



RESERVOIR SYMPOSIUM

FEBRUARY 4-5, 2026 | CALGARY, AB

Reservoir Characterization for Energy Security

The Cambrian of Alberta; lessons and insights over the last few years

Speaker: David Herbers, Alberta Geological Survey/Alberta Energy Regulator

Co-Author: Tyler Hauck, Alberta Geological Survey/Alberta Energy Regulator

ABSTRACT

Analysis of newly acquired drill cores provides new insights into the Cambrian stratigraphy of Alberta, a notoriously data-poor interval targeted for saline aquifer Carbon Capture and Storage (CCS). Integrating new and existing core data elucidates two complete and one partial 3rd order sequence within the clastic-dominated inner detrital belt. Within this framework, major marine flooding surfaces allow the Basal Cambrian Sandstone (BCS) to be mapped as a series of eastwardly-younging shingles, revealing the highly diachronous nature of the unit. A key finding is the confirmation of a 3rd order sequence boundary within the Earlie Formation, expressed as a regolith now directly observed in three cores. This surface is mapped regionally as an abrupt clastic wedge prograding from the emergent Athabasca Arch to the northeast. The identification of this sequence boundary resolves the long-standing stratigraphic conundrum of the overthickened BCS in eastern Alberta and provides a framework for correlating major stratigraphic surfaces from the clastic-dominated inner detrital belt to the carbonate-dominated shoal belt that nucleated on the Kicking Horse Rim. This sequence stratigraphic framework facilitates a detailed analysis of BCS sedimentology and diagenesis. We highlight the development of secondary porosity as a critical control on injectivity performance, with additional well control revealing significant variability at the township scale.