

# WorldWide Drilling Resource®

Home of Solid Gold Service™



Driltech T25K5W  
mounted on a 2007 Sterling 9513



Single & Double Hopper  
Rose-Wall Grouters



FRASTE Multidrill ML



Pulstar P12000



Pulstar P10000  
mounted on a Dodge 5500



Rose-Wall Water Truck



Pulstar P12000



Pulstar P10000

## Need a rig? Call Jeff!

Phone: 828-322-3056 Fax: 828-322-4042



2515 Highway 70 SW Hickory, NC 28602

E-mail: [jeffj@drillingequip.com](mailto:jeffj@drillingequip.com)

[www.drillingequip.com](http://www.drillingequip.com)

PARTS  
CUSTOMER CARE  
**EXCELLENCE**  
DRILLING EQUIPMENT  
FIELD SERVICE



Drilling companies across the world look to GEFCO for dependable and reliable equipment. We believe in earning your trust by providing productive equipment, dependable aftermarket service, and outstanding customer relations. When you buy GEFCO you become more than a number, you become a part of our family.

GEFCO, INC. an Astec Industries Company

2215 SOUTH VAN BUREN · ENID, OKLAHOMA, USA 73703 · PHONE 580.234.4141 · domsales@gefco.com · intsales@gefco.com · www.gefco.com

**INFINITY<sup>®</sup> | TOOLMFG.**



**BEFORE**

**READY  
TO GO  
AGAIN**

**AFTER**

**PDC + DTH BITS | MADE IN AMERICA**

**1-888-838-6657 | [infinitytoolmfg.com](http://infinitytoolmfg.com)**

*WorldWide Drilling Resource<sup>®</sup>*

FEBRUARY 2019

FIELD PROVEN • DRILLER TESTED

# THE COMPLETE WATER WELL DRILLING SYSTEM

**SIMCO  
2800 PTO**



## GET IN. GET DOWN. GET DONE.

- Compact & maneuverable 4x4 RAM 5500 w/automatic transmission
- Full access to cab & passenger areas
- Better performing, high-efficiency mud delivery system from pump to bit
  - Upgraded hydraulics deliver more power where it is needed most
  - Higher performance 2x3x13 centrifugal mud pump
  - Lightweight, steel alloy 10' SIMCO PDQ drill rods w/quick thread and larger water course yields 20-25% increase in production
- Development air up to 185 CFM/150 psi
- Capable of 12" boreholes up to 300+ feet\*

**NO CDL  
REQUIRED**



**SIMCO DRILLING EQUIPMENT, INC.**  
P.O. BOX 448 - 802 FURNAS DRIVE  
OSCEOLA, IOWA 50312 • USA  
**1-800-338-9925**  
[www.SIMCODrill.com](http://www.SIMCODrill.com)



**CALL FOR A  
QUOTE  
TODAY!**

OVER 45 YEARS OF QUALITY AND SERVICE

## Featured Editorial:

## Solid Gold Advertisers

Breaking News.....	13	Allegheny Instruments.....	21
<b>Classified Section: WorldWide SUPER MART™</b> .....	<b>58-72</b>	America West Drilling Supply.....	69
Dealmakers.....	41	AMS, Inc.....	15
Education Connection.....	14	Armstrong Machine Co., Inc. (AMCI).....	42
Fun Page.....	16	Atlantic Screen & Manufacturing, Inc. (ASI).....	33
<b>Hot Off the Press.....</b>	<b>9</b>	Baker Water Systems.....	24
<b>Obituary: Bechtold, Dean Henry.....</b>	<b>29</b>	bauma Munich 2019.....	28
<b>Obituary: Huber, Shawn Kelly.....</b>	<b>29</b>	Best in the West Drill & Blast Conference (ISEE).....	9
<b>Photo Gallery.....</b>	<b>44,46</b>	Better Water Industries, Inc.....	8
<b>Product Spotlight.....</b>	<b>38</b>	Bitco, Inc.....	14
<b>Where are you planning to go?.....</b>	<b>33</b>	Blackadar Insurance Agency.....	50
<b>Who's in the News.....</b>	<b>13</b>	Bloom Mfg., Inc.....	54
<i>WorldWide Association Memberships.....</i>	<i>31</i>	Central Mine Equipment Company (CME).....	45
<i>WorldWide Business Directory™.....</i>	<i>10,11</i>	CONEXPO-CON/AGG®.....	56
<i>WorldWide Home of Solid Gold Service ~ with a smile!™.....</i>	<i>6</i>	Cotey Chemical Corp. (CCC).....	49
<b>Editorial Focus for February - Protection and Safety</b>			
<b>C&amp;G - Construction/Geotechnical</b>	<b>DIR - Horizontal Directional Drilling</b>		
<b>ENV - Environmental</b>	<b>EXB - Exploration/Blasthole</b>		
<b>G&amp;O - Shallow Gas and Oil</b>	<b>GEO - Geothermal</b>		
<b>MIN - Mining</b>	<b>WTR - Water</b>		
<b>C&amp;G</b> What Role Will Wearables Have in Construction?.....	7	Drill Pipe, Inc.....	37
<b>Kuebelbeck, Jim:</b> Through the Back Door!.....	24	Drilling Equipment Sales, Inc. (DES).....	1
Are Safety Glasses Hurting My Vision?.....	37	Drilling Supply & Mfg (DSM).....	40
<b>Storkson, Britt:</b> Sometimes Change is Difficult, but...47		DRILLMAX®.....	72
<b>DIR</b> Directional Drill Reaches Depth in One-Shot Pass...8		Eastern Driller Manufacturing Company Inc. (EDM).....	25
<i>E-News Flash Readers' Choice:</i> Directional Drilling..27		Foremost Industries.....	30
Frequently-Used Geological Terms Part 78.....	41	Future of Mining Australia.....	52
<b>Connor, Tim:</b> If You Could Begin Your Life Over.....	50	GEFCO, Inc. (an Astec Industries Company).....	2
<b>ENV</b> Drilling into a "Star Scar" to Unlock Mysteries of Space..18		GEFCO, Inc. (an Astec Industries Company).....	27
Soviet Borehole Inspires Sound Art.....	22	Geoprobe Systems®.....	53
<b>Kwader, Thomas:</b> Environmental Monitoring.....	33	Geothermal Supply Company, Inc. (GSC).....	35
<b>Roerick, Ray:</b> How Far Will Your Camera See? Part 1..43		Headwater Companies, LLC.....	17
Solving the Mysteries of the Pyramids.....	54	Infinity Tool Manufacturing.....	3
<b>EXB</b> <b>White, Harold:</b> Oil/Water Exploration.....	14	International Construction & Utility Equip. Expo (ICUEE)..70	
Reduce Explosives Usage with Technology.....	26	Jentech Drilling Supply, Inc.....	51
<b>Wire, Jeremy C.:</b> Tales from the Field.....	35	KS Bit, Inc.....	48
<b>G&amp;O</b> <b>Battersby, Mark E.:</b> Drilling Into Money Not Boring....19		Merrill Mfg.....	34
Indiana's Petroleum Industry Through the Years.....	34	Mills Machine Company, Inc.....	57
Protecting the Gas and Oil Industry from Cyberattacks..42		Missouri Water Well Association (MWWA) Convention.....	38
The Traveling Companion.....	55	Mobile Drill Intl.....	12
<b>GEO</b> The 2018 Women in Geothermal Awards.....	21	N&N Drilling Supply.....	18
<b>"Smith, Billy Bob":</b> The "Idiot's" Corner.....	30	New England Water Well Association (NEWWA) Expo.....	46
Making Strides in Geothermal Research.....	57	NUMA Hammers.....	36
<b>MIN</b> The World of Minerals.....	15	Palmer Bit Company.....	32
<b>Wilson, Jr., Robert Evans:</b> The Un-Comfort Zone II....29,38		Pioneer Sands LLC.....	22
Celebrating Safety Since 1925.....	35,44	Qwater Well Development Tools.....	29
Future of Mining Australia Returns to Sydney in 2019..49		Rex McFadden Ltd.....	43
<b>WTR</b> <b>Rasmussen, Tim:</b> Water For Life International.....	16	Rockmore International.....	13
Iowa Company Provides Add'l Safety After Tornado..23		SEMCO, Inc.....	71
A Lot Going on in Indiana.....	46	SIMCO® Drilling Equipment.....	4
Safety & Protection - the People Part of your Business..51		Star Iron Works, Inc.....	23
<b>Ballard, Thomas:</b> Notes from the Groundwater Guy..52		Star Iron Works, Inc.....	47
		TDH Manufacturing Inc.....	39
		Tennessee Water Well Assn. (TWWA) Ann. Mtg & Trade Show..20	
		Throop Rock Bit Company.....	55
		Virginia Water Well Assn. (VWWA) Conv.....	26
		Well-Vu, Inc.....	19
		Wyo-Ben, Inc.....	7



Why not take your Valentine to dinner and a movie?

Ever think we don't say "thank-you" enough these days? The **WWR** Team wants to continue to let you know just how much we really do appreciate you for all you do for our drilling industry. Please accept this special "thank-you" in many languages across this wonderful world of ours from all of us here.

As another sign of appreciation from us, as is usual for this great team, if you will permit us, you will be seeing quite a bit more of **WWR** at your state association events. Yes, we have been considering this for many years now. As each of you know, those **red jackets** are famous the world over. We are repeatedly asked at different events where this is happening, how do I do this, where do I register, where do I get help, when is this event, and much, much more. Since most think we are the ambassadors of trade events, help with locating companies, etc., the next progression would be for us to **REALLY HELP**.

If your state association is looking for help, **LOOK NO FARTHER!** **GetAssociationHelp.com** is getting ready to launch the way for you to let go of some of that stress. Leave it to us. The website is in progress as of this writing. If you want more information, please give us a call ~ or tell your state association leaders, and ask them to call 850-547-0102.

Different packages are available for your different needs. We won't break your bank either! **We will NEVER stop working for you.**

Accept NO imitations - there is only one true **RESOURCE**.

850-547-0102

Home of Solid Gold Service ~ with a smile!<sup>TM</sup>

With pen (computer) in hand . . .

Ronnie, Managing Publisher

ronnie@worldwidedrillingresource.com



Troy@



Michele@



Kathy@



Ed@



Marcel@



Jan@



Bonnie@



Caleb@

worldwidedrillingresource.com

WE WILL SEE YOU ON THE TRAIL!

NEXT STOPS - MONTANA - MOUNTAIN STATES - VIRGINIA - MICHIGAN!



Wearables and the Construction Industry Page 7



Safety After Iowa Tornado Outbreak Page 23

Featured Articles for February

Safety & Protection - The People Part of Your Business Page 51



Are Safety Glasses Hurting My Vision? Page 37



Protecting the Gas and Oil Industry from Cyberattacks Page 42



Celebrating Safety Since 1925 Page 35, 44

Proudly Made in the United States of America - delivered WorldWide!

WorldWide Drilling Resource®

The complete magazine for the drilling industry worldwide, owned by drilling industry associates dedicated to bringing the most up-to-date technology and information to subscribers. Covering **construction-geotechnical, directional, environmental, exploration-blasthole, shallow gas & oil, geothermal, mining, water well, irrigation, wastewater**; from bits, to pumps, to rigs, to tanks, through wire, and more - **whatever it takes to get the drilling job completed!**



WorldWide Drilling Resource® is published monthly by WorldWide Drilling Resource, Inc., a Florida Corporation PO Box 660 (3089 Northridge Lane) Bonifay FL 32425-0660. Telephone: 850-547-0102 Fax: 850-547-0329



We Recycle

E-mail: [wdr@worldwidedrillingresource.com](mailto:wdr@worldwidedrillingresource.com) Website: [www.worldwidedrillingresource.com](http://www.worldwidedrillingresource.com)

- Managing Publisher/CEO/President: Veronica I. "Ronnie" Jones
- Vice President: Troy Cunningham
- Chief Marketing Officer: Ed Moranski
- Office Administrator: Michele Stevens
- Editor: Bonnie Love
- Associate Editor: Caleb Whitaker
- Public Relations Professionals: Kathy Heinrich, Jan Allen, Marcel Schimpf, Marie Cunningham
- Production/Webmaster Representative:



Copyright 2019, WorldWide Drilling Resource, Inc. Seen by countless WorldWide. Publication Agreement No. 40892520. Back issues may be requested. Cost per issue \$10.00 USD. No part of this publication may be reproduced in any manner without the strict written consent of the publishers. Advertising rates furnished upon request. Editorial contributions are welcome subject to editorial review.\* WorldWide Drilling Resource® reserves the right to refuse any advertisement.



\*Editorial contributions & advertisements include statements of fact and opinions that are the sole responsibility of the author and/or companies and do not necessarily imply any opinion of the owners, management, or staff of WorldWide Drilling Resource®. Images may have been altered for clarity. Complete advertising information may be found at: [www.worldwidedrillingresource.com](http://www.worldwidedrillingresource.com)

- Editorial Contributors for this month:
- Tom Ballard
  - Mark Battersby
  - Tim Connor
  - Jim Kuebelbeck
  - Thomas Kwader
  - Tim Rasmussen
  - Ray Roerick
  - "Billy Bob Smith"
  - Britt Storkson
  - Harold White
  - Robert Evans Wilson, Jr.
  - Jeremy Wire

Hyd/Eng Consultant: Thomas Kwader, Ph.D.,P.G. Consultant: Mary Ann Pelletier

or by calling 850-547-0102. WorldWide Drilling Resource® makes every effort **not** to place advertisements for "like" products on the same page in our publication; this may occur however, due to size and space within the publication. We regret any inconvenience this may cause our advertisers.

## What Role Will Wearables Have in the Construction Industry?

*Adapted from Information by CONEXPO-CON/AGG*

Wearable devices are expected to play a more pivotable role in the future, which is expected to impact the way the construction industry conducts business.

A recent report by ABI Research shows globally and across all device types, wearable device shipments will increase from nearly 202 million in 2016, to 501 million by 2021. The report predicts field services will represent one of the most tangible near-term opportunity for enterprise wearable shipments.

Wearables can help minimize unplanned downtime in the workforce, but the type of wearable to be most readily adopted remains dependent upon the specific industry or the use to which it caters, according to ABI Research.

For example, smart glasses or HUDs (heads-up displays) will drive enterprise wearable technology as Internet technology and operational technology merge.

In the construction industry, wearable devices offer a combination of challenges and benefits. Chief among these is safety. While many construction executives are concerned with the safety implications of using wearable devices at the jobsite, others recognize wearables can actually address some of these safety concerns.

Carol Hagen, owner, Hagen Business Solutions, suggests construction professionals should be ordering wearables to address safety, and points to five wearable devices contractors should have in their “wearable toolbox” for safety at the construction jobsite. These include:

▲ ZIPPKOOL® - These products are designed to create airflow surrounding the body so sweat vaporizes quickly, preventing the body from exerting an excess amount of sweat. It is designed for industries which require cooling jackets to keep workers healthy while at the jobsite.

▲ Spot-r: This is a sensor platform that measures slips, trips, and falls in realtime, while also tracking each worker's location on the jobsite. Incidents are captured and transmitted in realtime, showing the data on devices. Upon exiting the jobsite, the system stops recording data and the worker is clocked out.

▲ Redpoint Positioning: This is an indoor GPS (global-positioning system) for the construction industry. It combines wearable technology, mobile, wireless, and RFID (radio-frequency identification) to stay on top of operations and know where people and assets are located in realtime.

▲ XOeye: This system equips field technicians with wearable technology systems to capture and share the right information, with the right people, at the right time. By learning workflows and processes, the technology can be used to share information. For instance, field service workers can be equipped with safety eyewear devices which run applications to communicate with decision makers.

▲ APXlabs: This company builds software for smartglasses, offering solutions for various industries such as field service. The wearables give workers immediate validation of actions in the field and enable a team to coordinate every step of the process.

Certainly, there are many other widely discussed devices construction companies should keep in mind for the future. Some which come to mind for most in the construction industry are wearable hard hats such as the Smart Helmet from Daqri, and HoloLens from Microsoft.

What do construction companies really need to know and consider when selecting and implementing wearable devices in the future? For one, the cost benefits will be key to determining if it is a worthwhile investment. “You may find these technologies not only win you more work and increase productivity, but make it easier to recruit and retain talent with measurable workforce development benefits,” Hagen concluded.



Image of airflow

Air vents

*A specially patented fabric prevents air from exiting, allowing it to circulate; a patented super light-weight fan blows up to five gallons of air per second. Photo courtesy of ZIPPKOOL®.*

# NATURALLY SUPERIOR

## WYO-BEN.





Bring profitability to your jobsite with WYO-BEN's line of high-performance, cost-effective drilling fluids.

- No Complicated Recipes
- Highly Concentrated Products

- Maximize Your Rig's Performance
- Less Handling, Fewer Problems

**Contact us today! 1-800-548-7055 or [www.wyoben.com](http://www.wyoben.com)**



### Odd Facts

Over 50% of the world's population lives within 60 miles of a sea coast.

## Directional Drill Reaches Depth in One-Shot Pass

*Adapted from Information by Boart Longyear Drilling Services*

To maximize underground mining, it is important to stabilize mined stopes with backfill. This allows mining to continue safely by preventing stope failure from a lack of structural support. Boart Longyear Drilling Services was awarded the directional drilling job to develop a paste fill hole at Paulsens gold mine in Australia. The paste fill hole acts as a delivery system, allowing a paste-like mixture of cement and mine tailings to backfill the underground zones where mining and excavations occurred. Further mining of adjacent stopes is optimized due to additional ground support and pillar recovery provided by the paste fill hole.

The traditional method of drilling this type of hole would be to drill a pilot hole with diamond drills, then enlarge the hole using rotary drilling methods on a second and potentially even a third pass. This method could take as many as 45 to 50 shifts to complete the drill.

In this case, the paste fill hole needed to be drilled to a 12¼-inch diameter to allow it to be internally lined down its entire length with an 8-inch-diameter casing.

An additional challenge for this project was for the drill operator to make sure the hole would intersect within the 16-foot-diameter target in the underground development zone. This meant concise and accurate surveying was needed during directional drilling.

Because of the unusual requirement for a larger hole, a regular exploration drill rig could not be used. Boart Longyear decided to use a water well-style drill rig. It had the ability to accommodate large-diameter casing and a deeper drilling capability via a powerful 130,000-pound pullback. An additional booster compressor was provided as the entire hole was drilled using conventional down-the-hole (DTH) hammers. The booster compressor was essential to keep the DTH hammer efficient, as well as lift and clear the cuttings from the hole.

The crew set up the rig and was operational within one week of arriving on the jobsite. As drilling commenced, the hole was collared and cased with an 18½-inch-diameter drill bit for the top 20 feet before reducing to 15-inch-diameter. This was progressed to a depth of around 180 feet before the hole was once again cased. The bottom hole assembly was then reduced to the final diameter of 12¼ inches, and drilling recommenced. As the hole progressed, Surtron Technologies conducted mul-



tishot surveys and Boart Longyear adjusted drilling parameters as needed to ensure the hole trajectory remained on target.

Actual drilling operations required a total of 39, 12-hour shifts to reach the target depth of 2150 feet. Most importantly, the hole successfully intersected its required target at only an estimated 7 feet from center. The average drilling per shift was around 75 feet, and the single best shift produced 295 feet. Regular rod pulls were conducted for drill bit inspection and replacement, as well as surveying of the hole. As ground formations became harder, they pulled the rods to switch out drill bits and DTH hammers, providing an optimized combination for the drilling conditions.

With the use of a water well-style rig, Boart Longyear was able to achieve a one-pass shot, helping the owner garner approximately \$5 million in future gold value per mining level for this particular pillar extraction.

# SENTRY I OPEN-AIR AIR STRIPPER

The Sentry I Treats:



VOC's



Radon



Iron Bacteria





Wisconsin  
Approved!

and MUCH more!



BETTER WATER INDUSTRIES INC.

www.BetterWaterInd.com

(507)247-5929



# Hot Off the Press

## New Drill Rig Operator Certification

The National Commission for the Certification of Crane Operators (NCCCO) and the International Association for Foundation Drilling (ADSC) announced the introduction of a certification program for operators of drill rig equipment.

"The unique challenges and operational practices required by drill rig equipment necessitated new certification exams different from any other CCO program," said NCCCO Director of Operations Joel Oliva. "The new Foundation Drill Rig (FDR) and Anchor/Micropile Drill Rig (AMP) Operator certifications address a need identified by the industry for an operator certification specifically designed for operators of these specialized machines."

"ADSC has been delighted to work with NCCCO over the last two years in the development of this program, which will make a major contribution to ensuring drill rig equipment is operated in a safe and professional manner," said ADSC CEO Mike Moore. "By providing the industry with assessments that are specifically focused on the work that operators perform on a daily basis, we will ensure that operators are proficient and knowledgeable, and thereby reduce risk and improve safety."

The foundation drill rig practical exam includes tasks related to inspecting the equipment, site safety protocols, identifying operational controls, picking up and laying down pipe, tool positioning, drilling, and safe shutdown/securing.

The anchor/micropile drill rig practical exam includes tasks related to inspecting the equipment, forward and reverse travel, vertical drill steel joint, angled and vertical drill steel placement, and safe shutdown/securing.



NATIONAL COMMISSION  
FOR THE CERTIFICATION  
OF CRANE OPERATORS (NCCCO)

For a link to this website, visit:  
[worldwidedrillingresource.com](http://worldwidedrillingresource.com)

*Sponsorship available for special position  
Hot Off the Press page.*



**April 24-26, 2019**  
**Spearfish, SD**

Spearfish Holiday Inn and Convention Center  
Phone: (800) 999-3541 • (605) 642-4683  
For room booking use group code: BIW  
[www.holiday-inn.com/spearfishsd](http://www.holiday-inn.com/spearfishsd)

- Tuesday:** Registration and early exhibit set-up (after 10 am or before noon on Wednesday).
- Wednesday:** Regulatory Session, Crazy Horse Mountain Tour, Paul Muehl Scholarship Clay Shoot, Bob Martin Scholarship Golf Scramble, Primer Hour, Whole Hog Roast.
- Thursday:** Technical Sessions, Booster Hour, Banquet, Scholarship Auction
- Friday:** Technical Sessions. Booths close after 10 am Coffee Break. Conference ends after lunch.
- Everyday:** Exhibitor Booths with the latest in Blasting Technology and Products, Lunch, Door Prizes, and much more!

**Blaster recertification credit hours available  
for Wyoming and many other states!**

James McNulty: (605) 786-4959 • [bitwconference@gmail.com](mailto:bitwconference@gmail.com)  
Doug Hoy: (605) 940-1055 • [dough@sayreassociates.com](mailto:dough@sayreassociates.com)

**For more information, or to register online,  
go to: [bitwconference.org](http://bitwconference.org)**

**See you there!**



# Stay in the black with *World*

**acker**  
DRILL COMPANY

P.O. Box 830  
Scranton, PA 18501

Matthew K. Vass  
SALES REPRESENTATIVE

Office: 570.586.2061  
Toll Free: 800.752.2537  
Fax: 570.586.2659

www.ackerdrill.com      mkvass@ackerdrill.com

**CLM CENTERLINE**  
MANUFACTURING

Cory Miller  
Owner

Office: 903-725-6978  
7355 E SH 154 Winnsboro, Texas 75494  
info@centerlinemanufacturing.com

— "Mud Pumps for the 21st Century"

**EWM EAST WEST**  
MACHINERY EXPORTING, INC.  
ALEX XAGORARAKIS  
SALES & MARKETING MANAGER

268 MAGNOLIA STREET  
COSTA MESA, CA 92627 USA  
PHONE: 949.722.8843      PHONE: 800.828.6131  
FAX: 949.722.2561      CELL: 949.422.2369

www.eastwestdrilling.com  
alex@ewdrilling.com

**BAKER**  
WATER SYSTEMS DIVISION

Campbell Monitor MONOFLEX

RESIDENTIAL ENVIRONMENTAL INDUSTRIAL  
QUALITY WATER SYSTEM PRODUCTS

www.bakerwatersystems.com  
800-356-5130

World's Leader in Underground Grouting Equipment

THE INDUSTRY'S CHOICE SINCE 1963  
FOR OVER 55 YEARS

**ChemGrout**  
The World's Widest Selection Of Grouting Equipment  
1963 - 2016

Call Mike Felder  
708-354-7112  
mfelder@chemgrout.com

**EDM Eastern Driller**  
Manufacturing Co., Inc.

DTH Hammers and Drill Bits  
Made in Pennsylvania...  
Sold Around the World!

