

# MINNESOTA GROUND WATER ASSOCIATION

## NEWSLETTER v.5 n.4 December 1986

### FALL MEETING A SUCCESS! MEET YOUR NEW OFFICERS

You shoulda' been there! Those of you who were unable to make the John Cherry lecture in Duluth on October 3rd missed a very interesting and enjoyable evening. Dr. Cherry kept everyone spellbound with a quickly paced discussion of a number of topics centering around groundwater contamination by volatile organic compounds. He discussed the transport and fate of these compounds in high and low permeability environments as well as the wisdom of some of the "solutions" being attempted in the U.S. and Canada.

The most interesting and eye-opening topic was his discussion and slides showing the effects on groundwater of the newest variety of apple on the market, the DNAPL. This particular variety cannot be found at any orchards however, but at many of your garden variety hazardous waste sites and landfills. The DNAPL are Dense Nonaqueous-Phase Liquids which Dr. Cherry's slides showed sinking like a rock to a pool in the bottom of an aquifer and then bleeding off into the aquifer for years at the solubility limits. The trick is to recognize the presence of the DNAPL and to find it. No magic solutions to the latter.

On the lighter side, the lecture was followed by an enjoyable social hour or two of wine and cheese at the Campus Club sponsored by the Geology Club. Many thanks to the Faculty, students and Geology Club members for their hospitality. We hope to see them at some of our future meetings.

A special thank you to Glenn Evavold of RREM, Inc., Duluth for serving as the program chairman and making arrangements for what can only be described as a huge success.

Also a tip of the hat to the National Water Well Association for their sponsorship of the lecture series which made the evening possible and to Kevin Powers of LBG for his suggestion that we go for it.

Speaking of J. Kevin, he is relinquishing his duties of coordinating the MGWA newsletter with this issue. He served for the past year. Those of you who may have been involved in this type of thing can appreciate what a time-consuming and generally thankless task it is. Thanks Kevin.

Lee Trotta (USGS) has volunteered to take over the duty of coordinating the newsletter. We are asking for some volunteers to help him and also reminding members that this is their newsletter. We're always looking for articles, both feature and short as well as news about what's happening with our members, advertisers, etc. Send it in.

The last but certainly not the least of the thank yous goes to members of the Board of Directors whose terms have expired recently. These include Jerry Rick (Delta Environmental) president, Tom Clark (MPCA) membership chairman, and Gretchen Sabel (MPCA) Treasurer.

When Jerry began his term last fall, he proposed we concentrate on establishing a speakers bureau per Gretchen's suggestion and established a Program committee to ensure the regularity of the quarterly meetings. Both have been accomplished. Jerry deserves a big thank you for his leadership this past year.

Tom was one of the founding members and has been membership chairman since the inception of the MGWA and has been active in building the membership which now exceeds 250. Gretchen has been treasurer since 1984 and leaves with our finances in excellent shape. Thanks to both of them for their service to the organization.

Without the efforts of people like those I've mentioned above, the organization would cease to function. Why not say thanks the next time you see them. We also appreciate the time their respective employers allow for them to participate on the MGWA Board of Directors.

**MINNESOTA GROUND WATER ASSOCIATION  
WINTER MEETING  
HYDROCARBON CONTAMINATION**

**Tuesday, February 10, 1987**  
1:30 to 4:30 p.m.

**Earle Brown Center**  
St. Paul Campus, U of M  
1890 Buford Avenue  
St. Paul, MN

**Schedule:**

- 1:30      Introduction: Linda Lehman, L. Lehman & Associates, Inc.  
President's Report: Rick Johnston, MPCA
- \* Hydrocarbon Remedial Action  
Kevin Miller - Leggett, Brashears & Graham, Inc.
- \* Askov Ground Water Contamination  
Bob Karls - Delta Environmental Consultants, Inc.

