

OFFSHORE NORWAY

PL 229

Blocks 7122/7,8,9,10 & 7123/7

Report title:

WELL 7122/7-3

FINAL WELL REPORT

Abstract:

This report deals with the geological and drilling results of the well.

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.

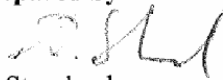
Enclosed are the composite log and the computer processing interpretation of the reservoir section.

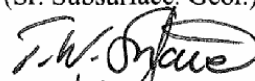
Note:

Date: June 2006

Report no.:

Prepared by:

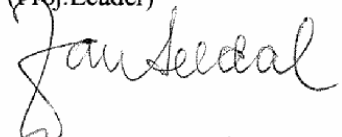

D. Stensland
(Sr. Subsurface Geol.)


T.W. Snåre
(Operation Geol.)


H. Berg
(Drilling Eng.)

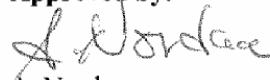
Verified by:

J.Seldal
(Proj. Leader)



B. Ellingsen
(Sr. Advisor Drill & Well Tech)

Approved by:


A. Nordaa
(Exp. Manager)


M. Zuvo
(Drilling Manager)

Distribution list

Copies	Paper	CD
Eni Norge		
Well file	2	2
Project Leader Goliat EXP	1	
Goliat Project	2	
Drilling	2	
Subsurface Geology	1	
NPD		1
PSA		1
Eni Milan	1	1
Statoil	1	1
DNO	1	1
Total	11	7

TABLE OF CONTENTS

1.	GENERAL	3
1.1	INTRODUCTION	3
1.2	LOCATION MAP	3
1.3	BASIC WELL DATA	4
2.	GEOLOGY AND GEOPHYSICS	5
2.1	GEOLOGICAL SUMMARY	5
2.2	MAIN RESULTS	6
2.3	DATA ACQUISITION	7
2.3.1	Routine Sampling	7
2.3.2	Shows	7
2.3.3	Logging while drilling	9
2.3.4	Wireline Logs	10
2.3.5	Formation Pressure	11
2.3.6	Formation Temperature	12
2.3.7	Side Wall Cores	13
2.3.8	Conventional Cores	19
2.4	STRATIGRAPHY	23
2.4.1	Biostratigraphy	23
2.4.2	Lithostratigraphy	24
2.5	VERTICAL SEISMIC PROFILE	30
2.6	SYNTHETIC SEISMOGRAMS	30
2.7	GEOCHEMISTRY	32
2.8	FORMATION EVALUATION	34
2.8.1	Reservoir Petrophysical Description	34
2.8.2	Log Evaluation	39
2.8.3	MDT Pressure Interpretation	43
2.8.4	Testing / Fluid Sampling	48
3.	DRILLING	52
3.1	INTRODUCTION	52
3.2	WELL DATA SUMMARY	54
3.2.1	Operational Achievements	57
3.2.2	Operational Problems	59
3.2.3	BOP Sketch	62
3.2.4	BOP Testing	63
3.2.5	Casing and Liner Testing	64
3.3	TIME AND COST ANALYSIS	65
3.3.1	Time-depth Curve	65
3.3.2	Time Breakdown by Operation	66

3.3.3	Time Breakdown by Phase	67
3.3.4	Planned Time vs. Unplanned and Non-productive Time	68
3.3.5	Cost vs. Depth	69
3.3.6	Cumulative Cost per Day	70
3.3.7	Cost per Phase	71
3.3.8	Cost per Meter	72
3.4	OPERATIONS	73
3.4.1	Drilling Summary	73
3.4.2	Daily Operations Summary	82
3.5	TECHNICAL INFORMATION AND REPORTS	108
3.5.1	Bit Record	108
3.5.2	BHA Record	111
3.5.3	Casing Data Summary	121
3.5.4	Leak-Off Test Results	130
3.5.5	Cementing Reports	133
3.5.6	Mud Summary by Phase	146
3.5.7	Mud Summary Report	151
3.5.8	Deviation Summary	155
3.6	PLUGGING AND ABANDONMENT OF THE WELL	159
3.6.1	Objectives	159
3.6.2	Plugging program	159
3.6.3	Actual plugging and abandonment of the well	160
3.6.4	P&A Sketch	173
3.7	LOGISTICS	174
3.7.1	Offices	174
3.7.2	Base	174
3.7.3	Helicopter	174
3.7.4	Boats	174
4.	SAFETY AND ENVIRONMENT	176
4.1	RISK ANALYSIS SUMMARY AND IMPLEMENTATION	176
4.2	DISCHARGES, EMISSIONS AND WASTE	176
5.	ENCLOSURES	179

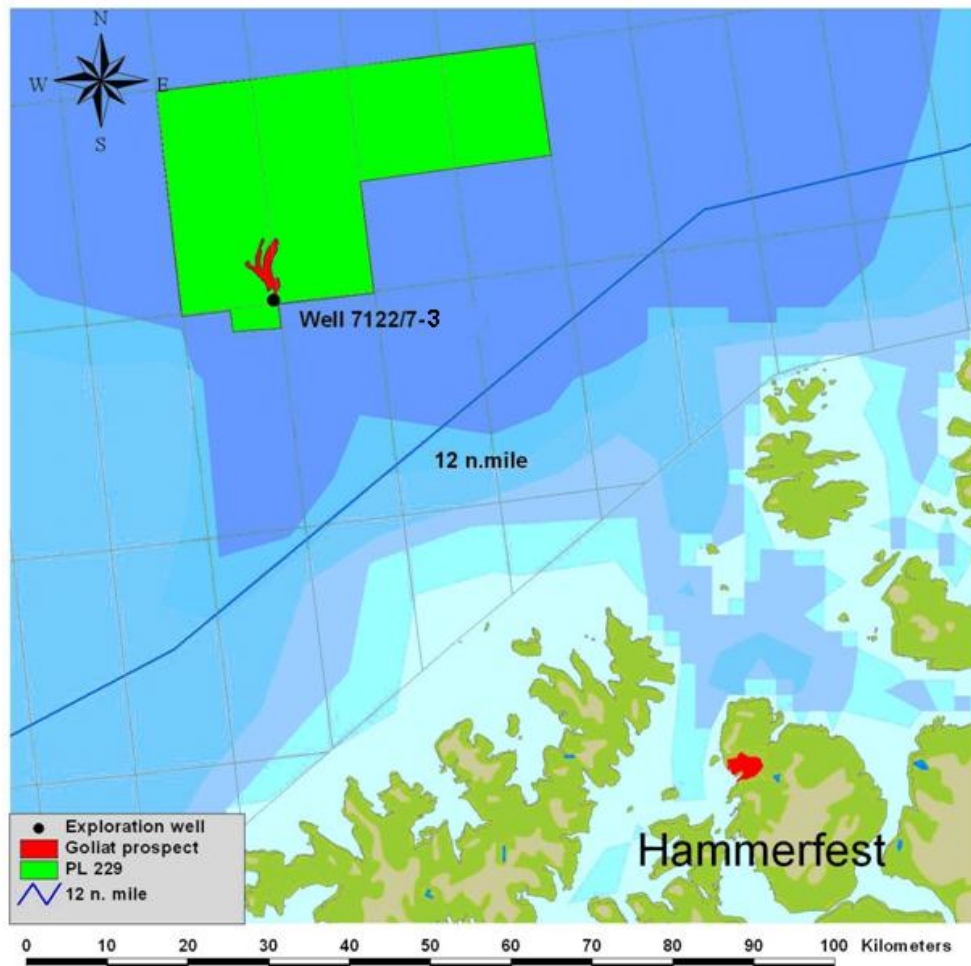
1. GENERAL

1.1 INTRODUCTION

The 7122/7-3 well was drilled as an appraisal/exploration well on the Goliat South Prospect situated in the southern part of block 7122/7.

The purpose of drilling 7122/7-3 was to investigate the hydrocarbon potential of the Lower Jurassic / Upper Triassic through the Triassic and Permian. Permian was the drilling commitment for the licence.

1.2 LOCATION MAP



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	:	7122/7-3
PROSPECT	:	Goliat South
SEISMIC REFERENCE	:	NA01M1 3D Inline 1399, crossline 3119
COORDINATES	:	N 71deg 15min 17.534sec E 22deg 16min 04.600sec UTM 545 476.82m E 7 906 512.81m N
TOLERANCE	:	Radius 50 m
DISTANCE	:	85 km from Hammerfest Shore Base
SPUDDING CLASSIFICATION	:	Appraisal / Exploration well
WATER DEPTH	:	343m
RKB ELEVATION	:	25m
RKB-SEA FLOOR	:	368m
TOTAL DEPTH	:	2726 m RKB
PRIMARY TARGET	:	Realgrunnen Group (L.Jurassic / U.Triassic)
DEPTH TO PRIMARY TARGET	:	1087m RKB
SECONDARY TARGET	:	Ingøydjupet Group (M. Triassic)
DEPTH TO SECONDARY TARGET	:	1808m RKB
TERTIARY TARGET	:	Tempelfjorden Group (U. Permian)
DEPTH TO TERTIARY TARGET	:	2595m RKB
TARGET TOLERANCE	:	Radius of 50 m
DRILLING RIG	:	Eirik Raude
OPERATOR	:	Eni Norge 65 %
PARTNERS	:	Statoil 20 % DNO 25 %

2. GEOLOGY AND GEOPHYSICS

2.1 GEOLOGICAL SUMMARY

All depths referred to here after in the text are meters below rotary table if not otherwise mentioned

The purpose of drilling 7122/7-3 was to investigate the hydrocarbon potential of the Lower Jurassic / Upper Triassic through the Triassic and Permian. Permian was the drilling commitment for the licence.

The 7122/7-3 well is an appraisal well of the oil discoveries done by 7122/7-1 in 2000 and 7122/7-2 in 2001. This is the second appraisal well on the Goliat discovery. The well tested the southern fault compartment of the already proven discoveries to the north.

The top of the Realgrunnen reservoir was found at 1087m RT, 5m deeper than prognosis. The reservoir had a gas cap with oil down to. Top Snadd Formation reservoir was encountered at 1180m RT, 23m shallower than prognosis. The reservoir was oil bearing and in a different pressure regime than Realgrunnen. The third reservoir in the Kobbe Formation was found at 1808m RT, 29 m shallower than the prognosis.

The reservoir was oil bearing.

7122/7-3 Prognosis vs. Actual

Top Group /Formation	Prog. m MSL	Actual m MSL	High / Low m	TWT (ms)
Seabed	341	343	+2	461
Base Tertiary Unc	590	609	+19	715
Upper Cretaceous Unc	604	625	+21	728
Lower Cretaceous Unc / Hekkingen Fm	1000	993	-7	1054
Realgrunnen Gp	1057	1062	+5	1104
Ingøydjupet Gr / Snadd Fm	1178	1155	-23	1166
Kobbe Fm	1812	1783	-29	1554
Tempelfjorden Gp	2496	2570	+74	1988

2.2 MAIN RESULTS

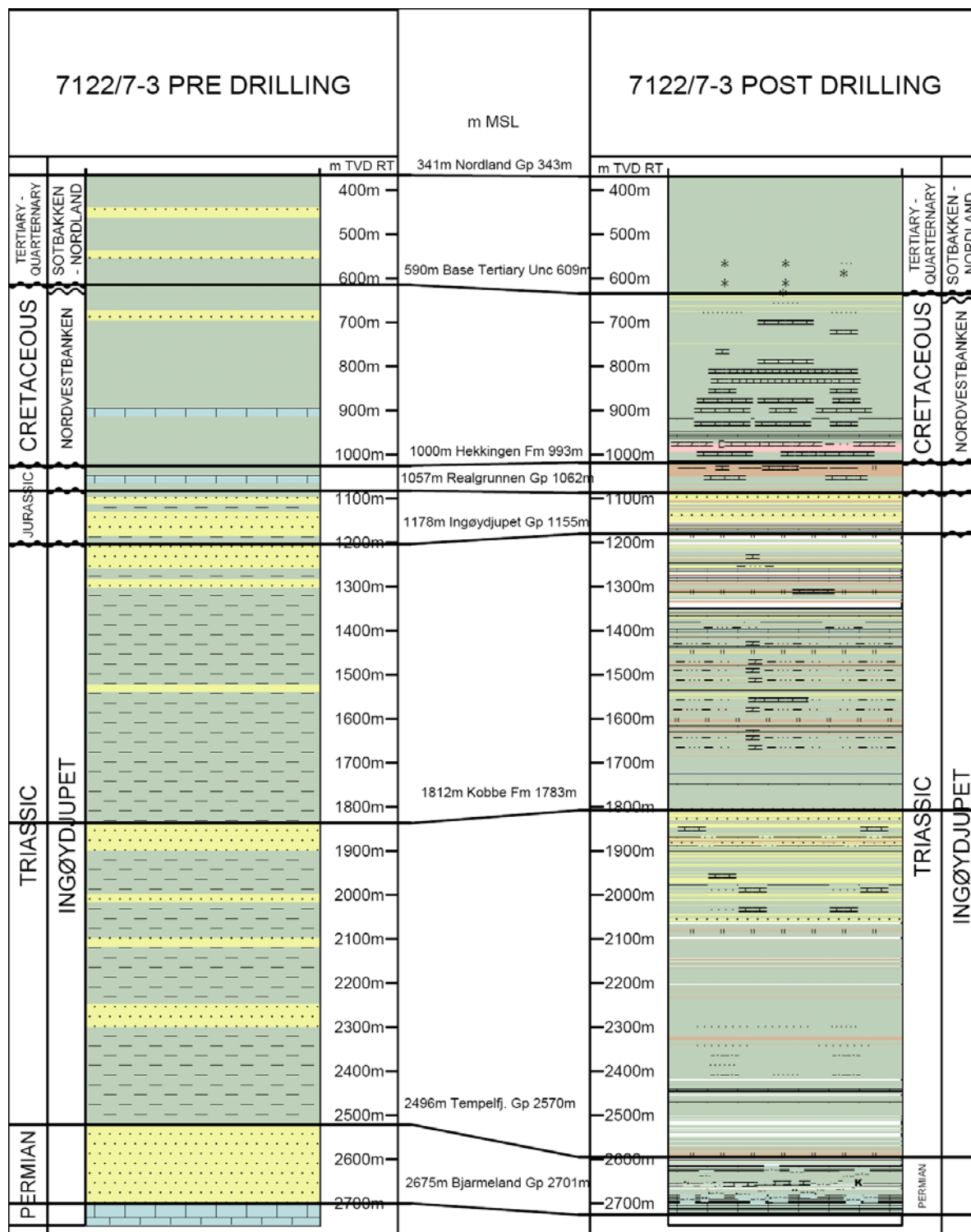


Figure 2.2.1 Correlation Pre vs. Post Drilling

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 Eni Norge's well site geologists.

Sampling in the 16" section; 538m - 1000mMD:

One bulk set of 5kg unwashed wet sample, one rig unwashed wet sample, one rig washed and dried samples were collected every 10m; one geo-chemical sample in a tin can and one geo-chemical sample in mini head space every 50m. In addition, samples of mud were collected every 200m. Gas samples were collected at gas peaks in mini head space.

Sampling in the 12¼" section; 1000 - 1693mMD:

One bulk set of 5kg unwashed wet sample, one rig unwashed wet sample, one rig washed and dried samples were collected every 5m; one geo-chemical sample in a tin can and one geo-chemical sample in mini head space every 20m. In addition, samples of mud were collected every 20m in hydrocarbon saturated zones and 200m in zones without shows. Gas samples were collected at gas peaks in mini head space.

Sampling in the 8½" section; 4113 – 4596mMD:

One bulk set of 5kg unwashed wet sample, one rig unwashed wet sample, one rig washed and dried samples were collected every 5m; one geo-chemical sample in a tin can and one geo-chemical sample in mini head space every 20m. In addition, samples of mud were collected every 20m in hydrocarbon saturated zones and 200m in zones without shows. Gas samples were collected at gas peaks in mini head space.

Sampling in the 6" section; 2420 - 2726mMD:

One bulk set of 5kg unwashed wet sample, one rig unwashed wet sample, one rig washed and dried samples were collected every 5m; one geo-chemical sample in a tin can and one geo-chemical sample in mini head space every 50m. In addition, samples of mud were collected every 20m in hydrocarbon saturated zones and 200m in zones without shows. Gas samples were collected at gas peaks in mini head space. Environmental samples were taken at fixed depths; 2430, 2560, 2650 and 2720m.

2.3.2 Shows

There was no indication of shallow gas during drilling of the top hole section. The evaluation of hydrocarbon shows was carried out at the well site by Geoservices. The Reserval (flame ionisation analyser connected to constant-efficiency degasser) was used separate with the Flair system (Gas Chromatograph / Mass Spectrometer connected to a fluid extractor, gas in/gas out).

Hydrocarbons on cuttings, cores and sidewall cores were described by Eni Norge Well site Geologist's.

The gas readings were stable around 2 % throughout the 16" section with a max. peak of 6.7 % over a background of 3.9 % at 696m RT.

In the 12 ¼" hole section there was low gas values in Hekkingen Fm. The gas started to increase in Fuglen Fm. with a max peak of 13.78 % over a 5 % background. Shows on core chips were described as weak hydrocarbon odour, no direct fluorescence, slow streaming blue white cut fluorescence, no direct visible cut and light yellowish fluorescence.

When coring the boundary between Fuglen Fm and Realgrunnen the gas values increased from 2 to 6 % and continued to increase to 15 – 20 % in sandstone, mainly C1. Core chips, from core #2 in the upper part of Realgrunnen was described with no oil stain, nil to very weak HC odour, no direct fluorescence, non to very weak very slow streaming white – light yellowish cut fluorescence, white to light yellowish residual fluorescence.

Shows on sidewall cores in the interval between bottom hole core # 2 and # 3 was described as moderate HC odour with no shows at the top, fair to moderate HC odour, bright yellowish speckled fluorescence, fair streaming to blooming blue white cut, fair yellowish white residual ring at the lower part. Core chips from core #3 had HC odour, bright goldish to yellowish to light yellow even fluorescence, slow blue white to light yellowish cut fluorescence, fair yellowish residual ring. The gas reading varied from 1 to 22 % depending on ROP and lithology.

Shows on core # 4 from upper Snadd Fm. was described as strong HC odour, even goldish to yellowish to bright light yellowish direct fluorescence, slight light yellowish streaming cut, blue white to light yellowish residual cut fluorescence. The gas data in the oil zone varied from 1.5 % to 18 %.

Below the oil – water contact in upper Snadd Fm the shows on sidewall cores decreased from faint HC odour, spotted yellowish white direct fluorescence, moderate streaming milky cut, dull white yellowish residual ring, no natural residual ring to no HC odour and no shows. Below the oil-water contact the gas readings decreased from 7% to an average value of 1.5 % throughout the Snadd Formation.

Shows on cuttings was encountered in the 8 ½" hole section at top Kobbe Fm. The sandstone had moderate yellowish direct fluorescence, bright yellowish streaming cut fluorescence, no visible cut fluorescence, bright yellowish residual fluorescence and pale brown visible residual. There were good shows on the core ships from top of Kobbe Fm. Strong to moderate strong HC odour. No visible oil stain, uniform bright yellow direct fluorescence, instant to slow milky yellowish cut fluorescence, no visible cut, bright yellowish residual fluorescence, no visible residual.

The drilling gas was below 1 % in the claystone interval, increasing to 1–8 % in the sandy intervals. There were shows on side wall cores down to 1910m described as faint HC odour, weak yellowish direct fluorescence, and fast moderate bluish to yellowish cloudy cut, bright yellowish white residual fluorescence, and faint brown residual. There were no more shows on sidewall cores down to 2420m RT, except for the interval 2055 – 2089 where there were shows in sandstones layers in the top of Klappmyss Formation. The shows on the sidewall cores were described as strong HC odour, no oil stain, uniform bright pale yellowish direct fluorescence, instant moderate yellowish white cut fluorescence, no visible cut, moderate yellowish green residual fluorescence, no visible residual.

In the 6 "section the drilling gas was decreasing steadily from 4.3% down to less than 1% at TD. There were no shows on cuttings in this section.

2.3.3 Logging while drilling

Run No	Hole Diam	Drilled Interval	Tool Type	Comments
BHI 2	16"	538 – 1000	9 ½" GR-Res-Dir-Pressure	OnTrak
BHI 3	12 ¼"	1000 – 1082	9 ½" GR-Res-Dir-Pressure	OnTrak Depth tracking problems
BHI 4	12 ¼"	1082 – 1146	9 ½" GR-Res-Dir-Pressure	OnTrak
BHI 5	12 ¼"	1146 – 1187	9 ½" GR-Res-Dir-Pressure	OnTrak
BHI 6	12 ¼"	1187 – 1712	9 ½" GR-Res-Dir-Pressure	OnTrak
BHI 8	8.5"	1712 - 1812	6 ¾" GR-Res-Dir-Pressure	OnTrak
BHI 9	8.5"	1837 – 2420	6 ¾" GR-Res-Dir-Pressure	Ontrak Decoding problems
SCHL. 1	6"	2420 – 2458	4 ¾" GR-Res-Dir	IMPulse Tool failure
SCHL. 2	6"	2458 - 2519	4 ¾" GR-Res-Dir	IMPulse
SCHL. 3	6"	2519 - 2726	4 ¾" GR-Res-Dir	IMPulse

Comments:

Run BHI #3 some intervals had to be re-logged due to depth tracking.

Run BHI #9 Decoding problems due to torque and pump noise.

Run SCHL. #1 Tool failed. Shocks and stick-slip beyond the specifications of the tool. The IMPulse tool had been invaded by mud, hence no data was retrieved from the tool memory.

2.3.4 Wireline Logs

The following is a summary of the wireline log runs in the well:

- Run 1 in 16" hole section
- Run 2 in 12 ¼" hole section
- Run 3 in 8 ½" hole section
- Run 4 in 6" hole section

Run	Logging Tools	Op.Time	Lost time	Comments
1A	MSIP - DENS - GR - CAL	8.75 hrs	None	Compensator not working properly.
2A	CMR-HRLA-TLD-HGNS-ECS-HNGS-ACTS-ECRD	15 hrs	3.5 hrs	CMR failed
2B	SONIC SCANNER-FMI-GR-ACTS	12 hrs	None	
2C	MDT-GR-ACTS-ECRD (QUICKSILVER SAMPLE PROBE)	39 hrs	None	
2D	CMR-PPC-GR-ACTS	11 hrs	None	
2E	MDT-GR-ACTS-ECRD (DUAL PACKER SAMPLING)	55.5 hrs	None	Tool stuck. Fishing run.
2F	MSCT-GR	11.5 hrs	None	Sidewall core recovery 43 out of 44. 48 was planned.
3A	CMR-HRLA-TLD-HGNS-ECS-HNGS-ACTS-ECRD	20.5hrs	2 hrs	Lost 2hr when tool zero was confused with CMR sensor depth
3B	MSIP-FMI-PPC-GR-ACTS	13.25 hrs	None	
3C	MDT-GR-ACTS-ECRD	22.5 hrs	0.5 hrs	
3D	MSCT-GR	12 hrs	None	
4A	DSI-HRLA-TLD-HGNS-ACTS-ECRD	8 hrs	None	
4B	MDT-GR-ACTS-ECRD	15.5 hrs	None	Tool stuck. Fishing run
4C	VSP-GR	9 hrs	None	

Abbreviations:

MSIP Modular Sonic Imaging Platform
 CMR Combinable Magnetic Resonance
 HRLA High Resolution Laterolog Array
 TLD Tree-detector Lithology Density
 HGNS Highly integrated Gamma ray Neutron Sonde
 HNGS Hostile environment Natural Gamma ray Sonde
 ECRD Electrically Controlled Release Device

FMI Full-bore Formation MicroImager
 MDT Modular Formation Dynamic Tester
 MSCT Mechanical Sidewall Coring Tool
 IPLT Integrated Porosity Lithology Tool
 ECS Elemental Capture Spectroscopy Sonde
 DSI Dipole Shear Sonic Imager
 VSP Vertical Seismic Profile

2.3.5 Formation Pressure

Eni's Well site geologists performed the pore pressure follow-up. The pore pressure in Triassic and Permian was much lower than prognosis. The pore pressure below top Realgrunnen is based on MDT measurements.

A normal pore pressure gradient of 1.03 g/cm³ was estimated down to Realgrunnen where the oil and gas column created an overpressure of 13.8 bars, (1.16 sg. EMW). The pressure decreased down to 1.08 sg at top Snadd and stayed fairly constant throughout the well (1.07 – 1.08 sg.).

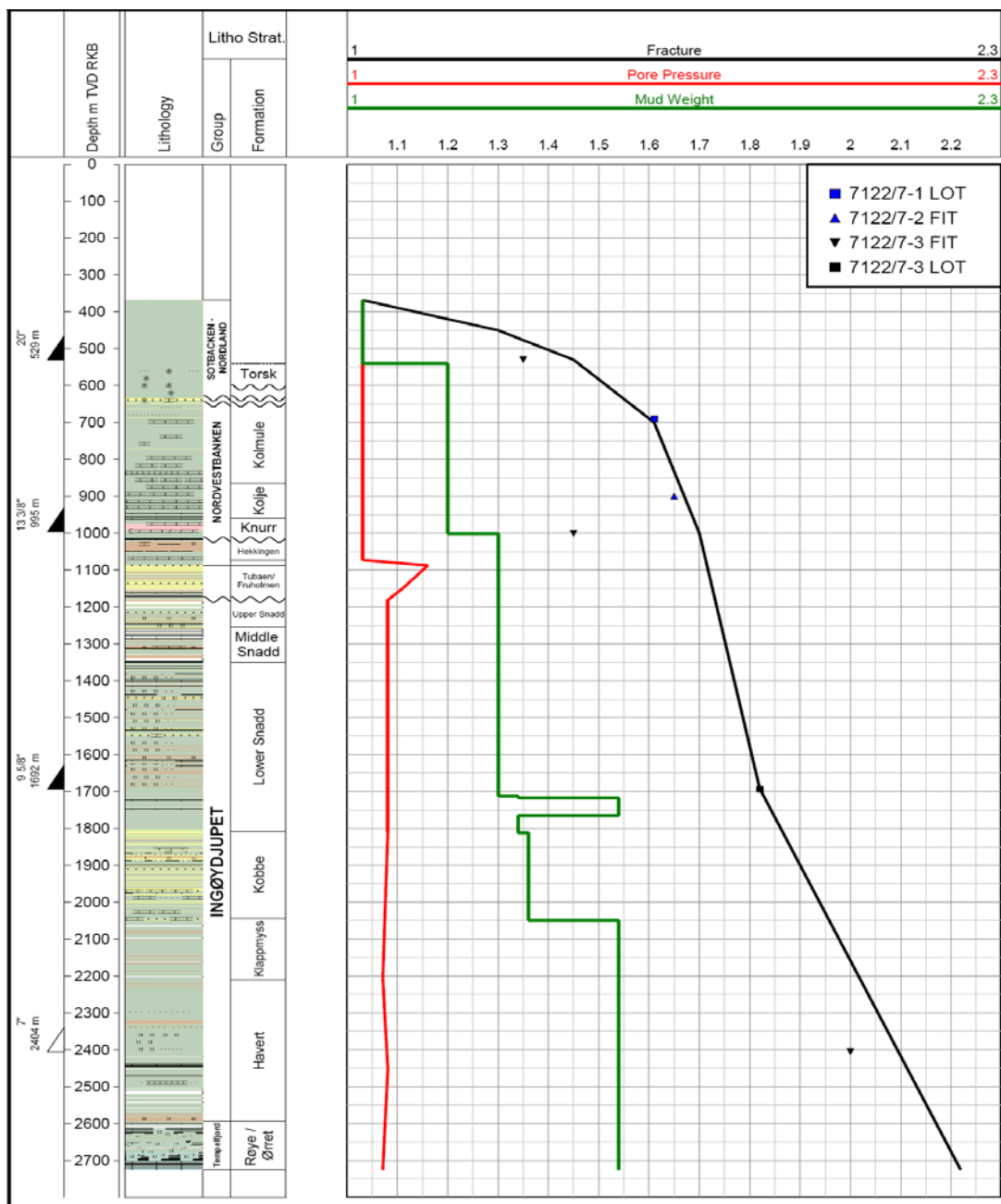


Figure 2.3.5.1 Pore pressure, Fracture and Mud weight Gradients

2.3.6 Formation Temperature

Estimated static bottom hole temperature at TD of the well, 73 deg. C @ 2725 m TVD RT, is based on temperatures from MDT sampling. That gives a gradient of 2.4 deg. C / 100m from top Jurassic to TD.

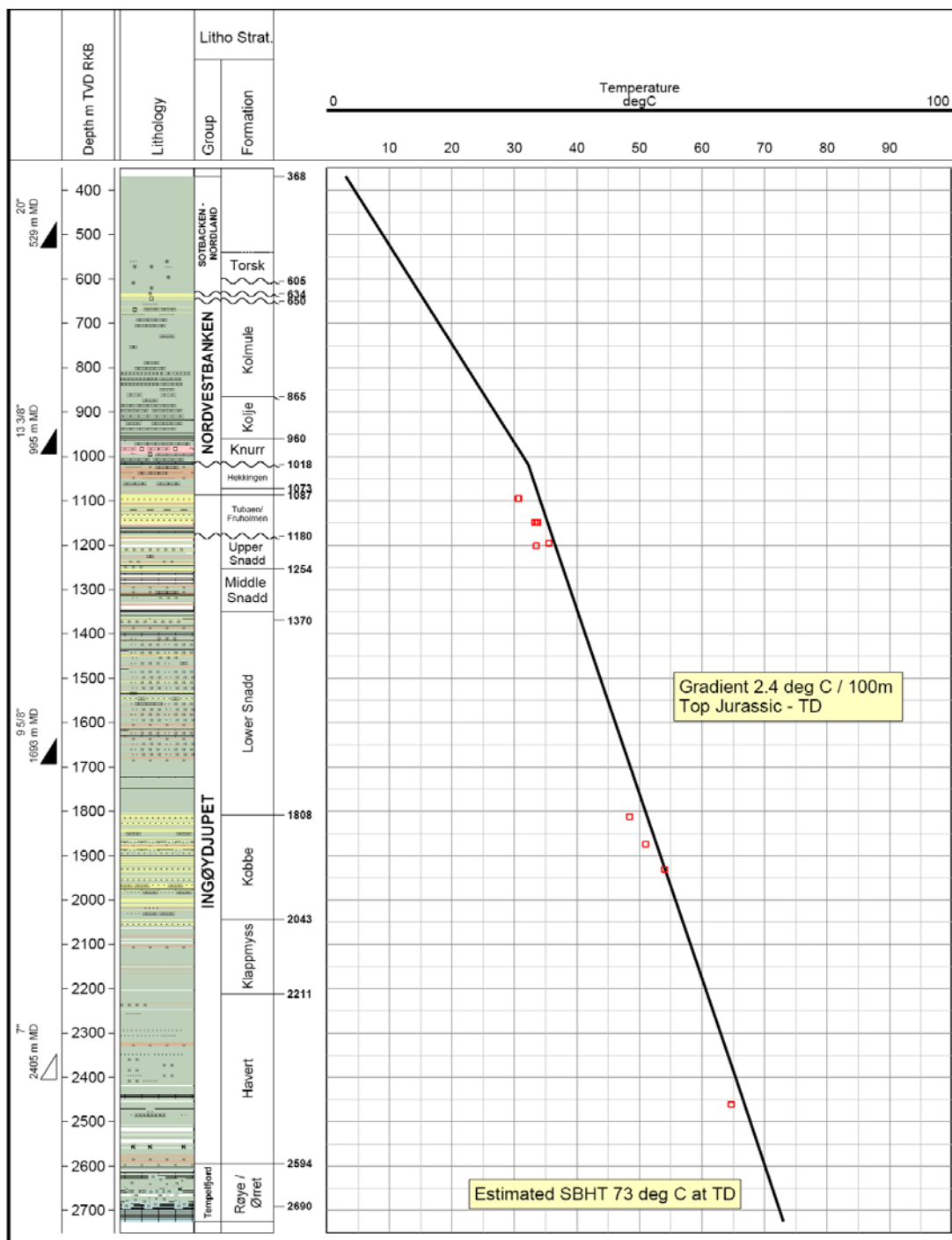


Figure 2.3.6.1 Formation Temperature

2.3.7 Side Wall Cores

Sidewall cores were taken in the Realgrunnen, Snadd, Klappmyss and Harvert Formations. The cores were used for Biostratigraphical and Reservoir analysis.

Sidewall cores were taken in 12 ¼" hole section between 1106 – 1178m.
Cores taken 44, recovered 43 (98%).

Sidewall cores were taken in 8 ½" hole section between 1719 - 2381m.
Cores taken 50, recovered 50 (100%).

Mechanical Sidewall Coring in 12 ¼" hole section

WELL NAME:		7122/7-3	LICENCE	PL 229	DATE CORED	01.12.05
CORES TAKEN		44	CORES RECOVERED	43	% RECOVERED	98%
REMARKS		48 Sidewall cores were planned in the Realgrunnen and Snadd formations. 44 were cut, 1 lost. Core shaft broken due to operational failure on core 45. Key 1 = Reservoir Analysis 2 = Biostratigraphic Analysis				
Shot No	Depth (m)	Length (cm)	Description	Shows and rating	Inferred Porosity	Key
1	1105.8	4.8	SLTST: dk yel brn – dk brn gy, frm – hd, blk, v arg, grdg slty clst, tr vf sd gns, v sl calc.	Weak HC odour. No show	Poor	2
2	1107.0	4.0	SST: predom clr, transp – transl, vf – f, rr med, sb ang – sb rnd, sb sph, mod w srt, frm – sl hd, fri, w com dk gy slty/carb lams, v sl calc.	Moderate HC odour No show	Fair to Good	1
3	1107.8	4.6	SLTY SST: dk gy – dk yel brn, occ transl – transp, vf, sb ang – sb rnd, sb sph, well srt, mod hd, v slty, grdg SLTST, sl calc/arg mtz.	Weak HC odour No show	Poor	First Res 2
4	1108.6	4.4	SST: pred lt yel brn, transl, vf, sb rnd, sb ang, mod sph, w srt, clean, frm – mod hd, fri, weak arg cmt/mtz.	Weak – moderate HC odour. No show	Fair to Good	1
5	1109.5	4.7	SLTY CLST: pred med gy – brn gy, frm – hd, homog, blk brk, v slty, n calc.	Weak HC odour. No show	Poor	2
6	1111.3	4.0	SST: pred lt yel brn, transl, vf – f, sb ang – sb rnd, mod sph, mod srt, clean, frm – mod hd, fri, occ arg – slty lams.	Weak HC odour. V It dull yel/gold dir fluour. Weak/slow diffuse milky cut, sl yel ring. No nat residual ring.	Fair to Good.	1
7	1113.6	4.5	SLTY CLST: pred med gy – dk brn gy, frm – hd, homog blk brk, v slty, n calc.	Weak HC odour. No show.	Poor	2
8	1114.5	3.6	SST: lt yel brn – dk yel orng, transp, vf, sb ang – sb rnd, sb sph, w srt, well consol, hd v hd, slty / arg mtz	Weak HC odour. Mod – dull gold dir fluour. Instant blmg to strmg cut, mod yel ring, no nat ring.	Fair	1
9	1115.6	4.7	CLST: lt – med, gy, v hd, blk, splty brk, sl calc/dol, homog, sl slty.	No HC odour. No show	None	2
10	1117.7	4.9	SLTST: dsky yel brn – med dk gy, hd – v hd, sb blk – blk brk, v arg, tr v f sd gns, rr tr mmic, n calc.	Weak HC odour No show	Poor	1
11	1119.5	4.7	CLST: dk gy – blk, hd – v hd, sb blk – splty brk, fiss, sl slty, sl calc	Weak/moderate HC odour No show	None	2
12	1122.0	5.0	SLTY CLST: dk med gy, hd, sb blk – splty brk, v slty, grdg SLTST, n – sl calc	No HC odour No show	Poor	2
13	1125.2	4.3	SST: lt yel brn, v lt brn, transl, vf, sb rnd – rnd, mod sph, w srt, hd, well consol, lse qtz gns, wk arg cmt/mtz	Moderate HC odour, bri yel gold dir fluour, inst blmg – strmg blu wh cut, bri wh res ring, no nat res ring	Fair to Good	1

Shot No	Depth (m)	Length (cm)	Description	Shows and rating	Inferred Porosity	Key
14	1126.5	4.5	SLTST: lt yel brn, lt – med gy, v hd, sb blk, v arg, grdg CLST, vf sd inclu, n calc	Weak HC odour No show	Poor to Fair	2
15	1123.8	4.9	SLTST: dk brn gy, hd – v hd, v arg, w vf sd gns ip	No HC odour No show	Poor	2
16	1127.9	4.0	SST: transl, lt yel brn, frstd, pred med – crs, rr vf – f, sb ang – sb rnd, sb sph, s belong, pr srt, mod hd, occ wk calc/sil cmt ip	Weak HC odour Spkld bri gold dir fluor, slow diffuse mlky cut, bri wh res ring, no nat ring	Fair to Good	1
17	1129.9	5.0	CLST: med – dk gy, v hd – hd, ang – fiss brk, sl slty ip	No HC odour No show	Poor	2
18	1133.1	4.4	SST: transl, lt yel brn, transp, frstd, pred f, rr med gr, sb ang – sb rnd, sb sph, w srt, mod consol, loc thin slty mlams	No – weak HC odour, dull yel gold spkld dir fluor, wk strmg blu wh cut, dull yel wh res ring, no nat ring	Fair to Good	1
19	1134.5	4.5	SST: pred clr, frstd, transp – transl, f occ med, sb rnd, sb sph, mod srt, mod hd, mod consol, cln qtz gns	Weak HC odour, unform bri yel/wh dir fluor blmg yel/wh cut, bri yel/wh res ring, no nat res ring	Good	1
20	1135.8	4.5	SST: transp, transl, lt yel brn, pred f, s bang – sb rnd, sb sph, w srt, mod consol qtz gns, v wk sil cmt/mtx, sl slty ip	No weak HC odour, fair spkld yel dir fluor, fair blmg mlky wh cut, bri yel wh res ring, no nat res ring	Fair to Good	1
21	1138.9	4.7	SLTY SST: pa yel brn, med brn, vf – f, sb ang – sb rnd, sb sph, mod srt, mod hd – hd, slty, slty arg mtx	Moderate HC odour v dull gold dir fluor, slow strmg mlky cut, fair yel wh res ring, no nat ring	Fair	Res First 2
22	1140.3	4.7	SLTST: dk gy, gy blk, hd – v hd, sb blk, v arg, grdg slty CLST, v carb, n calc	Weak HC odour No show	Poor	2
23	1143.3	4.4	SST: clr, transp transl, pa yel brn, pred vf, sb ang – sb rnd, sb sph, w srt, well consol, slty, w tr carb mat	Fair – mod HC odour, bri yel spkld fluor, fair strmg – blmg blu wh cut, fair yel wh res ring, no nat ring	Fair to Good	1
24	1144.7	4.2	SST: clr, transp transl, pa yel brn, med gy, pred vf, sb ang – sb rnd, sb sph, w srt, well consol, loc slty inclusions, slty mtx, tr carb mat	Fair – mod HC odour, bri yel spkld fluor, fair strmg – blmg blu wh cut, fair yel wh res ring, v sli wk tea nat ring	Fair to Good	1
25	Not recovered					
26	1183.2	4.4	SLTST: dk gy, dk brn gy, v hd – hd, blk, v arg, carb, n calc	Moderate HC odour No show	Poor	2
27	1184.9	4.3	SST: pa yel brn, lt gy, vf s bang – sb rnd, sb sph, w srt, mod hd, well consol, slty, well/gd arg slty mtx, sl calc	Moderate HC odour, bri yel wh fluor, inst strmg – blmg blu wh cut, bri wh res ring, lt wk tea nat res ring	Poor to Fair	1
28	1192.2	4.2	SST: pa yel brn, vf, s bang – sb rnd, sb sph, well srt, mod hd, mod well consol, sl slty, poss wk sil cmt	Weak HC odour bri wh dir fluor, inst strmg to blmg blu wh cut, bri wh res ring, no nat ring	Fair to Good	1
29	1193.6	4.2	SST: pa yel brn, vf – f, rr med, sb ang – sb rnd, sb sph, mod srt, hd, well consol, slty, poss wk sil cmt	Moderate HC odour, spkld bri yel wh fluor, sl strmg blu wh cut, bri wh res ring, no nat ring	Good	Res first 2
30	1195.3	4.2	SST: pa yel brn, vf, sb ang – sb rnd, sb sph, well srt, hd, well	Fair HC odour bri why el dir fluor, inst blmg blu wh cut, bri	Good	1

Shot No	Depth (m)	Length (cm)	Description	Shows and rating	Inferred Porosity	Key
			consol, slty, poss wk sil cmt.	wh res ring, no nat res ring		
31	1198.5	4.2	SST: pa – mod yel brn, pred v f, sb rnd, sb sph, well srted, hd, well consol, clean poss wk sil cmt	Moderate HC odour, bri yel wh dir fluor, slow strng mlky cut, dull wh res ring, no nat res ring	Fair to Good	1
32	1200.3	4.3	SST: clr, transp, transl, v pa yel brn, pred m, sb rnd, sb sph, w srt, clean, well consol, poss wk sil cmt	Faint HC odour, sptd yel wh dir fluor, mod strng mlky cut, dull wh yel res ring, no nat res ring	Fair to Good	1
33	1206.5	5.0	SLTY SST: pred v pa yel brn, vf, sb ang – sb rnd, well srted, hd, well consol, w slty mtx.	Faint HC odour No show	Poor to Fair	2
34	1217.5	4.2	SST: pred mod yel brn, vf sb rnd – sb ang, sb sph, well srted, hd, consol, poss wk sil cmt, sl slty ip	No HC odour dull yel gold dir fluor, mod strng mlky wh cut, dull wh res ring, no nat res ring	Fair to Good	1
35	1226.5	4.8	CLST: med – dk gy, v hd – hd, sb blkly brk, slty, sl calc	No HC odour No show	None	2
36	1257.6	4.3	SST: v pa yel brn, vf – f, sb ang – sb rnd, sb sph, mod srt, hd, well consol, loc slty, tr glauc, wk sil cmt.	No HC odour, bri yel gold spkld dir fluor, mod strng blu wh mlky cut, no nat res ring	Fair	1
37	1270.4	4.1	SST: v pa yel brn, f, sb rnd, sb sph, w srted, well consol, hd, sl slty, wk sil cmt, tr glauc, rr tr carb specs.	No HC odour, bri yel gold spkld dir fluor, mod blng to strng blu wh mlky cut, no nat res ring	Fair to Good	1
38	1282.6	4.4	SST: frstd, clr, transl, transp, v pa yel brn, vf – f, sb ang – sb rnd, sb sph, mod srt, hd, well consol, slty ip, sl arg mtx, wk sil cmt.	No HC odour, bri yel wh dir fluor, inst diffuse blu wh cut, bri blu wh res ring, no nat ring	Fair	1
39	1299.5	4.2	SST: frstd, off wh, lt gy, m, sb ang – ang, well srted, hd, well consol, gd sil cmt, slty, sl arg	No HC odour No show	Poor	2
40	1340.0	4.2	SST: frstd, off wh, transl, transp, opq, vf – f, sb ang – sb rnd, sb sph, mod srt, hd, well consol, wk sil cmt, sl slty.	No HC odour No show	Fair	1
41	1368.5	4.8	SLTST: med – dk gy, v hd – hd, sb blkly, v arg, grdg CLST, sl calc	No HC odour No show	None	2
42	1530.5	3.5	SST: clr, transp, transl, lt gy, frstd, vf, sb rnd, sb ang, well srted, v hd, well consol, slty/arg, wk sil cmt	No HC odour No show.	Poor	Res first 2
43	1653.5	4.7	CLST: med – dk gy, med blu gy, v hd – hd, sb blkly, sl slty, v calc	No HC odour No show	Poor	2
44	1178.0	3.1	SLTY CLST: pred dk gy, hd – v hd, sb blkly, splty, slty v calc	No HC odour No show	Poor	2

Mechanical Sidewall Coring in 8 ½" hole section

WELL NAME:		7122/7-3	LICENCE	PL 229	DATE CORED	18/12/05
CORES TAKEN		50	CORES RECOVERED	50	% RECOVERED	100 %
REMARKS		Key 1 = Reservoir Analysis 2 = Biostratigraphic/Geochemical Analysis				
Shot No	Depth (m)	Length (cm)	Description	Shows and rating	Inferred Porosity	Key
1	1719.04	4.6	Claystone: brnsh-med dk brnsh gry, hd, blk, r micpyr	Non	Zero	2
2	1772.99	4.5	Claystone: med dk gry, hd, blk, r micpyr, , r micmic	Non	Zero	2
3	1802.40	4.8	Claystone: med dk gry-dk gry, hd, blk, r micpyr, , r micmic	Non	Zero	2
4	1809.41	5.0	Sandstone: lt yelsh gry, clrls-transp Qtz, vf-f, wl srt, sbang-sbrnd, sbsph-sph, pr cmt w/ calc/sil cmt, Tr mic, Tr kaol	Faint petroliferous odour, mod yelsh wh dir fluor, fast mod blsh yel cldy cut, mod blsh yel res fluor, v fnt brn res	Poor	1
5	1812.01	5.0	Sandstone: lt brnsh gry, clrls-transp Qtz, vf-f, wl srt, sbang-sbrnd, sbsph-sph, pr cmt w/ calc/sil cmt, Tr mic, Tr kaol, Tr Clst lithoclasts	Fnt petroliferous odour, mod yelsh dir fluor, fast fnt blsh yel cldy cut, mod blsh yel res fluor, v fnt brn res	Poor	1
6	1814.14	4.5	Sandstone: pl brn, clrls-transp Qtz, vf-f, wl srt, sbang-sbrnd, sbsph-sph, wl cmt w/ sil cmt, Tr mic, Tr kaol, Tr Clst lithoclasts	Fnt petroliferous odour, wk yelsh dir fluor, fast mod blsh yel cldy/strm cut, bright yelsh wh res fluor, fnt brn res	Good	1
7	1842.33	4.4	Sandstone: med lt gry, clrls-transp Qtz, vf-f, wl srt, sbang-sbrnd, sbsph-sph, v wl cmt w/ sil cmt, Tr mic, Tr Clst lithoclasts, Quartzitic	No Shows	Very Poor	1
8	1845.99	4.5	Sandstone: pl brn, clrls-transp Qtz, vf-f, wl srt, sbang-sbrnd, sbsph-sph, wl cmt w/ sil/(calc) cmt, Tr mic, Tr kaol, Tr Clst lithoclasts	V fnt petroliferous odour, wk yelsh dir fluor, slow mod blsh yel cldy cut, bright yelsh wh res fluor, v fnt brn res	Good	1
9	1852.70	5.0	Claystone: dk gry-dk olv gry, hd, blk, r micpyr, , r micmic	Non	Zero	2
10	1858.64	4.2	Sandstone: pl brn, clrls-transp Qtz, f-m, wl srt, sbang-sbrnd, sbsph-sph, wl cmt w/ sil/(calc) cmt, Tr mic, Tr kaol, Tr Clst lithoclasts	Fnt petroliferous odour, wk yelsh dir fluor, slow mod blsh yel cldy cut, bright yelsh wh res fluor, v fnt brn res	Good	1
11	1874.03	4.2	Sandstone: lt brnsh gry, clrls-transp Qtz, vf-f, wl srt, sbang-sbrnd, sbsph-sph, wl cmt w/ sil/(calc) cmt, Tr mic, Tr kaol, Tr Clst lithoclasts	Fnt petroliferous odour, wk yelsh dir fluor, fast wk blsh yel cldy cut, bri yelsh wh res fluor, v fnt brn res	Moderate	1
12	1879.06	4.7	Siltstone: med dk gry, hd, vf-f sdy I.P., r micmic	Non	Non	2
13	1883.33	4.5	Sandstone: lt brnsh gry, clrls-transp Qtz, f-m, occ vf, mod wl srt, sbang-sbrnd, sbsph-sph, wl cmt w/ sil/(calc) cmt, Tr mic, kaol, Tr Clst lithoclasts	V fnt petroliferous odour, wk yelsh dir fluor, fast v wk blsh yel cldy cut, mod yelsh wh res fluor, no vis res	Poor	1
14	1895.83	4.7	Sandstone/Claystone Boundary Sandstone: lt brnsh gry, clrls-transp Qtz, f-m, occ vf, wl srt, sbang-sbrnd, sbsph-sph, wl cmt w/ sil/(calc) cmt, Tr mic, Tr kaol Claystone: dk gry, hd, sbfiss	No odour, wk yelsh dir fluor, fast v wk blsh yel cldy cut, wk yelsh wh res fluor, no vis res	Poor - Moderate	2
15	1905.12	4.3	Sandstone: lt brnsh gry, clrls-transp Qtz, f-m, occ vf, mod wl srt, sbang-sbrnd, sbsph-sph, wl cmt w/ sil/(calc) cmt, Tr mic, Tr kaol	V fnt petroliferous odour, mod yelsh dir fluor, fast mod blsh yel cldy/strm cut, bri blsh yel res	Poor	1

