March 2004

Los Angeles Basin Geological Society Newsletter

March Meeting: Mike Mulhern – City of Los Angeles

Will Speak on Avoiding Geological Hazards in LA's Largest Tunneling Project

Speaker Synopsis / Abstract

Mike Mulhern is an Engineering Geologist with the City of Los Angles Department of Public Works. He is the supervisor of the Hazmat Section, Division of Geotechnical Engineering in the Bureau of Engineering. He is a California registered RG, CEG and HG. His training includes a Bachelor's degree in Geology from the University of Colorado at Boulder and a M.S. from USC in Geology, concentrating in sedimentation and geochemistry.

Mike's geologic career started in the oil industry working where he spent about 12 years as a petroleum geologist assigned to exploration and development projects in Ventura and Bakersfield, with Getty Oil and Schlumberger. In the late 80's mike became interested in engineering geology and worked for 3 years as an engineering geologist for a small consulting firm before his employment with the City of L.A.

At the City of L.A, Mike has worked some classic engineering geology projects. He has concentrated mostly on site assessments and remediation for City owned facilities and related real estate transactions. In addition, he has spent considerable time overseeing the City's 500+ underground gas tank assessment and remediation program. Most recently, he has utilized new technologies, in assessing oil & gas seeps within the city limits including work on a task force with the LAFD and Building & Safety and industry experts to craft a new, city-wide methane ordinance.

Mike will present an overview to the LABGS, geologic information and observations from the "East Central Interceptor Sewer Tunneling Project". The Project consists of an 11-mile long, 15-foot diameter tunnel, advanced from four drilled shafts with the purpose of connecting other major sewer tunnels excavated from north of the Los Angeles River Narrows to the coastal Hyperion Treatment Plant. The East Central Interceptor Sewer project is one of series of tunneling projects to alleviate storm water infiltration-related overflows and provide capacity for future population growth of the taxed existing system. The tunnel alignment through dense industrial, commercial and residential neighborhoods, under the L.A. River channel, freeways, major utilities and structures and varying ground types and groundwater regimes posed several geotechnical and environmental challenges.

Pre-drilling activities including reviewing published geologic data and geotechnical reports for other local tunnels, and conducting Phase I and II environmental site assessments to delineate and avoid potential soil or groundwater contamination. Oilfield data were used to negotiate wells in the Inglewood Oil Field and surrounding area around the Baldwin Hills. The subsurface geotechnical investigation involved 350 borings and water wells along proposed alignments and shaft sites, with extensive lab analysis of soil and groundwater samples. Bucket-auger borings searched for nested boulder beds near existing and former drainages.

During Tunnel operations, Earth Pressure Balance (EPB) tunnel machines were selected to penetrate and maintain face support within the mixed-face conditions encountered on late Quaternary and younger Lakewood and San Pedro formations. Crossing of the active Newport-Inglewood fault zone, defined by angle borings, an air-charged, low-density concrete lining allowed for predicted offset during the sewer's useful life. The tunnel segments were classified as gassy or potentially gassy, mitigated by continuous monitoring and strong ventilation.

Borehole extensometers and other geotechnical instrumentation above the EPB alerted inspectors to potential ground settlement. Graphic summaries of muck car counts per unit of EPB travel, measured ground settlement, and backfill grout volume/pressures

were monitored to evaluate the Contractor's tunneling procedures and to determine if potential voids were developing.

The extensive geologic baseline investigation, coupled with continuous inspection, ensured that operators were prepared for rapid changes in geology. Change order claims and delays were minimal.

Photo of Tunnel Break-Through

Time & Place

Time:

March 25, 2004

Typical Meeting Agenda

Lunch Served: 11:30 AM to 12:00PM
Announcements: 11:50 AM to 12:15 PM
Guest Speaker: 12:15 PM to 12:45 PM

Place:

The Grand at Willow Street Conference Center located at 4101 East Willow Street, Long Beach, CA. (562-426-0555). Take Lakewood Boulevard south from the San Diego Freeway (405), turn west onto Willow Street and turn right onto Grand Avenue at the sign for the Center. Park free in the garage structure.

Cost

Cost:

Lunch and Speaker: **$17.00 with reservations**
$20.00 without reservations
Student: **$ 5.00 (Lunch and Speaker)**

Reservations:

Make your reservations using our web site at www.labgs.org, emailing iaburto@breitburn.com or calling Ivan Aburto at (213) 225-5900 ext. 234. **Reservations must be made prior to** Tuesday before the meeting.

