Hello all -- Welcome to a Wisconsin fall like none other. The picture is the view from my home office (not exactly what I was anticipating earlier this year). I would like to acknowledge that we are all continuing to navigate the turmoil going on around us and throughout the world on so many different fronts:

• Dealing with a myriad of meeting platforms – Which one have you found to work the best?

• Working from home while dealing with the virtual learning requirements of family members.

• Trying to obtain required continuing education credits.

• Mentoring younger staff (I have experienced some examples where I am not sure it is happening as well as it has been in the past).

Message continued on page: 2
On the other end of that, experienced staff members/clients are taking the opportunity to retire or move to other positions. How is their institutional knowledge being saved?

Trying to contact/meet with regulators to discuss a project or answer questions.

How in the heck am I going to order Girl Scout cookies?!

(Admittedly, some of these are more significant than others...) Thank you to our members who continue to donate their time and energy to keeping this organization going, including those who have agreed to run for office (see the ballot included with this newsletter).

The Section is working on a webinar for 2021 on the topic How to Read and Understand a PFAS Lab Report (working title). Watch for an announcement in early January, with the webinar to be held in late February.

Finally, please continue to check in and support each other. And take comfort in knowing that the rocks and their stories will still be there when we come out the other side of this.

Regards, Paula Leier-Engelhardt

Far from Boring, And Staying Close to Home
By Paula Leier-Engelhardt, P.G., C.P.G.

After 37 years of marriage to a geologist and unwittingly becoming the best sample Sherpa ever, my husband knows there is no hope in dissuading me from any geology-related project I cook up. So, when I announced that as a long-term goal I was going to collect a rock from each Wisconsin county (there are 72, in case you were wondering), he put his head in his hands and said, “When do you want to start?” What neither of us counted on was finding hidden treasures that the average Wisconsinite may not realize exist in the state. So, allow me to introduce you to some of the places we have discovered, and some of the people we have met along the way. (By the way, this trip was completed in 2015).

Douglas County – Finding fault .

Amnicon Falls State Park is southeast of Superior, Wisconsin just north of US Highway 2, and is an easy stop on the way to Duluth and Minnesota’s North Shore. It is not a big state park, nor is it as popular as the better-known Devils Lake or Kettle Moraine State Parks, but I fell in love with this almost cozy place. It features a series of waterfalls on the Amnicon River as it flows around a small island and under a historic covered bridge. Amnicon Falls State Park is one of the places in the state where the Wisconsin Department of Natural Resources has done an excellent job of describing the in-your-face geologic features that can be observed as you hike the trails. That is one thing that I wish were done more in state and national parks. People really do wonder, “... how did these rocks form ... why does this area look like this ... what’s so special about this place?” I applaud all parks and natural areas that have been able to clearly lay out and provide geologic information for the public. It can only enhance your experience of a place. If you are ever asked to help on such a project, I strongly encourage you to jump at the opportunity.

So, what is so special at Amnicon Falls? Well, there is a fault -- the Douglas Fault, to be specific.

Before moving to Wisconsin, we had lived in California for about three years, a place where faults are a big deal. While there, I learned that the public has a lot of misconceptions about faults. For instance, the movement along a fault is rarely simple, and, is a combination of up, down, or lateral movements. There is also this idea that fault is a clean, smooth break you can readily identify and put your hand on in the field, but more often or not a fault is more of a zone and is
identified by an unexpected offset of some rock type or feature such as a stream. The great thing at Amnicon Falls is you can stand on the riverbank, see the fault (yes, practically put your hand on it!) and figure out which way it must have moved.

The area near Amnicon Falls is on the east side of the Lake Superior Rift, which began to form 1100 million years ago (middle Proterozoic). Magma poured out of fissures, basalt dikes were intruded, and gabbros were emplaced as rifting occurred over 20 million years, tearing the continent apart and leaving an estimated 25,000 feet of rock within the rift. Inexplicably, the Lake Superior rift aborted, leaving North America whole... well, at least for now. After volcanism ceased, streams flowed into smaller, subsiding fault-bound basins, eroding the volcanic landscape. Thousands of feet of red sandstones and conglomerates were deposited in alluvial fans, along with lacustrine sands, silts, and muds toward the central portion of the rift. These terrestrial sediments form the Bayfield Group, and were quarried for many years to build the famous brownstone buildings in fashion during the late 1800s to early 1900s.

