

American Institute of Professional Geologists Michigan Section

February, 2008

From the President's Desk

Times are good for the Michigan Section.

Last year was highlighted by AIPG's 44th Annual Meeting hosted by the Michigan Section in Traverse City, Michigan. The meeting was the culmination of over 3½ years of planning and more than 30 planning committee meetings. This effort was led by Adam Heft, the general chairman of the 44th Annual Meeting, and 10 planning committee members: Eric Wallis and Dawn Prell (program co-chairs); Tim Woodburne – Short Course Chairman; Alan Blaske – Field Trip Chairman; Ty Black – Exhibit Chairman; Ed Everett – Publicity Chairman; Gary Dannemiller – Registration Chairman; Kevin Lund – Finance Chairman; Matt Vander Eide – Spouse Program Chairman; and Joe Sheahan – Student Affairs Chairman. As a result of the hard work, dedication, and planning, the 44th Annual Meeting was a resounding success. Some of the meeting faithful remarked that it was the most well organized meeting that they had ever attended. Special thanks to Adam Heft and each of the committee chairs who made the 44th Annual Meeting a success.

As a result of the success of the 44th Annual Meeting, Michigan Section made approximately \$19,000 in profit. The general feeling among the Executive Committee is that the money should be used to create an endowment for student scholarships to promote the science of geology. The process of how we create the endowment, how to invest the money, how many scholarships will be available from the endowment, and who would receive a scholarship are some of the key questions that the Executive Committee will need to answer this year, and is perhaps the most important item of business that needs to be accomplished. More news to come on this issue in the near future.

Now let's take a look at the upcoming year. We are planning four meetings and the third annual golf outing. Our first meeting will be held at Western Michigan University's Fetzer Center and will feature Dr. Alan Kehew, a glacial geology professor and recent recipient of Michigan Sections Outstanding

Geologist of the Year award. He will discuss his most recent research on natural attenuation of BTEX plumes.

Other topics considered for meetings include mining issues in Michigan's Upper Peninsula (this will likely be the October meeting), groundwater withdrawal in Michigan and the potential positive and/or negative impacts this can have on Michigan's resources, the Michigan's Basin and the important role the bedrock of the Michigan Basin plays in our lives. Additionally, the Executive Committee is planning a field trip to a not yet determined location. Sara Pearson, the Michigan Section Vice President, will report back on possible trip locations.

Timothy B. Woodburne, CPG
AIPG Michigan Section President

2007 Longevity and Educational Advancement Awards

Over the past two years I have had the opportunity to serve the Michigan Section as the Award Committee Chairman. This year, it was my pleasure to present the annual Longevity Awards which are given on an annual basis to an active member who has been a good-standing member of AIPG for 10, 15, 20, and 25 years. For 2007 the following members received Longevity Awards:

25 years: Jon Ercole, Lawrence Austin, Robert Hayes, Edward Everett, and Tyrone Black.

20 years: Susan Peelen-Streidl, Emily Cord-Duthinh, and John Morehouse.

15 years: Robert Ferree, Kristine Wise, Marc Gesink, Bruce Jones, Paul Meyer, Kurt Koella, and Edward Burk.

10 years: Scott McWhinnie, Charles Saari, William Steinmann, Patrick Bartnik, Daniel Greene, Kevin Lund, Steven Kimm, Michael Porath, Paul Sterkenburg, James Finetti, Thomas Peters, Brett Coulter, Douglas Mullett, Donald Penniman, John Lanigan, David Sawicki, Chris Christensen, John Cuthbertson, Larry Campbell, Anthony Finch, Daniel Wiitala, and Michael Gebhard.

Please note that if you did not attend the December meeting your certificate will be mailed to you shortly.

In addition to the Longevity Awards, it was my honor to present two \$500 Educational Advancement Awards. The awards are given on an annual basis to a K-12 teacher or school for promoting the advancement of geological sciences in the classroom. This year's recipients were the Wilcox Elementary School of Holt and the Plymouth Canton High School. Wilcox Elementary School plans to use the award for a Michigan fieldstone garden project, while Plymouth Canton High School will be using their award to purchase learning materials for their geophysical science students.

Jason Lagowski, CPG – 2008 Michigan Section Treasurer and Awards Chairman

Outstanding Professional Geologist of 2007

The Michigan Section of the American Institute of Professional Geologists (AIPG) is proud to announce the recognition of Western Michigan University Geosciences Professor Dr. Alan E. Kehew, Ph.D., with the 2007 Outstanding Geologist of the Year Award for contributing to the advancements in the understanding of the glacial geology of Michigan.

Dr. Kehew is a national leader in the interpretation of glacial landforms and landscapes, and he continues to make significant contributions to the understanding of the glacial events that shaped Michigan's rich historic geologic past. Dr. Kehew's contributions stem from a mapping project funded by the Michigan



Department of Environmental Quality (MDEQ) and the US Geological Survey. The mapping program, focusing on southwest Michigan, has been in progress for several years with the goal of producing maps that are useful for planning land-use, locating aggregate resources, implementing wellhead protection plans, and providing information for other societal projects. Another outcome of this project has been the development of a better understanding of the stratigraphy, chronology, and depositional processes of these glacial materials. Dr. Kehew presented the new findings and interpretations as part of a short course presentation at the 2007 AIPG National Conference held in Traverse City, Michigan on October 8, 2007.