Shot No	Depth (m)	Length (cm)	Description	Shows and rating	Inferred Porosity	Key
				fluor, fnt brn vis res		
16	1909.69	4.0	Sandstone: lt brnsh gry, clrls-transp Qtz, f-m, occ vf, mod wl srt, sbang-sbrnd, sbsph-sph, wl cmt w/ sil/(calc) cmt, r mic, Tr kaol	V fnt petroliferous odour, yelsh dir fluor, fast mod blsh yel cldy/stm cut, bri yelsh wh res fluor, fnt brn vis res	Poor	1
17	1911.68	4.8	Claystone: dk gry, hd, subfis, r micmic	Non	Zero	2
18	1916.40	4.3	Sandstone: med lt gry, clrls-transp Qtz, f-m, occ vf, mod wl srt, sbang-sbrnd, sbsph-sph, wl cmt w/ sil/(calc) cmt, r mic, Tr kaol	No odour, no dir fluor, no cut, no res fluor, no vis res	Poor	1
19	1921.73	4.2	Sandstone: v lt gry, qtz, clr-trnsl, f-m, occ vf, sb ang-sb rmd, wl srt, sb sphere-spher, wl cmt w/silic tr calc, hd	No odour, no dir fluor, no cut, no res fluor, no vis res. No show	Nil-poor	1
20	1936.06	5.0	Sandstone: as at 1921.7m	No show	Nil-poor	1
21	1946.27	4.9	Sandstone: as at 1921.7m	No show	Nil-poor	1
22	1954.35	4.2	Sandstone: as at 1921.7m	No show	Nil-poor	1
23	1958.31	4.6	Siltstone: v dsky rd, hd, non calc, hkly frac, micromic	No show	None	2
24	1967.61	4.1	Sandstone: fine, else as at 1921.7m	No show	Nil-Poor	1
25	1971.26	4.2	Sandstone: v lt gry, qtz, clt-trnsl, f-m, sb ang-sb rmd, mod srt, sphere-sb sphere, wl cmt w/silic tr calc, hd	No show	Poor	1
26	1997.02	4.3	Sandstone as at 1971.26m	No show	Poor	2
27	2011.34	4.3	Sandstone: v lt gry, qtz, clr-trnsl, f, sb ang-sb rmd, sphere, wl srt, wl cmt w/silic, hd, occ mica carb lams, Clst lam 2mm thick, tr mica	No show	Poor	1
28	2012.56	4.2	Sandstone: v lt gry: qtz, clr-trnsl, f, sb ang-sb rmd, wl srt, wl cmt w/silic, hd	No show	Nil-poor	2
29	2038.17	4.3	Claystone: m dk gry, hd, slily calc, slty, occ dissem carb mat.	No show	None	2
30	2055.08	4.6	Sandstone: v lt gry, qtz, clr-trnsl, f-m, sb ang-sb rmd, wl srt, tr calc cmt, mod hd, tr mica	Strng pet od. No oil stn. Uni bri pl yel dir fluor, inst mod yel wh discolouration cut fluor, no vis cut, mod yel/gn fluor res, no vis res	Poor-fair	1
31	2061.94	4.2	Sandstone: as at 2055.08m	As at 2055.08m	Poor to fair	2
32	2088.61	4.3	Sandstone: as at 2055.08m with occ lt bl gn Clst lams < 2-3mm thick	Mod pet od. Else as at 2055.08m Gas bubbling from core	Poor-fair	2
33	2090.75	4.6	Claystone: dk gn gry, hd, wxy tex, v slily calc, tr micromic	No show	None	2
34	2098.67	4.0	Sandstone: v lt gry, qtz, clr-trnsl, f-m, sb ang-sbrnd, mod srt, spher-sb spher, wl cmt w/silic, hd, tr mica	No show	Poor-fair	1
35	2111.01	3.8	Sandstone: lt gry, qtz, clr-trnsl, vf-f, pred f, sb ang-sb rmd, wl srt, mod cmt w/silic, mod hd-fri, occ dissem carb mat	No show	Poor - fair	2
36	2120.62	4.0	Sandstone: lt gry, qtz, clr-trnsl, f-m, sb ang-sb rmd, wl srt, mod cmt w/silic, mod hd-fri, tr mica	No show	Poor-fair	1
37	2134.33	4.1	Sandstone: lt gry- lt gn gry, tr rse qtz, else as at 2120.62m	No show	Poor-fair	1
38	2143.48	4.1	Sandstone: lt gry, qtz, clr-trnsl, f occ m, sb ang-sbrnd, wl srt, wl cmt w/calc, hd	No show	Nil	1
39	2144.54	4.0	Sandstone: m dk gry, qtz, clr-trnsl, vf-f, sb ang-sb rmd, wl srt,	No show	Poor	2

Shot No	Depth (m)	Length (cm)	Description	Shows and rating	Inferred Porosity	Key
			mod cmt w/silic, mod hd-fri, com micromic, com dissem carb mat, vague silty lams			
40	2151.40	4.2	Sandstone: v lt gry, tr lt gn gry, qtz, clr-trnsl, f-m, sb ang-sb rndd, wl srt, mod cmt w/silic tr calc, tr chlorite, mod hd-fri	No show	Poor – fair	1
41	2159.78	4.0	Sandstone: v lt gry, qtz, clt-trnsl, m occ f, sb ang-sb rndd, wl srt, wk-mod cmt w/calc, frm-fri, tr mica,	No show	Fair	2
42	2164.66	4.5	Claystone: gn gry, frm-mod hd, non calc, slily wxy tex,	No show	None	2
43	2170.00	4.3	Sandstone: v lt gry, qtz, clt-trnsl, f-m, sb ang-sb rndd, wl srt, wl cmt w/ calc, mod hd-fri	No show	Poor	2
44	2177.00	4.2	Sandstone: v lt gry, qtz, clr-trnsl, m occ f, sb ang-sb rndd, wl srt, mod cmt w/silic tr calc, mod hd-fri, occ glauc	No show	Poor-fair	1
45	2195.44	3.9	Sandstone: as at 2177m	No show	Poor-fair	2
46	2207.03	4.3	Sandstone: v lt gry, qtz, clr-trnsl, vf-m, sb ang-sb rndd, mod srt, mod cmt w/calc, tr Kao mtrx, mod hd	No show	Poor	1
47	2215.41	4.3	Sandstone: v lt gry, qtz, clr-trnsl, vf-m, occ crs, sb ang-sb rndd, mod srt, wl cmt w/calc, com gn gry Clst clasts < 20mm thick, tr mica	No show	Nil-poor	2
48	2246.19	4.4	Sandstone: m dk gry, qtz, clr-trnsl, vf-f, sb ang-sb rndd, wl srt, wl cmt w/calc, com slty/carb lams, mod hd-fri	No show	Nil-poor	2
49	2324.83	4.4	Siltstone/Sandstone: m dk gry, mod hd, abd vf sd grdg slty Sst, non calc	No show	Nil	2
50	2381.22	4.5	Claystone: dk gry, mod hd, non calc, 70 deg (relative to long axis of core) pol surface	No show	Nil	2

2.3.8 Conventional Cores

Core No: 1	Interval: 1082m - 1086m	Core Rec: 1082 – 1085,2m	Recovery: 81%
-------------------	--------------------------------	---------------------------------	----------------------

Group: Realgrunnen	Age: L. / M. Jurassic – L. Triassic
Barrel size: 8 ½"	Barrel type: Aluminum
	Core purpose: Appraisal

Depth mRKB	Lithology	Grain Size	Description	Shows + Rating	Porosity
1082	Claystone		dk brn gry - olv gry, v slty - vf sdy, abd micromic, mod hd, non calc, sb fiss.	Weak HC odeour, No dir fluor, slow strm bl wh - lt yel cut fluor. Lt yel res fluor. No dir vis cut	
1083	Claystone		a.a	a.a	
1084	Claystone		a.a becoming more sandy	a.a	
1085	Sandstone	vf	Arg Sst: dk brn gry - olv gry, vf, mod srt, abd arg mtx, abd micromic, v sl calc, mod hd	a.a	poor
1085,3	Sandstone	v.f	Fine, argillaceous sandstone as above	a.a	poor

Core No: 2	Interval: 1086m - 1104m	Core Rec: 1086 – 1105m	Recovery: 106%
-------------------	--------------------------------	-------------------------------	-----------------------

Group: Realgrunnen	Age: Late Triassic
Barrel size: 8 ½"	Barrel type: Aluminum
	Core purpose: Appraisal

Depth mRKB	Lithology	Grain Size	Description	Shows + Rating	Porosity
1087	Sandstone	f - med	Gry or - dk yel or, f - med, wl srted, sbang, abd arg mtx, pr cmt, mod hd, fri, non calc, pr vis por	no oil stain, nil - v wk HC odeour, no dir fluor, non - v wk v slow strm wh - lt yel cut flour, wk wh - lt yel res fluor	pr
1088	Sandstone	f - crs pred m	Gry or - dk yel or, dk yel or, pred m occ f, r crs, mod srted, sbang, abd arg mtx, pr cmt, pr - fr vis por	a.a for the hole core	Pr - fr
1089	Sandstone	f - med pred m	a.a, pred m occ f, wl srted, r micromic		Pr - fr
1090	Sandstone	f - med	a.a fri, f - m, med - wl srted		Pr - fr
1091	Sandstone	f - med	a.a		Pr - fr
1092	Sandstone	f - med	a.a		Pr - fr
1093	Sandstone	f - med	a.a		Pr - fr
1094	Sandstone	f - med pred f	Pl yel brn, f - med, pred f, wl srted, sbang, fri, abd arg mtx, r cly frag, r micromic		Pr - fr
1095	Sandstone	f - med pred f	a.a		Pr - fr
1096	Sandstone	f - med r crs	a.a, f - med r crs, mod srted		Pr - fr
1097	Sandstone	med - crs	Gry or lam pl yel brn, pred med, med - crs, mod srted, sbang, fri, abd arg mtx, pr vis por		Pr - fr
1098	Sandstone	med - crs	a.a		Pr
1099	Sandstone	med - crs	Gry or a.a, md dk gry micromic lam		Pr
1100	Sandstone	f - med	Gry or, f - med, sbang, mod, abd arg mtx, microlam micromic		Pr - fr
1101	Sandstone	f - v crs	Gry or, f - v crs, pr srted, abd mtx, sbang - ang, fri, pr vis por		Pr - fr
1102	Sandstone	f - crs	a.a. f - crs		Pr - fr
1103	Sandstone	f - crs	a.a		Pr - fr
1104	Sandstone	f - crs	dk brn gry - olv gry, v slty - vf sdy, abd micromic, mod hd, non calc, sb fiss.		Pr - fr

Core No: 3	Interval: 1146m - 1156m	Core Rec: 1146 – 1156,7m	Recovery: 107%
-------------------	--------------------------------	---------------------------------	-----------------------

Group: Realgrunnen	Age: Late Triassic
Barrel size: 8 ½"	Barrel type: Aluminum
	Core purpose: Appraisal

Depth mRKB	Lithology	Grain Size	Description	Shows + Rating	Porosity
1146	Sandstone	f-med	Clr – trnsl, dk yelsh brn – mod yelsh brn, sbang – sbrndd, wl srt, lse Qtz gr, fri, occ mic, slily calc	HC odeour, Bright goldish – yelsh – light yel even flour, sl blwh – lt yel cut flour, fair yel res ring	
1147	Sandstone	a.a	a.a, m	a.a	
1148	Sandstone	a.a	a.a	a.a	
1149	Sandstone	a.a	a.a, dk yelsh brn – grysk brn	a.a	
1150	Sandstone	f-med	Trnsl – mky wh, dk yelsh brn – mod yelsh brn, pred f, sbang – sbrndd, mod srt, lse Qtz gr, mod hd, occ mic, slily calc	a.a	
1151	Sandstone	Vf – f	a.a	a.a	
1152	Sandstone	a.a	a.a, arg lam	a.a	
1153	Sandstone	a.a	a.a, hd	a.a	
1154	Sandstone	a.a	a.a, dk yelsh brn – brnsh blk	a.a	
1155	Siltstone	I.P.vf	Pl yelbrn – dk yel brn, sd lam, sbfiss, micromic, hd	a.a	No vis por – tight
1156	Siltstone	a.a	a.a	a.a	a.a

Core No: 4	Interval: 1187m – 1189.48m	Core Rec: 2.5 m	Recovery: 100%
-------------------	-----------------------------------	------------------------	-----------------------

Group: Ingøydjupet	Age: Late Triassic
Barrel size: 8 ½"	Barrel type: Aluminum
	Core purpose: appraisal

Depth mRKB	Lithology	Grain Size	Description	Shows + Rating	Porosity
1187	Sandstone/ Siltstone	Vf-f	Trnsl-mky wh, sbang-sb rndd, mod srt. Mod yel brn – pale yelsh brn, mod hd, calc mtrx	Strong HC odeour. Even goldish – yelsh – bright lt yel dir flour, sl lt yel strm cut, blwh – lt yel res cut flour.	fr
1188	Sandstone/ Siltstone	Vf	Trnsl-mky wh, dk yelsh brn – brnsh gry, hd	a.a	Pr - fr
1189	Siltstone	vf	a.a mod hd, sl stky	a.a	Pr - fr
1189.5	Siltstone/ Claystone		Brnsh gry – olv gry, frm – mod hd, sb blk, tr v f sd, sl calc	a.a	

Core No: 5	Interval: 1812m – 1824m	Core Rec: 1812 -1823.31m	Recovery: 94.3%
-------------------	--------------------------------	---------------------------------	------------------------

Group: Ingøydjupet	Age: Middle Triassic
Barrel size: 8 ½"	Barrel type: Aluminum half-moon Core purpose: Exploration

Depth mRKB	Lithology	Grain Size	Description	Shows + Rating	Porosity
1812	Sst	f-m	v pl or, qtz, clr-trnsl,f-m, ang-sb ang, wl srt, com arg mtrx, friable, tr calc cmt	Good Show: Strng pet od. No vis oil stn, Uni bri yel dir fluor, inst mod mlky yel cut fluor, no vis cut, bri yel fluor res, no vis res.	Gd
1813	Sst	Vf-m	Pl yel brn, qtz, clr-trnsl, vf-m, pred f, sb ang-sb rndd, wl srt, occ dissem carb mat, wl consol, mod hd-fri, non calc	Good Show: Mod pet od, No vis oil stn. Uni bri yel dir fluor, slo bri yel/gld, dir fluor, slo bri mlky yel, strmg cut fluor, no vis cut, bri yel fluor res, no vis res	Fr
1814	Sst	F	Lt brn, qtz, clr-trnsl, r rose, f, sbang-sbrndd, wl srt, occ dissem carb mat, wl consol, mod hd-fri, non calc	Good Show: Strong pet od. No vis oil stn. Uni bri yel dir fluor, fst pl mlky yel strmg cur fluor, no vis cut, bri yel fluor res, no vis res.	Pr-fr
1815	Clst	-	Dk gry, mod hd, non calc, micromic, several low angle slooth surfaces	None	None
1816	Clst	-	As at 1815	None	None
1816.57	Sst	f-m	As at 1814m	As at 1814m	Fr-pr
1817	Sst	Vf-m	Lt brn laminated dk gry, qtz, clr-trnsl, vf-m, pred f, sbang-sbrndd, wl srt, non calc, many mica carb lams, mod hd	Good Show: Strong pet od. No vis oil stn. Laminated bri yel dir fluor, pl slo mky yel strmg cut fluor, no vis cut, bri yel fluor res, no vis res	Nil-pr
1818	Sst	f-m	As at 1814m	Good Show: Mod pet od. No vis oil stn, Uni bri yel dir fluor, pl slo mlky yel strmg cut fluor, no vis cut, bri yel fluor res, no vis res.	Fr
1819	Sst	f-m	As at 1814m with occ mica carb lams	Good Show: as at 1818m	Fr
1820	Sst	f-m	As at 1814m	Good Show: as at 1818m	Pr-fr
1821	Sst	Pred f	As at 1814m	Good Show: as at 1818m	Pr-fr
1822	Sst	f-m	As at 1814m	Good Show: as at 1818m	Fr
1822.69	Clst	-	Dk gry, frm-mod hd, non calc, micromic, com low angle semi-polished, fissile planes.	None	-
1823.1	Sst	Vf-f	Dark gry, laminated light brown, qtz, clr-trnsl, vf-f, sbang-sbrndd, wl srt, com dissem carb mat, micromic, many f gr lams	Good Show: as at 1817m	Pr
1823.31	Clst	-	Dk gry, mod hd, fissile, non calc, micromic	None	-

Core No: 6	Interval: 1824 – 1836m	Core Rec: 1824 -1834.15m	Recovery: 84.6%
-------------------	-------------------------------	---------------------------------	------------------------

Group: Ingøydjupet	Age: Middle Triassic
Barrel size: 8 ½"	Barrel type: Aluminum half-moon Core purpose: Exploration

Depth mRKB	Lithology	Grain Size	Description	Shows + Rating	Porosity
1824	Clst	-	Dk gry, mod hd, sb fis, non calc, v slty, micromic	None	-
1825	Sst	f-m	Lt brn gry, qtz, clr-trnsl, f-m, sbang-sbrndd, wl srt, consol, mod hd-fri, occ dissem carb mat	Good Show: Strong pet od. No vis oil stn. Uni bri yel die fluor, mod yel slo strmg cut fluor, no vis cut, bri yel fluor res, no vis res.	Pr
1826	Sst	f-m	As at 1825m with occ mica carb lams	As at 1825m	Pr
1827	Sst	F	As at 1825m bcmg f	As at 1825m	Pr
1827.74	Sst	F	As at 1825m bcmg f	As at 1825m	Pr
1828	Sst	Vf-f	Lt brn gry, qtz, clr-trnsl, vf-f, sbang-sbrndd, wl srt, consol, mod hd-fri, com micromic, non calc	As at 1825m	Pr
1829	Sst	Vf-f	As at 1828m occ rose qtz	As at 1825m	Pr
1830	Sst	Vf-f	Lt brn gry, qtz, clr-trnsl, vf-f, sbang-sbrndd, wl srt, slty mtrx, consol, non calc, com micromic, com dissem carb mat	Poor Show: Fnt pet od. No vis oil stn. Pchy mod yel dir fluor, mod yel discoloration cut fluor, no vis cut, fnt mlky yel fluor res, no vis res	Pr-nil
1831	Sst	Vf	Lt brn gry, qtz, clr-trnsl, vf, abdt slty mtrx, micromic, com dissem carb mat	As at 1830m	Nil
1832	Clst	-	Gnsh blk, frm, non calc, slty, micromic	None	-
1833	Clst	-	Dk gry, mod hd, v slty, non calc, com vf sdy lams	Poor Show: Fnt pet od. No vis oil stn. Laminated fnt pl yel dir fluor, fnt pl yel discolouration cut fluor, no vis cut, fnt pl yel fluor res, no vis res	Nil
1833.82	Clst	-	Olv blk, frm, wxy tex, fissile, non calc	None	-
1834.15	Sltst	-	Dk gry, mod hd, blk, non calc, occ vf sdy lams, com dissem carb mat	Poor Show: Fnt pet od. No vis oil stn. Pchy fnt dull yel dir fluor, fnt pl mlky yel discolouration cut fluor, no vis cut, fnt pl yel fluor res, no vis res	-

Core No: 7	Interval: 2519 - 2521	Core Rec: 1.88m	Recovery: 94%
-------------------	------------------------------	------------------------	----------------------

Group:	Formation: Ørret/Templefjorden	Age: Early Triassic
Barrel size: 4 ¾ x 2 9/16	Barrel type: Aluminum half-moon	Core purpose: Exploration

Depth mRKB	Lithology	Grain Size	Description	Shows + Rating	Porosity
2519	Sst	med-crs r v crs	clr-wh-trnsl gry Qtz, med-crs & r v crs gr, ang-sbrnd, frm-hd mod wl cmt w/ calc cmt, tr biot mic, pyr, chlor	No shows	Mod vis por
2520	Sst	med- crs- pebbles 10mm+	Wh-clr-transl gry, r rose Qtz, med-v crs-pebbles (10mm+), ang-sbrnd, wl cmt w/ calc/sil? cmt, tr biot mic	Tr patchy yel grn dir fluor, no cut	Mod vis por

2.4 STRATIGRAPHY

2.4.1 Biostratigraphy

Routine Biostratigraphical analysis of the 7122/7-3 well was carried out by APT. The analyses were based on studies of lithology, micropaleontology and palynology from ditch cuttings covering the interval from 540 to 2725 m RT.

Figure 2.4.1 summarised the stratigraphical subdivision of the well. Further details can be found in the report "7122/7-3 biostratigraphy" by APT.

Stratigraphic summary 7122/7-3		
Depths (mRKB)	Biostratigraphy	Lithostratigraphy
	Cenozoic	
540-620	Late Paleocene	Torsk Formation
	Unconformity	
	Cretaceous	
630-640	Late Campanian to Maastrichtian	*Kveite-Kviting Fms
650	Late Santonian to Early Campanian	
660-670	Early Santonian	
	Unconformity	
680-740	Late Albian to Early Cenomanian	Kolmule Formation
750-800	Late Albian	
830-870	Middle? to Late Albian	
	Unconformity	
890-900	Middle to Late Barremian	Kolje Formation
920-950	Early Barremian	
960-1010	Hauterivian to Early Barremian	Knurr Formation
	Unconformity?	
1020	Late Ryazanian to Early Valanginian	?Hekkingen Formation
1025	Ryazanian	Hekkingen Formation
	Jurassic	
1025-1035	Late Volgian	
1050-1060	Middle to Late Volgian	
1070	Unconformity?	
1075	Middle Oxfordian	Fuglen Formation
1082	Late Callovian to Early Oxfordian	
1087-1115	Sample Gap, Unconformity	
	Triassic	
1115-?1120	Middle Norian	Fruholmen Formation
1130-1195	Early Norian	Fruholmen-Snadd Fms
1215	Earliest Norian	Snadd Formation
1240-1475	Late Carnian	
1495-1525	Early Carnian?	
1545-1800	Early Carnian	
1810?	Late Ladinian**	?Kobbe Formation
1825-1830	Late Anisian to Early Ladinian	Kobbe Formation
1840-2015	Late Anisian	
2035-2065	Middle-Early Anisian	
2080-2240	Spathian	
2260-2330	Smithian	?Klappmys-Havert Formation
2355-2480	Dienerian	Havert Formation
2500-2575	Early to Late Griesbachian	Havert Formation
2590	Earliest Griesbachian	?Havert Formation
	Permian	
2600-2699.5	Late Permian	Tempelfjorden Gp undiff.
2699.5-2725	Late Carboniferous to Early Permian	IØrret and Røye Fms
2725		Lowermost sample

Fig. 2.4.1 Stratigraphical summary.

2.4.2 Lithostratigraphy

The lithostratigraphical and lithological summary is compiled on well site sample description and interpretation of LWD and wireline logs. Formation tops are based on log interpretation and biostratigraphical report.

Drilled with returns to seabed down to 538m

Nordland Group and Sotbakken Group 368 – 634m RT (343 – 609m MSL)

System: Quarternary - Tertiary

Nordland Group

Clay and sand grade into sandstone and claystone with cobbles and boulders of crystalline and metamorphic lithotypes.

Sotbakken Group

Claystone, medium dark grey to light olive grey, occasionally light blue grey to greenish grey, firm, slight silty, occasionally glauconitic, interbeds of siltstone and sandstone, fine to medium.

Nygrunnen Group 634 – 650 RT (609 – 625m MSL)

Series: Late Cretaceous

Kviting Formation 634 – 650m RT (609 – 625m MSL)

Sandstone beds/layers occurs close to the formation top, and below throughout the formation

Sandstone, predominate fine, occasionally medium, rarely coarse, moderate to well sorted, sub-angular, moderately hard, slightly calcareous, slightly silica cemented
Claystone, light grey to medium dark grey, soft to firm, slight silty, non calcareous and glauconitic

Nordvestbanken Group 650 – 1018m RT (625 – 993m MSL)

Series: Early Cretaceous

Kolmule Formation 650 – 865m RT (625 – 840m MSL)

Series: Early Cretaceous

Claystone, medium dark grey to olive grey, soft to firm, amorphous to sub-blocky, occasionally slight silty, mainly non-calcareous
Limestone, light yellowish grey to light grey, firm to moderately hard.

Kolje Formation 865 – 959.5m RT (840 – 934.5m MSL)

Series: Early Cretaceous

Claystone with stringers of Limestone and Dolomite

Claystone, medium dark grey, soft to firm, sub-blocky to blocky, slightly silty, non-calcareous

Limestone, light yellowish grey to light grey, firm to moderately hard, occasionally hard, occasionally slight argillaceous to argillaceous, microcrystalline.

Dolomite, dark yellowish brown, hard to very hard, angular, cryptocrystalline.

Knurr Formation 959.5 – 1018m RT (934.5 – 993m MSL)

Series: Early Cretaceous

The sequence is made up of interbedded Claystone, occasionally grading to Marl, Limestone, Dolomite and Siltstone

Claystone, dark grey to olive grey, firm, slightly calcareous to calcareous.

Marl/Claystone, dark reddish brown, soft to firm, amorphous to sub blocky, very calcareous.

Limestone, white to light grey, firm to hard, microcrystalline to crystalline slight argillaceous to argillaceous, sandy in parts.

Dolomite, pale red brown to light yellow brown to dark yellowish brown, hard to very hard, micro to cryptocrystalline.

Siltstone, dark grey, moderately hard and non to slightly calcareous.

Teistengrunnen Group 1018 – 1087m RT (993 – 1062m MSL)

Series: Late Jurassic

Hekkingen Formation 1018 – 1073m RT (993 – 1048m MSL)

Series: Late Jurassic

This formation consists of interbedded Claystone and Siltstone with stringers of Limestone.

Claystone, grey black to black, blocky to platy, sub-fissile, firm, carbonaceous, non-calcareous, slightly silty, micropyrritic and micromicaceous.

Siltstone, medium grey to dark grey, non to slight calcareous, firm, subfissile, micropyrritic, clayey in parts grading into silty claystone.

Limestone: light grey – medium dark grey, firm – hard, blocky, argillaceous to very argillaceous grading to calcareous claystone, microcrystalline, rare crystalline

Fuglen Formation 1073 – 1087m RT (1048 – 1062m MSL)

Series: Late Jurassic

This formation consists of Claystone and Siltstone.

Claystone, grey black to black, blocky to platy, sub-fissile, firm, carbonaceous, non calcareous, slightly silty, micropyrritic and micromicaceous.

Siltstone: light brown to light olive to olive grey to medium dark grey, hard, blocky, no to slight calcareous, well cemented, clayey to sandy.

Realgrunnen Group 1087 – 1180m RT (1048 – 1155m MSL)

Series: Late triassic

The main target sequence is of interbedded Sandstones, Siltstones and Claystones.

Sandstone, grey orange to dark yellowish orange to moderate yellowish brown, fine to medium, occasionally coarse, moderate to well sorted, subangular to subrounded, friable to moderately hard, abundant argillaceous matrix, poor cemented, non to very slightly calcareous.

Siltstone, dark grey to pale yellowish brown to dark yellowish brown, clayey to sandy in parts with very fine sand lamina, sub-fissile, moderately hard to hard, non-calcareous, micro micaceous in parts abundant.

Claystone, light to medium grey to brown grey, firm to hard, occasionally soft and sticky, amorphous to sub-blockey, silty grading to siltstone

Ingøydjupet Group 1180 – 2598.5m RT (1155 – 2570m TVD MSL)

Series: Late Triassic

Snadd Formation 1180 – 1808m RT (1155 – 1783m TVD MSL)

Serie: Late / Early Triassic

The upper and middle parts of the Snadd Formation consist of interbedded Sandstone, Claystone and Siltstone.

Sandstone, dark yellowish brown to light grey brown to light grey, very fine to medium, well sorted, subangular to subrounded, friable to loose moderately silica/calcareous cemented, trace of carbonaceous material.

Claystone, very light to medium grey to pale brown, very soft to soft, sticky, amorphous, slight calcareous.

Siltstone, light to medium grey, firm, subblockey, non-calcareous

The lower part of the Snadd Formation is dominated of Claystone with stringers of Siltstone and Sandstone.

Claystone, varicoloured, soft, occasionally sticky, amorphous to blocky, non-to slight calcareous.

Siltstone, light to medium grey to brown grey, soft to firm, crumbly, in part very sandy in other parts clayey, slight calcareous

Sandstone, very silty grading sandy siltstone, pale brown grey, sub fissile, friable, poor consolidated traces of carbonaceous material.

Kobbe Formation 1808 – 2043.5m RT (1783 – 2018.5m TVD MSL)

Series: Middle Triassic

The secondary target interval consists of interbedded Sandstone and Claystone with a few Siltstone and Limestone stringers.

Sandstone, light grey to pale grey to pale yellowish brown, very fine to medium, moderately to well sorted, subangular to subrounded, silica / calcareous cemented, in parts argillaceous matrix.

Claystone, dark grey, greenish grey, olive grey, olive brown, firm to moderately hard, blocky, common silty, non-calcareous.

Siltstone, medium to dark grey, in parts very dusky red moderately hard, in parts very fine sandy lamina, micromicaceous, non-calcareous.
Limestone, light grey to pale grey to pale greenish grey, friable to moderately hard, very sandy occasionally grading to calcareous sandstone.

Klappmyss Formation 2043.5 – 2211.5m RT (2018.5 – 2186.5m TVD MSL)

Series: Early Triassic

The sequence is made up of interbedded Sandstone and Claystone and is a possible additional reservoir. and Sandstone.

Sandstone: very fine to fine, in parts medium, sub-angular to sub-rounded, moderate to well sorted, poor silica cemented to well calcareous cemented. Claystone: pale greenish grey to light grey to brownish grey, firm to hard, subblocky to blocky, traces of mica and traces of disseminated pyrite.

Sandstone, very fine to fine, subangular to subrounded, moderate to well sorted, poor silica cemented to well calcareous cemented.

Havert Formation 2211.5 – 2598.5m RT (2186.5 – 2570m TVD MSL)

Series: Early Triassic

Havert Formation is consisting of Claystone interbedded with Sandstone, Siltstone at the lowermost part and a few stringers of Limestone.

Claystone: light grey mottled pale brown, pale brown grey, red brown, medium brown, grey red, soft – firm, silty to very silty grading to siltstone, occasionally sandy, amorphous – blocky, non calcareous.

Sandstone: very light grey, fine to very coarse, well to poorly sorted, sub-angular to rounded, poor to well calcareous cemented, firm to hard, occasionally micaceous, rare pyrite, poor visible porosity.

Siltstone: medium grey – brown grey, speckled, amorphous, very soft to friable, trace micromica.

Limestone: white to very light grey, soft to firm, argillaceous to sandy microcrystalline.

Tempelfjorden Group 2595 – 2726m RT (2570 – 2701m TVD MSL)

Series: Upper Permian

Ørret

Formation 2595 – 2691m RT (2570 – 2666m TVD MSL)

Series: Late Permian

The Ørret Formation consists of interbedded Claystone and Sandstone with stringers of Limestone.

Sandstone: clear – translucent grey, very fine to very coarse, poorly sorted, angular – subrounded, very poorly calcareous cemented, trace mica, trace pyrite.

Claystone: light to dark grey, brown grey, olive grey, occasionally mottled white, sub blocky to amorphous, silty – sandy.

Limestone: white – very light grey, soft to firm, subblocky – blocky, sandy, microcrystalline.

Røye

Formation 2691 – 2726m RT (2666 – 2701m TVD MSL)

Series: Late Permian

The deepest formation in this well is dominated of Limestone with Claystone interbeds

Limestone: milky white to light grey with, in parts, dark grey lamina, firm to hard occasionally very hard, sub blocky to blocky, argillaceous in parts, microcrystalline, occasionally crystalline, micritic in parts.

Claystone: dark grey to olive mottled white, soft to slightly firm, amorphous to blocky, sandy, traces of mica.

Total depth of the well is 2726m (2701m MSL).

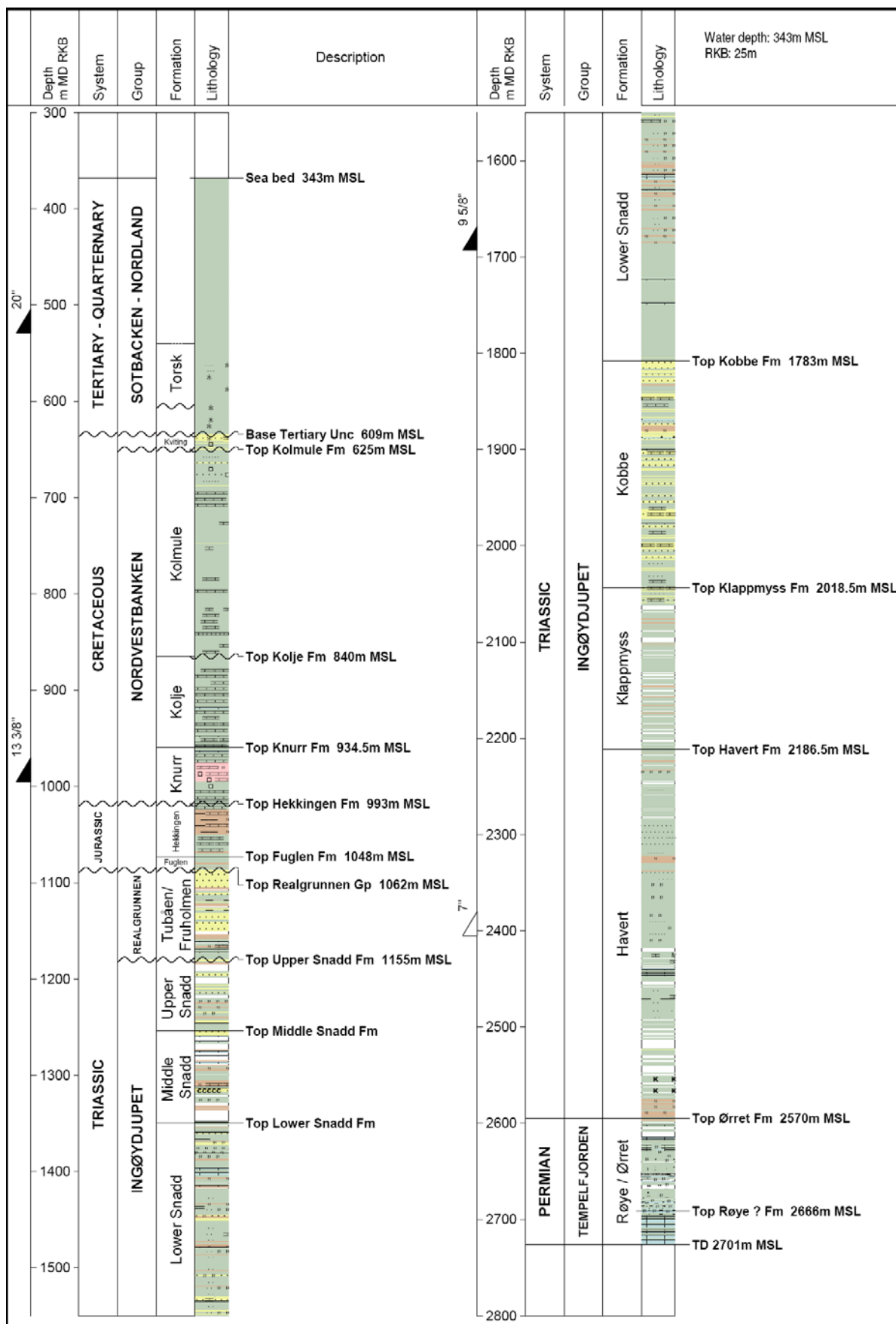


Figure 2.4.2. Geological Summary

2.5 VERTICAL SEISMIC PROFILE

A zero offset VSP was recorded in 7122/7-3 in order to provide a correlation between the well logs and the 3D surface seismic data, velocities for depth conversion of seismic data and high resolution seismic images to aid interpretation. Full details are given in the VSP processing report by Schlumberger.

The VSP was acquired on 31st December 2005 using a VSI receiver array and a source array consisting of 3 x 150 cu.in. G-guns at 140 bar pressure and 4.5m depth. The lateral offset of the source was 43m, at an azimuth of 010 degrees. For most of the well the spacing between receiver levels was 15m. Over the Kobbe and Realgrunnen reservoir intervals the tool positions were interleaved to give 7.5m spacing. A total of 248 levels were recorded, between 2710 and 504m MD RKB. Levels shallower than 900m were affected by casing noise, but special processing was applied and first arrival times could then be measured between 625 and 895m MD RKB, for use in sonic log calibration.

VSP processing was carried out on the data from 900m to 2710m MD RKB. The compressional wave processing resulted in the deconvolved zero phase upgoing wavefield and a series of corridor stacks. Shear wave processing was possible over a shorter depth interval and similar products were made.

The polarity convention for the VSP and synthetic seismogram displays is that a white trough and negative number represent normal polarity for an upgoing compressional wave reflected from an interface with an increase of acoustic impedance with depth.

2.6 SYNTHETIC SEISMOGRAMS

Compressional sonic logs are available for the 625 to 2721m MD RKB interval. The interval with shear sonic logs is 1037 to 2721m MD RKB. These logs were calibrated using the time/depth information from the VSP.

The sonic and density logs were combined to produce acoustic impedance logs and reflectivity series. Synthetic seismograms were produced in two different ways. The first set used zero phase Butterworth wavelets with various bandwidths. The second type was made by extracting a wavelet from the 3D surface seismic data at a best match position close to the well location. The extracted wavelet was found to be close to zero phase.

A composite display with VSP, corridor stacks, well logs, synthetic seismograms and 3D surface seismic data is shown in Figure 2.6.1. The main formation tops are marked so that the correlation between well logs and the various seismic panels can be seen. In general there is a clear correspondence between reflections on the different seismic panels. Several of the formation tops do not have clear seismic reflections associated with them, so they are not straightforward to make maps of. In most cases the seismic reflections represent the combined response of interfaces between several adjacent thin layers.

2.7 GEOCHEMISTRY

A geochemical study has been performed on the oil and rock samples coming from the 7122/7-3 well drilled in the Goliat structure in order to define the migrated fluid distribution, to identify the possible source rock properties and to assess the thermal maturity profile. For details see the report:

“Goliat Field – Well 7122/7-3 Geochemical study” edited by R. Galimberti

Main results:

Geochemical well logging (TOC and Rock Eval)

Some levels at the base of the Cretaceous Knurr Fm (around 10 m thick) show good potential for gas generation.

The Hekkingen Fm (1018-1073m MD) shows very high T.O.C. values (from 6 to 10%), one single sample showing 39% TOC is probably contaminated by graphite added to the mud. The Hekkingen Fm. is here a type III/II source with mainly gas potential. The high T.O.C. values continue also in some of the Realgrunnen samples probably due to a combination of caving from the Hekkingen and a contamination by mud additives. Both the Tmax. values (415-418°C) and the biomarker analysis of the extract show a very low thermal maturity. A correlation with the oils of the area is hampered by this immaturity.

As shown by the Production Index (PI) the oil zone is clearly identified between the base of the Realgrunnen Fm. and the top of the Snadd Formation. The first oil bearing sample is around 1175m MD, while a clear decrease can be detected around 1240m MD, oil traces can then be seen down to 1280m. As expected the extracts of these samples show the same biomarker profile as the tested oil.

In the Triassic Snadd Fm some scattered coaly levels have been identified at 1355m MD, 1435m MD and 1465m MD. On the log coal layers are interpreted at 1349m, 1359m, and 1438m. The HI is quite interesting (≈ 250) and the kerogen can be classified as type II/III with some potential for condensate/light oil. The base of the Snadd Fm. (1715-1780 m MD) and part of the top Kobbe Fm. are contaminated by the unidentified mud additive; unfortunately the possible presence of source or shows is difficult to deduce in this zone.

In the 1820 – 1855 m MD interval of the Triassic Kobbe Fm. part of the Rock Eval S1 peak can be removed by solvent washing. The subsequent GC-MS analysis of the extract shows that the hydrocarbons here are correlated with the Triassic sourced oils of the Barents Sea and, due to their maturity level, can be considered as migrated. Traces of the same oil can be seen also in a single sample at 1915m MD.

The samples from the Early Triassic Havert Fm. and the Permian Ørret and Røye fms. are strongly contaminated by graphite and other mud additives. In this section of the well the low values of the S2 indicate that the presence of potential source rocks can be excluded.

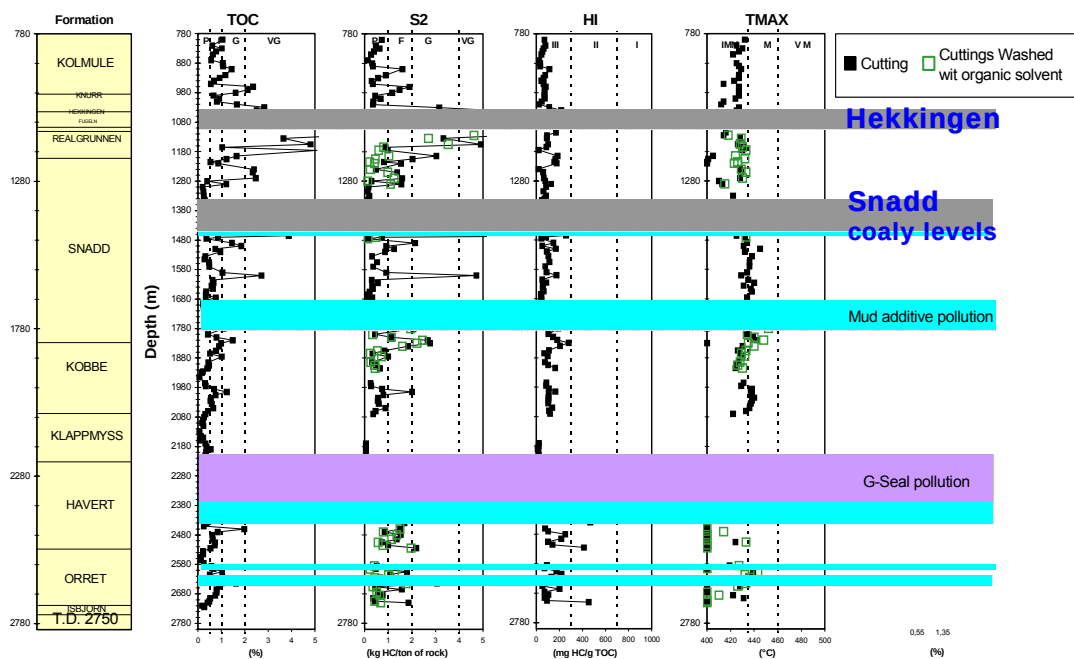


Fig.2.7.1 Geochemical log – summary of the source rock evaluation

2.8 FORMATION EVALUATION

2.8.1 Reservoir Petrophysical Description

Hydrocarbons were discovered in Realgrunnen, Snadd and Kobbe formations.

Realgrunnen Formation

Top Realgrunnen reservoir was found at 1087m (1062m MSL), Gas/oil contact at 1146.6m and no oil/water contact was observed in the Realgrunnen reservoir. Cores 2 and 3 were cut in this formation.

The upper part of Realgrunnen from 1086 to 1105m (core 2) consisted of a clean, massive, grey to dark grey, fine to coarse sandstone. The sandstone has an average porosity of 25% and permeability of more than 1400mD. From 1105m to base of Realgrunnen, the formation consists of alternating sandstone and claystone. The depositional environment is varying from fluvial channels to bay fill units indicating a marginal marine environment with fluvial influence. The sandstone porosity is between 20 and 32 % with permeability up to 5000mD.

Snadd Formation

Top Snadd Formation was penetrated at 1180m (1155m MSL). Oil/water contact was found at 1199.4m (1174.4m MSL).

The Snadd Formation consists of interbedded sandstone, claystone and siltstone interpreted to be deposited in a coastal delta plain environment.

Core 4 (1187 – 1189.5) was cut in this formation. Due to core damage no routine core analysis could be performed. Eleven rotary sidewall cores were taken in the Snadd Formation. Porosity ranges from 18 to 30 % with permeability varying from 100 to 3000 mD.

Kobbe Formation

Top Kobbe Formation was reached at 1808m (1783m MSL). Oil was confirmed down to 1875.3m by MDT fluid scanning and the oil water contact is interpreted to be at 1878m based on intersection between oil and water gradients.

The Kobbe Formation consists of 5 to 10m thick Sandstone bodies layered with 1 to 8 m thick Claystone beds. Below 1855m RT the Sandstone layers becomes less and thinner while the Claystone beds increase in thickness. The sequence above 1855m RT is interpreted to be a prograding delta system with mouthbars, lower shore face and prodelta units. Below 1855m RT the cored section indicates a flood plain depositional system.

Core 5, 6 and 7 were cut in the Kobbe Formation. Porosity ranges from 19 to 27% with permeability from 200 to 1500 mD.

CORE	PLUG	Depth (m)	Hor.Perm Kn²(mD)	Hor.Perm KL(mD)	Vert.Perm Kn²(mD)	Vert.Perm KL(mD)	Hor.Porosity (%)	Vert. Porosity(%)	Gr.Density (g/cm³)
2	8	1086.05	NMP	NMP			7.0		2.64
2	9	1086.25	0.082	0.048			7.4		2.63
2	10	1086.50	0.093	0.055	0.017	0.009	7.7		2.74
2	11	1086.70	0.251	0.157			5.9		2.62
2	11.11	1086.95						28.6	
2	12	1087.50	0.097	0.057	0.019	0.01	7.2		2.73
2	13	1087.82	3755	3640			32.8		2.67
2	13.11	1087.95						32.3	
2	14	1088.05	1483	1419			30.7		2.66
2	15	1088.25	1624	1556			30.1		2.66
2	16	1088.50	2531	2441	1427	1364	30.7		2.66
2	17	1088.75	2648	2556			32.5		2.67
2	17.11	1088.95						32.4	
2	18	1089.05	266	245			26.7		2.71
2	19	1089.25	NMP	NMP			31.2		2.65
2	20	1089.50	2329	2244	1383	1322	32.1		2.67
2	21.11	1089.95						28.7	
2	21.F	1089.70	2134	2053			33.2		2.69
2	22.F	1090.20	2139	2058			31.5		2.67
2	23.F	1090.35	2709	2615			31.1		2.67
2	24	1090.50	6058	5903	3674	3561	34.1		2.67
2	25	1090.75	4157	4035			33.4		2.67
2	25.11	1090.95						33.3	
2	26.F	1091.15	19.6	16.6			18.7		2.65
2	27	1091.30	102	91.3			27.0		2.71
2	28	1091.60	1849	1775			27.3		2.65
2	29	1091.85	3873	3756	3445	3336	30.4		2.64
2	29.11	1091.95						32.5	
2	30	1092.15	6207	6050			27.3		2.64
2	31.F	1092.35	3876	3758			26.4		2.65
2	32	1092.60	5922	5770			26.6		2.71
2	33	1092.80	477	446			21.6		2.66
2	33.11	1092.95						32.0	
2	34.F	1093.05	189	172			17.9		2.65
2	35	1093.25	NMP	NMP			25.0		2.63
2	36	1093.50	2408	2321	2004	1926	29.7		2.66
2	37	1093.82	3391	3283			29.4		2.67
2	37.11	1093.95						29.3	
2	38	1094.00	4.33	3.47			15.9		2.83
2	39	1094.25	2209	2127			27.3		2.70
2	40.F	1094.45	2430	2342	0.496	0.323	29.2		2.68
2	41.11	1094.95						29.5	
2	41.F	1094.80	5957	5804			29.8		2.67
2	42	1095.00	2011	1933			26.9		2.64
2	43	1095.20	5182	5042			26.4		2.61
2	44	1095.50	2151	2070			26.5		2.64
2	45	1095.75	3366	3259	880	833	26.9		2.62
2	45.11	1095.95						28.0	
2	46	1096.05	453	423			22.4		2.65
2	47	1096.28	563	528	545	511	23.5		2.64
2	48.F	1096.42	620	583			25.2		2.65
2	49	1096.75	3362	3255			25.4		2.68
2	49.11	1096.95						24.8	
2	50	1097.05	1987	1910			25.9		2.67
2	51	1097.25	1120	1066			25.1		2.66
2	52	1097.50	2044	1965	1272	1213	26.8		2.68
2	53	1097.75	1313	1253			25.4		2.66
2	53.11	1097.95						26.1	
2	54	1098.00	2321	2236			26.4		2.66

Table 2.8.1 Routine core analysis Realgrunnen.

CORE	PLUG	Depth (m)	Hor.Perm Kn²(mD)	Hor.Perm KL(mD)	Vert.Perm Kn²(mD)	Vert.Perm KL(mD)	Hor.Porosity (%)	Vert. Porosity(%)	Gr.Density (g/cm³)
2	55	1098.25	2527	2437			26.6		2.65
2	56	1098.50	2313	2228	1825	1752	26.2		2.65
2	57	1098.75	2351	2266			27.2		2.67
2	57.11	1098.95						26.9	
2	58	1099.00	2385	2299			26.9		2.67
2	59	1099.25	2795	2699			26.9		2.67
2	60	1099.50	2249	2166	1856	1782	25.9		2.65
2	61	1099.75	2808	2712			25.3		2.64
2	62	1100.00	2211	2129			25.8		2.63
2	63	1100.25	2013	1935			24.9		2.66
2	64	1100.50	2625	2533	2286	2202	24.9		2.64
2	65	1100.75	3528	3418			24.0		2.68
2	65.11	1100.95						25.6	
2	66	1101.00	2583	2492			25.7		2.66
2	67	1101.25	3044	2943			25.9		2.67
2	68	1101.50	2550	2460	1985	1908	24.8		2.67
2	69	1101.75	2677	2583			25.1		2.67
2	69.11	1101.95						24.6	
2	70	1102.00	1828	1755			24.4		2.67
2	71	1102.25	1285	1226			22.9		2.71
2	72	1102.50	2499	2410	2337	2251	24.3		2.65
2	73	1102.75	2366	2279			24.1		2.66
2	73.11	1102.95						25.4	
2	74	1103.00	2585	2494			25.0		2.65
2	75	1103.25	2124	2043			25.7		2.68
2	76	1103.50	1318	1258	2095	2015	23.0		2.71
2	77	1103.75	2118	2038			24.3		2.64
2	77.11	1103.95						25.4	
2	78	1104.00	1245	1187			25.0		2.77
2	79	1104.25	2729	2635			26.7		2.66
2	80	1104.50	3059	2958	2230	2147	25.8		2.66
2	81	1104.75	2807	2711			25.4		2.66
2	81.11	1104.95						23.1	
3	82	1146.05	1821	1748			29.7		2.64
3	83	1146.25	5997	5843			32.2		2.65
3	84	1146.50	2614	2523	1404	1342	31.0		2.65
3	85	1146.75	2028	1949			30.7		2.64
3	85.11	1146.95						31.7	
3	86	1147.00	2714	2620			31.9		2.65
3	87	1147.25	2379	2292			30.1		2.64
3	88	1147.50	3152	3049	2323	2238	30.0		2.63
3	89	1147.75	2425	2338			31.1		2.65
3	89.11	1147.95						31.6	
3	90	1148.00	3129	3026			31.1		2.66
3	91	1148.25	NMP	NMP			32.2		2.66
3	92	1148.50	1014	964	653	615	31.2		2.64
3	93	1148.80	2585	2494			29.3		2.66
3	93.11	1148.95						30.3	
3	94	1149.00	2238	2155			34.6		2.64
3	95	1149.25	344	318	287	265	31.1		2.61
3	96	1149.50	NPP	NPP			NPP		NPP
3	97	1149.75	128	115			23.8		2.65
3	98	1150.50	0.882	0.596			10.4		2.55
3	98.11	1151.95						NPP	
3	99	1152.40	NPP	NPP			NPP		NPP
3	99.11	1152.95						NPP	
3	100	1153.75	NPP	NPP			NPP		NPP
3	100.11	1153.95						18.0	
3	100.11a	1154.95						21.1	
3	100.11b	1155.95						NPP	

Table 2.8.2 Routine core analysis Realgrunnen.

