



NGWASM

The Groundwater
Association



2017 ANNUAL REPORT

"It's been an honor"



As I retire at the end of 2017 after 39 years with the groundwater industry, I say thank you as your participation and your commitment humble me. I hope you feel as proud as I do.

Members have a prerogative to expect their association to improve—to offer new and better programs and efforts. Supporters, perhaps like you, propelled the National Ground Water Association's efforts forward over those years. Your steadfast dedication every step of the way to our combined good works has been critical in the challenge to serve public health and safety, protect groundwater, and to advance our industry's professionalism.

Socrates has been credited with telling us the way to gain a good reputation is to endeavor to be what you desire to appear. That counsel can be achieved by personal growth, as well as organizational growth.

Thus, together we have been able to achieve considerable progress, despite the sector tempering with changing markets and other factors, including NGWA's own largely successful efforts to not only remediate contaminated groundwater, but to help prevent contamination from occurring. Today, groundwater is better protected for future generations to thrive upon, and thus for future generations of our industry's professions to prosper.

Today, NGWA does what it does so our members can trust:

- The responsible use and protection of groundwater is being continually advocated
- All groundwater professionals can understand and leverage their roles and responsibilities in an increasingly global marketplace
- The industry and profession are moving forward and will be well positioned to meet the needs of our rapidly changing world.

More specifically, NGWA membership ensures you:

- Will be able to find excellent products and services you need to enhance your business
- Are working in the best possible conditions
- Have been introduced to, are familiar with, and have the option of utilizing the best possible skills and practices.


We have strived together to deliver on the value proposition in which members invest:

"As the leading advocate for the groundwater professions, NGWA serves you, the professional who provides, protects, manages, and remediates groundwater, and those who contribute toward those outcomes. NGWA conveniently and promptly delivers a broad and extensive range of resources to help you succeed through relationships, leading-edge and emerging practices, and credible sources of innovative ideas and solutions."

We strived to operate NGWA in the interests of the many rather than the few; to treat every customer with respect; to invest your resources prudently; and we relentlessly focused on the NGWA mission of advancing groundwater knowledge.

Throughout the 39 years we've worked together—perhaps sometimes in ways we were not always conscious of—to protect public health and safety, our groundwater supplies, and the professions that have made our families secure.

Thirty-nine years. They've each been an honor.



Organizational change encompasses embedded tensions and paradoxes, such as revitalization vs. normalization, globalization vs. simplification, innovation vs. regulation, optimization vs. rationalization, and digitization vs. humanization.

The National Ground Water Association is no different and recognizes these tensions.

Accountability and investing in new organizational capabilities, as well as continuous learning, are essential tools that cannot be ignored in change leadership.

Members should be assured the Association is addressing, in their interests, every aspect of change leadership.

For instance, when news broke in mid-July that Google X spin-off Dandelion was investing in ground source heat pump technology, starting in upstate New York, the Association immediately took advantage of its relationship with Dandelion consultant Bob Wyman, who had been working on this project for several years.

“There are about 100 million homes and buildings in the United States alone that are heated by burning fossil fuels,” Wyman told NGWA. “We’re going to try and see how rapidly and how efficiently we can get those buildings converted to cleaner, cheaper, combustion-free heat pumps. We’ve got lots of work to do and much of that work will rely on the drillers that you help represent.”

“Members should be assured the Association is addressing, in their interest, every aspect of change leadership.”

Dandelion aims to make geothermal heating and cooling systems more accessible and affordable. In a statement about the company’s launch, Dandelion chief Kathy Hannun said they started the project because they “knew if installing a geothermal heat pump was a simpler and more affordable process... homeowners would have access to a better product that’s also better for the climate.”

Dandelion officials explained their concepts to NGWA, and NGWA told Dandelion the Association is prepared to assist while representing the interests of groundwater and of our membership. NGWA member Cary Smith was also on the Google X team.

“When political administrations change, so do relationships established by the Association.”

ADVOCACY

When political administrations change, so do relationships established by the Association. NGWA's Washington team has been building new relationships, as well as building upon existing contacts.

The Association met with key personnel of the Environmental Protection Agency, the Department of Interior, the Department of Agriculture, and the Federal Emergency Management Agency early on in the new administration. For example, with EPA officials NGWA emphasized the value of more dedicated funding for infrastructure in rural areas, greater emphasis on source water protection, streamlining of brownfields cleanups, and consulting with not-for-profits like NGWA and its members to provide expertise.

In conjunction with the swearing-in of the 115th Congress, NGWA staff attended several “meet-and-greet” events for new members of Congress, allowing an early introduction of NGWA and its policy priorities. Shortly after the Trump administration came into office, NGWA submitted a letter to the Trump transition team outlining the priorities for his administration as judged by groundwater professionals.

The groundwater professions are fortunate to have NGWA serve on EPA's National Drinking Water Advisory Council, where NGWA can provide input on the national drinking water program, emerging contaminants, harmful algal blooms, and development of health advisories. Additionally, the Association serves as the executive secretary to the federal Advisory Committee on Water Information, which oversees development of the National Ground-Water Monitoring Network, among other activities.

Building effective coalitions is a fundamental tool of effective government affairs activities. NGWA takes active roles in several. For instance, the Association collaborated with the Geopolitics Working Group on geoscience policy issues, with NGWA taking the lead on water-related policy priorities. NGWA cosponsored a congressional briefing with other geoscience organizations focused on the ways geoscience is the foundation for developing and maintaining infrastructure. More than 65 attendees from congressional offices, federal agencies, and other stakeholder groups took part in the briefing.

