

Well no :	34/10-33 C	Operator :	STATOIL
Coordinates :	61° 07' 34.44" N 02° 12' 57.10" E	UTM coord. :	677726200 N 45775618 E
Licence no :	50	Permit no :	614
Rig :	DEEPSEA BERGEN	Rig type :	SEMI-SUB.
Contractor :	ODFJELL DRILLING A/S		
Bottom hole temp:	120 °C	Elev. KB :	23 M
Spud. date :	89.07.11	Water depth :	134 M
Compl. date :	89.08.09	Total depth :	3753 M
Spud. class :	APPRAISAL	Form. at TD	E/M.JURA.
Compl. class :	SUSP.	Prod.form. :	
Seisloca :	ST 8134- 156 SP. 296		

## LICENSEES

6,000000	SAGA PETROLEUM A.S.
85,000000	DEN NORSKE STATS OLJESELSKAP A.S
9,000000	NORSK HYDRO PRODUKSJON A.S

## CASING AND LEAK-OFF TESTS

Type	Casing diam.	Depth below KB	Hole diam.	Hole depth below KB	Lot mud eqv. g/cm3
CONDUCTOR	30	219,0	36	220,0	
INTERM.	20	453,0	26	461,0	1,43
<b>INTERM.</b>	<b>13 3/8</b>	<b>1828,0</b>	<b>17 1/2</b>	<b>1838,0</b>	<b>1,53</b>
	9 5/8	3272,0	12 1/4	3493,0	1,70
LINER	7	3751,0	8 1/2	3753,0	

## MUD

Depth	Mud weight	Visc.	Mud type
3342,000	1,55	33,0	OIL BASED
3430,000	1,37	34,0	OIL BASED
3448,000	1,65	17,0	WATER BASED
3448,000	1,45	19,0	WATER BASED
3448,000	1,55	15,0	WATER BASED
3448,000	1,65	17,0	WATER BASED
3448,000	1,55	17,0	WATER BASED
3448,000	1,48	18,0	WATER BASED
3448,000	1,55	15,0	WATER BASED
3448,000	1,45	17,0	WATER BASED
3448,000	1,48	18,0	WATER BASED
3448,000	1,55	18,0	WATER BASED
3448,000	1,47	23,0	WATER BASED
3448,000	1,55	16,0	WATER BASED
3448,000	1,45	17,0	WATER BASED
3448,000	1,55	16,0	WATER BASED
3448,000	1,48	23,0	WATER BASED

Depth	Mud weight	Visc.	Mud type
3448,000	1,55	16,0	WATER BASED
3448,000	1,48	20,0	WATER BASED
3448,000	1,55	17,0	WATER BASED
3448,000	1,49	25,0	WATER BASED
3448,000	1,45	17,0	WATER BASED
3730,000	1,55	35,0	OIL BASED
3751,000	1,57	47,0	OIL BASED
3752,000	1,55	38,0	OIL BASED

## DRILL STEM TEST

### INTERVALS AND PRESSURES

Test no.	Interval meter	Choke size	Pressure (PSI) WHP	BTHP	FFP
1,0	3448,000 - 3517,000	20,6	3335,7	2320,5	609,1

Test temperature: N/A

### 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	1635	313300	0,859	0,680	193

## DRILL BIT CUTTINGS AND WET SAMPLES

Sample type	Interval below KB	Number of samples
WET SAMPLES	3283 - 3751	120

## SHALLOW GAS

Interval below KB	Remarks
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## AVAILABLE LOGS