CORE	PLUG	Depth (m)	Hor.Perm Kn²(mD)	Hor.Perm KL(mD)	Vert.Perm Kn²(mD)	Vert.Perm KL(mD)	Hor.Porosity (%)	Vert. Porosity(%)	Gr.Density (g/cm³)
5	103	1812.00	2494	2405			28.0		2.66
5	104	1812.25	1625	1557			28.8		2.65
5	105	1812.50	1823	1749	1114	1060	28.5		2.67
5	106	1812.75	2066	1987			27.6		2.66
5	106.11	1812.95						28.6	
5	107	1813.00	1188	1132			28.4		2.70
5	108	1813.25	1638	1569			26.7		2.65
5	109	1813.50	1700	1630	2047	1968	26.3		2.67
5	110	1813.75	2159	2077			28.8		2.65
5	110.11	1813.95						28.2	
5	111	1814.00	1041	989			28.1		2.67
5	112	1814.25	2169	2088			27.2		2.65
5	113	1814.50	1201	1145	1596	1529	27.7		2.67
5	113.11	1814.80						10.4	
5	113.11B	1815.80						10.4	
5	114	1816.43	732	691	37.9	32.4	24.3		2.70
5	115	1816.70	1890	1815			27.7		2.67
5	115.11	1816.80						25.4	
5	116	1817.08	3599	3487			29.4		2.65
5	117	1817.30	3594	3482			29.8		2.72
5	118	1817.55	2470	2382	52.6	45.8	27.9		2.70
5	119	1817.75	2585	2494			27.6		2.65
5	119.11	1817.95						28.5	
5	120	1818.00	1357	1296			28.6		2.66
5	121	1818.25	1671	1601			30.5		2.66
5	122	1818.50	902	855	4.41	3.57	27.1		2.66
5	123	1818.75	1.61	1.12			17.3		2.68
5	123.11	1818.90						15.4	
5	124	1819.00	1627	1558			28.9		2.66
5	125	1819.25	1694	1624	1146	1092	29.3		2.68
5	126	1819.55	NPP	NPP			NPP		NPP
5	127	1819.75	1202	1146			29.2		2.67
5	127.11	1819.95						23.6	
5	128	1820.00	1180	1124			27.3		2.66
5	129	1820.25	1114	1061			27.6		2.66
5	130	1820.50	1121	1067	810	766	27.9		2.66
5	131	1820.70	1125	1071			27.3		2.65
5	131.11	1820.95						27.6	
5	132	1821.00	1365	1304			28.3		2.66
5	133	1821.25	1228	1171			26.8		2.66
5	134	1821.50	1006	956	1106	1053	26.6		2.67
5	135	1821.75	1531	1465			25.7		2.67
5	135.11	1821.95						21.3	
5	136	1822.00	635	597			27.9		2.66
5	137	1822.25	603	566	735	694	25.2		2.66
5	138	1822.50	NPP	NPP			NPP		NPP
5	139	1823.00	NMP	NMP			9.9		2.66
5	139.11	1823.20						15.8	
6	140	1824.45	411	382	0.042	0.024	24.6		2.67
6	141	1824.80	4446	4318			29.0		2.66
6	141.11	1824.95						28.5	
6	142	1825.00	4253	4128			27.5		2.65
6	143	1825.25	3155	3052			27.6		2.64
6	144	1825.55	2905	2807	4319	4194	27.7		2.65
6	145	1825.75	4333	4207			30.1		2.65
6	145.11	1825.95						29.0	
6	146	1826.00	2576	2485			30.3		2.63
6	147	1826.25	1868	1793			28.0		2.65
6	148	1826.50	3318	3211	942	894	30.6		2.66
6	149	1826.75	2186	2104			28.4		2.65
6	149.11	1826.95						29.2	
6	150	1827.00	5848	5697			31.5		2.65
6	151	1827.25	112	100			24.7		2.71
6	152	1827.50	4289	4164	3566	3455	29.8		2.65
6	153	1827.75	1033	982			27.6		2.70
6	153.11	1827.95						27.6	
6	154	1828.00	93.8	83.4			24.4		2.72
6	155	1828.25	4.59	3.72			20.2		2.71
6	156	1828.60	73.3	64.7	276	254	23.1		2.68
6	157	1828.80	578	542			27.3		2.67
6	157.11	1828.95						27.6	
6	158	1829.12	46.3	40.2			23.2		2.68
6	159	1829.35	815	771	47	44.2	28.6		2.68
6	160	1829.60	424	395			27.1		2.67
6	161	1829.80	314	290			26.9		2.67
6	161.11	1829.95						25.5	
6	162	1830.20	NMP	NMP			9.6		2.75
6	163	1830.60	0.024	0.013	0.048	0.027	6.7		2.80
6	163.11	1830.95						10.5	
6	164	1831.15	0.075	0.043	0.031	0.017	10.3		2.71
6	165	1831.55	NPP	NPP			NPP		NPP
6	165.11	1831.95						17.1	
6	165.11b	1832.95						12.9	
6	165.11c	1834.05						11.4	
7	166	2519.00	129	116			11.9		2.69
7	167	2519.25	239	219	9.73	8.12	14.8		2.67
7	168	2519.50	7970	7787			18.5		2.65
7	169	2519.75	2303	2218			16.4		2.67
7	170	2520.15	162	147	2241	2157	10.0		2.65
7	171	2520.40	1755	1683			14.3		2.67
7	172	2520.55	527	494			11.1		2.67
7	173	2520.75	1.12	0.77			5.1		2.67

Table 2.8.3 Routine core analysis Kobbe and Havert.

Depth(m)	Hor.Perm:Kn ² (mD)	Hor.Perm:1/Pm	Hor.Perm:KL(mD)	Hor.Porosity(%)	Hor.Gr.Density(g/cm ³)
1107.00	NMP		NMP	28.7	2.56
1107.80	54.2	0.495	50.0	14.7	2.39
1108.60	NMP		NMP	24.1	2.60
1111.30	1210	0.993	1154	30.0	2.66
1114.50	0.065	0.495	0.037	7.2	2.66
1117.70	0.058	0.495	0.033	9.3	2.59
1125.20	3.13	0.495	2.46	15.0	2.65
1127.90	7861	0.998	7679	29.6	2.65
1113.10	3012	0.996	2912	29.9	2.61
1134.50	1672	0.992	1603	30.0	2.61
1135.80	524	0.974	491	26.2	2.67
1138.90	0.117	0.495	0.07	11.1	2.64
1143.30	1063	0.988	1011	30.9	2.65
1144.70	2050	0.993	1971	29.8	2.64
1184.90	9.71	0.551	8.17	19.9	2.62
1192.20	25.0	0.724	21.3	23.3	2.63
1193.60	75.1	0.868	66.4	17.5	2.65
1195.30	169	0.931	153	30.0	2.64
1198.50	1125	0.988	1071	31.7	2.65
1200.30	1971	0.993	1894	30.0	2.65
1217.50	6.06	0.495	5.02	29.7	2.66
1257.60	57.0	0.839	49.9	24.8	2.67
1270.40	46.3	0.805	40.4	25.4	2.67
1282.60	26.7	0.734	22.8	22.9	2.69
1340.00	11.9	0.586	10.0	24.3	2.69
1530.50	126	0.913	113	27.7	2.67
1809.41	831	0.984	786	27.0	2.66
1812.01	3074	0.995	2972	30.6	2.65
1814.14	2482	0.994	2393	28.0	2.66
1842.33	0.015	0.495	0.008	2.1	2.69
1845.99	333	0.963	308	28.4	2.69
1858.64	1886	0.992	1812	27.3	2.73
1874.03	638	0.980	600	26.0	2.68
1883.33	142	0.921	128	25.8	2.70
1905.12	572	0.976	537	27.8	2.68
1909.69	433	0.971	404	26.4	2.71
1916.40	697	0.981	657	27.8	2.66
1921.73	114	0.900	102	25.0	2.69
1936.06	132	0.918	119	25.0	2.69
1946.27	2284	0.994	2200	26.4	2.66
1954.35	30.9	0.758	26.5	22.8	2.69
1967.61	108	0.897	96.8	21.1	2.69
1971.26	269	0.954	247	27.1	2.69
2011.34	175	0.934	159	24.1	2.67
2055.08	8.27	0.518	6.95	20.4	2.72
2098.67	2.59	0.495	2.00	23.4	2.69
2120.62	0.933	0.495	0.632	23.5	2.70
2134.33	1.54	0.495	1.08	23.0	2.69
2143.48	0.039	0.495	0.022	5.4	2.69
2151.40	4.98	0.495	4.07	25.4	2.67
2177.00	10.6	0.583	8.83	24.2	2.67
2207.03	314	0.971	290	20.1	2.67

Table 2.8.4 Porosity / Permeability from rotary sidewall coring.

2.8.2 Log Evaluation

The CPI was performed using ELANPLUS software (GEOQUEST – Geo – Frame version 3.8.1). Core porosity and permeability together with MDT are included in the interpretation. The CPI logs are displayed in figs. 2.8.1 to 2.8.4 and in Enclosure 1. The following parameters were used for the saturation calculation:

Realgrunnen/Snadd	a=1	m=1.96	n=2.3
Kobbe/Klappmys/Havert:	a=1	m=2.28	n=2.18

Details related to the log interpretation are reported in the “Discovery evaluation report”.

The net sand intervals have been defined using the following cut-off criteria:
Vclay < 0.35 and porosity > 0.12.

Well : 7122/3 KB = 25m										
Net Sand										
Zn Zone Name	Top MD	Bottom MD	Gross	Net	N/G	Av Phi	Av Sw	Av Vcl	Av K Aritm.	Av K Geom.
Seq 4.2	1087.1	1097.3	10.2	9.8	0.961	0.276	0.090	0.049	1737	1190
Seq 4.1	1097.3	1105.2	7.9	7.9	1.000	0.243	0.080	0.070	1019	804
Seq 3.2	1105.2	1121.7	16.5	7.7	0.466	0.225	0.298	0.101	1006	407
Seq 3.1	1121.7	1129.1	7.5	4.6	0.610	0.211	0.285	0.076	673	170
Seq 2.2	1129.1	1140.5	11.3	7.5	0.666	0.259	0.182	0.055	1146	521
Seq 2.1	1140.5	1149.6	9.2	7.0	0.758	0.288	0.174	0.069	1453	845
Seq 1.2	1149.6	1155.5	5.9	1.9	0.324	0.146	0.695	0.256	20	12
8 Seq 1.1	1155.5	1180.5	25.0	0.3	0.012	0.129	0.680	0.184	13	11
Reservoir RG	1087.1	1140.5	68.4	46.3	0.677	0.249		0.076	1180	686
Snadd 9	1180.5	1194.5	14.0	8.9	0.743	0.205	0.475	0.141	361	125
Snadd 8	1194.5	1206.0	11.4	11.4	0.981	0.276	0.690	0.099	1252	637
Snadd 7	1206.0	1220.0	14.0	9.7	0.665	0.230	0.912	0.119	1285	702
Snadd 6	1220.0	1254.6	34.6	12.3	0.231	0.171	0.929	0.219	191	50
Snadd 5	1254.6	1290.5	36.0	34.8	0.916	0.219	0.935	0.178	217	141
Snadd 4	1290.5	1328.5	38.0	11.5	0.250	0.181	0.937	0.139	90	34
Reservoir Snadd	1180.5	1328.5	148.0	88.6	0.598	0.214		0.158	461	238
1 Kobbe 9	1808.0	1835.3	27.3	20.4	0.747	0.269	0.260	0.018	1678	1069
2 Kobbe 8	1835.3	1853.7	18.4	8.1	0.440	0.224	0.463	0.058	751	259
3 Kobbe 7	1853.7	1881.0	27.3	8.3	0.305	0.217	0.595	0.084	524	156
4 Kobbe 6	1881.0	1911.1	30.1	17.0	0.565	0.184	0.976	0.160	128	42
5 Kobbe 5	1911.1	1932.4	21.3	11.4	0.535	0.232	0.977	0.062	602	309
6 Kobbe 4	1932.4	1972.3	39.9	22.0	0.551	0.207	0.996	0.121	296	77
7 Kobbe 3	1972.3	1992.4	20.1	1.4	0.070	0.210	1.000	0.077	299	200
8 Kobbe 2	1992.4	2025.0	32.6	11.2	0.344	0.192	0.978	0.124	300	63
9 Kobbe 1	2025.0	2044.0	19.0	0.0	0.000	0.000	1.000	1.000	0	0
Reservoir Kobbe	1808.0	2044.0	236.0	99.8	0.423	0.219		0.091	641	322

Table 2.8.5: Zonation and average Petrophysical parameters well 7122/7-3

CPI Realgrunnen Group

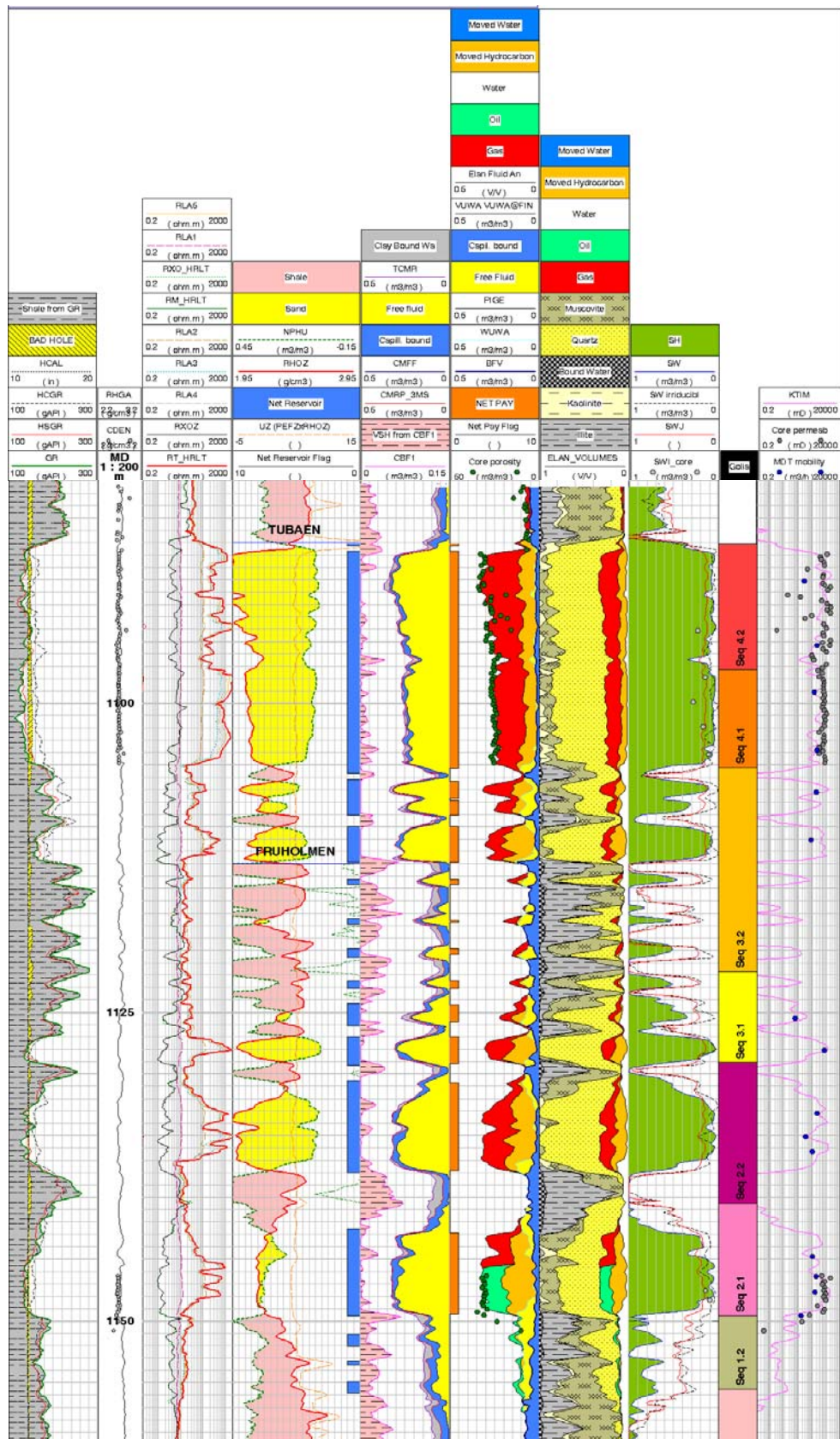


Fig. 2.8.1

CPI Snadd Formation

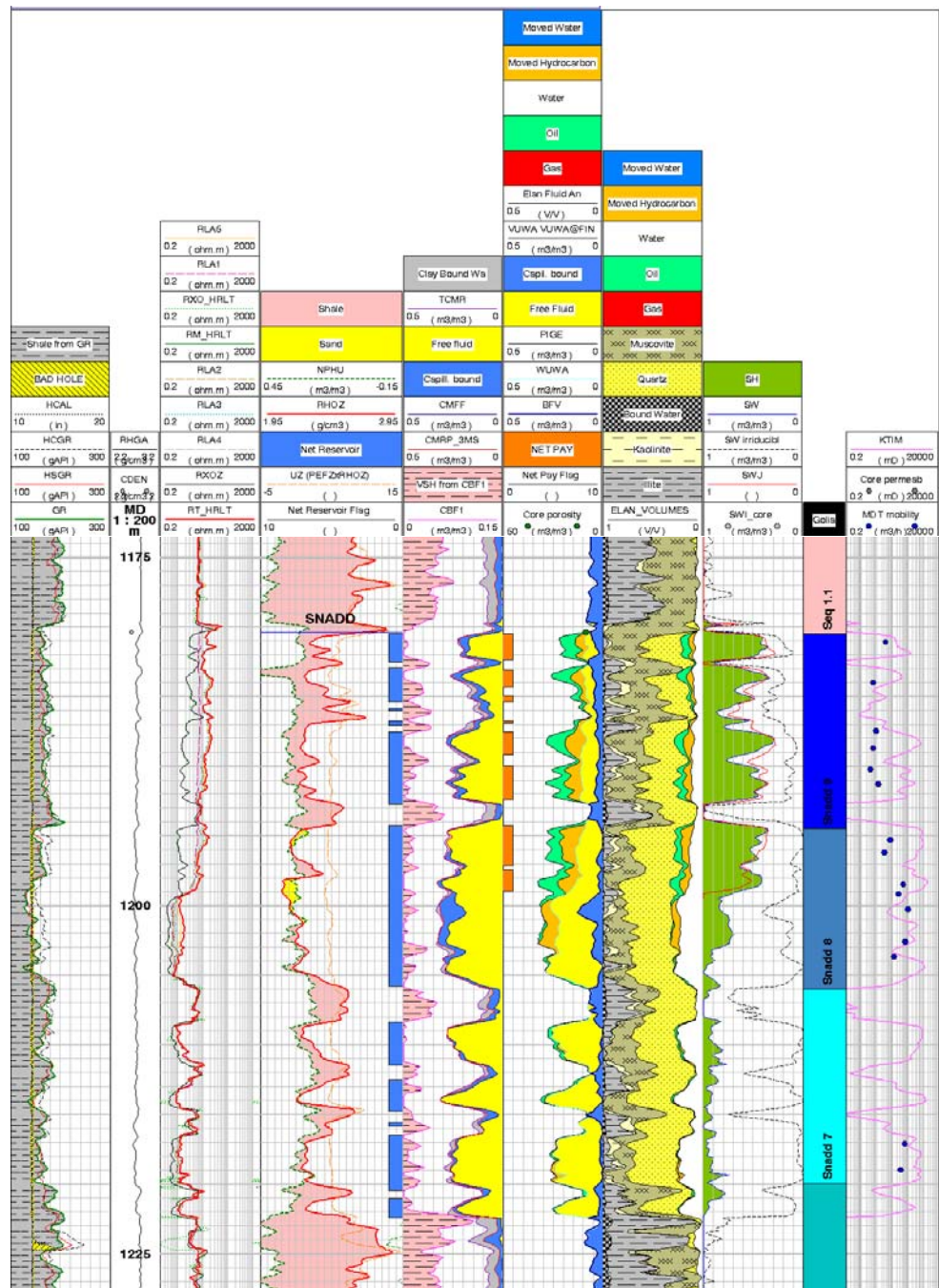


Fig. 2.8.2

CPI Kobbe Formation

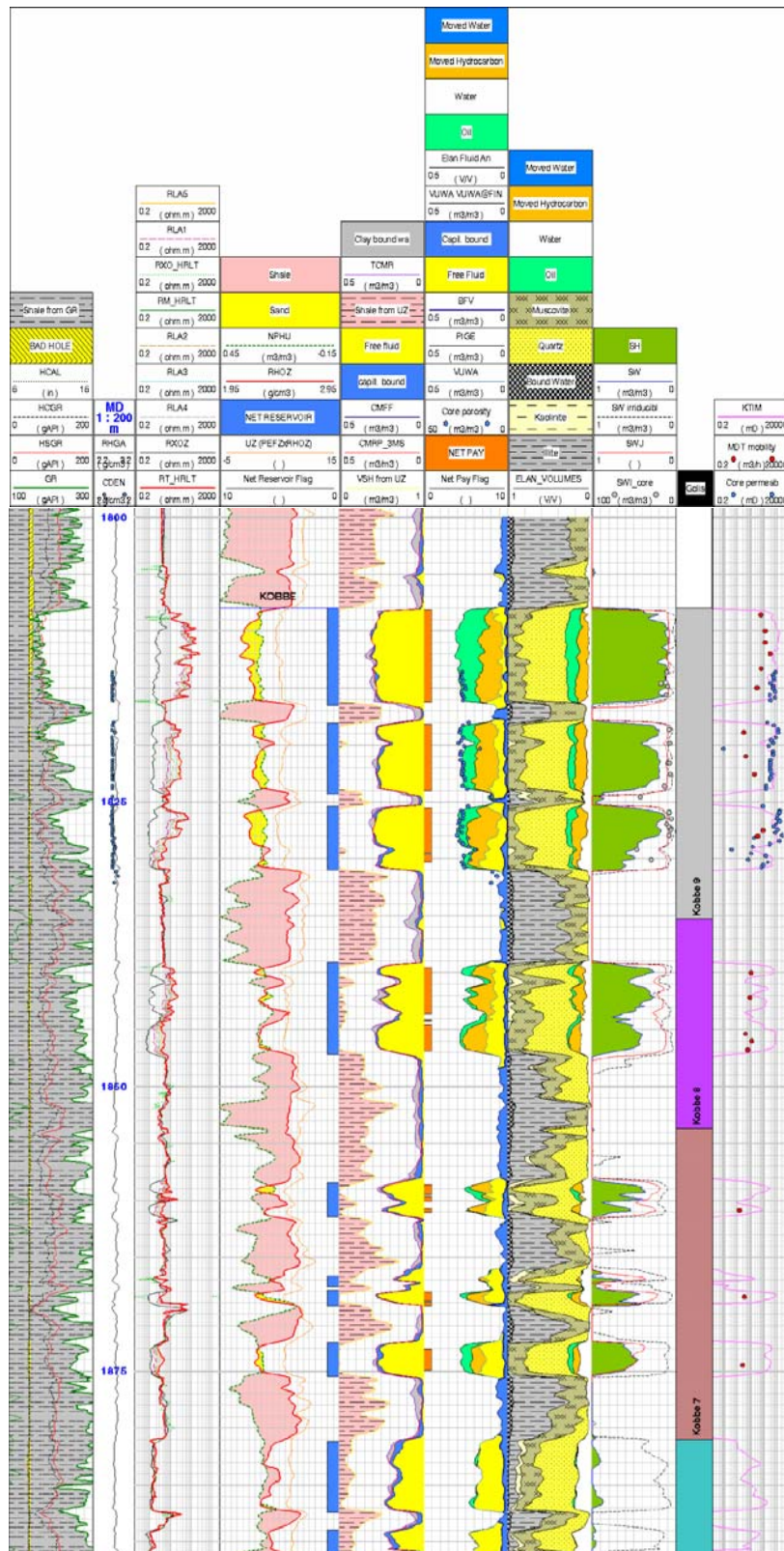


Fig. 2.8.3

2.8.3 MDT Pressure Interpretation

REALGRUNNEN AND SNADD FORMATIONS

A total of 45 pressure points were taken in the Realgrunnen and Snadd formations. The pressure plot (fig. 2.7.3.1) confirms a gas oil contact at 1145.6 m (1120,6 m ssl) in the Realgrunnen Formation and a pressure barrier of 2 bar between the 2 formations. No Realgrunnen Formation oil water contact was observed in the well. An oil water contact was found at 1199.5 m (1174.5 m ssl) in the Snadd Formation.

Test	File	Depth M	TVD M	Drawdown Mobility MD/CP	Mud Pressure Before After BAR BAR		Last read build-up Pres BAR	Formation Pressure BAR	Test Type
5	96	1107.22	1107.18	743.85	147.7941	147.7832	124.0582	124.0582	Volumetric Limited draw-down
7	97	1111.11	1111.07	355.65	148.2962	148.2991	124.0926	124.0926	Volumetric Limited draw-down
1	92	1090.10	1090.07	140.81	145.5879	145.5482	123.8926	123.8926	Normal Pretest
2	93	1095.27	1095.24	832.76	146.2244	146.1988	123.9521	123.9521	Volumetric Limited draw-down
3	94	1099.12	1099.08	555.76	146.7386	146.7107	123.9811	123.9811	Volumetric Limited draw-down
4	95	1103.81	1103.77	836.87	147.3360	147.3185	124.0465	124.0465	Volumetric Limited draw-down
9	98	1117.71	1117.67		149.1627	149.1404	61.7115		Dry Test
11	99	1125.50	1125.47	40.41	150.1743	150.1627	124.2757	124.2757	Volumetric Limited draw-down
12	100	1128.10	1128.06	2262.41	150.5440	150.5107	124.3128	124.3128	Volumetric Limited draw-down
13	101	1133.21	1133.18	821.98	151.2255	151.1837	124.4028	124.4028	Volumetric Limited draw-down
14	102	1135.11	1135.07	176.59	151.4530	151.4317	124.3596	124.3596	Volumetric Limited draw-down
15	103	1136.32	1136.29	453.71	151.6113	151.5986	124.3829	124.3829	Volumetric Limited draw-down
16	106	1143.29	1143.25		152.6006	152.4330	67.8603		Dry Test
17	107	1144.80	1144.76	425.44	152.6377	152.6192	124.4767	124.4767	Volumetric Limited draw-down
18	108	1146.40	1146.36	731.60	152.8535	152.8221	124.5474	124.5474	Volumetric Limited draw-down
20	109	1147.69	1147.65	615.60	153.0180	153.0396	124.6569	124.6569	Volumetric Limited draw-down
21	110	1149.59	1149.55	90.70	153.2486	153.2619	124.8013	124.8013	Volumetric Limited draw-down
22	111	1151.10	1151.06		153.4515	153.4427	65.2797		Dry Test
24	112	1181.11	1181.06	25.92	157.4068	157.3945	125.2569	125.2569	Volumetric Limited draw-down
25	113	1183.51	1183.46		157.7145	157.6661	34.1850		Dry Test
26	115	1184.01	1183.96	5.85	157.7669	157.7687	125.8355	125.8355	Volumetric Limited draw-down
27	116	1187.51	1187.46	8.28	158.2338	158.2142	125.8634	125.8634	Volumetric Limited draw-down
28	117	1188.70	1188.65	5.75	158.4030	158.3883	125.9058	125.9058	Volumetric Limited draw-down
29	118	1190.21	1190.16	4.04	158.6073	158.6315	126.0912	126.0912	Volumetric Limited draw-down
30	119	1191.31	1191.25	10.66	159.0427	158.7644	126.1225	126.1225	Volumetric Limited draw-down
31	120	1195.31	1195.26	46.05	159.3098	159.2871	126.2984	126.2984	Volumetric Limited draw-down
32	121	1196.20	1196.15	22.46	159.4199	159.3897	126.4013	126.4013	Volumetric Limited draw-down
33	123	1198.52	1198.47	238.75	159.7718	159.7429	126.5463	126.5463	Volumetric Limited draw-down
34	124	1199.21	1199.16	133.55	159.8441	159.8338	126.6038	126.6038	Volumetric Limited draw-down
35	125	1200.42	1200.36	440.47	159.9979	159.9983	126.7059	126.7059	Volumetric Limited draw-down
36	126	1202.62	1202.56	292.73	160.2958	160.2868	126.9370	126.9370	Volumetric Limited draw-down
37	127	1203.70	1203.65	75.74	160.4341	160.4263	127.0503	127.0503	Volumetric Limited draw-down
38	129	1217.11	1217.06	283.52	162.2646	162.2261	128.5107	128.5107	Volumetric Limited draw-down
40	131	1218.67	1218.61		162.4330	162.4268			Not Stable
41	132	1219.00	1218.94	165.20	162.4481	162.4452	128.6702	128.6702	Volumetric Limited draw-down
42	134	1270.30	1270.23	11.51	169.3594	169.2930	134.9777	134.9777	Volumetric Limited draw-down
43	137	1139.98	1139.94		152.1317	152.1020	24.2540		Dry Test
46	141	1142.00	1141.96		152.3595	152.2957	24.9105		Dry Test
44	139	1141.02	1140.98		152.2562	152.2363			Lost Seal
45	140	1141.30	1141.26		152.2876	152.2745	21.2297		Dry Test

Table 2.8.6. MDT pressure points

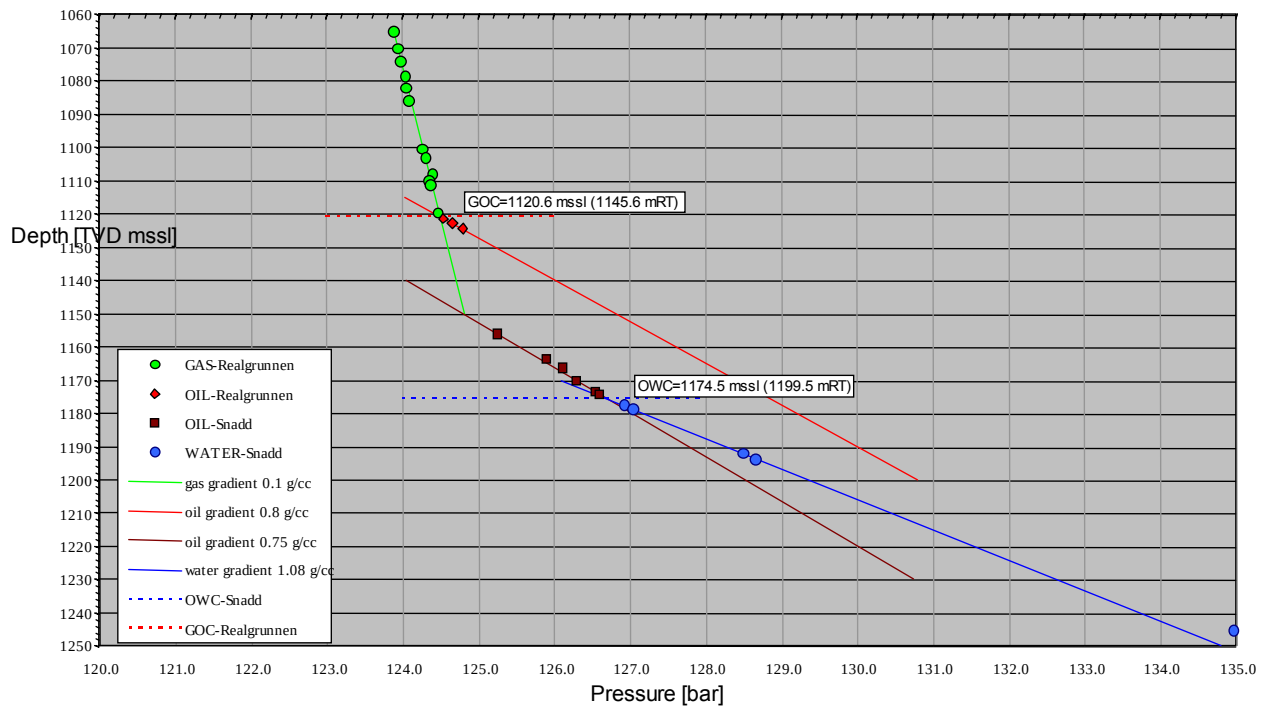


Fig. 2.8.4 MDT pressure plot well 7122/7-3 Fruholmen and Snadd formations

KOBBE FORMATION

Eighty nine pre-tests were attempted in the interval 1808.6 to 2206m including pressure for scanning stations and fluid sampling (Table 2.8.7 and 2.8.8). Fifty four pre-test were good, 21 were dry and 14 had lost seal or not stable.

The pressure plot (Fig.2.8.5) confirms oil from top Kobbe Formation reservoir at 1808 m (1783m MSL) to 1875.3m where a fluid scanning station confirms oil. A pressure barrier of 0.5 bars is separating the oil zone in two compartments.

The different pressure gradients can indicate slightly different density of the oils (Fig.2.8.5)

A water gradient of 1.1 g /cc is found from 1886.7m (1861.6m MSL).

Test No.	Depth		Initial Hydrostatic		Formation		Final Hydrostatic		Formation	Test	Good	Probe	Pretest	Quartz	Remarks	Fmn
	mMD	mTVD	Pressure bars	Strain	Pressure bars	Strain	Pressure bars	Strain	Pressure	Temp.	Data?	Used	Volume	Mobility		Name
	RKB	MSL	Quartz		Quartz		Quartz		sg EMW	degC	Y/N	PS1/PS2	cc	md/cp		
1.00	1808.60	1783.47	276.66	274.71	191.83	191.06	276.55	274.84	1.08	41.40	Y	1.00	10.50	297.20	Good test	Kobbe
2.00	1810.00	1784.87	276.88	275.11	191.92	191.20	276.78	275.12	1.08	42.40	Y	1.00	20.00	494.50	Good test	Kobbe
3.00	1811.00	1785.87	276.94	275.28	191.99	191.29	276.90	275.28	1.08	42.80	Y	1.00	20.00	475.90	Good test	Kobbe
4.00	1812.00	1786.87	277.11	275.57	192.04	191.48	277.05	275.57	1.08	43.10	Y	1.00	20.00	1044.90	Good test	Kobbe
5.00	1813.30	1788.17	277.24	275.82	192.13	191.58	277.23	275.80	1.08	43.40	Y	1.00	20.00	264.20	Good test	Kobbe
6.00	1815.00	1789.87	277.53	276.14	192.23	191.71	277.50	276.14	1.08	43.50	Y	1.00	20.00	140.50	Good test	Kobbe
7.00	1818.90	1793.77	278.17	276.79	192.48	191.97	278.08	276.77	1.08	43.80	Y	1.00	20.00	20.90	Good test	Kobbe
8.00	1821.00	1795.87	278.42	277.16	192.62	192.19	278.34	277.07	1.08	44.10	Y	1.00	20.00	26.90	Reset probe. G	Kobbe
9.00	1822.60	1797.47	278.68	277.40	192.72	192.31	278.68	277.54	1.08	44.60	Y	1.00	20.00	97.20	Good test	Kobbe
10.00	1826.20	1801.07	279.21	278.09					-		N	1.00			Lost seal	Kobbe
11.00	1826.20	1801.07	279.22	278.09	193.24	192.91	279.17	278.12	1.08	45.00	?	1.00	3.50		Supercharged?	Kobbe
12.00	1827.50	1802.37	279.37	278.31	193.01	192.68	279.34	278.33	1.08	45.20	Y	1.00	20.00	364.80	Good test	Kobbe
13.00	1828.50	1803.37	279.60	278.53					-		N	1.00	20.00		Lost seal	Kobbe
14.00	1828.70	1803.57	279.60	278.56	193.07	193.77	279.55	278.54	1.08	45.50	Y	1.00	20.00	156.90	Good test	Kobbe
15.00	1829.90	1804.77	279.81	278.76					-		N	1.00	2.70		Lost seal/Tight?	Kobbe
16.00	1830.30	1805.17	279.86	378.80					-		N	1.00	20.00		Lost seal	Kobbe
17.00	1830.30	1805.17	279.83	278.80					-		N	1.00	20.00		Lost seal	Kobbe
18.00	1840.00	1814.87	281.42	280.31	193.83	193.50	281.25	280.18	1.07		Y	1.00	20.00	61.70	Good test	Kobbe
19.00	1841.70	1816.57	281.59	280.47					-		N	1.00	20.00		Lost seal	Kobbe
20.00	1841.70	1816.57	281.57	280.46					-		N	1.00	20.00		Lost seal	Kobbe
21.00	1842.20	1817.07	282.83	280.72					-		N	1.00	20.00		Lost seal	Kobbe
22.00	1842.20	1817.07	281.58	280.47	194.00	193.62	281.61	280.52	1.07	46.80	?	1.00	20.00	50.50	Unstable	Kobbe
23.00	1845.40	1820.27	282.13	281.00	194.19	193.81	282.10	280.99	1.07	46.60	Y	1.00	20.00	26.60	Good test	Kobbe
24.00	1846.00	1820.87	282.25	281.10	194.23	193.83	282.21	281.06	1.07	46.70	Y	1.00	20.00	66.70	Good test	Kobbe
25.00	1846.80	1821.67	282.37	281.21	194.28	193.88	282.30	281.18	1.07	46.80	Y	1.00	20.00	37.70	Good test	Kobbe
26.00	1858.80	1833.67	284.23	283.04					-		N	1.00	20.00		Lost seal	Kobbe
27.00	1858.80	1833.67	284.19	283.02	195.63	195.18	284.19	282.92	1.07	47.10	Y	1.00	20.00	n/v	Good test	Kobbe
28.00	1860.90	1835.77	284.51	283.27					-		N	1.00	20.00		Lost seal	Kobbe
29.00	1860.90	1835.77	284.57	283.33	195.78	195.31	284.49	283.29	1.07	47.40	Y	1.00	20.00	10.70	Good test	Kobbe
30.00	1868.50	1843.37	285.73	284.45	196.28	195.80	285.75	284.38	1.07	47.60	Y	1.00	20.00	23.30	Good test	Kobbe
31.00	1873.50	1848.37	286.44	285.16	196.60	196.09	286.47	285.12	1.07	47.80	Y	1.00	20.00	n/v	Good test	Kobbe
32.00	1874.50	1849.37	286.61	285.35					-		N	1.00	20.00		Lost seal	Kobbe
33.00	1874.50	1849.37	286.72	285.42	196.69	196.16	286.55	285.26	1.07	47.80	Y	1.00	20.00	17.00	Good test	Kobbe
34.00	1883.20	1858.07	287.92	286.58					-	48.00	N	1.00	4.00		Tight	Kobbe
35.00	1883.00	1857.87	287.91	286.57					-		N	1.00	3.30		Tight	Kobbe
36.00	1886.50	1861.37	288.44	287.00					-		N	1.00	3.60		Tight	Kobbe
37.00	1896.00	1870.87	289.78	288.38					-		N	1.00	3.60		Tight	Kobbe
38.00	1905.00	1879.87	291.11	289.68	199.91	199.30	291.06	289.52	1.07		Y	1.00	20.00	n/v	Good test	Kobbe
39.00	1909.00	1883.87	291.70	290.23	200.33	199.71	291.70	290.24	1.07	48.40	Y	1.00	20.00	13.80	Good test	Kobbe
40.00	1910.00	1884.87	291.87	290.42			291.87	290.39	-	48.80	N	1.00	20.00		Lost Seal	Kobbe
41.00	1910.00	1884.87	291.87	290.41	200.42	199.79	291.86	290.34	1.07	48.80	Y	1.00	10 + 10	(14.1)	Good test - pump	Kobbe
42.00	1914.70	1889.57	292.60	291.12			292.55	291.10	-	49.10	N	1.00	7 + 5		Tight	Kobbe
43.00	1916.50	1891.37	292.88	291.40	201.14	200.47	292.85	291.35	1.07	49.40	Y	1.00	10 + 10	13.00	Good test	Kobbe
44.00	1921.10	1895.97	293.59	292.05	201.66	200.98	293.58	292.06	1.07	49.50	Y	1.00	10 + 10	1.30	Good test	Kobbe
45.00	1928.20	1903.07	294.61	293.08	202.38	201.69	294.54	293.00	1.07	49.20	Y	1.00	10 + 10	57.70	Good test	Kobbe
46.00	1931.20	1906.07	294.97	293.43	202.74	202.01	294.99	293.42	1.07	49.20	Y	1.00	10.00	75.50	Good test	Kobbe
47.00	1938.00	1912.87	296.12	294.55	203.46	202.74	296.06	294.45	1.07	49.40	Y	1.00	10.00	10.50	Good test	Kobbe

Table 2.8.7 Pressure points Kobbe Fm

Test No.	Depth		Initial Hydrostatic		Formation		Final Hydrostatic		Formation	Test	Good	Probe	Pretest	Quartz	Remarks	Fm Name
	mMD	Depth	Pressure bars	Strain	Pressure bars	Strain	Pressure bars	Strain	Pressure	Temp.	Data?	Used	Volume	Mobility		
	RKB	MSL							sg EMW	degC	Y/N	PS1/PS2	cc	md/cp		
48	1946.2	1921.1	297.321	295.710	204.306	203.570	297.265	295.650	1.070	49.6	Y	PS1	10 + 10	(216)	Good test - pum	Kobbe
49	1953.5	1928.4	298.409	296.740	205.124	204.390	298.359	296.710	1.070	49.7	Y	PS1	10 + 10	22.1	Good test	Kobbe
50	1955.2	1930.1	298.652	296.970	205.309	204.550	298.635	297.010	1.070	49.7	Y	PS1	10 + 10	34.9	Good test	Kobbe
51	1971	1945.9	301.078	299.280	207.003	206.220	301.000	299.290	1.071	50.0	Y	PS1	10 + 10	(108.1)	Good test - pum	Kobbe
52	1980	1954.9	302.444	300.760	207.986	207.190	302.385	300.690	1.071	50.0	Y	PS1	10 + 10	12.8	Good test	Kobbe
53	1997.6	1972.5	305.096	303.370	210.251	209.400	305.083	303.310	1.073	50.4	Y	PS1	10 + 10	(6.2)	Good test - pum	Kobbe
54	2001.2	1976.1	305.610	303.820	210.568	209.710	305.582	303.810	1.073	50.9	Y	PS1	10 + 10	(18.3)	Good test - pum	Kobbe
55	2011.5	1986.4	307.260	305.430	211.640	210.750	307.227	305.410	1.073	51.2	Y	PS1	10 + 10	(33.7)	Good test - pum	Kobbe
56	2052.5	2027.4	313.515	311.660	215.686	214.760	313.453	311.580	1.071	52.1	Y	PS1	10 + 10	(2.2)	Good test - pum	Klappmays
57	2055	2029.9	313.862	311.990			313.799	311.970	-	52.5	N	PS1	6		Tight	Klappmays
58	2057.5	2032.4	314.216	312.460			314.214	312.340	-	52.6	N	PS1	4.3 + 7.6		Tight	Klappmays
59	2068	2042.9	315.831	313.930	217.432	216.500	315.789	313.870	1.072	53.2	Y	PS1	10 + 10	(1.6)	Good test - pum	Klappmays
60	2079.5	2054.4	317.595	315.630			317.516	315.600	-	53.3	N	PS1	5 + 4		Tight	Klappmays
61	2088.5	2063.3	318.949	316.990			318.917	316.970	-	53.4	N	PS1	5		Tight	Klappmays
62	2095.5	2070.3	319.987	318.010	220.413	219.470	319.896	317.940	1.072	54.0	Y	PS1	10 + 10	(1.4)	Good test - pum	Klappmays
63	2097.5	2072.3	320.266	318.270			320.213	318.280	-	54.3	N	PS1	10 + 5.8		Tight	Klappmays
64	2098.5	2073.3	320.394	318.430	220.820	219.830	320.380	318.440	1.073	54.6	Y	PS1	10 + 10	(0.7)	Good test - pum	Klappmays
65	2102.8	2077.6	321.048	319.070			321.049	319.080	-	54.7	N	PS1	8.2		Tight	Klappmays
66	2108.5	2083.3	321.889	320.340			321.879	320.350	-	54.9	N	PS1	5.6 + 7		Tight	Klappmays
67	2115.5	2090.3	322.916	320.920	222.711	221.720	322.894	320.960	1.073	55.0	Y	PS1	10 + 10	5.8	Good Test	Klappmays
68	2121	2095.8	323.742	321.810			323.768	321.650	-	55.2	N	PS1	5.5 + 6.1		Tight	Klappmays
69	2134.2	2109.0	325.752	323.670			325.699	323.710	-	55.2	N	PS1	10 + 10		Engineer set wr	Klappmays
70	2134.5	2109.3	325.751	323.710			325.782	323.750	-	55.4	N	PS1	4.9		Tight	Klappmays
71	2143.2	2118.0	327.107	325.060	225.631	224.550	327.135	325.030	1.073	55.6	Y	PS1	10 + 10	(5.6)	Good test - pum	Klappmays
72	2150	2124.8	328.243	326.160			328.263	326.060	-	55.7	N	PS1	6		Tight	Klappmays
73	2157.2	2132.0	329.154	327.120			329.139	327.060	-	55.8	N	PS1	10 + 10		Tight	Klappmays
74	2176.8	2151.6	332.048	329.980	230.290	229.220	331.968	329.680	1.079	54.9	Y	PS1	10 + 10	(0.8)	Good test - pum	Klappmays
75	2202.6	2177.4	335.930	333.770	232.137	231.000	335.853	333.680	1.074	54.8	Y	PS1	10	4.2	Good test	Havert
76	2206	2180.8	336.361	334.220	232.366	231.240	336.324	334.130	1.074	56.3	Y	PS1	10 + 10		Good test - pum	Havert
									-						SCANNING ST	
77	1886.7	1861.6	288.223	288.200	197.886	197.820	288.230	288.220	1.069		Y	PS2	10 + 10	(1.8)	Too tight to sca	Kobbe
78	1875.5	1850.4	286.529	286.390					-		N	PS2	10 + 10		Lost seal X 2	Kobbe
79	1875.3	1850.2	286.495	286.370					-			PS2			Oil tr Gas < 5%	Kobbe
									-						SAMPLING ST	
80	1868.5	1843.4	285.382	285.380					-		N	PS2	10 + 10		Tight - No samp	Kobbe
81	1868.2	1843.1	285.388	285.240					-		N	PS2	10 + 10		Tight - No samp	Kobbe
82	1868.5	1843.4	285.574	285.430					-		N	PS2	10 + 10		Tight - No samp	Kobbe
83	1868.7	1843.6	285.621	285.460					-		N	PS2	10		Lost seal	Kobbe
84	1868.3	1843.2	285.594	285.460					-		N	PS2	10 + 10		Tight - No samp	Kobbe
85	1874.5	1849.4	286.547	286.370	196.648	196.510			1.069		Y	PS2	10 + 10		Oil sample. 1 x	Kobbe
86	1874.5	1849.4	286.547	286.370					-		N	PS2	10 + 10		Oil sample. 2 x	Kobbe
									-						SCANNING ST	
87	1846	1820.9	281.996	281.860	194.271	194.150			1.073		Y	PS2	10 + 10		Oil tr Gas, 4% V	Kobbe
88	1812	1786.9	276.745	276.630	191.101	191.950	276.475	276.310	1.075		Y	PS2	10		Oil, 1% Water -	Kobbe
89	1931.2	1906.1	294.444	294.270	202.677		294.437	294.280	1.070		Y	PS2	10 + 10			Kobbe

Table 2.8.8 Pressure points Kobbe Fm

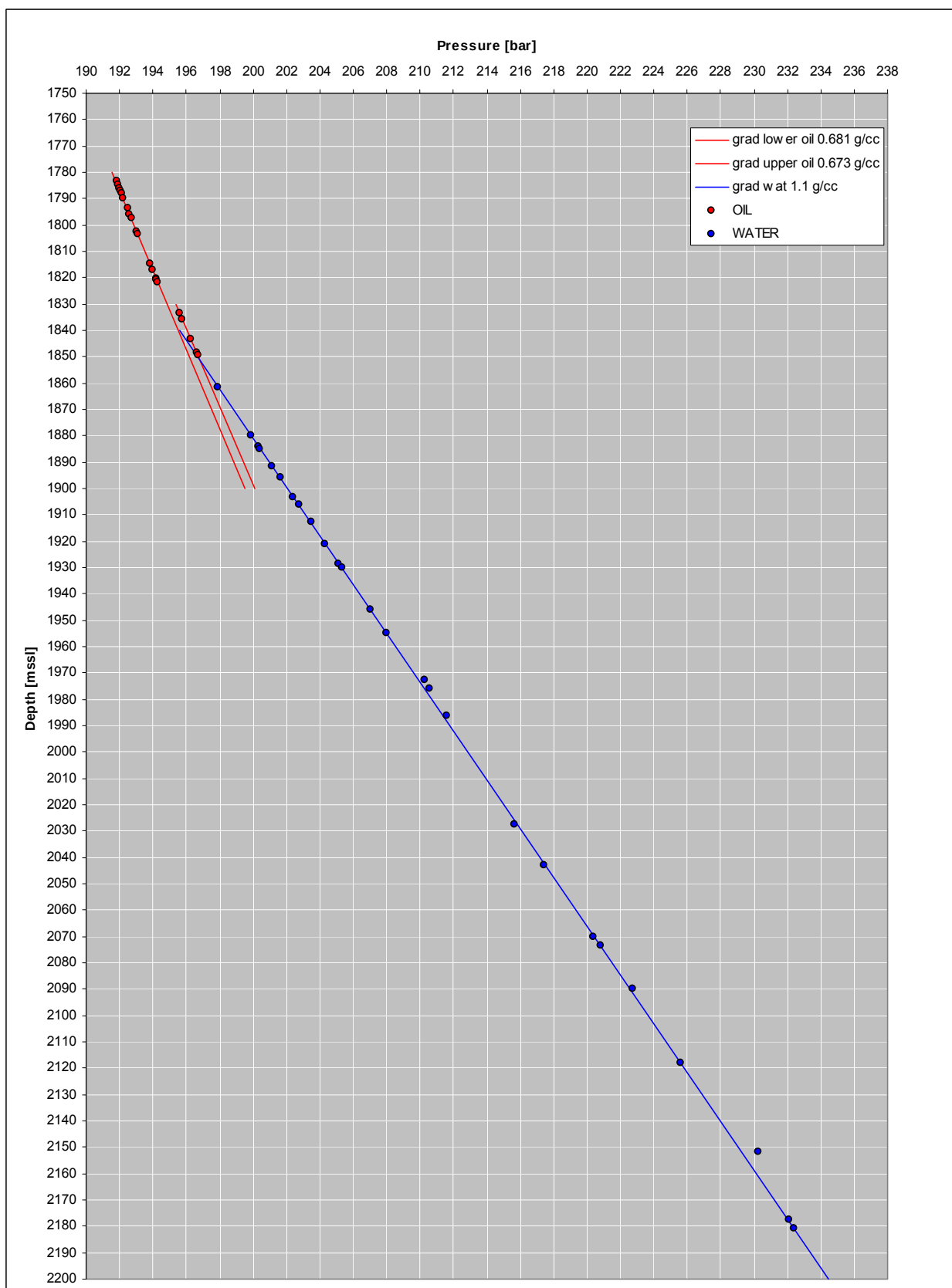


Figure 2.8.5 MDT pressure plot Kobbe Formation

2.8.4 Testing / Fluid Sampling

The MDT (Modular Dynamic Tester) was used for fluid sampling in the reservoirs. Gas and oil from Realgrunnen Formation, oil and water from Snadd Formation and oil and water from Kobbe Formation was sampled. The sample stations and bottles at each station are listed below.

