

## **Cretaceous Possibilities: Sedimentology and Reservoir Potential of the Early Cretaceous Isachsen Formation of the Sverdrup Basin, Ellef Ringnes Island, Arctic Canada**

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### **Abstract**

The Isachsen Formation is a Valanginian to Aptian-aged fluvio-deltaic succession ranging in thickness from tens of meters to over 1400 m within the Sverdrup Basin of the Canadian Arctic Archipelago. The formation exhibits a variety of lithologies including coarse-grained quartz-arenite sandstones, fine-grained ripple laminated sandstones and siltstones, marine mudstones and coals that were deposited in marginal marine, marine shelf, meandering and braided river, depositional environments.

A sedimentological study of the Isachsen Formation on Ellef Ringnes Island based on seven measured stratigraphic sections demonstrates that the formation contains source and reservoir potential. Porous, coarse-grained sandstone and pebble conglomerate successions up to 35 m thick are potential primary reservoirs. These coarse-grained successions display lateral continuity over the study area and occur at two separate intervals in most of the sections measured. These strata are overlain by thick deposits of mudstones that may provide a seal to hydrocarbon migration.