Generell informasjon

Brønnbane navn	16/2-14
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	JOHAN SVERDRUP
Funn	16/2-6 Johan Sverdrup
Brønn navn	16/2-14
Seismisk lokalisering	LN0902 STR 11 .inline 4000 & xline 3404
Utvinningstillatelse	265
Boreoperatør	Statoil Petroleum AS
Boretillatelse	1405-L
Boreinnretning	OCEAN VANGUARD
Boredager	65
Borestart	14.09.2012
Boreslutt	17.11.2012
Plugget og forlatt dato	17.11.2012
Frigitt dato	17.11.2014
Publiseringsdato	11.03.2015
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	INTRA DRAUPNE FM SS
Avstand, boredekk - midlere havflate [m]	22.0
Vanndybde ved midlere havflate [m]	113.0
Totalt målt dybde (MD) [m RKB]	1982.0
Totalt vertikalt dybde (TVD) [m RKB]	1982.0
Maks inklinasjon [°]	4.8
Temperatur ved bunn av brønnbanen [°C]	85
Eldste penetrerte alder	TRIASSIC
Eldste penetrerte formasjon	SKAGERRAK FM

Geodetisk datum	ED50
NS grader	58° 50' 25.97'' N
ØV grader	2° 31' 2.14'' E
NS UTM [m]	6522547.56
ØV UTM [m]	472136.18
UTM sone	31
NPDID for brønnbanen	6898

Brønnhistorie

General

Well 16/2-14 was drilled on the Espeværhøgda prospect on the Johan Sverdrup Field on the Utsira High. The main objective was to investigate the reservoir thickness, quality and facies near the crest of the whole Johan Sverdrup structure. The secondary objective was to acquire data in the overburden for field development decisions and planning of future production and injection wells at Johan Sverdrup Field. A third objective was to investigate reservoir presence in the Triassic section (Hegre Group). The fourth objective was to investigate the reservoir quality of the Shetland Group chalk (Ekofisk/Tor Formation).

Operations and results

A pilot hole 16/2-U-14 was drilled 30 m south of the main wellbore location to aid in picking core points in the overburden. Appraisal well 16/2-14 was spudded with the semi-submersible installation Ocean Vanguard on 14 September 2012 and drilled to 1210 m where a fish was lost in hole. The hole was cemented back and it was decided to set the 13 3/8 casing shoe. Well 16/2-14 T2 was sidetracked from 16/2-14 below the 13 3/8" casing shoe at 1171 m and drilled to TD at 1982 m in the Triassic Skagerrak Formation. The well was drilled with Seawater down to 608 m and with oil based XP-07 mud from 608 m to TD.

Good oil shows were recorded at top Ekofisk level from 1565 to 1570 m. Weak shows (from OBM?) were recorded in the Ekofisk chalk from 1570 to 1733 m. The well encountered the target Late Jurassic reservoir sand 18 m deep to prognosis, at 1856 m. The reservoir showed good reservoir properties and contained oil. Top Triassic, the tertiary objective, came in at 1886 m, 11 m deeper than prognosed. There were no shows on the core from the Triassic section (core 7).

Seven cores were cut. Core 1 was cut from 811 to 820 m in Utsira Formation sandstone, core 2 was cut from 987 to 996 m in Skade Formation sandstone, and core 3 was cut from 1067 to 1076 m in undifferentiated Hordaland Group sandstone and core 4 was cut from 1539 to 1548 m in the Lista Formation mudstone. Cores 5 to 7 were cut in succession from 1836 to 1904.5 m, covering the interval from lowermost Cretaceous, through the whole reservoir section, and 16 m into the Triassic. MDT water samples were taken at 820.05 m, 820.53 m and 820.98 m in the Utsira Formation and at 1116.53 m in undifferentiated sandstone in the Hordaland Group. Oil samples were taken at 1858 m in the Late Jurassic reservoir sandstone. Fifteen percent contamination of the sampled fluid was estimated.

The well was permanently abandoned on 17 November 2012 as an oil appraisal.