Section [inches]	MDT Run	sample n.	sample nature	bottle type	bottle n.	sample point [m MD RT]	sample point [m TVD ssl]	SBHP [bar]	STHP [deg C]	FBHP [bar]	FTHP [deg C]	fluid	Formation
12"1/4	1A	1.01	MPSR 450 cc	CSB	6506-MA	1202.1	1177	126.9	32.1	125.8	33.5	water	Snadd
12"1/4	1A	1.02	1 gallon	5l plastic	N/A	1202.1	1177	126.9	32.1	125.8	33.5	water	Snadd
12"1/4	1A	1.03	SPMC 250 cc	SSB	1998-EA	1095.3	1070.3	123.95	27.2	123.7	30.6	gas	Realgrunnen
12"1/4	1A	1.04	SPMC 250 cc	SSB	5255-EA	1095.3	1070.3	123.95	27.2	123.7	30.7	gas	Realgrunnen
12"1/4	1A	1.05	SPMC 250 cc	SSB	1122-EA	1095.3	1070.3	123.95	27.2	123.8	30.7	gas	Realgrunnen
12"1/4	1B	1.06	MPSR 450 cc	CSB	6356-MA	1148.5	1123.5	124.7	30	75	33.7	oil	Realgrunnen
12"1/4	1B	1.07	MPSR 450 cc	CSB	4570-EA	1148.5	1123.5	124.7	30	80	33.6	oil	Realgrunnen
12"1/4	1B	1.08	MPSR 450 cc	CSB	7883-QA	1148.5	1123.5	124.7	30	77	33.2	oil	Realgrunnen
12"1/4	1B	1.09	MPSR 450 cc	CSB	5626-EA	1195.6	1170.5	126.3	31.7	115.5	35.5	oil	Snadd
12"1/4	1B	1.1	MPSR 450 cc	CSB	6262-MA	1195.6	1170.5	126.3	31.7	115.5	35.5	oil	Snadd
12"1/4	1B	1.11	MPSR 450 cc	CSB	5236-EA	1195.6	1170.5	126.3	31.7	115.5	35.5	oil	Snadd
12"1/4	1B	1.12	1 gallon	5l IATA can	N/A	1195.6	1170.5	126.3	31.7	115.5	35.5	oil	Snadd
8"1/2	1A	2.01	MPSR 450 cc	CSB	6554-MA	1874.5	1849.4	196.7	47.8	175	51	oil	Kobbe
8"1/2	1A	2.02	MPSR 450 cc	CSB	4372-EA	1874.5	1849.4	196.7	47.8	175	51	oil	Kobbe
8"1/2	1A	2.03	MPSR 450 cc	CSB	6321-MA	1874.5	1849.4	196.7	47.8	185	51	oil	Kobbe
8"1/2	1A	2.04	SPMC 250 cc	SSB	1597-EA	1812	1786.9	192	43.2	189	48.4	oil	Kobbe
8"1/2	1A	2.05	MPSR 450 cc	CSB	6430-MA	1812	1786.9	192	43.2	190	48.4	oil	Kobbe
8"1/2	1A	2.06	MPSR 450 cc	CSB	6103-MA	1812	1786.9	192	43.2	190	48.4	oil	Kobbe
8"1/2	1A	2.07	SPMC 250 cc	SSB	0770-EA	1812	1786.9	192	43.2	190.5	48.4	oil	Kobbe
8"1/2	1A	2.08	MPSR 450 cc	SSB	1560-EA	1812	1786.9	192	43.2	190.5	48.4	oil	Kobbe
8"1/2	1A	2.09	1 gallon	5l IATA can	N/A	1812	1786.9	192	43.2	190.5	48.4	oil	Kobbe
8"1/2	1A	2.1	MPSR 450 cc	CSB	6576-MA	1931.2	1906.1	202.7	49	180	54	water	Kobbe
8"1/2	1A	2.11	MPSR 450 cc	CSB	6714-MA	1931.2	1906.1	202.7	49	180	54	water	Kobbe
8"1/2	1A	2.12	SPMC 250 cc	SSB	2389-EA	1931.2	1906.1	202.7	49	180	54	water	Kobbe

The samples were sent to Reslab in Stavanger for PVT analysis. Final PVT results will be issued in separate report.

The results from sample validation and the quick analysis of GOR and fluid density are listed below.

Sample point	Atmospheric Flash GOR	Saturation pressure	Reservoir pressure	Reservoir temperature	Live Fluid Density at Saturation Pressure (measured)	Oil formation volume factor at Reservoir pressure	STO Density at 15 °C (measured)	Formation
[m MD RT]	Nm3/m3	Bara	Bara	°C	Kg/m3	m3 / m3 STO	Kg/m3	
1095.3	n.d.	124.0	124.0	34.0	n.d.	n.d.	n.d.	Realgrunnen
1095.3	n.d.	124.0	124.0	34.0	n.d.	n.d.	n.d.	Realgrunnen
1095.3	n.d.	124.0	124.0	34.0	n.d.	n.d.	n.d.	Realgrunnen
1148.5	40.1	76.7	124.7	35.3	819.2	1.1	862.4	Realgrunnen
1148.5	43.8	77.0	124.7	35.3	819.7	1.1	862.2	Realgrunnen
1148.5	43.8	80.7	124.7	35.3	816.3	1.1	862.4	Realgrunnen
1195.6	60.6	120.3	126.3	36.4	805.9	1.1	863.5	Snadd
1195.6	60.6	119.5	126.3	36.4	804.0	1.1	863.9	Snadd
1195.6	62.7	123.0	126.3	36.4	806.6	1.1	863.5	Snadd
1812.0	218.5	190.2	192.0	51.2	652.0	1.6	815.5	Kobbe
1812.0	n.d.	189.0	192.0	51.2	n.d.	n.d.	n.d.	Kobbe
1812.0	n.d.	190.5	192.0	51.2	n.d.	n.d.	n.d.	Kobbe
1812.0	219.8	187.3	192.0	51.2	657.6	1.6	816.9	Kobbe
1812.0	215.2	190.0	192.0	51.2	654.4	1.6	814.6	Kobbe
1874.5	214.7	193.5	196.7	52.7	652.6	1.6	816.7	Kobbe
1874.5	206.5	191.2	196.7	52.7	652.7	1.6	815.0	Kobbe

MINI DST.

The main results are reported below, for further details see the report "GOLIAT – EXPLORATION WELL 7122/7-3 MINI DST INTERPRETATION"

The system used for the mini DST was the dual packer formation tester module. This module consists of two inflatable packers that are set against the borehole wall to isolate a borehole interval for testing. Packer spacing in all the three Mini DST performed was of 1m.

The dual packer module was combined with an observation probe spaced at 2m upward the main probe. These combinations enable vertical interference testing for the K_z determination.

The following table summarizes the mini-DSTs main data:

	Tool Position		Test Duration		Produced Volume (lt)
	Dual Packer (m RT)	Obs. Probe (m RT)	DD (hrs)	BU (hrs)	
Realgrunnen oil	1148-1149 mRT (1123-1124 mssl)	1146.5 mRT (1121.5 mssl)	2.2	0.85	240
Snadd oil	1195-1196 mRT (1170-1171 mssl)	1193.5 mRT (1168.5 mssl)	7.3	2.0	380
Snadd water	1202-1203 mRT (1177-1178 mssl)	1200.5 mRT (1175.5 mssl)	5.3	1.8	142

MINI DST – REALGRUNNEN (oil)

The mini-DST was affected by operational problems that did not allow the interpretation of the data after the first pretest. In particular the last build-up was not representative of the system. Only the first build-up was interpreted.

It was assumed an H_{net} of 4.3 m, as confirmed by the log analysis.

In the table below the main results of the mini DST interpretation are summarized:

$$H = 4.3m$$

Model: Partial penetrating with C and S

Homogeneous

Infinite Lateral Extent

P_i	125.2	bar
Kh	260	mD m
K_{xy}	60	mD
K_z	0.5	mD

Remarks:

- Reference shut-in pressure of about 125.4 bar @ gauge depth (from first build-up) is supercharged with respect to RFT data.
- Radial flow regime was not clearly detected. For this reason the resulting kh should be considered as an approximate value.
- In order to estimate the permeability value of Realgrunnen Formation, 3 pretests were also analyzed with transient analysis (Interpret 2005). These pretests provided a spherical mobility ($K_{xyz}/\square$), from spherical flow analysis, of 40-50 mD/cp.
- The permeability value obtained (about 60 mD) is not consistent with results of the preliminary core analysis on Realgrunnen Formation ($k > 1000 \text{ mD}$).
- The operational problems occurred during the test, together with the number of uncertainties in the interpretation result in a low reliability of the estimated permeability.

MINI DST – SNADD (oil)

In the oil bearing Snadd Formation, the data quality from the mini-DST was acceptable. The last build up was interpreted because characterised by a significant duration.

It was assumed a net pay thickness of 5m, as confirmed by the log analysis. In the table below the main well test results are reported:

H = 5m

Model: Partial penetrating with C and S

Homogeneous

Infinite Lateral Extent

P_i	126.5	bar
Kh	145	mD m
K_{xy}	29	mD
K_z	4.5	mD

Remarks:

In this case, the radial stabilization (Kh) was clearly detected. The estimated k = 29 mD is in agreement with qualitative “drawdown mobility” plot.

In addition the match of the observation gauge response allowed to estimate a k_z = 4.5 mD.

MINI DST – SNADD (water)

In the water bearing part of the Snadd Formation a very high permeability scenario was observed. Two build ups were interpreted. Both confirmed a radial permeability value (K_{xy}) of about 1 Darcy. This particularly high value, especially with reference to upper Snadd-oil zone, is also confirmed by the MDT “drawdown mobilities” plot. Furthermore the gamma ray response evidenced the presence of a very clear sand layer.

The different Kh values estimated from the two build-ups are a function of different net pay thicknesses involved during the testing time.

In fact in the first build-up, a net pay thickness of only 3 m was assumed due to the short build-up duration (about 3.5 min) and the limited contribution of the layer.

In the last build up (duration 51 min) a larger net pay, up to 12 m, was considered. This assumption was made in agreement with the log response which showed that two sealing shaly layers are confining the pressure propagation in the vertical direction.

The observation gauge data were used for the interpretation of the last build up. The match of the observation gauge response allowed to estimate a $k_z = 30$ mD.

In the first build up the observation gauge was not considered reliable probably because affected by mud cake presence.

In the table below are reported the main well test results :

1st build up H = 3m	2nd build up H = 12m
<i>Model: Partial penetrating with C and S</i>	
<i>Homogeneous</i>	
<i>Infinite Lateral Extent</i>	
$P_i = 127$ bar	$P_i = 127$ bar
$Kh = 3000$ mD m	$Kh = 14400$ mD m
$K_{xy} = 1000$ mD	$K_{xy} = 1200$ mD
$K_z = 30$ mD	$K_z = 30$ mD

3. DRILLING

3.1 INTRODUCTION

Eni Norge A/S drilled the exploration well 7122/7-3 in the PL 229, Block 7122/7 in the Barents Sea with the semi-submersible drilling rig "Eirik Raude". The total time on the well was 82.2 days. The cost for the drilling related operations was 408.2 million NOK. (AFE was 380 million NOK.)

Of the total well time, the time for rig move and rig-up/rig-down time was 6.4%, the drilling operation time amounted to 33.4% (excluding coring and logging time 24.1%). The unproductive time was 18.4% of the total time.

The rig "Eirik Raude" was handed over from Statoil in Kristiansund at 11:00 the 10th of October 2005 to Eni Norge. The rig stayed in the fjord near Kristiansund for off loading Statoil equipment and loading on the Eni Norge spud equipment and bulk materials for well 7122/7-3. During the stay repair was done to the BOP and crown compensator and anchor chains and anchors were checked. The rig left Kristiansund 18:02 the 16th of October 2005 and passed 69th parallel at 21:50 the 19th of October 2005 where the PL229 license took over the rig. General rig maintenance and certifications was performed during the stay in Kristiansund and during sailing to the Goliat location.

The rig sailed north to the drilling location in the Barents Sea where the anchors were set and the rig ballasted down to drilling draft, these operations were completed in 4.7 days. The rig sailed north with only 4 out of the 6 thrusters in use. Several stops were made underway to allow for helicopter landing and to remove anchor number 2 due to noise from the bolster and fear of losing the anchor. Eni Norge was given suspensive effect for the discharge permit from Thursday 20th until 10:00 Monday the 24th of October. However, no time was lost due to this as the time was spent running anchors, picking up drill pipe and preparing to spud.

The well was spudded at 20:30 the 24th of October. The distance from the rotary table to the seabed (RT – seabed) was 368 m.

Final location:

Geographic (ED50NORTH62)	: Latitude:	71 deg 15 min 17.534 sec
	: Longitude:	22 deg 16 min 04.600 sec

UTM (ED50NORTH62)	: Easting:	545 476.82 mE
	: Northing:	7 906 512.81 mN

Rig heading	: 239.2 deg true north
Grid Convergence	: 1.199 deg

Deviation from intended location	: 1.83 m in direction 277.3 deg true north
----------------------------------	--

Drilling summary:

A 36" x 23" hole section was drilled in one run utilizing a VertiTrak system and a dual stage hole opener placed 117 m behind the bit. The first 117 m was drilled mainly in sliding mode using the VertiTrak system to maintain verticality. The 36" section was drilled with low rpm as the hole opener opened the 23" hole to 36". TD of the section was 538 m and the hole was opened to 36" down to 421 m.

A 30" conductor x 20" casing dual string was run in the hole and cemented using stinger and single float in the bottom of the 20" casing. The BOP was run and then wellhead angle increased as weight was set down with the BOP. The BOP was pulled and two grouting jobs performed.

After re-running the BOP and riser, a 16" hole was drilled from the 20" shoe down to 1000 m. The well was then logged with one wireline run.

After logging a 13 3/8" casing string was installed at 995 m.

A 12 1/4" hole was drilled from the casing shoe to 1082 m where two 8 1/2" cores were cut. The cored section was subsequently reamed to 12 1/4" and drilling continued from 1104 m to 1146 m where an additional 8 1/2" core was cut. Drilling continued to TD of the section at 1712 m and the section was logged before running 9 5/8" casing.

The 8 1/2" section was drilled to 1812 m where two cores were cut. Drilling continued from 1834.5 m to TD of section at 2420 m. The section was subsequently logged with 4 wireline runs and a 7" liner run to 2405 m. The liner was set 15 m of bottom due to indications of a gas bearing sandstone at the bottom of the 8 1/2" hole thus making it easier to log this formation top during logging in the next hole section.

A 6" bit was used to drill out the liner and drill to 2458 m where the MWD failed. Three stabilizers were laid out and the bit changed to reduce vibration induced shocks on the BHA. Drilled to 2519 m where one core was cut. Drilling continued from 2521 m to section TD at 2726 m. Total depth (TD) of section was shallower than planned in the program. 2726 m was called TD due to low ROP and sufficient distance had been drilled into Tempelfjorden Group (L. Permian age) to log the limestone top. The section was logged and the well permanent abandoned.

Permanent abandonment of the well was finished on 8th of January 2006 and after preparing for rig move and some waiting on weather the rig left location on 9th of January 2006 at 02:30 hrs. The rig sailed to sheltered waters east of Rolvsøy and Ingøy to offload equipment due to heavy seas at the drilling location. The rig was handed over to Statoil and went off contract the 10th of January at 01:45 hrs.

3.2 WELL DATA SUMMARY

Goliat 7122/7-3 Well Summary						Eni Norge						
Location: Norway Well Type/Status: Exploration Production Licence : PL 229 Licencees : Eni Norge, Statoil, DNO Rig Name: Eirik Raude Rig on Contract : October 19 th , 2005 at 21:50 hrs Rig off Contract : January 10 th , 2006 at 01:45 hrs			Surface location: N 71° 15' 17.55" 7906513m N E 22° 16' 04.42" 545475m E Target Tolerance: 50m Radius @ Realgrunnen/Kobbe/Ørret Target Formation(s): Realgrunnen/Kobbe/Ørret Days on Location: 82 days AFE Days: 68.5 days AFE Cost: 380 mill NOK Estimated Well Cost: 432 mill NOK		Water depth: 341m MSL Rotary-MSL: 25m Rotary - Seabed: 368m Actual TD: 2726 mTVD / 2724.8 mMD Planned TD : 2750mTVD / 2750mMD Maximum Hole Angle: 4.5° Rig Heading: 239.2° (True)		Operational Safety Results - No LT's or accidental discharges to the external environment - x no. First Aid Case: - SYNERGI red: - SYNERGI yellow - SYNERGI green - SYNERGI no classification					
Depth MD RT	Formation Tops	Lithology	Wellbore Schematic		Relevant drilling problems and NPT	Mud System	FIT DATA (SG)	Directional Surveys /BHA	Logging & Coring	Pore & Frac.Pressure and Mud Density	Actual and AFE Time vs Depth (Days)	
(m)	(m)		Drilling After Plug and Abandonment		TOTAL NPT WELL: 287.5 Hours 12 Days Total section NPT = 101hr Worked string several times due to boulders and light spots, re-running of BOP (unstable wellhead) and grouting of 30" conductor. Total section NPT = 47.5 hours Conditioning mud due to shaleshaker overflow. Modification/Repair on KMC/Tools cutting system. Remove plug in hose Total section NPT = 65 hrs String plugged off with cement debris during coring operations. CMR problems MDT stuck/fishing Total section NPT +19 hrs Losses, pumped LCM No able to decode signal from MWD survey Rig Repair Total section NPT +55 hrs MWD fail. Hydra racker problems. MDT stuck/fishing.	Riserless SW - Spud mud Water Based Formpro mud MW 1.2 SG Water Based Min. MW 1.3 SG Max. MW 1.34 SG Average prop.: YP = 14 Pa Gel = 16 Pa Water Based Min. -MaxMW 1.3 - 1.55 SG Average prop.: YP = 13Pa Gel = 4/6 Pa Water Based Min. -MaxMW 1.55 SG 2.00SG with WBM Average prop.: YP = 13Pa Gel = 4/6 Pa	None 2.21 SG with WBM 1.90 SG with WBM 2.00SG with WBM	Anderdrift MWD Verttrack MWD MWD	None GR - RES - DIR Wireline MSIP - DENS - CAL GR - RES - DIR Wireline CMR-HRLA-TLD SONIC SCANNER-FMI MDT (Quick sample prob) CMR MDT (Dual Packer) MSCT Core 1 1082 - 1086 Core 2 1086 - 1105 Core 3 1146 - 1156 Core 4 1187 - 1189 GR - RES - DIR Wireline CMR-HRLA-TLD MSIP-FMI MDT MSCT Core 5 1812 - 1824 Core 6 1824 - 1838 GR - RES - DIR Wireline DSH-HRLA-TLD MDT + Fishing VSP Core 7 2519 - 2521	Pressure Overburden Pore Pressure Mud Weight 7122/7-1 LOT 7122/7-2 PIT 7122/7-3 LOT	Sealed P&A P&A P&A 8 1/2" HOLE TO TD 6" HOLE TO TD TD at 2726 m GREEN LINE BASE CASE W/O 7" Liner RED LINE OPTIONAL PLAN W 7" Liner BLACK LINE OPERATION	
Bits			Services			People			Boats		Experience	Summary of Operations
#	Bit size & type	Make In Out (mMD) (mMD)	Name	Service	Name	Service	Name	Function	Boat name	Function		
1	23" Rock bit	Smith MSDGH135 368 538	Weatherford	Casing Running	Oceanenergy	ROV&Personnel	T. Lekke-Sørensen	Drilling Project Leader	Northern Challenger	AHV / St.by / Supply vessel	1	Moved from Kristiansund, positioned and anchored rig.
2	16" Roller cone bit	Smith MGOZTQCPD 538 1000	BJ Services	Cementing	Trico Supply	Vessels	J.Meling	Drilling Superintendent	Northern Corona	AHV / St.by / Supply vessel	2	Ran & cemented 20 x 30" csg with TGB
3	12 1/4" PDC Bit	Smith MGGDDC 1000 1082	SLB Netwerk Services	Communication	Schlumberger	Wireline Logging	J.V.Markmanrud/V.Fornes	HSE Co-ordinator	Supporter	St.by	3	Ran riser and BOP's
4	12 1/4" PDC Bit	Smith MGA19VPX 1082 1146	Corepro	Coring	Corepro	MWD/LWD in 6"	D.Gaggero/H.Berg/A.Maliardi	Drilling Engineer	Willassen Snr.	Boom tow boat	4	Drilled 16" hole
5	12 1/4" PDC Bit	Smith MGA19VPX 1146 1712	Smith	Drilling Bits	Storm	Weather Forecasts	A.Kelly/M.Kruseen/K.Haaver/V.Fornes	Offshore Environmental Supv.	Amyelind	Boom tow boat	5	Ran 13-3/8" Casing and cemented same
6	12 1/4" PDC Bit	Smith MGGDDC 1712 1714	Ocean Rig	Drilling Contractor	Velco	Wellhead	D. Færkedstad/J.E. Hansen	Senior Offshore Drilling Supv.	M/S Maursund	Oil spill response	6	Drilled 12 1/4" hole thru Realgrunnen formation & Coring
7	8 1/2" Roller cone bit	Smith SVH 1714 1812	MI Norge	Drilling Fluids			T. Bjørke/T. Aakke	Offshore Drilling Rep.			7	Coring& Wire line Logging
8	8 1/2" PDC Bit	Smith MGR7418PX 1812 2420	Norsk Helicopter	Helicopters			D.Stenland	Project Geologist			8	Ran 9 5/8" Casing and cemented same
9	6" PDC bit	Smith MGR7418PX 2420 2458	Weatherford/Nodeco	Liner Hanger			T. Snares/C. Normann/J. Mogg / R. Skehorn	Operational & Wellsite Geologist			9	Drilled 8-1/2" hole thru Kobbe formation & Coring
10	6" PDC bit	Smith MA9138PX 2458 2726	Geoservices	Mud Logging			A.Haugen	Procurement Officer			10	Coring& Wire line Logging
			BHI	MWD/LWD and VeriTrak			R.Johnson	Marine Advisor				Ran 7" Liner and cemented same
			iSurvey	Rig Positioning			E.Bjarnbom/L. Keane	Oil Spill and Emergency Prep.				Drilled 6" hole thru Ørret formation & Coring
							B. Kennedy/R. Terland/J. Wahl/O. Kirden	Logistic Coordinators (Base)				Plugged back hole/Pulled BOP's, cut and retrieved WH, pulled anchors.
Cuts Collected (ROT-609m)			Cuts Collected (ROT-609m)			Cuts Collected (ROT-609m)			Cuts Collected (ROT-609m)			
Phase			Phase			Phase			Phase			
16"			16"			16"			16"			
12 1/4"			12 1/4"			12 1/4"			12 1/4"			
8 1/2"			8 1/2"			8 1/2"			8 1/2"			
6"			6"			6"			6"			
Yellow chemicals			Yellow chemicals			Yellow chemicals			Yellow chemicals			
522kg vs 1524kg permitted			522kg vs 1524kg permitted			522kg vs 1524kg permitted			522kg vs 1524kg permitted			

HOLE SECTION	1	2	3	4	5
Hole size & depth	36" x 23" hole from seabed at 368 m to 538 m, 36" hole to 421 m	16" hole to 1000 m	12 1/4" hole to 1712 m	8 1/2" hole to 2420 m	6" hole to 2726 m
Drilling fluids	Type: Seawater / High Viscous Sweeps with prehydrated Bentonite mud Viscous Sweeps: Density: 1.03 sg pH: 8.5 FV > 100 s Displaced fluid at TD to NaCl Polymer at 1.20 sg 150 m ³ of 1.50 sg potassium Formate kill mud ready prior to spud	Type: K / Na Formate Polymer Average data Density: 1.20 sg PV: 12 cP YP: 12 Pa pH: 8.8	Type: K / Na Formate Polymer Average data Density: 1.32 sg PV: 13 cP YP: 13 Pa pH: 8.7	Type: K Formate Polymer Average data Density: 1.34 - 1.54 sg PV: 14 - 30 cP YP: 9.5 – 11.5 Pa pH: 8.9 – 10.2	Type: K Formate Polymer Average data Density: 1.54 sg PV: 19 cP YP: 12 Pa pH: 9.6
Coring			4 core runs performed in 3 separate intervals. One mis-run due to cement blocking the drill string	2 core runs	1 core run
Logging	Drilling: MWD-Directional Logging in open hole: None	Drilling: MWD-Directional Logging in open hole: 1 run	Drilling: MWD-GR-Sonic-Res- Directional Logging in open hole: 6 runs. Fished successfully MDT tool string	Drilling: MWD-GR-Res-Directional Logging in open hole: 4 runs	Drilling: MWD-GR-Res- Directional Logging in open hole: 3 runs. Fished successfully MDT tool string

Casing	30" casing to 416 m Vetco low pressure housing 310 lbs/ft, X-52, ST2 conductor 20" casing to 529 m. Vetco MS-700 Wellhead System 18 3/4" x 15000 psi 129.3 lbs/ft, X-56, E60 casing	13 3/8" 72 lbs/ft, Buttress, L-80 casing to 995 m	9 5/8" 53.5 lbs/ft, Tenaris MS, T-95 casing to 1694 m	7" 29 lbs/ft, Tenaris Blue, P-110 liner from 2392 m to 2405 m	None
Cement	Cement type: Class G Mix water: Seawater (lead and tail) Density: 1.65 sg lead, 1.95 sg tail Top cement: Lead: 470 m Tail: 504 m	Cement type: Class G Mix water: Freshwater Density: 1.90 sg tail Top cement: Tail: 700 m	Cement type: Class G Mix water: Freshwater (lead and tail) Density: 1.90 sg lead, 1.90 sg tail Top cement: Lead: 795 m Tail: 1666 m	Cement type: Class G Mix water: Freshwater Density: 1.90 sg tail Top cement: Tail: 1493 m	None

3.2.1 Operational Achievements

20" x 30" dual casing string:

Running 20" surface casing and 30" conductor as one string had been done successfully within Eni before. The drilling of the 23" x 36" hole went fine and there were no problems running the dual string in the hole. However this system did not become a complete success as the cement U-tubed in to the 20" casing when the running tool was released, resulting in an unsupported wellhead and the need for two grouting jobs. See sections 3.2.2 and 3.4.1 for more information.

"Hole Strengthening Test":

A "Hole Strengthening Test" or "Stress Cage Test" was performed to evaluate the effect of bridging particles as a fracture initiation/growth inhibitor.

The testing was carried out in a short section of hole (approx. 10 m) drilled below the 13 3/8" shoe. The formation type was expected to be shale.

The test was run in 1.30 sg Formate Base Fluid (Formpro) environment.

The standard extended leak-off test was used to measure the initial formation breakdown pressure. A second LOT was performed to measure the re-opening pressure. A Borehole Stress Treatment pill was pumped (pill of ultra-low fluid loss mud containing 120 kg/m³ bridging solids). A FIT at about 500 psi (35 bars) above the initial breakdown pressure was successfully applied to the formation verifying the survival / breakdown of the Borehole Stress Treatment. Refer to section 3.5.3 for additional information and plots.

VertiTrak vertical drilling system:

The VertiTrak system from BHI was used to drill the top hole (23" x 36") section, the 16" section and a short section of the 12 1/4" section.

Some of the reasons for selecting the VertiTrak system were:

- To keep the well inclination low at the start of the section to avoid respud.
- To avoid rotating the drill string with the heavy hole opener assembly 117 m above the bit when drilling the first section of the well. The string was rotated at a low RPM while drilling the 36" section.
- The only 23" system available.

The 16" section was drilled with out string rotation. The highest inclination was 0.72 deg which was at the start of the section. The inclination was quickly reduced and thereafter the inclination was constant between 0.18 deg and 0.37 deg. The section was drilled with 1.20 sg Formate – Polymer mud (water based). The 13 3/8" casing was run to TD without any problems.

The VertiTrak BHA was picked up after the first coring section in the 12 1/4" hole section, however only 41.6 m was drilled as it was decided to POOH and cut another core.

Discovery:

The drilling of this well resulted in two new discoveries, in the Snadd Formation and in the Kobbe Formation, which substantially increased the reserves in place for the Goliat field. The Realgrunnen Formation of the well had a gas cap above an oil down to a shale.

Logging:

The whole logging program was very successful, particularly the MDT and MSCT. In 12 1/4" hole section the MDT Quicksilver was run and MDT Dual packer was used for oil/gas sampling (7 MPSR/SPMC) and mini-DST. Good quality sidewall cored was drilled with 43 of 44 recoveries.

In 8 1/2" MDT Quicksilver probe was used for efficient clean up and acquired 12 high quality samples (6 SPMC, 6 MPSR). 68 pretests was done to define pressures and gradients and excellent MSCT recovery was achieve with 50/50 good quality sidewall drilled cores.

Logistics:

All Logistic towards the Goliat drilling operation went as planed. On the supply base all involved personnel followed procedures without any accidents or any damage on Eni Norge's property. Due to good planning, safe handling and skilled personnel:

- All equipment and critical personnel to the rig was delivered on time.
- No downtime on the rig caused by logistic and supply base.
- No accident involving equipment owned or rented by Eni Norge.

HSEQ (Health, Safety, Environment and Quality):

Incidents and near misses: (Extract form the HSEQ End of well summary.)

Incidents	Results
LTI	0
Medical treatment cases	1
First aid cases	4
Dropped objects	3
Near misses	1
Discharges onboard (not to sea)	7
Technical incident (material damage, downtime, etc)	6

Environmental:

Re-use of mud from last wells drilled by Eni in the Barents Sea:

The Formate mud used while drilling the 7122/7-1 and -2 wells was re-used for the 7122/7-3 well. The mud was stored in bulk tanks at. The same mud will also be used again for the coming wells in the Barents Sea.

3.2.2 Operational Problems

Rig mobilization:

- Only 4 of 6 generators used.
- Stops for helicopter landings and to remove one anchor.
- Average speed of 3.3 knots.

Ocean Rig was not upfront with Eni Norge and had too high expectations of the rig regarding the effect of loading the rig with spud equipment and one generator being down. Due to this it was not considered to put an AHTS in the bridle to increase speed.

Top hole and BOP running:

- Problems with MWD signal decoding at shallow depths.
- Boulders.
 - Reamed top section to reduce inclination.
 - Several string stalls.
 - Difficulties pulling out of hole with BHA (overpull).
- Used manual rig tongs to make up crossover joint to wellhead extension due to large OD for Weatherford's casing tong.
- Only 6 m³ tail slurry pumped due to plugging up below knife valve. Planned to pump 12 m³ tail slurry. The cement job looked OK and a sheath of cement was observed around the conductor. The ROV manipulator arm was used to "feel" the consistency of this sheet prior to releasing the wellhead housing running tool after waiting on cement for 8.5 hrs. The wellhead bulls-eye showed 1.2 deg angle on the wellhead. No stinger was run to check if grouting was necessary. The wellhead leaned over when the weight of the BOP was set down on the wellhead connector. The cement crust seen around the 30" conductor earlier had dropped into the annulus and the BOP had to be pulled and 2 grouting jobs performed to fill up the 36" x 30" annulus to the seabed prior to re-running the BOP.
- Failed pressure test after installing goosenecks to the slip joint due to missing seals in the slip joint auxiliary line boxes.

16" section and 13 3/8" casing:

- Gelled mud when drilling out cement in 20". 37 m³ mud routed to Oiltools' holding tanks.
- Waiting to get Oiltools' cutting handlings equipment modifications/repairs completed. Some start up problems partly related to limited Oiltools' crew onboard and no time to test the system prior to drilling the 16" section.
- Short stop during cementing of the casing due to knife valve failure.

12 1/4" section and 9 5/8" casing:

- Aerated mud.
- String suddenly plugged off when circulating prior to cutting core. Found cement debris blocking subs in coring BHA. Hammered and drifted all tubular while running in with core assembly.
- Tight hole with overpull.

- Problem with CMR during wireline logging. Had to rerun CMR in separate run.
- Unplug line in MDT tool.
- Stuck MDT tool. Managed to free tool string with 9700 lbs overpull first time but had to fish tool when stuck second time. Wireline sheared with electric release in logging head and tool string was fished successfully.
- Hydra racker problems.
- Problems during cement job due to the dart got stuck in a cross-over above the plug launcher which stopped the cement displacement. The cement head was laid down and casing hanger running tool pulled. The dart was removed from the crossover sub below running tool and run in hole again and landed in the casing hanger. The displacement was then completed using an estimated volume.
- Fishing run / wiper trip to recover part of 12" overshot guide lost in hole after fishing for logging string.

8 1/2" section and 7" liner:

- Displaced to 1.54 sg new Formate mud prior to drilling out casing. This new salt mud caused:
 - Difficulties getting a conclusive LOT or FIT.
 - High seepage losses.
 - Added Calcium carbonate to the mud.
 - Reduced mud weight to 1.34 sg (Displaced to mud from previous section).
- Aerated mud.
- Mistaken 30% LEL reading on handheld sniffer for H₂S while pulling out to recover core barrel.
- Hydra racker problem. Using back-up pipe handling arm and drill floor manipulating arm.
- Loss to formation with later flow back.
- Survey problems and very poor real-time data from MWD tool (aerated mud?).
- Tight spots during tripping.
- No indications of shearing wiper plugs and no bumping of the plugs. Found darts in a 5 1/2" drill pipe.

6" section:

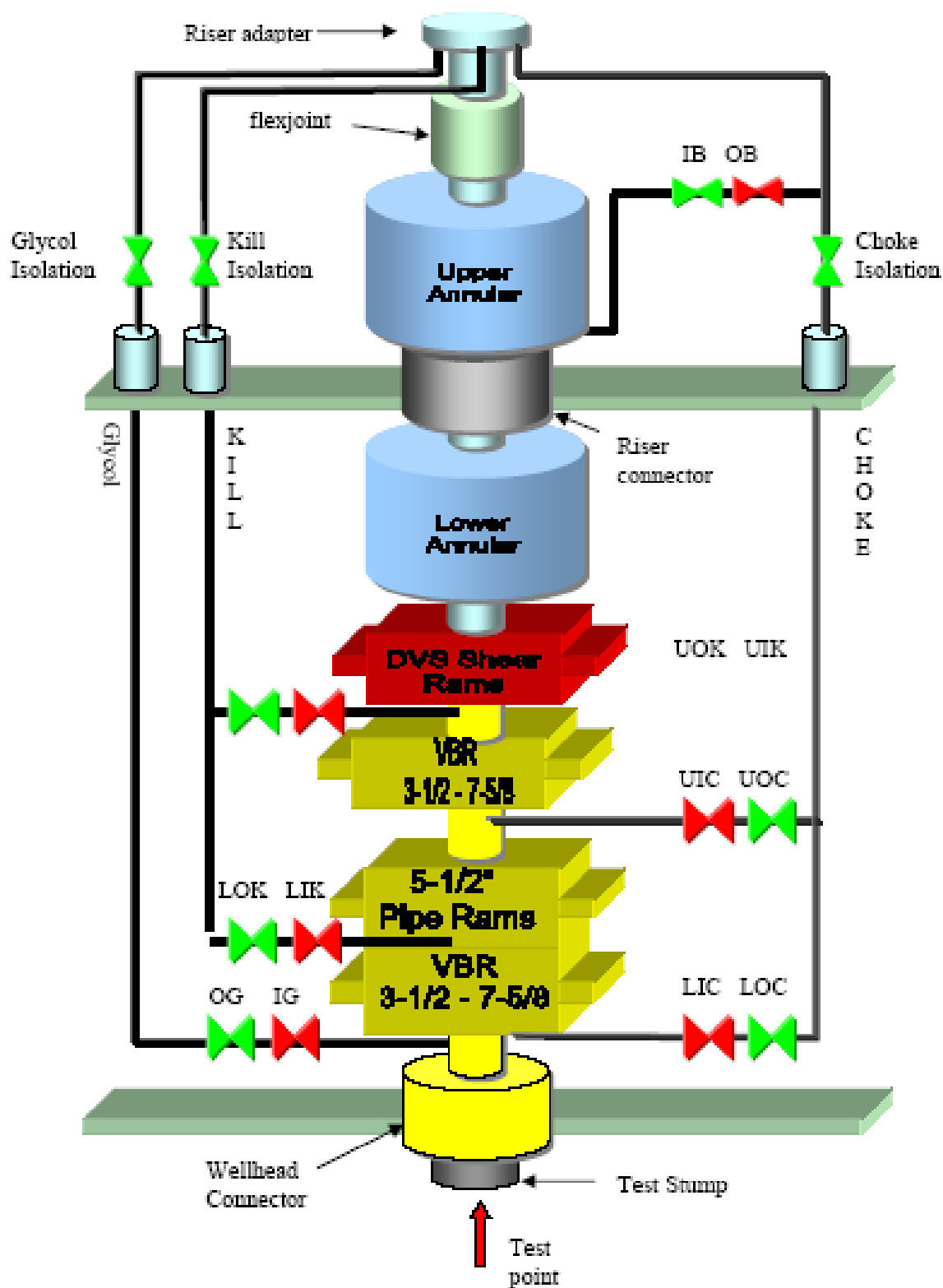
- Replaced MWD supplier as Baker Hughes Inteq had to source equipment in Houston. Schlumberger was selected as the supplier for the 6" section.
- MWD failure.
- High torque on first run in hole with packed assembly. Bit came out under gauge.
- Found wood from setback in 3 stands of drill pipe.
- Hydra racker problem.
- MDT tool stuck. Cable released electrically and tool string fished successfully.
- Backlash on draw work.

Permanent P&A:

- Sat a 13 3/8" retainer above 9 5/8" cut
- Used gas tight slurry for 13 3/8" P&A job.
- Problems with knife valve on cement unit and Microblock settled in tank.
- One extra cement plug to fill up the hole after the 20" surface casing x 30" conductor were cut and the wellhead retrieved.

3.2.3 BOP Sketch

18 5/8", 15000 psi BOP stack



3.2.4 BOP Testing

The BOP stack was pressure tested as follows:

	Casing strings installed	Shear rams (Bar)	Annulars (Bar)	Pipe rams (Bar)	Wellhead connector (Bar)	K/C lines, hoses (Bar)
Before installation	None	35 / 1035	35 / 690	35 / 1035	None	35 / 1035
First test on 18 3/4" wellhead	20" casing	102	None	35 / 475 (LPR)	35 / 475	None
Prior to drilling out of 13 3/8" casing	20" casing + 13 3/8 " casing	173	35 / 207	35 / 207	35 / 207	35 / 207
Bi-weekly in open hole (12 1/4")	20" casing + 13 3/8 " casing	None				
Prior to drilling out of 9 5/8" casing	20" casing + 13 3/8 " casing + 9 5/8" casing	300	35 / 275	35 / 414	35 / 414	35 / 414
Bi-weekly in open hole (8 1/2")	20" casing + 13 3/8 " casing + 9 5/8" casing	None				
Prior to pressure testing of 7" liner	20" casing + 13 3/8 " casing + 9 5/8" casing + 7" liner	None	None	35 / 265 (UPR)	35 / 265	None

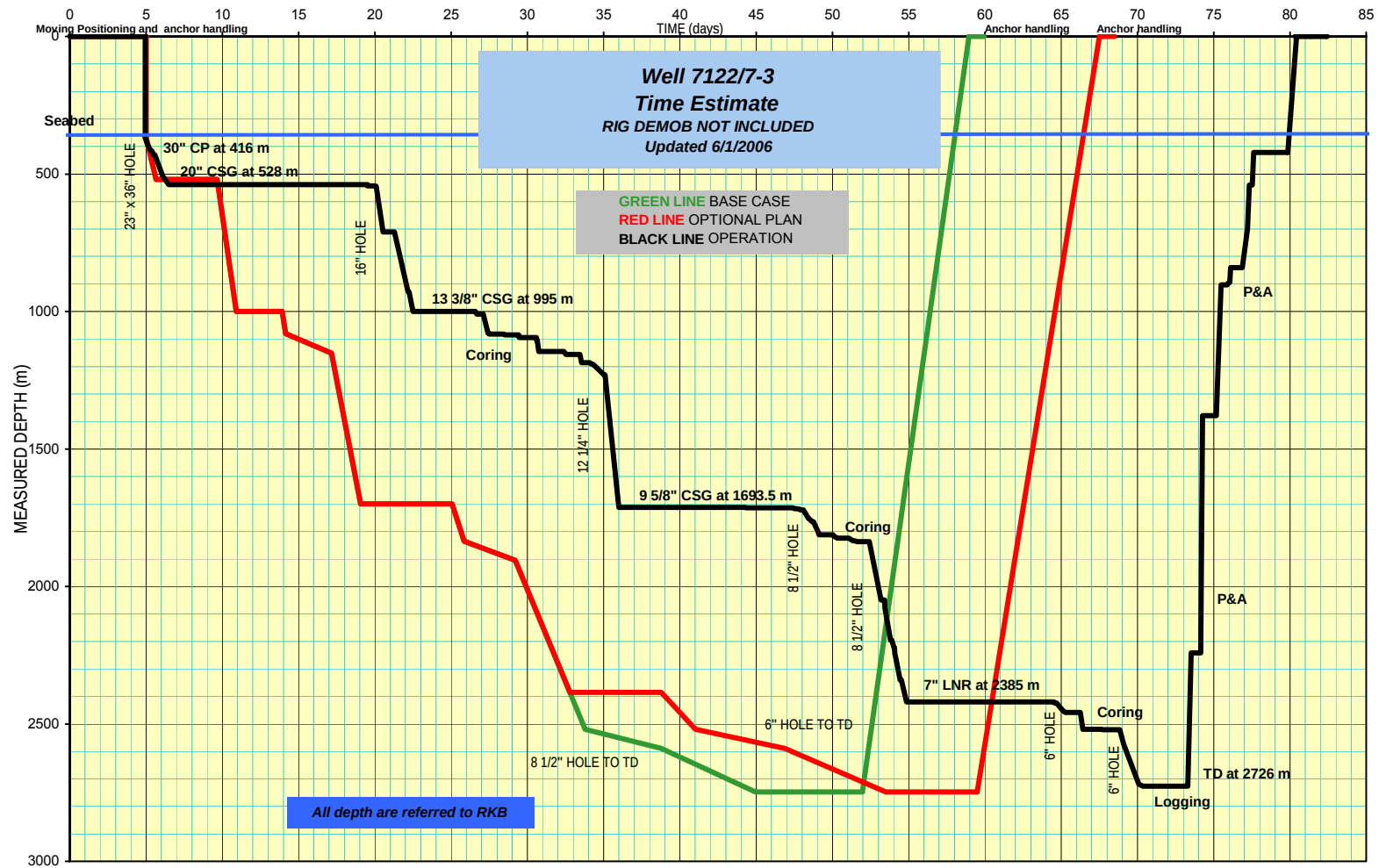
3.2.5 Casing and Liner Testing

The casings and liner were pressure tested as follows:

Last casing string	Mud weight during pressure test (sg)	Surface test pressure (bar)	Casing burst pressure (bar)
Pressure test prior to drilling out of casing shoe: 20" (shoe at 529 m)	1.03	102	219 (20", 129.3 lbs/ft, X-56)
Pressure test prior to drilling out of casing shoe: 13 3/8" (shoe at 995 m)	1.20	173	378 (13 3/8", 72 lbs/ft, L-80)
Pressure test prior to drilling out of casing shoe: 9 5/8" (shoe at 1694m)	1.34	300	662 (9 5/8", 53.5 lbs/ft, T-95)
Pressure test prior to starting to drill 6" hole: 7" liner (Liner hanger at 1480 m and liner shoe at 2405 m)	1.54	265	789 (7", 29 lbs/ft, P-110)

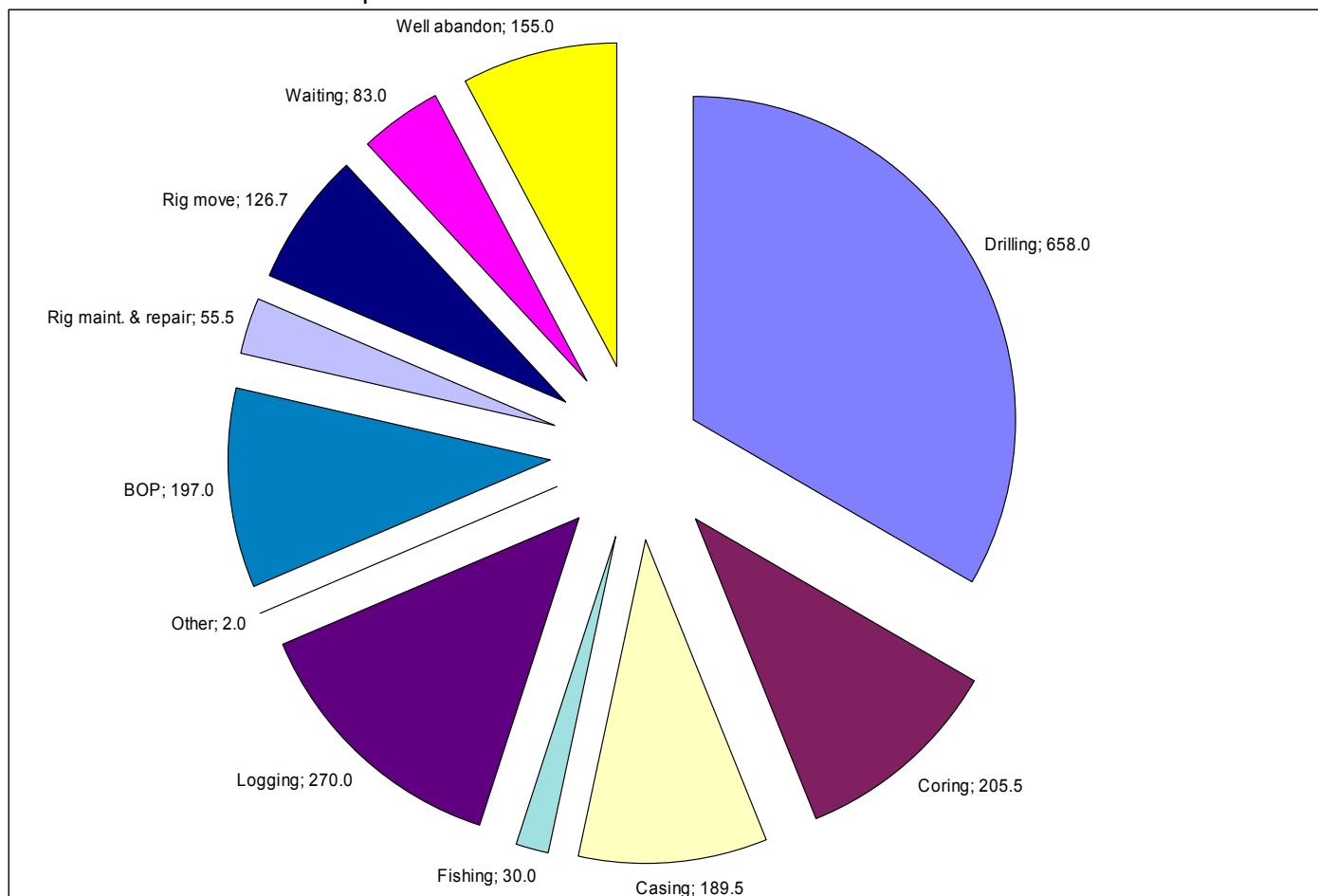
3.3 TIME AND COST ANALYSIS

3.3.1 Time-depth Curve



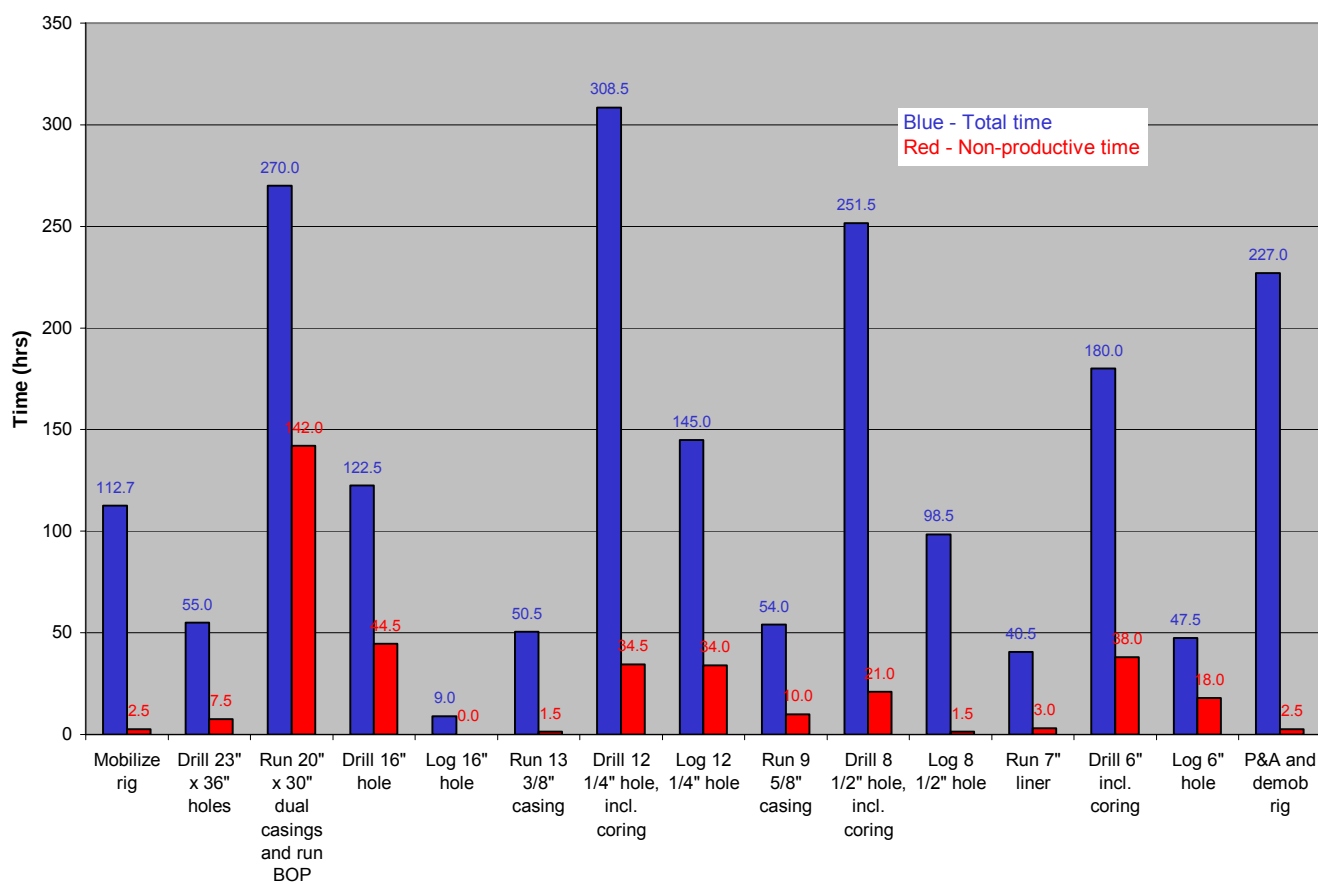
3.3.2 Time Breakdown by Operation

Total time spent for well was 1972 hrs



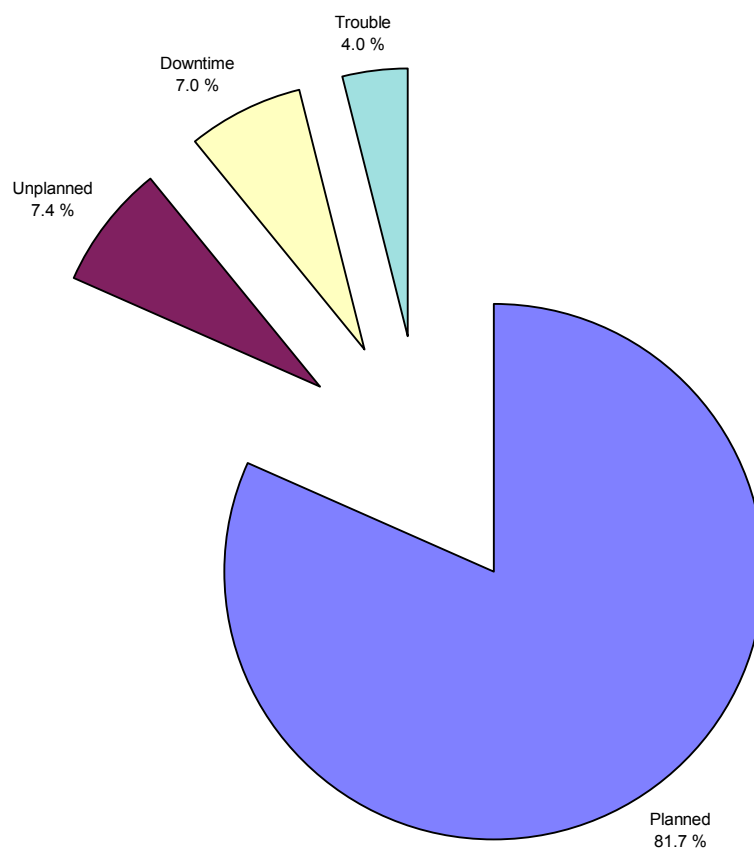
3.3.3 Time Breakdown by Phase

Total time spent for well was 1972 hrs.

