



WELL LOG

A PUBLICATION OF THE WISCONSIN WATER WELL ASSOCIATION

Winter 2018-19

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LETTER FROM THE PRESIDENT

By Rick Peterson, WWWA President



Greetings everyone,

A lot happened in 2018. The Association is growing stronger, remains diversified to include multiple drilling professions and associate levels, and continues to developed a positive and effective working relationship with the DNR.

The Annual Wisconsin Groundwater Conference gave us the opportunity to see how far we have come, and look forward to personal, business, and Association successes in the new year.

Our theme this year was the great outdoors. A new addition to the event was a raffle focused on this theme, which included an ATV, a shotgun and rifle as raffle prizes. The proceeds will go toward the scholarship funds and Water for the World.

Conference themes and location may change, but the constant factor is the amazing camaraderie we share. This past event was no exception, as technical information was shared during the sessions, manufacturers and suppliers networked with current and future customers, families greeted each other after a year-long absence, friends reconnected and new relationships were formed. It's also great to see multiple generations together through the variety of activities.

Enjoy the snapshots from this year's event, and I hope you'll start making plans to attend next year's conference and bring coworkers and family members with you. 💧

Enjoy and be safe,

Rick Peterson, Clean Water Testing
920-841-3904, rick@water-right.com

2017-18 WWA BOARD OF DIRECTORS

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WPWS REPORT

By Jeff Beiriger, WPWS Executive Director

The Wisconsin Pump & Well Suppliers has a new logo that you'll be seeing more of:



The group recently held a Sporting Clays event with more than 60 shooters in this first-time event. The event, held in October, replaced a Fall Golf Outing that had been held for many years. The event was a major success, with sponsorship that exceeded expectation and resulted in a solid bottom line. The money raised from the event, like the golf events, is being used to build additional wells in Africa and other locations where access to a quality water supply is a challenge.

The WPWS will soon announce the location of the fourth well that it will be building, with hopes to announce a fifth later this year. Fundraising in 2018 was helped greatly by a grant from the Wisconsin Water Well Association, helping the WPWS reach its fundraising goals faster than expected.

SPRING GOLF OUTING

Mark your calendar and plan to participate in the WPWS Spring Golf Outing, Tuesday, May 14, 2019 at Trappers Turn Golf Club in Wisconsin Dells. This is a day of networking and camaraderie, but as mentioned previously, it is also one of the major fundraisers for well projects.

WATER WALKS

Looking for a great project for a Scouts group, church group, or your business? Have you considered a Water Walk? The WPWS has a worksheet that can help you and your group conduct a Water Walk fundraiser to raise money for our well projects. Participants make a short walk (1 mile or so) carrying empty water jugs and fill them at a river, lake, hand pump, or other water source. The filled water jugs are then walked back to the start point. Funds are raised through pledges made to participants.

Water Walks are a "hands-on" way to learn about water, wells and pumps, geography, and the daily lives of people living in other countries and they are fun for participants too. For more information about holding a Water Walk, contact the WPWS at (888) 782-6815. 💧

EXECUTIVE DIRECTOR MESSAGE: WWWA RECAP OF 2017-18 YEAR

By Jennifer Rzepka, CAE, WWWA Executive Director

The Wisconsin Water Well Association is a non-profit organization, which operates every year to strive towards achieving its mission to provide *Water the Wisconsin Way. Fresh. Clean. Safe.*

But at the end of the day, the association is still a business. Like any business it exists to serve its customer base. Customers of an association are complex, they include the **members**: as receivers of the service the association performs; **investors**: who are made up of the advertisers, sponsors, exhibitors and others who contribute funds to keep the association moving forward; and other **key stakeholders**: like the DNR and the public.

It takes a robust organization to serve them all well, and over the last year great strides have been made for every facet of customer. Plus, the organization itself maintained its healthy financial standing.

WWWA by the Numbers

Financial: The fiscal year runs November 1-October 31 each year. In the 2017-18 year the WWWA increased its net worth by nearly 22.15% to total net assets, liabilities and equity of \$337,760. Additionally, while budgeted to net a positive \$2,917, the fiscal year ended at a profit of \$11,237; which is \$8,320 higher than projected. The main revenue generators remain the Continuing Education sessions, followed by the Annual Conference and Membership. This healthy reserve enables the association to absorb big, industry impacting events, like other competing training providers entering the market which may draw away from that revenue and funds the involvement of WWWA Board members at the national level.

Membership: In the 2017-18 fiscal year there were 201 total members of the organization, which has already shown incredible growth in this 2018-19 year currently at 257 members, which is broken down into the following member types: 197 are Regular Members (license holders); 34 additional Regular Members (Associate Members who are additional employees of other Regular Members); 8 manufacturers; 5 suppliers; 6 members of other types (i.e.: insurance agencies) and 7 Active Lifetime Members.

