

An Integrated Basin-wide Study into Petroleum Generation and Migration: the Saskatchewan Phanerozoic Fluids and Petroleum Systems Project

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Abstract

The Petroleum Technology Research Centre and the Universities of Regina and Alberta have embarked on an integrated study: the Saskatchewan Phanerozoic Fluids and Petroleum Systems (SPFPS) Project, to improve understanding regarding hydrocarbon generation and migration in the Saskatchewan subsurface. This five-year collaborative research project will provide data for more accurate resource assessments for government and industry and also will assist exploration and development strategies for industry. SPFPS will be a broad-scoped program involving stratigraphy, hydrogeology, geothermics, petroleum geochemistry and basin modelling.

The study will produce an integrated and complete suite of hydrogeological data and maps consistent with regional geological maps produced by the Saskatchewan Ministry of Energy and Resources Petroleum Branch which serve as the foundation for this study. New organic geochemical and petrographic data will be generated to fill in identified gaps in existing data type and distribution. These data will be used to refine the characterization and delineation of source rock potential and source rock 'kitchens' and migration 'fairways'. Geothermic research will produce a detailed thermal field of the Saskatchewan subsurface. State-of-the-art simulations will generate 1D, 2D and ultimately 3D models describing the maturation, generation and migration of petroleum into, and within, Saskatchewan.

This study promises to have great impact for markedly improving our understanding the petroleum systems in Saskatchewan, and also in North Dakota, Montana, Alberta and Manitoba. It is expected that industry interest in this project will be considerable and the results will be highly anticipated.