

WISCONSIN WATER WELL

A PUBLICATION OF THE WISCONSIN WATER WELL ASSOCIATION

Spring 2018

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LETTER FROM THE PRESIDENT

By Rick Peterson, WWWA President

Greetings everyone,

With the promise of spring eventually arriving in Wisconsin we can look forward to what hopes to be a very busy time for all of us. I want to wish all of you a very prosperous spring and summer season, and also some time with family and friends to enjoy all that our wonderful state has to offer.



With another Continuing Education session in the books, and another one coming yet in the fall in the Minocqua area, I want to thank everyone that was involved in

providing a quality experience. We are very busy going through all of the evaluation forms that were turned in, which are much appreciated. As we gather the information and suggestions that you provided to us, our education committee is working hard to improve the content and the facilities as needed. We want to provide meaningful and relevant topics that will provide the education that you are looking for and that the DNR requires. It is not an easy task to try to cover all areas of interest to all people and have programs that the DNR will approve, but working closely with Liesa and Dorie, I am certain that we can provide topics of interest to the vast majority of attendees.

The Association is very involved in Code Committee work with the DNR evaluating Subchapter II of NR 812. Much progress has been made on key issues of the code. This is our chance to make known any issues we are having or methods that may be improved and to possibly eliminate some practices that may no longer be relevant. If anyone has any issues with that area of the code, please contact the Association office and they can put you in contact with a committee member to make your concerns known.

If you are not already a member of the Wisconsin Water Well Association, I urge you to consider becoming one. Among the many benefits of membership is a web presence for your businesses, advertising, continuing education discounts, group insurance opportunities and an avenue to promote professionalism within our industry. As we continue to grow our numbers, we will have a greater influence with the policy makers within our industry. Many voices united garner greater attention.

Please read through this entire issue of the Well Log, as a lot of time and effort has been put forth to provide a publication that is informative and of value to its readers. I hope you all enjoy.

Sincerely,

ick Petero

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

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WPWS REPORT: Elections and groundwater conference

By Jeff Beiriger, WPWS Executive Director

WPWS ELECTS DIRECTORS, OFFICERS FOR 2018

Congratulations to the following who were elected/reelected to a term as a Director of the WPWS at the association's Annual Meeting in January:

Ben Longenecker (JFL Marketing)

Tim Nelesen (Franklin Electric)

Ryan Venema (Wilmar Pumps)

Congratulations also go to the following who were elected/reelected Officers for 2018:

Rob Spence (Rundle-Spence) - President

Tim Nelesen (Franklin Electric) – Vice President

Wyatt Buttke (First Supply) – Secretary/ Treasurer

WPWS PARTICIPATES AT GROUNDWATER CONFERENCE

During the Annual Groundwater Conference in January, not only did the well and pump supplier industry participate individually, they also participated collectively. Continuing and building on a long partnership with the Wisconsin Water Well Association, WPWS member companies, under the WPWS banner, participated at the highest level of sponsorship for the conference.

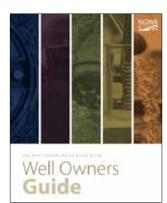


Smiling, happy winners of the WPWS drawings at the Groundwater Conference

More than that, WPWS had a booth in the exhibit hall and we were thrilled to have a steady stream of visitors to our booth on both Thursday and Friday. For those stopping by on Thursday, the WPWS had an event to encourage attendees to visit with member companies as a way of increasing the odds of winning one of three great prizes – a GoPro camera, an Xbox gaming system, or a high-end drone with a camera.

EXECUTIVE DIRECTOR MESSAGE: NGWA GUIDE & APP FOR WELL OWNERS

By Jennifer Rzepka, CAE, WWWA Executive Director



Many of our Wisconsin Water Well Association members also hold individual membership at the national level in the NGWA – the National Ground Water Association. Did you know that your state association, the WWWA, also holds membership as an Affiliate in the NGWA?

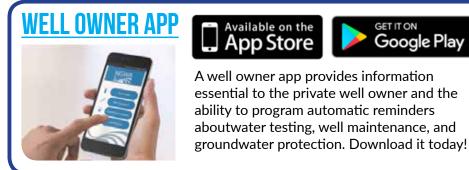
Affiliate in the NGWA? As a state, Wisconsin is a dues paying member of the NGWA, and through that Affiliated membership, is able to pass through an even higher level of membership benefits to you, the general membership of WWWA. In the next few issues of the Well Log, we'll be highlighting some of these issues.

One of those great benefits is on its way to your mailbox now – the Well Owner Guide. It's a tool you can share with your customers on how they can stay on top of water well maintenance, water testing, and groundwater protection. NGWA has also developed an app

that well owners can use to stay abreast of essential information about private wells and program automatic reminders about water testing, well maintenance, and groundwater protection. Search for Well Owner App in the App Store or Google Play.

gennifer Ryepka, CAE

Jennifer Rzepka, CAE Executive Director



ADVERTISE TODAY! WWWA WELL LOG ADVERTISEMENT PRICING

Full Page Advertisement

Entire Year	\$1300
Single Issue	\$47
Half Page Advertisement	
Entire Year	\$850
Single Issue	\$250
Ouartor Page Adverticement	

Quarter Page Advertisement

Entire Year	\$600
	\$175

Advertising Graphic Requirements:

All ads must be submitted electronically via email or on a CD. WWWA 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



LOBBYIST REPORT: WRAPPING UP; CHANGES CONTINUE IN DC; ELECTIONS LOOM

By Jeff Beiriger, WPWS Executive Director

As of this writing, the State Assembly has adjourned for the year, sort of....

Fully a month ahead of the Senate's scheduled adjournment, the State Assembly called it quits for the year. That meant that anything that hadn't passed the Assembly would be dead for the year and any legislation that had would need to be passed "as is" or also die for the session.