**\*\*BREAK\*\***

- \* Microbial Oxidation of Petroleum Vapors in the Unsaturated Zone  
Marc Hult - U. S. Geological Survey
- \* New Developments in Assessing and Monitoring Hydrocarbon Contamination in Shallow Aquifers  
Olaf Pfannkuch - University of Minnesota

**\*\*DISCUSSION\*\***

??? Call John Morley, L. Lehman & Associates, Inc. (612) 894-0357

**REGISTRATION FORM**

MGWA WINTER MEETING  
February 10, 1987    1:30-4:30 p.m.  
Earle Brown Center, U of M - St. Paul Campus

We strongly urge you to **register before February 3, 1987**

Fill out this form, include payment and mail to:

MGWA, c/o L. Lehman & Associates, Inc.  
1103 W. Burnsville Parkway, Suite 107  
Burnsville, Minnesota 55337

Names \_\_\_\_\_  
Organization \_\_\_\_\_  
Address \_\_\_\_\_  
City/State/Zip \_\_\_\_\_  
Business/Day Phone(\_\_\_\_\_) \_\_\_\_\_  
\$5/registration, total enclosed \_\_\_\_\_

Make checks payable to MN Ground Water Association

## FALL MEETING

Approximately 70 people attended the Fall meeting of the Minnesota Ground Water Association on October 3 in Duluth. Dr. John Cherry, University of Waterloo, Ontario, spoke to the group. Dr. Cherry presented results of research dealing with contaminant transport from research sites in Canada. He discussed the transport of volatile organic compounds, diffusion of contaminants in low-permeability materials and rates of movement in clay. The meeting was held in conjunction with the Department of Geology of the University of Minnesota, Duluth.

## SWIM MEETING

On October 24, a meeting of the SWIM (Systems for Water Information Management) users committee was held at the brand-new Minnesota Pollution Control Agency Building, 520 Lafayette Road. Of interest were the following topics: MGS has added 21,000 summary well records to the existing 30,000 computerized wells so far this year. This work is being done under contract to DNR and using LCMR funding. The logs can now be accessed on the U of M Cyber computer. LMIC has now completed digitization of the State surficial geology map (for GIS purposes). A PCA-led committee is planning to map hydrogeologic sensitivity statewide in order to pick sites for monitoring. The Water Resources Research Center is in the process of refining GIS files, including land cover, which will be derived from satellite imagery for the 7 county metro area in order to get hydrologic parameters such as permeability in more detail.

## LOGO CONTEST

The Association is looking for a new logo. As you may note, the current logo consists of a somewhat abstract image of a drawdown curve. We think we need something with a little more pizzazz.

A contest is now underway to find a new logo. Please send your round sketches and a note of explanation to: MGWA, P.O. Box 3362, St. Paul, MN 55165.

The winner will receive and all expenses paid evening at a yet-to-be announced restaurant in St. Paul.

## JOINT MEETING WITH TWIN CITY GEOLOGISTS

All members of MGWA are invited to our joint meeting with Twin City Geologists. Priscilla Grew, the new Director of MGS, will be the speaker. The meeting will be held at the Stroh's brewery at 6 pm on the evening of January 21st. This time we will be treated to a short tour of the brewery! Dinner will be \$7. We normally have a good turnout for these joint events, but only the first 150 can be accommodated. Please call Bruce Bloomgren of MGS at 373-3372 to confirm the details and reserve yourself a spot. Reservations will be binding unless cancelled a week in advance.

## MEMBERS' PROMOTIONS, CHANGES AND NEWS

At Twin City Testing Corporation: **Dick Bierbaum**, has been promoted to Director of Corporate Resources. He is charged with developing a facilities plan for building expansion and the management of all physical and tangible assets. Bierbaum has been with Twin City Testing for 27 years in various positions. Two new professionals have been added to the St. Paul Environmental Department. **Tom Gapinske**, Hydrogeologist/Project Manager, was formerly Senior Hydrogeologist at Universal Engineering Testing Company of Orlando, Florida, and **Keith Gorvo**, Biologist/Project Manager, came from Environmental Science and Engineering, Inc. of St. Louis, Missouri. **Mark Mason** has been promoted from Environmental Geologist to Supervisor of Environmental Field Services.

