

# **WATER WELL 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 performance**

**Tuesday, October 6, 2009 ~ 8:15am-4:30pm**

**Holiday Inn – Plainview, Long Island  
215 Sunnyside Blvd., Plainview, NY 11803  
Hotel: (516) 349-7400**

**Program presented by:  
AMERICAN GROUND WATER TRUST**



**In cooperation with  
Long Island Water Conference**

**Event sponsor:  
Layne Christensen**



**Continuing education:  
CEUs for water operators and NY engineers (applied for)  
All participants receive a certificate of completion**

## **MORE WATER LESS COST - BACKGROUND**

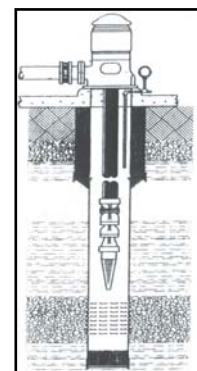
Inefficient wells cost millions of dollars in increased pumping costs and in unnecessary increments to the state's carbon footprint. This workshop program will show how major water users can save energy, manage resources efficiently and reduce infrastructure costs.

More than fourteen hundred utility managers, water industry professionals, regulatory staff, well owners, water users and ground water specialists have attended this program in: Baltimore MD; Little Rock AR; Des Moines IA (2); Nashua NH; Houston TX; (2) Lansing MI; Charlotte NC; Denver CO; Cincinnati OH; Wilsonville OR (2); Lakewood CA;(2) Seattle WA (2); Richmond VA, Long Island NY, Bucks County PA , Phoenix AZ, Langley BC, Orlando FL and Boynton Beach, FL.

## **MORE WATER LESS COST - WHAT IS IT ALL ABOUT?**

The presentations combine the practical aspects of well rehabilitation and maintenance with the economic principles of asset management. The workshop will improve asset management assessment skills, address core questions involved in assessing well performance and provide clear guidance for well designers, contractors, owners, operators who make decisions related to well operation, maintenance, rehabilitation and replacement.

- ◆ What proportion of your overall water cost is related to well efficiency?
- ◆ Which asset management tools & concepts work best for decision-making?
- ◆ Do your well construction and design decisions include maintenance needs?
- ◆ What should be included in an RFP for well construction, maintenance or rehabilitation?
- ◆ What diagnostic indices determine the most effective rehabilitation techniques?
- ◆ Do you know if your supply wells have the potential to provide higher yield?
- ◆ Is declining yield related to the aquifer, the pump or the well?
- ◆ How do you calculate the cost-benefit of maintaining well efficiency?
- ◆ What is the basis for assessing the success of maintenance or rehabilitation?



## MORE WATER LESS COST - PROGRAM

7:30 – 8:15      **REGISTRATION, COFFEE, AND SIGN-IN FOR CEUs**

8:15 – 8:30      **OVERVIEW OF THE WORKSHOP PROGRAM**

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

- Ground water as a local, regional and national economic & environmental resource
- Water is free! What are the costs of accessing and delivering water?
- How to solve the conundrum of identifying well, pump or aquifer problems
- What's new in the well rehabilitation decision-making process?

*Andrew Stone is a hydrogeology graduate from London University and has over thirty years of ground water experience in Africa and the U.S. as a professor and ground water consultant. He has first-hand experience of all aspects of well design and construction in a wide variety of geologic environments. As the director of the Trust's education programs he has participated in over 100 ground water related technical conference and workshop programs.*

8:30 – 9:30      **DRILL NEW OR FIX? REHABILITATION: IS IT TIME? IS IT WORTH IT?**

**Mike Havener, Vice President, Layne Christensen, Bridgewater, NJ**

- Well design & construction criteria to maximize efficiency
- Data need for a scientifically based well maintenance schedule
- Mechanical vs. chemical rehabilitation
- Will any kind of preventive maintenance help?
- How about well operation? Does this impact rehabilitation?
- Frequency and cost considerations in well rehabilitation

*Mr. Havener has over 30 years of experience in the ground water industry. He graduated from Lehigh University with a BS in Civil Engineering in 1977 and is a registered Professional Engineer in Pennsylvania, New Jersey, New York and Connecticut. Mr. Havener has extensive experience in the design and maintenance of well systems and water treatment plants.*

9:30 – 10:30      **METHODS FOR IMPROVING WELL PERFORMANCE**

**Jim Bailey, Principal Hydrologist, Kleinfelder, Bellevue, WA**

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

*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.*

10:30– 10:45      **BREAK**

10:45 – 12:30      **HOW THE EUROPEAN EXPERIENCE CAN HELP WITH REHABILITATION SOLUTIONS**

**MAINTAINING THE CITY OF BERLIN WELL FIELD AT PEAK CAPACITY**

**Andreas Wicklein, Manager and Certified Hydrologist, pigadi GmbH, Berlin, Germany**

- Well services in Europe – What are the applications for Long Island wells?
- Strategies used to keep Berlin's well-based system of 700 wells functioning efficiently
- The development of mechanical rehabilitation technologies

- Creating well maintenance and monitoring programs
- Cost comparison of rehabilitation versus new well development

*Mr. Wicklein graduated from the Technical University, Dresden, Germany in 1987 with a degree in Hydrology. For the last 22 years he has worked in different capacities for the city of Berlin's water supply system. He is the manager of pigadi GmbH, a daughter company of Berlinwasser Holding AG. He has been involved with projects related to well services, consulting, well rehabilitation and well maintenance management in Africa, South America, the Middle East, Turkey, Albania, Bosnia and the USA. He has sponsored and participated in many workshops on well rehabilitation and is the co-author of, "Brunnnen ein komplexes System" (Wells, A Complex System).*

**A NEW APPROACH TO DEVELOPMENT OF WATER SUPPLY WELLS.**

**Peter Nillert, Managing Director GCI GmbH Ground Water Consulting, Berlin, Germany**

- Theory behind particle movement during well development
- Basis for the new approach/tool
- Applications of the tool on new wells and on rehabilitated wells
- Time & cost advantages of this approach over traditional well development methods.