Approximately 1000 million years ago, the former rift was turned inside out as the Lake Superior region was subjected to compressive forces that resulted from a continental collision in eastern North America – the Grenville Orogeny. This compression produced large, curved, listric faults on which large blocks within the rift were uplifted, thrusting older volcanic rock over and on top of the younger sedimentary rock. It is surmised that the Douglas Fault likely bound a graben formed during the Lake Superior rifting event, then was re-activated during the compressional event, becoming a thrust fault (proof you can teach an old dog a new trick).

With the end of uplift along these faults, erosion presumably slowly leveled the region and continued for the last 500 million years of Precambrian time. At least we have no record of any rock-forming event in the Lake Superior region during that time.

To see the fault, walk across the Horton covered bridge to the island, and look across the river and the Lower Falls.
Close up of the basalt and fault gouge below. Photo: Steve Engelhardt

We have seen the evidence of the end of Precambrian time. The concerns of now weighed on us, such as finding a comfortable bed and dinner in Duluth. Do not leave town without stopping at the Duluth Grill – everything is fresh, local, and organic [https://duluthgrill.com/](https://duluthgrill.com/). If you do not leave there eight pounds heavier, you did something wrong.

Paula enjoys the opportunity to provide educational geoscience presentations (hey, she’ll talk to any and all about geology!) Photo Credit: Karen Klenke

Paula is a Principal Geologist and owner of HydroGeo Solutions LLC, with 34 years of experience as a consulting geologist. Experience includes soil and groundwater contamination assessment; siting and permitting municipal and industrial landfills; and statistical analyses and interpretation of agency-required groundwater monitoring data. Previous positions: STS, AECOM.

2021 Vice President Candidate
Thomas Kettinger – P.G., C.P.G.:

Thomas Kettinger has assisted with judging undergraduate and graduate student research presentations for WI AIPG at River Edge Nature Center for many years. Photo credit: River Edge Nature Center

Senior Manager of Global Remediation of Clarios (formerly Johnson Controls Power Solutions). His
experience includes brownfield development, industrial site remediation, and enforcement. He has a lead role in implementing many transformation initiatives, including manage a global portfolio of current and former facilities and third-party legacy sites undergoing environmental site remediation. Thomas is a subject matter expert for Clarios working across the company to ensure activities are following all regulations and standards.

2021 Treasurer Candidate
Andrew (Andy) Graham P.G, P.E., C.P.G.
andrewgrahampe@gmail.com

Trevor at the summit of Mount Dana in Yosemite, (13,000 feet). Photo Credit: Trevor Nobile

He previously served as a DNR Hydrogeologist/Regional Spill Coordinator, DNR Regional Supervisor, and worked in environmental consulting before joining DNR.

Trevor received a Bachelor’s Degree from UW-Stevens Point and a Master’s Degree from Florida Atlantic University in Boca Raton, FL.

He is currently a licensed Professional Geologist in both Wisconsin and Florida, and is a Certified Professional Geologist with the American Institute of Professional Geologists.

2021 Secretary Candidate
Trevor Nobile - CPG
wade81@aol.com

Trevor Nobile is the Field Operations Director for the Remediation & Redevelopment Program at DNR. He works directly with the Program Director as a leader and strategist in developing and implementing a comprehensive statewide remediation and redevelopment program.

2021 Regulations & Legislation Candidate
Heather Hallett, P.G., C.P.G.
Heather.Hallett@foth.com

Heather is a Hydrogeologist at Foth Infrastructure & Environment in Green Bay. She leads the hydrology/geology discipline at Foth and provides support to a range of projects from landfill and mine project permitting/compliance to environmental remediation.
Heather previously served as president of WGWA after moving to Appleton from Albany, NY where she worked for CDM Smith.

