



# WATER WELL AND PUMP PERFORMANCE: THE ECONOMIC BASIS FOR WATER WELL OPERATION, REHABILITATION & MAINTENANCE DECISIONS

**A one-day workshop on practical, cost-effective solutions to extend asset value by maximizing well and pump performance**

Thursday, November, 21 2013  
Phoenix, AZ

**Event venue**  
Holiday Inn & Suites - Phoenix Airport  
3220 South 48th Street, Phoenix, AZ 85040  
Phone: (480) 543-1700

PROGRAM PRESENTED BY AMERICAN GROUND WATER TRUST

## MORE WATER LESS COST - BACKGROUND

Inefficient wells cost millions of dollars in increased pumping costs and in unnecessary increments to the nation's carbon footprint. Well efficiency techniques and recent pump, and pump motor technology advances provide ways to reduce operation costs. This workshop program will show how major water users can save energy, manage resources efficiently and reduce infrastructure costs.

More than 2,000 utility managers, well contractors, water industry professionals, regulatory staff, well owners, water users and ground water specialists have attended this program in: AR, AZ, BC, CA, CO, FL, IA, IL, IN, MA, MD, MI, NC, NE, NH, NY, OH, OR, PA, TX, VA, and WA.

**Hear from experts about technologies and techniques to save money and reduce carbon footprint. It is all about maximizing efficiency and increasing performance. This program is for consultants, engineers & designers and for well operators, pump and well contractors, utility managers, irrigators, owners and end-users. Just one tip on well & pump operation or problem-solving diagnosis could save you thousands of dollars in operation costs and reduce replacement expense by extending the asset value of your wells & pumps.**



## CONTINUING EDUCATION



**Certificate of Attendance:** (Contact Hours: 6.75) will be provided to those attendees who sign-in and sign-out.

These certificates may be used by attendees to obtain continuing education credit from professional organizations or licensing agencies. Attendance Certificates will be mailed after the event. (Sign-in, sign-out required)

**The American Ground Water Trust is a national, non-profit public education organization that has been providing ground water information, awareness and education since 1986.**



### The Trust's programs:

- ☺ Promote efficient and effective ground water management
- ☺ Communicate the environmental and economic value of ground water
- ☺ Showcase ground water science and technology solutions
- ☺ Increase citizen, community and decision-maker awareness
- ☺ Facilitate stakeholder participation in water resource decisions

**"Best one-day program on well & pump performance!"**

**7:30 – 8:15 REGISTRATION (Coffee & donuts)**

**8:15 WELL & PUMP TECHNOLOGIES TO REDUCE COST AND MAXIMIZE GROUNDWATER POTENTIAL**

Garret Graaskamp, PG, Program Director, American Ground Water Trust, Concord, NH

- Groundwater industry technology
- One size does not fit all for well design, construction, operation or maintenance

**8:30 WATER WELL DESIGN, CONSTRUCTION AND REHABILITATION**

Kevin McGillicuddy, Senior Hydrogeologist, Roscoe Moss Company, Los Angeles, CA

- Well drilling to obtain maximum yield from aquifers
- Design basics for high-yield wells (screen selection, gravel pack etc.)
- Water well construction & well development methods
- The importance of monitoring and maintenance
- Well redevelopment / rehabilitation techniques
- Case studies of improving well performance

**9:40 ECONOMIC SIGNIFICANCE OF FLEXIBLE DROP PIPE FOR WATER WELLS**

Tanner Tryon, General Manager, Hose Solutions, Inc., Scottsdale, AZ

- Physical properties of flexible hose (strength and durability of hose)
- Hydraulic performance capabilities (elasticity, pressure thresholds)
- Pump installation and removal methods (connectors, reels etc.)
- Cost savings for rapid “pump-in, pump-out” during maintenance or rehabilitation

**10:10 NETWORKING BREAK**

**10:25 WELL PERFORMANCE DECLINES: CAUSES AND CURES**

Neil Mansuy, VP, Subsurface Technologies, Kansas City, MO

- Chemical, microbiological and physical reasons for well problems
- Understanding typical “declining yield” problems
- Case studies of well yield declines attributable to encrustation
- Case studies on cost-effective maintenance for high yield wells
- Preventive maintenance procedures

**11:50 METHODS FOR IMPROVING WELL PERFORMANCE (Part 1)**

Jim Bailey, National Well Services Director, Shannon & Wilson, Seattle, WA

- A practical approach to managing wells as an asset
- Why rehabilitate - Well inspection technology
- Key well performance indicators
- Prioritizing well condition factors
- How to decide on treatment options

**12:30 LUNCH (Provided)**

**1:30 METHODS FOR IMPROVING WELL PERFORMANCE (Part 2)**

Jim Bailey, National Well Services Director, Shannon & Wilson, Seattle, WA

- Theory behind particle movement during well development
- Simulations of well-aquifer / aquifer-well flow dynamics during rehabilitation

**2:15 WELL PERFORMANCE SOLUTIONS**

Kevin McGinnis, President, Cotey Chemicals, Lubbock, TX

- Typical problems (mineral and biological blockage) that reduce well bore inflow)
- The arsenal of chemicals available to enhance/ restore well performance
- Matching the solution to the problem (How to decide on the “cocktail” to be used)
- The importance of a dual mechanical/ chemical approach
- Successful well-yield restoration case-studies
- When to chlorinate and when not to
- How to get the most out of your disinfection process