LABGS Future Meetings

Lunch meetings are held at *The Grand at Willow Street Conference Center*. Lunch starts at 11:30 AM

2004 Spring Speaker Schedule

March 25, 2004 – Mike Mulhern – City of LA
Avoiding Geologic Hazards in Los Angeles' Largest Tunneling Project

April 22, 2004 – TBD

May 27, 2004 – TBA

Announcements / Information

LABGS T-Shirts NOW ON SALE

The Board has decided to sell LABGS T-Shirts to generate additional funds to help support our scholarship and field trip activities. Up to now, T-shirts with our new logo have only been available to those winning our luncheon meeting raffle. The shirt will display the LABGS logo on the Back with the words "LA Rocks" on the Front. The Price for shirts will be $15.00 and available only at our luncheon meetings. Sizes will be limited to Medium, Large, and Extra Large. **Buy one at the March Meeting!**

Catalina Schist and the Palos Verdes Peninsula Field Trip Date Set

Saturday June 26 is the scheduled date for the 2004 LABGS Annual field trip. **Dick Brown** has organized a planning committee for a trip to the Palos Verdes peninsula. A comprehensive guidebook is being put together which will include new material on the area. If you are interested in contributing to the guidebook or helping out with logistics, contact Dick at (562) 598-0595.

Contact Us – The LABGS board

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OUR WEB SITE ADDRESS IS:
www.labgs.org

Mark your Calendar for the 2004 Pacific Section AAPG Meeting

The Pacific Sections of AAPG, SEPM, and SEG are planning for their annual meeting for 2004, which will be held in Bakersfield, May 8 – 12. The theme will be "More Energy from Proven Basins: *Looking for More in 2004*. Below are a summary of the Technical Program and a description of the field trips being offered. You do not need to be registered for the convention to register for the field trips. For more information go to the **www.psaapg.org** web site and visit the "convention" tab.

Summary of Sessions

MONDAY, MAY 10	**Morning**
AAPG Oral Session	History, Stratigraphic Architecture, and Origins of the San Joaquin Basin Sediment Fill
AAPG Oral Session	Environmental Potpourri in the Oil Patch
SEG Oral Session	Recent Advances in Geophysics – Part I
	Afternoon
AAPG Oral Session	Using Reservoir Characterization to Breathe New Life Into Old Fields
SEPM Oral Session	Recent Advances in Palentology
SEG Oral Session	Recent Advances in Geophysics – Part II
Technical Poster Session	Various Topics
Special Presentation	Special Exhibits by JPL about the 2004 Mars Lander
TUESDAY, MAY 11	**Morning**
AAPG Oral Session	Symposium: USGS Petroleum Assessment of the San Joaquin Basin – Part I
AAPG Oral Session	Recent Developments in Near Wellbore Geology
	Afternoon
AAPG Oral Session	Symposium: USGS Petroleum Assessment of the San Joaquin Basin – Part II
SEPM Oral Session	Recent Developments in Structural Geology and Tectonics
WEDNESDAY, MAY 12	**Morning**
AAPG Oral Session	Recent Developments in Oil and Gas Fields
AAPG Oral Session	Recent Developments in Reservoir Modeling

Trip 1. Surface Geological Expressions of Profound Changes in the Southern Sierra Nevada–San Joaquin Valley Mantle Lithosphere Over the Past 85 Million Years

Sponsor: San Joaquin Geological Society
When: Saturday, May 8, 8:00 a.m. – 5:30 p.m.
Where: Departs & returns to Holiday Inn Select
Leaders: Jason Saleeby and Zorka Foster-Saleeby (Division of Geological and Planetary Sciences, California Institute of Technology)
Fee: $80 (includes van transportation, snacks, lunch, and study guide materials)
SJGS will sponsor a limited number of students on the trip; call 661-763-6303 for details.
Limit: 45 persons

This one-day field trip will start in the Porterville area and work southward across the Bakersfield Arch along the western Sierra range front, terminating in the Tehachapi Range adjacent to the Garlock fault. We will survey a wide range of geologic features, ranging from the tectonics and petrogenetics of the basement, recent faulting, uplift and subsidence, and residual upper crustal detachment sheets hypothesized to have originated in the high eastern Sierra region. These detachment sheets now sit structurally on deep-level western Sierra Nevada batholith (SNB) rocks of the Tehachapi Range. The underplated subduction accretion assemblages are exposed in small windows adjacent to the Garlock fault, leaving the SNB tapered to a fine edge along the fault.

We will eat lunch (provided) in the cool air of the Tehachapi Range, where we will examine these features. The agenda includes discussions on evolution of the mantle lithosphere beneath the Sierra Nevada and adjacent San Joaquin Valley. Oh yeah, we will talk about rocks too.

