

Well no : 30/06-22 Operator : HYDRO

Coordinates : 60 43 57.26 N UTM coord. : 6733159 N  
 02 58 53.12 E 498986 E

Licence no : 53 Permit no : 578

Rig : POLAR PIONEER Rig type : SEMI-SUB.

Contractor : POLAR FRONTIER DRILLING A/S

Bottom hole temperature : 123 deg.C Elev. KB : 23 M

Spud. date : 88.05.21 Water depth : 179 M

Compl. date : 88.07.13 Total depth : 3336 M

Spud. class : APPRAISAL Form. at TD : L.JURASSIC

Compl. class : SUSPENDED. OIL DISC. Prod. form :

Seisloca : NH 8606 - 670 KOL. 660

## LICENSEES

9.333000 ELF AQUITAINE NORGE A/S  
 12.250000 NORSK HYDRO PRODUKSJON A.S  
 7.000000 MOBIL DEVELOPMENT NORWAY A.S.  
 7.350000 SAGA PETROLEUM A.S.  
 59.400000 DEN NORSKE STATS OLJESELSKAP A.S  
 4.667000 TOTAL NORGE A.S

## CASING AND LEAK-OFF TESTS

Type	Casing diam.	Depth below KB	Hole diam.	Hole depth below KB	Lot mud eqv. g/cm <sup>3</sup>
CONDUCTOR	30	292.0	36	292.0	.
INTERM.	13 3/8	948.0	17 1/2	963.0	1.74
INTERM.	9 5/8	2781.0	12 1/4	2798.0	1.69
LINER	7	3333.0	8 1/2	3336.0	.

## CONVENTIONAL CORES

Core no.	Intervals cored meters	Recovery		Series
		M	%	
1	2854.7 - 2882.0	27.6	98.6	
2	2882.0 - 2906.6	23.5	97.9	
3	2906.0 - 2921.6	15.6	97.5	
4	2922.6 - 2958.7	36.9	99.7	
5	2958.7 - 3010.0	50.9	99.8	
6	3122.5 - 3150.2	27.9	100.0	

## MUD PROPERTIES

Depth below KB meter	Mud weight g/cm <sup>3</sup>	Viscosity	Mud type
-----	-----	-----	-----

292.000	1.05	9.0	WATER BASED
575.000	1.03	0.0	WATER BASED
662.000	1.05	9.0	WATER BASED
677.000	1.03	0.0	WATER BASED
963.000	1.05	9.0	WATER BASED
975.000	1.03	0.0	WATER BASED
975.000	1.20	17.0	WATER BASED
1162.000	1.21	16.0	WATER BASED
1603.000	1.40	22.0	WATER BASED
1679.000	1.28	7.0	WATER BASED
1804.000	1.27	29.0	WATER BASED
1936.000	1.43	27.0	WATER BASED
2007.000	1.27	13.0	WATER BASED
2152.000	1.29	23.0	WATER BASED
2180.000	1.43	28.0	WATER BASED
2411.000	1.27	16.0	WATER BASED
2429.000	1.43	29.0	WATER BASED
2532.000	1.45	28.0	WATER BASED
2551.000	1.27	15.0	WATER BASED
2560.000	1.25	18.0	WATER BASED
2798.000	1.45	21.0	WATER BASED
3336.000	1.25	19.0	WATER BASED

### DRILL STEM TEST

#### INTERVALS AND PRESSURES

Test no.	interval meter	Choke size	Pressure (PSI)		
			WHP	BTHP	FFP
1.0	2917.000 - 2036.200	12.7	636.7	N/A	3211.0
	Test temperature: 122.9 °C				
2.0	2908.750 - 2912.250	12.7	1108.0	N/A	3828.8
	Test temperature: 123.7 °C				

#### RECOVERY

Test no.	Oil Sm <sup>3</sup> /d	Gas Sm <sup>3</sup> /d	Oil grav. g/cm <sup>3</sup>	gas grav. rel. air	GOR m <sup>3</sup> /m <sup>3</sup>
1.0	294	19430	0.829	0.780	68
2.0	480	31680	0.823	0.765	66