The Rebuild Rural Coalition, of which NGWA is part, engages with the Trump administration and Capitol Hill to ensure rural priorities are heard in the development of a large-scale infrastructure package. The U.S. Geological Survey Coalition works with Congress to ensure continued support and funding



NGWA delegation at the 2017 NGWA Fly-In.

for programs at the survey and honors members of Congress each year at an annual congressional reception.

This year NGWA also began participating in the Family Business Coalition, a group centered on tax reform and promoting policy changes that lessen tax burdens for small family-owned businesses.

NGWA participates with a coalition to restore the ground source heat pump investment tax credit by way of H.R. 1090, the Technologies for Energy Security Act. Representative Tom Reed (R-New York), the bill's lead sponsor, received NGWA's first Industry Champion Award.

The Association has been instrumental in building, with our organizational counterparts, the House Earth and Space Science Caucus, cochaired by Representatives Ryan Costello (R-Pennsylvania) and Jared Polis (D-Colorado), which hosts educational events on Capitol Hill throughout the year on various geoscience topics to raise awareness within Congress.

With the National Academy of Sciences, Engineering, and Medicine, NGWA advocates for periodic “listening sessions” with other water organizations. NGWA also took the lead on discussing coalition building and collaboration with the Water Quality Association, the National On-Site Wastewater Recycling

Association, the Association of American State Geologists, and others, with particular emphasis on infrastructure legislation.

NGWA sponsored a congressional briefing on brackish groundwater and moderated a panel of state and local government officials. The briefing was attended by congressional staff, federal agency officials, and third-party stakeholders.

While effective staff presence matters in government affairs, so does grassroots involvement from NGWA members. As organizations and individuals advocated for sound science in the federal government, NGWA used this as an opportunity to gather our resources to create a grassroots engagement toolkit. NGWA shared the toolkit with members so they can use those resources in a variety of ways. NGWA's Legislative Action Center also grew in 2017, providing NGWA members with a simple and effective way to conduct grassroots engagement on legislation with their congressional delegations in just a few clicks. A successful congressional Fly-In brought NGWA members together with their colleagues from the Irrigation Association, as well as the Water Quality Association, the first joint political efforts among these three groups. A similar partnership is planned in 2018.

Following the lead of the Water Systems Council, NGWA was able to assist in the adoption by Congress of the Water Supply Cost Savings Act. NGWA efforts included promotion during NGWA Fly-Ins; presentations at Groundwater Week; stakeholder briefing participation; meeting with congressional staff; a grassroots action alert to members, allowing them to quickly and easily send letters to Congress in support; participation in an American Society of Civil Engineers' coalition effort in support of passing WRDA legislation that held the Savings Act within; presented Chairman Bob Gibbs the 2016 Groundwater Protector Award for his leadership role on the Transportation and Infrastructure Committee's Subcommittee on Water Resources; provided regular updates on the status of WRDA legislation/Savings Act in NGWA's *Washington Update* and other NGWA publications; and provided data on water well system needs for community water systems serving 3,300 or fewer persons.

Renewed enthusiasm for the NGWA-PAC led to support for several congressional and Senate candidates committed to promoting the groundwater professions.

2018 Water Resources Congressional Summit and 2018 NGWA Groundwater Fly-In

March 6-7 • Washington, D.C.

Join your fellow industry professionals from NGWA, the Irrigation Association, and the Water Quality Association to once again raise awareness and promote the importance of water resources to the policy- and decision-makers on Capitol Hill.

As a groundwater professional, your expertise makes you well-qualified to educate your congressional representatives on the issues that matter to you and your business.

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



“NGWA exists to advance groundwater knowledge, and significant milestones delivered on that mission in 2017.”

LEARNING AND KNOWLEDGE

NGWA exists to advance groundwater knowledge, and significant milestones delivered on that mission in 2017.

An effort that began in October 2016 culminated one year later with the publication of NGWA's poly- and perfluoroalkyl substances (PFAS) guidance document. Some 36 volunteers collaborated to prepare the expansive document for the benefit of fellow groundwater professionals and others dealing with this troublesome contaminant.

The Groundwater Modeling Advisory Panel of more than 60 volunteers focused on five significant aspects of groundwater modeling to provide practical guidance. Five white papers describing current thinking in the modeling community have been prepared. The Association's perspective is there is not another forum like this for modelers working in a competitive environment to exchange views and interests. The American Water Works Association has asked to collaborate with NGWA on a new AWWA manual addressing groundwater management tools. AWWA is interested in submissions addressing modeling case studies because of the expertise of the Groundwater Modeling Advisory Panel.

The Ground Source Heat Pump Advisory Panel worked on a proposed NGWA document commenting on so-called “direct exchange” systems, and examined grouting practices related to loop wells.

As education is a critical tool in advancing groundwater knowledge, the expanding library of “brown bag” online presentations remains freely available to members. NGWA's first online certificate program, Safe Practice in the Groundwater Industry, also became available in 2017.

Specialized workshops and conferences highlighted NGWA's 2017 education programming. Featured were the: Groundwater Quality and Unconventional Oil and Gas Development workshop; Hydrogeophysics and Deep Groundwater Conference colocated with the Environmental and Engineering Geophysical Society annual meeting; Groundwater Solutions: Innovating to Address Emerging Issues symposium; 2017 NGWA Conference on Fractured Rock and Groundwater; After the Drought virtual conference; and Stormwater Management Influences on Groundwater workshop. A joint NGWA/Society of Exploration Geophysicists committee continues exploring possible collaboration opportunities between the two associations, and exploratory talks have been held with AWWA for a 2018 well symposium.

The American National Standards Institute withdrew ANS status of the *ANSI/NGWA-01-14 Water Well Construction Standard* due to what it judged to be shortcomings in NGWA's compliance with core due process requirements previously approved by ANSI. As a consequence, the Association is reevaluating its standard development process requirements, although the standard itself stays intact.

