

- **Education Workshop** -

**PUBLIC HEALTH, GROUND WATER
AND WATER WELLS**

**Small Water Systems, Private Wells
and Onsite Wastewater Disposal**

Presented by

American Ground Water Trust

Ground Water Information, Awareness & Education Since 1986

16 Centre Street, Concord, NH

In Cooperation with the

**Connecticut Department of Public Health
Connecticut Environmental Health Association**



Supporters and Presenters:

**American Society of Home Inspectors
Connecticut Water Well Association
Hydro Dynamic Engineering, LLC
Murtha Cullina LLP**

**National Association of Certified Home Inspectors, Inc
National Association of Home Inspectors, Inc.
Northeast Laboratories, Inc.
Trinity College
United States Geological Survey
Water Quality Association**

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TUESDAY, MARCH 27, 2007

8:10 AM - 4:40 PM

HOLIDAY INN - EAST HARTFORD

363 ROBERTS STREET, HARTFORD, CT 06108

TEL: 860-528-9611

What's It All About?

The Trust has presented this education workshop previously in Connecticut, Florida, Massachusetts, New Hampshire, New York, South Carolina, Virginia and Wisconsin. The workshop will provide a unique opportunity for specialists involved with water supply and public health in Connecticut 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.*

Connecticut's 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 Connecticut'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. 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. Your chance to ask the experts on wells.

Real Estate Professionals, Developers, 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 CT

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

- What is the difference between public water systems and private wells?
- Components of a water system
- Overview of drinking water in Connecticut
- How is drinking water regulated in Connecticut?

Robert Rivard, P.E., Supervising Sanitary Engineer, Drinking Water Section, Connecticut Department of Public Health, Hartford, CT

8:50 am to 9:30 am

Ground Water Basics

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

J. Jeffrey Starn, Supervisory Hydrologist, United States Geological Survey, East Hartford, CT

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!
- Which bacteria-in-water test should I use? Which is "best?" What do the results mean?
- Why and when should I retest my well water?
- Testing options - do-it-yourself kits, private labs, state labs

William W. Ullmann, Ph.D., Chemist and Laboratory Director, Northeast Laboratories, Inc., Berlin, CT

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

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
- What is required for sealing and decommissioning an abandoned well?

John Sima III, P.E., Licensed Environmental Professional,
Hydro Dynamic Engineering, LLC, Southington, CT

11:00 am to 11:40 am **Water Treatment - When, Why and How**

- The basics from well to faucet (homes and small systems)
- What conditioning equipment is available (UV, RO, Ion Exchange, Activated Carbon, Chemical Feed, Ozonation, Distillation)?
- When should conditioning equipment be used? What does it cost?
- What to do about microorganisms?
- Chlorination: benefits and problems
- Solutions to problems: Iron, Hydrogen Sulfide, Acidity and Hardness

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

11:40 am to 12:00 pm **Wellhead Protection - Why Should I Care?**

- What is "Wellhead Protection"?
- Why is it important to public health and your community?
- What are the requirements for new wells/old wells?
- What is the Ground Water Rule?
- What can I do to protect my well?

Lori Mathieu, Supervisor, Source Water Protection Unit, Drinking Water Section,
Connecticut Dept of Public Health, Hartford, CT

12:00 pm to 1:00 pm **Lunch (Provided Onsite)**

1:00 pm to 1:50 pm

Chemicals and Health

- How are Federal Maximum Contaminant Levels (MCL) and State Action Levels (AL) used?
- How are MCLs and ALs determined?
 - Exposure and Toxicity Issues
- An Example: The Uranium MCL)
- Public health concerns posed by naturally occurring contaminants in Connecticut Ground water:
 - Arsenic
 - Uranium
 - Fluoride
 - Manganese

Stewart Chute, Ph.D., Toxicologist, Environmental Health Section,
Connecticut Department of Public Health, Hartford, CT

1:50 pm to 2:40 pm

Microorganisms and Health

- Waterborne microorganisms - life cycles, habitats and effects on health
- Coliform and non-coliform bacteria
- Health concerns from: fecal coliform bacteria,
 - *Escherichia coli* O157:H7
 - *Cryptosporidium*
 - *Giardia*
 - Viruses
- How are different human populations affected?

Lisa-Anne Foster, Ph.D., Associate Professor of Biology, Trinity College, Hartford, CT

2:40 pm to 2:50 pm

Break

2:50 pm to 3:30 pm

Pollutants Associated with Sewage

- What is sewage?
- How we dispose of it?
- Brief overview of pollutants associated with sewage:
 - Suspended Solids
 - Bio-chemical Oxygen Demand (BOD)
 - Total Nitrogen and Phosphates
 - Grease and Oils
 - Coliform Bacteria
- State initiatives to protect source water
- Wastewater Management and local ordinances

Amanda Crovo, R.S., Environmental Analyst 3, Environmental Health Section,
Connecticut Department of Public Health, Hartford, CT

3:30 pm to 4:10 pm

Geothermal Wells vs. Drinking Water Wells

- For UIC permits: Contact vs. Non-contact water Geothermal wells ?
- Other water well permitting issues related to UIC regulations
- 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?

Jeffrey Curran, Supervising Environmental Laboratory Consultant, Environmental Health Section, Connecticut Department of Public Health, Hartford, CT

4:10 pm to 4:40 pm

Legal Issues - Customers, Consumers and Private Wells

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

- Statutes pertaining to water supplies
- Regulations and regulators
- Common-law principles of liability
- Suppliers' liabilities
- Consumers' rights

Michael Zizka, Esq., Attorney, Murtha Cullina LLP, Hartford, CT

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.

International Assoc. for Continuing Education & Training

CT Dept of Consumer Protection- Home Inspectors

CT Dept of Consumer Protection- Plumbers (P1, P2, J1 and J2)

CT Dept of Environmental Protection - Wastewater Facility Operators

CT Dept of Public Health- Certified Operators (Treatment, Distribution & Small)

CT Real Estate Appraisal Commission - Appraisers

CT Real Estate Commission - Brokers and Salespersons

National Association of Home Inspectors, Inc.

National Association of Certified Home Inspectors, Inc.

Water Quality Association

Approved 7.0 ASHI® MRC

Approved 7.0 CE hrs

Accepted for 7.0 CE hrs by CTDCP

Approved 7.0 CE hrs

Approved 1.0 CE hrs

Approved 6.0 CE hrs

Approval Pending 7.0 CE hrs

Approved 6.0 CE hrs

Approved 7.0 CE hrs

Approved 7.0 CE hrs

Approved 0.70 CEUs

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