105 Walnut Street, Columbia, PA 17512 U.S.A.  
Bus: (717) 684-3070 1-800-233-0173 Fax: (717) 684-2566  
www.edmmfg.com Email: sales@edmmfg.com

**BESTOLIFE**  
PREMIUM COMPOUNDS

Steve Wageman  
Global HDD/Water Well Sales

2777 N. Stemmons Fwy  
Suite 1800  
Dallas, TX 75207  
swageman@bestolife.com

DIR (214) 583-0343  
CEL (469) 203-0737  
TFN (855) 243-9164 ext 0343  
FAX (214) 631-3047

**STEEL WIRE ROPE**  
Drill Line • Sand Line • Casing Line  
Rotation Resistant • Winch Cable

**CROWNWIRE.COM**

**MASTER REELS • IN STOCK !!!**  
Custom Cut Any Length • All Types • All Sizes

**Eijkelkamp**  
North America

Jim Nidzgorski  
Sales & Technical support  
Sonic Technology

M 937 477 3055  
O 919 694 1114

E j.nidzgorski@sonicsampdrill.com  
I www.sonicsampdrill.com

9230 Globe Center Drive  
Suite 110  
Morrisville, NC 27560

**BIT BROKERS INTERNATIONAL**

**CHESTER THOMAS**  
SALES REPRESENTATIVE

chester@bitbrokers.com  
OFFICE: 618.435.5811  
CELL: 618.218.5373

5568 Logan Road  
West Frankfort, IL 62896

BITBROKERS.COM

**DIEDRICH DRILL**

Sales/Service  
info@diedrichdrill.com

Tel: 800-348-8809

5 Fisher Street  
La Porte, Indiana 46350  
www.diedrichdrill.com

**FLOMATIC VALVES**

Nick Farrara  
Vice President  
Sales & Marketing

Flomatic Corporation  
15 Pruyin's Island Drive  
Glens Falls, NY 12801-4421  
Phone: 518-761-9797  
Phone: 800-633-2040 ext. 204  
Fax: 518-761-9798  
Fax: 800-314-3155

Cel: 518-744-7660  
E-mail: nick@flomatic.com      www.flomatic.com

**BITCO**

Rod Henderson  
Owner/Sales

- New & Used Bits
- Hole Openers
- Drag Bits & Wings
- Hammers
- Hammer Bits
- Subs
- Re-tipping
- Stabilizers
- Claw Bits

(661) 201-6259 Cell  
(661) 834-4348 Office  
(661) 834-7419 Fax  
bitcoincrod@hotmail.com

Shop - 3011 Antonino Ave. Bakersfield, CA 93308  
Mailing - 12102 Vista Montana Dr. Bakersfield, CA 93306  
www.bitcoinc.us

**Drill King INTERNATIONAL**

Randy Broseh  
Director of Sales

820 South 6th Ave.  
Mansfield, TX 76063

O 001.817.539.2501  
T 001.866.900.2487  
C 001.817.925.2254  
RBroseh@drilling.net  
www.drilling.net

**XT X-treme Drilling Tools**

**FL FRONTIER LOGGING CORPORATION**

**Borehole Geophysics**  
Open and Cased Hole Logging  
Perforating Down Hole Video Camera

405.787.3952 / fax 405.787.3977  
www.frontierlogging.com / borholog@sbcglobal.net

**BOSHART INDUSTRIES**

www.boshart.com

sales@boshart.com      1-800-561-3164

**DRILL PIPE**  
INCORPORATED

Tom Ronnkvist  
President

tom@drillpipeinc.com  
p: 763-592-8670 | f: 866-220-8342 | f: 763-592-8661

Drill Pipe Inc.  
550 South Third Street, Winsted, MN 55395

**GROUNDWATER SUPPLY CO., INC.**  
"The Drill Store"

Rob, Ed, Andy, Gary, Pat, Jim

sales@groundwatersupply.net  
PO BOX 513 / 217 Leominster Rd  
Sterling, MA 01564  
(p) 978-422-3209 (f) 978-422-6055  
Owned and operated by  
The Erickson Family since 1992

# WorldWide Business Directory™

"We make the tools that make you money"

**HM Heisey Machine**  
HOME OF THE HM FLOATATION SUB

Pamela Heisey, Business Manager/Sales  
78 Pitney Road, Lancaster, PA 17602  
717-598-3321 717-293-1373 Fax 717-293-1091  
pamheisey@heiseymachine.com  
www.heiseymachine.com



**NUMA**  
MANUFACTURER OF DOWN HOLE HAMMERS AND BITS

The World's **Leading** Drilling Technology

U.S. made DTH hammers and bits for holes 3½ - 50½ inches (89 - 1283 mm)

www.numahammers.com • 860.923.9551

MADE IN USA

**Mid America Meter Inc.**

Nationwide Sales & Service  
Water Meter Testing, Repairs & Calibration  
**1-800-324-0365**

Bruce Pietig  
710 Hamel Road  
Medina, MN 55340

Phone 763-478-8041  
Fax 763-478-8043

www.midamericameter.com

**hole PRODUCTS**  
Drill with us.

ARIZONA: 844.836.6225 MINNESOTA: 320-616-0701  
CALIFORNIA: 844.573.0854 MISSOURI: 877.699.2159  
FLORIDA: 877.544.4211 NEW JERSEY: 888.379.0371  
GEORGIA: 888.448.4430 WISCONSIN: 888.465.3704  
CANADA: 647.241.6971 GLOBAL: 888.465.1569

MARKETING@HOLEPRODUCTS.COM  
www.holePRODUCTS.com

**Richs Bit Service, LLC**  
8918 Baxter Road  
Benton, IL 62812

**618-663-0768**

Rich Stewart richsbit01@gmail.com

**Sullivan Palatek**

James L. Freigh  
OEM Sales Manager  
Applications Engineer

jlfreigh@palatek.com  
office: (219) 874-2497  
cell: (219) 363-3346

Portable and Industrial Air Compressors Sullivan-Palatek.com

Sullivan-Palatek, 1201 W US Hwy 20, Michigan City, IN 46360

**MITSUBISHI MATERIALS U.S.A.**

**DENNIS GIBSON**  
Sales Manager  
Rock Drilling Tools / Engineered Carbide Products

**MITSUBISHI MATERIALS U.S.A. CORPORATION**  
2690 Salesbury Highway, Statesville, NC 28677  
Call (336) 413-1410 • Fax (888) 834-2248  
E-mail: dgibson@mmus.com  
www.mmus.com

**RICHS BIT SERVICE, LLC**

Cell: (618) 663-0768  
E-mail: richsbit01@gmail.com

Call us for your  
Used/Rerun/New/Rebuilt  
Reamers & Holeopeners  
Many Used Water Well H/o's in Stock @  
Surplus prices

**Sunrise Drilling Supply, Inc.**  
**1-800-432-5422**

Hammers & Bits • New & Used • New & Re-Run  
TriCone Bits • Subs • Adaptors  
Drill Steel • Stabilizers • Fluids

**SUZANNE HAAG**  
suzannehaag@sunrisedrillingsupply.com  
www.sunrisedrillingsupply.com

**Mountain-West WATER WELL SERVICES**  
Well Survey and Rehabilitation

☎ 559.280.1575  
🌐 www.M3WS.com  
✉ info@m3ws.com  
📍 638 Industrial Drive, Exeter CA, 93221

**DRILL MORE WITH ROCKMORE**

info@rockmore-intl.com  
10065 SW Commerce Circle  
Wilsonville, OR 97070 USA  
PHONE: 503.682.1001  
FAX: 503.682.1002

**ROCKMORE INTERNATIONAL**  
Rock Drilling Tools

📱 📺 📺 📺

BITS • RODS • COUPLINGS • SHANKS • DTH

www.rockmore-intl.com

**T & T Carbide, Inc.** Ph. 618.439.7253  
17409 Lowry Ave. 800.333.1816  
Logan, IL 62856 Fax 618.435.4347

www.tandcarbide.com  
email: sales@tandcarbide.com

Nathan Colvin  
Sales

**INFINITY tool mfg.**

**TODD TAYLOR**  
OWNER/COO

P.O. BOX 488  
11648 Skylane Drive  
Benton, IL 62812  
PH. 618.439.4042  
TF. 888.83.TOLS (866657)  
CELL 618.218.7866  
FX. 618.439.4380  
todd@infinitytoolmfg.com  
www.infinitytoolmfg.com

**INFINITY tool mfg.**

**JAMES SHIMKUS**  
GENERAL SALES MANAGER

11648 Skylane Drive  
Benton, IL 62812  
PH. 618.439.4042  
TF. 888.83.TOLS (866657)  
CELL 618.693.7229  
FX. 618.439.4380  
james.shimkus@infinitytoolmfg.com  
www.infinitytoolmfg.com

**Simmons**

Mo Rainey

**Simmons Manufacturing Company**

Telephone: (770)-957-1808  
(800)-241-1935  
FAX: (770)-957-3979

Post Office Box 1509  
McDonough, Georgia 30253  
mrainey@simmonsmlg.com

**VANAIR**  
AIR POWER TO GO™

800.526.8817 vanair.com

814-427-2555 FAX: 814-427-5164  
800-927-0560

**STAR Iron Works, Inc.**  
Serving the drilling industry

Web Site: http://www.starironworks.com 257 Caroline Street  
E-mail: sales@starironworks.com Punxsutawney, PA 15767

**WINDMILL 702 LLC**

**Daniel Ruiz**

702 ENTERPRISE SUITE #1 LAREDO TX 78045  
Phone: (956) 717-2900  
Fax: 717-2933  
Cell: (956) 319-4409  
druez@windmill702.com www.windmill702.com

To be noticed,  
give us a call: (850) 547-0102  
or e-mail: wwdr@  
worldwidedrillingresource.com  
**WorldWide Drilling Resource®**

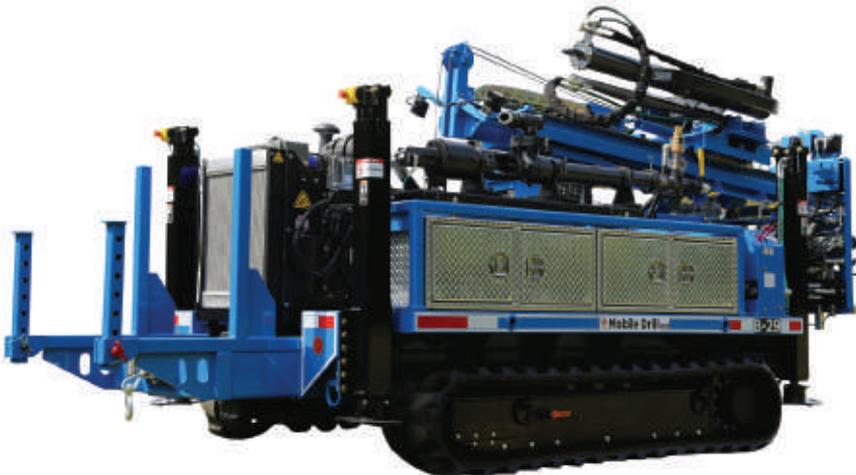


**Mobile Drill Intl**  
HELPING YOU BUILD OUR WORLD SINCE 1947



# B37X

6 ft & 13 ft stroke  
8,000 ft-lb torque  
1,055 rpm  
21,200 lbs retract  
11,800 lbs pulldown



# B29

4,200 ft-lb torque  
770 rpm  
No clutch  
No transmission  
Non-CDL truck\* or  
Compact rubber tracks  
\*Class A/B



# B57

11,420 ft-lb torque  
960 rpm  
20,000 lbs pulldown  
30,000 lbs retract

800.766.3745 • [www.mobiledrill.net](http://www.mobiledrill.net) • [sales@mobiledrill.net](mailto:sales@mobiledrill.net)

# BREAKING NEWS

## Wilo USA Consolidates Locations

Wilo USA LLC announced it is consolidating its Thomasville, Georgia, and Cedarburg, Wisconsin facilities. Company CEO and Managing Director Jeff Plaster said, "Reshaping the Wilo legacy business model was done in order to capitalize on synergies, and to position Wilo USA for future growth and success. Business decisions that directly impact the lives of our employees are difficult, and we will support impacted employees by helping them through the transition or by transferring to our Cedarburg facilities."



The plans include integrating all machining, product lines, and operations from Thomasville into the company's Cedarburg facilities. Most Thomasville employees will be reassigned or transferred, while others will remain at the Thomasville location which will become a Center of Excellence.

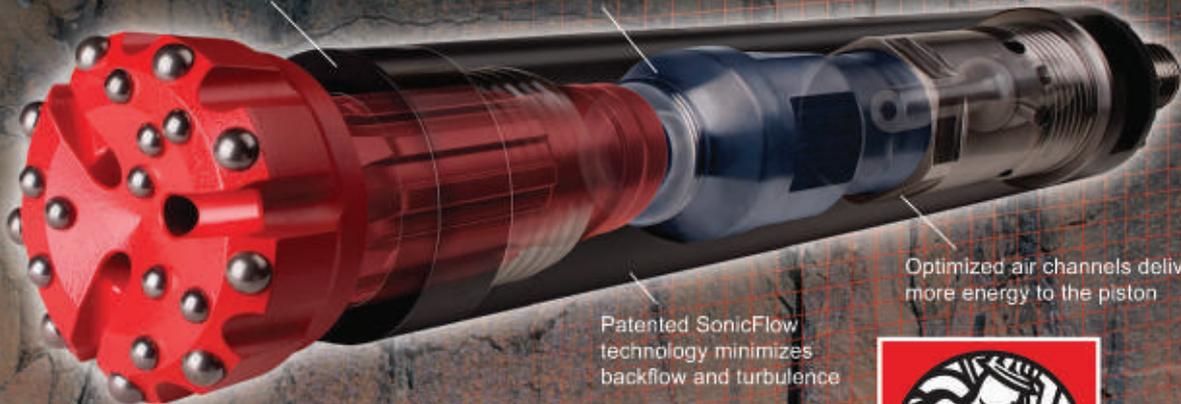
## DRILL MORE

with Rockmore's High Performance DTH Hammer featuring SonicFlow Technology - The ROK Series



Streamlined design means fewer parts, easier maintenance

New piston geometry for more impact energy



Optimized air channels deliver more energy to the piston

Patented SonicFlow technology minimizes backflow and turbulence

SONICFLOW

X TUBELESS X

MULTIPOINT



ROCKMORE INTERNATIONAL

Rock Drilling Tools

[www.rockmore-intl.com](http://www.rockmore-intl.com)

Wilsonville, Oregon, USA  
+1 (503) 682-1001

Judenburg, Austria  
+43 3572-86300



## WHO'S IN THE NEWS

Additional announcements from the Indiana Ground Water Association and Groundwater Week are located in our online issue: [worldwidedrillingresource.com](http://worldwidedrillingresource.com)

Greg Parker, president of the Indiana Ground Water Association (IGWA), along with Fred McAninch, presented Orrin Martin with a Lifetime Membership award at the IGWA convention and trade show.



Send your Who's in the News to: [bonnie@worldwidedrillingresource.com](mailto:bonnie@worldwidedrillingresource.com)



**Engine / Machinery Maintenance**

by: Hydraulic Training Associates  
**Hydraulic Schematic Troubleshooting Training**  
March 12-14 ~ Bloomington, MN  
phone: 866-432-9771  
[www.htahydraulics.com](http://www.htahydraulics.com)

**Foundations**

by: Pile Dynamics, Inc.  
**Quality Control of Augered Cast-In-Place / Continuous Flight Auger Piles**  
March 12 ~ ONLINE WEBINAR  
phone: 216-831-6131  
[www.pile.com](http://www.pile.com)

**Groundwater / Water Well**

by: Ontario Ground Water Association  
**Regional Training Meetings**  
March 5 ~ Thunder Bay, ON, CANADA  
March 22 ~ London, ON, CANADA

March 26 ~ Callander, ON, CANADA  
March 28 ~ Perth, ON, CANADA  
March 29 ~ Lindsay, ON, CANADA  
phone: 519-245-7194  
[www.ogwa.ca](http://www.ogwa.ca)

by: Washington State Ground Water Association  
**Driller & Pump Installer Seminar**  
March 15 ~ Tacoma, WA  
March 16 ~ Kelso, WA  
March 29 ~ Spokane, WA  
March 30 ~ Richland, WA  
phone: 360-757-1551  
[www.wsgwa.org](http://www.wsgwa.org)

**Grouting**

by: The University of Texas at Austin, Cockrell School of Engineering  
**40th Annual Short Course Grouting Fundamentals and Current Practice**  
March 4-8 ~ Austin, TX  
phone: 512-232-5154  
<https://executive.engr.utexas.edu/epd/grouting19.php>

**Irrigation**

by: Rain Bird Academy

**Training**

March 4-8 ~ Bozeman, MT  
March 11-15 ~ Norfolk, VA  
March 11-15 ~ Salt Lake City, UT  
March 18-22 ~ Seattle, WA  
March 18-22 ~ Hudson, WI  
March 25-29 ~ Detroit, MI  
March 25-29 ~ Long Island, NY  
phone: 800-498-1942  
[www.rainbirdsolutions.com](http://www.rainbirdsolutions.com)

**Pipe**

by: McElroy University  
**Small Diameter Troubleshooting & Rebuild**  
March 18-20 ~ Tulsa, OK  
**Medium Diameter Troubleshooting & Rebuild**  
March 20-22 ~ Tulsa, OK  
**Large Diameter Troubleshooting & Rebuild**  
March 26-28 ~ Tulsa, OK  
phone: 918-836-8611  
[www.mcelroy.com](http://www.mcelroy.com)

**BITCO**

New & Used Bits, HDD Bits & Tools, Drag Bits & Wings, Bolt-On Drag Bits, Reverse Circulation Tools, Hole Openers, Claw Bits, Stabilizers, Subs, Custom Tooling & Welding, Hammer Bits, Drill Collars, Pipe Wipers, and Drill Pipe.

Office: (661) 834-4348  
Rod Henderson / Eran Henderson  
661-201-6259 • 661-330-0790  
[sales@bitcobits.com](mailto:sales@bitcobits.com)  
[www.bitcoinc.us](http://www.bitcoinc.us)



**Oil/Water Exploration**

by Harold White



I just finished drilling through 300 feet of hard basalt and small sandstone layers, then basalt. We are in the process of cleaning the well, getting the incoming water to clear up, then another flow test, then sanitation again, then PVC liner.

So just how does water get into impervious layers of anything - in this case basalt? Water and the level it was in was there before the upper level of basalt, which may have been centuries ago. If this water was given a carbon date test, what do you think it would show? That the water was centuries old?

My point is, it probably would, but does it mean it really has been *there* that long? No, the water I drill into is an underground creek. The creek has been there for centuries, but the water has not. It is flowing, but it may or may not pick up something which triggers the carbon dating.

Underground creeks can move fast, like three miles per hour and faster. Look at Thousand Springs, Idaho, or Metolius River in Oregon - just to mention two of many around the world. Rivers and aquifers do not store water. All water is moving. Rivers have tributaries whether they are above- or belowground. Some rivers are hundreds of miles long, so where is the main radius that influences the well's creek water?

All of the wells I know of have had impermeable levels of clay rock, cemented sand, and gravel to cause the creeks to stay there. The underground creeks and rivers, when drilled into, if the water rises appreciably or overflows, indicate a confined seal around the creek or river; and if the water pressure at the well casing head gauge reads pressure, it will indicate something about water coming from a higher level. The static level in the well also gives an indication of what elevation the water is coming from and how it has some lack of porosity.

*Harold*

Harold White may be contacted via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)



## The World of Minerals

Graphite is a mineral which forms when carbon is subjected to heat and pressure in the earth's crust and in the upper mantle. Graphite and diamond are the two mineral forms of carbon; and the two share the same composition, but have very different structures.

Graphite is an extremely soft mineral and breaks into small, flexible flakes which easily slide over one another. This feature accounts for graphite's greasy feel, a characteristic which makes graphite a good lubricant. Because it is a solid material, it is known as a dry lubricant, which makes it useful for applications where wet lubricants, such as oil, cannot be used.

It is also the only nonmetal element which is a good conductor of electricity. Natural graphite is used mostly in refractory applications, involving extremely high heat. These account for the majority of the usage of graphite. One example is in the crucibles used in the steel industry.

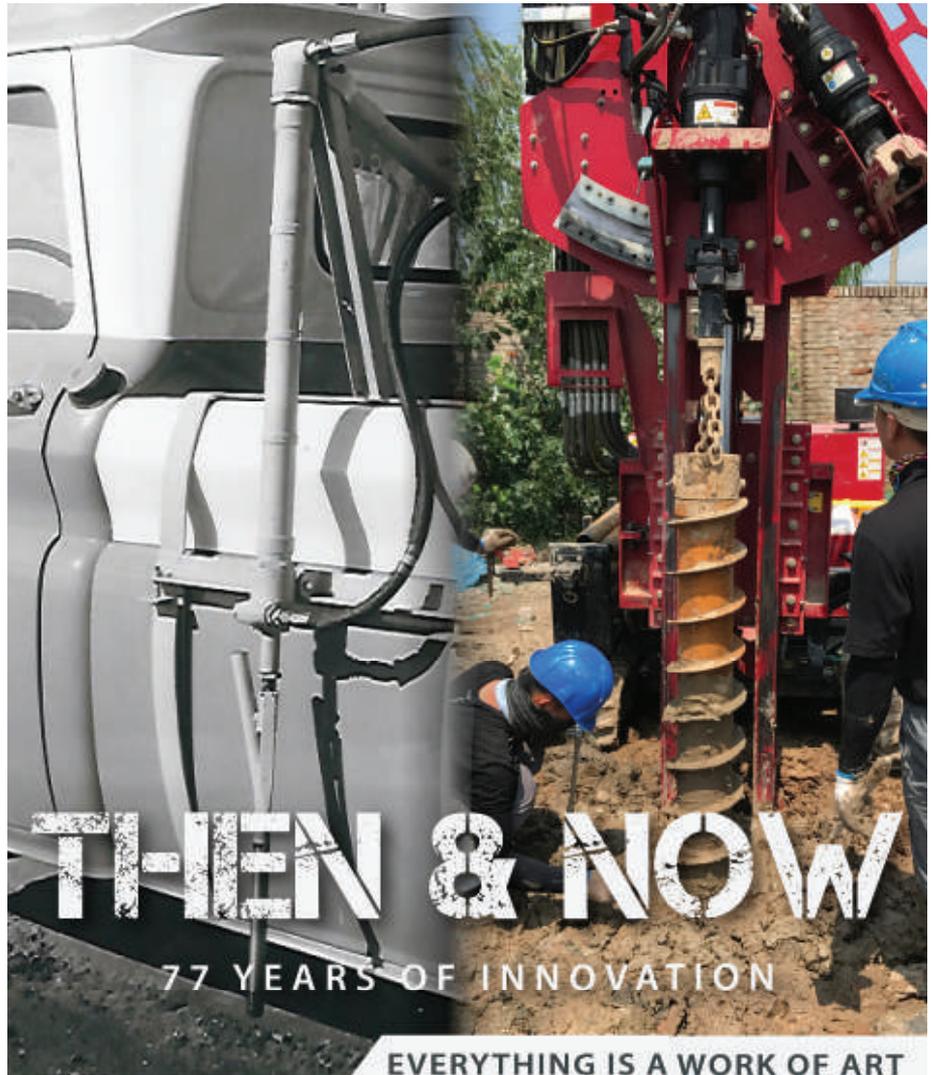
Additional uses for graphite are in brake linings, lubricants, and molds in foundries, as well as a variety of other industrial uses consumed each year.

Lead pencil cores are made of a mixture of clay and graphite. Paper is marked by loosely cleaved graphite flakes, while the clay acts as a binding material. The higher the graphite content of the core, the softer the pencil and darker its trace. There is no lead in what are known as lead pencils, but the name originated in Europe when graphite was called "plumbago" or "black lead" because of its metallic appearance. The mineral's use as a marker dates from the 16th century in northern England, where local legend states shepherds used a newly discovered graphite deposit to mark sheep.

From 1890 to 1920, underground mining of graphite was practiced in New York and Pennsylvania. From 1942 until the end of World War II, only open-pit methods were used, because working weathered rock was relatively easy. During World War II, graphite was mined underground in Montana, but shortly thereafter, mining ceased because it was too costly to compete with Sri Lankan graphite.

Madagascar operations are entirely open pit, but in Bavaria, Korea, Mexico, and Sri Lanka, the depth and physical characteristics of the deposits allows for underground mining to be practiced. Underground mining operations in Mexico exist 300-1300 feet below the surface, measured on the angle of the vein. Some of the older mines in Sri Lanka reached depths of over 1400 feet on a vertical plane. For many years, mining operations in Sri Lanka were primitive and ore extraction was slow and cumbersome, but the mines were mechanized after World War II.

Graphite is a mineral which forms when carbon is subjected to heat and pressure in the earth's crust and in the upper mantle. Graphite and dia-



### AMS POWERPROBES™

AMS PowerProbes feature Tier 4 Compliant engines, and direct push drilling capability. Some PowerProbe models can be equipped with optional features such as:

- Rotary Auger Head
- Mast Winch
- SPT Hammer
- L Frame Pump
- High Speed Rotary Head

### EVERYTHING IS A WORK OF ART

Art Vollweiler opened the doors of Arts Machine Shop over 77 years ago and followed a simple philosophy: "Everything is a Work of Art." He considered all AMS products as a direct reflection on him, so every design was developed with purpose and longevity in mind.



800.635.7330 | 208.226.2017 | [ams@ams-samplers.com](mailto:ams@ams-samplers.com) | [www.ams-samplers.com](http://www.ams-samplers.com)

by Tim Rasmussen



Edgar Lopez

During my quick trip to Guatemala last October, I had a chance to check on the progress on repairing our equipment. During the season, we are continually faced with the prospects of breakdowns and the resultant delay to our drilling progress. Our crew comes to drill, and when they have to stop and make repairs, it is disappointing to them, to us, and to the villagers who are waiting.

To address this issue, we decided to hire someone to focus on repairs to our rigs and trucks during the off-season. After some discussion, we decided to employ Edgar Lopez. We have known Edgar for several years, and have taken our machines to him for repair many times. He and his wife and family live about one hour away from Poptun, toward Santa Elena. He has a small shop beside the road in the village of San Juan. He is familiar with our work and very supportive of our efforts to help his people. One of our workers, Jon Hansen and his wife Chris, stayed with him while Jon drilled a well several years ago. While the well is one of the few on private property, when the villagers of San Juan have no water, as sometimes happens in the dry season, Edgar's well and water is available to all. He pays the electricity for the well and allows people to get what they need.

At the end of last year's drilling season, Jon had a long list of things which needed to be done to the various trucks. The list was not complete, but did have many things needing to be addressed. Edgar and Berny had been working their way through the list all summer, and I could check on the progress they were making.

One of the rigs, the oldest one, needed several things. A necessary repair was to address the severely worn bushings and shafts on the sheaves which guide the cable for raising the derrick. They were worn so much and the grooved wheels wobbled so much there was a real danger of the cable jumping out of the groove and jamming in the pulley. It had to be fixed.

Edgar brought another of our trucks he had been working on and drove the rig to his place, with Berny and I following. When we arrived, Edgar immediately began working on it. It was so hot I could barely keep my hand on bare metal in the sun, but Edgar climbed up the mast and removed the parts. Then Berny and I took the parts and headed on up the road to Santa Elena to find a machine shop to make the repairs.



Machine shop repairs.

