



Generell informasjon

Brønnbane navn	34/7-10
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	SNORRE
Funn	34/4-1 Snorre
Brønn navn	34/7-10
Seismisk lokalisering	G/E 3D 1983 LINJE 185 SP. 445
Utvinningstillatelse	089
Boreoperatør	Saga Petroleum ASA
Boretillatelse	527-L
Boreinnretning	TREASURE SAGA
Boredager	65
Borestart	26.08.1986
Boreslutt	29.10.1986
Frigitt dato	29.10.1988
Publiseringsdato	03.12.2014
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	EARLY JURASSIC
1. nivå med hydrokarboner, formasjon.	STATFJORD GP
Avstand, boredekk - midlere havflate [m]	26.0
Vanndybde ved midlere havflate [m]	300.0
Totalt målt dybde (MD) [m RKB]	3000.0
Totalt vertikalt dybde (TVD) [m RKB]	2999.0
Maks inklinasjon [°]	1.4
Temperatur ved bunn av brønnbanen [°C]	109
Eldste penetrerte alder	LATE TRIASSIC
Eldste penetrerte formasjon	LUNDE FM
Geodetisk datum	ED50
NS grader	61° 25' 2.64" N



ØV grader	2° 7' 36.23" E
NS UTM [m]	6809754.99
ØV UTM [m]	453388.15
UTM sone	31
NPDID for brønnbanen	947

Brønnhistorie

General

Well 34/7-10 was drilled on the southern end of the Snorre Field. The primary purpose of well 34/7-10 was to prove Statfjord Group reserves in the south-east Snorre. Further objectives were to test the Statfjord Group thickness and sand distribution, to test the extent and quality of the middle Statfjord member and to establish a Statfjord Group OWC and reservoir parameters of the Statfjord Group and underlying upper Lunde Formation.

Operations and results

Appraisal well 34/7-10 was spudded with the semi-submersible installation Treasure Saga on 26 August 1986 and drilled to TD at 3000 m in the Late Triassic Lunde Formation. Drilling proceeded without significant problems. The well was drilled with spud mud down to 430 m, with gel mud from 430 m to 918 m, with gypsum/polymer mud from 918 m to 2413 m, and with KCl mud from 2413 m to TD.

Apart from the sandy Utsira Formation of Late Miocene age, a Late Oligocene (1314 - 1324 m) and a Late Eocene (1377 - 1387 m) sandstone unit within the Hordaland Group, the upper section down to Jurassic proved mainly claystones. The Jurassic consists of a silty Dunlin Group and a sandy Statfjord Formation. The Triassic consists of claystones with minor sandstones in the upper part and alternating sandstones/ claystones from 2800 m and down to TD. First traces of shows were seen at 2120 m in silty laminas of the Shetland Group. These are described as weak dark yellow fluorescence with slowly streaming light yellow cut. From 2250 m and down to top Statfjord Group oil reservoir at 2531.5 m silt and sandstone show weak to moderate dull yellow to bright yellow fluorescence and slowly streaming blue white to milky white cut. The residue is yellow to light brown in colour. Below the OWC at 2621 m shows continued down to 2635 m where both shows and cut became poorer.

The Statfjord Group was encountered at 2531.5 m with a gross thickness of 105 m. It was hydrocarbon-bearing down to the OWC at 2621 m. The average log porosity in the oil zone was 22.1%, the net/gross was 0.33 and the average water saturation was 32%. The OWC was established from pressure gradients and from well logs. However, low oil rates were obtained also in DST1 in the interval 2632.7 - 2636.7 m. It is probable that this is an isolated body of sand.

A total of 14 cores were cut and recovered during drilling of the well. The cores were cut in the interval 2522 - 2663 m. A total of 122.3 m of cores were recovered, corresponding to an average recovery of 86.7%. The core to log depth shifts varied between + 1.0 m to - 0.5 m. FMT fluid samples were taken at 2532.5 m (8.8 l oil and 2.8 l mud filtrate in 2 3/4 gallon chamber), 2601.0 m (mud filtrate and a little oil), and at 2634.5 m (mud filtrate with trace oil)

The well was permanently abandoned on 29 October 1986 as an oil appraisal well.

Testing



Four drill stem tests were performed.