### DRILL BIT CUTTINGS AND WET SAMPLES

SAMPLE TYPE	INTERVAL BELOW KB	NUMBER OF SAMPLES
-------------	-------------------	-------------------

Cutting

Wet Samples	970-3335	270
-------------	----------	-----

### SHALLOW GAS

Interval below KB	REMARKS
-------------------	---------

## AVAILABLE LOGS

LOG TYPE	INTERVALS	1/200	1/500	Div.
DIS SONIC GR NGS CAL	190.000 - 3337.500	X	X	
DIS GR NGS LLS SDT	190.000 - 3337.500		X	
LDL CNL GR	2780.000 - 3334.000	X	X	
DLL MSFL GR	2780.000 - 3334.000	X	X	
SHDT GR	2780.000 - 3338.000	X		
CDM AP	2780.000 - 3338.000	X	X	
NGS RATIOS	2780.000 - 3337.000	X	X	
NGT	2785.000 - 3316.000	X		
RFT HP GR	2930.000 - 2950.000			
RFT HP GR	2902.000 - 2934.000			
RFT HP GR	2881.000 - 3309.000			
DRILLING DATA PRESS.	202.000 - 3336.000	1:5000		
WIRELINE DATA PRESS.	202.000 - 3336.000	1:5000		
MUD	960.000 - 3336.000		X	
VELOCITY LOG	950.000 - 3326.000	1:1000	X	

(Synthetic Seismogram, 10 cm/s 2 stk)  
 (V.S.P, deconvolved upwave 10 cm/s 4 stk)  
 (V.S.P, Zero Offset vsp 10 cm/s./20 cm/s 8 stk)  
 (V.S.P, interpretres composite 10 cms./20 cm/s 4 stk)

TD:3336 M.

**MAIN OPERATIONS FOR WELL: 003006 22****Main operation: DRILLING**

Sub operations	Minutes	Hrs	% of total
BOP ACTIVITIES	870	14,5	2,71
BOP/WELLHEAD EQ	1740	29,0	5,43
CASING	6240	104,0	19,46
CIRC/COND	1590	26,5	4,96
DRILL	13260	221,0	41,35
OTHER	30	0,5	0,09
REAM	720	12,0	2,25
SURVEY	120	2,0	0,37
TRIP	7500	125,0	23,39
<b>Total</b>	<b>32070</b>	<b>534,5</b>	<b>100,00</b>

**Main operation: FORMATION EVAL**

Sub operations	Minutes	Hrs	% of total
CIRC/COND	300	5,0	0,99
CORE	3240	54,0	10,70
DST	18420	307,0	60,85
LOG	4110	68,5	13,58
RFT/FIT	630	10,5	2,08
TRIP	3570	59,5	11,79
<b>Total</b>	<b>30270</b>	<b>504,5</b>	<b>100,00</b>

**Main operation: INTERRUPTION**

Sub operations	Minutes	Hrs	% of total
FISH	1770	29,5	14,68
LOST CIRC	30	0,5	0,25
MAINTAIN/REP	10080	168,0	83,58
OTHER	180	3,0	1,49
<b>Total</b>	<b>12060</b>	<b>201,0</b>	<b>100,00</b>

