



PROGRAM

2005 NEW JERSEY GROUND WATER INSTITUTE FOR TEACHERS™

Trenton, New Jersey – November 10-11, 2005

Convened by:
American Ground Water Trust
in partnership with the
US Geological Survey

Hosted at:
US Geological Survey
New Jersey Water Science Center
810 Bear Tavern Road, Suite 206, West Trenton, NJ

Invited Speakers and Topics

THURSDAY - NOVEMBER 10, 2005

8:00 am – 8:30 am **Registration and Continental Breakfast**

8:30 am - 9:45 am **Class Session**
Garret Graaskamp, Hydrogeologist, American Ground Water Trust, Concord, NH

Ground Water Fundamentals

- Introduction, Welcome and Institute Objectives
- Overview of the hydrologic system and the geologic environments that influence the nature and occurrence of ground water in New Hampshire
- Are ground water, streams and wetlands connected?

9:45 am - 10:00 am **Networking Break**

10:00 am – 12:00 pm **Class Session, Activities and Demonstrations**
Alexander Grushow, Ph.D., Chairman, Chemistry, Biochemistry & Physics Department, Rider University

Water: What is it and how does it work?

- What does water look like from the microscopic to the macroscopic?
- Why is water so different from most other compounds?
- Is water the Universal Solvent, or does it need help from friends?
- What is dissolved in the water we drink?
- What makes water undrinkable?
- Analysis of selected water samples

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THURSDAY - NOVEMBER 10, 2005 (CONTINUED)

12:00 pm – 1:00 pm Lunch (Provided on Site)

1:00 pm - 2:00 pm Class Session

Robert Canace, Hydrology Section Chief, New Jersey Geological Survey, Trenton, NJ

The Geology and Aquifers of New Jersey

- Where is the State's ground water?
- Rock types and aquifer characteristics
- How do aquifers, springs and natural ground water systems work?
- Where are the "best" aquifers located?

2:00 pm – 3:00 pm Class Session

Tim Reed, Hydrologist, United States Geological Survey, West Trenton, NJ

Monitoring New Jersey's Surface Water Resources

- What is stream flow and where does it come from?
- Stream flow measurement procedures
- What can we learn from a hydrograph?
- Recent floods on the Delaware
- USGS Online - Stream flow and quality information
- Activity: How to correlate local stream flow observations to long-term USGS monitoring data.

3:00 pm - 3:15 pm Networking Break

3:15 pm – 4:30 pm Class Session

Glen Carleton, Hydrologist, United States Geological Survey, West Trenton, NJ

Water Supply Issues in the Cape May Area

- Who are the aquifer players?
- Cohansey Sand and Atlantic City 800 Foot Sand
- Threats to sustainable water supply
 - Salt water intrusion
 - Global warming
 - Declining water levels
- Investigation Methods Equipment
- Monitoring data evaluation techniques

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FRIDAY - November 11, 2005

8:00 am – 8:30 am **Second Day Check-in (Please be prompt)**

8:30 am - 9:30 am **Class Session**

Steven Domber, Hydrogeologist, New Jersey Geological Survey, Trenton, NJ

Water Use in New Jersey - Is There Enough?

- Where does New Jersey get its water?
- Trends in water use- how is it used, where is it used, and how have these changed over time?
- How does drought affect water use?
- Future demands- what will New Jersey need in the coming decades?
- Are New Jersey's water use patterns sustainable?

9:30 am – 10:30 am **Class Session**

Daryll Pope, Ground Water Specialist, United States Geological Survey, West Trenton, NJ

What is the status of New Jersey's ground water resources and how do we know?

- Why is ground water important to New Jersey?
- How does aquifer type effect ground water levels:
 - Confined vs. unconfined
 - Coastal Plain vs. fractured Rock?
- Where are the ground water-level monitoring locations in New Jersey?
- How is ground water-level monitoring data collected?
- How is ground water-level monitoring data interpreted, what does it mean?
- How is water-level data used?
- How do ground-water levels help us understand drought conditions?
- USGS Online– Ground water quality, water levels, and site data.

10:30 am – 10:45 am **Networking Break**

10:45 am – 12:00 pm **Class Session**

John Hager, Senior Program Manager, MACTEC, Inc., Trenton, NJ

From 500 Acres of Landfill to New York City Skyline - Brownfields Redevelopment

- What is a Brownfield site?
- History of the property – What is in the landfill
- What is in the ground water beneath the site?
- Remediation: What can stay and what must go and how do we know?
- How do the ground water conditions affect the remediation process?
- What is “clean”? - Balancing proposed redevelopment goals with health-based cleanup standards
- How will we know if the ground water beneath the site is still contaminated 50 years from now?

12:00 am – 1:00 pm **Lunch – (Provided on site)**

*American Ground Water Trust
16 Center Street, Concord, NH 03301
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FRIDAY - NOVEMBER 11, 2005 (CONTINUED)

1:00 pm – 2:00 pm Class Session

Bob Stothoff, Water Supply Consultant, William Stothoff Co. Flemington, NJ

How is a Water Well Drilled and Constructed?

- How should I choose a proper well site for a home?
- How does a drilling rig work?
- What type of drill and drill bits should be used for a well?
- Well screens (what they do and how they are selected)
- How do well caps and casing protect the well
- Why is grouting important?
- How deep should a well be drilled? Can a well be too deep?
- How is well yield estimated?

2:00 pm – 3:00 pm Class Session

Roger Greenway, Principal, RTP Environmental Associates, Green Brook, NJ

Protecting Ground Water from Non-point Source Pollution

- What is non-point source (NPS) pollution?
- What is a Best Management Practice (BMP)?
- How is ground water impacted by NPS pollution?
- Which BMPs protect ground water the best from NPS pollution?
- How do droughts affect the impacts from non-point source pollution?
- How does urbanization reduce ground-water recharge?

3:00 pm – 3:15 pm Networking Break

3:15 pm – 4:15 pm Class Session

Russell Creange, Chemist/Principal, CRC Services, LLC, Edison, NJ

Water Treatment Methods - Chemistry at Work

- Typical Water Quality concerns in New Jersey wells
- Disinfection: Chlorination or Ultraviolet Light - Benefits and Problems
- What is Reverse Osmosis (RO) and how does it remove salt from water?
- The sulfur and rotten egg connection - How is the problem treated.
- What is a water softener? How does it work chemically to remove hardness?
- How does activated carbon work?

4:15 pm – 4:30 pm Wrap-up

Garret Graaskamp, American Ground Water Trust

- Where to find additional education materials on ground water and hydrology

Institute Adjourns