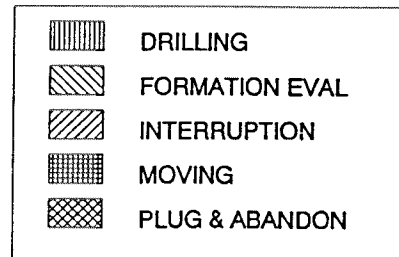
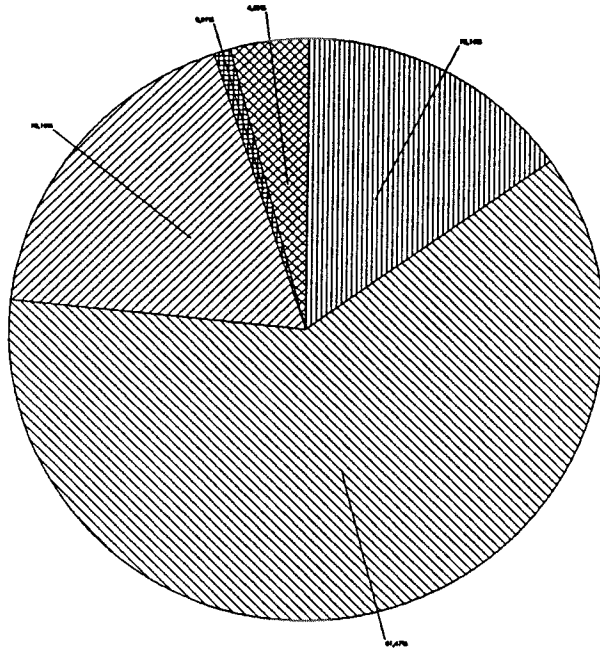
Log type	Intervals	1/200	1/500	Div.
AC CBL VDL GR	3160,0 - 3706,5	X	X	
CDL CNL GR	3271,5 - 3755,2	X	X	

Log type	Intervals	1/200	1/500	Div.
DIFL LS BHC AC GR	3271,5 - 3755,2	X	X	
CDM	3286,0 - 3756,0	X		
CDM AP	3286,0 - 3756,0	X	X	*
FMT	3292,0 - 3508,0		X	
FMT	3282,0 - 3658,0		X	
MWD	163,000 - 3752,000	X		

\* BOTH 1:200 AND 1:500 ON THE SAME LOG..

# Daily Drilling Report System (DDRS)

Operations for well: 34/10-33 C



Main operations	Minutes	Hours	% of total
DRILLING	15060	251,00	15,16
FORMATION EVAL	61080	1018,00	61,47
INTERRUPTION	18060	301,00	18,18
MOVING	900	15,00	0,91
PLUG & ABANDON	4260	71,00	4,29
<b>Total</b>	<b>99360</b>	<b>1656,00</b>	<b>100,00</b>

**Operations for well: 34/10-33 C****Main operation: DRILLING**

Sub operations	Minutes	Hours	% of total
BOP ACTIVITIES	480	8,00	3,19
BOP/WELLHEAD EQ	480	8,00	3,19
CASING	6600	110,00	43,82
CIRC/COND	270	4,50	1,79
DRILL	4530	75,50	30,08
REAM	180	3,00	1,20
TRIP	2520	42,00	16,73
<b>Total</b>	<b>15060</b>	<b>251,00</b>	<b>100,00</b>

**Main operation: FORMATION EVAL**

Sub operations	Minutes	Hours	% of total
CIRC/COND	1230	20,50	2,01
DST	45540	759,00	74,56
LOG	2100	35,00	3,44
OTHER	1470	24,50	2,41
RFT/FIT	1410	23,50	2,31
TRIP	7920	132,00	12,97
WAIT	1410	23,50	2,31
<b>Total</b>	<b>61080</b>	<b>1018,00</b>	<b>100,00</b>

**Main operation: INTERRUPTION**

Sub operations	Minutes	Hours	% of total
MAINTAIN/REP	11340	189,00	62,79
OTHER	30	0,50	0,17
SIDETRACK	6690	111,50	37,04
<b>Total</b>	<b>18060</b>	<b>301,00</b>	<b>100,00</b>

