Models: Their Use in Evaluating Early Hydrogeology Data in the Alberta Basin

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Collection of data on the hydrogeology and geothermics of the Alberta Basin has been going on for more than a century, the amount collected depending on petroleum industry activity. However, those collecting the first data were probably not aware that they were contributing to the hydrogeology and geothermics of the basin.

Models have been developed for fluid flow and for water-rock interactions, also over more than a century, with development being sporadic and sometimes driven by individuals outside the petroleum industry.

This talk will examine the question: Knowing what we now know about fluid flow and water-rock interaction models, would this have helped in understanding the hydrogeology of the basin using only early data?

Based on present information, critical areas and stratigraphic units were selected, and early data examined, to see if they fell in the selected areas and units. Where they did, modern models were used to predict the flow pattern and water salinity, and these predictions were compared with modern information.

Although 20/20 hindsight is a wonderful thing, and not allowed to mortal man, this exercise did demonstrate the importance of models in the extrapolation of trends with only low amounts of information.