General information

Wellbore name	30/6-23
Type	EXPLORATION
Purpose	APPRAISAL
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	OSEBERG ØST
Discovery	30/6-5 Oseberg Øst
Well name	30/6-23
Seismic location	NH 8606- ROW 548 & CDP NO 729
Production licence	053
Drilling operator	Norsk Hydro Produksjon AS
Drill permit	634-L
Drilling facility	TRANSOCEAN 8
Drilling days	64
Entered date	29.04.1990
Completed date	01.07.1990
Release date	01.07.1992
Publication date	29.03.2014
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	BRENT GP
Kelly bushing elevation [m]	23.5
Water depth [m]	152.5
Total depth (MD) [m RKB]	3209.5
Final vertical depth (TVD) [m RKB]	3208.0
Maximum inclination [°]	3.7
Bottom hole temperature [°C]	133
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	EIRIKSSON FM
Geodetic datum	ED50
NS degrees	60° 40' 58.01'' N
EW degrees	2° 55' 58.97'' E
NS UTM [m]	6727615.50
EW UTM [m]	496342.56

UTM zone	31
NPDID wellbore	1545

Wellbore history

General

Well 30/6-23 was drilled on the Beta South structure on the Brage Horst and south of the Veslefrikk Field in the North Sea. The Beta structure is surrounded by producing oil fields or commercial discoveries. On Beta, oil has been discovered in the Middle Jurassic Brent Group reservoirs in fault-block traps. The oil is contained in two main sub-structures, i.e. the Beta Saddle and Beta South, comprising several smaller sub-compartments. The discovery well on Beta was the 30/6-5 well, but this well was not tested due to the detection of H2S in the RFT samples. Later wells proved oil in the Beta Saddle without encountering H2S. The Beta Saddle is characterized by a multicontact reservoir having prominent shale barriers. There are also slight differences in fluid composition between the two compartments, which suggests that the saddle through is acting as a structural spill point at the top Etive level. Primary target for the well was Base Brent Group prognosed to come in at 2891 m. Secondary objective was top Statfjord prognosed at 3141 m. OWC was expected at 2880 m.

Operations and results

Appraisal well 30/6-23 was spudded 29 April 1990 by the semi-submersible rig Transocean 8 and drilled to TD at 3209.5 m in the Early Jurassic Eirikson Formation. Shallow gas was indicated from mud gas and MWD at several levels between 440 m and 603 m. Gas influx occurred during a wiper trip back from 601 m to the 30" casing shoe at 261 m. Otherwise drilling proceeded without any significant issues. The well was drilled with spud mud down to 378 m and with KCl/polymer mud from 378 m to TD.

Formation tops came in approximately as prognosed. Top Viking Group was encountered 2534 m and consisted of 82 m Draupne Formation and 177 m Heather Formation. The target Brent Group came in at 2793 m and oil was proven in sandstones by logs, RFT pressure gradient and tests all through. No clear OWC was encountered, but good oil shows were seen in a sandstone as deep as 2896 m at the base of the Oseberg Formation. The Statfjord Formation was water bearing.

Six cores were cut: five in the interval 2787 to 2902 m in the Brent Group and one at 3018 to 3045 m in the Cook Formation. Good shows were recorded in cores 1 to 5, but core 6 (Cook Formation) displayed only weak shows on single sand grains. Segregated RFT samples were taken at 2843 m, 2871.5 m, 2899.5 m, 3016.5 m, and 3177.5 m.

The well was suspended on 1 July 1990 as an oil appraisal well.

Testing

Three DST tests were performed.

DST 1 tested the interval 2860 - 2881 m in the middle Oseberg formation. It produced 1375 Sm3 oil and 74500 Sm3 gas /day through a 25.4 mm choke. The separator GOR was 54 Sm3/Sm3 and the oil density was 0.840 g/cm3. The maximum flowing temperature measured at sensor depth 2761.4 m was 120.6 deg C.

DST 2 tested the interval 2827 - 2853 m in the upper Oseberg/Etive formations. It produced 849 Sm3 oil and 56500 Sm3 gas /day through a 60.64 mm choke. The separator GOR was 66 Sm3/Sm3 and the oil density was 0.840 g/cm3. The maximum flowing temperature measured at sensor depth 2755.7 m was 120.1 deg C.

