

WATER WELL PERFORMANCE: THE ECONOMIC BASIS FOR OPERATION, REHABILITATION & MAINTENANCE DECISIONS

WORKSHOP (More Water – Less Cost)

Register on-line at: www.agwt.org

Scroll down for program and speaker information and registration form

AMERICAN GROUND WATER TRUST

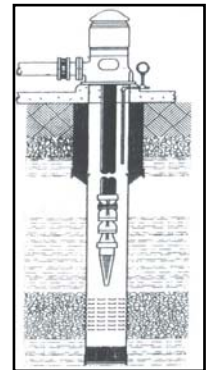
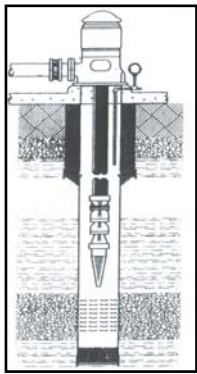
Thursday, November 19th, 2009 • 8:15am - 5:00pm

HOLIDAY INN HOTEL & SUITES SUNRISE/FT. LAUDERDALE
3003 NORTH UNIVERSITY DR. SUNRISE, FL 33322

CONTINUING EDUCATION CREDIT

This workshop program has been approved for:

WATER OPERATORS - .7 CEU THROUGH THE FLORIDA WATER ENVIRONMENT ASSOCIATION
PROFESSIONAL ENGINEERS - 7.0 PDH THROUGH THE FLORIDA BOARD OF PROFESSIONAL ENGINEERS
WATER WELL CONTRACTORS - 7.0 (5.0 RULES & REGS; 2.0 SAFETY & BUSINESS) THROUGH THE FLORIDA WATER WELL CONTRACTORS CONTINUING EDUCATION PROGRAM



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 (2), 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?
- ◆ How do you calculate the cost-benefit of maintaining well efficiency?
- ◆ What is the basis for assessing the success of maintenance or rehabilitation?
- ◆ How much can VFD reduce energy use for submersibles?

PROGRAM SPONSORS AND EXHIBITORS



AMPS, Inc.



MORE WATER LESS COST - PROGRAM

7:30 – 8:15 **REGISTRATION, COFFEE, 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?*

8:30 – 9:00 **ASSET MANAGEMENT PRINCIPLES AND IMPLEMENTATION STRATEGIES**

Gordon Kennedy, Principal Hydrogeologist, MWH, Cape Coral, FL

- *How to compile and interpret true costs*
- *Assessment of well field economics in the context of overall utility assets*
- *Value of an economic model template in rehabilitation/ replacement decisions*
- *Risk-based Approach for Asset Management Prioritization*

9:00 – 9:45 **FLORIDA GEOLOGY AND WELL DESIGN BASICS**

Helen Hickman, Regional Groundwater Practice Leader, Brown & Caldwell, W. Palm Beach, FL

- *Matching well design to geology*
- *Well construction for high capacity performance*
- *Well construction for on-site private wells*
- *Well design for ASR wells*
- *Regional & local well performance issues*

9:45 – 10:00 **BREAK** (networking)

10:00- 10:45 **REASONS FOR WELL PROBLEMS**

Stuart Smith, Consulting Hydrogeologist, Ground Water Science, Bluffton, OH

- *Microbiology and microbiological processes in wells & aquifers*
- *Water physical-chemical causes of clogging and corrosion in wells & aquifers*
- *Understanding how processes work together and diagnosing typical “declining yield” and related well impairment problems*
- Methods to identify microbiological parameters
- Analysis needed to diagnose corrosion and encrustation

10:45 – 11:15 PREVENTION IS MORE COST EFFECTIVE THAN CURE

Stuart Smith, Consulting Hydrogeologist, Ground Water Science, Bluffton, OH

- Cost / Benefit evaluation of well rehabilitation techniques
- Preventive maintenance procedures and implementation
- “Design for prevention”
- Evaluation of results and importance of records to hand off to next operators/ managers

11:15 – 12:00 THE HYDROGEOLOGIST’S TOOL-KIT FOR IDENTIFYING WELL PROBLEMS

Jim Andersen, President, JLA Geosciences, Jupiter, FL

- Well data that assist in well rehabilitation decisions
- How these data are obtained
- Reconstruction Design approaches
(Driller’s logs, down-hole cameras, geophysics, pumping tests, sand tests, water chemistry, performance records etc.)