From the Agencies: **Hedia Adelsman**, of DNR, has resigned her position of Supervisor of the Water Allocation Unit to accept a position with the Department of Ecology of the State of Washington in Olympia. Also at DNR: **Gene Hollenstein** will be retiring this Christmas after an energetic career (to put it mildly). He has no plans as yet to continue working past his current obligations, but keep your eyes open!

**Rick Johnston** has been promoted to Supervisor of the Fund Financed Unit of the Solid Waste Section at PCA.

And from the USGS: **Dan Gillies** has accepted a position with the nuclear hydrology program in Denver.

## MNDOA LAUNCHES PESTICIDE STUDY

by

**Greg Buzicky, Agronomy Services Division, Minnesota Department of Agriculture**

One of the newer environmental issues to surface in recent years is non-point source pollution and more specifically movement of agricultural fertilizers and pesticides to ground water. Although pesticides and fertilizers have been used for thousands of years, only since the 1950's has there been broad marketing and acceptance of these production tools. Fertilizer and pesticides were so effective in crop production and labor reduction that modern agriculture became reliant on these technical improvements.

In the late 70's and early 80's the problem began to surface. In very sensitive regions of the country a few very mobile pesticides were detected on a wide-spread basis in ground and drinking water. California detected contamination of ground water by DBCP (1,2-dibromo-3-chloropropane) in the San Joaquin Valley, Florida detected EDB (ethylene dibromide) and New York discovered wide-spread contamination on Long Island by aldicarb. Other states, notably Wisconsin, Iowa and Nebraska, began to sample for certain pesticides in sensitive regions.

The current status of investigations and reports of findings changes daily. The EPA reports that 17 pesticides have been detected in ground water in 23 states as a result of agricultural practices. However, those figures are certainly outdated and it is generally assumed that pesticides could be detected in most, if not all, states. The complexity of the problems encountered in the research and survey work for part per billion levels of complex organic compounds are dwarfed, however, by the scope of the social, economic, political, and environmental questions that will need answers. Certainly Minnesota, a leading agricultural state, will have to evaluate the scientific question as accurately as is feasible and make appropriate and practical decisions to safeguard a vital resource for the future.

Survey work, first proposed by the Minnesota Departments of Agriculture and Health to the Legislative Commission on Minnesota Resources (LCMR) in 1984, is scheduled for completion in July of 1987. Interim results were reported at a Freshwater Society/EPA sponsored conference in St. Paul in October. Three general tiers of wells are being sampled; monitoring, private and public. Wells are being sampled throughout Minnesota, but emphasis has been placed on the most susceptible

regions of the state. These regions are the karst in southeastern Minnesota and the coarse-textured soils with shallow depth to the water table. Interim data show that 38% of the 500 samples have at least one detectable pesticide and that most of the detections occur in the susceptible regions. As of September 30, fourteen pesticides have been detected and confirmed with atrazine the most frequently detected compound (approximately 75%).

Nitrates are being analyzed along with pesticide to examine the much discussed correlation. At this point, interim data suggest that while low concentrations of nitrates are associated with nondetection of pesticides, pesticides can be found at any level of nitrate concentration.

Further data evaluation will provide more and better information regarding the relationship of nitrate and pesticide detections as well as improving the information and data base on pesticide movement to ground water.

## HYDROGEOLOGISTS WANTED

### MINNESOTA POLLUTION CONTROL AGENCY

The State of Minnesota is currently accepting applications for the positions of Hydrologist 1 and Hydrologist 2 in the specific area of Hydrogeology. Openings for these positions currently exist at the Minnesota Pollution Control Agency.

The positions involve hydrogeologic evaluation of hazardous and solid waste disposal sites. Problems associated with these sites are addressed under State and Federal Superfund, the Resource Conservation and Recovery Act, permits, etc.