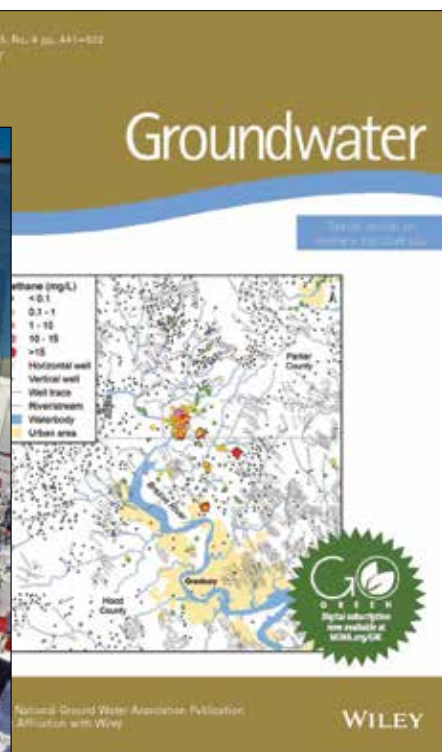
The International Ground Source Heat Pump Association board adopted amendments to the group's grouting standard section, to which NGWA had provided input.

The Association was accepted for membership on the Geothermal Piping Task Group of the International Association of Plumbing and Mechanical Officials.

NGWA opened a dialogue with the American Society of Agricultural and Biological Engineers on collaborating on a best practice document related to using cisterns and other nonwell storage systems, for safe drinking water supplies. Work is underway on three new NGWA best suggested practices documents: *Designing, Operating, and Maintaining Adjunct Groundwater Storage for Drinking Water Purposes*; *Reducing Problematic Concentrations of Radium in Residential Water Well Systems*; and *Water Well Disinfection*.

Authors submitting research to *Groundwater*® and *Groundwater Monitoring & Remediation*® enjoy the option of submitting graphical abstracts, a visual summary of the findings of peer-reviewed articles. Meanwhile, a digital version of *Water Well Journal*® is delivered to thousands of readers each month and is now linked to a revamped *Water Well Journal* website. Along with a link to the digital issue, the site now has separate sections where users can download complete HTML versions of the publication's feature stories and columns. The articles are also housed in an area under eight industry topic headings: business management; drilling; geothermal technology; groundwater quality; pumps and water systems; rules and regulations; safety; and well rehabilitation. The homepage of the website features industry news and links to the publication's social media outlets, as well as rapid-to-market classified advertising.

The 2016 impact factors for both *Groundwater* and *Groundwater Monitoring & Remediation* have increased from the previous year. The 2016 impact factor for *Groundwater* was 2.067, while in 2015 its impact factor was 1.947. The 2016 impact factor for *Groundwater Monitoring & Remediation* was 1.550, while the 2015 impact factor was 0.848.



The number of *Groundwater* papers downloaded increased in 2016 to 132,391, a significant 12 percent increase from 2015. *Groundwater Monitoring & Remediation* saw 27,482 papers downloaded last year, up from 25,377.

Wiley began offering *Groundwater* and *Groundwater Monitoring & Remediation* apps for Android devices in 2016 to go along with apps for iPhone and iPad products. Wiley reported there was a total of 1,538 papers downloaded from the *Groundwater* app in 2016 as well as 621 papers downloaded from the *Groundwater Monitoring & Remediation* app.

The NGWA Press book, *Operational Stage of the Well: Evaluating the Forms of Water Well Deterioration and Developing Correction Actions*, published last year, is now also available in an e-book format, the Association's first.

The NGWA Board endorsed a three-tier hierarchy of NGWA documents and clarified the role of the board in approving public dissemination of standards, best suggested practices, amicus briefs, white papers, and position papers.

The migration to a new scheduling and testing platform by NGWA's Voluntary Certification Program exam computer testing vendor is complete. This new platform allows North American candidates to schedule testing appointments online — and it provides access to a greater number of test center locations.

NGWA customized training for the Indian Health Service differed from earlier programming for the group, as in 2017 it focused on writing and communicating well construction project specifications, in addition to reviewing proposals and providing project oversight.

"Recognition has grown in the public health community of the importance of effective communication to private well owners."

PUBLIC AWARENESS

Recognition has grown in the public health community of the importance of effective communication to private well owners. Fortunately, the Association has long appreciated this need and has an equally long and respected track record in these efforts. Although the Association concluded its contracts focused on the stewardship roles of private water well system owners for the Centers for Disease Control and Prevention, NGWA's efforts continued throughout 2017, with plans to do more in 2018 and beyond.

Some of the "best and the brightest" doctoral students in the sciences gathered in Washington, D.C., to discuss and hear about water well safety from experts, including NGWA. The 20 students were part of the Emerging Leaders in Science and Society program sponsored by the American Association for the Advancement of Science. The forum concluded the group's year-long exploration of the topic, "Drinking Water in the U.S.: Improving Well Water Safety." The forum considered improving water safety for both public and private wells, and there was considerable interest in the challenges and barriers to private well owners protecting their water quality.

NGWA provided valuable insights to these questions and more as a result of its experience in helping well owners and its research for the CDC on the effectiveness of well owner outreach programs.

A presentation for the 17th National Conference and Global Forum on Science Policy and the Environment: Integrating Environment and Health promoted research NGWA did for the CDC on the effectiveness of public outreach in motivating private well owners to protect their water quality. NGWA's was the only presentation focused on the integration of the environment and health as it pertains to the private well owner. A number of other presentations found that often positive public health results are stymied by an inability to persuade consumers to take certain actions. The same messages were delivered at the National Health Outreach Conference.