**3:15 NETWORKING BREAK**

**"Best workshop program I have been to in years"**

**"It is great how you organize the program to flow so smoothly"**

**"Thank you for a well balanced discussion of the issues"**

**"This must be the best value event on this topic"**

**"I had more good contacts at my exhibit table than I usually get at a trade show!"**



**"Content Great! ..... Networking Awesome!"**

### 3:30 INTELLIGENT PUMP VARIABLE FREQUENCY DRIVES

Dan Peters, Applications Engineer, Yaskawa America, Inc., Cypress CA

- Energy consumed by pumps
- Fixed speed with valve control vs. VFD
- AC drive basics (how VFD systems work)
- Water industry and agricultural applications of VFD controlled pumps
- Adding “intelligence” to pump system controls
- Case studies of cost advantages of using VFD to improve pump efficiency
- VFD controls to optimize management of multi-pump systems

### 4:30 ADJOURN

#### EVENT SPONSORS



Preferred Pump

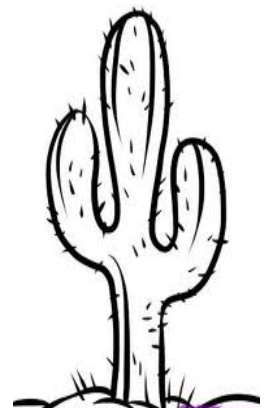
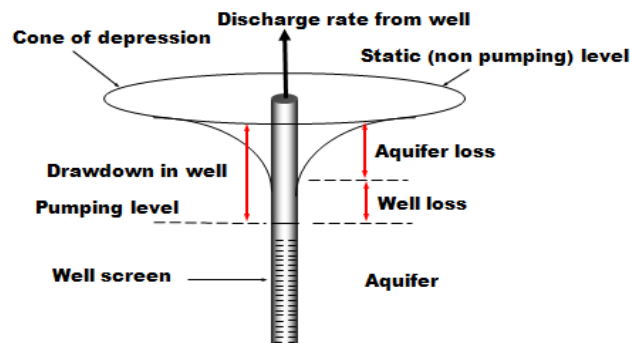
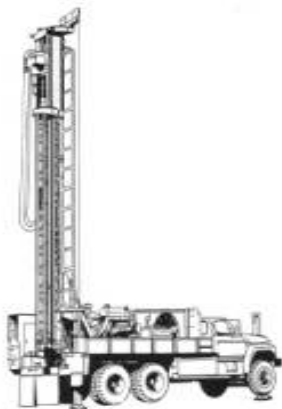


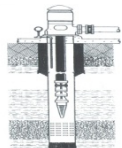
ROSCOE MOSS COMPANY

Holiday Inn & Suites Phoenix Airport, 3220 South 48th Street, Phoenix, AZ 85040

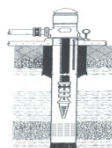
A group room rate of \$99 per night is available.

Call 480-543-1700 for the “American Ground Water Trust room block” (Group Code AGW)(Available until November 10)  
Complimentary shuttle service available from Sky Harbor International Airport





Education Program from:  
**American Ground Water Trust**  
 50 Pleasant Street (Suite 2)  
 Concord, NH 03301



# WATER WELLS & PUMPS

"More Water – Less Cost"

Workshop on operation, rehabilitation & maintenance

Thursday November 21, 2013 -- Holiday Inn & Suites - Phoenix Airport  
 3220 South 48th Street, Phoenix, AZ

- WELLS & PUMPS - THE VITAL LINKS THAT CONNECT RESOURCE AND CUSTOMER -

**\$ Increase well yields** ~ it is all about design & maintenance and operation

**\$ Save on operation costs** ~ how your pump impacts well performance

**\$ Reduce energy costs** ~ it is all about well & pump efficiency

**\$ Time to fix your well?** ~ how to decide what to do and when

**\$ Technology** ~ are you up to speed with VFD for pumps?

(November 21) **Phoenix AZ - WELL & PUMP PROGRAM - REGISTRATION FORM** – (or register on-line at [www.agwt.org](http://www.agwt.org))

General.....	<b>\$230</b>	<input type="checkbox"/>
Government employees (Federal, state, county, local).....	<b>\$200</b>	<input type="checkbox"/>
AGWT Members (\$250+ level) .....	<b>\$180</b>	<input type="checkbox"/>
Full-time Student (ID required) .....	<b>\$110</b>	<input type="checkbox"/>
CD (pdf versions of PowerPoint presentations – Registrant Price)	<b>\$ 20</b>	<input type="checkbox"/>
Exhibit Table (personal registration also required) .....	<b>\$250</b>	<input type="checkbox"/>
Registration includes handouts, coffee breaks & lunch	<b>TOTAL \$</b>	_____

**PAYMENT:**  Check [payable to: American Ground Water Trust]  
 AMEX  Visa  MasterCard  PO Expiration \_\_\_\_\_

**Credit Card or PO No.** \_\_\_\_\_

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### CANCELLATION POLICY

Cancellations received in the AGWT office by 5 pm EST 5 days prior to event will receive a full refund less \$25. For cancellation 4-2 days prior to the there is a 50 % refund.

Cancellations one day prior to the start of the event or on the day of the event are considered "No Shows" and no refund will be made - (substitutions gladly accepted).

The AGWT will not cancel a program because of bad weather conditions. Except that, as the result of an event cancellation resulting from, (but not limited to) circumstances such as a state mandatory evacuation or a fire at the program facility, the Trust will reschedule the event and honor registrations as payment for the new event.

### SPONSORSHIP & EXHIBITS

There are opportunities to showcase work, projects, products and services as exhibitors or event sponsors. Sponsors will receive recognition for their financial assistance. Call 800-423-7748 for more information or visit [www.agwt.org](http://www.agwt.org)

Mail: American Ground Water Trust, 50 Pleasant Street, Concord, NH 03301 - Fax: (603) 228-6557 - Phone: (800) 423-7748;

Scan and e-mail [trustinfo@agwt.org](mailto:trustinfo@agwt.org) - Register on line <http://www.agwt.org> (events)