The Minnesota Pollution Control Agency's offices are located in St. Paul, Minnesota. Employment with the Minnesota Pollution Control Agency offers a challenging work experience in a progressive state Agency. The state offers excellent benefits and salaries in the mid 20's for the Hydrologist 1 positions to mid 30's for the Hydrologist 2 positions.

Vacancies for Hydrologist 1, Hydrogeology and Hydrologist 2, Hydrogeology may also occur at the Minnesota Department of Health and Minnesota Department of Natural Resources.

For further information and application forms, please contact:

Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, Minnesota 55155  
(612) 296-7760

## THE NEW FEDERAL SUPERFUND

by  
**Susan M. Brustman, Public Information Officer**  
**Minnesota Pollution Control Agency**  
**and**  
**John Morley, L. Lehman & Associates, Inc.**

The Superfund Amendments and Reauthorization Act, the new federal Superfund, signed by President Reagan on October 19, includes a number of provisions likely to be of interest to Minnesota Ground Water Association members. The following are brief highlights of some of these new elements of the law:

- (116) Sets a schedule for EPA to start 275 new remedial investigations within the next 36 months and to reach a total of 650 over the next five years. In addition, EPA must commence 175 new clean-up actions in the first three years and another 200 sites the following two years. The bill, however, sets no schedule for the completion of remedial studies or clean-up actions.
- (121) The new Superfund establishes a strong preference for remedies that permanently and significantly reduce the volume, toxicity or mobility of the contaminants (permanent solutions) and state that off-site land disposal is the least-favored clean-up method.
- (209) Provides financing and direction for a new research, development and demonstration program to study the effects of hazardous contaminants and encourages public and private development of innovative technologies.
- (119) The new Superfund authorizes exemption from liability under federal law for contractors working to clean up National Priorities List sites and provides authority to indemnify contractors under certain circumstances.
- (117) A new program to provide technical assistance grants of up to \$50,000 each to local groups who are affected by National Priorities List sites is authorized to provide the groups the assistance they need to interpret technical reports.
- (105) The new Superfund requires the EPA to revise the Hazard Ranking System within 18 months so that the scores accurately assess the relative risks to human health and the environment, including consideration of surface-water contamination and the food chain.

(205) The law provides new authority to enforce cleanups where petroleum products leaking from underground storage tanks threaten human health or the environment, and a trust fund is provided to enable the EPA to conduct the cleanup.

(104) An amendment requires the EPA to pay 90 percent of operating and maintenance costs for up to 10 years at sites receiving Superfund-financed clean-ups.

(120) Superfund amendments clarify and strengthen the law as it relates to federal facilities and establishes mandatory schedules for evaluating, investigating and remedying federal sites.

(122) A new section clarifies the process of negotiating settlements and, among other changes, authorizes mixed Superfund and private-party financing of cleanups.

(122) The new Superfund requires the Department of Labor to promulgate standards for the health and safety of employees in hazardous waste occupations.

In addition, an amendment authorizes a research program on indoor air quality and a radon gas investigation and demonstration program. A separate title known as the Emergency Planning and Community Right-to-Know Act includes provisions for the development of emergency planning, training programs, and a reporting system for communities in which hazardous chemical releases are possible.

### REVENUE AND TAXES

The most controversial aspect of the new Superfund law was the question of who should pay. The House of Representatives sought taxing mechanisms aimed only at the petrochemical industry, while the Senate sought to distribute the burden through a broad based tax on all industries. In the final agreement, aspects of both proposals were adopted to fund the \$8.5 billion, 5-year program, as seen in the following table.

The bill reimposed the "old" tax on 42 industrial "feedstock" chemicals and established a new tax on imported chemical derivations of the "feedstock" chemicals. The previous tax on crude petroleum of 0.79 cents per barrel was raised significantly to 8.2 cents per barrel for domestic petroleum and 11.2 cents per barrel on imported petroleum and petroleum products. The Leaky Underground Storage Tank (L.U.S.T.) program would be paid for by an additional tax of 0.1 cents per gallon on gasoline and similar fuels. This tax will expire when net revenues exceed \$500 million.