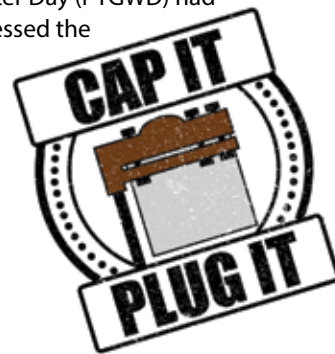
NGWA representatives presented at the spring 2017 Private Well Conference sponsored by the University of Illinois/Illinois Water Survey and the Rural Community Assistance Partnership. About 100 attendees from across the country gathered to discuss initiatives to help private well owners be better stewards of their water well systems and groundwater.

Each week, the Association receives dozens of consumer calls about water well systems. These calls cover a range of topics, such as: need a well for the first time; water taste/safety concerns (such as worried about arsenic, radon, microbiological); water testing; water treatment/conditioning; need well serviced/replaced; pump system is not operating; water table has declined to below pump setting/well depth; and more. As a result, we have strengthened our internal structures for responding to consumer queries about residential water well systems by providing additional staff with researched responses. NGWA has updated its consumer information website, WellOwner.org, with a frequently asked questions section to help well owners.

When Media Planet decided to do a special supplement for *USA Today* on "Water and Sustainability," it turned to NGWA for a perspective on groundwater.

A guest editorial by NGWA Director of Science and Technology William "Bill" M. Alley, Ph.D., on the need for better groundwater data to adequately evaluate hydraulic fracturing practices on groundwater was picked up by several news outlets and he was interviewed on brackish groundwater for *Municipal Water Leader* magazine.

This year's Protect Your Groundwater Day (PYGWD) had the theme "Cap It, Plug It!" that stressed the importance of well cap integrity and proper plugging of abandoned wells. During PYGWD, well owners were encouraged to inspect their well caps, look for abandoned wells, and then seek the help of a water well system professional to fix any problems. A video was featured in the campaign.



Another successful National Groundwater Awareness Week concluded with hundreds of organizations actively promoting public awareness of groundwater nationwide. Joining the cause were federal agencies, major cities, counties, local organizations, and, of course, groundwater professionals.

Does your future lie beneath the Earth's surface?

- ▶ Scientists
- ▶ Engineers
- ▶ Regulators
- ▶ Operators
- ▶ And more

Learn about careers in the groundwater industry at NGWA.org/STEM

NGWA

Ad from *STEM Today* and *Sustainability Today*

Groundwater and Drinking Water

Introduction

Safe and reliable drinking water is essential for economic vitality and public health. Nearly every activity at some level in a community requires water for proper function—from homes, schools, and municipal services to commercial, industrial, and agricultural processes of production and waste treatment. The use of groundwater as a safe source of water supply has enabled communities to exist in locations without access to streams, lakes, or reservoirs. With increased population and economic activities that generate pollution, communities must be more vigilant in protecting their drinking water sources.

Although groundwater is generally considered to be “cleaner” than surface water because it is not directly exposed to surface contaminants, groundwater does accumulate anthropogenic and naturally occurring substances from its surroundings that, if left untreated, could be harmful to human health. The consequences of untreated water use can be seen worldwide, as tens of millions of people suffer from water-related diseases,¹ with more than 800 children per day dying from water and sanitation related diseases.² In the United States, however, drinking water is considered to be among the safest supplies in the world due to drinking water management and regulation, contaminant mitigation, and treatment.

Sources of Drinking Water

Groundwater systems provide nearly half of the world's drinking water,³ which is delivered to populations via private and public water systems. In the United States, drinking water is available through both public and private water supply systems, with 86% of the population receiving water from public utilities.⁴ Groundwater constitutes 37% of water used in public systems, equating to nearly 16 billion gallons of groundwater withdrawn and consumed per day. About 13.1 million households in the U.S. use an estimated 5.3 billion gallons of groundwater per day pumped from individual household wells⁵ for their drinking water supply. Even areas that primarily rely on surface water for their water supply are still using discharged groundwater to an extent, as groundwater supplies about half of streamflow in the U.S.⁶

NGWA

2/28/2017

NGWA INFORMATION BRIEF

NGWA's 10th information brief, *Groundwater and Drinking Water*.

NGWA signed an agreement with RFD-TV to promote groundwater resources, WellOwner.org, and to cover Groundwater Week during the dates of November 27 through December 16. RFD-TV has an average viewership of more than 12.5 million viewers per week, and the spots are anticipated to be seen by 500,000-plus viewers.

NGWA also signed an agreement to place content in *STEM Today* and *Sustainability Today*. NGWA ran an ad in *STEM Today* focused on careers in the groundwater industry, as well as an ad and a story on groundwater sustainability in *Sustainability Today*. In addition, NGWA ran two sets of digital ads on these

subjects on their respective websites. *Sustainability Today* and *STEM Today* each have a distribution of 150,000 digital subscribers through affiliate distribution. The estimated audience will be more than 1 million readers.

Our 10th information brief, *Groundwater and Drinking Water*, became available. Because a Congressional Research Service report on the water/energy nexus in the United States seemed to miss the energy use by well systems, the Association prepared a new backgrounder on the use of energy in U.S. groundwater supply.

"People interested in groundwater issues want NGWA to provide them with opportunities to learn and become better at their work."

COMMUNITY

People interested in groundwater issues want NGWA to provide them with opportunities to learn and become better at their work. They want the Association to foster opportunities to come together and share knowledge around science, technology, and policymaking. Community staff helps make that happen, as endorsed by Alyson McDonald, Ph.D., GEI Consultants, who shares: "NGWA is great! NGWA provides a great mix of technical and scientific content. NGWA is my favorite organization and I am glad to [be] part of it!"

