

Saskatchewan Phanerozoic Fluids and Petroleum Systems Regional Stratigraphic Framework

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Abstract

The Saskatchewan Phanerozoic Fluids and Petroleum Systems (SPFPS) project is a five-year interdisciplinary collaborative project that was designed to enhance the understanding of hydrocarbon generation, migration and entrapment in the subsurface of Saskatchewan, as well as to gather geoscientific information required to assess the CO₂ storage capacity of Saskatchewan's Phanerozoic strata. The regional stratigraphic framework component of the project is the foundation from which all other elements of the project are based upon. Data utilized for this element of the project have been amalgamated from two regional stratigraphic framework projects that were completed in recent years. Well data for the eastern half of the province (east of the third meridian) is from the intergovernmental and interprovincial Williston Basin Architecture and Hydrocarbon Potential (Phase 2 of the Targeted Geoscience Initiative (TGI II)) project, while stratigraphic data for the western half of the province (Ranges 1 to 30W3) is derived from the Petroleum Technology Research Centre's (PTRC) Western Stratigraphic Framework project. Extra stratigraphic well data has also been derived and added to the dataset by the author that encompasses: the first four ranges into both Alberta and Manitoba adjacent to the respective Saskatchewan border, and; the first six townships into Montana and North Dakota directly south of the Saskatchewan portion of the Canada-U.S.A border. The data utilized within this 'buffer' area is derived from a list of wells that are being used by other researchers within the project, or are the deepest wells in the 'buffer' area of the respective jurisdictions. The purpose of the additional stratigraphic data is to eliminate any potential for contouring 'edge effects' in both structure and isopach maps generated from the regional data.

Final products for the stratigraphic framework component of the SPFPS project include a series of regional structure and isopach maps for all of the regionally mappable stratigraphic units within the Phanerozoic in Saskatchewan, as well as the complete dataset used to derive those maps. These products will be made publically available through digital media upon completion of the project, which is currently scheduled for mid 2013.