OFFSHORE NORWAY

PL 229 - BLOCK 7122/7,8,9,10 & 7123/7

Report title:

WELL 7122/7-1

FINAL WELL REPORT

Abstract:

This report deals with the geological and drilling results of well 7122/7-1.
In section 1 general information is reported. Section 2 comprises a geological summary and a description of the acquisition of data with their interpretation. Section 3, the drilling report, details all drilling operations and results.
Enclosed are the composite log, the computer processing interpretation of the reservoir section and the well test report.

Note:

Date: January 2001	**Report no.:**	
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1. GENERAL

1.1 Introduction

Well 7122/7-1 was drilled as an exploration well on the Goliath prospect situated in the southeastern part of block 7122/7.

The objective of drilling this well was:

Test the hydrocarbon potential of the primary target in the Middle Jurassic through Upper Triassic reservoir series of the Realgrunnen Group in the Goliath prospect

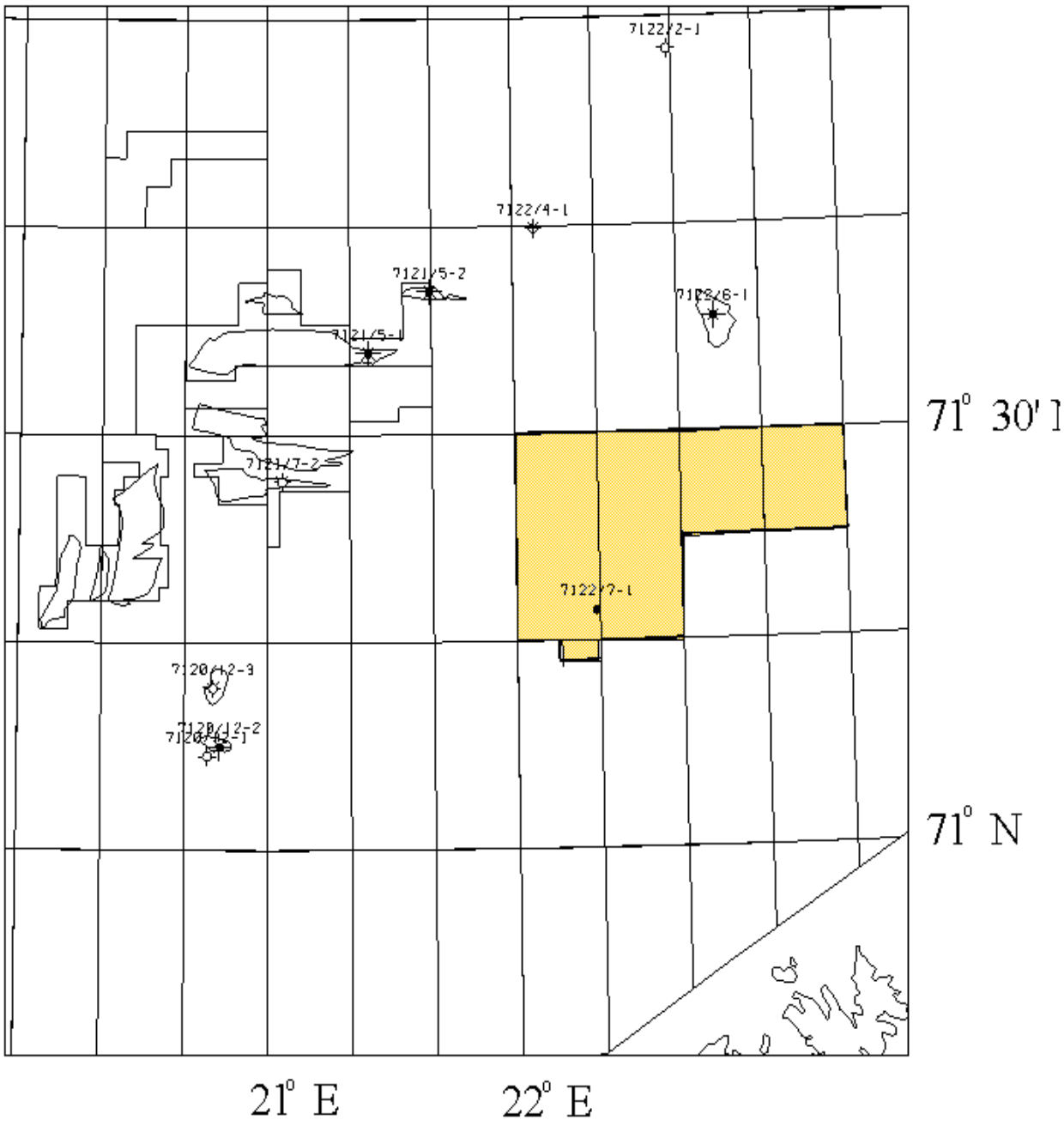
Costs of this well were shared in the following percentages:

Norsk Agip:	25%
Phillips	25%
Statoil/SDFI:	20%
Enterprise:	15%
Fortum :	15%

The 7122/7-1 well was drilled to total depth of 1524 meters BRT.

All the following depths refer to meters below rotary table (BRT) if not otherwise mentioned.

1.2 Map Location



1.3 Basic Well Data

COUNTRY	:	Norway	
AREA	:	Barents Sea	
PRODUCTION LICENCE No.	:	PL 229	
BLOCK	:	7122/7, 8, 9,10 & 7123/7	
WELL NAME	:	7122/7-1	
PROSPECT	:	Goliath	
SEISMIC REFERENCE	:	NA9801-3D	
		inline 710, crossline 3000	
COORDINATES (ED-50)	:	N 71deg 17min 10.93	
	:	E 22deg 19min 7.02	
	:	547 217.4 East, 7 910 064.4 North.	
TOLERANCE	:	50 m in any direction	
DISTANCE	:	85 km from Shore Base	
SPUDDING CLASSIFICATION	:	Wildcat	
WATER DEPTH	:	381m	
RKB ELEVATION	:	24m	
RKB-SEA FLOOR	:	405m	
TOTAL DEPTH	:	1524 m BRT	
PRIMARY TARGET	:	M. Jurassic – U. Triassic (Realgrunnen Group)	
DEPTH TO PRIMARY TARGET	:	1102m BRT	
TARGET TOLERANCE	:	Radius of 50 m	
DRILLING RIG	:	Transocean Arctic	
OPERATOR	:	Norsk Agip A/S	25%
PARTNERS	:	Phillips Petroleum Company Norway	25%
		Statoil / SDFI	20%
		Enterprise Oil Norwegian A/S	15%
		Fortum Petroleum A/S	15%

2. GEOLOGY AND GEOPHYSICS

2.1 GEOLOGICAL SUMMARY

The purpose of drilling well 7122/7-1 was to test the hydrocarbon potential of the sandstones of the Realgrunnen Group in the Goliath prospect.

The Goliat prospect is a faulted structural closure in the crestal part of a major Northeast-Southwest trending roll-over anticline situated in the southeastern part of the Hammerfest Basin.

The top of the main reservoir was found at 1102 m, 1m below the prognosis. The reservoir was oil bearing. The well was plugged and abandoned after final logging at a TD of 1524 m, 148 m into the Middle Snadd Sandstone Formation.

	TWT (sec.)	Depth (mMSL)	Depth (mBRT)	DT (msec)	Interval velocity (m/s)
Sea Bed	0.511	381	405		
				178	2034
Base Tertiary Unc.	0.689	562	586		
				46	2130
Upper Cretaceous Unc.	0.735	611	635		
				295	2366
Top Knurr Formation	1.030	960	984		
				26	2923
Lr Cret. Unc/ Hekkingen Fm	1.056	998	1022		
				52	2538
Top Fuglen Fm	1.108	1064	1088		
				9	3111
Top Realgrunnen Group	1.117	1078	1102		
				65	3077
Top Ingøydjupet Group/ Top Snadd	1.182	1178	1202		
				103	3379
Top Middle Snadd Sst Fm	1.285	1352	1376		
				91	3253
TD	1.376	1500	1524		

2.2 MAIN RESULTS

The well was drilled to a total depth of 1524m (driller`s depth) and terminated in the Middle Snadd Sandstone Formation. The oil reservoir of The Realgrunnen Group was encountered at 1102m, 1m below the prognosed depth. (Fig.2.2.1). Free water level was found at 1146m based on the MDT pressure plot (fig.2.7.2)

Good to very good shows were observed in cuttings, sidewall cores and conventional cores from 1102m to 1150m. Maximum total gas was 2.73% at 1107m.
From 1150m to 1239m observed shows were generally mottled and poor indicating water invasion.

The well was plugged and abandoned without testing.

Prognosis Versus Actual

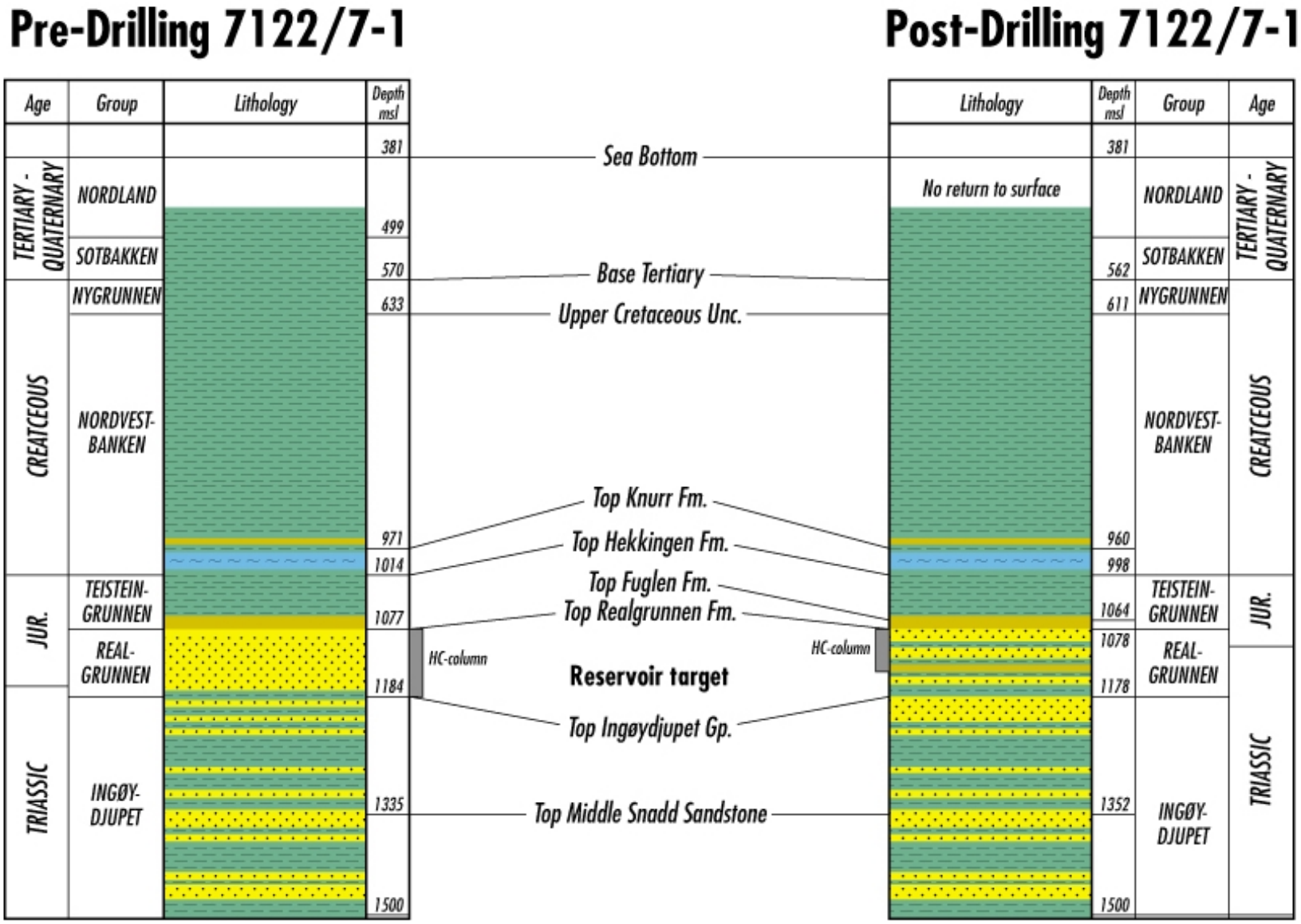


Fig.2.2.1

2.3 DATA ACQUISITION

2.3.1 Routine Sampling

Cuttings were collected and described offshore by Geoservices personnel (see Mudlogging Final Well Report) and revised by the Norsk Agip wellsite geologist.

The cuttings sample interval was:

- Every 10m from 688 m (below 20" casing shoe) to 1063 m. Every 3 to 6m from 1063 m to 1524 m.

Exceptions were made for excessive drill rates to maintain good sampling and descriptions.

Approximately 4 kgs of unwashed cuttings were collected offshore and sent to Reslab for preparation and distribution according to NPD and partner's requirements.

Geochemical samples (canned cuttings samples) were collected every 100m from 700m to TD and sent to Reslab for analysis (see separate report).

Biostratigraphical samples were collected every 100 m from 700 m to TD and sent to Stratlab for analysis (see separate report).

Mud samples were taken throughout the well at relevant intervals.

2.3.2 Shows

No indications of shallow gas were noted during the drilling of the pilot hole.

The evaluation of hydrocarbon shows were carried out at the wellsite by Goeservices. A standard gas trap and digital gas chromatograph from 688m to 1524 m. Gas values were consistent in quality through out the well.

Hydrocarbon shows on cuttings, cores and sidewall cores were described by Norsk Agip's wellsite geologist.

In the 12¼" hole section total gas values predominantly ranged from 0.1% to 0.8% to 980 m. From this depth the background gas increased to 1.65% indicative of pore pressure build up in the Knurr/Hekkingen Formations. There were few gas peaks; these generally correlated to increased ROPs.

Gas levels in the 8½" section, from 1063 m to 1133 m ranged from 0.40% to 3.66%; from 1133 m to 1200m coring resulted in lower levels of 0.1% to 0.6% and from 1200m to 1524m gas decreased from 0.83% on entering the Snadd Formation to 0.10% at TD.

Due to high overbalance no connection or trip gases were seen.

Shows were recorded from 1102 m to 1239 m in the Realgrunnen Sandstones. From 1102 m to 1133 m there was a moderate hydrocarbon odor, no visible oil stain, 100% bright greenish yellow fluorescence, moderately fast to fast blooming blue white cut fluorescence, no natural cut color, a greenish white residual ring with no visible residual ring.

Good to very good shows were recorded in the cores at the rigsite from 1133 m to 1150 m. Below this depth the shows were moderate to poor.

Reference should be made to the bottom hole core and sidewall core reports

2.3.3 Measurements while Drilling and Wireline Logs

Pathfinder provided a CLSS sonic tool in the 12 ¼" hole section from 693 m to 1063 m behind Baker's Gamma Ray, Resistivity and Directional Survey package this was done in a single run with no problems.

Baker provided continued with its package from 1063m to TD in the 8 ½" section. Below is a summary of LWD/MWD tools run:

Run No	Hole Diam	Drilled Intvl.	Tool Type	Logs	Op. Mode
0100	9 7/8"	483-690m	8 ¼" MPR	GR/Dir/Res	Drilling
0200	9 7/8"	483-690m	8 ¼" MPR	Dir	Open Hole
0300	9 7/8"	693-1063m	8 ¼" MPR	GR/Dir/Res/Sonic	Drilling
0400	8 ½"	1063-1133m	6 ¾" MPR	GR/Dir/Res	Drilling
0500	8 ½"	1133-1524m	6 ¾" MPR	GR/Dir/Res	Drilling

Fluctuations in the varying potassium content of the formate mud resulted in wide fluctuations of the natural gamma ray readings by Baker Hughes; background readings were also unnaturally high due to the potassium in the mud. This was confirmed when a repeat section was run.
During drilling a correction factor of 14% was used to attempt to bring the apparent gamma values down. For future wells using potassium formate mud it is suggested that correction factors are not used and that the GR API scale is adjusted to 60 – 210api to allow for the high readings and fluctuations during mixing of the formate mud. This system worked well with the Schlumberger log.

No problems were experienced with the tools run or decoding of data.

2.3.4 Wireline Logs

The following is a summary of the 8 ½" hole wireline logs run in the well.

8 ½" RUN NO.	LOGS	RECORDED INTERVAL m	DATE	LOST TIME	B.H.T Deg C
1	HALS-PEX	1057-1524	29/09/00	-	33.3
2	FMI7DSI	1057-1524	29/09/00	-	33.3
3	CMR	1070-1170	30/09/00	-	
4	MDT	1102-1233	30/09-01/10/00	-	35
5	MSCT	1070-1236	01-02/10/00	2.00	
6	MDT	1233	02/10/00	-	
7	VSP	406-1460	02/10/00	-	35

Cablehead tension, total tension and borehole temperature was included in all runs.

The following problems occurred during wireline logging:

- Run No 4: MDT POOH due to sand wears on pads.
- Run No 5: MSCT lost time due to gamma probe failure

Total lost time for wireline logging was 2 hours.

2.3.5 Formation Pressure

Geoservices performed the pore pressure evaluation while drilling supervised by the Norsk Agip well site geologist.

No signs of shallow gas were seen during drilling with returns to the seabed.

The predominantly claystone formation remained normally pressured in the 12 ¼" hole to 1030 m, where a minor left deflection of the d' exponent indicated a formation pressure of 1.09sgEMW.

The 8½" section comprised interbedded claystones and sandstones which made pore pressure estimates difficult during drilling though a decrease in the pore pressure trend from the highest pressure could be seen.

MDT readings indicated a maximum pore pressure of 1.11sg (122.50 bar) at 1106 m (at the top of the reservoir). The deepest MDT taken at 1233 m indicated a pore pressure of 1.09sg (131.62 bar). The formation pressure, mud weight and frac. gradient are illustrated in fig. 2.3.1

2.3.6 Formation Temperature

SHA The extrapolated static bottom hole temperature (SBHT) from wireline logs is 37.1 deg C at 1524.5 m (Logger's TD). This value give a geothermal gradient of 3.7 deg C / 100 m (Fig 2.3.2).

The following table summarizes the bottom hole temperature recorded during wireline logging

Run No	Hole Diam	Logs	Depth m BRT	Circ Time	Time since circ	BHT Deg C	SBHT Deg C
1	8 1/2"	HALS-PEX	1524	25.50	5.50	33.3	
2	8 1/2"	FMI/DSI	1524	25.50	11.50	33.3	
3	8 1/2"	CMR	1170	25.50	19.00	-	
4	8 1/2"	MDT	1233	25.50	25.50	35	
5	8 1/2"	MSCT	1236	25.50	33.50	-	
6	8 1/2"	MDT	1233	25.50	42.00	-	
7	8 1/2"	VSP	1460	25.50	46.50	35	37.1

2.3.7 Side wall cores

Sidewall cores were taken in the Fuglen, Tubåen and Fruholmen Formations. The program was aimed at securing high quality stratigraphic and lithological data. Sidewall cores were taken between 1220 m and 1070 m with the following results:

- 25 cores attempted
- 25 cores cores recovered
- 0 empty shots
- 0 lost in hole

Sidewall cores were used for biostratigraphical and sedimentological studies (See separate reports)

The following sidewall core descriptions were made at the rigsite:

Shot	Depth m RKB	Length cm	Description	Shows + Rating + Porosity
25	1070	4.4	SHALE:dk gy, hd-mod hd, sblam frac, homog, non calc, micromic, mic frac infill w/calcite	v wk hc od, no flor, slw pa mlky wh crsh cut flor, no, nat resid ring, no resid ring v pr show, nil por
24	1075	4.6	SHALE:dk gy-dk gy blk, hd, sblam frac, homog, non calc, micromic	nil hc od, no flor, no cut, no crush cut no show, nil por
23	1080	4.6	SHALE:dk gy-dk gy blk, hd, sblam frac, homog, non calc, micromic, sli slty	nil hc od, no flor, no cut, no crush cut no show, nil por
22	1088	4.5	SHALE:dk gy-dk gy blk, hd, sblam frac, homog, non calc, micromic, sli slty, broken core, sblam fracs	nil hc od, no flor, no cut, no crush cut no show, nil por
21	1096	4.5	SLST:brn gy, hd, blky, sli calc, mica, w/occ vf qtz	v wk hc od, no flor, mod strmg pa blu wh crsh cut, no nat resid ring, wk blu wh resid ring, v pr show, pr vis por
20	1098	4.6	SLST:brn gy, hd, blky, sli calc, mica, w/occ vf qtz	nil hc od, no flor, no cut, no crush cut nil por
19	1102.5	3.4	LST:med brn gy, frm, brit, fri, blky, crmbly, grnst, med-dk brn faecal pel (0.2-0.5mm), w/xln calc cmt, gd tr musc mics	mod hc od, 80% sample w/dull gld flor, fst inst strmg blu wh cut, no nat resid ring flor, pa blu wh resid ring, gd show, mod vis por
18	1105	4.7	SST:dk yel brn gy, brn oil stn, trnsp-trnsl, off wh, f, occ vf, grdg slt, mod hd-hd, ang-sbang, occ sbrnd, sli sph, w srtd, fri, crmbly, dolic/silic cmt, tr biot	mod gd hc od, 100% org yel flor, inst blu wh strng cldy cut flor, v pa strw nat resid ring, blu wh resid ring, gd show, mod vis por
17	1106	4.4	SST:mod brn, brn oil stn, trnsp-trnsl, off wh brn, vf-f, occ grdg slt, mod hd-hd, sbang,-sbrnd, sli sph, w srtd, fri, crmbly, pr silic cmt, tr biot	mod gd hc od, 100% org yel flor, inst blu wh strng cldy cut flor, v pa strw nat resid ring, blu wh resid ring, gd show mod vis por
16	1107	3.6	SST:dk yel brn, patchy brn oil stn, trnsp-trnsl, off wh, smky wh org, f-vc, mod hd, ang,-sbrnd, sli sph,sli elong, v pr srtd, fri, crmbly, pr silic cmt, tr musc	mod gd hc od, 100% pa yel flor, inst blu wh strng cldy cut flor, v pa strw nat resid ring, blu wh resid ring, gd show , mod vis por
15	1108.5	4.2	SST:dk yel brn, brn oil stn, trnsl, org, f-vf, mod hd, ang,-sbang, sli sph, w srtd, fri, crmbly, pr silic cmt, tr musc	mod hc od, 100% sample w/pa org flor, inst cldy blu wh cut flor, v pa strw resid ring, wk blu wh resid ring flor, mod show mod vis por
14	1110	4.4	SST:med yel brn, brn oil stn, trnsp, off wh, org, vf, mod frm, ang,-sbang,occ sbrnd, sli sph, w srtd, fri, crmbly, pr silic cmt, tr musc	mod hc od, 100% sample w/pa org flor, inst cldy blu wh cut flor, v pa strw resid ring, wk blu wh resid ring flor, mod-gd show, mod vis por
13	1130	4.2	SSTmed yel brn, brn oil stn, trnsp-trnsl, lt brn-org, f, mod frm, ang,-sbang,occ sbrnd, sli sph, w srtd, fri, crmbly, pr silic cmt,micfrac infill w/pyr	mod hc od, 100% sample w/pa org flor, mod fst strmg cldy blu wh cut flor, no nat resid flor, blu wh resid ring, mod-gd show, gd vis por
12	1114	4.3	SST:dk yel brn, brn oil stn, trnsp-trnsl, org, m-f, mod frm, ang,-sbang, slelong, w srtd, fri, crmbly, pr silic cmt, tr musc, tr pyr nods	mod hc od, 100% sample w/dull gld org flor, mod fst strmg blu wh cut flor, v wk strw nat resid ring, mod gd blu wh resid ring flor, gd show, gd vis por

11	1115	4.1	SST:pa yel brn, clr, brn SST oil stn, trnsp, occ trnsl, pa org, f, frm, ang,-sbang, w srtd, fri, crmbly, pr silic cmt, sb fis frac	wk hc od, 100% sample w/dull gld org flor, gd cldy blu wh cut flor, no nat resid ring, wk blu wh resid ring flor, mod show, pr vis por
10	1118	4.4	SHALE:brn gy, mod hd, sblam-lam, homog, sli slty, micromic, musc,	v wk hc od, no flor,no crush cut flor no resid ring flor no show, nil por
9	1119	4.5	SST:mod yel brn, clr, trnsl, f frm, sbrnd,-sbang, sli sph, w srtd, fri, crmbly, pr silic cmt	wk-mod hc od, 100% sample w/dull gld org flor, inst cldy blu wh cut flor, no nat resid ring, wk blu wh resid ring flor mod gd show, mod vis por
8	1120.5	4.0	SST:mod yel brn, clr, trnsl, f, frm, sbrnd,-sbang, sli sph, w srtd, fri, crmbly, pr silic cmt, rr micfrac	mod gd hc od, 100% sample w/org yel flor, inst cldy blu wh cut flor, no nat resid ring, wk blu wh resid ring flor, mod gd show mod vis por
7	1121.5	4.4	SST:lt yel brn, clr, trnsl, vf, hd, sbrnd,-sbang, sli sph, w srtd, fri, crmbly, gd calc cmt, tr musc, rr trblk speks	mod gd hc od, 80% sample w/pa org dull gld flor, slw pinprick mod blu wh cut flor, no nat resid ring, wk blu wh resid ring flor wk show, pr vis por
6	1123.5	4.1	SST:mod yel brn, clr, trnsl-trnsp, f-vf, frm, sbrnd,-sbang, sli sph, w srtd, fri, crmbly, pr silic cmt, intlam brn qtz lam	wk hc od, 100% sample w/pa org dull gld flor, inst cldy blu wh cut flor, pa strw resid ring, mod blu wh resid ring flor, mod show mod vis por
5	1127.5	4.6	SLST:med gy, mod hd, splint, sbfiss, homog, micromic musc, rr tr blk carb mat	wk hc od, no flor, no crsh cut, no resid ring no show, no vis por
4	1130	4.4	SST:mod yel brn, trnsl-trnsp, lt brn org, f, frm, sbrnd,-sbang, sli sph, occ slielong, mod hd-frm, w srtd, fri, crmbly, pr silic cmt,tr blk speks	wk hc od, 100% sample w/pa org dull gld flor, inst cldy blu wh cut flor, pa strw resid ring, mod blu wh resid ring flor mod show, mod vis por
3	1190	4.4	SHALE:dk gy-gy blk, v hd, sli slty, micromic, sli calc, ang, splint, lam (6mm)	wk hc od, no cut flor, no nat resid ring, no resid ring, no show, no vis por
2	1220	4.0	SST:mod yel brn, trnsl, lt brn org, med-f, hd-frm, sbrnd,-sbang, occ ang, sli sph, occ sli elong, w srtd, fri, crmbly, pr silic cmt, w/dk brn lams (3-4mm), micromic	v wk hc od, 60% sample w/pa org dull gld flor, inst blmg blu wh cut flor, v pa strw resid ring, mod blu wh resid ring flor mod show, mod vis por
1	1136	4.8	SLST:brn gy, hd, splint, homog, occ vf qtz, vf bioturb lams, micromic	no hc od, no flor, no crush cut flor, no nat resid ring, no resid ring, no show

2.3.8 Bottom hole cores

Three bottom hole cores were cut according to the programme. The coring program was intended to acquire petrophysical, stratigraphic, and sedimentological data in the potential reservoir. Conventional core was cut from 1133 m to 1178 m with a 27 m aluminum sleeved core barrel. A full core analysis was made onshore (see separate report).

Below is the wellsite core report summary:

Core No: 1 **Interval:** 1133m - 1136m **Cored:** 1133.0m – 1133.98m **Recovery:** 33%		
Group: Realgrunnen **Barrel size and type:** 6 ¾" x 4" HT 30		**Age:** Late Triassic **Core purpose:** Exploration, wildcat
Depth mRKB	**Description**	**Shows + Porosity**
1133.00-1133.98	SST:qtz, lt brn, clr, clss, sbang-sbrnd, sbsphr, pred f, vf-m com mod-w srt , frm, fria, com mud invasion	strong hc od, exc lt-m brn nat oil stn, on gr surf, 100% bri grnsh yel wh flor, inst strm/blm yelsh wh cut flor, strong yelsh wh resid ring flor, pa brn nat resid ring, gd/v gd poro
Remarks: core barrel jammed off in claystone.		