We went to one shop, it was closed, and so went to another. They looked at the work and said they could have it the next day. Berny asked if they could please do it immediately, and they told us to come back in four hours. This was acceptable, so we went to lunch, then off to a village nearby to check on the pump working there. At about 2:30, we came back to the shop and waited a bit until the machinist was finished. The new bushings were in and the new shaft machined to the proper diameter. We paid the money, about \$150, and were on the way back to the shop so Edgar could reinstall the sheaves and get on to other projects.

It was one more task completed on the list to prepare for the coming season. We hope we will be able to put our volunteers to work drilling immediately when they come, and not be delayed by having to make repairs.

If you have an interest, contact us. We can put you to work - perhaps on our new rotary rig or maybe on the old cable rig. It will be up and working when you get there.

If you would like to help, contact Gary Bartholomew at 509-466-5075 or 509-939-1941

Jim

Tim Rasmussen may be contacted via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)

**Time for a Little Fun!**

Can you identify which ads in this issue these two photos came from?

**Congratulations to:**  
**Fred Crane**  
**Crane Bros. Well Drilling**  
**Franklin, NC**  
**Winner for January!**

Win a prize! Send your completed puzzle to:  
**WDR PO Box 660**  
**Bonifay, FL 32425**  
**or fax to: 850-547-0329**

**January Puzzle Solution:**  
**Well-Vu, Inc.**  
**Palmer Bit Company**

**April Issue Deadlines!**  
**Space Reservation:**  
**February 25<sup>th</sup>**  
**Display & Classified**  
**Ad Copy: March 1<sup>st</sup>**



# EVOLVING WATER™ *MAKING WATER WORK WELL*



Dedicated to the groundwater industry, Headwater Companies deliver quality products, leading brands and unsurpassed availability to contractors across our counters and in the field. Each of our distributors have extensive product lines to match every drilling need, and we strive to meet any application challenge.



**HEADWATER**  
COMPANIES



HEADWATERCO.COM

# Drilling into a "Star Scar" to Unlock Mysteries of Space

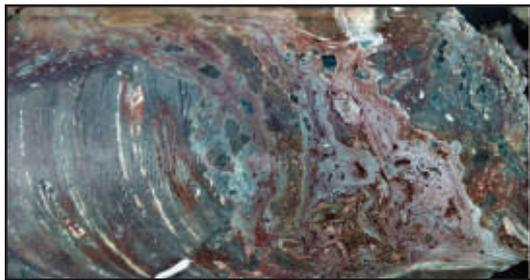
Compiled by Caleb Whitaker, Associate Editor, *WorldWide Drilling Resource*<sup>®</sup>

The city of Rochechouart, France, and its medieval castle were built on top of a major meteorite impact called an astrobleme, which literally means "star scar". Before the planet's continents split apart about 200 million years ago, a six billion-ton meteorite crashed down at the site. It was traveling at about 45,000 miles per hour, and was vaporized during the impact, which would have been roughly equivalent to several thousand Hiroshima-sized atomic bombs. This probably would have destroyed all life within a radius of 125 miles, leaving the landscape changed forever.



Photos courtesy of CIRIR/Philippe Lambert.

The Rochechouart astrobleme is the only one in France, making it a geological treasure. Scientists from a dozen countries have submitted requests to examine the site of the impact up close. The impact has lost its topographic expression and only the center of the object is preserved. An assembly of debris and products resulting from the fusion caused by the impact are the only traces observed today on the surface. However, traces of the asteroid which lie belowground are unusually close to the surface, making it easier to study. This means it's essential to carry out core drilling to understand the mineralogical and chemical transformations of the rocks in depth.



A rock core from Rochechouart.

In 2017, the International Center for Research on Impacts at Rochechouart (CIRIR) coordinated the first-ever drilling and excavation at the site. The project, funded by the French state and the European Union, could be the beginning of a long adventure. Scientists cored 20 samples from various depths up to nearly 400 feet below the surface at eight different sites. Once the Rochechouart rock cores were secured, tagged, and archived, they were made available to researchers around the world. More than 60 experts were expected to examine rock cores on-site in a laboratory. These cores will allow scientists to deepen their knowledge of the site.

Scientists would like to see the site become a natural laboratory benefiting national and international research. Some hope to unravel remaining mysteries about how such meteorites form, as well as information about their evolution in space. Others are on the hunt for chemical traces capable of shedding light on which raw ingredients essential for life on earth came from space. Geologists are curious about how cataclysmic impacts might have released water held within rock formations, while palaeobiologists are looking at how an event which could massively destroy life, also creates conditions for new lifeforms to emerge.

 **USA (800) 334-4927**  
[www.nndrilling.com](http://www.nndrilling.com)

- ▶ 51 Years of Experience Manufacturing Trusted Drilling Equipment
- ▶ State-of-the-Art Facility, Including CNC Lathes and Milling Machines
- ▶ Broadest Range of Drilling Equipment Made in the Industry

**Large Inventory Ready to Ship**  
To Meet the Most Aggressive Drilling Schedules



- ▶ Adapters
- ▶ Auger Equipment
- ▶ Casing
- ▶ Core Barrels
- ▶ Drill Rods
- ▶ Core Bits & Accessories
- ▶ Safety Hammers & Driving Equipment
- ▶ Roller & Drag Bits
- ▶ Pumps & Parts
- ▶ Soil Sampling
- ▶ Water Swivels
- ▶ Well Products

**N&N Drilling Supply Manufacturer**

PHONE: (570) 489-6761 | FAX: (570) 489-3130 | SALES@NNDRILLING.COM





## Drilling Into Money Not Boring

by Mark E. Battersby

### Tax Savings with the Lost Home Office Deduction, Part 1

Although working from home is more and more common, merely having a home office or space within the home used as an office doesn't mean an automatic tax deduction for the expenses of operating it. And today, thanks to the Tax Cuts and Jobs Act (TCJA), even employees of their own drilling business, can no longer claim those home office expenses which have long been a miscellaneous itemized deduction. However, anyone who is self-employed or runs a business from home using part of their home for business purposes may still use the home office expense deduction.

Although expenses for the nonbusiness portion of the home are not deductible, expenses for such things as the business portion of real estate taxes, mortgage interest, rent, casualty losses, insurance, depreciation, maintenance, and repairs are deductible home office expenses. In general, expenses for the parts of the home not used for business purposes are not tax deductible.

Every drilling professional thinking about qualifying for and claiming the home office expense deduction has two options. The first option - "regular method" - requires computing the business use by dividing the expenses of operating the home between personal and business use. Direct business expenses are, obviously, fully deductible with the percentage of the home's floor space used for business applied to indirect total expenses.

The second - "safe harbor" or "simplified method" - reduces the paperwork and recordkeeping burden. The simplified method uses a flat rate of \$5 per square foot for business use of the home. There is a maximum allowable deduction based on up to 300 square feet, which places a ceiling on the total amount deductible as a home office expense at \$1500.

It's worth noting, the TCJA did not change the home office expense deduction rules for the self-employed. Anyone who is self-employed can continue to deduct all qualifying home office expenses. What's more, the same home office can be used as the principal place of business for multiple trades or businesses. Of course, the determination of whether the office qualifies for the deduction is made separate for each business.

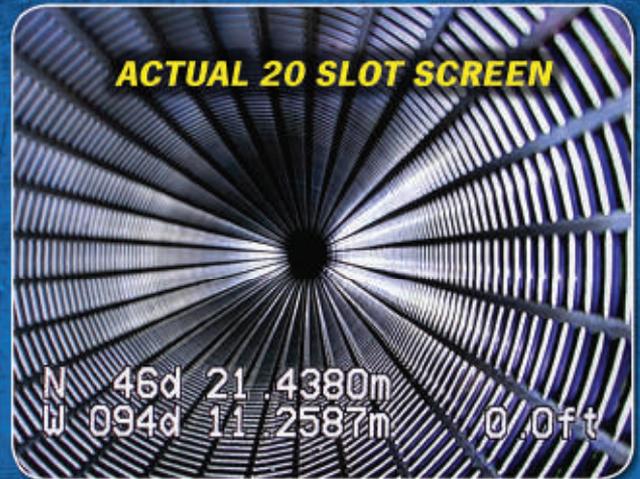
Fortunately, a legion of professional advisors stands ready to help every self-employed drilling professional and business owner as they attempt to navigate the complex and often confusing rules surrounding the home office expense deduction - and the tax saving possibilities.

*Mark*

Mark E. Battersby may be contacted via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)

# 180° PANORAMIC VIEW

Available on all length cable.  
Backwards compatible for all  
Well-Vu units.



- Full side view and down view at the same time!
- No need to switch cameras!
- Now shipping 3500' submersible systems!



# Well-vu

A subsidiary of Vision Systems Unlimited

P. 218-251-0879 F. 480-393-5742

Sales 406-853-7867

[jp@visionsystemsunlimited.com](mailto:jp@visionsystemsunlimited.com)

[www.wellvu.com](http://www.wellvu.com)



# TWWA's Annual Meeting & Trade Show

**March 15 - 16, 2019**

**The Park Vista Hotel  
Gatlinburg, TN**



## **Friday**

**Continental Breakfast, Registration, Vendors Set-Up, Technical Sessions, Trade Show, Lunch with Vendors, Technical Sessions, Auction Sign-Up, Dinner, Auction, and 2018 Honor Award**

## **Saturday**

**Continental Breakfast, Registration, Technical Sessions, Ladies Auxiliary, TWWA Business Meeting, Lunch, TWWA Board Meeting (subject to change)**



**For more information: (865) 761-4363  
info@tnwaterwellassociation.org  
www.tnwaterwellassociation.org**

# The 2018 Women in Geothermal Awards

*Adapted from Information by Women in Geothermal*

In 2013, at the Geothermal Resources Council Annual Meeting, Women in Geothermal (WING) was created. It is a volunteer, nonprofit organization promoting the education, professional development, and advancement of women in the geothermal community. Since then, the organization has expanded to over 48 countries.

Recently, the inaugural WING Awards were presented to four worthy recipients. The awards highlight the organization's core values: Courageous, Empowering, Open, and Caring.

**Courageous Award** - Susan Petty, cofounder of AltaRock Energy, U.S. Susan has spent her career challenging the conventional knowledge of EGS (enhanced geothermal systems) and developing breakthrough energy technologies. She isn't afraid to try new things. When ideas fail, she shares the failures with others in the industry to promote learning. Her successes are equally exciting as her team redefines what EGS looks like with their imaginative new ideas.

**Empowering Award** - David Lopez, CEO of LaGeo in El Salvador. Since Dr. Lopez took over the role of president, he developed activities to encourage women empowerment in the electrical sector, and one of them is the unconditional support to the formation of WING El Salvador in June 2017. He empowers women in geothermal power plants to perform activities traditionally performed by men. Female participation in geothermal plants has grown by 20% since his arrival. He is currently working on an agreement with El Salvador's Ministry of Education to support WING women who have not finished high school, which will contribute to women empowerment. He promoted the creation of special centers to care for the children of LaGeo employees. This gave women peace of mind knowing their children were protected and cared for while they were working.

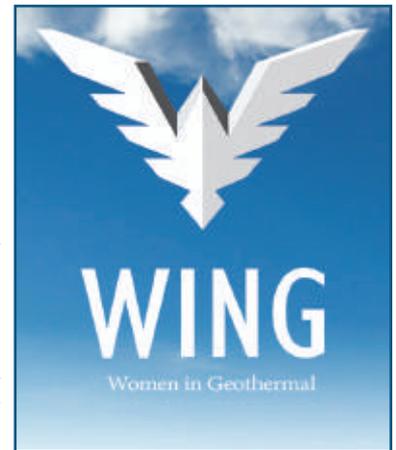


*Albert Genter and his team in Strasbourg, France.*

and values successful performances. In addition to sharing his knowledge, he remains open to technical and scientific inputs from his team. He encourages growth by taking time to listen to ideas and never forcing his own direction. His method of teamwork provides the team with the freedom to learn on their own while bolstering their confidence.

**Caring Award** - Nenny Saptadji of ITB in Bandung/ Indonesia. Nenny has worked hard to not only help her students in academia, but in many other aspects. Often referred to as the people's godmother, she would often do fundraising to help students pay their tuition fees. Some of those students have gone on to become leading professionals in the geothermal and oil industries. She also established the self-awareness program in ITB.

Nominated by their peers, these awards give recognition to those changing the future of the geothermal industry.



Additionally, he created Proyecto VIDA, the largest reforestation project in the country. This project involved growing more than 6 million plants in the basins of influx rivers and in the areas of the geothermal power plants of the country. Proyecto VIDA has a policy that 70% of the jobs created must be performed by women. More than 3000 jobs have been created through Proyecto VIDA.

**Open Award** - Albert Genter of Electricité de Strasbourg (ES) in France. Albert is responsible for a lot of successful collaborations. He focuses on the strengths and skills of the men and women on his team to get projects accomplished. By creating a positive and cooperative working environment, everybody feels free to make their own decisions. He is open to suggestions

## GeoVISION™ Borehole Video Systems

WorldWide Leader in Small-Diameter Cameras  
World-Class Support for over 25 Years  
Hand Reel Systems to 1000 Feet  
Electric Winches to 2000 Feet  
Interchangeable Cameras  
Made in the U.S.A.





AlleghenyInstruments.com  
800•255•1353 or +1•802•626•5302  
Sales@AlleghenyInstruments.com

FORMERLY PREMIER SILICA

# PIONEER SANDS

## Colorado Silica Sand®

Ask for it by name!

OFFERS YOU THE FOLLOWING FEATURES:

- Washed, cleaned and dried
- 99% Quartz grains
- UC ≤ 2.5 • Rounded grains
- Precise sizing • NSF/UL Std-61 certified
- Meets AWWA A100 water well specification
- Meets AWWA B100 filtration specification

Available from our plants in: California & Texas | Wide Distributor Network  
 For more information visit [www.pioneersands.com](http://www.pioneersands.com)  
[ps-salesinfo@pxd.com](mailto:ps-salesinfo@pxd.com) • 800-947-7263

## Soviet Borehole Inspires Sound Art



Adapted from Information by ::vtol::

Inside the Arctic Circle, the Soviet Union drilled the Kola Superdeep Borehole to a depth of over 40,200 feet. The operation and inner life of the borehole was shrouded in legend, mystery, and hoax. In the 1990s, an audio file appeared with horror-like sounds, which were allegedly recorded at the borehole. Acoustic research was conducted at the site, attracting researchers as much as the geology.

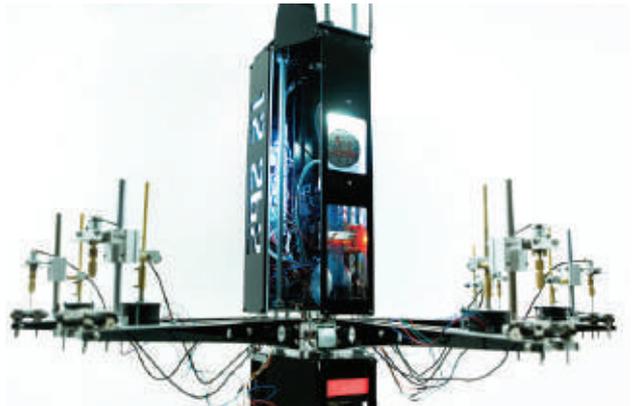


When the Soviet Union collapsed, the borehole was the deepest in the world. The amount of data and samples obtained during experiments is so large, it will be studied for many more decades. After the operation ended, the site was abandoned and plundered, while its ruins became almost inaccessible.

In 2016, Russia-based artist Dmitry Morozov, or ::vtol:: as he is known, visited the site of the borehole, and found a roll of punched tape in rusty water within the ruined laboratories. This tape, extracted from a computer at the scientific station, became the starting point for the creation of an artistic work. Morozov also spent several years collecting core samples from the scientific station. Taking inspiration from acoustic research conducted at the site, Morozov combined the punched tape and core samples to create the "12262" multimedia installation.

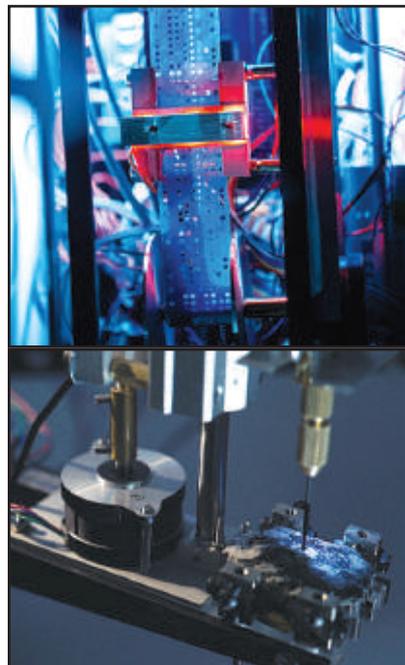
The project is a sound installation which uses data decoded from the punched tape in real time. It is unknown what exactly is written on the tape. It could be a record of research data, a program for controlling equipment, or a report on the scientific work done;

but today it is impossible to find a system supporting punched tapes adapted for modern computers. Computer punched tapes are similar to pianola punched tapes of the early 20th century or musical boxes, which served as an extra reason for converting the data into sound.



For the project, Morozov designed a digital optical system, capable of reading coded information. The installation's master controller gradually deciphers the tape and gives commands to five kinetic sound generators, which are miniature drilling mechanisms. After receiving the command, each sound generator drills small samples of stone cored from the borehole.

The drilling sound from small fragments splitting away from the cores is amplified and processed, becoming the base for the infinite sound composition created by the machine. The whole installation is a kind of a drilling rig model, an artwork combining media archeology and geology, kinetic art and myths, sounds of mechanisms, and darkness of deep depths. In July 2018, Morozov visited the site of the Kola Superdeep Borehole to resume the drilling process after 28 years of downtime.



# Iowa Company Provides Additional Safety After 2018 Tornado Outbreak

Adapted from Information by SIMCO® Drilling Equipment, Inc.



Last year, the state of Iowa experienced 27 tornados in one day, including one which tore through the Vermeer plant in Pella. Thankfully, the company was able to direct everyone to tornado shelters and there was no loss of life. The event offered a reminder to other companies of the importance of preplanning for natural disasters.

SIMCO® Drilling Equipment, Inc., located in Osceola, Iowa, manufactures drilling rigs for the water well, geothermal, geo-technical soil sampling, and roadway pavement coring industries. With over two dozen employees housed in a steel-frame building, along with tons of manufacturing equipment, the company quickly realized something needed to be done to provide protection should a tornado head their way.

“We identify whole-heartedly with the Vermeer Team. The Pella tornado disaster opened my eyes to the need to address storm safety here at SIMCO,” said Darren Swolley, general manager for SIMCO. “We want to take every precaution possible to ensure the safety of our employees.”

The company decided to install three cellar-style shelters outside the main building. Each unit was built with steel-reinforced concrete walls, roof, and floor and is capable of sheltering up to 18 people during a storm emergency. The units were manufactured by Midwest Storm Shelters, LLC near Joplin, Missouri, an area which has experienced its own tornado troubles. The SIMCO Team, with help from Osceola’s Andrew Construction Company, had the site prepared so installation was completed the same day.



While preparing the site, Steve Jurshak, chief engineer at SIMCO said, “We hope we will never have to use these storm shelters, but feel better knowing we are keeping our employees safe.”

**SERVING THE WATER WELL INDUSTRY**

257 Caroline Street  
Punxsutawney, PA 15767  
800-927-0560 • 814-427-2555  
Fax: 814-427-5164

**Need something special?**  
Talk to us - we'll make it happen faster than you think.

**STAR IRON WORKS**  
Serving the Drilling Industry

[www.starironworks.com](http://www.starironworks.com)



## Through the Back Door!

by Jim Kuebelbeck

C&G

Toward the end of last year, we received a call from one of the well drilling contractors we often work with when he encounters problems locating a good water supply. He had just drilled two inadequate wells for a landowner who was constructing two large buildings for a new chicken barn facility. Each well produced about three gallons per minute, which was not nearly sufficient to meet his needs. I asked if the construction was already started, and was told that such was the case. He then told me the requirement for each of the barns was 25 gallons per minute. Why anyone would even begin a project without first acquiring a satisfactory water supply on the property continues to baffle me.

Because I was scheduled for a complete left knee replacement at the end of November, I agreed to "tough it out" and do one more water locating job before my surgery. When we arrived on-site, however, we discovered it had rained heavily the day before, and the area was covered with slippery mud. Because of the situation, Carol suggested maybe we shouldn't take the chance of twisting my already hurt knee and cause further damage. The drilling contractor and his son had met us at the site, and knowing we wouldn't be able to return anytime within the next few weeks, we decided to do our best under the circumstances.

Working for about an hour, we did locate one underground water flow, selected a promising site along the flow, and marked it with one of our name flags. The others had to leave about that time, and we continued to carefully "slip and slide" around the area. As it turned out, we could find no other flow on the entire property. Having no other choice, we then selected a second site along the original flow about 300 feet from the first site we had marked, then marked it as a second choice.

I called the drilling contractor later and expressed my fear that quite possibly a sufficient groundwater supply might not be available on the particular piece of property after all. His only comment was, "You always worked your magic before, so why should this time be any different?" This certainly didn't serve to put my mind at ease!

Sporadic rain showers prevented the drill from returning to the muddy site for the next few weeks, so once again I had to put up with a number of sleepless nights. Two days after my knee surgery, the contractor called to tell me I had "worked my magic once again". He had drilled on both of our selected sites and acquired 50+ gallons per minute on each of the sites at 68 feet, and the wells were going to be connected separately to each of the new barns. The landowner was pleased, the well drilling contractor was pleased, Carol and I are doubly pleased, and right now I'm now looking forward to getting back to doing what I do.

*The statements and comments in this article are based on information and references believed to be true and factual. If you have any questions or comments, please forward them to me in care of **WWR**.*

*Jim*

Jim Kuebelbeck may be contacted via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)

# FIRST AND ONLY PITLESS UNIT WITH NSF/ANSI 61 & 372 CERTIFICATION

AIS COMPLIANT BY REQUEST

MADE IN THE U.S.A. SINCE 1873

WELL CASE SIZES 4" THROUGH 36"

800-356-5130 | WWW.BAKERWATERSYSTEMS.COM

HIGH-CAPACITY GROUNDWATER WELLS | PITLESS UNITS | BOOSTER STATIONS

**Monitor**  
BAKER WATER SYSTEMS DIVISION

# Extreme Performance Gets Your Hammer **DOWN** and Your Profits **UP!**



EDM P Series



EDM BB Series



HDH 500 & 600

*EDM's DTH Hammers are the Best in the Industry ranging from 3.5" to 12" with enough options to enable you to work with almost any air package.*

- EDM's P5\*, P6\* & P8\* perform in any application:  
Tubeless—Fear No Water/Mining & Construction/Geothermal/Water Well  
\* Patent Pending
- EDM's BB Series continues to provide the most reliable performance.
- Our T Series now has 3.5", 4" and 8" DTH Hammers.
- The HDH 500 & 600 now has a patented one-piece sonde.
- The Drill Series is still produced for those looking for a highly-reliable DTH hammer.

Hammers and bits from EDM's vast inventory have been well tested on jobsites around the world. They are tough enough for the gas and oil fields, fast enough for the quarries, and long lasting for the water well industry.



*Call us at 1-800-233-0173 or contact a distributor near you. For more information on our hammers and bits, visit [www.edmmfg.com](http://www.edmmfg.com).*

105 Walnut St. | Columbia, PA 17512  
Phone: 717.684.3070  
Fax: 717.684.2566  
E-mail: [sales@edmmfg.com](mailto:sales@edmmfg.com)



Our Hammers and Bits are made in the USA with American Steel!

Virginia Water Well Association  
**2019 Winter Conference**  
 February 20-21, 2019



**New Venue! More Space!**



**Fredericksburg Expo & Conference Center**  
 Fredericksburg, Virginia

**Conference Schedule**

**Tuesday, 19th**  
 Exhibitor Set-Up

**Wednesday, 20th**  
 Exhibitor Set-Up, Education Sessions, Exhibits, Cash Bar, Dinner Banquet, Silent Auction, Celeste Kellogg Concert

**Thursday, 21st**  
 Breakfast & General Meeting, Exhibits, Educational Sessions

Office: (804) 387-8395  
 Info@VAWaterWellAssociation.org  
 www.VAWaterWellAssociation.org

## Reduce Explosives Usage with Technology

EXB

Adapted from a Press Release by Orica

Orica, one of the largest manufacturers of commercial explosives and blasting systems, announced its next generation BlastIQ™ digital blast optimization platform.

This is the latest version of Orica's digital platform which has been designed to optimize blasting outcomes by combining data with insights from digitally connected technologies across the drill and blast process. Solutions enabled by BlastIQ™ can deliver predictable and sustainable improvements to reduce the overall cost of drill and blast operations, improve productivity and safety, and facilitate regulatory compliance.

Angus Melbourne, Orica chief commercial officer said, "The downstream impact of variable and poorly controlled blast outcomes today can impact as much as 80% of the Total Mine Processing Costs, this presents a significant opportunity for the industry. The new BlastIQ™ Platform enhances blast performance and outcomes for customers by seamlessly connecting data under a single platform. Soon, the platform will link geoscientific, blast modeling, and design data with measured field operations data, optimized blast delivery, and advanced learning for continuous improvement."

The enhanced technologies found in the next generation BlastIQ™ enables mine managers and engineers to make better decisions and increase control over blasting results in mining and quarrying operations.

One facet of the suite is Orica's SHOTPlus™ 3-D design



and modeling software. This tool helps operators manage both simple and complex blast designs and initiation sequences. Angelo Labriola, global digital product manager for Orica explains, "Our SHOTPlus™ design tool improves productivity by integrating seamlessly with the BlastIQ™ Platform. This allows blast loading instructions and rules to be communicated in near real-time to field operations, ensuring the right explosive type and quantity is used in the right place and subsequently initiated at the right time, every time. Improved in-field blast quality control and assurance is achieved using the new BlastIQ™ Mobile device, enabling the efficient capture of auditable data direct from the bench. Blasthole condition data is captured with the BlastIQ™ Mobile device . . . empowering rapid decision making and improved operational efficiencies."

