



MICHIGAN SECTION AIPG NEWSLETTER

Michigan Newsletter



IN THIS ISSUE

From the President's Desk

by Brian Burke, CPG

I'm one of those people who's always looking for signs from the universe. When I started my new job, I received a framed picture to hang in my cubicle – "Explore" was written over a map of the world and a meandering arrow swirled over the continents. A short while later, I received an invitation to travel with 40 Michigan State Geology alumni to Iceland for a week. It made me laugh because I could look up at the meandering arrow in the picture and – you guessed it- it pointed toward Iceland. You're all scientists, so, of course it was a coincidence.

Anyways, in August I flew into Reykjavik for a week of guided tours. Iceland is the only place on the earth where you can view the tectonic spread of North American and Eurasian plates without renting a submarine. Every flavor of basalt is observable with a bit of a twist – emergent volcanoes erupted below the arctic ice cap during the long, recurring ice ages. The violent, quenching interaction between the molten basalt and overlying ice results in a rock known as palagonite. Today, Iceland's active volcanoes are covered with some of Europe's largest glaciers. Eruptions create debris flows that bulldoze roads and bridges between volcano and sea. The Icelanders

have been observing these processes for a thousand years and don't construct anything in these desolate plains.



0.8 Million year old columnar Basalt in Reynisfjara, Iceland. Photo courtesy of Brian Burke.

Well, anyways, I could write pages and pages about plates of lamb and root vegetables, icy cascading waterfalls, massive basalt column walls, moss covered lava flows and a people who have descended from the legendary Norsemen.

I have to laugh because one of the founders of our country chopped down a cherry tree

Article continues on Page 5...



AIPG/MAEP Joint Meeting

The September 29, 2016 joint meeting between the Michigan Section AIPG and MAEP was a sold-out success! Approximately 100 attendees enjoyed a technical presentation by the MDEQ and US EPA at the Atwater in the Park Brewery in Grosse Pointe Park.

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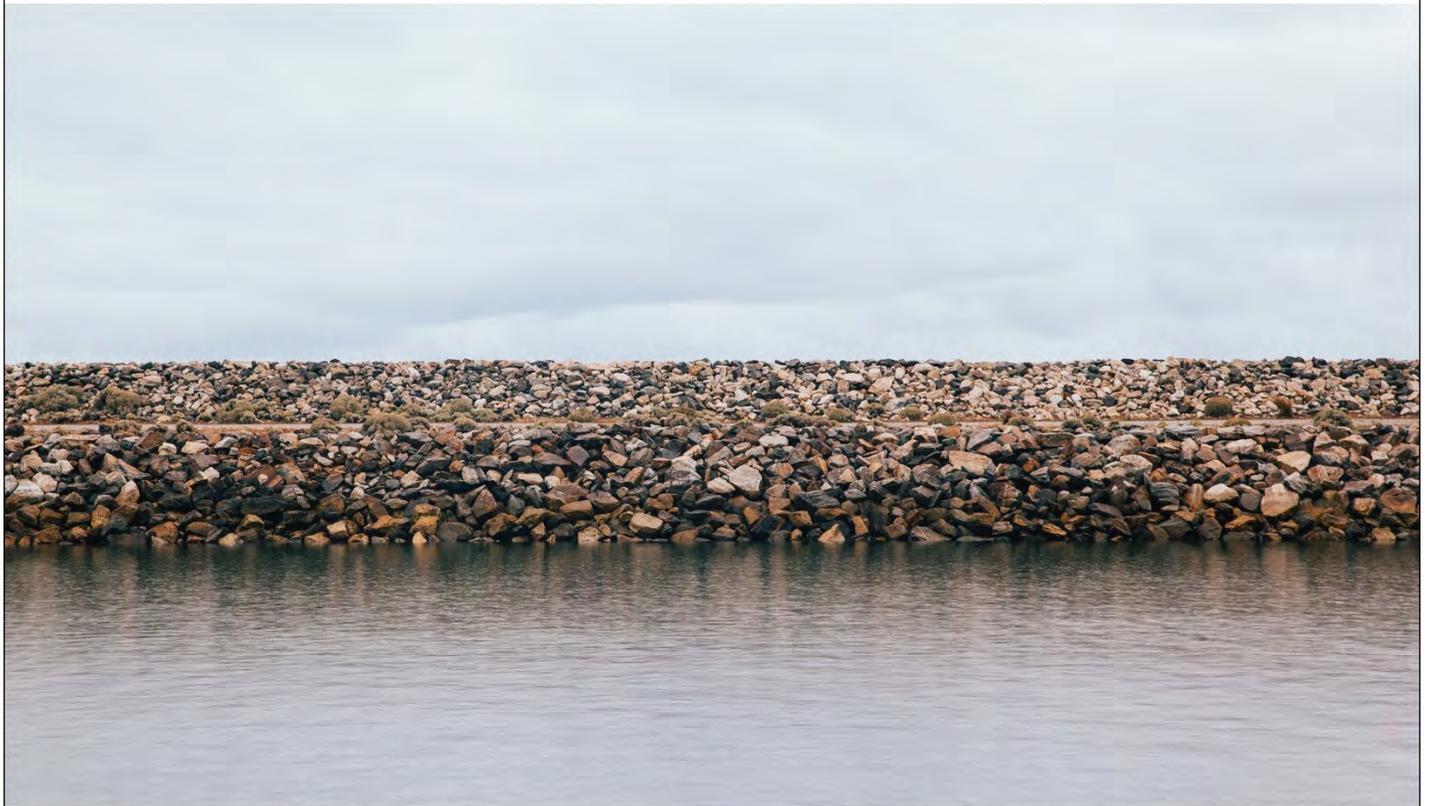
Annual Meeting Information

