



Well Said

WINTER 2014-2015 • Newsletter of Arizona Water Well Association for our Members and Friends

AZWWA MEMBERSHIP QUARTERLY MEETING

Saturday, January 10, 2015

9am - 11:30am

at



6155 E. Indian School Rd #200
Scottsdale, AZ 85251

Presentation: 'How Water Well Contractors Become Invincible to
Lawsuits and Save Thousands in Taxes'

Speaker: Larry Oxenham with American Society for Asset Protection

REGISTRATION

Name: _____

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ Email: _____

_____ # attending

Fax registration to 480-609-3939 or mail to: 950 E. Baseline Rd. #104-1025, Tempe, AZ 85283 or
scan and email to admin@azwwa.org.

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**Contact Debbie Hanson Tripp to submit
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Flomatic Introduces Break-Off Plug for Submersible Valves



Flomatic Corporation introduces a new 1/2" break-off plug for 8" submersible ductile iron and stainless steel valves, these are made in 303 stainless or a high-strength engineered composite material.

A break-off plug allows for lighter lifting weight by allowing water to drain from pipe after the plug is broken by dropping a smaller pipe down the inside diameter of the pipe. It also eliminates water accumulating at the surface of well making for a

clean and simple pull of riser pipe. This new 1/2" size allows for quicker drainage from the pipe versus the standard 3/8" size.

For more detailed information on Flomatic's new larger 1/2" break-off plugs or to obtain a copy of the new 2014 condensed valve catalog, visit www.flomatic.com, email them at flomatic@flomatic.com, call Flomatic Corporation at 1-800-833-2040 or fax them at 1-800-314-3155.



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Assessing Risk

By John Fowler, Safety Supervisor, National Exploration, Wells & Pumps

One of the growing trends in the drilling industry is the expanding importance of documented risk assessments. Drillers and pump operators have always performed risk assessments, but they probably never even realized they were doing one. In the not-so-distant past, risk assessments were done informally and boiled down to the experienced operator thinking ahead about the next task, then talking with his crew about the steps to be followed and the hazards to anticipate. This is a natural approach, and in fact, it is this communication between the driller or foreman and his crew that is one of the most effective tools to keep a site safe and productive. What is changing in the industry though, is that the crews are being required to document the verbal risk assessments they complete in the field. Also, the drilling and pump service companies themselves are expected to conduct risk assessments on the procedures their crews do in the field and then to identify hazards for specific projects. If you stand back and look at what is happening, there are really three layers of risk assessments being asked for: risk assessments by the crews in the field, Job Safety Analysis and Standard Operating Procedures risk assessments and project specific risk assessments. The last type of risk assessment I will discuss is Fatal Risk assessment. This is risk assessment on a higher level, and it is fast becoming a standard requirement.

The drilling and pump industry loves acronyms. One you have or likely will hear is FLRA which stands for Field Level Risk Assessment. These are risk assessments completed and documented by the crews out in the field. Paperwork itself has never made anyone safer and the goal of these risk assessments is not to produce a filled out form, but rather to ensure that the crew has stopped and taken a “safety pause” before moving onto the next task. Which tasks are required to have a documented risk assessment is up to the individual company, but generally they are required when a crew changes from one critical task to another. For example, when a drill crew changes from drilling to tripping out of the hole, or when a pump crew has finished setting up the rig and is about to start running pipe. If an incident does occur, one of the first questions many clients will ask during the investigation is whether or not the crew conducted a risk assessment. When you have a documented safety pause showing a risk assessment was done, the investigation can move on and someone is not stuck trying to explain that the crew did a risk assessment, but that it was verbal and never documented. More importantly, when a documented risk assessment is performed and an accident still occurs, the assessment can be used to determine what change in procedure took place that resulted in the injury or if the process itself needs to be improved.

Typically, when a field risk assessment is done it involves reviewing a JSA/SOP (Job Safety Analysis and Standard Operating Procedure) for the task at hand. The SOPs detail how to complete a routine task step by step, and many companies have combined the SOP with a JSA to include the hazards and controls for each step. That way, when a crew reviews their JSA/SOP they are reminded both of the steps to follow and any hazards to be aware of, so they can safely complete the task at hand. Of course, these are written for a perfect world, and it is up to the crews in the field to identify any hazards or variables not included in the standard JSA/SOP, like weather, for example. Where do the JSA/SOPs come from? These JSA/SOPs are usually written in the field where they are then sent to management, preferably both Operational and Safety management, for approval and any further risk assessment. The end product is a standardized way of completing a task and the hazards and controls associated with it.

Once the hazards for specific tasks have been identified, they can next be applied to a specific project. This is where the Site Specific Health and Safety Plan (SSHASP) will come into play. The SSHASP is a way of looking at a specific project and determining what hazards the crews could potentially face. The potential hazards can be divided into operational related hazards,

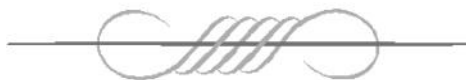
(Continued on Page 5)

environmental/biological hazards, site location hazards and miscellaneous hazards specific to the site or type of work performed. The operational hazards can be determined by the scope of work and then the appropriate SOP/JSAs can be used to identify and control those hazards. Environmental/biological hazards could be excessive heat or cold, H₂S gas, unusual amount of snakes, spiders and anything else of that nature. Site location hazards would be if there was a long drive to the drill site or if there was construction on the roads to the site. The SSHASP will identify the nearest hospital and the directions to get there. When in a remote setting, the SSHASP will have GPS coordinates and a procedure for calling in a life flight. Having an SSHASP prepared before starting a project is a great way to make sure that the crews are made aware of potential risks and have what they need to complete the project safely and efficiently.

Another type of risk assessment that runs parallel to the three layers just discussed is the identification of your company's Fatal Risks. In 1931, H.W. Heinrich published a revolutionary book on industrial safety in which he claimed that there was a ratio of major injuries to minor injuries to near misses. Further studies have shown that there is indeed a relationship, so for decades there has been a focus on reducing the number of near misses, thereby reducing the number of minor and major injuries. This has worked well except in one area: fatalities. A good percentage of companies have done a great job reducing their injuries, but they are unfortunately recording the same amount of fatalities. One theory for this is that the activities that have the potential to kill someone need to have their own risk assessments, separate from the activities that have the potential to injure you. Another way of looking at it is that the energy involved with a worker twisting his knee is different from the energy that it would take to kill someone. So you can work to eliminate a twisted knee by reducing trip hazards, but eliminating that hazard may have done nothing to prevent someone from being fatally injured. So, now we have to identify those tasks that have the potential and energy to cause a fatality. Once the tasks are identified, a separate risk assessment must be completed on just these high risk tasks and then controls put in place. For example, a common Fatal Risk is working at heights. Once we have identified this as a Fatal Risk, we can look at ways to control the hazards involved. The use of improved fall protection devices or even eliminating the need to work at heights by making it a policy to only work on derricks when they are towered down.