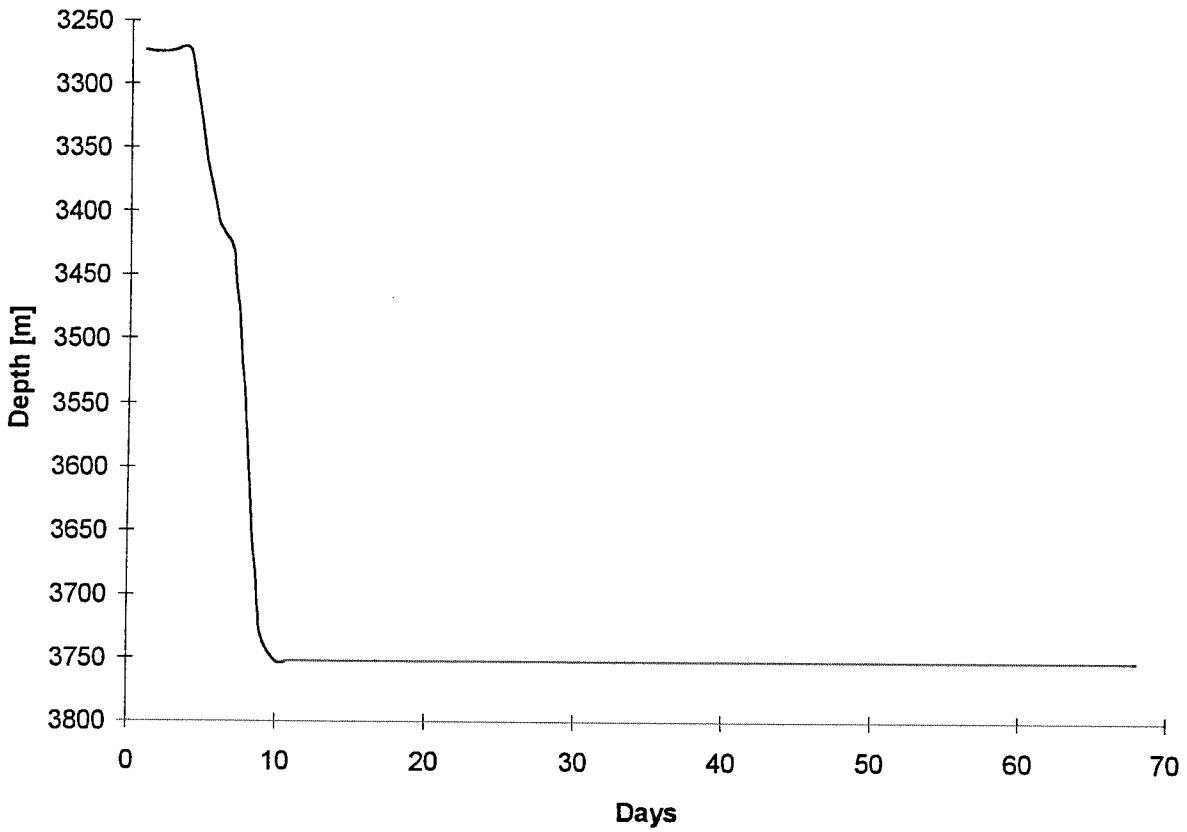
**Main operation: MOVING**

Sub operations	Minutes	Hours	% of total
ANCHOR	900	15,00	100,00
<b>Total</b>	<b>900</b>	<b>15,00</b>	<b>100,00</b>