The 2016 Annual Meeting in Santa Fe was a great event with fantastic field trips.

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with an axe when he was a kid, while one of the founders of Iceland murdered a royal competitor with an axe when he was a kid. You can't make this stuff up. Also, Icelanders eat anything, lamb, horse, beef, shark, cod, whale, puffins, etc...and they drink aquavit, known as "the Black Death" – basically vodka flavored with caraway seeds and herbs – it tastes like rye bread.

My message to all of you this fall is don't pass up opportunities to travel and see the world's geologic wonders. Aside from being amazed by the immense forces that stitched the planet together, you'll experience other cultures and hopefully make new friends and have a few good laughs. Best wishes to all of you. See you at our December meeting.

Support Our Sponsors!

The Section Executive Committee would like to remind its members to support the companies advertising in the newsletter. Consider working with these companies, and when you speak with their representatives, let them know that you saw their ad in the Michigan Section newsletter.

Joint AIPG/MAEP Meeting Summary

The Section held a joint meeting with MAEP on September 29, 2016. Rosanne Ellison of the US EPA and Michelle Bakun of the MDEQ spoke to the sold out crowd of 100 on the topic of "Detroit Area Brownfields Related to Riverfront Development."



Meeting attendees enjoying dinner, tasty beverages, and networking with colleagues. Photo courtesy of Adam Heft.

In an effort to provide added interest for attendees, AIPG and MAEP held the joint meeting at the Atwater in the Park brewery in Grosse Pointe Park. The facility was a former church that had recently been converted to its present use after being vacant for a few years.

Meeting attendees had exclusive use of the facility for the duration of the meeting, and got to sample a wide variety of locally-brewed beverages. A strolling dinner comprised of a variety of appetizers complimented the beverages.



Members of AIPG and MAEP preparing to hear the technical presentation. Photo courtesy of Adam Heft.

About 100 people braved the flooding that occurred in Detroit the morning of the meeting to attend and network with members of both organizations. The Executive Committees for both groups received positive feedback on the meeting based on indications that the event was "awesome" and people enjoyed drinking great beer in a former church.

Article continues on Page 7...



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In addition to the technical presentation, Sara Verbrugge-Pearson provided an update on the status of the MDEQ's cleanup criteria changes. For those of you who missed it, a summary can be found in this newsletter under "MDEQ News."

Member Input Sought

The Section Executive Committee is seeking input from members on a variety of topics. Do you have any suggestions regarding speakers/presentation topics that you would like to hear? What about field trips or other events? Is there some place you'd like to see us go, or something you think the membership would enjoy doing? Then speak up; please send your suggestions to one of the members of the Executive Committee; any of the six members would be glad to hear from you. AIPG is your organization. Please help keep it relevant and interesting for all by participating.

Douglas Houghton Memorial

Douglass Houghton, Michigan's first State Geologist has been honored in many ways, but until this year there wasn't a historical marker commemorating his accomplishments. That changed in September after several years of effort led by Arlene Anderson-Vincent, members of the Michigan Basin Geological Society and faculty at Western Michigan University and Michigan Technological University. You should also know that on behalf of our membership, the Michigan Section of AIPG contributed funds to sponsor a three day celebration in the Keweenaw Peninsula.



Participants at the ceremony commemorating Douglas Houghton. Photo courtesy of Brian Burke.

