

- Education Workshop -

**PUBLIC HEALTH, GROUND WATER
AND WATER WELLS**
Small Water Systems, Private Wells
and Onsite Wastewater Disposal

Presented by

American Ground Water Trust

16 Centre Street, Concord, NH



Cooperators and Presenters:

**Alpha Analytical Laboratory
American Society of Home Inspectors
Bryant University
Chelmsford Well and Pump
Kirke R. Henshaw, Inc.**

**Massachusetts Department of Environmental Protection
Massachusetts Department of Public Health
Massachusetts Ground Water Association
Mill River Consulting**

**National Association of Certified Home Inspectors, Inc
National Association of Home Inspectors, Inc.
Senator William X. Wall Experiment Station
United States Geological Survey
Water Quality Association**

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TUESDAY, JANUARY 30, 2007

8:10AM - 4:30PM

WORCESTER HOTEL AND CONFERENCE CENTER

500 LINCOLN STREET

WORCESTER, MA 01605

TELEPHONE: 508-852-4000

What's It All About?

The Trust has presented this education workshop program in many states over the last six years, including Massachusetts in 2001. The workshop will provide a unique opportunity for specialists involved with water supply and public health in Massachusetts to learn about important technical and regulatory issues relating to drinking water, public health, ground water protection, well construction and water systems. *The complete aquifer to tap picture in one workshop.*

Massachusetts' ground water is an important water supply source for homes, communities, schools and many other users such as shops, restaurants, campgrounds, etc. There are more than one-quarter million private wells in the state, and ground water will always be an important and viable water source for Massachusetts's citizens, industry and agriculture.

Who Should Attend?

Environmental Health Professionals, Home Inspectors, Septic Tank Contractors, Real Estate Agents, Home Builders and Developers, Operators/owners of Water Systems, Water Well Contractors, Town Officials (Conservation, Zoning, Planning), Water Testing Specialists, Water Conditioning Specialists, Conditioning Equipment Sales Staff.

Why Should I Attend?

Many different specialists are involved in providing and maintaining safe drinking water to Massachusetts' homes. Even though most professionals work independently, success results from a team effort. This workshop will bring you up to speed with the whole spectrum of technical issues that lie behind providing safe and reliable drinking water.

Water Professionals - You will gain insight to the complete water supply picture: geology, drilling, well design, conditioning equipment, water testing, health issues, legal liabilities, regulatory requirements, source water protection, etc. The better you understand the "whole" the more effective you can be in providing your "part" of the vital service of safe water supply.

Town Officials, Regulators, Health Professionals - Many town regulations, codes and ordinances are based on drinking water related health concerns. This workshop will provide you with an overview of ground water, wells and water systems. It will be a one of a kind source of information to help you support community efforts to maintain safe drinking water supplies beyond just "knowing the regulations." Your chance to ask the experts on wells.

Real Estate Professionals and Home Inspectors - The Trust has made presentations on the practical nuts and bolts of obtaining and protecting drinking water from wells to the Massachusetts Health Officers Association, National Association of REALTORS®, the American Society of Home Inspectors, Florida Association of Building Inspectors and various local REALTOR® Boards. Discerning home buyers need the assurance that private well water supply is safe and reliable. This workshop will be a great learning opportunity for all professionals involved in property descriptions and real estate transactions.

Workshop Program

7:30 am to 8:10 am **Registration (Coffee & Donuts)**

8:10 am to 8:30 am **Introduction: Ground Water Issues in Massachusetts**

Garret W. Graaskamp, P.G., Ground Water Specialist, American Ground Water Trust, Concord, NH

8:30 am to 8:50 am **Drinking Water and Public Health Basics**

- Who is responsible for citizen and community public health in Massachusetts?
- How does the State assess water related health concerns?
- What services are offered by State and County Agencies?
- How serious are health issues related to water quality in Massachusetts?

Suzanne Condon, Associate Commissioner, MA Dept. of Public Health, Boston, MA
Suzanne Robert, Hydrogeologist, MA Department of Environmental Protection,
Boston, MA

8:50 am to 9:30 am **Ground Water Basics**

- How do aquifers, springs and natural ground water systems work
- Where is the State's ground water?
- Summary of potential threats to ground water quality
- How to choose a drilling site for a well

John Masterson, MA-RI Region Ground Water Specialist,
United States Geological Survey, Northborough, MA

9:30 am to 10:10 am **Water Quality Basics**
How Do I Know My Water is OK?

- Water quality - isn't there a little bit of something in everything?
- What is "good" drinking water?
- Typical water analyses - you will only find what you test for!
- What is a "bad" test result?
- Why and when should I retest my well water?
- Testing options - do-it-yourself kits, private labs, state labs

Jim Occhialini, Vice President, Alpha Analytical Laboratory, Westborough, MA

10:10 am to 10:20 am **Break**

Workshop Program

10:20 am to 11:00 am **Water Wells for Yield and Health**

- Well yield - How deep? Use well screens? How to test yield?
- Well health and safety - casing installation. How to seal the gap between the drilled hole and the casing
- Well maintenance needs for the homeowner, campgrounds, cottages and non-community systems
- Sealing (decommissioning) an abandoned well

