

# **KUPARUK RIVER, TARN OIL**

## **Reference List**

Alaska Oil and Gas Conservation Commission, 1998, Conservation Order No. 430, available online at:  
[http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400\\_449/co430.htm](http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_449/co430.htm)

Alaska Oil and Gas Conservation Commission, 2003, Conservation Order No. 430a, available online at:  
[http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400\\_449/co430a.htm](http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_449/co430a.htm)

Alaska Oil and Gas Conservation Commission, 2005, Production Database

# Tarn Oil Pool

## Summary

The Tarn Oil Pool lies within the Kuparuk River Unit ("KRU"), and it is defined as the accumulation of hydrocarbons common to and correlating with the intervals between the measured depths of 4376' and 5990' interval in the Bermuda #1 well (KRU 36 10-7/1).<sup>1</sup> Original oil in place ("OOIP") in the Bermuda and Cairn intervals is estimated to be about 136 million barrels. Waterflood operations were not undertaken because of potential reservoir damage, unfavorable reservoir permeability and poor water mobility characteristics.<sup>2</sup> Regular production began from the pool in July 1998. Development has been from the KRU 2N-Pad, supplemented from the 2L-Pad. Well spacing within the pool is 10 acres. In December 2004, production from the pool averaged 24,430 barrels of oil per day: 21,390 BOPD from 20 wells on 2N-Pad and 3,040 BOPD from 6 wells on 2L-Pad.<sup>3</sup>

## Geology

The Tarn oil pool is composed of five intervals of late Cretaceous-aged marine sandstone with interbedded mudstone intervals that lie within the Seabee Formation. These five intervals are informally termed, from deepest to shallowest, Iceberg, Arete, Cairn, Bermuda, and C30. They share a common depositional environment, and have similar lithologic characteristics and fluid compositions. Sand and hydrocarbon distribution within the pool is complex, with variable gross sand percentages within each interval. Not all of the potential reservoir intervals in the pool have been shown to be hydrocarbon bearing, and the primary reservoir intervals are the Bermuda and Cairn. Hydrocarbon distribution is controlled by sand distribution, with updip stratigraphic seal along the western margin of the pool area. The pool is composed of heterogeneous sandstone with shale laminations and interbeds. Sandstone is fine to very fine-grained, framework grains are principally quartz, plagioclase, zeolites, and heterolithic rock fragments. Clay content is high, ranging between 15 and 25%, and occurs primarily in the heterolithic framework of the sandstone. Porosity ranges from 18 to 27%, averages 21%, and is dominantly secondary with common microporosity. Air permeability ranges from 1 to 45 md and averages 10 md. Because of the fine-grain size and high clay content, the reservoir is susceptible to fines migration. The Tarn oil pool structure appears to be a monocline, with easterly dip ranging up to four degrees. Few faults have been found.<sup>4</sup>

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<sup>1</sup> Alaska Oil and Gas Conservation Commission, 2003, Conservation Order No. 430a, available online at: [http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400\\_449/co430a.htm](http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_449/co430a.htm)

<sup>2</sup> Alaska Oil and Gas Conservation Commission, 1998, Conservation Order No. 430, available online at: [http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400\\_449/co430.htm](http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_449/co430.htm)

<sup>3</sup> Alaska Oil and Gas Conservation Commission, 2005, Production Database

<sup>4</sup> Alaska Oil and Gas Conservation Commission, 1998, Conservation Order No. 430, available online at: [http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400\\_449/co430.htm](http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_449/co430.htm)