In 2016, NGWA benefited from 160 completed volunteer applications, a nearly 500 percent increase from the previous year. About 5 percent of our members volunteer in multiple volunteer roles such as board members, reviewers, editors, advisory panel participants, Fly-In registrants, and more.

NGWA strives to show appreciation to all of its volunteers. In addition to an email/video thank you during April's volunteer week, they were also thanked with a featured image slider on the front page of NGWA.org, a news story about them, and posts on social media. We also provide certificates and lapel pins in appreciation and for recognition.

Sometimes, members wish to volunteer outside of NGWA, and the Association helps to facilitate their service. We now work with NEPRIS, for example, an online service connecting professionals of all types (contractors, scientists, engineers, manufacturers) with K-12 teachers to expand STEM education lessons with real-

world personnel. NGWA shared with our academic members an opportunity to participate as reviewers for teaching materials developed by the NSF-funded Interdisciplinary Teaching about Earth for a Sustainable Future (InTeGrate) project, which is operated by the Science Education Resource Center (SERC) at Carleton College.

As an underscore to our commitment to volunteers as the drivers behind NGWA, we have blended our Volunteer Candidates School and our long-lived Director Candidates School into a single umbrella titled the NGWA Leadership Development Academy, which was offered for the first time at 2017 Groundwater Week.

In yet another effort to engage with members, over four days, nine associations, including NGWA and their selected emerging leaders of their professions, were treated to informative and thought-provoking sessions at the 2017 Emerging Leaders program, made possible by a grant from Roscoe Moss Co. The several 75-minute education sessions included topics that dealt with becoming an indispensable leader through grasping and honing your skills, and then contributing them to real-world work and life situations. Topics that were covered included dealing with global and virtual team leadership, global diversity, performance management, and emotional intelligence. With more than 25 hours of lecture, discussion, and exercises, the participants and their associations' liaisons were still allotted time for questions and personal reflection. Roscoe Moss has agreed to sponsor tuitions again in 2018.

CHIP NELSON JR.
Midwest Sales Manager
GEFCO
Enid, Oklahoma

THE BEST ADVICE I EVER GOT?
If a customer asks you a question and you don't know the answer, tell him you don't know but will get him an answer. Then make sure you reply to the question in a timely manner. Don't make something up just to answer the question.

ON MY DESK RIGHT NOW?
The *Water Well Journal* of course, and two new books to read while I'm traveling to state and regional shows.

WHEN I WANT TO UNWIND . . .
I head out to the farm. There are always chores to do as well as some hunting and fishing. It's a great place to unwind with the family.

MOST IMPORTANT CHALLENGE FACING GROUNDWATER PROFESSIONALS?
Employee recruitment. Quality people are hard to find.

FAVORITE RECENT INNOVATION IN DRILLING TECHNOLOGY?
I like all new innovations! I like anything that makes the back of a rig a safer and less labor intense area to work.

MOST COMMON QUESTION I HEAR FROM CONTRACTORS . . .
Do you know where I can find a good driller? Once again, it's employee recruitment.

IMPORTANT TIP FOR SOMEONE IN THE MARKET FOR A NEW RIG?
There are a lot of things to look into before purchasing a new rig, so take your time and get all of your questions answered before making a decision. Don't base your decision on price alone and make a list of what is most important to you and your company. Take time to visit the factory or a drill operating on location. Look at service after the sale and the financing options offered.

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GARY BARTHOLOMEW
Owner
Bartholomew Pump Service
Spokane, Washington

THE WATER QUALITY QUESTIONS I HEAR MOST FROM CUSTOMERS ARE . . .
What is the smell and how do I remedy it?

BEING EFFECTIVE IN WATER TREATMENT MEANS . . .
Providing top-of-the-line equipment for a specific problem that remains functional for many years.

THE BIGGEST ISSUE I SEE DRILLING RELIEF WELLS OVERSEAS IS . . .
The few who are wealthy controlling the millions who are destitute.

THE BEST ADVICE I EVER GOT?
Treat others the way I'd wish to be treated in the same circumstances.

ON MY DESK RIGHT NOW?
Inquiries and questions from volunteers eager to help access safe water for Guatemalan villages.

WHEN I WANT TO UNWIND . . .
A weekend day off away from the phone and "business." Time with the grandkids, tending the garden and orchard.

MOST IMPORTANT CHALLENGE FACING GROUNDWATER PROFESSIONALS?
Groundwater legislation that is state-wide rather than area specific.

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ERIC NEUBECKER, MGWC, CVCLD
Vice President
Raymer Co. Inc.
Marne, Michigan

THE BEST ADVICE I EVER GOT?
Don't cut the price to get a job; consider every one as a profit center.

ON MY DESK RIGHT NOW?
A couple of estimates to complete and a subcontractor management plan to submit dealing with regulatory compliance.

WHEN I WANT TO UNWIND . . .
In my spare time I enjoy working on vintage motorcycles and spending time with my family.

MOST IMPORTANT CHALLENGE FACING GROUNDWATER PROFESSIONALS?
Convincing young people to choose this profession as a career.

KEYS TO AN EFFICIENT WATER SYSTEM
Design each individual system to fit the application; do not use a "one-size-fits-all" approach.

THE MOST OVERLOOKED THING WHEN PLANNING A GEOTHERMAL SYSTEM
For open loop systems, it's water quality and water disposal issues. For closed loop systems, it's space for the loop field.

FAVORITE SELLING POINT OF A GEOTHERMAL SYSTEM
The energy savings and green aspect of the system.

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NGWA also recognizes those who have made outstanding contributions to the advancement of the professions represented by NGWA. In 2017, NGWA nearly doubled the number of award honorees made in 2016. Community staff has been working multiple approaches to increase nominations, although we continue to strive for increases in several categories, such as project awards.