## DURENBERGER TO PROPOSE GROUND WATER PROTECTION ACT

This is a thumbnail sketch of legislation to be proposed by Senator Dave Durenberger. It was presented to the public at a meeting in Southeastern Minnesota. People in Southeastern Minnesota have become aware of the problems facing their area and were instrumental in developing the concept behind this proposed ground water act.

### **Goals: Nondegradation of ground water**

- To protect the physical, chemical and biological integrity of the nation's ground water resources and to ensure that they are not degraded in any way that may have any adverse effects on the health of persons or the environment;
- To adequately map and identify ground water resources;
- To assist state and local government programs to protect ground water;
- To provide health protection for private drinking water wells; and
- To conserve ground water supplies.

### **Policy: To provide a minimum level of protection** for all ground water resources and to encourage states to be flexible in implementing ground water protection programs

## PREVENTION

The Ground Water Protection Act would use a series of strategies to protect ground water resources from potential sources of contamination. These strategies combine various regulatory approaches -- permits, water quality standards and technology controls -- at both the Federal and State level in programs that are intended to provide each State with flexibility to tailor the regulatory tools to the ground water contamination problems found in that State.

## DETECTION

**Water Quality Inventory.** The United States Geological Survey would be given authority to conduct an ongoing survey of the nation's ground water to determine its overall quality and to identify specific problems of concern.

**Drinking Water Supply.** The Ground Water Protection Act includes a new program to provide assistance in testing the water quality of some privately owned wells. This program would be administered by the States.

**Well Drilling.** Each State which received a Federal grant under this legislation would be required to implement a licensing program for water well drilling. This program would collect information on each new water well drilled and integrate that data into a national computer network on ground water quality and supply. Each new well would be tested for quality, before it could be put into service, and wells drawing contaminated water would be closed and filled immediately.

**Data Collection and Management.** EPA and USGS are authorized to work together to develop national protocols and procedures for sampling and analyzing ground water supplies. The agencies would also develop an integrated data management network to make ground water information more widely available and to routinize the format for reporting and storing such information.

## CORRECTION

**Water Well Replacement.** The Act contains a new program to replace public and private water supplies that have been lost due to contamination. This program is based on legislation that was recently adopted in Wisconsin. The well owner would be required to pay 20% of the cost or \$500 whichever is less. Replacement would not be available for wells contaminated by nitrates or by biological contaminants. The costs of replacement could be recovered from the person responsible for the contamination.

**Corrective Action.** The legislation contains new provisions requiring those who cause contamination to take corrective action, including maintaining insurance for cleanup costs, property damage and bodily injury. Corrective action would also include removal of any immediate threats to health, steps to immediately stop contaminants from spreading, cleanup of the ground water resource and compensation for personal and economic losses.

**Corrective Action Standards.** The Ground Water Protection Standards Board established by this legislation would be authorized to issue numerical ground water correction standards. These standards would be contaminant specific and would be established according to the application of best available treatment technologies to specific hydrogeologic settings. The standards would apply under this legislation and would also be available for use in taking corrective action under other EPA programs.

## RESEARCH

The Act authorizes a new research and development program on ground water contamination to be run by EPA. The program would be coordinated by a committee representing the ground water concerns of the various offices at EPA. The committee would prepare an annual research plan which would match upcoming ground water policy decisions with available information to anticipate research needs.

EPA would be authorized to conduct a research program to demonstrate new control technologies for various potential sources of ground water contamination. Each year EPA would finance at least 10 demonstrations, the results of which would be made broadly available through programs of technical assistance and technology transfer.

The legislation authorizes EPA to establish four university-based ground water research institutes. The institutes would conduct general programs in the ground water sciences and train individuals interested in careers related to ground water protection.

## ORGANIZATION

EPA's new responsibilities would be carried out by the Office of Ground Water Protection which would be headed by an assistant administrator for ground water.

The Administrator of EPA would establish a Ground Water Protection Advisory Committee to include officials of State and local governments and persons from private organizations with an interest in ground water protection.

