



# San Joaquin Geological Society

**Date:** Tuesday, January 10<sup>th</sup>, 2023

**Time:** 6:00 PM Social Hour  
7:00 PM Dinner  
8:00 PM Lecture

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

**PSAAPG Members**  
\$30 with reservation  
\$35 without reservation

**Non PSAAPG Members**  
\$35 with reservation

**Full-time Students with ID**  
\$15

**\* RSVP \***

**By: noon Monday,  
January 9<sup>th</sup>, 2023**

Register online:  
[http://www.SanJoaquinGeological  
Society.org/](http://www.SanJoaquinGeologicalSociety.org/)

Pay online or at the door

**2022 SJGS OFFICERS**

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## Laboratory Analysis – Beyond Oil and Gas Presented by: Barbara Hill

**Abstract:** Carbon storage, whether as sequestration or utilization, has risen to prominence as governments, communities, and industries have begun to address the need for a carbon neutral future. Currently, the most common method of carbon storage involves CO<sub>2</sub> injection into either depleted oil and gas reservoirs where the CO<sub>2</sub> is used to prolong the life of a field's hydrocarbon production or into existing brine aquifers where it is presumed to be sequestered far into the future. Effective and efficient subsurface carbon storage and/or utilization requires a thorough understanding of the reservoir in which carbon will be injected. This understanding begins with appropriate measurements that assist in the evaluation of a reservoir's storage capacity, containment within the subsurface, the integrity of caprock, potential interactions between the injected fluid, rock, and in situ subsurface fluids, as well as future monitoring of subsurface plumes. This talk will define the role of the laboratory in an integrated CCS workflow which includes seismic, subsurface log measurements, laboratory analysis, and modeling. The talk will then focus on essential laboratory analyses that characterize the reservoir rock, analyze potential CO<sub>2</sub> interactions with target reservoirs, and assess the sensitivity of caprock to CO<sub>2</sub>-rich fluids. The presentation will also include an introduction to the importance of digital twins in assessing potential long-term impacts of CO<sub>2</sub>. These analyses provide insights into subsurface storage, containment within the reservoir (seal integrity), well integrity, injectivity, and monitoring. Having appropriate laboratory analysis during the earliest phases of any CO<sub>2</sub> project also provides a proactive approach to predicting future conformance of a plume as it migrates in the subsurface over time and in addressing how to mitigate unexpected events.

**Biography:** Barbara Hill is a Rock Domain Champion for the SLB Reservoir Labs, Reservoir Performance, Barbara is based out of Houston and is the technical representative for the rock labs for the western hemisphere.

Prior to joining SLB in 2013, Barbara was a college professor of geology for 25 years, a uranium exploration consulting geologist, a hydrogeologist, and a production geologist for a major oil company.

Barbara holds a Ph.D. degree in geology from Syracuse University where her research centered around inorganic geochemistry and radiogenic isotope geochemistry, a M.S. degree in geology from California State University, Long Beach, with research in the hydro- and biogeochemistry of peat, and a B.S. in geology from Oklahoma State University. Barbara has been a member of AAPG and GSA for over 35 years and is also a member of SPE, SPWLA, and Houston Geological Society, where she is a past Director. In her spare time, she tutors high school math and builds bunk beds for charity. In addition, she is one cat shy of being the 'crazy cat lady.'

**December Sponsor:**

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