Although we would prefer to interact with our members in person, we fully embrace social media. NGWA social media continues to grow by double digits year-over-year. As a milestone, in May 2017, NGWA achieved more than 10,000 followers on LinkedIn. We successfully linked Facebook and our member database to allow users to log in to NGWA using their Facebook account. NGWA's Facebook "likes" grew 31 percent year to year in January 2017 compared to January 2016; Twitter followers grew 15 percent; and LinkedIn members grew by 20 percent. YouTube views of NGWA content grew by 24 percent. Unique visitors to NGWA.org grew three percent. Open rates for recent issues of the *NGWA Toolkit* newsletter were 29 percent, while for *Washington Update* 26 percent on average.

It can be a challenge for a national association to have a local presence for all of its members, but when NGWA can gather members, it hosts free, informal networking events for current and prospective NGWA members in conjunction with NGWA events. For instance, a meetup of new/early career groundwater professionals was convened in Nashville during Groundwater Week.

When we can, we forward links to professional papers to members with special interest in the topic. We recently received this note: "Thanks for sending the link to this paper," wrote Brad Gamble, of Ranney Collector Wells. "This is timely."

We are working to systematically identify existing content from NGWA publications that can be turned into standalone success guides for members. Possibilities include repurposing articles from our periodicals, or content from brochures, such as *How to Keep Your Water Well System Safe*. For instance, two *Groundwater* journal papers focusing on coliform bacteria in domestic wells in New Jersey were recapped in the December 2017 *Water Well Journal*.

A four-page summary on public groundwater supply was distributed at no fee to all NGWA members who have shared an interest in public water supply, or have indicated they work in that sector.

With a widely diverse membership from many professions, NGWA provides different forms of communications. Each quarter, NGWA provides state and provincial regulatory officials the opportunity to listen to a free, interactive online briefing of topics related to their work. In the third quarter of 2017, the briefing was replaced with a virtual conference on creating, operating, and maintaining a digital database of well records. Agency personnel from three states and one from British Columbia were presenters.

For our Affiliate Organization leaders, the Association provides a similar series of free briefings or seminars.

DUSTIN KINDER
Safety and Environmental Regulatory Advisory
EOG Resources Inc.
Fort Worth, Texas

THE BEST ADVICE I EVER GOT?
Live today like no one else so tomorrow you can live like no one else.

ON MY DESK RIGHT NOW?
Paper, pen, and paper weights.

WHEN I WANT TO UNWIND . . .
My home where I grew up (Livingston, Texas)—feeding cattle, and maybe writing a book in a nearby pond.

MOST IMPORTANT CHALLENGE FACING GROUNDWATER PROFESSIONALS?
Youth. Lack of youth in key decision roles up and down the industry sector.

SMART SAFETY FOR WATER WELL SYSTEM PROFESSIONALS MEANS . . .
Having smart safety for professionals begins in two places: a commitment to working safely and then applying it before you ever go to the field. Safety is not supposed to be constraining to production but a complement. Smart safety is balancing safety and production in a harmonious tone.

THE MOST COMMON SAFETY MISTAKE I SEE?
If I had to say a root cause that leads to most safety issues, I'd say not taking ownership for the safety of yourself and those around you. People, myself included, don't take the time to say something when you see something. A second one is not wearing PPE (personal protective equipment), our first line of defense when it comes to safety.

YOUR FAVORITE SAFETY RESOURCE?
I typically use two as a starting-off point on any particular issue: the first is the Texas Department of Insurance's website, which has a good dashboard to start a search. If it is specific to our industry, I go to the safety resources page on the NGWA website at www.ngwa.org.

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ROGER RENNER, MGWC, NGWAF
President
E. H. Renner & Sons Inc.
Elk River, Minnesota

THE BEST ADVICE I EVER GOT?
I bought a girlfriend home I had been dating for some time and my dad, Thomas S. Renner, advised me to marry her. We have been married for 38 years and she is still my bride.

ON MY DESK RIGHT NOW?
The usual stuff: Phone, calculator, candy dish of chocolate, in-banker, electric stapler, and cell phone. The unusual stuff: Dog bones for my 2-year-old black lab, Rose.

WHEN I WANT TO UNWIND . . .
By moving the lawn. Yup, that 22.5 hp John Deere, course control, zero radius turn, grass vac, a baseball bat, sunglasses, cigar, and home. I don't leave the phone ring for two hours.

MOST IMPORTANT CHALLENGE FACING GROUNDWATER PROFESSIONALS?
There are several challenges to our profession: groundwater promotion and protection, groundwater conservation, accelerated technical changes to how we operate our rigs, and industry regulatory agencies.

FAVORITE MEMORY OF THE 2000 CONVENTION WHEN I BECAME NGWA PRESIDENT
Standing up at the podium with my father who was president of the then-National Water Well Association back in 1958 for a photo shoot. A proud moment for my dad.

BIGGEST CHANGE BETWEEN THE FIRST NATIONAL CONVENTION ATTENDED IN 1978 AND NOW . . .
The logistics of what NGWA does for its members during the show is different now—multiple venues of classes, a packed showroom floor with training on the floor, technical offerings. There is a large number of staff needed to make an event this size come off smoothly.

TIP FOR A FIRST-TIME ATTENDEE AT GROUNDWATER WEEK?
Seek what you can bring home to make you more money, become more successful than your competition, and provide you with a reputation that will make you stand out. Most important is that peer-to-peer information you get nowhere else.

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KEVIN MCGINNIS
President
Cortey Chemical Corp.
Lubbock, Texas

EFFECTIVE WELL REHABILITATION MEANS . . .
Using the proper energy and tools to remove the degraded material.

THE MOST IMPORTANT STEP IN GOOD REHABILITATION?
Understanding and defining the problem.