## GROUND WATER CONTAMINATION LIABILITY

Pesticides and fertilizers leaching through the ground have become a major source of ground water contamination in rural areas. In an effort to deal with liability concerns, legislation has been proposed in New York that will shift the legal liability from the farmers who used the material to the manufacturers of the material and the state. The proposal would establish a ground water indemnification account that would be used to restore contaminated ground water and to provide an alternative source of potable water if needed. A similar provision relieving farmers of legal liability has passed the U.S. House of Representatives. -Future Scans

## STATE LEGISLATIVE PROPOSALS

### LANDFILL RISK POOL

Since the first draft of the PCA's proposed landfill financial assurance rules was distributed in January of 1985, interest has grown in the formation of a "risk pool" for landfills. The pool would consist of funds derived from landfill user fees. Pool resources would be used to pay the costs of response actions at permitted sites.

A group of interested people has been working for nearly a year on the design of a risk pool program. The group consists of representatives of private and public sector landfill permittees and local and state government officials. The group has yet to decide on a final design. If the proposal wins sufficient approval within the working group, the proposal may be submitted for legislative action next year. Those interested in further information may contact Art Dunn, of the PCA, at 296-7294.

### PETROLEUM TANK RELEASE CLEANUP FUND

In response to the over 100 spills and leaks of petroleum products reported to PCA each year, the Agency is proposing to introduce legislation during the 1987 Legislative Session to fund a Petroleum Tank Release Cleanup Fund. The fund would be generated by an increase in the existing petroleum inspection fee which is administered by the Minnesota Department of Revenue and paid to the Division of Weights and Measures to support their inspection programs. A group of involved parties including petroleum trade association representatives, insurance companies, oil companies, and the involved state agencies have been meeting to develop an approach which may hopefully have the agreement, if not the general support, of all involved. Those interested in further information may contact Tom Clark of PCA at 296-7335.

### AMUSING NOTES

Check out the Call for Papers for the Conference on Midwestern Ground Water Issues. (Sorry but abstracts were due December 12). Minnesota didn't qualify for the NWWA's map of the Midwest!

PS We didn't make it on the Northwest map either!

### ASK A FRIEND TO JOIN MGWA!

## LEAKING UNDERGROUND STORAGE TANK (LUST) TRUST FUND

The LUST Trust Fund was passed by Congress as Section 205 of the CERCLA reauthorization bill (see other Superfund article in this issue).

The Fund amends the current Subtitle I provision of the Solid Waste Disposal Act as amended by RCRA and HSWA. The Fund is authorized for a five year period at \$500 million. The Fund is supported by revenues from an excise tax on motor fuels at the rate of 0.1 cents per gallon and is deposited in the Highway Trust Fund.

The Fund requires that each State provide data from the Subtitle I notification process to the Administrator no later than 270 days after enactment. This information will probably be used to establish an allocation formula for the Fund.

The Fund sets financial responsibility at no less than \$1,000,000 for each release occurrence. This could mean \$1,000,000 worth of liability insurance per tank, however, no final interpretation has been made.

Corrective action can be paid for by the Fund for any release of petroleum into the environment. The Fund can also pay for costs incurred for enforcement actions to ensure owner/operator (o/o) cleanup and cost recovery. Corrective action may include 1) temporary or permanent relocation of residents, 2) alternative water supplies and 3) site restoration.

After regulations are promulgated, clean-ups can be paid for by the Fund only if; 1) no person can be found within 90 days, 2) as may be necessary to protect human health and the environment, 3) corrective action costs exceed the financial responsibility maximum, then only for the cost over the maximum, and 4) o/o has refused to comply with an order issued under Section 9006.

The Fund is to be established through cooperative agreements with the States. The Agreements are to be multi-site and can be multi-year. The Agreements will require a 10 percent match after regulations are promulgated; no match is required until regulations are in place. U.S. EPA's role is to be very limited as far as actual clean-up. U.S. EPA is to rely on an oversight role. Federal clean-ups, while acceptable, should be limited to no more than 10-30 per year nationally with a goal of no Federal actions.