Serving WWWA Customers

Members: In addition to significant savings to members on all event registrations (\$40 off for every attendee to the Annual Conference or any Continuing Education event of the WWWA); members have other exclusive benefits too, like the Kalahari Gift card offer. Any WWWA member who registers and pays for attendance to the Annual Conference; makes a hotel reservation at the Kalahari; and renews membership dues before year-end -- they receive a \$100 Kalahari Gift Card when they pick-up their name badge! Considering just those two benefits -- it's a total savings of \$140 -- which almost equals the full cost of membership. That essentially

makes membership for someone who attends the Annual Conference ONLY \$10!

Investors: The Well Log publication was resurrected when the WWWA changed management companies in 2017. It is now a full-color, quarterly publication that conveys important association information, industry-related news, detailed research from guest contributors and of course, the opportunity for companies to place advertisements that reach all Well Driller and Pump Installer license holders throughout Wisconsin. Along with this piece that enables companies to showcase their products and services in print, regularly throughout the year, they also have the opportunity to make a huge splash every year at the Annual Conference. The tradeshow had more exhibitors than ever this year, showing the event's growth, and the sponsorships available for the bowling lanes and more help the WWWA in multiple ways -- by offsetting the expenses to put on the event, providing funding for the WWWA scholarship program and for the well building projects in Uganda organized by the WPWS.

Stakeholders: The WWWA Board continues to have representatives involved in the advisory committees that focus on NR812 and other important industry-related groups through Wisconsin's Department of Natural Resources and works regularly at improving and expanding the communication among WWWA members, the DNR office staff and the field agents. This two-way communication makes it possible for WWWA members to stay on top of trends, new regulations and other important factors facing Well Drillers and Pump Installers -- which in turn, help make the Wisconsin water supply safe and clean for Wisconsin residents. By arming members with the tools, brochures and information to educate homeowners, the WWWA is helping increase awareness and educate the public on caring for their wells. In the new website build the association will be going through in the 2018-19 year, even more valuable reference materials will be built into the site so that the general public starts to look towards the WWWA as a resource and starting point in their search for contractors to service their property. 💧

Sincerely,



Jennifer Rzepka, CAE
Executive Director



Please feel welcome to contact the office with any questions or recommendation on ways to continue this exciting growth and expansion of your great association!

877-947-9837 / info@wisconsinwaterwell.com

LOBBYIST REPORT: THE YEAR IN REVIEW

By Jeff Beiriger, WPWS Executive Director

2018 was the second year of the two-year legislative session, so most of the action had wrapped up by early April. With the legislative session complete, attention shifted to primaries and the November general election.

For anyone following politics, the results of this year's elections weren't much of a surprise. For almost a century now, mid-terms have resulted in the party not in the White House tending to do much better than the party that is. It's really not a matter of what will happen as much as the magnitude of the change.

So, just as Scott Walker had won in mid-terms during a Democratic administration and brought with him Republican majorities in the Assembly and Senate, it was Tony Evers and fellow Democrats who swept into all of the Executive Branch offices during a mid-term during a Republican administration. Republicans in the State Assembly and Senate as well as the Wisconsin Congressional delegation all defied the trend and held their majorities.

Expectations

With split government – Democrats in the Governor's office and Republicans controlling the legislature – there are two options for the 2019-2020 session, cooperation or gridlock. They'll have to agree to a few things, but there likely won't be any roll-backs of any of the major policy initiatives passed during the eight years of the Walker administration (Right to Work, Prevailing Wage, Act 10, Concealed Carry, etc.). Where there seems to be some opportunity is on roads, education, the UW system, and possibly health care).

Appointments

With the election of a new Governor, there will be new leadership at the executive agencies, including the Wisconsin DNR.

In December, Governor Evers announced that he would appoint Preston Cole to the position of DNR Secretary. Cole was working for the City of Milwaukee



Preston Cole

as the Commissioner of the Department of Neighborhood Services at the time of his appointment, but his background is in forestry. He is familiar with the DNR as he was a member of the Natural Resources Board for many years, appointed first by Governor Jim Doyle and reappointed by Governor Scott Walker. The fact that he was appointed by Governors from two different parties suggests a non-partisan, policy- and science-based decision making process coming from the DNR in the years ahead.

Attorney General

In comparison to the race for Governor, was the somewhat under the radar election for Attorney General. Josh Kaul is the new Attorney General and the expectation is that the AG's office will be much more pro-active on environmental issues including High Capacity Well Permits and Foxconn Environmental Impacts as well as Redistricting, accepting/rejecting Federal Regulations, and the State's participation in a lawsuit to overturn the Affordable Care Act (Obamacare).

If you have ideas about the upcoming legislative session, please share them by contacting Jeff Beiriger, WWA Government Relations Advisor, at jeff@assocmgmtservices.com or 414/331-2059. 💧





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2019 WISCONSIN GROUND WATER CONFERENCE RECAP

By Lori Huntoon, Well Log Editor

Membership Meeting

Approximately 75 members attended the Annual Membership Meeting on Wednesday, January 9th. Lifetime members and former/active military members were acknowledged, and committee reports were given. Elections resulted in Rick Peterson, David Beecroft, and Terry Farago being re-elected by unanimous ballot.



2017-2018 WWWW Board of Directors at the 2019 WGWC Membership Meeting

The membership report indicated that the total number of members in 2018 was 201, and included license holders, associates, additional employees, manufacturers, suppliers, and active lifetime members. As of February 13, 2019, there are 257 WWWW Members.