Professor Ted Bornhorst of Michigan Tech and Lawrence Molloy, President of the Keweenaw County Historical Society, led a convoy of vans to sites of interest from Houghton to Calumet and Eagle River to tell the story of Houghton's 1840 survey and the

resulting rise and fall of mining in the copper range. We visited subaerial basalt lava flows, the Quincy Mine, Calumet, the Quincy Stamp Mill site, Bumbletown Hill, the Seneca Mine rock pile and the AE Seaman Mineral Museum before a moving ceremony at the Eagle River Museum, the location of the historical marker. Douglass Houghton died in 1845 when the boat carrying his crew capsized during a storm on Lake Superior near Eagle River.

I was honored to represent our Section and say a few words during the ceremony. We can be proud of the dedicated geologists who have contributed so much to this state from its beginning. On high ground overlooking the Eagle River Falls, there is a marker to inspire future geologists who will make their mark on our history.

Welcome New Members

The Michigan Section is continuing to grow. Please welcome the following new CPGs, Professional Members, Young Professional Members, Associate Members, and Students:

Michael Coram, Roy Hoin, Vincent DelloRusso, Chance Seely, Erin D'Holdt, Sara Pickard, Mara Karageozian, Jonathan Weyhrauch, Marielle Frattaroli, Alexander Schreiber, Olivia Sly, Glenn Loriaux, Emily Siriano, Spencer Brower, Nicholas Colainne, Adam Canute, Monica Vallender, Erica Lucas, Katharine Rose, and Michael Behrend.

To each of our new members, the Michigan Section Executive Committee would like to welcome you to our Section, and encourage you to attend Section meetings and other events. You are also welcome to provide information for the Member's Corner articles.

Where in Michigan? Contest

The August edition of the newsletter featured a photograph of the Sturgeon River gorge southwest of L'anse; the rock is the Jacobsville Sandstone. No one correctly identified the photograph.

This edition features a new photograph at the top of the first page. The first person to correctly identify what the photograph depicts (feature name, location, and formation) will win AIPG swag! Submit your entry to the editor; only one per person per issue please.

Annual Meeting Information

The 53rd Annual AIPG meeting was held in Santa Fe from September 10-13, 2016. Five members (Larry Austin, William (Bill) Mitchell, Sara Verbrugge-Pearson, Linda Hensel, and Adam Heft) and Larry's wife Mary represented the Michigan Section.



The Michigan Section contingent. Left to right: Linda, Adam, Sara, Larry, Mary, and Bill. Photo courtesy of Adam Heft.

The annual meeting was a great opportunity to meet with friends and colleagues from across the country. This year's meeting was held at the Drury Hotel. Amenities of the meeting included complimentary breakfast and evening refreshments (buffet appetizers and three drinks per person) for those staying at the hotel.

Dawn Prell was nominated for and was awarded one of the 2016 Section Leadership Awards. Dawn unfortunately was unable to attend the meeting, but Sara accepted the award in her place. The award will be presented to Dawn at the December 1st Section meeting.



2016 National President Helen Hickman (left) presenting Dawn's Section Leadership award; Sara Verbrugge-Pearson accepted it on her behalf. Photo courtesy of Adam Heft.

The field trips were very popular and enjoyed by all that attended them. The weather cooperated, and the afternoon rains held off until after participants were on the way back to the hotel. It was very interesting to be



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able to see the Great Unconformity and place your hands on rocks whose ages were separated by over a billion years and be only a few inches apart.



Sandia Crest field trip participants Mehmet Pehlivan (CA) and Bill Mitchell (MI) examining the Great Unconformity. Photo courtesy of Adam Heft.

The National Executive Committee also convened on Saturday. Among items of business was the modification of a clause in the National Bylaws to allow non-CPG members to hold Section offices. This will make it easier for several Sections that are struggling to find individuals willing to serve on their Executive Committees.



The 2017 National Executive Committee. Photo courtesy of Sara Verbrugge-Pearson.

This year, Linda Hensel served as the official Michigan Section delegate to the Advisory Board meeting. Besides providing a summary of Section activities, concerns, and successes, she also participated in the election of the new Advisory Board representatives to the National Executive Committee.

Our Section delegate Linda Hensel reported the following about the Annual Meeting:

I am fortunate and thankful to have been able to represent our section at the 2016 annual meeting last month. I will always look back fondly on this trip to the southwest. I had visited the very northernmost part of New Mexico in the 1980's when I visited Red River and Taos on vacation. I had not had the opportunity to visit Santa Fe, New Mexico

before the AIPG 2016 National Meeting. Everything was perfect, in my not so humble opinion, from the fantastic mountains all around, the abundant exposed rock outcrop, a scenic vista around every corner, the fresh, clean and scented mountain and desert air, the perfect sunny and dry weather, visiting a new area and meeting new people and enjoying the tasty New Mexican cuisine.