**2021 Screening Board Chairman Candidate**
Andrew Mott - CPG
[andrew.mott@aecom.com](mailto:andrew.mott@aecom.com)

Andrew is a Project Hydrogeologist with AECOM in the firm’s Environmental Practice. Areas of specialization include the following: Site development, environmental site assessments, soil and groundwater investigation, compliance issues, and remediation. Specialize in Brownfield grant writing and Brownfield redevelopment. Previous positions with STS Consultants.

**2021 Education Committee Candidate**
Rebecca Butcher – Early Career Professional
[rebecca.butcher@woodplc.com](mailto:rebecca.butcher@woodplc.com)

Rebecca has a MSc in Geology with an emphasis in geophysics at the University of Maryland, College Park. She is currently working at Wood, PLC in Madison, Wisconsin on sediment and environmental conceptual site modeling.

**2021 Newsletter Editor Candidate**
Christine Lilek, P.G., C.P.G.
[clilek5959@gmail.com](mailto:clilek5959@gmail.com)

Christine is a Wisconsin Master Naturalist and teaches Great Lakes water sampling and many other natural resource programs at Kohler Andrea State Park. August 2019 Photo Credit: James Buchholz

Christine is an Environmental Training Coordinator for the WI Department of Health Services and Commissioner for the Lake Winnebago Improvement District. Her previous positions include: Senior Hydrogeologist for DNR, MSA Professional Services, WE Power Company, Board Director for Village of Cottage Grove Sewer and Water Utility.
Wisconsin Section’s 2020 Summary
Presented to National AIPG

By Paula Leier-Engelhardt

The summary of our section 2020 activities was presented during the National AIPG Executive Board virtual meeting on October 17, 2020. Both myself and Christine Lilek were present to represent the section.

The Wisconsin Section was able to have the PFAS workshop in Madison, WI, on February 27, 2020: PFAS: Beyond the Theoretical and What’s Working. There were 232 participants, 17 exhibitors, 14 sponsors, 3 student posters (total of 6 students attended) from 5 different schools. A diverse audience was in attendance and overall response was incredibly positive. It was probably one of the last such events to be held in Wisconsin before the state-mandated Safer-at-Home order was implemented on March 25, 2020. A huge thanks to Christine Lilek for all her efforts in organizing this event.

The COVID-19 pandemic has all but stopped many of our planned 2020 activities, including our work with the Michigan Section to plan field trips for the National AIPG meeting in Michigan (meeting moved to 2022), and hosting the ever-popular Baraboo Hills area field trip for the annual meeting of ASBOG (their November meeting was postponed).

Wisconsin AIPG had received feedback from members concerned about training opportunities and getting in their continuing education hours as required. In response, Wisconsin AIPG negotiated a significant discount on the online education materials through Midwest GeoScience. (Please see details elsewhere in this newsletter).

The Section is working on a webinar for 2021 on the topic, How to Read and Understand a PFAS Lab Report. We are hoping to start advertising it in early January, with the webinar to be held in late February.

Trevor Nobile has been spearheading a project with other Wisconsin DNR employees to develop a series of presentations called “Hydro College” for DNR employees. The goal of the presentations is help prepare WDNR geologists for the ASBOG Exam and PG Licensure. Other AIPG members are working with Trevor to solicit experts for presentations. We would also like to recognize and congratulate Christine Lilek on her election as 2021 AIPG Vice President. Section bylaws were amended in July 2020. Part of the changes included changing Young Professional to Early Career Professional.

WI AIPG Sponsors Marquette University’s Emerging Contaminant Short Course

WI AIPG was one of the sponsors this year for the Marquette University’s 2020 Emerging Contaminants in Water and Wastewater short course. It was held on Tuesday, Oct. 20 via Microsoft Teams.