**Main operation: MOVING**

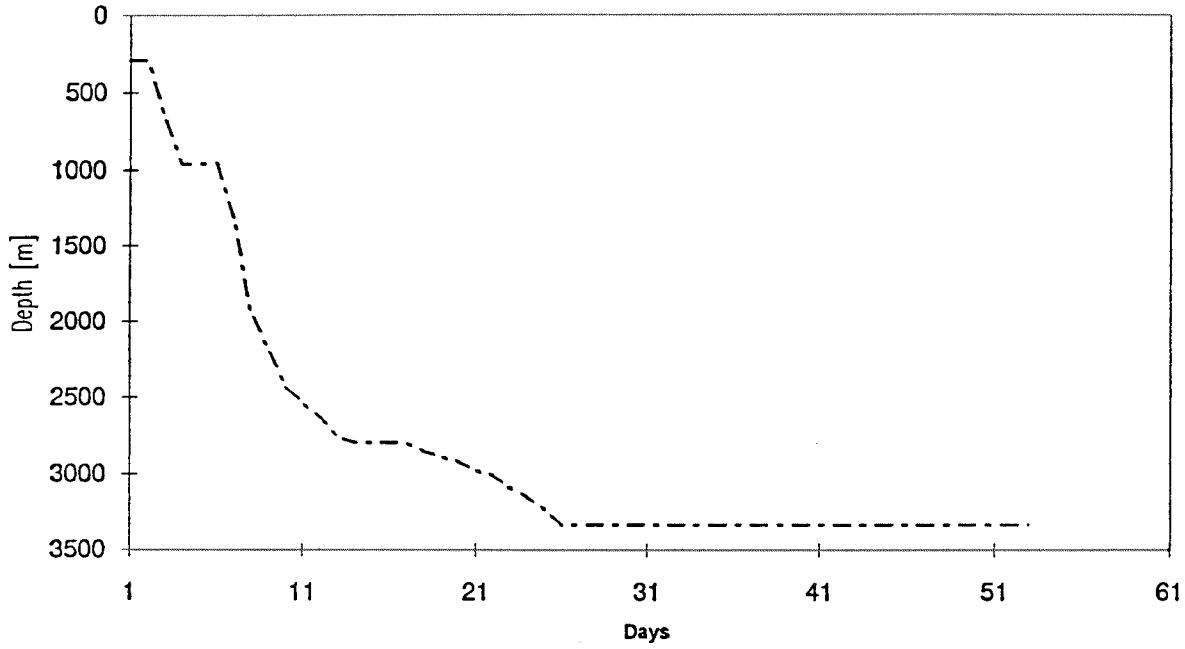
Sub operations	Minutes	Hrs	% of total
TRANSIT	4500	75,0	100,00
<b>Total</b>	<b>4500</b>	<b>75,0</b>	<b>100,00</b>

**Main operation: PLUG & ABANDON**

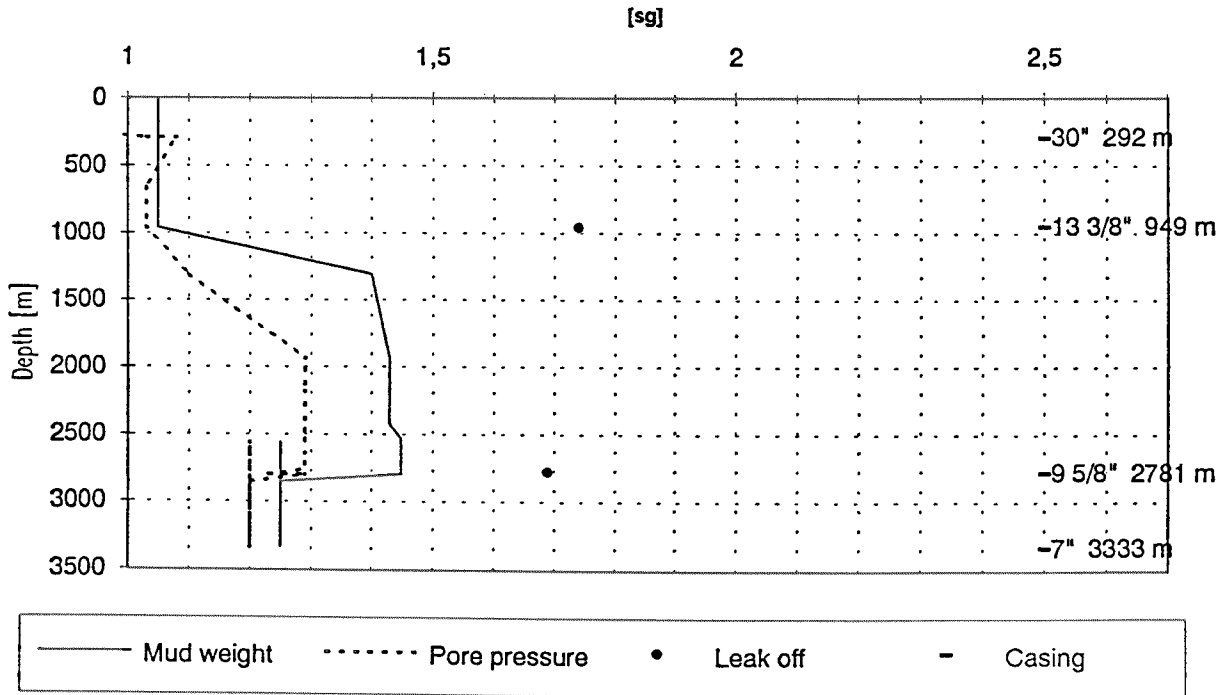
Sub operations	Minutes	Hrs	% of total
CEMENT PLUG	750	12,5	43,10
MECHANICAL PLUG	150	2,5	8,62
TRIP	840	14,0	48,28
<b>Total</b>	<b>1740</b>	<b>29,0</b>	<b>100,00</b>

