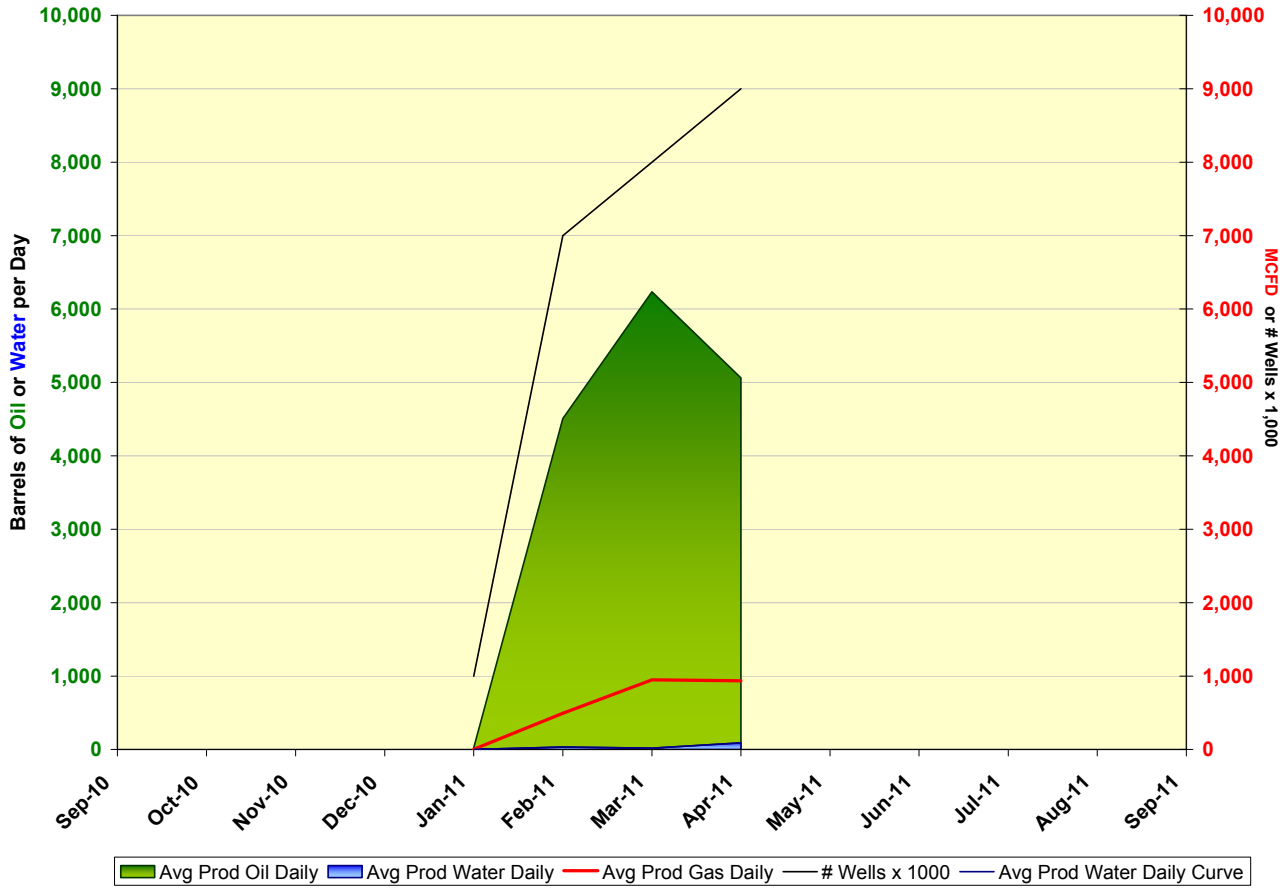
Nikaitchuq Unit, Schrader Bluff Oil Pool

Summary

Oil-bearing sands of the Late Cretaceous-aged Schrader Bluff Formation ("Schrader Bluff") are present in the Milne Point, Kuparuk River, Prudhoe Bay and Nikaitchuq Units. The Schrader Bluff Oil Pool at Nikaitchuq was discovered in 2004 by the Nikaitchuq No. 1 exploratory well. The pool was delineated by Kerr-McGee during 2004 and 2005 with the Nikaitchuq No. 2, 3 and 4, Kigun No. 1 and Tuvaaq No. 1 exploratory wells.[1] Between 2005 and 2007, Eni US Operating Company, Inc. (Eni) acquired 100% working interest in the Nikaitchuq Unit and became unit operator.[2] During 2006 and 2007, two additional exploratory wells, Oliktok Point No. I-1 and I-2 were drilled to delineate the pool. Development drilling began in 2008 and 2009 with the drilling of the OP03-P05 oil producer and the OP26-DSO-02 disposal well. An expanded development drilling program is currently underway to recover oil from the Schrader Bluff OA reservoir. Development of the overlying Schrader Bluff N sand reservoirs may occur depending on future drilling results.[3] Regular production began during January 2011, and daily oil production for April 2011 averaged 5,062 barrels from 9 wells.[4]

