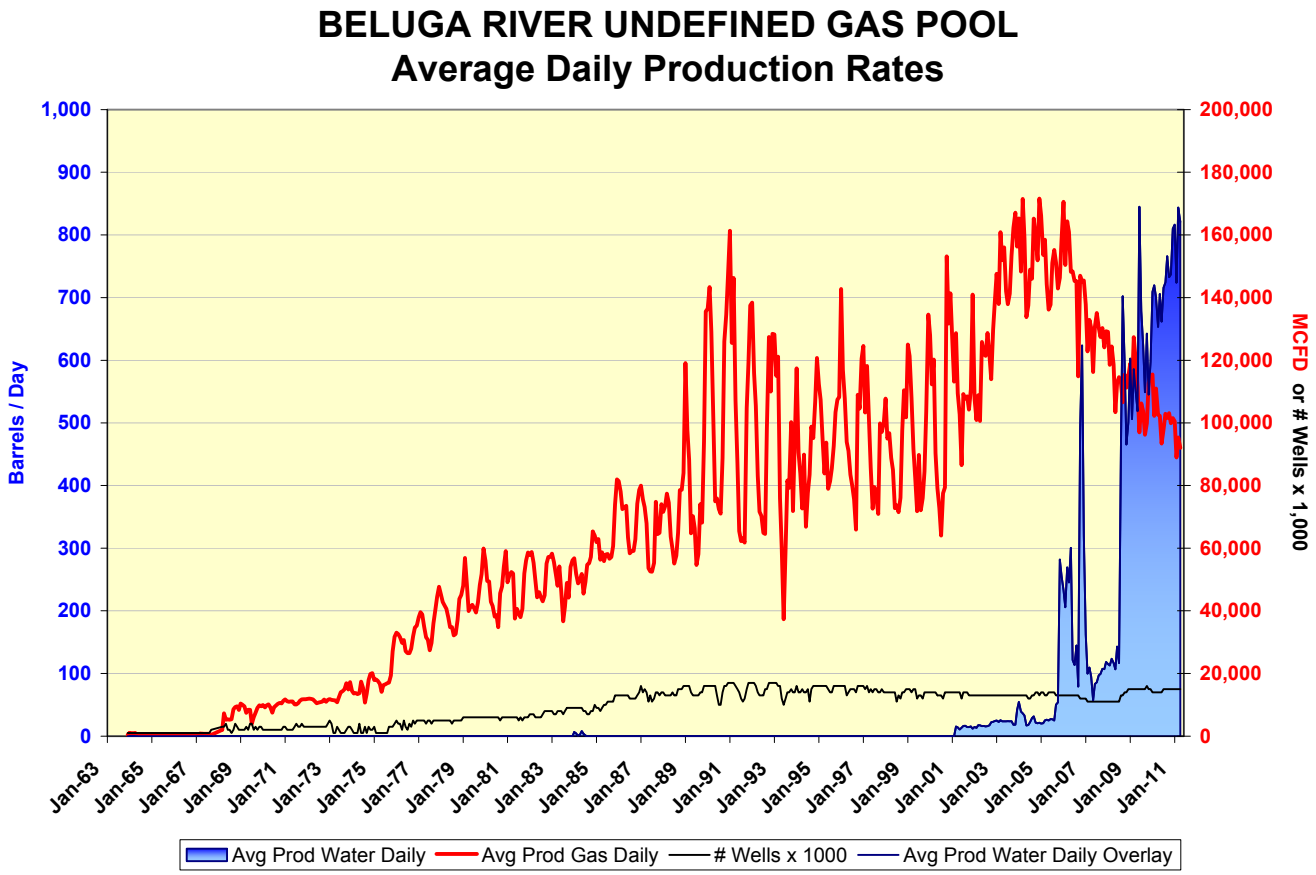
Beluga River Unit, Beluga River Undefined Gas Pool

Summary

The Beluga River Field is a shallow, 7-mile long and 2-1/2-mile wide gas accumulation located along the western shoreline of the Cook Inlet, about 40 miles west of Anchorage. This field was discovered in December 1962 while exploring for a deeper oil objective. Regular gas production began in March 1968 and cumulative production through April 2011 totals 1.198 trillion cubic feet. Currently, 25 wells penetrate the Beluga River Undefined Gas Pool, which includes all of the gas-bearing sands in the field. Of these 25 wells, 21 are currently completed as producers, but only 15 produced gas during the first four months of 2011.[1] The field is a major supplier for local electric utilities and home gas usage in the Anchorage area. ConocoPhillips Alaska, Inc operates the field for its co-owners Chevron and Municipal Light and Power.

(Contributed by John Braden, ConocoPhillips, and updated by AOGCC)



Geology

The Beluga River structure is a broad, north-northeastern trending fault propagation fold with a steep dipping reverse fault on the west side. The field produces from two Tertiary-aged formations: the high net-to-gross Pliocene-aged Sterling Formation and the underlying, low net-to-gross Miocene-aged Beluga Formation. Gross reservoir thickness is up to 3,200 feet, and it consists of dozens of stacked channel belt and crevasse splay sands encased in relatively impermeable siltstone, mudstone and coal.

[1] Alaska Oil and Gas Conservation Commission, 2011, Production Database

The sand deposits are discontinuous, relatively small in size, and their reservoir quality varies with composition (feldspathic litharenite to argillaceous litharenite) and degree of compaction. Ubiquitous interbedded thin and widespread coals source the tremendous volume of biogenic gas trapped within the field.[2]

After 43 years of production, the Beluga River Field is mature: much of the reservoir is depleted to under 40% of original pressure, and most of the down-structure wells have water encroaching in some sands.[3] Reserve estimates for the field can be found in Thomas, *et al.*, 2004,[4] and Hartz, *et al.*, 2009.[5]

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[2] Original description Contributed by John Braden of ConocoPhillips; updated using Levinson, R. A., 2011, Beluga River Gas Field, Cook Inlet, Alaska, in 2011 Western Region Meeting, SPE and Pacific Section AAPG, Anchorage, Alaska, Program with Abstracts, p.71 - 72.

[3] Levinson, R. A., 2011, see footnote 2.

[4] Thomas, C.P., Doughty, T.C., Faulder, D.D., and Hite, D.M., 2004, South-Central Alaska Natural Gas Study, U.S. Department of Energy, National Energy Technology Laboratory, Arctic Energy Office, Contract DE-AM26-99FT40575, p. 120.

[5] Hartz, J.D., Kremer, M.C., Krouskop, D.L., Silliphant, L.J., Houle, J.A., Anderson, P.C. and LePain, D.L., 2009, Preliminary Engineering and Geological Evaluation of Remaining Cook Inlet Gas Reserves, State of Alaska Department of Natural Resources, Division of Oil and Gas, p. 15.