Among the issues remaining on the table are a child tax credit, a tax holiday for back-to-school purchases, a school safety package, and a relief package for Kimberly Clark. Each of these pieces of legislation are, in part, election year measures to give back to the taxpayers, address vulnerabilities on key issues, and to cater to key areas of the state in Statewide elections.

The Assembly has reported that they will hold a Special Session on a package of bills related to school safety, but a special session restricts what issues they can address, so they may not act on all of the remaining pieces of legislation.

With the session all but adjourned, it's worth looking back on a few key pieces of legislation....

High Capacity Wells: 2017 Act 10 allows for the replacement of existing high capacity wells and the transfer of high capacity wells without having to have the wells reviewed/approved by the DNR.

Annual Testing of Wells: This bill never had a chance given its entirely Democratic sponsorship list, but it's worth noting for future sessions. Under the bill, all private wells would be required to be tested annually.

Remediating Wells: 2017 Act 69 provides a means for local government assistance to remediate wells and also provides additional access to contaminated well grant funds. The driver here is to provide additional financial options for property owners, especially those in the Karst regions in the state and those particularly affected by CAFOs in those areas (Kewaunee County, for instance).

Well Owner Notifications: This bill failed to pass. It would require notification of well owners and counties of certain water pollution violations. Here, the bill was focused on run-off that was known to affect groundwater in an area and requiring notice so well owners could consider testing their water.

Mining: 2017 Act 134 deals with mining, but also includes a provision that allows groundwater withdrawals that are "reasonable" and that do not otherwise affect the quality of groundwater in the area of the mine.

Property Inspections: A bill that would modify real estate inspection requirements will not pass.

Religious Exemption: An amendment was added to a bill that passed recently that clarifies that a religious exemption from the residential building codes (which passed in 2015) does not apply to outside plumbing systems. The effect of this amendment is to better protect the groundwater.

LICENSING

As part of the Budget Bill, the DSPS will conduct a review of all licenses issued by that agency. The agency will report its findings to the legislature for further consideration in the 2019-2020 session. No further action would be required of the legislature unless the legislature agrees to draft a bill (or bills) to address DSPS recommendations. DNR licenses have not been discussed in any version of the proposals.

AT THE FEDERAL LEVEL...

Geothermal Tax Credits: After a nearly two-year battle, tax credits have been restored, retroactive to 2017. The credits will be 30 percent for 2017-2019, then drop to 26 percent in 2020 and 22 percent in 2021. A tax credit of 10 percent for commercial systems, along with accelerated depreciation provisions, was also extended.

Steel Tariffs: Federal tariffs on steel have caused quick increases in pricing for steel well casing. A letter to Wisconsin's U.S. Senators will be drafted along with a member bulletin to encourage them to contact their federal legislators and the President to explain the negative impact of the tariffs on the industry.

Joe Nilans, who had worked in Wisconsin on regulatory relief, is now working with the U.S. Small Business Administration and, specifically, rural economic development issues. Joe will be invited to a future Board meeting and may be a potential conference speaker. The rural economic development issue is one that the WWWA is interested in. Without wells, septic systems, and pumpers, rural economic development can't happen.

ELECTIONS....

Wisconsin will have a Supreme Court election in April and early on, things were looking solid for the Conservative

Lobbyist Report continued on next page

WWWA SPRING NEWSLETTER 2018 • WELL LOG



Lobbyist Report continued from previous page

candidate. Special elections both in-state and around the country, however, have Republicans concerned about the potential for a mid-term tidal wave similar to the one that brought them into power in 2010.

While Republicans and conservative judges have won just about all of the statewide elections in Wisconsin during this decade, the state hasn't really become more "red" necessarily. Wisconsin, for most of its history, has been a state very much in the middle, often splitting statewide elections in the same year between Democrats and Republicans.

Absent an ideological shift, what seems to matter most to Wisconsin voters are trends. The most important issue according to Wisconsin voters is the economy. That's been improving for several years now, and the more distant the upturn gets in the rear-view mirror, the more that other issues come into play. Mid-term elections generally work against the party that is in power, so Republicans would expect to lose a few seats come November of this year. The questions are, "How many?" and "Will Republicans still have majorities in both chambers and control the executive office too?"

The trend right now would seem to suggest that undecided and independent voters are torn between the actions of party in charge, the style of the President, and fatigue with the party in power. This is a familiar recipe for mid-term elections. If special elections are any indicator, Republicans should be concerned. For Democrats, their concerns will center on the quality of their candidates and staying on a unified message with just the right tone. If they have the message and the people to deliver it, they should have reasons to be optimistic. That, and solid turnout for election day could create the tidal wave they are hoping for.

OSHA SILICA STANDARD

OSHA began fully enforcing its silica standard in December 2017. According to OSHA, 2.3 million workers are exposed to silica, including approximately 2 million in the construction industry. The final rule governing exposure to crystalline states that for vehicle-mounted drilling rigs, no additional measures need to be taken when wet control methods are in use.

Full and proper implementation of wet controls on vehicle-mounted drilling rigs requires the employer to ensure that:

An adequate supply of water for dust suppression is used;

The spray nozzles are working properly and produce a pattern that applies water on the discharge point from the dust collector;

The spray nozzles are not clogged or damaged; and

All hoses and connections are intact.

Be aware that you may be engaging in other activities where silica exposure is a risk. The exemption for specific control methods relates only to vehicle-mounted rigs using wet controls and is not a "blanket" exemption for the well drilling industry.

For more information, see OSHA publication 3931: https://www.osha.gov/Publications/OSHA3931.pdf.

JOIN THE WISCONSIN WATER WELL ASSOCIATION

The WWWA, a trade association of well drillers, pump installers, manufacturers and suppliers, was established over 60 years ago. Our mission is simple: to provide and protect Wisconsin's most precious resource, groundwater. Our purpose is to increase the industry's knowledge and understanding of proper drilling, pump installation and well filling and sealing techniques.

