



Generell informasjon

Brønnbane navn	15/5-4
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	ENOCH
Funn	15/5 Enoch
Brønn navn	15/5-4
Seismisk lokalisering	NH 9068-109 AND NH 9068-312
Utvinningstillatelse	048
Boreoperatør	Norsk Hydro Produksjon AS
Boretillatelse	682-L
Boreinnretning	VILDKAT EXPLORER
Boredager	28
Borestart	06.06.1991
Boreslutt	03.07.1991
Frigitt dato	03.07.1993
Publiseringsdato	03.10.2013
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL SHOWS
Funnbrønnbane	NO
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	120.0
Totalt målt dybde (MD) [m RKB]	2300.0
Totalt vertikalt dybde (TVD) [m RKB]	2300.0
Maks inklinasjon [°]	1.6
Temperatur ved bunn av brønnbanen [°C]	63
Eldste penetrerte alder	PALEOCENE
Eldste penetrerte formasjon	HEIMDAL FM
Geodetisk datum	ED50
NS grader	58° 38' 28.53" N
ØV grader	1° 33' 8.87" E
NS UTM [m]	6501162.62
ØV UTM [m]	415972.22



UTM sone	31
NPDID for brønnbanen	1762

Brønnhistorie

General

Well 15/5 4 was drilled on a structure that straddles the border between the U.K. and the Norwegian sector of the North Sea. Hydrocarbons were proven in the structure by three earlier wells drilled in the UK sector (U.K. 16/13a-3, 16/13a-4, and 16/13a-5). Well 16/13a-4 penetrated a gas cap at the top of the structure and an oil column down to base reservoir. The other two wells penetrated an oil zone and a water leg. The objective of well 15/5-4 was to assess the extension of hydrocarbon bearing Sele Formation sand towards the east into PL048. The well position was chosen for possible use as a producer in the event of a positive appraisal. Prognosed total depth was 2300 m.

Operations and results

Appraisal well 15/5-4 was spudded by the semi submersible installation Vildkat Explorer on 6 June 1991 and drilled to TD at 2300 m in rocks of the Paleocene Heimdal Formation. No shallow gas was observed on the predicted sand/gas levels. Drilling proceeded without any significant problems. The well was drilled with spud mud down to 1027 m and with KCl/polymer mud from 1027 m to TD.

Thin sands of the Sele Formation were encountered at 2120 m and had good oil shows. The reservoir thickness was calculated to 7.5 m. The sandstones of the Heimdal Formation were penetrated below the oil/water contact and were totally water wet. Weak oil shows was described on sidewall cores from claystone at 1909 m in the Frigg Formation and sandstone at 2182 m in the Lista Formation.

A total of six cores were cut from 2106 m to 2147 m over the reservoir section. RFT fluid samples were attempted at 2125.1 m, 2125.3 m, 2125.8 m, and 2129.5 m. Sampling suffered from sand plugging and only the samples from run 1C (2129.5 m) contained traces of oil.

The well was permanently abandoned on 3 July 1991 as a well with oil shows.

Testing

One DST test was performed over the interval 2123.4 to 2135.9 m in the Sele Formation. Water was produced, but not to surface.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1040.00	2300.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	2106.0	2124.8	[m]
2	2124.0	2129.0	[m]
3	2129.0	2132.0	[m]
4	2132.0	2145.9	[m]

Total kjerneprøve lengde [m]	40.7
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



2106-2111m



2111-2116m



2116-2121m



2121-2125m



2125-2129m



2129-2134m



2134-2139m



2139-2143m



2143-2145m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
1190.0	[m]	DC	RRI
1200.0	[m]	DC	RRI
1220.0	[m]	DC	RRI
1230.0	[m]	DC	RRI
1250.0	[m]	DC	RRI
1260.0	[m]	DC	RRI
1280.0	[m]	DC	RRI
1290.0	[m]	DC	RRI
1310.0	[m]	DC	RRI



