



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

St Louis, Missouri (Earth City)

(Close to airport - 20 miles northwest from downtown St Louis)

Wednesday April 2nd 2014

Holiday Inn Airport West Earth City

3400 Rider Trail S

Earth City, MO 63045

PROGRAM PRESENTED BY AMERICAN GROUND WATER TRUST



CONTINUING EDUCATION

Approved for Missouri Operators (Drinking Water Treatment & Distribution)

Course # 1406374 – 6.5 Renewal training hours

Approved for Missouri Water Well contractors & Pump Installers 5.00 CE Hours credit

Approved for Indiana Well Drillers and Pump Installers 6.75 CEU Hours

Approved for Illinois Water Operators: Course ID 8138 (7:00 TCH)

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 local health department water program staff as specified in the Illinois Local Health Protection Grant Rules, Section 615.320 c) 2).

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)



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

MORE WATER LESS COST - PROGRAM

8:10 WORKSHOP INTRODUCTION - WELL & PUMP TECHNOLOGIES

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

8:15 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

9:00 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

10:00 BREAK

10:15 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

10:45 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

12:00 LUNCH (Provided)

1:00 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

1:45 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

2:45 BREAK

3:00 INTELLIGENT PUMP VARIABLE FREQUENCY DRIVES

Mike Grant, Sales Engineer, Yaskawa America, Inc., St Louis, MO

- 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

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