Core No: 2 **Interval:** 1136m - 1151m **Cored:** 1136.0 m – 1151.1m **Recovery:** 100%		
Group: Realgrunnen **Barrel size and type:** 6 ¾" x 4" HT 30		**Age:** Late Triassic **Core purpose:** Exploration, wildcat
Depth	**Description**	**Shows + Porosity**
mRKB		
1136	CLYST:v dk gy, v had, blky – fis, non calc, slty in pt	strong hc od
1137	CLYST: v dk gy, v had, blky – fis, non calc, slty in pt	strong hc od
1138	SST: qtz, lt–m brn, occ dk gy, clr, clss, sbang-sbrnd, sbsphr – sub elong, pred f, com vf-m, com w srt , mod hd – hd, fria ip, mod calc cmt, tr micromic	mod hc od, patchy blk - m brn stn, 50% mod grnsh yel wh flor, inst flash yelsh wh cut flor, wk blsh wh resid ring flor, v wk nat resid ring, v pr show, Pr vis poro
1139	SDY SLST:m dk gy, hd, blky, lam,slt w/ vf ip non calc, abnt micromic,	nil hc od, nil vis oil stn, patchy dul grn yel flor, slow strmg mod bl wh cut flor, bl wh res flor, nil nat re ring, V pr show, nil poro
1140	SST:qtz, lt – m brn, occ m gy ptch, clr – mlky, trnsp – trnsl, predom sbang, f – m, w srtd, fria, crmbl, wk cmt,	mod hc od, lt/m brn stn, 100% mod grnsh yel flor, inst flash pa grnsh wh cut flor, grnsh yel resid ring flor, straw nat resid ring, Good show, gd vis poro
1141	SST: qtz, lt brn, clr –trnsl, clss – mlky wh, predom sbang, F - m, w srtd, fria, crmbl, wk cmt,	mod hc od, lt/m brn stn, 100% mod grnsh yel flor, inst flash pa grnsh wh cut flor, grnsh yel resid ring flor, straw nat resid ring, good show, gd vis poro

1141.5	SST: qtz, lt brn, clr –trnsl, clss – mlky wh, ang - predom sbang, sbsphr – elong ip, F – m, com c – occ vc, rr vf + clyst pebs, mod - w srtd, fria, crmbl, com carb spks	strong hc od, lt/m brn stn, 100% bri yelsh wh flor, inst flash bl wh cut flor, wk tea nat col, strong yelsh wh resid ring flor, wk tea nat resid ring, Good show, gd vis poro * 15cm sample hotshot to Reslab 28/09/00
1142	COAL: blk, v hd, blky – splnty, conch frac ip, semi vit lstr	It almost burns
1143	CLYST: m dk gy, hd – v hd, blky, non calc, micromic, waxy lstr, slty ip	no show
1144	CLYST:m gy, hd, blky, non calc, sl slty ip	no show
1145	CLYST:m gy, hd, blky, non calc, micromic ip, slty ip, v dk gy carb incl	no show
1146	SST: qtz, lt brn, clr, clss, ang - sbang, sbsphr – sbelong, f, w srt, fria, r lith spks, occ dk gy, 'oily?' lams	strong hc od, lt brn stn, 100% gold yel flor, inst strmg wh cut, wk tea nat cut, mod wh resid ring, v pa nat resid ring, V gd show, Gd vis poro
1147	SST: qtz, lt brn, clr, clss, ang - sbang, sbsphr – sbelong, f, w srt, fria, r lith spks, occ dk gy, 'oily?' lams	strong hc od, lt brn stn, 100% gold yel flor, inst strmg wh cut, wk tea nat cut, mod wh resid ring, v pa nat resid ring, V gd show, Gd vis poro
1148	CLYST:lt brnsh gy, hd, blky – splnty, non calc, abnt micromic	no show
1150	CLYST:lt brnsh gy, v hd, blky - splnty, non calc, abnt micfos?, com micromic, occ blk carb inclsn	no show
1150,1	SST:pa yelsh brn, clr, clss, sbang, sbsph, f –m, com c, mod srt, fria,	mod hc od, lt brn oil stn, 100% dull gld flor, fast strmg mlky wh cut flor, wk tea nat cut, mod show, v gd vis poro
1151	CLYST:m brnsh gy, v hd, blky – splnty, elong, non calc, waxy/soapy lstr, 'stretched blk card lens, slickenside	no show
1151,1	CLYST:m brnsh gy, frm, flky - blky, non calc, abnt micromic, fubaritic	no show
Remarks: core barrel jammed off in claystone. Possibly faulted as indicated by slickenside?		

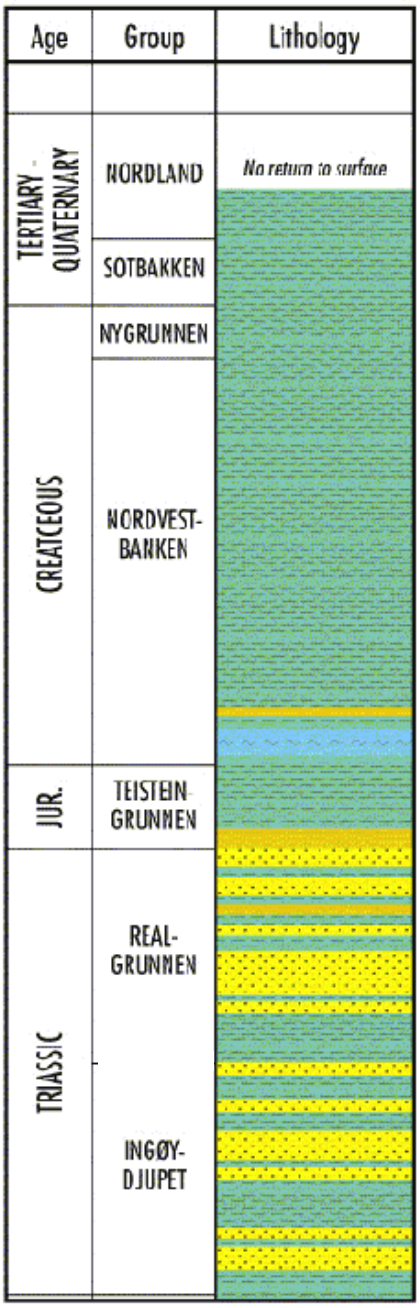
Core No: 3	**Interval:** 1151m –1178m	**Cored:** 1151.1m-1178,45m	**Recovery:** 100%
Group: Realgrunnen		**Age:** Late Triassic	
Barrel size and type: 6 ¾" x 4" HT 30		**Core purpose:** Exploration, wildcat	

Depth mRKB	**Description**	**Shows + Porosity**
1152	SHL: v dk gy-blk, hd-v hd, conch frac, occ sub lam, homog, non calc, waxy, micromic, tr vf dissem pyr	nil hc od, no flor, no cut, pa mkly wh fluor crush cut, no nat resid ring, very poor show, nil poro
1153	SLST: med brn gy, hd, blky, sub lam frac, micromic, v sli calc, rr blck lam pos carb, occ grdg vf sst	no shows, nil poro
1154	SLST: med brn gy, hd, blky, sub lam frac, micromic, v sli calc, rr blck lam pos carb, occ grdg vf sst	no shows, nil poro
1155	SHL: brn gy, hd, brit, sub conch frac, sl slty, micromic, sli dol, gd tr blk carb mat, grdg coal	no shows, nil poro
1156	SLST: med dk-dk gy, mod hd-hd, brit, sub lam frac, micromic, v arg, non calc, tr blck lam carb mat, occ grdg COAL(5%): blk, hd, sub conch-conch frac, vit	no shows, nil poro
1157	SLST: dk gy-blk, mod hd-hd, brit, sub lam frac, micromic, arg, non calc, tr blck lam carb mat, occ vf qtz	sli hc od, no min flor, no cut, pa wh-blu fluor crush cut, pa wh-yel fluor resid ring, no nat res ring, v pr show, nil vis poro
1158	SST: qtz, dk yel brn, clr-mlky wh, occ brn stn,trnsp-trnsl, mod frm-v frm, sbang, occ sbrnd, f occ vf, w srtd, fri, wk silic cmt, tr blk fleks carb/biot	mod gd hc od, 80% sample w/dull gld flor, fst strmg mlky wh cut, no nat resid ring flor, pa blu wh resid ring, weak show, pr vis poro
1159	SHL: med-med dkgy, frm-mod hd, sublam-lam, micromic,sli slty, tr blk carb mat	pr hc od, no cut, no min flor, pr show, nil vis poro
1160	SST: qtz, med yel gy,clr-mlky wh, trnsl-trnsp, frm-mod hd, sbang-sbrnd, sbsphr, f, w srt, Fri, crmbly, dk lams	wk-mod gd hc od, 100% sample w/dull gld flor, fst strmg blu wh cut flor, wk strw nat cut flor, v pr pa strw nat resid ring, pa blu wh resid ring, pr show, pr vis poro
1161	SST: qtz, yel gy, clr, trnsp, sbang-sbrnd, sbsphr, f, w srt, fri, blk lam biot/arg/oil, v com musc	wk-mod hc od, pa yel gy oil stn, 100% sample w/dull gld flor, slw-fst strmg wh cut flor, no vis cut, v wk wh resid ring flor, nil vis resid ring flor, pr show, mod vis poro
1162	SST: qtz, pa brn, clr,trnsl, frm-mod hd, pred sbang, occ sbrnd, sbspr, f-m, w srtd, fri, pr Calc cmt, tr blk carb speks,	v wk hc od, 100% sample w/dull gld flor, inst blu wh cut flor, no nat resid ring, pa milky wh resid ring flor pr-mod show, nil-pr vis poro
1163	SHL: md dk gy, frm-mod hd, sublam-lam, v slty, grdg sltst. Mic,tr blk carb mat	v wk hc od, 60% sample w/patchy yel org flor, mod-wk pinprick blu wh cut flor, no nat resid ring, pa milky wh resid ring flor, pr-mod show, nil-pr vis poro

1164	SST: qtz, pa yel brn, clr-pa org, trnsl, mod frm-frm, pred sbang, occ ang-sbrnd, sbelong-sbsphr, c occ m mod w srtd, fri, pr silic cmt	v wk hc od, wk pa org flor, inst wk blu wh cut flor, no nat resid ring, pa milky wh resid ring flor pr show, gd vis poro
1165	SST: qtz, yel gy, clr-mlky wh, trnsl-trnsp, sft-frm, sbang-sbrnd, f-vc, pr srtd, fri	wk hc od, yel gy oil stn, fst-slw strmg blu wh cut flor, v wk strw vis cut, no nat resid ring, pa milky wh resid ring flor, pr show, v gd vis poro
1166	SST: qtz, pa yel brn, pa mlky wh-pa org, trnsl, sft-mod frm, sbang-ang, occ sbrnd, c, occ m-vc, pr srtd, fri, wk silic cmt, tr blk fleks carb mat	v wk hc od, v pa org-yel flor, slw strmg blu wh cut flor, no nat resid ring, pa blu wh resid ring flor, pr show, mod-gd vis pr
1167	SST: qtz, md dk gy, lt gy-lt org gy, trnsl, sft-mod frm, sbang-ang, sbelong-sbsphr, m-vc , pr srtd, fri, wk calc cmt	mod hc od, v pa yel flor, v slw strmg wk blu wh cut flor, no nat resid ring, v pa blu wh resid ring flor,pr show, mod-gd vis pr
1168	SST: qtz, lt md brn gy, trnsl-trnsp, frm-mod hd, sbang-sbrnd, f-vf, srtd, fri, mod calc cmt, tr biot, tr blk carb mat	mod hc od, 30% sample w/pa yel flor,mod strmg blu wh cut flor, no nat resid ring, v pa blu wh resid ring flor, pr show, nil vis poro
1169	SST: qtz, yel gy, clr, frm, sbang-sbrnd, sphr, f, w srtd, fri, wk cmt, tr blk carb spks, tr dk oily lams	wk hc od, pa lt brn oil stn, 80% sample mottled w/ dull gld flor, inst strmg med yel wh cut flor, pa yel nat resid ring, mod yel wh resid ring flor, gd show, gd vis pr
1170	SST: qtz, pa yel brn, off wh-pa brn, trnsp-trnsl, sft-frm, sbang-sbrnd, sphr, f occ vf, w srtd, fri, wk silic cmt, tr blk carb spks	v wk hc od, wk pa org yel flor, sl pinprick, pa blu wh cut flor, no nat resid ring, wk blu wh resid ring flor, pr show, nil-sli vis pr
1171	SST: qtz, lt olv gy, clr, hd, sbrnd, sbphr, f-vf, w srtd, fri, wk calc cmt, tr blk carb lams/biot, abnd mica	mod wk hc od, pa lt brn oil stn, mottled org dull gld flor, slo-fast wh strmg cut flor, no vis cut, no nat resid ring, wk pa wh resid ring flor, pr show, mod-gd vis pr
1172	SLST:pa yel brn, frm, sub-fis, micromic, tr blk carb mat	no hc od, no flor, slow-mod pinprick blu wh cut flor, no nat resid ring, v wk blu wh resid ring, pr show, nil
1173	SLST: med gy, frm, subfis, micromic,tr blk carb mat	no hc od, sample w/40% dull gld flor, slow pinprick blu wh cut flor, no nat resid ring, v wk blu wh resid ring, pr show, nil
1174	SLST: med-dk gy, mod frm, subfis-fis, micromic,tr blk carb mat	wk hc od, sample w/20% dull org flor, slow pinprick blu wh cut flor, no nat resid ring, no resid ring pr show, nil
1175	SLST: med-dk gy, mod frm, subfis-fis, micromic,tr blk carb mat	no hc od, sample w/20% dull gld flor, slow pinprick blu wh cut flor, no nat resid ring, no resid ring pr show, nil
1176	SLST: dk gy, mod frm-frm, sub-fis-fis, micromic,tr blk carb spks	no hc od, no flor, no crush cut flor, no nat resid ring, no resid ring, nil
1177	SLST: dk gy, mod frm-frm, sub-fis-fis, micromic,tr blk carb speks	no hc od, no flor, no crush cut flor, no nat resid ring, no resid ring, nil

Well 7122/7-1

Formation pressure



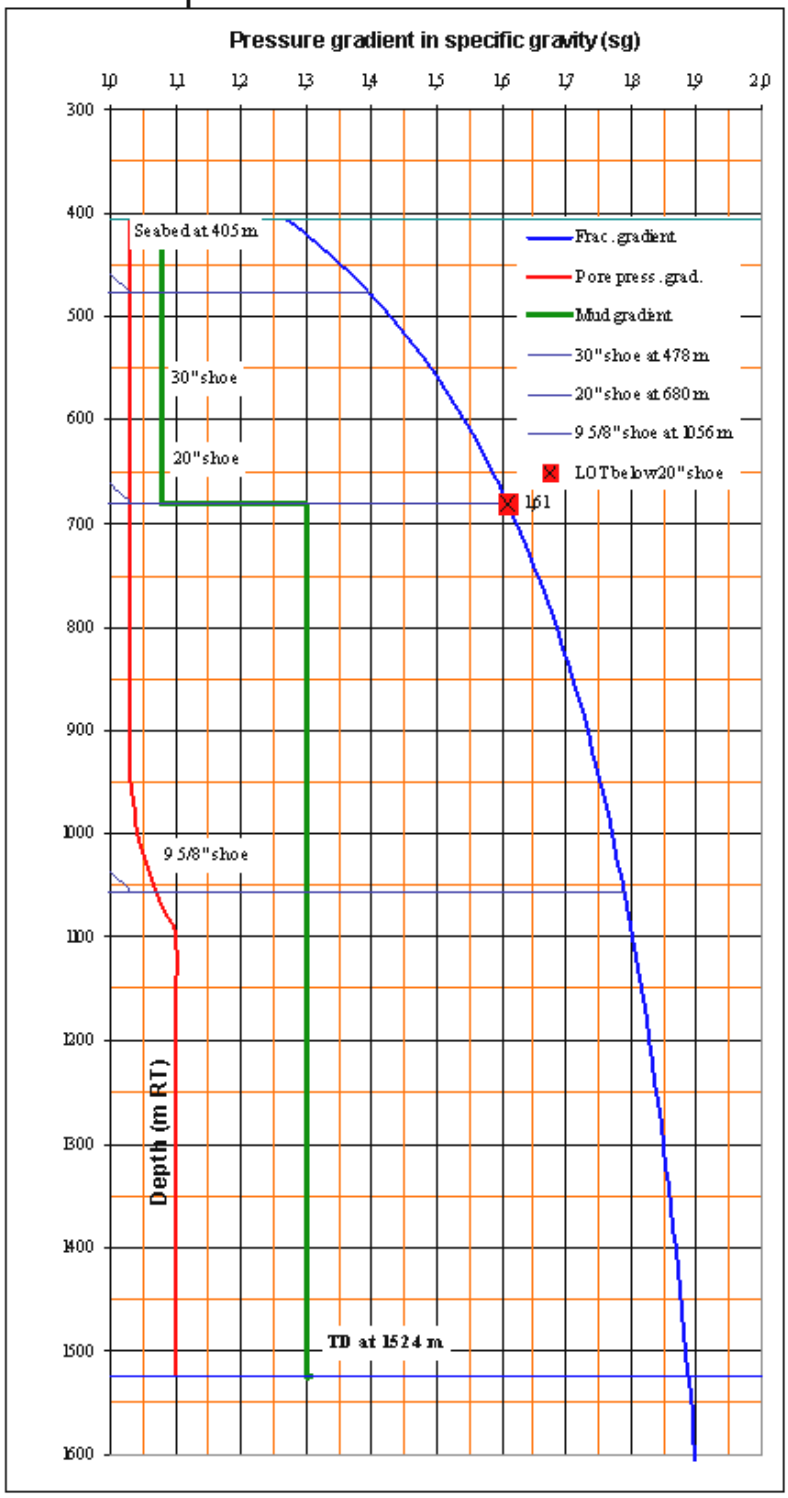


Fig.2.3.1

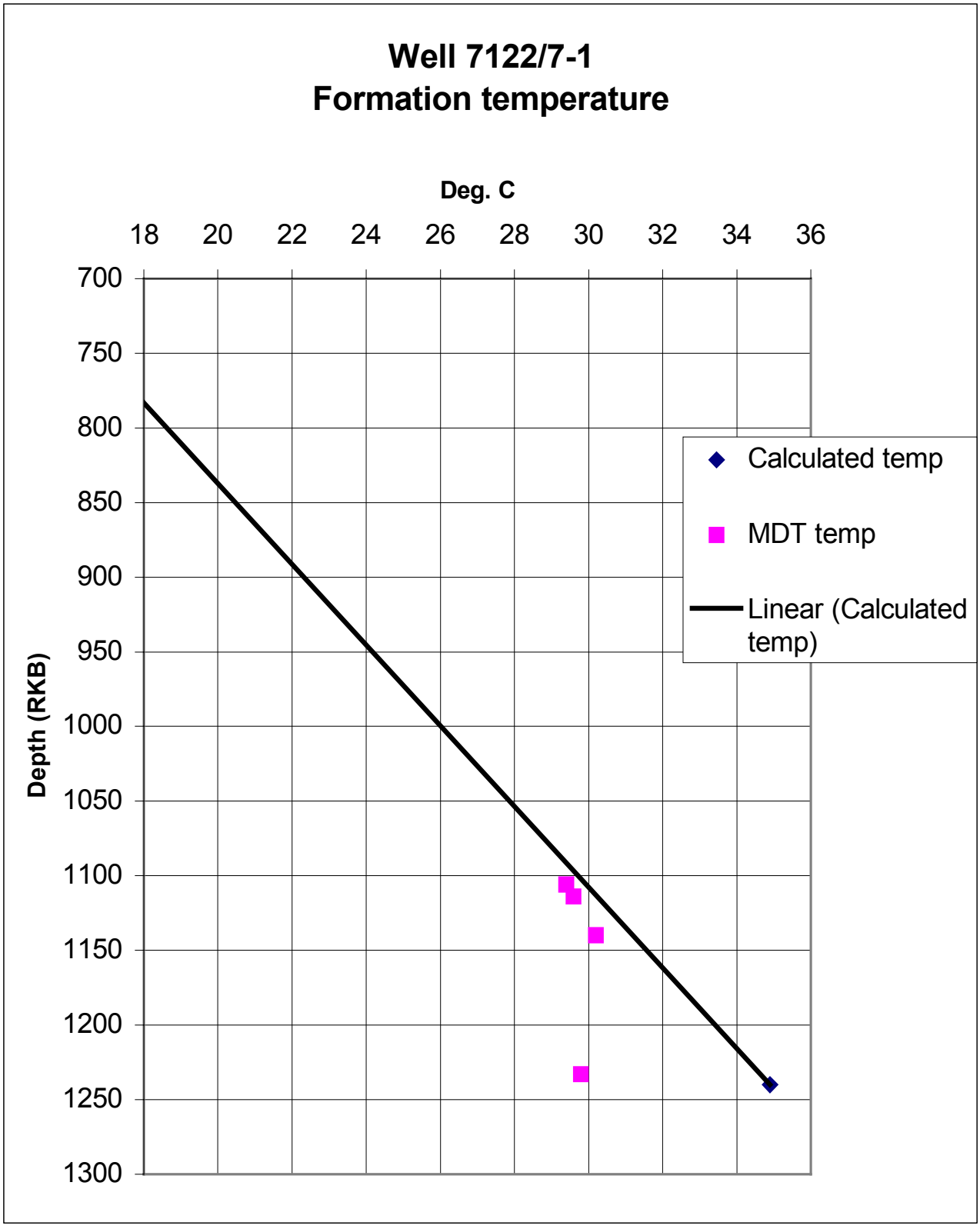

Well 7122/7-1
Formation temperature
Deg. C
18
20
22
24
26
28
30
32
34
36
Depth (RKB)
700
750
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
Calculated temp
MDT temp
Linear (Calculated temp)

Fig.2.3.2

2.4 STRATIGRAPHY

2.4.1 Biostratigraphy

Stratlab carried out the biostatigraphical evaluation of Well 7122/7-1.
The analysis was based on studies of lithology, micropaleontology, palynology and nannofossils, which were made on ditch cuttings and sidewall core covering the interval 688 m to 1524.5 m (TD).
Fig. 2.4.1 shows a summarised chronostratigraphic and lithostratagraphic subdivision of the well.
Further details may be found in the report "Norsk Agip Well 7122/7-1, Biostratigraphic analysis of the interval 500 m – 1524 m".

2.4.2 Lithostratigraphy

The following summary is compiled predominantly from ditch cuttings descriptions. Sidewall cores were available from 1220 m to 1070 m. Three conventional cores were recovered from this well. Wireline and MWD logs were used to aid lithological interpretation and the picking of formation boundaries.
The well was drilled with returns to seabed from 190 m to 688 m before setting the 30" conductor pipe. The first drill cuttings sample was taken from 690 m with descriptions below starting from this point.
All depth values stated below are measured depth, in metres below the rotary table (BRT); RT was 24 m above Sea Level.

Nordwestbanken Group (690m – 1022m)
Age: Late Cretaceous

Upper Cretaceous 690m – 984m

The Upper Cretaceous is represented predominantly consisted of clays with rare dolomite and limestone stringers. The gamma ray trace was quite consistent over the interval becoming more erratic in the last 15 m.

The **clay** is predominantly medium to dark grey, dark greenish grey in part, firm to hard, blocky to subblocky, non-to slightly calcareous, micromicaceous, rarely micropyritic and silty in part.
The **dolomite** is varicoloured, from light grey to dark yellowish brown and brownish black with either a crypto or microcrystalline texture, hard to very hard and angular.
The **limestone** is white to very light grey, microcrystalline and soft to firm.
Marls are observed from about 950 m and are pale reddish brown, soft to hard, occasionally very hard and subblocky to angular.

Knurr Formation (984m – 1022m)
Age: Early Cretaceous

Upper Boundary: shows an initial increase in ROPs with a cutback and smoothing of the resistivity curve which remained less spiky than previously.
The lithology comprises claystones and dolomitic marls with minor siltstone and limestone at the base of the section.

The **clay** is medium dark grey to dark grey to black, firm, mainly non calcareous, subblocky to blocky, slightly micromicaceous very pyritic and carbonaceous in parts.

The **siltstone** is dark grey, hard to very hard, blocky to angular, brittle in parts, non-calcareous and graded to very fine sandstone.
The **dolomitic marl** is pale reddish brown, grading to dusky yellowish brown, microcrystalline, very hard and brittle, blocky to angular.
The **limestone** is white to very light grey, translucent, cryptocrystalline, firm to hard.

Teistengrunnen Group (1022m – 1102m)
Age: Late Jurassic

Hekkingen Formation (1022m – 1088m)
Age: Late Jurassic

Upper Boundary: The top of the Jurassic is represented by a small decrease in resistivity following a distinctive spike, a marked increase in gamma ray and an increase in ROP.
The formation is characterised by dark, carbonaceous claystones with light coloured limestones.
The **claystones** are brownish black, medium dark grey in part, firm to moderately hard, blocky, becoming fissile, non to slightly silty and carbonaceous. With depth they became micromicaceous, pyritic and silty in part with a weak hydrocarbon odour in part.
Limestone stringers are white to light, firm to hard, cryptocrystalline and slightly argillaceous in part.

Fuglen Formation (1088m – 1102m)
Age: Late Jurassic

Upper Boundary: This can be distinguished by a sharp cutback in the gamma ray indicating siltstone, the resistivity also increases. Siltstone is the major lithology.
The **siltstone** is brownish grey, hard, blocky, slightly calcareous, micaceous with occasional very fine quartz, and in part very poor shows.

Realgrunnen Group (1102m – 1202m)
Age: Late Triassic

Upper Boundary: Indicated by a distinctive drilling break. The further cutback of gamma ray indicated sandstone; the resistivity also increases greatly in the hydrocarbon bearing formations.
The sequence is of interbedded sandstones and claystones with minor siltstones. Reference should also be made to the core description above.
The **sandstones** are quartzose, light to medium brown, occasionally dark grey with clear, colorless grains, subangular to sub rounded, subspherical to subelongated, fine to coarse. Commonly well sorted, moderately hard to hard, friable in part, weak to medium calcareous/silicic cement with trace of mica, moderate to good visible porosity with very good shows in the upper part.
The **claystones** are medium to medium dark grey, hard, blocky, non-calcareous, micromicaceous in part, occasional carbonaceous material and occasionally silty.
The rare **siltstones** are dark grey black, occasionally brownish grey, moderately hard to hard, blocky, commonly fractured, very slightly calcareous, micromicaceous, with occasional black carbonaceous/coaly laminations, occasionally with very fine sand grains.

Below 1202 m the sandstone becomes more massive followed by interbedded sandstones and claystones.
The **sandstone** is quartzose, yellowish grey to olive grey rarely brownish red, very fine to fine to medium, from 1227 m to 1245 m they are coarse to very coarse, subrounded to subangular, spherical, moderately sorted, weak to good calcareous cement in part, friable and argillaceous in part. There are poor mottled shows in part.
Claystones are olive grey to dark greenish grey, occasionally brownish red, soft, sticky, occasionally fissile, non calcareous.

Ingøydjupet Group (1202m – 1524m TD)
Age: Late Triassic

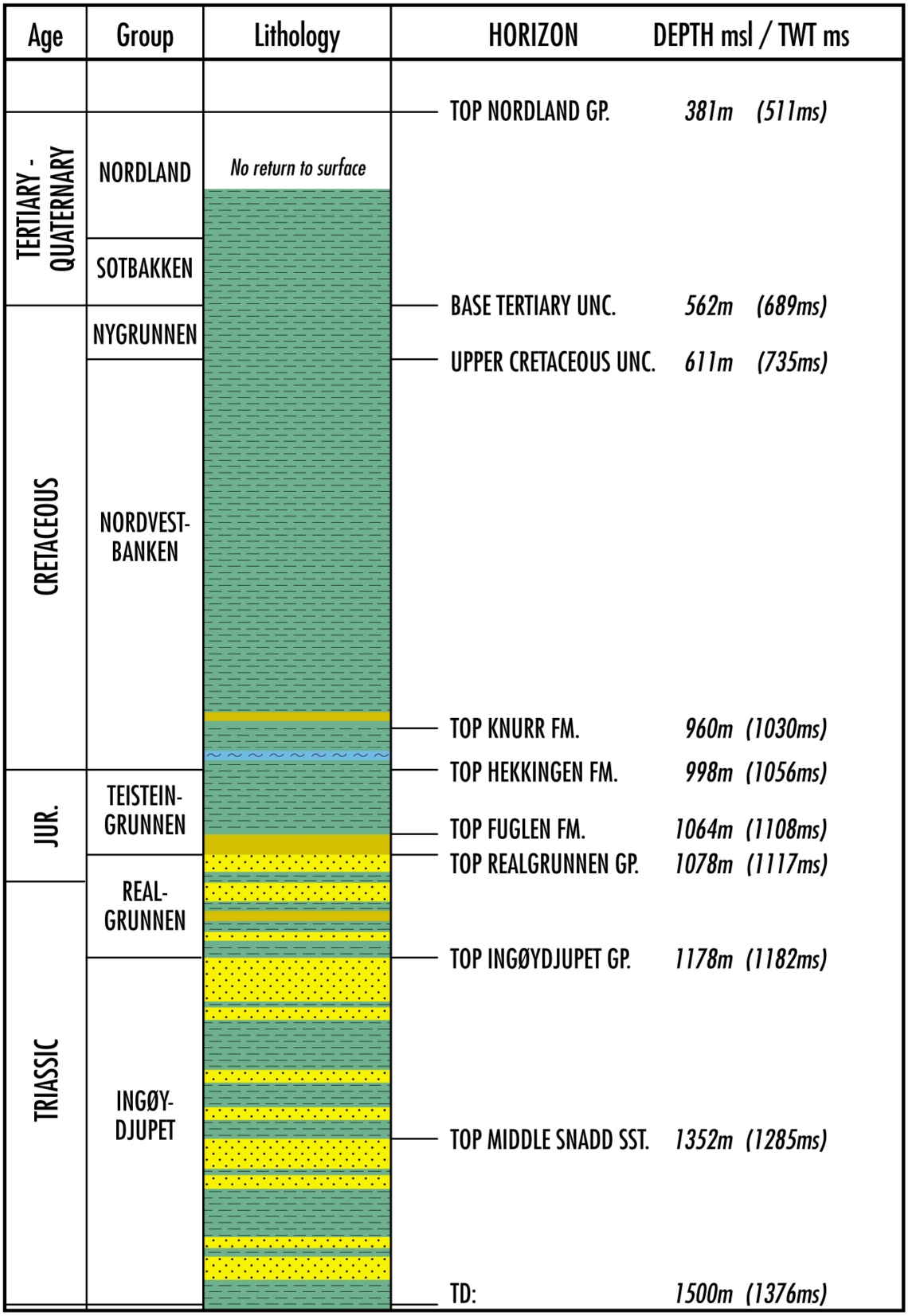
Top Snadd Formation (1202m – 1376m)
Age: LateTriassic

Upper Boundary: Indicated by a drop in gamma ray and an increase in resistivity and a decrease in ROP.
The formation is made up of interbedded sandstones and claystones.
Sandstones are quartzose medium grey to yellowish grey, clear to translucent grains, very fine to fine, subrounded to subangular, spherical, moderately sorted, weakly calcareous cemented, good silicica cemented in part, friable, argillaceous in part with moderate to good visible porosity, no show is recorded.
The claystones are medium dark grey to medium grey, firm, subblocky, non calcareous and commonly micropyritic.

