887-0021.

October 21-22, 1993. Minnesota Assoc. for Environ. Education Conference, St. Paul Student Center, Univ. of MN, St. Paul. Contact MN Assoc. for Environ. Education, 3815 E. 80th St., Bloomington, MN 55425-1600, ph. (612) 854-5900.

October 27-29, 1993. Rocky Mountain Ground Water Conference, Albuquerque, NM. Will be held in conjunction with the Sixth Annual Conference of the New Mexico Section of the American Water Resources Association. FFI: Michael Campana, Dept. of Earth and Planetary Sciences, Univ. of New Mexico, Albuquerque, ph. (505) 277-3269, fax (505) 277-8843.

February 16-19, 1994. Breakthroughs in Karst Geomicrobiology and Redox Geochemistry, Colorado Springs, CO. Contact, Arthur Palmer, Earth Sciences Dept., SUNY Oneonto, Oneonto, NY 13820-4015, ph. (607)436-3064

March 27-30, 1994. Second International Conference on Ground Water Ecology. Ground Water Ecology is defined to include: 1) the physical and chemical effects of ground water/surface water interaction on water uses and biota, and 2) the flora and fauna inhabiting the saturated and unsaturated zones of ground water and 3) the flora and fauna of surface water which are sustained by discharging ground water. Atlanta Hilton & Towers. Contact AWRA

April 11-15, 1994. Transport and Reactive Processes in Aquifers IAHR Symposium, ETH-Zurich, Switzerland. Contact Th. Dracos, Institute of Hydromechanics and Water Resources Management (IHW), ETH-Honggerberg, CH-8093 Zurich, Switzerland, ph. (01) 377 30 66 or (01) 377 30 79, fax (01) 371 22 83.

More details available from:

AWRA, contact Michael C Fink, AWRA, 5410 Grosvenor Lane, Sulte 220, Bethesda, MD 20814-2192, (301)493-8600, Fax. (301)483-5844.

NGWA, 6375 Riverside Drive, Dublin, Ohio 43017 (614) 761-1711.

IGWMC, Institute for Ground Water Research and Education, Colorado School of Mines, Golden, Colorado 80401-1887, (303)273-3103, Fax (303)273-3278.

Branson, cont.

Branson area. The major recommendation is that a broad-based task force be formed, with major players being representatives of local governments, development interests, and citizen groups. According to the department, state officials should act in a technical/advisory role.

According to Loring Bullard, director of the Watershed Committee of the Ozarks at nearby Springfield, Mo., "The bottom line is that local citizens must take the lead in developing their community goals and charting a course that will allow them to enjoy the benefits of development without suffering further environmental degradation."

-US Water News, February 1993





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