His work has led to a reinterpretation of the glacial geologic history of Michigan, which was extensively glaciated during repeated Pleistocene fluctuations of the Laurentide Ice Sheet. The Lower Peninsula is covered by variable thicknesses of glacial drift (up to 1200 ft), with few exposures of bedrock. The Upper

Peninsula was also completely covered by glaciers, but contains more extensive exposures of bedrock.

Over the past decade, new mapping of the glacial drift has been completed as part of US Geological Survey STATEMAP and EDMAP programs. Prior to this new work, most interpretations of the glacial geology were based on mapping by Frank Leverett and others in the early 20th Century. Digital Elevation Models (DEMs) provide a new way to visualize and interpret glacial landscapes and are extensively used in current mapping projects. The wide availability of these databases has stimulated and facilitated glacial geologic research throughout glaciated terrains worldwide.

A better understanding of the stratigraphy and depositional processes of the glacial drift has far

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Newsletter Editors Adam Heft, 517-887-1100 (hefta@fitzhenne.com) and Tyrone J. Black, 989-705-3402 (blackt@Michigan.gov).

Committees Awards, Jason Lagowski (jason.lagowski@arcadis-us.com); Educational Outreach, Adam Heft (Heft@fitzhenne.com); Membership and Student Chapters, Walter J. Bolt (wbolt@manniksmithgroup.com); Registration, Scott Cesarz (scesarz@manniksmithgroup.com); Screening, Kevin Lund (klund@g-eri.com); 888-417-4440; Student Chapters, Eric Wallis (Ewallis@WM.com); Quarterly Meetings, Scott A. Cesarz, (scesarz@manniksmithgroup.com); Treasury, Bruce Beltman (bbeltman@gwsibiz.com).

Circulation of the Michigan Section Newsletter is to over 330 members, a number of prospective members, several geology departments, and companies for a total over 500. Distribution is by USPS and e-mail notice of web posting. Copy in PDF format is posted at <http://www.mi.aipg.org>.

Newsletter Sponsors and Advertisements: The Sponsor section is \$15 per name or column inch for copy ready art. Copy preparation at an additional charge is available.

Professional Postings: The Professional Posting section, where you may advertise positions, is \$10 per column inch.

Seeking Employment: Members seeking employment may submit a 50-word listing at no charge.

Articles: The newsletter will feature topics on a quarterly basis, and will have a quarterly deadline for submissions. If you have ideas for topics or articles, query us or submit it!

Authors' opinions in articles are not necessarily the opinions of the Michigan Section or National Headquarters of the AIPG.

reaching implications in the field of geology and beyond. This includes land use planning and natural resource considerations during site development, management of water and even environmental contaminant fate and transport, which is greatly influenced by stratigraphy and the hydrogeochemistry of glaciated environments. The main focus of Dr. Kehew's career has been researching the hydrogeochemistry of natural and contaminated aquifer systems and the glacial geology of southwestern Michigan. Dr. Kehew has authored several papers and textbooks on these topics and teaches geomorphology, glacial geology, introduction to soils, contaminant hydrogeology, environmental geology, and hydrogeochemistry at Western Michigan University where he has been a Professor of Geology since 1986 and was also Department Chair. Dr. Kehew is a graduate of Bucknell University with a degree in Geology and holds a Master of Science degree in Earth Science from Montana State University and Doctorate in Geology from the University of Idaho.

Sara Pearson, in collaboration with Walt Bolt – This article appeared in several Michigan newspapers

2007 Significant Contribution to the Michigan Section Award

The Executive Committee unanimously chose Adam W. Heft, CPG as the recipient for the Significant Contribution Award in 2007. The award was provided to Adam at the December 6, 2007 Section meeting at Tony M's restaurant in Lansing. The Significant Contribution Award is given to one member for contributions to the Section that are deemed significant. Adam represented Michigan Section as General Chairman of the 44th Annual AIPG Meeting held in Traverse City in October 2007. He organized and assembled the Planning Committee, comprised of 10 committee chairmen, who helped plan the meeting. The 44th Annual AIPG Meeting was very successful and resulted in slightly more than \$19,000 profit for the Section. The Executive Committee felt that the 44th Annual AIPG Meeting success was largely due to Adam's vision and leadership. Congratulations to Adam Heft.

Timothy B. Woodburne, CPG

Newsletter Notice via E-mail

Save us costs and more quickly receive meeting announcements and newsletters. Submit an updated e-mail address to Adam Heft at hefta@fitzhenne.com.

Section Meeting March 13th

The Michigan Section is please to announce that Dr. Alan Kehew, Ph.D. (a professor at Western Michigan University in Kalamazoo, Michigan) will discuss natural attenuation at UST sites at the March 13, 2008 Section meeting. The meeting will be held at the Fetzer Center on the Western Michigan University campus in Kalamazoo, Michigan.

4th Annual Golf Outing

When Does a Day of Golf Help your business?

