

## WDSS Report

Date: 26/02/98

PB/SKR

Page: 1 / 1

Well no:	Operator:
<b>2/07-27 S</b>	<b>PHILLIPS</b>

### Well

Coordinates :	56° 19' 59.81" N 03° 14' 53.77" E	UTM coord. :	6243340.01 N 515351.24 E
License no :	18	Permit no :	707
Rig :	WEST DELTA	Rig type :	SEMI-SUB.
Contractor :	SMEDVIG DRILLING		
Bottom hole temp:	146 °C	Elev. KB :	29 M
Spud. date :	91.11.09	Water depth :	71 M
Compl. date :	92.06.17	Total depth :	4801 M
Spud. class :	APPRAISAL	Form. at TD :	PRE-JURA.
Compl. class :	RE-CLASS. TO PROD.	Prod.form. :	
Seisloca :	LINJE PC-297 KRYSSN.PKT. TRASE 1143		

### Licensees

7.594000 ELF PETROLEUM NORGE AS  
 .456000 ELF REP NORGE A/S  
 .399000 ELF REX NORGE AS  
 30.000000 FINA PRODUCTION LICENCES AS  
 6.700000 NORSK HYDRO PRODUKSJON AS  
 .304000 NORMINOL AS  
 36.960000 PHILLIPS PETROLEUM COMPANY NORWAY  
 1.000000 DEN NORSKE STATS OLJESELSKAP A.S  
 3.547000 TOTAL NORGE AS  
 13.040000 NORSK AGIP AS

### Casing and Leak-off Tests

Type	Casing diam	Depth below KB	Hole diam.	Hole depth below KB	Lot mud eqv. g/cm3
CONDUCTOR	30	156.0	36	157.0	
INTERM.	20	570.0	26	572.0	1.92
INTERM.	13 3/8	2139.0	17 1/2	2140.0	2.00
INTERM.	9 7/8	4285.0	12 1/4	4286.0	1.80
LINER	7	4797.0	8 1/2	4800.0	2.18

# WDSS Report

Date: 26/02/98

PB/SKR

Page: 2 / 2

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<b>2/07-27 S</b>	<b>PHILLIPS</b>

## Conventional Cores

Core no.	Intervals cored meters	Recovery m	%
1	3173.0 - 3189.0	16.0	100.0
2	3266.0 - 3275.0	9.0	100.0
3	4584.0 - 4589.0	5.0	100.0
4	4589.0 - 4594.0	5.0	100.0

## Mud

Depth	Mud weight	Visc.	Mud type
159.7	1.44		WATER BASED
277.4	1.02		WATER BASED
487.7	1.56	14.0	WATER BASED
573.0	1.32	18.0	WATER BASED
579.1	1.56	13.0	WATER BASED
696.8	1.33	17.0	OIL BASED
1033.3	1.33	30.0	
1131.4	1.45	27.0	
1344.8	1.62	43.0	
1386.8	1.62	43.0	
1898.9	1.75	22.0	WATER BASED
1919.3	1.75	24.0	WATER BASED
1929.4	2.07	31.0	WATER BASED
1958.9	1.87	24.0	WATER BASED
1978.8	1.87	26.0	WATER BASED
2139.7	1.77	39.0	
2147.6	1.71	38.0	
2174.1	1.77	35.0	
2468.9	1.87	46.0	
2619.8	1.87	54.0	
2748.7	1.87	46.0	WATER BASED
2826.7	1.87	52.0	WATER BASED
2842.9	1.87	43.0	WATER BASED
2882.5	1.87	47.0	WATER BASED
2961.1	1.86	27.0	WATER BASED
3007.5	1.87	47.0	WATER BASED
3040.4	1.87	20.0	WATER BASED
3072.4	1.87	28.0	WATER BASED
3077.9	1.73	26.0	WATER BASED
3089.5	1.87	45.0	WATER BASED