Top Middle Snadd Formation (1376m – 1524m)
Age: Late Triassic

Upper Boundary: The top of the Middle Snadd is distinguished by a massive sand bed confirmed by a cutback in gamma ray and an increase in penetration rate. There is also a decrease and smoothing of the resistivity curve.
The Middle Snadd comprises an upper massive sand bed followed by claystones interbedded with sandstones and minor limestone stringers.
The **upper sandstone** bed is quartzose, pale yellowish brown to very light grey, commonly loose clear to translucent grains, very fine to fine, subangular to subrounded, subspherical, moderately sorted, weakly calcareous cemented, argillaceous in part with no visible porosity.
The **claystone** is medium to medium dark grey to dark greenish grey, soft, sticky, non to very calcareous in parts, commonly pyritic and micromicaceous.
The **lower interbedded sandstone** is medium light grey to greenish grey, very fine to fine, subangular to subrounded, spherical, moderately to well sorted, slightly calcareous matrix, silicic cement, firm to moderately hard, micromicaceous and with abundant glauconite in part.
Limestone stringers are white to very light grey, soft to moderately hard, angular with argillaceous laminations in part. Towards TD the limestone stringers are occasionally dolomitic.

Well 7122/7-1
Stratigraphy



FH•P•06•PL229•7122/7-1 Litho•evy2
Date:220301•ds

Fig. 2.4.2

2.5 WELL VELOCITY

A VSP survey was recorded in well 7122/7-1. The main aims of this were to provide a correlation between the well logs and the seismic data, and to obtain seismic velocities for depth conversions purposes.

2.5.1 V.S.P.

Full details of the vertical seismic profile are given in the report by Read Well Services entitled "Zero Offset VSP, 7122/7-1".

The survey was recorded on 2nd October 2000 from 1460 m to 540 m using a 4 level receiver assembly with 20 m spacing between the receivers. The seismic source was a cluster of two 150 cu.in. sleeve airguns. The horizontal offset of the source from the wellbore was 60.6 m in direction 170.4 degrees.

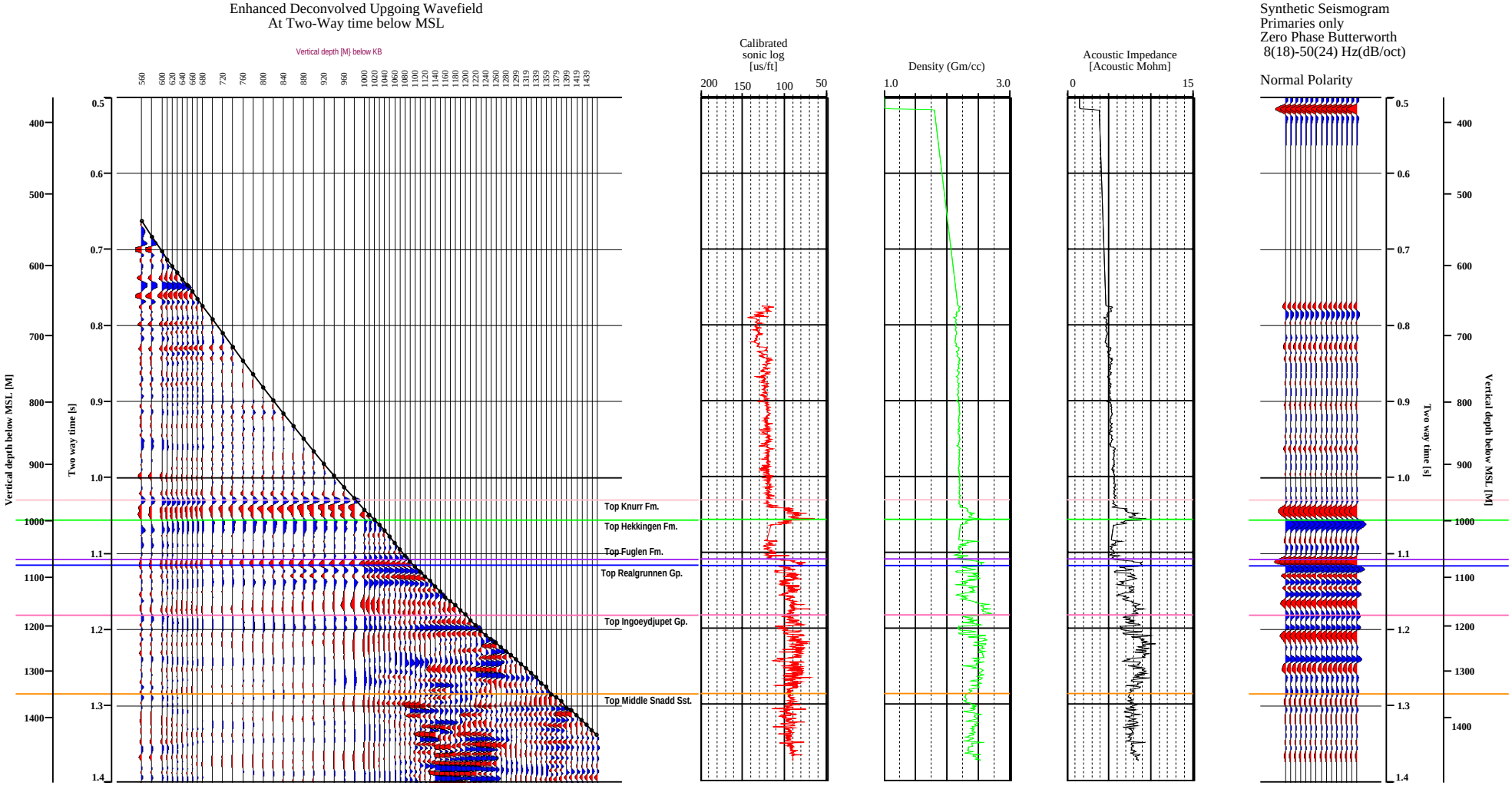
At the onshore processing centre, full processing of the data was performed, to produce the "Enhanced Deconvolved Upgoing Wavefield" and corridor stacks. Figure 2.5.1 shows the positions of the main formation tops where they intersect the first arrival curve of the VSP display.

2.5.2 Synthetic Seismogram

Wireline sonic and density logs are available in well 7122/7-1 between 1057 m and TD. MWD sonic is available between 680 m and 1038 m. The gap in the sonic data was closed with a straight line, guided by offset well data from the Hekkingen Fm. A density log for the MWD interval was computed from the sonic using Gardner'' formula. The sonic log was calibrated and used with the density log to calculate the acoustic impedance log and reflection coefficients.

Figure 2.5.1 shows the logs and the synthetic seismogram which has been filtered to match the frequency content of the surface seismic data from the NA9801 3D survey. The VSP has slightly higher frequencies due to the one way raypaths. Both the VSP and the synthetic seismogram are zero phase. The reflection at the top reservoir, Top Realgrunne Gp. is interfered with by the Top Fuglen Fm. reflection, which is a short distance above it. This means that the amplitude of the reflection at the top reservoir is influenced by acoustic impedance changes and thiskness changes in the Fuglen Fm. as well as in the reservoir itself.

VSP and Synthetic Seismogram Correlation Display for 7122/7-1 Figure 2.5.1



2.6 GEOCHEMISTRY

The geocemical study of cuttings and oils was performed in the Agip labs in Milano.
For details see the report "**Goliath Field Geochemical study**" edited by R.Galimberti.

The main conclusions of the study is:

Oil characterisation

All the geochemical features of the Goliath oil indicate a shaly, marine source rock equivalent to the Kimmeridgian shales or to the Spekk Fm. in the Norwegian offshore as responsible of its generation. The Hekkingen Fm. seems to be, for this reason, the most probable source rock of these HCs.
The thermal maturity level is not very high corresponding to the first part of the oil window (terpane and sterane isomerisation close to the equilibrium, sterane aromatisation around 0.55).

The biodegradation risk was evaluated as low (Throndsen, 1993) due to the late emplacement of the oil as a result of the spilling from other structures. In fact the alteration of the oil is in a very initial stage, being only the light fraction (C11-) of the n-alkanes removed by bacteria.
As a matter of fact the low level of biodegradation could be related to the recent emplacement of the oil in the shallow structure, but also to the recent uplift of the mineralised reservoir to a "warmer" depth where bacteria can live.

2.7 FORMATION EVALUATION

2.7.1 Reservoir Petrophysical Description

The top of Realgrunnen Group was penetrated at 1102 m MD (1077,7 m TVD).
3 cores were cut from 1133 to 1178 m RKB. The routine core por/perm data are listed below.
The Realgrunnen Group shows very variable reservoir properties. The depositional environment was varying from fluvial channels to bay fill sediments indicating a marginal marin environment with fluvial influence.
Based on the strong variation in reservoir properties The Realgrunnen Group has been subdivided in 6 reservoir units.
(For further details see the Discovery evaluation report)

The petrophysical properties from the cores and sidewall cores are listed in table 2.7.1, 2.7.2 and 2.7.3

Core no.	Sample no.	Depth (m)	Kg, hor. (mD)	1/Pm, hor.	Kl, hor (mD)	Kg, vert. (mD)	1/Pm, vert.	Kl, vert. (mD)	Por., hor. (%)	Por., vert. (%)	Gr.dens. hor. (g/cc)
1	1	1133.25	1047	0.984	996				26.1		2.64
2	2	1136.05	0.271	0.495	0.171	NMP		NMP	8.5	10.4	2.52
2	3	1136.40	NMP		NMP				10.5		2.56
2	4	1137.05	NPP		NPP	NPP		NPP	NPP	NPP	NPP
2	5	1137.90	11.9	0.595	10.0	NMP		NMP	10.7	16.8	2.51
2	6	1138.80	246	0.951	226	0.119	0.495	0.071	26.0	12.2	2.54
2	7	1139.75	NMP		NMP	NPP		NPP	26.0	NPP	2.60
2	8	1140.05	NPP		NPP				NPP	11.0	NPP
2	9	1140.25	5377	0.997	5234				29.5		2.69
2	10	1140.30	3967	1.01	3847						
2	11	1140.70	4809	1.01	4673						
2	12	1140.85	3984	0.996	3865				30.3		2.67
2	13	1141.00	1307	1.00	1247	NPP		NPP		NPP	
2	14	1141.20	2285	1.01	2200						
2	15	1142.10	0.962	0.495	0.652				8.0		2.54
2	16	1142.85	0.349	0.495	0.223	NPP		NPP	8.5	NPP	2.58
2	17	1145.25	0.414	0.495	0.267	0.114	0.495	0.068	10.7	7.2	2.65
2	18	1145.65	1339	0.989	1279				25.6		2.65
2	19	1145.95	356	0.961	330	42.2	0.786	36.7	23.3	25.8	2.81
2	20	1146.00	784	0.986	741				25.7		2.65
2	21	1146.25	NMP		NMP				31.7		2.67
2	22	1146.50	NMP		NMP				6.3		2.63
2	23	1146.90	218	0.954	200				23.8		2.65
2	24	1147.10	262	0.961	240				24.4		2.66
2	25	1147.40	0.402	0.495	0.259				10.2		2.65
2	26	1147.65	NPP		NPP				NPP		NPP
2	27	1147.90	NPP		NPP				NPP		NPP
2	28	1148.20	1.22	0.495	0.842				13.4		2.67
2	29	1148.60	130	0.922	117				21.2		2.66
2	30	1148.85	1.03	0.495	0.705				10.9		2.67
2	31	1149.30	NPP		NPP				NPP		NPP
2	32	1149.85	1.25	0.495	0.860				7.0		2.63
2	33	1150.15	NMP		NMP				6.8		2.62
2	34	1150.45	0.116	0.495	0.069				7.4		2.63

Table 2.7.1 Por/perm core 1-2

Core no.	Sample no.	Depth (m)	Kg, hor. (mD)	1/Pm, hor.	Kl, hor (mD)	Kg, vert. (mD)	1/Pm, vert.	Kl, vert. (mD)	Por., hor. (%)	Por., vert. (%)	Gr.dens. hor. (g/cc)
3	35	1151.40	0.102	0.495	0.060	0.045	0.495	0.026	6.5	4.7	2.72
3	36	1152.35	NMP		NMP	NPP		NPP	12.8	NPP	2.60
3	37	1153.05	0.985	0.495	0.669				8.4		2.55
3	38	1153.40	0.350	0.495	0.224	0.928	0.495	0.628	11.7	16.6	2.63
3	39	1153.70	3.00	0.495	2.35				20.0		2.64
3	40	1154.00	2.59	0.495	2.00				8.3		2.63
3	41	1154.90	NMP		NMP	0.611	0.495	0.403	8.6	15.7	2.60
3	42	1155.10	NMP		NMP	0.553	0.495	0.363	8.8	7.5	2.61
3	43	1155.80	NMP		NMP				8.8	0.0	2.64
3	44	1156.70	0.648	0.495	0.429	0.225	0.495	0.140	11.6	12.7	2.50
3	45	1157.05	NMP		NMP				12.4		2.45
3	46	1157.30	497	0.974	465				24.9		2.61
3	47	1157.67	298	0.954	275				25.7		2.60
3	48	1157.90	NPP		NPP	315	0.961	291	NPP	29.8	NPP
3	49	1158.20	1051	0.987	999				28.6		2.58
3	50	1158.55	1034	0.986	983	NPP		NPP	27.7	NPP	2.61
3	51	1158.85	4.63	0.512	3.73				12.5		2.54
3	52	1159.15	2754	0.995	2659				31.0		2.62
3	53	1159.45	3607	1.01	3494	NPP		NPP		NPP	
3	54	1159.75	3710	0.997	3596				30.3		2.62
3	55	1160.00	4385	0.996	4259				33.3		2.66
3	56	1160.25	NMP		NMP				30.4		2.58
3	57	1160.65	NMP		NMP	NMP		NMP	29.8	24.5	2.51
3	58	1160.85	NMP		NMP				30.2		2.59
3	59	1161.15	NPP		NPP	NPP		NPP	NPP	NPP	NPP
3	60	1161.40	5294	0.997	5152				32.4		2.63
3	61	1161.70	1123	0.992	1069				29.8		2.64
3	62	1162.00	7471	0.998	7295				32.2		2.65
3	63	1162.30	4094	0.996	3973				31.2		2.65
3	64	1162.55	6592	0.997	6430	NPP		NPP	32.7	NPP	2.63
3	65	1163.50	4773	0.997	4640	1.70	0.495	1.20	28.6	24.2	2.64
3	66	1163.80	6064	0.998	5909				23.3		2.64
3	67	1164.10	21393	0.999	21057				30.4		2.65
3	68	1164.25	33246	0.999	32805				29.3		2.64
3	69	1164.40	51090	0.999	50517				30.4		2.66
3	70	1164.70	7701	1.01	7519	NPP		NPP		NPP	
3	71	1165.10	47482	0.999	46933				24.8		2.63
3	72	1165.37	4573	0.997	4443				22.2		2.63
3	73	1165.70	23585	0.999	23228	NPP		NPP	26.3	NPP	2.64
3	74	1166.10	6084	0.997	5929				25.3		2.64
3	75	1166.50	47949	0.999	47397				23.3		2.63
3	76	1166.90	1043	0.990	991	NPP		NPP	20.9	NPP	2.62
3	77	1167.10	NMP		NMP				15.5		2.63
3	78	1167.45	283	0.951	261	85.2	0.880	75.6	20.4	29.4	2.62
3	79	1167.95	NMP		NMP				NMP		2.65
3	80	1168.20	NMP		NMP				11.8		2.56
3	81	1168.50	104	0.894	92.8	1188	0.990	1132	23.7	30.6	2.65
3	82	1168.95	1916	0.993	1840				32.3		2.64
3	83	1169.25	929	0.987	881				28.7		2.62
3	84	1169.50	452	0.975	421	453	0.970	423	27.0	30.6	2.72
3	85	1169.80	613	0.978	576				29.7		2.65
3	86	1170.10	299	0.951	276				27.4		2.74
3	87	1170.45	NPP		NPP				NPP		NPP
3	88	1170.70	58.8	0.819	51.8	3.77	0.495	3.01	22.7	23.5	2.80
3	89	1171.05	NPP		NPP				NPP		NPP
3	90	1171.40	NMP		NMP	1.10	0.495	0.751	21.5	21.1	2.64
3	91	1171.65	1.64	0.495	1.15				19.4		2.64
3	92	1172.00	NMP		NMP	0.088	0.495	0.052	11.1	15.1	2.61
3	93	1173.00	0.290	0.495	0.183	0.255	0.495	0.160	11.8	15.2	2.65
3	94	1173.90	1.09	0.495	0.742				16.4		2.65
3	95	1174.10	2.69	0.495	2.09	0.185	0.495	0.114	15.7	15.3	2.63
3	96	1174.80	0.441	0.495	0.286				9.1		2.62
3	97	1175.70	NMP		NMP	NMP		NMP	10.5	8.8	2.60
3	98	1176.60	NMP		NMP	2.12	0.495	1.60	14.5	13.7	2.62
3	99	1177.50	NPP		NPP				NPP		NPP
3	100	1178.28	0.186	0.495	0.114	0.057	0.495	0.032	9.2	10.6	2.93

Table 2.7.2 Por/perm core 3

Porosity/ permeabillity from rotary sidewall coring

Core no.	Depth (m)	Kg, hor. (mD)	1/Pm, hor.	Kl, hor (mD)	Por., hor. (%)	Gr.dens. hor. (g/cc)
4	1130.00	379	0.968	352	28.9	2.65
6	1123.50	987	0.984	937	29.2	2.65
7	1121.50	0.964	0.495	0.654	11.1	2.96
9	1119.00	304	0.954	281	29.9	2.69
11	1115.00	1035	0.986	984	35.0	2.63
12	1114.00	810	0.981	766	30.0	2.63
13	1113.00	1331	0.992	1271	28.3	2.61
14	1110.00	11.1	0.572	9.36	16.3	2.62
15	1108.50	1140	0.986	1086	32.0	2.63
16	1107.00	NMP		NMP	10.7	2.62
17	1106.00	362	0.964	336	27.4	2.63
18	1105.00	678	0.980	639	27.4	2.68
19	1102.50	0.828	0.495	0.557	19.7	2.88
20	1098.00	0.115	0.495	0.069	7.0	2.65

Table 2.7.3

2.7.2 Log Evaluation

A quantitative log interpretation has been carried out by using the ELANPLUS software, owned by GEOQUEST.
The analysis was based on the set of logs acquired by Schlumberger including HALS, PEX, FMI, and CMR.
Details related to the log interpretation are reported in the "Discovery evaluation report.
Table 2.7.3 and fig.2.7.1 summarizes the well 7122/7-1 reservoir zone parameters.

Net Sand definition

The net sand intervals have been defined using the following cut-off criteria: Vclay < 0.32 % and horizontal permeability > 1 mD. For practical purposes the permeability cut-off has been converted to a porosity cut-off of 10 %.

7122/7-1	Top	Base	Gross	Net	N/G	PHI	Sw
Realgrunnen 6	1077,7	1092,3	14,6	10,2	0,699	0,240	0,155
Realgrunnen 5	1092,3	1105,3	13,0	2,2	0,172	0,176	0,449
Realgrunnen 4	1105,3	1117,5	12,2	6,4	0,528	0,228	0,270
Realgrunnen 3	1117,5	1132,7	15,2	2,9	0,191	0,178	0,460*
Realgrunnen 2	1132,7	1151,0	18,3	11,6	0,633	0,244	0,151*
Realgrunnen 1	1151,0	1177,7	26,7	0,0	0,000	0,000	1,000
Realgrunnen Total	1077,7	1177,7	100,0	33,4	0,334	0,229	0,222

Tabel 2.7.4: Zonation and average Petrophysical parameters (PHI and Sw within Net Sand) in well 7122/7-1. Top and base in m TVD MSL. Net sand cut-off values: Phi = 0,12 & Vcl = 0,35. *Tubåen 2 & 3 have calculated Sw values.

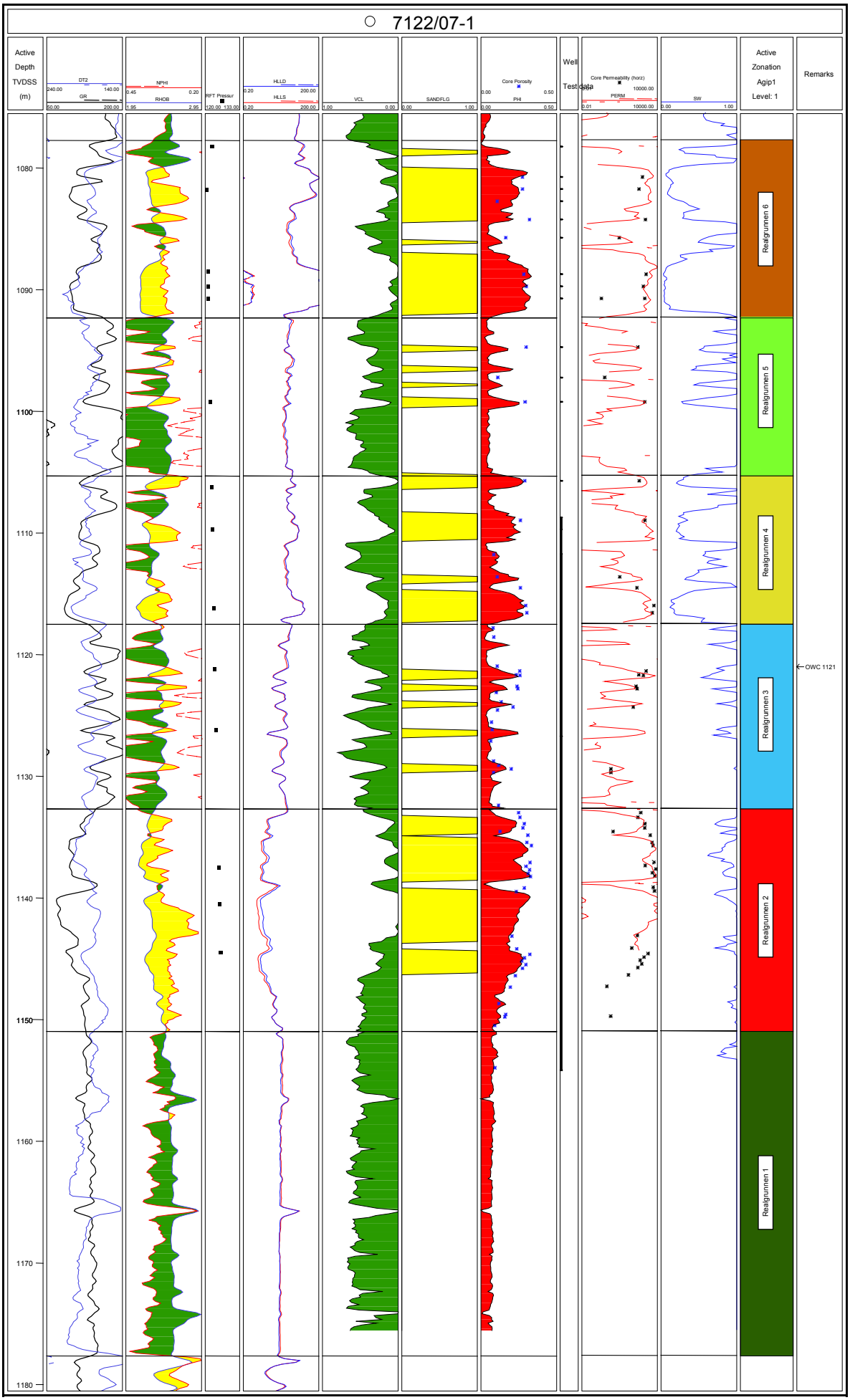

7122/07-1
Active Depth TVDSS (m)
DT2
GR
NPHI
RHOB
RFT Pressur
HLLD
HLLS
VCL
SANDFLG
Core Porosity
PHI
Well Test data
Core Permeability (horz)
PERM
SW
Active Zonation Agip1 Level: 1
Remarks
1080
1090
1100
1110
1120
1130
1140
1150
1160
1170
1180
Realgrunnen 6
Realgrunnen 5
Realgrunnen 4
Realgrunnen 3
Realgrunnen 2
Realgrunnen 1
OWC 1121

Fig.2.7.1

2.7.3 FMT Pressure Interpretation

17 MDT pressure measurements were taken in the well.

Based on the FMT pressure plot (Fig. 2.7.2) in well 7122/7-1, one oil gradient and one water gradient can be drawn in the Realgruinnen Group. In addition a second water-gradient is evident in the deeper Ingøydjupet Group being ca 1 bar lower than the first one. This proves that the 26,7 m thick shaly part at the base of Realgrunnen is sealing of the Ingøydjupet sandstones from the sandstones of the Realgrunnen Group. It is considered as highly probable that the Realgrunnen water and oil gradients are from the same pressure system since the shaly candidate for sealing them off is only four meter and thus the free water level (FWL) is interpreted to 1121 m TVD MSL.

Test	MD	GAUGE	TYPE	FORM	ISI	MUDB	MUDA	MOBD	REMA
1	1102.52	BQP1	Dry test	122.5	122.5	143.5	143.5	1.66	Tight
2	1106.03	BQP1	Limited Drawdown	120.47	120.47	143.95	143.95	106.55	Good Test
3	1112.81	BQP1	Limited Drawdown	120.99	120.9917	144.95	144.92	308.1	Good Test
4	1114	BQP1	Limited Drawdown	121.08	121.0834	145.03	145.04	747.55	Good Test
5	1114.99	BQP1	Limited Drawdown	121.16	121.1614	145.16	145.18	541.87	Good Test
6	1123.51	BQP1	Limited Drawdown	121.83	121.83	146.26	146.26	605.74	Good Test
7	1130.5	BQP1	Limited Drawdown	122.38	122.38	147.2	147.22	21.73	Good Test
8	1134.01	BQP1	Limited Drawdown	122.65	122.65	147.67	147.65	44.17	Good Test
9	1140.5	BQP1	Limited Drawdown	123.147	123.147	148.52	148.51	403.85	Good Test
10	1145.52	BQP1	Limited Drawdown	123.527	123.527	149.17	149.13	37.78	Good Test
11	1150.51	BQP1	Limited Drawdown	124.051	124.051	149.79	149.75	1101.11	Good Test
12	1161.83	BQP1	Limited Drawdown	125.249	125.249	151.21	151.22	17.74	Good Test
13	1164.8	BQP1	Limited Drawdown	125.555	125.555	151.58	151.58	113.22	Good Test
14	1168.79	BQP1	Limited Drawdown	125.983	125.983	152.09	152.07	120.16	Good Test
15	1226.79	BQP1	Limited Drawdown	130.939	130.939	159.59	159.55	375.65	Good Test
16	1231.48	BQP1	Limited Drawdown	131.421	131.421	160.14	160.15	520.55	Good Test
17	1233.37	BQP1	Limited Drawdown	131.622	131.622	160.42	160.43	206.7	Good Test

Table 2.7.5 MDT pressure

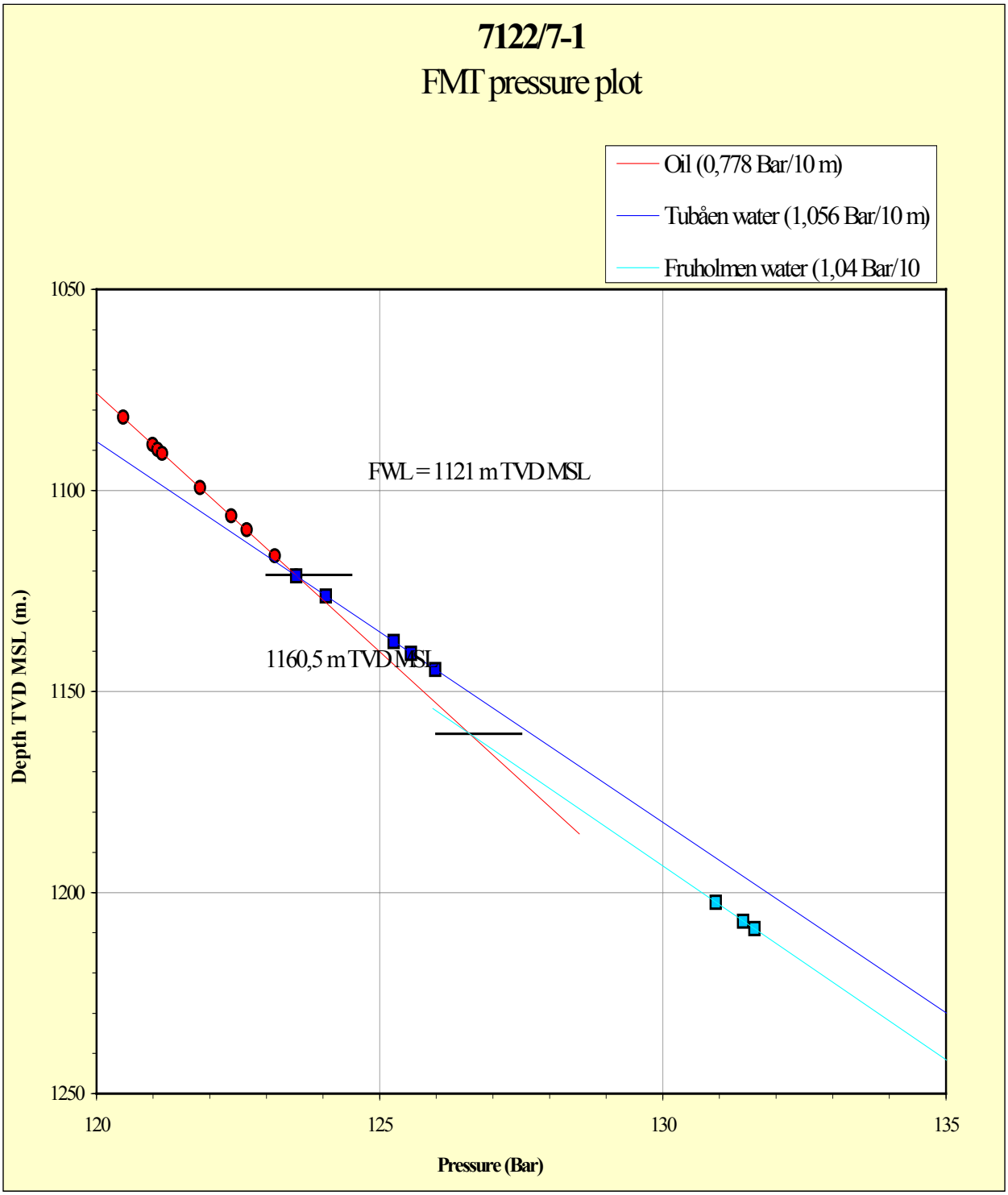


Fig. 2.7.2 MDT pressure

2.7.4 Fluid Sampling

The oil zone was sampled at 3 different depth by MDT sampling. 3 monophasic bottom samples were collected together with one conventional bottom sample at each depth. The samples were transferred to Single-phase bottles at the rig site and transported to the PVT lab for analysis.