The National AIPG staff and the 2015-2016 AIPG Executive Committee put together a dynamic meeting in its warm and laid back setting, fantastic field trips, diverse student poster sessions and informative talks on a variety of topics. Their planning and hard work was evident because everything went smoothly and technical talks were very interesting, pertinent and well presented. I attended the Valles Caldera fieldtrip on September 11, 2016. Frances and Cathy Goff were our field trip guides and they both provided guidance to us from both the front and back of the bus. I had never viewed such incredible and young volcanic rock sequences in my life and I appreciate their expertise and willingness to lead this trip. Other field trips included Sandia Peak, Taos and the Ghost Ranch (New Mexico home of the late artist Georgia O'Keefe). I attended talks of all types on Monday and Tuesday of the conference. The keynote and luncheon speakers on Monday were very good and their talks informative and well organized.

I was impressed by the dedicated CPGs that attended as delegates for their own sections and those who are part of the current National Executive Committee and Advisory Board. I attended the Saturday, September 10, 2016 meetings. I learned much about how AIPG National operates and heard first hand from discussions and interaction between various people from differing sections. I appreciate everyone working together to get through the agenda. Debate will always occur within any organization and I appreciate all were willing to share their point of view. The delegate meetings in the afternoon afforded all involved the opportunity to interact and share input on every facet of Section operation. I took back many ideas for MI Section from this meeting and the subsequent times I talked with these fellow geological professionals and now my colleagues during the meeting. The format of the delegate meeting was conducive for generation of new ideas and tackling existing issues.

Here's what Larry Austin had to say about the Annual Meeting:

Since Mary and I are (temporarily, without Rob who is at the Michigan Youth Challenge Academy this Fall) empty nesters, the circumstances provided a good excuse for both of us to attend the meeting and extend it a little at each end. We came early, stayed over a night in Taos and because the AIPG block of rooms was sold out for Tuesday evening, left for Albuquerque a little earlier than originally planned. That gave us a pair of half days in Old Town Albuquerque before our flight back. Not willing to waste a moment, and thoroughly annoyed at Delta for delaying our flight out before the meeting as it cost us a half day in Taos, we filled our time to the brim.

The meetings on Saturday went very well and it was nice to see all the leadership again. Everything was accomplished in one day as expected which is a VERY delightful change from 25, 20, even 15 years ago when days were spent just dealing with special applications not to mention the business of running AIPG. No longer do we have 2 or even 3 day EXCOM meetings thanks in great part to Bill Siok, Wendy Davidson, Cathy Duran and the rest of the HQ staff over these many years. The streamlining they effected plus the addition of the National Screening Committee have trimmed the burden by about 80%-85%. We welcomed Aaron Johnson as our new Executive Director and heartily thanked Bill Siok for all his years of service to the Institute.

Of course while I was engaged in the meetings, Mary made her own field trip to Bandelier National Monument. Touring the Tsankawi Prehistoric Sites, climbing into pueblos, chasing birds, flowers, plants and critters, exploring village and camp sites, soaking up the scenery. No moss grows on her rolling stone.

Then Mary and I dove into our real love for the meetings, the field trips: Valles Caldera, Ghost Ranch and the Pecos-Picuris Fault in Deer Creek Canyon. Three days of stimulating, enlightening and amazing geology. I'm still wondering how 18 inches of flowstone built up on a couple of logs spanning the creek before they rotted out at the Soda Dam site. I keep thinking it must be the arid climate but those logs are constantly splashed and dripped upon. Stand in the middle of the caldera and visualize the events within while looking 15 miles to the rim. And I really do owe my cardiologist and thoracic surgeon a couple of thank you cards as climbing to Chimney Rock at the Ghost Ranch and the ups and downs of the Pecos-Picuris Fault hike were challenging for us flatlanders coming from 700 ft AMSL to 6500

ft AMSL! While I couldn't have done it five years ago, I'm happy to say I loved it this year.



should have reserved ours in July instead of August, and we could have used more hours in a day.

Already looking forward to next year in Tennessee.