In addition to the new technologies, functionality, and enhanced user experience in the next generation BlastIQ™ Platform, a comprehensive training, support, and customer success program has

also been introduced. The program is aimed at customizing each BlastIQ™ implementation to each customer's needs. This leads to quicker implementation and more importantly, maximizes the ability to increase productivity and reduce costs.

The new platform can be easily implemented into existing operational systems and processes. The BlastIQ™ Blast Control solution is being used in operations around the world to improve blast quality control through autonomous and seamless data transfer and insights, resulting in the elimination of rework, and the reduction of excess drilling and explosives consumption.





DIR

## Directional Drilling to the Rescue

Adapted from Information by Layne

Layne is a global water management, construction, and drilling company, providing responsible solutions for the world's toughest water, mineral, and energy challenges.

Gold Slickline had previously used shaft boring machines to complete raised bores for ventilation shafts. The process had caused frustration due to deviations encountered using the method. This required them to mine over to the borehole rather than intersect the tunnel with the borehole. Meetings with Layne and IDS (Layne's Directional Drilling Division) led to Layne being hired.

IDS was commissioned to directionally drill a pilot hole to intersect the tunnel, then ream the pilot hole to 14-7/8 inches. The Layne Team installed and cemented eight-inch casing throughout the borehole into the top of the tunnel, secured with a rock-bolted plate and sealant.

The directional hole was set up directly over the underground tunnel and remained vertically straight to 2000 feet, and the directional drilling stopped at 1920 feet. The intent was to install and cement casing in the borehole to facilitate material transport into the mine tunnel. The surface collar pipe was set at around 60 feet. The plan was to drill a 6-1/4-inch-diameter pilot hole conventionally to 500 feet and continue until the inclination threatened to take the path of the hole outside the desired column of a 5-foot radius. At just beyond 500 feet, the hole reached 1.3-degree deviation and was at the outer limits of the column.

The directional equipment was employed. While the hole did move out of the column, it was quickly brought back into the desired zone and kept there for the remainder of the hole.

In two instances, the directional drill adjustable bent housing had to be changed to combat the formation influence, but it was generally maintained at a 1.15-degree bend. This was achieved by using the performance drilling method, where the drill string is oriented to bend the hole in a desired direction, the entire assembly is slid to adjust the inclination, and the assembly is rotated when no adjustment is needed.

At the end of the project, the hole managed to breakout only 30 inches from dead center of the column. This was true success for both Layne and the client.



*Editor's Note: In between our print issues, the **WDR** Team prepares an electronic newsletter called **E-News Flash**. Based on readership, this was the most popular **E-News Flash** article of the month. Get in on the action and subscribe today at: [www.worldwidedrillingresource.com](http://www.worldwidedrillingresource.com)*

## GEFCO's 22nd Annual Resource Drilling Fundamentals Training Seminar

**GEFCO, Inc in conjunction with  
the Canadian School of  
Environmental & Natural  
Resources Sciences.**

The Training Seminar will cover:

- Drilling Fundamentals
- Parts and Components
- Geology and Cutting Actions
- Mud Drilling
- Grouting and Abandonment
- Drill Bits & Subs
- Geotechnical Drilling
- Drill String & Components
- Air Drilling Fundamentals
- Air Drilling in Overburden
- Air Drilling in Rock

**Course Date: April 29-May 3, 2019**



For more information please contact Daphine Schmidt Phone: (580) 234-4141, Ext. 214 / E-mail: [dschmidt@gefco.com](mailto:dschmidt@gefco.com)



2215 S. Van Buren, Enid, Oklahoma 73701 / Website: [www.gefco.com](http://www.gefco.com)



Messe München  
Connecting Global Competence

# THE HEARTBEAT OF OUR INDUSTRY

All Key Players. All Trends. All Innovations.



YOUR VISIT.  
YOUR BUSINESS.  
YOUR TICKET.



bauma is more than the world's leading trade fair: it is the heartbeat of the industry. With around 600,000 participants, additional halls, and larger space. For even more business.

Munich, April 8-14, 2019

[www.bauma.de](http://www.bauma.de)

Contact: Trade Show Services GACC New York, Inc., [kvogelsang@tssworldwide.com](mailto:kvogelsang@tssworldwide.com), Tel. +1 646 437 1013

**bauma**

*WorldWide Drilling Resource®*



# In Memoriam

## Shawn Kelly Huber (1982~2018)

On December 7, 2018, Shawn Kelly Huber lost his life as a result of injuries sustained in an accident while working at a North Slope, Alaska, oil field.

Born in Vernal, Utah, Shawn was raised on the family farm in Lapoint, learning the value of hard work. He moved to Anchorage, Alaska, with family and attended East High School, where he met and married his sweetheart. In 2002, they moved back to Utah, then moved again to Alaska in 2011.

Shawn worked over ten years in the oil field on a drill rig, and was an inspiration and mentor to all who knew him. His hard work and dedication to his family and colleagues never went unnoticed. He enjoyed hunting, fishing, snowmobiling, and four wheeling, but his greatest passion was watching his children play hockey.

Shawn is survived by his wife Stephanie; children Shawnie, Trenton, and Aubrey; and other family members.

## Dean Henry Bechtold (1931~2018)



Dean Henry Bechtold of La Junta, Colorado, passed away on October 20, 2018. Born in 1931, Dean served in the Army, fighting in the Korean War. He went on to start a water well drilling business in southeast Colorado. He had many interests, including woodworking, fishing, and hunting in his younger days.

Dean is survived by his daughters Rose Marie and Renee (Michael), their families, plus numerous extended family and friends.

The management and staff of **WWD** extend their sincere condolences to Shawn and Dean's family, friends, and colleagues.

**QWATER** Patent No. 6,888,904  
WELL DEVELOPMENT TOOLS

**ENVIRONMENTAL SERIES**

- ◆ 3/4-inch
- ◆ 1-inch
- ◆ 1.25-inch
- ◆ 1.5-inch
- ◆ 2-inch

**Advantages of Surge Block Method**

- ◆ Most effective way to develop any well
- ◆ Produces more water, less color and turbidity
- ◆ Only the surge block method "back washes" the well screen, removing clay bridge, sands and silts
- ◆ Flexible wiper creates suction and pulls water into the screen (not available with other methods)
- ◆ Constructed of inert long-lasting materials
- ◆ Capable of lifting water over 50 feet
- ◆ Removable ball valve prevents water from flowing back into well and will not clog with sediments
- ◆ Fast, effective and saves time and money

**PRODUCTION SERIES**

4", 5", 6"

For more information visit:  
[www.welldeveloper.com](http://www.welldeveloper.com)  
850.727.4427

Lest we forget...

## The Un-Comfort Zone II

by Robert Evans Wilson, Jr.

### Never Fear "Hold My Beer"

When I was seven years old, I went into the woods behind my house, built a fire, then fried an egg over it in an old pie tin. When the egg was done, I ate it. I didn't even like eggs, but because I had cooked it on my own, it was delicious. I was so proud of my achievement I ran inside and told my father. The look on Dad's face was horror, and I immediately expected to be severely scolded, but he didn't. He followed me into the woods and saw I had properly put the fire out. I still recall his look of relief. He then praised me some more, and finished by saying, "That looks like it was a lot of fun; but next time you want to do this, please include me." I got the message loud and clear. He was concerned about me "playing with fire," and wanted to chaperone me if I did it again. The point of this story is, he didn't yell at me. He didn't tell me how hazardous it was, how I could've set the woods on fire, or burned myself. In short, he didn't plant the seeds of fear which could've made me risk-averse in the future.

It's not just overprotective parents who admonish us. There are plenty of other people sowing those seeds. We are inundated daily with warnings not to experiment, investigate, or stretch too far. There are dozens of old proverbs designed to motivate caution, like: • curiosity killed the cat • better safe than sorry • when in doubt, do nothing • be careful what you wish for • don't sail out farther than you can row back • buyer beware • and my all-time favorite from comedian Steven Wright: "Eagles may soar, but weasels don't get sucked into jet engines."

Even the phrase "Hold My Beer" is used to disparage risk-taking, or make fun of those who do. Risk-taking is important in many ways, from creating successful businesses, to developing and growing emotionally. Fear of risk is frequently fear of change, and can lead to controlling behavior. People and institutions can get set



Wilson cont'd on page 38.



## The "Idiots" Corner by "Billy Bob Smith"

*"We are all going to get old, but we don't have to grow old."  
~Charlie Jones*

Since we are several weeks into a new year, I thought I would discuss a somewhat uncomfortable topic this month - the issue of aging. Now keep in mind, I get it - we all are going to get old and die one day. And yes, better than a third of the U.S. population is over 60 years old. And yes, you - one day, if you are not there yet - will be too. The real question I would like to pose is simply: Just because we are old, does it mean we have to act old? A few things to consider when it comes to stupid people getting old:

**Health** - We are all wearing out little by little every day and every year. If you've made it to your senior years and can still, hear, talk, walk, think, and even you know \_\_\_\_, then go for it, because trust me, you are going to lose a lot of it before you leave here.

**Relationships** - If you are divorced, single, or widowed, I feel your pain as the question keeps coming up. Am I too old to date?? Well, if you have to keep asking yourself this question, then yes you are.

**Retirement** - Retire.....m.....en.....t..... it's hard for me to even say this word. The only people who retire happily are those folks who have hated their jobs or careers while they were working. Get it? If you love what you do, why would you want to stop doing it to play golf three times a day for the rest of your life? Duh.

**Money** - If you have reached the age of 60 or even 50 plus, trust me - don't rely on your 401(k), Social Security, or Medicare to keep you happy or even alive. Better have a "safety net", and I suggest cash. Yes, gold is worth a lot, but let me ask you, if things crash and burn, can you fill your gas tank and pay for it with gold coins?

**Careers** - Careers should be more than just working. They should give your life a sense of meaning and value. If this is true and you stop, where are you going to get these from?

**Time** - We are all running out of time. No one can save it or get more of it. So let me be frank. You have no guarantee you are going to get another day, so I suggest you live today as if it were your last day.

To stay young at heart is not about a number, but the ability to laugh, smile, have fun, and just enjoy. Trust me, on average, I am thrown out of at least one restaurant, the post office, and a gas station at least once a week. Seriously, my nickname within a 20-mile radius in most public businesses is "Trouble". What's your nickname - old man, codger, or something worse?

*Billy Bob*

Contact him via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)



## FOREMOST DUAL ROTARY DRILLS... A TRUE INDUSTRY LEADER

Foremost Dual Rotary drills have been **working successfully around the world since 1979**. Over the years, the DR method has earned an enviable reputation for **exceptional drilling performance in unconsolidated overburden** making it one **versatile, powerful, and truly unique machine**.



To learn more, visit [foremost.ca](http://foremost.ca)  
or call 1.800.661.9190 (Canada/U.S.A.) 1.403.295.5800 (Worldwide)

# FOREMOST

*WorldWide Drilling Resource®*

**WorldWide Drilling Resource®** is proud to be a member of these associations.

Alberta Water Well Drilling Association  
Tel: 780-386-2335  
awwda@xplornet.com

Arizona Water Well Association  
admin@azwwa.org  
www.azwwa.org

Black Hills Chapter of the ISEE  
President: Doug Hoy  
www.bitwconference.org

British Columbia Ground Water Assn.  
Tel: 604-530-8934  
secretary@bcgwa.org www.bcgwa.org

California Groundwater Association  
Tel: 916-231-2134 Fax: 916-231-2141  
ecardwell@groundh2o.org  
www.groundh2o.org

Concrete Sawing & Drilling Association  
Tel: 727-577-5004  
matthew@csda.org www.csda.org

Empire State Water Well Drillers Assn.  
Tel: 315-339-8960 Fax: 315-339-8960  
sue@nywelldriller.org  
www.nywelldriller.org

Florida Ground Water Association  
850-205-5641 Fax: 850-222-3019  
djessup@executiveoffice.org  
www.fgwa.org

Indiana Ground Water Assn.  
Tel: 888-443-7330 Fax: 765-231-4430  
ingroundwater@gmail.com  
www.indianagroundwater.org

Iowa Geothermal Association  
Tel: 515-224-6469  
info@iowageothermal.org  
www.iowageothermal.org

Kentucky Groundwater Association  
Tel: 606-523-1215 Fax: 866-896-0184  
www.kygwa.org

Louisiana Ground Water Association  
Tel: 225-744-4554  
www.lgwa.org

Michigan Ground Water Association  
Tel: 855-225-6492 Fax: 614-898-7786  
www.michigangroundwater.com

Minnesota Water Well Association  
Tel: 800-332-2104  
www.mwwa.org

Missouri Water Well Association  
Tel: 314-974-6992  
Mwwa.MoWaterWellAssociation@yahoo.com

Montana Water Well Drillers Association  
Tel: 406-686-3168  
www.mwwda.org

National Drilling Association  
Tel: 877-632-4748  
Fax: 216-803-9900  
www.nda4u.com

National Ground Water Association  
Tel: 800-551-7379 Fax: 614-898-7786  
www.ngwa.org

Nebraska Well Driller Association  
Tel: 402-476-0162  
lee@h2oboy.net  
www.nebraskawelldrillers.org

New Jersey Ground Water Association  
barbemor@gmail.com www.njgwa.org

North Carolina Ground Water Assn.  
Tel: 919-876-0687 elaine@execman.net  
www.ncgwa.org

North Dakota Well Drillers Association  
Tel: 701-567-4126  
ndwda@outlook.com • www.ndwda.com

Northern Plains Chapter of the ISEE  
President: Billy Obermire  
Tel: 307-689-0050  
www.bitwconference.org

Ohio Water Well Association, Inc.  
Tel: 937-278-0308 Fax: 937-278-0317  
www.ohiowaterwell.org

Oklahoma Ground Water Association  
Tel: 405-209-6482  
josh@okgroundwater.org  
www.okgroundwater.org

Ontario Groundwater Association  
Tel: 519-245-7194 Fax: 519-245-7196  
executivedirector@ogwa.ca  
www.ogwa.ca

Pennsylvania Ground Water Association  
Tel: 814-553-3883  
pgwaorg@gmail.com www.pgwa.org

Shallow Exploration Drillers Clinic  
Tel: 402-472-7550  
jlloomis3@unl.edu http://sedc.unl.edu

South Atlantic Well Drillers "JUBILEE"  
Tel: 855-987-7469 Fax: 850-222-3019  
kgordon@executiveoffice.org  
www.jubileewatershow.com

South Carolina Ground Water Association  
Tel: 803-356-6809 Fax: 803-356-6826  
scgwa@sc.rr.com www.scgwa.org

South Dakota Well Drillers Association  
Tel: 605-734-6631 www.sdwda.org

Southwest Mississippi Community College  
Well Construction Technology  
Tel: 601-276-3738  
cdunn@smcc.edu

Tennessee Water Well Association  
Tel: 865-761-4363  
info@tnwaterwellassociation.org

Texas Alliance of Energy Producers  
Tel: 940-723-4131 Fax: 940-723-4132  
joannb@texasalliance.org  
www.texasalliance.org

Texas Ground Water Association  
Tel: 512-472-7437 Fax: 512-472-0537  
drobbins@twca.org www.tgwa.org

Utah Ground Water Association  
Tel: 801-541-7259  
www.utahgroundwater.org

Virginia Water Well Association  
Tel: 804-387-8395 Fax: 804-302-7978  
info@vawaterwellassociation.org  
www.vawaterwellassociation.org

**Is your Association missing?**  
**The *WWD* Team wants to support your organization.**  
**Please call: (850) 547-0102**  
**wwdr@worldwidedrillingresource.com**

**COMING SOON!**

**GET ASSOCIATION HELP**  
a division of  
**WorldWide Drilling Resource, Inc.**  
*Home of Solid Field Service™ with a smile!™*

**GetAssociationHelp.com**

# QUALITY HAS A COLOR

Simply said - call for the RED



## PALMER BIT CO.

For the best quality,  
best customer service,  
best repair turnaround.

### PALMER RED DEVIL BITS



Palmer Bit Company  
800-421-2487 • 701-572-5271  
sales@palmerbit.com  
www.palmerbit.com

## Where are you planning to go?

### How about including these shows:

Join **WWD**



The 2019 New England Water Well Expo is scheduled for March 8-9, at the Best Western Royal Plaza Trade Center in Marlborough, Massachusetts. Education seminars begin at 10:00 a.m. on Friday, followed by a trade show preview at 4:00 p.m. Family fun night and games start at 6:30 p.m.

More education opportunities are offered on Saturday, along with the exhibits opening at 8:00 a.m. until 1:30 p.m.

Visit [www.newwassociation.org](http://www.newwassociation.org)

Tennessee Water Well Association's Annual Meeting & Trade Show will be March 15-16, once again at The Park Vista Hotel in Gatlinburg, Tennessee. Don't miss the technical sessions, vendor displays, dinner, and auction!

Get details by e-mailing [info@tnwaterwellassociation.org](mailto:info@tnwaterwellassociation.org)



The CGA (Common Ground Alliance) 811 Excavation Safety Conference & Expo is the international event dedicated to providing educational content and resources to protect buried assets - for underground damage prevention. The 2019 gathering will be held March 26-28, at the Tampa Convention Center in Tampa, Florida.

There's numerous opportunities to learn new information, network with peers who understand your job, and to share ideas with dedicated professionals.

Register at [www.cgaconference.com](http://www.cgaconference.com)

See more events at [www.worldwidedrillingresource.com](http://www.worldwidedrillingresource.com) online issue.



## Environmental Monitoring

by Thomas Kwader, Ph.D., P.G.



### SAFETY ~ An Ever-Evolving Learning Experience

The words "safe" and "safety" have been around forever. However, their usage and importance have been on the rise. I recently retired as a career geologist and licensed water well contractor. I believe we have all seen and experienced the importance to conduct our work safety and without any "accidents". Your safety record as a water well contractor can help win large contracts or disqualify your firm from getting a contract if your safety record is poor. A poor safety record can damage your reputation and cost you by having extremely high insurance premiums. More importantly, the health and well-being of you and your employees are viewed by many as a measure of the quality of your company.

Drilling has always been considered a dangerous business; however, we have seen many safety improvements over the last 40 years. I remember when drilling was largely performed by means of mechanical lifting, rotating, and threading pipes with chains, tongs, gears, and ropes. Fortunately, now much of the work is performed by hydraulic motors, cylinders, and wrenches. At one time, it was a requirement for drill operators and/or helpers to be big, strong, and healthy because of the lifting of heavy wrenches, drill pipe, bits, and sacks of mud and concrete. Currently, there is a push for employees not to lift anything more than 40 pounds. I really believe we are close to accomplishing this goal, and we can do it if we desire to and put our minds to it.

We should all be aware of the safest way to perform all of our tasks. Even if it takes a little longer to get an extra hand or bring in a forklift or manlift to do something safer - it is worth it in the long run when we can return home to our families at the end of the day, unharmed and safe. The long-term impacts of many injuries can last the rest of our lives, or worse yet, can cost us our lives. Slow down, think it through, and ask the following:

- 1) What am I about to do?
- 2) What could go wrong?
- 3) What could I do to make it safer?
- 4) What have I done to convey this to others?

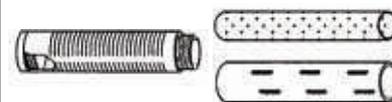
*Tom*

Tom Kwader may be contacted via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)



**Atlantic Screen & Mfg., Inc.**

- Well Rehab. Products
- Manholes
- Bentonite
- Filter Sock
- Inline Chemical Mixers
- Sampling Bailers
- Clear PVC Pipe
- Locking Caps



Manufacturers of Slotted & Perforated Pipe ranging from 1/2" to 24" diameter

**302-684-3197**

FAX: 302-384-0643

142 Broadkill Rd. • Milton, DE 19968  
[www.atlantic-screen.com](http://www.atlantic-screen.com)  
email: [atlantic@ce.net](mailto:atlantic@ce.net)

# Indiana's Petroleum Industry Through the Years

*Adapted from Information by the Indiana Geological and Water Survey*

G&O

Gas and oil development in the state of Indiana officially began in the mid-1800s when early settlers started drilling for salt water. Salt was needed for the preservation of food, so it was critical to Indiana's early agricultural industry. Shallow wells were drilled across the state to obtain salt water, which would be evaporated to produce salt. A "spring pole" method of drilling was probably used. During this time, early settlers were also noticing gas springs and oil seeps along the Ohio River.



After hearing of the success of Colonel Edmond Drake's oil well in Pennsylvania in 1859, oil exploration moved into Ohio and Indiana. Between 1862 and 1869, wells were drilled in two Indiana counties, leading to the discovery of gas and oil, but the wells were not developed.

Gas was discovered in what would become the Trenton Field in 1876. From 1886 into the first decade of the 20th century, gas and oil continued to be discovered and developed in east central Indiana. This started a boom which ultimately resulted in thousands of wells being drilled. This



was America's first giant oil field, producing more than 100 million barrels of oil. Despite attracting and fueling many new industries in the region, the boom ended at the beginning of the 20th century because wasted resources and unregulated drilling practices caused a drop in production.

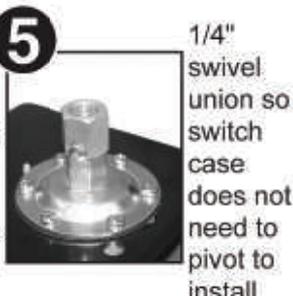
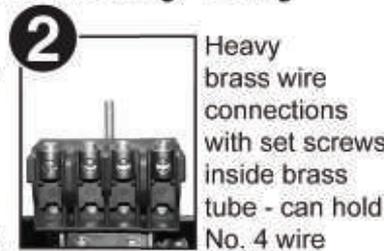
As gas and oil production declined in northern Indiana, new discoveries were being made in the southwestern part of the state known as the Illinois. Unlike the single field of northern Indiana which produced from a single reservoir, these new discoveries produced from several smaller fields and a variety of different reservoirs at different depths. Also, unlike the Trenton Field, the Illinois Basin fields produced mostly oil, not gas. Soon, all the counties in the southwestern part of the state were contributing to oil production, which peaked in 1956 at over 12 million barrels for the year.

Since the early 1960s, the amount of oil produced in Indiana has declined, largely due to changes in the price of oil. There has been increased interest in drilling new holes in recent years. While most new holes are drilled as development wells in existing fields, a small amount of wildcat exploration still takes place within the state. Exploration for new reserves has resulted in an increase in the number of holes drilled.

There is the potential for the discovery of significant new reserves in the state. Though much of the state has been thoroughly drilled, this drilling reached a depth of only a few thousand feet. A considerable portion of the subsurface remains unexplored, and many thousands of feet of potential reservoir exist, especially in the southern portion of the state. The current hot play in Indiana is the New Albany Shale gas play which is utilizing state-of-the-art completion technologies to access and produce natural gas from this unconventional reservoir. Many of the New Albany wells are being drilled with one or more horizontal boreholes, which extend outward nearly a mile from the surface drill site.

## The Pressure Switch to Ask For

(Up to 5HP) Merrill Extra Heavy-Duty



----- ALL THIS AND A BETTER PRICE -----

Order - MPSXHD - NOT - GHG or GSG

1-800-831-6962



www.merrillmfg.com



## Tales from the Field

EXB

by Jeremy C. Wire  
Geoconsultants, Inc.

### The Case of the Well that Resisted Destruction

In our region, there are several different ways to destroy or abandon a water well once its useful life is over - the most common being by the procedure of "blasting". Generally, the well is cleared of any debris or junk to the original total depth, if possible; a string of charges matching the depth interval to be destroyed is lowered into the well; and an appropriate mixture of cement is introduced, filling the casing. Then the charges are detonated, demolishing the casing and forcing the cement mixture into the formation, destroying the well. Usually, the only effect at the surface is a slight "bump" felt by persons standing around at a safe distance from the center of activity. Sometimes, unexpected results occur despite covering the open casing with plywood and sandbags - particularly if the charges are set too close to the surface. In this situation, a "geyser" of water and cement may erupt, coating everything (and anyone) too close to the action.

The municipal well involved in this tale was drilled in the early 1960s and, being over 50 years old, was showing its age. So the city decided to destroy it, as other uses for the property were planned. The well had a large-diameter conductor casing ending at a depth of about 100 feet, and was assumed to have an annular seal. However, the presence of a seal or its condition could not be verified in the field or from existing data. When the well was constructed, water levels were deep, but in later years, artesian conditions prevailed.

At the time of destruction, the well was flowing, a condition which was considered in the original work plan for the procedure, so diversion of the flow was maintained to allow the operation to proceed. The blasting charges were fastened to a PVC pipe to resist "floating" out of position in the casing; the assembly installed in the well; and the cementing mixture introduced, with minor difficulty. The charges were detonated, with the usual bump being felt - disappointing those persons who had never witnessed this type of well destruction and expected something more exciting to occur. The cement level fell in the casing, the artesian flow ceased, and everyone involved thought the operation was successfully concluded . . . but not quite, as it turned out.

Several days later, the contractor returned to the site to cut off the casing, top off the cement, and fill a shallow excavation around the casing back to grade. Some artesian flow was seeping from around the exposed casing into the excavation, so obviously the blasting did not result in a perfect seal, and additional measures needed to be taken. A specialized cementing crew was employed, and they drilled several holes around the circumference of the casing to a depth of 80 feet, followed by pressure grouting them with quick-setting cement. This operation stopped the flow of water, much to the relief of everyone involved, particularly the contractor. The excavation was left open for several days to make sure the sealing operation was effective; and the well capped with cement and the excavation filled to grade.

Based on this experience, it was decided that if another well like this one with artesian conditions were to be destroyed, and if there was any question about the presence or condition of an annular seal, the conductor casing would be pressure grouted as the *first* operation in destruction - not the *last* one. Unfortunately, this conclusion was reached the hard way, confirming the old adage: "Experience is the best teacher" - and it certainly was in this case.