Detailed PVT reporting in the report: "Reservoir Fluid analysis for Agip S.p.a 7122/7-1.

One water sample was taken at 1233.4 m.

Sample depth:	Opening press.:	Density:	% CO2:	ppm H2S:	Sample no.:
1114.4 m	7200 psig @ 10 'C	N/A	N/A	N/A	1.01
1114.4 m	7300 psig @ 10 'C	N/A	N/A	N/A	1.02
1114.4 m	7200 psig @ 10 'C	N/A	N/A	N/A	1.03
1114.4 m	2400 psig @ 10 'C	N/A	N/A	N/A	1.04
1114.4 m	2500 psig @ 9 'C	0.867 g/cm3 @ 9.6 'C	19	0	1.05, 1.06
1140.0 m	7150 psig @ 10 'C	N/A	N/A	N/A	1.07
1140.0 m	7100 psig @ 10 'C	N/A	N/A	N/A	1.08
1140.0 m	7200 psig @ 10 'C	N/A	N/A	N/A	1.09
1140.0 m	2400 psig @ 10 'C	N/A	N/A	N/A	1.10
1140.0 m	2200 psig @ 10 'C	0.875 g/cm3 @ 10.6 'C	20	0	1.11
1106.0 m	7300 psig @ 10 'C	N/A	N/A	N/A	1.12
1106.0 m	7300 psig @ 10 'C	N/A	N/A	N/A	1.13
1106.0 m	7300 psig @ 10 'C	N/A	N/A	N/A	1.14
1106.0 m	7800 psig @ 10'C	N/A	N/A	N/A	1.15
1106.0 m	2600 psig @ 9 'C	0.874 g/cm3 @ 10.5 'C	18	0	1.16
1233.4 m	2900 psig @ 9 'C	N/A	N/A	N/A	1.17

Tabel 2.7.6

Main summary from the PVT report.

Summary of PVT Data - Depth 1106.0m

Constant Composition Expansion at 29.6°C		
Saturation pressure (bubble-point)	10.13	MPa abs
Average single phase compressibility (v/v/psi from 12.10 Mpa abs to 10.13 Mpa abs)	94.42	x 10-4 MPa-1
Thermal expansion at 34.58 MPa abs	1.0113	vol at 29.6°C / vol at 15.0°C
Differential Vaporisation at 29.6°C		
Solution gas-oil ratio at saturation pressure	56.8	Sm3/m3 of residual oil at 15.0°C
Relative oil volume at saturation pressure	1.121	vol/vol of residual oil at 15.0°C
Density at saturation pressure	814.2	kg m-3
Reservoir Fluid Viscosity at 29.6°C		
Viscosity at reservoir pressure	2.020	mPa s at 12.10 MPa abs
Viscosity at saturation pressure	1.977	mPa s at 10.13 MPa abs

Separator Test Data

Pressure (MPa abs)	Temperature (°C)	Formation Volume Factor	Total Solution Gas-oil ratio (Sm3/m3)	Stocktank Oil Density (kg m-3)
Test 1				
10.11	29.6	1.127	58.1	
2.07	15.0			
0.10	15.0			859.6
Test 2				
10.11	29.6	1.126	57.8	
0.69	15.0			
0.10	15.0			859.6
Test 3				
10.11	29.6	1.133	58.4	
0.10	15.0			859.4

Summary of PVT Data - Depth 1140.0m

Constant Composition Expansion at 29.6°C		
Saturation pressure (bubble-point)	11.43	MPa abs
Average single phase compressibility (From 12.10 MPa abs to 11.43 MPa abs)	104.54	x 10-4 MPa-1
Thermal expansion at 34.58 MPa abs	1.0125	vol at 29.6°C / vol at 15.0°C
Differential Vaporisation at 29.6°C		
Solution gas-oil ratio at saturation pressure	65.0	Sm3/m3 of residual oil at 15.0°C
Relative oil volume at saturation pressure	1.136	vol/vol of residual oil at 15.0°C
Density at saturation pressure	814.1	kg m-3
Reservoir Fluid Viscosity at 29.6°C		
Viscosity at reservoir pressure	1.931	mPa s at 12.10 MPa abs
Viscosity at saturation pressure	1.918	mPa s at 11.43 MPa abs

Separator Test Data

Pressure (MPa abs)	Temperature (°C)	Formation Volume Factor	Total Solution Gas-oil ratio (Sm3/m3)	Stocktank Oil Density (kg m-3)
Test 1				
11.43	29.6	1.136	65.0	
2.07	15.0			
0.10	15.0			861.1
Test 2				
11.43	29.6	1.136	65.0	
0.69	15.0			
0.10	15.0			861.2
Test 3				
11.43	29.6	1.140	66.5	
0.10	15.0			861.4

ION ANALYSIS OF FORMATION WATER.

Well no.: 7122/7-1
Depth: 1233.4 m
Sampling date:
The water was sampled in a plastic can.

Date of analysis: 31.10.00

Results:

Standard water analysis.

Parameter	Results				DL	Method
		Unit		Unit		
Sodium, Na	35,400	mg/l	1539.8	meq	0.0	ICP AES
Calcium, Ca	3,110	mg/l	155.2	meq	0.0	ICP AES
Magnesium, Mg	735	mg/l	60.5	meq	0.0	ICP AES
Barium, Ba	321	mg/l	4.7	meq	0.05	ICP AES
Iron, Fe	29.4	mg/l	1.1	meq	0.0	ICP AES
Strontium, Sr	595	mg/l	13.6	meq	0.05	ICP AES
Potassium. K	12,200	mg/l	1521.7	meq	0.1	ICP AES
Chloride, Cl^-	59,500	mg/l	1678.3	meq	5.0	NS4756
Sulphate, SO_4^{2-}	53	mg/l	1.1	meq	2	SM 4110C
Bicarbonate, HCO_3^-	na	mg/l	-	meq		NS4754
Ion balance	*)	%				
Total dissolved salt	**)	mg/l				
pH at 20°C	7.1	pH				NS 4720
Suspended solids	9	mg/l			5	NACE TM01-73
Specific gravity 15°C	1.088	g/l				Anton PAAR
Resistivity at 25°C	0.069	ohm-m				ASTM D1125A

*) Calculated ion balance is ca. 22 lack of anions. This is probably due to use of a salt not containing any of the analysed ions.
**) Not reported due to 20 % lack of anions.

Fig.2.7.3

3. DRILLING

3.1 Introduction

Norsk Agip A/S drilled the exploration well 7122/7-1in the PL 229, Block 7122/7 in the Barents Sea with the semi-submersible drilling rig "Transocean Arctic". The well was not flow tested. The total time on the well was 21.2 days, and the total "dry hole" drilling costs of well 7122/7-1 was 89 MM NOK (79672 NOK /m).

Of the 21.2 days total well time, the drilling operation time amounted to 36% and evaluation time (coring and logging) to 23%. Only 1.3% of the total time was unproductive time.

The rig "Transocean Arctic" was taken over from Norsk Hydro on 14 September 2000 at 1830 hrs. The rig was towed to the drilling location where the anchors were set and the rig ballasted down to drilling draft, these operations were completed in 1.3 days. At drilling draft the distance from the rotary table to the sea surface (RT – MSL) was 24 m.

After picking up drill pipe and 36" bottom hole assembly, the well was spudded on 16 September 2000 at 0230 hrs. The distance from the rotary table to the seabed (RT – seabed) was 405 m. The 36" hole was drilled to 481 m. The 30" conductor pipe was set at 478 m and cemented on 17 September 2000. The rig Transocean Arctic drilled the exploration well 7122/7-1 to a total depth of 1524 m MD RT (1523 m TVD RT). After reaching TD the well was logged, and permanently abandoned on 5 October. The well was finished and the rig left location on 5 October 2000 at 2320 hrs.

The objective of the well 7122/7-1 was to investigate the hydrocarbon potential in the Middle Jurassic through Upper Triassic sandstone reservoir series of the Realgrunnen Group in the Goliath Prospect.

3.1.1 Well Data summary

Well 7122/7-1

HOLE SECTION	1	2	3	4	5
Hole size	36" hole to 481 m (seabed at 405 m)	9 7/8" pilot hole to 690 m	26" hole to 688 m	12 ¼" hole to 1063 m	8 1/2" hole to 1524 m (TD of well)
Drilling fluids	Type: Seawater / High Viscous Sweeps with prehydrated bentonite mud Viscous Sweeps: Density: 1.05 - 1.20 sg	Type: Seawater / High Viscous Sweeps with prehydrated bentonite mud Viscous Sweeps: Density: 1.05 - 1.20 sg	Type: Seawater / High Viscous Sweeps with prehydrated bentonite mud Viscous Sweeps: Density: 1.05 - 1.20 sg	Type: Formate brine / XC Polymer / Pac Density: 1.30 sg	Type: Formate brine / XC Polymer / Pac Density: 1.30 – 1.31 sg
Coring					Core no. 1: 1133 m – 1136 m Core no. 2: 1136 m – 1151 m Core no. 3: 1151 m – 1178 m
Logging	Drilling: None Logging in open hole: None	Drilling: MWD-GR	Drilling: None Logging in open hole: None	Drilling: MWD-GR-Resistivity-Sonic Logging in open hole: None	Drilling: MWD-GR-Resistivity Logging in open hole: Run no. 1: PEX/HALS Run no. 2: FMI/DSI Run no. 3: CMR Run no. 4: MDT/GR Run no. 5: MSCT/GR (GR failure) Run no. 6: MSCT/GR Run no. 7: MDT/GR Run no. 8: VSP
Casing	30" casing, shoe at 478 m. Vetco MS-700 Wellhead System 18 ¾" x 15000 psi. 30", 310 lbs/ft, grade X-52, ST-2B threads.		20" casing, shoe at 680 m. 20", 133 lbs/ft, grade X-56, RL-4S threads.	9 5/8", shoe at 1056 m. 9 5/8", 53.5 lbs/ft, grade P-110, Antares MS threads.	
Cement	Cement type: Norcem Class G Mixwater: Seawater (lead & tail) Density: 1.56 sg lead, 1.95 sg tail Top cement: Lead: Seabed Tail: 461 m		Cement type: Norcem Class G Mixwater: Seawater (lead & tail) Density: 1.56 sg lead, 1.95 sg tail Top cement: Lead: Seabed Tail: 632 m	Cement type: Norcem Class G Mixwater: Fresh water (lead & tail) Density: 1.56 sg lead, 1.92 sg tail Top cement: Lead: 610 m Tail: 788 m	

3.1.2 Operational Achievements

1. The well was drilled to TD in a very efficient and optimum manner. During the well operations the non-productive time was only 1.3% (6.5 hrs) of total time.

2. The operational time on the well was 11.8 days less than planned.

3.1.3 Operational problems

The only operational difficulty occurred after changing the drilling fluid to formate brine when starting to drill the 12 ¼" hole section: Before the new mud had been properly sheared, a water sensitive formation was drilled into where the cuttings reacted with the mud.

This reaction, primarily due to the unproper shearing of the polymer, caused an uncontrollable increase of mud viscosity resulting in severe screen blinding and massive losses of the whole drilling fluid over the shaker. It was later determined that much of the problem resided with the unproper use of PACR.

After the problem was rectified an outstanding performance was achieved with the Formate system in the reminder of the well.

3.1.4 BOP Sketch

18 5/8" 15000 psi BOP

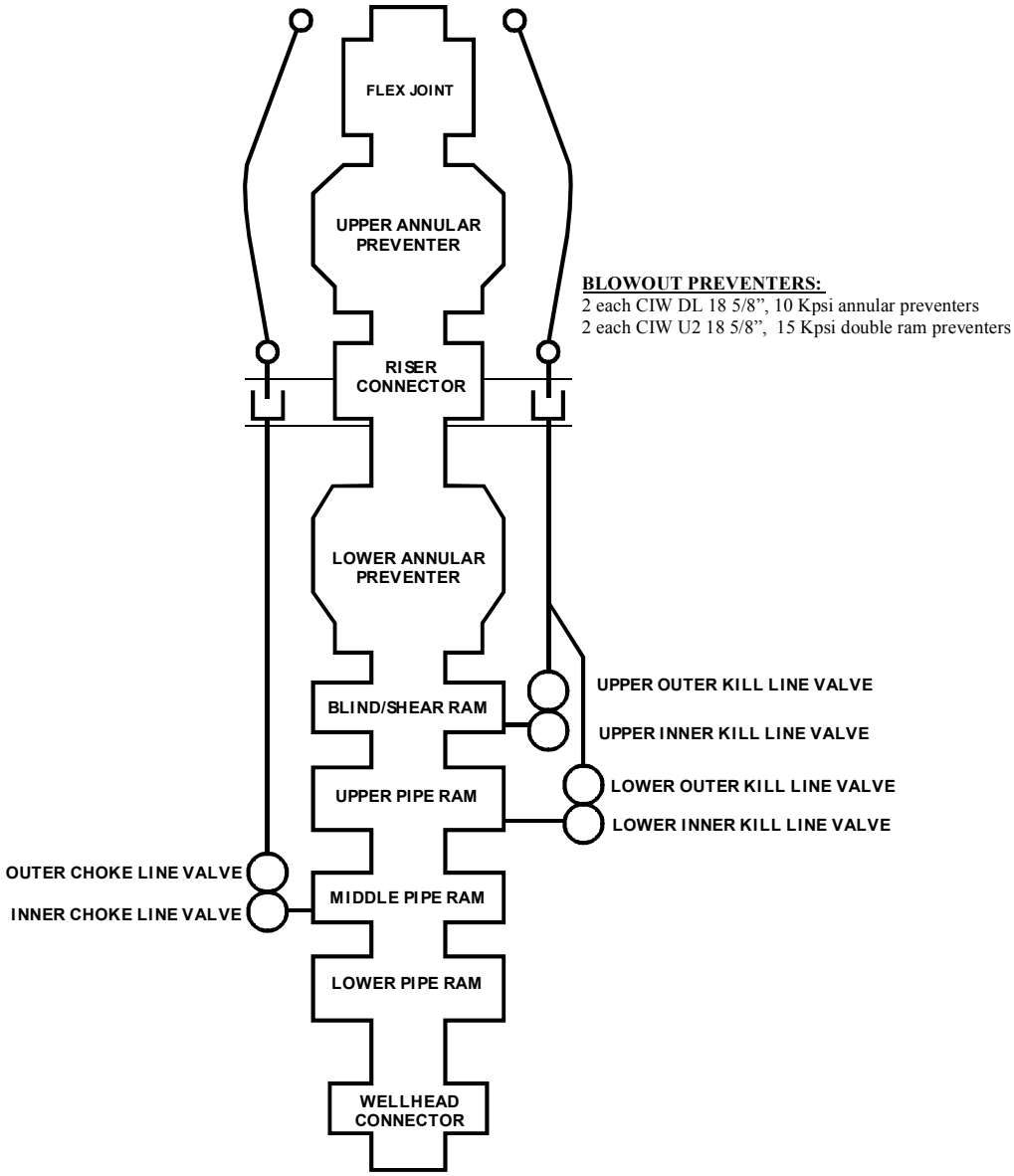
BOP Testing

EQUIPMENT	BEFORE INSTALLATION	FIRST TEST ON WELLHEAD	BEFORE DRILLING OUT OF CASING	BI-WEEKLY IN OPEN HOLE
BAGS,LMRP CONNECTION	500psi / 7000 psi	None	500 psi/ 70% of csg. burst pressure (max. 5000 psi)	500 psi/ 70% of csg. burst pressure (max. 5000 psi)
SHEAR RAMS	500 psi/ 7000 psi	None	500 psi/ casing test pressure	
PIPE RAMS, FAIL SAFES	500 psi/ 7000 psi	None	500 psi/ 70% of csg. burst pressure (max. 5000 psi)	500 psi/ 70% of csg. burst pressure (max. 5000 psi)
WELLHEAD CONNECTION	500 psi/ 7000 psi	500 psi/ 5000 psi	500 psi/ 70% of csg. burst pressure (max. 5000 psi)	500 psi/ 70% of csg. burst pressure (max. 5000 psi)
K/C-LINES, HOSES	None	500 psi/ 5000 psi	500 psi/ 70% of csg. burst pressure (max. 5000 psi)	**WEEKLY:** 500 psi/ 70% of csg. burst pressure (max. 5000 psi)

TRANSOCEAN ARCTIC

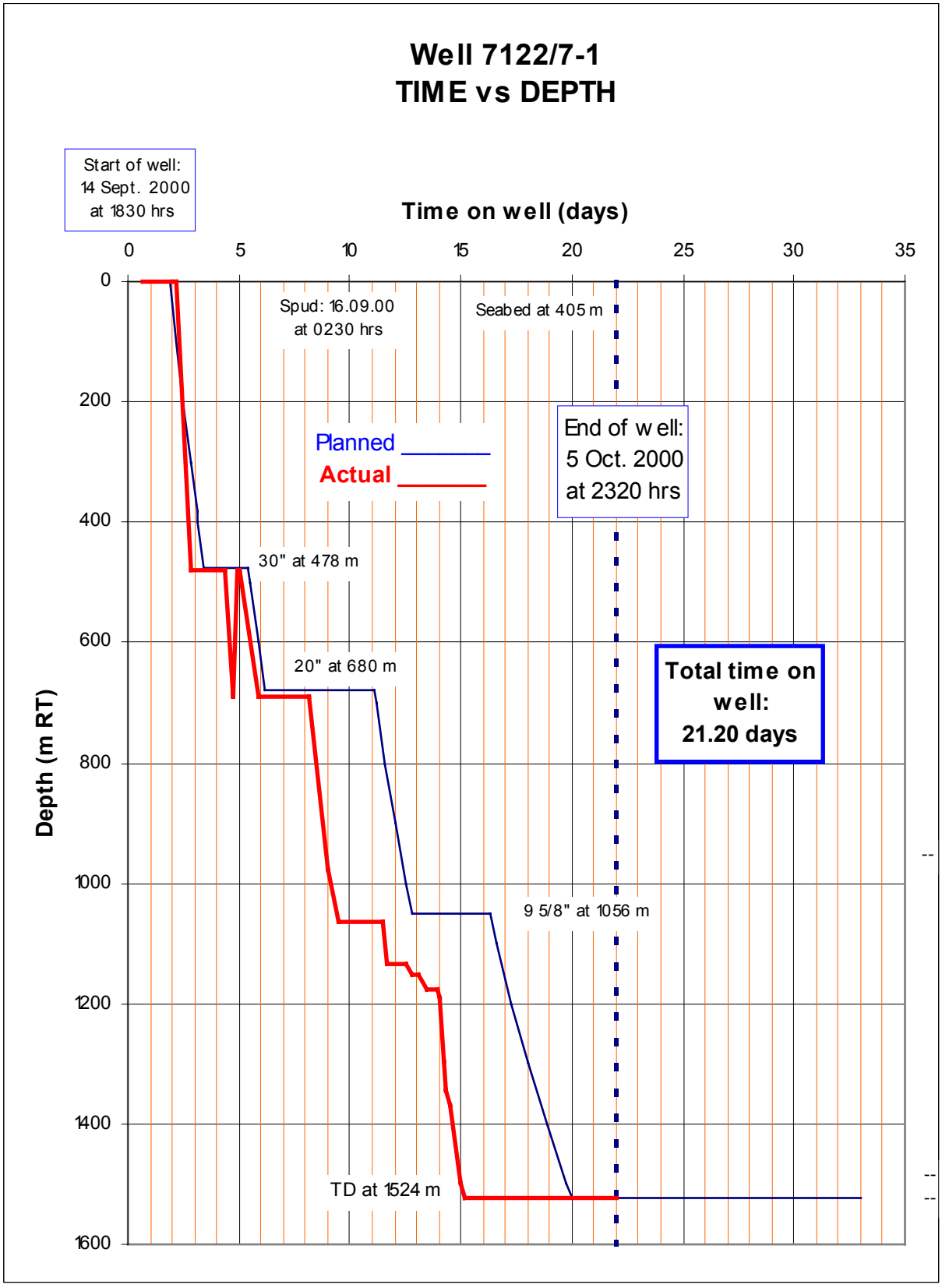
BOP STACK ARRANGEMENT

20.06.00

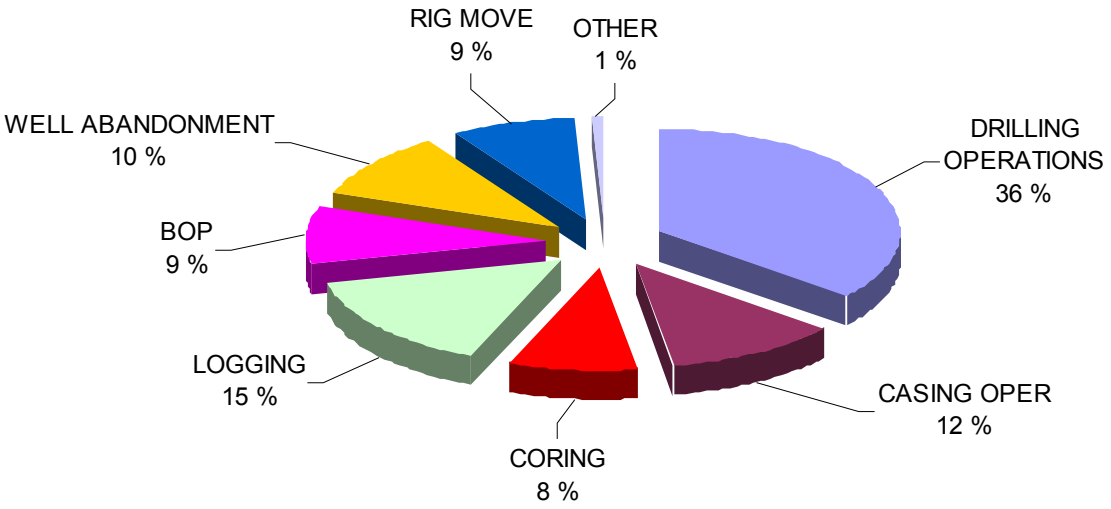


3.2 Time and Cost Analysis

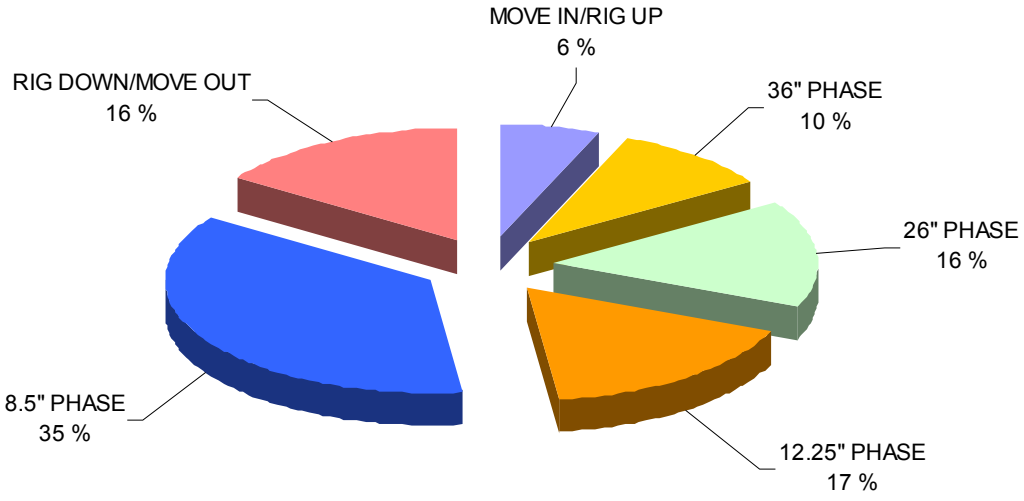
3.2.1 Days vs. Depth



3.2.2 Total Well Time Breakdown by Function



3.2.3 Time by phase

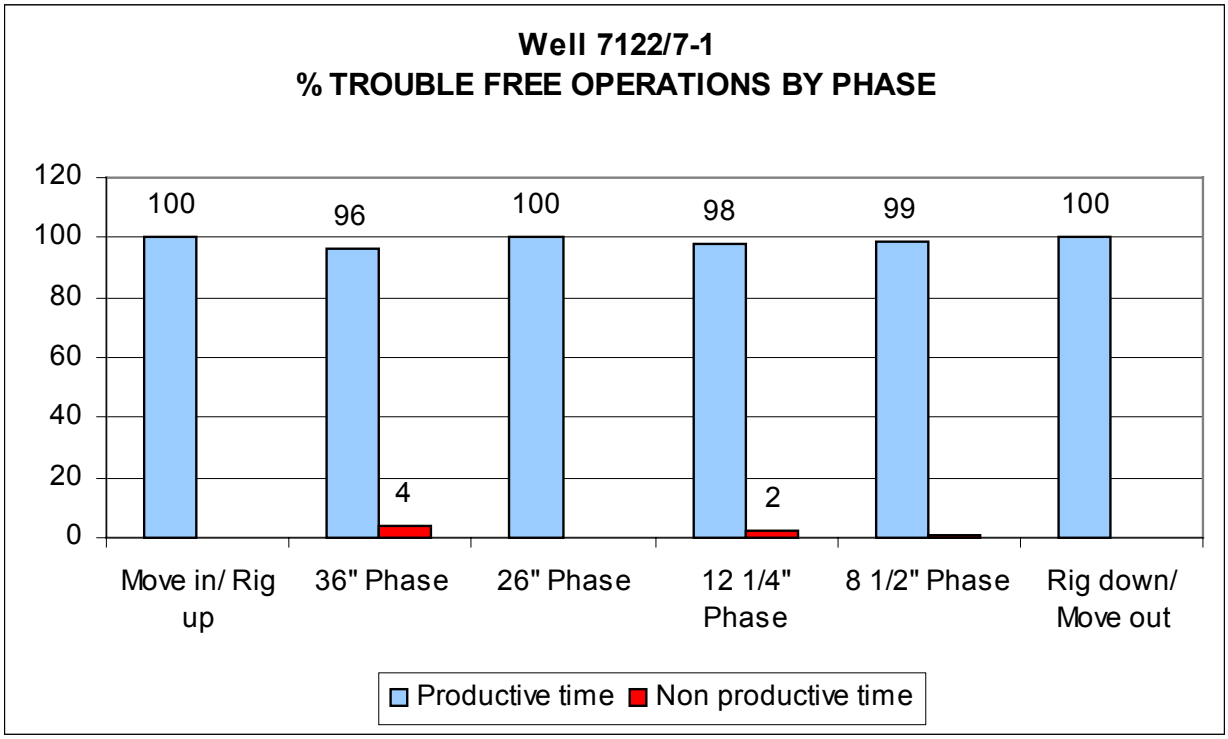


Time Breakdown by Phase

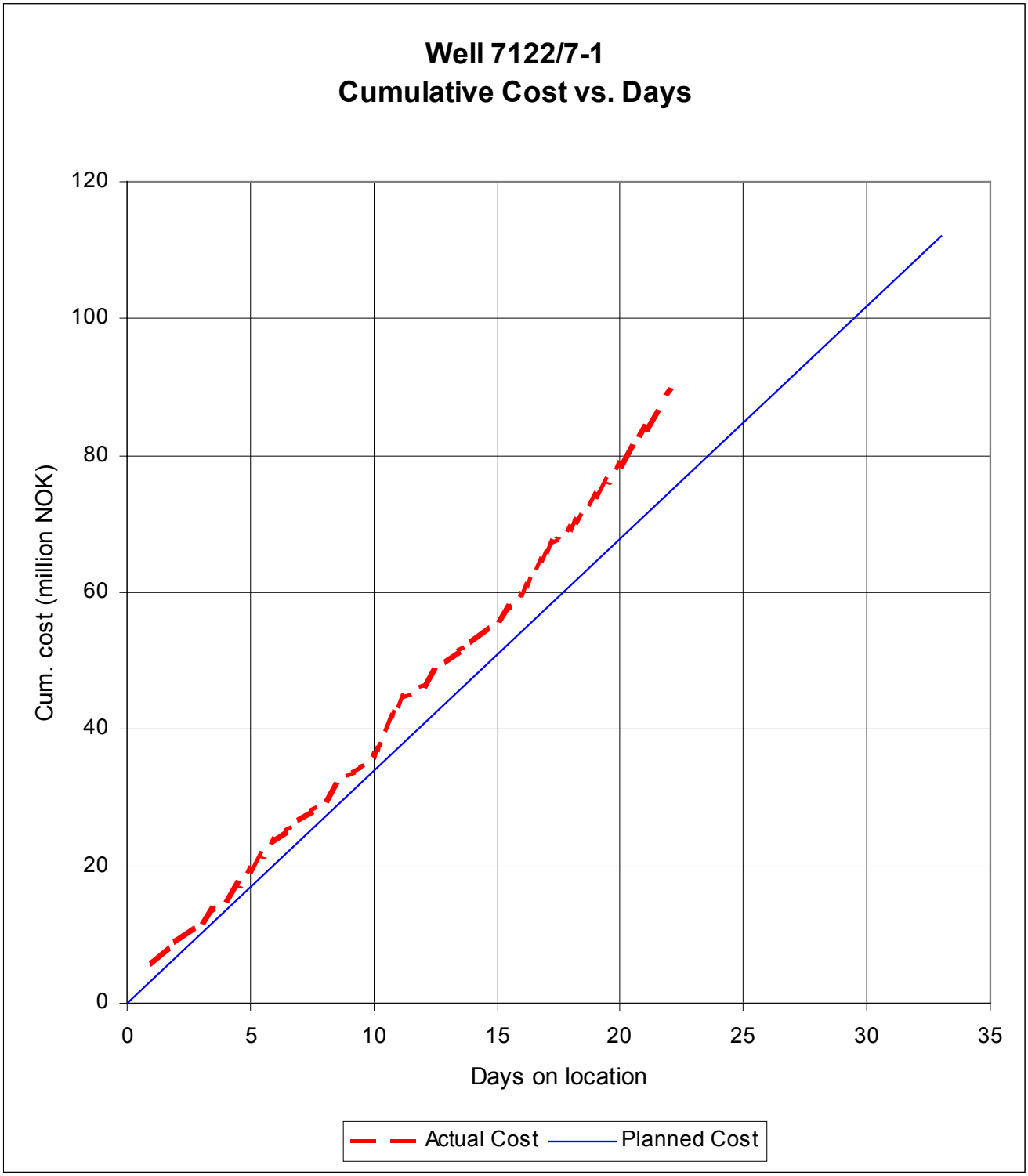
WELL 7122/7-1 TIME BREAKDOWN

	Start	End	Days	Tot. hrs	Tot. m	m/Day
	2000	2000				
Move In/Rig Up	Sept. 14 1830	Sept. 16 0130	1.29	31	n / a	n / a
36" Phase	Sept. 16 0130	Sept. 18 0300	2.06	49.5	76	36.9
26" Phase	Sept. 18 0300	Sept. 21 1030	3.31	79.5	209	63.1
				9 7/8" pilot hole: 19	209	264.0
12.25" Phase	Sept. 21 1030	Sept. 24 2330	3.54	85	373	105.4
8.5" Phase	Sept. 24 2330	Oct. 2 1530	7.67	184	461	60.1
Rig Down/Move Out	Oct. 2 1530	Oct. 5 2320	3.33	79.83	n / a	n / a
Total	1830 hrs Sept. 14 Year 2000	2320 hrs Oct. 5 Year 2000	21.20	508.83	1119	52.8