The saying goes something like this, "A bad day of golf is better than a good day at work." While not every AIPG member would agree, some do take time off to enjoy a round of golf once in a while. When that day of golfing occurs at the Michigan Section of AIPG scholarship fund raiser event maybe you should participate too. The event is held for Michigan students studying geology at Michigan schools. This is an opportunity for you to support AIPG, build relationships, and help students afford an education in geosciences. Remember college, and not having money? Come out to the annual AIPG golf outing, build a new relationship, or meet a student, you just may help your business and have a good time.

The early summer golf outing will be held at Lyon Oaks, located in Lyon Township on Tuesday May 20, 2008. Tee time is 9:30, lunch and dinner is include. See the attached brochure for details. Get your foursome together and we hope to see you there!

2008 Golf committee

PG Licensure Bill Update

Recently, there has been some encouraging developments regarding the PG bill package (HB 4946, HB 4947, and HB 4949). Since last year, members of the executive committee have been communicating regularly with the American Association of Petroleum Geologists to improve the legislation and they have agreed to offer their support based on the outcome of our work. The improvements include eliminating the addition of Landscape Architects under the legislation and some improved language for allowing petroleum geologists to continue to perform exploration and development work that is done in and for the benefit of private industry. We continue to have support from several associations and those of our professional peers including but not limited to Michigan Basin Geologic Society, American Institute of Professional Geologists, Michigan Society of Professional Engineers, Michigan Association of Planners, Michigan Water and Environment Association, and Michigan Waste Industries Association.

The Executive Committee anticipates that a meeting will be scheduled with the Great Lakes and Environment Committee for sometime in February with a vote (hopefully) on the floor sometime to follow. For those interested in supporting this effort please contact your State Representative and State Senator and let them know you support this legislation. If you want additional information visit our website <http://mi.aipg.org/> or contact me at wbolt@manniksmithgroup.com.

Walter J. Bolt, CPG

CPGs Interested in Becoming a Section Officer

I am writing this column to encourage you to become interested in becoming an officer in the Michigan Section. This column outlines the process to become an officer and some of the benefits an officer of AIPG Michigan Section receives.

The election for Secretary for Michigan Section will occur at the November/December meeting this year. This position is a four year commitment as an officer and member of the Executive Committee. The annual commitments are secretary for the first year, treasurer for the second year, vice-president in the third year, and president in the fourth year. To be an officer of Michigan Section, you must have an AIPG CPG designation.

The officers are the leadership of the Section. They decide on the meeting venues, speakers, and the topic to be discussed for the meeting, the Section finances, and management of the Section. Additionally, the Section sends the vice president to the Annual Meeting each year. At the Annual Meeting the vice president represents the Section and provides an update to the National Committee on the activities of Michigan Section. In 2008, the vice president will be sent to Flagstaff, Arizona. Future possible locations include Florida in 2009, California in 2010, and Alaska in 2011, according to AIPG's website.

If you are interested in becoming the next Secretary of the Michigan Section, please forward a curriculum vitae and a statement of purpose in writing indicating your reasons for wanting to become the next Secretary to twoodburne@preinnewhof.com by the end of October. Each statement of purpose will be included in the October newsletter for the consideration of the other members. You will introduce yourself to the Section as a candidate for the position at the November/December meeting.

If you have any questions, please do not hesitate to contact me at 616-364-8491.

Timothy B. Woodburne, CPG

MDEQ Requests Peer Input for GSI Pathway Evaluation and Report Review Pilot Study

The Michigan Department of Environmental Quality (MDEQ) Remediation and Redevelopment Division (RRD) has been evaluating alternative ways to address utility corridors as a preferential migration path for the Groundwater/Surface Water Interface (GSI) pathway. Currently, for a non-storm sewer utility corridor, responsible parties can either reduce contaminant concentrations to below GSI criteria before the groundwater reaches a utility corridor or the contaminant concentrations may be monitored in the utility corridor to demonstrate that attenuation is occurring before the contaminants reach a surface water body.

One potential option that the MDEQ and Part 201 Discussion Group have been considering for the non-storm sewer utility corridor is developing a method to calculate a distance from a receiving water beyond which GSI concentrations would attenuate to levels below the GSI criteria for that chemical. However, this appears to be a relatively new approach to addressing this pathway, and literature searches have not yielded any significant data. As part of the development of this method, the MDEQ is requesting input from individuals or firms who have examples of sites where utility corridors need to be evaluated as a preferential pathway and available data from any investigation of the attenuation of compounds within utility corridors. Anyone wishing to participate or provide input in the development of GSI/utility corridor evaluation may contact Ms. Patty Brandt at the MDEQ RRD via email at brandtp@michigan.gov.

In addition to the GSI pathway evaluation, the MDEQ is also looking for volunteers to participate in a pilot program for the Part 201/Part 213 Checklist that the RRD will be using to review specific reports submitted to the department. The checklist highlights information that the statutorily required reports should provide and is an effort to streamline the internal review process within the department. If you are interested in participating, please contact Ms. Patty Brandt at the MDEQ RRD via email at brandtp@michigan.gov for an electronic copy of the form.

- Sara Pearson, 2008 Michigan Section Vice President.

