

## WDSS Report

Date: 03/03/98

PB/SKR

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Well no:	Operator:
30/02-03	STATOIL

### Well

Coordinates :	60° 50' 49.05" N	UTM coord. :	6745949.82 N
	02° 39' 19.68" E		481275.16 E
License no :	51	Permit no :	731
Rig :	ROSS ISLE	Rig type :	SEMI-SUB.
Contractor :	ROSS OFFSHORE		
Bottom hole temp:	143 °C	Elev. KB :	23 M
Spud. date :	92.06.11	Water depth :	123 M
Compl. date :	92.10.05	Total depth :	4325 M
Spud. class :	APPRAISAL	Form. at TD :	E.JURASSIC
Compl. class :	P&A. GAS/COND.	Prod.form. :	M.JURASSIC
Seisloca :	ST 8330-313, COL. 842		

### Licensees

51.000000 DEN NORSKE STATS OLJESELSKAP A.S  
24.500000 TOTAL NORGE AS  
24.500000 NORSKE CONOCO 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	205.0	36	206.0	
INTERM.	20	1099.0	26	1100.0	1.70
INTERM.	13 3/8	2283.0	17 1/2	2285.0	1.91
INTERM.	9 5/8	3706.0	12 1/4	3708.0	2.05
LINER	7	4088.0	8 1/2	4325.0	

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**Conventional Cores**

Core no.	Intervals cored meters	Recovery m	%
1	3749.0 - 3756.0	7.0	100.0
2	3756.0 - 3761.1	5.1	100.0
3	3792.0 - 3813.3	21.3	100.0
4	3816.0 - 3829.1	13.1	100.0
5	3830.0 - 3836.2	6.2	100.0
6	3836.2 - 3855.0	18.8	100.0
7	3855.0 - 3867.5	12.5	100.0
8	3868.0 - 3873.9	5.9	100.0
9	3875.0 - 3886.0	11.5	100.0
10	3886.0 - 3897.0	11.2	100.0
11	3897.0 - 3915.0	18.0	100.0
12	3915.6 - 3928.1	12.5	100.0
13	3928.1 - 3932.9	4.8	100.0
14	NO CORE		
15	3954.5 - 3962.0	7.5	100.0
16	3962.0 - 3968.5	6.8	100.0
17	3968.7 - 3986.1	17.4	100.0

**Mud**

Depth	Mud weight	Visc.	Mud type
520.0	1.03		WATER BASED
756.0	1.03		WATER BASED
1099.0	1.03		WATER BASED
1115.0	1.03		WATER BASED
1597.0	1.40	35.0	WATER BASED
2298.0	1.59	44.0	WATER BASED
2301.0	1.65	33.0	WATER BASED
2346.0	1.68	35.0	WATER BASED
2490.0	1.70	32.0	WATER BASED
2604.0	1.75	40.0	WATER BASED
2742.0	1.75	32.0	WATER BASED
2859.0	1.75	36.0	WATER BASED
2894.0	1.78	37.0	WATER BASED
2973.0	1.78	38.0	WATER BASED
3044.0	1.78	36.0	WATER BASED
3149.0	1.78	36.0	WATER BASED
3284.0	1.78	30.0	WATER BASED

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3414.0	1.78	28.0	WATER BASED
3533.0	1.82		DUMMY
3545.0	1.82	28.0	WATER BASED
3560.0	1.82	28.0	WATER BASED
3666.0	1.82		DUMMY
3723.0	1.85	37.0	WATER BASED
3727.0	1.85	27.0	WATER BASED
3749.0	1.85	26.0	WATER BASED
3756.0	1.85	26.0	WATER BASED
3767.0	1.85	30.0	WATER BASED
3791.0	1.87	34.0	WATER BASED
3792.0	1.87	20.0	WATER BASED
3793.0	1.85		DUMMY
3830.0	1.87		DUMMY
3836.0	1.87	34.0	WATER BASED
3855.0	1.87	32.0	WATER BASED
3868.0	1.87	32.0	WATER BASED
3875.0	1.87		DUMMY
3886.0	1.87	30.0	WATER BASED
3911.0	1.87	32.0	WATER BASED
3915.0	1.87		DUMMY
3927.0	1.87	33.0	WATER BASED
3953.0	1.87	33.0	WATER BASED
3954.5	1.87		DUMMY
3962.0	1.87		DUMMY
3968.0	1.87	29.0	WATER BASED
3985.0	1.87	28.0	WATER BASED
4011.0	1.87	25.0	WATER BASED
4091.0	1.87	27.0	WATER BASED
4123.0	1.87		DUMMY
4281.0	1.87	18.0	WATER BASED
4325.0	1.90	30.0	WATER BASED