Members have the opportunity to:

- Appear in the member listing on the website and newsletter
- Apply for exclusive WWWA scholarships for their children and grandchildren
- Advise and assist in the enactment and enforcement of equitable laws and regulations
- Encourage and promote research pertaining to the water well industry
- Cooperate and network with other organizations in related industries

Visit us at www.wisconswaterwell.com to renew online or download an application.

2018 CONFERENCE RECAP

By Lori Huntoon, WWWA Newsletter Editor

Over 500 attendees participated in the Wisconsin Groundwater Conference at the Kalahari Resort in the Wisconsin Dells in January, including Continuing Education registrants, exhibitor booth representatives, and guests.

AWARDS

The Honorary Member Award was presented to Dean Rickard in Memoriam; the award was received by his family.

A Lifetime Member Award was presented to Thor Aune at the 2018 Conference.







CHILDREN'S ACTIVITIES

A lot of emphasis was placed on the Children's Areas this year. The evening of the Scholarship Auction, the kids were invited to a movie screening of "FROZEN" along with a fun interactive snow globe activity. During the Trade Show. the Children's Area featured a bounce house, face painting, crafts, and visits by the Kalahari characters. The Adventures Club also provided a scavenger hunt for kids to participate in on their own during the Groundwater Conference.

ACTIVITIES

The WWWA Silent Auction, Live Auction and Scholarship Reception raised \$3,200 for scholarships! Thank you to everyone who brought an auction item, bid on items, and/or showed your support by attending the reception.



The **Bowling Fundraiser** proved to be a popular event again this year, and raised nearly \$400 for scholarships and the Uganda Well Project. We filled 20 lanes, most with 4 person teams – much thanks to the participants and sponsors!

During the **Thursday Reception** in the Exhibit Hall, all attendees were able to participate in the chance to win one of the **Door Prizes** provided by our exhibitors.

The Exhibit Hall featured a **Poker Run** this year – participants were encouraged to visit exhibitor booths in order to earn cards for a poker hand. The best hand won that corresponding door prize.



Conference Recap continued on next page

Conference Recap continued from previous page

Kalahari offered a **Spa Discount** to attendees and guests during the conference, and a **Kalahari Cooking Class** was offered (for an additional fee) for spouses on Thursday of the conference.

We encourage you to start making plans for next year's Groundwater Conference, January 9-11, 2019. Bring your family, your employees and their families too! We are already planning for more fun activities to keep everyone involved and ensure you have a great time while catching up with others in the industry and getting your continuing education credits.

SPONSORS

We greatly appreciate all of the support from our sponsors!

In particular, we thank the following:

- Diamond Sponsor Wisconsin Pump & Well Suppliers
- Platinum Sponsor Nolan Insurance Agency LLC
- Gold Sponsors Franklin Electric and Headwater Wholesale
- Silver Sponsor First Supply

Those sponsors who donated or sponsored beyond the booth rental include the following:

- Atlas Copco
- Burton-Anderson & Associates Inc.
- CSI Water Treatment
- Federated Insurance
- First Supply
- Franklin Electric
- Gefco, Inc.
- Headwater Wholesale
- Mudslayer Manufacturing
- Nolan Insurance Agency LLC
- Pentair
- Preferred Pump
- Rep Rite Burk
- Water Right/Clean Water Testing
- Wilmar Pump & Supply
- Wisconsin Pump & Well Supplies
- Xylem/Goulds Water Technology

The Exhibit Hall held over 40 Exhibitor booths. Two rigs were on display in the Exhibit Hall; we always appreciate having the big rigs in the hall, and thank Atlas Copco and Pulstar Manufacturing for bringing them.



CONGRATULATIONS TO THE 2018 SCHOLARSHIP RECIPIENTS!

The Edwin Huntoon Scholarship was awarded to Travis Van De Yacht. Travis is a high school senior who plans on attending Northern Michigan University and pursuing a degree in construction management. Travis said, "I would use this degree to one day take over my family's well drilling business. I feel this degree would be very beneficial



to me to be able to successfully run the business like my father and grandfather before me." Aside from several extracurricular activities, he also works part-time as a warehouse stocker and a drilling assistant at his family's well drilling business.

The **Owen Williams Scholarship** was awarded to **Carlee Jentges**. Carlee is working toward an Associate's Degree in Health and Wellness at Moraine Park in West Bend. She states, "I picked this future career choice because I want a career involving interacting with clients and being able to see the effect



I am making on their lives for the better. With this career selection, I will have numerous opportunities in the future. I am excited to see where the next year takes me in my future career in Health and Wellness."

WPWS SPRING GOLF OUTING

By Jeff Beiriger, WPWS Executive Director

Join the Wisconsin Pump & Well Suppliers Association for their annual Spring golf outing. Proceeds from this outing will benefit well projects throughout the world.

When: Tuesday May 8th, 2018

Where: Trapper's Turn Golf Club

Address: 2955 Wisconsin Dells Parkway, WI Dells, WI 53965

Phone: 608-253-7000

REGISTRATION

\$115.00 Golf, Lunch, Reception, Prizes

\$ 90.00 Golf/Lunch Only

\$35.00 Reception Only

Registration deadline is May 1.

Sponsorships/Prize Donations Welcome

Well drillers, pump installers, suppliers, and other industry partners and friends are welcome!

Collared shirts and non-metal spikes are required.



SCHEDULE

10:00 a.m 11:15 a.m.	WPWS Board Meeting	
11:15 a.m 12:15 p.m.	Registration/ Box Lunch Driving Range	
12:15 p.m	Shotgun Start – Scramble Format On-Course Beverages (2) Flag Events	
5:00 p.m	Reception/Heavy Appetizers (<i>Cash Bar</i>) Prizes/Raffles 50/50 Coin Flip	
To learn more about participating in or sponsoring this event, contact:		

Jerry Ellis 414-640-6930 jellis@rundle-spence.com

Jeff Beiriger 414-331-2059 jeff@assocmgmtservices.com

WATER WALK FUNDRAISER IN YOUR AREA!