Useful Website Links

The following are links to various websites that contain useful geologic related information. Additional links to other websites will be included in future issues of the newsletter. If you have any suggested links to include that others may find useful

or interesting, please forward them to Adam Heft at hefta@fitzhenne.com.

Below is a link to the "deepblue" library link at U of M. It includes image files of a large collection of texts including papers by Ehlers and Kesling (like the 1970 text on the Alpena and Presque Isle Devonian).
<http://deepblue.lib.umich.edu/subject-search?subject=7&subjectsecondary=86>.

The US NRCS has launched Web Soil Survey (WSS), <http://websoilsurvey.nrcs.usda.gov/app/>. You can access soil survey information anywhere they have coverage on the web site. It is a good site but a little learning curve is needed to get to the soil data.

Michigan DNR Spatial Data Library webpage (digital maps and more)
<http://www.dnr.state.mi.us/spatialdatalibrary/>

Here are several Michigan University webpages:

Michigan University and College Geology Department Web Sites Michigan State U.
www.glg.msu.edu (also check out <http://econ.usfs.msu.edu/gla/geology/purpose.htm>)

U. of Michigan
www.geo.lsa.umich.edu/seminars.html

Michigan Tech U. www.geo.mtu.edu

Western Mich. U. www.wmich.edu/geology Central Mich. U. www.cmich.edu/GEL.HTML

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www.emich.edu/public/geo/geology/geology.htm

Wayne State U. <http://sun.science.wayne.edu/rocks>

Grand Valley U. www.gvsu.edu/acad/geology

Lake Superior State U.
www.lssu.edu/academics/science/schools/natural_sciences/geology.html

Albion College www.albion.edu/fac/geol/index.htm

Hope College www.hope.edu/academic/geology

Calvin College www.calvin.edu/academic/geology

Olivet College
www.olivet.edu/Academics/Divisions/Natural_Sciences

Adrian College www.adrian.edu/EARTHSCI.htm

Lansing Comm. College
www.lansing.cc.mi.us/science/E2S2.html

Coming Events

March 1&2, 2008: 36th Annual Special Auction of the Roamin Club. The event includes silent and verbal auctions of minerals and lapidary material. The event will be at Schoolcraft College at the Visatech Center Building in Livonia. Additional information is available by calling Clarence Sterling at (248) 969-2196 or Don Brown at (734) 421-8159.

March 13, 2008: AIPG Chapter Meeting: "Natural Attenuation at UST Sites: Processes, Problems, and Predictions" by Alan Kehew, Ph.D., Professor in the Geosciences Department at Western Michigan University.

Location: The Fetzer Center, Western Michigan University, Kalamazoo, Michigan.

Dinner: Choose from: Mushroom Melange Ravioli, Italian Grilled Chicken, or Boneless Barbeque Pork Chop, garlic mashed potatoes, and parsley sweet corn.

Schedule: Cash Bar/Check-in 5:30 to 6:30 PM, Dinner: 6:30 Speaker: 7:30 to 9:00. Prize Raffle.

Cost: Students \$25.00, Members \$35.00, Non-members \$40.00.

RSVP by March 7: Telephone or e-mail registration with Name, Company, Address, Phone, Fax, and Amount Due to AIPG-Michigan Section, c/o Don Conway, Secretary, at dgconway@goslingczubak.com or (231) 933-5132. Reservations not cancelled by March 11th will be billed. Checks to AIPG-Michigan.

Students attending the meeting and looking for full-time employment after graduation or a part-time summer position can bring several copies of their résumé. Leave one résumé at the sign-in desk upon arrival. Résumés obtained at the meeting are available to AIPG members seeking job candidates by contacting Kevin Lund, klund@g-eri.com.

March 19-21, 2008: 18th Annual Conference and Trade Show of the Michigan Rural Water Association. The conference will be at the Grand Traverse Resort in Traverse City. Additional information is available online at: www.mrwa.net.

May 6-10, 2008: 54th Annual Meeting of the Institute on Lake Superior Geology. The conference will be at the Ramada Inn in downtown Marquette. Ted Bornhorst and John Klasner are Co-Chairs of the meeting. Technical presentations and field trips are part of the meeting. Additional information is available on the ILSG website at: www.lakesuperiorgeology.org.

May 20, 2008: 4th Annual Michigan Section Golf Outing. The 18-hole golf scramble supports the Michigan Section's grants and scholarships program, and will be held at the Lyon Oaks Golf Course in Wixom. Registration begins at 8:00 am, with a 9:30 am tee time. Cost is \$115 per individual, or \$420 for a foursome. Additional information is available on the attached flyer.

September 20-24, 2008: 45th AIPG Annual Meeting, held in conjunction with the 3rd International Professional Geology Conference. The meeting will be held in Flagstaff, Arizona. Details will be forthcoming in issues of TPG and on National's website at www.aipg.org.