Trip 2. The San Andreas Fault and its Related Giant Structures and Oil Fields in the Western San Joaquin Valley–Cuyama Valley Area

Sponsor: San Joaquin Geological Society
When: Thursday, May 13, 8:00 a.m. – 5:30 p.m.; Friday, May 14, 8:00 a.m. – 5:30 p.m.
Where: Departs & returns to Holiday Inn Select
Leaders: Thom Davis (Consultant), Greg Wilkerson (BLM), James Haerter (BLM), Doug Imperato (Consultant), and Mike Ponek (ChevronTexaco)
Fee: $130 (includes van transportation, snacks, lunch, and study guide materials)
SJGS will sponsor a limited number of students on the trip; call 661-763-6303 for details.
Limit: 45 persons

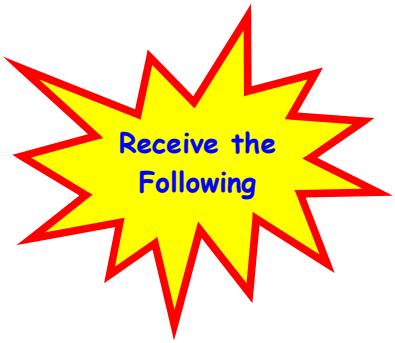
This two-day field trip will survey a wide range of geologic features extending from the town of Gorman north into the Carrizo Plain and from the San Joaquin Valley west to the Cuyama Valley. The focus will be on the tectonic relationship of the San Andreas Fault with offset geologic structures and its association with western San Joaquin Valley oil fields.

Day one (Thursday) will start in the southern portion of the San Joaquin Valley by examining thrust structures and residual stratigraphic features in the Wheeler Ridge and San Emigdio Range Front area. Emphasis will be on the Wheeler Ridge fault-propagation fold, the White Wolf Fault, and the Pleito and Wheeler Ridge thrusts and their role in the structural development of the range. We will eat lunch (provided) in the cool air of the Frazier Park area, where we will examine the tectonic geomorphic features along the San Andreas Fault zone and the detailed structure of the fault zone provided by a very deep natural exposure. The agenda includes discussions on the regional and local structural styles in Southern California and their effects on oil field development. We will return to Bakersfield at the close of day one.

Day two (Friday) will examine the regional structural geology across the San Andreas Fault between the Buena Vista Hills (Naval Petroleum Reserve No. 2) and the Cuyama Valley. We will visit the Midway Sunset Field, Temblor Mountains, and Carrizo Plain National Monument on the way. The structure and stratigraphy of the western San Joaquin basin and the Cuyama basin are described in terms of mirror-image thrust systems. Those structures dip east on the west side of the San Andreas Fault and dip west to the east of it. This symmetry is a departure from earlier-published interpretations of the geologic structure of the area. Discussions will include the relationship of deep low-angle thrusts, fault propagation folding, and flower structures. We will eat lunch (provided) in the isolated Carrizo Plain National Monument before examining these structures west of the San Andreas Fault.

Los Angeles Basin Geological Society
Membership Form

Join the LABGS and become a member of the Pacific Section AAPG all for one low price of $12.00 per year - 2 West Coast Geoscience Organizations for the price of one



Membership Benefits

- LABGS Membership
- Monthly Luncheon Meetings with Strong Technical Programs
- Pacific Section AAPG Membership
- Pacific Section AAPG Bi-Monthly Newsletter
- Discounts for PSAAPG Bookstore Publications
- Bi-Annual West Coast Geoscience Directory - *next edition 6/03*
- Networking and Social Opportunities with Fellow Geoscientists

Current Annual LABGS/PSAAPG Dues

1 Year Option = $12.00 $ _____

3 Year Option = $36.00 $ _____

Extended E-Mail Announcement List Fees

To receive meeting notices from SJGS and CGS

1 Year Option = $12.00 $ _____

3 Year Option = $36.00 $ _____

PSAAPG Foundation Contributions

B. Hacker Publication Fund $ _____

Martin Van Couvering Fund $ _____

Dibble Map Foundation $ _____

California Well Sample Repository $ _____

John Kilkenny Scholarship Fund $ _____

PSAAPG Foundation Trust Fund $ _____

TOTAL PAYMENT

Total Amount Enclosed $ _____

Essential Member Information

Last Name _____

First Name _____

Middle Initial _____

E-Mail Address _____

Mail Address _____

Res or Bus ? _____

_____

Additional Directory Information

Employer _____

Position / Title _____

Bus Phone # _____

Res Phone # _____

Fax Phone # _____

Spouse's Name _____

Education *Highest Degree* *Year* _____

School _____

Signature _____

Annual membership is handled through PSAAPG and runs from July 1, through June 30. If you are already a current member of PSAAPG and you selected LABGS affiliation you are already a member of the LABGS.

Please Make Checks out to PSAAPG and mail along with member form to:
PSAAPG P.O. Box 1072, Bakersfield, CA 93302