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

Salt Lake City, Utah
Thursday March 6th

Holiday Inn SLC Airport West
5001 Wiley Post Way
Salt Lake City, Utah 84116

PROGRAM PRESENTED BY AMERICAN GROUND WATER TRUST

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.

AGWT 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 - PROGRAM

8:10 WORKSHOP INTRODUCTION - WELL & PUMP TECHNOLOGIES
Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH

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 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

10:30 BREAK
10:45  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 maintenance or rehabilitation

11:15  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

12:30  LUNCH  (Provided)

1:30   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  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

3:30  BREAK

3:40  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