Risk assessments are not a new idea, but they are growing in importance and new layers of risk assessments are being required more often. These acronyms might seem intimidating at first, but there are a couple of great places to go if you want to start building or improving your own safety program. OSHA has a helpful sample JSA and has many common tasks with the steps and hazards identified. The National Groundwater Association has a sample safety program, and blank/example FLRAs and SSHASPs can be found on the internet. Identifying the Fatal Risks, SSHASPs, JSA/SOPs, and FLRAs are important pieces of a safe and productive project, but safety really boils down to a company's safety culture and leadership. The layers of risk assessments are great tools, but at the end of the day, the individuals in the field have to choose to work safely and have the support to do so from all layers of management. It is up to all of us to work with the crews and coach them so that they take that safety pause to assess risk and make the right choice so that at the end of the day everyone goes home safely.

John Fowler can be reached at 480-352-2041 (Cell) or via Email at jfowler@nationalewp.com



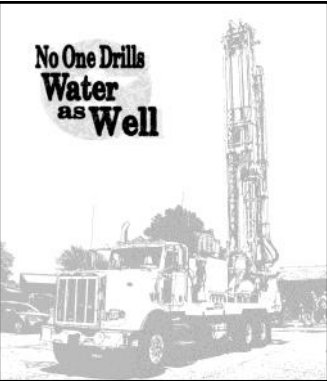
Arizona Drilling Licenses Issued the Last Few Months

License Number	Name of Drilling Firm	Location	Qualifying Party(s)
845	Southlands Engineering	Tucson, AZ	John Purcell & David Chushi
846	Water Infrastructure, LLC	Yucaipa, CA	Robert Ereth
847	Hydro-Solutions, LLC	Gilbert, AZ	Brain Kelly West
848	North Star Well Drilling	Brainard, MN	Mark Prueher
849	Tierra Corrosion Control	Farmington, NM	John Kerr
850	Timberline Drilling, Inc.	Hayden, ID	Thomas Richardson
851	Mountain Side Drilling	Show Low, AZ	Tyler Paul Ries

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Water Supply Cost Savings Act Introduced in Congress to Help Address Small Communities' Water Infrastructure Funding Crisis

Congressman Marlin Stutzman (R-IN) introduced the "Water Supply Cost Savings Act," or "Savings Act," legislation to provide small communities across the nation with critical information on the use of water wells and water well systems to deliver high quality, affordable drinking water.

The Savings Act (HR 5659) was greeted with enthusiastic support from the water supply industry, including the Water Systems Council, the Water Quality Association and the National Groundwater Association.

"We are grateful to Congressman Stutzman for his leadership in championing the first piece of national legislation to provide local community decision makers with a cost effective option to utilize smaller domestic well water systems to meet community drinking water needs," said Bo Andersson, Water Systems Council president. "Local water supply projects completed by WSC's Water Well Trust have clearly demonstrated that these smaller systems can save the nation millions of dollars in infrastructure investment."

The Savings Act is aimed at reducing the costs to federal, state, and local governments in providing quality drinking water to millions of Americans living in rural and isolated communities by promoting cost-effective community well water systems.

To assist small communities with their consideration of drinking water technology needs, the Savings Act establishes a Drinking Water Technology Clearinghouse where the Administrator of the Environmental Protection Agency and the Secretary of Agriculture will disseminate information on cost-effective, innovative, and alternative drinking water delivery systems, including systems that are supported by wells.

"The Savings Act is a simple, common sense bill that can save taxpayer dollars and, importantly, help rural communities gain access to much needed high quality drinking water," Stutzman said. "I am thrilled to have the support of the Water Systems Council, the Water Quality Association, and the National Groundwater Association to advance this important legislation."

There are 52,000 community water systems in the United States, of which 41,801 are small community water systems (3,300 or fewer people). EPA's most recent Drinking Water Needs Survey placed the shortfall in drinking water infrastructure funding for small communities at \$64.5 billion. The Savings Act will encourage these small communities to consider less expensive drinking water systems supplied by wells that could save taxpayers billions of dollars in infrastructure costs.

"Delivering high quality drinking water at a lower cost is a win-win for small communities," said Margaret Martens, Water Systems Council executive director. "The local projects we have already completed through the Water Well Trust have realized savings of as much as 94% over traditional long-pipe, centralized drinking water systems, proving that water wells are a reliable, cost-effective way for budget-challenged communities to provide access to safe drinking water for their residents."

Diann Scott, VP Marketing North America Water Systems, Franklin Electric and a member of the WSC board noted that, "Small communities often have difficulty financing the construction and maintenance of traditional long-pipe drinking water system as the cost per resident can be prohibitively expensive. The Savings Act will help rural America and other small community systems cost-effectively meet critical water needs and public health challenges while supporting domestic manufacturing and jobs."

Media Contact:

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Executive Director
Water Systems Council
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Welcome New Members!



Herc Chem Tech, LLC

6702 N. Scottsdale Road, Suite 230
Scottsdale, AZ 85253
Www.hercchemtech

HCT is a new company that has re-acquired the **Well-Klean®** chemistry. “Just last year we saw there might be an opportunity to raise the bar in water well rehabilitation through enhanced chemistry, processes and procedures” reported Todd Eden, the original developer of Well-Klean® and CEO of the company.

Eden further states, “After extensive bench testing, field applications and competitive product comparisons, HCT launched the Well-Klean® Program. The program involves assessing the history and conditions of each well, making targeted recommendations with scientific basis, where possible, for the removal of minerals, metals and microbes - effective, non-corrosive, safe, and environmentally sound.” The program incorporates startling processes and procedures including - pH is not a valid indicator for descaling - down-hole neutralization and passivation – insitu maintenance and dead well restoration.



HCT received NSF/ANSI Standard 60 Certification on October 3rd, 2014 for their enhanced Well-Klean®, Pipe-Klean chemistry for Municipal, Agricultural and Industrial markets. HCT produces their product in 6 locations throughout the US and Canada. Product research and recommendations are made available online at www.hercchemtech.com.

For further information call (480) 650-6955 or email support@hercchemical.com.

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Where Does Arizona's Water Come From?



Photo by Tom Tingle/The Republic

Water from these sources adds up to 7.1 million acre feet of water.

Source: Arizona Department of Water Resources

Colorado River: 39 percent comes from the Colorado River.

Instate Rivers: 20 percent comes from instate rivers.

Reclaimed Water: 3 percent comes from reclaimed water

What uses Arizona Water?

See how it breaks down. Source: Water Resources Research Center, University of Arizona

Agriculture: Agriculture uses 69 percent of Arizona's water.

Municipal: Municipal uses 25 percent of Arizona's water.