*Mr. Nillert has over 30 years of experience working on ground water issues throughout Germany and eastern Europe. He is a well known expert in the analysis of ground water flow for both water supply and environmental remediation. As founder and managing director of GCI, a ground water consulting company, he has developed numerical models to simulate the flow of water in and around a well screen in order to develop better tools for well development and rehabilitation.*

12:30 – 1:15      **LUNCH**

**1:15: 2:15      MANAGING ENGINEERING CONSULTANT CONTRACTS AND COSTS**

**Ethan Weikel, P.G., US Army Corps of Engineers, Baltimore, MD**

- An overview of USACE water supply projects in the northeast.
- Consultant contracting lessons
- Managing scope and cost changes
- Examples of recent USACE ground water and well projects

*Mr. Weikel is a Senior Hydrogeologist in the USACE Baltimore District and is responsible for water supply projects throughout the eastern United States. His background includes work as a ground water consultant for several large national engineering firms prior to joining the USACE.*

**2:15 – 3:15      PROGRAMIC APPROACH TO OPTIMIZING YOUR WELL FIELD, LONG ISLAND CASE STUDY**

**Jim Schaefer, VP, Principal Hydrogeologist, Kleinfelder, Bohemia, NY**

- Overview of Suffolk County Water System
- Monitoring Well Performance
- Pro-active Well Maintenance Plans
- "Tried and True" Technologies-Benefits
- Employing Innovative Technologies
- Program Approach Value, Asset Reclamation

*Mr. Schaefer is a professional hydrogeologist with over 25 years of experience conducting subsurface investigations on Long Island. He has managed and/or acted as project principal on hundreds of sites throughout Long Island all involving the characterization of soil, groundwater, hydrology and development of groundwater flow models. Project disciplines have included Superfund investigations, RCRA studies, underground storage tank closures, aquifer studies supporting construction of subsurface structures, water supply exploration, water supply well design, water supply well optimization and geothermal well rehabilitation. More recent, he has supported water supply and geothermal projects employing innovative well rehabilitation technologies at sites located throughout the eastern United States.*

**3:15- 3:30        BREAK**

**3:30- 4:25        OPTIMIZING WELL FIELD PERFORMANCE FOR LONG ISLAND'S GEOLOGICAL CONDITIONS**

**John W. Rhyner, Senior Project Manager, P.W. Grosser Consulting, Bohemia, NY**

- Overview of Long Island's groundwater reservoir
- How geological conditions impact well performance potential
- Well design criteria to maximize yield
- How water quality in Long Island's aquifers impacts well operation & maintenance
- Prospects for a sustainable natural groundwater resource on Long Island

*John Rhyner has over 20 years experience as an environmental consultant. He has a MS in hydrogeology and is a licensed professional geologist (PA). His expertise includes assessments of geological, geothermal and hydrogeological site conditions and issues. He has coordinated complex hydrogeologic investigations in NYC, throughout NY State and in NJ and CT. He has conducted over 80 feasibility and sub-surface condition studies for geothermal systems.*

**4:25- 4:30        WRAP-UP AND ADJOURN**

- Further Questions and CEU sign-out

**REGISTER ONLINE [www.agwt.org/events/2009/09NY\\_WD\\_Reg.htm](http://www.agwt.org/events/2009/09NY_WD_Reg.htm)**

**or**

**PRINT REGISTRATION FORM BELOW**

# REGISTRATION FORM

## Water Well Performance Workshop

Tuesday, October 6<sup>th</sup>, 2009 ~ 8:15am – 4:30pm

Holiday Inn – Plainview, Long Island  
215 Sunnyside Blvd., Plainview, NY 11803  
Hotel: (516) 349-7400

Pre-Registration: General  \$190  
Pre-Registration: American Ground Water Trust Members (\$250+Level)  \$150  
Pre-Registration: Members of the Long Island Conference  \$150  
Pre-Registration: Full-Time Students (ID required)  \$90  
Pre-Registration: Exhibit table (must also register to attend above)  \$200  
CD of Presentations: (Mailed post event.) Attendees:  \$15 / Non-Attendees:  \$50

Total..... \$ \_\_\_\_\_

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

**AMEX**  **Visa**  **MasterCard**  **PO#** \_\_\_\_\_

Credit Card No. \_\_\_\_\_ Exp \_\_\_\_\_

Cardholder Name \_\_\_\_\_ Cardholder Email \_\_\_\_\_

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Professional Training \_\_\_\_\_ Job Title \_\_\_\_\_

Company/ Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

**Return by mail:** American Ground Water Trust  
50 Pleasant Street, Concord, NH 03301  
Tel (603) 228-5444

**Return by fax:** (603) 228-6557 **Register on line:** [www.agwt.org/workshops.htm](http://www.agwt.org/workshops.htm)

### CANCELLATION POLICY

- Cancellations received in the Trust office by 5 pm ET 5 days prior to event will be granted a full refund less \$25.
- Cancellation 4 days or less, prior to the event will receive a 50 % refund.
- Cancellations on the day of the event are considered "No Shows."
- Refunds will not be granted for "No Shows" (substitutions gladly accepted).
- The Trust will not cancel a conference 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.