

A Potpourri of Reservoir Rocks from the Mesozoic Strata of the Sverdrup Basin, Canadian Arctic Islands

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Abstract

The Mesozoic succession of the Sverdrup Basin is up to 9 km thick and contains numerous, thick, sandstone-dominant formations, most of which act as reservoirs for oil and/or gas. These include the Early Triassic Bjerne Formation, the Late Triassic Pat Bay Formation, the latest Triassic-Early Jurassic MacLean Strait Formation, the Early Jurassic King Christian Formation, the Early Jurassic Heiberg Formation, the Late Jurassic Awingak Formation, and the Early Cretaceous Isachsen Formation.

These units consist of fluvial, deltaic and shallow marine, quartzose sandstones that were derived mainly from Devonian clastic strata that flanked the basin and covered the more distant Canadian and Greenland cratons. Only the Pat Bay sediments were derived from Crockerland, a small land area that lay to the north of the basin.

Some units are confined to the basin flanks whereas others prograded over much of the basin. About 17 TCF of gas and 1 billion barrels of oil are trapped in these units and perhaps as much as four times these amounts represent the ultimate potential of the Mesozoic succession. The main trap types include, Tertiary structures, combination structural and stratigraphic, and salt-related.

Cores from each of these units will be on display.