Annual Meeting Supporters



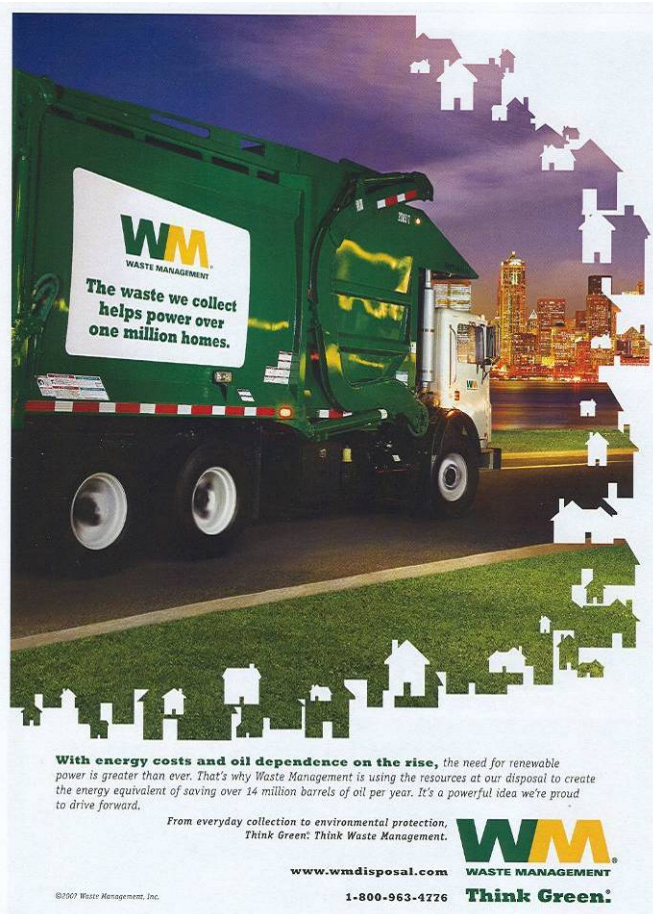
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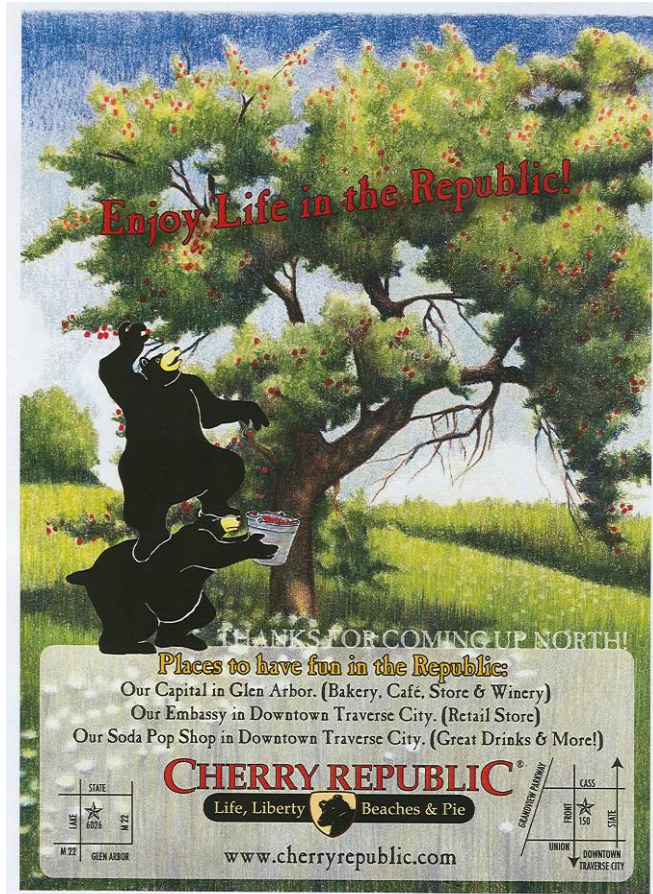
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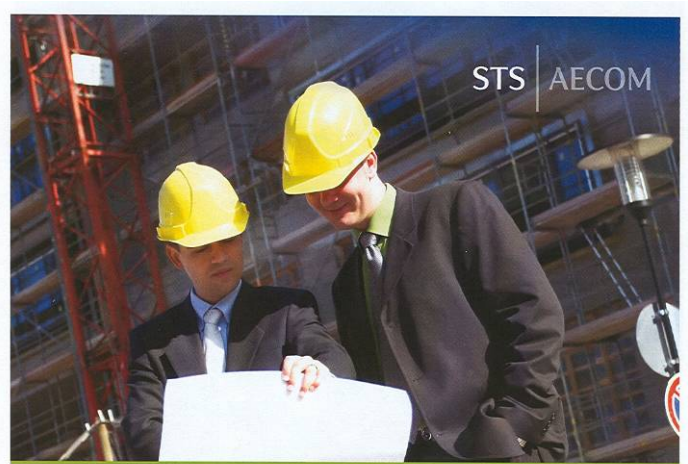
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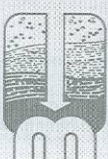
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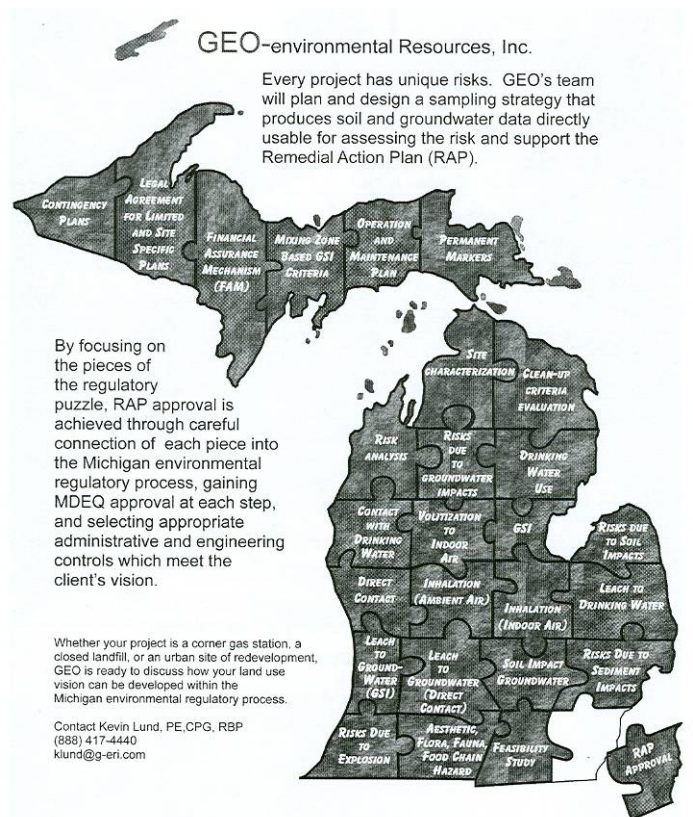
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The puzzle pieces represent the following components of a Remedial Action Plan (RAP):