Reception Scholarship Auction

A good time was had by all at the WWWW Reception! A Lifetime Award was given to David Haupt, Haupt Well Drilling of Auburndale, Wisconsin. Membership recognition was given to Rick Peterson for his involvement as Association President, David Beecroft for his participation on the Board of Directors, and Lori Huntoon for her efforts with "The Well Log" newsletter.

The Silent Auction consisted of several dozen items and raised \$920 to support the Ed Huntoon and Owen Williams Scholarship Funds.

Two scholarship awards were given. Cody Santas, son of Michael Santas plans to study computer science when he attends college in the Fall. Josie Slager, daughter of Steven Slager, received a scholarship for her planned attendance at UW-Stevens Point for dietetics.

Kids Movie Night consisted of Disney's "The Incredibles 2" movie, popcorn, coloring and activities, and making slime.

Trade Show

The Trade Show was open for four hours on Thursday and two hours on Friday, and provided one hour of CE for well drillers and pump installers. Fifty-five (55) exhibitors filled 65 spaces within the exhibit hall, including a drill rig and a mini hydraulic excavator. A Polaris 570 4-Wheeler, Weatherby Bolt-Action Rifle, and Amsco Shotgun were raffled off. The WWWW sold all 450 tickets and raised over \$1,700. Profits will be used to fund the scholarships and Water for the World.

The Kids Area included a bounce house, glitter tattoos, balloon animals, cookie decorating, Kalahari characters, coloring and activities. 💧



Jeff Kramer awarding Cody Santas (Michael Santas) with the 2019 Edwin Huntoon Scholarship.



Jeff Kramer awarding Josie Slager (Steven Slager) with the 2019 Edwin Huntoon Scholarship.

WWWA 2019 Annual Conference Recap Photos continued on next page



Newsletter Editor Lori Huntoon and Board member Bruce Walker bowling at the annual fundraiser.



Attendees participating in one of the many CE sessions held at the WGWC.



Exhibitors and attendees networking at the Annual Trade Show.



Kids having fun in the bounce house in the Kids' Area of the exhibit hall.



Board member David Beecroft wearing an orange vest signaling he has raffle tickets.



WWWA members taking a coffee break in between CE sessions.



Treasurer Terry Farago spending time with his family at the Kalahari Resort.



Tara Schessler at the WWWA Booth handing out WWWA hats to members.



WGWC attendees excited to earn their continuing education credits.



WWWA Executive Director and Board members at the 2019 Membership Meeting.



NGWA Director Tim Parker presenting at the 2019 Membership Meeting.



Friends and families having a great time at the Annual Trade Show.



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SCHOLARSHIP APPLICATION

EDWIN HUNTOON SCHOLARSHIP

Edwin W. Huntoon (1917-2011)

Ed Huntoon served the WWWW as Editor of the newsletter, and was a proponent of the water well industry throughout the world. He started in the industry as a driller in the rock quarries, then for the US Army during WWII and on water supply projects around the world. Ed was a licensed pump installer, master plumber, and journeyman plumber. He was the recipient of the NGWA Life Member Award in 1991, and the NGWA Oliver Award in 1995 for outstanding contributions to the groundwater industry. He served as the Waupaca County Wellhead Protection Committee Chairman until his passing at the age of 93.



OWEN WILLIAMS SCHOLARSHIP

Owen W. Williams (1922-2014)

Owen Williams served the WWWW as Executive Secretary, and represented the Association at many conferences, meetings, and legislative sessions. He served in the Navy aboard the USS Barb during World War II, and served as State President of the US Submarine Veterans. He devoted significant time and energy in the formation of the Wisconsin Water Well Guild, creation of continuing education classes, and promotion of Association membership. He encouraged others to “make greater strides to meet the challenge of protecting the environment.”



EDWIN HUNTOON ELIGIBILITY

- 2.6 grade point average or above
- Must be child or grandchild of a current WWWW member
- Must be applying to or enrolled in a post-secondary institute (college), as a full time student

OWEN WILLIAMS ELIGIBILITY

- 2.6 grade point average or above
- Must be child or grandchild of a current WWWW member
- Must be applying to or enrolled in a technical/trade/vocational institution, as a full time student

APPLICATION PROCEDURES

- Applications should be submitted to the Association by December 1, 2019. No exceptions.
- Applications should include written essay and two letters or recommendations.

APPLICATION SELECTION PROCESS

Personal information is removed from each application and is assigned a number. Applications are then sent to a review committee. The committee makes their choices based solely on the information provided by the applicant and the references submitted. The WWWW will notify the scholarship winners prior to January 1, 2020 by email.

Awards are presented at the Annual Wisconsin GroundWater Conference. Current college students will be presented the scholarship at the conference, while high school students will receive the scholarship after the completion of their first semester. Verification of current enrollment is required.