Know Someone Looking for a Service Project? Do You Work With a School or Community Group? Looking for a Way to Help People? Want to Raise Awareness of the Value of Water, Our Industry and Your Business?

If you answered yes to one or more of these questions, we've got an idea for you!

The Wisconsin Water Well Association and Wisconsin Pump & Well Suppliers have put together a guide for conducting a "Water Walk" in your area. What's a Water Walk, you ask? It's pretty much exactly like it sounds, but we'll tell you just a bit more.

A club or organization accepts pledges and commits to walking 1.5 to 2 miles with two or more empty gallon containers. The containers are then filled at a turnaround point, and the participants walk back to where they began. The idea is to simulate the reality of collecting water for people everywhere in the world. The pledges are pooled together and the funds go to support the construction of a well in a community in need.

So far, we've worked to build three wells and a fourth will likely be constructed this year. With the help of other groups around the state, we could raise thousands of dollars even as we raise awareness about the value of clean, safe, reliable water. "Think big, but start small," we say. Host a walk in your area and who knows, someday, this could be something that is happening the same day, all around the State!

It starts with you, but we're here to help! To find out more about holding a Water Walk in your area contact Jeff Beiriger at 888/782-6815 x1, or jeff@assocmgmtservices.com. You can also visit www.wisconsinwaterwell.com for more information.

Right now is a great time to plan a Water Walk for this Spring, or plant the seed for a Water Walk this Fall!

HELPING TO BRING WATER TO WISCONSIN AND TO THE WORLD

By Jeff Beiriger, WPWS Executive Director

The Wisconsin Water Well Association would like to thank everyone who donated to the Uganda Well Project during the Wisconsin Groundwater Conference Fundraiser. If you were unable to attend the conference but still wish to donate, please contact our office at 855-947-9837 or visit us at www.wisconsinwaterwell.com. Proceeds from the WPWS Spring Golf Outing will also go towards the Uganda Well Project.

Our industry has delivered water - in a safe and cost-effective way - to homes, farms and businesses across the state. Our codes, our licenses, our inspections, our products, our training/education, and our people - people like you - are the reasons for our success. But things aren't quite the same in the rest of the world....

According to the World Health Organization, 1.1 billion people worldwide lack access to clean water—about one person in six. As a result, 4,900 people die *each day* - ninety percent of which are children under age five - because of a lack of water or water lacking in quality.

We have now made three well grants and hope to make a fourth possible this year. Your support for this outing will help us to say "YES!" to another community in need.

To see how we are making a difference, we'll continue to provide project updates, photos, and stories about how our project is changing lives. Closer to home, we are sharing the news about our good work, bringing awareness not only to a worldwide water problem, but to the good work that is being done by our industry.

We may be fortunate to live where we do, but there's more than just luck involved with clean water. The story of clean water in Wisconsin includes all of you.... •









A CONTINUING COMMITMENT

Headwater Wholesale is your trusted water industry distributor committed to providing Wisconsin contractors with the highest quality products and service.



headwaterwholesale.com

A Headwater Company





SCHOLARSHIP APPLICATION

Wisconsin's Groundwater

EDWIN HUNTOON SCHOLARSHIP

Edwin W. Huntoon (1917-2011)

Ed Huntoon served the WWWA 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 guarries, 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.

EDWIN HUNTOON ELIGIBILITY

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

APPLICATION PROCEDURES

Applications should be submitted to the Association by November 1. 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 WWWA will notify the scholarship winners prior to January 1, 2019 by email.

Awards are presented at the Annual Wisconsin Ground Water 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 WWWA office

OWEN WILLIAMS SCHOLARSHIP

Owen W. Williams (1922-2014)

Owen Williams served the WWWA 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."

OWEN WILLIAMS ELIGIBILITY

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

MANUFACTURERS SPOTLIGHT

MUDSLAYER MANUFACTURING

The WWWA sincerely appreciates the support of Mudslayer Manufacturing. Mudslayer Manufacturing purchased two booths at the Wisconsin Groundwater Conference. Through their bowling lane sponsorship, they helped contribute to the WWWA Scholarship Fund and Uganda Well Project.

Mudslayer Manufacturing designs and manufactures portable mud management (shale shaking) machines for water well drilling companies. MudSlayers are Portable mud cleaning machines, recycling and environmental protection systems. Their portable mud systems provide the ultimate in cost effective portable mud management and solids management systems.

> The Mudslayer Portable Mud System: built by a well driller for well drillers, saving their backs and their bottom line.

The Mudslayer Portable Mud Shaker System was designed by Jim LaPorte, professional water well driller in California for 30



years. Jim realized he needed a reliable mud system that did not require an enormous amount of training and extensive technical education to operate. Simple, affordable and dependable, it has the power to move the mud, remove the solids and make your well drilling more productive, which saves you time money and stress, and maximizes safety and productivity.

> Mudslayer Manufacturing Jim LaPorte Sequim, Washington 360-477-0251

For more information: https://www.mudslayermfg.com/

SUPPLIERS SPOTLIGHT

HEADWATER WHOLESALE

The WWWA sincerely appreciates the support of Headwater Wholesale - a Gold Sponsor of the 2018 Wisconsin Groundwater Conference.

Headwater Wholesale (formerly 2MDSI), is a distributor to the groundwater industry originally formed by a joint venture between 2M and DSI to better serve the Central region of the United States. A collection of leading groundwater distributors, they are committed to serving contractors with unparalleled service and support. This collective and vested group ensures a focused groundwater distribution organization that delivers quality products and leading brands to the industry, providing contractors with the availability and service they demand to meet their application challenges.