YOUR FAVORITE RESOURCES FOR WELL REHABILITATION?
The people who are working in the field—learning, innovating, and rehabilitating every day. They include Neil Marney, Jim Bailey, and Marvin Gidley, P.E. I've learned more from these men than from any other resource available and view their friendship as a gift.

THE BEST ADVICE I EVER GOT?
The best advice I've received is to "Love the Lord your God with all your heart, with all your soul, and with all your mind." I know this is cheating since it is a famous Bible verse, but it is still the best advice for me.

ON MY DESK RIGHT NOW?
A picture of my family, my Bible, and notes for a workshop I'm planning for the American Ground Water Trust. The AGWT is a nonprofit groundwater education organization I volunteer for.

WHEN I WANT TO UNWIND . . .
I play with my granddaughter or do just about anything outdoors such as hunting, fishing, golf, etc.

MOST IMPORTANT CHALLENGE FACING GROUNDWATER PROFESSIONALS?
Educating the consumer regarding the value and importance of groundwater.

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“The long-standing admonition among nonprofit organizations is that ‘There is no mission without money.’”

SOLUTIONS

The long-standing admonition among nonprofit organizations is that “There is no mission without money.” While the Association’s healthy financial position is reported in its own section of this report, we share here information that may not always show up in a financial statement.

Groundwater Week in 2016 enjoyed 26 first-time exhibitors at the trade exposition. The Association also enjoyed the opportunity to colocate with the Irrigation Association—a first for both groups—which opened a trade hall of nearly 600 exhibitors, and more than 9,000 registrants. The two groups will colocate again in 2020. Other groundwater industry-related associations are being encouraged to also explore colocation. The Irrigation Association and the Water Quality Association did colocate their congressional fly-in meetings in 2016.

The Association was unsuccessful in its bids to be selected as the management concern for three state associations in 2017, although NGWA continues to manage Michigan, Minnesota, and Montana, as well as the Pacific Northwest Ground Water Exposition.

Staff strives to be prudent stewards of the membership’s resources. For example, in 2017 NGWA participated in a City of Westerville incentive program to convert our building lighting to LED. We anticipate a payback period of just a few years from electricity savings.

A more immediate financial benefit to the bottom line came from switching staff health insurance providers which resulted in not only a 2 percent savings from the 2016 premium, but avoided a proposed 12 percent premium rate increase from the incumbent carrier.

FINANCIAL REPORT TO THE MEMBERSHIP

Rea & Associates, CPAs, conducted the 2016 audit and gave NGWA an unqualified opinion, indicating that NGWA’s financial statements fairly represented the organization’s financial position and were in accordance with generally accepted accounting principles. Assets totaled \$9.412 million, a 7.6 percent increase over 2015. Revenue totaled \$5.587 million, a 4.9 percent increase over 2015. Operating expenses were essentially flat at \$5.4 million. This resulted in a net operating income of \$148,411 vs. a 2015 net operating loss of \$65,158.

Some key revenue areas are showing improvement, most notably convention revenue (Groundwater Week), courses and conferences, and advertising. Convention revenue was up 8.2 percent with all categories showing increased revenue (registration, booth fees, and sponsorship). Course and conference revenue increased by nearly 25 percent, with higher numbers of attendees for both types of educational events. Short course registrants increased by 140 percent while conference attendance increased by 69 percent.

Membership revenue continues to be a challenge with total membership declining by 4.5 percent. Much of that decline is associated with the Scientists and Engineers Section, which continues to face a changing workforce that impacts the number of potential members within that section.

To protect against business disruptions and to fund strategic initiatives in support of NGWA’s mission, the Association held financial reserves of nearly \$6 million at year’s end. Investment performance resulted in a gain of more than \$309,000 in 2016. While positive investment returns are never guaranteed, NGWA’s investment portfolio is continually monitored to ensure that appropriate levels of safeguards and risks are in place to take full advantage of the market, and to meet the long-term needs of the organization.

Successful expense management resulted in rising 0.9 percent. Management is ever cognizant of balancing expenses without sacrificing member services.

Statement of Financial Position

(Year ended December 31, 2016.)

ASSETS	2016	2015
Cash and cash equivalents	\$3,131,889	\$2,192,591
Investments	4,925,101	5,247,013
Receivables, net	469,417	333,446
Prepaid expenses	162,580	184,113
Inventory, net	66,008	63,279
Deposits	6,364	6,364
Property and equipment, net	650,870	718,263
TOTAL ASSETS	\$9,412,229	\$8,745,069
LIABILITIES AND NET ASSETS		
LIABILITIES		
Accounts payable	\$314,360	\$393,297
Accrued expenses	273,608	125,982
Deferred revenue	1,394,360	1,264,156
Deferred income taxes	14,800	8,800
TOTAL LIABILITIES	\$1,997,128	\$1,792,235
NET ASSETS		
Unrestricted	\$6,434,162	\$6,031,506
Temporarily restricted	980,939	921,328
TOTAL LIABILITIES AND NET ASSETS	\$9,412,229	\$8,745,069

Statement of Activities

(Year ended December 31, 2016.)