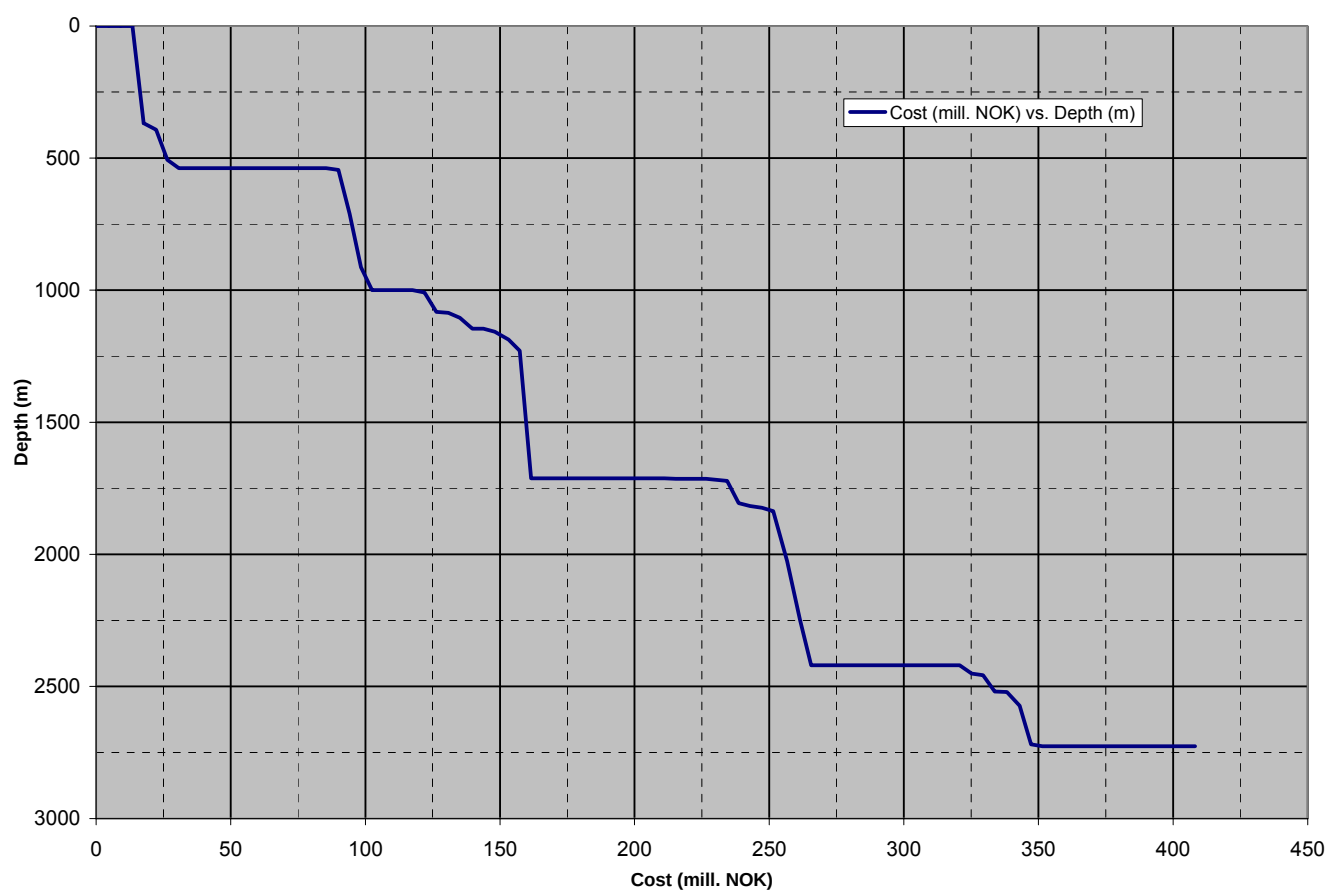


3.3.4 Planned Time vs. Unplanned and Non-productive Time

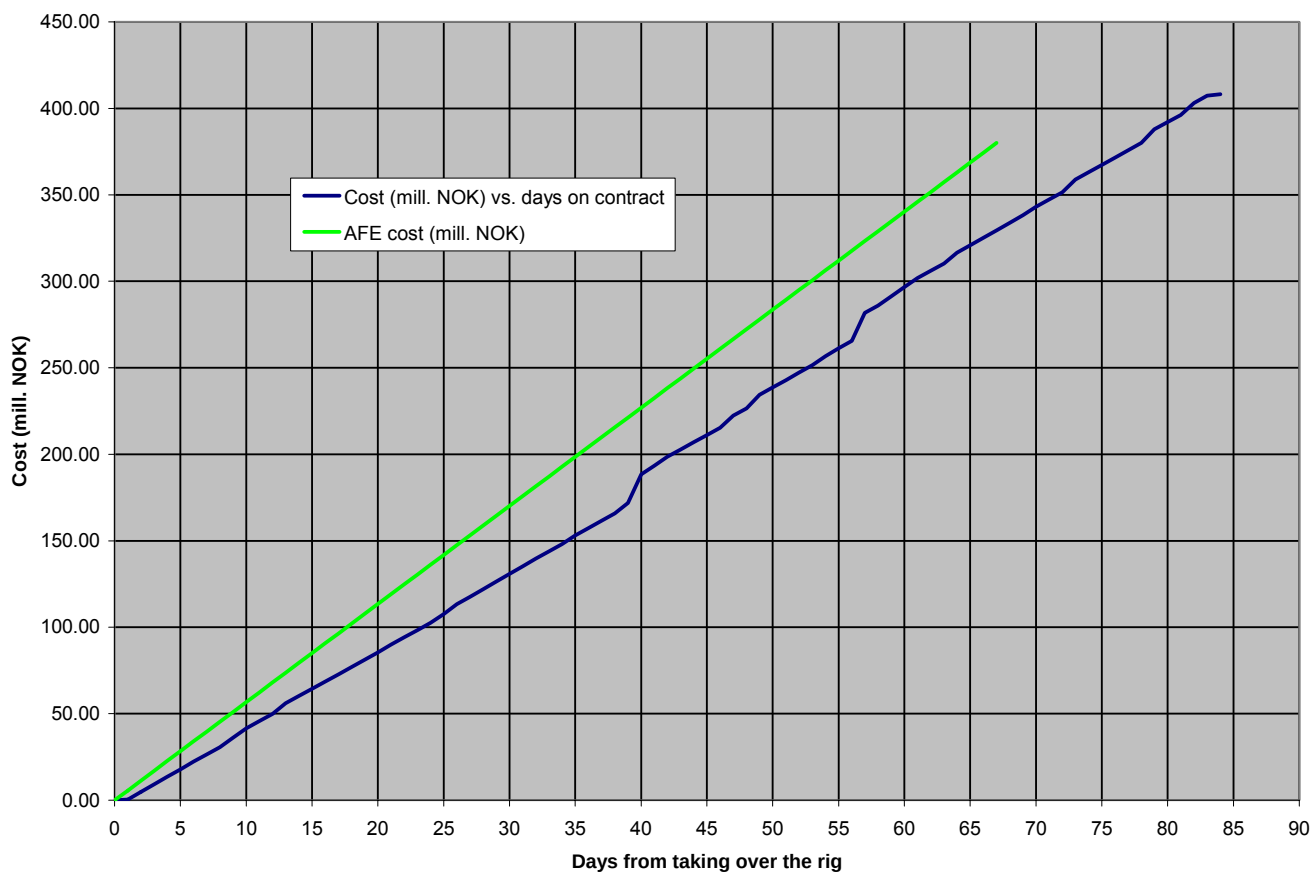
During the entire well operations the unplanned/non-productive (downtime & trouble) time amounted to 360.5 hours (18.4 %) of total time. Total time spent for the well was 1972 hrs.



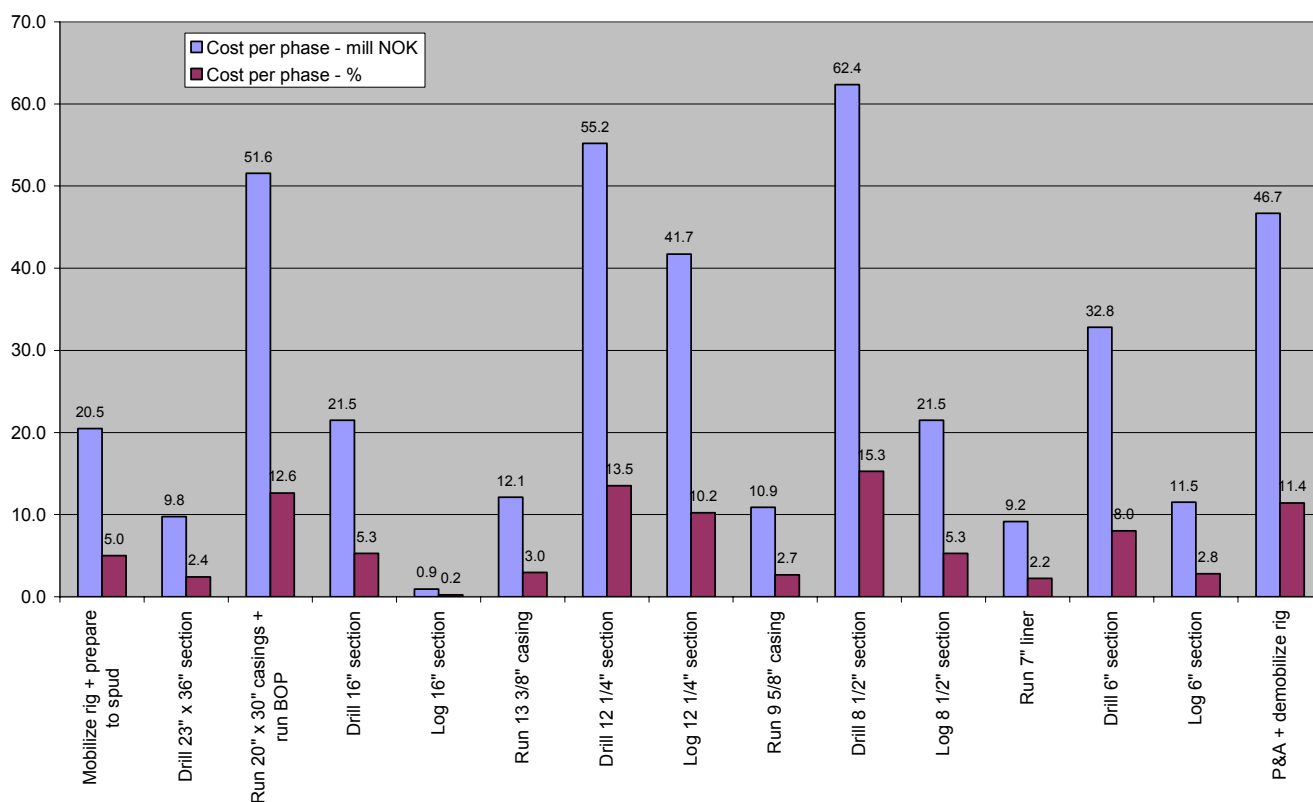
3.3.5 Cost vs. Depth



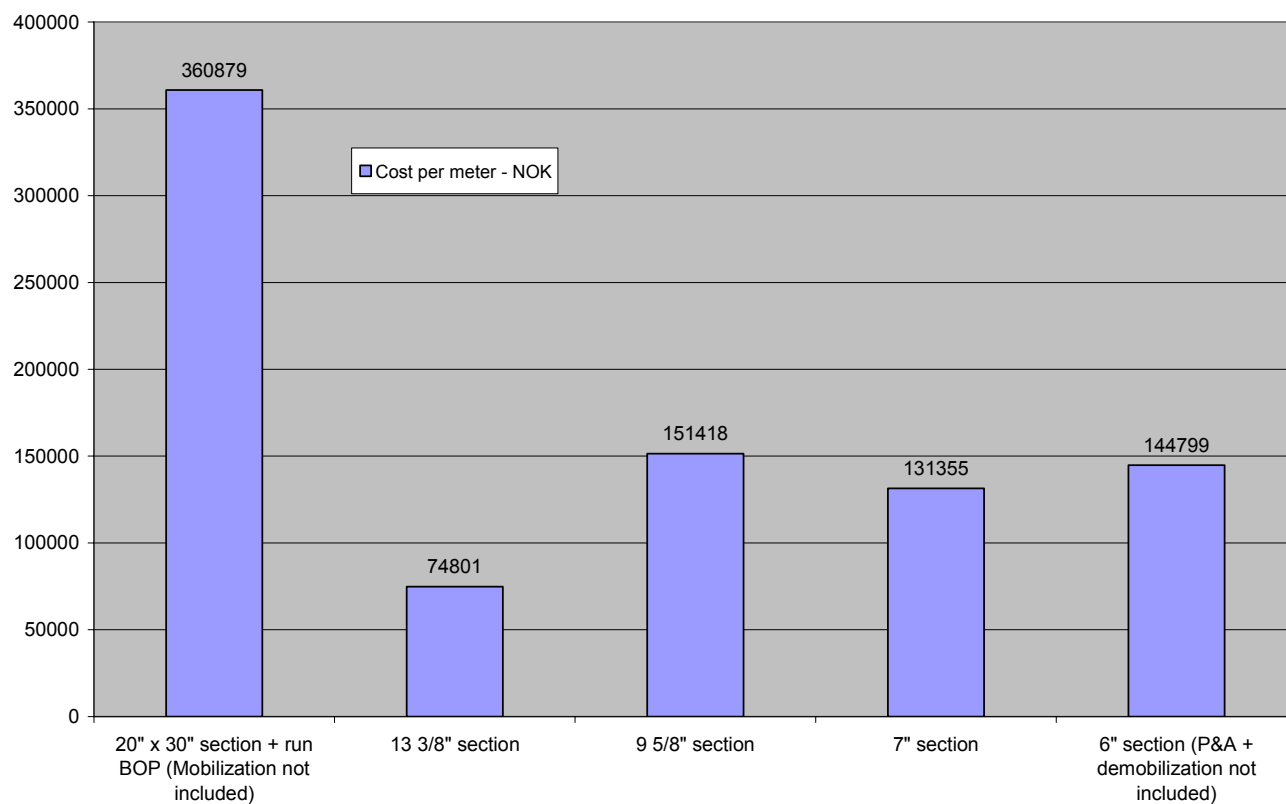
3.3.6 Cumulative Cost per Day



3.3.7 Cost per Phase



3.3.8 Cost per Meter



3.4 OPERATIONS

3.4.1 Drilling Summary

Rig Move In & Mooring Operations:

The rig "Eirik Raude" was taken on contract by Eni Norge on 19 October 2005 at 21:50 hrs after a short stay in Kristiansund for demobilizing Statoil equipment and performing some rig repairs. The rig sailed to the drilling location where the anchors were set and the rig ballasted down to drilling draft. At drilling draft the distance from the rotary table to the sea surface (RT – MSL) was 25 m.

Total time for the rig move to location, until ready to spud was 4.70 days.

Total cost for this phase was NOK 20.5 million.

Final rig Geographical Location:

Lat. = 71 deg. 15 min 17.534" N

Long. = 22 deg. 16 min 04.600" E

Final rig UTM Location:

X = 545 476.82 m Easting

Y = 7 906 512.81m Northing

The co-ordinates above refer to UTM Zone 32, ED50NORTH62

The final rig heading was observed to be 239.2 deg. true.

Final location was 1.83 m in direction 277.3 deg. true from intended location.

23" x 36" Hole Section / 20" Surface Casing x 30" Conductor:

Depth interval: Seabed (386 m) – 538 m

General:

A 36" x 23" hole section was drilled in one run utilizing a VertiTrak system and a dual stage hole opener placed 117 m behind the bit. A 30" conductor x 20" casing dual string was run in the hole and cemented using stinger and single float in the bottom of the 20" casing.

Total time for this phase was 13.54 days, 149.5 hours of this time was due to unscheduled events, primarily caused by:

- Rig equipment (hydra racker, Iron roughneck).
- Difficulties getting out of the hole.
- Over size 20" wellhead housing joint (21" which is too large for the Weatherford tong).
- WOW to run BOP.
- Missing seals in slip joint aux line boxes.
- Pull the BOP.
- Perform two grouting jobs around the 30" conductor and re-run the BOP.

Total cost for this phase was NOK 61.3 million or 360.879 NOK/m.

Drilling:

A 36" x 23" hole section was drilled in one run utilizing a VertiTrak system and a dual stage hole opener placed 117 m behind the bit. The first 117 m was drilled mainly in sliding mode using the VertiTrak system to maintain verticality. The 36" section was drilled with low rpm as the hole opener opened the 23" hole to 36". TD of the section was 538 m and the hole was opened to 36" down to 421 m. The well was displaced to 1.20 sg NaCl brine prior to running casing. Several problems with boulders while pulling out of hole to run the dual string.

Bits/BHA:

The 36" hole was drilled with one 23" Smith MSDGHC insert bit (IADC Code 135) and a 36" hole opener.

The drilling assemblies are described in the BHA report section (3.5.2) and the bit record is described in section 3.5.1.

Mud/Solids Control:

Seawater was used to drill the 23" x 36" hole, together with Bentonite high viscosity sweeps to help clean the hole.

NaCl salt mud at 1.20 sg was used as displacement mud when displacing the 23" x 36" hole prior to running the conductor.

Conductor installation:

The retrievable guide base was moved onto the BOP trolley and the conductor joints were picked up and run into the guide base. The conductor string was landed in the guide base after connecting the low pressure wellhead and running tool. The CART tool was broken out and laid down. Ran 20" casing in rotary and connected the 18 3/4" wellhead housing. Made up and ran cement stinger using EBT, as wellhead housing too high for the iron roughneck, and latched on the 20" CART running tool to the wellhead housing. Ran and connected the wellhead housing to the 30" low pressure housing and continued running the 20" casing x 30" conductor dual string on 5 1/2" drill pipe.

The 30" conductor was cemented up to seabed with 41 m³ of 1.65 sg lead slurry and 6.0 m³ of 1.95 sg tail slurry, planned for 11 m³. The tail volume was less than planned due to problems with a knife valve in the cement supply. Found that the wellhead was leaning over when setting down the weight of the BOP. Pulled the BOP and performed two grouting jobs to top up the cement in the 36" x 30" annulus.

Large amounts of cement were found inside the 20" casing when drilling out the casing. It is believed that the cement U-tubed into the casing when the running tool was released.

Possible sequence of events leading to the failure of the cement job:

1. Only 6 m³ tail cement out of the 11 m³ planned was pumped.
2. Compensation was switched to active mode while waiting on cement. The active compensation caused vertical movement in the dual string due to the low weight of the string.

3. The movement caused failure of or a leak in the 20" casing float.
4. The movement also increased the setting time of the cement around the casing and/or created an annulus between the casing and the cement.
5. Releasing the running tool and stinger from the wellhead allowed cement to U-tube into the casing through the failed float. It is most likely to be lead cement which U-tubed into the casing as it had a much longer setting time and the string movement had created a passage for it to flow back in.
6. Could the setting time for the cement be longer than the lab results predicted?
7. There was no cement left on the inside or on the outside of the stinger indicating that the cement could have U-tubed earlier or that the cement displacement was unsuccessful.

16" Hole Section / 13 3/8" Casing:

Depth interval: 538 m – 1000 m

General:

The 16" hole section was drilled with the intention to set the 13 3/8" casing deep enough to achieve a leak-off sufficient for drilling to the next casing point. The 13 3/8" casing was set at 995 m.

The seawater inside the 20" was displaced to 1.20 sg Formpro mud prior to start drilling the cement. Cement was found from 500 m inside the 20" casing. Drilling cement caused the mud to change reology and the pump rate had to be reduced and 37 m³ of mud had to be routed to the Oiltools' holding tank.

Total time for the 16" phase was 7.58 days. 45.0 hours of this time was due to unscheduled events, primarily caused by:

- Modification of cuttings handling equipment.
- Failure of the cuttings handling equipment.
- Gelled mud.

The cost for the 16" phase was NOK 34.6 million or 74.801 NOK/m.

Drilling:

The 16" bit shoe was used to drill out the 20" shoe and the entire section. After drilling out of the 20" shoe set at 529 m and 5 m of formation a FIT was attempted in the 16" hole below the 20" shoe. The pressure leaked off at 1.35 sg equivalent mud weight. A LCM pill was pumped before another FIT was done to 1.35 sg. This time the pressure held.

The FIT was redone in the 20" casing after drilling to TD prior to performing a wiper trip back to bottom. This time a FIT of 1.45 sg equivalent mud weight was achieved. The section was drilled to TD without any hole problems with 1.20 sg Formpro mud. Some over pull experienced while pulling out to last casing and on wiper trip prior to running 13 3/8" casing.

Considerable time was lost due to waiting on modifications and repairs of the Oiltools' cuttings handling system.

Bits/BHA:

In this hole section one 16" Smith MG02TQCPD bit (IADC Code 115) was used for drilling out cement in the 20" shoe and drill to TD.

The drilling assemblies are described in the BHA report section (3.5.2) and the bit record is described in section 3.5.1.

Mud/Solids Control:

The 16" hole section was drilled with the water based Formate/polymer mud. During the drilling of the whole section the mud weight was maintained at 1.20 sg.

Logging:

One wireline run was performed at TD of the 16" section prior to running casing to collect density and sonic data.

Cementing:

The 13 3/8" casing was run to 995 m without any problems. 15 m³ spacer and 21 m³ of 1.90 sg cement was pumped (0.5 hrs stop after pumping 8 m³ of cement due to knife valve problems). The casing was successfully tested to 172 bar after bumping the plug.

12 1/4" Hole Section / 9 5/8" Casing:

Depth interval: 1000 m – 1712 m

General:

Drilled out casing with Smith roller cone bit and 9 m of new formation to perform a "Hole Strengthening Test". See section 3.5.4 for further information. The 9 5/8" casing was run to 1694 m and cemented.

Total time for the 12 1/4" phase was 21.15 days. 78.5 hours of this time was due to unscheduled events, primarily caused by:

- Loosing stand of 8 1/4" DC across the derrick.
- Aerated mud.
- Cement sheets blocked crossover sub in coring BHA, pull BHA and unblock.
- Problems with wireline logging run #1.
- Dart lodged in sub during cementing.
- Hydra racker problems.

The cost for the 12 1/4" phase was NOK 107.8 million or 152.418 NOK/m.

Drilling:

Picked BHA and bit, drilled out 13 3/8" casing and drilled to coring point at 1082 m where two 8 1/2" coring runs were performed. Picked up new BHA, opened the cored interval and drilled from 1086.2 m to 1146 m where it was decided to cut another 8 1/2" core. Retrieved 10 m of core. Laid out the steering tool and ran in with rotary BHA to open up the cored interval to 12 1/4" and drill to 1187 m where

a third 5 m core was cut. The same bit and BHA was used to open up cored interval and drill to TD of the section.

Some tight hole and overpull experienced on trips.

One wiper trip was performed after logging prior to running casing to clear out cast iron parts left in the hole from the overshot lip guide used when fishing the stuck wireline tools.

Bits/BHA:

- Drill out BHA: Rotary BHA and Smith MGGH+ODC, IADC 135 roller cone bit.
- Drilling to 2nd core point: VertiTrak BHA with a Smith MA619VPX, IADC M223 PDC bit.
- Drilling to 3rd core point: Rotary BHA with new Smith M70HVPX, IADC M223 PDC bit.
- Drill to TD: Same bit and BHA as above.

3 bits was used to drill this section and 1 core head used for all three core runs.

The drilling assemblies are described in the BHA report section.

Mud/solids Control:

The 1.20 sg Formate mud from the previous section was displaced to 1.30 sg Formate mud prior to drilling out the shoe. The mud weight was allowed to increase to 1.34 sg while drilling the section.

Logging:

6 logging runs performed. MDT tool stuck (run #5) after sampling with dual packer module. Tool string successfully fished and the logging operations completed without further problems.

Casing/Cementing:

The 9 5/8" casing string was run on drill pipe and the 9 5/8" casing hanger was landed in the 18 3/4" wellhead housing. The casing shoe was set at 1694 m. Had pumped 23 m3 1.90 sg lead cement and 9.5 m3 tail cement and 9.48 m3 mud to displace the cement when the rig experienced a sudden increase in pump pressure. Released the hanger tool with 30 ton overpull and pulled wet to surface. Laid down hanger tool, removed seal assembly, disconnected Vetco/BJ plug assembly and found dart lodged in crossover sub. Ran in hole and land out in hanger with running tool and made up to casing hanger. Commenced displacement of cement. Lost 7 m3 of returns during displacement.

8 1/2" Hole Section / 7" Liner:

Depth interval: 1712 m – 2420 m

General:

Used two bits to drill this section. Two core runs were performed. The section was logged with wireline and a 7" liner run to 2405 m. The liner was set 15 m above

TD to allow for logging of possible sand indicated by a drill break and increased gas reading in the bottom of the 8 1/2" hole section.

Total time for the 8 1/2" phase was 16.27 days. 25.5 hours of this time was due to unscheduled events, primarily caused by:

- Cement left inside casing due to failure of dart during cementing 13 3/8" casing.
- Inconclusive FIT, pump LCM pill.
- Aerated mud.
- Foam in the mud.
- Reduce mud weight.
- Rig repair.
- Problems with MWD signal.

The cost for the 8 1/2" phase was NOK 95.5 million or 131.355 NOK/m.

Drilling:

Changed bit program and ran in with an 8 1/2" roller cone bit as it was expected to be lots of cement inside the casing due to problems during cementing. Only some cement seen from 472 m to 1633 m, firm cement was drilled from 1633 m to the float collar at 1669 m. Drilled 5 m of new formation and Displaced mud to 1.54 sg Formate mud and performed a LOT to 1.82 sg EMW. Drilled another 2 m and attempted to perform a FIT which was inconclusive. Drilled to 1722 m while mixing a LCM pill. 7.1 m³ LCM pill was spotted on bottom and performed a FIT to 1.90 sg EMW. Drilled to core point at 1812 m and ran 2 core runs using the same core head. The bit came out in poor conditions with the cones loose.

Continued drilling again from 1837 m with a rotary assembly and a PDC bit. Some stick slip experienced with this BHA/bit. Performed wiper trip to shoe and experienced some tight spots.

Bits/BHA:

A Smith roller cone bit type SVH, IADC code 215, was used to drill out the casing and drill to core point. After coring a Smith MGR741BPX, IADC code M222, PDC bit was picked up and ran on a rotary BHA. This bit drilled to TD and was also used to perform a wiper trip after the wireline logging runs prior to running 7" liner.

The drilling assemblies are described in the BHA report section (3.5.2) and the bit record is described in section 3.5.1.

Mud/Solids Control:

Displaced the 1.34 sg Formate mud to 1.54 sg Formate mud after drilling 5 m of new formation and prior to performing LOT. Starting to lose mud when drilling from 1750 m. Added LCM (CaCO₃) as per program. Had to reduce pump rate due to increased losses. Lost a total of 53 m³ while drilling from 1752 m to 1764 m. Reduced mud weight to 1.34 sg to cure losses. Increase ROP with 100% after new mud all around. The mud weight was increased from 1.42 sg to 1.51 sg at 2049 m and was allowed to gradually increase to 1.54 sg at the end of the section.

Logging:

Ran 4 wireline logging runs without any problems.

Casing/Cementing:

Ran 7" liner without any problems. Dropped the ball and successfully set the liner hanger. Mixed and pumped 14.1 m³, 1.90 sg cement slurry and 0.43 m³ DW spacer. No indications of shearing wiper plugs and no bumping. Set the TSP packer with 40 ton. Some back flow observed. Found both wiper plug attached when pulling out the liner running tool. Recovered both darts from lower single of stand 38 when running in with 6" BHA.

6" Hole Section:

Depth interval: 2420 m – 2726 m

General:

This section was drilled with 3 BHAs and 1 core was cut. The bit performance was better than expected. No casing/liner set in this section. Experienced a MWD failure in this first run in this section. Drilled 4 m of new formation and performed a FIT to 2.00 sg EMW. The MWD company was changed from BHI to Schlumberger in this section as BHI had to get 4 3/4" MWD equipment from Houston and this required longer lead time than was available.

Total time for the 6" phase was 9.48 days. 106.0 hours of this time was due to unscheduled events, primarily caused by:

- Ream and wash inside 7" liner due to failure of releasing wiper plugs.
- MWD failure.
- Rig equipment repair.
- Fish for stuck wireline tool.

The cost for the 6" phase was NOK 44.3 million or 144.799 NOK/m.

Drilling:

High torque and shocks was experienced inside the casing and also when drilling the first part of the section. The MWD tools failed at 2458 m. The BHA was pulled and the bit changed and the two stabilizers on the front of the BHA were removed in an attempt to reduce shocks. The bit came out 1/16" under gauge. The second BHA drilled to core point and a 2 m core was cut. The same BHA and bit was re-run after coring and drilled to TD.

Bits/BHA:

Drilled out with a Smith MA913NPX PDC bit, IADC code M432, on a Hold assembly. A full gauge near bit stabilizer and a full gauge string stabilizer was placed between the bit and the MWD tools. A third string stabilizer was placed above the MWD. After coming out of the hole due to MWD failure the 2 stabilizers in the front was removed and a new 6 bladed Smith MDT52YPX PDC bit, IADC code M233, was used. This bit drilled to core point at 2519 m and the bit and BHA

was used after coring to drill to TD with good ROP. The ROP reduced as we entered the limestone formation as expected.

The drilling assemblies are described in the BHA report section (3.5.2) and the bit record is described in section 3.5.1.

Mud/Solids Control:

The entire section was drilled with 1.54 sg Formate mud.

Logging:

Performed 3 wireline logging runs. The MDT string (run #2) got stuck and had to be fished with the drill string. The fishing operation was successful and the last run was performed without any wiper trip after the fishing.

Casing/Cementing:

None

Permanent P&A and Rig Demobilization:

The well was permanent plugged and abandoned after completing the wireline logging in the 6" hole section.

The first cement plug was set in two stages in the open hole from bottom of the hole and up above the 7" shoe (from 2726 m to 2241 m). The plug was weight tested with 10 ton and pressure tested to 192 bar for 10 min. (1.54 sg mud in the hole.)

The second cement plug was set across the 7" liner hanger (from 1585 m to 1379 m) and pressure tested to 143 bar for 10 min. (1.54 sg mud in the hole.)

Retrieved seal assembly with closed annular and precautionary circulate down kill line and up choke line. Cut the 9 5/8" casing at 904 m and retrieved the casing with a spear.

Ran and set a 13 3/8" BJ bridge plug 10 m above the 9 5/8" cut at 894 m. Tagged the retainer prior to setting cement plug on top

The third cement plug was set on top of the retainer from 890 m to 840 m.

Displace the mud above the third cement plug to 1.23 sg Formate mud.

Retrieved the 13 3/8" seal assembly with closed annular and precautionary circulate down kill line and up choke line. Cut the 13 3/8" casing at 494 m. Picked up casing 2 m with spear and circulated on the outside of the casing. Retrieved the cut-off casing section.

Ran in and spotted 5 m³ high viscous pill at 800m as base for the forth cement plug. Set the cement plug from 750 m to 412 m in two stages (Plugs #4A and #4B). The plug was weight tested with 10 ton and pressure tested to 149 bar for 10 min. (1.25 sg mud in the hole)

Pulled BOP on the riser.

Picked up the MOST tool and ran in and locked the tool in the wellhead. Cut the 20" x 30" 5 m below seabed and pulled free with 15 ton over pull. Pulled out and laid down the wellhead.

Ran in and set a fifth cement plug 412 m to seabed.

Pulling of anchors was started when the cutting of 20" x 30" casings commenced.

Used the ROV to make a survey of the seabed at the well location and surrounding area to ensure that no debris from the operations on the well is left on the seabed when the rig left the well location.

Anchor handling started immediately after the BOP was on the deck. And five anchors were on the bolster before the P&A was fully completed. The remaining three anchors were recovered in 4.5 hrs. Back loading of equipment had to be delayed due to heavy weather and the decision was made to sail to shelter to perform backload. The rig left the location and sailed for sheltered location east of Rolfsøy and Ingøy where the rig was unloaded and handed over to Statoil at 02:00 the 10th of January 2006.

Total time for the P&A phase was 9.46 days (included rig de-mobilization). 2.5 hours of this time was due to unscheduled events, primarily caused by:

- BJ cementing system.
- Rig repair.

The cost for the P&A phase and rig demobilization was NOK 46.7 million.

3.4.2 Daily Operations Summary

Eni Norge AS							Page 1 of 26
Operations Summary Report							
Legal Well Name: 7122/7-3 Common Well Name: 7122/7-3 Event Name: ORIG DRILLING Contractor Name: OCEAN RIG Rig Name: EIRIK RAUDE							Spud Date: End: Start: 10/19/2005 Rig Release: Rig Number:
Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations	
10/20/2005	00:00 - 12:00	12.00	M	b	MIRU	PAST 69 DEGREES AT 21:50 HRS. 24:00 hrs position 69 deg 08.3' N, 013 27.0' E. Distance sailed 398 nm, distance to go 220 nm. Average speed last 6 hrs, 5,7 knots. Rig in transit from Kristiansund to Goliath. 06:00 Position 69° 30,0' N 14° 50,0' E. Distance sailed 436 nm, distance to go 182 nm. Average speed last 6 hrs 6,3 knots. 12:00 Position 69° 48,5 N 15° 57,6' E. Distance sailed 466 nm, distance to go 152 nm. Average speed last 6 hrs 5,0 knots.	
	12:00 - 00:00	12.00	M	b	MIRU	Rig in transit from Kristiansund to Goliath. Decreased speed due to bad weather and ballasted rig down to survival draft from 16:46 to 19:10. 18:00 Position 69° 58,7' N 16° 31,3' E. Distance sailed 476 nm, distance to go 152 nm. Average speed last 6 hrs 1,7 knots. 24:00 Position 70° 10,2' N 17° 13,4' E. Distance sailed 493 nm, distance to go 125 nm. Average speed last 6 hrs 2,8 knots.	
10/21/2005	00:00 - 12:00	12.00	M	b	MIRU	Rig in transit from Kristiansund to Goliath. 06:00 Position 70° 20,3' N 017°51,5' E Distance sailed 510 nm, distance to go 108 nm. Average speed last 6 hrs 2,8 knots. 12:00 Position 70° 27,7' N 018° 24,8' E Distance sailed 528 nm, distance to go 90 nm. Average speed last 6 hrs 3,0 knots.	
	12:00 - 00:00	12.00	M	b	MIRU	Rig in transit from Kristiansund to Goliath. 18:00 Position 70° 34,8' N 019° 02,7' E Distance sailed 543 nm, distance to go 75 nm. Average speed last 6 hrs 2,5 knots. 24:00 Position 70° 43,7' N 019° 42' E Distance sailed 558 nm, distance to go 60 nm. Average speed last 6 hrs 2,5 knots.	
10/22/2005	00:00 - 12:00	12.00	M	b	MIRU	Rig in transit from Kristiansund to Goliath. 06:00 Position 70° 54,1' N 020° 32,0' E Distance sailed 579 nm, distance to go 39 nm. Average speed last 6 hrs 3,5 knots. 12:00 Position 71° 04,8' N 021° 25,0' E Distance sailed 599 nm, distance to go 19 nm. Average speed last 6 hrs 3,3 knots.	
	12:00 - 16:30	4.50	M	b	MIRU	Rig in transit from Kristiansund to Goliath. On location 16:30 hrs	
	16:30 - 18:00	1.50	M	c	MIRU	Checked DP system and positioned rig	
	18:00 - 19:30	1.50	M	a	MIRU	Held SJA	
10/23/2005	19:30 - 00:00	4.50	M	d	MIRU	Meanwhile offloaded Nortern Challenger Commenced anchorhandling No 4 anchor on bottom at 21:16 No 8 anchor on bottom at 21:50 No 5 anchor on bottom at 23:19	
	00:00 - 06:30	6.50	M	d	MIRU	Commenced anchor handling. Anchor no.1 on bottom at 00:06	

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

End:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
10/23/2005	00:00 - 06:30	6.50	M	d	MIRU	Anchor no.2 on bottom at 00:24 Anchor no.6 on bottom at 03:58 Anchor no.7 on bottom at 05:43 Anchor no.3 on bottom at 06:31
	06:30 - 11:30	5.00	M	d	MIRU	Tension tested anchors to 230 ton, OK
	11:30 - 16:00	4.50	M	f	MIRU	Ballasted rig down to drilling draft.
	16:00 - 19:00	3.00	A	e	MIRU	Picked up 5 1/2" DP and racked same back in derrick.
	19:00 - 19:30	0.50	O	e	MIRU	Repaired loose connection on topdrive and rearranged hydraulic hoses on Hydra racker.
10/24/2005	19:30 - 00:00	4.50	A	e	MIRU	Picked up 5 1/2" DP and racked same back in derrick.
	00:00 - 05:30	5.50	A	f	MIRU	Picked up 5 1/2" DP and racked same back in derrick.
	05:30 - 06:30	1.00	O	e	MIRU	Repaired oil leakage on Iron roughneck and changed sheared allen bolt on same.
	06:30 - 07:00	0.50	A	f	MIRU	Picked up 5 1/2" DP and racked same back in derrick.
	07:00 - 10:30	3.50	A	f	MIRU	Made up BHA items and racked same back in derrick.
	10:30 - 12:00	1.50	A	f	MIRU	Installed sub in top drive and body tested new S-pipe 40/500 bar for 5/10 min, OK.
	12:00 - 13:00	1.00	A	f	MIRU	Picked up 5 1/2" HWDP and racked same back in derrick.
	13:00 - 14:00	1.00	O	e	MIRU	Repaired hydraulic hose on upper head on Hydra racker.
	14:00 - 14:30	0.50	A	f	MIRU	Continued to pick up 5 1/2" HWDP and rack same in back derrick.
	14:30 - 16:30	2.00	A	b	DRLCON	Picked up 23" bit and roller reamer. Made up std of DP to BHA and tested VertTrak - good test.
	16:30 - 19:00	2.50	A	b	DRLCON	Continued to make up 23"x36" BHA. RIH on 5 1/2" DP to 350 m.
	19:00 - 20:30	1.50	A	f	DRLCON	ROV spotted BHA and followed down to 1 m off bottom. ROV placed 4 ea marker bouys.
	20:30 - 00:00	3.50	A	a	DRLCON	Spudded well at 20:30 at 368 m.
	10/25/2005	5.50	A	a	DRLCON	Drilled 23"x36" hole from 368 m to 393 m.
						Drilled 23" hole from 392 m to 416 m. Not able to decode inclination signal before 404 m.
						2 deg inclination.
						Some boulder problems.
	05:30 - 06:30	1.00	A	d	DRLCON	Reamed stand from 390 m to 416 m to decrease inclination.
	06:30 - 09:30	3.00	A	a	DRLCON	Drilled 23" hole from 416 m to 430 m.
	09:30 - 11:30	2.00	A	d	DRLCON	Pumped 15 m3 sweep and back reamed out to 378 m. Took survey 10 m below seabed 1,05 deg and 1,35 deg 40 m below seabed.
	11:30 - 00:00	12.50	A	a	DRLCON	Drilled 23" hole from 430 m to 485 m.
	10/26/2005	9.00	A	a	DRLCON	Startet to rotate while drilling at 484 m. Drilled 23" x 36" hole from 485 m to 507 m. 36" hole opener 117 m behind 23" bit.
						Several string stalls due to boulders.
						Drilled 23"x36" hole from 507 m to 538 m.
						23" hole to 538 m and 36" hole to 421 m
						Pumped 25 m3 sweep and cleaned hole.
						Worked sting from 520 m to 538 with max over pull of 15 ton.
						Displaced hole with 1.2 sg mud.
						Pulled out of hole from 538 m to 430 m.
						Ran in hole from 430 m to 538 m.
						Pumped 40 m3 high vis pill and displaced hole to 1.2 sg mud.
						Startet to POOH. Worked the string several time from 538 m to 460 m with max 30 ton overpull. Observed 3 m of fill last time on bottom.
						POOH from 535 m to 233 m. ROV monitored bit pulled from sea bead.
						POOH with BHA. Laid out 36" hole opener, roller reamer and VertiTrak assemblies.
	21:00 - 21:30	0.50	A	f	DRLCON	Cleared rig floor of excess equipment.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
10/26/2005	21:30 - 22:00	0.50	C	f	CSGCON	Made up cementing head assembly & laid same out on aft riser skate.
	22:00 - 00:00	2.00	C	f	CSGCON	Rigged up to move 30" guide base to the 100 T trolley.
10/27/2005	00:00 - 04:00	4.00	C	b	CSGCON	Rigged up and moved 30" retrievable guide base to the 100 T trolley.
	04:00 - 04:30	0.50	C	b	CSGCON	Held tool box talk for picking up 30" casing.
	04:30 - 06:30	2.00	C	b	CSGCON	Picked up & ran 30" casing.
						Installed 30" WH housing and landed same in retrievable guide base.
	06:30 - 08:00	1.50	C	b	CSGCON	Landed 30" WH Housing in retrievable guide base.
						Released casing running tool from housing.
	08:00 - 08:30	0.50	C	b	CSGCON	Broke down 30" cart tool and laid out same. Held SJA meeting prior rigging up for 20" casing job.
	08:30 - 10:30	2.00	C	f	CSGCON	Rigged up 20" casing equipment.
	10:30 - 13:00	2.50	C	b	CSGCON	Ran 20" casing.
	13:00 - 15:30	2.50	C	b	CSGCON	Attempted to make up 20" XO joint to 18 3/4" WH Housing.
						Manual tongs were needed to torque the connection due to larger OD.
						Started rigging down the hydraulic casing tong and handling equipment.
	15:30 - 16:00	0.50	C	b	CSGCON	Made up 20" XO joint to 23000 Nm and engaged anti rotation tabs.
						Landed 18 3/4" WH Housing on rigfloor and laid out 18 3/4" cart tool.
						Continued to rig down 20" handling equipment.
	16:00 - 17:00	1.00	C	b	CSGCON	Made up and ran stinger using EBT as 18 3/4" WH Housing stick up to high for iron roughneck.
	17:00 - 18:30	1.50	C	b	CSGCON	Picked up 20" cart tool and latched same to 18 3/4" WH Housing, picked up a 5 1/2" DP std.
						Ran down and connected to the 30" WH Housing.
						Ran casing assembly to 365 m.
	18:30 - 19:00	0.50	C	b	CSGCON	Positioned ROV and lined up casing with hole and stabbed in.
	19:00 - 19:30	0.50	C	b	CSGCON	Ran in hole from 375 m to 522 m top filling with sea water on each std. No hole obstructions.
	19:30 - 20:00	0.50	C	b	CSGCON	Picked up cement head assembly and installed same. Lowered casing to 528.5 m.
	20:00 - 20:30	0.50	C	c	CSGCON	Held prejob safety meeting for cementing job.
	20:30 - 21:30	1.00	C	c	CSGCON	Hooked up cementing hose while pumping 20 m3 sea water using rigpump. Observed air bubbles on 18 3/4" R/tool. Investigated problem.
						Pumped 10 m3 hi-vis pill.
	21:30 - 22:00	0.50	C	c	CSGCON	Pumped 10 m3 sea water with red dye and glimmer. Pressure tested cementing lines to 140 bar/10 min, OK.
	22:00 - 23:30	1.50	C	c	CSGCON	Mixed & pumped 41 m3 1.65 sg lead cement slurry.
						0,1 l/100 kg FP-16LG
						2,0 l/100 kg A-3L
						5,0 l/100 kg A-7L
						Mixed and pumped 6 m3 1.95 sg tail cement slurry.
						0,1 l/100 kg FP-16LG
						4, 0 l/100 kg A-7L
	23:30 - 00:00	0.50	C	c	CSGCON	Attempted to mix and pump tail slurry, no go due to plugging up below knife valve.
10/28/2005	00:00 - 00:30	0.50	C	c	CSGCON	Displaced cement with 7,7 m3 seawater.
	00:30 - 01:00	0.50	C	d	CSGCON	Closed off string and removed cement hose.
	01:00 - 08:00	7.00	C	d	CSGCON	Waited on cement.
	08:00 - 11:00	3.00	C	e	CSGCON	Released 18 3/4" WH Housing R-tool. WH angle 1,2 deg.
						Pulled to 460 m. Washed landing string.
						Continued to pull out of hole. Laid out R-tool.
	11:00 - 12:00	1.00	C	e	CSGCON	Moved RGB retrieving tool onto 100 ton trolley.
	12:00 - 14:00	2.00	C	e	CSGCON	Ran RGB retrieving tool and positioned rig.
						Latched onto RGB and pulled same free.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations																																		
10/28/2005	12:00 - 14:00	2.00	C	e	CSGCON	Pulled out of water with RGB.																																		
	14:00 - 16:00	2.00	C	e	CSGCON	Placed RGB on 100 ton trolley and disconnected handling sub from same.																																		
	16:00 - 00:00	8.00	I	b	CSGCON	Moved RGB and RGB retrieving to aft moonpool deck																																		
10/29/2005						Prepared to run BOP on riser																																		
						Installed choke and booster lines to termination points in moonpool																																		
	00:00 - 03:30	3.50	I	b	CSGCON	Prepared to run riser																																		
						Removed drilling bails, installed hydraulic piston for riser handling tool.																																		
						Installed 750 ton bails and elevator. Completed installation of choke and booster hoses in moonpool.																																		
	03:30 - 04:00	0.50	I	b	CSGCON	Installed riser gimble.																																		
	04:00 - 05:00	1.00	I	b	CSGCON	Installed riser spider.																																		
	05:00 - 09:30	4.50	I	b	CSGCON	Installed riser handling tools and function tested all equipment.																																		
	09:30 - 13:00	3.50	I	b	CSGCON	Picked up 30' riser pup and first full riser joint.																																		
						Moved BOP onto transporter.																																		
10/30/2005	13:00 - 00:00	11.00	P	a	CSGCON	WOW for running BOP on riser																																		
						<table><tr><td>wind</td><td>max sea</td><td>heave</td><td>roll</td><td>pitch</td></tr><tr><td>16:00</td><td>36</td><td>7</td><td>1,3</td><td>0,7</td></tr><tr><td>20:00</td><td>32</td><td>6</td><td>0,8</td><td>1,0</td></tr><tr><td>24:00</td><td>31</td><td>6</td><td>0,5</td><td>0,9</td></tr></table>	wind	max sea	heave	roll	pitch	16:00	36	7	1,3	0,7	20:00	32	6	0,8	1,0	24:00	31	6	0,5	0,9														
	wind	max sea	heave	roll	pitch																																			
	16:00	36	7	1,3	0,7																																			
	20:00	32	6	0,8	1,0																																			
	24:00	31	6	0,5	0,9																																			
						While waiting on weather: Pressure tested choke and kill manifold to 30/450 bar for 5/10 min. Installed umbilical under diverter housing.																																		
						Performed general maintenance and house keeping.																																		
	00:00 - 00:00	24.00	P	a	CSGCON	Waited on weather to run BOP																																		
						<table><tr><td>Wind</td><td>Max sea</td><td>Heave</td><td>Pitch</td><td>Roll</td></tr><tr><td>04:00</td><td>62</td><td>8</td><td>1,0</td><td>3,0</td></tr><tr><td>08:00</td><td>60</td><td>15</td><td>4,5</td><td>3,0</td></tr><tr><td>12:00</td><td>48</td><td>12</td><td>4,5</td><td>3,0</td></tr><tr><td>16:00</td><td>48</td><td>11</td><td>4,5</td><td>2,5</td></tr><tr><td>20:00</td><td>38</td><td>10</td><td>2,5</td><td>2,0</td></tr><tr><td>24:00</td><td>15</td><td>7</td><td>2,3</td><td>1,5</td></tr></table>	Wind	Max sea	Heave	Pitch	Roll	04:00	62	8	1,0	3,0	08:00	60	15	4,5	3,0	12:00	48	12	4,5	3,0	16:00	48	11	4,5	2,5	20:00	38	10	2,5	2,0	24:00	15	7	2,3
Wind	Max sea	Heave	Pitch	Roll																																				
04:00	62	8	1,0	3,0																																				
08:00	60	15	4,5	3,0																																				
12:00	48	12	4,5	3,0																																				
16:00	48	11	4,5	2,5																																				
20:00	38	10	2,5	2,0																																				
24:00	15	7	2,3	1,5																																				
					While waiting on weather: Pressure test stand pipe manifold. Replaced 4 paddles and valve seats and retested valves, OK. Mixed mud for 16" hole section. Removed no 10 and no 2 MRT wires from tensioner ring. Started to pressure test kill and choke manifold to 1045 bar. Performed PM's and house keeping.																																			
10/31/2005	00:00 - 00:30	0.50	P	a	CSGCON	Waited on weather for close standby cover by standby vessel to run BOP																																		
	00:30 - 01:30	1.00	I	b	CSGCON	Repositioned drape hoses in moonpool.																																		
	01:30 - 04:30	3.00	I	b	CSGCON	Moved BOP below rotary. Connected riser to LMRP. Prepared BOP stack for running through splash zone.																																		
	04:30 - 05:00	0.50	I	b	CSGCON	Ran BOP through splash zone.																																		
	05:00 - 18:00	13.00	I	b	CSGCON	Ran BOP on riser.																																		
						Pressure tested after 4 riser joints to 30/1045 bar for 5/10 min, OK.																																		
						Pressure tested after last riser jt to 30/480 bar for 5/10 min, OK.																																		
	18:00 - 18:30	0.50	I	b	CSGCON	Repaired locking dog on riser test cap and removed test cap.																																		
	18:30 - 20:30	2.00	I	b	CSGCON	Picked up slip joint and landing joint. Ran down and installed MUX cables and hot line.																																		
						(At 20:15 weather too bad for close standby cover by standby boat.)																																		
	20:30 - 21:30	1.00	I	b	CSGCON	Landed slip joint in load ring and engaged locking dogs. Released load ring from housing. Removed safety slings and turn buckles.																																		
	21:30 - 22:00	0.50	I	b	CSGCON	Lowered BOP and riser, took 140 ton with MRTs. ROV observed BOP 8 m above sea bed.																																		
	22:00 - 00:00	2.00	P	a	CSGCON	Waited on weather for close standby cover by standby boat.																																		
						While WOW pressure tested kill and choke manifold to 30/480 bar for 5/10																																		