2017 Section Secretary Election

It's that time of year again. The Michigan Section AIPG Executive Committee is encouraging members to run for 2017 section secretary. We've only had one individual volunteer to run for Secretary for next year, and we are in need of at least one more individual that is willing serve before we open the election. Don't be shy; those of us on the committee don't bite, and this would be a good way to become involved with your organization and help guide the Section's

Pecos-Picuris Fault field trip participants listening to an explanation of the geology by the trip leaders. Photo courtesy of Adam Heft.

Did You Know?

This article is a new feature of the newsletter and is intended to remind members of various aspects of AIPG and benefits of membership. If there is something you would like to see featured in this column, please contact the Editor...

According to the Section 7.2.1 of the AIPG Bylaws, "A Section may conduct its own affairs so long as they are not in conflict with the Bylaws and policies of the Institute. The Bylaws of Sections shall not conflict with those of the Institute and shall, insofar as is practicable, conform to the recommendations of the Executive Committee. Any changes therein shall take effect only upon approval of the Executive Committee of the Institute. No Section shall have the power to bind or make statements

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The accommodations, meals, transportation arrangements, meeting rooms and events were all first class. Since the hotel provided both a breakfast buffet and an early dinner buffet including drinks, the snacks at the Icebreaker and the meal at the Awards Banquet proved plenty sufficient for two tired hikers at the end of the day. If pressed for any criticisms, the block of rooms reserved could have been a bit larger - or we

activities. If you are interested in helping out, please send a statement of interest and a short bio to Adam Heft (heft@pbworld.com) no later than Friday, October 28, 2016. The election for Secretary will open on November 1.

As a reminder, the duties of the Section officers may be found on the Section website.

on behalf of the Institute by its action without specific written authority from the Executive Committee or the President of the Institute. If a Section fails to elect, or fill vacancies among, its officers, the President of the Institute may appoint such officers to serve until their successors are elected or appointed. In the event of a failure to comply strictly with the Bylaws and policies of the Institute, the Executive Committee may

immediately replace the officers of the Section, revoke its charter and invite a reorganization of the Section, or take other corrective action as it may deem appropriate."

Newsletter Notice via E-mail

Please be sure that you continue to receive the Section newsletters and other announcements. Submit an updated e-mail address to Adam Heft at heft@pbworld.com. If you move or change places of employment, don't forget to send your new contact information to both the Section and to National. If you are not receiving announcements directly from the Editor, it is because your email address is not up to date.

Michigan Department of Environmental Quality News

DEQ RRD Releases Revisions to Proposed Cleanup Criteria Rules and Announces New Public Hearing Date and Comment Deadline

The Remediation and Redevelopment Division received numerous comments on

the proposed Cleanup Criteria Rules prior to the closing of the public comment period on September 13, 2016, and immediately began reviewing and incorporating several comments. These changes are of sufficient significance to warrant a second public hearing to communicate the proposed changes to the cleanup criteria.

The DEQ has released the newly revised proposed Cleanup Criteria Rules today for public comment and a second public hearing has been scheduled for October 17, 2016, at Lansing Community College West, 5708 Cornerstone Drive, Lansing from 1 p.m. to 3 p.m. The public comment period deadline is 5 p.m. on October 18, 2016, as the last date to submit comments. Comments may be submitted at the hearing and or in writing DEQ-RRDCriteria@michigan.gov.

The proposed Cleanup Criteria rules are the DEQ, Remediation and Redevelopment Division's comprehensive revision of the [Administrative Rules for Part 201, Environmental Contamination](#), of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), dealing with Response Activities.

The proposed Cleanup Criteria Rules are used to evaluate risks to the public health, safety, or welfare and the environment from

hazardous substances at sites of environmental contamination. The comprehensive update of the Cleanup Criteria, which includes 305 hazardous substances, is used to evaluate exposure pathways such as drinking water, direct contact, and vapor intrusion. The revisions to the cleanup criteria are based on updated toxicological and scientific information about hazardous substances to ensure protection of public health.

The proposed rules document with the newly incorporated revisions highlighted in yellow is also available on the [DEQ's Generic Cleanup Criteria Web page](#) along with additional supporting information and presentations.

Significant Cleanup Criteria revisions include the following:

- The DEQ toxicity data for substances that previously relied on draft toxicity values to look for values that had been finalized since the updates were done last year; in some cases the values changed, resulting in changes to the criteria, and in other cases, the source information changed with no changes to the criteria.
- The DEQ revised the footnote (DD) for the developmental toxicants: formaldehyde



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was deleted from this classification based on current scientific information, and the data comparison concerns have been addressed.

