Generell informasjon

Brønnbane navn	34/6-5 S
Type	EXPLORATION
Formål	WILDCAT
Status	PLUGGED
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Funn	34/6-5 S
Brønn navn	34/6-5
Seismisk lokalisering	3D Cube CGG18M01. inline 5568. xline 31949
Utvinningstillatelse	554
Boreoperatør	Equinor Energy AS
Boretillatelse	1848-L
Boreinnretning	WEST HERCULES
Boredager	83
Borestart	18.03.2021
Boreslutt	08.06.2021
Plugget dato	08.06.2021
Frigitt dato	08.06.2023
Publiseringsdato	12.09.2023
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	EARLY JURASSIC
1. nivå med hydrokarboner, formasjon.	COOK FM
Avstand, boredekk - midlere havflate [m]	31.0
Vanndybde ved midlere havflate [m]	385.0
Totalt målt dybde (MD) [m RKB]	4036.0
Totalt vertikalt dybde (TVD) [m RKB]	3983.0
Maks inklinasjon [°]	24.4
Temperatur ved bunn av brønnbanen [°C]	150
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	NANSEN FM

Geodetisk datum	ED50
NS grader	61° 36' 4.81'' N
ØV grader	2° 44' 27.87'' E
NS UTM [m]	6829960.45
ØV UTM [m]	486260.67
UTM sone	31
NPDID for brønnbanen	9253

Brønnhistorie

General

Well 34/6-5 S was drilled to test the Garantiana West prospect in the Northern part of the Tampen Spur in the North Sea. The primary objective was to prove oil and establish the oil-water contact in the Early Jurassic Cook Formation. Secondary objective was the Nansen Formation. In case of discovery a Drill Stem Test would be carried out.

Operations and results

Wildcat well 34/6-5 S was spudded with the semi-submersible installation West Hercules on 18 March 2021 and drilled to TD at 4036 m (3982.8 m TVD) m in the Early Jurassic Cook Formation. Drilling started with a data acquisition 8 1/2' pilot hole drilled down to 1350 m, lithology in this interval is based on logs from this hole. No shallow gas was seen in the pilot hole. The main well was drilled vertical to 2800 m, building to a ~19 inclination from 3203 m and keeping same until TD. After reaching TD, the BHA got stuck while pulling out of hole at 3806 m. It was decided to drill a technical side-track to perform the wireline program on the Cook Formation and the Drill Stem Test operations. The 34/6-5 S T2 well was side-tracked from the 9 5/8" liner, through a milled window at 3474 m to 3480 m. It was drilled to a total depth of 3833 m (3781 m TVD) in the Burton Formation. The 34/6-5 S well was drilled with seawater and hi-vis pills down to 1370 m, with Versatec oil-based mud from 1370 m to 3535 m, and with Exploradrill oil-based mud from 3535 m to TD. The 34/6-5 S T2 well was drilled with Exploradrill oil-based mud from kick-off to 3833 m.

Top of Cook Formation was encountered with oil at 3651 m (3619 m TVD). Pressure data and fluid sample densities indicated the oil-water contact to be at 3747.5 m (3703 m TVD). Pressure measurements indicate a similar pressure regime as found in the 34/6-3 A Akkar well. Sandstones in the Nansen Formation were water bearing. Apart from the hydrocarbon bearing Cook Formation there were no shows in the well.

Two cores were cut in succession from 3695 to 3766.5 m in the side-track with 97.7 and 101% recoveries respectively. MDT fluid samples were taken at 3641. 4 m (oil with 4.5% - 5.0% mud contamination) and 3709.3 m (water).

The well was permanently abandoned on 8 June 2021 as an oil discovery.

Testing

A DST was conducted in the Cook Formation in the side-track. The perforated interval was from 3673.97 - 3734 m (3636 3691 m TVD). The well flowed 550 Sm3/day during the main flow. PVT analysis gave a flash GOR of 79 Sm3/Sm3 and a STO oil density of 0.88 g/cm3.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1380.00	4036.60

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3662.8	3694.3	[m]
2	3694.3	3765.8	[m]

Total kjerneprøve lengde [m]	103.0
Kjerner tilgjengelig for prøvetaking?	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
416	NORDLAND GP
1262	HORDALAND GP
1872	ROGALAND GP
1872	BALDER FM
1908	SELE FM
1916	LISTA FM
2030	VÅLE FM
2041	SHETLAND GP
2041	JORSALFARE FM
2247	KYRRE FM
3207	TRYGGVASON FM
3368	CROMER KNOLL GP
3368	RØDBY FM
3376	SOLA FM
3396	MIME FM
3406	VIKING GP
3474	HEATHER FM
3529	DUNLIN GP

3529	DRAKE FM
3654	COOK FM
3772	BURTON FM

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
LWD - GR ECD RES DI	3535	4036
LWD - GR ECD RES SON DEN NEU DI	2429	3535
LWD - GR RES DI	435	1370
LWD - GR RES DI ECD	1370	2429
LWD - GR RES NEU DEN DI	416	1350
PEX AIT MSIP	1360	2418
XPT GR	3630	3657

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
INTERM.	20	1363.0	26	0.0	0.00	
INTERM.	13 5/8	2420.0	17 1/2	2429.0	1.83	LOT
LINER	9 5/8	3534.0	12 1/4	3484.0	2.02	LOT
LINER	7	3831.0	8 1/2	3833.0	0.00	
OPEN HOLE		4036.0	8 1/2	4036.0	0.00	

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
1360	1.39	37.0	8.5	Versatec	
1610	1.47	42.0	12.0	Versatec	
2429	1.60	52.0	11.0	Versatec	
2429	1.47	44.0	12.0	Versatec	
2557	1.60	51.0	10.5	Versatec	
3023	1.61	55.0	13.5	Versatec	
3143	1.63	56.0	13.5	Versatec	
3382	1.67	63.0	13.5	Versatec	
3475	1.84	39.0	8.0	Exploradrill	

3533	1.82	40.0	10.5	Exploradrill	
3535	1.72	68.0	12.0	Versatec	
3655	1.84	32.0	9.5	Exploradrill	
3662	1.85	31.0	8.0	Exploradrill	
3831	1.72	36.0	6.5	Exploradrill	
3833	1.82	39.0	9.0	Exploradrill	
3874	1.85	36.0	6.5	Exploradrill	
4036	1.85	38.0	9.0	Exploradrill	