3.2.4 Non-Productive vs. Productive Time

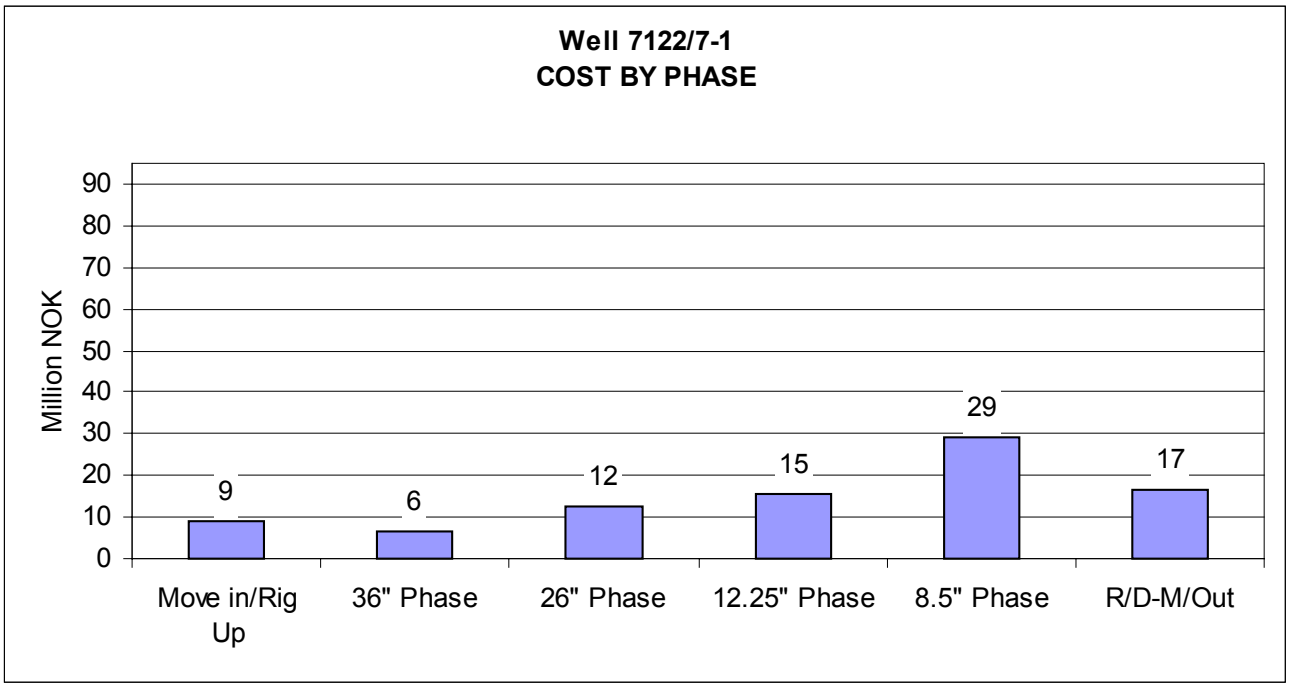


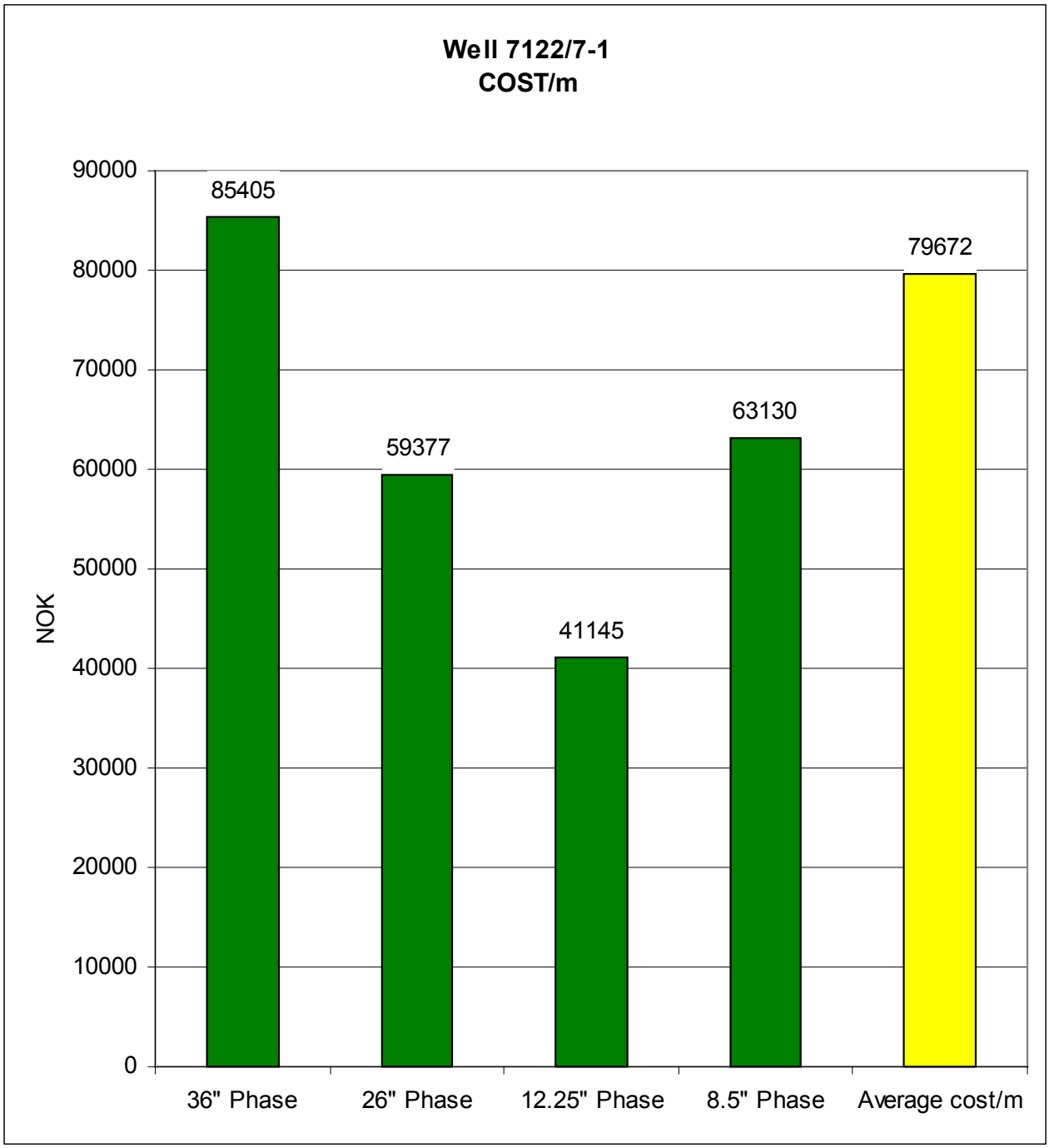
3.2.5 Cost vs. Depth



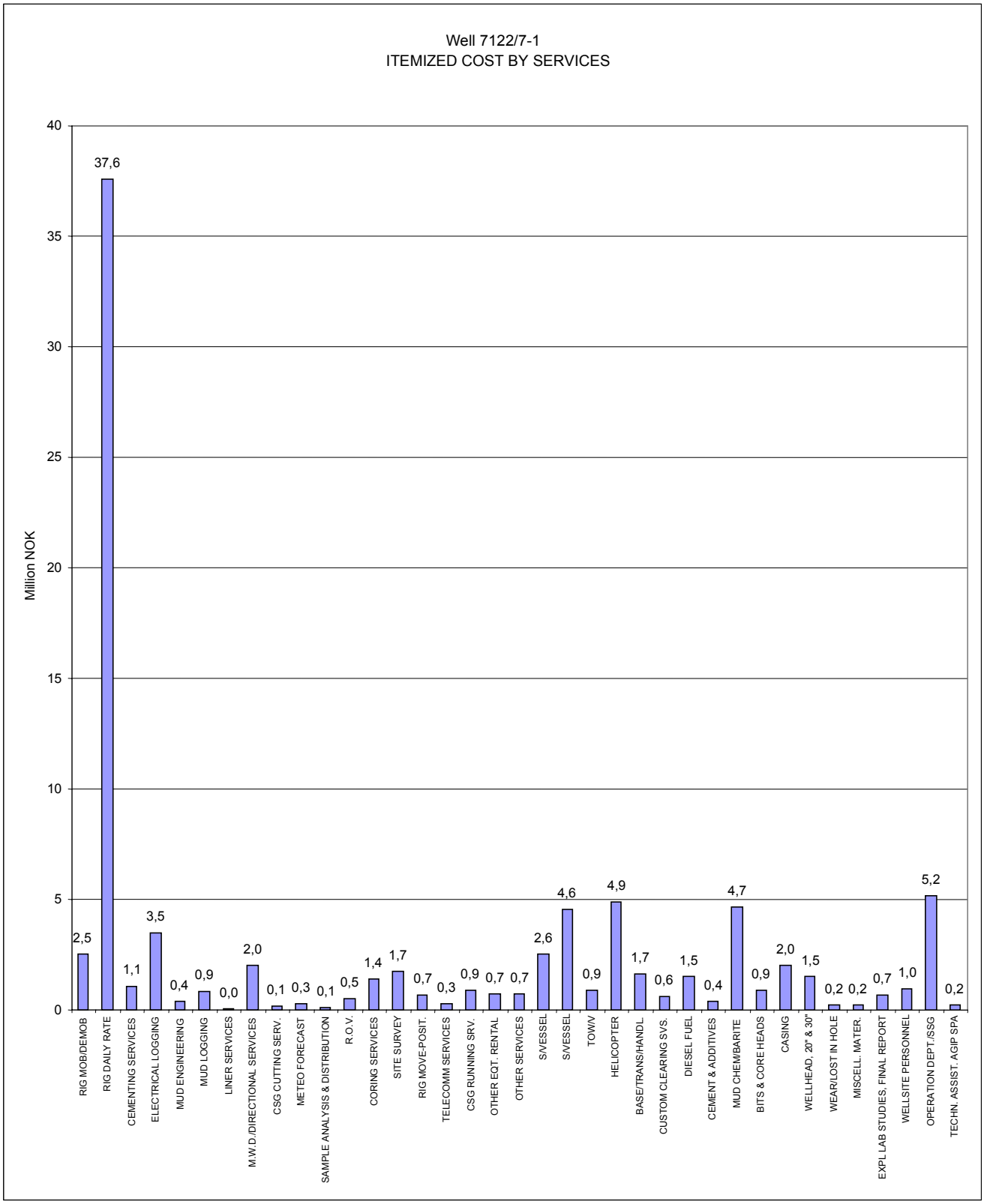
3.2.6 Cost per Phase

COST BY PHASE	Start 2000	End 2000	Days	Section Cost MMNOK	Meter	Cost/Meter NOK
Move in/Rig Up	Sept. 14 1830	Sept. 16 0130	1,29	9,1		
36" Phase	Sept. 16 0130	Sept. 18 0300	2,06	6,5	76	85405
26" Phase	Sept. 18 0300	Sept. 21 1030	3,31	12,4	209	59377
12.25" Phase	Sept. 21 1030	Sept. 24 2330	3,54	15,3	373	41145
8.5" Phase	Sept. 24 2330	Oct. 2 1530	7,67	29,1	461	63130
Rig Down Move Out	Oct. 2 1530	Oct. 5 2320	3,33	16,7		N/A
TOTAL	Sept. 14 1830	Oct. 5 2320	21.20	89	1119	79672




Well 7122/7-1
COST/m
NOK
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
85405
59377
41145
63130
79672
36" Phase
26" Phase
12.25" Phase
8.5" Phase
Average cost/m

3.2.7 Itemized Cost by Service



3.3 Operations

3.3.1 Unplanned Events

During the entire well operations the unplanned/ unproductive time amounted to only 6.5 hours (1.3% of total time). Of this time 2 hours were related to ROV problems, 1 hour for changing screens due to heavy mud loss over the shakers, 1 hour for backreaming, 0.5 hours for BOP drill, and 2 hours caused by misrun during logging

3.3.2 Drilling Summary

Move In & Mooring Operations:

The rig "Transocean Arctic" was taken over from Norsk Hydro on 14 September 2000 at 1830 hrs after Norsk Hydro had finished the drilling of the well 7216/11-1. The rig was towed to the drilling location where the anchors were set and the rig ballasted down to drilling draft, these operations were completed in 1.3 days. At drilling draft the distance from the rotary table to the sea surface (RT – MSL) was 24 m.

Final rig Geographical Location:

Lat. = 71 deg. 17 min 10.93" N
Long. = 22 deg. 19 min 07.02" E

UTM Location:
X = 547217.4 m Easting
Y = 7910064.4 m Northing

The co-ordinates above refer to the European Datum 1950 (ED50), UTM projection, Zone 34 with Central Meridian 21 degrees East.

36" Hole section /30" Conductor

DEPTH INTERVAL: Seabed (at 405 m RT) – 481 m RT

General:
The major goals established for drilling the 36" hole section was to drill the hole quickly, use a high viscosity/weighted drilling fluid to keep the hole open, run casing as quickly as possible, and cement it up to seabed.

The total cost for the 36" phase, from spud of the 36" hole to start of the 26" phase, was 6.5 MM NOK or 85405 NOK/m. The total time for the 36" phase was 2.06 days with 2 hours of unscheduled events occurring due to ROV problems.

Drilling:
The ROV was first used to place 1 transponder and 2 marker buoys at the well location.
The 36" hole section was then drilled using a 17 ½" bit followed by a 2-stage 36" hole opener behind the bit. This section was drilled with seawater, and using high viscosity sweeps to clean the hole. Once the 36" hole had been drilled to the depth of 481 m, the hole was displaced to high viscosity bentonite slurry. A wiper trip was made without encountering any tight spots, and the hole was again circulated until clean and displaced with the same 1.2 sg high viscosity mud prior to pulling out of hole to run the 30" casing.

Bits/BHA:
A 17 ½" Smith 10M bit was used on bottom of the 36" 2-stage hole opener to drill the 36" section. The BHA used was a slick assembly. The detailed assembly is described in the BHA report section.

Mud/Solids Control:
Seawater was used to drill the 36" hole section. High viscosity sweeps were employed to help clean the hole. Upon displacement, a high viscosity mud was used to ensure good cleaning of the hole. On the final trip out of the hole before running the 30", the mud was displaced to a high viscosity/weighted system to improve hole stability while running the casing.

Casing/Cementing:
The 30" casing string consisted of 6 joints of 310 lbs/ft, grade X-52 casing with ST-2B connections. The wellhead used was a Vetco MS-700 18 ¾" x 15000 psi subsea wellhead.

The 30" casing string was run on drillpipe with the RGB installed around the 30" wellhead and with the cementing stinger installed on bottom of the wellhead running tool.

The 30" casing was cemented up to seabed with 33.7m^3 1.56 sg lead slurry and 10.2 m^3 1.95 sg tail slurry.
While cementing the 30" casing the ROV was used to observe for cement returns to the seabed.

26” Hole section / 20” Casing

DEPTH INTERVAL: 405 – 690 m RT

General:
The 26” hole section was drilled with the intention to set the 20” casing deep enough to achieve a leak-off sufficient for drilling to the next casing point. To check for shallow gas a 9 7/8” hole was first drilled from the 30” shoe and down to 690 m. No shallow gas was observed. The pilot hole was then opened up to 26”. The 20” casing was run and cemented without problems. The entire 26” interval (including the pilot hole) was drilled without the occurrence of unscheduled events. Total time for the 26” interval was 3.31 days, and the cost was 12.4 MM NOK or 59337 NOK/m.

Drilling:
A 26” bit was used to drill out the 30” shoe. With a 9 7/8” bit, and with MWD in the BHA, a pilot hole was drilled down to 690 m to check for shallow gas. A flow check was made at section TD, no shallow gas was observed. The hole was displaced to 1.20 sg high viscosity mud.

The pilot hole was then opened up to 26” down to 688 m. The hole was displaced to 1.20 sg mud and a wiper trip was made. The hole was circulated clean and displaced to 1.20 sg high viscosity mud prior to pulling out for running 20” casing.

Bits/BHA:
In this hole section one 26” bit and one 9 7/8” bit were used. The 26” Smith MSDSSH (IADC Code 115) was used for drilling out cement in the 30” shoe and opening up the pilot hole.

The pilot hole was drilled with a 9 7/8” Smith FGSS+2C (IADC Code 117) and came out with the teeth approx. 20% worn.

Mud/Solids Control:
Seawater was used to drill both the 9 7/8” pilot hole and the 26” hole, with high viscosity sweeps employed to help clean the hole.

A 1.20 sg seawater/bentonite mud with ilmenite used as the weighting material was used to displace the pilot hole prior to opening it to 26”. Prior to pulling out of the 26” hole to run 20” casing the hole was again displaced with the 1.20 sg seawater/bentonite mud.

Casing/Cementing/ install BOP & riser:
The 20” casing was run on drill pipe, and the 18 ¾” wellhead housing was landed in the 30” wellhead. The 20” casing was cemented up to seabed with 46.9 m^3 1.56 sg lead slurry and 14.5 m^3 1.95 sg tail slurry. The ROV, stationed at the seabed during the cementing, observed returns during the entire cement job.

The BOP stack was run on the marine riser and installed on the 18 ¾” wellhead. The diverter was installed, and the choke and kill line were pressure tested. The BOP test tool was run, and the BOP stack was pressure and function tested.

12 1/4" Hole section / 9 5/8" Casing

DEPTH INTERVAL: 690 – 1063 m RT

General:
The 12 1/4" hole section was drilled with the intention to set the 9 5/8" casing shoe fairly close to the top of the expected reservoir formation to achieve a fracture gradient that was as high as possible before drilling into the reservoir. The 9 5/8" casing was run and cemented without problems. The entire 12 ¼" interval was drilled with one bit. The total time for the 12 ¼" phase was 3.53 days with 2 hours of unscheduled events. Total cost for the 12 ¼" phase was 15.3 MM NOK or 41145 NOK/m.

Drilling:
A 17 1/2" bit was used to drill out the 20" shoe. The drilling fluid was then changed to a 1.30 sg Formate brine mud and the 12 ¼" hole was drilled to section TD at 1067 m in one bit run. The hole had to be backreamed due to tight spots from 930 m to 800 m. After tripping back to bottom the hole was cleaned by circulating weighted, high viscosity sweeps prior to pulling out to run the 9 5/8" casing.

Bits/BHA:
In this hole section one 17 1/2" bit and one 12 ¼" bit were used. The 17 1/2" Smith 10M (IADC Code 435) was only used for drilling out the cement in the 20" shoe.

The 12 1/4" Smith 15GIDPD (IADC Code 517) was used to drill the entire 12 ¼" hole section and came out with the teeth approx. 10% worn.

Mud/Solids Control:
After having drilled out the cement in the 20" casing shoe the well was displaced with a drilling fluid consisting of 1.30 sg Formate brine where XCpolymer and PAC was used for obtaining viscosity and to maintain rheology. This Formate mud was used to drill the 12 ¼" hole section. In the upper part of this hole section, before the shearing of the new mud had been completed, a water sensitive formation was drilled into where the cuttings reacted with the mud. This resulted in the cuttings carrying with them overboard a larger volume of Formate brine than planned for. As soon as the Formate brine mud had been properly sheared this problem vanished and the Formate brine from then on worked very well.

The Formate brine was in itself heavy enough not to require any general addition of weighting materials. For mud pills were additional weight was required the weighting material used was ilmenite.

Casing/Cementing/ install BOP & riser:
The 9 5/8" casing was run on drill pipe, and the 9 5/8" hanger was landed in the 18 ¾" wellhead housing. The 9 5/8" casing was cemented up to 610 m (verified from the VSP log) with 13.5 m^3 1.56 sg lead slurry and 10.4 m^3 1.92 sg tail slurry.

8 1/2" Hole section/Logging/P&A

DEPTH INTERVAL: 1063 – 1524 m RT

General:
After drilling out of the 9 5/8" casing shoe, the 8 1/2" hole was first drilled down to 1133 m where the interval 1133 – 1178 m was cored with a 8 ½" core bit. The drilling of the 8 1/2" section was then resumed until the TD of the well was reached at 1524 m.
The total time for the 8 1/2" phase was 7.67 days. 2.5 hours of this time was due to unscheduled events caused by an unplanned for BOP/choke drill (0.5 hour) and a misrun during logging (2 hours). The interval cost was 29.1 MM NOK or 63130 NOK/m.

Drilling:
A 12 1/4" bit was used to drill out the 9 5/8" shoe and clean out the rat hole to 1063 m. The 8 ½" hole was then drilled to 1068 m where a LOT was performed to an equivalent mud density of 2.27 sg. The drilling of the 8 1/2" hole section continued down to 1033 m where it was decided to take cores. Using 8 ½" core bit and coring assembly, Core no. 1 was taken from 1033m to 1136 m where the core barrel jammed; core recovery was 31%. Core no. 2 was taken from 11136 m to 1151 m where the core barrel jammed; core recovery was 100%. Core no. 3 was taken from 151m to 1178 m; core recovery was 100%. When continuing the drilling of the 8 ½" section the cored interval was first logged with LWD. The drilling of the 8 1/2" hole continued down to 1524 m which was TD of the well. During the wiper trip from TD, tight spots had to be reamed. The hole was circulated and cleaned prior to pulling out to start the logging.

The time required for the coring operations in well 7122/7-1 was 1.79 days (the coring time is included in the total time for the 8 1/2" Phase).

Logging
Schlumberger was the logging contractor. The time required for the wireline logging in the 8 ½" hole was 3.27 days (the logging time is included in the total time for the 8 1/2" Phase).

Log Run no. 1: PEX/HALS
Run no. 2: FMI/DSI
Run no. 3: CMR
Run no. 4: MDT/GR (pulled out due to worn pads on tool)
Run no. 5: MSCT/GR (GR failure, causing 2 hours lost time)
Run no. 6: MSCT/GR
Run no. 7: MDT/GR
Run no. 8: VSP

Bits/BHA:
In the 8 ½" hole section two drill bits and two core bits were used.

The first drill bit was a 8 ½" Smith MF15DO (IADC Code 447), used for the interval 1063 – 1133 m, and came out with the teeth approx. 10% worn.
The second drill bit was a 8 ½" PCD bit from DPI, and was used for the interval 1178 – 1524 m. The bit came out with the cutters approx. 10% worn.

For the coring runs one Christensen URC 478 and one Hughes Christensen ARC 425 were used.

Mud/solids control:
The mud used for the 8 1/2" hole section was the same as for the 12 ¼" section: 1.30 sg Formate brine where XCpolymer and PAC was used for obtaining viscosity and to maintain rheology.
No problems with the mud were experienced during the drilling of the 8 ½" hole section.

Plug and Abandonment Summary:
The time required for the permanent plugging and abandonment operations for well 7122/7-1 was 2.17 days which is included in the Rig Down & Move Out time).

Plug no. 1: Cement from 1500 m up to 1300 m.

Plug no. 2: Cement from 1260 m up to 956 m.

9 5/8" casing was cut at 543 m and retrieved.

Plug no. 3: Cement from 620 m up and to 420 m (15 m below seabed).

30" and 20" casings were cut at 411 m (6 m below seabed) and retrieved.

Note: There was cement behind both the 30" and 20" casing strings up to seabed at 405 m. Top of cement behind the 9 5/8" casing was at 610 m.

The BOP stack and marine riser was pulled after Plug no. 3 had been set and tested.

See also the attached figure of P & A.

Rig down/Move out

The Rig down/Move out Phase began on October 2, 2000, and the total time used for this phase was 1.56 days. The operations under "Rig down/Move out" includes the well abandonment, pulling of the BOP stack and riser, the cutting & retrieval of the 30" and 20" casing and the pulling of the anchors.
Operations on well 7122/7-1 ended on 5 October 2000 at 2320 hours.

