KUPARUK RIVER, MELTWATER OIL

Reference List

Alaska Oil and Gas Conservation Commission, 2001, Conservation Order No. 456, available online at:
http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co450_499/co456.htm

Alaska Oil and Gas Conservation Commission, 2003, Conservation Order No. 456a, available online at:
http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co450_499/co456a.htm

Moothart, S., 2001, Testimony before the Alaska Oil and Gas Conservation Commission in support of the Application of ConocoPhillips Alaska Inc. to Define the Aurora Oil Pool, May 7, 2001, AOGCC Conservation Order No. 456 file.

Nelson, K., 2001, First development well spud at Phillips Alaska's Meltwater development, in Petroleum News Alaska, Vol. 6, No. 5, Week of May 28, 2001

Meltwater Oil Pool

Summary

The Meltwater Oil Pool is located within and adjacent to the current boundaries of the Kuparuk River Unit ("KRU"). This is one of the satellite pools that have been discovered and developed utilizing the infrastructure built to develop the Kuparuk River Oil Pool within the KRU.[1] The pool occurs in the Bermuda Interval ("Bermuda") of the late Cretaceous-aged (Cenomanian-Turonian) Seabee Formation. It was discovered in 2000 by the Meltwater North 1 exploratory well, and delineated by Meltwater 2 and 2A.[2] This pool is defined as the accumulation of hydrocarbons common to, and correlating with, the interval between the 6,785 and 6,974 feet measured depth in the Meltwater North #2A well.[3] It lies between about 4,700' and 5,500' true vertical depth subsea.[4] Bermuda crude oil gravity is 37° API, and original oil in place ("OOIP") within the pool is estimated to be 125 million stock tank barrels of oil ("MMSTB"). No gas cap or oil-water contact have been encountered within the pool.[5] Meltwater development has been from the KRU 2P-Pad, using wells spaced approximately 10 acres apart.[6] Regular production from the pool began in November 2001 and peaked in May 2002 at 10,863 barrels of oil per day ("BOPD"). In December 2004, production averaged 7,888 barrels BOPD.[7]

Geology

Meltwater is the stratigraphic equivalent to the Tarn oil pool to the north, and both share similar lithology. The Bermuda consists of channel fill and lobate sandstones deposed in a turbidite fan system located on a slope-apron environment below an incised, Cenomanian-age shelf. Reservoir sandstones at Meltwater are fine to very fine-grained, lithic-rich, have common mudstone laminations and interbeds, and average about 20% porosity and 12 millidarcies air permeability. Clay content of the sandstone ranges from 15 to 25%, but the clay minerals occur dominantly as framework grains rather than as matrix. The top of the Bermuda dips approximately 2 to 3 degrees to the east-southeast, and complex faulting occurs along the western (updip) margin of the pool. Hydrocarbons are stratigraphically trapped, and their distribution is controlled by the distribution of sand. Shale filled channel complexes and stratigraphic pinch-outs act as lateral boundaries. Bermuda reservoirs are compartmentalized, primarily due to discontinuous sandstone distribution.[8]

S. Davies Revised 2/6/2005

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[1] Alaska Oil and Gas Conservation Commission, 2003, Conservation Order No. 456a, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co450_499/co456a.htm
[2] Alaska Oil and Gas Conservation Commission, 2001, Conservation Order No. 456, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co450_499/co456.htm
[3] Alaska Oil and Gas Conservation Commission, 2003, Conservation Order No. 456a, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co450_499/co456a.htm
[4] Moothart, S., 2001, Testimony before the Alaska Oil and Gas Conservation Commission in support of the Application of ConocoPhillips Alaska Inc. to Define the Aurora Oil Pool, May 7, 2001, AOGCC Conservation Order No. 456 file.
[5] Alaska Oil and Gas Conservation Commission, 2001, Conservation Order No. 456, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co450_499/co456.htm
[6] Alaska Oil and Gas Conservation Commission, 2003, Conservation Order No. 456a, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co450_499/co456a.htm
[7] Alaska Oil and Gas Conservation Commission, 2005, Production Database
[8] Alaska Oil and Gas Conservation Commission, 2001, Conservation Order No. 456, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co450_499/co456.htm