Industrial Water: Industrial uses 6 percent of Arizona's water





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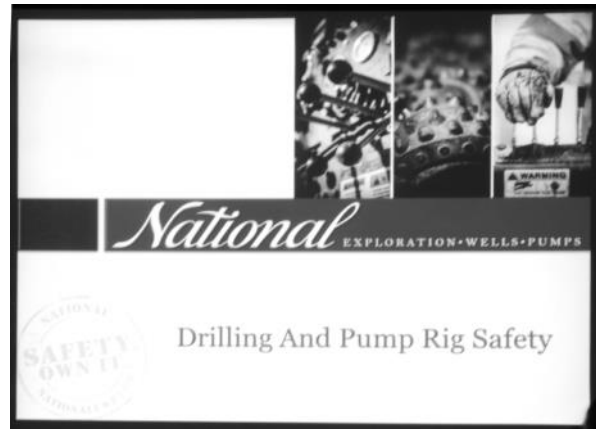
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AZWWA Membership Meeting October 4th, 2014 at National EWP, Gilbert, AZ



**John Fowler,
National EWP Safety Supervisor**

We want to thank National EWP for hosting our Fall Membership Meeting and providing snacks and refreshments. John Fowler, National EWP's Safety Supervisor, gave an excellent and very informative presentation on Drilling and Pump Rig Safety. In addition to Rules & Regulations, he also addressed safety and accident prevention procedures and policies for practical, day-to-day situations.

We were pleased to meet one of our new members, Dwain Smith with Triangle Industrial, who drove up from Tucson to attend. He had an opportunity to visit with our members, discuss his services and hand out brochures. We appreciate him taking time to participate.

The *Water Supply Cost Savings Act*, aka "*Savings Act*" (HR 5659), was introduced in Congress this fall and discussed. Handouts were given to the attendees which described the bill and acknowledged the companies who have generously donated to the cost of this process to date. This bill, aimed at promoting the use of water wells to reduce the cost of providing high quality drinking water to rural and isolated communities as an alternative to traditional long-pipe, centralized drinking water systems, requires appropriate funding to make it happen. Several industry members have already stepped up and donated to the cause but if you'd like to help, or if you know someone who is, please contact Margaret Martens at Water Systems Council via phone at 202-625-4387 or Email at mmartens@watersystemscouncil.com. More information on page 7.

After discussing a few other issues, our next meeting was set for Saturday, January 10, 2015, at Clear Creek Associates, 6155 E. Indian School Rd, #200, Scottsdale, AZ. The dates for our Summer meeting in Prescott and picnic at Goldwater Lake will be July 24 & 25, 2015. Mark your calendars!



AZWMA MEMBER PRODUCT NEWS and SERVICES

Herc Chem Tech, LLC
6702 N. Scottsdale Road, Suite 230
Scottsdale, AZ 85253
www.hercchemtech.com



Well-Klean® is back—New and improved! Herc Chem Tech, LLC (HCT)- Scottsdale, AZ – has re-acquired and improved upon the Well-Klean® chemistry, program, processes and procedures.

Todd Eden, President and CEO of HCT states, “Every well is unique and there are vast differences in well rehabilitation chemistry, procedures and processes. We saw an opportunity to raise the bar in water well rehabilitation, reversing the declining specific capacity. After a year of research and development in the lab and out in the field, we went on record with your program.”

HCT just received NSF/ANSI Standard 60 Certification on three products Including Well-Klean®. HCT's program involves assessing the history and conditions of each well, local knowledge about the hydrogeology, making targeted recommendations with scientific basis where possible, for the removal of minerals, metals and microbes - effective, non-corrosive, safe, and environmentally sound. The program incorporates startling processes and procedures including- pH is not a valid indicator for descaling - down-hole neutralization and passivation – insitu maintenance and dead well restoration.

HCT produces their product in 6 locations throughout the US and Canada. Product research and recommendations are made available online a www.hercchemtech.com.

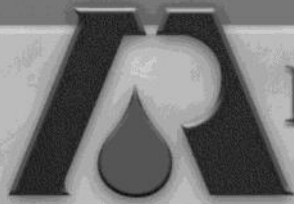
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Havasu's Chamber of Commerce Protests Clean Water Act

Reprinted from Havasunews.com

The Lake Havasu City Chamber of Commerce submitted a letter to federal officials, joining dozens of other chambers of commerce from throughout Arizona in protest of changes to the EPA's "Clean Water Act."

The act, passed in 1972, gave the federal government jurisdiction over "Waters of the U.S.," which have until now been defined as "navigable waters." In 2001 and 2006, the U.S. Supreme Court has ruled that the definition, and federal jurisdiction, is broader than the traditional meaning of that term, forcing the Army Corps of Engineers and the EPA to better define what "waters of the U.S." entails.

The letter was written to Donna Downing, team leader of the EPA's Wetlands Division, and Stacey Jensen of the U.S. Army Corps of Engineers Regulatory Community of Practice, in reference to those organizations' attempts to redefine the term, "waters of the United States."

According to the EPA, farmers, developers, state- and local governments, energy companies and members of congress have demanded new regulations to make to process of identifying waters protected under the Act simpler, clearer and faster.

Under the new definitions, the EPA says that the scope of waters protected under the Clean Water Act would be reduced, and would limit Clean Water Act jurisdiction only to types of waters that have a "significant nexus" on downstream, traditional navigable waters. The new definition would improve the efficiency, clarity and predictability for all land owners, the EPA says.

The scope of the new definition says that all waters used in interstate and foreign commerce, all interstate waters and wetlands, all territorial seas, and all waters adjacent to traditional navigable water, but separated by man-made dams, dikes and natural dunes – will fall under federal jurisdiction.

The proposed rule says that tributaries will be protected under the Clean Water Act. "Ground water, gullies and erosion channels, and features on farm land including swales, farm and stock ponds that are built on dry land, as well as all ditches that do not have the features of tributaries or are explicitly excluded under the proposed rule, all prior converted croplands, and tile drainage systems – are not protected under the Clean Water Act, the EPA says.

The Clean Water Act's jurisdiction isn't expanding, the EPA says, but merely responding to a more technical and scientific interpretation of the Supreme Court. The current definition leaves the law vague enough to create a litigation risk for some landowners, resulting in the need for clarity. In some cases, this can affect private property, but the EPA says that the federal government does not actually control the water there.

"It is important to emphasize that CWA permitting only applies when someone intends to dump waste or other pollutants into the nation's streams, rivers, lakes and ponds," the EPA says. "If you're not polluting these water bodies, you don't need any sort of permit."

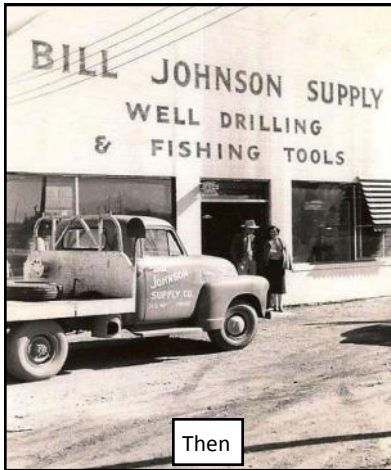
Gina McCarthy, Administrator for the U.S. Environmental Protection Agency, wrote an Op-Ed in the Huffington Post in March to explain: "Our proposed rule will not add to or expand the scope of waters historically protected under the Clean Water Act. In the end -- the increased clarity will save us time, keep money in our pockets, cut red tape, give certainty to business, and help fulfill the Clean Water Act's original promise: to make America's waters fishable and swimmable for all."