- A new nonresidential exposure time of 12 hours per workday has been developed for inhalation-based cleanup criteria. Previously, there was no work day exposure time identified.
- The assumptions for groundwater in contact with a building have been modified as related to vapors migrating into buildings.
- The equations for calculating the finite volatile soil inhalation criteria have been modified resulting in a revision to the criteria for 2- and 5- meter sources.
- Criteria that are State Drinking Water Standards and aesthetic values have been revised to match the number of significant digits consistent with the respective state or federal program.

Additional Legislative Activity

In addition to the comprehensive updates in the cleanup criteria rule package, there are a series of bills that will affect the Brownfield program. Senate bills (SB 1061 through SB 1065) and House bill HB 5856 are being considered by Michigan's legislature. The

bills will align statutory language, modify program requirements and provide additional grant funding. Additional Brownfield program language is in Senate Bills SB 908 through SB913 including modifications to definitions for brownfield redevelopment authorities and grant funding requirements.

Road Right-of-Way restrictions for roads not owned by the State of Michigan are addressed in Senate Bill SB 717.

Senate Bill 950 requires the U.S. Armed Forces to provide alternative water supplies to owners of private wells if the drinking water has been contaminated by hazardous substances that were used by the military.

House Bill 5862 proposes to eliminate inland lakes and streams from permit requirements for mining projects.

The terms for research, development, and demonstration project permits would be extended for landfills under Senate bill SB 1079. All legislative bills are available at <http://www.legislature.mi.gov/>.

Article provided by Sara Verbrugge-Pearson, CPG – MDEQ RRD Unit Chief

Section Website Reminders

As you may have noticed, the Michigan Section is building a database of geologic photographs on our website. Please submit photographs that you are willing to share to Adam Heft at heft@pbworld.com. Don't forget to include your name and a short explanation of what the photograph depicts. The photographs will be uploaded to the website periodically.

If you have suggestions on other items that should be included on the History page, please let a member of the Section Executive Committee know.

Interesting Geology Links

The Editor has received links to various interesting geology-related sites. Some of the more interesting links are included here. If you have any links to geology-related links that you would like to share, please forward them (with a citation, if applicable) to the Editor.

Thanks to Mark Francek of Central Michigan University for sharing via the "Earth Science Site of the Week" emails.



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2016 Michigan Section Executive Committee

Here are the current officers of the Michigan Section. Be sure to talk with them at the Section's events when you see them...

Employment Opportunities

To serve our members, and provide added value, the Michigan Section Executive Committee has decided to allow ads for employment or other opportunities to be posted in the Section newsletters. Employment ads will run for one edition unless renewed. There is no cost to our members or sponsors for this service. Send your employment opportunities to the Editor.

No employment ads or seeking employment ads were received by the editor for this edition of the newsletter.

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Member's Corner

The Member's Corner includes information about the Section's membership. This is your chance to provide information on where you are and what you are doing. Simply send the information to the Editor for inclusion in this section.

No Member's Corner articles were received for this edition of the newsletter.

Coming Events

October 14-16, 2016: Michigan Mineralogical Society, Greater Detroit Gem, Mineral, and Fossil Show, Macomb Community College South Campus Expo Center, 14500 E. 12 Mile Road, Warren. Additional information is at: <http://michmin.org/wp-content/uploads/2016/05/16-MMS-Brochure-final-.pdf>.

October 19, 2016: MBGS membership meeting at Michigan State University, Natural Science building at 7:00 pm in Room 116. Speaker will be Wenjia Fan, a PhD student from Civil & Environmental Engineering at the University of Michigan, Ann Arbor, presenting "Role of Water-rock Interactions in Controlling Shale Gas Produced Brine Composition".

October 21-23, 2016: Ingham County Gem, Mineral, Fossil, Lapidary & Jewelry Show, "Main Arena" Ingham County Fairgrounds, Mason, Michigan. Additional information at: <http://www.michrocks.org/annual-show/show-info.html>.

November 9, 2016: MBGS membership meeting at Michigan State University, Natural Science building at 7:00 pm in Room 116. Speaker will be Mark Sweatman, Michigan Department of Natural Resources, presenting "Minerals Management in Michigan".

2016 AIPG Michigan Section Executive Committee



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Newsletter Editor
Adam Heft

November 11, 2016: Michigan Earth Science Teachers Association career day, Oakland Schools Intermediate School District facility, Waterford Township. From 10 am – 2 pm. Additional details at: <https://www.mestarocks.org/cms/node/3065>.

December 1, 2016: Michigan Section AIPG Annual Meeting, Weber's Inn, Ann Arbor. Don Carpenter of Arcadis will be speaking about "Understanding TENORM-Related Challenges Associated with Michigan Basin Hydrocarbon Production."