12:00 – 12:45 LUNCH (provided)

12:45 – 1:15 CASE STUDY: IMPROVING FLORIDAN AQUIFER PRODUCTION WELL PERFORMANCE IN INDIAN RIVER COUNTY, FLORIDA

Stewart Magenheimer, Principal, CDM, Ft. Lauderdale, FL

- Diagnosis and performance criteria
- Treatment approaches and results

1:15 – 2:15 PRINCIPAL MECHANICAL METHODS FOR IMPROVING WELL PERFORMANCE

Jim Murray, President, Aquifer Maintenance & Performance Systems (AMPS), West Palm Beach, FL

- *Surge and bail, wire brushing, hydrojetting, blasting etc.*
- *Methods that have been tried and proven in Florida*
- *Cost considerations for selection and combination of well improvement method(s)*
- *Techniques for down-hole well reconstruction*

2:15 – 3:00 CASE STUDIES OF WELL REHABILITATION IN FLORIDA

(Diagnosis, treatment & ongoing management strategies)

Charles Drake, VP, TetraTech, Orlando, FL

- *Naples (shallow wells)*
- *Melbourne (deep wells)*
- *Port St Lucie (deep wells)*

3:00 – 3:15 ECONOMICS OF FLEXIBLE DROP PIPE WHEN WELLS NEED REHABILITATION

Tanner Tyron, Hose Solutions, Inc., Scottsdale, AZ

- Physical properties of flexible hose
- Hydraulic performance capabilities
- Pump installation and removal logistics

3:15 – 3:30 BREAK (networking)

3:30 – 4:15 ELECTRICAL ISSUES IMPACTING PUMP AND WELL-FIELD OPERATION

Kyle Lanier, Field Service Engineer, Franklin Electric, Lake Worth, FL

- Impact of electrical supply changes on pumps and control equipment
- Strategies to avoid damage from brown-outs, surges and outages
- Applying VFD in submersible applications

4:15 – 4:30 **UPDATE ON WATER WELL MAINTENANCE AND REHABILITATION REGULATIONS**

Ann Marie Superchi, Water Well Regulations Division, SFWMD, West Palm Beach, FL

- Who has given authority to whom to regulate what?
- Permits and reporting rules for new wells and for well improvement work

4:30 – 4:45 **WORKSHOPSUMMARYAND QUESTIONS TO PRESENTERS**

4:45 **ADJOURN**

- Continuing Education Credit sign-out

Scroll down for registration form

PRESENTER INFORMATION

(Alphabetical)

Jim Andersen, President, JLA Geosciences, Jupiter, Florida

Mr. Andersen is responsible for company operations, project management, well design and construction phase services team leader. Mr. Andersen has over 23 years working experience in hydrogeology, groundwater water resource investigations, water resource permitting, well problem evaluations and well rehabilitation. He has an extensive background in the state of Florida coastal and inland aquifer systems; membrane system raw water supply development for Nanofiltration, Low Pressure RO and Seawater RO. Mr. Andersen has served as a short course instructor at the biannual environmental permitting school given by the Florida Chamber of Commerce, an AWRA conference moderator on Aquifer Storage and Recovery, and a speaker on well design, water resource permitting and well construction for the Southeastern Desalting Association and American Membrane Technology Association conferences.

Charles Drake, VP, TetraTech, Orlando, FL

Mr. Drake's experience includes groundwater resource evaluations for water supply, water supply master plans, the design, permitting and coordination of mechanical integrity tests; design and analysis of aquifer performance tests; groundwater flow and solute transport simulations; the design of wells and wellfields; and obtaining consumptive use permits. He has designed wells and wellfields for the cities of New Smyrna Beach, Edgewater, Lakeland, Port St. Lucie, Palm Bay, Naples, and others.

He is Past-President of the Florida Association of Professional Geologists, and is a registered PG in FL, AL, and NC. Prior to his partnership with and formation of Tetra Tech, Mr. Drake served as department manager of hydrogeology at Dyer, Riddle, Mills & Precourt, Inc. (1985-90).

Helen Hickman, Regional Groundwater Practice Leader, Brown & Caldwell, West Palm Beach, FL

Ms. Hickman has 26 years of experience in groundwater resources availability and development including regional groundwater studies, saltwater intrusion studies, direction of groundwater exploration projects, and many projects involving well design and construction in all parts of South Florida. Ms. Hickman's experience is focused in the areas of groundwater, well and wellfield design, water supply management and injection wells. Injection well experience includes: feasibility, design, permitting, construction, and operation of deep injection wells for both domestic and industrial wastewater disposal, and aquifer storage and recovery facilities. Ms. Hickman has a B.Sc., Joint Honours, degree in Geology and Chemistry, from University College of Wales, U.K.

Gordon Kennedy, Principal Geologist, MWH, Cape Coral, FL

Mr. Kennedy has 30 years of experience in a wide variety of well projects from West Texas to the Caribbean. He received his B.S. in Earth Sciences at the University of New Orleans. His professional

background includes exploratory and development work for Oil and Gas, and design, permitting and construction for numerous water supply projects in Florida.

Mr. Kennedy has served as Project Manager for major municipal well and wellfield projects including production wells, Aquifer Storage and Recovery wells, and deep injection wells, and he has experience in rehab and modification of all three types of wells.