Presentations included:

- The Role of the Water Professional during Infectious Disease Outbreaks: Lessons Learned during the COVID-19 Pandemic presented by Dr. Rasha Mal-Bared
• The CDC’s Waterborne Disease Outbreak Response and Surveillance Activities presented by Dr. Jonathan Yoder

• UV-LED for removal of microbial pathogens from water presented by Dr. Hodon Ryu

• Characterization of Microbial Communities and Antibiotic Resistance Gene Profiles in Drinking Water Distribution Systems presented by Mr. Lee Kimbell

• New Applications for Enzymes to Remove Emerging Contaminants from Wastewater presented by Dr. Shaily Mahendra

• Quaternary Ammonium Compounds: Detection in the Environment and Degradation Processes presented by Dr. Bill Arnold

• Biosolids: A Research Perspective presented by Mr. Ashwin Dhanasekar

• Destructive and Non-Destructive Technologies for PFAS Treatment presented by Dr. Yin Wang

Deregulation of Geologists Licenses in Florida: Warning for Future Wisconsin Deregulation

On June 30, 2020 Florida’s Governor Ron DeSantis signed “The Occupational Freedom and Opportunity Act” (HB 1193) which eliminated certain professional licenses by adding endorsement and reciprocity provisions, removing supplemental business licenses and corresponding license fees, reducing licensure education requirements, and eliminating other licensure and registration requirements. It allowed landscape architects and geologists from out of state to work in Florida without obtaining a separate license if they have been licensed in another state for 10 years and have passed an exam that is “equivalent to or more stringent than” what is required in Florida.

Similar efforts to deregulate licensed professions are surfacing all over the nation, including efforts in Wisconsin in 2018.

At the end of 2018, Wisconsin Legislators required the Wisconsin Department of Safety and Professional Services to survey numerous stakeholders (including geologists) on the benefits and drawbacks of licensing, and the responses were uniformly in support of continued licensing requirements.


“Of the individuals surveyed, 77.57% indicated that their license was either “extremely” or “very” useful in improving their skills, 77.56% indicated that their specific license was “extremely” or “very” important to protect the public from harm or danger, and 90.11% indicated that licensing in general was either “extremely” or “very” important for protecting the public.

And what of the much-touted “hardship” obtaining or retaining licenses supposedly poses? In those cases, 88.26% respondents described the amount of hardship they faced in getting initial licenses as “none,” “small” or “moderate,” and an eye-popping 97.37% percent indicated the same low level of hardship in retaining their licenses.
So, if the numbers do not bear out the claims that licensing is “unnecessary” or “overly burdensome,” what other possible reasons could those who oppose occupational licenses? Licensing opponents provide data that shows licensing demonstrably increases workers’ wages. Licensed workers can command as much as 15% higher wages over unlicensed workers in comparable fields. Without licensing measures in place, businesses could be able to pay substandard wages, and continue to charge consumers the same prices they normally would and put those same consumers at risk.”

Continued vigilance is needed to monitor and address the movement to deregulate geologists and other professions in Wisconsin.

**Wisconsin DNR Requests Review and Comment on PFAS Action Plan**

The Wisconsin PFAS Action Plan draft is available for comment. This Action Plan was drafted in response to Governor Evers’ Executive Order 40, and outlines steps the state will take to address PFAS priorities. The comment period ends October 31st.


**ASBOG Study Tools**

If you will be taking the National (ASBOG®) Geology Licensing Exam and are looking for help in studying for the exam, consider using some of the products and courses developed by REG REVIEW, Inc., a leading provider of courses and study aids for the ASBOG® exam. REG REVIEW has provided this service to over 15,000 customers since 1985. Their study aids help focus and streamline your studying process, enabling you to address deficiencies in an organized and efficient manner. Currently, courses are only offered as webinars for 2020.

https://regreview.com/

**Regulatory Updates**

**NR 700-799 RULE CHANGES**

https://dnr.wisconsin.gov/topic/Brownfields/RuleChanges.html#upcomingmeetings

As part of a continuing effort to ensure efficient and effective guidance and standards for the investigation and remediation of contaminated sites in Wisconsin, the DNR is working with key public and industry stakeholders, state agencies, the State Legislature, the governor and the general public to update portions of chs. NR 700-799, Wis. Adm. Code [exit DNR].

Emergency rule & permanent rule: The next opportunity for public input will be the public hearing and comment period for the emergency rules and proposed permanent rules. The public hearing is scheduled for October 16, 2020. Full details on how to attend and submit comments are available at this link. Written comments may be submitted any time on or before October 23, 2020, to DNRRRN700input@wisconsin.gov.