- CONTINGENCY PLAN
- LEGAL AGREEMENT FOR LIMITED AND SITE SPECIFIC PLANS
- FINANCIAL ASSURANCE MECHANISM (FAM)
- MIXING-ZONE BASED GSI CRITERIA
- OPERATION AND MAINTENANCE PLAN
- PERMANENT MARKERS
- SITE CHARACTERIZATION
- CLEAN-UP CRITERIA EVALUATION
- RISK ANALYSIS
- RISKS DUE TO GROUNDWATER IMPACTS
- DRINKING WATER USE
- RISKS DUE TO SOIL IMPACTS
- CONTACT WITH DRINKING WATER
- VENTILATION TO INDOOR AIR
- GSI
- RISKS DUE TO SEDIMENT IMPACTS
- DIRECT CONTACT
- INHALATION (AMBIENT AIR)
- INHALATION (INDOOR AIR)
- LEACH TO GROUNDWATER (GSI)
- LEACH TO GROUNDWATER (DIRECT CONTACT)
- SOIL IMPACT GROUNDWATER
- RISKS DUE TO EXPLOSION
- AESTHETIC, FLORA, FAUNA, FOOD CHAIN HAZARD
- FEASIBILITY STUDY
- RAP APPROVAL

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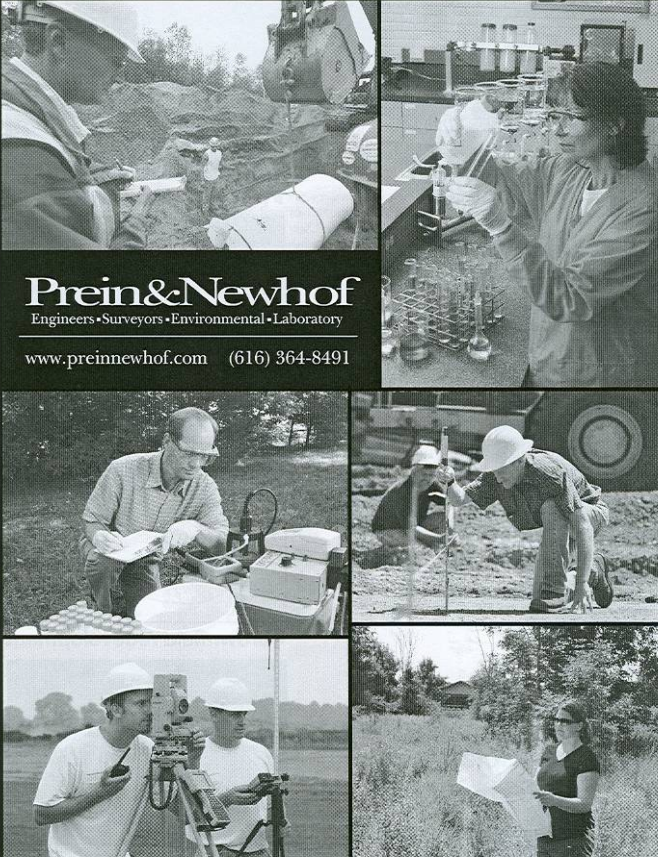
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SERVICES NO. : 1

Project: AIPG Annual Meeting
Location: Traverse City, Michigan
Date: October 7-11, 2007

Depth	Legend	Services Description	Proactive Problem Solving	Cost Effective	Successful	Str. %
1		Civil Litigation	Max.	+++	√√√	100
2		State/Federal Administrative Agency Proceedings	Max.	+++	√√√	100
3		Real Estate and Business Transactions	Max.	+++	√√√	100
4		Governmental Relations	Max.	+++	√√√	100
5		Toxic Torts	Max.	+++	√√√	100
6		Insurance Coverage Claims	Max.	+++	√√√	100
7		Environmental Remediation	Max.	+++	√√√	100