Average Daily Production Rates



[1] Alaska Oil and Gas Conservation Commission, 2010, Well Information Database
[2] Alaska Oil and Gas Conservation Commission, 2010, Conservation Order No.639
[3] Alaska Oil and Gas Conservation Commission, 2010, Well Information Database
[4] Alaska Oil and Gas Conservation Commission, 2010, Production Database

Geology

The Nikaitchuq Schrader Bluff Oil Pool is the accumulation of hydrocarbons common to, and correlating with, the interval between the measured depths of 3,530 and 3,867 feet[5] in exploratory well Kigun No. 1.[6] The Nikaitchuq Schrader Bluff Oil Pool encompasses (in ascending order) the informally named "OA" and "N" sands of the late Cretaceous-aged Schrader Bluff Formation. In exploratory well Kigun No. 1, the OA sand lies between 3,780 and 3,822 feet and the N sand occupies the interval from 3,627 to 3,663 feet. These sediments consist of laminated sandstones and siltstones deposited as lobes on a marine shelf within a foreland basin. They were sourced from the southwest, where the Schrader Bluff Formation interfingers with the marginal marine to non-marine sediments of the Prince Creek Formation. Four distinct, lobe deposits are currently interpreted by the operator, and these lobes are separated by layers of siltstone, calcite-cemented siltstone, or mudstone.

Within the NU, reservoir sandstones occurring in the proposed Nikaitchuq Schrader Bluff Oil Pool are typically fine- to very fine-grained and lithic-rich. Gross sand thickness ranges from 35 to 47 feet, and the net-to-gross ratio ranges from 65 to 93%. Porosity ranges from 24 to 35%, permeability ranges from 92 to 627 millidarcies, and water saturation ranges from 23 to 45%.

The structure of the proposed Nikaitchuq Schrader Bluff Oil Pool forms a southwest-to-northeast dipping monocline that is cut by numerous, northwest-trending, normal faults that have vertical displacements ranging up to 80 feet. The Nikaitchuq accumulation is trapped by both structural and stratigraphic elements. The Nikaitchuq reservoir sandstones appear to undergo a facies change toward the southwest, becoming shale. To the north and northeast, structural dip and diminishing sand content in the sediments control oil accumulation extent. To the southeast, both the structure and the OA sand and N sand appear to continue beyond the Nikaitchuq Unit boundary. The reservoir is likely separated into compartments based on the lobate nature of the reservoir sandstones, the intervening siltstone and mudstone layers, and faults having displacements exceeding the thickness of the OA reservoir strata.

In the OA sand, an oil-water contact is estimated to lie at about -4,177 feet true vertical depth subsea (TVDSS) in well Nikaitchuq No. 2. The depth of the oil-water contact in the N-sand reservoirs is less certain, lying somewhere between the lowest-known-oil depth of -3,643 feet TVDSS in well Oliktok Point I-1 and the shallowest known water depth of -3,949 feet TVDSS in well Nikaitchuq No. 4.

Nikaitchuq reservoir fluid samples recovered from the Nikaitchuq No. 4, Kigun No. 1, Oliktok Point No. I-1, and Oliktok Point No. I-2 exploratory wells measured between 16.3° and 19° API gravity, with viscosity ranging from about 95 to 188 centipoise. The solution gas-oil ratio (GOR) measures from 70 to 150 standard cubic feet per stock tank barrel, and the bubble point pressure ranges from about 1,100 psia in the reservoir compartment containing Oliktok Point No. I-1 to about 750 psia in the compartment containing Oliktok Point No. I-2. Initial Nikaitchuq reservoir pressure measured about 1,700 psi at a depth of -3,760 feet TVDSS in Kigun No. 1 and Oliktok Point No. I-1. Reservoir temperature is about 90° F.[7]

SFD

April 22, 2011

[5] Depths presented herein represent measured depths unless otherwise stated.

[6] Alaska Oil and Gas Conservation Commission, 2010, Conservation Order No. 639

[7] Alaska Oil and Gas Conservation Commission, 2010, Conservation Order No. 639