**Background**

Chapter 292, Wis. Stats. [exit DNR], along with other state statutes, set forth the responsibilities of certain parties for the investigation and remediation of hazardous substance discharges and environmental pollution in Wisconsin. Chapters NR 700-799, Wis. Adm. Code, provide the specific steps and standards for conducting required investigation and remediation activities. On Jan. 23, 2019, the Natural Resources Board (NRB) approved statements of scope for emergency and permanent rulemaking.
Following recent legislative changes to statute and changes in terms and practices that occur over time, DNR is revising specific sections of chs. NR 700-799, Wis. Adm. Code, to meet three main goals:

1. meet an emergency rulemaking mandate within 2015 Wis. Act 204 relating to new financial assurance requirements for certain types of contaminated sediment sites;
2. attain consistency with statutory revisions made by 2017 Wis. Act 70 and 2015 Wis. Act 204, including revisions relating to contaminated sediments; and
3. update references and clarify requirements and procedures as needed since the last set of rule revisions became effective in 2013.

PFAS SURFACE WATER CRITERIA IN NR 105

https://dnr.wisconsin.gov/topic/SurfaceWater/NR105.html

As part of the effort to protect surface water and public health across Wisconsin, the DNR plans to work with key public and industry stakeholders, state agencies, the state Legislature, the governor and the general public to update ch. NR 105, Wis. Adm. Code [exit DNR].

Background

In Wisconsin, PFAS have been detected in drinking and surface water near spill locations and near sources of industrial or manufacturing use.

The DNR seeks to protect humans from the adverse effects of PFAS resulting from contact with or ingestion of surface waters of the state and from ingestion of fish taken from surface waters of the state by creating human health surface water quality criteria for perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), as well as any other PFAS which the department determines may be harmful to human health, in ch. NR 105, Wis. Adm. Code.

Scope Statement

WY-23-19 [PDF]: Revision of chapters NR 105, NR 106, NR 219 and other related regulations to add surface water quality criteria and analytical methods for PFAS and to revise the WPDES permitting program to implement the new criteria.

Stakeholder Meetings

Given the amount of public interest in this effort and its potential economic impacts, DNR will convene a series of stakeholder meetings to provide guidance on the rule changes. Meetings will be held in winter 2020 through spring 2021.

WA-06-20(E), updated ch. NR 159 draft emergency rule language, addressing the use of PFAS-containing firefighting foam

The DNR held a public listening session regarding the updated draft emergency rule language, ch. NR 159, Wis. Adm. Code, developed to address the use of PFAS-containing firefighting foam consistent with a new state law. The purpose of this listening session was to provide the public with an opportunity to comment or ask questions regarding any changes to the draft emergency rule.

The DNR developed the draft emergency administrative rule, NR 159, to implement and administer the new state law, ch. 299.48, Wis. Stats. This state law directed that, with the implementation of new restrictions on the use of PFAS-containing firefighting foam starting Sept. 1, the DNR would promulgate both emergency and permanent rules outlining the limitations pertaining to testing and training with PFAS firefighting foam and use of PFAS foam for emergency situations.

Proposed Emergency Rules
Notice of Hearing

Proposed Rule relating to Nonferrous Metallic Mineral Exploration, prospecting, mining and mining waste management

The Department of Natural Resources announces that it will hold a public hearing on a permanent rule to repeal and recreate chapters NR 130, 131, 132 and 182, Wis. Adm. Code relating to nonferrous metallic mineral exploration, prospecting, mining and mining waste management.

In accordance with s. 227.17, Wis. Stats., the DNR is seeking public comment and feedback on the rules at the time and virtual location shown below.

Hearing Information Date: October 22, 2020
Time: 4:00 p.m. – 6:30 p.m

Rule Information: The Department of Natural Resources is proposing changes to the administrative rules pertaining to nonferrous metallic mineral mining and related activities. Chapters NR 130 (Exploration and Bulk Sampling), NR 131 (Prospecting), NR 132 (Mining) and NR 182 (Mining Waste Management) are being revised to correct inconsistencies with the existing statutes, bring the rules up to date with current technology and regulatory approaches, and improve overall clarity and effectiveness. 2017 Wisconsin Act 134 made substantial changes to the law related to nonferrous metallic mineral mining activities.