The Chambers of Commerce who wrote this letter see the matter differently, stating that the proposed rule represents an overextension of the EPA's authority. "We are concerned that the EPA cannot factually certify that the proposed rule would not impose a major economic impact on a substantial number of small governments, organizations and businesses, when the rule would subject vast areas to federal jurisdiction under the Clean Water Act for the first time," the letter reads. "Despite the obvious additional burdens, the U.S. Chamber has raised additional concerns that EPA didn't gather feedback from small businesses and communities who would be affected by regulations as required by the Regulatory Flexibility Act. The EPA simply deemed that the proposed rule will 'not have a significant economic impact' on them."

(Continued on page 19)

Bill Johnson Equipment Company Celebrates 65 Years!

One of our active member companies is celebrating 65 years in business this year. **Bill Johnson Equipment Company** is a family-owned water well drilling equipment and supply company. Bill Johnson got his start



working in a family owned oil field machine shop in Texas. He moved to Arizona in 1948 and discovered there was no local source for well drilling supplies and in 1949 **Bill Johnson Equipment Company** was born.

Initially, he obtained a one-year lease on a building and painted the words “**Bill Johnson Supply**” on it. He wanted people to remember his name when they walked through the door. After 4 years and over 40,000 miles of traveling each year throughout the Southwest, Bill's work paid off and he was able to purchase the building and property where BJEC is still based today.

Over the years, Bill was able to obtain the most coveted of drill rig and pump rig distributorships and lines of equipment and supplies. He also had the foresight to begin collecting and renting specialty tools early on, and now BJEC has one of the biggest collections of fishing tools in the Southwest. Of equal importance was the ability to service, fabricate, and repair these tools so BJEC's machine shop was created and has become a critical part of the business.

Mr. Johnson was instrumental in reorganizing the Arizona Water Well Association in 1957.

Today, BJEC is owned and managed by Bill's daughter, Ginger Johnson and his granddaughter, Shelly Schira. The goal is to continue the entrepreneurial spirit that Bill Johnson created with those first painted words over the door while adapting to the ever-changing marketplace. The company is also fortunate to have many long-time contributors to our industry on staff. BJEC is an industry-leading water well drilling equipment company, with the best products and supplies, a skilled machine shop, specialty rental tools, knowledgeable staff and loyal customers which have all contributed to its success.





New Tires To The Rear

Article by Mac Demere, Reprinted from Allstate Blog

If you buy only two new tires, consider putting them on the rear axle.

Purchasing four tires is the ideal, but as a cheapskate, I understand the pain of tossing two half-worn tires when the other two are completely worn out. I'm here to help fellow tightwads stay safe.

Stop with the “even ifs.” No matter if your vehicle is front-, rear-, or all-wheel-drive, a pickup, a sporty car, or an SUV: If you buy only two new tires, you should put them on the back, according to tire manufacturer Michelin North America.

Why Is It Best to Put the New Tires on the Back?

The short answer: On a rainy day (or if a sprinkler system is irrigating the pavement), even a small puddle could cause your car to spin out if you have worn tires on the back and new tires on the front.

Worn tires will hydroplane well before new ones. The water in wheel ruts found on older highways can be enough to literally lift the worn tires completely off the pavement. If you have new tires in front and old tires in the back, the worn rears are floating while the deep grooves of the new fronts easily cut through the water. Water is not compressible: It either flows through the tire's grooves or lifts the rubber from the road.

Here's why that's bad: Rear tires provide stability. If the worn rear tires are riding on top the water, they can't offer stability — even if the new fronts are providing plenty of steering ability. So, you can easily end up spinning out.

However, if the new tires are on the rear, the fronts will lose grip before the rears — which can be an easier situation to cope with. Release the accelerator, leave your hands where they are, and wait for the traction to return. Avoid turning the steering wheel more or applying the brakes.

I have ridden with thousands of drivers in demonstrations like the one featured in the video above. Almost all spun out when the car had newer tires on the front and half-worn rubber on the rear. (The rare exceptions were mainly dirt-track racers.) With newer tires on the rear and more-worn tires on the front, no one lost control.

Front-wheel drive (FWD) is usually why front tires wear out before the rears. The reason: On FWD cars, the fronts carry two-thirds of the vehicle's weight, do all of the steering and acceleration, and transmit almost all of the braking force. Sometimes, people fail to rotate their tires and discover the fronts are almost bald while the rears appear to have plenty of tread.

A common question: What difference in tread depth can lead to instability? I've experienced it at less than 2/32nds of an inch. If you can tell a difference when you stick your finger into the tire grooves, the tires with the most tread should be on the rear axle. Even electronic stability control — a system in your car that can help to automatically bring you out of a spin, in certain situations — can't help if the rear tires are completely hydroplaning.



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(continued from page 14)

The Chambers of Commerce allege that the EPA and Army Corps of Engineers did not engage stakeholders such as farmers, ranchers, homebuilders, industry and local government representatives before proposing its change in definitions. The rule, they say, has the potential to directly and negatively impact those stakeholders' work environments and constituencies.

"Our system of canals is responsible for more than 30% of Arizona's gross state product. To propose a rule that could, even hypothetically, bring one-third of Arizona's economic engine under federal jurisdiction without consulting the appropriate stakeholders is unconscionable."

The letter was originally generated by the Arizona Chamber of Commerce, and co-signed by counties throughout Arizona. Similar letters have been sent to the EPA and Army Corps of Engineers from states throughout the U.S.

"The Clean Water Act used to EPA wants to extend their reach beyond federal lands, including private property," said Havasu Chamber President Lisa Krueger. "It's a long letter, but it explains in detail the concerns that we have."

A copy of the chambers' letter can be found at lakehavasuvotes.com, under the "Federal Priorities" tab.

Congratulations, Justin & Family!



Justin Lewis (BJEQ), Becca and Kai (big brother) welcomed Austin James Lewis home a few days after he was born on November 11. He weighed 5 lbs. 10 oz. and was 19" long. Both Mom and baby are doing great and congratulations on your new addition to your family.



Halliburton Reaches Agreement to Acquire Baker Hughes

In November, Halliburton Company and Baker Hughes Incorporated announced a definitive agreement under which Halliburton will acquire all the outstanding shares of Baker Hughes in a stock and cash transaction. The transaction is valued at \$78.62 per Baker Hughes share, representing an equity value of \$34.6 billion and enterprise value of \$38.0 billion, based on Halliburton's closing price on Nov. 12, 2014, the day prior to public confirmation by Baker Hughes that it was in talks with Halliburton regarding a transaction. Upon the completion of the transaction, Baker Hughes stockholders will own approximately 36 percent of the combined company. The agreement has been unanimously approved by both companies' Boards of Directors.