**WDSS Report**

Date: 26/02/98

PB/SKR

Page: 3 / 3

<b>Well no:</b>	<b>Operator:</b>
<b>2/07-27 S</b>	<b>PHILLIPS</b>

3113.5	1.74	37.0	WATER BASED
3145.5	1.74	27.0	WATER BASED
3169.9	1.87	50.0	WATER BASED
3173.0	1.62	29.0	WATER BASED
3188.2	1.62	24.0	WATER BASED
3199.8	1.87	44.0	WATER BASED
3229.4	1.75	39.0	WATER BASED
3240.0	1.62	31.0	WATER BASED
3265.9	1.62	27.0	WATER BASED
3298.5	1.62	30.0	WATER BASED
3307.1	1.59	35.0	WATER BASED
3375.1	1.59	30.0	WATER BASED
3391.2	1.87	34.0	WATER BASED
3439.1	1.87	34.0	WATER BASED
3447.3	1.87	32.0	WATER BASED
3470.5	1.81	26.0	WATER BASED
3473.2	1.57	33.0	WATER BASED
3535.7	1.56	35.0	WATER BASED
3618.0	1.56	32.0	WATER BASED
3681.1	1.56	36.0	WATER BASED
3682.0	1.75	26.0	WATER BASED
3791.1	1.56	30.0	WATER BASED
3889.9	1.58	35.0	WATER BASED
3900.8	1.58	43.0	WATER BASED
3905.4	1.58	38.0	WATER BASED
3929.5	1.58	10.0	WATER BASED
3942.6	1.62	22.0	WATER BASED
3995.3	1.62	22.0	WATER BASED
4001.7	1.64	23.0	WATER BASED
4008.1	1.71	29.0	WATER BASED
4014.2	2.10	32.0	WATER BASED
4020.3	1.67	22.0	WATER BASED
4038.6	1.75	29.0	WATER BASED
4045.9	1.69	20.0	WATER BASED
4079.4	1.69	20.0	WATER BASED
4081.9	1.69	33.0	WATER BASED
4106.3	1.69	25.0	WATER BASED
4133.7	1.69	32.0	WATER BASED
4166.9	2.08	37.0	WATER BASED
4171.2	1.69	27.0	WATER BASED
4190.4	1.69	27.0	WATER BASED
4249.2	1.75	28.0	WATER BASED
4251.7	1.75	29.0	WATER BASED
4255.0	2.10	21.0	WATER BASED
4285.2	1.75	25.0	WATER BASED
4291.3	2.07	23.0	WATER BASED
4299.5	1.75	29.0	WATER BASED
4327.6	2.04	25.0	WATER BASED

## WDSS Report

Date: 26/02/98

PB/SKR

Page: 4 / 4

<b>Well no:</b>	<b>Operator:</b>
<b>2/07-27 S</b>	<b>PHILLIPS</b>

4416.6	2.07	23.0	WATER BASED
4437.9	2.04	27.0	WATER BASED
4504.6	2.07	23.0	WATER BASED
4539.1	2.07	20.0	WATER BASED
4561.9	2.10	25.0	WATER BASED
4583.9	2.10	18.0	WATER BASED
4589.7	2.10	26.0	WATER BASED
4598.2	2.12	29.0	WATER BASED
4623.5	2.12	28.0	WATER BASED
4668.3	2.10	30.0	WATER BASED
4718.3	2.07	26.0	WATER BASED
4742.1	2.10	32.0	WATER BASED
4775.9	2.07	26.0	WATER BASED
4800.6	2.07	24.0	WATER BASED

### Drill Stem Test (intervals and pressures)

Test no.	Test interval meter	Choke size	Pressure (psi) WHP	BTHP	FFP
1.0	4740.9 - 4483.6	15.9	4560		

### Drill Stem Test (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	1494	400909	0.80	0.80	268

### Drill Bit Cuttings and Wet Samples

Sample type	Interval below KB	Number of samples
WET SAMPLES	3855 - 4800	270
CUTTINGS	3856 - 4800	150