*Jeremy*

Jeremy Wire may be contacted via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)

## Atlantis Vault



- Self-Contained
- Simple installation
- Trouble-free operation

For more information call:  
(270) 786-3010  
or visit us online:  
[www.geothermalsupply.com](http://www.geothermalsupply.com)



MIN

## Celebrating Safety Since 1925

Adapted from Information by the National Mining Association

Cosponsored by the National Mining Association (NMA) and the U.S. Department of Labor's Mine Safety and Health Administration (MSHA), the Sentinel of Safety award is among the most prestigious awards in the mining industry. The award began in 1925, by Herbert Hoover who was Commerce Secretary at the time, as well as a former mining engineer. It continues to reward safety nearly a century later.

The Sentinel of Safety award acknowledges mining operations for outstanding worker safety and is given out annually to the nation's safest mines with a minimum of 4000 injury-free hours. Of the roughly 13,000 mining operations in the country,

Celebrating Safety cont'd on page 44.



MANUFACTURER OF DOWN HOLE HAMMERS AND BITS

The World's **Leading**  
Drilling Technology

[www.numahammers.com](http://www.numahammers.com) • 860.923.9551

## UNMATCHED QUALITY AND CONSISTENCY

Each and every product Numa designs is made in our US factory and must earn our Quality Test Certificate to ensure it conforms to our rigid quality standards. Join the growing list of Numa customers experiencing the highest value in products, performance, and service in the drilling industry.



# Are Safety Glasses Hurting My Vision?

Adapted from Information by HexArmor®

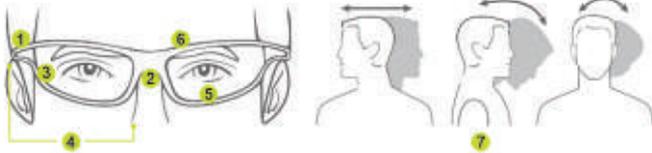
C&G

Ever wonder if wearing safety glasses can harm your vision? Well, the short answer is no; wearing safety glasses doesn't damage your vision, however, it can be the source of eye strain or fatigue.

Eye strain is the result of pain and fatigue of the eyes and is often accompanied by a headache. Eye fatigue is a little different in that it affects the muscles around the eye which can become tired from intense use. Here are the signs of eye strain and fatigue:

- ➔ Dry, or watery eyes
- ➔ Soreness of eyes
- ➔ Trouble focusing
- ➔ Blurred vision
- ➔ Light sensitivity
- ➔ Headache behind the eyes

Guide for properly fitting safety eyewear



1. No uncomfortable pressure points behind ears or side of your head.
2. Nose piece should be comfortable without pinching your nose.
3. You should be able to see in all directions.
4. The weight should be evenly distributed between your ears and nose.
5. Frames should be close to your face without hitting eyelashes.
6. Lenses should cover eyebrow and any soft tissue.
7. Safety glasses should stay in place when you move your head up and down, as well as side to side.

There are several reasons safety glasses can cause eye strain and fatigue; here are a few to keep in mind:

⇨ **Wrong fit** - A lot of safety departments mistakenly believe they can buy one type of eyewear and expect it to work for and fit every employee. Head and face shapes are so different, there is no way for one size to fit all. This is why finding properly fitting eyewear is crucial, especially since 90% of recorded injuries are due to poorly-fitting eyewear or workers not wearing eyewear at all.

⇨ **Wrong tint** - If you're working in environments where you experience glare, or work indoors and outdoors, different types of tints may be needed. Proper tints help your eyes adjust to the conditions of the environment. If you're not using the correct

tint on your safety glasses, it could result in eye strain or eye fatigue.

⇨ **Scratched lenses** - Once lenses become scratched, it can really affect the quality of vision through the lens and cause eye strain and fatigue. Make sure you replace scratched safety glasses.

⇨ **Poor optical clarity** - If you are wearing cheap safety glasses, it's possible the quality of the polycarbonate lenses isn't as good as it could be. If you notice your safety lenses seem cloudy or there are tiny distortions in the lenses, this is a telltale sign of poor optical quality. Lenses with excellent optical quality are free of imperfections and provide as close to natural vision as possible.

Remember, safety eyewear which fits properly helps reduce injuries and increases compliance. Not only does poorly fitting eyewear lead to eye strain and fatigue, it also increases the likelihood of workers removing them throughout the day, leaving them vulnerable to eye injuries.

serving the

**WATER WELL, ENVIRONMENTAL, SONIC, HDD, MINING, AND CONSTRUCTION INDUSTRIES**

DEDICATED MANUFACTURERS IN

<ul style="list-style-type: none"><li>• Inertia-Welded Drill Pipe</li><li>• Dual-Wall Drill Pipe</li><li>• Wireline</li><li>• Drill Rod/Casing</li><li>• Composite Wire Line Drill Rods</li><li>• Sonic Drill Pipe/Casing/Bits</li></ul>	<ul style="list-style-type: none"><li>• Percussion Casing/Bits</li><li>• Drill Collars</li><li>• Fishing Tools</li><li>• Subs</li><li>• Starter Rods</li><li>• Stabilizers</li></ul>
--	--

THREADS WE PRODUCE

API, Mayhew, BECO, DCDMA, FEDP, 88.9 MM - 177.8 MM, Other Industrial Threads, and Custom Threads

**EXPERIENCE THE DPI DIFFERENCE**

Drill Pipe Inc. (DPI) is an international manufacturer of quality drill tools. With over 60 years of experience, DPI has an experienced and dedicated team that has leveraged their experience and expertise, and combined it with the latest manufacturing technology to produce the industry's highest quality in-hole tools.

**CONTACT US TODAY**

T: 763-592-8670	E: info@drillpipeinc.com
TF: 866-220-8342	E: tom@drillpipeinc.com
F: 763-592-8661	A: 550 South Third Street
W: www.drillpipeinc.com	Winsted, MN 55395

in their ways. Ways which were profitable in the past, may not be today. To move forward - to innovate - one must

be willing to take risks.

The problem of risk-aversion begins as we grow up, attend school, and go through the socialization process. During this time, we are constantly told to conform. When we don't conform, we are frequently chastised or shunned by our friends, family, and classmates, and it can stay with us well into adulthood. And, the fear of what other people think of us can keep us from taking risks. We shouldn't let this happen, because as American businessman Olin Miller observed, "You probably wouldn't worry about what people think of you if you could know how seldom they do."

There's nothing wrong with assessing risk before you act. It helps to understand what can be lost if the risk you take leads to failure. However, for something to be a risk, there must be something that can be lost. What are you putting at risk? What could you lose? Time? Money? Comfort? Friends? Reputation? Freedom? Life or limb? Finally, can you afford it? Maybe it's not as big of a risk as you first thought. So what if you're embarrassed, throw away some money, or waste some spare time? Oftentimes, risk is a matter of perspective. Go ahead and visualize the worst that can happen, then prepare yourself for it. And, keep this advice from Albert Einstein in mind, "Anyone who has never made a mistake has never tried anything new."

Many people, when they get older, regret not having been more bold when they were young. They will say things like, "I should've auditioned for the school play." or "I wish I had tried out for the football team." or "I could've participated in the science fair or math competition, but I didn't." or "If only I'd asked out that pretty girl I really liked."

The trick is getting comfortable with risk. It helps to understand it will feel uncomfortable at first, and you will get used to it. The problem is our imagination makes us believe failure will be worse than it actually is. Failure can be a good thing, if we learn from it. John Dewey understood this when he said, "Failure is instructive. The person who really thinks learns quite as much from his failures as from his successes."

Risk-takers didn't get there overnight. They built up a tolerance for it over time. You will become more comfortable with risk, the more often you take one. One success will lead to another, and you'll feel better each time. A shortcut for this is to hang out with people who are risk-takers. Before you know it, they will have you skydiving, snowboarding, or mountain biking, or maybe just riding a scary-looking roller coaster. There is an old proverb which says, "No risk, no reward." It's true. The biggest risk is never taking one, because without risk, you won't find opportunity.

You can get more comfortable with risk by taking small inconsequential ones - like I mentioned in my *WDDR* September 2018 article *Dealing with Change You Don't Want*. If you drink coffee every day, switch to tea for a week. Rearrange one piece of furniture in your house. Read a magazine on a topic you know nothing about. Take a continuing education class in a subject not related to your career. Join a hobby or study group online. Taste a new food you've never tried before.

Don't let risk-aversion keep you from living your life to the fullest. Try something new today.



**ASSOC., INC.**

**February 18 - 20, 2019**  
**Ramada Oasis Hotel and**  
**Convention Center**  
**Springfield, MO**

**Monday, February 18**  
 DNR WIB Meeting, Registration, M&S Setup, Seminars, MWWA Board Meeting, and Nominating Committee.

**Tuesday, February 19**  
 Registration, M&S Setup, Annual Membership Meeting, M&S Annual Meeting, DNR Permit Testing, Seminars, Displays, and Entertainment.

**Wednesday, February 20**  
 Registration, Displays, Luncheon, Seminars, Ladies Bingo, and NEW Board Meeting.

**For more information:**  
[missouriwaterwellassociation.com](http://missouriwaterwellassociation.com)



**Washington Rotating Control Heads' Series 1300 is their original rotating control head, constructed to seal off the drill string components continuously, and divert all cuttings and debris away from the rig. Designed for tophead and kelly drives, these units can handle up to a 5¼-inch hex and a 4½-inch square. The 1300 Series control device uses the company's 1024 stripper rubbers, and will seal off drill steel from 2 inches to 8 inches outside diameter.**

**Due to its much lower profile, the Series 1400 "Shorty" has become a popular design. It can be used with or without drive bushings.**




**Washington Rotating Control Heads, Inc. is a Valued *WDDR* Advertiser.**

### Robert

Robert is an author, humorist, and innovation consultant. He works with companies that want to be more competitive and with people who want to think like innovators.

For more information on Robert, visit [www.RobWilsonSpeaker.com](http://www.RobWilsonSpeaker.com) or contact him via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)

*Self-reverence, self-knowledge, self-control - these three alone lead to success.*

~Cennyson

**WorldWide Drilling Resource®**

# IT'S TIME TO UPGRADE TO THE NEXT GENERATION PUMP HOIST!!

Featuring electric over hydraulic controls, weight load indicator, Sand line speed control and much, much more!



Introducing the full line-up of TDH units for every job.

**35X4**, Pulls 35,000 lbs. single part  
up to 140,000 lbs. on 4-part line



**24X3**, Pulls 24,000 lbs. single line up to 3-part | **9X3**, Pulls 9,000 lbs. single line up to 3-part | **7X3**, Pulls 7,000 lbs. single line up to 3-part | **4X3**, Pulls 4,000 lbs. single line up to 3-part



Quality Built from Experience • 888-300-2220 • [www.tdhmfg.com](http://www.tdhmfg.com)

Does your rig need help?

We can take care of your new or not so new rig.  
Remounts • Rebuilds • Overhauls



Our distributors are:



**Drilling Supply & Mfg.**

7301 Hwy 183 South  
Austin TX 78744

Tel: (512) 243-1986 Fax: (512) 243-1091

Check out our Web site for a list of units for sale.

[www.dsm-mayhew.com](http://www.dsm-mayhew.com)



# Frequently-Used Geological Terms Part 78

Glossary Adapted from the Dictionary of Geological Terms

## R

**Reaction Rim** - A peripheral zone around a mineral, composed of another mineral species and represents the reaction of the earlier solidified mineral with the surrounding magma.

**Reaction Series** - A series of minerals in which any early-formed mineral phase tends to react with the melt, later in the differentiation, to yield a new mineral further down in the series. For example, early-formed crystals of olivine react with later liquids to form pyroxene crystals, which may react with still later liquids to form amphiboles. This concept is often referred to as *Bowen's reaction series*, after N.L. Bowen who first proposed it, or as the reaction principal.

**Realgar** - A bright red to orange red monoclinic mineral. It occurs as nodules in ore veins and as a massive or granular deposit from some hot springs, and is frequently associated with orpiment.

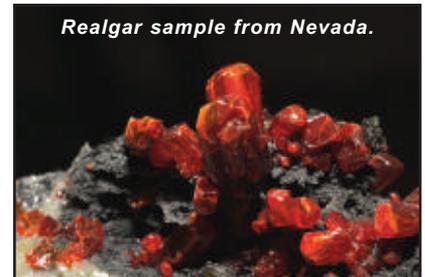
**Recharge** - The processes involved in the addition of water to the zone of saturation, also the amount of water added.

**Recovery** - In mining, it refers to the percentage of valuable material derived from an ore, or of coal from a coal seam; also used as a measure of mining efficiency. In water wells, it indicates the rise in static water level in a well which occurs when discharge from that well or a nearby well, is stopped. In structural petrology, any process through which the number of grain dislocations (strain energy) produced during rock deformation can be reduced.

**Recovery Factor** - A measure of the percentage of oil in place which can be recovered. It depends on porosity, permeability, type of reservoir energy, and past experience under similar conditions.

**Recrystallization** - The formation essentially in the solid state, of new crystalline mineral grains in a rock. It is the way in which a deformed crystal aggregate releases stored strain energy due to deformation. The new grains are generally larger than the original grains and may or may not have the same mineralogical composition.

**Red Beds** - Sedimentary strata composed largely of sandstone, siltstone, and shale. They are predominantly red due to the presence of ferric oxide (hematite) coating individual grains. Examples include the Permian and Triassic sedimentary rocks of the western U.S. and the Old Red Sandstone facies of the European Devonian.



Realgar sample from Nevada.

Look for more terms next month!



## GROUNDWATER WEEK 2018 DEALMAKERS

### Eijkelpamp North America



Todd of Grassroots Drilling seals a deal with Jim of Eijkelpamp North America.



Troy and Jim with Eijkelpamp North America were pleased to show Gregg Drilling & Testing's new rig with Mike and Kristen.



Eric of Terra Testing in Washington, Pennsylvania, was happy to display the new rig from Eijkelpamp North America.

### Mobile Drill Intl



A group from Holt Services of Milton, Washington, celebrate the purchase of a rig from Mobile Drill Intl of Indianapolis, Indiana.

### Aries Industries



PumpMan NorCal of Santa Rosa, California, sent Ron and Jason to show off their new video inspection van from Aries Industries of Waukesha, Wisconsin.

### Pulstar Mfg/Preferred Pump



The Letts & Demery Pump and Drilling crew enjoyed the event with Central Valley Pump of Turlock, while showing their new pump hoist with Albin of Pulstar Mfg/Preferred Pump of Dodge, Nebraska.



Michael, Michael, and Edward with Central Valley Pump of Turlock, California, stand with Randy and Albin of Pulstar Mfg/Preferred Pump of Dodge, Nebraska.

Send your deals to: [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)

*Adapted from Information by the American Petroleum Institute*

How vulnerable is the gas and oil industry to cyberattacks? It's a question the American Petroleum Institute (API), the Natural Gas Council (NGC), and the wider membership of the Oil and Natural Gas Subsector Coordinating Council, has been researching. The group recently released its report, *Defense-in-Depth: Cybersecurity in the Natural Gas and Oil Industry*, which describes the industry's efforts to defend itself and energy consumers against cyberthreats. The report also gives policymakers a glimpse into the complete line of cybersecurity programs available.

"Cybersecurity is a top priority for the natural gas and oil industry," said API President and CEO Mike Sommers. "As the owners and operators of critical energy infrastructure, our companies are providing the leadership, proactive solutions, and ongoing coordination with federal agencies to help prevent future cyberattacks. Natural gas and oil pipeline systems are purpose-built to be highly resilient, and our members are leaders in cybersecurity, sharing cyberthreat indicators and intelligence with each other and with the U.S. government through the Oil and Natural Gas Information Sharing and Analysis Center."

Key points in the report include:

- Companies realize cyberattacks present a risk which could compromise the viability of a business and have developed wide-ranging tactics for cybersecurity.
- Cyberthreats are not new or unique to pipelines. These threats occur throughout the energy industry, including coal and nuclear plants. Most pipeline companies have layers of security in place to protect against failure. These devices include mechanical controls which cannot be overridden through a cyberattack of industrial control systems.
- The natural gas system is very resilient due to the geographic diversity of production, gathering, processing, transmission, distribution, and storage areas. The industry is also protected by multiple fail-safes, redundancies, and backups.
- Trusting voluntary methods, including proven structures and public-private collaboration, rather than strict standards or regulations, is the best way to strengthen the security of natural gas and oil companies, and the infrastructure they operate. These approaches provide the flexibility and agility to respond to the ever-changing cyberthreat issues.

API also released a video which highlights the industry's investment in people and cybersecurity technology to keep energy infrastructure safe and operating reliably.

The natural gas and oil industry is committed to investing its own capital to maintain and safeguard its infrastructure. For over 15 years, API has assembled its member companies to address the issue of cybersecurity defense, coming together to create solutions in systems technology, network security, and critical infrastructure protection. Sharing this information throughout the industry, as well as between the industry and government, is a critical factor of an effective cyberdefense strategy.

To view the video or download the entire report, visit [api.org](http://api.org)



## Armstrong Machine Co. Inc.

Pocahontas, IA 50574 USA

712-335-4131 ~ 24 Hours 7 Days a Week • Fax: 712-335-4565

800-831-4527 USA & Canada (8AM to 4PM Monday-Friday)

[armstrongmachine.com](http://armstrongmachine.com) [amci@armstrongmachine.com](mailto:amci@armstrongmachine.com)

### Nitrate Coated Premium Liners

5x6, 5x8, & 5x10 Gardner Denver  
5-1/2x8 & 5-1/2x10 Gardner Denver  
7-1/2x8 & 7-1/2x10 Gardner Denver

### Rebuilt Mud Pumps

4-1/2x6 Gaso Duplex  
4-1/2x6 Oilwell Duplex  
Gardner Denver 4-1/2x8 PA-8 Triplex  
Gardner Denver 5x6 Duplex  
Gardner Denver 5x10 Duplex  
Gaso 5x10 Duplex

### **OVER 300 PUMPS IN STOCK**

Hydraulic Grout Pumps 5", 6", & 7-1/2"

### New Pumps In Stock

Gardner Denver 4x5 TEE Triplex.  
Gardner Denver 5-1/2x5 TEE Triplex  
Gardner Denver 4x5 or 4-1/2x5 Duplex  
Gardner Denver 5x6 Duplex  
Gardner Denver 5x6 Air Drive Duplex  
Gardner Denver 5x8 Duplex  
Gardner Denver 5-1/2x8 Duplex  
Gardner Denver 7-1/2x8 Duplex  
Gardner Denver 7-1/2x10 Duplex  
Gardner Denver 5-1/2x5 THE Triplex  
Gardner Denver 5x8 PAH Triplex

**Call for Prices.**

**Special or Obsolete Parts Made to Order.**

### Rods Heat-Treated & Chromed

5x6, 5x8, & 5-1/2x8 Gardner Denver  
5x10 & 5-1/2x10 Gardner Denver  
7-1/2x8 & 7-1/2x10 Gardner Denver

**We Have a Variety of Brands  
of Mud Pump Parts and  
Power Units in Stock.**

**Cash for Surplus  
Mud Pumps.**





# How Far Will Your Camera See? Part 1

by Ray Roerick

International Sales Manager, Well-Vu, Inc.



Of all the questions asked at trade shows and conventions, "How far will my camera see?" is by far the most common. The best answer is, it probably all depends on the water quality, an answer most do not want to hear. Very few properly constructed wells with good quality water ever need a video inspection to see why the pump is stuck, it's pumping sand, or the pump is sucking air after all these years of working good.

First, to know how far the camera will see, we need to know what "dirt" is in the water. We need to keep in mind that total dissolved solids (TDS), to include but definitely not limited to iron, manganese, tannins, to name a few of the different dirt particles we find in water wells. Of course, we don't know what we will be dealing with as we are driving up to a well site to do a video inspection, but we do need to know this is the reason for poor visibility from the camera. All underwater cameras are subject to these same viewing problems, because no camera can see through dirt.

The next problem is, those same minerals in the well casing will cause the light to be absorbed or blocked from reflecting back to the camera lens to provide the needed picture.

The good news is, there is a solution - unfortunately, it's not a fast fix, but it is simple. Flocculation is the process of collecting suspended solids into larger particles after treatment with a coagulating agent. Flocculation will settle out the solids to allow a clear video inspection. What is the purpose of flocculation? In this application, it is simply to facilitate clarity within the water column. Coagulation / Flocculation brings the ultrafine particles together, increasing the density so they will settle to the bottom.

How do you know if you should use a flocking agent? By taking a sample, and from the turbidity in the sample and how long it takes to settle, will tell you a lot. Or simply lowering your camera into the water table and seeing your video screen go dark or have very poor visibility. You can go to the link <https://youtu.be/kKa7qqjUOlw> to see a short video of a very clean well with 235 parts per million of TDS that provides a clear picture.

Until recently, flocking agents could not be used in domestic water wells because of contamination reasons and not being approved by health departments or the National Sanitation Foundation (NSF). But now there is an NSF certified flocculent, which means the NSF mark assures consumers and regulators the products have been rigorously tested to comply with all standard requirements. More on flocculation next month.

*Ray*

Ray Roerick may be contacted via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)



**SKYREX ELEVATORS**  
Used Worldwide

**Stock Sizes:**  
1" thru 24" for casing, column pipe, tubing, and drill pipe.

\*Load test certificates available  
\*Available with or without a base



We Support Our Troops!



**Oilfield & Water Well Conventional Reverse Circulation Drill Pipe & Equipment**

**We have elevators of all sizes, types, and weights; can build to any special applications.**

- Drill Pipe
- Drill Collars
- Manual Tongs
- Spiders
- RC Swivels
- Stabilizers
- Bits
- Bowls
- Centrifugal Pumps
- Crossover Subs

**NEW & USED EQUIPMENT**

**ALIGNMENT CLAMPS**



**Family Owned & Operated**

office 806-791-3731 fax 806-791-3755  
[www.rexmcfadden.com](http://www.rexmcfadden.com)

about 85% of them worked the entire year without a lost-time accident.

The award recognizes coal and mineral mining operations in ten categories to reflect the safety accomplishments of both small and large mines. This year, 20 mining operations, including 6 coal mines and 14 mineral/metal mines, were honored with the award recognizing their performance in 2017.

**Large Mine Awardees:**

- Underground Coal** - Bull Mountains Mine No. 1, Signal Peak Energy LLC
- Underground Metal** - Exodus, Newmont USA Limited
- Metal/Nonmetal Mill** - Grand Saline Operations, Morton Salt
- Coal Processing Facility** - Kayenta Mine, Peabody Western Coal Co.
- Underground Nonmetal** - Kerford Limestone, Kerford Limestone Co.

- Quarry** - Drake Quarry, Drake Cement LLC
- Open Pit** - Genesis, Newmont USA Limited
- Surface Coal** - Kosse Strip, Luminant
- Dredge** - Samsund LLC, Samsund LLC
- Bank or Pit** - Santosh DBA, CalPortland Co.



The Sentinel of Safety trophy and the country's dedication to safety has grown in stature and importance with each succeeding year.

**Small Mine Awardees:**

- Underground Metal** - Buckhorn Mine, Crown Resources Corp.
- Quarry** - SBM Materials, SBM Materials
- Underground Nonmetal** - Burning Springs Mine, Martin Marietta Materials, Inc.
- Metal/ Nonmetal Mill** - Columbus Quarry LLC, Columbus Quarry LLC
- Bank or Pit** - CR5, Oldcastle SW Group, Inc.
- Underground Coal** - Cooper Ridge Deep Mine, Kopper Glo Mining LLC
- Surface Coal** - Solomon Run, Elk Resources, Inc.
- Coal Processing Facility** - Holden No 22 Preparation Plant, Arch Coal, Inc.
- Open Pit** - Materion Natural Resources, Materion Natural Resources
- Dredge** - Danz, Peoria Concrete Construction Co.

"Safety is the prism through which our industry views every issue. Whether a company is opening a new mine, has a longstanding operation, or is incorporating new technologies, today's mining industry leaders are always exploring ways to keep miners safe today, and improve for tomorrow," said Hal Quinn, NMA president and CEO. "Through these awards, we acknowledge outstanding accomplishments in safety and hope that these companies' achievements can serve as a model for others in industry."

**Open the Doorway to all the Event Photos during Groundwater Week 2018.**

To see all the photos from this event, go to [worldwidedrillingresource.com](http://worldwidedrillingresource.com) or click [here](#).

Feel free to download at will and print the photo(s) of your choice. Compliments of WorldWide Drilling Resource®.

Photos are copyrighted and released for personal use only - no commercial use permitted.



# Rubber-Tired, Tried and True

The CME-750X is the culmination of over 30 years of experience in ATV drill technology. It's been designed and refined from the ground up to provide the best combination of mobility and drilling performance you can get with a rubber-tired all-terrain drill rig. There are no compromises.

All-terrain means you can get to jobs inaccessible to truck-mounted rigs without building costly access roads. And with its built-in auger racks, toolboxes, and water tanks, the CME-750X carries everything you need to get the job done when you get there. Of course the rubber tires won't damage most pavement, so you can use this rig on city streets as well.

The dependable mechanical rotary drive is available in standard, high-torque, or high-speed models. The high-torque version provides up to 12,950 foot pounds of torque while the high-speed model gives you spindle speeds up to 930 rpm. And 30,000 pounds of retract force let's you take on those big drilling jobs.

The CME-750X is available with the same options as our truck-mounted drills, like automatic SPT hammer, hydraulic rod holder and breakout wrench, quick mast disconnect, various hydraulic hoists, and many more.

If your jobs call for a rig that can get through mud, snow, sand, and rough terrain, check out the CME-750X. It'll get you there; and then it'll get the job done.



## CENTRAL MINE EQUIPMENT COMPANY

4215 Rider Trail North, Earth City (St. Louis), Missouri, 63045 USA

Phone: 314-291-7700 1-800-325-8827 FAX: 314-291-4880

E-mail: [info@cmeco.com](mailto:info@cmeco.com) Website: [www.cmeco.com](http://www.cmeco.com)



**WTR**

## A Lot Going on in Indiana

by Ed Moranski, Chief Marketing Officer  
*WorldWide Drilling Resource®*

A road trip is not complete without a little fun and adventure. On my way to the Indiana Ground Water Association event last November, this part of the *WDR* Team made a few stops.

