



San Joaquin Geological Society

Date: Tuesday, April 9th, 2024

Time: 5:30 PM Social Hour
6:30 PM Dinner
7:00 PM Lecture

Place: American Legion Hall
2020 H Street, Bakersfield, CA 93302

PSAAPG Members

\$35 with reservation
\$40 without reservation

Non PSAAPG Members

\$40 with reservation

Full-time Students with ID

FREE!

* RSVP *

By: noon Monday,
April 8th, 2024

Register online:

<http://www.SanJoaquinGeologicalSociety.org/>

Pay online or cash/check at
the door

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USGS Research Drilling and Multiple-Well Groundwater Monitoring Sites near Oil Fields in the San Joaquin Valley, California

Presented by: Rhett R. Everett and Matthew K. Landon

Abstract: The U.S. Geological Survey (USGS), in cooperation with the California State Water Resources Control Boards Oil and Gas Regional Monitoring Program, is evaluating groundwater resources near areas of oil and gas development in California, including (1) the location of groundwater resources near oil fields; (2) the proximity of oil and gas operations to developed aquifers, and the geologic materials between them; (3) evidence (or lack of evidence) of fluids from oil and gas sources in groundwater; and (4) the pathways or processes responsible when fluids from oil and gas sources are present in groundwater. As part of this evaluation, the USGS installed multiple-well monitoring sites near the Lost Hills, North/South Belridge, and Elk Hills Oil Fields and in the Poso Creek Oil Field in the San Joaquin Valley. Each site has 4 to 6 monitoring wells installed at different depths ranging between 210 and 2,500 feet below land surface. Data collected at these multiple-well monitoring sites provide information about the geology, hydrology, geophysical properties, and water quality of the aquifer system, thus enhancing the understanding of groundwater conditions in areas where groundwater data are limited, particularly at different depths in the aquifers. Reports describing the initial geohydrologic data at these sites have been published and will be described in this presentation. At each of the sites, differences in water-level responses over time indicate restricted connections between aquifer zones resulting from discontinuous or continuous clays, and varying responses to regional groundwater withdrawals and recharge. These sites serve as long-term groundwater monitoring sites in data-sparse areas, and data collected are publicly available from online USGS repositories.

Biography: Rhett Everett has been a Hydrologist with the U.S. Geological Survey California Water Science Center since 1999. He received his Bachelor of Science in Geology from the University of Cincinnati in 1997. He has conducted studies of groundwater hydrology and geochemistry in California and Colorado. Rhett has worked with federal, state, and local agencies to establish local and regional groundwater monitoring networks, specializing in the installation of multiple-well groundwater monitoring sites.

Matthew Landon has been a Hydrologist with the U.S. Geological Survey since 1990. He received a M.S. in Geology from the University of Minnesota in 1993 and a B.S. in Geology from the University of Kansas in 1987. He has conducted studies of groundwater hydrology and geochemistry in Minnesota, Nebraska, California, and Southeast Asia. He has been with the USGS California Water Science Center in San Diego since 2005, serving as Program Chief for the USGS California Oil, Gas, and Groundwater Program since 2014 in support of the California State Water Boards Oil and Gas Regional Monitoring Program.

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