



Generell informasjon

Brønnbane navn	34/4-13 S
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Funn	34/4-11 (Beta)
Brønn navn	34/4-13
Seismisk lokalisering	PCR06M01-inline 1959 & crossline 1707
Utvinningstillatelse	375
Boreoperatør	Petro-Canada Norge AS
Boretillatelse	1323-L
Boreinnretning	WEST ALPHA
Boredager	129
Borestart	27.08.2010
Boreslutt	02.01.2011
Frigitt dato	02.01.2013
Publiseringsdato	15.01.2013
Opprinnelig formål	APPRAISAL
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]	18.0
Vanndybde ved midlere havflate [m]	374.0
Totalt målt dybde (MD) [m RKB]	5010.0
Totalt vertikalt dybde (TVD) [m RKB]	4291.0
Maks inklinasjon [°]	37.5
Temperatur ved bunn av brønnbanen [°C]	151
Eldste penetrerte alder	LATE TRIASSIC
Eldste penetrerte formasjon	LUNDE FM
Geodetisk datum	ED50
NS grader	61° 38' 42.96" N



ØV grader	2° 6' 0.2" E
NS UTM [m]	6835156.57
ØV UTM [m]	452314.90
UTM sone	31
NPDID for brønnbanen	6442

Brønnhistorie

**General**

The exploration well Beta Statfjord 34/4-13 S was drilled on the Tampen Spur area in the northern North Sea to appraise the Beta Brent Discovery made by well 34/4-11 in 2009. The primary objective was to evaluate oil and or gas in sandstones of the Cook and Statfjord formations and Hegre Group. The original plan was a vertical well, but to meet the time slot available for the rig a site survey over the proposed target location was unable to be completed. Hence a deviated well from the ready surveyed 34/4-11 location was decided.

Operations and results

Appraisal well 34/4-13 S was spudded with the semi-submersible installation West Alpha on 27 August 2010 and drilled to TD at 5010 m (4291 m TVD) in the Late Triassic Lunde Formation. The well was drilled directionally (J-shaped well) with a sail angle through the 17 1/2", 12 1/4" and 8 1/2" intervals of approximately 37 deg. Significant downtime with the BOP system was incurred prior to and during running the BOP. Otherwise no significant technical problems were encountered in the operations. The well was drilled with sea water and hi-vis pills down to 1480 m, with Versatec OBM from 1480 m to 4382 m, and with Versatherm OBM from 4382 m to TD.

Top Viking Group was penetrated at 4422 m, the Brent Group came in at 4499 m, and top Dunlin Group at 4525 m. The Brent and Dunlin groups were dominantly mudstones without hydrocarbons except from a silty interval from 4686 to 4710 m that had traces of sand with oil shows. The Statfjord Formation was encountered at 4800 m (4122 m TVD) and had a good quality porous hydrocarbon bearing sandstone interval at the top of the zone from 4801 to 4816.5 m and a smaller porous sandstone interval at 4841.5 m to 4845 m. Core and well log data supported an oil-down-to depth of 4847 m (4160 m TVD). However two additional porous sandstone units identified on logs lower down in the Statfjord Formation at 4871 m to 4872.3 m and 4893 m to 4895.4 m would suggest a potential oil-down-to depth of 4894.3 m (4197 m TVD). There was no oil/water contact identified on the well logs. Oil shows were recorded on core no 4 down to a depth of 4902 m. There were no shows discernible from the OBM below this depth or above 4686 m.

A total of 68.3 m core was recovered in three cores from 4801 to 4849.5 m and a fourth core from 4894 to 4916 m. MDT fluid samples were taken at 4805.1 m (oil with ca 9% mud filtrate) and at 4814.8 m (oil with ca 3% mud filtrate). Single stage separation of the samples, corrected for contamination, gave a GOR of ca 150 Sm³/Sm³, a stock tank gravity of ca 0.823 g/cm³, and a gas gravity of 0.955 (air = 1).