## Drill Stem Test (intervals and pressures)

Test no.	Test interval meter	Choke size	Pressure (psi) WHP	BTHP	FFP
1.0	3895.0 - 3898.0	12.7			
2.0	3874.0 - 3881.0	12.7			
3.0	3794.0 - 3803.0	12.7			

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**Drill Stem Test (recovery)**

Test no.	Cond. Sm3/d	Gas Sm3/d	Oil grav. g/cm3	Gas grav. rel. air	GOR m3/m3
1.0	24	43000	0.810	0.720	1790
2.0	319	671000	0.800	0.700	2100
3.0	215	466800	0.797	0.690	2170

**Drill Bit Cuttings and Wet Samples**

Sample type	Interval below KB	Number of samples
WET SAMPLES	1120.0 - 4323.0	600
CUTTINGS	1120.0 - 4323.0	600

**Shallow Gas**

Interval below KB	Remarks

**Available Logs**

Log type	Intervals logged	1/200	1/500	
CBL VDL GR 7"LINER	3550.0 - 4041.0			
CST GR	1118.0 - 2227.0			
CST GR	3708.0 - 3952.0			
DIL BHC MSFL GR	3706.0 - 4009.0			
DIL BHC MSFL GR	3706.0 - 4323.0			
DIL LSS GR CAL	2280.0 - 3722.0			
DIL SLS GR CAL	1099.0 - 2297.0			
DLL GR AMS	3706.0 - 3868.0			
FMS GR AMS	3706.0 - 4317.0			