Headwater Wholesale Brian Schramm Madison, WI 608-772-0429

For more information: http://headwaterco.com/contact/

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THE BARABOO RANGES: PART TWO -How were the baraboo ranges formed?

By Tom Riewe

The story of how these ranges were formed involves a set of geologic processes that operated over thousands of millennia. It includes mountain building events (*orogeny*); formation of continental crust; mountain erosion; formation of sedimentary bedrock layers by sub-oceanic deposition; bedrock metamorphism; and continental plate tectonics. In sequence by time, starting with the oldest, the following narratives offer a short summary of this long and complicated story.

The Rise of the Penokean Mountains

Beginning about 1,890 million years ago and lasting for roughly 50 million years, a series of major mountain-building events, known as the Penokean Orogeny, occurred in what is now Wisconsin. These events created a major mountain range that spanned west to east across northern Wisconsin and adjacent states and Canadian Provinces. (Figure 1.) In its time this range may have rivaled some of the Rocky Mountain ranges of today, in both size and complexity. But these Penokean Mountains have long since been eroded away to a nearly flat plain, a feature that geologists call a peneplain. Only the low-relief domal structure of northern Wisconsin - which embodies the contorted roots of this extinct range - remains today. (Figure 2.) With its shearedoff jumbled mass of crystalline bedrock, it now bears witness to the existence of these once majestic mountains. (Figure 3.)

The Creation of a stable continental platform in Central Wisconsin

About ninety million years following the end of the Penokean Orogeny - about 1,750 million years ago - another set of geologic events created a thick crustal platform in what is now central Wisconsin. Over millions of years massive volumes of molten rock (magma) moved up from deep within the earth's interior and then either cooled slowly below the ground surface to form huge bodies of granite (called *batholiths*), or got blasted out of volcanoes, primarily in the form of ash and debris. The volcanic sediments built up and solidified to form thick layers of bedrock called *rhyolite*. The rhyolite layers either filled the spaces between the granitic batholiths or got thrust up on top of them forming 'caps' called roof pendants. The resulting granite and rhyolite complex became an extensive stable continental platform that covered much of central Wisconsin. (Figure 4.)

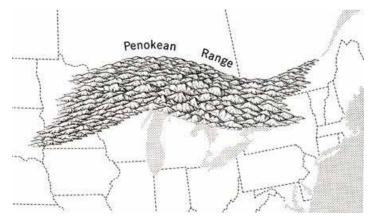


Figure 1. The ancient Penokean Mountain Range. (From the Michigan State University Department of Geography web site; original source unknown.)

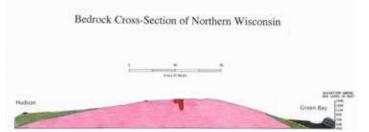


Figure 2. An west to east cross-section of the bedrock dome of northern Wisconsin. (Wisconsin Geological & Natural History Survey)

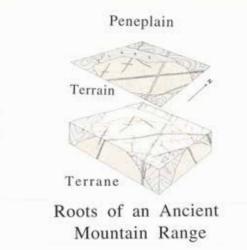


Figure 3. The jumbled and contorted crystalline bedrock types of the northern Wisconsin peneplain; the remnant roots of the Penokean Mountains. (Note that, in geological terms, a 'terrain' is a two-dimensional surface area, while a 'terrane' is a three-dimensional block of the earth's crust.) (After Hamblin and Howard, 1971)

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These events occurred during a time period that came to be known as the *Red Granite Interval*. The northern edge of this platform butted up against the southern edge of the rapidly eroding Penokean Mountains and, from there, sloped gently southward extending at least as far as Wisconsin's present border with Illinois.

The Deposition of an Extensive Sandstone Layer

During and following this Red Granite Interval a shallow ocean inundated much of this granite-rhyolite platform. Over millions of years rivers and streams flowed southward out of the Penokean Mountains and deposited their sediment at the bottom of this sea. Layers of sand built up on the continental platform, one upon another. Eventually, as the weight and pressure of overlying layers increased, the deeper sediments compressed and solidified into layers of sandstone. During this period of deposition, chemical weathering and deep leaching processes occurred within the sandstone until it became a very *mature* sedimentary bedrock, composed almost entirely of silica with small amounts of iron oxide which helped cement the rock. When the ocean finally receded, thick layers of this sandstone were left behind, covering much of the upper Midwest, including Wisconsin and southern Minnesota, extending as far west as northwestern lowa and southeastern South Dakota.

Metamorphism and the Creation of the Baraboo Syncline

Millions of years following the deposition and consolidation of this sandstone, structural processes in the earth's crust gradually but powerfully squeezed the layers of sandstone together. This was likely caused either by the collision of a micro-continent that moved up from the south, some 1,630 million years ago, or - according to more recent evidence - by the upward intrusion of the granitic Wolf River Batholith some 1,450 million years ago, into the area that today is part of Waupaca, Marathon, Portage, Shawano and Oconto Counties. (Figure 5.) The thrusting and compression caused by either or both of these events subjected the sandstone to enormous heat and pressure, causing the grains of sand within the rock to completely recrystallize. These metamorphic processes changed the original sandstone so completely it eventually became layers of pure crystalline quartzite, a much harder and denser bedrock. Here and there within the vertical strata sequence, especially where soft shaley interbedded layers were present, this bedrock was slowly deformed into complex folds and faults. Once the layers of quartzite cooled having been recrystallized and metamorphosed – they retained their folds, rigidly solidified in place.