The transaction combines two highly complementary suites of products and services into a comprehensive offering to oil and natural gas customers. On a pro-forma basis the combined company had 2013 revenues of \$51.8 billion, more than 136,000 employees and operations in more than 80 countries around the world.

Under the terms of the agreement, stockholders of Baker Hughes will receive, for each Baker Hughes share, a fixed exchange ratio of 1.12 Halliburton shares plus \$19.00 in cash. The value of the merger consideration as of Nov. 12, 2014 represents 8.1 times current consensus 2014 EBITDA estimates and 7.2 times current consensus 2015 EBITDA estimates. The transaction value represents a premium of 40.8 percent to the stock price of Baker Hughes on Oct. 10, 2014, the day prior to Halliburton's initial offer to Baker Hughes. And over longer time periods, based on the consideration, this represents a one year, three year and five year premium of 36.3 percent, 34.5 percent, and 25.9 percent, respectively.

Halliburton intends to finance the cash portion of the acquisition through a combination of cash on hand and fully committed debt financing.

The transaction is subject to approvals from each company's stockholders, regulatory approvals and customary closing conditions. Halliburton's and Baker Hughes' internationally recognized advisors have evaluated the likely actions needed to obtain regulatory approval, and Halliburton and Baker Hughes are committed to completing this combination. Halliburton has agreed to divest businesses that generate up to \$7.5 billion in revenues, if required by regulators, although Halliburton believes that the divestitures required will be significantly less. Halliburton has agreed to pay a fee of \$3.5 billion if the transaction terminates due to a failure to obtain required antitrust approvals. Halliburton is confident that a combination is achievable from a regulatory standpoint.

The transaction is expected to close in the second half of 2015.

The combined company will maintain the Halliburton name and continue to be traded on the New York Stock Exchange under the ticker symbol "HAL." The company will be headquartered in Houston, Texas. Dave Lesar will continue as chairman and CEO of the combined company. Following the completion of the transaction, the combined company's Board of Directors is expected to expand to 15 members, three of whom will come from the Board of Baker Hughes.

Concurrently with the execution of the merger agreement, Halliburton withdrew its slate of directors nominated for the Board of Directors of Baker Hughes.

Credit Suisse is serving as lead financial advisor and Bank of America Merrill Lynch is also serving as financial advisor to Halliburton. Baker Botts L.L.P. and Wachtell, Lipton, Rosen & Katz are serving as Halliburton's legal counsel. Bank of America Merrill Lynch, as lead arranger, and Credit Suisse are providing fully committed debt financing in support of the cash portion of the consideration.

Goldman, Sachs & Co. is serving as financial advisor to Baker Hughes. Davis Polk & Wardwell LLP and Wilmer Cutler Pickering Hale and Dorr LLP are serving as Baker Hughes' legal counsel on this transaction.

Halliburton provides products and services to the energy industry. Baker Hughes supplies oilfield services, products, technology and systems to the worldwide oil and natural gas industry.



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Mark Durham of Gicon Pumps & Equipment wins NGWA's *Supplier of the Year* Award

In November, Mark Durham of Gicon Pumps & Equipment Ltd., received *Supplier of the Year Award* from the National Ground Water Association.

The award is presented to an individual who demonstrates leadership and volunteerism in promoting groundwater and groundwater issues to the industry and the public. This includes demonstrating qualities of honesty, integrity, accountability, and dependability. The award will be presented in December at the 2014 NGWA Groundwater Expo and Annual Meeting in Las Vegas, Nevada.

Among other job responsibilities, during the past 20 years Durham has conducted 30-plus 48-hour training courses in pumping systems theory and application to approximately 600 people, including employees and other pump system professionals such as water well system contractors and engineers.

Durham said he was grateful for this NGWA honor and the many people who have played a role in it. "The NGWA Supplier of the Year Award is a very significant and meaningful milestone, not only for me but for everyone involved with Gicon Pumps & Equipment," he said. "No individual accomplishes this award without a team effort from all members of the company, the customers, and the vendors. I am

In my opinion, we borrow the groundwater from our descendants and we need to leave it in as good or better condition than when we found it, making sure that we don't knowingly do anything that may cause any problems."

- Ronald Peterson, Senior Account Executive at Baroid IDP



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Arizona Water Well Association Scholarship Criteria

The **AZWWA** offers educational scholarships in the amount of \$1,000 per semester for the children and/or grandchildren of contractors who have been members of our Association for a minimum of 2 years or employees of said contractor who has a reasonable relationship with the Association.

Other qualifications of the applicant are:

- Has the support of his/her family. If the applicant is a child or grandchild of an employee of a contractor, the owner/manager must also support the applicant.
- Acceptance by aforementioned Arizona institution. The Committee will take into consideration any requests or attendance at schools outside of Arizona.
- Full time enrollment. The Committee will take into consideration requests for less than a full schedule.
- Maintain a 2.5 grade point average.

The above qualifications are in reference to university or junior college enrollment. However, the Committee will consider requests for trade school or other participation at reduced levels of financial support if such education is deemed beneficial to the family's business effort.

A completed Scholarship Application, including a resume, a letter of endorsement from the applicant's parents or employer and a transcript from the last educational institution attended is required.

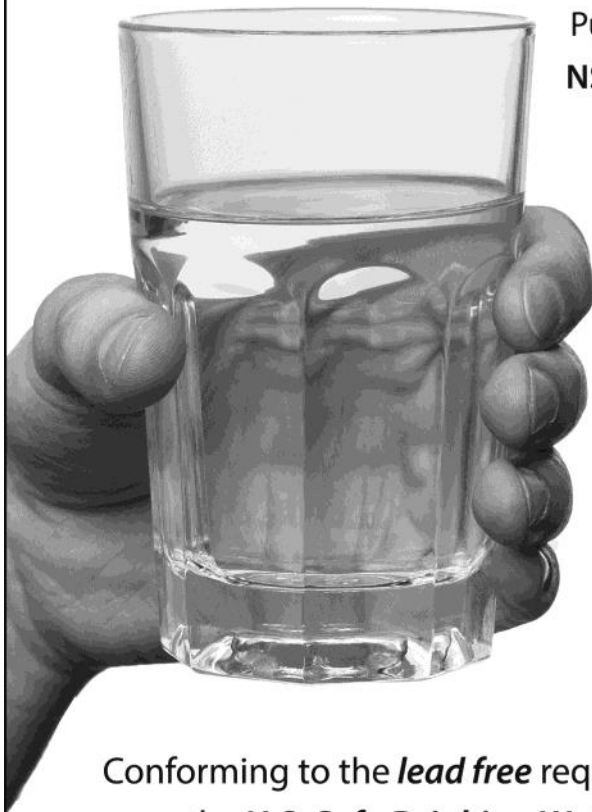
The sum will be paid upon applicant's submittal of proof of registration at an Arizona institution.

