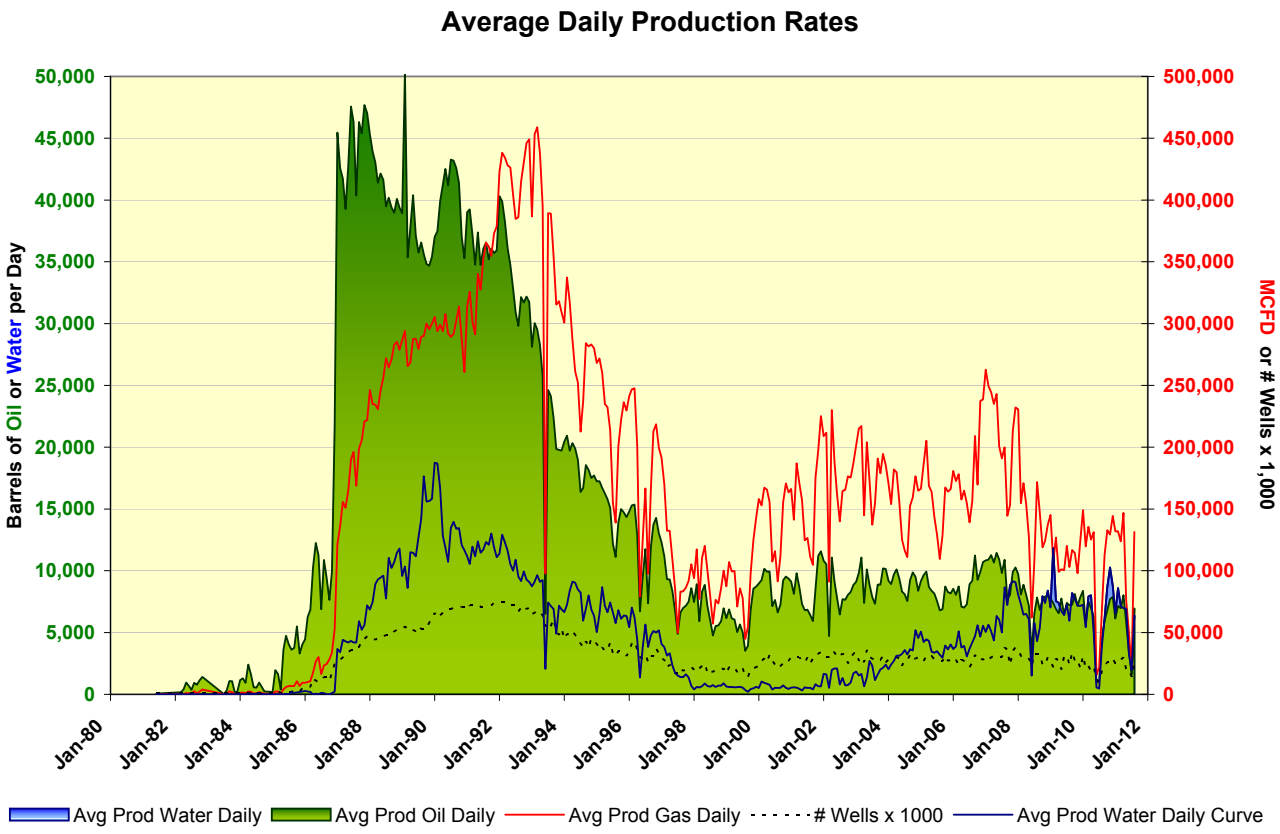
Lisburne Oil Pool

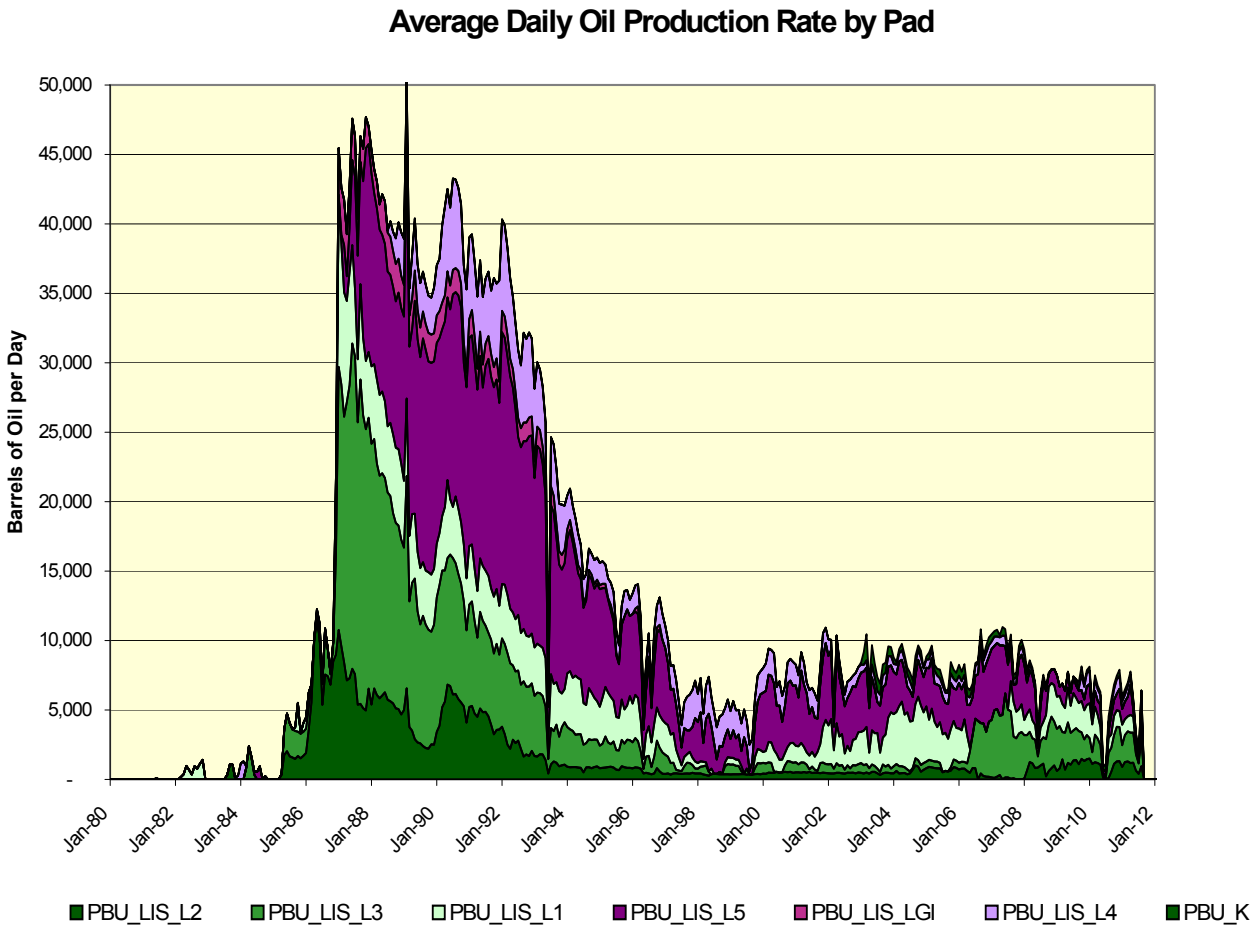
Summary

The Lisburne Oil Pool was discovered in 1969 by the ARCO Prudhoe Bay State No. 1 exploratory well between the measured depths of 8,790 feet and 10,440 feet. Regular production began in March 1982, regular gas injection began in January 1987, and by injection of water began in May 1987. Regular water injection continued until December 1989, then halted. Regular injection of water resumed again in September 2008 and continued until August 2010. During 2011, water injection occurred only in the months of May and June. Oil production peaked consistently at about 47,600 barrels of oil per day (BOPD) from mid- to late-1987 and then began to decline. For the first four months of 2011, production from the Lisburne Oil Pool averaged about 7,070 BOPD.[1]



Geology

The Lisburne Group consists primarily of shallow marine limestone and dolomite with lesser amounts of shale, silt, sand, and chert. Shaly and silty beds are continuous over broad areas and are useful for correlation. The Lisburne Group is characterized by abundant natural and predominately vertical fractures which allows for fluid movement through the carbonates as well as the thin silty and shaly beds.[2]



This oil pool has an associated gas cap, with a gas-oil contact at 8,600 feet subsea. Initial drilling data were anomalous and insufficient to definitively establish an area-wide planar oil-water contact for the Lisburne Oil Pool. The pool also contains significant amounts of naturally occurring hydrogen sulfide gas. The average initial reservoir pressure for the Lisburne Oil Pool is 4,490 pounds per square inch at an 8,900 foot subsea datum. Reservoir temperature is about 183 degrees Fahrenheit at the datum. Primary depletion is expected to recover no more than about 7 percent of the original oil in place. Produced gas is injected into the gas cap to retard the rate of reservoir pressure decline. [3]

SFD Revised October 5, 2011

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

[2] Alaska Oil and Gas Conservation Commission, 1985, Conservation Order No. 207, available online at: http://doa.alaska.gov/ogc/orders/co/co001_299/co207.htm

[3] Alaska Oil and Gas Conservation Commission, 1985, Conservation Order No. 207, cited above.