



Generell informasjon

Brønnbane navn	6507/5-5
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORWEGIAN SEA
Felt	SKARV
Funn	6507/5-1 Skarv
Brønn navn	6507/5-5
Seismisk lokalisering	bpn00ml PI 212 xline1765-inline1203
Utvinningstillatelse	212
Boreoperatør	BP Amoco Norge AS
Boretillatelse	1021-L
Boreinnretning	WEST ALPHA
Boredager	79
Borestart	28.11.2001
Boreslutt	14.02.2002
Frigitt dato	14.02.2004
Publiseringsdato	08.03.2004
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	GARN FM
Avstand, boredekk - midlere havflate [m]	18.0
Vanndybde ved midlere havflate [m]	375.0
Totalt målt dybde (MD) [m RKB]	3948.0
Totalt vertikalt dybde (TVD) [m RKB]	3948.0
Maks inklinasjon [°]	6.6
Temperatur ved bunn av brønnbanen [°C]	155
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	ÅRE FM
Geodetisk datum	ED50



NS grader	65° 42' 8.01" N
ØV grader	7° 35' 45.36" E
NS UTM [m]	7287623.70
ØV UTM [m]	435533.04
UTM sone	32
NPDID for brønnbanen	4428

Brønnhistorie

**General**

The Skarv structure is located in the Nordland II area west of the Nordland Ridge on the Dønna Terrace. The structure consists of three fault segments called A, B, and C. Well 6507/5-5 was drilled on the B-segment. The primary objective of the well was to appraise hydrocarbons in sandstones of the Early to Middle Jurassic Garn, Ile, and Tilje Formations. Secondary objective was to verify significant hydrocarbon columns (> 10 m continuous columns) in the Cretaceous Lange Formation.

Operations and results

Appraisal well 6507/5-5 was spudded in the second attempt with the semi-submersible installation West Alpha on 28 November 2002 and drilled to TD at 3950 m in the Early Jurassic Åre Formation. No shallow gas was encountered. While drilling, a leak in the 9 5/8" casing was discovered and repaired. The well was drilled with gel and seawater down to 1051 m, with KCl/Polymer/Glycol mud from 1051 m to 2100 m, with oil based mud (ENVIROMUL NAP) from 2100 to 3642 m, and with KCl/Polymer mud from 3642 m to TD.

Top Lysing Formation came in at 2735.6 m TVD MSL, top Lange Formation at 2739 m TVD MSL, top Garn Formation at 3629.5 m TVD MSL, top Ile Formation at 3722.5 m TVD MSL, top Tilje Formation at 3811.6 m TVD MSL, and top Åre Formation at 3905.2 m TVD MSL. A 55 m oil column with an oil-down-to contact was encountered in the Garn Formation. Amplitude anomalies showed good structural correlation between the A-, B-, and C -fault segments, but hydrocarbon phase could not be predicted. The Lysing Formation was tight with no shows. Weak and questionable shows (oil based mud) were seen in cuttings from carbonate lithologies in the Lange Formation in the form of visible and UV fluorescent residue. Such shows were observed in the intervals 2951 m to 2985 m, 3022 m to 3030 m, and 3432 m to 3469 m. Shows in the form of visible and UV fluorescent residue were observed also in sandstone cuttings from the interval 3630 m to 3663 m in the Garn Formation.

One 81 m core was cut from 3655 m to 3736 m from the Garn and into the Not Formation. The full core length was recovered, but the core was ejected at rig floor due to gas expansion and 12.2 m of the core was damaged. The damaged interval was puzzled together onshore, but the interval between 3668.25 m and 3672 m was not submitted to the NPD. Forty-five pressure points were taken. MDT fluid samples recovered oil from 3668 m and 3653 m. The samples appeared to be of good quality and without contamination. The well was permanently abandoned on 14 February 2002 as an oil appraisal.

Testing

The Garn Formation was perforated from 3651.5 m to 3706.5 m. The main flow produced oil at a rate of 5880 barrels/day (935 Sm³/day) with a 64/64" choke with a total of 5264 bbl (8364 Sm³) of oil produced in 30 hours. Gas rate was 5.8 mmscf/day (164238 Sm³ gas/day), giving a GOR of 176 Sm³/Sm³ during the main flow. Samples were taken on sample chambers on the test string and from the separator outlet and the wellhead. Mean down-hole temperature (DST temperature) was 132.9°C. Mean oil density was 0.855 g/cm³ and mean gas gravity was 0.735 (air = 1); mean CO₂ content in gas was 3.5%.



Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1060.00	3950.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3654.7	3736.0	[m]

Total kjerneprøve lengde [m]	81.3
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Kjerner tilgjengelig for prøvetaking?	YES
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Kjernebilder



3654-3659m



3659-3664m



3664-3667m



3667-3672m



3672-3677m



3677-3682m



3682-3687m



3687-3692m



3692-3697m



3697-3702m



3702-3707m



3707-3712m



3712-3717m



3717-3722m



3737-3722m



3722-3727m



3727-3732m



3732-3736m

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST		0.00	0.00			YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
393	NORDLAND GP
393	NAUST FM
1394	KAI FM
1889	HORDALAND GP
1889	BRYGGE FM
2022	ROGALAND GP
2022	TARE FM
2063	TANG FM
2107	SHETLAND GP
2107	SPRINGAR FM
2181	NISE FM
2556	KVITNOS FM
2754	CROMER KNOLL GP
2754	LYSING FM
2757	LANGE FM
3327	LYR FM
3339	VIKING GP
3339	SPEKK FM
3372	MELKE FM
3648	FANGST GP



3648	GARN FM
3723	NOT FM
3742	ILE FM
3774	BÅT GP
3774	ROR FM
3831	TILJE FM
3925	ÅRE FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
4428	pdf	0.45

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
4428_1	pdf	3.86

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
4428_65067_5_5_COMPOSITE_PLOT	.pdf	1.84
4428_6507_5_5_COMPLETION_REPORT	.PDF	0.49
4428_6507_5_5_DRILLING_REPORT	.PDF	12.50

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3561	3706	25.0

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningsstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0	7.400			133





Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	940	164256	0.855	0.735	176

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
DSI HRLA GR EMS	3440	3946
DSI IPLT GR	2100	3644
IPLT GR	3644	3946
MDT GR	3644	3946
MDT GR	3653	3885
MWD - LWD DIR	471	1060
MWD - LWD MPR GR	1060	3950
VSI-VSP/CHK	1322	3946

Foringsrør og formasjonsstyrketester

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm3]	Type formasjonstest
CONDUCTOR	30	466.0	36	471.0	0.00	LOT
INTERM.	20	1051.0	26	1060.0	1.56	LOT
INTERM.	13 3/8	2100.0	17 1/2	2106.0	1.90	LOT
LINER	9 5/8	3642.0	12 1/4	3643.0	0.00	LOT
LINER	7	3948.0	8 1/2	3948.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
393	0.17			SPUD MUD	
471	0.17			SPUD MUD	
1060	0.14			SPUD MUD	
3643	1.25			KCL	
3643	1.25			WATER/BRINE	
3643	1.63	28.0		KCL	



Trykkplott

Porertrykksdataene kommer fra logging i brønnen hvis ingen annen kilde er oppgitt. I noen brønner der trykk ikke er logget, er det brukt informasjon fra formasjonstester eller brønnspar. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
4428 Formation pressure (Formasjonstrykk)	pdf	0.29

