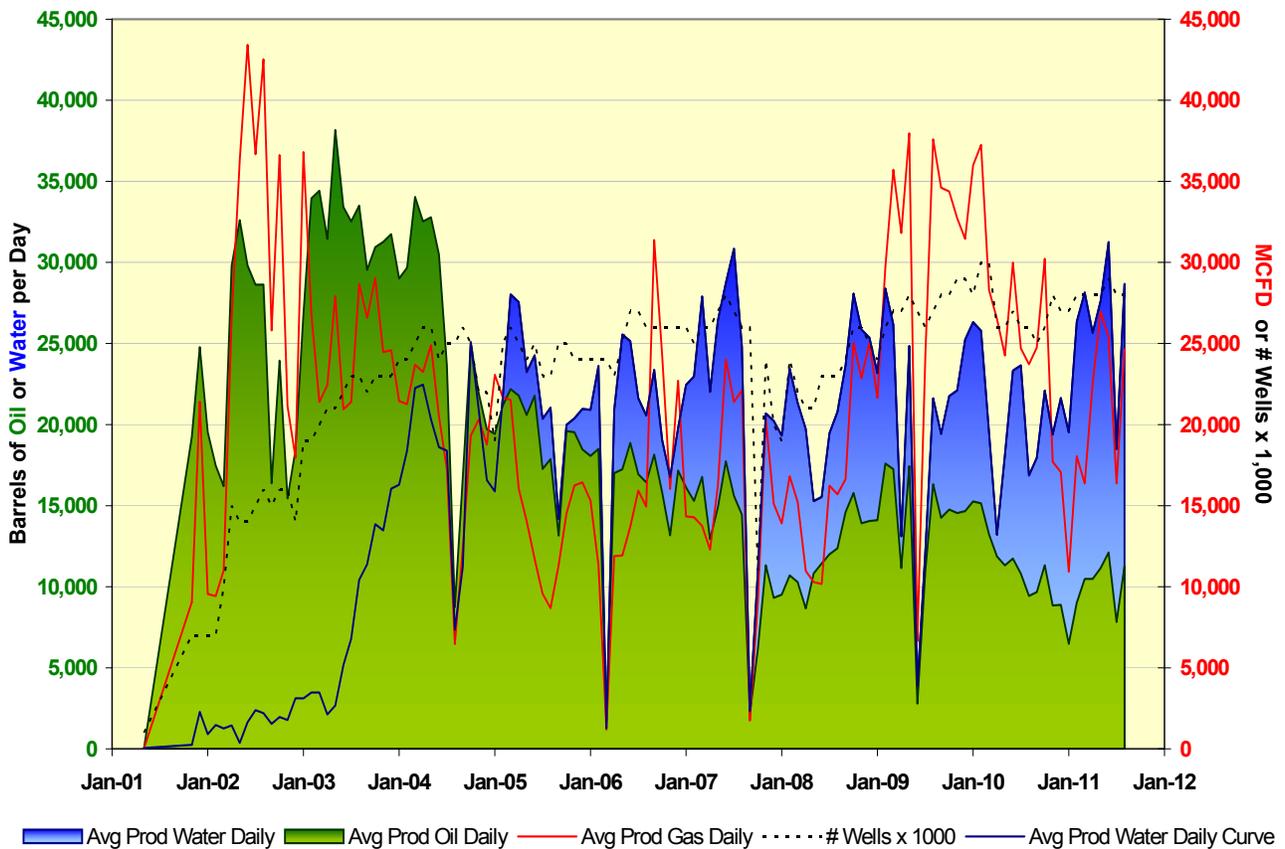


Borealis Oil Pool

Summary

The Borealis Oil Pool is located within the western portion of the Prudhoe Bay Unit ("PBU"). It lies within the early Cretaceous-aged Kuparuk River Formation ("Kuparuk"), and is an accumulation of hydrocarbons common to and correlating with the interval between 6534' and 6952' measured depths in the West Kuparuk State 3-11-11 well.¹ This pool is developed from the PBU L-, V- and Z-Pads. The pool has been producing continuously since May 2001. Regular water injection began in June 2002. L-Pad provided most of the production from November 2001 to January 2003. V-Pad came on line in April 2002, and by March 2003 it was producing at an average rate of 16,100 barrels of oil per day (BOPD), or 47% of the oil from pool. Production peaked in May 2003, when the pool averaged 38,150 BOPD. Z-Pad was brought on line in March of 2004, and Water-Alternating-Gas injection began in June 2004. For the second quarter of 2011, production from Borealis Pool averaged 11,000 barrels of oil per day. Of that, V-Pad produced 46%, L-Pad produced 44%, and Z-Pad produced 10%.²