INSTRUCTIONS FOR COMPLETING SCHOLARSHIP APPLICATIONS

- Download the application or complete the form online at: wisconsinwaterwell.com
- Fill out the application, respond to both essay questions, and submit two letters of recommendation from persons who can attest to your character and assess academic ability
- Submit the form online or send to the WWWW office

SPONSOR SPOTLIGHT

CLEAN WATER TESTING

The WWA appreciates the support received from Clean Water Testing over the past year, including providing meeting space for the WWA Board Meetings at their office in Appleton, WI. A consistent vendor and sponsor at the Annual Conference, the company also recently won the traveling pitcher pump, which is auctioned off annually for the scholarship fund. Lab Director Mike Hanten has served as a speaker at the 2018 and 2019 conferences; additionally, he presented a technical presentation at each of the 2018 Continuing Education sessions, and has committed to participating at every session during 2019.

Clean Water Testing is a Wisconsin lab with state-certification since 1985, and can provide testing for the most common contaminants, such as bacteria, nitrates and arsenic, inorganic elements and volatile organic compounds. Their professional water lab test results will reveal the type of contaminants, the level of contamination, and current levels accepted by state authorities. Additional client



services include well and septic system inspections by fully licensed and insured inspectors, certified operator services for public water supply customers, and water sample collection services.

Serving well owners, business, and water professionals, Clean Water Testing has professional laboratory services available nationally and locally. Other services include well inspections, septic inspections, well chlorination, water sample collection, and certified operator services. 💧

NATIONAL GROUND WATER ASSOCIATION UPDATE

The National Ground Water Association held its Groundwater Week conference and exhibition in Las Vegas in December. They had a successful event, with 5,114 attendees and 286 exhibitors.

Continue the tradition in 2019 by letting your voice be heard. The NGWA will be hosting the 2019 NGWA Groundwater Fly-In and Water Resources Congressional Summit from March 5-6 in Washington, D.C.

Under joint sponsorship with the Irrigation Association and the Water Quality Association, this event is organized to increase the water industry's profile on Capitol Hill regarding the availability, quality, and safety of our nation's water resources.

The 2019 NGWA Groundwater Fly-in will ensure members of Congress are aware of the important role groundwater plays in providing drinking water, supporting agriculture, and fueling various sectors of the economy.

NGWA handles all aspects of planning and training you for your two days in Washington. The focus topics and schedule will include:

- A briefing session on the major issues facing groundwater professionals such as obtaining federal support for the detection and remediation of PFAS contamination, increasing efforts to promote groundwater recharge, and bolstering support for drinking water infrastructure improvement
- Guest speakers from Capitol Hill, the administration, and others
- A day of Capitol Hill meetings arranged by NGWA staff
- A networking reception with colleagues from IA and WQA
- Tips for continued grassroots activities when back home.

With dozens of new members in the 116th Congress, don't miss this opportunity to introduce yourself and discuss critical groundwater issues. After all, no one knows groundwater's importance better than you. Register now and let your voice be heard in March!

If you don't speak up for groundwater, who will? 💧

THE BARABOO RANGES: THE PLEISTOCENE ICE AGE AND THE BARABOO RANGES

By Tom Riewe

During one of the most recent chapters of our geologic history (the Ice Age of the Pleistocene Epoch*) massive glaciers slowly advanced out of – and retreated back toward – their Canadian sources. After several episodes of glaciation these tongue-shaped lobes had eventually covered much of the upper Midwest with ice – hundreds of feet thick. (Figure 1.) In this article we will look at how these glaciers affected the Baraboo Ranges.

*The Pleistocene Epoch lasted from 2.6 million to 12,000 years ago.

Long before the onset of the Ice Age deep gorges were slowly carved out of the Baraboo Ranges by a major river. Today these gorges are known as the Lower Narrows and Devils Lake. Most likely this river was the pre-glacial Wisconsin. At that time, as now, its course was predominantly north to south. It flowed over the Baraboo Ranges for millennia as they were being further exposed by the processes of erosion. (These Precambrian ranges had been partially buried by Cambrian and Ordovician Age sediments.) Following the Ordovician the river stayed its course, zig-zagging through the ranges, all the while gradually cutting these gorges into the cores of both the north and south ranges – in spite of the hardness and density of their quartzite cores. (Figure 2.)

Towards the end of the Pleistocene, some 18,000 years ago – at the height of the last major advance of the glaciers (The Wisconsin Stage) – a couple of massive lobes moved down through eastern and central Wisconsin. During this time the eastern half of the Baraboo Ranges got slowly overrun by the outer southwestern margin of one of these lobes – the Green Bay Lobe. The western half of these ranges was spared the onslaught of this enormous *tongue* of ice and was left unscathed by its devastating forces. It was retained as part of the famous *Driftless Area* – the region that includes southwestern Wisconsin and portions of Illinois, Iowa and Minnesota – that segment of the upper Midwest that was not glaciated during the Pleistocene.

After the Green Bay Lobe had advanced relentlessly across the eastern half of the ranges, its movement slowed. And then, as if by malevolent design, stopped just far enough west to block off both the north and south ends of the river gorge that had been carved out of the south limb. (Figure 3.)

