



Generell informasjon

Brønnbane navn	6407/9-2
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORWEGIAN SEA
Felt	DRAUGEN
Funn	6407/9-1 Draugen
Brønn navn	6407/9-2
Seismisk lokalisering	+ 84-140 AND 84-113
Utvinningstillatelse	093
Boreoperatør	A/S Norske Shell
Boretillatelse	443-L
Boreinnretning	BORGNY DOLPHIN
Boredager	77
Borestart	18.11.1984
Boreslutt	02.02.1985
Frigitt dato	02.02.1987
Publiseringsdato	28.07.2007
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	ROGN FM
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	247.0
Totalt målt dybde (MD) [m RKB]	1865.0
Totalt vertikalt dybde (TVD) [m RKB]	1865.0
Temperatur ved bunn av brønnbanen [°C]	50
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	TILJE FM
Geodetisk datum	ED50
NS grader	64° 24' 1.31" N
ØV grader	7° 48' 11.26" E



NS UTM [m]	7142349.80
ØV UTM [m]	442297.15
UTM sone	32
NPDID for brønnbanen	449

Brønnhistorie

General

Appraisal well 6407/9-2 was the second well in the Northern part of the Draugen Discovery on the Haltenbanken. The main objectives of the appraisal were to improve estimation of oil in place; to evaluate the reservoir quality and sand development on the Northern flank of the structure; calibration of the seismic time pick and velocity model; and to evaluate the oil deliverability and water injection characteristics.

Operations and results

Appraisal well 6407/9-2 was spudded with the semi-submersible installation Borgny Dolphin on 18 November 1984 and drilled to TD at 1865 m in the Early Jurassic Tilje Formation. The well was drilled with seawater and bentonite down to 813.5 m and with KCl/Polymer mud from 813.5 m to TD. No shallow gas was encountered.

The Rogn Formation came in twenty m below prognosed depth at 1650 m. It consisted of an overall coarsening upwards sand sequence and contained an oil column of 12.5 m down to an oil/water contact at 1663.5 m. The calculated porosity was fairly constant throughout the reservoir at approximately 27%, while measured permeability decreased from up to 5 Darcy in the oil-bearing interval down to 20 mD towards the base of the reservoir. Eight conventional cores were cut from 1638 m to 1706.5 m. Several runs were made with the RFT: the reservoir pressure measured was hydrostatic, 2392 psia at 1625 m. No down hole fluid sample was recovered due to repeated plugging of the sampling probe.

The well was permanently abandoned on 2 February as an oil appraisal

Testing

Two DST tests were performed. The water zone was perforated from 1670 to 1675.5 m. An eight hours water injection test at rates up to 8000 b/d did not reveal any immediate problems related to injection of unfiltered clean seawater. After the water zone test the oil zone was perforated from 1651 to 1657 m. The well was gravel packed and rates up to 1177 Sm³/day (7400 stb/d) of 40 deg API oil were achieved. The evaluation showed a permeability of 2.6 Darcy. The reservoir temperature was 67 deg C.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
360.00	1866.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1638.0	1639.3	[m]
2	1640.0	1641.0	[m]
3	1653.5	1670.0	[m]
4	1671.5	1680.7	[m]
5	1684.0	1686.7	[m]
6	1688.0	1693.8	[m]
8	1702.0	1706.2	[m]

Total kjerneprøve lengde [m]	40.6
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



1638-1639m



1640-1641m



1653-1659m



1659-1665m



1665-1670m



1671-1677m



1677-1680m



1684-1686m



1688-1693m



1702-1706m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
760.0	[m]	DC	OD
770.0	[m]	DC	OD
780.0	[m]	DC	OD
790.0	[m]	DC	OD
800.0	[m]	DC	OD
810.0	[m]	DC	OD



820.0	[m]	DC	OD
830.0	[m]	DC	OD
840.0	[m]	DC	OD
850.0	[m]	DC	OD
860.0	[m]	DC	OD
870.0	[m]	DC	OD
880.0	[m]	DC	OD
890.0	[m]	DC	OD
900.0	[m]	DC	OD
1638.0	[m]	C	RRI
1639.3	[m]	C	RRI
1640.0	[m]	C	RRI
1641.1	[m]	C	RRI
1663.2	[m]	C	RRI
1665.3	[m]	C	RRI
1666.1	[m]	C	RRI
1667.9	[m]	C	RRI
1674.4	[m]	C	RRI
1675.7	[m]	C	RRI
1677.2	[m]	C	RRI
1678.5	[m]	C	RRI
1679.7	[m]	C	RRI
1684.6	[m]	C	RRI
1685.9	[m]	C	RRI
1691.6	[m]	C	RRI
1702.0	[m]	C	RRI
1703.3	[m]	C	RRI
1703.8	[m]	C	RRI
1703.9	[m]	C	RRI
1704.6	[m]	C	RRI
1705.0	[m]	C	RRI
1705.5	[m]	C	RRI

Oljeprøver i Sökkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST2	1651.00	1657.00		16.01.1985 - 00:00	YES



Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
272	NORDLAND GP
272	NAUST FM
807	MOLO FM
860	HORDALAND GP
860	BRYGGE FM
1384	ROGALAND GP
1384	TARE FM
1420	TANG FM
1566	SHETLAND GP
1566	SPRINGAR FM
1594	CROMER KNOLL GP
1594	LANGE FM
1610	LYR FM
1620	VIKING GP
1620	SPEKK FM
1650	ROGN FM
1702	FANGST GP
1702	GARN FM
1765	NOT FM
1802	BÅT GP
1802	ROR FM
1829	TILJE FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
449	pdf	0.32

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
449_1	pdf	0.52





Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
449_01_WDSS_General_Information	pdf	0.29
449_02_WDSS_completion_log	pdf	0.15

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
449_01_Well_resume	pdf	5.14
449_02_Completion_log	pdf	0.97

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsventil størrelse [mm]
1.0	1670	1676	15.8
2.0	1651	1657	38.0

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0					
2.0	1177	43549	0.825	0.960	37

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL GR	1054	1799





CBL VDL GR CCL	450	1574
CNL GR	1570	1648
DLL MSFL GR	1574	1858
ISF LSS GR	347	812
ISF LSS GR	799	1583
ISF LSS GR	1574	1862
LDL CNL GR	347	813
LDL CNL GR	799	1583
LDL CNL NGT	1574	1862
RFT	1652	1745
SHDT GR	1574	1863
SWS	1579	1851
VELOCITY	524	1850

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	346.0	36	350.0	0.00	
SURF.COND.	20	800.0	26	810.0	1.48	LOT
INTERM.	13 3/8	1575.0	17 1/2	1587.0	1.67	LOT
INTERM.	9 5/8	1852.0	12 1/4	1865.0	0.00	

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
352	1.09	8.0	24.0	WATER BASED	22.11.1984
810	1.11	5.0	25.0	WATER BASED	23.11.1984
810	1.11	6.0	29.0	WATER BASED	26.11.1984
810	1.12	5.0	24.0	WATER BASED	26.11.1984
810	1.11	8.0	20.0	WATER BASED	27.11.1984
810	1.03			WATER BASED	28.11.1984
810	1.03			WATER BASED	29.11.1984
810	1.03			WATER BASED	30.11.1984
810	1.03			WATER BASED	04.12.1984
810	1.11	6.0	29.0	WATER BASED	26.11.1984
810	1.12	5.0	24.0	WATER BASED	26.11.1984
810	1.11	8.0	20.0	WATER BASED	27.11.1984



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 15.5.2024 - 19:18

810	1.03			WATER BASED	28.11.1984
810	1.03			WATER BASED	29.11.1984
810	1.03			WATER BASED	30.11.1984
810	1.03			WATER BASED	04.12.1984
1057	1.33	19.0	21.0	WATER BASED	04.12.1984
1233	1.37	18.0	18.0	WATER BASED	04.12.1984
1452	1.41	24.0	20.0	WATER BASED	04.12.1984
1584	1.42	25.0	22.0	WATER BASED	05.12.1984
1587	1.25	14.0	14.0	WATER BASED	10.12.1984
1587	1.42	24.0	20.0	WATER BASED	06.12.1984
1587	1.42	18.0	25.0	WATER BASED	07.12.1984
1587	1.25	16.0	16.0	WATER BASED	10.12.1984
1587	1.25	16.0	15.0	WATER BASED	10.12.1984
1587	1.42	14.0	14.0	WATER BASED	11.12.1984
1587	1.42	14.0	14.0	WATER BASED	12.12.1984
1587	1.42			WATER BASED	12.12.1984
1587	1.42	18.0	25.0	WATER BASED	07.12.1984
1587	1.25	16.0	16.0	WATER BASED	10.12.1984
1587	1.25	16.0	15.0	WATER BASED	10.12.1984
1587	1.25	14.0	14.0	WATER BASED	10.12.1984
1587	1.42	14.0	14.0	WATER BASED	11.12.1984
1587	1.42	14.0	14.0	WATER BASED	12.12.1984
1587	1.42			WATER BASED	12.12.1984
1604	1.23	15.0	13.0	WATER BASED	17.12.1984
1640	1.23	17.0	15.0	WATER BASED	17.12.1984
1654	1.23	17.0	21.0	WATER BASED	17.12.1984
1688	1.23	18.0	18.0	WATER BASED	17.12.1984
1702	1.24	16.0	18.0	WATER BASED	19.12.1984
1702	1.24	16.0	18.0	WATER BASED	18.12.1984
1812	1.24	16.0	22.0	WATER BASED	18.12.1984
1812	1.24	16.0	22.0	WATER BASED	19.12.1984
1865	1.24	18.0	22.0	WATER BASED	26.12.1984
1865	1.24	16.0	18.0	WATER BASED	26.12.1984
1865	1.24	17.0	19.0	WATER BASED	26.12.1984
1865	1.03			WATER BASED	26.12.1984
1865	1.15			WATER BASED	01.01.1985
1865	1.24	18.0	22.0	WATER BASED	26.12.1984
1865	1.24	16.0	18.0	WATER BASED	26.12.1984
1865	1.24	17.0	19.0	WATER BASED	26.12.1984
1865	1.03			WATER BASED	26.12.1984



1865	1.14			WATER BASED	27.12.1984
1865	1.23	18.0	22.0	WATER BASED	20.12.1984
1865	1.14			WATER BASED	27.12.1984
1865	1.15			WATER BASED	01.01.1985

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]
449 Formation pressure (Formasjonstrykk)	PDF	0.25

