

North Dakota's Production – Past and Present

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In 2008, the USGS concluded that the Bakken Petroleum System in the U.S. Williston Basin contains recoverable reserves of 3.65 BBbls of oil, 1.85 trillion cubic feet of natural gas, and 148 million barrels of natural gas liquids.

Bakken production began on the Antelope Anticline in 1953 with the drilling and completion of the Stanolind Oil & Gas Corp. - #1 Woodrow Starr. Development in Antelope Field was dominated by areas with structurally induced fracture systems. The fracture systems became the dominant exploration target until the mid-1990s.

The Shell Oil - Government 41X-5-1 well (1961) opened the southwestern depositional limit, “Bakken Fairway”, to drilling. About 26 fields were associated with structural features over which the Bakken thinned and apparently fractured. Drilling methods in the Fairway changed significantly in 1987 after Meridian Oil drilled the first horizontal Bakken well, the Meridian Oil Inc – #33-11H MOI. This well further exploited the fracture trend. Drilling peaked in 1992 and essentially ended by 2000.

Along this trend in Montana in 1996, a dolomitized carbonate shoal complex in the Bakken middle member was also being exploited by vertical drilling. The application of horizontal drilling to this complex in 2000 resulted in the discovery of Elm Coulee Field. Production also depends on fracturing, which is artificially enhanced. Since discovery, 693 horizontal wells have been drilled and more than 105.7 MMBbls of oil have been recovered.

The Bakken middle member play moved into North Dakota in 2005. Initial wells were unsuccessful, until EOG Resources drilled and completed the #1-24 Nelson-Farms in 2005 in an area resembling Elm Coulee. Well stimulation of the early wells involved large single-stage fracs that have been replaced by multistage fracs with increased IPs.