

# Inland Geological Society

**April 2008**

Newsletter of the Inland Geological Society

**Volume 24 No. 4**

*This Meeting:*  
Wednesday,  
April 2nd

Time:  
Social: 6:00pm  
Dinner: 6:30pm  
Lecture: 7:00pm

Location:  
LSA Associates  
1500 Iowa Ave  
Suite 200  
Riverside, CA  
92507  
(Map on Pg.4)

Coming to  
Dinner?  
Please RSVP:  
By Friday 3/28  
(951) 782-3295  
dlass@  
waterboards.ca.gov



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**April Speaker:**

**Xinyu “Cindy” Li, Ph.D., P.G.**  
California Regional Water Quality Control Board  
Santa Ana Region



## **Investigation of Water Quality Impacts of the On-Site Waste Disposal Systems on Drinking Water Wells in the Community of Lake Williams, San Bernardino County**

Abstract

The community of Lake Williams is located approximately 3.5 miles southeast of Baldwin Lake in the San Bernardino Mountains of western San Bernardino County, California. The community consists of approximately 120 developed lots with a total built-out capacity of 234 residences. The city of Big Bear Lake Department of Water and Power (BBDWP) supplies water to most residents from two municipal supply wells. A number of home owners have private domestic wells for their water supply. The area does not have a sanitary sewer system and all homes use individual on-site waste disposal systems (commonly known as septic systems) for wastewater disposal.

Nitrate concentrations in the city’s Monte Vista Well have been increasing since 1990. Nitrate as NO<sub>3</sub> concentrations reached 32 mg/L in January 2006. BBDWP is concerned about the increasing nitrate trend and has funded a study to form a scientific basis for planning efforts to address nitrate concentrations before they

exceed the State and Federal maximum contaminant level of 45 mg/L of nitrate as NO<sub>3</sub>. The study, by GEOSCIENCES Support Services Inc., concluded that septic systems in the Lake Williams community are the sources of groundwater nitrate. Without mitigation, future nitrate concentrations will continue to increase in the Monte Vista production well to levels that will exceed the MCL.

Regional Board staff conducted an analysis of the existing data (geology, parcels, wells, and water quality) and designed a monitoring program to further ascertain the source of nitrate pollution. Samples from two public wells and three private domestic wells were collected and analyzed for general minerals, nitrogen and oxygen isotopes, and pharmaceuticals and personal care products (PPCPs). These results confirm that the nitrate pollution is caused by septic systems. Regional Board staff will develop a Basin Plan prohibition for new septic systems in the community of Lake Williams for Regional Board approval. Public outreach and education has been conducted to inform the residents about the pollution and potential remedies. Regional Board staff is also working with BBDWP to explore engineering options to treat the effluent from existing septic systems.

### ***Biography:***

*Cindy Li received a B.S. in Geology from the Lanzhou University and a M.S. in Geochemistry from the Lanzhou Institute of Geology, Chinese Academy of Sciences. She then successfully pursued a Ph.D. in Geology from the University of Oklahoma. She is a licensed Professional Geologist with the State of California.*

*Currently, Dr. Li is an Engineering Geologist with the California Regional Water Quality Control Board, Santa Ana Region. Her responsibilities include overseeing the implementation of the nutrient Total Maximum Daily Loads (TMDLs) for Lake Elsinore and Canyon Lake in Riverside County as well as the implementation of recently updated water quality standards for groundwater basins in the Santa Ana Region. She serves as grant manager for several water quality improvement projects and has extensive experience with TMDLs development, lake and reservoir water quality management, water quality standards for surface water and groundwater, and regulatory compliance for groundwater recharge and water recycling projects. Invited by the US EPA, Dr. Li served as a senior advisor on a water quality project in China. She conducted the modeling analysis for Yuqiao Reservoir and training for the staff at the Tianjin Environmental Protection Bureau. She was a member of the Environmental Protection Delegation invited by the Overseas Chinese Affairs Office of the Chinese State Department to give presentations at several workshops held in China.*

*Before joining the Water Board, she was an Assistant Professor at Olivet Nazarene University where she taught courses in environmental chemistry, geochemistry, geophysics, hydrology, stratigraphy, and geography. She is a member of the American Geophysical Union, Groundwater Resources Association of California, Inland Geological Society, and Southern California Chinese American Environmental Protection Association.*



## Upcoming Meetings/Events

### AEG—Southern California Field Trip



"1992 Emerson Fault Fupture, 16 Years Later" - Informal field trip, partial day, 8am–2pm, **Saturday, April 5, 2008**

For more information and to RSVP, contact Mark Spykerman at [mspykerman@earthsys.com](mailto:mspykerman@earthsys.com) or 951.232.7835

### 2008 Desert Symposium & Field Trip

California State University's Desert Studies Center at Zzyzx, California, 22nd annual Desert Symposium: *Development of the Colorado River and its entry into the Salton Trough*. Abstracts of the proceedings and a field trip guide will be published.

**April 18–21, 2008**

**Field Trip—April 19–21, 2008**

For more info, contact Dr. William Presch at: [wpresch@fullerton.edu](mailto:wpresch@fullerton.edu)

### RIMS Science and Engineering Fair—April 15, 2008

It's time again to solicit judges for the Inland Science and Engineering Fair, an annual competition of science projects by students from schools in Riverside, Inyo, Mono and San Bernardino counties.

Experienced judges with science background or knowledge critique the projects.

For more information, contact Steve Mains or Patrice Copeland or visit the following website:

[http://www.sbcss.k12.ca.us/CnI/cni\\_DOST\\_rimsSciEngr.php](http://www.sbcss.k12.ca.us/CnI/cni_DOST_rimsSciEngr.php)

## IGS Meeting Schedule

**May 1, 2008 (Thursday)**

David Lynch, Thule Scientific  
San Andreas Fault

**June 4, 2008 (Wednesday)**

TBA

**July 10, 2008 (Thursday)**

George Copenhagen, Geocon  
Geology of the San Diego & Arizona Eastern Railway, San Diego & Imperial Counties, California, USA & Baja California, Mexico

**August 6, 2008 (Wednesday)**

TBA

**September 4, 2008 (Thursday)**

TBA

**October 1, 2008 (Wednesday)**

TBA

**November 6, 2008 (Thursday)**

TBA

**December 3, 2008 (Wednesday)**

TBA



*Point Pleasant, New Jersey.  
Photograph by Mark Copeland*

**IGS MEETING LOCATION:**

**LSA Associates, Inc.**  
**1500 Iowa Ave, Suite 200**  
**Riverside, CA 92507**

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**Inland Geological Society Newsletter**

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