As the glacier melted at its outer margins, debris that had been embedded in the ice dropped out – like rocks and gravel at the end of a conveyor belt. Year after year the debris piled up and, after many centuries, formed ridges



Figure 1. Glacial Lobes as they existed during the Wisconsin Stage of the Pleistocene Ice Age. (Wisconsin Geological & Natural History Survey)

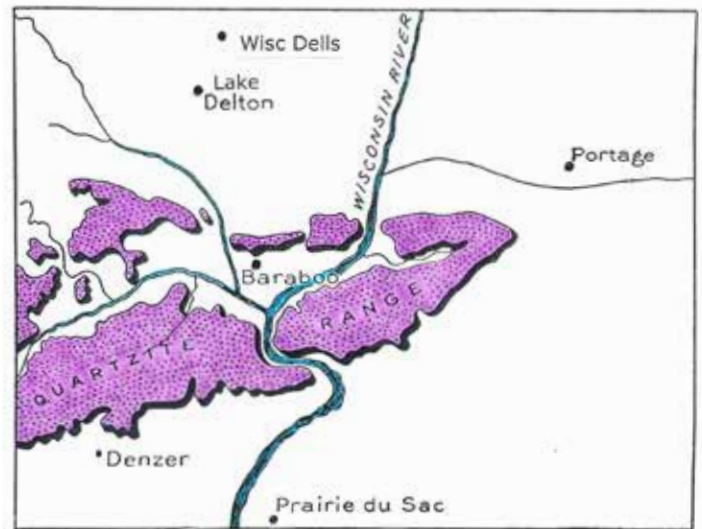


Figure 2. The river drainage system through the Baraboo Ranges as it likely existed prior to the Pleistocene. (After Dalziel and Dott, 1970)

The Baraboo Ranges continued on next page

called terminal moraines. About 15,000 years ago, as the climate warmed, the lobes slowly melted and receded back toward their Canadian sources. But the moraines were left behind, where they remain today as wooded ridges, still blocking off both ends of this former river gorge. (Photo 1)

Some 12,000 years ago, when the Ice Age came to an end, the glaciers left behind a topography and drainage system that had been changed dramatically. (Refer to Figure 1.) One of the results was the Wisconsin River was not able to 'find' the pre-glacial channel it had cut through these ranges. Instead it found an easier course, by skirting the eastern nose of the ranges and then making a sharp turn to take a path westward, parallel to the south limb. It continued to flow towards its eventual confluence with the Mississippi River, some ninety miles to the west. (Figure 4.)

Cut off from its original source, the submerged portion of the former river channel that extends through the south limb of the Baraboo Quartzite is today's Devils Lake. It remains an isolated segment of the mighty river that cut this deep bedrock gorge. Left virtually intact, the gorge is now the hub of Devils Lake State Park – a topographic gem for us to explore, examine and marvel at its beauty. (See Figure 3.)

The Steinke Basin

Just to the northeast of Devils Lake is the Steinke Basin, an interesting topographic feature formed during the Ice Age by the melt waters that flowed away from the outer margin of the Green Bay Lobe. Today the Steinke Basin lies just south of the terminal moraine – where, in this locale, the east-west oriented lobe came to a halt and remained there for a long time.

As water flowed away from the glacial margin it transported the sands and gravels that were dropping out of the melting ice. Over centuries of time this 'outwash' sediment built up as a delta and the melt water that flowed off its southern fringes accumulated as a small lake. (See Figure 3.) At the end of the lake the overflow spilled over the banks and formed a stream which initially flowed south but quickly made a turn to the west and then another to the northwest. Over the ages this stream cut a small gorge into the quartzite as it flowed down towards another turning point in its channel – at a spot just beyond the northeast corner of today's Devils Lake.

Rain water that now falls on the Steinke Basin continues to accumulate there and still gets directed into this stream. Following significant rainfall events water levels in Devils Lake can rise abruptly. After heavy outbursts, overflow spills over the banks of the lake's northeastern shoreline and empties into this stream. Since the end of the Ice Age the stream has cut a gap through the sand, gravel and boulder sediments of the segment of the terminal moraine that today lies just north of the lake. Flowing north, the stream's channel parallels both the former Chicago & Northwestern† Railroad embankment and the park north exit road. (Photo 2.) After getting through the moraine ridge it flows over an

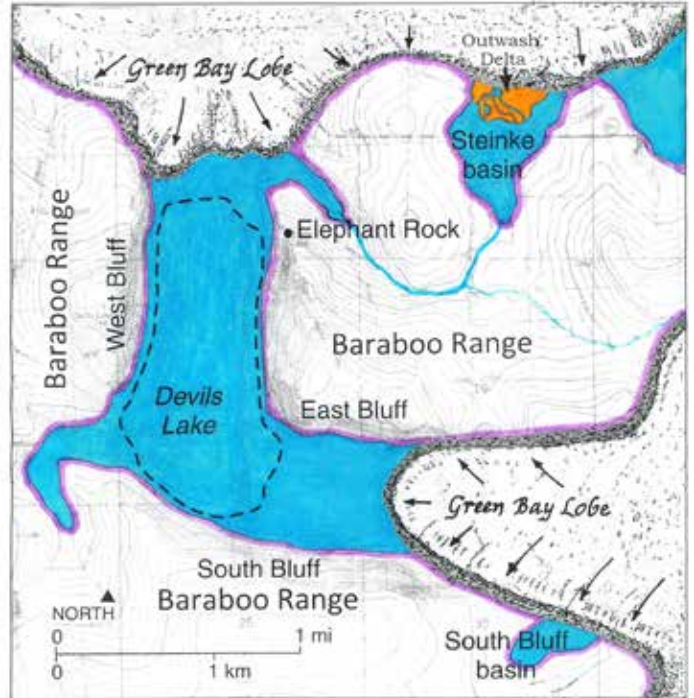


Figure 3. The southwestern margins of the Green Bay Lobe when it was blocking both ends of the river gorge that had previously been cut through the south limb of the Baraboo Ranges. (After Dott & Attig, 2004)