Whatever level of needs your company has, the experienced attorneys of
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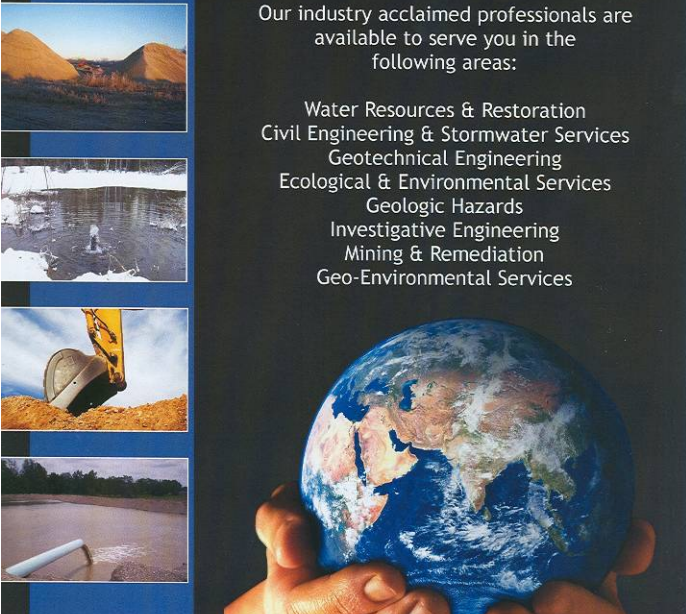
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AIPG – Fourth Annual Michigan Section Golf Outing

Tuesday, May 20, 2008

Sponsor Information

Dinner Sponsor- \$800 Investment includes:

- 1 foursome
- Signage at club house and lunch area
- Corporate recognition*

Beverage Cart/Oasis Sponsors - \$500 Investment includes:

- Signage at the club house and on the Beverage Cart.
- Corporate recognition*

Tee Box/Award Sponsor - \$150 18 Available

Investment includes:

- Tee box signage
- Corporate recognition*

Skill Sponsors – \$300 Investment includes: 5 Available

“Longest Drive” “Hole in One/Closest to Pin” awards to Male/female for each. Putting contest for \$\$, Signage on the hole or putting area, corporate* recognition during the event.

Goodie Bag Sponsor - \$100 plus 144 goodie bag items

*Dinner and Beverage Cart/Oasis Sponsors will receive AIPG membership. All sponsors will be recognized in the Quarterly News letter and on the Michigan Section Web Site through November 2008.

This event is our annual Fund Raiser. The Michigan Section of AIPG Golf fundraiser benefits the Michigan Section's ability to support K-12 education grants and scholarships.

Place: **Lyon Oaks Golf Course**

<http://www.oakgov.com/parksrec/ppark/lyon.html>

Event: **18-hole Scramble**

Date: **May 20, 2008 Tuesday**

Registration: **8:00 to 9:30 AM**

Tee Time: **9:30 AM**

Includes: Green fees, cart, range balls, lunch on the course, Networking Dinner and a raffle ticket for the grand prize.

50-50 raffle, and raffle the grand prize HDTV along with other prizes, “\$10,000 Hole in One” Ace, Trips, Putt for \$2,500, men's and women's longest Drive and Closest to pin contests, \$20 gas cards to the four golfers traveling the furthest and goodie bag for all golfers.

Individual = \$115 Team = \$420 (4 players)

Player One: _____

Player Two: _____

Player Three: _____

Player Four: _____

**Contact Name, Company and Phone
Number for your Foursome**

Make Checks to:
Michigan Section-AIPG
C/O GEO-environmental Resources,
Inc.
2531 Jackson Road
Suite #164
Ann Arbor, Michigan 48103

Contact:

Kevin Lund klund@g-eri.com

Bob Reichenbach

robert.Reichenbach@geotransinc.com

Golfer Sign up Due by:
May 4, 2008

CALL or FAX to reserve your place!
888-417-4440

The AIPG-MI Section is a nonprofit
501(c)(6) Organization

AIPG – Fourth Annual Michigan Section Golf Outing

Tuesday, May 20, 2008



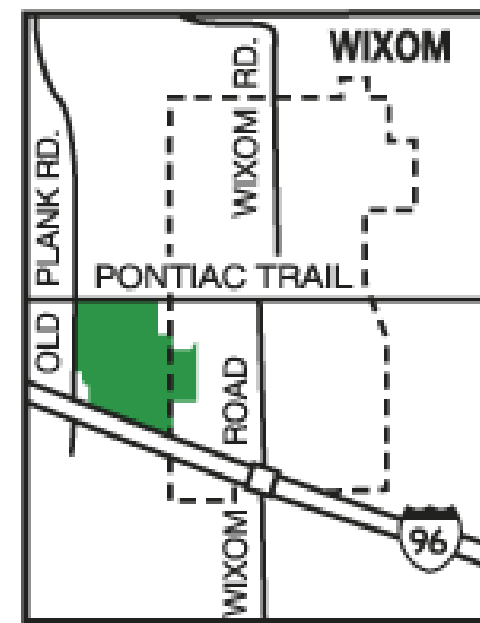
- Newest member of *Arthur Hills Golf Trail*, featuring acclaimed Art Hills courses throughout the state
- "Up North" feel in southwest Oakland County
- Par-72 championship golf course
- Get in the game faster - play afternoons 12:30 - 3:30 p.m.
- Hardwood forests and wetlands enhance natural golfing experience
- "Nature, Of Course!" interpretive signs along cart paths point out natural features of interest or significance
- Wide fairways enhance playability