Kyle Lanier, Field Service Engineer, Franklin Electric, Lake Worth, FL

Mr. Lanier began his career as an assistant service technician for Sullivan Electric & Pump in 1994. He worked his way up and was eventually working on a boom truck installing pumps and motors of all shapes and sizes. Kyle enrolled in college to pursue a degree in Mechanical Engineering. Kyle graduated with two degrees in 2005 and became manager of the pump and motor shop. He has been a part of the Franklin Electric team since January 2007.

Stewart Magenheimer, Principal, CDM, Ft. Lauderdale, FL

Mr. Magenheimer is senior project manager with the engineering consulting firm Camp Dresser & McKee Inc., in Fort Lauderdale, and has over 20 years experience in conducting and managing groundwater resource investigations throughout Florida and the Bahamas. His areas of specialization include project management, municipal production and injection well design, operations, and rehabilitation, water supply development and planning, hydrogeologic interpretations, permitting, and the application of geophysical and numerical simulation techniques to resolve complex hydrogeologic problems. Mr. Magenheimer has BS and MS degrees in geology from Furman University and Texas A&M University, respectively, and a Master of Business Administration from the University of Miami.

Jim Murray, President, Aquifer Maintenance & Performance Systems (AMPS) Inc., West Palm Beach, FL

Mr. Murray founded Aquifer Maintenance and Performance Systems in 1989. AMPS is a service company specializing in well field maintenance, well reconstruction, well rehabilitation, down-hole video surveys, pump repairs and well-field production management. AMPS has rehabilitated over 3,500 Florida wells. From the mid 1970s to 1989 Jim obtained extensive drilling and well design experience in many overseas countries and US states in both oil and water wells, working for Morrow Drilling, KTM Consulting, Layne Christensen and Beylik Drilling.

Stuart Smith, Consulting Hydrogeologist, Ground Water Science, Bluffton, OH

Mr Smith is Certified Ground Water Professional by the National Ground Water Association, a Registered Geologist with the State of Kentucky, and has been consulting in the ground water field since 1983. He has spoken on well maintenance, rehabilitation, and microbiology topics in Argentina, Australia, England, and throughout North America. He is the author or co-author of numerous manuals, articles and papers, including many contributions to well maintenance and rehabilitation practice such as *Methods for Monitoring Iron and Manganese Biofouling in Water Supply Wells* and *Evaluation and Restoration of Water Supply Wells* (AWWA Research Foundation), *Monitoring and Remediation Wells: Problem Prevention, Maintenance and Rehabilitation* (CRC Press), *Operation and Maintenance of Extraction and Injection Wells at HTRW Sites* (U.S. Army Corps of Engineers, with George Alford and Roy Leach), and the first manual on the subject in Spanish (with the late Miguel Gariboglio).

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

Mr. Stone has degrees in geology and hydrogeology from London University, England. He has extensive experience as a ground water scientist working on exploration and development projects in the US and overseas. Prior to joining the Trust he worked as a hydrogeologist for a New England consulting company. From 1990 to 2003 he taught an annual course on Ground Water Protection Policy in the MS degree program at Antioch New England Graduate School. In 1999 he received the National Ground Water Association's Oliver Award in recognition of his outstanding contributions to the ground water industry.

HOTEL INFORMATION

Holiday Inn Hotel & Suites Sunrise/ Ft. Lauderdale, 3003 North University Drive, Sunrise, FL 33322
(954) 748-7000

REGISTRATION FORM

Water Well Performance Program

Thursday, November 19, 2009

8:15am - 5:00pm

Holiday Inn Suites Sunrise/ Ft. Lauderdale, Sunrise, FL

Register on-line at: www.agwt.org

(Registration includes lunch and breaks)

Pre-Registration (General)	<input type="checkbox"/>	\$230.00	
Pre-Registration (AGWT Members/Employees \$250+Level)	<input type="checkbox"/>	\$200.00	
Pre-Registration (Full-time Student-ID Required at Registration)	<input type="checkbox"/>	\$100.00	
Exhibit Table	<input type="checkbox"/>	\$200.00	
CD of Presentations	Attendee <input type="checkbox"/>	\$15.00 / Non-Attendee <input type="checkbox"/>	\$50.00
Total		\$ _____	

(Walk-in Registration General \$260.00, AGWT \$230.00, Student \$130.00)

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

AMEX **Visa** **MasterCard** **PO#** _____

Credit Card No. _____ **Expiration** _____

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Registrant Name _____

Title/Position _____

Company/ Organization _____

Address _____

City _____ **State** _____ **Zip** _____

Phone _____ **E-Mail** _____

CANCELLATION POLICY

- Cancellations received in the AGWT office by 5 pm (ET) 5 days prior to the start of the event will be granted a full refund less a \$25 processing fee.
- Cancellation four to two prior to the start of the event will receive a 50 % registration refund.
- Cancellations one day before the start of the event , or on the day of the event, are considered "No Shows." Refunds will not be made for "No Shows." **Substitutions gladly accepted.**
- The AGWT 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 AGWT will reschedule the event and honor registrations as payment for the new event.