In the Baraboo area these quartzite layers were left behind, folded into the shape of a long trough, today oriented east to west. Geologists refer to this structure as the *Baraboo Syncline*. (Figure 6.) Since the two limbs of these ranges are pinched shut on both ends, the syncline appears – as viewed from above – like an open canoe, partially

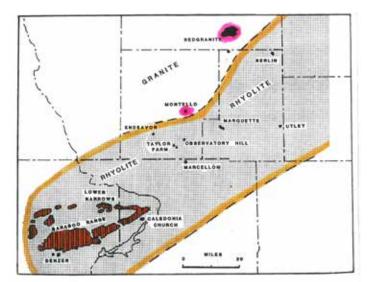


Figure 4. The segment of the granite-rhyolite continental platform in the region northeast of the Baraboo Ranges. (After E. Smith, 1978)

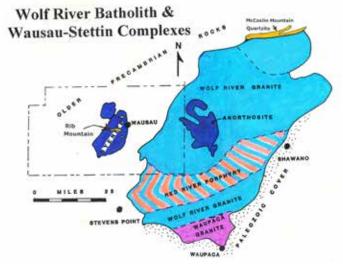


Figure 5. The Wolf River Batholith of northeastern Wisconsin. Note the Baraboo-type quartzite of Rib Mountain and McCaslin Mountain, shown in yellow. (After LaBerge, 1994)

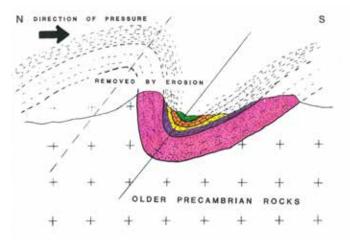


Figure 6. A cross-section of the Baraboo Syncline, illustrating a possible previously eroded fold segment in the Baraboo Quartzite. (From LaBerge, 1994)

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tipped on its side. The beds of the south limb dip northward at a gentle angle of 30 degrees and, within a mile, disappear below the present ground surface, plunging deeper as they go. For ten miles the beds descend, bottoming out below the present city of Baraboo, some 4,000 feet below the surface. At their most northerly and maximum depth the beds jut abruptly upward and rise back above the ground surface just northeast of the city proper to reveal the vertically-oriented beds of the north limb of the Baraboo Ranges. (Figure 7.)

Why These Ranges Remain In Their Present Form

For millions of years after this bedrock was metamorphosed and deformed, the guartzite layers remained above sea level, exposed to the relentless processes of differential erosion. By the end of the long Precambrian age - some 523 million years before the present - most of the geographical extent of this bedrock was eroded away, having disappeared from the vast majority of the Midwestern landscape. That is, except for a few isolated monadnock remnants like Rib Mountain and the Barron Hills in northern Wisconsin, McCaslin & Thunder Mountain in northeastern Wisconsin, Powers Bluff, Necedah and Hamilton (Seven Sisters) Mounds in central Wisconsin, the Baraboo Ranges and Waterloo Quartzite in southern Wisconsin and the Sioux Quartzite in southwestern Minnesota and southeastern South Dakota. Some of these remnants remain intact in places where the quartzite layers became warped and contorted or where they ended up as roof pendants. (Figure 8.)

During the subsequent Cambrian Period, the ocean once again encroached upon the granite-rhyolite platform. Throughout this 38 million-year time span the Baraboo Ranges - with their folded limbs doggedly resistant to erosion - survived with significant relief and stood boldly, as islands, above the ocean surface. In the area surrounding these islands - and throughout most of Wisconsin - sand was again deposited at the bottom of the ocean. Over the course of many more millions of years, layer upon layer got built up on the continental platform. These deposits eventually formed another thick sequence of sandstones, but of this much younger, Cambrian Period (the time span from 523 to 485 million years ago). Today these horizontally-lying Cambrian layers completely surround the Baraboo Ranges. Up out of the mantle of these tan sandstone strata the purple quartzite ridges protrude, like jewels in a crown.

The structure of these ranges and the hardness of their quartzite layers have allowed this geologic anomaly to remain intact, having survived for more than 1,500 million years. The contorted structure of these ranges ensures they will also last for a long time into the future.

The Baraboo Ranges and the Geologists Who Studied Them

Made up almost entirely of silica (73%) and alumina (19%), Baraboo Quartzite is one of the most chemically pure

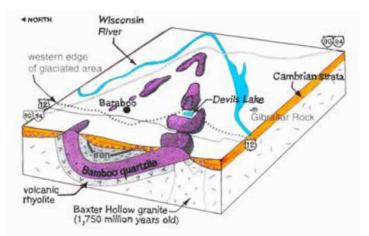


Figure 7. A block diagram of the Baraboo Ranges with the Baraboo Quartzite shown in purple. (After Dott, Jr. and Dalziel, 2013)

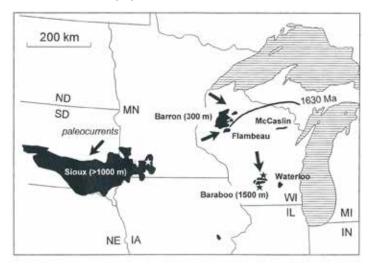


Figure 8. Location of Baraboo type quartzites in northern United States. (from Medaris and Dott, Jr., 2001)

bedrocks in the United States. Virtually no other minerals are present in the matrix of this rock except for a small portion of hematite (4%), an iron compound that gives the rock its trademark deep purple-red hue. Feldspar, a common rock mineral present in many other crystalline types of bedrock (especially in granites), is almost entirely absent in this quartzite. (Photo)

In the late 19th and early 20th centuries, University of Wisconsin geologists – including T. C. Chamberlain, Wisconsin's first State Geologist, Charles Van Hise, subsequent president of the University, Charles Leith, Samuel Weidman and others – mapped these ranges and determined their basic rock type and structural configuration.