3.3.3 Daily Operations

NORSK AGIP
Operations Summary Report

Well Name:	7122/7-1	Start:	14.09.00
Contractor Name:	TRANSOCEAN	End:	05.10.00
Rig name:	TRANSOCEAN ARCTIC	Spud:	16.09.00

Date	From	To	Hours	Code 1	Code 2	Sub Code	Phase	Description of Operations
14-sep-00	18:30	00:00	5,5	M	P	b	MIRU	Rig on contract at 18:30 hrs on 14/09/2000. Rig enroute to 7122/7-1. Distance made: 29 nm avg speed 5,3 knots. Distance to go: 88 nm. ETA new location 14:00 hrs 15/09/2000
15-sep-00	00:00	15:00	15	M	P	b	MIRU	Rig on tow to location.
	15:00	00:00	9	M	P	d	MIRU	Anchor handling. 1752 hrs, anchor # 5 on bottom 1800 hrs, anchor # 1 on bottom 1928 hrs, anchor # 8 on bottom 1938 hrs, anchor # 4 on bottom 2056 hrs, anchor #6 on bottom 2135 hrs, anchor #2 on bottom 2329 hrs, anchor #3 on bottom 2335 hrs, anchor #7 on bottom Started ballasting rig to operational draft.
16-sep-00	00:00	01:30	1,5	M	P	d	MIRU	Complete anchor handling, & ballast rig. Performed preliminary tension test to 130 ton.
	01:30	02:30	1	N	P	f	DRLCON	ROV deployed 1 transponder & two marker buoys
	02:30	18:30	16	A	P	a	DRLCON	Drill 36" from 405m to 481m, pump 10m^3 hi-vis pills on connections.
	18:30	20:00	1,5	A	P	c	DRLCON	Pump 20 m^3 Hi-Vis pill & displace w/ 50 m^3 seawater, pump 50 m^3 1.2 sg mud.
	20:00	20:30	0,5	A	P	b	DRLCON	Make wiper trip to seabed, RIH back to bottom. No fill. No drag/weight.
	20:30	22:00	1,5	A	P	c	DRLCON	Pump 20 m^3 Hi- Vis pill & displace w/ 20 m^3 s/w, & pump 70 m^3 1.2 sg mud. Drop Survey @ TD.
	22:00	00:00	2	A	P	b	DRLCON	POOH, break bit and lay out 36" hole opener, retrieve survey 2 degs.
17-sep-00	00:00	02:00	2	C	P	b	CSGCON	Make up & run 6 joints 1" x 319lbs/ft. Vetco ST-2 squnch 30" Conductor pipe.
	02:00	04:00	2	C	P	b	CSGCON	M/up stinger, land 30" Conductor in R G B & connect same.
	04:00	05:00	1	C	P	b	CSGCON	Run in 30" conductor w/ RGB & running string.
	05:00	06:00	1	C	P	b	CSGCON	Close vent valve w/ ROV, stab in hole, cont. to run in & position RGB.
	06:00	07:00	1	C	P	c	CSGCON	Circ. hole prior to cementing, p/test cmt. lines to 200 bar while circ.
	07:00	08:30	1,5	N	T	f	CSGCON	Bring ROV to surface to untangle rope from propeller, run back to seabed, circulated while repairing ROV.
	08:30	10:00	1,5	C	P	c	CSGCON	Cement 30" conductor as programmed. Mix & pump lead slurry 1.56sg. 33.4 m^3 of class "G" cement followed by Tail slurry 1.95sg. 10m^3 of class "G" cement. Displace with 5.5 m^3 seawater.
	10:00	18:00	8	C	P	d	CSGCON	Wait on cement, held tension on 30" conductor. 0.5 deg. on RGB, attempt to release running tool, movement on Bullseye indicator, wait 2 more hrs on cement.
	18:00	18:30	0,5	N	T	f	CSGCON	Repair Hydraulic leak on ROV

NORSK AGIP

Operations Summary Report

Well Name:	7122/7-1	Start:	14.09.00
Contractor Name:	TRANSOCEAN	End:	05.10.00
Rig name:	TRANSOCEAN ARCTIC	Spud:	16.09.00

Date	From	To	Hours	Code 1	Code 2	Sub Code	Phase	Description of Operations
17-sep-00	18:30	20:30	2	C	P	e	CSGCON	Release 30" running tool, and POH, & lay out same.
(cont.)	20:30	23:30	3	C	P	e	CSGCON	M/up cmt. head & rack in derrick, M/up 18 3/4" csg. housing & rack back in derrick.
	23:30	00:00	0,5	A	P	e	CSGCON	M/ up 26" BHA.
18-sep-00	00:00	01:30	1,5	C	P	f	CSGCON	M/up 26" BHA & RIH to top of cement @473m.
	01:30	03:00	1,5	C	P	a	CSGCON	Drill out cmt. from 473m through to shoe @ 478m. pump 10m^3 hi vis pill & drill out rat hole.
	03:00	03:30	0,5	A	P	a	DRLSUR	Drill new formation from 481m to 483m.
	03:30	05:00	1,5	A	P	c	DRLSUR	Pump 20m^3 hi vis pill & POH to change BHA.
	05:00	06:00	1	A	P	e	DRLSUR	M/up 9 7/8" BHA.
	06:00	06:30	0,5	A	P	e	DRLSUR	Load MWD tool.
	06:30	07:00	0,5	A	P	e	DRLSUR	Cont. to M/up 9 7/8" BHA.
	07:00	08:30	1,5	A	P	b	DRLSUR	RIH stab in 30" well head & cont. to run in 30" shoe. Held shallow gas safety meeting.
	08:30	18:30	10	A	P	a	DRLSUR	Drill 9 7/8" pilot hole from 483m to 690m.
	18:30	19:00	0,5	A	P	c	DRLSUR	Pump & displace 10m^3 hi-vis with Sea water, flow check for 15min well static, displace 9 7/8" section with 1.2sg mud.
	19:00	22:00	3	A	P	b	DRLSUR	POOH, tight hole sections @ 652m , 593m, 535m, max. overpull 40 ton.
	22:00	00:00	2	A	P	e	DRLSUR	M/up 26" BHA.
19-sep-00	00:00	01:00	1	A	P	a	DRLSUR	RIH with 26" BHA to 483m.
	01:00	16:30	15,5	A	P	a	DRLSUR	Open 9 7/8" hole from 483m to 688m.
	16:30	17:30	1	A	P	c	DRLSUR	Circ. 30 m^3 Hi-Vis and clean hole. Displace hole to 1.2 sg mud.
	17:30	18:00	0,5	A	P	b	DRLSUR	Make wiper trip to shoe & back to bottom. No fill.
	18:00	18:30	0,5	A	P	c	DRLSUR	Circ. 100 m^3 of 1.2sg mud & clean hole.
	18:30	20:30	2	A	P	b	DRLSUR	POOH to run 20" casing.
	20:30	21:00	0,5	C	P	b	CSGSUR	Held pre-job safety meeting. Rig up floor to run csg.
	21:00	00:00	3	C	P	b	CSGSUR	Ran 25 jts. 20" 133 lbs/ft., x-56 casing.
20-sep-00	00:00	00:30	0,5	C	P	b	CSGSUR	Picked and made up 18 3/4" wellhead housing.
	00:30	02:30	2	C	P	b	CSGSUR	Ran 5 1/2" HWDP landing string, stabbed shoe into 30" wellhead housing and continued to run landing string.
	02:30	03:00	0,5	C	P	b	CSGSUR	Picked up cement stand and landed 18 3/4" wellhead housing. Made 25 ton overpull test, OK. RGB bullseyes at 0,5 degrees.
	03:00	03:30	0,5	C	P	c	CSGSUR	Circulated one casing volume at 2500 lpm. Observed returns at seabed.
	03:30	05:30	2	C	P	c	CSGSUR	Pressure tested cement line to 200 bar. Pumped 46,9 m^3 lead slurry at 1,56 sg and 14,5 m^3 tail slurry at 1,95 sg.
	05:30	06:00	0,5	C	P	c	CSGSUR	Released dart, displaced it down with cement pump and sheared wiper plug.
	06:00	06:30	0,5	C	P	c	CSGSUR	Switched to rig pumps and displaced cement with seawater at 2500 lpm. Bumped plug at 2446 strokes (97 % pump efficiency). ROV observing returns throughout complete job. Displacement pressure increasing as cement passed shoe.
	06:30	09:00	2,5	C	P	c	CSGSUR	Ran two armed guide frame, released running tool and pumped at 5000 lpm to clean RGB. POOH.
	09:00	10:00	1	N	P	e	CSGSUR	Slipped and cut 33 m of drill line.

NORSK AGIP

Operations Summary Report

Well Name:	7122/7-1	Start:	14.09.00
Contractor Name:	TRANSOCEAN	End:	05.10.00
Rig name:	TRANSOCEAN ARCTIC	Spud:	16.09.00

Date	From	To	Hours	Code 1	Code 2	Sub Code	Phase	Description of Operations
20-sep-00 (cont.)	10:00	16:00	6	I	P	b	CSGSUR	Held safety meeting and prepared for running BOP. Skidded BOP to well center and connected riser.
	16:00	00:00	8	I	P	b	CSGSUR	Ran riser/BOP.
21-sep-00	00:00	02:30	2,5	I	P	f	CSGSUR	Install slip joint, position rig, install support ring, junction boxes on Y & B pods. Land BOP on W/H, close connector, 25 ton overpull - OK.
	02:30	04:00	1,5	I	P	b	CSGSUR	Install diverter. Rig down handling equipment
	04:00	05:30	1,5	I	P	d	CSGSUR	Pressure test choke & kill lines to 345 bar OK. Lay out 26" BHA while testing lines.
	05:30	09:00	3,5	I	P	d	CSGSUR	M/up BOP test tool, & RIH to W/H; P/ test WH connector against upper pipe rams to 345 bar, & function test both Pods, OK.
	09:00	10:00	1	I	P	d	CSGSUR	POOH & lay down test tool. While POOH test 20" csg. to 35 bar OK.
	10:00	10:30	0,5	I	P	e	CSGSUR	Lay down cementing head.
	10:30	12:30	2	C	P	e	DRLIN1	M / up 9 5/8" csg. hanger w/ cmt plugs.
	12:30	14:30	2	A	P	e	DRLIN1	M/up 17 1/2" BHA. & RIH to top of cmt. at 667m & perform Choke Drill.
	14:30	16:00	1,5	I	P	d	DRLIN1	Pressure test 20" casing in steps to 70 bar, pressure dropped to 60 bar. Held pressure for 10min. OK.
	16:00	16:30	0,5	A	P	d	DRLIN1	Drill float collar at 667m cmt. & shoe at 680m clean rat hole to 688m.
	16:30	17:00	0,5	A	P	a	DRLIN1	Drill 17 1/2" hole from 690m. to 693m.
	17:00	18:00	1	A	P	c	DRLIN1	Circ & clean hole w/ 12 m^3 Hi Vis pill, spot 8 m^3 on bottom.
	18:00	18:30	0,5	I	P	d	DRLIN1	Close upper pipe rams & perform L.O.T pump 300lrs, pressure up to 40 bar, after 4 min. holding pressure, pressure dropped to 36 bar and held steady for 6 min.
	18:30	20:00	1,5	A	P	b	DRLIN1	POOH.
	20:00	21:00	1	C	P	e	DRLIN1	M/up Cementing Head stand & rack back in derrick.
	21:00	00:00	3	A	P	e	DRLIN1	M/up 12 1/4" BHA.
22-sep-00	00:00	01:30	1,5	A	P	b	DRLIN1	RIH w/ 12 1/4" BHA to 693m.
	01:30	03:30	2	A	P	c	DRLIN1	Displace hole to 1.30 sg mud. (Take S.C.R).
	03:30	18:00	14,5	A	P	a	DRLIN1	Drill 12 1/4" hole From 963m to 893m. (Changed out shaker screens w/ doing connections @ 844m & 873m).
	18:00	19:00	1	A	U	f	DRLIN1	Circ. & condition mud. Change out shaker screens to 52 mesh due to high mud losses. Unable to obtain sufficient flow.
	19:00	00:00	5	A	P	a	DRLIN1	Drill 12 1/4" hole from 893m to 977m. Sweep hole with 5 m^3 high -vis at 944 m, hole looks good.
23-sep-00	00:00	12:00	12	A	P	a	DRLIN1	Drill 12 1/4" hole from 977m to 1063m. Max gas 1.5 %.
	12:00	15:00	3	A	P	c	DRLIN1	Circ. bottoms up. Increase flow rate to 3600 lpm. Pump 10m^3 Hi-Vis Pill & Sweep same to Surface. Max Gas 2.2%. Circ hole clean.
	15:00	15:30	0,5	A	P	b	DRLIN1	POH to 930m. Start backreaming due to increasing overpull, MOP 30 ton.
	15:30	16:30	1	A	U	a	DRLIN1	Backreamed from 930m to 800m.
	16:30	18:00	1,5	F	P	a	DRLIN1	Log w/ MWD tool from 800m to shoe.
	18:00	18:30	0,5	A	P	b	DRLIN1	RIH back to bottom.
	18:30	20:30	2	A	P	c	DRLIN1	Pump 10m^3 Hi-Vis & sweep same to surface to clean hole.
	20:30	00:00	3,5	A	P	b	DRLIN1	POOH Flow check at shoe. L/down sonic -tool, MWD tool, bit and roller reamers.
24-sep-00	00:00	04:00	4	I	P	e	CSGIN1	M/up & run in w/ bore protector, retrieving tool & jet sub. Wash well head & area. Make Vetco measurement & pulled bore protector w/ 25 ton overpull. Drift landing string.
	04:00	05:00	1	C	P	b	CSGIN1	R/up to run 9 5/8" csg. Held safety meeting prior to running casing.
	05:00	09:30	4,5	C	P	b	CSGIN1	P/up and run 50 jts. 9 5/8" P-110, 53.5 lbs/ft. Antares casing total length 645.06 m.

NORSK AGIP
Operations Summary Report

Well Name:	7122/7-1	Start:	14.09.00
Contractor Name:	TRANSOCEAN	End:	05.10.00
Rig name:	TRANSOCEAN ARCTIC	Spud:	16.09.00

Date	From	To	Hours	Code 1	Code 2	Sub Code	Phase	Description of Operations
24-sep-00 (cont.)	09:30	11:30	2	C	P	b	CSGIN1	Install hanger & RIH w/ landing string, landed in well head at 11.25 hrs. Filled each std. with 1.30 sg mud.
	11:30	12:00	0,5	C	P	c	CSGIN1	Circ. casing with 45 m^3 mud.
	12:00	13:30	1,5	C	P	c	CSGIN1	P/ test surface lines to 209 bar. Pump 10 m^3 of fresh water followed by 10 m^3 sea water. Cmt as follows: Mix & pump 13.5 m^3 of lead slurry at 1.56sg of Norcem "G" cement, followed by 10.4 m^3 of tail slurry at 1.95 sg, of Norcem cement.
	13:30	15:30	2	C	P	c	CSGIN1	Dropped dart, flag on cmt. head indicated dart release, no indication of Dart shearing top plug, displace 4500lts w/ cmt. unit. Displace w/ mud pumps, after 19m^3 pressure suddenly increase to 175 bar & dropped to 110bar. Cont. displacing, pumped total 20.7 m^3. Plug did not bump. Circ. reservoir vol. to check for cmt. – OK. Set seal assembly.
	15:30	16:00	0,5	C	P	f	CSGIN1	Close upper pipe rams & test seal assembly to 210bar OK.
	16:00	18:30	2,5	C	P	f	CSGIN1	Pressure test BOP to 345 bar OK.
	18:30	19:30	1	C	P	e	CSGIN1	Release 9 5/8" running tool, wash well head & POH & lay down running tool.
	19:30	20:30	1	C	P	e	CSGIN1	RIH with bore protector & set same.
	20:30	21:00	0,5	I	P	d	CSGIN1	Function test BOP on blue pod. Function tested acoustic system.
	21:00	22:30	1,5	C	P	e	CSGIN1	P/ out & lay down bore protector running tool.
	22:30	23:30	1	C	P	e	CSGIN1	Lay down cementing head from derrick.
	23:30	00:00	0,5	A	P	e	DRLPRO	M/up 8 1/2" BHA.
25-sep-00	00:00	03:30	3,5	A	P	e	DRLPRO	M/up 8 1/2" BHA, P/up MWD-Tool, roller reamers, DCs, jars, accelerator.
	03:30	04:00	0,5	A	P	e	DRLPRO	Function test MWD-tool.
	04:00	05:00	1	A	P	e	DRLPRO	RIH. Tagged top cmt plug at 600 m. Pushed same down hole. Tagged top cmt at 1000 m.
	05:00	06:00	1	A	P	f	DRLPRO	Flush lines, closed upper pipe rams. Pressure test csg. to 209 bar f/ 10 min.
	06:00	06:30	0,5	A	U	f	DRLPRO	Performed BOP/ Choke - Drill
	06:30	09:00	2,5	A	P	d	DRLPRO	Drill out wiper plug & cmt. to 1002m, wash down to 1014m. Drill Bottom plug, float collar, Shoe Track, and Shoe to 1056m. Clean rat hole to 1063m.
	09:00	09:30	0,5	A	P	a	DRLPRO	Drill 8 1/2" hole from 1063m to 1068m.
	09:30	10:00	0,5	A	P	c	DRLPRO	Circ. & condition mud.
	10:00	11:30	1,5	A	P	f	DRLPRO	Performed LOT. Pumped 98 liter, = 101 bar. No leak off achieved. Pressure stabilized at 97 bar after 10 min, equivalent to 2.27sg.
	11:30	16:30	5	A	P	a	DRLPRO	Drilling 8 1/2" hole from 1068m to 1133m. Drilling break at 1102m. Flow check OK. Max gas 3,66 % from 1107 m.
	16:30	18:00	1,5	A	P	c	DRLPRO	Circ up bottom hole sample, for Geologist
	18:00	20:30	2,5	A	P	b	DRLPRO	POOH to run core bbl. Dump memory f/ MWD tool
	20:30	22:00	1,5	B	P	e	EVALPR	P/up and make up 27 m, 6 3/4" Core bbl.
	22:00	00:00	2	B	P	b	EVALPR	RIH w/ Core Bbl # 1.
26-sep-00	00:00	01:00	1	B	P	b	EVALPR	Wash down 30m, tag bottom. Circ. string volume. Drop and seat ball.
	01:00	03:00	2	B	P	a	EVALPR	Cut core From 1133 to 1136m. Core barrel jammed.
	03:00	06:30	3,5	A	P	b	EVALPR	Make flow check, POOH. Pulling speed from 500m to 100m 3 min/per/std. From 100m to surface 6 min/per/std.
	06:30	09:30	3	B	P	f	EVALPR	Recover core # 1. Recovered .93 m. = 31% Serviced / Redress CBBL.
	09:30	11:30	2	B	P	b	EVALPR	RIH for Core # 2 to 1110m.
	11:30	12:00	0,5	B	P	c	EVALPR	Wash down to 1136m. Drop/ pump ball.
	12:00	19:00	7	B	P	a	EVALPR	Cut Core # 2 from 1136m to 1151m. Core bbl. jammed.
	19:00	21:30	2,5	B	P	b	EVALPR	POOH w/ Core # 2. 500m to 100m pull 3 min./per/stand. 100m to surface pulled 6 min./per/std.

NORSK AGIP

Operations Summary Report

Well Name:	7122/7-1	Start:	14.09.00
Contractor Name:	TRANSOCEAN	End:	05.10.00
Rig name:	TRANSOCEAN ARCTIC	Spud:	16.09.00

Date	From	To	Hours	Code 1	Code 2	Sub Code	Phase	Description of Operations
26-sep-00 (cont.)	21:30	00:00	2,5	B	P	f	EVALPR	Recover Core # 2 15 m core = 100% recovery. Service core bbl.
27-sep-00	00:00	01:30	1,5	B	P	b	EVALPR	RIH w/ Core bbl. #3 1120m.
	01:30	02:00	0,5	B	P	c	EVALPR	Wash f/ 1120m to 1151m. Circ. string volume. Drop & seat ball.
	02:00	12:00	10	B	P	a	EVALPR	Cut Core #3 from 1151m to 1178m. Max gas 0.59 %.
	12:00	15:00	3	B	P	b	EVALPR	Flow check, pump slug, POOH. Reduced tripping speed @ 500mts, to vent out possible gas in core bbl.
	15:00	16:00	1	B	P	f	EVALPR	Held Safety Meeting. Recover Core # 3, 100% recovery.
	16:00	19:00	3	B	P	f	EVALPR	Cut & checked core to Decide next operations.
	19:00	21:30	2,5	A	P	a	DRLPRO	M/up 8 1/2" BHA, & RIH to 1133m.
	21:30	22:30	1	F	P	a	DRLPRO	Logged cored sections of hole from 1133m to 1178m @ 30 m /hr.
	22:30	00:00	1,5	A	P	a	DRLPRO	Drill 8 1/2" hole from 1178m to 1189m.
28-sep-00	00:00	00:00	24	A	P	a	DRLPRO	Drill 81/2" hole from 1189m to 1500m. Max gas .63%. Flow checked at 1370m & 1324m. Static.
29-sep-00	00:00	03:30	3,5	A	P	a	DRLPRO	Drill 8 1/2" hole from 1500m to 1524m. TD.
	03:30	04:30	1	A	P	c	DRLPRO	Circ. bottom's up. Make flow check.
	04:30	07:00	2,5	A	P	b	DRLPRO	Make wiper trip to shoe, tight hole @ 1239m. Hole start swabbing, pump and back ream from 1239m to csg. shoe. RIH back to bottom. Hole good.
	07:00	08:30	1,5	A	P	c	DRLPRO	Circ. bottoms up clean hole, flow check, pump slug.
	08:30	11:30	3	A	P	b	DRLPRO	POOH for Logging, dump MWD tool, L/down Reamers, MWD tool, bit.
	11:30	00:00	12,5	F	P	a	EVALPR	Rig up Schlumberger & Log Run #1 PEX / HALS, Run #2 FMI / DSI.
30-sep-00	00:00	00:00	24	F	P	a	EVALPR	Log with Schlumberger, Run # 3 CMR. Run #4 MDT/ GR.
01-okt-00	00:00	15:00	15	F	P	a	EVALPR	Log w/ Schlumberger Run #4 MDT/ GR. POH due to worn pads on tool.
	15:00	17:30	2,5	F	P	f	EVALPR	L/Down MDT/ GR; P/ up MSCT tools & prepare to Run # 5
	17:30	00:00	6,5	F	P	a	EVALPR	Log with Schlumberger # 5 MSCT. Gamma Ray failure. Pull out of hole change out tool, Re-run # 5 MSCT: LOSS 2 HRS DUE TO TOOL FAILURE.
02-okt-00	00:00	01:00	1	F	P	a	EVALPR	Log with Schlumberger Run # 6 MSCT.
	01:00	09:00	8	F	P	a	EVALPR	M/up and Run # 7 MDT/GR.
	09:00	15:00	6	F	P	a	EVALPR	M/up and Run # 8 VSP.
	15:00	15:30	0,5	F	P	a	EVALPR	Rig down Schlumberger
	15:30	17:00	1,5	L	P	b	RDMO	M/up diverter sub & R I H on 5" D. P. to 1500m
	17:00	18:30	1,5	L	P	c	RDMO	Rig up cmt. hose assy. Circ. bottoms up & circ. out gas. Max gas 17.8 %.
	18:30	19:30	1	L	P	c	RDMO	Press test cmt. line 200 bar. Set a balanced plug from 1500m to 1300 m, pump 5m^3 water ahead. Pumped 7.32 m^3 of 1.9 sg cement, pump 1.85 m^3 water behind to balance plug. Displace with 8.6 m^3 1.30 sg formate mud.
	19:30	20:00	0,5	L	P	b	RDMO	Pull back 8 stands to 1260 m.
	20:00	21:00	1	L	P	c	RDMO	Circ. bottoms up dump 3.8 m^3 contaminated mud.
	21:00	22:00	1	L	P	c	RDMO	Pump 5 m^3 water ahead. Mix and pump 14.7 m^3 of 1.9 sg, pumped 1.83 m^3 water behind. Displaced with 4.6 m^3 of 1.3 sg mud.
	22:00	23:00	1	L	P	b	RDMO	Pull back to 710 m.
	23:00	00:00	1	L	P	c	RDMO	Circ. bottoms up. Dump 2 m^3 contaminated mud.
03-okt-00	00:00	01:00	1	L	P	b	RDMO	POOH w/ cmt. stinger.
	01:00	02:00	1	L	P	d	RDMO	M / up 9 5/8" csg. cutter on 5 1/2" std. & Marine Swivel on a 5 1/2" std. & rack back in derrick.
	02:00	03:30	1,5	L	P	d	RDMO	L/ out excess 6 1/2" DCs from Derrick to make space
	03:30	04:30	1	L	P	b	RDMO	M / up 8 1/2" bit. RIH to 700m.

NORSK AGIP

Operations Summary Report

Well Name:	7122/7-1	Start:	14.09.00
Contractor Name:	TRANSOCEAN	End:	05.10.00
Rig name:	TRANSOCEAN ARCTIC	Spud:	16.09.00

Date	From	To	Hours	Code 1	Code 2	Sub Code	Phase	Description of Operations
03-okt-00 (cont.)	04:30	07:30	3	L	P	c	RDMO	Wash down from 700m to 956m, no hard cmt.
	07:30	08:30	1	L	P	c	RDMO	Circ. bottoms up. No cmt. to surface.
	08:30	09:00	0,5	L	P	c	RDMO	Cont. to wash down, tag cmt at 956m & weight test to 10 ton.
	09:00	10:00	1	L	P	f	RDMO	Test cmt. lines to 200bar, test cmt. plug to 168bar OK.
	10:00	11:30	1,5	L	P	b	RDMO	POOH. L/ down x/o, bit, & bit sub.
	11:30	14:00	2,5	L	P	d	RDMO	M / up wear bushing retrieving tool w/ jet sub, RIH wash well head & retrieve wear bushing. L / down retrieving tool.
	14:00	16:30	2,5	L	P	d	RDMO	M / up seal assy. retrieving tool w/ jet sub, RIH wash wellhead area, Retrieve seal assy. POH. Lay down retrieving tool & jet sub.
	16:30	17:30	1	L	P	b	RDMO	R I H w/ 9 5/8" csg. cutter, install Marine Swivel & cont. to R I H to 543m
	17:30	19:00	1,5	L	P	b	RDMO	Space out and cut casing at 543m (3 min to cut), flow checked well stable, POOH & laid down csg. cutter.
	19:00	20:00	1	L	P	d	RDMO	M / up 9 5/8" spear assy, & RIH & latch on to well head.
	20:00	22:30	2,5	L	P	c	RDMO	Pull casing free w/ compensator w/ 10 ton. Max. overpull. Observe well static. Pull 2 stds, install kelly cock due to flow back. Circ. bottoms up, max gas 7.1 %. Flow checked well not static. Circ. bottoms up max. gas 0.7 %, flow check OK.
	22:30	23:00	0,5	L	P	c	RDMO	POOH w/ 10 joints, one cut off piece, and hanger joint of 9 5/8" casing.
	23:00	00:00	1	L	P	f	RDMO	Prepare to lay down csg. Held pre safety meeting & lay out 9 5/8" csg.
04-okt-00	00:00	01:00	1	L	P	e	RDMO	Lay out 10 joints plus 1 cut of joint and hanger joint of 9 5/8" casing.
	01:00	02:00	1	L	P	b	RDMO	M / up div. tool on 5" drill pipe and RIH to 620m.
	02:00	02:30	0,5	L	P	c	RDMO	Circ. bottoms up. Max gas 2 86%.
	02:30	04:00	1,5	L	P	c	RDMO	Set plug #3. Pump 5 m^3 water spacer ahead, mix & pump 23.12 m^3 of 1.95 sg cement as recipe, pump ,27m^3 water behind. Displace with 2.8 m^3 of 1.30 sg mud.
	04:00	04:30	0,5	L	P	b	RDMO	Pull back to 420m slowly.
	04:30	05:30	1	L	P	c	RDMO	Pump 5 m^3 Hi-Vis & displace w/ seawater, displace hole, raiser, flush choke / kill lines.
	05:30	06:30	1	L	P	b	RDMO	POOH & lay out diverter tool.
	06:30	07:00	0,5	L	P	f	RDMO	Cut & slip 33m drlg. line.
	07:00	09:00	2	L	P	d	RDMO	While waiting on cmt. lay down from the derrick, spear assy., bumper subs & marine swivel assy. x/o's & 3 x 6 1/2" DCs.
	09:00	11:00	2	I	P	b	RDMO	While waiting on cement. Held safety meeting & prepare to pull BOP, pressure test choke & Kill lines 1035 bar – OK.
	11:00	12:00	1	L	P	f	RDMO	Test # 3 Cmt. plug to 105 bar OK.
	12:00	14:30	2,5	I	P	b	RDMO	Lay down diverter. Unlatch well head connector & pull BOP over guide posts, disconnect choke & kill saddles from slip joint, disconnect & pull # 3 guide line to surface, hung off support ring.
	14:30	00:00	9,5	I	P	b	RDMO	Lay down slip joint & pull BOP / raiser up in to moon pool area, land BOP on skid, disconnect riser joint & prepare to skid BOP.
05-okt-00	00:00	01:00	1	I	P	b	RDMO	Rigged down BOP handling equipment.
	01:00	01:30	0,5	C	P	b	RDMO	P/U and racked 30" wellhead housing running tool.
	01:30	03:00	1,5	L	P	a	RDMO	Made up 20 x 30" cutting assembly, motor and MOST tool.
	03:00	05:00	2	L	P	a	RDMO	RIH w/ cutting assembly. Stabbed in with same.
	05:00	07:00	2	L	P	a	RDMO	Cut 20 & 30" casing at 411 m.
	07:00	09:00	2	L	P	a	RDMO	Engaged MOST tool and attempted to pull stump free w/ 200 t overpull, no go.
	09:00	10:30	1,5	L	P	a	RDMO	Continued cutting 20 & 30" casings at 411 m.

NORSK AGIP

Operations Summary Report

Well Name:	7122/7-1	Start:	14.09.00
Contractor Name:	TRANSOCEAN	End:	05.10.00
Rig name:	TRANSOCEAN ARCTIC	Spud:	16.09.00

Date	From	To	Hours	Code 1	Code 2	Sub Code	Phase	Description of Operations
05-okt-00 (cont.)	10:30	11:00	0,5	L	P	e	RDMO	Pulled stumps free without overpull. Pulled csg and RGB. Only small amounts of cement found outside of 30". 30” x 20" annulus found to be well cemented.
	11:00	23:20	12,33	M	P	d	RDMO	Anchor handling. Deballasted rig to transit draft. Anchor # 6 on bolster at 1355 hrs. Anchor # 2 on bolster at 1425 hrs. Anchor # 3 on bolster at 1630 hrs. Anchor # 7 on bolster at 1645 hrs. Changed chaser wire. Anchor # 1 on bolster at 1850 hrs. Changed chaser wire. Anchor # 5 on bolster at 2020 hrs. Changed chaser wire. Anchor # 4 on bolster at 2245 hrs. Anchor # 8 on bolster at 2300 hrs. End of well, started transit towards new location 7019/1-1 at 2320 hrs.

