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

Tuesday May 21, 2013
Chicago, Illinois

Event venue: (Junction of 90 and 290)

Holiday Inn, 3405 Algonquin Road, Rolling Meadows, IL 60008

PROGRAM PRESENTED BY AMERICAN GROUND WATER TRUST

CONTINUING EDUCATION: Well Contractors, Water Operators, Health Departments

The **Illinois Department of Public Health** has approved the program for 6 hours of continuing education under Section 915.80 Illinois **Water Well and Pump Installation** Contractor's License Code.

The program meets the annual three hour training requirements for **Illinois local health department water program staff** as specified in the Local Health Protection Grant Rules, Section 615.320 c) 2).

The program has been approved by the **Illinois EPA** for 7 hours of continuing education for **water operators** (Course number 7138)

The **Wisconsin DNR** approved this course for 7 Continuing Education Credits for **water works operators**
Wisconsin DNR Two-Hour DNR-Approved Training For **Well Drillers , Pump Installers & Drill Rig Operators** (Course # 13-022)

Indiana DNR has approved the program for 6.75 hours for **well drillers and pump installers**

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)

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 replacement and new 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.

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!"

MORE WATER LESS COST - PROGRAM

7:15 – 8:15 REGISTRATION (Coffee & pastries) **SIGN-IN**

8:15 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

8:30 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 rock fractures or screens into well bores and into pump intakes

9:30 INTELLIGENT PUMP VARIABLE FREQUENCY DRIVES

Scott Matthews, Industry Marketing Manager, Yaskawa America, Inc., Fort Myers, FL

- Energy consumed by pumps
- Fixed speed with valve control vs. VFD
- 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

10:30 BREAK

10:45 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

11:45 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 pump maintenance or well rehabilitation

12:15 LUNCH (provided)

1:15 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

2:30 BREAK

2:45 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

3:30 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 WRAP-UP, SIGN-OUT and ADJOURN

Presentation Team

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

Andrew Stone has over thirty five years of ground water experience in Africa and the United States as a university professor, ground water consultant and ground water advocate & educator. He has first-hand experience of ground water exploration, well design and source protection in a wide variety of geologic environments. As the director of the AGWT's education programs he has convened and coordinated over 200 conference programs related to ground source heating and cooling technology, well design, ground water management, aquifer storage recovery, conjunctive use, water banking, shale-gas development and asset management.

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

Mr. Kill is a Registered Professional Engineer and has a BS in Agricultural Engineering from the Univ. of Minnesota. He joined Johnson Screens in 1969 and became Regional Manager in 1974. In 1979 he joined the Fluid Systems Division UOP in the reverse osmosis water treatment business in San Diego, CA as 2002 Director of Marketing. He rejoined Johnson Screens in 1981 as Environmental Products Manager. In 1988, he founded Recovery Equipment Supply, a supplier of products for ground water monitoring and remediation. In 1996, he joined Goulds Pumps ITT and was promoted to Regional Commercial Business Manager in early 2002 and Regional Market Development Manager in 2004. He was the 2005 NGWA McEllhiney Distinguished Lecturer and presented "Well Efficiency Is Not a Myth" to over 20 water well contractor conventions.

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

Tanner Tryon received his bachelors in engineering at Arizona State University and his Masters in Business Administration from the University of Wisconsin. Tanner is the lead technical assistant for installations involving Flexible Drop Pipe. He frequently works on site to tackle specific problems and provide assistance at installations. He also shares his experiences at conferences all over the US with several organizations including the NGWA, AGWT, and several state organizations.

Neil Mansuy, Vice President, Subsurface Technologies Inc., Newburg, NY

Mr. Mansuy has 20 years of extensive worldwide well rehabilitation experience. He holds a MS from the Univ. of Regina, Saskatchewan, Canada, specializing in iron-related bacteria and causes of well plugging. He was previously an aquifer and well rehabilitation specialist with Layne GeoSciences Inc. for 10 years. Mr. Mansuy's workshop presentations cover all aspects of well problems and solutions related to lost capacity and water quality problems. Neil is the author of the book, "Water Well Rehabilitation," 1999, Lewis/CRC Press.

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

Mr. Bailey has a MS degree in hydrogeology and is a registered professional geologist. He has over 20 years of experience in ground water supply work and hydrogeological investigations. Mr. Bailey was previously President of a well services company in the Pacific Northwest and has conducted a scientific study in Europe of proprietary German well rehabilitation technology. He has managed numerous water well rehabilitation projects using this technology in the Pacific Northwest, Western Canada, and the Southeast and gives frequent workshop presentations on well maintenance and rehabilitation.

Kevin McGinnis, President, Cotey Chemical Corporation, Lubbock TX

Mr. McGinnis graduated from Texas Tech Univ. in 1984 with a BA degree. He has worked in the water well remediation industry for 18 years. He has delivered technical papers to Saudi Arabia's Ministry of Agriculture and Water in Riyadh, and to the Philippine Water Works Assoc. In addition to his experiences in the U.S., Mr. McGinnis has supervised water well rehabilitation projects in several states of the Middle East, Far East and Latin America. In the US, Mr. McGinnis has made over 30 workshop presentations on well rehabilitation techniques.

Scott Matthews, Sales & Industry Manger, Pumps & Mining, Yaskawa Electric America, Ft Myers, FL

Scott graduated from the University of Rhode Island with a BSEE (Electrical Engineering). His duties with Yaskawa involve developing custom pump drive (VFD) for the irrigation, agricultural and HVAC market segments, developing all technical and training support tools for sales and distribution, and locally training all distributors to service and support customers.

His past experience includes over 22 years of experience in the drives market involved with AC Drives, DC Drives, and AC motor Soft Starters, 5 years as a drive design systems engineer, coordinating drives (AC & DC), motor starter control, PLC's, and HMI's into multi drive systems, 2 years as a software development engineer designing integrated drive software solutions for custom applications.

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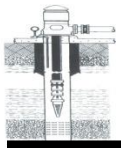
HOTEL INFORMATION

Hotel located at junction of 90 and 290

Holiday Inn, 3405 Algonquin Road,
Rolling Meadows, IL 60008
Call 847 259 5000 for room reservations at $89 a night
(American Ground Water Trust Program rate)



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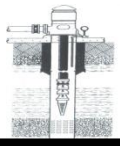

WATER WELLS & PUMPS

"More Water – Less Cost"

Workshop on operation, rehabilitation & maintenance

Workshop Hotel: Holiday Inn 3405 Algonquin Road,
Rolling Meadows, Illinois 60008

~~ 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?

Chicago Illinois - WELL & PUMP PROGRAM - REGISTRATION FORM – (or register on-line at www.agwt.org)

General……	**$230**	☐
Government employees (Federal, state, county, local)……..	**$200**	☐
AGWT Members ($250+ level) ……	**$180**	☐
Full-time Student (ID required) ……	**$110**	☐
CD (pdf versions of PowerPoint presentations – mailed post-event)	**$ 20**	☐
Exhibit Table (personal registration also required) ……	**$250**	☐

Registration includes handouts, coffee breaks & lunch **TOTAL $**_____

PAYMENT: ☐ **Check** *[payable to: American Ground Water Trust]*
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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

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 – Register on line: http://www.agwt.org (events)