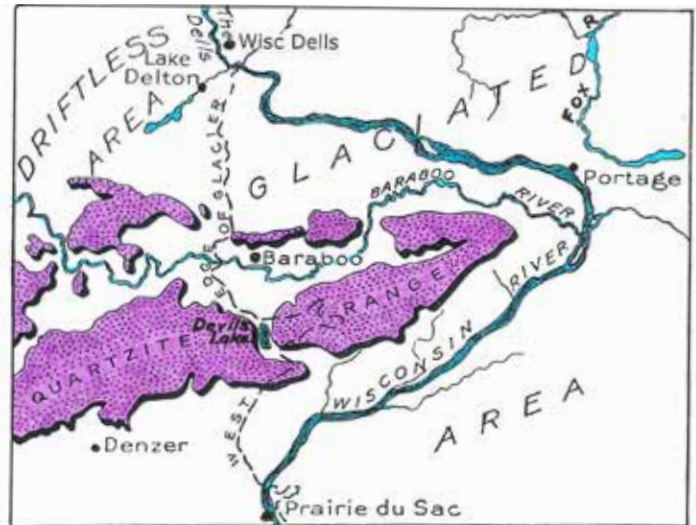


Figure 4. The river drainage system in the region of the Baraboo Ranges following the Pleistocene. (Compare this with the drainage configuration in Figure 2.) (After Dalziel and Dott, 1970)

open plain for two miles and empties into the Baraboo River just east of the City of Baraboo.

† Today this railroad line is owned and operated by the Wisconsin & Southern.

In the summers of 1993 and 2008 – following periods of heavy rainfall in and surrounding the Baraboo Ranges (12 inches in 2008) – the water level in Devils Lake rose quickly. The excess soon overflowed the lake's northeastern shoreline and emptied into the nearby stream, which was already being overwhelmed by the water rushing down



Photo 1. A segment of the Johnstown Terminal Moraine of the Green Bay Lobe. Here the moraine - shown in the center of the photo - blocks the southeastern portion of the gorge that the pre-glacial river had cut through the south limb of the Baraboo Ranges. (Photo by the author - facing west from Rozno's Meadow, a part of the former river channel)

out of the Steinke Basin. The stream soon became a raging torrent. Its flood waters surged through the gap in the moraine and headed north, where, onto the open plain, jumped the low banks and inundated the intervening roads.

Over the course of twenty-four hours the deluge washed out portions of the railroad embankment and park exit road. Out on the open plain, as the flood water rushed along toward the stream's confluence with the Baraboo River, debris, trees and vehicles got picked up and dragged along in the furious current, wreaking havoc along the way.



Photo 2. The gap in the Johnstown Moraine on the north side of Devils Lake - cut following the Pleistocene by the stream that empties the Steinke Basin. (Photo by the author)

The smooth quartzite walls in The Upper Narrows

In Ableman's Gorge ('The Upper Narrows') portions of the vertical quartzite walls of the north range have a smooth glossy surface. They are located just north of the Village of Rock Springs - across the road and not far from Van Hise Rock. Over the years geologists have wondered how these walls had become so smooth. (Photo 3.)

Although no one knows for sure, there is a credible theory of their origin: In this locale - at the height of the Pleistocene glaciation - the outer edge of the Green Bay Lobe butted up against the north side of the north range.

This was near the location where the Baraboo River had slowly carved The Upper Narrows gorge into the quartzite of the north limb.

During centuries of time the presence of the outer margin of the glacial lobe had significant effects on this gorge. On a daily basis, as night came on, air lying just above the glacial surface cooled rapidly, thereby becoming denser than the air away from the glacier. The cold dense air flowed across the surface of the glacier, picking up sediment as it went. As it reached the glacial margin it cascaded off the edge of the ice as a high velocity wind.** It rushed into adjacent areas and surged through Ableman's Gorge, careening off the walls of the quartzite cliffs as it went. The sediment carried by these winds sand-blasted the walls so completely that, even today, portions of them remain smooth as glass. 💧

**These winds are called Katabatic. They have been studied extensively near present-day ice sheets in Greenland and Antarctica.

Next Article: What challenges does the Baraboo Quartzite pose to well drillers and how do they cope with the difficulties of drilling into it?

Much of the information in these articles is based on classroom and seminar presentations by the late Geoscience Professor Robert H. Dott, Jr. and by Emeritus Professor L. Gordon Medaris, Jr., both of the University of Wisconsin, Madison.