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Spud Date:

End:

Rig Release:

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
10/31/2005	22:00 - 00:00	2.00	P	a	CSGCON	min.
11/1/2005	00:00 - 08:00	8.00	P	a	CSGCON	Waited on weather for close standby cover by standby boat. wind max sea heave pitch roll 06:00 41Kts 285* 7m 1.4m 2.0* 2.2* While WOW: Pressure tested choke and kill manifold to 480 bar, OK using cmt unit.
	08:00 - 18:30	10.50	I	b	CSGCON	Installed goosenecks on slip joint.
	18:30 - 19:00	0.50	O	d	CSGCON	Attempted to pressure test kill, choke and conduit lines, no go.
	19:00 - 19:30	0.50	O	d	CSGCON	Investigated problem. Visual check in moonpool showed possible problem with conduit line.
	19:30 - 20:00	0.50	O	d	CSGCON	Held SJA meeting for removing goosenecks and pulling slip joint.
	20:00 - 20:30	0.50	O	d	CSGCON	Displaced conduit lines to seawater
	20:30 - 22:30	2.00	O	d	CSGCON	Removed and secured 2 x conduit, choke, kill, boost and glycol goosenecks.
	22:30 - 23:30	1.00	O	d	CSGCON	Hang off support ring in housing. Installed safety lines and turnbuckles. Disengaged support ring from slip joint.
	23:30 - 00:00	0.50	O	d	CSGCON	Laid out riser landing joint
11/2/2005	00:00 - 03:30	3.50	O	d	CSGCON	Picked up and disconnect slip jt dogs. Inspect slip jt aux line boxes find no seals present. Installed seals. M/up slip jt, run down and install mux cables in storm protection clamps. M/up landing jt. Land off slip jt in load ring, engage load ring dogs to slip jt, take 5 t o/pull, disengage load ring from housing, remove turnbuckles and install safety slings.
	03:30 - 09:00	5.50	O	d	CSGCON	Hold toolbox meeting and review SJA prior to and install goosenecks.
	09:00 - 11:30	2.50	I	d	CSGCON	Press test choke, kill and glycol lines 30 bar low/ 5 min, 480 bar high/ 10 min, ok.
	11:30 - 15:00	3.50	I	b	CSGCON	Install Mux saddles on slip jt
	15:00 - 16:00	1.00	I	b	CSGCON	Tool box talk prior to land BOP. Move rig above wellhead. Land out at 15:45 hrs with 5 t down weight. Positive latch indications. 30 t o/ pull, ok.
	16:00 - 17:00	1.00	I	d	CSGCON	Test 20" csg to 120 bar/ 15 min against BSR's, ok
	17:00 - 17:30	0.50	I	b	CSGCON	Release slip jt inner barrel and land out in spider. Lay out landing jt.
	17:30 - 20:00	2.50	I	f	CSGCON	Hold PJM. Rig up and install diverter. Install riser inclinometer on diverter. Observed movements from 0 - 3,5 dgr on BOP bullseye in 195 -240 dgr direction. Slack off 30 ton in 5 increaments with 210 ton tension on riser tensioners. Cont monitor bullseye movement.
	20:00 - 21:00	1.00	I	b	CSGCON	Land out diverter in housing, 10 t o/ pull. Energized flow line seals and stabs. Lay down diverter run tool. Meanwhile evaluate movement on Wellhead.
	21:00 - 23:00	2.00	I	b	CSGCON	Hold PJSM and TBT prior to rig down riser run equipment. Lay down tools. Stop rigging down riser equipm. Set down additional 80 t down weight onto wellhead. Riser tensioners hold 140 t tension. Lower flex jt angle 2,4 -2,5 dgr, BOP bullseye moving between 3-4 dgr in 200-220 dgr direction.
	23:00 - 00:00	1.00	I	b	CSGCON	Re- install spider and gimbal in order to pull BOP.
11/3/2005	00:00 - 02:00	2.00	I	b	CSGCON	De-energize flow line seals and stabs. Take 5 t o/pull to confirm running tool in place, open diverter lock down dogs, pick up diverter, lay out riser inclinometer. Lay out diverter. Pick up landing jt.
	02:00 - 05:00	3.00	P	b	CSGCON	Hold PJSM and review SJA prior to unlatch Bop. Perform Ocean Rigs pre job checklists for pulling Bop and Marine riser. Displaced hydr fluid in conduit lines to surface.
	05:00 - 07:30	2.50	I	b	CSGCON	Lock slip jt inner barrel. Open s/sea dump valves w/ Rov. Unlatch Bop at 0545 hrs. Move rig 8 m away from wellhead. Start removing drap hoses from Slip jt.
	07:30 - 13:00	5.50	P	a	CSGCON	Wait on weather in order to get FRC coverage. Heavey sea for Stb boat.

Eni Norge AS
Operations Summary Report

Page 6 of 26

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Rig Release:

Rig Number:

Spud Date:

End:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
11/3/2005	07:30 - 13:00	5.50	P	a	CSGCON	Meanwhile work on PM's, house keeping and review riser running procedure.
	13:00 - 16:00	3.00	P	a	CSGCON	Continue wait on weather
	16:00 - 19:00	3.00	I	b	CSGCON	Lowered Inclinator and check Wellhead to 1,5 dgr inclination with Rov.
	19:00 - 19:30	0.50	I	b	CSGCON	Continue remove drap hoses from Slip jt.
	19:30 - 21:30	2.00	I	b	CSGCON	Hold PJSM, TBT and review SJA prior to pulling riser and Bop's.
11/4/2005	21:30 - 00:00	2.50	I	b	CSGCON	P/ up and engage load ring on housing. Engage locking dogs, install turn buckles, disengage slip jt from load ring. Lay out landing jt and slip jt.
	00:00 - 04:00	4.00	I	b	CSGCON	Continue lay out riser from 328 m to 183 m.
	04:00 - 05:30	1.50	I	b	CSGCON	Continue pull Bop from 183 m. Hold TBT. Set Stack onto carrier at 0330 hrs. Disconn MUX cables and hotline. Disconn riser double from Bop.
	05:30 - 07:00	1.50	I	b	CSGCON	Transport Bop to parking position. Lay down 2 jt riser.
	07:00 - 09:00	2.00	C	c	CSGCON	Hold TBT. Lay down riser handling equipment, riser spider and gimble. Install masterbushing.
	09:00 - 14:30	5.50	C	c	CSGCON	Rig up to run 3 1/2" and 5 1/2" Dp as cementing stinger. Jump ROV at 0830 hrs. Move rig to well centre.
	14:30 - 15:00	0.50	C	c	CSGCON	Run in to seabed at 366 m. Stab into 30"x 36" annulus using ROV. RIH took resistance at 395 m.
	15:00 - 16:00	1.00	C	c	CSGCON	Pulled back and space out pump in sub. RIH to 403 m and took weight. Attempt to work pass this depth, no success. Pump with 1000 lpm initially increased to 2000 lpm and sweep 10 m3 hi-vis mud.
	16:00 - 16:30	0.50	C	c	CSGCON	Made up cementing line and press test to 200 bar, ok.
	16:30 - 18:00	1.50	C	c	CSGCON	Performed cement job as follows: Pump 20 m3 1,95 sg type G slurry with 4 l/100 kg CaCl. Underdisplace with 1 m3 for u tube. Used 170% excess volume.
11/5/2005	18:00 - 20:00	2.00	A	f	CSGCON	Rack back cement stand and lay out single. Pooh to 361 m. Displaced string 2 times string volume using wiper ball.
	20:00 - 22:30	2.50	A	f	CSGCON	Pooh and rack back cement string.
	22:30 - 00:00	1.50	C	c	CSGCON	TBT and change to 350 ton drilling bailes.
	00:00 - 00:30	0.50	C	c	CSGCON	Hold TBT and pick up 230 m 5 1/2" Dp.
	00:30 - 05:00	4.50	A	f	CSGCON	Run in to seabed at 368m. Stab into void assisted by Rov. Penetrated to 5 m below seabed without resistance. Rov able to get free movement on string. Cement samples 90% set up on surface. Pull above sea bed.
	05:00 - 06:30	1.50	C	c	CSGCON	Pull Cmt stinger to surface.
	06:30 - 07:00	0.50	C	c	CSGCON	Continue p/ up 5 1/2" Dp, total 17 stands - 490 m.
	07:00 - 08:00	1.00	C	c	CSGCON	Run cmt stinger to sea bed at 351 m.
	08:00 - 09:00	1.00	C	c	CSGCON	Lubricate and service top drive, travelling block and crown blocks.
	09:00 - 10:00	1.00	C	c	CSGCON	Run in to 360 m with cmt stinger. Stab into void outside 30" csg with Rov and tagged cmt at 374 m.
	10:00 - 10:30	0.50	C	c	CSGCON	Rack back drilling stand. Installed Cmt stand. Tagged at 374 m. Hold TBT on Cmt job. Press test lines to 200 bar, ok.
	10:30 - 11:00	0.50	C	c	CSGCON	Pump 10 m3 1.95 sg G slurry with 4 L/100 kg CaCl. Observe Cement in return around 30" csg.
	11:00 - 14:30	3.50	I	b	CSGCON	Pull string to above seabed. Circ 2 x string vol and sweep wiper ball.
	14:30 - 15:00	0.50	I	e	CSGCON	Pull cmt stinger and rack back same.
	15:00 - 18:30	3.50	I	b	CSGCON	Rig up riser handling tools on drillfloor and prepare moonpool for running Bop.
	18:30 - 00:00	5.50	I	b	CSGCON	TBT and SJA prior to handling riser/Bop.
					CSGCON	Made up 2 x Buoyant riser. TBT with crew prior to work in moonpool area. Move Bop to rotary centre and m/ up riser to Bop.
					CSGCON	TBT prior to run Bop. Run Bop in splash zone at 1845 hrs. Run riser to 251 m. With Bop at 91 m; Test conduit lines to 340 bar, test kill/choke and glycol lines to 35 bar/ 5 min and 475 bar/ 10 min.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

End:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
11/6/2005	00:00 - 03:00	3.00	I	b	CSGCON	Continue run Bop f/251 m to 336 m. Test choke/kill and conduit lines to 35 bar/5 min and 475/ 10 min.
	03:00 - 05:00	2.00	I	b	CSGCON	Hold TBT. P/up and install slip jt. Install Mux cables in storm protection clamps. P/up landing jt. Engage load ring to slip jt and take 5 t o/pull. Remove turnbuckles and install safety slings.
	05:00 - 12:00	7.00	I	b	CSGCON	Hold TBT and review SJA. Install Goosenecks and drap hoses to slip jt. Press test choke/kill and glycol lines to 35 bar/ 5 min and 475/ 10 min. Conduit line to 345 bar. Install Mux saddles. Position rig over well centre.
	12:00 - 13:00	1.00	I	b	CSGCON	Hold TBT prior to land Bop. Fine tuned rig position land Bop Wh conn. O/ pull with 30 t, ok.
	13:00 - 14:30	1.50	I	b	CSGCON	Sat down Bop onto wellhead, bullseye 1,4 dgr inclination. Increased riser tensioners to normal tension 180 t, ok.
	14:30 - 15:00	0.50	I	d	CSGCON	Test wellhead connector against BSR to 102 bar/ 10 min, ok.
	15:00 - 17:00	2.00	I	b	CSGCON	Unlatch innerbarrel, land out in spider, L/down landing jt. Install diverter.
	17:00 - 21:30	4.50	I	f	CSGCON	Rig down Rise Spider and Gimbal. Install Master bushing and adaptor ring. Remove hydr cyl for riser handling tool. Change to drilling bailes.
	21:30 - 23:30	2.00	I	d	CSGCON	Rih 2 stands Hwdp. Wellhead isolation tool with 5 1/2" dp as test string. Engage test tool as per Vetco procedure and sat down with 15 t.
	23:30 - 00:00	0.50	I	d	CSGCON	Test Bop: Close LPR and test Wellhead connector with 35 bar/5 min and 475 bar/10 min, ok.
11/7/2005	00:00 - 00:30	0.50	I	d	CSGCON	Function test Bop on yellow Sem A from drillers panel and blue Sem B from toolpusher panel remote panel.
	00:30 - 01:30	1.00	I	d	CSGCON	Pooh with isolation tool and lay down same.
	01:30 - 03:30	2.00	A	e	CSGCON	Hold TBT, made up Cmt Head assy and lay out same. Made up Hang off tool, check Acme threads and rack back.
	03:30 - 07:30	4.00	A	e	DRLIN1	Made up 16" drilling Bha. Verify MWD. Cont Rih with Bha.
	07:30 - 09:30	2.00	I	d	DRLIN1	Rig up and test lower and upper IBOP incl mud hose to 35 bar/ 480 bar for 5/10 min, ok.
	09:30 - 10:30	1.00	C	e	DRLIN1	Lay down 5 1/2" cmt stand from derrick.
	10:30 - 12:00	1.50	A	b	DRLIN1	Cont Rih f/237 to Toc at 500 m. Sat down with 5 t, firm cmt.
	12:00 - 12:30	0.50	A	f	DRLIN1	Hold PSJM and TBT prior to displacing well to 1,2 sg mud.
	12:30 - 14:30	2.00	A	c	DRLIN1	Displace hole, kill/choke/booster lines with 1,2 sg formpro mud.
	14:30 - 15:00	0.50	A	c	DRLIN1	Took SCR readings at 500 m with 1,2 sg mud
11/8/2005	15:00 - 15:30	0.50	A	f	DRLIN1	Perform choke manipulation drill with crew.
	15:30 - 16:30	1.00	A	a	DRLIN1	Clean out firm cement in shoe track from 500 m to 522 m. Wob 5 t.
	16:30 - 00:00	7.50	A	c	DRLIN1	Circ and condition mud due to high viscosity and shakers screens overflow. Reduce pumps to 350-500 lpm to reduce mud loss. Condition mud to meet mudspec for rheology, ph, weight and filterloss. Stage pumps to 2000 lpm. Total routed 37 m3 mud to Oiltools holding tank and to skips on deck.
	00:00 - 03:00	3.00	A	c	DRLIN1	Circ. and condition mud to get within mud spec. Treat for rheology, filter loss and weight.
	03:00 - 04:00	1.00	A	f	DRLIN1	Drill firm cmt f/522 m to shoe at 529 m.
	04:00 - 08:00	4.00	A	c	DRLIN1	Clean out rat hole to 538 m. No cmt. Cont circ to get mud into spec.
	08:00 - 22:00	14.00	P	b	DRLIN1	Waiting on Oiltools to complete modifications/ repairs on cutting handling system. Meanwhile; drilled 5 m new formation. Spot 8 m3 LCM in open hole. Perform FIT on 20" shoe to 1.35 sg eqv mud weight.
	22:00 - 00:00	2.00	A	a	DRLIN1	Start drilling with restricted Rop f/543 m to 545 m due to cutting handling equipment fine tuning.
						Parameters; 4-6 t wob, 3300 lpm, 135 bar, 135 rpm on bit, string 0 rpm.
						Continue drill 16" hole f/545 m to 711 m.
11/9/2005	00:00 - 11:00	11.00	A	a	DRLIN1	Parameters; 3800 lpm, 155 bar, wob 4-14 t, 145 rpm. Flow check drilling

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

End:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
11/9/2005	00:00 - 11:00	11.00	A	a	DRLIN1	break at 651 m, negative.
	11:00 - 00:00	13.00	A	f	DRLIN1	Cutting transfer hose plugged, remove plugging. Problem to get suction from holding tank. Work problem. Work frozen auger. Vacuum pump to boat reduced from 8 to 20 sec each sequence. Several plugs in cutting suction. Circ string w/2000 lpm.
11/10/2005	00:00 - 04:30	4.50	A	f	DRLIN1	Continue to rectify problems with cuttings handling system. Work to unplug cutting suction in holding tank 1 (fwd) in order to transfer to boat or skips. Meanwhile Pulled string into csg shoe, hole in good condition. RIH to TD. Took SCRs.
11/11/2005	04:30 - 00:00	19.50	A	a	DRLIN1	Drill 16" hole f/711 to 913 m. 3800 lpm, 129-135 bar, 2-8 t wob, 145 rpm.
	00:00 - 02:00	2.00	A	a	DRLIN1	Drill f/913 m to 929 m.
	02:00 - 03:30	1.50	A	f	DRLIN1	Trouble shoot on Oiltools Cutting handling system. Auger inside tank no 1 jammed. Override system, freed auger and obtained cutting suction.
	03:30 - 10:00	6.50	A	a	DRLIN1	Cont drilling from 929 m to 1000 m.
	10:00 - 11:30	1.50	A	c	DRLIN1	Circ shakers clean with 3800 lpm and 1700 lpm on booster line.
	11:30 - 12:00	0.50	A	b	DRLIN1	Flow check, ok. Pooh to 983 m.
	12:00 - 13:00	1.00	A	b	DRLIN1	Work on tight hole at 984 m. 10-15 t o/pull. Pump back to 910 through tight spots.
	13:00 - 13:30	0.50	A	c	DRLIN1	Circ btm up with 4000 lpm, 155 bar and 20 rpm in string.
	13:30 - 15:30	2.00	A	b	DRLIN1	Cont pump and rotate f/910 m to 700 m, max o/pull 10 t, Cont Pooh to 524 m, hole in good condition.
	15:30 - 16:30	1.00	A	c	DRLIN1	Circ hole clean with 3000 lpm, 1700 lpm on booster line. Flush kill/ choke line.
	16:30 - 17:00	0.50	I	d	DRLIN1	Performed FIT to 1,45 sg equiv mud weight.
	17:00 - 17:30	0.50	O	e	DRLIN1	Service TDS, Block retraction system and Crown blocks.
	17:30 - 19:00	1.50	A	b	DRLIN1	Rih to TD at 1000 m, no resistance.
	19:00 - 21:00	2.00	A	c	DRLIN1	Circ hole clean with 4 times btm up, 4300 lpm and 1700 lpm on booster line.
11/12/2005	21:00 - 00:00	3.00	A	b	DRLIN1	Flow check, ok. Pooh wet from 1000 m to 638 m, pump slug. Hole slick. Flow check before Bha enter Bop, ok. Cont Pooh to 207 m at report time.
	00:00 - 02:30	2.50	A	b	DRLIN1	Cont Pooh with 16" Bha. L/down string stab.
	02:30 - 03:30	1.00	A	b	DRLIN1	Download MWD and rack back VertiTrak.
	03:30 - 04:00	0.50	A	f	DRLIN1	Clean and clear rig floor.
	04:00 - 04:30	0.50	O	e	DRLIN1	Rig repair; remove blower "B" motor on Top drive.
	04:30 - 06:00	1.50	F	f	EVAL 1	Hold TBT and rig up Wireline logging tools.
	06:00 - 11:30	5.50	F	a	EVAL 1	Install radioactive source and run in with PEX, MSIP, PPC, GPIT and log open hole section f/529 - 1000 m
	11:30 - 12:00	0.50	F	a	EVAL 1	Pulled logs to surface.
	12:00 - 13:30	1.50	F	f	EVAL 1	Remove radioactive source and rig down logging tools and handling equipment.
	13:30 - 14:00	0.50	O	f	CSGIN1	Flush kill/choke and booster lines. Displaced sea water with air from glycol drape hose and glycol line. Total displaced 100 liter SW.
	14:00 - 15:00	1.00	O	e	CSGIN1	TBT and install blower motor "B" on top drive.
	15:00 - 16:00	1.00	C	e	CSGIN1	TBT and made up cementing head on dp and rack back.
	16:00 - 16:30	0.50	C	f	CSGIN1	Change out variable jaw assy on iron roughneck to handle drill pipe.
	16:30 - 20:30	4.00	C	e	CSGIN1	Rih, jet wellhead with 40 bar press, total pump 16 m3. Check index line for WH distance, 367,64 m.
11/13/2005	20:30 - 22:30	2.00	C	b	CSGIN1	Retr seat protector w/11 t o/pull. Pooh, L/down seat protector and assy.
	22:30 - 00:00	1.50	C	b	CSGIN1	Hold pre casing job meeting and rig up for same.
	00:00 - 09:00	9.00	C	b	CSGIN1	Hold TBT prior to Csg job. Start run 13 3/8" 72 ppf csg w/ L-80, BTC.
	09:00 - 10:30	1.50	C	e	CSGIN1	Bakerlock shoe track and function test shoe and float, ok.
					CSGIN1	Continue run 13 3/8" Csg to 622 m. Fill every 5th jt.
					CSGIN1	Change elevators to 5 1/2" size. P/up csg hanger. Remove

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Spud Date:

Rig Release:

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
11/13/2005	09:00 - 10:30	1.50	C	e	CSGIN1	FMSlips/adaptor ring and installed master bushings. Check seal assy, ok. String weight 53 t.
	10:30 - 13:00	2.50	C	b	CSGIN1	Cont run 13 3/8" csg on 5 1/2" dp without resistance to 980 m. M/up cmt head. Hung up with 10 t at 992 m, fell through and land hanger in well head. 45 t O/pull, ok. Csg shoe at 995.20 m. Float collar at 972 m.
	13:00 - 14:30	1.50	C	c	CSGIN1	M/up cmt line, test same to 345 bar, ok. Circ casing content w/1900 lpm, 13 bar, no loss.
	14:30 - 16:30	2.00	C	c	CSGIN1	Hold pre cement job meeting during circ.
	16:30 - 18:00	1.50	C	c	CSGIN1	Pump 15 m3 spacer, Mix and pump 21 m3 1.9 sg cmt class G slurry (0.5 hr downtime after 8 m3 during cement mixing due to cement knife failure/frozen) Sheared top plug with cmt unit.
	18:00 - 21:30	3.50	C	f	CSGIN1	Displace cmt w/rig pumps at 2000 lpm, staged down to 500 lpm, bump plug and observe 20 bar increase. Hold pressure 10 min, ok. Pump efficiency 98 %. Press test casing w/cmt unit to 172 bar for 15 min, ok. Check for backflow, ok.
	21:30 - 22:00	0.50	C	f	CSGIN1	Press test failsafes to 30 bar/5 min and 215 bar/15 min, ok. Set seal assy w/4 R turns and energize seal assy as per Vetco procedure. Test seal assy to 35/207 bar 5/10 min, ok. Release hngr run tool. Pooh to 95 m.
	22:00 - 22:30	0.50	C	f	CSGIN1	Disconnect hydraulic lines and remove casing tong from rig floor.
11/14/2005	22:30 - 23:00	0.50	N	f	CSGIN1	Cont Pooh, L/down csg hanger running tool assy.
						Held General Time Out Meeting with all Service and Ocean Rig Nightshift crews.
						Topic: investigation result from crane lift and procedure incident and the potential of personal injuries.
	23:00 - 00:00	1.00	C	f	CSGIN1	M/up assy and 13 3/8" wear bushing.
	00:00 - 04:00	4.00	C	e	CSGIN1	Make up wear bushing on assy. Rih set same. Pooh. Lay down run tool assy.
	04:00 - 05:30	1.50	A	b	DRLIN1	Hold PJM. Lay down 16" VertiTrak Bha from derrick.
	05:30 - 06:00	0.50	A	e	CSGIN1	Lay down cement head assy from derrick.
	06:00 - 07:30	1.50	I	e	CSGIN1	Make up Bop isolation tool with 1 stand Hwdp below. Rih and set tool as per Vetco procedure.
11/15/2005	07:30 - 12:00	4.50	I	d	CSGIN1	Hold Pre job safety meeting including SJA prior to Bop testing job: Test all rams, failsafes, annulars from Yellow Pod with 35/207 bar for 5/10 min, ok.
	12:00 - 12:30	0.50	I	d	CSGIN1	Function test all functions from Blue Pod and toolpushers panel.
	12:30 - 14:00	1.50	I	e	CSGIN1	Release Bop isolation tool and Pooh. Lay down assy.
	14:00 - 15:00	1.00	I	d	CSGIN1	Press test shear rams against 13 3/8" csg to 35/173 bar for 5/10 min.
	15:00 - 17:30	2.50	I	e	CSGIN1	Press test upper/lower IBop's. Make up Gray valve and Inside Bop, test off line to 35/345 bar for 5/10 min.
	17:30 - 22:00	4.50	A	e	DRLIN2	Start make up 12 1/4" drilling Bha.
	22:00 - 00:00	2.00	P	b	DRLIN2	Meanwhile testing kill/choke manifold 35/345 bar for 5/10 min.
						Stand of 8 1/4" Dc lost across derrick due to insufficient size of inserts installed in elevators. Hold TBT to rectify problem. Rack back stand with damaged pin end and lay down 8 1/4" jt with damaged box conn.
11/15/2005	00:00 - 01:00	1.00	P	b	DRLIN2	Cont pick up replacement for damaged 8 1/4" DC and Jar.
	01:00 - 03:00	2.00	A	b	DRLIN2	Cont make up 12 1/4" Brake circ below Bop. Made up dart sub.
	03:00 - 05:30	2.50	A	b	DRLIN2	Rih with 5 1/2" Dp toToc at 967 m
	05:30 - 06:00	0.50	A	f	DRLIN2	Brake circ rotate and wash loose cmt from 967 m to 969 m.
	06:00 - 06:30	0.50	P	e	DRLIN2	Hold choke drill with crew. Manipulate stop/start with 20 bar on csg.
	06:30 - 07:00	0.50	A	f	DRLIN2	Set parameters, 2500 lpm, 60 rpm, 0-5 t wob. Drill to 969 m.
	07:00 - 08:00	1.00	P	e	DRLIN2	Hold choke drill with day shift. Manipulate stop/start with 20 bar on csg.
	08:00 - 09:00	1.00	A	f	DRLIN2	Cont drill cement from 969 to float at 972 m.
11/15/2005	09:00 - 09:30	0.50	P	e	DRLIN2	Perform reference test to 100 bar prior to LOT
	09:30 - 12:00	2.50	A	f	DRLIN2	Cont clean out shoe track and rat hole. Shoe at 995 m.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

End:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
11/15/2005	12:00 - 14:00	2.00	A	a	DRLIN2	Drill new formation from 1000 m to 1009 m. Parameters: 3000 lpm, 110 bar, 110 rpm, torque 6-10 Knm, Wob 10-18 t.
	14:00 - 16:00	2.00	A	c	DRLIN2	Hold TBT. Displace well to 1.3 sg mud. Displace kill/choke/booster lines and surface equipment to 1.3 sg mud.
	16:00 - 16:30	0.50	A	c	DRLIN2	Circ and condition mud to get uniform 1,295 sg.
	16:30 - 18:30	2.00	P	e	DRLIN2	Perform LOT #1 and #2 with 55 bar. Equiv mud weight 1,78 sg.
	18:30 - 19:30	1.00	P	e	DRLIN2	Rih to btm and spot 8 m3 LCM pill at btm with 400 lpm/50 rpm.
	19:30 - 21:00	1.50	P	e	DRLIN2	Pull/rotate from 1009 to 888 m.
	21:00 - 21:30	0.50	P	e	DRLIN2	Circ btm up with 2500 - 3000 lpm.
	21:30 - 23:30	2.00	P	e	DRLIN2	Hold TBT. Perform Hole Strengthening Test as per procedure. Test in stages, 58 bar, 10 min holding, 71 bar 10 min holding, 90 bar, 1 hrs holding, ok. Equiv mud weight 2,21 sg.
11/16/2005	23:30 - 00:00	0.50	A	b	DRLIN2	Rih to 1001 m. take SCR's. Re-log with MWD from shoe 995 to TD at 1009 m.
	00:00 - 00:30	0.50	A	b	DRLIN2	RIH to 1001 m. Logged down from 1001 m to 1009 m with MWD.
	00:30 - 08:00	7.50	A	a	DRLIN2	Drilled 12 1/4" hole from 1009 m to 1079 m. 3500 l/min 134 bar 120-180 RPM 17-24 ton WOB.
	08:00 - 09:00	1.00	A	f	DRLIN2	Stopped drilling due to slight increase in active volume and increase background gas. Monitored on triptank, slow gain Shut well in on annular, no pressure build up Open well to triptank, no increase Opened annular and continued monitor on triptank, no increase.
	09:00 - 09:30	0.50	A	a	DRLIN2	Drilled 12 1/4" hole from 1079 m to 1082 m. 3500 l/min 134 bar 180 RPM 17-24 ton WOB
	09:30 - 11:30	2.00	A	c	DRLIN2	Circulated hole clean. Meanwhile relogged well from 1054 m to 1082 m.
	11:30 - 12:00	0.50	A	b	DRLIN2	Flowchecked well, OK. Pulled out of hole. 10 to overpull at 1055 m 20 ton overpull at 1045 m
	12:00 - 13:00	1.00	A	b	DRLIN2	Pumped and worked string through tightspots at 1055 m, 1045 m, 1028 m and continued to POOH to 974 m.
	13:00 - 13:30	0.50	A	f	DRLIN2	Flowchecked well, OK
	13:30 - 18:00	4.50	A	b	DRLIN2	POOH f/ 974 m. Flowchecked prior BHA entered BOP, checked coreball clearance through dart sub
	18:00 - 18:30	0.50	A	f	DRLIN2	Downloaded MWD.
	18:30 - 19:30	1.00	A	b	DRLIN2	Laid down Ontrak, bcpm, NB stab and bit. Cleared rig of excess equipment.
	19:30 - 20:30	1.00	O	e	DRLIN2	Serviced rig.
	20:30 - 21:30	1.00	B	e	DRLIN2	M/U coring stand and racked same back in derrick.
11/17/2005	21:30 - 00:00	2.50	B	e	DRLIN2	M/U 18 m coring assembly.
	00:00 - 01:00	1.00	B	e	DRLIN2	M/U core assembly no 1.
	01:00 - 05:00	4.00	B	b	DRLIN2	M/U rest of BHA and RIH with core assembly to 1028 m. Filled pipe after BHA and at 500 m.
	05:00 - 06:00	1.00	B	c	DRLIN2	Washed down from 1028 m to 1082 m. Tagged bottom at 1082 m.
	06:00 - 08:00	2.00	B	c	DRLIN2	Circulated bottoms up with 1100 l/min.
	08:00 - 08:30	0.50	B	c	DRLIN2	Treated active pit with defoamer due to airated mud.
	08:30 - 10:30	2.00	B	a	DRLIN2	Dropped core ball and set up coring parameters. Cut core no 1 from 1082 m to 1086 m. Core jammed off.
	10:30 - 12:00	1.50	B	c	DRLIN2	Circulated with 750 l/min 17 bar.
	12:00 - 12:30	0.50	B	b	DRLIN2	POOH from 1086 m to 971 m.
	12:30 - 13:00	0.50	B	c	DRLIN2	Dropped circulation ball and circulated with 2100 l/min 31 bar.
	13:00 - 15:30	2.50	B	b	DRLIN2	POOH from 971 m to 735 m. (using 4 min/stand to 900 m and 8 min/std from 900 m).
	15:30 - 16:00	0.50	B	b	DRLIN2	Flowchecked well due to slight gain in trip tank, OK

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Spud Date:

Rig Release:

Rig Number:

End:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
11/17/2005	15:30 - 16:00	0.50	B	b	DRLIN2	Held kick drill with crew.
	16:00 - 22:00	6.00	B	b	DRLIN2	POOH from 735 m (using 8 min/stand to 100 m and 14 min/stand from 100 m).
	22:00 - 00:00	2.00	B	f	DRLIN2	Held SJA meeting. Recovered core no 1. 3,25 m recovery. Inspected bit, OK.
11/18/2005	00:00 - 00:30	0.50	B	e	DRLIN2	M/U core assembly 2.
	00:30 - 02:30	2.00	B	b	DRLIN2	Installed 3 x 6 3/4" DC and ran BHA.
	02:30 - 05:00	2.50	B	b	DRLIN2	RIH with core assembly no. 2 to 1057 m. Filled pipe after BHA and at 500 m.
	05:00 - 05:30	0.50	B	c	DRLIN2	Washed down and tagged bottom.
	05:30 - 08:00	2.50	B	c	DRLIN2	Circulated bottoms up using 1100 l/min and 40 RPM.
	08:00 - 09:00	1.00	B	a	DRLIN2	Dropped core ball and set up coring parameters.
	09:00 - 09:30	0.50	B	c	DRLIN2	Cut core no 2 from 1086 m to 1104 m.
11/19/2005	09:30 - 10:00	0.50	B	b	DRLIN2	Dropped ball to close catcher and circulated from bottom to casing shoe.
	10:00 - 13:30	3.50	B	c	DRLIN2	POOH from 1104 m to 968 m.
	13:30 - 14:00	0.50	B	b	DRLIN2	Dropped circulating ball. Circulated with 2100 l/min 34 bar untill stable low gas readings. Max gas 19.7%.
	14:00 - 20:30	6.50	B	b	DRLIN2	Flowchecked well, OK.
	20:30 - 00:00	3.50	B	f	DRLIN2	POOH from 968 m. (Using 4 min/std to 400 m and 8 min/std from 400 m).
	00:00 - 00:30	0.50	B	b	DRLIN2	Recorded core no 2. 19 m recovery.
	00:30 - 04:30	4.00	A	e	DRLIN2	Racked core barrel back in derrick.
	04:30 - 05:00	0.50	A	e	DRLIN2	P/U and M/U 12 1/4" VertiTrak assembly.
	05:00 - 10:00	5.00	A	b	DRLIN2	Changed OnTrak tool. Uploaded MWD.
	10:00 - 10:30	0.50	A	c	DRLIN2	Fire alarm. Mustered according to station bill.
11/20/2005	10:30 - 11:00	0.50	A	d	DRLIN2	Continued to upload MWD.
	11:00 - 11:30	0.50	A	c	DRLIN2	Cont M/U and RIH with BHA to 1061 m.
	11:30 - 12:00	0.50	A	d	DRLIN2	Performed SCR and washed down to 1072 m.
	12:00 - 12:30	0.50	A	a	DRLIN2	Opened hole to 12 1/4" from 1072 m to 1083 m.
	12:30 - 13:00	0.50	A	f	DRLIN2	Circulated and conditioned airated mud.
	13:00 - 13:30	0.50	A	c	DRLIN2	Opened hole to 12 1/4" from 1083 m to 1094 m.
	13:30 - 15:30	2.00	A	a	DRLIN2	Drilled 12 1/4" hole from 1094 m to 1107 m.
	15:30 - 18:00	2.50	A	c	DRLIN2	Troubleshoot MWD and relogged 1094 m to 1107 m.
	18:00 - 18:30	0.50	A	f	DRLIN2	Circulated for sample.
	18:30 - 19:30	1.00	A	b	DRLIN2	Drilled 12 1/4" hole from 1107 m to 1146 m. Max gas 20,6%.
	19:30 - 23:00	3.50	A	b	DRLIN2	Circulated for samples and to low gas readings. Max gas 17,8%.
	23:00 - 00:00	1.00	A	e	DRLIN2	Flowchecked well, OK.
	00:00 - 04:00	4.00	B	e	DRLIN2	POOH to 935 m. Flowchecked well, OK.
	04:00 - 05:00	1.00	B	e	DRLIN2	POOH to MWD. Changed mud in triptank due to airated mud.
	05:00 - 07:30	2.50	B	b	DRLIN2	Downloaded MWD and racked same back in derrick.
	07:30 - 09:00	1.50	B	c	DRLIN2	M/U 24 m core barrel assembly and rest of BHA.
	09:00 - 15:00	6.00	B	b	DRLIN2	Rearrange coring stand for 24 m coring.
	15:00 - 15:30	0.50	B	e	DRLIN2	RIH with core assembly to 1147 m.
	15:30 - 17:00	1.50	B	e	DRLIN2	Tagged bottom at 1147 m. Started to circulate, string suddenly plugged off.
	17:00 - 17:30	0.50	B	e	DRLIN2	Dropped circulation ball and attempted to establish circulation, no go.
	17:30 - 18:30	1.00	B	e	DRLIN2	POOH with wet drill pipe.
						Flowchecked at TD, inside shoe and prior entering BOP
						Broke off circ and XO subs. Found cement debris blocking subs, cleaned out same.
						Broke off head of core barrel and cleaned out cement debris. Pulled inner barrel and secured same in derrick. Pulled outer barrel and inspected core bit. Ran outer barrel.
						Cleared and cleaned rig floor after wet trip.
						Installed inner barrel.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Spud Date:

Rig Release:

Rig Number:

End:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
11/20/2005	18:30 - 19:00	0.50	B	e	DRLIN2	Checked float sub.
	19:00 - 22:00	3.00	B	e	DRLIN2	Attempted to drift dart sub, no go. Installed Kelly cock and dart sub stand. Broke out dart sub. Found cement debris and circulating ball inside dart sub. Racked dart sub stand back in derrick.
11/21/2005	22:00 - 00:00	2.00	B	b	DRLIN2	RIH with core assembly. Hammered and drifted all tubulars.
	00:00 - 02:30	2.50	B	b	DRLIN2	RIH with core assembly to 890 m. Hammered and drifted all tubulars.
	02:30 - 03:30	1.00	B	b	DRLIN2	Rearranged tubulars in derrick due to possible cement contaminated DP stands.
	03:30 - 05:00	1.50	B	b	DRLIN2	Continued to RIH to 1121 m. Hammered and drifted all tubulars.
	05:00 - 07:00	2.00	B	c	DRLIN2	Established circulation, tagged bottom and circulated bottoms up.
	07:00 - 10:30	3.50	B	a	DRLIN2	Dropped core ball and cut core from 1146 m to 1157m.
	10:30 - 11:00	0.50	B	b	DRLIN2	Dropped ball to close catcher and circulated bottom to shoe.
	11:00 - 11:30	0.50	B	b	DRLIN2	Flowchecked well, OK and racked core stand back in derrick.
	11:30 - 12:00	0.50	O	e	DRLIN2	Found piece of BURA track on fingerboard. Inspected monkeyboard and racking system.
	12:00 - 13:00	1.00	B	b	DRLIN2	Meanwhile circulated and rotated string.
11/22/2005	13:00 - 14:00	1.00	B	c	DRLIN2	POOH to 995 m and dropped circulation ball.
	14:00 - 20:00	6.00	B	b	DRLIN2	Circulated bottom up. Meanwhile checked and inspected BURA track bolts.
	20:00 - 23:30	3.50	B	f	DRLIN2	POOH with core assembly. 4 m/min below 400 m and 8 m/min above 400 m.
	23:30 - 00:00	0.50	A	e	DRLIN2	Recover core no 3. 10,7 m recovery.
	00:00 - 01:00	1.00	A	e	DRLIN2	Racked corebarrel back in derrick.
	01:00 - 01:30	0.50	A	e	DRLIN2	Cleaned and cleared rig floor while analyzing core samples.
	01:30 - 06:00	4.50	A	b	DRLIN2	P/U MWD stand. Broke off and laid out VertiTrak.
	06:00 - 07:00	1.00	A	f	DRLIN2	M/U 12 1/4" OnTrak assembly.
	07:00 - 08:00	1.00	A	d	DRLIN2	Uploaded MWD tool.
	08:00 - 11:00	3.00	A	a	DRLIN2	Continued M/U 12 1/4" BHA and RIH to 1120 m.
11/23/2005	11:00 - 13:00	2.00	A	c	DRLIN2	Logged hole from 1120 m to 1147 m.
	13:00 - 14:00	1.00	A	c	DRLIN2	Opened hole from 1147 m to 1157 m.
	14:00 - 18:30	4.50	A	b	DRLIN2	Drilled 12 1/4" hole from 1157 m to 1187 m.
	18:30 - 19:30	1.00	A	b	DRLIN2	Circulated for sample and to reduced gas level.
	19:30 - 20:00	0.50	B	e	DRLIN2	Max gas 13%.
	20:00 - 22:00	2.00	B	e	DRLIN2	Flowchecked well and pumped slug.
	22:00 - 00:00	2.00	B	b	DRLIN2	POOH. Flowchecked inside shoe and prior entering BOP.
	00:00 - 01:00	1.00	B	b	DRLIN2	Functiontested BOP.
	01:00 - 03:30	2.50	B	c	DRLIN2	Downloaded MWD.
	03:30 - 05:30	2.00	B	a	DRLIN2	Reconfigure coring stand and racked back in derrick.
11/23/2005	05:30 - 06:00	0.50	B	c	DRLIN2	M/U 30 m core assembly.
	06:00 - 07:30	1.50	B	b	DRLIN2	M/U rest of BHA and RIH.
	07:30 - 08:30	1.00	B	c	DRLIN2	M/U 30 m core assembly to 1184 m.
	08:30 - 13:30	5.00	B	b	DRLIN2	RIH w/ 30 core assembly to 1184 m.
					DRLIN2	Broke circulation and tagged bottom at 1187 m.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005 Spud Date:

Rig Release: End:

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
11/23/2005	08:30 - 13:30	5.00	B	b	DRLIN2	POOH using 4 min/std below 400 m and 8 min/std above 400 m. Flowchecked well prior entering BOP.
	13:30 - 15:30	2.00	B	f	DRLIN2	Recovered core and racked core barrel back in derrick.
	15:30 - 16:00	0.50	A	f	DRLIN2	Cleaned rigfloor.
	16:00 - 16:30	0.50	A	e	DRLIN2	P/U and uploaded MWD.
	16:30 - 18:00	1.50	A	b	DRLIN2	M/U and RIH with 12 1/4" OnTrak assembly.
	18:00 - 18:30	0.50	O	e	DRLIN2	Calibrated compensator. Drained fluid/debris from top of compensator accumulator piston. Stroke out compensator to confirm OK.
	18:30 - 20:30	2.00	A	b	DRLIN2	P/U 27 joints 5 1/2" DP and RIH.
	20:30 - 22:00	1.50	A	b	DRLIN2	Continued to RIH to 1184 m.
	22:00 - 22:30	0.50	A	d	DRLIN2	Logged hole from 1184 m to 1187 m.
	22:30 - 00:00	1.50	A	a	DRLIN2	Opened hole to 12 1/4" from 1187 m to 1192 m.
11/24/2005	00:00 - 21:30	21.50	A	a	DRLIN2	Drilled 12 1/4" hole from 1192 m to 1230 m.
	21:30 - 23:30	2.00	A	c	DRLIN2	Drilled 12 1/4" hole 1230 m - 1712 m.
	23:30 - 00:00	0.50	A	b	DRLIN2	Circulated to clean well.
					DRLIN2	Flowchecked well, OK.
11/25/2005	00:00 - 01:30	1.50	A	b	DRLIN2	POOH from 1712 m to 1636 m.
	01:30 - 02:00	0.50	A	f	DRLIN2	POOH from 1636 m to 1347 m. Tight hole with max 25 ton overpull.
	02:00 - 02:30	0.50	A	b	DRLIN2	Flowchecked well after swabbing, OK
	02:30 - 05:30	3.00	A	b	DRLIN2	POOH from 1347 m to 1290 m. Tight hole with max 35 ton overpull.
	05:30 - 06:00	0.50	A	c	DRLIN2	Backreamed from 1290 m to 13 3/8" shoe.
	06:00 - 08:30	2.50	A	b	DRLIN2	Circulated bottom up. 3500 l/min 136 bar.
	08:30 - 09:30	1.00	A	c	DRLIN2	RIH from 13 3/8" shoe to 1712 m.
	09:30 - 10:00	0.50	A	f	DRLIN2	Circulated bottom up. 3500 l/min 164 bar.
	10:00 - 13:00	3.00	A	b	DRLIN2	Flowchecked well, OK.
	13:00 - 15:00	2.00	A	b	DRLIN2	POOH from 1712 m to shoe.
	15:00 - 16:00	1.00	O	e	DRLIN2	Continued to POOH from shoe
					DRLIN2	Lost a 5 1/2" HWDP std across derrick from fingerboard. Retrieved std back to fingers. Held a meeting with crew to investigate incident.
	16:00 - 17:00	1.00	A	b	DRLIN2	Continued to POOH.
	17:00 - 17:30	0.50	A	f	DRLIN2	Downloaded MWD.
	17:30 - 18:00	0.50	A	b	DRLIN2	Racked MWD back in derrick and cleared rig floor.
	18:00 - 19:30	1.50	F	f	EVAL 2	Held safety meeting and rigged up WL equipment.
	19:30 - 21:00	1.50	F	a	EVAL 2	Run log no 1 HRLA-PEX-CMR-HNGS-ECS to 750 m. (In hole 20:30)
	21:00 - 00:00	3.00	F	f	EVAL 2	Attempted to rectify problem with CMR, no go. POOH.
11/26/2005	00:00 - 01:30	1.50	F	f	EVAL 3	Troubleshoot on el. fault with CMR.
	01:30 - 09:30	8.00	F	a	EVAL 2	Troubleshoot on el. fault with CMR and RIH with logging string no 1 to 750 m.
	09:30 - 19:30	10.00	F	a	EVAL 2	Continued to run log no 1 HRLA-PEX-HNGS-ECS. (CMR not functioning. Out 08:00).
	19:30 - 00:00	4.50	F	a	EVAL 2	Run log no 2 MSIP-FMI-GR. (In 10:30 Out 18:30)
11/27/2005	00:00 - 00:00	24.00	F	a	EVAL 2	Run log no 3 MDT. (In 22:30)
					EVAL 2	Run log no 3 MDT. (40 pressure points (incl. 7 tight and 2 nonstable), 3 water samples, 3 gas samples).
11/28/2005	00:00 - 12:30	12.50	F	a	EVAL 2	Ran og no 3 MDT.
	12:30 - 23:00	10.50	F	a	EVAL 2	(Perform 13 scanning points. Out 10:15)
					EVAL 2	Ran log no 4 CMR. (In 14:00 Out 22:15).
11/29/2005	23:00 - 00:00	1.00	F	f	EVAL 2	Prepare for log no 5 MDT.
	00:00 - 00:30	0.50	F	a	EVAL 2	Unplugged line in MDT tool.
	00:30 - 07:30	7.00	F	a	EVAL 2	Ran log no 5 MDT.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

End:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
11/29/2005	00:30 - 07:30	7.00	F	a	EVAL 2	(In hole 03:00)
	07:30 - 08:00	0.50	F	a	EVAL 2	Stuck MDT tool at 1148,5 m. Attempted to work MDT tool free with 9000 lbs overpull, no go.
	08:00 - 19:00	11.00	F	a	EVAL 2	Continued sampling at 1148,5 m with MDT.
	19:00 - 19:30	0.50	F	a	EVAL 2	Worked MDT tool free with 9700 lbs overpull.
11/30/2005	19:30 - 00:00	4.50	F	a	EVAL 2	Continued to run log no 5 MDT.
	00:00 - 13:00	13.00	F	a	EVAL 2	Cont log no 5 MDT.
	13:00 - 16:30	3.50	F	a	EVAL 2	Attempt to free MDT at 1184 m after sampling, no success. Max pull 9700 lbs at surface, 7000 lbs at tool downhole.
	16:30 - 18:00	1.50	F	a	EVAL 2	Part wireline at weak link with electric shear. Pull out with wireline.
	18:00 - 19:00	1.00	E	e	EVAL 2	Re-dress fishing overshot to 12". Re-arr pipe in derrick. M/ up o/shot assy on Hwdp and Rih to 80 m.
	19:00 - 22:00	3.00	E	b	EVAL 2	Cont Rih 1154 m.
12/1/2005	22:00 - 00:00	2.00	E	c	EVAL 2	Stage pumps to 2500 lpm, Gas increase to 55,6%, Flow check, ok. Close diverter element and route return over poor boy degasser. Cont circ with 2500 lpm to gas at 5%. Open diverter, cont circ btm up.
	00:00 - 02:00	2.00	E	c	EVAL 2	Cont circ due to gas in mud, 5% at btm up. Circ down with 300 lpm to 1154 m, pull back to 1145 m, increase pumps to 2500 lpm. No gas peak at btm up.
	02:00 - 02:30	0.50	E	a	EVAL 2	Engage TOF at 1164 m with 300 lpm and 5-8 t down. Stage up to 16 t o/pull to free logging tool.
	02:30 - 03:00	0.50	E	b	EVAL 2	Pooh to inside shoe at 995 m.
	03:00 - 03:30	0.50	E	f	EVAL 2	Flow check 10 min, ok. Pump slug.
	03:30 - 06:30	3.00	E	b	EVAL 2	Pooh with fish. Flow check before entering Bop.
	06:30 - 08:00	1.50	E	b	EVAL 2	Release logging tool from fishing o/shot and laid down tool stem.
	08:00 - 08:30	0.50	F	f	EVAL 2	Cleared floor and rig up to run wireline.
	08:30 - 09:30	1.00	F	f	EVAL 2	Made up logging tool stem no 6 (SWC).
	09:30 - 19:30	10.00	F	a	EVAL 2	Run logging run no 6 (SWC).
	19:30 - 20:30	1.00	F	f	EVAL 2	Recover SWC's, 43 of 44 total. Laid down wireline.
	20:30 - 21:00	0.50	I	d	DRLIN2	Hold TBT. Made up wellhead isolation tool on dp.
	21:00 - 22:00	1.00	I	d	DRLIN2	Rih with isolation tool to 215 m.
	22:00 - 00:00	2.00	O	e	DRLIN2	Rig Repair: Hydra racker load cell troubles. Trouble shoot system in for malfunction, no success. Unable to reach stands in derrick with backup racking arm.
12/2/2005	00:00 - 01:30	1.50	O	e	DRLIN2	Cont troubleshoot Hydra racker.
	01:30 - 03:00	1.50	I	d	DRLIN2	Rih whilst pick up 5 1/2" dp jt from deck.
	03:00 - 08:00	5.00	I	d	DRLIN2	Test Bop: Test all pipe rams, annulars and kill/choke valves to 40/ 413 bar for 5/ 10 min, ok.
						Troubleshoot hydra racker during period.
						Install casing tong in frame.
	08:00 - 09:00	1.00	I	d	DRLIN2	Pull out wellhead isolation tool to 296 m while lay down single jt dp to deck.
	09:00 - 11:30	2.50	I	d	DRLIN2	Rig up and test surface equipment, upper/lower IBop and mud hose with 40/345 bar for 5/10 min ok.
	11:30 - 12:30	1.00	O	e	DRLIN2	Continue trouble shoot hydra racker. Problem sourced to hydr coupling cluster at rear of upper head.
	12:30 - 14:00	1.50	I	d	DRLIN2	Cont Pooh with isolation tool to surface. Laid down test assy.
	14:00 - 16:00	2.00	B	b	DRLIN2	Laid down corebarrel to aft catwalk.
	16:00 - 16:30	0.50	A	b	DRLIN2	Change PDC to 12 1/4" rock bit and junk basket on MWD Bha.
	16:30 - 17:30	1.00	A	b	DRLIN2	Rih with Bha to 197 m.
	17:30 - 18:30	1.00	A	f	DRLIN2	Hold TBT. Slip and cut 33 m drilling line.
	18:30 - 21:30	3.00	O	e	DRLIN2	Mech dept inspect break calipers, Perform break test on drawworks and calibrate same, electric dept perform PM on top drive f/2100 hrs to 2130

Eni Norge AS
Operations Summary Report

Page 15 of 26

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Rig Release:

Rig Number:

Spud Date:

End:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
12/2/2005	18:30 - 21:30	3.00	O	e	DRLIN2	hrs.
	21:30 - 00:00	2.50	A	b	DRLIN2	Cont Rih from 197 m to 975 m. Break circ in shoe. Cont Rih to 1146 m.
12/3/2005	00:00 - 01:30	1.50	A	b	DRLIN2	Cont Rih from 1146 m to 1185 m. Take 8-12 ton down weight. Rotate and wash with 1500 lpm to 1241 m. Cont Rih, take weight 1251 m. Rotate and wash 1251 m to 1261 m.
	01:30 - 02:00	0.50	N	a	DRLIN2	Fire alarm; Secured well, personnell to muster stations. Detected false alarm in port crane cabin.
	02:00 - 04:30	2.50	A	b	DRLIN2	Cont rotate and wash with 2000 lpm, 30 rpm from 1261 m to Td at 1712 m. Hole in good condition after washing.
	04:30 - 06:00	1.50	A	c	DRLIN2	Work Boot basket, spud bit with rotation onto btm several times until 10-20 m rop using 20 ton wob and 150 rpm, 3500 lpm. Drill to 1713,5 m.
	06:00 - 07:00	1.00	A	c	DRLIN2	Cont circ until shakers clean after 3,6 times btms up.
	07:00 - 07:30	0.50	A	b	DRLIN2	Flow check for 15 min, ok. Pooh wet to 1577 m.
	07:30 - 11:00	3.50	A	b	DRLIN2	Flow check 15 min, ok. Pump slug Pooh to 197 m. Flow check inside csg shoe and before pulling into Bop.
	11:00 - 12:00	1.00	A	b	DRLIN2	Rack back Bha. Laid down junk basket. Break out bit. recover 0,5 kg steel from overshot lip guide.
	12:00 - 12:30	0.50	B	e	DRLIN2	Pick up 33 m corebarrel from deck and rack back in derrick.
	12:30 - 15:30	3.00	C	e	CSGIN2	Made up wear bushing retr assy. Rih to 348 m. drift dp on way in.
	15:30 - 17:30	2.00	C	e	CSGIN2	Retr wear bushing with 45 t o/pull. Pooh to 379 m and jet wellhead with 2500 lpm/18 bar. Pooh to surface
	17:30 - 18:00	0.50	C	e	CSGIN2	Laid down wear bushing and assy. 6 mm wear noted on wear bushing.
	18:00 - 20:00	2.00	C	e	CSGIN2	Clear rig floor. Hold TBT. Pick up and dress 9 5/8" csg hngr with seal assy and laid down same to deck.
	20:00 - 21:30	1.50	C	e	CSGIN2	Made up Cmt head with pup and jt dp. Laid out same to skate.
	21:30 - 23:00	1.50	C	b	CSGIN2	Rig up to run 9 5/8" csg with Weatherford Jam operated csg tong. Hold TBT prior to job.
	23:00 - 00:00	1.00	C	b	CSGIN2	Start running 9 5/8" csg. Check shoe and float function, ok. Bakerlock shoe track and install bow type centralizers. At 28 m at report time.
12/4/2005	00:00 - 13:00	13.00	C	b	CSGIN2	Cont run and jam 9 5/8" csg from 28 m to 1324 m. Fill each 5 jt. Made up 9 5/8" csg hngr. Run hngr below rotary. Record weights to down 128 t, up 130 t. Rig down csg handling equipment.
	13:00 - 14:30	1.50	C	b	CSGIN2	Rih with 9 5/8" csg on 5 1/2" Dp to 360 m. Fill pipe 2 times.
	14:30 - 15:00	0.50	C	b	CSGIN2	Made up Cmt stand and land out hngr in wellhead with 98 t. Check with index line, ok.
	15:00 - 15:30	0.50	C	c	CSGIN2	Csg shoe at 1693,74 m. Float collar at 1668,62 m.
	15:30 - 16:00	0.50	C	c	CSGIN2	Circ 1 x csg volume with 1700 lpm, 22 bar. Hold TBT for cmt job during circ.
	16:00 - 17:30	1.50	C	c	CSGIN2	Test cmt line to 250 bar, ok. Pumped 15 m3 1,55 sg spacer with rig pumps. Drop btm plug.
						Mix and pump 23 m3 1.90 sg lead slurry followed by 9,5 m3 1.90 sg tail slurry. Obs btm plug shear Displ with 0,43m3 water and 6 m3 of 1,34 sg mud with cmt pump, no shear of wiper plug observed. Cont displace with rig pump and got sudden pump increase after 9,48 m3 pumped. Max press 137 bar.
	17:30 - 18:30	1.00	C	c	CSGIN2	Change to no 1+2 mud pump, same pressure. Change to cmt pump and pump to 345 bar, no go.
	18:30 - 19:30	1.00	C	e	CSGIN2	Released hngr run tool after several attempts with 30 t o/pull.
	19:30 - 21:00	1.50	C	e	CSGIN2	Attempt to circ through string, no go. Pooh to surface wet. Boost kill/choke and riser.
	21:00 - 22:00	1.00	C	e	CSGIN2	Laid down hngr run tool, remove seal assy. Disconn Vetco/BJ plug assy and found dart lodged into sub no ODCC X-O, S-5364. M/up pump-in sub and pump out dart with cmt unit. Service and changed seal ring on Hngr

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005 Spud Date:

Rig Release:

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
12/4/2005	21:00 - 22:00	1.00	C	e	CSGIN2	run tool.
	22:00 - 23:00	1.00	C	e	CSGIN2	Rih and land out in csg hngr with running tool.
	23:00 - 23:30	0.50	C	c	CSGIN2	Made up to csg hngr. Commence displacing of cmt. Staged up to 2200 lpm, 93 bar. Pumped 17 m3 mud and lost 7 m3 of return during displacing. Check floats, ok. Disconn casing hngr.
12/5/2005	23:30 - 00:00	0.50	C	b	CSGIN2	Pooh from 365 m to surface.
	00:00 - 03:30	3.50	C	e	CSGIN2	Made up flush and mill tool. Rih. Wash and rotate wellhead seal area as per Vetco. Pooh. Laid down flush/ mill tool.
	03:30 - 07:30	4.00	C	f	CSGIN2	Made up csg hngr run tool with seal assy. Rih and land out same with 6 t down weight. Set seal assy as per Vetco procedure. Press test seal assy with 35/ 420 bar for 5/ 10 min, ok. Set down 5 t down weight and release run tool. Pooh, laid down assy.
	07:30 - 09:30	2.00	C	f	CSGIN2	Made up wear bushing on run tool with jet sub. Rih, flush wellhead with 2400 lpm, 17 bar. Set wear bushing in wellhead, confirm with 5 t o/pull, ok. Pump slug. Pooh and laid down assy.
	09:30 - 10:30	1.00	C	e	CSGIN2	Pick up cmt stand from deck and laid down components and 1 cmt contaminated dp stand.
	10:30 - 14:30	4.00	A	e	DRLIN2	Laid down 12 1/4" drilling bha to deck.
	14:30 - 15:30	1.00	A	e	DRLIN3	Made up 8 1/2" drilling bha as per BHI. Change out bit and top stabilizer.
	15:30 - 16:00	0.50	A	e	DRLIN3	Load MWD
	16:00 - 19:00	3.00	A	e	DRLIN3	Cont make up 8 1/2" drilling Bha. Pick up 8 ea 6 1/2" dc, 1 jar and 6 hwdp.
						Test 9 5/8" casing during periode against shear ram to 300 bar for 15 min, ok.
12/6/2005	19:00 - 21:30	2.50	A	b	DRLIN3	Cont Rih from 212 m to 640 m. Add chemicals to inhibit mud against cmt contamination in riser and active tank.
	21:30 - 22:00	0.50	O	d	DRLIN3	Rig repair: Test middle pipe rams with 35 bar/ 10 min, ok.
	22:00 - 00:00	2.00	A	b	DRLIN3	Cont rih to 1472 m. Start clean out cmt debris with 2000 lpm, 0-1 wob, 80-100 rpm.
	00:00 - 04:30	4.50	C	a	CSGIN2	Clean out cmt debris from 1472 m to 1633 m. Drilled firm cmt from 1633 m to float collar at 1669m. Drill float collar. Circ 15 min. Boost riser during drilling.
	04:30 - 05:00	0.50	A	f	CSGIN2	Hold choke drill. Practice start and close in with 20 bar on well.
	05:00 - 08:00	3.00	C	a	CSGIN2	Cont drill cmt in shoe track. 3-6 t wob, 2250 lpm, 120 rpm. Drill csg shoe at 1694 m. Clean rat hole.
	08:00 - 10:00	2.00	A	a	DRLIN3	Drill new formation from 1712 to 1717 m.
	10:00 - 11:30	1.50	A	c	DRLIN3	Displace hole to 1.54 sg mud. Displace kill/choke lines.
	11:30 - 12:30	1.00	A	f	DRLIN3	Pull into csg shoe. Perform LOT to EMW 1.82 sg.
	12:30 - 13:00	0.50	A	c	DRLIN3	Take SCR:
12/7/2005						Pump 1: 20 str/18 bar, 30/28, 40/41
						Pump 2: 20 str/18 bar, 30/27, 40/39
	13:00 - 19:30	6.50	A	a	DRLIN3	Cont drilling from 1717 to 1722 m. Param; 2200 lpm, 4-9 t wob, 122 rpm. Mix Gseal pill
	19:30 - 20:00	0.50	A	c	DRLIN3	Pump and spot 7,1 m3 LCM pill on btm.
	20:00 - 21:00	1.00	A	b	DRLIN3	Flow check 15 min, ok. Pooh to above LCM pill at 1449 m. Test lines during trip.
	21:00 - 23:00	2.00	A	f	DRLIN3	Perform FIT to 60 bar. Eqv 1.90 EMW.
	23:00 - 00:00	1.00	A	b	DRLIN3	Rih from 1449 m to 1722 m. Circ and rotate 10 min with 2300 lpm, 160 rpm in order to clean suspected bit balling.
	00:00 - 02:30	2.50	A	a	DRLIN3	Drill from 1722 m to 1731 m, 2250 lpm, Ecd 1,75 sg Start loosening mud from 1731 m.
	02:30 - 03:00	0.50	A	c	DRLIN3	Check loss against trip tank, slight flowback from formation. Stage pumps to 2000 lpm with full returns.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Spud Date:

End:

Rig Release:

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
12/7/2005	03:00 - 07:30	4.50	A	a	DRLIN3	Cont drilling from 1731 m to 1752 m. Reduce flow rate to 1800 lpm due to mud loss. Add LCM material to mud as per program.
	07:30 - 08:30	1.00	A	c	DRLIN3	Circ with reduced pump rate due to increased losses. Add LCM to mud.
	08:30 - 13:30	5.00	A	a	DRLIN3	Cont drilling from 1752 m to 1764 m. Total loss 53 m3. Displace 1.54 sg mud with 1.34 sg during drilling. Rop increased 100% after new mud weight around.
	13:30 - 15:00	1.50	A	c	DRLIN3	Reduced flow rate off btm due to 120 m3 interface. Treat mud to make volume for process and active pit.
	15:00 - 15:30	0.50	A	c	DRLIN3	Take SCR's on pump 1 and 2 with new mud wt.
	15:30 - 00:00	8.50	A	a	DRLIN3	Cont drilling from 1764 m to 1806 m. Param; 2200 lpm, 140 bar, 135 rpm,. Boost riser during drilling with 2300 lpm.
12/8/2005	00:00 - 00:30	0.50	A	a	DRLIN3	Cont drilling from 1806 m to core point at 1812 m. Well flowback of 600 liter/hr from previous loss with 1,54 sg mud.
	00:30 - 01:30	1.00	A	c	DRLIN3	Circ 1,5 btms up with 2000 lpm, 120 bar. Max gas 1.8%.
	01:30 - 02:00	0.50	A	f	DRLIN3	Flow check well, ok.
	02:00 - 03:00	1.00	A	b	DRLIN3	Pooh to inside shoe at 1679 m. Hole displacement insufficient, Rih to btm at 1812 m.
	03:00 - 03:30	0.50	A	c	DRLIN3	Precautionary circ btm up with 2000 lpm and 118 bar. Max gas at btm up 1.8 %.
	03:30 - 04:30	1.00	A	b	DRLIN3	Flow check 15 min, ok. Pooh at controlled rate into shoe at 1679 m.
	04:30 - 05:00	0.50	A	f	DRLIN3	Flow check, 15 min, ok. Pump slug.
	05:00 - 07:00	2.00	A	b	DRLIN3	Pooh from 1679 m to 1000 m.
	07:00 - 07:30	0.50	A	f	DRLIN3	Flow check, 15 min ok. Well flowback decreasing rate of 250 liter/hr.
	07:30 - 10:00	2.50	A	b	DRLIN3	Continue Pooh. Down load MWD tool. Break bit and laid down MWD.
	10:30 - 14:30	4.00	B	e	DRLIN3	Hold TBT. Made up 36 m corebarrel and install inner barrel and 8 1/2" corehead.
	14:30 - 15:30	1.00	B	b	DRLIN3	Hold TBT topic manual handling of rig tongs. Made up coring bha from derrick.
	15:30 - 19:00	3.50	B	b	DRLIN3	Rih from 237 m to 1675 m.
	19:00 - 19:30	0.50	B	b	DRLIN3	Space out coring stand for 33 m cut with 6 m pup jt. Install FOSV on drilling stand. Break circ with 715 lpm.
	19:00 - 21:00	2.00	B	c	DRLIN3	Circ btm's up with 1000 lpm, 29 bar.
12/9/2005	21:00 - 21:30	0.50	B	b	DRLIN3	Rih from 1675 m to 1787 m.
	21:30 - 22:30	1.00	B	b	DRLIN3	Wash down to 1812 m with 1000 lpm, 29 bar, 21 rpm. Tag btm with 2 ton, cut pump to 600 lpm. Drop ball, confirm ball seated with 2 bar press increase. Take SCR's.
	22:30 - 00:00	1.50	B	a	DRLIN3	Cut core from 1812 m to 1816.5 m as per CorePro procedure.
	00:00 - 05:00	5.00	B	a	DRLIN3	Continue coring operation from 1816 m to 1824.2 m as per CorePro procedure.
	05:00 - 05:30	0.50	B	c	DRLIN3	Pull off btm without o/pull. Circ open hole content. Perform flow check 15 min, ok.
	05:30 - 06:30	1.00	B	b	DRLIN3	Pooh from 1815 m to inside shoe at 1672 m with 4 min pr stand pulling time. L/down space out pups
	06:30 - 08:30	2.00	B	c	DRLIN3	Circ btm's up 1500 lpm. Flow check 15 min, ok. Pump slug.
	08:30 - 10:00	1.50	B	b	DRLIN3	Pooh from 1672 m to 610 m.
	10:00 - 10:30	0.50	B	c	DRLIN3	Flow check 15 min prior to pull into Bop, ok.
	10:30 - 12:00	1.50	B	b	DRLIN3	Cont Pooh with 4 min/stand to Dc's.
	12:00 - 13:00	1.00	B	b	DRLIN3	Gas check on 1st Dc conn show 30% LEL. Personnel used BA set for further gas checking and found 30% gas at conn but 0% in area 0,5 to 1 m from conn. Continue with Bha handling whilst monitoring gas level on drillfloor.
	13:00 - 14:00	1.00	B	b	DRLIN3	Cont pulling of Bha.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
12/9/2005	14:00 - 18:30	4.50	B	f	DRLIN3	Hold TBT. Recover core. Change from 36 m barrel to 24 m. Install inner barrel.
	18:30 - 22:00	3.50	B	b	DRLIN3	Rih with corebarrel from 26 m to 1682 m. Break circ.
	22:00 - 22:30	0.50	I	d	DRLIN3	Function test Bop from drillers panel.
	22:30 - 23:00	0.50	B	b	DRLIN3	Rih from 1672 m to 1798 m.
	23:00 - 00:00	1.00	B	c	DRLIN3	Approach btm with 700 lpm, 20 bar and tag at 1824.2 m with 2 t down weight. Record press reading: 1000 lpm, 28 bar. Drop ball, confirmed seated with abnormal press increase, 1000 lpm, 80 bar. Take SCR's 10/20/30 str.
12/10/2005	00:00 - 06:00	6.00	B	a	DRLIN3	Set up coring parameters and cut core from 1824.2 to 1834.5 m as per ProCore procedure. Wash pipe start leaking.
	06:00 - 09:00	3.00	O	e	DRLIN3	Rig repair: Pooh into csg shoe. Change and test washpipe on Top drive. Rih to btm at 1834.5 m.
	09:00 - 13:00	4.00	B	a	DRLIN3	Commence coring operation, core from 1834.5 to 1836.9 m.
	13:00 - 14:00	1.00	B	b	DRLIN3	Pooh to inside shoe at 1682 m.
	14:00 - 14:30	0.50	B	c	DRLIN3	Flow check 15 min, ok. Pump slug.
	14:30 - 16:00	1.50	B	b	DRLIN3	Pooh to 627 m.
	16:00 - 16:30	0.50	B	b	DRLIN3	Flow check 15 min, ok.
	16:30 - 18:00	1.50	B	b	DRLIN3	Cont Pooh with min 4 min/stand to 225 m.
	18:00 - 18:30	0.50	O	e	DRLIN3	Rig repair: Trouble shoot leak on Hydra-racker to leaking nipple on actuator/hose nipple.
	18:30 - 20:00	1.50	B	b	DRLIN3	Pooh with Bha. Break safety jt on core barrel.
	20:00 - 22:00	2.00	B	f	DRLIN3	Hold TBT. Recover core and rack back corebarrel in derrick.
	22:00 - 22:30	0.50	A	e	DRLIN3	P/up MWD tool, made up 8 1/2" PDC bit. Load MWD.
	22:30 - 00:00	1.50	A	b	DRLIN3	Rih with 8 1/2" Bha to 212 m using back up pipe handling arm and drill floor manipulating arm due to Hydra-racker arm out of operation.
12/11/2005	00:00 - 01:30	1.50	A	b	DRLIN3	Cont Rih from 212 to 642 m using back up racking arms.
	01:30 - 03:30	2.00	A	b	DRLIN3	Pick up 30 jt 5 1/2" dp whilst Rih to 930 m.
	03:30 - 06:30	3.00	A	b	DRLIN3	Cont Rih to 1793 m. Break circ in csg shoe.
	06:30 - 07:00	0.50	A	c	DRLIN3	Made up top drive and took SCR's 2 pumps with 10/20/30 str.
	07:00 - 08:00	1.00	A	f	DRLIN3	Logg cored section with MWD, 40 rpm and 40 m/hr from 1795 m to btm at 1837 m.
12/12/2005	08:00 - 00:00	16.00	A	a	DRLIN3	Drill from 1837 m to 2026 m. Rop restricted to stick-slip conditions on bit. Parameters: 2260 lpm, 149-162 bar, 143-161 rpm, 2-8 t wob.
	00:00 - 02:30	2.50	A	a	DRLIN3	Cont drilling from 2026 m to 2049 m. Parameters: 2250 lpm, 161 bar, 3-6 t wob, 7-9 knm torque, 160-180 rpm,
	02:30 - 04:30	2.00	A	c	DRLIN3	Displace hole and surface mud system from 1.42 sg to 1.51 sg mud.
	04:30 - 07:00	2.50	A	c	DRLIN3	Flow check, ok. Cont drilling from 2049 m to 2070 m.
	07:00 - 07:30	0.50	A	f	DRLIN3	Flow check 15 min due to pit gain, well static.
	07:30 - 08:00	0.50	A	a	DRLIN3	Cont drilling from 2070 m to 2079 m.
	08:00 - 08:30	0.50	A	c	DRLIN3	Perform SCR's on 10/20/30 str on 2 pumps.
	08:30 - 17:30	9.00	A	a	DRLIN3	Cont drilling from 2079 m to 2196 m.
	17:30 - 19:00	1.50	A	c	DRLIN3	Check out mud loss: Well static. Stage pumps from 1000 lpm to 1850 lpm with loosening rate 2.5 m ³ / hr. Start adding LCM/ Calcium Carbonate.
	19:00 - 22:30	3.50	A	a	DRLIN3	Cont drilling from 2196 m to 2223 m. Cont adding LCM. Parameters: 1600 lpm, 130 bar, 1-7 t wob. 7-10 knm torque. Not able to decode signals from MWD in this section.
	22:30 - 23:00	0.50	A	f	DRLIN3	Flow check due to pit gain, flowback 28 l/min at declining rate, ok.
12/13/2005	23:00 - 00:00	1.00	A	a	DRLIN3	Cont drilling from 2223 m to 2247 m. Parameters: 1638 lpm, 129 bar, 2-5 t wob, 164 rpm, 6-11 knm torque. Lost total 12 m ³ mud to well during report time.
	00:00 - 00:30	0.50	A	a	DRLIN3	Note: MWD survey retakes in most connections due to decoding problems. Cont drilling from 2247 m to 2251 m.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

End:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
12/13/2005	00:30 - 01:00	0.50	A	f	DRLIN3	Made several attempts and obtained survey with MWD.
	01:00 - 08:30	7.50	A	a	DRLIN3	Cont drilling from 2251 m to 2340 m.
	08:30 - 10:30	2.00	A	f	DRLIN3	Made several attempts to obtain MWD survey, varied flow rates and procedure, not able to decode signals.
	10:30 - 18:30	8.00	A	a	DRLIN3	Cont drilling from 2340 m to Td at 2420 m. Obtained survey in conn at 2340 m.
	18:30 - 20:30	2.00	A	c	DRLIN3	Take MWD survey, not inside spec. Circ hole clean with 1650 lpm, 130 rpm.
	20:30 - 23:00	2.50	A	b	DRLIN3	Performing wiper trip to shoe: Pooh wet from 2420 m. Work pipe in sliding mode through tight spots at 2280 m, 2255 - 2227 m. 10-20 t o/ pull. Wiped tight spots with increasing drag to no go at 2227 m. Rih to 2255 m.
12/14/2005	23:00 - 00:00	1.00	A	b	DRLIN3	Circ hole clean at 2255 m with 1400 lpm, 84 bar, 15 rpm. Full mud return.
	00:00 - 02:30	2.50	A	d	DRLIN3	Circulated and worked through tight spot at 2227 m and 2223 m with 90 RPM and 1000 l/min. Max overpull 20 ton. Continued backreaming to 2140 m
	02:30 - 04:00	1.50	A	b	DRLIN3	POOH from 2140 m to inside 9 5/8" casing shoe. Worked pipe through tight spot at 2010 m with max 20 ton overpull.
	04:00 - 04:30	0.50	O	e	DRLIN3	Serviced topdrive, travelling block and retract system. Flushed choke and kill lines.
	04:30 - 07:00	2.50	A	b	DRLIN3	RIH to 2420 m. No tight hole and no fill on bottom.
	07:00 - 08:30	1.50	A	c	DRLIN3	Circulated hole clean
	08:30 - 09:00	0.50	A	f	DRLIN3	Flowchecked well, OK.
						Had gain in active due to airated mud
	09:00 - 10:00	1.00	A	c	DRLIN3	Attempted to make a bottom hole directional survey, no go. Circulated bottom up.
	10:00 - 10:30	0.50	A	f	DRLIN3	Flowchecked well prior POOH, OK
	10:30 - 13:30	3.00	A	b	DRLIN3	POOH from 2420 m to 1678 m.
	13:30 - 14:00	0.50	A	f	DRLIN3	Flowchecked inside shoe, OK and pumped slug
	14:00 - 19:00	5.00	A	b	DRLIN3	POOH. Flowchecked prior BHA entered BOP.
	19:00 - 20:00	1.00	A	b	DRLIN3	Downloaded MWD data.
	20:00 - 21:00	1.00	B	e	DRLIN3	Broke off bit and laid out MWD to deck.
12/15/2005	21:00 - 21:30	0.50	A	e	DRLIN3	Laid out corebarrel from derrick to deck.
	21:30 - 22:30	1.00	F	f	EVAL 3	Cleared rigfloor. Bled down standpipe and mudhose to prevent freeing.
	22:30 - 00:00	1.50	F	f	EVAL 3	Held SJA meeting and rigged up WL equipment.
						Made up logging tool string no 1:
						CMR-HRLA-TLD-HGNS-ECS-HNGS-ACTS-LEHXQT-ECRD
	00:00 - 02:30	2.50	F	f	EVAL 3	Made up logging tool string no 1. Calibrated tool string and installed radioactive sources.
	02:30 - 17:00	14.50	F	a	EVAL 3	Ran WL log no 1:
						CMR-HRLA-TLD-HGNS-ECS-HNGS-ACTS-LEHXQT-ECRD.
	17:00 - 18:30	1.50	F	f	EVAL 3	Removed radioactive sources and laid out logging tool string no 1.
	18:30 - 20:00	1.50	F	f	EVAL 3	Made up logging tool string no 2.
12/16/2005	20:00 - 00:00	4.00	F	a	EVAL 3	Ran WL log no 2: Sonic scanner-FMI-PPC-GR-ACTS.
	00:00 - 05:00	5.00	F	a	EVAL 3	Ran WL log no 2: Sonic scanner-FMI-PPC-GR-ACTS
	05:00 - 06:30	1.50	F	f	EVAL 3	Laid out logging tool string no 2.
	06:30 - 09:30	3.00	F	f	EVAL 3	Made up logging tool string no 3.
	09:30 - 00:00	14.50	F	a	EVAL 3	Ran log no 3: MDT
12/17/2005	00:00 - 00:00	24.00	F	a	EVAL 3	Ran WL log no 3: MDT
12/18/2005	00:00 - 05:30	5.50	F	a	EVAL 3	Ran WL log no 3: MDT
	05:30 - 08:00	2.50	F	f	EVAL 3	Laid out logging tool string no 3.
	08:00 - 09:30	1.50	F	f	EVAL 3	Made up logging tool string no 4.
	09:30 - 21:00	11.50	F	a	EVAL 3	Ran WL log no 4: MSCT-GR
	21:00 - 21:30	0.50	F	f	EVAL 3	Laid out logging tool string no 4.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Rig Release:

Rig Number:

Spud Date:

End:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
12/18/2005	21:30 - 22:30	1.00	F	f	EVAL 3	Rigged down WL equipment.
	22:30 - 23:00	0.50	A	e	DRLIN3	Checked for cement in 3 1/2" DP
	23:00 - 00:00	1.00	A	b	DRLIN3	Made up jetting assembly and BOP isolation tool assembly.
12/19/2005	00:00 - 01:30	1.50	I	d	DRLIN3	RIH w/ jetting assembly and BOP isolation tool. Washed through BOP and WH area.
	01:30 - 05:00	3.50	I	d	DRLIN3	Pressure tested BOP annulars 35/275 bar and rams 35/414 bar for 5/10 min using yellow pod.
	05:00 - 05:30	0.50	I	d	DRLIN3	Function tested BOP from pusher panel on blue pod.
	05:30 - 07:30	2.00	I	d	DRLIN3	POOH and laid down jetting assembly and BOP isolation tool.
	07:30 - 12:00	4.50	A	f	DRLIN3	Installed spool piece between mudhose and gooseneck. Installed pressure sensor and safety slings.
	12:00 - 14:00	2.00	I	d	DRLIN3	Pressure tested lower IBOP, upper IBOP and mudhose to 35/345 bar for 5/10 min.
	14:00 - 14:30	0.50	A	e	DRLIN3	M/U 8 1/2" BHA.
	14:30 - 15:00	0.50	A	e	DRLIN3	Uploaded MWD.
	15:00 - 20:30	5.50	A	b	DRLIN3	M/U 8 1/2" BHA and RIH to 2010 m.
	20:30 - 23:00	2.50	A	d	DRLIN3	Reamed tight hole from 2010 m to 2255 m.
12/20/2005	23:00 - 00:00	1.00	A	b	DRLIN3	RIH from 2255 m to 2399 m. Washed last stand and tagged bottom. Found 1/2 m fill on bottom.
	00:00 - 02:00	2.00	A	c	DRLIN3	Circulated hole clean w/ 1700 l/min. Max gas 70%.
	02:00 - 03:00	1.00	A	f	DRLIN3	Took torque readings. Flow checked hole, added deformer and changed mud in trip tank due to airated mud.
	03:00 - 10:00	7.00	A	b	DRLIN3	POOH, no overpull. Flowchecked at shoe and before BHA entered BOP. Took torque readings at 1500 m.
	10:00 - 11:00	1.00	A	b	DRLIN3	Turned off MWD. Laid out MWD and bit.
	11:00 - 11:30	0.50	C	e	CSGIN3	M/U cementing head to 6 m pup and laid out same.
	11:30 - 12:00	0.50	C	e	CSGIN3	Cleared rig floor and held safety meeting prior rigging up cementing equipment.
	12:00 - 13:00	1.00	N	f	CSGIN3	Waited on crane due to helicopter operations.
	13:00 - 15:00	2.00	C	f	CSGIN3	Meanwhile Schlumberger MWD installed sensor cable in derrick.
	15:00 - 15:30	0.50	C	f	CSGIN3	Changed elevator, removed master bushing, installed Weatherford FMS, powertong and tracks. Function tested setup.
12/21/2005	15:30 - 00:00	8.50	C	b	CSGIN3	Held liner job safety meeting.
					CSGIN3	Ran 7" liner according to tally.
						Tested floats, bakerlocked shoetrack, filled every 5th joint.
	00:00 - 01:00	1.00	C	b	CSGIN3	Ran 7" liner. Filled every 5th joint.
	01:00 - 03:30	2.50	C	b	CSGIN3	Installed liner hanger and installed masterbushing.
	03:30 - 04:30	1.00	C	b	CSGIN3	Rigged down and removed casing handling equipment.
	04:30 - 06:30	2.00	O	e	CSGIN3	Replaced leaking hydraulic hose on racker gripping head.
	06:30 - 12:30	6.00	C	b	CSGIN3	Ran 7" liner on 5 1/2" DP to 2395 m.
						Broke circulation inside shoe.
	12:30 - 13:00	0.50	C	b	CSGIN3	Washed down to 2420 m, no fill.
	13:00 - 14:00	1.00	C	b	CSGIN3	Pulled back to 2405 and installed cementing head and hose.
	14:00 - 15:00	1.00	C	c	CSGIN3	Circulated string and liner w/ 960 l/min 50 bar and 18 RPM. Held precement safety meeting.
	15:00 - 16:00	1.00	C	c	CSGIN3	Dropped ball and set liner hanger. Ball seated at 78 bar and rupted ball seat with 216 bar.
	16:00 - 17:00	1.00	C	c	CSGIN3	Pressure tested cementing line to 345 bar and pumped 17 m3 spacer.
	17:00 - 19:30	2.50	C	c	CSGIN3	Mixed and pumped 14,1 m3 1,90 sg cementing slurry and 0,43 m3 DW spacer.
						Displaced cement with 34,2 m3 1,54 sg mug.
						No indications of shearing wiperplugs and no bumping. Checked for backflow, no flow

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Spud Date:

End:

Rig Release:

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
12/21/2005	19:30 - 20:00	0.50	C	c	CSGIN3	Laid out cementing head w/ pup joint. Set PBR packer using 40 ton. Pulled stinger out of liner to 2355 m. Had some backflow.
	20:00 - 21:30	1.50	C	c	CSGIN3	Circulated w/ 2000 l/min 53 bar. Small amount of cement contamination.
	21:30 - 00:00	2.50	C	b	CSGIN3	Flowchecked and pumped slug.
12/22/2005						POOH with liner hanger running tool.
	00:00 - 01:30	1.50	C	b	CSGIN3	POOH w/ landingstring.
	01:30 - 02:00	0.50	C	b	CSGIN3	Pulled liner running tool. Found both wiper plugs attached. Collapsed mandrill and laid out running tool.
	02:00 - 02:30	0.50	C	b	CSGIN3	Broke off pup below cementing head and laid out same.
	02:30 - 03:00	0.50	O	e	CSGIN3	Greased topdrive and traveling block, checked for loose parts.
	03:00 - 03:30	0.50	C	b	CSGIN3	Continued to remove cementing and liner handling equipment from skates.
	03:30 - 08:30	5.00	A	e	DRLPRO	Picked up and made up 6" Bit assembly.
	08:30 - 09:00	0.50	A	e	DRLPRO	Tested MWD with 850 l/min 60 bar 30 RPM, OK
	09:00 - 16:30	7.50	A	b	DRLPRO	Picked up 3 1/2" DP from deck and RIH to 1280 m.
	16:30 - 18:00	1.50	A	b	DRLPRO	Changed elevator and slips and continued RIH w/ 5 1/2" DP. Washed through PBR to 1486 m.
	18:00 - 19:00	1.00	A	f	DRLPRO	Pulled back to 1476 m. Pressure tested lines 300 bar. Closed upper pipe ram.
						Pressure tested casing to 265 bar, OK.
	19:00 - 19:30	0.50	A	b	DRLPRO	RIH to 1500 m, took weight.
12/23/2005	19:30 - 23:30	4.00	A	b	DRLPRO	Washed through spots at 1500 m. Continued to RIH and washed through several hard spots down to 1846 m.
	23:30 - 00:00	0.50	A	b	DRLPRO	Hit firmer cement at 1846 m, string torqued up and 1-4 ton weight. Reamed down to 1889 m with 950 l/min 110 bar, 100 RPM up to 9000 kNm 0 - 4 ton
	00:00 - 06:00	6.00	A	d	DRLPRO	Reamed and washed inside 7" liner from 1889 m to 2367 m with 950 l/min 110 bar, 100 RPM up to 9000 kNm 0 - 4 ton WOB. Max overpull after string stalls 15 ton.
	06:00 - 06:30	0.50	A	c	DRLPRO	Tagged landing collar at 2367 m and circulated.
	06:30 - 07:00	0.50	A	f	DRLPRO	Performed choke drills with both crews.
	07:00 - 10:30	3.50	A	d	DRLPRO	Reamed and drilled cement and floating plugs.
	10:30 - 11:00	0.50	A	a	DRLPRO	Reamed rathole.
						Drilled 6" hole from 2420 m to 2424 m
	11:00 - 12:30	1.50	A	c	DRLPRO	Pulled into shoe at 2405 m. Circulated bottoms up with 1200 l/min 230 bar.
	12:30 - 13:30	1.00	A	f	DRLPRO	Prepared and performed a FIT to 2,0 sg EMw, OK.
12/24/2005	13:30 - 14:00	0.50	A	f	DRLPRO	Racked back one stand. Ran stand no 38 and laid out same. Recovered both wiper darts from lower single in stand no 38.
	14:00 - 00:00	10.00	A	a	DRLPRO	Drilled 6" hole from 2424 m to 2451 m. Experienced severe torque problems.
	00:00 - 04:00	4.00	A	a	DRLPRO	Drilled 6" hole from 2451 m to 2458 m.
	04:00 - 04:30	0.50	A	f	DRLPRO	MWD failed, attempted to restart same, no go. Meanwhile circulated.
	04:30 - 13:30	9.00	A	b	DRLPRO	Flowchecked well and POOH.
						Pumped slug while inside shoe.
						Laid out 3 stabilizers and MWD.
	13:30 - 15:30	2.00	A	b	DRLPRO	Made up new 6" BHA and RIH to 521 m.
	15:30 - 18:00	2.50	O	e	DRLPRO	Found piece of wood from setback sticking out of pin end. Pulled out of hole to 150 m. Discover wood in 2 other pin ends. Connected topdrive and tested MWD, OK. Displaced 2 times string content. RIH to 521 m.
	18:00 - 23:00	5.00	A	b	DRLPRO	Continued to RIH to 2373 m.
12/25/2005	23:00 - 00:00	1.00	O	e	DRLPRO	Held kickdrill, Prepared and started circulation through hose.
						Cut and slipped drilling line.
	00:00 - 02:30	2.50	O	e	DRLPRO	Cut and slipped drilling line.
						Calibrated blocks and CMC. Inspected brakes and anti collision system.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

End:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
12/25/2005	00:00 - 02:30	2.50	O	e	DRLPRO	Calibrated drawwork and Hydra racker joy sticks, mudpump and topdrive pots.
	02:30 - 03:30	1.00	A	b	DRLPRO	RIH to 2430 m and washed to 2458 m, no fill.
	03:30 - 08:00	4.50	A	a	DRLPRO	Drilled 6" hole from 2458 m to 2519 m.
	08:00 - 09:30	1.50	A	c	DRLPRO	Flowchecked and circulated bottoms up.
	09:30 - 15:00	5.50	A	b	DRLPRO	Flowchecked and POOH to 658 m.
	15:00 - 15:30	0.50	O	e	DRLPRO	Investigated possible problems with bearings on Hydra racker upper arm carriage.
	15:30 - 17:30	2.00	A	b	DRLPRO	Continued to POOH, laid out MWD.
	17:30 - 18:00	0.50	A	b	DRLPRO	Cleared rig floor and held prejob meeting for core barrel handling.
	18:00 - 18:30	0.50	O	e	DRLPRO	Continued investigation of Hyra racker.
	18:30 - 20:30	2.00	B	e	DRLPRO	Picked up and made up 18 m core barrel assembly.
	20:30 - 22:00	1.50	B	b	DRLPRO	RIH with Core assembly no 1 to 296 m
	22:00 - 00:00	2.00	O	e	DRLPRO	Removed roller bearing on Hydra racker arm guide assembly. Meanwhile greased and checked topdrive and traveling blocks.
12/26/2005	00:00 - 02:30	2.50	O	e	DRLPRO	Removed roller bearing on Hydra racker guide assembly. Found hole in guide assembly elongated.
	02:30 - 04:00	1.50	O	e	DRLPRO	Started to repair guide assembly. Meanwhile prepared to use backup racking assembly.
	04:00 - 10:30	6.50	B	b	DRLPRO	RIH with core assembly from 296 m to 2429 m.
	10:30 - 12:00	1.50	B	d	DRLPRO	Washed and reamed down from 2429 m. Max 15 ton drag.
	12:00 - 13:00	1.00	B	c	DRLPRO	Tagged bottom at 2519 m with 600 l/min, took torque readings. Dropped ball and pumped same down with 600 l/min, no pressure increase when seated.
	13:00 - 14:30	1.50	B	a	DRLPRO	Cut core from 2519 m to 2521m, core jammed off.
	14:30 - 15:00	0.50	B	a	DRLPRO	Stopped rotation, no overpull when picked off bottom. Flowchecked well, OK
	15:00 - 16:00	1.00	B	b	DRLPRO	POOH from 2521 m to inside shoe at 2381 m. Flowchecked and pumped slug.
	16:00 - 17:30	1.50	O	e	DRLPRO	Continued to investigate the change out of upper arm roller assembly on Hydra racker.
	17:30 - 00:00	6.50	B	b	DRLPRO	POOH from 2381 to 523 m using backup racking system.
12/27/2005	00:00 - 02:30	2.50	B	b	DRLPRO	POOH using backup racking system
	02:30 - 03:30	1.00	B	f	DRLPRO	Recovered core. 1,88 m 94% recovery.
	03:30 - 05:00	1.50	B	e	DRLPRO	Laid out core barrel and core bit. Removed coring equipment and cleaned rig floor.
	05:00 - 07:00	2.00	O	e	DRLPRO	Installed upper arm roller assembly on Hydra racker.
	07:00 - 13:00	6.00	A	b	DRLPRO	M/U and RIH with 6" bit assembly to 1600 m.
	13:00 - 13:30	0.50	O	b	DRLPRO	Repaired DFMA head.
	13:30 - 15:00	1.50	A	b	DRLPRO	Continued RIH from 1600 m to 1989 m.
	15:00 - 15:30	0.50	A	f	DRLPRO	Function tested BOP from yellow pod in toolpusher office.
	15:30 - 17:30	2.00	A	b	DRLPRO	Continued to RIH from 1989 m to 2494 m.
	17:30 - 18:00	0.50	A	c	DRLPRO	Washed down from 2494 m to 2521 m.
12/28/2005	18:00 - 00:00	6.00	A	a	DRLPRO	Drilled 6" hole from 2521 m to 2573 m.
	00:00 - 00:00	24.00	A	a	DRLPRO	Drill from 2573 m to 2719 m. Parameters; Rpm 156 -180, Torque 6-9 knm, Flow 1120 lpm, 210 bar, Wob 3-9 t.
12/29/2005	00:00 - 06:00	6.00	A	a	DRLPRO	Cont drilling 6" hole from 2719 m to TD at 2726 m.
	06:00 - 08:00	2.00	A	a	DRLPRO	Flow check 15 min, well static. Pooh wet to inside shoe at 2401 m. Hole slick.
	08:00 - 08:30	0.50	A	f	DRLPRO	Flow check, ok. Pump slug.
	08:30 - 15:00	6.50	A	b	DRLPRO	Meanwhile re-arr back up racking arm to park position and reboot DWS 5 Cont Pooh. Flow check at 918 m. Lay down Jar, Nm Dc, MWD and break

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Spud Date:

Start: 10/19/2005

End:

Rig Release:

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
12/29/2005	08:30 - 15:00	6.50	A	b	DRLPRO	bit.
	15:00 - 15:30	0.50	A	e	DRLPRO	Clear rig floor and skate for 6" equipment.
	15:30 - 16:00	0.50	F	f	EVALPR	Rig up wireline equipment. Prepare suite no 1 on skate.
	16:00 - 17:00	1.00	F	f	EVALPR	Make up logging suite no 1: HRLA-PEX-HNGS-LSS and check tools. Install R/A source.
12/30/2005	17:00 - 23:00	6.00	F	a	EVALPR	Rih logging run no 1. Out of hole 2300 hrs.
	23:00 - 00:00	1.00	F	f	EVALPR	Remove R/A source. lay down logging tools to deck.
	00:00 - 00:30	0.50	F	f	EVALPR	Cont rig down logging stem no 1.
	00:30 - 05:00	4.50	F	a	EVALPR	Made up and run MDT log on wireline. Tool stuck after point 7 at 2461 m.
	05:00 - 07:00	2.00	F	a	EVALPR	Attempt to work free MDT tool with max o/pull to 9500 lbs. No success.
	07:00 - 13:00	6.00	F	a	EVALPR	Recover water sample with MDT at stuck point at 2461 m.
	13:00 - 15:00	2.00	E	b	EVALPR	Disconnect electrically from MDT tool at 13:12 hrs. Pull wireline to surface. Rig down wireline.
	15:00 - 16:00	1.00	E	e	EVALPR	Made up assy with Schlumberger over-shot.
	16:00 - 21:30	5.50	E	b	EVALPR	Rih with fishing assy to 2429 m.
	21:30 - 22:00	0.50	E	a	EVALPR	Circ 1000 lpm for 10 min. Approach TOF at 2436 m with 320 lpm, 18-20 bar. Observe 2 bar press increase and stopped pumping. Sat down with 3-4 ton. Pulled in increments up to free fish with 29 ton o/pull. Observed string wt increase with 2 ton.
12/31/2005	22:00 - 00:00	2.00	E	b	EVALPR	Pooh. Enter into csg shoe with open compensator.
	00:00 - 05:00	5.00	E	b	EVALPR	Cont Pooh with fished MDT. Disconn logging tool from overshot.
	05:00 - 06:00	1.00	F	f	EVALPR	Lay down MDT logging suite.
	06:00 - 07:30	1.50	F	f	EVALPR	Rig up wireline and prep VSP tool stem.
	07:30 - 13:30	6.00	F	a	EVALPR	Run VSP Logging run. Pull to surface.
	13:30 - 15:00	1.50	F	f	EVALPR	Lay down VSP tool stem. Rigged down wireline.
	15:00 - 16:30	1.50	O	b	RDMO	Rig Repair: Backlash on Drawwork created birds nest. Work to re-spool wire on drum. Inspect all sheaves and wire, ok.
	16:30 - 19:30	3.00	L	b	RDMO	Rih with 4 3/4" Bha. Lay down 11 ea 4 3/4" dc, 9 ea 3 1/2" Hwdp and jar to deck.
1/1/2006	19:30 - 00:00	4.50	L	b	RDMO	Clear rig floor and hold TBT. Rih with Muleshoe, 3 1/2" dp as cmt stinger on 5 1/2" dp.
	00:00 - 04:30	4.50	L	b	RDMO	Cont Rih with cmt stinger on 5 1/2" Dp. Burst hydr hose on Iron Roughneck. Cont Rih with EBT with 12 stands whilst repair hose. Cont Rih to 2696 m.
	04:30 - 05:15	0.75	L	b	RDMO	Spaced out cmt stand and m/up cmt line. Test same to 200 bar. Hold TBT prior to cmt job whilst circ open hole/liner content with 1300 lpm, 185 bar.
	05:15 - 06:30	1.25	L	c	RDMO	Pump 2 m3 FW as spacer. Mix and pump 4,2 m3 1.90 sg cmt slurry followed by 0.6 m3 FW. Displace with 17,5 m3 1,55 sg mud. (Cmt plug 1A.)
	06:30 - 08:00	1.50	L	b	RDMO	Lay down cmt assy. Pooh, controlled rate and dry pipe to 2465 m.
	08:00 - 09:00	1.00	L	c	RDMO	Install wiper ball. Circ btm up with 1970 lpm, 312 bars. No cmt in returns.
	09:00 - 09:30	0.50	L	c	RDMO	Made up cmt assy. Test cmt line with 200 bar.
	09:30 - 10:30	1.00	L	c	RDMO	Pump no 1B cmt plug: 2 m3 FW, 4 m3 1,9 sg cmt slurry followed by 0,6 m3 FW. Displace with 14,9 m3 1,55 sg mud with rig pump. Est TOC 2246 m.
	10:30 - 12:00	1.50	L	b	RDMO	Lay down cmt assy. Pooh controlled rate and dry pipe to 2203 m.
	12:00 - 13:30	1.50	L	c	RDMO	Install wiper ball. Circ btm up with 1900 lpm, 280 bar. No cmt in returns.
1/2/2006	13:30 - 15:30	2.00	L	b	RDMO	Pump slug and Pooh to 1372 m.
	15:30 - 22:30	7.00	L	b	RDMO	Hold TBT. Lay down 30 jt 3 1/2" dp, 21 jt 5 1/2" dp and 9 ea 6 3/4" dc. Clear and clean slippery drill floor.
	22:30 - 00:00	1.50	L	b	RDMO	Rih with cmt stinger.
	00:00 - 02:30	2.50	L	b	RDMO	Cont Rih with 5 1/2" dp. Tag cmt at 2241 m with 10 t down weight.
	02:30 - 04:00	1.50	L	c	RDMO	Test cmt plug 1B against upper pipe ram to 192 bar, 10 min, ok.
	04:00 - 06:00	2.00	L	b	RDMO	Pump slug. Pooh to 1580 m. Made up cmt head assy.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Start: 10/19/2005

Spud Date:

End:

Rig Release:

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
1/2/2006	06:00 - 06:30	0.50	L	c	RDMO	Circ 1 string volume. Press test cmt line to 200 bar.
	06:30 - 07:30	1.00	L	c	RDMO	Pump 2,0 m3 FW as spacer followed by 6.0 m3 1,90 sg cmt slurry, 0,26 m3 FW. Displace with 1.55 sg mud with cmt unit.
	07:30 - 10:00	2.50	L	b	RDMO	Lay down cmt head. Pooh to 1230 m.
	10:00 - 11:00	1.00	L	c	RDMO	Drop rubber wiper ball. Circ hole with 2000 lpm, 240 bar. Observe traces of cmt in returns.
	11:00 - 11:30	0.50	L	b	RDMO	Pump slug. Pooh with 5 1/2" dp.
	11:30 - 16:00	4.50	L	b	RDMO	Lay down excess 3 1/2" dp, total 81 jt.
	16:00 - 19:00	3.00	L	b	RDMO	Made up wear bushing retr tool. Rih and retr WB with 17 t o/pull. Pooh to surface and lay down assy.
	19:00 - 21:00	2.00	L	b	RDMO	Rih with 3 1/2" dp on 5 1/2" dp. Tag cmt at 1379 m with 10 t down weight.
1/3/2006	21:00 - 00:00	3.00	L	b	RDMO	Pull to 1370 m and pump slug. Pooh to surface. Prep to test cmt plug against blind rams.
	00:00 - 01:00	1.00	L	d	RDMO	M/up and service seal assy retr tool. Meanwhile test cmt plug to 143 bar in 10 min, ok.
	01:00 - 04:00	3.00	L	e	RDMO	Rih to wellhead. Engaged seal assy and release same with 13 ton o/pull with closed annular. Precautionary circ down kill up choke, no gas. Open annular and observe on trip tank, well static. Pooh. Lay down seal assy to deck.
	04:00 - 07:00	3.00	L	a	RDMO	Made up 9 5/8" csg cutter assy and space out. Rih. P/up swivel and run same to wellhead.
	07:00 - 11:00	4.00	L	a	RDMO	Cut 9 5/8" csg at 904 m with 120 rpm, 120 bar, 4-6 knm torque, 8 ton down wt. Confirm cut, ok. Cutting time 5-6 min. Flow check, ok. Pooh and lay down cutting assy.
	11:00 - 13:30	2.50	L	e	RDMO	Made up 9 5/8" csg spear assy. Rih and engage csg at 9 5/8" csg hngr.
	13:30 - 14:30	1.00	L	c	RDMO	Circ btm up from 904 m using 3000 lpm. Max gas 5%
	14:30 - 16:00	1.50	L	e	RDMO	Hold TBT. Pooh with 9 5/8" csg to RKB. Release spear from csg and lay down assy.
1/4/2006	16:00 - 19:00	3.00	L	e	RDMO	Rig up csg handling equipment. Hold TBT.
	19:00 - 22:30	3.50	L	e	RDMO	Pull 45 jt 9 5/8" csg cut and lay down to deck.
	22:30 - 23:30	1.00	L	d	RDMO	Rig down csg handling equipment.
	23:30 - 00:00	0.50	L	f	RDMO	Made up to handle 3 1/2" dp and install 13 3/8" BJ bridge plug on same. Installed fill up sub 1 jt up and filled jt with FW.
	00:00 - 02:30	2.50	L	b	RDMO	Rih to 894 m with Bridge plug.
	02:30 - 03:00	0.50	L	c	RDMO	Drop ball and pump down same with 300 lpm. Observe slight press increase, ball not able to hold pressure. Gradually increase pump rate to 1000 lpm to obtain shear out with 206 bar. Tag bridge plug. ok
	03:00 - 04:30	1.50	L	c	RDMO	Made up cmt head assy. Flush/test cmt line to 200 bar. Close upper pipe rams with tool jt below. Test against bridge plug with 149 bar for 10 min, ok.
	04:30 - 05:30	1.00	L	c	RDMO	Position string at 890 m. Pump 2 m3 FW, 3,8 m3 1.90 sg cmt slurry, followed by 110 liter FW. Displace with 6,3 m3 1,55 sg mud.
	05:30 - 06:00	0.50	L	b	RDMO	Lay down cmt head assy. Pooh to 750 m.
	06:00 - 08:30	2.50	L	c	RDMO	Drop wiper ball and pump btm up with 2100 lpm, 243 bar. Continue displace hole with 1,23 sg mud using 2600 lpm, 116 bar.
	08:30 - 10:30	2.00	L	b	RDMO	Pooh and lay down bridge plug run assy.
	10:30 - 14:30	4.00	L	b	RDMO	Made up seal assy retr tool assy. Rih and wash wellhead. Retr 13 3/8" seal assy with 13 ton o/pull. Precautionary circ across Bop. Flow check, ok. Pooh and lay down assy.
	14:30 - 18:00	3.50	L	a	RDMO	Hold TBT. Made up 13 3/8" csg cutter assy. Rih and position cut at 494 m. Close annular. Cut csg with 120 rpm, 120 bar. Confirmed csg cut, ok. Flow check, ok.
	18:00 - 20:30	2.50	L	a	RDMO	Pooh. Lay down cutter assy.