For more information or questions, please contact our current Scholarship Chair or the AZWWA office. To request a Scholarship Application, please contact the AZWWA Administrative office directly.

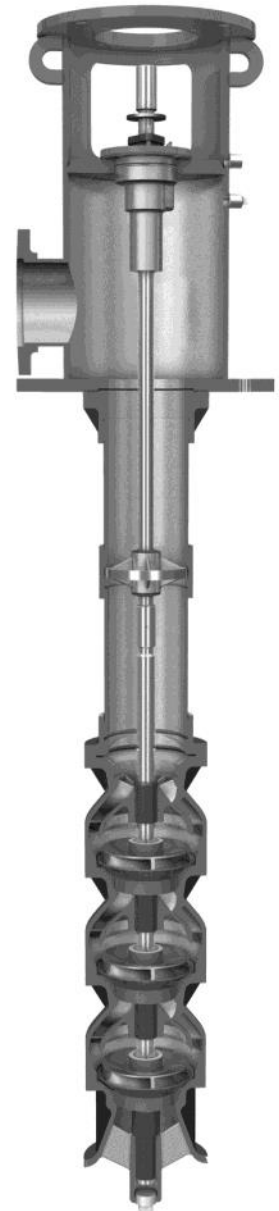
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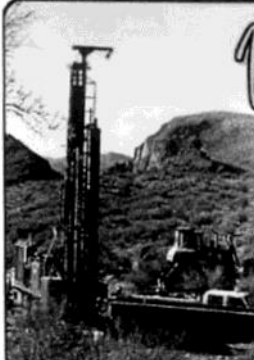
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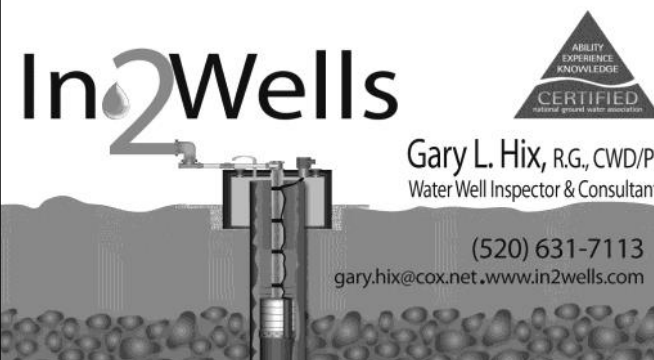
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Burning Lemon Trees in Yuma

Reprinted from AZ Republic



By Brandon Loomis, The Republic

Jose Gonzales irrigates a citrus grove while lemon trees in a Limoneira Co. grove burn last spring. Farmers in the Yuma Mesa Irrigation and Drainage District are allowing orchards to go fallow as part of a pilot program to save water. (Photo: Mark Henle/The Republic)

YUMA –Smoke rising from groves of lemon trees offers one dramatic visual clue to Arizona's increasingly complex water future: Groves here are going fallow, for a price, to test how much moisture farmers could spare for urban development.

In an era when persistent drought is shrinking Lake Mead, the great Colorado River reservoir, and the entire Southwest is seeking replacement sources, public water managers are pointing their divining rods at farms.

To date, the idea of tapping Yuma agriculture to supply suburban sprinklers around Phoenix is just a pilot project, to determine how much water can be saved; any attempt to start water actually flowing to central Arizona will require costly leases with willing sellers.

But if the state continues to grow while, as government scientists predict, climate change continues to shrink the Colorado River, something has to give. Some of this region's farms are likely to prime the pump for profit.

That's why workers for 33 Yuma farmers started cutting, stacking and burning lemon trees across 1,400 acres of the Yuma Mesa Irrigation and Drainage District last spring, turning orchards into fallow land and saving water.

"It gives the farmer a stable income source where it's not tied to the market," irrigation district manager Pat Morgan said. Mostly, though, it gives the Central Arizona Groundwater Replenishment District a tantalizing option to replace at least some of the pumped groundwater used in hundreds of thousands of central Arizona homes and yards.

These homes are served by water suppliers counting on the groundwater district to find and buy water to replace what they use. The district, governed by the same board that pumps Colorado River water to cities in the Central -Arizona Project canal, is required by state law to do so, and to charge the users for it.

The district has contracts with utilities that supply about 43 percent of the people in Maricopa, Pinal and Pima counties. Another 126,000 homeowners who rely more heavily on groundwater pay property taxes directly to the district to replenish it. It's a complicated and costly workaround for suburban developers, who were initially restrained by a 1980 groundwater-protection law.

To build homes whose occupants would consume groundwater, according to that law, developers had to prove they could tap a 100-year supply. But 13 years later, the Legislature decided any developments that joined the district could proceed to build without an assured supply and the district would go find the water to sink back in the aquifers that served them.

For many years, the job has been as simple as slurping up and dumping the excess Colorado River water that cities like Phoenix had contracted but weren't yet using from the Central Arizona Project. But after nearly 15 years of drought have steadily shrunk Lake Mead's pool, "excess" and "Colorado River" are hardly compatible terms.

(Continued on page 29)

The groundwater district is coming for a new dip into the river at exactly the time that other users fear the competition. Cities, including Phoenix, Mesa and Tempe, in the Arizona Municipal Water Users Association use CAP water directly instead of as an aquifer recharge.

"There's a lot of competition. There are shortages on the river that we're trying to deal with," association Executive Director Kathleen Ferris said. "There is continuing concern within (the municipal suppliers) that this paradigm of allowing growth to proceed before water is in hand is not sustainable."

Growing Nneed

The federal government has warned that continued drought and depletion of the reservoir could force CAP to leave behind some of its 1.5 million acre-foot share of river water in the next year or two. It would likely mean some central Arizona farms would go without. An acre-foot can supply about two to three Southwest families for a year, experts say.

Now the groundwater district is seeking 113,000 acre-feet of water over the coming century, according to a draft plan of operations that it must finalize and submit for state approval by year's end. More than half of that water will be required within the next 20 years, as tens of thousands of homes spring up on lots within the district.

One way to cover some of the need is to buy unused water from Yuma farmers, whose rights to the river are older than and legally superior to CAP's.

Yuma Mesa Irrigation and Drainage District farmers like Mark Spencer are burning lemon trees because the groundwater district paid them. The payment of \$750 an acre a year for three years, with an option for a second three-year contract, is more than just some cash in hand for leaving some of their water in Lake Mead. It's also what makes it feasible to forgo some of their fruit sales while triple-digit Arizona heat takes a couple of summers to bake pests and harmful spores that fester in soils when citrus trees approach the end of their productive lives. Immediately planting another crop before nature cleans the soils could harm the new trees.