### Shallow Gas

Interval below KB	Remarks

**WDSS Report**

Date: 26/02/98

PB/SKR

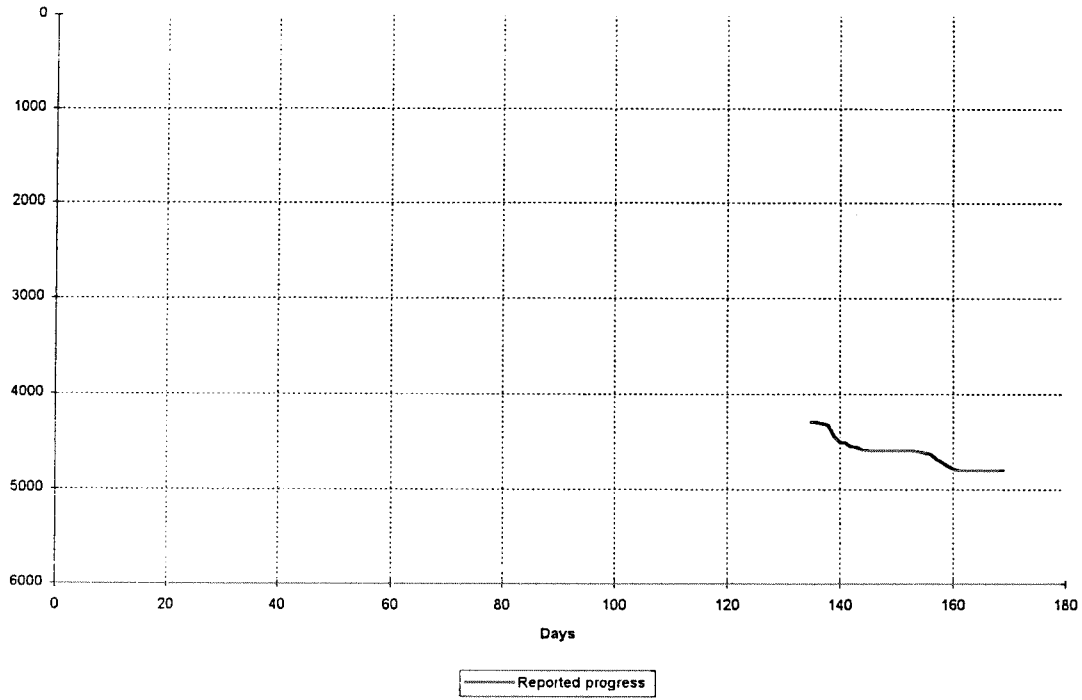
Page: 5 / 5

<b>Well no:</b>	<b>Operator:</b>
<b>2/07-27 S</b>	<b>PHILLIPS</b>

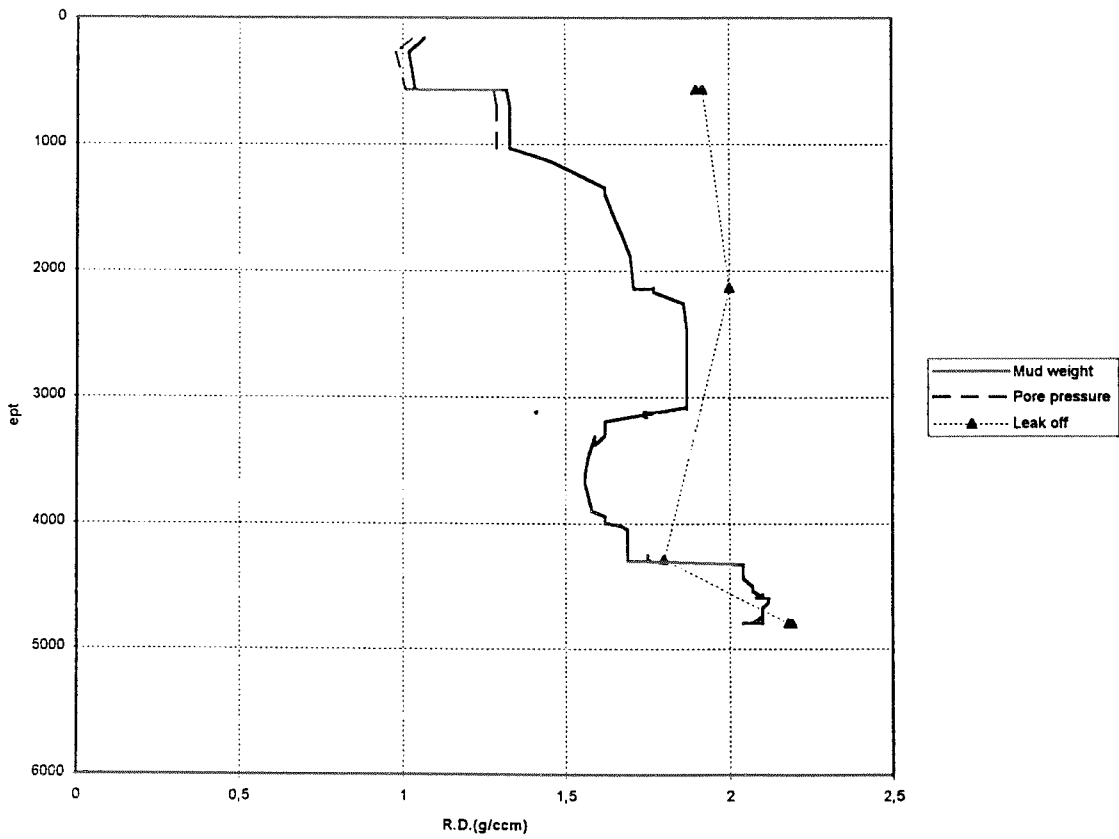
**Available Logs**

Log type	Intervals logged	1/200	1/500
BGL GR AMS	10088.0 - 13982.0		
CBL VDL CCL GR	6510.0 - 9973.0		
CBL VDL GR	306.0 - 6268.0		
CBL VDL GR CCL	13720.0 - 15350.0		
DIL MSFL GR AMS SP	14070.0 - 15748.0		
DLL MSFL BHC AMS GR	7012.0 - 14101.0		
DRILLING PARAMETER	327.0 - 15750.0		
FORMATION EVALUATION	327.0 - 15750.0		
GR CCL CORRELATION	14398.0 - 15554.0		
LDL CNL AMS GR	7012.0 - 10200.0		
LDL CNL GR AMS	14675.0 - 15767.0		
MWD	2050.0 - 15700.0		
NGL RATIOS	14655.0 - 15720.0		
PRESSURE PARAMETER	327.0 - 15750.0		
SDT(ARRAY) NGL AMS	14655.0 - 15760.0		

Depth v.s. time plot for well: 2/7-27 S



Composite plot for well: 2/7-27 S



**Main operations for well: 2/7-27 S****Main operation: COMPLETION**

Sub operation:	Minutes:	Hours:	% of total:
PERFORATE	1800	30,0	58,82
TEST SCSSSV	1260	21,0	41,18
<b>Total</b>	<b>3060</b>	<b>51,0</b>	<b>100,00</b>

**Main operation: DRILLING**

Sub operation:	Minutes:	Hours:	% of total:
BOP ACTIVITIES	1530	25,5	0,76
BOP/WELLHEAD EQ	1410	23,5	0,70
CASING	48630	810,5	24,24
CIRC/COND	10620	177,0	5,29
DRILL	54390	906,5	27,12
DRIVE	12660	211,0	6,31
HOLE OPEN	16440	274,0	8,20
OTHER	10590	176,5	5,28
PRESS DETECTION	1020	17,0	0,51
SURVEY	30	0,5	0,01
TRIP	42960	716,0	21,42
WAIT	300	5,0	0,15
<b>Total</b>	<b>200580</b>	<b>3343,0</b>	<b>100,00</b>