The proposed rule changes implement those statutory revisions and also reflect previous statutory changes that were not subsequently implemented in the pertinent rules. Chapters NR 130, 131, 132 and 182, which have been mostly unchanged since their adoption in 1982, are also being revised to reflect new technology and regulatory approaches and standards developed over the past several decades.

Lastly, the chapters have been reviewed to identify provisions that were unclear, ambiguous or difficult to interpret and implement and have been revised to provide greater clarity. The rule may be viewed at: https://dnr.wi.gov/news/input/ProposedPermanent.html

NR 812 RULE CHANGES
https://dnr.wisconsin.gov/topic/Wells/nr812.html
To maintain groundwater protection and protect drinking water and public health across Wisconsin, DNR has worked with key industry stakeholders and the general public to update ch. NR 812, Wis. Adm. Code [exit DNR].

NR 812 contains state standards for location, construction, maintenance and inspection of wells and water systems and heat exchange drillholes, for the filling and sealing of wells and drillholes and for the installation and maintenance of pumping and treatment equipment. These NR 812 rule revisions address three major areas.

1. Correct errors or unclear language.
2. Streamline existing processes and requirements.
3. Update construction standards which have not been revised for over 20 years.

Changes to chapter NR 812, Wisconsin Administrative Code (NR 812) are complete. Final rule changes are in effect as of July 1, 2020.

- NR 812 [PDF exit DNR]
- NR 812 Appendix [PDF exit DNR]

What are the changes?
A three page Changes to NR 812 Information Sheet [PDF] is also available. This information sheet provides a summary of the changes to each section of the rule.
Geology Calendar of Events

Welcome to Environment 2020! FET – Federation of Environmental Technologists is pleased to announce our virtual conference in October 2020.

Tuesday Afternoons: October 20th and 27th
Thursday Afternoons: October 22nd and 29th

While this year’s event will be different, once again our focus will be on educating EHS professionals. The virtual event will allow for interactions with our presenters and offer continuing education credits as in the past. With 24 sessions being offered over four afternoons, you are sure to find important information that meets your needs.

We are also pleased to have a variety of Exhibitors showcasing their goods and services through sponsorships at various levels of support. We encourage you to visit our generous exhibitors.

Visit our website at https://fetinc.org/website/annual-conference/ for more details on schedules and exhibitors.

MidwestGeo offers online training and PDHs from home during this challenging time with a Wisconsin AIPG discount

How it works: Select a webinar subscription at midwestgeo.com that suits your preferences and immediately gain access to over 130 webinars.

The AIPG-WI promotion extends through December 30, 2020. The Single User Webinar Subscription gives you seven webinars. The Corporate Webinar Subscription is designed to help many staff working at home. Corporate subscriptions offer a variety of sizes too with the Wisconsin AIPG discount starting at the 50-webinar package.

Most webinars are 90 minutes in duration (1.5 CE Contact Hours or 0.15 CEUs). Access is fast and easy through a (free) Midwest Geoscience membership account. Webinars can be accessed for 15 months after time of purchase. Standard terms and conditions apply.

Important: Wisconsin AIPG receives a portion of the registration revenue. We encourage our members to check this out because it directly benefits all of us: (1) you get purposeful training, (2) Wisconsin AIPG receives revenue, and (3) MidwestGeo does the work.

Three options are available now to Wisconsin AIPG members:
• Single-user 7 pack subscription, expires 12/30, $100 off ($570 to $369.95 is now $269.95)
  o Use Promo Code: AIPG-SU7-100
• Corporate-user 50 pack subscription, expires 12/30, $100 off ($2,100 to $1,890 is now $1,790)
  o Use Promo Code: AIPG-CU50-100
• Corporate-user 100 pack subscription, expires 12/30, $500 off ($3,950 to $2,999 is now $2,499)
  o Use Promo Code: AIPG-CU100-500

All subscriptions include perks such as unlimited access to select webinars, portfolio of all MidwestGeo field guides, and more discounts to field tools such as soil kits.

For questions about access, registering with promo codes, webinar specifics, discounting, etc, call Dan Kelleher at Midwest GeoSciences Group at 763.607.0092 or email at dan@midwestgeo.com