

Petroleum Geology of the Crow Indian Reservation, South-Central Montana

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ABSTRACT

The Crow Reservation is very under-explored area in the northern Powder River Basin of Montana. Producing reservoirs on the Reservation include the Cretaceous Shannon Sandstone, Pennsylvanian Tensleep Sandstone, and the Mississippian Madison Limestone. Of these, the Tensleep probably has the greatest potential for discovery of new oil accumulations. Recent detailed surface and subsurface research has led to a good understanding of the geometry and distribution of Tensleep Sandstone reservoirs. The Shannon Sandstone has potential in a limited area in the southern part of the Reservation. The Madison has widespread occurrence of porous reservoir rocks but requires significant structural closures in order to protect oil accumulations from groundwater flow. Potential also exists in Cretaceous Muddy Sandstone, Greybull Sandstone, and Pryor Conglomerate (Lakota equivalent). The Muddy and Greybull are well known channel sandstone reservoirs in the region and produce from combination structural-stratigraphic traps. Porosity in the Pryor Conglomerate is widespread and would require significant structural closures to trap oil.