**Main operation: FORMATION EVAL**

Sub operation:	Minutes:	Hours:	% of total:
CIRC/COND	5370	89,5	15,80
CORE	90	1,5	0,26
DST	2190	36,5	6,44
LOG	6210	103,5	18,27
OTHER	4800	80,0	14,12
PROD TEST	840	14,0	2,47
RFT/FIT	3720	62,0	10,94
TRIP	9330	155,5	27,45
WAIT	1440	24,0	4,24
<b>Total</b>	<b>33990</b>	<b>566,5</b>	<b>100,00</b>

**Main operation: INTERRUPTION**

Sub operation:	Minutes:	Hours:	% of total:
FISH	27150	452,5	52,56
MAINTAIN/REP	9180	153,0	17,77
OTHER	13320	222,0	25,78
WAIT	960	16,0	1,86
WELL CONTROL	1050	17,5	2,03
<b>Total</b>	<b>51660</b>	<b>861,0</b>	<b>100,00</b>

**Main operation: PLUG & ABANDON**

Sub operation:	Minutes:	Hours:	% of total:
CEMENT PLUG	300	5,0	5,85
CIRC/COND	600	10,0	11,70
OTHER	1260	21,0	24,56
SQUEEZE	450	7,5	8,77
TRIP	2520	42,0	49,12
<b>Total</b>	<b>5130</b>	<b>85,5</b>	<b>100,00</b>

Total time used:  Hours

# WELL HISTORY 2/7-27 S

## General:

The 2/7-27 S well was drilled deviated from a fifteen-slot production template located at the site of the planned Embla production facilities. The intent of the 2/7 – 27 S was to test and complete the well in manner suitable for later tieback to production facilities. The objective was to drill to and replace the abandoned 2/7 - 23S as a production well.

The 2/7 –27 S is located on the Embla field. The field is a combination of a structural and stratigraphic trap. The reservoir consists of two highly faulted sandstone units with a regionally northerly dip truncated by the Base Cretaceous Unconformity.

## Operation:

The well was spudded on the 9<sup>th</sup> of November 1991 using the semi-submersible drilling rig "West Delta", and was completed on 17<sup>th</sup> June 1992 at a depth of 4800,6m RKB in rocks of pre Late-Jurassic age. Drilling problems were encountered in the 12 ¼" hole section forcing a technical side-track. One core was cut in each of the Ekofisk and Tor Formation. Thereafter drilling continued to the top of the reservoir, whereupon to consecutive cores were cut in the reservoir section. The well was temporarily abandoned suitable for later re-entry and tieback as a production well.

## Testing:

A single DST test where performed over the pre Late-Jurassic reservoir from 4484-4740m.



# Geological Tops.

## Well: 2/7-27 S.

	Depth m (RKB).
Nordland Group	99.6
Hordaland Group	1599.0
Rogaland Group	3007.0
Balder Fm	3007.0
Sele Fm	3027.0
Lista Fm	3083.0
Våle Fm	3140.0
Shetland Group	3167.0
Ekofisk Fm	3167.0
Tor Fm.	3255.0
Hod Fm	3523.0
Blodøks Fm	4161.0
Hidra Fm	4170.0
Cromer Knoll Group	4238.0
Rødby Fm	4238.0
Sola Fm	4287.0
Tuxen Fm	4332.0
Åsgard Fm	4361.0
Tyne Group	4476.0
Mandal Fm	4476.0
Indeterminate	4483.0
Upper Sandstone B	4483.0
Middel Mudstone	4491.0
Lower Sandstone A	4511.0
Lower Sandstone B	4582.0
T.D	4801.0