Testing

Injection tests were performed in the plug and abandon phase.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
620.00	1210.00

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	811.0	820.7	[m]
2	987.0	991.5	[m]
3	1067.0	1074.8	[m]
4	1539.0	1547.5	[m]
5	1836.0	1849.0	[m]
6	1849.0	1876.1	[m]
7	1877.0	1904.5	[m]

Total kjerneprøve lengde [m]	98.0
Kjerner tilgjengelig for prøvetaking?	YES

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
620.0	[m]	DC	FUGRO
641.0	[m]	DC	FUGRO
659.0	[m]	DC	FUGRO
680.0	[m]	DC	FUGRO
701.0	[m]	DC	FUGRO
719.0	[m]	DC	FUGRO
740.0	[m]	DC	FUGRO
761.0	[m]	DC	FUGRO
779.0	[m]	DC	FUGRO
803.0	[m]	DC	FUGRO
809.0	[m]	DC	FUGRO
811.3	[m]	C	FUGRO
818.0	[m]	C	FUGRO
819.8	[m]	C	FUGRO
824.0	[m]	DC	FUGRO
831.0	[m]	DC	FUGRO
837.0	[m]	DC	FUGRO
843.0	[m]	DC	FUGRO
849.0	[m]	DC	FUGRO
855.0	[m]	DC	FUGRO
861.0	[m]	DC	FUGRO
867.0	[m]	DC	FUGRO

873.0	[m]	DC	FUGRO
879.0	[m]	DC	FUGRO
885.0	[m]	DC	FUGRO
891.0	[m]	DC	FUGRO
897.0	[m]	DC	FUGRO
903.0	[m]	DC	FUGRO
909.0	[m]	DC	FUGRO
915.0	[m]	DC	FUGRO
921.0	[m]	DC	FUGRO
927.0	[m]	DC	FUGRO
933.0	[m]	DC	FUGRO
939.0	[m]	DC	FUGRO
945.0	[m]	DC	FUGRO
951.0	[m]	DC	FUGRO
957.0	[m]	DC	FUGRO
963.0	[m]	DC	FUGRO
969.0	[m]	DC	FUGRO
975.0	[m]	DC	FUGRO
981.0	[m]	DC	FUGRO
990.0	[m]	C	FUGRO
999.0	[m]	DC	FUGRO
1005.0	[m]	DC	FUGRO
1011.0	[m]	DC	FUGRO
1017.0	[m]	DC	FUGRO
1023.0	[m]	DC	FUGRO
1029.0	[m]	DC	FUGRO
1035.0	[m]	DC	FUGRO
1041.0	[m]	DC	FUGRO
1047.0	[m]	DC	FUGRO
1053.0	[m]	DC	FUGRO
1059.0	[m]	DC	FUGRO
1065.0	[m]	DC	FUGRO
1067.1	[m]	C	FUGRO
1071.0	[m]	C	FUGRO
1074.8	[m]	C	FUGRO
1079.0	[m]	DC	FUGRO
1085.0	[m]	DC	FUGRO
1091.0	[m]	DC	FUGRO
1097.0	[m]	DC	FUGRO
1103.0	[m]	DC	FUGRO

1109.0	[m]	DC	FUGRO
1115.0	[m]	DC	FUGRO
1121.0	[m]	DC	FUGRO
1127.0	[m]	DC	FUGRO
1139.0	[m]	DC	FUGRO
1160.0	[m]	DC	FUGRO
1181.0	[m]	DC	FUGRO
1199.0	[m]	DC	FUGRO
1220.0	[m]	DC	FUGRO
1240.0	[m]	DC	FUGRO
1260.0	[m]	DC	FUGRO
1280.0	[m]	DC	FUGRO
1300.0	[m]	DC	FUGRO
1320.0	[m]	DC	FUGRO
1340.0	[m]	DC	FUGRO
1360.0	[m]	DC	FUGRO
1380.0	[m]	DC	FUGRO
1400.0	[m]	DC	FUGRO
1420.0	[m]	DC	FUGRO
1440.0	[m]	DC	FUGRO
1460.0	[m]	DC	FUGRO
1480.0	[m]	DC	FUGRO
1500.0	[m]	DC	FUGRO
1520.0	[m]	DC	FUGRO
1539.0	[m]	DC	FUGRO
1560.0	[m]	DC	FUGRO
1580.0	[m]	DC	FUGRO
1601.0	[m]	DC	FUGRO
1619.0	[m]	DC	FUGRO
1640.0	[m]	DC	FUGRO
1661.0	[m]	DC	FUGRO
1700.0	[m]	DC	FUGRO
1721.0	[m]	DC	FUGRO
1739.0	[m]	DC	FUGRO
1760.0	[m]	DC	FUGRO
1781.0	[m]	DC	FUGRO
1793.0	[m]	DC	FUGRO
1799.0	[m]	DC	FUGRO
1805.0	[m]	DC	FUGRO
1811.0	[m]	DC	FUGRO