DST 1 tested the interval 2632.7 - 2636.7 m, 20 m below the observed OWC as seen from well logs and pressure data. It produced 2.7 to 5.4 Sm³ oil/day through a 6.4 mm choke in the main flow period. The maximum bottom hole temperature in the test was 81.8 °C.

DST 2 tested the interval 2609.4 - 2614.9 m. It produced 222 Sm³ oil through a 12.7 mm choke. The GOR was 77.1 Sm³/Sm³ and the stock tank oil density was 0.8278 g/cm³. The maximum bottom hole temperature in the test was 96.8 °C.

DST 3 tested the interval 2561.0 - 2570.5 m. It produced 961 Sm³ oil/day through a 12.7 mm choke. The GOR was 48 Sm³/Sm³ and the stock tank oil density was 0.8277 g/cm³. The maximum bottom hole temperature in the test was 95.4 °C.

DST 4 tested the interval 2548.4 - 2551.9 m. It produced 273 Sm³ oil/day through a 6.4 mm choke. The GOR was 69 Sm³/Sm³. The maximum bottom hole temperature in the test was 95 °C.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
430.00	2999.00

Borekaks tilgjengelig for prøvetaking?	YES
--	-----

Borekjerter i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	2522.0	2539.1	[m]
2	2540.5	2551.6	[m]
3	2552.5	2558.4	[m]
4	2558.5	2574.0	[m]
5	2574.0	2577.7	[m]
6	2592.0	2598.0	[m]
7	2599.5	2602.0	[m]
8	2602.0	2608.5	[m]
9	2608.5	2617.5	[m]
10	2617.5	2624.0	[m]
11	2624.0	2635.5	[m]
12	2635.5	2641.5	[m]
13	2641.5	2655.0	[m]



14	2655.0	2663.0	[m]
----	--------	--------	------

Total kjerneprøve lengde [m]	122.8
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



2522-2527m



2527-2532m



2532-2537m



2537-2539m



2540-2545m



2545-2550m



2550-2551m



2552-2557m



2557-2558m



2558-2563m



2563-2568m



2568-2573m



2573-2574m



2574-2577m



2592-2597m



2597-2598m



2599-2602m



2602-2607m



2607-2608m



2608-2613m



2613-2617m



2617-2622m



2622-2624m



2624-2629m



2629-2634m



2634-2635m



2635-2640m



2640-2641m



2641-2646m



2646-2651m



2651-2655m



2655-2660m



2660-2663m

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	TEST1	2606.70	2610.70		07.10.1986 - 00:00	YES
DST	TEST2	2583.40	2588.90	OIL	11.10.1986 - 00:00	YES
DST	TEST3	2535.00	2544.50		17.10.1986 - 00:00	YES
DST	DST4	2549.00	2551.50		22.10.1986 - 13:14	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
326	NORDLAND GP
1084	UTSIRA FM
1093	HORDALAND GP
1682	ROGALAND GP
1682	BALDER FM
1728	SELE FM
1800	LISTA FM
1863	SHETLAND GP



1863	JORSALFARE FM
2145	KYRRE FM
2394	CROMER KNOLL GP
2400	DUNLIN GP
2400	BURTON FM
2440	AMUNDSEN FM
2531	STATFJORD GP
2531	NANSEN FM
2562	EIRIKSSON FM
2620	RAUDE FM
2683	HEGRE GP
2683	LUNDE FM

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
947_GCH_1	pdf	0.24
947_GCH_2	pdf	2.69

Dokumenter - eldre Sökkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
947_01_WDSS_General_Information	pdf	0.28
947_02_WDSS_completion_log	pdf	0.26

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
947_34_7_10_Completion_log	pdf	1.80
947_34_7_10_Completion_report	pdf	14.01

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	2637	2633	6.4





2.0	2615	2610	12.7
3.0	2571	2561	12.7
4.0	2552	2549	6.4

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0		15.000	37.000	82
2.0		2.000	37.000	90
3.0		10.000	38.000	95
4.0		11.000	38.000	78

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0	3		8.470		
2.0	219	17000	8.770		78
3.0	960	45000	0.838	0.838	47
4.0	272	18000	0.835	0.835	66

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL	400	1904
CDL CNL GR	1906	3000
COREGUN	1930	2966
DIFL LS BHC	901	3000
DIP	1906	3000
DLL MSFL GR	1906	2700
FMT	2442	2685
FMT	2533	2874
MWD - GR RES	428	3000
VSP	481	2974
ZEDL	2500	3000

