



PROGRAM
2005 COLORADO
GROUND WATER INSTITUTE PROGRAM

Denver, Colorado – July 12-13, 2005

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

Hosted at:
United States Geological Survey Training Facility
Denver Federal Center - Building 810 – Gate 1 off of Kipling St.

Invited Speakers and Topics

TUESDAY JULY 12, 2005

8:00 AM – 8:45 AM

Registration and Continental Breakfast

8:45 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 - 10:45 AM

Class Session

Peter Barkmann, CPG, Hydrologist, Colorado Geological Survey, Denver, CO

The Geology and Hydrologic Characteristics of Colorado Aquifers

- Geologic Setting
- Major Classifications of Aquifer Types in Colorado
- Major Alluvial Aquifers
- Sedimentary Rock Aquifers
- Mountainous Region Aquifers

10:45 AM – 11:00 AM

Networking Break

11:00 AM - 12:00 PM

Class Session

Ken Watts, Hydrologist, United States Geological Survey, Pueblo, CO

Aquifer Properties - How Does an Aquifer Work?

- How and why does water flow in an aquifer?
- Why does flow vary with different rock types?
- Is an unconfined aquifer better than a confined aquifer?
- Aquifer Flow: Parameter estimation and prediction
- Class Problem: Estimating drawdown in a pumped well

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TUESDAY JULY 12, 2005 (CONTINUED)

12:00 PM – 1:00 PM **Lunch (Provided on Site)**

1:00 PM – 2:00 PM **Class Session**

Karla Brown, Executive Director, Colorado Foundation for Water Education, Denver, CO

Teacher Resources and the Colorado Foundation for Water Education

- Colorado Ground Water Atlas
- WaterWise Colorado
- Project Wet (Activity)
- EPA Student Activities: Drinking water/ ground water
- Local Resources

2:00 PM – 3:00 PM **Class Session**

Bob Longenbaugh, P.E., former Asst. State Engineer, Colorado Division of Water Resources, Denver, CO

The Importance of Colorado Ground Water in Our Lives

- Agriculture Irrigation – Ground Water a Major Source
- Domestic and Livestock Uses – Ground Water is a Principle Source
- Ecology and Habitat – Ground Water is a Necessary Component
- Geothermal Heating – Ground Water is a Renewable Energy Source

3:00 PM - 3:15 PM **Networking Break**

3:15 PM – 4:15 PM **Class Session**

Travis Bray, Water Resource Planner/ Biologist, Denver Water, Inc., Denver, CO

Denver Water - Past, Present, and Future

- Water Law 101
- Growing a city and building a water supply
- Operation in the present
- Planning for the future
- Living in the present

WEDNESDAY JULY 13, 2005

8:30 AM – 9:30 AM **Class Session**

Suzanne Paschke, Ph.D., Research Hydrologist,, United States Geological Survey, Denver, CO

Techniques for Evaluating Colorado Aquifers

- Mapping potentiometric surfaces and aquifer configuration
- Aquifer properties
- Ground-water quality
- Computer simulations

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WEDNESDAY JULY 13, 2005 (CONTINUED)

9:30 AM – 10:30 AM

Class Session

Mark Williams, Ph.D., Fellow, Institute of Arctic and Alpine Research, University of Colorado - Boulder

Isotopic and Chemical Tracers – Tools for Surface and Ground Water Interactions Studies

- What are the isotopic and chemical tracers?
- Are all chemicals “traceable?”
- Is a “traceable chemical” a water resource contaminant?
- Under what conditions can tracers be used to study water resources?
- Case Study: High-elevation watershed – Green Lakes Valley, Colorado

10:30 AM – 10:45 AM

Networking Break

10:45 AM – 12:30 PM

Field Trip

Peter Barkmann, CPG, Hydrologist, Colorado Geological Survey, Denver, CO

Tour of Lower Clear Creek Canyon - Geology and Aquifer Characteristics

- Primary and secondary porosity
- Permeability controls
- Interstitial and fracture porosity

12:30 AM – 1:30 PM

Lunch – (Provided)

1:30 PM – 4:15 PM

Field Trip

Tour of Coors Brewing Company - Water Rights Overview, Water Treatment

Facility and the Biology of Wetlands

- The history of the water rights and use at the Coors Brewery
Ken Vaught, Manager, Water Resources Development
- The science of brewery water treatment - the water is important!
Jeff Tyus, Chief Plant Operator and Gordon Whittaker, Chemist
- Coors Pilot Wetland - How and why it works
Tom Bueb, Environmental Compliance Manager.
- Tour of Water Treatment Plant/ Tour of Pilot Wetlands used for treating wastewater

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