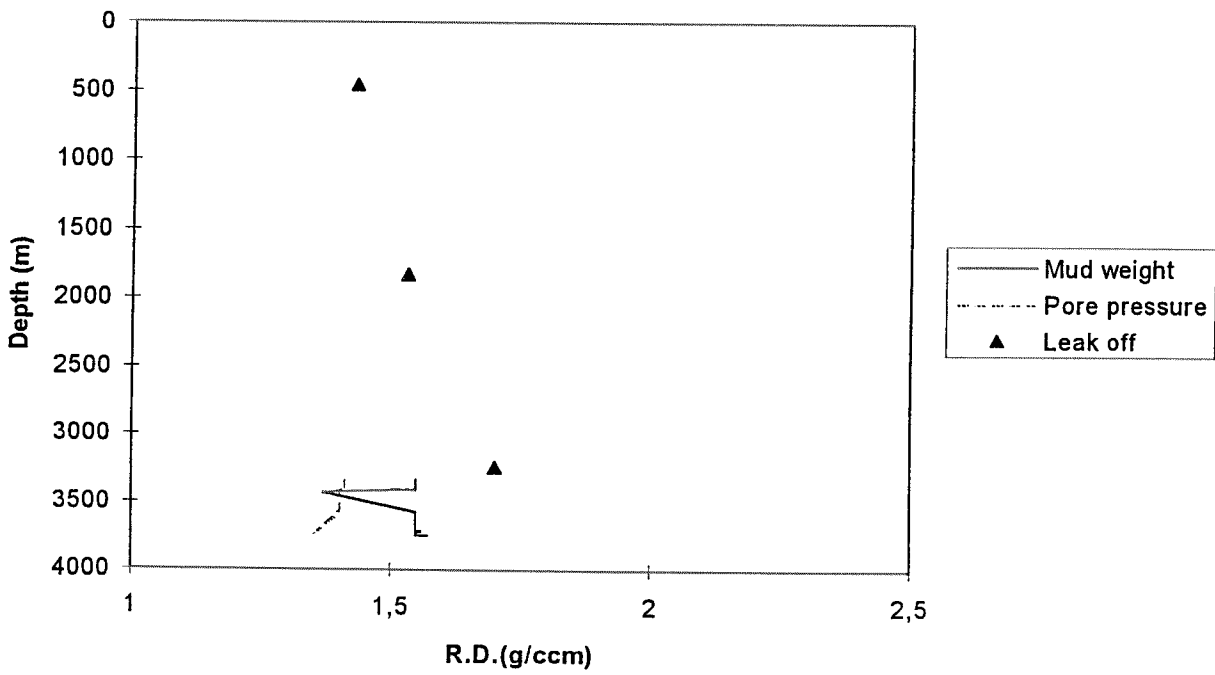
**Main operation: PLUG & ABANDON**

Sub operations	Minutes	Hours	% of total
CEMENT PLUG	270	4,50	6,34
CIRC/COND	207	3,45	4,86
EQUIP RECOVERY	960	16,00	22,54
MECHANICAL PLUG	240	4,00	5,63
OTHER	540	9,00	12,68
TRIP	2043	34,05	47,96
<b>Total</b>	<b>4260</b>	<b>71,00</b>	<b>100,00</b>

Depth vs time for well: 34/10-33 C



Composite plot for well: 34/10-33 C



# Well History 34/10-33 C.

## General:

Well 34/10-33 C was designed to drill the second sidetrack in connection with appraisal well 34/10-33. The main purpose of the well was to collect information about:

- performing a long period test from a horizontal well through the upper part of the Brent Group.
- demand for pressure support during oil production.
- pressure communication in the gas cap during production.
- productivity of a (relativ to formation) highly deviated well.
- treatment of oil with a high wax content.
- also to collect liquid samples from the reservoir.
- establish oil/water contact in the lower part of the pressure regime (Etive/Rannoch formations)
- penetrate a complete Rannoch formation downflanks from well 34/10-33.

The well was to be kicked of from well 34/10-33 B, previously sidetracked from well 34/10-33 A.

## Operations:

Appraisal well 34/10-33 C was spudded by the semi-submersibel rig Deepsea Bergen 10 July 1989, and completed 1 August 1989 at a depth of 3752m MD RKB in rocks of Early Jurassic age. No significant problems occurred while drilling this well. Twentythree of twentyfive sidewall cores were retrieved, but no conventional cores were cut in this well. The gas/oil contact in the Ness Formation was estimated to  $3263 \pm 5$  m TVD, and the oil/water contact in the Etive/Rannoch Formation was estimated to  $3483 \pm 20$  m TVD. The well was converted to testproduction well.

## Testing:

One DST test was performed in this well.

# Geological Tops.

## Well: 34/10-33 C.

Depth m (RKB).

Viking Group	2980.0
Brent Group	3169.0
Tarbert Fm	3169.0
<b>Kickoff point</b>	3216.5
Ness Fm	3344.5
Etive Fm	3563.0
Rannoch Fm	3617.0
Dunlin Group	3722.0
Drake Fm	3722.0
T.D.	3752.0