Pulliam Enterprises, located in Mishawaka, Indiana, has been designing and manufacturing PullRite hitches for over 30 years. You might want to check them out.

Mark Rothwell, CEO at Diedrich Drill, located in La Porte, gave a warm welcome and tour of the facility. It was a great opportunity to see first-hand the process of how the Diedrich machines are made. Mark also introduced me to some of the talented team involved in producing the equipment.

Next stop was Vanair Manufacturing in Michigan City. It was nice to meet Sara Tilden. She gave some insights of the operation and what goes on there.

I remember when Sullivan-Palatek was located in Claremont, New Hampshire. I got to see their facility in Michigan City, and it is quite the place. Dave Raffin and I caught up on what has transpired through the years. They service many industries.

I finally arrived at the location of the Indiana Ground Water Association's 2018 Convention & Trade Show - the Blue Chip Casino Hotel & Spa in Michigan City. It was a lot of driving, and I was glad to reach my destination. The exhibit hall was filled to capacity with manufacturers and regional reps anxious to display their products and information. There were many great door prizes and items in the silent auction. The educational seminars, general sessions, and meetings were packed solid with attendees.

The ride home was long, rainy, and windy - change of seasons was coming - time to get ready for winter.

To see all the photos from Indiana Ground Water Assn 2018, go to [www.worldwidedrillingresource.com](http://www.worldwidedrillingresource.com) or click [here](#).




Thank-you to all of our Sponsors!

- Baker Water Systems
- C & N Supply
- Frost & Wulfring
- Franklin Electric
- GEICO
- Granitool
- Headwater Wholesale
- KAF Sales & Marketing
- Advanced Pump
- RIM Sales LLC
- The DeHayes Group/United Fire
- The Krapp Supply since 1874
- The Rig Doctor's
- Tri Valley Supply Co.
- Valley Farms Supply
- Water-Right, Inc.
- WYD-BEN, Inc.
- Xylem Inc.



### Pre-Registration NEWWA

New England Water Well Expo March 8 - 9, 2019  
Best Western Royal Plaza Trade Center  
Marlborough, Massachusetts

New England Water Well Association c/o Markets Beyond Group  
7 Bailey Lane, Brewster NY 10509 Phone: 845-278-1892 Fax: 845-278-1899

Contact: \_\_\_\_\_

Address: \_\_\_\_\_

State/Zip Code: \_\_\_\_\_

Phone & Fax : \_\_\_\_\_

E-mail: \_\_\_\_\_

Pre-Registration \$ 20 per person  
Spouse & Children under 16 years  
FREE

Onsite Registration \$ 25  
Registrant (s) Names: \_\_\_\_\_

Credit Card Type \_\_\_\_\_ Credit Card Number \_\_\_\_\_  
Expiration Date \_\_\_\_\_ CCV (security code) \_\_\_\_\_



**Pre-Registration Deadline - March 1, 2019**



Complete this form and fax or mail it along with your payment ASAP to NEWWA.

Register online at [www.newwassociation.org](http://www.newwassociation.org)

**NEWWEXPO@gmail.com**

### Recipe Corner

Courtesy of the Texas Ground Water Association Ladies Auxiliary - Women of Water

#### Piña Colada Fruit Dip

- 8 Ounce Can of Crushed Pineapple
- 1/2 Cup Milk
- 1/2 Cup Sour Cream
- 1 Package of Instant Coconut Pudding

Combine all ingredients in a blender. Cover and blend for 30 seconds.

Refrigerate several hours or overnight. Serve with fresh fruit. Makes 2½ cups.

~ Shirley Casarez



## Sometimes Change is Difficult, but Needed

by Britt Storkson  
Owner, P2FlowLLC

Several months ago, I learned of a company that had a need for better controls for their "wrapping machine". This machine was basically a repurposed lathe that wrapped materials - much like wrapping paper toweling on a roll. I checked it out and found the existing system was overbuilt, complicated, and costly - with a lot of components which produced very little in the way of practical "smarts" to run the machine.

Thinking I could offer a greatly improved and much lower cost alternative using my computer controls, I spent about 15 hours of my time and a few dollars in materials to build a working model. I figured it was worth my time because it was so much simpler and less expensive, I wouldn't have any problem "selling" it.

I made an appointment with the company principals and presented the working model and method to them. I don't know what they paid for the existing equipment, but my guess is my approach would cost something like 1-5% of what they had. Not only did it cost less initially, but it could be easily modified in the future to further increase production and reduce labor costs as well . . . something which was very difficult and costly to do with the equipment they already had.

Their reaction? They didn't want it. Surprised, I did some probing as to why they didn't want it. I explained I didn't expect them to immediately throw out their existing equipment and install what I had, as obviously it wouldn't be practical. This required only modification of the existing machines, not complete replacement.

They owned several of these machines and one could configure an extra machine the "new and improved" way. Then, when everybody was comfortable with its operation, move it to the production floor and reconfigure another machine, then another, until the changeover was complete. After about ten minutes of trying to understand their position, I concluded they didn't want change. Any change. No matter how good the change was.

Corporate history is littered with companies which refused to change despite clearly seeing "the handwriting on the wall". A good example of this is Eastman Kodak that resisted the digital photo technology. After years of throwing money at a technology that was going nowhere and nobody wanted, they finally declared bankruptcy in 2012. They didn't want change - no matter how good the change was.

The ancient Greek philosopher Heraclitus said, "The only constant in life is change." Rather than resist change, I think it's far more beneficial to make wise choices about what and how to change.

*Britt* Britt Storkson may be contacted via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)

STAR IRON WORKS  
Serving the Drilling Industry

NEED SOMETHING SPECIAL?  
Talk to us - we'll make it happen  
faster than you think.

257 Caroline Street  
Punxsutawney, PA 15767  
800-927-0560 • 814-427-2555  
Fax: 814-427-5164  
[www.starironworks.com](http://www.starironworks.com)

# WE SELL BITS

+  
TRICONE



+  
PDC



+  
CUTTERS



+  
HOLE  
OPENERS



+  
HAMMER  
BITS

+  
DRAG BITS



+  
SUB  
ADAPTERS



KS/BIT

800.213.1389 • 618.438.9279 (ESPAÑOL)  
KSBIT.COM

48

FEBRUARY 2019

*WorldWide Drilling Resource®*

# Future of Mining Australia Returns to Sydney in 2019

Adapted from Information by Aspermont Media

MIN



Taking place from March 25-26, 2019, The Future of Mining Australia conference addresses the long-term goals of the industry with an agenda that has been created by bringing together an advisory board of select leading mining experts and new talent.

With over 500 professionals expected in attendance, it will cover a vast range of content spanning across the entire mining life cycle with technology, development, and sustainability at its core, focusing on areas of development and the challenges ahead as mining begins to look beyond now, and plan for the future.



**Key questions the conference will seek to answer include:**

- **Disruption in mining:** Which social, geopolitical, economic forces, and market trends are reshaping the mining industry?
- **Influencing change:** How are mining companies refocusing their efforts on creating a united workforce? This is driven by innovation, problem solving, collaboration, and transparency.
- **Value chain optimization:** How is the industry challenging itself to develop new ideas, out-of-the-box strategies, and next-level optimization?
- **Game changing equipment:** Which new technologies are, and will be, applied across the mining life cycle to change the future of mining?

- **The human effect:** How can we continue to liberate our workforce through new job creation, training, and development?

Speakers delivering on these topic areas include Ricus Grimbeek, COO for North Atlantic Operations and Asian Refineries, Vale Base Metals; Jake Klein, CEO of Evolution Mining; Friska Wirya, change lead - Digital, Newcrest Mining; Sabina Shugg AM, hub director, Kalgoorlie-Boulder Mining Innovation Hub - CRC ORE; and Allan Trench, professor of practice, MBA Director at the University of Western Australia.

The conference is well supported by an extensive array of solution providers specializing in mining equipment, engineering, analytics, Internet of Things, digitization, consulting, advisory, and artificial intelligence. These include Caterpillar, Komatsu, Epiroc, Motion Metrics, Howden, MST Global, Vega, Earth AI, and Petra Data Science.

For the first time, it will also allow start-up companies to showcase their latest innovations, game-changing equipment, and new solutions via the Future of MinTech; a one-day forum dedicated to an audience of METS (mining, equipment, technology, and service providers), mining companies, and industry innovators with content discussions on the key drivers, trends, and strategies, to working with and aiding the success of start-up's in mining.

For those who are interested in discussing new ideas, concepts, and strategies, the Future of Mining is a great opportunity to join like-minded peers in sharing your thoughts.

**YOUR WEAPONS OF CHOICE FOR IRON BACTERIA!**

COTECHEMICAL CORP.

COTEY'S WELL CLEANING BRUSH + LIQUID DESCALER!

TO LEARN MORE, CALL 800.457.2096

4410 MLK Jr. Blvd. • Lubbock, TX 79404  
806.747.2096 • coteychemical.com



# If You Could Begin Your Life Over

by Tim Connor

One of my favorite questions to ask members of an audience is, "If you knew then, what you know now, would you have lived any area of your life differently?" The two follow-up questions are always more difficult for many people: "Why that area?" and "How?"

You see, if you knew then what you know now, you wouldn't be where you are now. You wouldn't have what you now have, and you wouldn't be with whom you are with now. Not that any of these things are good or bad (they could be either if you choose to see them that way). There is a metaphysical concept that says: Each of us is where we are supposed to be - and we have experienced what we needed to experience to grow and learn what we needed to learn. I haven't lost it or gone off the deep end. Just give me a few more minutes before sending me an e-mail to vent your disagreement. (Yes, some people actually do that).

Let's assume you have had a very difficult time in life - financially, personally, health issue, relationship issue - or some other area. And let's also assume you didn't want whatever this was in your life. If given the choice, you would not have chosen what was in your life. Let's further assume your perception of it at the time was negative. A lot of assumptions, I know, but I

have chosen not to deal in a real personal issue here. Let's further assume it changed the remainder of your life - career, where you lived, your health, etc. forever. Let's further assume you believe, if this hadn't happened, your life would have turned out better than it did in the long run. I have only one question to all of these assumptions: Why or why not?

Life happens. What makes what happens positive or negative is not what happens, but what happens inside our heads and hearts. I am not saying rape, divorce, and bankruptcy are positive things, and I am not even saying good things will or can always come from them. What I am saying is: What comes from them is up to you. How your life turns out is up to you. What you leave behind as a legacy is up to you. The lives you touch are up to you. What you share is up to you. What you learn is up to you. The lessons from the failures and successes in your life are up to you. I could go on, but I don't want to kill a fly with a hammer.

*Tim*

To receive Tim's weekly FREE motivational booster articles, contact him at [www.timconnor.com](http://www.timconnor.com) with "please add me to your free booster e-mail subscriber list" in the subject line. Or contact him via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)



## BEWARE! All insurance policies ARE NOT created the same!

### Insurance for the Water Well Drilling industry based on 25 years of INSURING Water Well Drillers!

Our knowledge of your industry, your exposures, and how insurance policies are written differently between carriers protects you and your valuable company... *the difference is apples and oranges!*

#### Our competitive policies offer coverage for:

- Down the Hole Loss
- Loss of Income on Drill Rigs
- Voluntary Flow Breakout Containment
- Pollution Liability
- Property
- Inland Marine
- Commercial Auto
- Professional Liability
- Umbrella/Excess Liability
- Workers' Compensation

*We look forward to insuring your company's future is protected today within our Water Well Drilling Family!*



Lorrie Partridge, AAI  
President  
[lorrie@blackadar.com](mailto:lorrie@blackadar.com)



Sissy L. Beery  
Vice President  
[sissy@blackadar.com](mailto:sissy@blackadar.com)



Chy LeClair  
Commercial Producer  
[chy@blackadar.com](mailto:chy@blackadar.com)



Contact us today for a consultative review to protect your important business.

**BLACKADAR**  
INSURANCE AGENCY  
Insuring Your Future is Protected Today

800-838-3751 • [www.blackadar.com](http://www.blackadar.com)  
Providing Insurance solutions for over 39 years

Trusted Choice

April Issue Deadlines!  
Space Reservation:  
February 25<sup>th</sup>  
Display & Classified  
Ad Copy: March 1<sup>st</sup>



# Safety and Protection - The People Part of Your Business!

by **Lorrie Partridge, AAI**  
**Blackadar Insurance Agency**



There are two types of water well drilling companies; ones that have experienced losses, and those which haven't experienced losses, YET!

Trouble will come to every business, large or small, in the form of an unexpected loss to their human assets or their material assets. The human asset losses are some of the worse to deal with, emotionally hard to get past, and difficult to recover from - such as the loss of life of a company's leader, valuable business partner, or the company's number one drill operator. These types of losses can shake a solid, long-term company to its core. Oftentimes, purchasing a financial resource type of insurance coverage, such as life insurance, is the easiest thing to do but quickly overlooked by many business owners.

Purchasing life insurance on a company's key or critical to operations people creates a difference. It allows the company to gain financial support and permits the key component of time to come into play and allows the firm to heal from the upheaval of this type of loss, from all aspects including family, coworkers, and clients. It usually stops a fire sale from happening or decisions made in haste or fear. The financial burden is lifted and there is time to review, restructure, and redirect the company after a significant life loss. Life insurance is an important aspect of safety; financial safety, which is just as valuable and important as a company having workers' compensation insurance.

Speaking of workers' compensation, many business owners of well drilling companies will exempt or exclude themselves from workers' compensation. Many times for one reason, the expense of being classified in workers' compensation code 6204, Drilling. Yes, it's expensive, and for good reason - the coverages!

Where else can you purchase indemnity coverage for your loss of income, medical coverage for your injury, life insurance, and employers' liability to protect you from a claim of negligence, all rolled into one policy? Nowhere!

While I agree when a drilling company is in its infancy stage, it may not be able to afford the coverage expense on the owner. However, as soon as the company is profitable, it should invest in covering the owner with workers' compensation insurance.

I could not leave this article without mentioning the important aspect of insuring your health, and the health of your employees, as well. Again, I understand it may not be an expense a young business is able to handle, but it is a key coverage to consider as your company grows. It will also help you attract and keep good employees!

**JENTECH**  
Drilling Supply

**“TOP TO BOTTOM DRILLING TOOLS & ACCESSORIES”**

NEW & RERUN ROTARY BITS • BIT & PIPE HANDLING TOOLS • DRILL STEEL & SUBS  
DTH HAMMERS & BITS • DRILLING FLUIDS & THREAD COMPOUNDS • FULL LINE OF CORING TOOLS

**BAROID**  
INDUSTRIAL DRILLING PRODUCTS  
SALLABURTON

**DRILLERS EDGE**

[info@jentechdrillingsupply.com](mailto:info@jentechdrillingsupply.com)  
[jentechdrillingsupply.com](http://jentechdrillingsupply.com)

**Main Office**  
195 Ingenuity Avenue, Sparks, NV 89441  
Phone 775-424-3045 • Fax 775-424-3046

**Branches**  
Elko, Nevada • Bakersfield, California  
Apache Junction, Arizona • Salt Lake City, Utah

## Notes from the Groundwater Guy

by *Thomas E. Ballard, P.G., C.H.G.*  
*Southeast Hydrogeology, PLLC*



### Water Level Measurements - A Simple but Useful Diagnostic Tool

I'm always amazed at how many small water systems, not to mention domestic well owners, do not keep track of water levels in their wells. Measuring water levels is simple to do, and can tell you a lot about the performance and health of a well over time.

There are really two water level measurements which should be made in the well on a regular basis:

- 1) A static water level made during nonpumping conditions.
- 2) A pumping water level made while the pump is operating under normal conditions.

The difference between the static and pumping water level measurements is the drawdown in the well, which can change over time if the well begins to plug up. An increase in the depth to water under pumping conditions with little to no change in the static water level is generally indicative of some sort of plugging in the well. Lowering of the static water level over time is often indicative of drought conditions, or overpumping the aquifer.

Water levels can be measured in a variety of ways. Most common is the use of a reel-mounted electric tape with a water sensitive probe which is lowered into the well and triggers an alarm when it contacts water. These electric tapes are accurate to within 1/100 of a foot. Another method for monitoring water levels in wells is through the use of a sonic water level meter, which can be used both as a temporary well level measurement tool or permanently installed in a well to automatically record water levels over time. Sonic meters are often accurate to within 1/10 of a foot, but have a high convenience factor.

The last method for monitoring water levels in a well is through the use of a pressure transducer/data logger. This setup uses a pressure transducer to record the height of the water column over the top of the transducer. The data is then stored in the datalogger for direct read or periodic downloading and processing. The pressure transducer can generally register water levels to within 1/100 of a foot when properly calibrated and corrected for barometric pressure.

To track water levels, the data for both static and pumping water levels should be charted over time to observe trends and to identify potential plugging issues before they endanger well production.

*Tom*

Tom Ballard may be contacted via e-mail to [michele@worldwidedrillingresource.com](mailto:michele@worldwidedrillingresource.com)

**FUTURE OF MINING**  
 AUSTRALIA

**25-26 March, 2019**  
 Sofitel Sydney Wentworth, **Australia**

**Meet the industry leaders**  
**who shape the future of Mining**

For the latest agenda and to register, visit  
[australia.future-of-mining.com](http://australia.future-of-mining.com)

# 3100GT

## GEOTECH ROTARY RIG

### Fast and Easy CPT

The Geoprobe® 3100GT can be used to quickly perform SPT borings (augers / mud rotary), collect shelby tube samples, take rock cores, and push CPT cone. Switching from rotary work to CPT can be done in a few short minutes.



Mounted on a 19,500 lb. GVWR truck, the 3100GT does not require a Class A or B CDL to operate.

**No CDL  
Required!**  
(Class A/B)

#### ▶ Multiple Rotary Head Options

(Full torque in forward and reverse)

- GA4000 (4,000 ft-lb, 150 rpm)
- GA4100 (4,000 ft-lb, 750 rpm)
- CB5 (5,500 ft-lb, 600 rpm)
- 26 in. of Head Side Shift

#### ▶ Hands-Free Automatic Drop Hammer

#### Mud Pumps

- Multiple configurations available

#### ▶ Swing Out 7 in. Breakout

# Geoprobe® CPT

#### ▶ Telescoping Winch Mast

- Trip out 20 ft. lengths of rod (with 3 ft. extension)
- 6,800 lb. primary winch
- 1,800 lb. secondary winch with quick-change hook

#### ▶ Drill Mast

- 105 in. of head feed travel
- 36,000 lb. push / 48,000 lb. pull
- Extend, Swing, Mast Dump, Oscillation, and Fold

#### ▶ Control Panel

- Manual controls provide tactile feel
- Electric controls add safe, hands-free operation
- Automatic 2 cm/sec head feed control for CPT advancement

SEE CPT IN ACTION! VIEW OUR VIDEO:  
[geoprobe.com/3100cpt](http://geoprobe.com/3100cpt)

2

CALL FOR A FIELD DEMO  
1 785-825-1842

1

**CPT**  
CONTROLS COME  
STANDARD

# Solving the Mysteries of the Pyramids

Compiled by Caleb Whitaker, Associate Editor

WorldWide Drilling Resource®

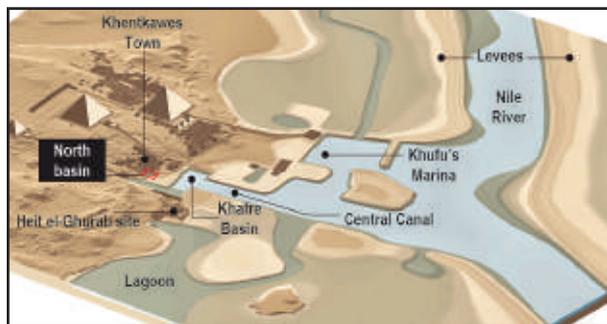
ENV

The pyramid complex in Giza, Egypt, includes the Great Pyramid, two smaller pyramids, the Sphinx, and other structures. During Egypt's 4th Dynasty around 4500 years ago, the pyramids were built in part by using large quantities of heavy stone quarried from hundreds of miles away, across the Nile River.

In ancient times, the Nile was closer to the pyramids than it is today. For this reason, researchers have thought water transport might have been a way to get stones closer to the pyramid. Mark Lehner, director of Ancient Egypt Research Associates (AERA), has gone a step further with the research by excavating and taking core samples, providing a better understanding of the ancient landscape. According to Lehner, engineers made harbors and canals which were deep enough for small boats year-round, and for heavy cargo boats during floods.

Boundaries for canals and harbors were set by 4th Dynasty structures revealed during excavations. These structures also served as benchmarks for floodplain and riverbank levels. Sediment cores pulled from deep in the floodplain provide sections of solid silt and clay, which filled abandoned water courses, as well as sand and gravel from a riverbank where 4th Dynasty people built their settlements.

In the late 1980s, an American-British consortium (AMBRIC) drilled 72 boreholes before installing a sewage system east of the Giza Plateau. With great accuracy, each drill core was mapped and logged for different sediments, including their depth below surface and elevation. By using the AMBRIC cores, along with others taken by AERA teams, researchers were able to assess possible ancient Nile channels and landscape features near Giza.



An illustration during low water in ancient Egypt, courtesy of Ancient Egypt Research Associates.

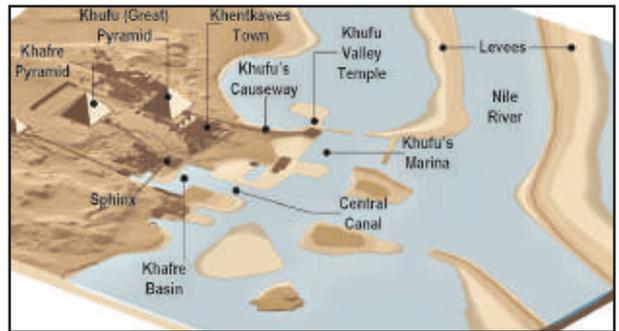
model of the ancient landscape and engineering around the site of the pyramids. Additional research revealed a terraced basin at the site near the Sphinx. The terraces would provide various levels to unload cargo, based on the level of the Nile. Evidence has also been found of ramps in the basin's corners.

Lehner is certain some sort of great enclosure, defined by stonewalls or dikes, stretched 1600 feet east of the Khufu Valley Temple. Wall segments and the Khufu Valley Temple pavement provided benchmarks which normal Nile floodwater did not

An advertisement for Bloom Manufacturing, Inc. The top part has a blue banner with white text: "SPECIALTY WINCHES FOR THE WELL AND FOUNDATION DRILLING INDUSTRY". Below this is a large image of a winch. The text "LIFT-SAFE WINCHES" is prominently displayed in a stylized font. Below that, it says "DESIGNED FOR OUTSTANDING PERFORMANCE &amp; SAFETY". At the bottom, there is a logo for Bloom Manufacturing, Inc. and contact information: "Independence, IA 50644, USA | bloommfg.com P: 319-827-1139 | 800-394-1139 | F: 319-827-1140".

rise above. Clear evidence also points to a long, broad, and very deep channel leading straight toward the Sphinx and Khafre Valley Temple, with two settlements flanking its access on the east.

Even though these pieces of the puzzle are firmly within hand, a major piece remains out of reach - the specifics of the Nile during the Old Kingdom. Researchers do not know the ancient river's exact course or size. They are also unaware of whether the main trunk or a subsidiary channel flowed closest to Giza. In addition, there is a lack of drill core data and other information, which could complete the waterfront at the foot of the Giza Plateau. While the model does not perfectly capture the 4th Dynasty waterfront, this exploratory process has offered insights into how the builders of the Giza pyramid complex may have turned the area into a major port on the Nile.



An illustration during Nile River flooding in ancient Egypt, courtesy of Ancient Egypt Research Associates.

# The Traveling Companion

Complied by the Editorial Staff of *WorldWide Drilling Resource*®

Every year, 14 million Americans travel internationally on business. They take five trips per year on average, with a stay of nearly two weeks each time.

Sometimes, a person's job depends on their ability to pack up and head to the airport. While the traveling spouse jets off somewhere else, the home-based spouse keeps the family running.

When families understand how travel affects both home life and the traveler, actions can be taken to mitigate negative impacts. If you or your spouse find yourselves traveling on business, the following tips can help keep peace and harmony in your family and home.

**1. Staying connected is fundamental.** With modern technology, this can be accomplished in a number of ways. With programs like SKYPE, you can even chat face to face with loved ones. The main thing is to make the effort.

**2. Trust is key.** When partners are separated much of the time, even the strongest bonds of trust can be put to the test. Simple things like making sure phones are charged and nearby in case of emergency can go a long way to bridge the distance.

**3. Remember you're on the same team.** Guard against becoming resentful and blaming one another for new responsibilities. Decide "who does what now" up-front and support each other through the process of changing roles. Joint decisions on major issues can still be solved together, but everyday choices must be made by the partner on-site; and you can't undermine their efforts by second-guessing them. Flexibility is the key, and there's more than one way to get things accomplished.

**4. Spend time in their environment.** Go with them when you can! Use this chance to experience a new place together. Take the kids and make it a family trip if possible. This makes it more interesting for everyone, while also taking the mystery out of how the traveler spends their days. It might give you a chance to meet some of the people they come home and talk about. It's a great way to spin a negative situation into a positive experience for everyone.

**5. What about when the traveler is home?** The traveler might start to feel like a visitor in their own house. Routines may have changed, along with family "rules", and the traveler may not feel like a part of things anymore. Keep in mind there will always be a transition period in the beginning where you and your spouse must decide what matters most, and what works best for everyone. Periodically, issues like parenting, budgets, and household chores may need to be refreshed and agreed upon.

Finally, remember traveling takes a physical and emotional toll on one's body, so give the traveler a chance to rest and decompress before handing them the "honey-do" list.

In the long run, you may find that traveling forces you to do a better job of communicating, and strengthens the family bond. Changes can be challenging, but they often make us better in ways we never imagined.

