

TRAINING OPPORTUNITY FOR TEACHERS



American Ground Water Trust

**Ground Water Institute for Teachers™
Riverside, California**

Western Municipal Water District (main office)
450 Alessandro Boulevard, Riverside, CA 92508



Riverside, California, Thursday, November 30th and Friday, December 1st, 2006

**Institute sponsors:
Western Municipal Water District
Inland Empire Utilities Agency**

Grade Levels:

The Trust's Ground Water Institute for Teachers program is a content-focused training opportunity with applicability to many grades. The exciting and practical "science" of ground water can be applied to existing curriculum in many traditional subject areas. This training program has applicability way beyond the typical "earth science" perspective. Institute presenters are all top experts with a wealth of expertise. The program provides real-life example of the applications of science and technology to water issues. Over 30 Institutes have been completed in 17 states involving 1,000+ educators. Past California Institute programs have been held in San Jose (2), Fresno (2) Riverside and Claremont.

Endorsement: Dr. Peter G. Mehas, State of California, Fresno County Superintendent of Schools

"The Ground water Institute for Teachers would be at the top of my rating system, and I don't give out A's easily. I have participated first hand in many institutes and what makes this number one on my list is the fact that they have people who are knowledgeable in their related fields, teaching it. They understand first hand what the classroom teacher is facing on a day-to-day basis, so you have expertise, people who know how to teach the content material and thirdly, they have a real passion for what they're doing. They're motivating, they're inspiring, and the teachers that I talked to after participating in the Ground Water Institute said, "We want to come back again". I would highly recommend the Ground Water Institute for teachers because it is so professional, so relevant and so timely."

Registration:

Teachers / educators attending the program need to pre-register. All attendees will receive a handout package including a DVD, CDs, publications, informational pamphlets etc. with a \$50+ value. The program registration includes meals & break snacks for Thursday evening and Friday. Teachers / educators participating in the program will be added to the Trust / USGS educator e-mail list and will be able to receive information about ground water research, USGS reports and the availability of educational materials and resources related to water. All attendees will receive a certificate for 1.2 CEU credits. (12 hours).

Register on-line <http://www.agwt.org/teachers/institutehome.htm> (Teacher Institutes)

Funding for Substitute teachers:

Where needed, the American Ground Water Trust will work with school districts to cover the costs of substitutes. We are able to provide funding for twenty teachers, allocated on a first-come, first-served basis to teachers who register for the Institute. Application forms for substitute funding will be e-mailed to teachers when they register.

Questions? - Contact Andrew Stone, American Ground Water Trust, Concord, NH (astone@agwt.org) (603) 228-5444

Program: Thursday, November 30th

4:00pm to 8:15pm

4:00pm – 4:30pm

WELCOME & INTRODUCTION

John Rossi, General Manager, Western Municipal Water District, Riverside, CA

- Overview of water supply management in Southern California
- Responsibilities of Water Districts
- Potential problems for the future

4:30 – 5:15

HYDROLOGIC SYSTEM: BASICS OF HYDROLOGY & ECONOMICS

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

- Geology fundamentals (rock types/ geologic structure/ aquifer geometry)

- Concept of water balance (hydrologic accounting at local & regional scales)
- Perceptions of water as a shared resource (who owns it?)
- Global & national economic realities of competing water demands

5:15 – 6:00

MANAGEMENT DEALING WITH LEGAL AND WATER QUALITY ISSUES

Mel Blevins, (Formerly San Fernando Valley Water Master), Groundwater Consultant for Watermaster and Los Angeles Department of Water & Power, Los Angeles, CA

- The Association of Ground Water Agencies (AGWA)
- A water supply story (Los Angeles vs. San Fernando)
- The work of a "Water Master"
- The real story behind hexavalent chromium problems

6:00 – 6:45

GROUND WATER EXPLORATION AND DEVELOPMENT

D. Scott Riegert, Hydrogeologist, Layne Christensen Company, Fontana, CA

- Geophysical methods used to find and quantify aquifer resources
- The ABC of drilling and constructing a well (Typical problems, solutions and costs)
- Case studies of successfully developing ground water in Southern California

[Pizza available to feed the body while the presenters feed the mind]

6:45 – 7:30

WATER PLANNING

Martha Davis, Executive Manager for Policy Development, Inland Empire Utilities Agency, Chino, CA

- Future Water Needs
- Water Management Strategies
- The Role of Groundwater in an Integrated Water Management Plan

7:30 – 8:15

GROUND WATER TOPICS AND THEIR CONNECTION TO SCIENCE TEACHING

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

- Arsenic in ground water and the impact of the EPA ruling of 10ppb for drinking water
- In-stream flows, wetlands & ground water
- MtBE and other ground water contaminants
- Aquifer tests (interpreting relationships between well pumping and water level changes)
- Water dowsing as a classroom discussion topic

8:15pm

End of Day One Program

Program: Friday, December 1st

8:00am – 4:00pm

8:00am

WATER WELLS AND AQUIFERS

Meet at: (Geohydrology Laboratory Suite 7, 1306 Monte Vista Avenue, Upland)
(Coffee & Doughnuts available)

Field Visit to Geohydrology Laboratory at University of Southern California

Bob Turnbull, Chief Hydrogeologist, Roscoe Moss Company, Los Angeles, CA and, Professor Dennis Williams, University of Southern California, Upland, CA

- The geologic origins and hydrology of California's aquifers
- Examples of the development of ground water resources
- How much ground water is there in Southern California?
- The design and construction of the large scale ground water demonstration model
- Hydrologic research using the ground water model
- The basics of water flow from an aquifer to a well

10:00am (Return to Western Municipal Water District, Riverside HQ Riverside)

11:00 – 12:00am

GROUND WATER EDUCATION

Monique Navarrette, Education Programs, Western Municipal Water District

- Ground water works in the classroom
- Ground water flow model
- Aquifer in a cup
- Cleaning up the mess
- Free education programs and materials

12:00 – 1:00 pm (presentation during lunch!)

LUNCH

CALIFORNIA ACADEMIC STANDARDS

Andrew Stone, American Ground Water Trust

How the Institute content relates to California academic standards in the core areas:

- Language Arts
- Science
- Math
- History/Social Studies

1:00: 2:00

MONITORING AND ASSESSMENT OF GROUND-WATER QUALITY IN CALIFORNIA

Justin Kulongoski, Hydrologist, US Geological Survey, San Diego, CA

- Design and objectives of sampling program
- Chemical analytes (low-level detection limits, broad scope, tracers, emerging contaminants)
- Basin-scale data collected in a consistent manner (compare basins, evaluate at regional and state scales)
- Develop understanding and identify potential risks to the ground-water resource

2:00- 3:00

THE WORK OF GROUND WATER CONSULTANTS

Lynne Preslo, GeoEcho, Reno, Nevada

- Academic Training and Skills Needed for Hydrologic Science and Engineering Consulting Work:
- California Water Problems and the Future Need for Ground Water Experts
- Types of Ground Water Work:
- Water Quality
- Water Supply Exploration, Production, and Treatment
- Aquifer Storage and Recovery
- Saltwater Injection/Disposal
- Environmental Contamination (Hazardous Substances Releases)
- Case Studies of Ground Water Science and Technology in California

3:15 – 4:00

WRAP UP:

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

- Lessons learned? Questions not answered?
- Ground water education strategies that work
- Where to find additional education materials on ground water and hydrology
- Complete Institute evaluation forms
- Complete continuing education credit paperwork

4:00

Adjourn