

PRUDHOE BAY, PT MCINTYRE OIL

Reference List

Alaska Oil and Gas Conservation Commission, 1993, Conservation Order No. 317, Pt. McIntyre Oil Field, Pt. McIntyre Oil Pool, Stump Island Oil Pool; available on line at http://www.aogcc.alaska.gov/orders/co/co300_399/co317.htm

Alaska Oil and Gas Conservation Commission, 2000, Conservation Order No. 317B, Pt. McIntyre Oil Field, Pt. McIntyre Oil Pool (amended), Stump Island Oil Pool; available on line at http://www.aogcc.alaska.gov/orders/co/co300_399/co317b.htm

Alaska Oil and Gas Conservation Commission, 2005, Well and Production Information Database

Prudhoe Bay, Pt. McIntyre Oil Pool

Summary

Discovered in 1993, the Pt. McIntyre Oil Pool lies in the northernmost portion of the Prudhoe Bay Unit. It lies within the Cretaceous-aged Kuparuk River and the Kalubik Formations. The pool is the accumulation of oil and gas that are common to and correlate with the interval from 9,908' to 10,665' measured depth in the Pt. McIntyre No. 11 well.^{1,2} Regular oil production began in October 1993, peaked at an average rate of 172,995 barrels of oil per day ("BOPD") in December 1996, and then began to decline rapidly. Production dropped from 152,000 BOPD in December 1997 to 45,000 BOPD in December 2001. Since then, the production decline has slowed: in December 2004, production from the pool averaged 36,953 BOPD.³

Geology

The Kuparuk River Formation is present throughout the Pt. McIntyre area and is characterized by rapid changes in thickness, lithology, and degree of cementation. The Kalubik formation exhibits abrupt changes in lithology and thickness with oil-bearing sandstones restricted to the western portion of the Pt. McIntyre area. The Pt. McIntyre reservoir is controlled by a north plunging anticline with fault closure to the south across the large displacement Pt. McIntyre fault, peripheral reservoir quality degradation and stratigraphic truncation of the reservoir along its eastern flank. Numerous moderate displacement normal faults cut the reservoirs. Fluid contact and pressure data indicate these faults are non-sealing. Average porosity ranges from 19 to 25% in the Kuparuk River sands. Average horizontal permeabilities range from 50 to 300 millidarcies in the Upper Kuparuk and 100 to 600 millidarcies in the Lower Kuparuk sands. Reservoir oil gravity is 27 degrees API. Initial reservoir temperature ranges from 176 to 184 deg F at 8800' true vertical depth subsea.⁴

A gas cap is present. Primary drive mechanisms are gas cap expansion and solution gas drive. Estimates of original oil in place ("OOIP") in the Pt. McIntyre reservoir range from 750 to 800 MMSTBO, and original gas in place ("OGIP") estimates range from 750 to 870 billion standard cubic feet ("BSCF"), of which 160 to 240 BSCF is non-associated free gas.^{5, 6}

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¹ Alaska Oil and Gas Conservation Commission, 1993, Conservation Order No. 317, Pt. McIntyre Oil Field, Pt. McIntyre Oil Pool, Stump Island Oil Pool

² Alaska Oil and Gas Conservation Commission, 2000, Conservation Order No. 317B, Pt. McIntyre Oil Field, Pt. McIntyre Oil Pool (amended), Stump Island Oil Pool

³ Alaska Oil and Gas Conservation Commission, 2005, Well and Production Information Database

⁴ Alaska Oil and Gas Conservation Commission, 1993, Conservation Order No. 317, Pt. McIntyre Oil Field, Pt. McIntyre Oil Pool, Stump Island Oil Pool

⁵ Alaska Oil and Gas Conservation Commission, 1993, Conservation Order No. 317, Pt. McIntyre Oil Field, Pt. McIntyre Oil Pool, Stump Island Oil Pool

⁶ Alaska Oil and Gas Conservation Commission, 2000, Conservation Order No. 317B, Pt. McIntyre Oil Field, Pt. McIntyre Oil Pool (amended), Stump Island Oil Pool