"I thought about (fallowing) as an opportunity to improve my citrus plantings," Spencer said. The other option, he said, was to tear out the trees and plant hay while resting the soil for a couple of years — earning just \$200 or less a year per acre.

Other farmers also are halting hay irrigation to participate in the program. To qualify for the payments, they must prove they have irrigated the land four of the last five years.

A Big If

The groundwater district will study the water savings for three years, while rotating farmland in and out of the program. Then it will do another three-year cycle before deciding whether to pursue long-term leases.

"(Farmers) would not relinquish entitlement to Colorado River water," said Perri Benemelis, the groundwater district's senior water-resources analyst. But they would agree to a negotiated price allowing water that otherwise would flow from Lake Mead to Yuma to take a detour into the CAP canal at Lake Havasu City.

The district predicts the test fallowing could save 9,000 acre-feet a year — nearly 3 billion gallons. But if leasing happens after that, the numbers could be bigger or smaller, depending on who wants to sell.

It's a big if, in some observers' minds, if for no reason other than the cost. "I suspect a very complex and expensive arrangement would be required to entice senior users," said Tom Davis, who manages the Yuma County Water Users' Association. "That is not to say it would not be possible in the future under extreme circumstances."

But that's not to say, either, that he could support it. He noted that the Yuma Valley — with an economy heavily dependent on agriculture — produces most of the winter lettuce grown in the U.S., plus other winter vegetables and wheat. "We require both food and water for life," he said.

It's also difficult to predict how costly such a project would be for consumers. Members of the groundwater district pay about \$500 an acre-foot. But nobody believes that water will do anything but escalate in price as Arizona grows, and some observers believe the district will have to raise at least several hundred million dollars for purchases in the coming century. The district says rates will rise, but it hasn't said by how much.

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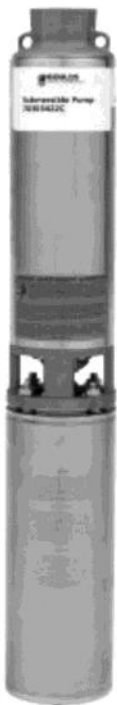
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Water Well Trust Receives \$140,000 USDA Household Water Well Systems Grant

FOR IMMEDIATE RELEASE

WASHINGTON, D.C., Oct. 27, 2014 -- The Water Well Trust, the only national nonprofit helping Americans get access to a clean, safe water supply, has received a \$140,000 grant from the U.S. Department of Agriculture's Household Water Well Systems program for a project to increase potable water availability to rural households in north-west Arkansas and Oklahoma.

The Water Well Trust will contribute a 51% match towards this project, or \$71,400. These funds were donated by Water Systems Council members.

The USDA grant will fund the Water Well Trust project in a high-need, low-resource rural target area composed of five counties in northwest Arkansas (Benton, Madison, Marion, Crawford and Franklin counties) and one contiguous county across the Oklahoma border (Sequoyah County).

Over the next year, the USDA grant monies will be used to drill or rehabilitate at least 19 water wells in these six counties, providing at least 145 individuals with new access to safe drinking water. The grant monies will also provide long-term, low-interest loans to applicants seeking new or improved water wells in the six-county area, many of whom have been on a waiting list maintained by the Water Well Trust since 2012.

The Water Well Trust was established by the Water Systems Council in 2010 to provide clean, sanitary drinking water to Americans who lack access to a reliable water supply and to construct and document small community water systems using water wells to demonstrate that these systems are more economical.

In 2012-13, the Water Well Trust completed two small water well projects using federal, state, and WWT donated funds. WWT also set up financing for the well recipients to pay back a portion of the donated funds. The proven financing capability of the Water Well Trust was instrumental in helping to meet the requirements to secure the USDA grant.

In 2014, the Water Well Trust completed its third project in Ben Hill County, GA, replacing an entire water system for a small community. Engineering estimates to replace the existing, failed water system in Ben Hill County were in excess of \$600,000. The Water Well Trust replaced the system with donated WWT funds and county funds for just over \$81,000 -- an 86% savings.

For more information, visit waterwelltrust.org.

Contact:

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Mountain States Groundwater Expo
The Aquarius Resort and Casino; Laughlin, NV
February 12 & 13, 2015

Thursday, February 12, 2015

- | | |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7:30 am | Registration Opens |
| 7:30 am – 8:00 am | Continental Breakfast |
| 8:00 am – 9:00 am | <u>Stabilize to Minimize Problems</u>

<u>PRESENTER:</u> Kim Jensen, Vice President, Jentech Drilling Supply

<u>SUBJECT SUMMARY:</u> Discussions pertaining to the stabilization of boreholes with tooling, rotation and weight. |
| 9:15 am – 10:15 am | <u>Right Tool for the Right Job: The Underuse, Overuse, and Misuse of Well Analysis Techniques</u>

<u>PRESENTER:</u> Marvin Glotfelty, Principal Hydrogeologist, Clear Creek Associates

<u>SUBJECT SUMMARY:</u> Overviews of several analytical techniques that are under-utilized or over-utilized in the water well industry. |
| 10:30 am -11:30 am | <u>Disposal of Spent Drilling Fluids</u>

<u>PRESENTER:</u> Stewart Krause, Sales Manager, Wyo-Ben, Inc.

<u>SUBJECT SUMMARY:</u> Discussions of issues for disposal of spent drilling fluids and some of the developing technologies and equipment currently being used. |
| 11:30 am – 12:30 pm | Lunch on your own |
| 11:00 am– 3:00 pm | Exhibitor setup |
| 12:30 pm – 1:30 pm | <u>Chemicals Used in Well Rehabilitation</u>

<u>PRESENTERS:</u> Edd Schofield, District Manager-Well Products/Hydrogeologist, Southwest Territory, Bilfinger Water Technology/Johnson Screens and

Michael Schnieders (PG, PH-GW), President/Hydrogeologist at Water Systems Engineering, Inc.

<u>SUBJECT SUMMARY:</u> Cleaning and disinfection of well systems has become a complicated business. Misapplication can result in damage to the well and environment as well as pose a health and safety challenge to those working around the well. This course is designed to explain the differences in each of the chemicals, where they are applied, and common uses/variations. The differences present in common acids and disinfection chemistries will also be discussed. |
| 1:45 pm – 2:45 pm | <u>Discharge and Disposal Following Rehabilitation and Disinfection</u>

<u>PRESENTERS:</u> Edd Schofield, District Manager-Well Products/Hydrogeologist, Southwest Territory, Bilfinger Water Technology/Johnson Screens and

Michael Schnieders (PG, PH-GW), President/Hydrogeologist at Water Systems Engineering, Inc.