REVENUE	2016	2015
Membership dues	\$1,422,549	\$1,548,221
Conventions and expositions	1,739,010	1,607,574
Course and conference registrations	447,426	358,102
Books and proceedings	40,692	51,946
Advertising and related income	1,167,992	1,119,109
Grant revenue	192,619	0
Royalties	197,297	215,156
Insurance fees	0	3,433
Miscellaneous income	218,649	317,986
Contributions	160,701	102,832
TOTAL REVENUE	\$5,586,935	\$5,324,359
EXPENSES		
Program and direct costs	\$4,846,429	\$4,667,562
Management and general	592,095	721,955
TOTAL EXPENSES	\$5,438,524	\$ 5,389,517
OPERATING INCOME (LOSS)	\$148,411	\$(65,158)
OTHER INCOME (EXPENSES)		
Net realized/unrealized gains on marketable securities	\$155,231	\$(313,859)
Interest income	153,372	107,474
Bad debt recovery on notes receivable	11,253	14,486
Income taxes	(6,000)	(10,000)
TOTAL OTHER INCOME	\$313,856	\$(201,899)
CHANGE IN NET ASSETS	\$462,267	\$(267,057)
Net assets, beginning of year	\$6,952,834	\$7,219,891
Net assets, end of year	\$7,415,101	\$6,952,834

"Recognizing the Association's global presence—more than 40 nations were represented at the 2016 Groundwater Week"

INTERNATIONAL

Recognizing the Association's global presence—more than 40 nations were represented at the 2016 Groundwater Week event in Las Vegas—multiple efforts are made to accommodate those members with a need to know more about international markets, as well as for those who benefit from interacting with their international colleagues.

Building on established ties with the U.S. State Department, NGWA was introduced by State to the National Geospatial-Intelligence Agency's global groundwater mapping program. State also sought NGWA's perspectives on comments on a new global nonrenewable groundwater study by researchers at the University College London and NASA's Goddard Institute of Space Studies.

One of 115 partners, NGWA was among the few professional societies and trade associations present at the fifth anniversary meeting at the State Department of the U.S. Water Partnership, which coincided with World Water Day events in Washington, D.C. The Association further assisted the partnership by providing input to its draft position papers.

NGWA participated more broadly in World Water Day by taking part in campaigns around the day's wastewater theme, creating a web page titled "Wastewater and groundwater," which detailed seven steps homeowners must take to ensure their septic system operates properly and protects groundwater. NGWA also participated in the day by having wastewater-related papers from our science journals be a part of an online themed collection.

Discussion of well construction and loop construction standards was the focus of an October meeting in Milan, Italy, of the European Groundwater Association, another organization NGWA assists.

The Association assisted at the International Energy Agency's ECES Annex 27: Quality Management in Design, Construction, and Operation of Borehole Systems meeting in November in Brussels, Belgium. This is an effort to create a standard on borehole heat exchangers — what NGWA defines as loop wells.

The Asociación Venezolana por el Agua and NGWA signed a memorandum of understanding and cooperation. The group is a national and diverse network of municipal and state environmental agencies, universities, private NGOs, public research centers, and others.

NGWA is a part of GRIPP, an international initiative related to groundwater sustainability, which welcomed the Federal

Institute for Geosciences and Natural Resources (BGR), Germany, British Geological Survey (BGS), United Kingdom, Global Environmental Facility (GEF), World Bank, and UNESCO-IHP as new collaborating partners.

Through NGWA Director of Science and Technology Dr. Bill Alley, NGWA contributed to the International Association of Hydrogeologists' brief on groundwater and the UN Sustainable Development goal to ensure access to water and sanitation for all. Alley also was on the United States/Mexico transboundary aquifers program at the 2017 Universities Council on Water Resources Annual Conference.

NGWA continued its participation in the UNESCO International Hydrologic Programme, attending meetings in Washington, D.C., to listen to activities and provide updates on the priorities of the Association.

In collaboration with our American Water Resources Association colleagues and those at International Groundwater Resource Assessment Centre, another NGWA MOU relationship, we collectively submitted ideas for groundwater sessions at the World Water Congress next year in Brazil.

NGWA will assist organizers of the International Union of Geological Sciences' Resources for the Future conference in Vancouver next year to develop and lead tracks on various groundwater topics.

Leadership met in 2017 with officials of AVANTI, our Swedish MOU partner, regarding making our voluntary certification program for water well system professionals available to our Swedish colleagues.

NGWA continued its international brown bag series throughout the past months. Members benefited from this exposure to market information on Chile, Denmark, and Venezuela. Future presentations will focus on Ireland, Israel, New Zealand, and Switzerland, as well as northern African and Balkan nations.

Staff participated in professional and trade missions to Argentina, Chile, and Colombia, which created new business connections for members.

NGWA's two Canadian provincial Affiliate Organizations—those serving British Columbia and Ontario—participated in NGWA governance for the first time. Manufacturer members express a desire to learn more about the Canadian market, so the Association identified provincial and territorial officials who may be able to assist our efforts to measure the Canadian water well market.

CEO SUCCESSION



Following a search that included postings for the NGWA chief executive officer position with NGWA, the American Society of Civil Engineers, the American Geophysical Union, the Geological Society of America, the American Society of Association Executives, Ohio and Michigan societies of association executives, and the Council of Engineering and Scientific Society Executives, some 53 applications were screened by the search task group and its outside facilitator. Eleven candidates were telephone interviewed, and six went through intense in-person second interviews, and three through another final in-person interview.

From this search, Terry Morse was selected as the incoming chief executive officer of NGWA. He is the successor to Kevin McCray, CAE, who, after 22 years as CEO and 35 years in the groundwater industry, is retiring December 31, 2017.

"Terry brings experience and skills necessary as NGWA moves forward in dealing with the ever-changing business climates of our membership, as well as the Association itself," said David Henrich, CWD/PI, CVCLD, the incoming board president and a member of the search task group.

Morse is an association management veteran with a strong background in sales and marketing. Most recently, Morse has been a regional vice president for sales and marketing at RT Specialty LLC. This followed several years with the Ohio Independent Insurance Association, as well as at the National Federation of Independent Business, and the Gibson Guitar Corp. where he led the national sales and marketing efforts while creating brand awareness and fundraising efforts for the Gibson Foundation.



Incoming NGWA CEO Terry Morse, his wife, Michelle, and their children, May 2017.



NATIONAL GROUND WATER ASSOCIATION

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