General information

Wellbore name	6506/12-11 SR
Type	EXPLORATION
Purpose	APPRAISAL
Status	RE-CLASS TO DEV
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Field	ÅSGARD
Discovery	6506/12-1 Smørbukk
Well name	6506/12-11
Seismic location	3 D HWM-94: INLINE 4188 & CROSSLINE 1678
Production licence	094
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	849-L2
Drilling facility	TRANSOCEAN SEARCHER
Drilling days	82
Entered date	12.11.1996
Completed date	01.02.1997
Release date	01.02.1999
Publication date	24.09.2002
Purpose - planned	APPRAISAL
Reclassified to wellbore	6506/12-I-4 H
Reentry	YES
Reentry activity	TESTING
Content	OIL
Discovery wellbore	NO
1st level with HC, age	EARLY JURASSIC
1st level with HC, formation	TILJE FM
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	ÅRE FM
Kelly bushing elevation [m]	22.0
Water depth [m]	289.0
Total depth (MD) [m RKB]	5268.0
Final vertical depth (TVD) [m RKB]	4843.0
Maximum inclination [°]	33.2
Bottom hole temperature [°C]	167
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	ÅRE FM

Geodetic datum	ED50
NS degrees	65° 5' 7.2'' N
EW degrees	6° 40' 54.75'' E
NS UTM [m]	7220144.87
EW UTM [m]	391047.42
UTM zone	32
NPDID wellbore	2977

Wellbore history

General

The well 6506/12-11 S was planned to be completed as a future producer. The main objectives of the well were to collect data on reservoir quality and fluid distribution, perform a long-term test to evaluate the continuity of the reservoir in the Tilje Formation, carry out an interference test between this well and an adjacent gas injector, 6506/11-5 S, and to investigate the effect of stimulation by fracturing on well productivity.

Operations and results

The deviated appraisal well 6506/12-11 S was spudded on 8 June 1996 with the semi-submersible installation "Transocean Searcher" and drilled to a TD of 5268 m (4842.5 m TVD), approximately 60 m into the Åre Formation. Drilling was interrupted for 11 days by a labour conflict. The well was drilled with seawater and high viscosity pills down to 621 m, Anco 2000 mud with glycol from 621 to 2242 m, and with oil based Anco vert from 2242 m to TD. The well penetrated the top of the Tilje Formation and the Åre Formation, respectively, 18 m and 9.5 m shallower than prognosed. Both the Tilje and the Åre Formations were hydrocarbon bearing. Two tests were performed, one in Åre and one in Tilje. In addition, a minifrac test was performed in the Åre Formation. Six cores (196 m, 187 m recovered) were cut in the Tilje and Åre Formations. Three MDT wireline samples were taken in the well, one from each of the formations Åre, Tilje, and Garn. The samples from the Tilje and Åre Formations contained oil and gas, while the sample from the Garn Formation, contained formation water. A 7" liner was run and cemented on 9 August 1996. After testing, well 6506/12-11 S was suspended on 7 September 1996 as an oil appraisal well. The well was re-entered (6506/12-11 SR) on 11 November 1996 for an extended test. Well 6506/12-11 SR was suspended as an oil appraisal well on 1 February 1997 and re-classed to development well 6506/12-I-4 H.

Testing

Test 1 in 6506/12-11 S was carried out over the interval 5226 - 5235.5 m in Åre and flowed with a rate of 685 Sm3/day oil and 453000 Sm3/day gas. Test 2 in 6506/12-11 S was carried out over the interval 5197.5 - 5206.5 m in Tilje and flowed with a rate of 470 Sm3/day oil and 173900 Sm3/day gas. The testing in 6506/12-11 SR consisted of a prefrac test in Tilje 1.1 followed by a massiv hydraulic stimulation and clean up with coiled tubing prior to start the extended well test. Most of the produced oil during the well test was recovered by the floating production, storage and testing vessel "Crystal Sea". When offloading Crystal Sea at Mongstad, the oil was burnt off at the installation.

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
311	NORDLAND GP
1523	KAI FM
2027	HORDALAND GP
2027	BRYGGE FM
2372	ROGALAND GP
2372	TARE FM
2464	TANG FM
2540	SHETLAND GP
2540	SPRINGAR FM
2813	NISE FM
3002	KVITNOS FM
3681	CROMER KNOLL GP
3681	LYSING FM
3728	LANGE FM
4554	LYR FM
4577	VIKING GP
4577	SPEKK FM
4590	MELKE FM
4731	FANGST GP
4731	GARN FM
4804	NOT FM
4835	ILE FM
4901	BÅT GP
4901	ROR FM
4980	TOFTE FM
5026	ROR FM
5042	TILJE FM
5211	ÅRE FM

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
2.0	5207	5198	22.2

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
2.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
2.0	740		0.834	0.772	386