



## **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 maximizing well yields and pump performance

**Cincinnati, OH** (Hebron KY)  
**August 6<sup>th</sup> 2014**  
**Ohio – Kentucky - Indiana**

**Workshop Venue**  
**DoubleTree by Hilton (Cincinnati Airport)**  
**2826 Terminal Drive • Hebron, KY 41048**

**PROGRAM PRESENTED BY AMERICAN GROUND WATER TRUST**



### **CONTINUING EDUCATION**

**Continuing Education approval (where required):**

**Water Operators: OH** (Code: OEPA-D570417-X - 6.75 hrs), **KY** (13399 - DCA Event ID – 6.75 hrs)

**Well & Pump Contractors: IN** (Code:14-017 - 6.75 hrs), **KY** (contact [scotty.robertson@ky.gov](mailto:scotty.robertson@ky.gov) for pre-approval - 5 hrs)



**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 e-mailed after the event. (Sign-in, sign-out required)

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.

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

### **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: AK, AR, AZ, BC, CA, CO, FL, IA, IL, IN, MA, MD, MI, MO, NC, NE, NH, NY, OH, OR, PA, TX, UT, VA, and WA.

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

## MORE WATER LESS COST - PROGRAM

**7:30 – 8:10 REGISTRATION** (Coffee & donuts)

### **8:10 WELL & PUMP TECHNOLOGIES TO REDUCE COST AND MAXIMIZE GROUNDWATER POTENTIAL**

Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH

- Groundwater industry technology
- One size does not fit all for well design, construction, operation or maintenance
- The importance of understanding the relationships among aquifer, well & pump in achieving optimum well yield
- Video: clean aquifer and contaminated aquifer – biological response

### **8:40 WELL HYDRAULICS – THE BASICS**

David Kill, P.E. Training Consultant, Xylem Goulds Water Technology, St. Paul, MN

- Definitions of the key hydraulic terms that are used in well efficiency calculations
- Explanations of the flow of water in aquifers towards wells
- Flow dynamics through fractures and screens into well bores and pump intakes

### **9:40 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

**10:40 BREAK**

### **10:55 METHODS FOR IMPROVING WELL PERFORMANCE**

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

**12:10 LUNCH** (Provided)

### **1:10 ECONOMIC SIGNIFICANCE OF FLEXIBLE DROP PIPE FOR WATER WELLS**

Nicolas Steverlynck, President, 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

### **1:40 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

**2:30 BREAK**

### **2:45 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

**"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!"**

### 3:45 SELECTION AND MAINTENANCE OF PUMPS FOR MAXIMIZING WELL YIELD/ COST BENEFITS

David Kill, P.E. Training Consultant, Xylem Goulds Water Technology, St. Paul, MN

- How pumps work – evolution of the US pump market
- Pump efficiency principles, horsepower and bowl assembly selection criteria
- Pump efficiency testing, identifying the weak link in your system
- Merits of submersible vs. line-shaft for high yield wells - VFD technology
- Case studies of installation and O & M costs for different types of pump
- Pump replacement criteria, \$ return on upgrading motor or bowls
- Information needed for deciding on pump specification for high-yield applications

4:30 ADJOURN

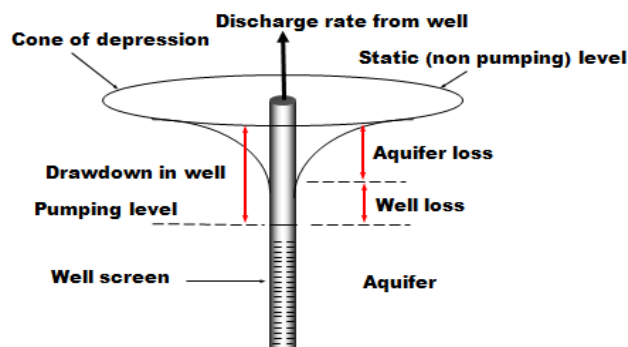
#### EVENT SPONSORS



#### Preferred Pump



Are you involved with pumping water from wells? Rural Water, irrigation operations, water utility supply, self-supplied industry, mine dewatering etc.? This workshop offers real, practical state-of-the-art information and advice that can make your operations more efficient and less expensive. Inefficient wells and pumps could be costing you tens of thousands of dollars. How would you know? Find out how to diagnose the problems and apply the most effective solutions.



- ➔ At the end of the program please leave your badge holder and evaluation form on the table.
- ➔ If you need a certificate of attendance please remember to sign out.
- ➔ There are also "paperwork" requirements at the end of the day for operators and contractors in OH, IN, and KY