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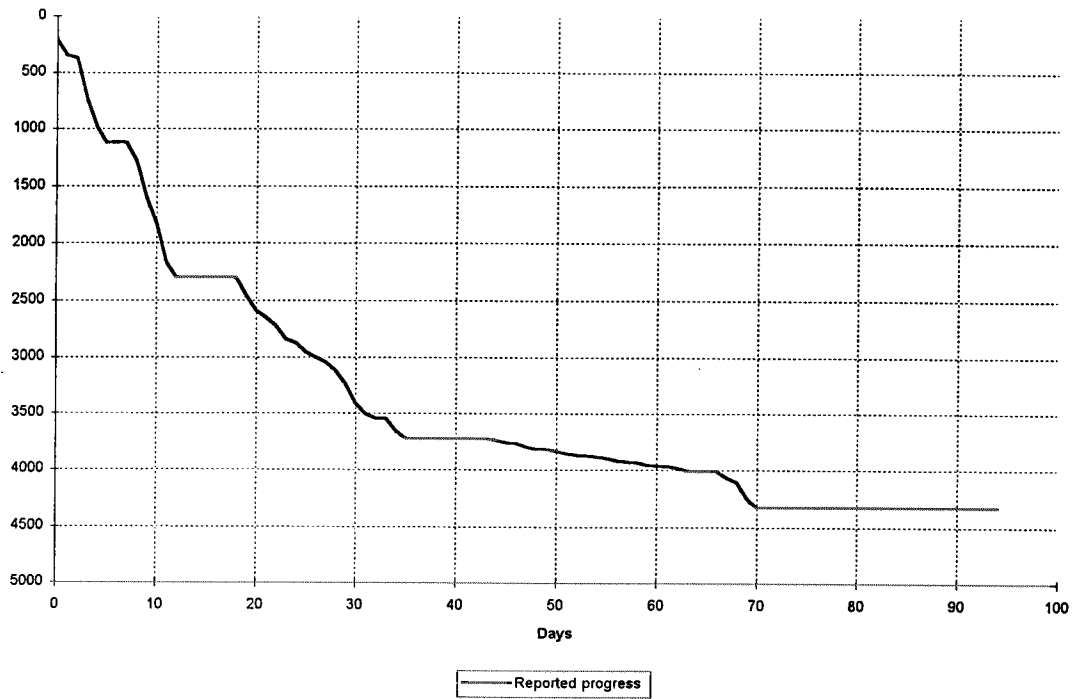
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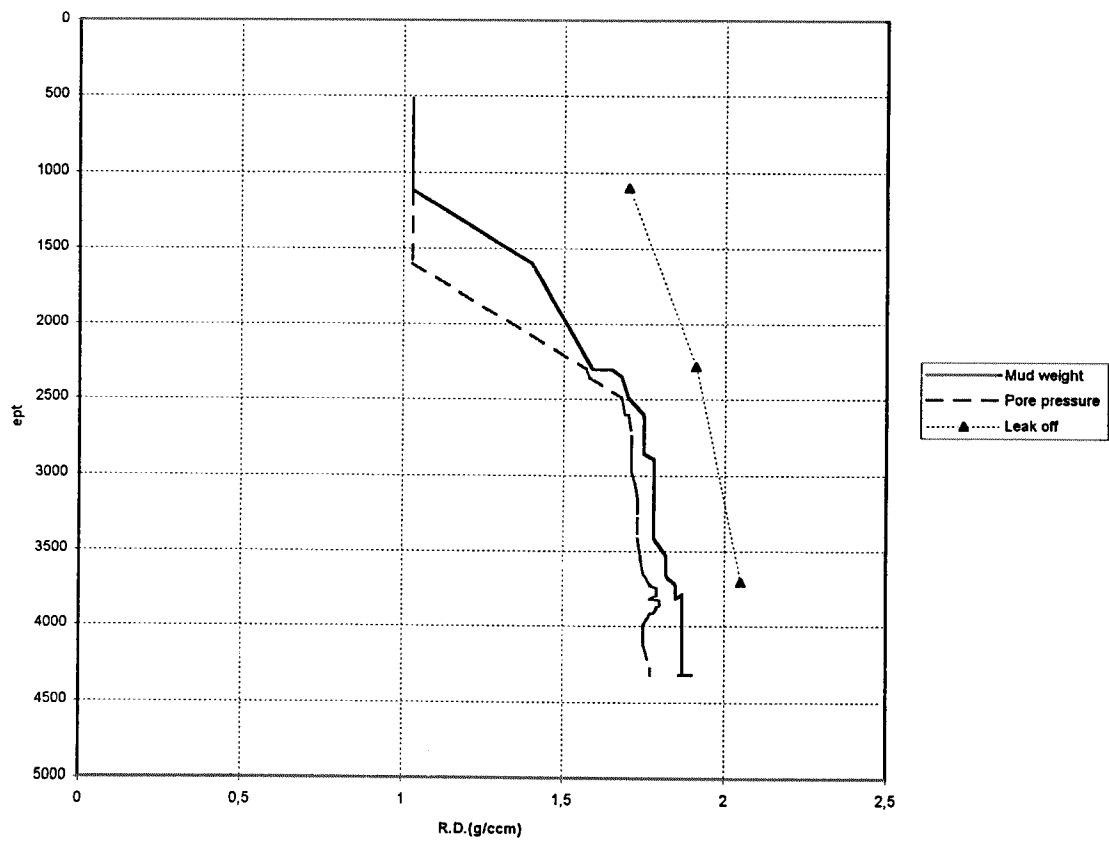
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FORMATION EVALUATION	145.0 - 4325.0			
LDL CNL GR	2280.0 - 3723.0			
LDL CNL NGL	3706.0 - 4010.0			
LDL CNL NGL	3706.0 - 4010.0			
LDL CNL NGS	3783.0 - 4325.0			
LDL CNL NGS AMS	3777.0 - 4325.0			
MUD	145.0 - 4325.0			
NGL	3706.0 - 4000.0			
NGS	3706.0 - 4325.0			
PRESSURE EVALUATION	145.0 - 4325.0			
RFTB HP GR	3797.0 - 3940.0			
RFTB HP GR	3880.0 - 3941.0			
SNR-GR	205.0 - 3793.0			
SYNTHETIC SEISMOGRAM				
TWO WAY TRAVEL TIME				

Depth v.s. time plot for well: 30/2-3



Composite plot for well: 30/2-3



## Main operations for well: 30/2-3

### Main operation: DRILLING

Sub operation:	Minutes:	Hours:	% of total:
BOP ACTIVITIES	3420	57,0	4,39
BOP/WELLHEAD EQ	4350	72,5	5,58
CASING	15990	266,5	20,52
CIRC/COND	5310	88,5	6,82
DRILL	31590	526,5	40,55
HOLE OPEN	1770	29,5	2,27
OTHER	120	2,0	0,15
REAM	2730	45,5	3,50
SURVEY	90	1,5	0,12
TRIP	12540	209,0	16,10
<b>Total</b>	<b>77910</b>	<b>1298,5</b>	<b>100,00</b>