The well was permanently abandoned on 2 January 2011 as an oil appraisal well.

Testing

One drill stem test was conducted from perforations at 4803 - 4815 m (4107 - 4116 m TVD) in the Statfjord Formation sandstone. The main flow produced 1399 Sm³ oil and ca 127000 Sm³ gas /day through a 34/64" choke with no signs of decline of the oil or gas rate. The GOR was ca 93 Sm³/Sm³. All flows were water free, with 3 ppm of H₂S and CO₂ of about 2% in the gas stream. Bottom hole temperature in the test was 144.8 deg C.



Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1490.00	5010.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	4801.0	4826.9	[m]
2	4828.0	4834.6	[m]
3	4835.0	4849.0	[m]
4	4894.0	4915.9	[m]

Total kjerneprøve lengde [m]	68.4
Kjerner tilgjengelig for prøvetaking?	YES

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST		4813.71	4803.00	OIL	12.12.2010 - 23:05	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
392	NORDLAND GP
1284	UTSIRA FM
1305	HORDALAND GP
1853	ROGALAND GP
1853	BALDER FM
1909	SELE FM
1980	LISTA FM
2063	SHETLAND GP
2063	JORSALFARE FM
2400	KYRRE FM



4171	SVARTE FM
4352	CROMER KNOLL GP
4422	VIKING GP
4422	DRAUPNE FM
4472	HEATHER FM
4499	BRENT GP
4525	DUNLIN GP
4800	STATFJORD GP
4905	HEGRE GP
4905	LUNDE FM

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	4803	4815	13.6

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0		73.800	74.900	115

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0	1400				

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
AIT GPIT PPC DSI PPC PEX	2900	4380
AIT PEX HNGS	4375	5007
CBL	2902	4335
CMR XPT	4490	5005
DOBMI GPIT PPC DSI PPC GR	2850	5007
DSLT GR CCL	4228	4943
MDT	4801	4981
MSCT	4496	4801
MWD - GR RES PWD DI	392	1480



MWD - PDGR GR RES PWD DI SON	1480	5010
PMIT CCL	390	4334
USIT DSLT GR CCL	4228	4920
VSP	640	4995

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	470.0	36	471.0	0.00	LOT
PILOT HOLE		600.0	9 7/8	600.0	0.00	LOT
SURF.COND.	20	1472.6	26	1480.0	0.00	LOT
SURF.COND.	13 3/8	2903.0	17 1/2	2908.0	1.86	LOT
INTERM.	9 5/8	4376.0	12 1/4	4382.0	2.20	LOT
LINER	7	5009.0	8 1/2	5010.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
415	1.02	40.0		cmc	
474	1.49	27.0		bentonite spud	
600	1.02	50.0		bentonite spud	
1480	1.24	22.0		bentonite spud	
1633	1.50	46.0		Versatec	
2908	1.53	46.0		Versatec	
2993	1.66	52.0		Versatec	
3556	1.71	56.0		Versatec	
4004	0.99	51.0		Versatec	
4330	0.99	50.0		Versatec	
4382	1.73	53.0		Versatec	
4383	1.71	51.0		Versatec	
4525	2.03	64.0		Versatherm	
4802	1.99	68.0		Versatherm	
4829	1.99	72.0		Versatherm	
4915	1.99	72.0		Versatherm	
5007	1.99	71.0		versatherm	
5007	1.73	36.0		versatherm	



5007	1.70			CaBr2 Brine	
5007	1.70			CaBr2 Brine	
5010	1.99	71.0		Versatherm	
5010	2.09	73.0		Versatherm	
5010	1.99	69.0		Versatherm	

Tynnslip i Sokkeldirektoratet

Dybde	Enhet
4915.60	[m]
4900.95	[m]
4845.24	[m]
4841.50	[m]
4811.88	[m]
4808.25	[m]
4804.67	[m]
4801.83	[m]