1817.0	[m]	DC	FUGRO
1823.0	[m]	DC	FUGRO
1829.0	[m]	DC	FUGRO
1835.0	[m]	DC	FUGRO
1849.0	[m]	C	FUGRO
1850.0	[m]	C	FUGRO
1851.0	[m]	C	FUGRO
1852.0	[m]	C	FUGRO
1853.0	[m]	C	FUGRO
1853.1	[m]	C	FUGRO
1854.0	[m]	C	FUGRO
1854.0	[m]	C	FUGRO
1854.3	[m]	C	FUGRO
1855.0	[m]	C	FUGRO
1861.6	[m]	C	FUGRO
1875.2	[m]	C	FUGRO
1883.5	[m]	C	FUGRO
1883.8	[m]	C	FUGRO
1884.8	[m]	C	FUGRO
1907.0	[m]	DC	FUGRO
1913.0	[m]	DC	FUGRO
1919.0	[m]	DC	FUGRO
1925.0	[m]	DC	FUGRO
1931.0	[m]	DC	FUGRO
1937.0	[m]	DC	FUGRO
1943.0	[m]	DC	FUGRO
1949.0	[m]	DC	FUGRO
1955.0	[m]	DC	FUGRO
1961.0	[m]	DC	FUGRO
1967.0	[m]	DC	FUGRO
1973.0	[m]	DC	FUGRO
1979.0	[m]	DC	FUGRO

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
135	NORDLAND GP
809	UTSIRA FM
902	UNDIFFERENTIATED

985	HORDALAND GP
985	SKADE FM
1120	UNDIFFERENTIATED
1474	ROGALAND GP
1474	BALDER FM
1492	SELE FM
1520	LISTA FM
1567	SHETLAND GP
1567	EKOFISK FM
1791	CROMER KNOLL GP
1791	RØDBY FM
1851	ÅSGARD FM
1857	VIKING GP
1857	INTRA DRAUPNE FM SS
1887	HEGRE GP
1887	SKAGERRAK FM

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CMR PEX ECS	135	1207
HNGS ECS PEX AIT	1572	1981
MDT CMR	1578	1982
MDT CMR GR	796	1150
MDT GR	820	1117
MSIP PEX	1171	1561
MWD - ARCVRES TELE	190	1067
MWD - ARCVRES6 TELE	1570	1836
MWD - ARCVRES8 TELE	1836	1982
MWD - PDX5 ARCVRES8 TELE	1215	1570
MWD - TELESCOPE	1098	1215
OBMI MSIP	1510	1982
OBMI MSIP GR	608	1207
USIT CBL	1057	1566
USIT CBL CCL GR	825	1165
VSP GR	200	1200
ZOVSP GR	1019	1971

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	198.0	36	198.0	0.00	
SURF.COND.	20	608.0	26	608.0	1.51	LOT
INTERM.	13 3/8	1171.0	17 1/2	1171.0	1.50	FIT
INTERM.	9 5/8	1569.0	12 1/4	1570.0	1.58	LOT
OPEN HOLE		1932.0	8 1/2	1932.0	0.00	

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
135	1.60	22.0		Kill Fluid-SW/Bentonite	
135	1.03	24.0		PAC RE	
212	1.03	24.0		PAC RE	
550	1.34	22.0		OBM-Low ECD	
609	1.60	24.0		Kill Fluid-SW/Bentonite	
615	1.30	17.0		OBM-Low ECD	
617	1.30	18.0		OBM-Low ECD	
676	1.31	21.0		OBM-Low ECD	
811	1.30	21.0		OBM-Low ECD	
887	1.30	20.0		OBM-Low ECD	
996	1.30	22.0		OBM-Low ECD	
1010	1.31	21.0		OBM-Low ECD	
1076	1.31	22.0		OBM-Low ECD	
1107	1.31	19.0		OBM-Low ECD	
1120	1.31	20.0		OBM-Low ECD	
1183	1.31	21.0		OBM-Low ECD	
1210	1.31	22.0		OBM-Low ECD	
1290	1.34	23.0		OBM-Low ECD	
1570	1.20	16.0		OBM-Low ECD	
1904	1.30	21.0		OBM-Low ECD	
1982	1.28	19.0		OBM-Low ECD	