correlations, and depositional models, suggests nearly eight productive miles of the channel sands and an excess of 12 million barrels of recoverable reserves still exist at shallow depths southwest of the present limits of the field.

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Lower Cretaceous Paleogeography, Big Muddy-South Glenrock Area, Southwest Powder River Basin, Wyoming

Early oil and gas exploration in Wyoming centered around testing anticlinal structures identified by field mapping. In 1916, the Big Muddy anticline, located on the southwestern edge of the Powder River Basin, proved productive from the Cretaceous Shannon Sandstone. Deeper drilling on the eastern flank of the structure delineated Shannon productive limits and substantiated additional production from the Frontier, upper and lower Muddy, Dakota, and Lakota formations.

From the early 1950's to the present, drilling activity along the eastern and southeastern flanks of the Big Muddy structure has provided information that suggests the upper Muddy sands were deposited as bars in near-shore and off-shore shallow marine waters while the lower Muddy sands were deposited as point-bar sands within the confines of a stream channel cut into the underlying Skull Creek Shale.

Millions of barrels of primary and secondary oil have been produced from approximately nine miles of this buried, one-mile-wide channel.

Nearly 30 wells have been drilled and millions of exploration dollars have been spent trying to locate a continuation of this channel system and, hopefully, productive sands. A close study of additional well information, coupled with outcrop samples, detailed log