DST 3 tested the interval 2803 - 2812 m in the Ness formation. It produced 1040 Sm3 oil and 64200 Sm3 gas /day through a 20.64 mm choke. The separator GOR was 62 Sm3/Sm3 and the oil density was 0.840 g/cm3. The maximum flowing temperature measured at sensor depth 2750.8 m was 120.8 deg C.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
430.00	3210.00

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	2787.0	2813.7	[m]
2	2814.0	2821.5	[m]
3	2822.3	2850.0	[m]
4	2850.0	2868.5	[m]
5	2869.0	2902.0	[m]
6	3018.0	3045.0	[m]

Total core sample length [m]	140.5
Cores available for sampling?	YES

Core photos


2787-2792m


2792-2797m


2797-2802m


2802-2907m


2807-2812m


2812-2813m


2814-2819m


2819-2821m


2822-2827m


2827-2832m

2832-2837m 2837-2842m 2842-2847m 2847-2850m 2850-2855m


2855-2860m

2860-2865m

2865-2868m

2859-2874m

2874-2879m


2879-2884m

2884-2889m

2889-2894m

2894-2899m

2899-2902m


3018-3023m

3023-3028m

3028-3033m

3033-3038m

3038-3043m


3043-3045m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
2787.0	[m]	C	RRI
2788.0	[m]	C	RRI
2828.0	[m]	C	RRI
2833.0	[m]	C	RRI
2835.0	[m]	C	RRI
2849.0	[m]	C	RRI
2851.0	[m]	C	RRI

2854.0	[m]	C	RRI
2857.0	[m]	C	RRI
2877.0	[m]	C	RRI
2879.0	[m]	C	RRI
2882.0	[m]	C	RRI
2886.0	[m]	C	RRI
2890.0	[m]	C	RRI
2893.0	[m]	C	RRI
2896.0	[m]	C	RRI
2900.0	[m]	C	RRI

Oil samples at the Norwegian Offshore Directorate

Test type	Bottle number	Top depth MD [m]	Bottom depth MD [m]	Fluid type	Test time	Samples available
DST		2860.00	2881.00			YES
DST	DST2	2827.00	2853.00		18.06.1990 - 00:00	YES
DST	DST3	2803.00	2812.00		21.06.1990 - 17:16	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
176	NORDLAND GP
730	UTSIRA FM
887	HORDALAND GP
1939	ROGALAND GP
1939	BALDER FM
2022	SELE FM
2096	LISTA FM
2207	VÅLE FM
2232	SHETLAND GP
2454	CROMER KNOLL GP
2534	VIKING GP
2534	DRAUPNE FM
2607	HEATHER FM
2793	BRENT GP

2793	NESS FM
2828	ETIVE FM
2836	RANNOCH FM
2839	OSEBERG FM
2902	DUNLIN GP
2902	DRAKE FM
3016	COOK FM
3065	BURTON FM
3102	AMUNDSEN FM
3163	STATFJORD GP
3163	NANSEN FM
3179	EIRIKSSON FM

Documents - older Norwegian Offshore Directorate WDSS reports and other related documents

Document name	Document format	Document size [MB]
1545_01_WDSS_General_Information	pdf	0.23
1545_02_WDSS_completion_log	pdf	0.21

Documents - reported by the production licence (period for duty of secrecy expired)

Document name	Document format	Document size [MB]
1545_30_6_23_COMPLETION_REPORT_AND_LOG	pdf	14.39

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2860	2881	25.4
2.0	2827	2853	20.4
3.0	2803	2812	20.4

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				
2.0				

3.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	1575	74200	0.840		47
2.0	849	56500	0.840		66
3.0	1040	64200	0.840		62

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BHC	951	2689
CBL VDL GR	173	951
DIL LSS LDT GR	725	2690
DITE LSS LDL CNL GR AMS	857	117
DITE SDT LDT CNT GR CAL	2690	3211
DLL MSFL GR	2690	3211
FMS	2690	2970
MWD	174	3210
RFT	2806	2806
RFT	2843	2843
RFT	2871	2871
RFT	2899	2899
RFT	3016	3016
RFT	3177	3177
VSP	900	3140