Location: Weber's Inn, Ann Arbor.

Dinner: Choice of: Marinated flank steak, grilled, thinly sliced with au jus; Northern lakes whitefish with lemon crumbs and almonds; Pan-seared chicken, Tuscan andouille sausage, mushrooms, red onion, cilantro, sun-dried tomatoes in a reduced cream sauce.

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

Cost: Students free, Members \$30.00, Non-members \$50.00.

RSVP by November 28, 2016: RSVP for the meeting on the Eventbrite website at: <https://www.eventbrite.com/e/aipg-2016-annual-michigan-section-meeting-tickets-28431027970>

December 14, 2016: MBGS membership meeting at Michigan State University, Natural Science building at 7:00 pm in Room 116. Speaker will be John Yellich, Director of the Geological Survey, presenting "Natural Resources of Michigan, How do you see their function and role in the 21st Century?"

June 13-14, 2017: 7th Annual Michigan Section AIPG Technical Workshop, RAM Center, Roscommon. Topic TBA.

Fall 2017: 54th Annual AIPG Meeting to be held in Nashville, TN.

Fall 2018: 55th Annual AIPG Meeting to be held in Colorado Springs, CO.

Fall 2019: 56th Annual AIPG Meeting to be held in the Northeast Section; location TBD.

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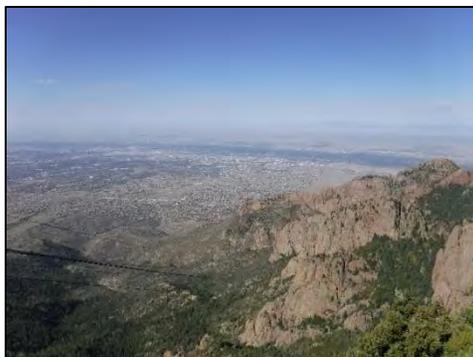
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Sandia Crest Field Trip participants on top of the mountain



Sandia Crest Field Trip participants enjoying lunch and the view



Overlooking Albuquerque while on the Sandia Crest Field Trip



Viewing a fault brecciated granite in Deer Creek Canyon

**Michigan Section
American Institute of Professional Geologists
MEETING ANNOUNCEMENT**

December 1, 2016

**UNDERSTANDING TENORM-RELATED CHALLENGES ASSOCIATED WITH MICHIGAN
BASIN HYDROCARBON PRODUCTION**

Featured Speaker

[Don Carpenter, Arcadis](#)

Location: Weber's Inn, Ann Arbor, MI (Map attached)

Cost: Students Free, Members \$30.00, Non-members \$50.00. Registration is payable electronically via Eventbrite (see link below) or 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 48 hours of the meeting and/or "No Shows" will be charged and expected to pay the registration fee.*

Dinner: Choice of: Marinated flank steak, grilled, thinly sliced with au jus; Northern lakes whitefish with lemon crumbs and almonds; Pan-seared chicken, Tuscan andouille sausage, mushrooms, red onion, cilantro, sun-dried tomatoes in a reduced cream sauce.

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

RSVP: On the Eventbrite website no later than November 28th at: <https://www.eventbrite.com/e/aipg-2016-annual-michigan-section-meeting-tickets-28431027970>. You can select your meal choice and pay online if you choose, or pay at the door by cash or check.

Note: Space is limited; sign up early!

