

## Generell informasjon

Brønnbane navn	2/11-1
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	<a href="#">lenke til kart</a>
Hovedområde	NORTH SEA
Felt	<a href="#">VALHALL</a>
Funn	<a href="#">2/8-6 Valhall</a>
Brønn navn	2/11-1
Seismisk lokalisering	LINE 70 - 17.
Utvinningstillatelse	<a href="#">033</a>
Boreoperatør	Amoco Norway Oil Company
Boretillatelse	29-L
Boreinnretning	<a href="#">ORION</a>
Boredager	82
Borestart	14.07.1969
Boreslutt	03.10.1969
Frigitt dato	03.10.1971
Publiseringsdato	18.01.2007
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE CRETACEOUS
1. nivå med hydrokarboner, formasjon.	TOR FM
Avstand, boredekk - midlere havflate [m]	27.0
Vanndybde ved midlere havflate [m]	68.0
Totalt målt dybde (MD) [m RKB]	4691.0
Maks inklinasjon [°]	11
Temperatur ved bunn av brønnbanen [°C]	133
Eldste penetrerte alder	LATE JURASSIC
Eldste penetrerte formasjon	HAUGESUND FM
Geodetisk datum	ED50
NS grader	56° 14' 16.98" N
ØV grader	3° 27' 7.05" E
NS UTM [m]	6232804.37

ØV UTM [m]	528015.41
UTM sone	31
NPDID for brønnbanen	168

## Brønnhistorie

### General

Exploration well 2/11-1 is located on the southern periphery of the Valhall Field in the North Sea. The objective of this early wildcat was to test all horizons down to the Rotliegendes, estimated at 14100 ft (4298 m). Top Permian was expected at 10300 ft (3139 m). Planned TD was at 15000 ft (4572 m).

The well is Reference Well for the Åsgard, Sola, and Rødby Formations.

### Operations and results

Well was spudded with the semi-submersible installation on and drilled to TD at 4691 m in the Late Jurassic Tyne Group. The well started to build angle from below ca 3500 m with maximum 11 deg deviation at 4444 m. Otherwise no significant drilling problems were reported from this deep well. The well was drilled water based down to 3432 m and with an invert oil mud (Vertoil) from 3432 m to TD.

Top Paleocene, Balder Formation, was encountered at 2590 m. Top chalks of the Shetland Group (Tor Formation) was encountered at 2635 m. In addition to shows from the gas detector, free oil was seen floating on the mud pits and samples showed good fluorescence and cut through the interval 2585 m to 2633 m (Balder, Sele, and Lista Formations). Post-well geochemical analyses reported significant oil staining down to 2776 m. By testing live oil was confirmed in the uppermost Tor Formation. The tests were inconclusive with regard to an OWC, but the logs indicated that the contact was at 2655 m. Base Cretaceous was at 3555 m. The well did not reach Permian sediments; instead the well drilled 1136 m in Late Jurassic shale (Mandal, Farsund and Haugesund Formations) before final TD was set. One conventional core was cut from 3864 to 3878 m in the Farsund formation. No wire line fluid samples were taken.

The well was permanently abandoned on 3 October 1969 as a minor discovery. After the 2/8-6 Valhall Discovery well was drilled 6 years later well 2/11-1 was re-classified to oil appraisal well for the Valhall Field.

### Testing

Five drill-stem tests were conducted. DST 1 from 2632 m to 2638.3 m (Lista and topmost Tor Formations) gave some oil to the surface, but rates declined rapidly to no flow, so no viable measurements were obtained. DST 2 and 3 from 2593.8 m to 2604.5 m (Balder - Sele Formations) gave no flow to surface. DST 4 from 2628.6 - 2640.8 m plus 2645.7 - 2650.5 m (Tor Formation) gave gas and oil to the surface at rates of 12686 Sm3 gas and 146 Sm3 oil/day in the final, 4 hours and 42 min flow. The GOR was 87 Sm3/Sm3. Flow rates decreased during the test and the figures were derived from the last readings. DST 5 from 2645.7 - 2650.5 m (Tor Formation) gave no flow to the surface, but 274 m fluid was reversed out after the test and the fluid contained ca 20% oil.

## Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3863.6	3878.3	[m ]

Total kjerneprøve lengde [m]	14.6
Kjerner tilgjengelig for prøvetaking?	YES

### Litostratigrafi

Top depth [mMD RKB]	Lithostrat. unit
95	<a href="#">NORDLAND GP</a>
1136	<a href="#">HORDALAND GP</a>
2590	<a href="#">ROGALAND GP</a>
2590	<a href="#">BALDER FM</a>
2600	<a href="#">SELE FM</a>
2610	<a href="#">LISTA FM</a>
2635	<a href="#">SHETLAND GP</a>
2635	<a href="#">TOR FM</a>
2662	<a href="#">HOD FM</a>
2860	<a href="#">BLODØKS FM</a>
2863	<a href="#">HIDRA FM</a>
2887	<a href="#">CROMER KNOLL GP</a>
2887	<a href="#">RØDBY FM</a>
2910	<a href="#">SOLA FM</a>
2988	<a href="#">TUXEN FM</a>
3063	<a href="#">ÅSGARD FM</a>
3555	<a href="#">TYNE GP</a>
3555	<a href="#">MANDAL FM</a>
3728	<a href="#">FARSUND FM</a>
4075	<a href="#">HAUGESUND FM</a>

### Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
<a href="#">168_1</a>	pdf	1.28
<a href="#">168_2</a>	pdf	1.83
<a href="#">168_3</a>	pdf	0.90



<a href="#">168_4</a>	pdf	0.98
<a href="#">168_5</a>	pdf	0.42
<a href="#">168_6</a>	pdf	0.33
<a href="#">168_7</a>	pdf	0.13
<a href="#">168_8</a>	pdf	4.96

#### Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
<a href="#">168_01_WDSS_General_Information</a>	pdf	0.19

#### Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
<a href="#">168_01_2_11_1_Completion_Report</a>	pdf	19.28
<a href="#">168_02_2_11_1_Completion_log.1</a>	pdf	3.15
<a href="#">168_2_11_1_Biostratigraphic_and_wireline_logging_correlation</a>	pdf	5.52
<a href="#">168_2_11_1_Engineering_and_geological_data_1968</a>	pdf	20.45
<a href="#">168_2_11_1_Geochemical_analysis_of_core_samples_1983</a>	pdf	1.85
<a href="#">168_2_11_1_Geochemical_analyses_of_an_oil_sample_1979</a>	pdf	0.79
<a href="#">168_2_11_1_Paleontological_age_and_Environmental_Determination_1971</a>	pdf	3.38
<a href="#">168_2_11_1_Preliminary_results_of_biostratigraphic_and_petroleumgeochemical_studies</a>	pdf	1.88
<a href="#">168_2_11_1_Preliminary_results_of_petroleum_geochemical_studies_1978</a>	pdf	1.47
<a href="#">168_2_11_1_Scanning_Electron_Micropscope_study_1971</a>	pdf	115.37
<a href="#">168_2_11_1_Source_Rock_Evaluation_1971</a>	pdf	0.56
<a href="#">168_2_11_1_Source_Rock_Evaluation_Tertiary_Basin_1971</a>	pdf	0.37

#### Dokumenter - Sokkeldirektoratets publikasjoner



Dokument navn	Dokument format	Dokument størrelse [KB]
<a href="#">168_01_NPD_Paper_No.7_Lithology_Well_2_11_1</a>	pdf	12.73
<a href="#">168_02_NPD_Paper_No.7_Interpreted_Lithology_log_Well_2_11_1</a>	pdf	74.28
<a href="#">168_03_NPD_Paper_No.32_Late_Cretaceous-early_Tertiary_Correlation_chart_Valhall-Hod_Fields_Profile_1_Well_2_11_1</a>	pdf	0.54
<a href="#">168_04_NPD_Paper_No.32_Late_Jurassic-early_Tertiary_Correlation_chart_Profile_3_Well_2_11_1</a>	pdf	0.74
<a href="#">168_05_NPD_Paper_No.32_Stratigraphic_Correlation_chart_Profile_5_Well_2_11_1</a>	pdf	0.69

### Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	2633	2639	0.0
2.0	2595	2605	0.0
3.0	2629	2651	0.0
4.0	2646	2651	12.5

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0				
3.0				
4.0				

Test nummer	Olje produksjon [Sm <sup>3</sup> /dag]	Gass produksjon [Sm <sup>3</sup> /dag]	Oljetetthet [g/cm <sup>3</sup> ]	Gasstyngde rel. luft	GOR [m <sup>3</sup> /m <sup>3</sup> ]
1.0					
2.0					
3.0					
4.0	72				

### Logger



OLJEDIREKTORATET

**ODs Faktasider**  
**Brønnbane / Leting**

Utskriftstidspunkt: 29.3.2024 - 06:16

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL	2561	2683
CDM	2439	4692
DIL	1720	4692
EPIN	2530	2835
FDC	365	3451
GR	91	365
GR CCL	2561	2683
IES	365	1721
LL-7	2530	2835
MLL-C	2530	2835
SGR-C	365	4692
SNP	2530	2835
SNP	2530	2835
VSLOCITY	365	4692

### 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	131.0	36	139.0	0.00	LOT
SURF.COND.	20	365.0	26	383.0	0.00	LOT
INTERM.	13 3/8	1720.0	17 1/2	1736.0	0.00	LOT
INTERM.	9 5/8	3443.0	12 1/4	3450.0	0.00	LOT
OPEN HOLE		4693.0	8 1/2	4693.0	0.00	LOT

### Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
382	1.11	48.0		water-based	
1280	1.31	44.0		water-based	
1735	1.60	51.0		water-based	
2004	1.65	55.0		water-based	
2914	1.67	50.0		water-based	
3374	1.62	56.0		water-based	
3700	1.79	58.0		water-based	
3876	1.55	67.0		water-based	

**Tynnslip i Sokkeldirektoratet**

Dybde	Enhet
12695.00	[ft ]