3.4 Technical Information and Reports

3.4.1 Bit Record

Well: 7122/7-1 Spud date: Sept. 16, 2000
Rig: Transocean Arctic Release date: Oct. 5, 2000

Bit no.	Bit size inches	Bit make	Bit type	Serial Number	IADC Code	Depth in m	Depth out m	Drilled interval m	Rotation hours	ROP m/hr	WOB (min/max) ton	RPM (min/ma rpm
1	17,5	Smith	10M	LK8568	435	405	481	76	16	4,75	1/10	60/100
2	26	Smith	MSDSSHC	LR4975	115	481	483	2	0,5	4,00		
3	9,875	Smith	FGSS+2C	LX9678	117	483	690	207	10	20,70	2/10	100/18
2rr1	26	Smith	MSDSSHC	LR4975	115	483	688	205	15,5	13,23	1/15	120/12
1rr1	17,5	Smith	10M	LK8568	435	688	693	5	0,5	10,00	15/20	110/12
4	12,3	Smith	15GIDPD	LW1734	517	693	1063	370	31,5	11,75	5/20	90/12
5	8,5	Smith	MF15DODPD	LM0598	447	1063	1133	70	5	14,00	8/15	80/9
6	8,5	Christ	URC 478 G8	1904433	CORE	1133	1136	3	2	1,50	5/10	60/9
7	8,5	H/C	ARC 425C3	1209461	CORE	1136	1151	15	7	2,14	5/10	60/9
7rr1	8,5	H/C	ARC 425C3	1209461	CORE	1151	1178	27	10	2,70	10/12	80/11
8	8,5	DPI	PCD	1963040		1178	1524	346	29	11,93	12/14	110/12

Bit no.	Bit size inches	Jet size in 1/32"	T.F.A. mm2	Pump output lpm	Pump pressure bar	deltaP Bit kPa	HHP kW/cm2	Jet vel. m/min	Mud type	Mud weight sg
1	17,5	18/18/18/15	592	4500	0	10596	3	127	Spud Mud	1,20
2	26	22/22/22	718						Spud Mud	
3	9,875	18/18/18/15	592	3500	120	5502	4	98	Spud Mud	1,03
rr2	26	22/22/22/15	830	3500	150	2994		70	Spud Mud	1,10
rr1	17,5	18/18/18/15	592	2800	110	3521	1	79	Spud Mud	1,03
4	12,25	16/16/16/13	464	2400	140	5328	2	86	Formate/Pol	1,30
5	8,5	14/14/14	291	3200	150	24055	23	183	Formate/Pol	1,30
6	8,5			650	27				Formate/Pol	1,30
7	8,5			650	87				Formate/Pol	1,30
rr7	8,5			950	35				Formate/Pol	1,30
8	8,5	12/12/12/12/11/11	525	2400	185	4164	3	76	Formate/Pol	1,30

3.4.2 BHA Record

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 36" hole	**1**	**1**	**15-sep-00**	**16-sep-00**	**405**	**481**

Description	Number	OD	ID	Length
Bit	1	17,50		
Hole Opener	1	36,00	2,81	3,83
Bit Sub	1	9,94	3,00	0,37
NMDC	1	9,50	2,81	13,59
Cross Over	1	9,50	2,81	0,9
Spiral Drill Collar	6	8,00	2,88	53,7
Jar - Eastman Hyd.	1	8,00	2,81	9,78
Spiral Drill Collar	2	8,00	2,81	18,38
Acc - Wilson	1	8,00	2,81	10,25
Spiral Drill Collar	2	8,00	2,81	18,18
Cross Over	1	8,00	3,50	1,17
H.W.D.P.	9	5,50	3,25	82,26
			Total length	**212,41**

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill out cmt. 30"	**2**	**2**	**17-sep-00**	**18-sep-00**	**481**	**483**

Description	Number	OD	ID	Length
Bit	1	26,00		
Bit Sub	1	9,50	2,75	0,87
NMDC	1	9,50	3,00	8,96
Drill Collar	2	9,50	2,81	18,03
Cross Over	1	9,50	2,30	0,9
Drill Collar	6	8,00	2,81	53,7
Jar - Eastman Hyd.	1	8,00	2,00	9,78
Drill Collar	2	8,00	2,81	18,38
Acc - Wilson	1	8,00	2,81	10,25
Drill Collar	2	8,00	2,81	18,18
Cross Over	1	8,00	3,50	1,17
H.W.D.P.	9	5,50	3,63	82,26
			Total length	**222,48**

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Pilot hole	**3**	**3**	**18-sep-00**	**18-sep-00**	**483**	**690**

Description	Number	OD	ID	Length
Bit	1	9,875		
Stab (NB) 9 7/8" FG	1	8,00	2,75	0,89
M.W.D.	2	8,25	3,00	17,58
Stab (IB) 9 7/8" FG	1	8,00	2,75	1,9
Drill Collar	1	8,00	2,81	9,44
Stab (IB) 9 7/8" FG	1	8,00	2,75	1,72
Drill Collar	5	8,00	2,81	44,26
Jar	1	8,00	2,81	9,78
Drill Collar	2	8,00	2,81	18,38
Accelerator	1	8,00	2,81	10,25
Drill Collar	2	8,00	2,81	18,18
Cross Over	1	8,00	3,00	1,17
H.W.D.P.	9	5,50	3,63	82,26
			Total length	**215,81**

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Open up 9 7/8" hole to 26"	**4**	**rr2**	**18-sep-00**	**19-sep-00**	**690**	**690**

Description	Number	OD	ID	Length
Bit	1	26,00		
Bit Sub	1	9,50	2,75	0,87
Stabilizer	1	9,50	2,81	1,88
NMDC	1	9,50	3,00	8,96
Stabilizer	1	9,50	2,81	2,46
Drill Collar	2	9,50	2,81	18,03
Stabilizer	1	9,50	2,81	2,27
Cross Over	1	9,50	2,81	0,9
M.W.D.	1	8,25	3,00	17,58
Drill Collar	9	8,00	2,81	82,35
Jar	1	8,00	2,81	9,78
Drill Collar	2	8,00	2,81	18,38
Accelerator	1	8,00	2,81	10,25
Drill Collar	2	8,00	2,81	18,18
Cross Over	1	8,00	3,50	1,17
H.W.D.P.	15	5,50	3,63	137,21
			Total length	**330,27**

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill out 20" csg	**5**	**rr1**	**21-sep-00**	**22-sep-00**	**690**	**693**

Description	Number	OD	ID	Length
Bit	1	17,50		
Bit Sub	1	9,50	2,81	0,87
Cross Over	1	9,50	2,81	0,9
Drill Collar	6	8,00	2,81	53,7
Jar	1	8,00	2,81	9,78
Drill Collar	2	8,00	2,81	18,38
Accelerator	1	8,00	2,81	10,25
Drill Collar	2	8,00	2,81	18,18
Cross Over	1	8,00	3,50	1,17
H.W.D.P.	15	5,50	3,63	137,21
			Total length	**250,44**

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
12 1/4" BHA	**6**	**4**	**22-sep-00**	**23-sep-00**	**693**	**1063**

Description	Number	OD	ID	Length
Bit	1	12,25		
Roller reamer	1	12,25	3,00	2,17
M.W.D.	1	8,25	3,00	17,58
Roller reamer	1	12,25	3,00	2,27
LWD	1	8,00	3,00	10,02
NMDC	1	8,00	2,94	9,44
Roller reamer	1	12,25	3,00	2,89
Drill Collar	9	8,00	2,81	82,35
Jar	1	8,00	2,81	9,78
Drill Collar	1	8,00	2,81	18,38
Accelerator	1	8,00	2,81	10,25
Drill Collar	2	8,00	2,81	18,18
Cross Over	1	8,00	2,81	1,17
H.W.D.P.	15	5,50	3,63	137,21
			Total length	**321,69**

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 8 1/2" hole	**7**	**5**	**25-sep-00**	**25-sep-00**	**1063**	**1133**

Description	Number	OD	ID	Length
Bit	1	8,50		
Roller reamer	1	6,50	3,81	2,17
M.W.D.	1	6,50	3,81	17,58
Roller reamer	1	6,50	3,00	2,27
LWD	1	6,50	3,81	10,02
NMDC	1	6,50	2,94	9,44
Roller reamer	1	6,50	3,00	2,89
Drill Collar	9	6,50	2,81	82,35
Jar	1	6,50	2,81	9,78
Drill Collar	1	6,50	2,81	18,38
Accelerator	1	6,50	2,81	10,25
Drill Collar	2	6,50	2,81	18,18
Cross Over	1	6,50	2,81	1,17
H.W.D.P.	15	5,50	3,63	137,21
			Total length	**321,69**

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Coring	**8**	**6**	**25-sep-00**	**26-sep-00**	**1133**	**1151**

Description	Number	OD	ID	Length
Bit	1	8,50		
Cross Over	1	6,25	5,65	0,3
Stab (IB) 8 1/2" FG	1	6,00	2,81	1,22
Core Barrel	1	6,75	5,38	7,93
Stab (IB) 8 1/2" FG	0	6,00	2,00	1,22
Core Barrel	1	6,75	5,38	7,93
Stab (IB) 8 1/2" FG	1	6,75	5,38	1,22
Core Barrel	1	6,75	5,38	7,93
Stab (IB) 8 1/2" FG	1	6,75	5,38	1,22
Cross Over	1	6,75	3,16	0,71
Drill Collar	1	6,50	2,75	9,44
Stab (IB) 8 1/2" FG	1	6,50	2,81	0,55
Drill Collar	11	6,50	2,81	103,38
Jar	1	6,50	2,50	9,43
Drill Collar	2	6,50	2,50	18,9
Accelerator	1	6,50	2,75	10,19
Drill Collar	2	6,50	2,50	18,74
H.W.D.P.	12	5,00	3,00	109,4
			Total length	**309,71**

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Coring	**9**	**7**	**26-sep-00**	**26-sep-00**	**1136**	**1151**

Description	Number	OD	ID	Length
Bit	1	8,50		
Cross Over	1	6,25	5,65	0,3
Stab (IB) 8 1/2" FG	1	6,00	2,81	1,22
Core Barrel	1	6,75	5,38	7,93
Stab (IB) 8 1/2" FG	0	6,00	2,00	1,22
Core Barrel	1	6,75	5,38	7,93
Stab (IB) 8 1/2" FG	1	6,75	5,38	1,22
Core Barrel	1	6,75	5,38	7,93
Stab (IB) 8 1/2" FG	1	6,75	5,38	1,22
Cross Over	1	6,75	3,16	0,71
Drill Collar	1	6,50	2,75	9,44
Stab (IB) 8 1/2" FG	1	6,50	2,81	0,55
Drill Collar	11	6,50	2,81	103,38
Jar	1	6,50	2,50	9,43
Drill Collar	2	6,50	2,50	18,9
Accelerator	1	6,50	2,75	10,19
Drill Collar	2	6,50	2,50	18,74
H.W.D.P.	12	5,00	3,00	109,4
			Total length	**309,71**

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 8 1/2" hole	**10**	**8**	**27-sep-00**	**29-sep-00**	**1178**	**1524**

Description	Number	OD	ID	Length
Bit	1	8,50		0,42
Roller reamer	1	6,50	3,81	2,17
M.W.D.	1	6,50	3,81	17,58
Roller reamer	1	6,50	3,00	2,22
NMDC	1	6,50	2,94	9,46
Drill Collar	1	6,50	2,81	9,44
Roller reamer	1	6,50	3,00	2,14
Drill Collar	11	6,50	2,81	103,38
Jar	1	6,50	2,81	9,43
Drill Collar	2	6,50	2,81	18,9
Accelerator	1	6,50	2,81	10,19
Drill Collar	2	6,50	2,81	18,74
Crossover	1	6,35	3,06	0,8
H.W.D.P.	12	5,50	3,63	109,4
			Total length	**313,85**

3.4.3 Casing Data Summary

OD	30"	20"	9 5/8"
WEIGHT (PPF)	310	133	53.5
GRADE	X-52	X-56	P-110
CONNECTION	ST-2B	RL-4S	Antares MS
PIPE ID (inches)	27	18.730	8.535
PIPE DRIFT (inches)	27	18.542	8.5
CONN. ID (inches)	28	18.63	8.5
BURST RATING (bar)	N/A	211	751
COLLAPSE RATING (bar)	N/A	103	547
TENSION RATING (ton)	N/A	964	776
BURST S.F.	N/A	2.19	4.23
MINIMUM S.F.	N/A	1.05	1.1
COLLAPSE S.F.	N/A	1.45	7.99
MINIMUM S.F.	N/A	1.1	1.1
TENSION S.F.	N/A	2.40	8.23
TENSION S.F.	N/A	1.7	1.8
CASING TOP (m)	404 m	404	404
CASING BTM. (m)	478	680	1056
CASING LENGTH (m)	74	276	652

3.4.4 Leak-Off Test Results

In well 7122/7-1 the following leak-off tests were made:

1. After drilling out of the 20" shoe set at 680 m a Leak-Off Test was performed to an equivalent mud weight of 1.56 sg.

2. After drilling out of the 9 5/8" shoe set at 1056 m a Leak-Off Test was performed to an equivalent mud weight of 2.27 sg. (When the test had reached a pressure against the formation equivalent to 2.27 sg, a leak-off into the formation had still not been achieved and it was at this point decided to terminate the test. This test was therefore the equivalent of a Formation Integrity Test).

3.4.5 Cementing Reports

3.4.5.1 30" Conductor Pipe

Well 7122/7-1	GENERAL DATA				30" casing
SHOE DEPTH	**478** m-RKB	**30** CSG - I.D.=	**28,000**	WT=	**310,00** ppf
SEABED	**405** m-RKB	OH - I.D.=	**36,000**		
HOLE SIZE	**36** in				
EXCESS IN OPEN HOLE	**198** %	FRAC.GRAD @ SHOE	**1,33** SG-EMW		
TOP CMT LEAD SLURRY	**405** m-RKB	FG @ ML	**1,03** SG-EMW		
TOP CMT TAIL SLURRY	**461** m-RKB	MUD WEIGHT (SW)	**1,03** SG		
B.H.S.T.	**8** Deg C	WATER DEPTH	**382** m		

TOTAL DRY CMT REQUIRED	>>>	39,4 ton	<<<

SLURRY VOLUME CALCULATION				
ANNULAR VOLUME CSG-OPEN HOLE	200,66 l/m =	14,65 m3.	517,2 Cuft
EXCESS OVER THEOR. OPEN HOLE ANN.VOLUME	397,30 l/m =	29,00 m3.	1 024,1 Cuft
ANNULAR VOLUME CSG-CSG	200,66 l/m =	0,00 m3.	0,0 Cuft
5 m INTERNAL VOL. (SHOE-COLL)	397,26 l/m =	1,99 m3.	70,1 Cuft
TOTAL SLURRY VOLUME =		**45,64** m3.	1 611,4 Cuft

SPACERS

TYPE : **SEA WATER**

CEMENT SLURRY COMPOSITION

LEAD SLURRY @ **1,56 SG** **F/** **461** **TO** **405 m.**				
SLURRY VOLUME	**56** m of ANNULUS + OPEN HOLE EXCESS		**33,49 m3.**	**1 182,4 Cuft**
"G" CEMENT Yield	**129,42** l/100kg	0,773 ton/m3	25,87 ton	606,8 Sx
RETARDER	**0,00** l/100kg		0,00 liter	0,0 Gall
NF-6/ANTIFOAM	**0,10** l/100kg		25,87 liter	6,8 Gall
ECONOLITE/EXTENDER	**3,20** l/100kg		827,95 liter	219,0 Gall
SEAWATER MIXING	**95,07** l/100kg		24,60 m3.	154,7 Bbl
TOTAL MIX FLUID	**98,37** l/100kg		25,45 m3.	160,1 Bbl
ESTIMATED TICKENING TIME @ 70 BC hr.min	**> 6**			

TAIL SLURRY @ **1,95 SG** **F/** **478** **TO** **461 m.**				
SLURRY VOLUME	**17** m of ANNULUS		**10,17 m3.**	**358,9 Cuft**
"G" CEMENT Yield	**75,06** l/100kg	1,332 ton/m3	13,54 ton	317,7 Sx
NF-6/ANTIFOAM	**0,10** l/100kg		13,54 liter	3,6 Gall
DISPERSANT	**0,00** l/100kg		0,00 liter	0,0 Gall
CaCl2/ACCELERATOR	**4,35** l/100kg		589,11 liter	155,8 Gall
SEAWATER MIXING	**39,56** l/100kg		5,36 m3.	33,7 Bbl
TOTAL MIX FLUID	**44,01** l/100kg		5,96 m3.	37,5 Bbl
ESTIMATED TICKENING TIME @ 70 BC hr.min	**+/- 3**			

CEMENTING TECHNIQUE : 5" DP INNER STRING STAB IN SHOE

CMT SLURRY HYROSTATIC GRADIENT : EVALUATION

FRACTURE-P @ NEW SHOE	62,34 Bar	904 Psi
HYDRO-P @ MUD LINE	38,58 Bar	560 Psi
CMT HYDRO-P @ NEW SHOE	50,40 Bar	731 Psi
MIN. PRESSURE MARGIN AT NEW SHOE AT THE END OF THE CEMENT JOB	11,94 Bar	173 Psi

3.4.5.2 20" Casing

Well 7122/7-1	GENERAL DATA					20" casing
SHOE DEPTH	**680** m-RKB	**20** CSG - I.D.=	**18,730**	WT=	**133,00** ppf	
PREVIOUS CASING	**478** m-RKB	**30** CSG - I.D.=	**28,000**	WT=	**310,00** ppf	
HOLE SIZE	**26,00** in					
EXCESS (Lead slurry)	**59** %	FRAC.GRAD @ SHOE	**1,56**	SG-EMW		
TOP CMT LEAD SLURRY	**405** m-RKB	FG @ PREVIOUS CSG	**1,33**	SG-EMW		
TOP CMT TAIL SLURRY	**593** m-RKB	MUD WEIGHT	**1,03**	SG		
B.H.S.T.	**13** Deg C					

TOTAL DRY CMT REQUIRED >>>	**55,6 ton**	<<<

SLURRY VOLUME CALCULATION			
ANNULAR VOLUME CSG-OPEN HOLE 139,85 l/m =	28,25 m3.	997,5 Cuft
EXCESS OVER THEOR. OPEN HOLE ANN.VOLUME	16,67 m3.	588,5 Cuft
ANNULAR VOLUME CSG-CSG 194,58 l/m =	14,20 m3.	501,5 Cuft
13 m INTERNAL VOL. (SHOE-COLL) 177,76 l/m =	2,31 m3.	81,6 Cuft
TOTAL SLURRY VOLUME =	**61,43** m3.	2 169,2 Cuft

SPACERS

TYPE: Circulate one casing volume of mud prior to cementing

CEMENT SLURRY COMPOSITION

LEAD SLURRY @ **1,56 SG** **F/** **593** **TO** **405 m.**			
SLURRY VOLUME **188** m of ANNULUS + EXCESS	**46,95 m3.**	**1 658,0 Cuft**
"G" CEMENT Yield **129,42** l/100kg 0,773 ton/m3	36,28 ton	850,9 Sx
ECONOLITE **3,20** l/100kg	1160,98 liter	307,1 Gall
HR-4L/RETARDER **0,00** l/100kg	0,00 liter	0,0 Gall
NF-6/DEFOAMER **0,10** l/100kg	36,28 liter	9,6 Gall
SEAWATER **95,07** l/100kg	34,49 m3.	216,9 Bbl
TOTAL MIX FLUID **98,37** l/100kg	35,69 m3.	224,5 Bbl
ESTIMATED TICKENING TIME @ 70 BC hr.min **> 6**		

TAIL SLURRY @ **1,92 SG** **F/** **680** **TO** **593 m.**		
SLURRY VOLUME **87** m of ANNULUS+INT.VOL.(SHOE-COLL)	**14,48 m3.**	**511,2 Cuft**
"G" CEMENT Yield **75,07** l/100kg 1,332 ton/m3	19,29 ton	452,4 Sx
HR-4L/RETARDER **0,70** l/100kg	135,00 liter	35,7 Gall
NF-6/DEFOAMER **0,10** l/100kg	19,29 liter	5,1 Gall
DRLG WATER MIXING **43,22** l/100kg	8,34 m3.	52,4 Bbl
TOTAL MIX FLUID **44,02** l/100kg	8,49 m3.	53,4 Bbl
ESTIMATED TICKENING TIME @ 70 BC hr.min **3 - 4**		

CEMENTING TECHNIQUE : CONVENTIONAL DOUBLE PLUG CEMENTING

CMT SLURRY HYROSTATIC GRADIENT : EVALUATION

FRACTURE-P @ PREVIOUS SHOE	62,34 Bar	904 Psi
FRACTURE-P @ NEW SHOE	104,02 Bar	1509 Psi
CMT HYDRO-P @ PREV. SHOE	52,09 Bar	756 Psi
CMT HYDRO-P @ NEW SHOE	86,08 Bar	1249 Psi
MIN. PRESSURE MARGIN AT PREV. SHOE AT THE END OF THE CEMENT JOB	10,25 Bar	149 Psi
MIN. PRESSURE MARGIN AT NEW SHOE AT THE END OF THE CEMENT JOB	17,94 Bar	260 Psi

3.4.5.3 9 5/8" Casing

Well 7122/7-1	GENERAL DATA					9 5/8" casing
SHOE DEPTH	**1056** m-RKB	**9,625** CSG	- I.D.=	**8,535**	WT=	**53,50** ppf
PREVIOUS CASING	**680** m-RKB	**20** CSG	- I.D.=	**18,730**	WT=	**133,00** ppf
HOLE SIZE	**12,25** in					
EXCESS (Lead slurry)	**20** %	FRAC.GRAD @ SHOE		**2,27**	SG-EMW	
TOP CMT LEAD SLURRY	**610** m-RKB	FG @ PREVIOUS CSG		**1,56**	SG-EMW	
TOP CMT TAIL SLURRY	**752** m-RKB	MUD WEIGHT		**1,30**	SG	
B.H.S.T.	**27** Deg C					

TOTAL DRY CMT REQUIRED	>>>	**24,5 ton**	<<<

SLURRY VOLUME CALCULATION			
ANNULAR VOLUME CSG-OPEN HOLE	29,10 l/m =	10,94 m3.	386,3 Cuft
EXCESS OVER THEOR. OPEN HOLE ANN.VOLUME		2,19 m3.	77,3 Cuft
ANNULAR VOLUME CSG-CSG	130,82 l/m =	9,16 m3.	323,3 Cuft
42 m INTERNAL VOL. (SHOE-COLL)	36,91 l/m =	1,55 m3.	54,7 Cuft
	TOTAL SLURRY VOLUME =	**23,84** m3.	841,6 Cuft

SPACERS				LENGTH
TYPE : **Mud**	**1,30** SG	VOL. =	**45,00** m3.	344,0 m.

CEMENT SLURRY COMPOSITION

LEAD SLURRY @ **1,56 SG**	**F/** **752**	**TO** **610 m.**		
SLURRY VOLUME	**142** m of ANNULUS + EXCESS		**13,44 m3.**	**474,6 Cuft**
"G" CEMENT Yield	**129,40** l/100kg	0,773 ton/m3	10,39 ton	243,6 Sx
ECONOLITE	**3,20** l/100kg		332,37 liter	87,9 Gall
NF-6/DEFOAMER	**0,10** l/100kg		10,39 liter	2,7 Gall
SEAWATER	**95,05** l/100kg		9,87 m3.	62,1 Bbl
TOTAL MIX FLUID	**98,35** l/100kg		10,22 m3.	64,2 Bbl
ESTIMATED TICKENING TIME @ 70 BC hr.min	**> 6**			

TAIL SLURRY @ **1,92 SG**	**F/** **1056**	**TO** **752 m.**		
SLURRY VOLUME	**304** m of ANNULUS+INT.VOL.(SHOE-COLL)		**10,40 m3.**	**367,1 Cuft**
"G" CEMENT Yield	**73,69** l/100kg	1,357 ton/m3	14,11 ton	331,0 Sx
HR-4L/RETARDER	**0,70** l/100kg		98,75 liter	26,1 Gall
NF-6/DEFOAMER	**0,10** l/100kg		14,11 liter	3,7 Gall
DRLG WATER MIXING	**42,53** l/100kg		6,00 m3.	37,7 Bbl
TOTAL MIX FLUID	**42,63** l/100kg		6,01 m3.	37,8 Bbl
ESTIMATED TICKENING TIME @ 70 BC hr.min	**3 - 4**			

CEMENTING TECHNIQUE : CONVENTIONAL DOUBLE PLUG CEMENTING

CMT SLURRY HYROSTATIC GRADIENT : EVALUATION		
FRACTURE-P @ PREVIOUS SHOE	104,02 Bar	1509 Psi
FRACTURE-P @ NEW SHOE	235,06 Bar	3409 Psi
CMT HYDRO-P @ PREV. SHOE	88,51 Bar	1284 Psi
CMT HYDRO-P @ NEW SHOE	156,78 Bar	2274 Psi
MIN. PRESSURE MARGIN AT PREV. SHOE AT THE END OF THE CEMENT JOB	15,52 Bar	225 Psi
MIN. PRESSURE MARGIN AT NEW SHOE AT THE END OF THE CEMENT JOB	78,28 Bar	1135 Psi

3.4.6 Mud Summary by Phase

Mud summary for the 36" hole section

The 36" hole section was drilled using seawater. High viscosity sweeps were used to keep the hole clean while drilling this section. After drilling to section TD at 481 m, the hole was circulated clean and then displaced with a 1.20 sg pre-hydrated bentonite mud. A wiper trip was made to the seabed. When running back to bottom, no fill was found. The hole was circulated with high viscous mud and again displaced to 1.20 sg pre-hydrated bentonite mud prior to pulling out for running the 30" casing string.

Mud summary for the 9 7/8" pilot hole and 26" hole section

After drilling out the 30" casing shoe with a 26" bit, a 9 7/8" pilot hole was drilled from the 30" shoe down to 690 m without any drilling problems using seawater, and with high viscosity sweeps to keep the hole clean. After making a flow check at section TD (no shallow gas detected) the pilot hole was displaced to 1.20 sg pre-hydrated bentonite mud prior to pulling out.

The pilot hole was then opening up to 26", using the same drilling fluids as for the pilot hole. When reaching section TD the hole was circulated clean and then displaced with 1.20 sg pre-hydrated bentonite mud. A wiper trip was made to the seabed. When running back to bottom, no fill was found. The 26" hole was again circulated clean and displaced to 1.20 sg pre-hydrated bentonite mud prior to pulling out for running the 20" casing string.

Mud summary for the 12 ¼" hole section

After having installed the 20" casing (shoe at 680 m), the cement in the shoe was drilled out with a 17 ½" bit. The drilling fluid in the well was then changed to 1.30 sg Formate brine where XC polymer and PAC was used for obtaining viscosity and to maintain rheology. After having displaced the well to the new mud, 12 ¼" hole was drilled down to 893 m where heavy losses of Formate brine over the shaker screens occurred. The mud came out on the shakers in a porridge/paste like fashion. This was caused by having drilled into a water sensitive shale before the shearing of the new mud had been completed ("fish eyes" were still seen in the mud when hitting the water sensitive shale). Changing shaker screens reduced the formate brine loss over the shakers, and as soon as the formate mud had been properly sheared the problem of the mud reacting with water sensitive formations vanished. The formate brine from then on worked very well.

The Formate brine was in itself heavy enough not to require any general addition of weighting materials. For mud pills were additional weight was required the weighting material used was ilmenite.

The 12 ¼" hole was drilled to section TD at 1063 m where high viscous sweeps of Formate mud was used to circulate the hole clean. When making a wiper trip it was necessary to backream several tight spots. Back on bottom high viscous sweeps were again used and the hole was circulated clean prior to pulling out of hole to run the 9 5/8" casing.

Mud summary for the 8 1/2" hole section

After drilling out of the 9 5/8", shoe the drilling of the 8 ½" hole section commenced with the same mud (and mud weight) as used for the 12 ¼" section. Cores were taken in the interval 1133 m – 1178 m. The 8 ½" hole was then drill to well TD at 1524 m where it was circulated clean prior to making a wiper trip. During the wiper trip it was necessary to backream several tight spots. Back on bottom the hole was circulated clean prior to pulling out for running logs. No particular drilling problems were encountered during the drilling of the 8 ½" hole.

After finishing the logging, the plugging and abandonment of the well commenced.

MUD SUMMARY REPORT

Well 7122/7-1

Day no.	TMD (m)	Hole size (in)	Mud type	MW (g/cm^3)	Viscosity (s/L)	PV (mPa*s)	YP (Pa)	Gels 10s/10m (Pa)	API WL (mL)	HTHP WL (mL)	HTHP Temp. (°C)	pH	Cl- (mg/L)	Sand (%)	TS (%)	LGS (kg/m^3)	MBT (kg/m^3)	Tot. Hard. (mg/L)	Oil (%)	Tot. Vol. (m^3)
3	481	36	Spud Mud																0	167
4	481	36	Spud Mud																0	106
5	690	9,875	Spud Mud																0	106
6	690	9,875	Spud Mud																0	106
7	690	26	Spud Mud	1,03	110														0	106
8	690	26	Spud Mud	1,03	110														0	106
9	977	12,25	FORMATE/POLYMER	1,30	50	8	3	1/2	5			9,0	5000				7		0	106
10	1063	12,25	FORMATE/POLYMER	1,30	49	10	6	1/2	8			9,0	230000			118	12		0	367
11	1063	12,25	FORMATE/POLYMER	1,30	60	10	9	2/2	7			9,0	230000		4,6	118	12		0	299
12	1133	8,5	FORMATE/POLYMER	1,30	50	11	4	1/2	7,6			11,0	230000	0,4	4,6	118	12		0	322
13	1151	8,5	FORMATE/POLYMER	1,30	51	10	5	1/2	6,2			8,5	220000	0,25	5,4	136	12		0	323
14	1189	8,5	FORMATE/POLYMER	1,30	51	10	5	1/2	7,8			9,0	205000	0,25	6,2	163	12		0	328
15	1500	8,5	FORMATE/POLYMER	1,31	50	10	5	1/2	6,7			9,0	205000	0,25	6,8	163	14		0	327
16	1524	8,5	FORMATE/POLYMER	1,31	50	10	5	1/2	6,7			9,0	205000	0,25	6,8	163	14		0	332
17	1524	8,5	FORMATE/POLYMER	1,31	50	10	5	1/2	6,7			9,0	205000	0,25	6,8	163	14		0	331
18	1524	8,5	FORMATE/POLYMER	1,31	50	10	5	1/2	6,7			9,0	205000	0,25	6,8	163	14		0	331
19	1524	8,5	FORMATE/POLYMER	1,31	50	10	5	1/2	7,2			10,0	190000	0,1	7,7	208	14		0	331
20	1524	8,5	FORMATE/POLYMER	1,31	50	9	4	1/2	9,5			10,0	195000	0,1	7,8	199	14		0	326
21	1524	8,5	FORMATE/POLYMER	1,31	50	9	4	1/2	9,5			10,0	195000	0,1	7,8	199	14		0	319
22	1524	8,5	FORMATE/POLYMER	1,31	50	9	4	1/2	9,5			10,0	195000	0,1	7,8	199	14		0	306

3.4.7 Deviation Summary

Deviation Summary
Well 7122/7-1

TMD (m)	Angle (deg.)	Azimuth (deg.)	CMT	TVD (m)	North (m)	East (m)	Horizontal distance (m)	DLS (deg./30m)	BUR (deg./30m)	TYPE
0,00	0,0	0,0	YNN	0,00	0,00	0,00	0,00	0,00	0,00	MWD
473	2,0	0,0	NNY	472,90	8,25	0,00	8,25	0,13	0,13	MSS
489	0,8	0,0	YNN	488,90	8,65	0,00	8,65	2,25	-2,25	MWD
519	1,2	239,6	YNN	518,90	8,70	-0,26	8,71	1,71	0,36	MWD
547	2,2	217,0	YNN	546,88	8,13	-0,83	8,17	1,30	1,11	MWD
576	1,1	219,0	YNN	575,87	7,46	-1,34	7,58	1,12	-1,12	MWD
605	1,1	240,9	YNN	604,87	7,11	-1,76	7,32	0,44	-0,02	MWD
634	1,4	140,0	YNN	633,86	6,70	-1,78	6,93	2,00	0,31	MWD
641	1,5	110,0	YNN	640,86	6,60	-1,64	6,80	3,24	0,43	MWD
718	1,8	270,6	YNN	717,85	6,27	-1,90	6,55	1,27	0,12	MWD
746	1,9	273,2	YNN	745,83	6,30	-2,80	6,90	0,14	0,11	MWD
775	1,9	272,6	YNN	774,82	6,35	-3,76	7,38	0,02	0,00	MWD
804	2,0	278,4	YNN	803,80	6,45	-4,75	8,01	0,23	0,10	MWD
833	1,9	278,5	YNN	832,78	6,59	-5,72	8,73	0,10	-0,10	MWD
862	2,1	279,5	YNN	861,77	6,75	-6,72	9,53	0,21	0,21	MWD
892	2,1	280,1	YNN	891,75	6,94	-7,80	10,44	0,02	0,00	MWD
921	1,8	279,2	YNN	920,73	7,10	-8,78	11,29	0,31	-0,31	MWD
950	1,5	272,8	YNN	949,72	7,20	-9,61	12,00	0,36	-0,31	MWD
978	1,4	263,8	YNN	977,71	7,18	-10,31	12,56	0,27	-0,11	MWD
1007	1,2	258,1	YNN	1006,70	7,08	-10,96	13,05	0,25	-0,21	MWD
1036	1,2	255,4	YNN	1035,70	6,94	-11,55	13,47	0,06	0,00	MWD
1050	1,2	256,0	YNN	1049,69	6,86	-11,84	13,68	0,03	0,00	MWD
1072	1,4	252,5	YNN	1071,69	6,73	-12,32	14,03	0,29	0,27	MWD
1101	2,1	253,1	YNN	1100,67	6,47	-13,16	14,67	0,72	0,72	MWD
1149	2,4	257,8	YNN	1148,64	6,00	-14,99	16,14	0,22	0,19	MWD
1179	2,5	258,1	YNN	1178,61	5,73	-16,24	17,22	0,10	0,10	MWD
1209	2,9	261,3	YNN	1208,57	5,48	-17,63	18,46	0,43	0,40	MWD
1238	3,1	268,3	YNN	1237,54	5,35	-19,14	19,87	0,43	0,21	MWD
1266	3,5	275,3	YNN	1265,49	5,40	-20,75	21,44	0,61	0,43	MWD
1295	3,8	276,3	YNN	1294,43	5,59	-22,58	23,27	0,32	0,31	MWD
1324	4,1	279,1	YNN	1323,36	5,86	-24,56	25,25	0,37	0,31	MWD
1353	4,2	282,6	YNN	1352,29	6,26	-26,62	27,35	0,28	0,10	MWD
1382	4,4	287,5	YNN	1381,20	6,82	-28,72	29,52	0,43	0,21	MWD
1411	4,7	294,6	YNN	1410,11	7,65	-30,86	31,80	0,66	0,31	MWD
1440	5,1	299,6	YNN	1439,01	8,78	-33,06	34,21	0,60	0,41	MWD
1470	5,5	303,8	YNN	1468,88	10,24	-35,42	36,87	0,56	0,40	MWD
1499	6,0	306,6	YNN	1497,73	11,92	-37,79	39,62	0,59	0,52	MWD
1512	6,2	308,4	YNN	1510,66	12,76	-38,88	40,92	0,64	0,46	MWD
Estimated values for well TD:										
1524	*6.24*	*310.5*	*YNN*	*1522.59*	*13.58*	*-39.89*	*42.14*	*0.58*	*0.10*	*Estimated*

3.5 Plug and Abandonment

3.5.1 P & A Program

Objectives:

The plugging and abandonment program for well 7122/7-1 had the following objectives:

1) Isolation of hydrocarbon bearing zones in the open hole with cement plugs to prevent flow into other permeable zones or to surface.