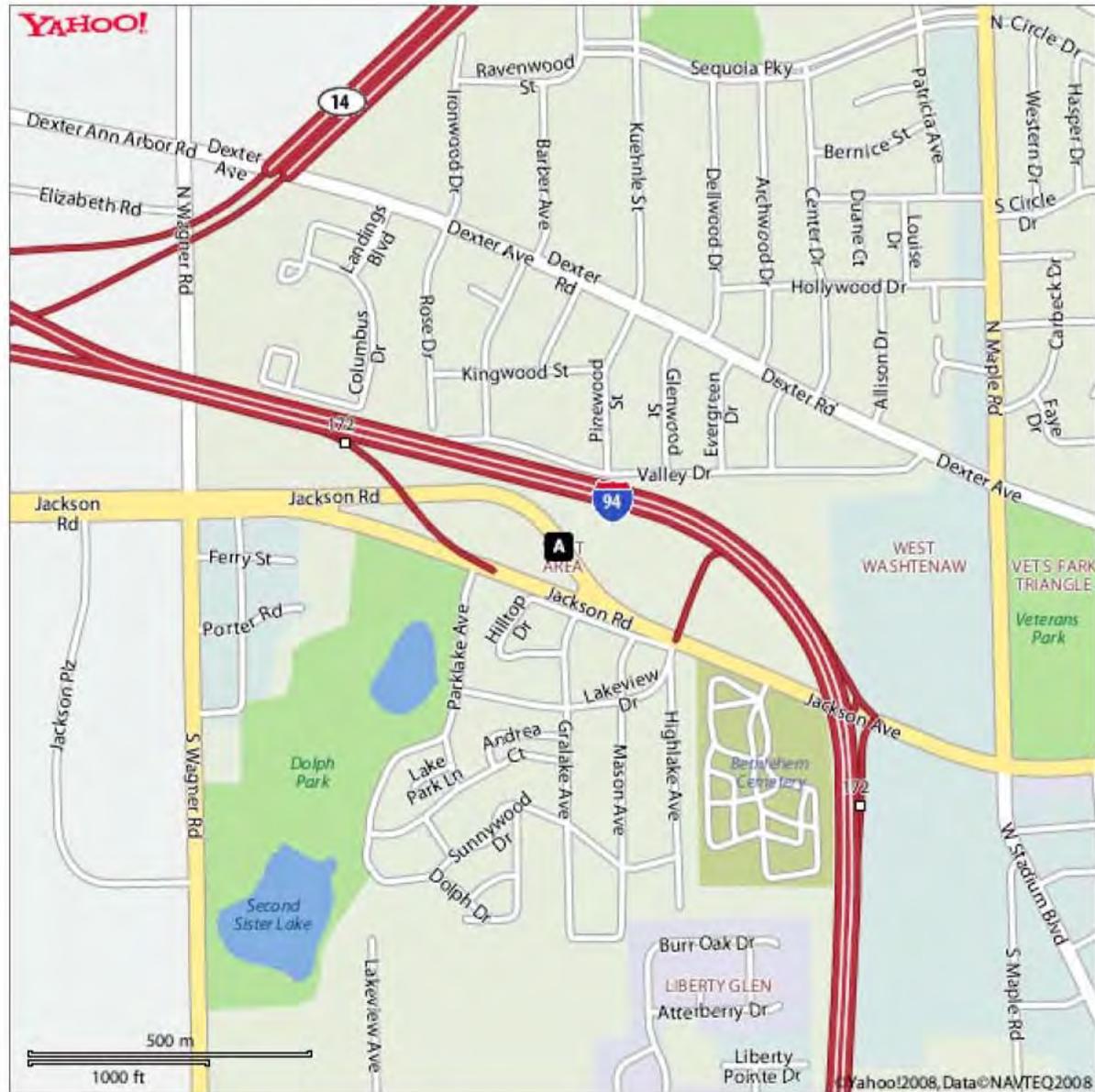
Abstract: The discovery of oil and gas-related Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) can be a very adverse surprise with important implications to worker safety, divestment and compliance with operational and material-disposal-related matters, in addition to operational routines. The purpose of this presentation is to examine the geochemical behavior of TENORM-forming constituents harnessing the advantages offered by solution equilibria geochemical models in providing estimates as to the potential for and the probable location of TENORM-bearing precipitates, including those consisting of both radium-enriched alkaline earth (dominantly, barium) sulfates and those consisting of Lead-210. The additional complexity posed by the presence of very high ionic strength oil and gas-related production fluids in the geochemical modeling effort will be shown to be addressed through the use of a specially augmented thermodynamic database; one that additionally includes the ability to simulate changes in solution temperature and oxidation/reduction state and how these changes impact the development of radioactive precipitate. The presentation will provide insight as to how these observations can be leveraged to assess hydrocarbon production within the Michigan Basin as to TENORM formation and further how specific State of Michigan TENORM regulations apply to impacted materials.

Speaker Bio: Don is a Senior Vice President, Distinguished Expert, and Chief Geochemist at Arcadis in their Novi, Michigan office. He has a B. S. in Geology from Michigan State University and an M. S. in Geochemistry from the Colorado School of Mines. He has 36 years of experience in uranium mining and restoration and investigation and remediation of various forms of radioactive materials, including oil and gas-related Technologically Enhanced Naturally Occurring Radioactive Material (TENORM), which he will be discussing. He is also currently serving on the State of Michigan TENORM Subcommittee who are examining the State's current TENORM regulations.

AIPG Michigan Section Meeting December 1, 2016

Weber's Inn, Ann Arbor

Map of 3050 Jackson Ave, Ann Arbor, MI 48103-1907



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.