Casing and leak-off tests

Casing type	Casing diam. [inch]	Casing depth [m]	Hole diam. [inch]	Hole depth [m]	LOT/FIT mud eqv. [g/cm3]	Formation test type
CONDUCTOR	30	261.0	36	262.0	0.00	LOT
INTERM.	20	372.0	26	601.0	0.00	LOT
INTERM.	13 3/8	950.0	17 1/2	965.0	1.65	LOT
INTERM.	9 5/8	2689.0	12 1/4	2704.0	1.75	LOT
LINER	7	3208.0	8 1/2	3210.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
378	1.20			WATER BASED	03.05.1990
378	1.20			WATER BASED	04.05.1990
378	1.15			WATER BASED	10.05.1990
380	1.22	17.0	11.0	WATER BASED	02.07.1990
607	1.17	13.0	7.0	WATER BASED	10.05.1990
950	1.18	17.0	10.0	WATER BASED	10.05.1990
965	1.18	18.0	11.0	WATER BASED	10.05.1990
965	1.18	19.0	12.0	WATER BASED	10.05.1990
965	1.18	17.0	10.0	WATER BASED	10.05.1990
1012	1.18	19.0	12.0	WATER BASED	14.05.1990
1356	1.40	25.0	14.0	WATER BASED	14.05.1990
1614	1.40	21.0	14.0	WATER BASED	14.05.1990
1987	1.40	22.0	15.0	WATER BASED	14.05.1990
2167	1.40	23.0	17.0	WATER BASED	15.05.1990
2260	1.40	24.0	13.0	WATER BASED	16.05.1990
2469	1.40	24.0	16.0	WATER BASED	21.05.1990
2536	1.40	27.0	15.0	WATER BASED	21.05.1990
2704	1.40	26.0	17.0	WATER BASED	21.05.1990
2704	1.40	26.0	17.0	WATER BASED	21.05.1990
2704	1.40	26.0	17.0	WATER BASED	22.05.1990
2704	1.40	26.0	17.0	WATER BASED	21.05.1990
2756	1.22	20.0	8.0	WATER BASED	23.05.1990
2813	1.22	20.0	8.0	WATER BASED	25.05.1990
2823	1.22	20.0	8.0	WATER BASED	25.05.1990
2825	1.22	19.0	12.0	WATER BASED	27.06.1990
2825	1.22	20.0	12.0	WATER BASED	02.07.1990
2825	1.22	17.0	11.0	WATER BASED	02.07.1990
2825	1.22	20.0	12.0	WATER BASED	21.06.1990
2825	1.22	20.0	11.0	WATER BASED	22.06.1990
2825	1.22	20.0	11.0	WATER BASED	25.06.1990
2825	1.22	20.0	12.0	WATER BASED	25.06.1990
2825	1.22	20.0	12.0	WATER BASED	25.06.1990
2825	1.22	19.0	12.0	WATER BASED	26.06.1990
2825	1.22	20.0	12.0	WATER BASED	28.06.1990
2858	1.22	10.0	11.0	WATER BASED	18.06.1990
2858	1.22	19.0	11.0	WATER BASED	18.06.1990

2858	1.22	19.0	10.0	WATER BASED	19.06.1990
2858	1.22	19.0	11.0	WATER BASED	20.06.1990
2858	1.22	19.0	11.0	WATER BASED	13.06.1990
2858	1.22	19.0	12.0	WATER BASED	14.06.1990
2858	1.22	20.0	13.0	WATER BASED	14.06.1990
2858	1.22	17.0	11.0	WATER BASED	18.06.1990
2869	1.22	21.0	9.0	WATER BASED	28.05.1990
2900	1.22	21.0	9.0	WATER BASED	28.05.1990
3018	1.23	23.0	9.0	WATER BASED	28.05.1990
3098	1.22	20.0	9.0	WATER BASED	29.05.1990
3210	1.22	20.0	9.0	WATER BASED	30.05.1990
3210	1.22	19.0	9.0	WATER BASED	31.05.1990
3210	1.22	22.0	11.0	WATER BASED	06.06.1990
3210	1.22	21.0	12.0	WATER BASED	08.06.1990
3210	1.22	21.0	11.0	WATER BASED	11.06.1990
3210	1.22	21.0	11.0	WATER BASED	11.06.1990
3210	1.22	21.0	11.0	WATER BASED	11.06.1990
3210	1.22	21.0	11.0	WATER BASED	12.06.1990
3210	1.22	19.0	9.0	WATER BASED	05.06.1990
3210	1.22	20.0	8.0	WATER BASED	05.06.1990
3210	1.22	23.0	12.0	WATER BASED	05.06.1990
3210	1.22	22.0	11.0	WATER BASED	05.06.1990
3210	1.22	21.0	11.0	WATER BASED	07.06.1990
3210	1.22	19.0	9.0	WATER BASED	05.06.1990

Pressure plots

The pore pressure data is sourced from well logs if no other source is specified. In some wells where pore pressure logs do not exist, information from Drill stem tests and kicks have been used. The data has been reported to the NPD, and further processed and quality controlled by IHS Markit.

Document name	Document format	Document size [MB]
1545_Formation_pressure_(Formasjonstrykk)	pdf	0.23