1320.0 [m]	DC	RRI
1340.0 [m]	DC	RRI
1350.0 [m]	DC	RRI
1370.0 [m]	DC	RRI
1380.0 [m]	DC	RRI
1501.0 [m]	SWC	NH
1530.0 [m]	SWC	NH
1561.0 [m]	SWC	NH
1580.0 [m]	DC	RRI
1593.0 [m]	SWC	NH
1610.0 [m]	DC	RRI
1630.0 [m]	SWC	NH
1697.0 [m]	SWC	NH
1718.0 [m]	SWC	NH
1738.0 [m]	SWC	NH
1754.0 [m]	SWC	NH
1760.0 [m]	DC	RRI
1778.0 [m]	SWC	NH
1800.0 [m]	SWC	NH
1824.0 [m]	SWC	NH
1850.0 [m]	DC	RRI
1856.0 [m]	SWC	NH
1874.0 [m]	SWC	NH
1909.0 [m]	SWC	NH
1945.0 [m]	DC	RRI
1954.0 [m]	SWC	NH
1975.0 [m]	DC	RRI
1983.0 [m]	SWC	NH
2000.0 [m]	SWC	NH
2020.0 [m]	DC	RRI
2032.0 [m]	SWC	NH
2058.0 [m]	SWC	NH
2071.0 [m]	SWC	NH
2085.0 [m]	SWC	NH
2098.0 [m]	SWC	NH
2115.0 [m]	C	RRI
2120.0 [m]	C	RRI
2124.0 [m]	C	RRI
2129.0 [m]	C	RRI
2134.0 [m]	C	RRI



2136.0 [m]	C	RRI
2139.0 [m]	C	RRI
2145.0 [m]	C	RRI
2157.0 [m]	DC	RRI
2165.0 [m]	DC	RRI
2172.0 [m]	SWC	NH
2182.0 [m]	SWC	NH
2190.0 [m]	DC	RRI
2194.0 [m]	SWC	NH
2205.0 [m]	DC	RRI
2210.0 [m]	DC	RRI
2220.0 [m]	DC	RRI
2225.0 [m]	DC	RRI
2235.0 [m]	DC	RRI
2240.0 [m]	DC	RRI
2250.0 [m]	DC	RRI
2255.0 [m]	DC	RRI
2265.0 [m]	DC	RRI
2270.0 [m]	DC	RRI
2280.0 [m]	DC	RRI
2285.0 [m]	DC	RRI
2295.0 [m]	DC	RRI
2300.0 [m]	DC	RRI

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
145	NORDLAND GP
782	UTSIRA FM
896	HORDALAND GP
1586	FRIGG FM
2072	ROGALAND GP
2072	BALDER FM
2120	SELE FM
2173	LISTA FM
2198	HEIMDAL FM

Dokumenter - eldre Søkeldirektoratets WDSS rapporter og andre relaterte dokumenter





Dokument navn	Dokument format	Dokument størrelse [KB]
1762_02_WDSS_completion_log	pdf	0.15

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
1762_15_5_4_Completion_log	pdf	1.77
1762_15_5_4_Final_Well_report	pdf	2.96

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	2124	2136	25.4

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				68

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

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CST GR	1501	2194
DIL SDL LDL NGL SP CAL AMS	1007	2254
DLL MSFL GR CAL AMS	2068	2226
FMS4 GR CAL AMS	1007	2229
MWD - GR RES DIR	145	2298
RFT HP GR	1832	2134
RFT HP GR	2125	2143
RFT HP GR	2125	2206





VSP	800	2235
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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	230.0	36	231.0	0.00	LOT
INTERM.	13 3/8	1012.0	17 1/2	1027.0	1.35	LOT
INTERM.	9 5/8	2248.0	12 1/4	2300.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
186	1.05			WATER BASED	
231	1.05			WATER BASED	
597	1.05			WATER BASED	
1027	1.20			WATER BASED	
1027	1.20			WATER BASED	
1370	1.10	13.0		WATER BASED	
1702	1.18	15.0		WATER BASED	
1911	1.23	19.0		WATER BASED	
2106	1.23	18.0		WATER BASED	
2115	1.25	19.0		WATER BASED	
2129	1.25	17.0		WATER BASED	
2135	1.25	19.0		WATER BASED	
2147	1.26	18.0		WATER BASED	
2294	1.25	20.0		WATER BASED	
2300	1.26	20.0		WATER BASED	

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]
1762 Formation pressure (Formasjonstrykk)	pdf	0.21