Foringsrør og formasjonsstyrketester



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 15.5.2024 - 17:20

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm3]	Type formasjonstest
CONDUCTOR	30	423.0	36	430.0	0.00	LOT
SURF.COND.	20	901.0	26	918.0	1.55	LOT
INTERM.	13 3/8	1907.0	17 1/2	1920.0	1.81	LOT
INTERM.	9 5/8	2755.0	12 1/4	3000.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
326	1.07			WATER BASED	01.09.1986
428	1.07			WATER BASED	01.09.1986
430	1.07			WATER BASED	04.09.1986
730	1.11	7.0	17.8	WATER BASED	04.09.1986
918	1.13	8.0	18.7	WATER BASED	04.09.1986
918	1.15	9.0	24.9	WATER BASED	04.09.1986
918	1.11			WATER BASED	09.09.1986
918	1.11	21.0	11.1	WATER BASED	09.09.1986
1323	1.11	18.0	9.6	WATER BASED	09.09.1986
1665	1.30	24.0	14.4	WATER BASED	09.09.1986
1920	1.40	29.0	11.5	WATER BASED	09.09.1986
1920	1.45	20.0	5.8	WATER BASED	12.09.1986
1920	1.45	16.0	4.8	WATER BASED	15.09.1986
1963	1.50	19.0	6.8	WATER BASED	15.09.1986
2058	1.50	20.0	8.7	WATER BASED	15.09.1986
2280	1.65	24.0	8.7	WATER BASED	15.09.1986
2413	1.70	35.0	8.7	WATER BASED	15.09.1986
2440	1.70	29.0	6.3	WATER BASED	22.09.1986
2440	1.70	30.0	8.7	WATER BASED	22.09.1986
2440	1.70	27.0	8.7	WATER BASED	09.10.1986
2440	1.70	34.0	8.7	WATER BASED	27.10.1986
2440	1.70	33.0	7.7	WATER BASED	22.09.1986
2522	1.70	28.0	7.7	WATER BASED	15.09.1986
2550	1.70	33.0	7.7	WATER BASED	15.09.1986
2556	1.70	34.0	8.7	WATER BASED	20.10.1986
2558	1.70	34.0	8.7	WATER BASED	21.10.1986
2558	1.70	34.0	8.7	WATER BASED	27.10.1986
2558	1.70	34.0	8.7	WATER BASED	03.11.1986



2570	1.70	28.0	6.8	WATER BASED	15.09.1986
2578	1.70	29.0	5.3	WATER BASED	22.09.1986
2581	1.70	35.0	8.7	WATER BASED	20.10.1986
2581	1.70	36.0	8.2	WATER BASED	20.10.1986
2581	1.70	31.0	8.7	WATER BASED	20.10.1986
2581	1.70	35.0	9.1	WATER BASED	20.10.1986
2596	1.70	28.0	7.2	WATER BASED	22.09.1986
2627	1.70	22.0	7.7	WATER BASED	15.10.1986
2627	1.70	24.0	7.2	WATER BASED	15.10.1986
2627	1.70	26.0	8.7	WATER BASED	20.10.1986
2648	1.70	27.0	6.8	WATER BASED	23.09.1986
2663	1.70	27.0	5.3	WATER BASED	23.09.1986
2700	1.70	32.0	8.7	WATER BASED	30.09.1986
2722	1.70	29.0	8.7	WATER BASED	30.09.1986
2724	1.70	27.0	8.2	WATER BASED	09.10.1986
2755	1.70	28.0	8.2	WATER BASED	09.10.1986
2755	1.70	29.0	8.7	WATER BASED	09.10.1986
2770	1.70	25.0	7.2	WATER BASED	09.10.1986
2823	1.70	27.0	7.7	WATER BASED	30.09.1986
2973	1.70	28.0	7.7	WATER BASED	30.09.1986
3000	1.71	26.0	8.2	WATER BASED	30.09.1986
3000	1.71	29.0	6.8	WATER BASED	09.10.1986
3000	1.71	35.0	9.1	WATER BASED	09.10.1986

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 brønnspark. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
947 Formation pressure (Formasjonstrykk)	pdf	0.21