The Fund provisions are to be tied closely to the OUST program responsibilities, and is not to be a Federal emergency response program. The emphasis over the next year will be in developing Cooperative Agreements, State capabilities, a Fund administration process, and oversight of State expenditures of the Fund, evaluations of State actions, cost recovery and contract administration.

## OUR LIQUID ASSET

The Regional Environmental Education Councils (REEC) are seeking technical assistance and suggestions of potential funding sources for the following project:

**Our Liquid Asset** addresses the nature and importance of northern Minnesota's ground water resources and practices that impact upon the quality and quantity of this supply. The issues to be addressed will include agricultural practices, landfill and waste issues, and crystalline bedrock issues.

Carol Langer, a regional coordinator for the Regional Environmental Education Councils, will direct the project. It will be produced by Northern Minnesota Public Television KAPE-TV, Channel 9 of Bemidji. This program will serve as a vital part of the ongoing educational efforts of the regional councils. Many of these efforts only reach agency professionals. Our challenge is to inform the general public. The distribution plan is designed to reach the average citizen in the form of an ongoing educational program.

Non-broadcast copies will be incorporated into portable learning stations to be circulated to schools. (Presently, these stations serve 500 students each month and are reserved up to two years in advance.) Nonbroadcast copies will also be presented at community meetings. The program will air both nationally and in state through a series of up-link satellite broadcasts.

The total cost of the project is \$45,542.00. REEC would appreciate your suggestions. Please contact Carol Langer at 218-327-4445, DNR/REEC, 1201 Hwy. 2 East, Grand Rapids, MN 55744



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 (612) 296-0436

WINTER MEETING  
 FEBRUARY 10  
 ST PAUL!

## UPCOMING ELECTIONS

We are soliciting nominees for the posts of President-Elect and Secretary. Send your nomination to MGWA, PO Box 3362, St. Paul, MN 55165.

**IF YOUR ADDRESS CHANGES  
 LET US KNOW AT ABOVE ADDRESS**

**(CONTINUED FROM PAGE 1)**

Pat Bloomgren (DNR; treasurer/membership) and I would like to thank those of you who elected us to the Board of Directors. We hope we will continue to provide the same fine leadership and service that past members of the Board of Directors have provided.

CERCLA has been reauthorized, much to the relief of those living around the hazardous waste sites which were being investigated with Superfund money, not to mention those of us who are working on the sites. This issue summarizes the reauthorization and some proposed State and Federal legislation currently under consideration.

See you at the winter meeting.

-Rick Johnston



Merry Christmas

## NEW MEMBER APPLICATION

Annual Membership Dues: \_\_\_\_\_ Individual-\$10/Year, \_\_\_\_\_ Student-\$5/Year  
 Make checks payable to: Minnesota Ground Water Association  
 P.O. Box 3362, St. Paul, MN 55165

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Telephone Number: (\_\_\_\_\_) \_\_\_\_\_

## SEMINAR BY MARY ANDERSON

The NWWA has announced its new slate of Distinguished Seminars on Ground Water Science. One is to be held locally -- Mary P. Anderson will speak on the topic of *Effective Use of Geologic Information in Ground Water Models* July 21-22, 1987. The meeting will be at the Bloomington Marriott. The cost (including lunch and refreshment breaks both days) is \$395 for NWWA members and \$495 for non-members, if received by NWWA 21 days before the seminar.

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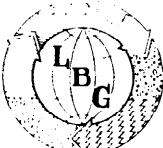
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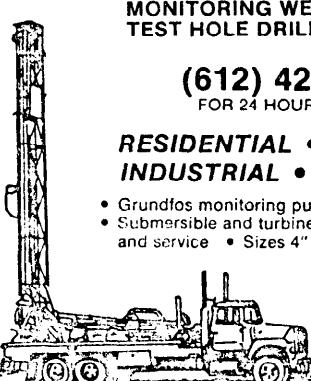
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