COLVILLE RIVER, ALPINE OIL

Reference List

Alaska Oil and Gas Conservation Commission, 1999, Conservation Order No. 443, available online at:
http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_449/co443a.htm

Alaska Oil and Gas Conservation Commission, 2004, Conservation Order No. 443A, available online at:
http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_449/co443a.htm

Alaska Oil and Gas Conservation Commission, 2004, Production Database

Alvord, C., B. Noel, V. Johnson, R. Handley, D. Egedahl, E. Cribbs, L. Smith, 2004, A Step Change in Drilling Efficiency: Application of New Technology in the Alpine Development Field, SPE Paper 87176

BP, 1999, ARCO, Anadarko Increase Reserve and Production Estimates for Alpine Oil Field on Alaska's North Slope, BP Press Release, date 26 August 1999;
http://www.bp.com/genericarticle.do?categoryId=120&contentId=2000978

BP, 1999, First Alaska-Built Sealift Modules Bound for Alpine, BP Press Release, date 09 July 1999; http://www.bp.com/genericarticle.do?categoryId=120&contentId=2000914

ConocoPhillips, 2004, ConocoPhillips, Anadarko Approve Development of Alpine Satellites, ConocoPhillips News Release, Dec. 20, 2004, available online at:
http://www.conocophillips.com/newsroom/news_releases/2004releases/122004_alpine.htm

Petroleum News, 2003, Alpine Expansion Phase I a Go, in Petroleum News, Vol. 9, No. 53, Week of May 16, 2003, available online at:
http://www.petroleumnews.com/nb/469917148.html

Petroleum News, 2004, Phase 2 of Alpine Capacity Expansion Under Way, in Petroleum News, Vol. 10, No. 22, Week of March 03, 2004, available online at:
http://www.petroleumnews.com/nb/418716751.html

PI/Dwights, 2004, ConocoPhillips, Anadarko to Further Expand Alpine Field's Production Capacity; in PI/Dwights Drilling Wire, V. 50, No. 10, March 10, 2004

Alpine Oil Pool

Summary

Discovered in 1994[1] and declared commercial in 1996, the Alpine Oil Pool was the largest oil field discovered in the US in over a decade.[2] Development drilling began in 1998, and nine facilities modules were delivered to the North Slope via sealift during July 1999. Regular production began in November 2000. The Alpine Oil Pool has now been penetrated by more than 100 wells, most of which are horizontal production and injection wells.[3] Production has greatly exceed expectations: originally projected to produce 80,000 barrels of oil per day[4], the Alpine Oil Pool averaged 97,486 barrels per day during 2003.[5] Facilities upgrades are expected to boost production during the next few years.[6] Alpine is a model for future oil development: its facilities occupy only 97 surface acres[7], but it produces from about 25,000 acres (39 square miles) of reservoir.[8] During 2003, development drilling at Alpine surpassed the 1 million foot milestone, with over 230,000 feet (nearly 52 miles) of horizontal well bore open to the reservoir.[9]

Geology

The reservoir consists of the Alpine Sands, an informal member of the Jurassic-aged (Ellesmerian) Kingak Formation that lies between 6,876' and 6,976' measured depth in Bergschrund No.1. These are stratigraphically the highest sand units in the Kingak within the Colville Delta area. They are shallow marine, v. fine to fine-grained, quartz-rich sandstone layers deposited on a southerly prograding shelf, and elongated in an east-west direction. Gross thickness of the combined reservoir sandstone layers ranges up to 100'. The Alpine structure is a homocline that dips southwest at a rate of about 100' per mile. This homocline is broken by several minor, northwest-trending, down-to-the-west, normal faults that average less than 30' in vertical displacement. Porosity and permeability range approximately from 15% to 23% and 1 to 160 md, respectively. No oil-water or gas-oil contacts have been observed.[10]

---

[1] Alaska Oil and Gas Conservation Commission, 1999, Conservation Order No. 443, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_449/co443a.htm

[2] Alvord, C., B. Noel, V. Johnson, R. Handley, D. Egedahl, E. Cribbs, L. Smith, 2004, A Step Change in Drilling Efficiency: Application of New Technology in the Alpine Development Field, SPE Paper 87176

[3] Alaska Oil and Gas Conservation Commission, 2004, Production Database

[4] ConocoPhillips, 2004, ConocoPhillips, Anadarko Approve Development of Alpine Satellites, ConocoPhillips News Release, Dec. 20, 2004, available online at: http://www.conocophillips.com/newsroom/news_releases/2004releases/122004_alpine.htm

[5] Alaska Oil and Gas Conservation Commission, 2004, Production Database

[6] Petroleum News, 2003, Alpine Expansion Phase I a Go, in Petroleum News, Vol. 9, No. 53, Week of May 16, 2003, available online at: http://www.petroleumnews.com/nb/469917148.html
Petroleum News, 2004, Phase 2 of Alpine Capacity Expansion Under Way, in Petroleum News, Vol. 10, No. 22, Week of March 03, 2004, available online at: http://www.petroleumnews.com/nb/418716751.html

[7] BP, 1999, First Alaska-Built Sealift Modules Bound for Alpine, BP Press Release, date 09 July 1999; http://www.bp.com/genericarticle.do?categoryId=120&contentId=2000914

[8] AOGCC estimate of productive area

[9] AOGCC 2003 Annual Report, p. 9.

[10] Alaska Oil and Gas Conservation Commission, 1999, Conservation Order No. 443, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_449/co443a.htm