Also special thanks to Bruce A. Brown, Wisconsin Geological & Natural History Survey who reviewed these articles and provided many helpful suggestions; and to Phil Fauble, Hydrogeologist at Wisconsin's Department of Natural Resources, who provided much useful information regarding issues relating to the Baraboo Ranges.

These articles are also based on the following selected sources:

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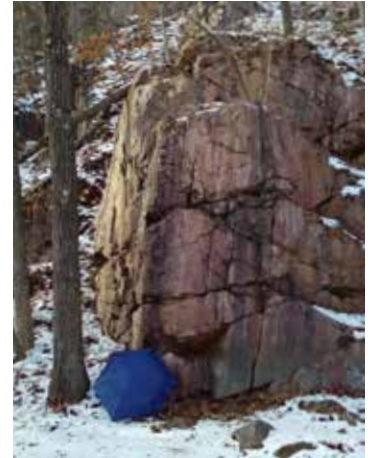


Photo 3. The smooth glossy surface of the Baraboo Quartzite - directly above the blue umbrella - in a section of the west wall of Ableman's Gorge. (Photo by the author)

The Baraboo Ranges continued from previous page

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Tom Riewe is a retired DNR Hydrogeologist who spent his entire career in the Private Water Supply Section working with Wisconsin's Licensed Well Drillers and Pump Installers. A native of northeastern Wisconsin, he now spends his time dog-sitting, falling off bicycles and slipping & falling on hazardous hiking trails.

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MARKETING MATTERS

By Tara Schessler, In Time Creative



Thank you to the WWWA Board of Directors for inviting me back to speak at the Annual Meeting once again. During the meeting we reviewed the 2018 Website Analytics for WisconsinWaterWell.com and noticed some pretty intense observations: there are less and less new or unique visitors to the Website, there is less activity on the For Home Owners page, the bounce rate for the entire site is over 50% and the traffic to the Website during paid advertising months is less than in years past.

With these observations in mind, it has become apparent that with the reduced budget and attempt to stretch those dollars over a longer period of time, the message is not reaching the targeted audience frequently enough to have an effect. OR, potential Website visitors are not able to find the Website!

During the annual meeting we asked members to Google search a water well related issue to see which Websites show up on the first page. Guess what, The Wisconsin Water Well Association did not show up! This is a problem. The WWWA is a resource, not only to its members but also to home owners in the entire state, and during an organic search using key terms that relate to what these potential customers, your potential customers, are searching for they are not able to get to the WWWA. And they are not able to get to the directory page to find you!

One Possible Solution: I presented an SEO option, or Search Engine Optimization opportunity for an annual cost of \$14,400. This would update the Website on the back-end to become more searchable and hopefully help WWWA show up on the first page of those keyword searches.

However, the Website was built in 2012 and it really hasn't been touched since. Rick Peterson, WWWA Board President, proposed we look at rebuilding the Website completely. Giving it an overhaul if you will. The Board has tasked the Media Committee to develop an RFP (request for proposal) outlining the needs and wants for a new site, and through that RFP, and while doing that, allowed me to continue research on recommendations and a cost projection for a new Website from my digital team. Executive Director, Jennifer Rzepka, will work with the Media Committee in the coming months on this project. If affordable, there is potential to do both a new Website as well as the SEO option.

I look forward to continuing to work with the Board of Directors on this project and hope to stay involved in the Association in the next year to assist with marketing and advertising. ♦

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Quarter Page Advertisement

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Advertising Graphic Requirements:

All ads must be submitted electronically via email. WWWW Well Log is designed on a Macintosh platform. Accepted software: print quality PDF files (preferred), Adobe Illustrator, Photoshop, and InDesign. Fonts and linked graphics must be included with electronic files. Minimum 300 dpi on graphics and photos. Ads not supplied properly may incur additional charges. Ads not sized properly will be scaled proportionately to fit.

Please contact our office for more information: info@wisconsinwaterwell.com

Ad Sizes	Vertical (W x H)	Horizontal (W x H)
Trim Size	8 1/2" x 11"	
Full page (float)	8" x 10 1/2"	N/A
Full page (bleed)*	8 1/2" x 11"	N/A
Half page	3 3/4" x 10"	8" x 4 3/4"
Third page	2 1/2" x 10"	8" x 3 1/2"
Quarter page	3 3/4" 4 3/4"	N/A

*Bleed Ads need to allow an additional 1/8" on all sides for trimming.

PROBLEM WELL WATER. DO YOU TREAT OR DRILL?

By Water-Right, Inc.

Delivering quality water to the home is the intention of both water treatment experts and residential well drillers. How does a homeowner decide to call a well professional or a water treatment professional when they have issues with their water? Here are some tips for finding the answer.

Is water treatment the solution?

The following issues would require well work or in some cases a new well. While water treatment may seem like the easy fix, treating the following water conditions can be extremely difficult, expensive, and in some cases just not possible.

With the help of Mother Nature, well water typically comes out of the ground clear. When a new well is constructed and allowed to settle down after the construction process, a limited amount of suspended solids should be visible in the water. There could be small amounts of sand, sediment, ferric iron (red water), or turbidity. However, high amounts of these items could indicate a problem.