In the 1960s the late Robert Dott, Jr., former Professor of Geosciences at the University of Wisconsin and Ian Dalziel (also then at UW-Madison) studied these ranges and further established their specific age, depositional history and metamorphic alteration. More recent work by one of Dott's colleagues, Professor Emeritus L. Gordon Medaris, Jr., has supported and further enhanced Dott and

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The purple-red Baraboo Quartzite along the West Bluff Trail overlooking Devils Lake. (Photo by author)

Dalziel's interpretations and more clearly established the depositional history of these ranges. The processes that created these unique ridges operated between 1,750 and 1,450 million years ago – a time span of 300 million years – for which Professor Dott coined the phrase *The Baraboo Interval*.

Today *The Baraboo Interval* is used to describe bedrock formations of similar age and type even though this type of quartzite exists only in a very few and widely scattered locations throughout North America.

Next Issue: How geologists determined the structural configuration of the Baraboo Ranges.

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

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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March 5, 2018

MARKETING MATTERS: WHAT'S IN A WEBSITE?

by Tara Schessler, In Time Creative

Here we are; another Newsletter and a new edition of Marketing Matters. First, let me start by saying it was a pleasure meeting so many of you at the Wisconsin Groundwater Convention in Wisconsin Dells this January. I was the lady dealing out the Poker hands. Please don't hold my dealer skills against me if you didn't win!

Our first order of business this month is this: the Wisconsin Water Well Association Board and the Annual Meeting attending members approved the 2018 Wisconsin Statewide TV Advertising Campaign. If you'd like a copy of this proposal, feel free to contact the WWWA office and they will send you a copy. Beginning April 17, 2018 the WWWA TV commercials will begin airing in each market during the morning news.

You will notice that the "call to action," or overall message of the WWWA TV commercials instructs viewers to go to <u>www.WisconsinWaterWell.com</u> to find a water well professional in their area. Go to the Website. So, what's in a Website? Do you have one? Is it working for you.... Or could it possibly be hurting your business?

Your company's Website is your digital storefront. If you don't have one, or Google can't find it, well, you appear to be "not in business" and the user moves on to your competitor. If you do have a Website and the user cannot easily find what they need, they are less likely to return or

Welcome to the

engage with your business, products and/or services.

Three things you should know about Websites: 1) They do not

need to cost you a fortune; 2) Simple is better; 3) Searchability is key.

1. They don't need to cost you a fortune - A simple onepage Website with pertinent information can cost as little as \$500. A basic 'About Us' page with pictures or even video, along with a 'Click to Call', 'Click to Map', and a 'Contact Us' section with a lead generation field is all it takes for a user to engage. Also, it needs to be responsive, which means, your Website should show up sized correctly for whichever device someone is using.

About us: Keep this area very short and sweet. Don't write a novel on the history, touch on the most important points: Family owned, knowledge of industry, why do business with us! The basic Who, What, When, Where, Why fact giving. Pictures on this page provide familiarity and trust. And if you have any kind of video for testimonials or educational information, put it on your Website and link it to YouTube.

Click to Call: With a fully responsive Website, the 'Click to Call' button is key. If a user is on their cell phone and they want to call a business, they look for this feature and with

one click they know they'll get answers they're looking for.

Click to Map: Google isn't perfect, and sometimes users find businesses that are really nowhere near them. This can be frustrating. However with the 'Click to Map' function, they can quickly find where you are located and know that you are a reputable business with the physical storefront in their area.

Contact Us (Lead Generator): This is the area on the page that allows a user to fill out a simple form; name, phone number

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REPAIR AND MAINTENANCE FOR HOMEOWNERS FOR MEMBERS NEWS & EVENTS FIND A CONTRACTOR CONTACT US

WISCONSIN WATER WELL ASSOCIATION

Protecting Wisconsin's Groundwater



Marketing Matters continued from previous page

or e-mail address and an area to write about what they are looking for. This form will go straight to an e-mail inbox of whoever is responsible for customer service. Response to these inquiries should happen just as quickly as a returned phone message. This field can be gold for your business. Those who are not able to call during the day are more likely to do research at night while your phones may not be answered.

2. K.I.S.S. - Keep it simple stupid, ever heard of this? Too many words, and you're wasting your time. Nobody reads anymore. And if you have a multipage Website versus the one page, don't try and fill it up with all the various things or products you offer. Start with what you do well, what the bread and butter of your company is. If you're able to dive deeper, a Web developer should be able to provide you with a list of keywords that users are searching for that pertains to your business. The top 50 keywords should be used within your sight so Google can find you when users are looking for these items in their searches.

3. Search-ability – Your Website needs to be found. Ever heard of these buzzwords? Search Engine Optimization or SEO, Google Ad Words, Targeted Digital Advertising, Google My Business. All of these things can be very useful in helping users to find your digital storefront, A.K.A. your Website. The most important is Google My Business. Register with Google so you are found on Google.

However, the very first thing you need is a good domain name. Your domain name, the <u>www._____.com</u> should reflect your business name. It should be easy to spell, and if it's not, buy the domain names for the variations of spellings that people frequently use to find you. You can't go wrong with too many domains. Large companies, such as hospitals, even buy domain names for their slogans or taglines; example: YourHeartCareCenter.com. Then you point that domain name directly to your main site. These are details your Web developer should know how to accomplish.

Second, you will want to be sure to feature images and tag them with the keywords people search. You are the expert in new construction drilling; feature images of new construction home sites with water well drilling in action. Label it as such so that when a search engine crawls your Website for the keywords: new home construction, water well, well drilling, etc. your Website pops up on the first page.

The bottom line is this; don't let your nephew's best buddy from college build your Website, unless there is a reputable business behind said college buddy. Website developers are here today and gone tomorrow. Without the hosting power, administration and knowledge of how to build an efficient and effective Website, you may as well be donating to the Web developer's bank account. Don't get lost in the details, but be sure you do your homework. Don't be oversold on things you don't need.