Total time used 1344 hrs ( 56 days)

Depth v.s. time plot for well: 003006 22



Composite plot for well: 003006 22



# Well History 30/6-22

## GENERAL:

Well 30/6-22 is an appraisal well on the Beta Saddle. One hole is previously drilled on the structure, 30/6-19, with oil in the Brent Group.

The objectives of the well were to reduce the uncertainties in the oil in place estimated by narrowing the range in the oil/water contact levels in the Tarbert/Ness and the Etive/Rannoch/Oseberg Formations respectively, and verifying the seismic mapping, improving the geological data base by obtaining informations about any lateral variations in thickness and facies. Another objective was to get information about lateral variations in reservoir quality.

## OPERATIONS:

Appraisal well 30/6-22 was spudded 21 May 1988 by Polar Frontier Drilling semi-submersible rig Polar Pioneer and completed 13 July 1988 at a depth of 3336 m in Late Jurassic rocks. Drilling went without problems, but the prospect was intersected 50 m away from where it was decided, in northeastern direction.

Oil was indicated in Ness and Etive Formations. There were good shows in the Cook Fm., but it is completely tight and impossible to test.

RFT-tests indicated oil from 2910 m (Ness Fm.) and mudfiltrate from 2934 m (Etive Fm.).

6 cores were cut in the well. 5 cores were cut in the interval 2854 - 3009.9 m and one core in the interval 3122.5 - 3150.4 m.

The well was suspended as an oil discovery.

## TESTING:

Two DST tests were performed in the well. DST 1 was in the Etive Fm. in the interval 2917 - 2036.2 m. DST 2 was in the Ness Fm. in the interval 2908.8 - 2912.3 m.

# GEOLOGICAL TOPS

WELL: 30/6-22

	Depth m (RKB)
<i>Nordland Group</i>	202.0
<i>Utsira Fm.</i>	721.0
<i>Hordaland Group</i>	885.0
<i>Rogaland Group</i>	1893.0
<i>Balder Fm.</i>	1893.0
<i>Sele Fm.</i>	1963.0
<i>Lista Fm.</i>	1998.0
<i>Våle Fm.</i>	2147.0
<i>Shetland Group</i>	2175.0
<i>Cromer Knoll Group</i>	2484.5
<i>Viking Group</i>	2496.5
<i>Draupne Fm.</i>	2496.5
<i>Heather Fm.</i>	2644.0
<i>Brent Group</i>	2874.5
<i>Tarbert Fm.</i>	2874.5
<i>Ness Fm.</i>	2886.5
<i>Etive Fm.</i>	2916.0
<i>Rannoch Fm.</i>	2938.0
<i>Oseberg Fm.</i>	2943.0
<i>Dunlin Group</i>	2997.5
<i>Drake Fm.</i>	2997.5
<i>Cook Fm.</i>	3122.0
<i>Amundsen Fm.</i>	3170.0
<i>Statfjord Fm.</i>	3290.0
<i>T.D.</i>	3336.0