2) Isolation of the 20" x 9 5/8" casing annulus. To cut the casing strings a minimum of 5 m below seabed.

3) Ensure that no obstructions or debris of any kind that might cause damage or impediment to fishing, shipping or other activities would remaining on the seabed at the well site location.

Permanent plugging and abandonment of well 7122/7-1

The well 7122/7-1 was permanently plugged and abandoned as follows (ref. figure "Well 7122/7-1 Final well status" on next page):

1. Plug no. 1:
   A cement plug was set in the 8 1/2" hole from 1500 m up to 1300 m.

2. Plug no. 2:
   A cement plug was set across the 9 5/8" casing shoe from 1260 m up to 956 m.

3. The 9 5/8" casing was cut at 543 m (138 m below seabed) and retrieved.

4. Plug no. 3:
   A cement plug was set in the well from 620 m and up to 420 m (15 m below seabed).

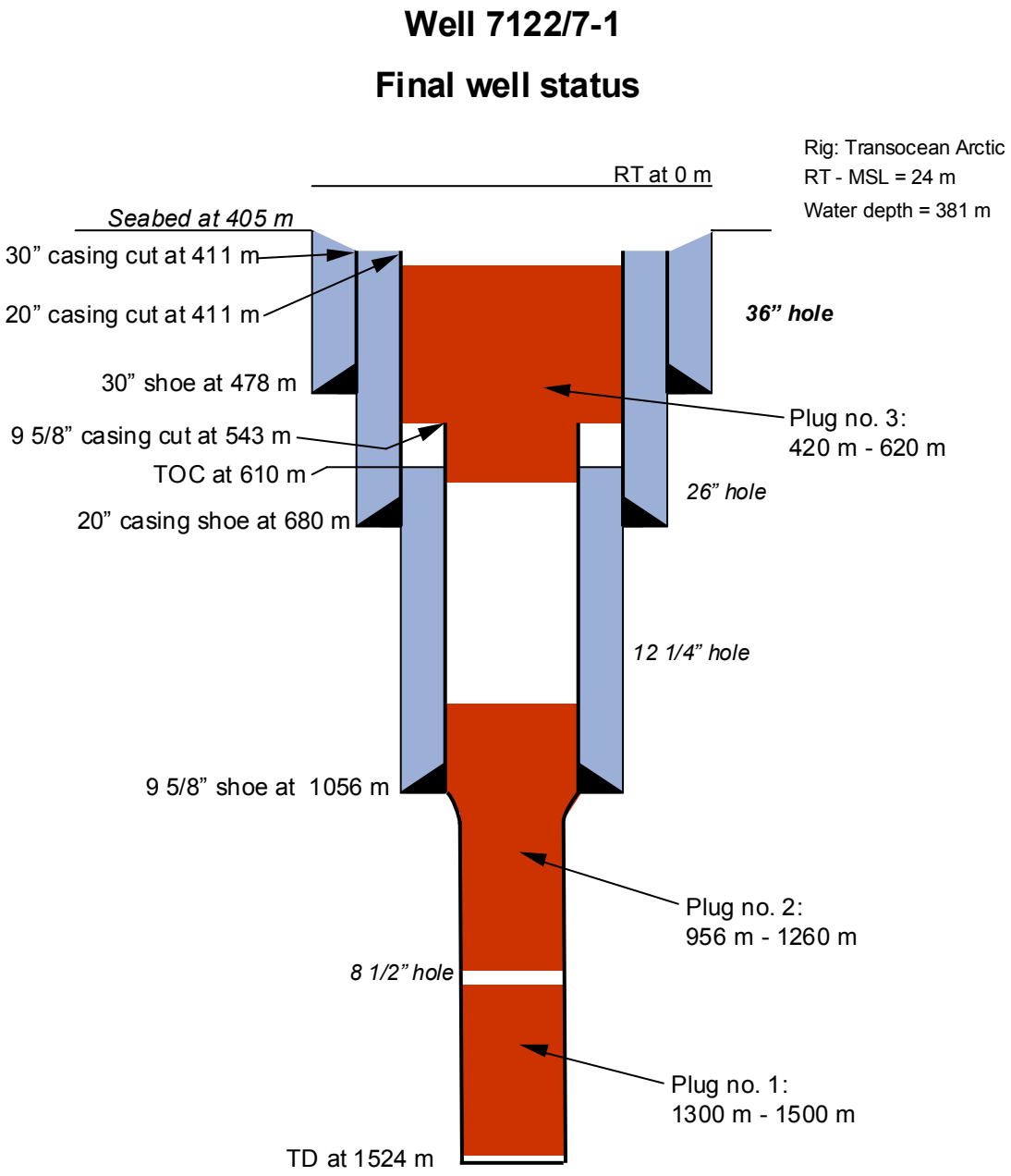
5. The 20" and 30" casing strings were cut at 411 m (6 m below seabed) and retrieved.

6. An ROV survey of the seabed within a 50 m radius around the well location was performed to ensure that no debris had been left.

Note: There was cement behind both the 30" and 20" casing strings up to seabed at 405 m.
Top of cement behind the 9 5/8" casing was at 610 m.

The BOP stack and marine riser was pulled after Plug no. 3 had been set and tested.

3.5.2 P& A Sketch



3.6 Logistics

3.6.1 Offices

The operations office was located at Norsk Agip, Forus. The main logistics coordinator was placed at Polarbase in Hammerfest while a local logistics coordinator was placed at the Aker Base, Tananger. The main logistics coordinator at Polarbase used the local coordinator at the Aker Base to handle shipments of equipment sent from Stavanger to the rig/Polarbase.

3.6.2 Base

The operating base for the rig during the drilling of well 7122/7-1 was Polarbase in Hammerfest. In Stavanger the Aker Base in Tananger was used for shipments of equipment sent from Stavanger to the rig/Polarbase.

3.6.3 Helicopter

The helicopter services were contracted from Norsk Helikopter AS.

Two helicopters were on contract, one of them fully equipped for SAR (Search and rescue).
One helicopter crew and one of the helicopters were always kept ready for operation 24 hours a day.

3.6.4 Boats

During the drilling operations on well 7122/7-1 two supply vessels were used. Changing between the two vessels, on of them was always kept at the rig as standby vessel while the other was used as supply vessel between the rig and Polarbase.

3.7 SAFETY AND ENVIRONMENT

3.7.1 Risk Analysis Summary and Implementation

Before starting the drilling operations on the well 7122/7-1 a risk analysis session was carried out and documented in a report. The report was submitted to the rig for follow-up by the drilling supervisors.

During the drilling of the well, various types of safety meetings and drills were held on the rig:

6	Pre-job Safety Meetings & Safe Job Analysis
2	BOP Drills

General Safety Meetings with the various crews were held frequently, and along with the various safety meetings a general operation meeting was held daily on the rig with key personnel to discuss upcoming operations and improvement of communications on the rig site.

Unintentional Events related to personnel safety during the drilling of the well:

1	Medical Treatment/First Aid cases
5	Near misses (related to personnel safety)

3.7.2 Discharges, Emissions and Waste

Discharges to Sea

Ilmenite	95,77 ton
Bentonite	73,5 ton
Na/K Formate Salt	142,778 ton
Mud chemicals	4,097 ton
Cement chemicals	4,5 ton
Drill cuttings	484,10 ton
Discharges to Sea	804,745 ton

Emissions to Air

	Total (rig/vessels/helicopter)
CO_2	3 178 ton
NO_x	70 ton
VOC	5 ton
CO	7 ton
N_2O	0 ton
SO_2	3 ton
$VOC/CO/N_2O/SO_2$	14 ton
Emissions to Air	3262 ton

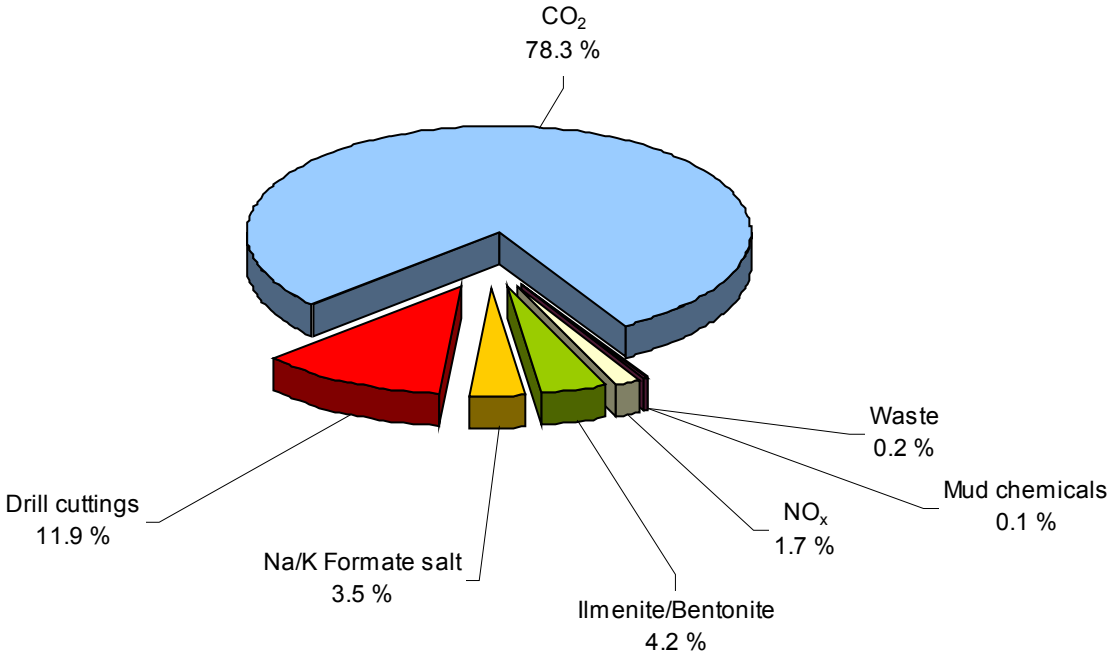
Waste returned to shore:

Metal	4,39 ton
Glass	0,06 ton
Wood	1,06 ton
Paper	1,15 ton
General	3,12 ton
Plastic	0,20 ton
Waste	9,984 ton

Special waste to approved contractor for disposal:

Empty drums	0,141 ton
Waste oil	m^3
Oily waste/rags	ton
Paint	ton
Special waste	0,141 ton
Waste total	10,125 ton

Well 7122/7-1
Discharge, Emission & Waste



3.7.3 Requirements – Accounting of Compliance

A set of requirements and goals for the 7122/7-1 operations were established prior to planning the well. The requirements were submitted to involved supervisory personnel.

Following the completion of the operations, an accounting of compliances with the established requirements/goals was made, ref. Section 4 ENCLOSURES –
"ENCLOSURE 1 7122/7-1 Requirements accounting"

4. ENCLOSURES

ENCLOSURE 1 7122/7-1 Requirements accounting

ENCLOSURE 2 7122/7-1 Composite Log

ENCLOSURE 3 7122/7-1 C.P.I.

ENCLOSURE 1 7122/7-1 REQUIREMENTS ACCOUNTING

Period: 14.09.00 to 05.10.00

Item no	Requirement / Goal	Ref. 7122/7-1 Requirement	Comments	Obtained Yes/No
1.	**Health / Medical**			
1.01	An Emergency Doctor shall be available for consultation and advice 24 hours a day.	2.1.3.1, 2.1.3.2, 2.1.3.3, 2.1.3.4,	- Established through contract with Legeberedskapsgruppen i Hammerfest.	**Yes**
	The rig shall have an authorized nurse and a first aid emergency team.	2.1.3.5	- Nurse and team on the rig. Trained in regular drills.	**Yes**
	Initial first aid treatment within 15 minutes, follow-up treatment within 45 minutes and eventual transport to hospital as soon as possible.		- No major accidents experienced. Tested in drills.	**Yes**
1.02	Mobilization of helicopter within 30 mins. from notification.	2.1.4	- Separate SAR helicopter kept standby in Hammerfest.	**Yes**
	Emergency Doctor at heliport within 45 mins. from notification, if required.	2.1.3.8	- Contract requirements both to helicopter and doctor, but not experienced.	**Yes**
1.03	Reporting injuries/occupational diseases to the authorities by the employer within 36 hours. RTV form to NPD and Stavanger Trygdekontor with copy to Norsk Agip within 3 days. Follow-up accident reporting by DRL, submitting the RTV reports to QSE.	3.5	- No RTV-cases experienced.	**-**
2.	**Safety**			
2.01	The Company shall ensure that operations are performed in compliance with statutory, Company and corporate requirements.	3.1.2.1, 3.1.1.4, 1.2.1, 3.1.1.1	- Deviations identified relative to Discharge Permit (ref. SFT report).	**No**
	Safety evaluations should be carried out on rigs and vessels to be contracted by the Company.	3.1.2.4	- Rig ensured through joint inspection and inspection by Drl. Supt. - Standby / Supply vessels checked by DRL.	**Yes** **Yes**
	Accidents and near misses shall be reported to QSE, for further reporting to relevant authorities.	3.5, 4.5	- Some reports were not received by QSE.	**No**
2.02	No single failure shall entail life-threatening situations for personnel nor significant damage to environment, material or cost effectiveness.	8.1.2, 3.1.1.5	- Barriers established in all areas identified as potentially dangerous.	**Yes**
	A person falling into the sea shall be recovered within 8 mins.	2.1.7	- Tested in drills on standby vessel and rig; 4 mins.	**Yes**
2.03	Risk assessment/safety analysis/SJA should be performed on new, critical activities. SJA should be used on operations not guided by a procedure or when deliberate deviation from a procedure is necessary.	3.1.2.3, 3.1.2.4 1.3.3, 7.	- Risk analysis of rig and operation performed. - Risk reducing measures implemented, reporting remains. - SJA used.	**Yes**
2.04	All Supply Contracts/Service Contracts regarding chemicals or chemical products must include the obligations of the supplier in accordance with Norwegian regulations.	4.3.1.2	- Req. pertaining to supplier obligations included in contracts. All dangerous goods recorded/marked in cargo manifests.	**Yes** **Yes**
	Information about dangerous and health hazardous work and substances shall be provided to the workers. Approved (through OLF's QA system) SHOC Data Sheets (Product Safety Data) and MSDS (Material Safety Data Sheet) shall be available for all chemicals onboard.	1.3.4, 4.3.1.7	- Provided by supplier, handled by Principal Enterprise and nurse (CHESS 98), followed up by Drl. Supv. - Basically OK on the rig. SFT requested ecotox (HOCNF) documentation for some products in closed circuit systems.	**Yes** **Yes**
	Personnel safety and protective equipment (CE approved) shall be available to all personnel according to the place of work.	1.3.6	- Transocean acted as Principal Enterprise and ensured compliance through their quality system.	**Yes**
	Norsk Agip's responsible personnel shall verify through inspection checks that the regulations regarding marking, handling and transportation are complied with.	4.3.1.3, 1.3.6, 4.3.1.1	- Followed up closely as LOG Supt. was situated on the base in Hammerfest.	**Yes**
2.05	The drilling unit shall be certified in accordance with International Maritime Regulations for operations in Cold Climate and hold a "Letter of Compliance" issued by the NMD.	1.3.1, 5.,	- The rig is registered and certified in Norway. Letter of Compliance is not applicable.	**Yes**
	The work places shall be protected against extreme cold and weather.	1.3.9	- Winterization relevant to WE was OK. Winterization relevant to test equipment was not complete before 01.10.00, but ready before equipment was used.	**Yes**

Item no	Requirement / Goal	Ref. 7122/7-1 Requirement	Comments	Obtained Yes/No
2.06	No offloading/loading of supply vessels shall take place during/above wind force 20 m/s (Beaufort 8), significant wave height of 6 m (sea state 6) or when Captain/Platform Manager consider work unsafe.	3.2.1	- No loading/offloading took place in bad weather.	**Yes**
2.07	Automated pipe handling shall be used with utmost care and separation of man and machine.	3.3.3	- Was in use. Some deviations/exemptions still apply, ref. NPD consent.	**Yes**
	Icy and/or slippery decks and floors shall be sprayed with sand or other material to protect against slipping.	3.3.4	- Workplaces have a heated deck, heated grating in gangways etc.	**Yes**
3.	**Emergency Preparedness**			
3.01	The Company and Main Contractor shall have compatible and co-ordinated emergency organizations including emergency press information, emergency preparedness analysis shall be performed and contingency plans for the Company's and its contractors' activities shall be prepared	2.1, 3.1.2.5	- Verified through comparisons. Emergency Preparedness Analysis performed and Contingency Plan adjusted to the Barents Sea operations. Emergency Preparedness Analysis - Oil Recovery performed and Oil Spill Contingency Plan prepared jointly under NoBaLeS for the specific wells.	**Yes**
3.02	Blow-out task force from Eni/Agip Division should be established at Norsk Agip (upon request).	2.1.1.1	- This is a formalized arrangement, but has not been tested.	**Yes**
3.03	Continuous updating of status of availability of rigs and emergency equipment should be kept.	2.1.1.2, 2.1.1.3	- "Polar Pioneer" identified for possible assistance, if required. Status list of available vessels kept by Platou and Seabroker. Status on oil recovery resources kept by QSE and NOFO/OSRL.	**Yes**
3.04	Standby vessel shall maintain station within 1 nm. from the platform endeavoring to remain within visual distance at all times and comply with the instructions for standby vessels.	2.1.11	- Standby vessel at station acc. to instructions. Documented in daily drilling reports from the rig.	**Yes**
3.05	Evacuation shall be possible in all expected weather situations during the operation period. Evacuation by helicopter shall be preferred if weather conditions and situation on the rig permit.	2.1.5.2, 2.1.5.3, 2.1.9.1, 2.1.9.2	- Not experienced, but arrangement/plans in compliance with objective. Trained through drills.	**Yes**
	Lifeboats shall be ready for lowering in 15 mins. Drilling unit shall be evacuated within 20 mins.		- Tested in drills on rig (10 mins.) and standby vessel.	**Yes**
	At least one escape way from each working area shall be kept open for 40 mins.		- Rig risk analysis indicates compliance.	**Yes**
3.06	Mobilization of the rig's emergency teams within 15 mins.	2.1.6.1	- Tested/trained through platform drills. Fire team 5 - 10 mins., mustering all personnel 10 mins.	**Yes**
	EOC mobilized and operational within 10 mins. inside office hours, communication established in 30 mins. and operational in 1 hour outside office hours.	2.1.6.2	- EOC standby system established. Table-top carried out prior to operation.	**Yes**
	EPC operational within 1 hr. inside office hours, 2 hrs. outside office hours.	2.1.6.3	- EPC not tested, but kept arranged.	**Yes**
3.07	Communication facilities shall consist of minimum:	2.1.10	- Verified through 3rd party (Norse Electonics).	**Yes**
	VHF communication with Emergency Teams on the rig. Two satellite lines to shore, one dedicated to emergencies. Dedicated lines to NPD, RCC, EPC, Base, Rig from/to EOC.		- Company satellite communication installed and co-ordinated to comply with requirements. Dedicated EOC lines.	**Yes**
	Tape recording of EOC communication.		- Recording of EOC communication out of order.	**No**
3.08	A plan for facing NGO actions of any kind against activities and/or units operated by Norsk Agip shall be developed prior to embarking on drilling activities in the Barents Sea.	2.1.11	- Response Guidelines for NGO Actions established as part of the Norsk Agip Contingency Plan.	**Yes**
	NoBaLes co-operation shall be sought.		- The system is identical to the systems of Hydro and Statoil.	**Yes**
4.	**Working Environment**			
4.01	Agreeing on Principal Enterprise and ensure that a joint working environment committee is established and functioning.	1.1.1, 1.1.2	- Ensured through contract of Principal Enterprise.	**Yes**
	A Company representative (Drl. Supervisor) shall attend safety and working environment committee meetings.	1.3.7, 3.1.1.3	- Compulsory participation for the Drl. Supv. Reported in Daily Drilling Report and documented in minutes.	**Yes**
4.02	Ensure compliance with internal control within working environment area.	1.1.4, 1.1.7, 1.1.8, 1.1.9, 1.2.4, 1.1.6	- Compatible goals and objectives for 2000 established. WE Action Plan followed up.	**Yes**
	Ensure that specific requirements to working environment are in compliance with Company policy.	1.1.3	- Compatible specific requirements to WE.	**Yes**
	A working environment survey shall be performed onboard the rig and needed improvements being mapped.	1.3.10	- Survey carried out and mapped.	**Yes**
	Ensuring compliance with working hours and periods of stay requirements.	1.1.5	- Ensured by Principal Enterprise (Transocean).	**Yes**

Item no	Requirement / Goal	Ref. 7122/7-1 Requirement	Comments	Obtained Yes/No
4.03	Noise levels shall be below levels indicated in guidelines to NPD SAM-regulations. Deviations in excess of 3 dBA shall be applied for.	1.3.8	- 7 deviations identified ref. WE Action Plan, and listed in the Application for Consent to Drill.	**Yes**
4.04	Temporary equipment designed as work places shall comply with OLF recommended guidelines for Hired Equipment and relevant parts of Ergonomic Standards.	1.3.2	- N/A.	**-**
4.05	Ensure prudent safety training of offshore personnel. Training of personnel shall meet the standards described in Norsk Agip qualification requirements. New personnel in DRL and EXP shall be given Introductory Training in acc. with established standard, and training shall be provided prior to commencing job activities. All personnel taking part in planning and execution of offshore-related activities shall be qualified, both in terms of theoretical background and experience.	1.3.5, 3.1.2.2 10. 8.1.5	- Valid safety training of offshore personnel confirmed. - OK. - Personnel were provided Introductory Training according to program. - Qualified acc. to NA Equipment & Services Specification. Key personnel's qualifications verified by DRL.	**Yes** **Yes** **Yes** **Yes**
4.06	Working hours within the various activity areas shall be reported to NPD within 15 days after expiry of each quarter. Time sheets for all contractor personnel shall be approved by drilling supervisor and submitted to DRL for further processing.	9.	- Reported to NPD by Drilling Contr., but some discrepancies. - 3rd quarter: Reported in time. 4th quarter: To be reported by NA. - Time sheets for service contractor personnel handled as described. Invoices processed by DRL.	**Yes** **Yes** **Yes**
5.	**Environment Protection**			
5.01	Acceptance criteria for pollution shall be developed as part of the general risk acceptance criteria.	4.1.2	- Included in general Risk Acceptance Criteria. Established jointly in NoBaLeS.	**Yes**
5.02	An Environment Impact Analysis shall be carried out prior to commencing drilling activities in the Barents Sea, revealing the environmental impact and potential consequences of discharges into the sea and coastal areas. Vulnerable areas, which require extra protection, shall be identified. Environmental protection shall be based on an evaluation of the environmental effects of discharges into the sea and emissions to the air.	4.2 4.1.2	- Assessed in the Barents Icewater Program and also in the Environmental Risk Analysis performed jointly under NoBaLeS. - Water based formate mud with ilmenite (no heavy metals) and sodium/potassium (no solids) as the weight agent was chosen. Remaining formate mud volumes (306 m^3) were transferred to the next well.	**Yes** **Yes**
5.03	Only standard WBM (Water Based Mud) shall be used during drilling in the Barents Sea. Environmental friendly drilling mud chemicals shall be used. Production of waste and atmospheric emissions should be reduced as much as possible. Discharges of mud should be less than 0,5 m^3 per drilled meter. Emission of CO_2 should be less than 1,2 ton per drilled meter.	3.3.2 4.1.2	- Sodium (Na) / Potassium (K) Formate mud system was used. - Mud progr. was designed to minimize environmental impact and was also focussed in the Discharge Permit Application. - System for segregation of waste in place. - Mud: 0,8 m^3 / drilled meter. - CO_2 rig: 1,84 ton / drilled meter.	**Yes** **Yes** **Yes** **No** **No**
5.04	Operational discharges should be minimized and must at all time be kept within the limits defined in the Discharge Permit from SFT (letter from SFT dated 30.06.00). Some chemicals should be sought phased out according to plan (cement chemicals/rig chemicals).	4.4	- Mud was transferred between the two wells and remaining volumes taken to shore. Mud chemicals were discharged in excess of the Discharge Permit limits. - Chemicals not phased out (e.g. NF-6).	**No** **No**
5.05	An Oil Spill Contingency Plan should be established based on the results of the Environmental Risk Analysis and Emergency Preparedness Analysis - Oil Recovery for the relevant areas. Supply vessels used must have NOFO class. Standby vessel shall be ready to spray dispersing chemicals on oil slicks within 15 min. if approved.	 2.1.2	- Oil Spill Preparedness established according to plans and statutory requirements. Verified by SFT. - The vessels *Skandi Bergen*, *Normand Jarl* and *Normand Drott* hold NOFO class. - Standby vessel equipped with 1 complete NOFO system incl. tow vessel. Equipment for spraying dispersants not brought onboard the standby vessel.	**Yes** **Yes** **No**

Item no	Requirement / Goal	Ref. 7122/7-1 Requirement	Comments	Obtained Yes/No
5.06	Waste material should be segregated. All waste materials, except food waste, must be shipped ashore for disposal at designated facilities. Transp. of chemicals/petr. products/classified goods together with ordinary waste is prohibited. All waste materials shall be properly documented on the Cargo Manifest. Special waste shall be treated by an authorized contractor. Incinerations shall be reported by **Contractor** to **DRL/QSE.**	4.3.2	- All waste incl. food waste was segregated and sent ashore. - Shipped separately and manifested. - All returned waste was manifested. - Handled by Renovasjon Nord AS - Not experienced.	**Yes** **Yes** **Yes** **Yes** **-**
5.07	Discharges to the sea and emissions to the air must be recorded as part of Norsk Agip Environment Accounting System and shall be reported on a weekly basis. Accidental spills (all kind of discharges/emissions) shall be reported immediately and subsequently included in the weekly reports.	4.5.1 4.5.2	- The system for monitoring and reporting discharges was not working in the start. - Spilled mud reported to QSE. Formal notification to SFT was given some days later.	**No** **Yes**
5.08	No drilling must be carried out in oil bearing zones during the period 15 January to 1 September for PL 229.	3.3.1	- Drilled in potentially oil bearing zones between 26.09.00 and 03.10.00.	**Yes**

Prepared by:	Reviewed by:	Approved by:
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Date: *12.01.01*

ENCLOSURE 2 7122/7-1 COMPOSITE LOG

ENCLOSURE 3 7122/7-1 C.P.I.