OIL & GAS | MINING | WATER WELLS | CONSTRUCTION



CHECK OUT OUR NEW WEBSITE

## CELEBRATING 70 YEARS



U.S. MANUFACTURED  
WITH AMERICAN STEEL  
& LABOR SINCE 1947

**WWW.THROOPROCKBIT.COM**  
E: SALES@THROOPROCKBIT.COM | P: +1 (580) 628-3416  
AN ISO 9001 / TS 29001 REGISTERED ORGANIZATION

# THE ONLY HEAVY METAL SHOW YOU NEED TO SEE



**NORTH AMERICA'S LARGEST  
CONSTRUCTION TRADE SHOW**  
**CONEXPOCONAGG.COM**

**MARCH 10-14, 2020 | LAS VEGAS, USA**

# Making Strides in Geothermal Research

*Adapted from Information by GEMex*

The GEMex project is a cooperation initiative between Mexico and the European Union, developed under the umbrella of the Horizon 2020 in Europe and the Fund for Energy Sustainability in Mexico. The project aims to bring together the extended Mexican know-how of discovering, developing, and exploiting geothermal energy systems with a variety of European expertise. The focus is the development of enhanced geothermal systems (EGS) technology, and searching for new approaches to make use of superhot geothermal systems.

GEMex is involved with resource assessment, reservoir characterization, and concept development. The project plans to adapt and further develop methods and technologies at two unconventional geothermal sites located in the eastern part of the Trans-Mexican Volcanic Belt.

The Acoculco geothermal field is described as a high-temperature geothermal system. Two wells have been drilled and temperatures above 572°F (300°C) at depths below 5900 feet were found, but hardly any fluids. Preliminary studies consider Acoculco a candidate for the application of EGS technologies. Los Humeros geothermal field is currently conventionally exploited with a geothermal power plant in operation since 1990. Temperatures around 716°F (380°C) were found at depths below 6500 feet. Los Humeros holds the potential of a superhot resource.



Research is ongoing to assess drilling into a superhot geothermal system. Work is centered on analysis of various types of drilling data from wells in Los Humeros Geothermal Field to better understand the applied drilling and completion techniques and present a set of recommendations for future deep drilling projects in the area, including drilling below the current productive reservoir. The main focus has been placed on aiding casing design process, determining a safe operating window during drilling, and primary cementing operations and their challenges.

In 2018, a joint meeting between the Federal electricity commission (CFE) and International geothermal center Bochum (GZB) took place in Morelia, Mexico. The main aim of the meeting was to understand the technology used in Los Humeros to drill and complete high-temperature geothermal wells, investigate potential challenges faced during drilling for such resource, and acquire data registered during drilling and logging activities for further analysis and mitigation of the potential problems in the area.

Another workshop was organized in Bochum, Germany, with the main goal of presenting a progress update, determining further steps, as well as analyzing drilling data obtained from CFE. Concerns raised during the workshop were about underbalance drilling technology, managed pressure drilling operations, cementing practices, geomechanical modeling, fracture and pore pressure predictions, post-cementing logging, and cement quality. The workshop emphasized the need of evaluating cementing reports and parameters from primary cementing operations in Los Humeros for a better understanding of cementing operations in Los Humeros, as well as extending geomechanical modeling carried out by GZB to more wells in the Los Humeros Geothermal Field.

WATERWELL • ENVIRONMENTAL • CONSTRUCTION • GEOTHERMAL • MINING

## Don't Buy Cheap Knockoffs!

Mills Machine Company offers the Original MilClaw®, KenClaw® and GeoClaw® Rotary Drilling Bits for the Water Well, Blasthole Mining, Construction, Geothermal and Shallow Oil Drilling Industries. These bits offer inexpensive, rugged, carbide-tipped, field-replaceable cutters offering fast penetration rates in a variety of formations.

- Cuts formations ranging from Soft Clay to Limestone (10,000 psi)
- Reduces cost per foot, average cutter life from 500' to 10,000'
- Sizes range from 3 1/2" to 24" diameter
- Suitable for air or mud drilling
- Claw reamers, custom sizes and other configurations available upon request

**800-654-2703**  
**405-273-4900**  
[www.millsmachine.com](http://www.millsmachine.com)

VIEW OUR CATALOG AND MONTHLY SPECIALS

STABILIZERS

HOLEOPENERS

AUGERS

HOIST PLUGS

UNDERREAMERS  
CASING CUTTER

FISHING TOOLS

SUBS

DRAG BITS

FISHING TOOLS

PO Box 1514, Shawnee, OK 74802 • Fax: 405-273-4956 • [sales@millsmachine.com](mailto:sales@millsmachine.com)

# WorldWide SUPER MART™

Call Now!  
850-547-0102



Appraisals  
120

**QUICK CASH MONEY**  
Paid for Drill Rigs, Pump Hoists,  
Mud Pumps, Drill Pipe, & Bits.  
RENE HENDON Tel: 281-260-0880  
120-120

Auger Rigs  
130

Mobile B30S, PTO, on 1990 Ford F-450,  
7.3 diesel with 75,000 miles. Rig has  
24' boom and modified to have slide  
right-left, and front-back...\$15,000 OBO  
Mobile B33 on 2-axle trailer, Ford indus-  
trial 4-cyl. engine, front-back slide,  
winch, and cathead. Rig is gearbox and  
kelly driven. Pulled with Suburban and  
off-road with 25hp tractor...\$23,000  
Also available: Mills 3-key HS augers,  
safety drive hammer, AW rod, misc. bits.  
Call or text 803-324-5200 for more  
info. Will be glad to text pictures.  
130-931

Bits  
220

**Drill King INTERNATIONAL**  
UP TO 48 in.  
ISO www.DrillKing.net  
Sales@DrillKing.net  
866-900-BITS

220-1108

**JERRY'S BIT SERVICE INC.**  
710 CR 3336  
Paradise TX 76073 USA  
(940) 683-2874 Fax: (940) 683-2874  
Mobile: (940) 393-2394  
Contact: Jerry Shoemaker  
jerryshoemaker54@yahoo.com  
Jerry's Bit Service Inc. will meet your  
every drilling need. We service and sell  
tricone, PDC's, as well as hole openers.  
Rather rent a PDC? No problem. Got you  
covered. Our company will repair your  
PDC regardless if it is a rental or purchase.  
220-919

WorldWide Sales Of New &  
Rebuilt Roller Cones and PDC's  
Complete Repair of PDC's  
Call, Fax, or E-mail  
for Quotes  
PO Box 1067  
Archer City, Texas 76351  
940-574-2238  
940-574-4977 Fax  
e-mail: usabit@usarockbit.com  
Visit our website:  
www.usarockbit.com  
We Accept Visa, Master Card & Discover  
**USA ROCK BIT INC.**  
We Purchase New and Used Bits  
OIL FIELD, WATER WELL & ENVIRONMENTAL  
NEW BITS IN STOCK  
CALL US FOR SIZES AND TYPES  
1-800-451-2906 TOLL FREE  
220-162

INTERNATIONAL DRILL BIT SUPPLIER.  
KS/BIT  
KNOWLEDGEABLE - DEPENDABLE - GLOBAL  
NEW SURPLUS RERUN RETIP  
OVER 15,000 BITS IN STOCK  
MILL TOOTH TCI - SEALED OPEN BEARING  
800.213.1389 SALES@KSBIT.COM  
220-648

**HOFFMAN DIAMOND PRODUCTS**  
sales@hoffmandiamond.com  
www.hoffmandiamond.com  
800-444-4180  
NEW!  
Diamond Grinding Cups  
Quality, Integrity,  
and Customer Service  
• Diamond Core Bits • Casing Shoes  
• Reaming Shells • Diamond Cup Grinders  
220-712

**Moab Bit & Tool Co., Inc.**  
PDC's, tri-cones,  
custom bits, hole  
openers, drill pipe,  
subs & stabilizers.  
Doing business for over 50 years.  
24 hr. service  
PH 800-453-1052 • FX 435-259-2968  
sales@moabbit.com • moabbit.com  
220-822

**KC BIT** Serving oilfield  
needs since  
2006  
Atlas Copco tricones, mill  
bits, new and rerun tooth  
and button bits  
**KC Bit & Supply, LLC**  
sales@kcbits.com  
www.kcbits.com  
940-839-8857  
220-694

Nothing is worth more than this day.  
~Johann Wolfgang von Goethe

Breakout Tools  
238

**Rauch SPINNER** MODEL 512B  
Hydraulic-Pneumatic tools in stock.  
Sizes 1" to 20".

**Model 113HD**  
All Hydraulic  
Sizes 1"-13"

**SALE**  
Mention this ad and  
receive sales discount.  
**RAUCH MANUFACTURING INCORPORATED**  
2547 W Success Way  
Emmett, ID 83617  
(208) 365-3492 • Fax: (208) 365-3792  
rauchmfg.com  
rauchmfg@frontiernet.net  
238-673

CLASSIFIED

**Breakout Tools**  
238

**SEMCO, INC.**  
All-Hydraulic Hydrench  
S112H in Stock  
1-12" Four Rollers  
Breaks Pipe, Makes Pipe to Torque Specs  
800-541-1562

238-135



**BLACK DOG INDUSTRIES, LLC**  
Richland, WA

**CHECK OUT OUR UPDATED WEBSITE!**

Specializing in Hydraulic Breakout Tools

- Models Ranging from: 1.5" - 10.75"
- Torque up to 21,000 Ft-Lbs
- Optional Rod Spinner
- Optional Control Panel



**NEW MODELS ARE AVAILABLE!!!**

**(509)946-6400**  
Email: [sales@blackdogind.com](mailto:sales@blackdogind.com)  
[www.blackdogind.com](http://www.blackdogind.com)

238-574

**Business Opportunity**  
245

**Got sunshine?**  
Well drilling and pump business for sale. Over the last 25 years, our company has been the leader in residential, commercial, industrial, agricultural well service, and construction, in the State of Arizona. Our company brings an unmatched expertise and innovation to the industry, earning our customers' continued loyalty. This is a once-in-a-lifetime opportunity to purchase one of the most well-respected and fastest growing water well companies in the southwest. Arizona's wonderful weather is conducive to keeping your employees busy 365 days per year. Annual sales in excess of two million dollars. Our large equipment fleet is all state-of-the-art and problem free. The principles are willing to stay during the transition. Serious inquires only, e-mail: [Welldrillingbiz@gmail.com](mailto:Welldrillingbiz@gmail.com)

245-889

**April Issue Deadlines!**  
Space Reservation:  
February 25<sup>th</sup>  
Display & Classified  
Ad Copy:  
March 1<sup>st</sup>

**Cable Tool Rigs**  
305

We **Buy** and **Sell** All Makes & Models of Cable Tool Rigs!  
Wanted BE models 24L, 28L, 36L, 60L  
**NEW Twin Disc clutches and parts for all makes**

**\*\*\*NEW Smeal / Hunke Pump Hoist\*\*\***  
Buy / Sell Used Pump Hoists - All Makes!  
740-408-0725 Reese Rig & Tool  
305-982

(2) 55 SpeedStars, and Alten 32A, 24A.  
Call for price on rigs.

269-209-5594 or  
E-mail: [cablewelldriller42@yahoo.com](mailto:cablewelldriller42@yahoo.com)  
Ray Leonard, Battle Creek, MI USA  
305-170

**Cable Tools**  
307

**Hocker Drilling and Fishing Tools**  
Special Price on Cable Tools! We accept Visa & Master Card. New & Used Cable Tools, Rope Sockets, Stems, and Bailers. Call 270-926-2889  
[dhocker2@roadrunner.com](mailto:dhocker2@roadrunner.com)

307-107



**The Rampp Group**  
Worldwide Manufacturer of Cable Drilling Tools  
800-272-7886



**Carbide Button Bits**  
Cable Drilling & Fishing Tools  
[www.RAMPPCO.com](http://www.RAMPPCO.com)

307-518

**Core Boxes**  
360

**Buying Cotta Gearboxes**  
All types - topheads, transfer cases, PTOs, working or not. E-mail part number and condition to [cores@cotta.com](mailto:cores@cotta.com), or call: 608-368-5600

360-878

*They can because they think they can.*  
~Virgil

**Casing Tools**  
320



**Torch Guides**



Torch Guides 6" thru 16"  
Mix & Match for a 20% discount  
6" Sale Price.....\$59.00 • 8".....\$79.00

For all your drilling products and supplies, visit us online:  
[www.americawestdrillingsupply.com](http://www.americawestdrillingsupply.com)  
[www.awds.com](http://www.awds.com)  
(800) 800-8444 • (775) 355-1199  
[sales@awds.com](mailto:sales@awds.com)

320-490

**TekMark Industries**



Internal Casing Lifter 35 Tons



Flush Joint Elevator



Casing Holder 35 Tons

**PVC Cutoff & Torch Guide**  
DTH Spear - PVC Puller  
Heavy Column Pipe Holder  
Other Casing Tools  
[tekmarkwellcasingtools.com](http://tekmarkwellcasingtools.com)  
800-747-2485 or 509-747-2485

320-254

CALL 850-547-0102

**Compressors**  
335

**R & R DRILLING INC.**  
800-874-3907  
PH. 423-626-5302 FAX. 423-626-1232  
E-mail: airdocron1@gmail.com



Distributor of  
**SULLAIR Compressors**

**INGERSOLL-RAND**  
AIR COMPRESSORS  
NEW & REBUILT  
HR2s - HR2.5  
AIRENDS IN STOCK



Schramm Distributor  
**GHH - RAND**

Distributor of Genuine GHH Rand Parts  
**Will Ship Worldwide!**

**NEW & REBUILT SULLAIR  
& GHH COMPRESSORS  
SHIPPING WORLDWIDE**

Sullair 750/350 to 1350/500  
GHH 204/128 and CF 1000  
Excellent Exchange Prices!

335-183

900 cfm/350 psi Sullair rebuilt air end model 02250056-648.....\$15,000  
1170 cfm/350 psi Ingersoll-Rand/Cat® C15. New cooler, skid, and paint. Looks better than new.....\$99,000  
Gardner Denver Joy/WB12 booster/Cat® C16.....\$95,000  
Joy WB12 booster/Det. series 60. \$50,000  
Joy WB12 booster/Det. 12V 92 ..\$60,000  
Call Alan Lang: 801-554-2419

335-1027

**Direct Push Drills**  
401



Stocking Distributor of Genuine Geoprobe®  
Tooling & Supplies



Geoprobe® Rentals (420M, 6712DT, 7822DT)  
PrePacked Well Screens

Injection Tooling  
Vapor Sampling

Manholes (H20, M-306, Aircraft Rated)

Morrison Bros. Co.®  
Johnson Screens®  
Proactive Pumps®

888-240-4328 609-631-8939 (fax)609-631-0993

ectmfg.com

proactivepumps.com torquerplug.com

401-719

**Drill Collars**  
425

NEW 4¾" smooth drill collars w/3½ IF threads; 30', 20' w/breakout flats, and 10' long.

JWS Equipment Ph: 405-794-3600  
dannystull.jws@gmail.com

425-784

**Drill Pipe**  
435

**Drill Pipe In Stock**

2-3/8 x 2-3/8 May. x 20'  
2-3/8 x 2-3/8 IF x 20'  
2-7/8 x 2-3/8 IF x 20'  
3-1/2 x 2-3/8 IF x 20'  
3-1/2 x 3-1/2 IF x 20'  
4-1/2 x 2-7/8 IF x 20'  
4-1/2 x 2-7/8 IF x 25'  
5 x 3-1/2 IF x 20'

Weld-On Tool Joints - Used Drill Pipe  
Call: RENE HENDON 281-260-0880  
renehendon@yahoo.com

435-120

**HELANBAK**



**DRILL PIPE MANUFACTURER**

**Connections**

- ▶ Mayhew JR
- ▶ Mayhew Reg
- ▶ AW / AWJ
- ▶ NW / NWJ
- ▶ API Reg
- ▶ API IF
- ▶ FEDP
- ▶ & Others

**601-736-6112**

**INFO@HELANBAK.COM**  
**HELANBAK.COM**

435-1213

**Drilling Products**  
458

"We make the tools that make you money"

**HM Heisey Machine**  
HOME OF THE HM FLOATATION SUB



**Standard Duty**

6" OD, 2¼" Float  
70/80,000 lbs Holdback

**Deep Hole**

7" OD, 3" Float  
110/120,000 lbs  
Holdback

**Blue Max**

8" OD, 3½" Float  
140/150,000 lbs Holdback

**We Can  
Make It!  
Just ask...**

**www.heiseymachine.com**  
**Toll Free 1-800-433-3677**  
717-293-1373 Fax: 717-293-1091

458-813



104 E. DeVore St., Pearl City, IL 61062  
Phone: 800-388-2906 Fax: 815-443-2893  
E-Mail: mudmen@aeroinc.net  
**www.iesdrillingsupplies.com**

The Midwest's Largest Inventory of Drilling Supplies

Drilling Mud - Polymers - PVC and Stainless Steel -  
Aboveground Protectors - Manholes

Water Well-HDD Drilling-Geothermal-Environmental & Remediation

**NOW FEATURING!** IES Cast Iron Micro Well Manholes for 1", 3/4", and 1/2" Geoprobe® Wells



Cast Iron - Watertight Monitoring Well Covers for 1" or Smaller Geoprobe® Wells. These Manholes are ideal for ORC Injection Applications and Vapor Sampling Wells.

We deliver to all 50 States - 7 Days a Week! Give us a call!

458-814



Send your classified ad around  
the world with **WDR.**

Call or e-mail Kathy today  
**850-547-0102**

**kathy@worldwidedrillingresource.com**

**Electric Motors**  
510

**-WANTED-**  
20 to 300 hp vertical hollow shaft pump motors.  
**Good or Bad! Will pick up!!**  
800-541-1562

510-135

**Elevators**  
515



**Easy Lift  
Casing Elevators**



6" and 8" easy lift casing elevators provide a positive grip on the casing without the need for weld-on tabs. Carbide teeth dig into casing on both sides.

Set casing **FAST** • Grab & Go  
No slings included

For all your drilling products and supplies, visit us online:

[www.americawestdrillingsupply.com](http://www.americawestdrillingsupply.com)  
[www.awds.com](http://www.awds.com)  
(800) 800-8444 • (775) 355-1199  
sales@awds.com

515-490



• Kwik Klamps  
• PVC Pipe Elevators  
• Flush Joint PVC Pipe Clamps

**J&K Tool Company, Inc.**  
www.jktool.com • sales@jktool.com  
320-563-4967

515-187

**SEMCO INC.**

1" Thru 16" Elevators  
All steel with safety latch.  
800-541-1562  
Fax 719-336-2402

[www.SEMCOoflamar.com](http://www.SEMCOoflamar.com)

Ship by  same day



515-135

**ELEVATOR SPECIAL**

1", 1 1/4", & 2" Slip-type Elevator w/kwik-clamp

Package Special  
All 4 pieces for \$1000

**DRILLING EQUIPMENT SALES, INC.**

2515 Highway 70 SW • Hickory, NC 28602



828-322-3056

[www.drillingequip.com](http://www.drillingequip.com)

515-121

*Fear is the absence of faith.*

*~Paul Tillich*

Home of **SKYREX ELEVATORS**

Stock Sizes:  
1" thru 36" for casing, column pipe, tubing, and drill pipe.

\*Load test certificates available  
\*Offered with or without base  
\*Custom sizes available

We also offer PVC elevators!

See our ad on page **43**



**Rex McFadden Co.** office  
DRILLING EQUIPMENT 806-791-3731

[www.RexMcfadden.com](http://www.RexMcfadden.com)

515-123

**Employment**  
520

Oklahoma-based company seeks qualified drillers and helpers.

- Sonic
- Air/Water rotary
- Hollow stem auger
- Direct push



Competitive pay, retirement, vacation, health insurance, guaranteed 40 hrs/wk. Travel required. CDL & drillers license a plus.  
405-360-1434

520-851

**Hammers**  
805



Atlas  
"Pure Strike"  
Hydraulic  
Casing  
Hammers



Weldco-Beales  
Pneumatic Casing  
Hammers



Atlas Manufacturing Ltd.,  
Weldco-Beales,  
great Casing Hammers  
are now under one roof.

To see all our products,  
visit us online:  
[www.casinghammer.com](http://www.casinghammer.com)

Atlas Manufacturing Ltd  
6524 North Island Hwy  
Merville BC V0R 2M0  
Canada

Phone: 250-337-5030  
Fax: 250-337-5136  
Toll-Free 866-338-5090  
E-mail: atlas@casinghammer.com

805-313

C  
A  
L  
L  
8  
5  
0  
-  
5  
4  
7  
-  
0  
1  
0  
2

HDD Pilot Bits & Reamers

806



**"HDD PDC TOOL SPECIALISTS"**

Great Prices & Highest Quality



**HDD PDC PILOT BITS**

Pilot Bits 5-1/2" - 12-1/4"  
Premium Steel Construction  
Dependable Performance  
Competitive Prices

**HDD PDC REAMERS**

Reamers To 30"  
Strong One-Piece Design  
Faster Reaming  
Huge Fuel Savings



**CALL US FIRST.  
DON'T PAY TOO MUCH!**

**(800) 500-2487**

*"Proudly Serving Drilling Contractors  
Worldwide Since 1982"*



Torquato Drilling Accessories, Inc.  
Old Forge, Pennsylvania 18518  
Call (800) 500-BITS  
[www.torquato.com](http://www.torquato.com)

806-879

Injection Pumps

820

**DU-ALL Injection Pumps**



All parts in stock and available for shipment.  
Overnight delivery available. Call your local  
parts supplier or Fred's Water Service at  
(440) 259-5436 with  
your order or questions.

**Fred's Water Service, Inc.**

4390 Elberta Road Perry, Ohio 44081  
Phone (440) 259-5436  
[www.fwservice.com](http://www.fwservice.com)  
Fax: (440) 259-4795

820-610

Mud Pumps

1120

GD & Wheatley 4x5 to 7x12  
Complete Pump, Gearend, Fluidend  
RENE HENDON 281-260-0880

1120-120

Gardner-Denver 4x5, 4½x5, 5x6,  
5x8, 5½x8, 5x10, 5½x10, 7½x8, or  
7½x10 - several used/rebuilt bare pump  
or skidded & diesel powered. Gaso Fig.  
1743 7½x10 skidded w/diesel power.  
LeRoI 253S2 rebuilt compressor. New  
American Mfg. 5x6. Stocking distributor  
for American Mfg. pump parts.

Danny Stull: [dannystull.jws@gmail.com](mailto:dannystull.jws@gmail.com)  
Ph: 405-794-3600

1120-784

Mud Systems

1125

**MUDSLAYER MFG.**



**Where you  
come for  
Innovation**



360-477-0251

[www.mudslayermfg.com](http://www.mudslayermfg.com)

**Built for Drillers by Drillers**

1125-576

**Saving You Time, Money,  
and Equipment Wear**



**MUD PUPPY, INC.**

38688 WEST KENTUCKY AVE  
PO BOX 1028

Woodland, CA 95776  
Office: 442-242-7507

[craigh@mudpuppyinc.com](mailto:craigh@mudpuppyinc.com)

1125-670

Packers

1203

**BASKI**

**Inflatable Packers  
ASR Flow Control Valves  
Pitless Units**

4002 S Clay St.  
Englewood, CO 80110  
(303) 789-1200  
[info@baski.com](mailto:info@baski.com)  
[www.baski.com](http://www.baski.com)

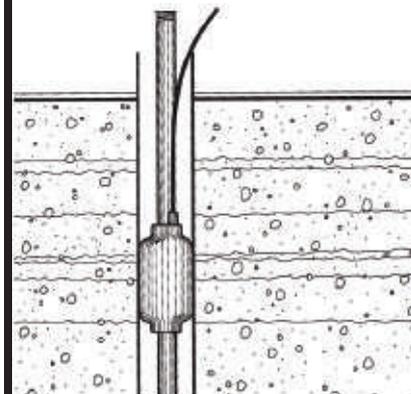


**MADE IN THE USA**

1203-115

**lansas  
PRODUCTS**

**Inflatable  
Well  
Packers**



**CUSTOM BUILT  
PACKERS FOR ANY  
APPLICATION**

**COMPETITIVE  
PRICES**

**800-452-4902**

Manufactured by Vanderlans & Sons  
1320 S. Sacramento Street  
Lodi CA 95240  
209-334-4115  
Fax: 209-339-8260  
[www.lansas.com](http://www.lansas.com)

1203-1190

**Packers**  
1203

**QSP Packers, LLC**  
Quality - Service - Price

Serving Your Complete Packer Needs

- ◆ **INFLATABLE PACKERS**  
Pressure Grout, Wireline, Water Well, Environmental, For 1.5" I.D. to 19" I.D. + Hole Diameter
- ◆ **MECHANICAL PACKERS**

Call us with all your Packer questions!!  
Phone: 253-770-0315  
Fax: 253-770-0327  
Email: info@QSPPackers.com  
WebSite: www.QSPPackers.com

1203-409

**Perforators**  
1205

**New - USED - Rebuilt**  
**MILLS Knife Type Perforators**  
For Sale or Rent ~ 4" thru 24"  
Montana 406-580-2818

1205-1184

**Pump Hoists**  
1230



**Basic Pump Hoists**  
**Starting At:**

**\$4,000 Pump Hoist**, 8,000# cap., 35' telescoping mast, 30 gal. oil tank, hyd. pump, 5T safety hook, hyd. controls & variable speed engine control.. **\$18,975\***  
**\$6,000 Pump Hoist**, 16,000# 3L cap., 35' telescoping mast, 30 gal. oil tank, hyd. pump, 5T safety hook, hyd. con-

**WorldWide Drilling Resource®**

controls & variable speed engine control.....**\$21,725\***  
**\$8,000 Pump Hoist**, 22,000# 3L cap., 36' telescoping mast, 30 gal. oil tank, hyd. pump, 7T safety hook, hyd. controls & variable speed engine control.....**\$27,775\***  
**\$10,000 Pump Hoist**, 30,000# 3L cap., 40' telescoping mast, 30 gal. oil tank, hyd. pump, 7T safety hook, hyd. controls & variable speed engine control.....**\$39,325\***  
**\$12,000 Pump Hoist**, 48,000# 4L cap., 44' telescoping mast, 6000# tail-out line, 72 gal. oil tank, hyd. pump, 11T safety hook, hyd. controls & variable speed engine control.....**\$43,865\***  
**\$15,000 Pump Hoist**, 60,000# 4L cap., 48' telescoping mast, 6000# tail-out line, 72 gal. oil tank, hyd. pump, 11T safety hook, hyd. controls & variable speed engine control.....**\$54,325\***  
**\$20,000 Pump Hoist**, 80,000# 4L cap., 40' telescoping mast, 6000# tail-out line, 72 gal. oil tank, hyd. pump, 11T safety hook, hyd. controls, & variable speed engine control.....**\$71,665\***  
**\$25,000 Pump Hoist**, 100,000# 4L cap., 40' telescoping mast, 6000# tail-out line, 100 gal. oil tank, hyd. pump, 15T safety hook, hyd. control & variable speed engine control.....**\$99,875\***  
**\$30,000 Pump Hoist**, 120,000# 4L cap., 40' telescoping mast, 6000# tail-out line, 100 gal. oil tank, hyd. pump, 15T safety hook, hyd. control & variable speed engine control.....**\$117,315\***  
**\$35,000 Pump Hoist**, 150,000# 5L cap., 40' telescoping mast, 6000# tail-out line, 100 gal. oil tank, hyd. pump, 22T safety hook, hyd. control & variable speed engine control.....**\$139,750\***  
**\* At this time a 10% tariff will be added to the base price due to material price increases from suppliers.**

**EQUIPMENT IN STOCK**

**4,000# Cyclone Pump Hoist**, used, remote control, (1) pipe rack, (2) 3' & (1) 5' alum. toolbox.....**\$9,950**  
**\$6,000 SEMCO**, 35' derrick, 2-spd winch, 22 hp deck engine, RC, 2-PR, aux. hydro valve, LED LK, service body w/RL, 2015 Dodge 3500, 4x4, gas, auto, white.....**\$78,945**  
**\$6,000 SEMCO**, 35' derrick, 2-spd winch, PTO DMP, RC, 2-PR, LED LK, (2) 96" TB, 11' flatbed, 2011 Dodge 3500, 4x4, diesel, manual, white.....**\$57,805**  
**\$8,000 SEMCO**, 36' derrick, RC, PTO DMP, 2-PR, light kit, 60" CA SB, 2004 Ford F-550, diesel, 6-spd, white.. **\$33,950**  
**\$25,000 SEMCO**, 50' derrick, 2-spd winch,

3000' SR, hyd. oil cooler, aux, HSPTO, BCO, PA, LK, CH, HBC, 18' FB, TB, 2017 Ford F-750, diesel, auto, white...**\$241,195**  
**M33 Monitor**, 40' derrick, serv. body, GMC, auto., used, black and orange...**\$31,950**  
**SMEAL 6T pump hoist**, extended mast, pipe racks, oil cooler, toolboxes, flatbed, painted blue, mtd. on 2003 Chevy 4500, diesel, used, white.....**\$36,500**

Contact us for a list of more used equipment.

