

Inland Geological Society

October 2012

Newsletter of the Inland Geological Society

Volume 28 No. 10

This Meeting:
Wednesday,
October 3rd

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 Monday 10/1
(951) 784-2168
dixie.lass@att.net

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October Speaker:

Thomas C. Deane, CHg, PG, RG, MS

Principal Hydrogeologist

Water Resources and Environmental Consulting, Redlands, CA

Part II: The Surface Water Outflow from the Orange Crest/Mission Grove (OCMGA) Area of Riverside, CA

Abstracts

The approximate 6.5-mile/8-foot diameter Perris Valley Pipeline (PVP) was recently constructed to convey up to 150 MGD of Metropolitan Water District (MWD) water from a facility located near the I-205/Oleander Ave intersection to the Henry J. Mills Water Treatment Plant (Mills WTP) located within the Orange Crest – Mission Grove Area (OCMGA) of Riverside CA, with the approximate 2.5-mile North Reach (NRPVP) being the first constructed portion of the PVP. The NRPVP, which was constructed during 2008-2009, extends northward along the west side of the I-215 from Cactus Ave to and beneath the Alessandro Blvd/Sycamore Canyon Blvd intersection, then westward beneath the westbound lanes of Alessandro Blvd to Northrop Dr, and finally jogs generally north-northwest to the Mills WTP. Construction of the NRPVP included the excavation of an approximate 30-foot deep trench into the fractured tonalite bedrock and overlying thin veneer of unconsolidated sediments from the Mills WTP eastward to the Alessandro Blvd/Sycamore Canyon Blvd intersection, a SE-trending tunnel beneath this intersection to a

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large tunnel support pit on the SE corner of this intersection, and then southward to Cactus Ave. This presentation addresses only the portion of the NRPVP that was constructed between the Mills WTP and the tunnel support pit.

The pipeline contractor encountered significant volumes of unanticipated groundwater during trench excavation, such that construction delays resulted in the pipeline being completed on a longer than contracted schedule. To combat the groundwater situation, several groundwater pumping wells were installed within the tunnel support pit and several portable pumps were used to remove groundwater from the trench to allow tunnel advancement and pipeline/pea gravel envelope installation. Two companies that consulted on this project independently measured groundwater pumping rates from various tunnel/trench locations. May 2008 cumulative discharge rates ranged between approximately 63.4 - 131 GPM (91,296 - 188,640 GPD; 33 - 69 MGY; 102 - 211 AFY), whereas the July 2008 cumulative discharge rate was approximately 108.6 GPM (156,355 GPD; 57 MGY; 175 AFY). Field observations indicated that much of the groundwater originating from residential/commercial development located primarily along the south side of Alessandro Blvd, and including almost 200 septic systems, that normally flows northward toward Sycamore Canyon via bedrock fracture flow and paleochannels eroded into the shallow bedrock surface had been intercepted by the trench and then redirected primarily eastward toward the tunnel. Large concrete pipeline thrust blocks, installed at both ends of the tunnel, act as buried groundwater "dams", prevent the redirected groundwater from passing through the tunnel toward Moreno Valley.

To partially remedy the locally dammed groundwater, MWD installed one groundwater "dam" structure east of Gem St, including a horizontal well that drains captured groundwater northward to a minor tributary of Sycamore Canyon. Annual visual discharge rates estimates conducted during July 2009, 2010, 2011, and 2012 as part of a study on anthropogenic groundwater originating from the OCMGA, which was presented at the 1 August 2012 IGS meeting, indicated discharge rates from this horizontal well was approximately 3, 5, 7.5, and 5 GPM, respectively, significantly lower than the estimated volumes of groundwater being pumped out of the trench during construction. Finally, during August 2012 two students from King High School in Riverside CA collected a water sample from the horizontal well as part of a larger study of surface water conditions of Sycamore Canyon, indicating 7.7 PPM nitrate and a positive result for coliform within the noted sample.

Biography:

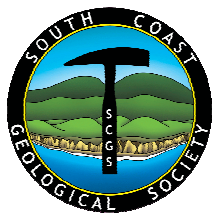
Mr. Thom Deane is a Professional Geologist/Certified Hydrogeologist for the State of California) and a Registered Geologist in the State of Arizona. He completed a Bachelor of Science in Geology from Cal Poly Pomona and a Master of Science in Hydrology/Water Resources from the University of Arizona. His professional experience ranges from gold exploration/mine permitting to water resources and contaminated site investigations and he has worked in Eastern Europe, South America, and the western United States. He is currently the Principal Hydrogeologist of DEANE CONSULTING INC, which is located in nearby Redlands.

Upcoming Meetings/Events

Rock & Gem Shows—Various locations

Various rock and mineral shows will be throughout So. California. To find one near you, visit www.rockngem.com/showdates.asp

South Coast Geological Society Meeting



Dr. Doug Yule, a professor of geological sciences at CSU Northridge, will be presenting a talk on the "Probability of Through-Going San Andreas Fault Rupture in San Geronio

Pass" on **Monday, October 1, 2012** at the DoubleTree Club Hotel in Santa Ana, CA.

For more info., visit www.southcoastgeo.org

San Diego Assoc. of Geologists Meeting

Chuck Houser will be presenting at the SDAG October meeting on **Wednesday, October 17, 2012**. For more info, visit

www.sandiegogeologists.org

Groundwater Resources Assoc. of CA

GRAC will be holding their 21st Annual Conference & Meeting on **Wednesday, October 3 through Friday, October 5, 2012** in Rohnert Park, CA. The topic will be "California Groundwater Data, Planning and Opportunities". For more info, visit

www.grac.org/

San Diego Assoc. of Geologists Meeting

SDAG and EERI will be holding a joint meeting on **Wednesday, November 14, 2012**.

For more info, visit

www.sandiegogeologists.org

Los Angeles Basin Geological Society



Los Angeles Basin Geological Society will be holding their October meeting on **October 25, 2012**. For more info, visit www.labgs.org.

San Diego Assoc. of Geologists Meeting



Dr. Tom Demere will be presenting at San Diego Assoc. of Geologist's December meeting.

For more info, visit

www.sandiegogeologists.org



IGS Meeting Schedule

November 7, 2012 (Wednesday)

Dr. David Lynch, USGS, Pasadena
Color and Light of Nature

December 5, 2012 (Wednesday)

Jennifer Kurashige, Graduate Student
TBA

January 3, 2013 (Thursday)

2012 McEllhiney Lecturer
Life-Cycle Economic Analysis

IGS MEETING LOCATION:

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

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