If a well has periods of discolored water (usually related to thaw events) this could be caused by surface water entering the well, and the well should be tested by a certified lab for coliform bacteria. It is always the goal to have wells produce water that is bacteria free. Every measure to obtain bacteria free water from the well should be taken before water treatment is considered.

Since water is a universal solvent, iron is not typically visually seen in well water because it is dissolved (ferrous iron). Although, if iron particles are visible in the water (ferric iron), it is because they have become oxidized. This is a sign that there could be a problem in the well, like a leak in the drop pipe or a short in the pump wiring that will need fixing.

When is water treatment the answer?

There is definitely a time and place to consider water treatment equipment in the home. The following water quality issues would describe a good fit for you and your customers.

As stated earlier, water is a solvent. Anything will dissolve in water, given enough time. So, there can be plenty of



contaminants in the water that is not because issues with the well. If the water coming from a well is clear and problems still occur it is an indication that treatment should be considered.

The most common water problem is hardness. Hard calcium and magnesium minerals are dissolved in the water. While they can not be seen, they can wreak havoc on plumbing and water using appliances. A home owner might complain of staining on laundry, clogged pipes, build up on fixtures, and hard water spots on dishes. These problems are usually treatable with a water softener.

Another common well water contaminant is iron. The smallest amount of iron can cause brown-orange staining on fixtures and staining on laundry.

Other problems that are often witnessed in well water are sulfur, which causes a rotten egg smell in the water, and low pH levels, causing blue green staining and pipe corrosion. Filters can be an ideal solution to rid the home of these complications.

These contaminants aren't necessary harmful to the human body but they can be a nuisance to the home owner. Giving the home owner the quality water they want is a goal that can be reached with the right treatment in place. It's important to get the water tested properly to narrow down the issue and apply the correct treatment. 💧

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Thank you to our 2017-2018 Members!

IN MEMORIAM



Zane Earl Poppell

ZANE EARL POPPELL

Zane Earl Poppell, 57 of Jesup died Thursday, November 22, 2018 of an apparent heart attack. The Wayne County native was a salesman with Cotey Chemicals and enjoyed working with customers around the country. Zane, the humorist was an outdoorsman who enjoyed motorcycling and cooking but his favorite pastime was time spent with his family and his dogs. He was predeceased by his parents, Earl and Marilyn Brannen Poppell; sister, Sheila East; aunts, Marell Aspinwall and Jimmie Szoke; uncles, Barney Lavergne and Jesse E. Brannen.

Survivors are his daughter, Casie (Carlos) Robles of Syracuse, NY; grandson, Hanley Robles; aunts and uncles, Patsy (James) Carter, Sandra (Gerald) Edenfield, both of Jesup, Betty Harris of Brunswick, Donnell (Pat) Brannen of Jesup; numerous cousins.

Funeral services were held Sunday, November 25, 2018 at Rinehart and Sons Chapel with Rev. Varney Aspinwall officiating. Interment is in the Pinecrest Memorial Cemetery. Active pallbearers were his cousins and friends. ♦



Zane Earl Poppell

JOHN C. HERR, JR

John C. Herr, Jr. of Herr Well Drilling was born on July 11, 1938 and passed away on Saturday, January 19, 2019. He was the beloved husband of 61 years to Marcia Herr.

John is survived by his sister, Joann (Larry) Slayton. He was the devoted father to Theresa (Gregory) Domres, Timothy Herr and Steve (Jean) Herr; loving grandfather to Adam Owsley, Derrick (Krista) Domres, Stephanie (Jason) Butler, Nicholas Herr, Nathan (Sara) Domres and Kendel Domres. He further is survived by numerous nieces, nephews, other relatives and friends.

He was preceded in death by his father, John C. Herr Sr.; mother, Lucille Herr; and brother, Richard Herr.

The funeral service was held at noon on Thursday, Jan. 24, at St. Mary's Episcopal Church, 36014 Sunset Drive, Dousman. A private burial took place at Summit Cemetery. ♦



*Providing & Protecting
Wisconsin's Groundwater*

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Milwaukee, WI 53214



WWWA CALENDAR OF EVENTS

MARCH 20, 2019

**Eau Claire Continuing Education
Metropolis Resort
5150 Fairview Drive
Eau Claire, WI 54701**

MARCH 21, 2019

**Stevens Point Continuing Education
Holiday Inn Hotel & Convention Center
1001 Amber Avenue
Stevens Point, WI 54482**

MAY 14, 2019

**WPWS Spring Golf Outing
Trapper's Turn Golf Club
Wisconsin Dells, WI**

MAY 14-15, 2019

**NGWA Forum on Managing
Groundwater and Surface Water as
a Single Resource: Merging Science
and Policies (#5043)
Salt Lake City, UT**

JUNE 3-5, 2019

**Field Methods: Groundwater Sampling
and Analysis (short course #226)
Westerville, OH**

NOVEMBER 7, 2019

**Rothschild Continuing Education
Central WI Convention + Expo Center
10101 Market Street
Rothschild, WI 54474**