### Main operation: FORMATION EVAL

Sub operation:	Minutes:	Hours:	% of total:
CIRC SAMPLES	630	10,5	1,07
CIRC/COND	3990	66,5	6,79
CORE	9600	160,0	16,33
DST	23130	385,5	39,36
LOG	8190	136,5	13,94
OTHER	150	2,5	0,26
RFT/FIT	300	5,0	0,51
TRIP	12780	213,0	21,75
<b>Total</b>	<b>58770</b>	<b>979,5</b>	<b>100,00</b>

### Main operation: INTERRUPTION

Sub operation:	Minutes:	Hours:	% of total:
FISH	2850	47,5	18,55
MAINTAIN/REP	4680	78,0	30,47
OTHER	2700	45,0	17,58
WAIT	2250	37,5	14,65
WELL CONTROL	2880	48,0	18,75
<b>Total</b>	<b>15360</b>	<b>256,0</b>	<b>100,00</b>

### Main operation: MOVING

Sub operation:	Minutes:	Hours:	% of total:
ANCHOR	2165	36,1	42,66
TRANSIT	2910	48,5	57,34
<b>Total</b>	<b>5075</b>	<b>84,6</b>	<b>100,00</b>

### Main operation: PLUG & ABANDON

Sub operation:	Minutes:	Hours:	% of total:
CEMENT PLUG	120	2,0	1,32
CIRC/COND	750	12,5	8,22
CUT	1800	30,0	19,74
EQUIP RECOVERY	90	1,5	0,99
OTHER	1440	24,0	15,79
SQUEEZE	1020	17,0	11,18
TRIP	3900	65,0	42,76
<b>Total</b>	<b>9120</b>	<b>152,0</b>	<b>100,00</b>

Total time used: 2770,6 Hours

# WELL HISTORY 30/2-3

## GENERAL:

The well 30/2-3 was designed to appraise the Huldra Field. The primary objective of the well was to reduce the uncertainties in the Gas-in place estimation by defining the distribution of reservoir facies within the Ness Formation and the Oseberg Formation together with defining the level of the Gas-Water Contact. The well was also dedicated to investigate the primary relationships that control recovery factors and reduce errors in recoverable reserves estimate.

## OPERATION:

The well 30/2-3 was spudded 11 June 1992 by the semi submersible rig "Ross Isle" and completed 28 August 1992 in rocks of Early Jurassic age. Uncertainties associated with Gas-in-Place estimate within Ness Formation and Oseberg Formation has been significantly reduced as a result of well 30/2-3. Although a well-defined Gas-Water-Contact was encountered in 30/2-3 at 3896m RKB, this was some 75m shallower than the previously thought deepest "gas-down-to" for well 30/2-2. This indicates that the Huldra Field is more complex than previously thought. Good porosity and permeability were encountered in all gas bearing intervals, reducing uncertainties regarding well productivity. The well was plugged and abandoned as a Gas well.

## TESTING:

Three DST tests were performed. DST1 and DST2 were in the Ness Formation, while DST3 was in the Tarbert Formation.



# Geological Tops.

## Well: 30/2-3

	Depth m (RKB).
Nordland Group	145.0
Utsira Fm	815.0
Hordaland Group	879.0
Rogaland Group	1936.0
Balder	1936.0
Sele Fm	2011.0
Lista Fm	2077.0
Shetland Group	2185.0
Jordsalfare Fm	2185.0
Kyrre Fm	2438.0
Tryggvason Fm	3419.0
Blodøks Fm	3543.0
Cromer Knoll Group	3599.0
Rødby Fm	3599.0
Sola Fm	3620.0
Åsgard Fm	3642.0
Viking Group	3672.0
Draupne Fm	3672.0
Heather Fm	3708.5
Brent Group	3792.0
Tarbert Fm	3792.0
Ness Fm	3808.0
Etive Fm	3933.5
Rannoch Fm	3944.0
Oseberg Fm	3974.0
Dunlin Group	3983.0
Drake Fm	3983.0
Cook Fm	4161.0
Burton Fm	4199.0
Amundsen Fm	4241.0
Statfjord Fm	4288.0
TD	4325.0