



June 2018

LOS ANGELES BASIN GEOLOGICAL SOCIETY MEETING ANNOUNCEMENT

June 28 (Thursday) – 11:30 AM

Thomas L. Davis
Consulting Geologist

FAULT DISPLACEMENT HAZARDS AT ALISO CANYON AND HONOR RANCHO NATURAL GAS STORAGE FIELDS

Abstract

Faults that intersect natural gas storage wells in the subsurface and have a significant potential for future displacement are an underappreciated hazard to well integrity. The American Petroleum Institute's RP 1171 (API, 2015), which is guiding State of California and Federal new rulemaking for gas storage fields, states "Depleted hydrocarbon reservoirs are candidates for natural gas storage because the reservoir integrity has been demonstrated over geologic time by hydrocarbon containment at initial pressure conditions." True, but gas wells at storage reservoirs have not existed over geologic time and when wells cross faults capable of future movement there exists a fault displacement hazard to well integrity. If displacement were to occur, then the potential exists for methane leakage to the surface and risks to public safety, the environment, energy supply, and a valuable resource. As with all energy sources, natural gas comes with its own set of challenges: the largest methane leak in US history occurred at the Aliso Canyon Gas Storage Field (ACGSF). Taking almost four months to control, the ACGSF leak demonstrated the difficulty of stopping an underground leak from one well in a pressured gas storage field, and showed the need to evaluate all hazards to gas well integrity and to estimate and mitigate the risks. At the ACGSF and Honor Rancho fields, all of the storage wells cross the Santa Susana (SSF) and Honor Rancho faults, respectively, to reach their storage reservoirs. Both faults have had significant displacement during the last 2-3 ma, and the SSF may have a slip-rate as high as 7.0-9.8 mm/yr during the last ~700 ka. The

Southern California Earthquake Data Center estimates the characteristic earthquake magnitude for the SSF to be from MW 6.6-7.3, and historic records for this range of magnitudes indicate that from 0.3 to 2.8 meters of fault displacement can be expected on the SSF. Small, earthquake-fault movements of up to 0.25 meters severely damaged numerous oil wells in the subsurface at the Wilmington oil field and are significantly smaller than the moderate to large tectonic earthquakes common to southern California that will generate much larger fault displacements. To insure public safety and awareness, new Federal and State regulations should require independent and transparent evaluations of the hazard and risk of capable faults for planned and existing gas storage fields.

Speaker's Biography

Thom Davis has interests in oil and gas exploration and field development, geologic hazards, and surface mapping. He has a BS from UCLA and PhD from UCSB, and is a California Professional Geologist (#4171). He is presently a consulting geologist and President of the Geologic Maps Foundation. View his websites at:

www.thomasldavisgeologist.com
www.geologicmapsfoundation.org

For information about his Foundation field trips, see:
<https://www.meetup.com/Geo-hiking-trips-courses-Geologic-Maps-Foundation/>

***Please join the LABGS for Thom's
interesting presentation!***

Meeting Time, Place, Cost, and Reservations

When:

Thursday, June 28, 2018

Meeting Agenda

Lunch Served: 11:30 AM to 11:45PM
Announcements: 11:45 AM to 12:00 PM
Guest Speaker: 12:00 PM to 12:45 PM
Questions/Close: 12:45 PM to 1:00 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 (I-405), turn west onto Willow Street, and turn right onto Grand Avenue at the sign for the Center. Park for free in the multi-level garage structure.

Cost (note recent price increase):

Lunch and Speaker: \$30.00 with reservations
\$35.00 without reservations
Retired: \$25.00
Student: \$10.00

PAYMENTS IN CASH OR CHECK ONLY

Meeting Reservations:

We encourage you to make your reservations using the LABGS web site, at www.labgs.org

Or, call Maia Davis at (530) 559-1404, or e-mail maiac.davis@gmail.com.

Reservations must be made by: **10:00 AM Tuesday June 26nd** to receive reservations discount price noted above (this will be strictly adhered to)
But as always, walk-ins are welcome!

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ANNOUNCEMENTS:

LABGS is expanding our meeting raffles, so we would appreciate candidate raffle prize donations!
Please bring item donations to the next meeting.

A new LABGS secretary is needed. If interested, please contact any of the current officers, and let us know a little bit about you. The executive committee will select the candidate for the new position.

Please inform a LABGS Board member if you have a pertinent announcement.