• Arthur Hills-designed 18-hole course on 230 acres

- Wetlands and ponds increase challenge of play
- Sand bunkers and freshwater lakes provide a strategic challenge for accomplished golfers
- Multiple tees on every hole make the course playable and enjoyable by all level players
- State of the art practice facility with target greens and sand traps
- Picturesque clubhouse with expansive views of the course accommodates parties of up to 450 for wedding receptions, banquets and educational meetings
- Lyon Oaks County Park's day-use area features a 13-acre Dog Park and 2.5 miles of hiking trails
- Day-use park area also includes a picnic shelter, playground and recreational fields
- Trail head and parking for Lake Community Trail

Accolades

- Garnered a 4.5 star rating by *Golf Digest 2007* and named the #2 course in Detroit to play in ESPN's *Sports Travel Golf Course Guide* of the Best Places to Play
- Named #4 in Jeff Lesson's Top 10 Public Golf Courses in southeast Michigan. (Lesson hosts "*Lesson on Golf*" on WXYT and WWJ radio stations)
- Named in 2005 Detroit Free Press *Top 10 Public Courses*
- Included in The Oakland Press' "*Ten to Try This Summer*" listing of Oakland County Public Golf Courses



Michigan Chapter
American Institute of Professional Geologists
MEETING ANNOUNCEMENT

March 13, 2008

**NATURAL ATTENUATION AT UST SITES: PROCESSES, PROBLEMS
AND PREDICTIONS**

Featured Speaker: **Alan E. Kehew, Ph.D.**

Geosciences Department, Western Michigan University
and
American Hydrogeology Corporation

Location: Fetzer Center, Western Michigan University, Kalamazoo, MI (Map attached)

Cost: Students \$25.00, Members \$35.00, Non-members \$40.00 **Registration is payable at the door by cash or check; however, prepayment is preferred and speeds up the check-in process at the door. Please note: Cancellations made within 24 hours of the meeting and/or "No Shows" will be charged and expected to pay the registration fee.**

Dinner: **Choice** of **Mushroom Melange Ravioli** - Jumbo vegetarian ravioli with sauce Provencal (tomatoes, garlic, olives, onions, artichokes, chardonnay, capers, and parsley), or **Italian Grilled Chicken** - Boneless breast marinated in olive oil and garlic then char grilled and topped with a Mediterranean tomato, olive oil, and wine sauce, Italian green beans, cavatappi pasta, and parmesan cheese, or **Boneless Barbeque Pork Chop** - Center cut pork loin glazed and grilled with a sweet and tangy barbeque sauce, fresh garlic mashed potatoes, and parsley sweet corn.

Time: Cash Bar 5:30-6:30 PM, Dinner 6:30 PM, and Speaker 7:30-9:00 PM

RSVP: Don Conway, at dgconway@goslingczubak.com or (231) 946-9191 no later than March 7, 2008.

Guest Speaker: **Alan E. Kehew, Ph.D.** is a professor in the Geosciences Department at Western Michigan University and also provides consulting services for American Hydrogeology Corp.

Concentrations of gasoline indicator parameters (GIPs) from a large data base of UST sites were studied in order to assess the processes involved in natural attenuation and to determine if reasonable predictions could be made of the time remaining until regulatory standards will be achieved. Two types of long-term concentration trends were observed: concentrations that are in phase with water-level fluctuations in source areas, and concentrations that fluctuate inversely to water level changes. This mirror-image pattern occurs in downgradient wells. Proposed explanations for these patterns include interaction with the smear zone in the source area, and the effects of the spring recharge event in the mirror-image wells.

For some wells with declining trends, the concentration trends fit a first-order decline model. For these wells, concentrations are plotted in log form and extrapolated to the level of the regulatory standard to develop a rough estimate of the amount of time to closure. Although this analysis is complicated by seasonal fluctuations and other factors, under favorable circumstances it can be used to compare the costs of initiating active remediation vs. continuing natural attenuation for long periods of time.

One monitor well with a mirror-image pattern was sampled weekly-to-monthly for a year for GIP compounds as well as a suite of inorganic parameters in order to define short-term variations and to determine the biogeochemical processes involved in and influencing natural attenuation. At the well studied, the spring recharge event flushes a large slug of water to the water table with high ionic concentrations derived from road salt. This event dilutes the hydrocarbon contaminants as well as supplying electron acceptors that facilitate biodegradation of the contaminants. In the summer and fall, diluting recharge ceases and GIP concentrations rise to their highest levels. Anaerobic biodegradation lowers the redox potential during this period and sulfate reduction is probably the dominant electron accepting process.

AIPG Section Meeting

March 13, 2008

Fetzer Center, Western Michigan University, Kalamazoo

DIRECTIONS



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