**SEMCO, Inc.**  
**LAMAR, COLORADO**  
719-336-9006 / 800-541-1562  
FAX 719-336-2402  
**SEMCO PUMP HOIST@GMAIL.COM**  
www.SEMCOoflamar.com

See our Ad on page 71.

1230-135

**2001 Ford F-550 Pump Service Truck** with 2016 Up-Z-Dazy pump puller, lots of tools, pump wire, and pipe. Also have **1953 22W Cable Tool Rig**.  
Call for prices: 304-636-5055

1230-734

**The Original PUMP PULLER**

In Production Since 1973

- Portable
- Lightweight
- Economical

- Welded aluminum frame.
- Waterproof motor and electrical system.
- Worm gearbox holds in any position.
- Will handle up to 2" galvanized pipe @ 600 lb. capacity.
- Pull or set 24" per minute.
- Adjustable legs. Extends down to 7". (Optional)

Wheel kit w/handles, winch, swing vise and overhead guide.

**Funk Manufacturing**  
**Up-Z-Dazy, Inc.**  
30 Myers Road  
Newville, PA 17241  
Phone: 717-776-3181  
Fax: 717-423-5201

1230-371

**NEW and USED Smeal Pump Hoists For Sale: Smeal 3T, 4T, 5T, & 6T WANTED Smeal pump hoists of all sizes**  
828-256-9132

1230-982

C  
A  
L  
L  
8  
5  
0  
-  
5  
4  
7  
-  
0  
1  
0  
2

**Pump Hoists**  
1230

**WANTED TO BUY  
PULSTAR  
SMEAL, SEMCO PUMP HOIST  
RENE HENDON 281-260-0880**  
1230-120



**Specialty Rig Sales**



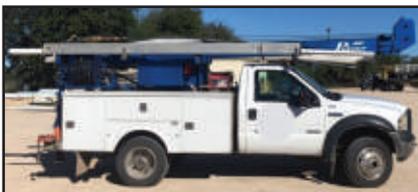
**2000 Ford F-550 diesel with 6T Smeal,** 156,000 miles, great shape, tons of storage. You won't find a cleaner unit.  
**Call for price!**



**12T Smeal on a 2005 Int'l 4300 with DT466,** 112,000 miles. Needs TLC.



**2006 Ford F-550 diesel,** with 5T Smeal, 155,000 miles, new injector and high pressure pump, fairly new tires, 36' mast, mainline, sandline, (2) pipe racks, service body, tons of storage.



**2006 F-550,** with a 2005 P10HD3, 117,000 miles, mainline, dual side pipe racks, a wire spooler, all mounted on a utility body.

**888-909-9066**  
**www.specialtyrigs.com**

1230-505

**Duke Equipment Company, LLC**  
*"Reliable and Versatile Pump Hoist  
at an Affordable Price"*



**See Used Trucks @**  
**www.pumphoist4u.com**

1000 E. Oklahoma Avenue  
P. O. Box 215  
Darrouzett, TX 79024  
**806-624-2200**

1230-511

**5T Smeal,** 1989 w/cathead and platform mounted walking beam, 8'x12' platform w/300 gal. SS water tank between cab and 5T, pipe racks, mounted on 1996 Int'l 4300 with 466DT, 7-speed trans., new tires, rebuilt engine, alum. boxes under and on topside of truck platform. Located in Central WI. Asking...**\$20,000**  
**Call 608-547-3267**

1230-907

**Rig Parts**  
1320

**5¼, 7½, 8½, 12, 17½ Rotary Table,**  
**Hyd. Tubing Tongs, Air Slips,**  
**Type LF & C Tongs, Elevators**  
**RENE HENDON 281-260-0880**

1320-120

**Rig Repair / Parts**  
1321



**RIG PARTS & REPAIRS by**  
**WATER WELL professionals!**  
**Rotary Tables • Mud Pumps**  
**Major Components**

Parts located, spares provided for existing equipment, 18" rotary tables now produced with large ring gear and pinion.

**580-234-5971 www.enidrig.com**

1321-510

**Rig Service / Parts**  
1325

**The R<sub>X</sub>g Doctor's** 317-839-7534

**Complete Rebuilding and Repair  
of Drill Unit Components.**

Failing high-torque PTO, model G250-HT. Rebuilt to New 4x5 Gardner Denver mud pump.

**Liquidation Sale!**

*Call or fax for listing.*

**PH: 317-839-7534 FAX: 317-838-9244**  
1325-117

**Rigs**  
1330



**Wilson Super 38 Double Drum Drawworks Rig,** excellent condition, Cummins 350, twin disc torque convertor 24" Wichita clutches, new 70' derrick hydraulic rams, jacks, sliding crown, Gardner Denver FXN 14" pump quick change caps powered by Cummins 525 with 2100 hp twin disc air clutch, 18" Brewster rotary swivel...**\$325,000**  
**Call Paul 940-642-7444 or e-mail:**  
**wolf.pack44@hotmail.com**

1330-937



**SpeedStar 15III,** mtd. on 2000 Int'l 9400 with 700' pipe.....**\$80,000**  
**Call / text Keith 903-714-1256**

1330-1219

Rigs  
1330

**EWWD**  
EAST WEST  
MACHINERY & DRILLING, INC.  
"Meeting Drillers Needs"  
[www.ewdrilling.com](http://www.ewdrilling.com)  
Email: [sales@ewdrilling.com](mailto:sales@ewdrilling.com)  
Ph (570)966-7312(PA yard/office)



**We Buy & Sell Drill Rigs & Equip**  
Water Well, Oil & Gas, Blasthole,  
Geotechnical, Rock Drills.  
Air Boosters & Compressors, Mud Pumps,  
Engines, Tooling, Parts, DTH & Bits



**\*All Makes & Models Available\***  
IR / Atlas Copco, CAT, Cummins,  
MTU, Schramm, Driltech, REICHdrill /  
CP, GD, SpeedStar, SIMCO, Mobile,  
CME, Sullair, Ariel, Joy, Hurricane

1330-124



**2011 AMS CRS17-C Compact**, sonic  
drillhead, John Deere 4045 diesel,  
173 hp, hyd. hoist, rod clamp, wireless  
remote, water pump, vibration: 20,000  
lbs - 28,000 lbs, feed system: 12' and  
8' stroke, pullback force: 13,000 lbs,  
carrier has 4.6 psi ground pressure,  
1545 hours.....**\$199,500**  
**909-600-7555**

1330-970



**Very Good Condition**  
**2006 DRILTECH**, ready to drill, 5200 hrs.,  
1000/350 IR compressor, Cat® C15 deck  
engine, 400' of pipe included....**\$265,000**  
**Reason for sale: Business sold**  
**Simon: 819-758-6468 or**  
**simon@puitbec.com**

1330-1241

**524 Portadrill**, 5x6 mud pump, DT4 air  
compressor, spinning chain, retrac. table,  
mtd. on 1960 Autocar.....**\$25,000**  
**605-787-6023**

1330-890

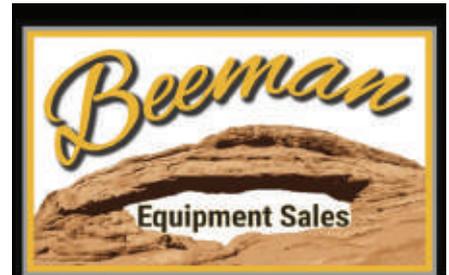


**Wichtex Model R-6 (Serial #81-1302)**  
**Double Drum Drawworks Rig**  
The unit is powered by an 8V71 Detroit  
engine with 8000 series Spicer trans.  
with controls for 65', 150,000 lbs. single  
hyd. raising derrick with shifting crown.  
Derrick reputed to have been reinforced  
to handle 200,000 lbs.....~~\$325,000~~  
Reduced.....~~\$295,000~~  
**Bottom\$.....\$275,000**  
**Call (662) 843-4076 or e-mail**  
**thompson@midsouthwater.com**

1330-815

**'72 SpeedStar cable tool rig**, mtd. on  
Mack 686, 55' boom, 3-line machine,  
35' stem, set up for 6" & 8" holes, hyd.  
jacks, Deutz deck engine.  
**603-776-6003**

1330-884



**We Buy, Sell & Trade**  
**Drilling Equipment**



**1977 GD 2000 \$245K**



**Mud Puppy 255 \$28K**



**2014 Pulstar Pump Hoist..\$110K**



**2005 Atlas Copco \$55K**



**GD 5x10 Duplex Mud Pump 28K**

**435-259-7281**

*Browse Our Entire Inventory*  
**BeemanEquipmentSales.com**

1330-947

C  
A  
L  
L  
8  
5  
0  
-  
5  
4  
7  
-  
0  
1  
0  
2

Rigs  
1330

**NE**Drill Supply  
northeastdrill.com

800-963-2466

**QUALITY NEW &  
PRE-OWNED RIGS**

**2019 REICHdrill  
RTD69TW (T-690-W)**

Sullair 1070/375 airpack, Cat® C15 (Tier 4) on deck, mtd. on 2019 Mack Granite.

**2004 REICHdrill T-690-W**

Sullair 1070/375 airpack, Cat® C15, mtd. on 2004 Mack.

**2000 REICHdrill T-690-W**

Sullair 1000/350 airpack, Cat® 3406C deck engine, mtd. on 2000 Freightliner.

"ONLY Authorized REICHdrill® sales, service, and parts dealer in New England."



We stock  
REICHdrill® and CP Parts.  
New REICHdrill® style 4½" and 4" Drill Rod in Stock.

**DENISON** Hydraulics



Fan Pumps • Head Motors • Main Pumps  
Hoist Pumps • Control Valves

We Ship Worldwide

NH: 603-878-0998  
VT: 802-235-2466

www.northeastdrill.com

1330-204

**DIEDRICH DRILL**



Introducing

**Our New &  
Improved  
D-25 D**

diedrichdrill.com

Powerful and Compact! 7730 lbs  
Call today to order yours:  
800-348-8809 or 219-326-7788

1330-1037

**For Sale**



**2015 Casagrande Continuous Flight Auger B175 XP**, Kelly bar extension, 2200 rpm - 194 kw engine, 769 working hours on rig, excellent condition, 3 sets of augers come with it, Jean Lutz data system, and 40k in extras.....**\$599,000**

**L.R.E. Ground Services, Inc.**

Richard Blanche

(800) 580-0229 ext. 2150

richard.blanche@lregsi.com

1330-891

**1986 Gus Pech Brat 22R**, on 86 Int'l diesel, 3X4 mud, full restoration with all new hydrostats/pumps, hoses, drill pipe, pulldown cyl. and cable-rebuilt pto/splitter, new radial tires, professionally done - won't disappoint. Rig and truck in excellent condition. Price reduced.....**\$68,500**  
Call 816 575-2272 or 816 724-1039

1330-1127



Want to Improve Your Working Environment & Your Margins?  
Visit us at: [www.maxidrill.com](http://www.maxidrill.com)

1330-1234



**2017 Nordic Drill DRC-10-A**

Dual rotary mtd. on crawlers, for drilling up to 10" casing, equipped with angle slide, 1910 hrs, 32,000 lbs.....**\$325,000**

Call 819-758-6468

or e-mail: [simon@puitbec.com](mailto:simon@puitbec.com)

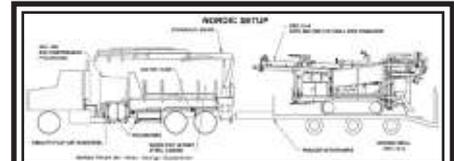
For information: [www.nordicdrill.com](http://www.nordicdrill.com)

1330-1241

**1979 CP 650 WS** mtd. on a 1996 Kenworth T800. 500' drill pipe, hammer oiler, 6" hammer bit, 6406-B Cat®. Runs strong, pulled compressor has oil leak still builds air. DHH compressor 825/350, good solid clean rig. If interested, pictures are available.....**\$75,000 OBO**

Call 541-479-2758

1330-887



**Complete Nordic Setup  
READY TO DRILL**

2017 Nordic DRC-10-A dual rotary drill mtd. on crawlers, 1910 hrs, 32,000 lbs., Nordic Volvo truck, 1150/350 Sullair PTO-driven, Hiab boom, water tank, 2014 Nordic trailer, drill tools incl. rods, stabilizer, tooling, wrenches, cyclone, hoses, etc..**\$555,000**

Call 819-758-6468

or e-mail: [simon@puitbec.com](mailto:simon@puitbec.com)

For information: [www.nordicdrill.com](http://www.nordicdrill.com)

1330-1241

**WANTED TO BUY**

ATLAS COPCO/INGERSOLL-RAND DRILL  
DM30E, DM45E, DML, T3W, T4W, T5W, RD20  
DRILTECH DRILL T25K, D40K, T40K, DH1, DH2  
SCHRAMM T685 RC DRILL WITH RC PIPES  
WE WANT SURPLUS PIPES, SPARE PARTS  
TEL: 818-956-5231 FAX: 818-244-3723  
[www.pacificcranes.com](http://www.pacificcranes.com)

1330-995

**Sonic Rigs**  
1427

**Award-Winning  
Patented Technology**



**SONIC** SONIC DRILL CORPORATION  
Suite 190F120, 119 N. Commercial St.  
Bellingham, WA 98225  
www.sonic-drill.com 1-804-588-8081

1427-301

**Wanted**  
1705

In need of a 3-arm caliper tool for well diameter measurement 6'-36". Wireline winch with 400' of cable, and control box. Contact Michael Spicer 937-859-4482 mspicer@moodysofdayton.com

1705-876

**QUICK CASH MONEY**

**Paid for Drill Rigs, Pump Hoists, Mud Pumps, Drill Pipe, & Bits.**

**RENE HENDON Tel: 281-260-0880**

1705-120

**Water Level Indicators**  
1710

**Reliable Water Level Indicators** proudly made in the USA. Various lengths & scales available, selectable buzzer/light indication & sensitivity control. Economical repair service.

**Waterline Envirotech Ltd.**  
www.waterlineusa.com  
360-676-9635

1710-188

Call **WDR** today for the best coverage and pricing.  
**850-547-0102**



**WorldWide Drilling Resource®**

**Water Trucks**  
1730

**NORTHWEST  
FLATTANKS**

Building and gaining trust by manufacturing quality flattanks, serving the water well, mining, mineral explorations, geothermal, directional boring, and sonic drilling industries.

We offer your company the satisfaction of a job well done. Check out our web site for more information on our products.  
[www.northwestflattanks.com](http://www.northwestflattanks.com)

Call (406) 466-2146 or  
(406) 544-5914



**2005 Mack Model CL733**, 565 hp Cummins ISX, Fuller RTLOF189B trans, Hendrickson walking beam, 20K front 46K rear, ratio 4:10, 280K miles total, 2500 gal. Flattank used 2012 model, with 10,000 IMT wireless radio crane.

Lots of information, pictures, and specs on our web site. We also have used drilling rigs, pump hoists, and used flattank support trucks.  
[www.northwestflattanks.com](http://www.northwestflattanks.com)

1730-665



**2007 International 4400**, automatic transmission, new 2018 service body with 2000 gallons of water and 110 gallons of fuel w/fuel transfer pump.

**Call For Price**

Several more trucks in stock.

**Gordon Ballard**  
Ballard Drilling Co., Inc.  
Wadley, Alabama  
256-825-5871

Cell: 256-307-4017 (anytime)  
E-mail: gballard501@msn.com

1730-785

**Rose-Wall**  
MANUFACTURING



**Rose-Wall puts a new "tilt" on the water tank business!**



We can build any shape or size  
Please call for a custom quote  
**1-800-321-1541**  
[rose-wall.com](http://rose-wall.com)

1730-390

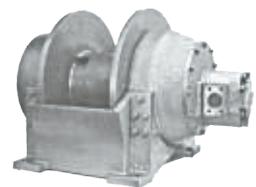


**1995 Flatwater Fleet RIT-Rig Tender®** 20', 2100 gal. water capacity fully baffled, 230 gal. auxiliary fuel tank, 12VDC fuel transfer pump, 50' manual hose reel, 5000-lb 20' crane with pendant remote, 150 gpm water pump mounted on:  
1995 Ford LTS-9000 with Cat 3406 350-HP, 10-speed, 40K rear 16K front, Jake brake  
**Call 218-729-8721**

1730-888

**Winches**  
1775

**The Source of Force**



Linepull: 1/2 Ton to 100 Ton plus!  
**In-Stock Now!**

(800) Mr. Winch  
Fax: (619) 474-6730  
[www.ryanhyd.com](http://www.ryanhyd.com)

**RYAN Hydraulic Service, inc.**

The People with Pull

1775-136

CALL 850-547-0102

Well Plugs  
1753

Well Screens  
1760

# TORQUER™

Professional  
Locking Well Plugs

Sched. 40/80

1/2", 3/4"

1", 1 1/4"

1 1/2", 2"

2 1/2", 3"

4", 5", 6"

coming soon: 8"

- Domed top
- No metal parts
- Vented Plug Option
- Padlocks or safety lock out tags
- Most sq. inch of gasket power
- Bright safety orange color
- Vapor extraction convertible
- Low Cost



U.S.  
Patent  
Protected

Sold through authorized  
distributors worldwide.

[www.torquerplugs.com](http://www.torquerplugs.com)

1753-244



Environmental  
Manufacturing,  
Inc.

8887 Green Valley Drive  
Manhattan, KS 66502

*Flush Thread Pipe,  
Fittings, and Supplies for  
Monitoring/Remediation.  
Custom Slotting & Perforating  
PVC CPVC HDPE*

Toll Free 888-587-0807

Fax 785-539-1349

[www.emipipe.com](http://www.emipipe.com)



1760-156

Stainless Steel • Carbon Steel  
Galvanized Steel • Wedge-Wire

Well Screens & Slotted Pipe

18102 East Hardy Road  
Houston, Texas 77073 USA  
Phone: 281.233.0214  
Fax: 281.233.0487

Toll-free: 800.577.5068  
[info@alloyscreenworks.com](mailto:info@alloyscreenworks.com)  
[www.alloyscreenworks.com](http://www.alloyscreenworks.com)

**ALLOY SCREEN WORKS**

A division of Alloy Machine Works, Inc.



1760-378

## WorldWide Drilling Resource®

## Classified Ad Form

Phone: 1-850-547-0102 • Fax: 1-850-547-0329

E-mail: [Kathy@worldwidedrillingresource.com](mailto:Kathy@worldwidedrillingresource.com)

The only drilling magazine reaching the most of your potential buyers ~ place your classified ad with *WWD.R.* Visit our website [worldwidedrillingresource.com](http://worldwidedrillingresource.com), e-mail [kathy@worldwidedrillingresource.com](mailto:kathy@worldwidedrillingresource.com), call 850-547-0102 for more information, or fill out the form below. Fax: 850-547-0329 or mail to: PO Box 660 Bonifay, Florida 32425-0660. **Form Instructions:** Please TYPE or PRINT your ad exactly as you would like it to appear (include all punctuation marks). The rate is \$8.40 per line; normally 32 characters makes one line. **Note:** Bold type is considered 2 spaces. Multiply rate x # of lines to find your total charge. Deadline is the 1st of each month.

Ad Text: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Special Instructions: \_\_\_\_\_

Company Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone # \_\_\_\_\_

Fax # \_\_\_\_\_

Card # \_\_\_\_\_

Name on Card \_\_\_\_\_ Exp Date: \_\_\_\_\_ CCV # \_\_\_\_\_

We accept:



Minimum Charge is \$42.00 - Call For Display Classified Rates

# A GROUNDBREAKING REVOLUTION IN DTH TECHNOLOGY

Nova Series high-performance DTH hammers with no foot valves provide you with better reliability, less downtime, and increased efficiency.



Our friendly and knowledgeable staff is ready to help

## America West Drilling Supply

For all your drilling products and supplies,  
visit us online:



[www.awds.com](http://www.awds.com)

[www.americawestdrillingsupply.com](http://www.americawestdrillingsupply.com)

(800) 800-8444 • (775) 355-1199 • [sales@awds.com](mailto:sales@awds.com)



**MAKE YOUR OPERATIONS**

**BETTER. FASTER. SAFER.**



**JOIN YOUR PEERS  
AT ICUEE 2019!**

**North America's Largest Utility & Construction Trade Show**

**1,000+ Leading Manufacturers & Service Providers**

**More than 28 Acres of New Products**

**18,000+ Construction & Utility Professionals**

Utility professionals worldwide use ICUEE to make informed purchasing decisions that position their businesses & teams for success.



**October 1-3, 2019, Louisville, KY**

**Learn More at [www.icuee.com](http://www.icuee.com)**

**S8,000H SEMCO Pump Hoist, 46' derrick, 2-speed winch, hot shift PTO automatic transmission, (2) pipe racks with ratchet straps, auxiliary hydro valve, 1,500' capacity sandreel, hydraulic oil cooler 12V DC, LED light kit for mast, remote control, factory mounted on customer's 2007 Chevy Kodiak with service body.**



**semco**



**"Thanks so much.  
I am a SEMCO customer for life. Love the units."  
John Haynie, owner of A & V Water**

**Thank you to our satisfied customer:  
A & V Water  
Located in Decatur, Texas**

**SEMCO INC.**

**CALL OUR TOLL-FREE  
NUMBER: 800-541-1562**

**E-mail: [semcopumphoist@gmail.com](mailto:semcopumphoist@gmail.com)  
[www.SEMCOoflamar.com](http://www.SEMCOoflamar.com)**



**PO Box 1216 • 7595 US Hwy 50 N • Lamar CO 81052-1216 • 719-336-9006 • 719-336-2402 Fax**

Reply to: **WorldWide Drilling Resource, Inc.**  
PO Box 660 • Bonifay FL 32425-0660  
850-547-0102

PRSRST STD  
US POSTAGE  
PAID  
ATLANTA GA  
PERMIT  
NO. 3592

**No CDL\***  
**Required!**  
(\*Class A/B)

# DRILLMAX®

## DM250 Water Well Rig

### EASY TO MOBILIZE

- Dodge 5500 chassis is equipped with Cummins diesel engine, automatic transmission, and 4x4.
- A compact transport size makes the DM250 a good fit for residential work where limited access is a priority.

### SIMPLE & SAFE TO OPERATE

- The neatly laid out control panel includes an engine gauge, E-stop, hydraulic pressure gauges, friction control levers for mud pump and rotation circuits, and electronic throttle controls.
- The helper loads the drill pipe in the single rod loader using helper side controls to operate the jib and winch functions controls.

### POWERFUL & EFFICIENT

- Table assembly has clearance for 12-in. pvc casing and the holding fork and hydraulically operated adjustable breakout wrench make tripping out fast and safe.
- The tophead carriage uses rollers instead of slides providing smoother travel, easier maintenance, and longer life.
- Multiple mud and air compressor options include: 3L8, 5x5 duplex, centrifugal pumps, 85cfm development air compressor.



Learn How DRILLMAX® Can Help Your Business  
[drillmaxrigs.com](http://drillmaxrigs.com) • (352) 854-1566