Kirke Henshaw, Past President of the Massachusetts Ground Water Assoc., Clinton, MA; Certified Well Driller/Owner, Kirke R. Henshaw, Inc., West Chesterfield, MA

11:00 am to 11:40 am **Water Treatment and Conditioning Basics**

- The basics from well to faucet (homes and small systems)
- What conditioning equipment is available?
- When should conditioning equipment be used? What does it cost? Does it work?
- Water system design and system maintenance for schools
- What to do about microorganisms?
- Chlorination: benefits and problems
- Solutions to problems: iron, manganese, acidity and hardness

Francis Roark, CWS-V, Chelmsford Well and Pump, Chelmsford, MA

11:40 pm to Noon **The “Hot” permits for Geothermal Wells in Massachusetts - When do you need a permit?**

- When is a drinking water well a geothermal well?
- What discharge permit is needed to drill and install a geothermal well?
- When can a municipal water supply be used to “make up” water in geothermal well?
- Why is a permit needed to drill a well?

Paul Blain, Program Manager, Department of Environmental Protection, Boston, MA

Noon to 12:20 pm **Geothermal Wells and the “UIC” (Underground Injection “CONFUSION”) in Massachusetts**

- UIC – The Basics of Underground Injection Control Permitting
- For UIC permits: Contact vs. Non-contact water Geothermal wells ?
- If Municipal/ Utility drinking water is used as Geothermal Well “make up” water is a UIC permit needed?
- Other water well permitting issues related to UIC regulations

Ken Pelletier, UIC Program Manager, Department of Environmental Protection, Boston, MA

Workshop Program

12:20 pm to 1:20 pm **Lunch**

1:20 pm to 2:10 pm **Chemicals and Health**

- What are the health concerns of MTBE and BTEX compounds dissolved in water?
- Nitrates in ground water - are there health implications?
- BAM, a cranberry pesticide - What are the health concerns of this and other pesticides in ground water?
- Arsenic & Radon in groundwater: sources, environmental fate and health effects
- How do the USEPA and MADPH set drinking water standards?

Nicholas Anastas, Environmental Analyst, Department of Environmental Protection,
Boston, MA

2:10 pm to 3:00 pm **Microorganisms and Health**

- Water borne microorganisms - life cycles, habitats and effects on health
- What microorganisms may be found in ground water?
- Coliform and non-coliform bacteria
- How does the MADPH assess incidents of drinking water contamination?
- Health concerns:
 - Fecal coliform bacteria
 - Escherichia coli* O157:H7
 - Viruses
 - Cryptosporidium* and *Giardia*

Aaron Margolin, Ph.D., Professor, Department of Microbiology,
University of New Hampshire, Durham, NH

3:00 pm to 3:10 pm **Break**

3:10 pm to 3:50 pm **Onsite Wastewater Disposal**

- What are the design options for on-site wastewater disposal?
- Is ground water quality affected by on-site wastewater disposal systems?
- Septic tanks and leach fields: What they can and cannot do
- What is a failed septic system?
- Can a failing septic system be fixed?
- Routine maintenance needs for on-site waste water systems

Daniel Ottenheimer, R.S., President, Mill River Consulting, Gloucester, MA

Workshop Program

3:50 pm to 4:30 pm

Legal Issues - Customers, Consumers and Private Wells

The legal responsibilities and potential liabilities of water supply professionals and equipment manufacturers:

- Small Community, Transient, Non-transient Water Systems
- Companies selling water conditioning equipment
- Companies installing wells, pumps and water supply equipment
- Health officials and water system inspectors with advisory or oversight responsibilities
- Developers / builders / realtors involved with property transactions

Ron Washburn, Esq., Lecturer, Bryant University, Smithfield, RI (Formerly with MA-DEP)

- Concluding Remarks and Adjourn -

CONTINUING EDUCATION CREDIT

You MUST bring a photo ID, and your license or certificate number to complete the sign-in/out records that will be submitted to these organizations and agencies to confirm Continuing Education credits. A Certificate of Attendance will be provided to those that want or need the document.

American Society of Home Inspectors, Inc.	Approved 7.0 ASHI® MRC
International Association for Continuing Education & Training	Approved 7.0 CE hours
Massachusetts Dept of Environmental Protection - Soil Evaluators	Approval Pending
Massachusetts Dept of Environmental Protection - Title V Inspectors	Approval Pending
Massachusetts Dept of Prof. Licensure - Health Officers	Applicable Content for 7.0 CE hrs
Massachusetts Dept of Prof. Licensure - Home Inspectors	Approved 6.0 CE hours
Massachusetts Dept of Prof. Licensure - Water System Operators	Approved 7.0 CE hours
Massachusetts Dept of Prof. Licensure - Sanitarians (R.S.)	Approved 7.0 CE hours
National Association of Home Inspectors, Inc.	Approved 7.0 CE hours
National Association of Certified Home Inspectors, Inc.	Approved 7.0 CE hours
Water Quality Association	Approved 0.70 CEUs

Call the Trust for Additional CEU Approvals – 1-603-228-5444

AMERICAN GROUND WATER TRUST

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The Trust is a not-for-profit education organization that partners with national, state and local organizations throughout North America. The mission of the American Ground Water Trust is to protect ground water, promote awareness of the environmental and economic importance of ground water and provide accurate information to assist citizens, communities and decision makers in water resource issues.