<u>SUBJECT SUMMARY:</u> Increasing demand on water supplies and tightening regulatory oversight have dramatically changed the role of discharge, neutralization, and disposal following maintenance efforts of potable well systems. The role of post-treatment testing and permitting is quite complicated and varies greatly within the Western states. This session will look at the challenges facing our industry on the “backside” of maintenance and attempt to build a better understanding between contractors and regulatory agencies regarding discharge and disposal. |

3:00 pm – 4:00 pm	<u>Drilling Fluids: A Common Sense Approach</u> <u>PRESENTER:</u> Ronald B. Peterson, Baroid Industrial Fluids, NGWA 2015 McElhiney Lecturer <u>SUBJECT SUMMARY:</u> This presentation will cover the evolution of the water well industry with emphasis on drilling fluids and grouts, the progress that has been made over time as the technology and understanding of drilling fluids has improved as well as provide the basics for proper planning, implementation and follow-through of a well-designed drilling program with the goal of providing the best seal possible during the final well construction.
4:00 pm – 6:00 pm	Exhibitor Hospitality Meet & Greet in Exhibit Hall, Snacks & beverages
6:00 pm – 8:00 pm	Hors d'oeuvres and beverages in Exhibit Hall/Auction area
6:00 pm – 8:30?	Buck Lively Scholarship Auction & Raffle

Friday, February 13, 2015

7:30 am – 9:00 am	Continental Breakfast
8:00 am – 9:00 am	<u>Updates on Legal and Legislative Issues in the Water Well Industry</u> <u>PRESENTER:</u> Jesse Richardson, Policy and Research Advisor, Water Systems Council <u>SUBJECT SUMMARY:</u> Discussion of cases, bills and administrative issues that will impact water well contractors in the Mountain States region, including exempt well court opinions and cases addressing groundwater and new legislations including bills and issues in various parts of the Southwestern U.S.
9:00 am – 1:00 pm	Exhibit Hall Open
1:30 am – 1:00 pm	Buffet Lunch in Exhibit Area
1:00 pm – 3:30 pm	Exhibit Teardown
1:00 pm – 2:00 pm	<u>Keys to Maintaining Efficient Water Wells</u> <u>PRESENTER:</u> Kevin McGillicuddy, Chief Hydrogeologist, Roscoe Moss Company <u>SUBJECT SUMMARY:</u> This seminar will cover critical components involved in the design and maintenance of efficient water wells in order to understand the core concepts of well design and development, how to calculate well efficiency and determine the cost implications of operating wells inefficiently.
2:15 pm – 3:15 pm	<u>Boring Logs – What's Important and What's Not: A Scientific Viewpoint</u> <u>PRESENTER:</u> W. Richard Laton, Ph.D., PG, CPG, Associate Professor, Cal State Fullerton, & Owner, Earth Forensics, Inc. <u>SUBJECT SUMMARY:</u> This will provide a refresher course on proper classification methods. Some of the topics will include Definitions of Logs, Examples of Various Logs, Drilling Techniques, Soil Classification (Grading & Sorting), GPS Locating, Case Histories and more.
3:30 pm – 4:30 pm	<u>Sonic Drilling – Basic Principles and Applications</u> <u>PRESENTER:</u> Fred Hafner, Operations Manager, Boart Longyear <u>SUBJECT SUMMARY:</u> The principles of sonic drilling, including various applications and methods.
4:45 pm – 5:45 pm	<u>Remote Control & Monitoring Solutions</u> <u>PRESENTER:</u> Calvin Hale, Director of Education, Gicon Pumps & Equipment <u>SUBJECT SUMMARY:</u> The latest technology on how pumps and pumping systems can be remotely controlled and monitored.

Saturday, February 14, 2015

8:30 – 10:00 am	Mountain States Groundwater Board Meeting
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Registration Form

Mountain States Ground Water Expo - February 12 - 13, 2015

PLEASE PRINT CLEARLY – This form will be used to produce your badge(s)

First Name: _____ Last Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____ Email: _____

MEMBERS - Please check all that apply:

- | | |
|--------------------------------------------------------------|-----------------------------------------------------------------|
| <input type="checkbox"/> Arizona Water Well Association | <input type="checkbox"/> Colorado Water Well Contractors Assoc. |
| <input type="checkbox"/> New Mexico Ground Water Association | <input type="checkbox"/> Utah Ground Water Association |
| <input type="checkbox"/> Nevada Ground Water Association | <input type="checkbox"/> Other _____ |

Registration Fee includes Thursday and Friday morning continental breakfasts, Friday lunch, Thursday evening Exhibitor's Reception, admission to all seminars and Exhibit Hall

	<u>Before or on</u> <u>January 24, 2015</u>	<u>After</u> <u>January 24, 2015</u>	
____ Contractor	\$ 75	\$ 95	\$ _____
____ Spouse/Employee [List Name(s) below]..	\$ 60	\$ 80	\$ _____
____ Thursday evening ONLY guest pass.....	\$ 25	\$ 35	\$ _____
____ Friday Lunch only.....	\$ 15	\$ 15	\$ _____
____ Student	\$ 50	\$ 70	\$ _____
____ Scholarship Recipient.....	\$ No Charge		\$ ____ - 0 - ____
____ Technical	\$ 75	\$ 95	\$ _____
____ Non-Exhibiting Manufacturer/Supplier ..	\$135	\$175	\$ _____
____ Donation to Buck Lively Scholarship Fund			\$ _____

(Cash contributions will be acknowledged before the Auction/Raffle begins)

TOTAL ENCLOSED: \$ _____

I/We will donate _____ item(s) to the Buck Lively Scholarship Auction and Raffle

NOTE: All companies and individuals making donations will be acknowledged as their items are auctioned or raffled off unless requested otherwise. All income generated for the Buck Lively Scholarship Fund is evenly distributed among the scholarship programs of the 5 state associations hosting the Expo.

CANCELLATION POLICY: 50% if notified by January 24, 2015; No refunds after that date.

Name of Spouse/Employee/Other(s): Name: _____ Name: _____
Name: _____ Name: _____

*To register online, go to www.mountainstatesgroundwater.com or return form & check **or** to pay by Visa, MC or Am Express, fax form and complete information below:*

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Tempe, AZ 85283

Card #: _____
Exp. Date: _____ CVV#: _____
Signature/Name on card: _____
Zip code of card holder: _____



Arizona Water Well Association
950 E. Baseline Rd. #104-1025
Tempe, AZ 85283

Events Calendar

January 10, 2015 - AZWWA Quarterly Meeting; 9:00 am—11:30 am
Clear Creek Associates, 6155 E. Indian School Rd #200, Scottsdale, AZ 85251

February 12-13, 2015 - Mountain States Groundwater Expo, Aquarius Casino Resort, Laughlin, NV
Contact Debbie Hanson PH: 480-609-3999;
Email: info@mountainstatesgroundwater.com or
visit www.mountainstatesgroundwater.com

April, 2015 - AZWWA Spring Meeting; Date and Location to be determined

July 24, 2015 - AZWWA Summer Meeting in Prescott, Location to be determined
AZWWA Annual Golf Tournament, Location to be determined

July 25, 2015 - AZWWA Annual Picnic/Horseshoe Tournament/Chili Cook-off at Goldwater Lake