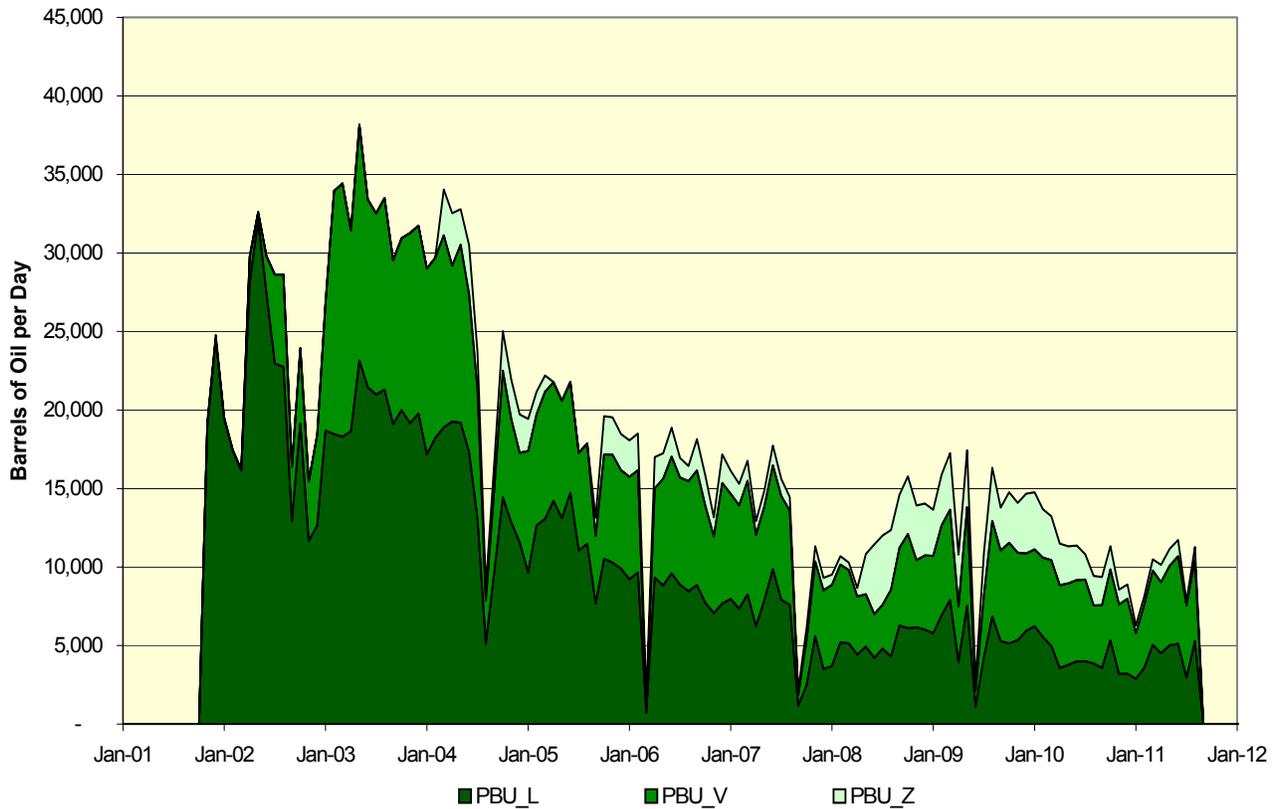
Average Daily Production Rates



¹ Alaska Oil and Gas Conservation Commission, 2002, Conservation Order No. 471, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_499/co471.htm

² Alaska Oil and Gas Conservation Commission, 2011, Production Database

Average Daily Oil Production Rates by Pad



Geology

Within the pool, the Kuparuk consists of mid to lower marine shoreface sediments: very fine to medium grained, quartz-rich sandstone interbedded with siltstone and mudstone. The Kuparuk is stratigraphically complex, characterized by multiple unconformities and changes in thickness, sedimentary facies, and local diagenetic cementation. It is divided into four intervals that are named, from deepest to shallowest, A, B, C and D. The C interval contains the primary reservoir sands of the pool, with secondary accumulations in the A interval. Porosities range from 18 to 22%, and average permeabilities range from 5 md to 216 md. The Kuparuk structure within the pool is a NW-to-SE trending antiform that lies between 6,200 and 6,900 feet below sea level. Two sets of normal faults cut this antiform, one set trending NW-SE and a younger striking N-S. Both sets of faults are an echelon, resulting in a series of intersecting relay ramps. The pool oil accumulation is highly compartmentalized. Reservoir thickness and stratigraphy are affected by two unconformities that truncate downward to the south and east. Within the pool, oil is trapped by a combination of structural and stratigraphic features. The accumulation is bounded to the SW by NW and N-S trending faults and the oil-water contact. To the N and NW, increasing fines degrade the primary reservoir sand units. To the NE, the pool limit is defined down structure by the oil-water contact. The SE limit of the

pool occurs where the reservoir is truncated by the unconformities. Oil-water contacts appear to vary in depth across the pool. No gas cap has been observed. At 6600' true vertical depth, the reservoir temperature is about 158 degrees F. API oil gravities range from 25.6 to 27.5 degrees. There are no indications of a free gas column in the pool.³

SFD Revised October 4, 2011

³ Alaska Oil and Gas Conservation Commission, 2002, Conservation Order No. 471, available online at: http://www.state.ak.us/local/akpages/ADMIN/ogc/orders/co/co400_499/co471.htm