Thank you for reading once again. My next topic is To Be Determined. Feel free to email me at <u>tschessler@waow.com</u> with some marketing topics you're curious about and I'll do my best to address them in the next edition. Until then! •

Sincerely, Tara Schessler

IN MEMORIAM:

DEAN E. RICKARD

Dean E. Rickard, age 61, of Linden, died on Wednesday, December 6, 2017 at St. Mary's Hospital in Madison following a brief illness.

Dean was born on March 30, 1956 in Dodgeville to Robert and Kathleen (Bennett) Rickard. Following high school at Iowa-Grant, Dean joined his father, Bob at Rickard Well Drilling. Dean married Wendy Zimmerman on June 14, 1974. In 1978, Dean purchased equipment from his father and started Dean Rickard Well Drilling. He sold the company to Sam's Well Drilling in 1998 and worked for them until his death. In his spare time, Dean enjoyed building models of Well Drilling Rigs and collecting Toy Construction Equipment. His greatest joy was time spent with family and friends, especially summers by the swimming pool. He was preceded in death by his parents; two brothers, Richard and Jeffrey and his in-laws, Paul and Naomia Zimmerman.

Dean is survived by his wife, Wendy of Linden; two children, Jason (Rejona) of Linden and Kimberly Geisking and her fiancé Rob Kosharek of Linden; three grandchildren, Tyler (Allison Gundlach) Geisking and Callie and Carter Rickard; two sisters-in-law, Suanne (Larry) Didion and Paula (Will) Rule; two brothers-in-law, Kevin (Colleen) Zimmerman and Randy Zimmerman; two nephews, Chris (Dana) Rickard and Matt Rickard as well as many friends.



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James Shepard Martens Plumbing & Heating, Inc. Mukwonago, WI

Todd Sinz T.L. Sinz Plumbing, Inc. Menomonie, WI

Steven Slager Central Well Drlg & Pump Service Inc. Brandon, WI

Allen Smith Bloyer Well & Pump, Inc. Rockford, IL

Christopher Smith Bloyer Well & Pump, Inc. South Beloit, IL

Jeffrey Solofra JS Services Burlington, WI

Steven Solofra Solofra Plumbing Burlington, WI

WWWA SPRING NEWSLETTER 2018 • WELL LOG

WWWA MEMBER LISTING (CONTINUED)

Randy Soper Mike's Plbg, Htg & Elec Inc. Pulcifer, WI

Timmy Soper Gillett, WI

Jeffrey Speth Judd Pumps & Plumbing LLC Montfort, WI

Eric Stahl Grundfos Rochester, MN

Brian Stangret

Midwest Elevator & Drilling Waconia, MN

Michael Steffl Steffl Drilling & Pump Inc. Willmar, MN Todd Sticha NDS Drilling Supply Company Inc. Elko New Market, MN

Steven Styczynski Kramer Well Service Inc. Weyerhaeuser, WI

William Suckow Suckow Well Drilling Menomonie, WI

Kenneth Sweeney

Ken Sweeney Well Drilling & Pumps Franklin, WI

Steven Tesmer Eckmayer Inc. Waterloo, WI

Jeffrey Thron Mantyla Well Drilling, Inc. Lakeland, MN Richard Thron Mantyla Well Drilling, Inc. Lakeland, MN John Treutel Stratford Plumbing & Heating Straford, WI

Jim Valentine Rep Rite Burk Hilbert, WI

Thomas Van De Hei Water Right/Clean Water Testing, LLC Appleton, WI

Eric Van De Yacht Leo Van De Pump Installing Green Bay, WI

Tom Van De Yacht Ground Source Inc. De Pere, WI Troy Van De Yacht Leo Van De Yacht Well Drilling Green Bay, WI

Ralph Volkman Ralph's Water Conditioning LLC Black Creek, WI

Brian Vukodinovich Aqua Well & Pump Systems Inc North Prairie,WI

Trisha Vukodinovich Aqua Well & Pump Systems Inc North Prairie, WI

Vern Wagner Wagner Plumbing Wautoma, WI

Bruce Walker Wisconsin Well & Water Systems LLC Grand Marsh, WI Bradley Webster Brad Webster & Sons Drilling Inc. Poynette, WI

David Werner Werner Pump Service Jefferson, WI

Jerome Wojkiewicz Aqua Service Rice Lake, WI

David Woyak 4-D Water Well And Pump Service LLC Hartland, WI

Lloyd Wurzer Cahoy Pump Service Sumner, IA

Raymond Young Jr. Chicken Young's Well Drilling Gillett, WI



January 9-11, 2019 Kalahari Resort and Convention Center Wisconsin Dells, WI



Providing & Protecting Wisconsin's Groundwater

6737 W. Washington St. Suite #4210 Milwaukee, WI 53214



MAY 10, 2018

Small Water System Business Opportunities (NGWA webinar #874) 12-1 p.m. ET

MAY 16, 2018

Adding Water Treatment to Your Toolbox (NGWA online brown bag session) 12-12:30 p.m. ET

MAY 23, 2018

Application of Affinity Laws to Groundwater Pumps (NGWA online brown bag session) 11-11:30 *a.m.* ET

SEPTEMBER 25-26, 2018

Groundwater and Weather Extremes: Dealing with Floods, Droughts, and Stormwater Management (NGWA workshop #358) San Antonio, Texas

OCTOBER 2-3, 2018

Groundwater and Agriculture: Meeting the Demands While Protecting Resources (NGWA workshop #172) *Cedar Rapids, Iowa*

OCTOBER 25, 2018

Minocqua Continuing Education The Waters of Minocqua 8116 Hwy 51 South Minocqua, WI 54548 Last 2018 WWWA

Education

Session

DECEMBER 3-6, 2018

2018 NGWA Groundwater Week Las Vegas, Nevada

JANUARY 9-11, 2019

2019 Wisconsin Groundwater Conference Kalahari Resorts & Conventions Wisconsin Dells, WI