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Contractor Name: OCEAN RIG

Rig Name: EIRIK RAUDE

Spud Date:

Start: 10/19/2005

End:

Rig Release:

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
1/4/2006	20:30 - 23:00	2.50	L	e	RDMO	Made up 13 3/8" csg spear assy. Rih engaged 13 3/8" csg with 12 ton weight. Pull up 2 m clear of wellhead.
	23:00 - 23:30	0.50	L	c	RDMO	Circ btm up outside csg with 2500 lpm, 14 bar. Meanwhile rig up csg tong.
	23:30 - 00:00	0.50	L	c	RDMO	Flow check, ok. Pump slug.
1/5/2006	00:00 - 01:00	1.00	L	e	RDMO	Pooch with 13 3/8" csg cut.
	01:00 - 02:30	1.50	L	e	RDMO	Release spear from csg hngr. Rack back spear assy in derrick.
	02:30 - 03:00	0.50	L	e	RDMO	Rig up csg tong track and change elevators to 13 3/8".
	03:00 - 04:30	1.50	L	e	RDMO	Lay down 13 3/8" csg cut, total 12 jt to deck.
	04:30 - 05:30	1.00	L	e	RDMO	Rig down csg tong and handling equipm. Rig up to handle dp.
	05:30 - 08:00	2.50	L	b	RDMO	Rih with 3 1/2" muleshoe, 11 stands 3 1/2" dp and 5 1/2" dp to 800 m. Break circ and spot 5 m3 HV pill.
	08:00 - 09:30	1.50	L	c	RDMO	Pooch to 750 m. Circ btm up with 1600 lpm, 40 bar. Hold pre cmt job TBT.
	09:30 - 11:00	1.50	L	c	RDMO	Install cmt head assy. Test cmt line to 200 bar. Mix and pump cmt plug 4A: 2 m3 FW, 15,5 m3 1.90 sg cmt slurry followed by 109 liter FW. Displace with cmt unit, 4,59 m3, 1.23 sg mud.
	11:00 - 11:30	0.50	L	b	RDMO	Pooch to 540 m.
	11:30 - 14:00	2.50	L	c	RDMO	Install cmt head assy. Circ with 1700 lpm, 40 bar.
	14:00 - 15:30	1.50	L	f	RDMO	Prepare for cementing.
	15:30 - 15:45	0.25	L	c	RDMO	Start cmt mixing.
	15:45 - 16:45	1.00	L	c	RDMO	Problems with BJ cmt mixing system: Jammed bulk knife, cleared same. Microblock settled in tank.
	16:45 - 17:30	0.75	L	c	RDMO	Mix and pump cmt plug 4B: 2 m3 FW, 21,6 m3 1,90 sg cmt slurry, followed by 109 liter FW, Displace with cmt unit, 2,73 m3 1,23 sg mud with 2000 lpm.
	17:30 - 18:00	0.50	L	b	RDMO	Pooch with 3 min/stand from 550 m to 375 m.
	18:00 - 19:30	1.50	L	c	RDMO	Circ with 2000 lpm. Observe trace of cmt at btm up. Cont circ and boost riser. Lost 2 m3 during circ.
	19:30 - 21:00	1.50	L	b	RDMO	Pump slug. Pooch to surface. Lay down muleshoe. Boost riser on way out.
	21:00 - 00:00	3.00	L	f	RDMO	Lay down emergency hang off tool, csg spear assy and made up 1 stand 8" dc for MOST tool assy.
1/6/2006	00:00 - 02:00	2.00	L	f	RDMO	Greased and lubricate Top drive, travelling and crown blocks.
	02:00 - 03:00	1.00	L	c	RDMO	Made up 9" sub on 5 1/2" dp. Rih to 345 m.
	03:00 - 04:00	1.00	L	c	RDMO	Circ and boost inside Bop with 3000 lpm. Rih to 375 m. Monitoring cmt samples at surface.
	04:00 - 06:45	2.75	L	c	RDMO	Feel for cmt, circ bu at 380 m, no cmt, Proceed to 412 m and tag with 10-12 ton with 250 lpm on pump.
						Circ btm up with traces of cmt in returns. Pull above Bop. Test line to 200 bar. Test cmt plug with 149 bar, 10 min, ok.
	06:45 - 09:30	2.75	L	c	RDMO	Flush surface lines, kill/choke lines, pump hi vis pill and displace riser with SW from 375 m.
	09:30 - 10:00	0.50	L	b	RDMO	Pooch to surface.
	10:00 - 16:00	6.00	I	b	RDMO	Clean rig floor. Hold TBT. Rig up Bop handling equipment.
	16:00 - 20:00	4.00	I	b	RDMO	Install diverter handling tool. Remove transponder from diverter. Clean and collect cuttings from diverter. Lay out diverter. prep landing jt with hydr riser run tool.
	20:00 - 20:30	0.50	I	b	RDMO	Hold TBT with all involved personnel prior to pull Bop.
	20:30 - 23:00	2.50	I	b	RDMO	Install landing jt and collapse slip jt, lock same and pull 30 ton o/pull.
	23:00 - 00:00	1.00	I	b	RDMO	Disconn Bop at 22:43 hrs. Move rig 30 m off location to west.
1/7/2006	00:00 - 05:00	5.00	I	c	RDMO	Rig up MRT ring safety slings and remove MUX cable saddles.
						Remove goosenecks from slip jt. Install MRT ring on to diverter housing (seized locking bolts on MRT ring lock dogs).
	05:00 - 06:30	1.50	I	b	RDMO	Pull and lay down slip jt.
	06:30 - 15:30	9.00	I	b	RDMO	Hold TBT with new oncomming crew. Pull Bop to storing skid and placed

Operations Summary Report

Legal Well Name: 7122/7-3

Common Well Name: 7122/7-3

Event Name: ORIG DRILLING

Start: 10/19/2005

Spud Date:

Contractor Name: OCEAN RIG

Rig Release:

Rig Name: EIRIK RAUDE

Rig Number:

Date	From - To	Hours	Code	Sub Code	Phase	Description of Operations
1/7/2006	06:30 - 15:30	9.00	I	b	RDMO	in storing position.
	15:30 - 18:30	3.00	I	b	RDMO	Rig down Bop handling equipment and rig up drilling equipment.
	18:30 - 20:00	1.50	I	b	RDMO	Start deballast rig whilst cont rig up drilling equipment.
	20:00 - 22:00	2.00	L	e	RDMO	Made up MOST tool assy.
	22:00 - 23:30	1.50	L	e	RDMO	Rih with MOST assy to wellhead. Position rig and stab into wellhead with Rov assistance. Locked MOST tool to WH. Held 13 ton o/ Pull.
1/8/2006	23:30 - 00:00	0.50	L	e	RDMO	Start cutting on 20/30" csg with 2800 lpm, 130 bar observing with ROV. Meanwhile: Start anchor handling on no 3 and 7 anchors.
	00:00 - 01:45	1.75	L	a	RDMO	Cut 30x20" casing with 2800 lpm, 130 bar. Observed wellhead with ROV. Meanwhile performed anchor handling.
	01:45 - 05:30	3.75	L	e	RDMO	Pulled 30x20" wellhead and housing stump free with 15 ton OP. POOH with same and LD. Meanwhile performed anchor handling:
	05:30 - 11:30	6.00	L	c	RDMO	Anchor no 7 on bolster at 01:30, anchor no 3 on bolster at 04:35, anchor no 2 on bolster at 05:10.
						MU 3 1/2" cement stinger and RIH. Stabbed into well, circulated and rotated pipe while RIH to 412 m. Mixed and pumped 10 m3 cement and topped up well to seabed.
						Meanwhile performed anchor handling:
	11:30 - 13:30	2.00	L	c	RDMO	Anchor no 4 on bolster at 10:36. POOH with cement stinger. Installed sponge ball into string and circulated down. POOH with cement stinger.
	13:30 - 18:00	4.50	M	d	RDMO	Performed anchor handling:
1/9/2006	18:00 - 00:00	6.00	M	a	RDMO	Anchor no 1 on bolster 13:57, anchor no 5 on bolster at 14:18. Anchor no 8 secured on Northern Corona at 16:55. Meanwhile inspected seabed with ROV and recovered marker buoys from seabed.
						Attempted to backload equipment, no go due to weather conditions. Decision made to sail to sheltered water to perform backload.
	00:00 - 02:30	2.50	M	a	RDMO	Prepared to leave location.
	02:30 - 06:00	3.50	M	b	RDMO	Left well 7122/7-3 heading for sheltered location east of Rolvsøy and Ingøy.
1/10/2006	06:00 - 15:00	9.00	M	b	RDMO	Rig in transit to sheltered water at Rolfsnessundet
	15:00 - 00:00	9.00	M	f	RDMO	Unloaded rig.
	00:00 - 02:00	2.00	M	f	RDMO	Unloaded rig. Handed over rig to Statoil at 02:00 hrs

3.5.1 Bit Record

Page 108 of 179

 Norsk Agip District/Affiliate Company			BIT RECORD				WELL NAME 7122/7-3 FIELD NAME Goliat Cost center			
			DATE: 7-Feb-06 ARPO-05							
Run n°			9	10	11	12	13	14	15	16
Bit n°			4rr3	6rr	3rr	7	8	8rr	9	9rr
Bit size [in]			8 1/2	12 1/4	12 1/4	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2
Bit manufacturer			Smith	Smith	Smith			Smith	Smith	
Bit type			M70HVPX	MGGH+ODC	SVH	MCP662	MCP662	MGR741BPX	MGR71BPX	
Special features codes			Core-head			Core-head	Core-head			
Serial number			CP6281C	JT4017	MM5493	MX4044	CP6620	CP6620	SCA303	SCA303
IADC code				M223	135	215			M222	M222
Depth in [m]			1187	1187 (HO)	1712	1714	1812	1824	1836.9	2420
Depth out [m]			1192	1712	1714	1812	1824	1836.9	2420	2420
Drilled interval [m]			5	525	2	98	12	12.9	583.1	
Rotation hrs			1.84	16.6	0.25	25.88	6.39	9.73	38.14	
Trip hrs										
R.O.P. [m/h]			2.7	31.62	8	4.37	1.87	2.46	9.5	
W.O.B. [t] Min/Max			6.0/11.6	1.0/17.0		7.2/14.8	2.5/15.0	1.0/13.0	0/12.3	
R.P.M. Min/Max			39/53	120/167		123/151	30/70	50/70	27/201	
D.H.M. R.P.M.			0	0	0	0	0	0	0	
Flow rate [l/min] Min/Max			710	3340/3520		1677/2275	692/880	656/720	714/2292	
St. pipe pressure [kg/cm²]			19/29	135/180		114/179	26/40	35/60	21.4/163.2	
D.H.M. Press. drop [kg/cm²]			0	0	0	0	0	0	0	
Bit HHP										
HSI										
Annulus min vel. [m/min]										
J E S T S C T F.A.	1	[1/32 in]			18	18			6 * 12	6 * 12
	2	[1/32 in]			18	18				
	3	[1/32 in]			18	18				
	4	[1/32 in]								
	5	[1/32 in]								
	C	[1/32 in]			20					
T.F.A. [in²]					1.053	0.746			0.663	0.663
B I T L O C A T I O N	Inner rows [I]		1	0	0	2	2	2	1	1
	Outer rows [O]		2	0	0	2	3	4	2	2
	Dull char. [D]		CT	ER	NO	WT	BT	BT	CT	CT
	Location [L]		S	C.N	A	M	N	N	S	S
	Bearing/Seals [B]		X	X	E	F	X	X	X	X
	Gauge 1/16 [G]		IN	IN	IN	-	IN	IN	IN	IN
	Other chars [O]		WT	CT	NO	ER	CT	CT	ER	ER
	Reason POOH [R]		PR	TD	TD	CP	PR	PR	TD	TD
Mud type			Formpro	Formpro	Formpro	Formpro	Formpro	Formpro	Formpro	Formpro
Mud density [kg/l]			1.30	1.30-1.34	1.34	1.34/1.54	1.36	1.38	1.41/1.54	1.54
Mud visc.			12		12/15	13/30	25.5	26	15/22	22
Mud Y.P.			11.5		11.5/14	12/13.5	14	14	11/9.5	12
Survey depth Start/End				1192/1703		1725/1803			1813/2411	
Survey incl. Start/End				1.38/0.63		0.45/0.53			0.45/2.94	
Bit Cost			0	0	0	3018		0	43128	0
L i t h o l o g y	Type	%	Clst				Clst		Sst	
			Sst				Sst		Clst	
B H A	Stabilizer	Distance from bit		12.25	1.25	12.25	2.11	8.5	1.28	8.5
	Diameter [in]	[m]		11.75	8.83	12.25	?	8.5	12.58	8.5
				12.25	14.84	12.25	15.7			8.5
										1.30
Currency USD			Supervisor				Superintendent			
Page: 2 of: 3										

 Norsk Agip District/Affiliate Company		BIT RECORD				WELL NAME <u>7122/7-3</u>	
		DATE: <u>7-Feb-06</u>		ARPO-05		FIELD NAME <u>Goliat</u>	
						Cost center _____	

Run n°	17	18	19	20													
Bit n°	10	11	12	11rr													
Bit size [in]	6	6	6	6													
Bit manufacturer	Smith	Smith		Smith													
Bit type	MA913NPX	MDT52YPX	CM366	MDT52YPX													
Special features codes			Core-head														
Serial number	SCB047	JT2333	47389	JT2333													
IADC code	M432	M233		M223													
Depth in [m]	2420	2458	2519	2521													
Depth out [m]	2458	2519	2521	2726													
Drilled interval [m]	38	61	2	205													
Rotation hrs	11.4	3.5	1.18	31.3													
Trip hrs																	
R.O.P. [m/h]	4	17.4	1.7	6.5													
W.O.B. [t] Min/Max	0/9	0.4/5	2.6/9.6	1.0/10.0													
R.P.M. Min/Max	120/175	160/174	52/80	130/188													
D.H.M. R.P.M.	0	0	0	0													
Flow rate [l/min] Min/Max	960/1205	1000/1200	403	1010													
St. pipe pressure [kg/cm ²]	170/260	200/220	44/55	1155													
D.H.M. Press. drop [kg/cm ²]	0	0	0	0													
Bit HHP																	
HSI																	
Annulus min vel. [m/min]																	
J 1 [1/32 in]	16	4 * 11		4 * 11													
E 2 [1/32 in]	16	2 * 13		2 * 13													
T 3 [1/32 in]	16																
S 4 [1/32 in]																	
C 5 [1/32 in]																	
T.F.A. [in ²]	0.589	0.63	0.8	0.63													
B Inner rows [I]	2	1	7	2													
I Outer rows [O]	2	1	6	8													
T Dull char. [D]	CT	WT	WT	RO													
D Location [L]	N,S	A	A	S													
U Bearing/Seals [B]	X	X	X	X													
L Gauge 1/16 [G]	1	IN	8	1													
L Other chars [O]	WT,DL	NO	CT	ER,WT,CT,DL													
L Reason POOH [R]	DTF	CP	PR	TD													
Mud type	Formpro	Formpro	Formpro	Formpro													
Mud density [kg/l]	1.54/1.53	1.53/1.54	1.54	1.54													
Mud visc.	23/20	20/17	20	17/19													
Mud Y.P.	21/20	11.5/13	11.5	13/11.5													
Survey depth Start/End	2426	2479/2508		2532/2710													
Survey incl. Start/End	3.38	3.82/4.06		4.44/4.46													
Bit Cost	27041	36783		0													
Li tho lo gy	Type	%	Clst		Clst		Sst		Clst								
					Sst				Sst								
									Lst								
B H A	Stabilizer	Distance from bit	6	1.09	5.875	12.02			5.875	12.02							
	Diameter		6	2.83													
	[in]		6	15.62													
			5.875	29.02													

Currency	USD	Supervisor	Superintendent
Page: 3 of: 3			

3.5.2 BHA Record

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 23" x 36" hole to TD	1	1	24-Oct-05	26-Oct-05	368 m	538 m
Description	Number	OD (in)	ID (in)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	23.00	0.00	0.51		7 5/8 R
23" Stab - turbo back	1	9.50	3.00	0.50		7 5/8 R
VertiTrak with 23" sleeve	1	10.15	3.00	10.41		7 5/8 R
23" Stab - String roller reamer	1	9.50	3.00	2.58		7 5/8 R
Float sub	1	9.50	3.00	0.90		7 5/8 R
XO sub	1	9.50	2.81	0.69		7 5/8 R Pin x 6 5/8 R Box
DC	3	8.25	2.75	28.31		6 5/8 R
Jar	1	8.00	2.75	9.24		6 5/8 R
DC	3	8.25	2.75	28.25		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	2	8.25	2.75	18.92		6 5/8 R
22 3/4" String stab	1	8.25	3.00	2.27		6 5/8 R
XO sub	1	9.50	3.00	1.23		6 5/8 R Pin x 7 5/8 R Box
Short DC	1	9.50	3.00	1.82		7 5/8 R
Hole opener (26" x 36" dual stage)	1	9.50	3.00	3.97		7 5/8 R
Bit sub	1	9.50	3.00	0.92		7 5/8 R
DC	3	8.25	2.75	28.07		7 5/8 R
XO sub	1	8.25	3.00	0.86		7 5/8 R Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
DP		5.50				HT55
				Total length	233.14	

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 16" hole to TD	2	2	7-Nov-05	12-Nov-05	538 m	1000 m
Description	Number	OD (in)	ID (in)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	16.00	0.00	0.42		7 5/8 R
16" Stab - turbo back	1	9.50	3.00	0.38		7 5/8 R
VertiTrak with 16" sleeve	1	10.15	3.00	10.41		7 5/8 R
16" Stab - String roller reamer	1	9.50	3.00	2.49		7 5/8 R
Float sub	1	9.50	3.00	0.95		7 5/8 R
NM stop sub	1	9.50	3.00	0.54		7 5/8 R Pin x Inteq Box
OnTrak MWD	1	9.50	3.00	5.32		Inteq
15 1/2" MWD mod stab	1	9.50	3.00	1.75		Inteq
BCPM	1	9.50	3.00	3.65		Inteq
NM stop sub	1	9.50	3.00	0.57		Inteq Pin x 6 5/8 R Box
15 3/4" NM stab	1	8.00	2.81	2.16		6 5/8 R
DC	3	8.25	2.75	28.31		6 5/8 R
Jar	1	8.00	2.75	9.24		6 5/8 R
DC	3	8.25	2.75	28.25		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	2	8.25	2.75	18.92		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
DP		5.50				HT55
				Total length	207.91	

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 12 1/4" hole to core point	3	3	15-Nov-06	16-Nov-05	1000 m	1082 m
Description	Number	OD (in)	ID (in)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	12.25	0.00	0.32		7 5/8 R
12 1/4" NB stab	1	9.50	3.00	1.82		7 5/8 R
NM stop sub	1	9.50	3.00	0.54		7 5/8 R Pin x Inteq Box
OnTrak MWD	1	9.50	3.00	5.32		Inteq
11 3/4" MWD mod stab	1	9.50	3.00	1.72		Inteq
BCPM	1	9.50	3.00	3.58		Inteq
MWD stop sub	1	9.50	3.00	0.54		Inteq Pin x 7 5/8 R Box
12 1/4" string stab	1	9.50	2.81	2.06		7 5/8 R
XO sub	1	9.50	2.75	0.86		7 5/8 R Pin x 6 5/8 R Box
DC	3	8.25	2.75	28.25		6 5/8 R
Jar	1	8.00	2.75	10.15		6 5/8 R
DC	3	8.25	2.75	28.07		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	2	8.25	2.75	18.92		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55
				Total length	197.54	

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Run core #1	4	4	16-Nov-05	17-Nov-05	1082 m	1086.2 m
Description	Number	OD (in)	ID (in)	Length (m)	Weight (lbs/ft)	Connection
Core bit	1	8.50	0.00	0.37		?
Core barrel with 12 1/4" stabs	1	8.50	0.00	20.47		?
XO sub	1	8.50	3.00	1.03		? x 6 5/8 R Box
Float sub	1	9.50	3.00	0.99		6 5/8 R
DC	3	8.25	2.75	28.24		6 5/8 R
Jar	1	8.00	2.75	10.15		6 5/8 R
DC	3	8.25	2.75	28.06		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	1	8.25	2.75	9.46		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55
Total length				194.16		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Run core #2	5	4rr	18-Nov-05	18-Nov-05	1086.2 m	1104.4 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Core bit	1	8.50	0.00	0.37		?
Core barrel with 12 1/4" stabs	1	8.50	0.00	20.47		?
XO sub	1	8.50	3.00	1.03		? x 6 5/8 R Box
Float sub	1	9.50	3.00	0.99		6 5/8 R
DC	3	8.25	2.75	28.24		6 5/8 R
Jar	1	8.00	2.75	10.15		6 5/8 R
DC	3	8.25	2.75	28.06		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	1	8.25	2.75	9.46		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55
Total length				194.16		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 12 1/4" hole to core point	6	5	19-Nov-05	19-Nov-05	1104.4 m	1146 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	12.25	0.00	0.37		7 5/8 R
12 1/4" Stab - Turbo back	1	9.50	3.00	0.23		7 5/8 R
VertiTrak with 12 1/4" sleeve	1	9.50	3.00	10.12		7 5/8 R
12 1/4" Roller reamer string stab	1	9.50	3.00	2.12		7 5/8 R
NM stop sub	1	9.50	3.00	0.54		7 5/8 R Pin x Inteq Box
OnTrak MWD	1	9.50	3.00	5.27		Inteq
11 3/4" MWD mod stab	1	9.50	3.00	1.72		Inteq
BCPM	1	9.50	3.00	3.58		Inteq
MWD stop sub	1	9.50	3.00	0.54		Inteq Pin x 7 5/8 R Box
12 1/4" string stab	1	9.50	2.81	2.06		7 5/8 R
NM Float sub	1	9.50	3.00	0.62		7 5/8 R
XO sub	1	9.50	2.75	0.86		7 5/8 R Pin x 6 5/8 R Box
DC	3	8.25	2.75	28.31		6 5/8 R
Jar	1	8.00	2.75	9.24		6 5/8 R
DC	3	8.25	2.75	28.25		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	2	8.25	2.75	18.92		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55
				Total length	208.14	

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Run core #3	7	4rr2	20-Nov-05	21-Nov-05	1146 m	1156 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Core bit	1	8.50	0.00	0.37		?
Core barrel with 12 1/4" stabs	1	8.50	0.00	26.56		?
XO sub	1	8.50	3.00	1.03		? x 6 5/8 R Box
Float sub	1	9.50	3.00	0.99		6 5/8 R
DC	3	8.25	2.75	28.24		6 5/8 R
Jar	1	8.00	2.75	10.15		6 5/8 R
DC	3	8.25	2.75	28.06		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	1	8.25	2.75	9.46		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55
				Total length	200.25	

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 12 1/4" hole to core point	8	6	22-Nov-05	22-Nov-05	1156 m	1187 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	12.25	0.00	0.34		7 5/8 R
12 1/4" NB stab	1	9.50	3.00	1.82		7 5/8 R
NM stop sub	1	9.50	3.00	0.54		7 5/8 R Pin x Inteq Box
OnTrak MWD	1	9.50	3.00	5.27		Inteq
11 3/4" MWD mod stab	1	9.50	3.00	1.72		Inteq
BCPM	5	9.50	3.00	3.58		Inteq
MWD stop sub	1	9.50	3.00	0.54		Inteq Pin x 7 5/8 R Box
12 1/4" String stab	1	9.50	2.81	2.06		7 5/8 R
XO sub	1	9.50	3.00	0.86		7 5/8 R Pin x 6 5/8 R Box
DC	3	8.25	2.75	28.31		6 5/8 R
Jar	1	8.00	2.75	9.24		6 5/8 R
DC	3	8.25	2.75	28.25		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	2	8.25	2.75	18.92		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.500	3.25	83.88		HT55
Dart sub	1	7.500	2.75	0.84		HT55
DP		5.500				HT55
				Total length	196.84	

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Run core #4	9	4rr3	22-Nov-05	23-Nov-06	1187 m	1192 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Core bit	1	8.50	0.00	0.37		?
Core barrel with 12 1/4" stabs	1	8.50	0.00	26.56		?
XO sub	1	0.00	0.00	1.03		? x 6 5/8 R Box
Float sub	1	9.50	3.00	0.99		6 5/8 R
DC	3	8.25	2.75	28.24		6 5/8 R
Jar	1	8.00	2.75	10.15		6 5/8 R
DC	3	8.25	2.75	28.06		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	1	8.25	2.75	9.46		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55
				Total length	200.25	

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 12 1/4" hole to TD	10	6rr	23-Nov-05	25-Nov-05	1192 m	1712 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	12.25	0.00	0.34		7 5/8 R
12 1/4" NB stab	1	9.50	3.00	1.82		7 5/8 R
NM stop sub	1	9.50	3.00	0.54		7 5/8 R Pin x Inteq Box
OnTrak MWD	1	9.50	3.00	5.27		Inteq
11 3/4" MWD mod stab	1	9.50	3.00	1.72		Inteq
BCPM	1	9.50	3.00	3.58		Inteq
MWD stop sub	1	9.50	3.00	0.54		Inteq Pin x 7 5/8 R Box
12 1/4" String stab	1	9.50	2.81	2.06		7 5/8 R
XO sub	1	9.50	2.75	0.86		7 5/8 R Pin x 6 5/8 R Box
DC	3	8.25	2.75	28.31		6 5/8 R
Jar	1	8.00	2.75	9.24		6 5/8 R
DC	3	8.25	2.75	28.25		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	2	8.25	2.75	18.92		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.500	3.25	83.88		HT55
Dart sub	1	7.500	2.75	0.84		HT55
DP		5.50				HT55
				Total length	196.84	

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Wiper trip and clean out junk	11	3rr	2-Dec-05	3-Dec-05	1712 m	1714 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	12.25	0.00	0.32		7 5/8 R
Junk basket	1	9.50	3.00	0.88		7 5/8 R
12 1/4" NB stab	1	9.50	3.00	1.82		7 5/8 R
NM stop sub	1	9.50	3.00	0.54		7 5/8 R Pin x Inteq Box
OnTrak MWD	1	9.50	3.00	5.27		Inteq
11 3/4" MWD mod stab	1	9.50	3.00	1.72		Inteq
BCPM	1	9.50	3.00	3.58		Inteq
MWD stop sub	1	9.50	3.00	0.54		Inteq Pin x 7 5/8 R Box
12 1/4" String stab	1	9.50	2.81	2.06		7 5/8 R
XO sub	1	9.50	2.75	0.86		7 5/8 R Pin x 6 5/8 R Box
DC	3	8.25	2.75	28.31		6 5/8 R
Jar	1	8.00	2.75	9.24		6 5/8 R
DC	3	8.25	2.75	28.25		6 5/8 R
Accelerator	1	8.00	2.75	9.81		6 5/8 R
DC	2	8.25	2.75	18.92		6 5/8 R
XO sub	1	8.25	3.00	0.86		6 5/8 R Pin x HT55 Box
HWDP	9	5.500	3.25	83.88		HT55
Dart sub	1	7.500	2.75	0.84		HT55
DP		5.50				HT55
				Total length	197.70	

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 8 1/2" hole to core point	12	7	5-Dec-05	8-Dec-05	1714 m	1812 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	8.50	2.25	0.25		4 1/2 R
8 1/2" NB stab	1	6.75	3.50	2.05		4 1/2 R Box x 4 1/2 IF Box
MWD	4	7.00	2.25	9.32		4 1/2 IF
8 1/2" string stab	1	6.75	2.82	1.91		4 1/2 IF
DC	8	6.50	2.75	75.45		4 1/2 IF
Jar	1	6.75	2.56	9.39		4 1/2 IF
DC	3	6.50	2.75	28.23		4 1/2 IF
XO sub	1	7.00	0.00	1.00		4 1/2 IF Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55
				Total length	212.32	

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Run core #5	13	8	8-Dec-05	9-Dec-05	1812 m	1824 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Core bit	1	8.50	0.00	0.37		?
Core barrel	1	8.50	0.00	37.31		?
XO sub	1	7.00	5.88	0.61		? x ?
XO sub	1	6.50	2.25	0.81		? x 4 1/2 IF Box
DC	8	6.75	2.75	75.45		4 1/2 IF
Jar	1	6.50	2.56	9.39		4 1/2 IF
DC	3	6.75	2.75	28.23		4 1/2 IF
XO sub	1	7.00	3.00	1.03		4 1/2 IF Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55
				Total length	237.92	

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Run core #6	14	8rr	9-Dec-05	10-Dec-05	1824 m	1836.9 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Core bit	1	8.50	0.00	0.37		?
Core barrel	1	7.13	5.88	25.13		?
XO sub	1	7.00	5.88	0.61		? x ?
XO sub	1	6.50	2.25	0.81		? x 4 1/2 IF Box
DC	8	6.75	2.75	75.45		4 1/2 IF
Jar	1	6.50	2.56	9.39		4 1/2 IF
DC	3	6.75	2.75	28.23		4 1/2 IF
XO sub	1	7.00	3.00	1.03		4 1/2 IF Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55
				Total length	225.74	

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 8 1/2" hole to TD	15	9	10-Dec-05	14-Dec-05	1836.9 m	2420 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	8.50	0.00	0.27		4 1/2 R
8 1/2" NB stab	1	6.75	3.50	2.05		4 1/2 R Box x 4 1/2 IF Box
NM stop sub	1	7.00	2.25	0.50		4 1/2 IF Pin x Inteq Box
OnTrak MWD	1	7.00	2.13	5.17		Inteq
BCPM	1	7.00	2.13	3.19		Inteq
MWD stop sub	1	6.95	2.25	0.46		Inteq Pin x 4 1/2" IF box
8 1/2" string stab	1	6.78	2.81	1.91		4 1/2 IF
DC	8	6.50	2.75	75.45		4 1/2 IF
Jar	1	6.75	2.56	9.39		4 1/2 IF
DC	3	6.50	2.75	28.23		4 1/2 IF
XO sub	1	7.00	3.00	1.03		4 1/2 IF Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55

Total length 212.37

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Wiper trip	16	9rr	19-Dec-05	20-Dec-05	2420 m	2420 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	8.50	0.00	0.27		4 1/2 R
8 1/2" NB stab	1	6.75	3.50	2.05		4 1/2 R Box x 4 1/2 IF pin
NM stop sub	1	7.00	2.25	0.50		4 1/2 IF x Inteq Box
OnTrak MWD	1	7.00	2.13	5.17		Inteq
BCPM	1	7.00	2.13	3.19		Inteq
MWD stop sub	1	6.95	2.25	0.46		Inteq Pin x 4 1/2" IF box
8 1/2" string stab	1	6.78	2.81	1.91		4 1/2 IF
DC	8	6.50	2.75	75.45		4 1/2 IF
Jar	1	6.75	2.56	9.39		4 1/2 IF
DC	3	6.50	2.75	28.23		4 1/2 IF
XO sub	1	7.00	3.00	1.03		4 1/2 IF Pin x HT55 Box
HWDP	9	5.50	3.25	83.88		HT55
Dart sub	1	7.50	2.75	0.84		HT55
DP		5.50				HT55

Total length 212.37

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 6" hole to core point (MWD failed)	17	10	22-Dec-05	24-Dec-05	2420 m	2458 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	6.00	1.00	0.22		3 1/2 R
6" NB stab	1	4.75	2.31	1.74		3 1/2 R Box x 3 1/2 IF Box
6" NM string stab	1	4.75	2.31	1.74		3 1/2 IF
MWD	1	4.75	1.00	11.11		3 1/2 IF
6" NM string stab	1	4.75	2.31	1.61		3 1/2 IF
NMDC	1	4.75	2.41	9.40		3 1/2 IF
5 7/8" NM string stab	1	4.75	2.31	1.60		3 1/2 IF
NMDC	1	4.75	2.41	9.48		3 1/2 IF
DC	6	4.75	2.31	54.13		3 1/2 IF
Jar	1	4.75	2.25	9.17		3 1/2 IF
DC	6	4.75	2.31	54.29		3 1/2 IF
HWDP	9	3.50	2.25	80.74		3 1/2 IF
DP	88	3.50	2.60	900.00		3 1/2 IF
XO sub	1	5.00	2.75	1.00		3 1/2 IF Pin x HT55 Box
DP		5.50				HT55
				Total length	1136.23	

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 6" hole to core point	18	11	24-Dec-05	25-Dec-05	2458 m	2519 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	6.00	0.00	0.22		3 1/2 R
Bit sub	1	4.55	2.31	0.93		3 1/2 R Box x 3 1/2 IF Box
MWD	1	4.75	1.00	10.07		3 1/2 IF
5 7/8" NM string stab	1	4.75	2.31	1.60		3 1/2 IF
NMDC	1	4.75	2.41	9.40		3 1/2 IF
NMDC	1	4.75	2.41	9.48		3 1/2 IF
DC	6	4.75	2.31	54.13		3 1/2 IF
Jar	1	4.75	2.25	9.17		3 1/2 IF
DC	6	4.75	2.31	54.29		3 1/2 IF
HWDP	9	3.50	2.25	80.74		3 1/2 IF
DP	88	3.50	2.60	849.00		3 1/2 IF
XO sub	1	5.00	2.75	1.00		3 1/2 IF Pin x HT55 Box
DP		5.50				HT55
				Total length	1080.03	

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Run core #7	19	12	25-Dec-05	27-Dec-05	2519 m	2521 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Core bit	1	6.00	1.00	0.26		?
Core barrel with 6" stabs	1	4.55	2.31	19.65		?
Bit sub	1	4.75	1.00	0.92		3 1/2 R Box x 3 1/2 IF Box
NMDC	1	4.75	2.41	9.40		3 1/2 IF
NMDC	1	4.75	2.41	9.48		3 1/2 IF
DC	6	4.75	2.31	54.13		3 1/2 IF
Jar	1	4.75	2.25	9.17		3 1/2 IF
DC	6	4.75	2.31	54.29		3 1/2 IF
HWDP	9	3.50	2.25	80.74		3 1/2 IF
DP	88	3.50	2.60	849.00		3 1/2 IF
XO sub	1	5.00	2.75	1.00		3 1/2 IF Pin x HT55 Box
DP		5.50				HT55
				Total length	1088.04	

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 6" hole to TD	20	11rr	27-Dec-05	29-Dec-05	2521 m	2726 m
Description	Number	OD (inches)	ID (inches)	Length (m)	Weight (lbs/ft)	Connection
Bit	1	6.00	0.00	0.22		3 1/2 R
Bit sub	1	4.55	2.31	0.93		3 1/2 R Box x 3 1/2 IF Box
MWD	1	4.75	1.00	10.07		3 1/2 IF
5 7/8" NM string stab	1	4.75	2.31	1.60		3 1/2 IF
NMDC	1	4.75	2.41	9.40		3 1/2 IF
NMDC	1	4.75	2.41	9.48		3 1/2 IF
DC	6	4.75	2.31	54.13		3 1/2 IF
Jar	1	4.75	2.25	9.17		3 1/2 IF
DC	6	4.75	2.31	54.29		3 1/2 IF
HWDP	9	3.50	2.25	80.74		3 1/2 IF
DP	88	3.50	2.60	849.00		3 1/2 IF
XO sub	1	5.00	2.75	1.00		3 1/2 IF Pin x HT55 Box
DP		5.50				HT55
				Total length	1080.03	

3.5.3 Casing Data Summary

OD	30"	20"	13 3/8"	9 5/8"	7"
WEIGHT (lbs/ft)	310	129,3	72.0	53.5	29.0
GRADE	X-52	X-56	L-80	T-95	P-110
CONNECTION	ST-2	RL-4S	BTC	Antares MS	Tenaris Blue
PIPE ID (in)	28	18.73	12.347	8.625	6.184
PIPE DRIFT (in)	27.813	18.543	12.25	8.469	6.059
CONNECTION OD (in)	33	21.5	14.374	10.827	7.677
CONNECTION ID (in)	28	18.63	12.559	9.102	6.118
BURST (bar)	N/A	211	364	636	324
BURST DESIGN (bar)	N/A	137	148	353	729
BURST SF	N/A	1.54	2.46	1.80	2.25
COLLAPSE (bar)	N/A	52	56	257	472
COLLAPSE DESIGN (bar)	N/A	100	180	496	576
COLLAPSE SF	N/A	1.91	3.10	1.90	1.24
TENSION (MT)	N/A	880	739	657	413
TENSION DESIGN (MT)	N/A	276	258	279	143
TENSION SF	N/A	3.19	2.86	2.35	2.90
TOP (m)	30" housing @ 366.7	18 3/4" wellhead housing @ 365.8			7" liner top @ 1480.3
CASING BOTTOM (m)	416	529.2	995.2	1693.5	2405

NOTE: Seabed at 368.0 m

3.5.3.1 30" Conductor x 20" Surface Casing

 Eni Norge		CASING REPORT		WELL NAME 7122 7-3						
		FIELD NAME GOLIATH		Cost center						
DATE: 10/27/2005		4.DRL.FO.03A								
Operation type		Casing type Dual string 30 x 20" Ø [in] 30" x 20" Top [m] 366,7 / 365,8 Bottom [m] 415,9 / 529,3								
Well Situation	Ø	Measured Depth		Vertical depth		Capacity	From log	K.O.P.	[m]	
	[in]	Top [m]	Bottom [m]	Top [m]	Bottom [m]	[l/m]	(y/n)	Max. Inclination [°]		0.68
	Open Hole	36 X 23	368	538	368	538			at m	526
	Last Casing	30 x 20	366.7	529.3	366.7	529.3			D.O.P.	[m]
Casing Profile										
Ø [in]	Weight [lb/ft]	Steel Grade	Thread Type	M.U. Torque	Total Joints	From [m]	To [m]	S.D.	S.C.	Note
30"	310	X-52	ST-2		4	366.7	415.9			
20"	129.3	X-56	E60		11	365.8	529.3			
Casing Equipment								Centralizers		
Type	Manufacturer	Model	at m	Note				Type	Top [m]	Bottom [m]
30" Shoe			415,9							
20" Shoe			529,3							
Centralizers	Manufactured		Type	n°						
			Type	n°						
Scratchers	Manufactured		Type	n°						
Stop collars	Manufactured		Type	n°						
Circulation	Flow rate	Pressure	Flow rate	Pressure	Flow rate	Pressure	Flow rate	Pressure	Flow rate	Pressure
	[l/min]	[kg/cm²]	[l/min]	[kg/cm²]	[l/min]	[kg/cm²]	[l/min]	[kg/cm²]	[l/min]	[kg/cm²]
Circulation test (after 6 joints)										
Circulation at bottom										
Casing Reciprocation	Reciprocation: W.O.H. up [t] _____ W.O.H. down [t] _____ Rotation: W.O.H. up [t] _____ W.O.H. down [t] _____ Torque _____									
Conductor pipe										
Guide Shoe	(y/n)	RKB-MudLine/Ground Level dist.	[m]	Total Penetration	[m]					
Connector Type		Free fall	[m]	Shoe	[m]					
Pile Hammer type		Internal Wash. From m	to m	Final refusal	[Strk/m] [mm/strk]					
Soil/Seabed characteristics										
Remarks:										
A dual string composed by 30"CP and 20"CSG was run at the same time. 										
				Supervisor			Superintendent			

13 3/8" Casing

[illegible]

CASING REPORT

WELL NAME	03.07.7122
-----------	------------

FIELD NAME	Goliat
------------	--------

Cost center

DATE:

3.DRL.FO.03B

[illegible]

		CASING REPORT				WELL NAME 7122/7-3	
				FIELD NAME Goliath			
		DATE: 06.01.2006		4.DRL.FO.03A		Cost center	

Operation type	Casing type	Intermediate	Ø [in]	9 5/8	Top [m]	366.68	Bottom [m]	1693.74
----------------	-------------	--------------	--------	-------	---------	--------	------------	---------

Well Situation	Ø [in]	Measured Depth		Vertical depth		Capacity [l/m]	From log (y/n)	K.O.P. [m]	Max. Inclination [°]
		Top [m]	Bottom [m]	Top [m]	Bottom [m]				
Open Hole	12 1/4	995.2	1712	995.2	1712	49.41	n		0.63
Last Casing	13 3/8	365.8	995.2	365.8	995.2	77.25			1703

Casing Profile										
Ø [in]	Weight [lb/ft]	Steel Grade	Thread Type	M.U. Torque	Total Joints	From [m]	To [m]	S.D.	S.C.	Note
9 5/8	53.5	T 95	AMS		101	366.68	1679.67			

Casing Equipment						Centralizers		
Type	Manufacturer	Model	at m	Note		Type	Top [m]	Bottom [m]
Shoe	Weatherford		1693.74			NW-STA2		
Collar	Weatherford		1679.68			NW-STA2		

Centralizers	Manufactured	Weatherford	Type	NW-STA2	n°	8
Scratchers	Manufactured		Type		n°	
Stop collars	Manufactured		Type		n°	

Circulation	Flow rate [l/min]	Pressure [kg/cm²]	Flow rate [l/min]	Pressure [kg/cm²]	Flow rate [l/min]	Pressure [kg/cm²]	Flow rate [l/min]	Pressure [kg/cm²]	Flow rate [l/min]	Pressure [kg/cm²]
Circulation test (after 6 joints)										
Circulation at bottom										

Casing	Reciprocation:	W.O.H. up [t]	W.O.H. down [t]	Torque
Reciprocation	Rotation:	W.O.H. up [t]	W.O.H. down [t]	

Conductor pipe		
Guide Shoe (y/n)	RKB-MudLine/Ground Level dist. [m]	Total Penetration [m]
Connector Type	Free fall [m]	Shoe [m]
Pile Hammer type	Internal Wash. From m to m	Final refusal [Strk/m] [mm/strk]

Soil/Seabed characteristics

Remarks:

Supervisor	Superintendent
------------	----------------

CASING REPORT

WELL NAME	7122/7-3
-----------	----------

FIELD NAME	Goliath
------------	---------

Cost center

DATE:

4.DRL.FO.03B

[illegible]

Remarks:

Supervisor

Superintendent

[illegible]

CASING REPORT

WELL NAME 7122/7-3

FIELD NAME	Goliath
------------	---------

Cost center

DATE: 4.DRL.FO.03B

[illegible]

3.5.4 Leak-Off Test Results

In well 7122/7-3 the following Leak-Off Tests (LOT) and Formation Integrity Tests (FIT) were done:

1. After drilling out of the 20" shoe set at 529 m and 5 m of formation a FIT was attempted in the 16" hole below the 20" shoe. The pressure leaked off at 1.35 sg equivalent mud weight. A LCM pill was pumped before another FIT was done to 1.35 sg EMW. This time the pressure held.
The test was done with 1.20 sg Formpro mud in the entire hole.
The FIT was redone in the 20" casing after drilling to TD prior to performing a wiper trip back to bottom. This time a FIT of 1.45 sg equivalent mud weight was achieved.
2. After drilling out of the 13 3/8" shoe set at 995 m and 10 m of new formation an extended LOT was performed with 1.30 sg Formpro mud to 2.60 sg EMW (??), a second extended LOT was performed immediately afterwards to 1.78 sg EMW to confirm the fracture propagation pressure. A 120 kg/m³ G-Seal pill was spotted on bottom and a "Hole Strengthening Test" performed. 90 bar was applied to the formation and held for 1 hour. Reported FIT after the test was 2.21 sg EMW. (The pressure was stopped at 90 bar to avoid fracturing the formation again). See the two graphs below.
3. Drilled out of 9 5/8" casing at 1694 m and 5 m new formation from 1712 m prior to displacing the well to 1.51 sg Formate mud and performing a FIT. No success with the FIT and the pressure leaked off before reaching a density of 1.90 sg. Pumped and spotted a LCM pill in the open hole to support the formation prior to doing a new FIT to 1.90 sg equivalent drilling fluid density.
4. Drilled out the 7" liner at 2405 m with 6" BHA and 2 m of new formation from 2420 m with 1.54 sg Formate mud and performed a FIT to 2.00 sg EMW.

“Hole Strengthening Test” / LOT below 13 3/8” shoe

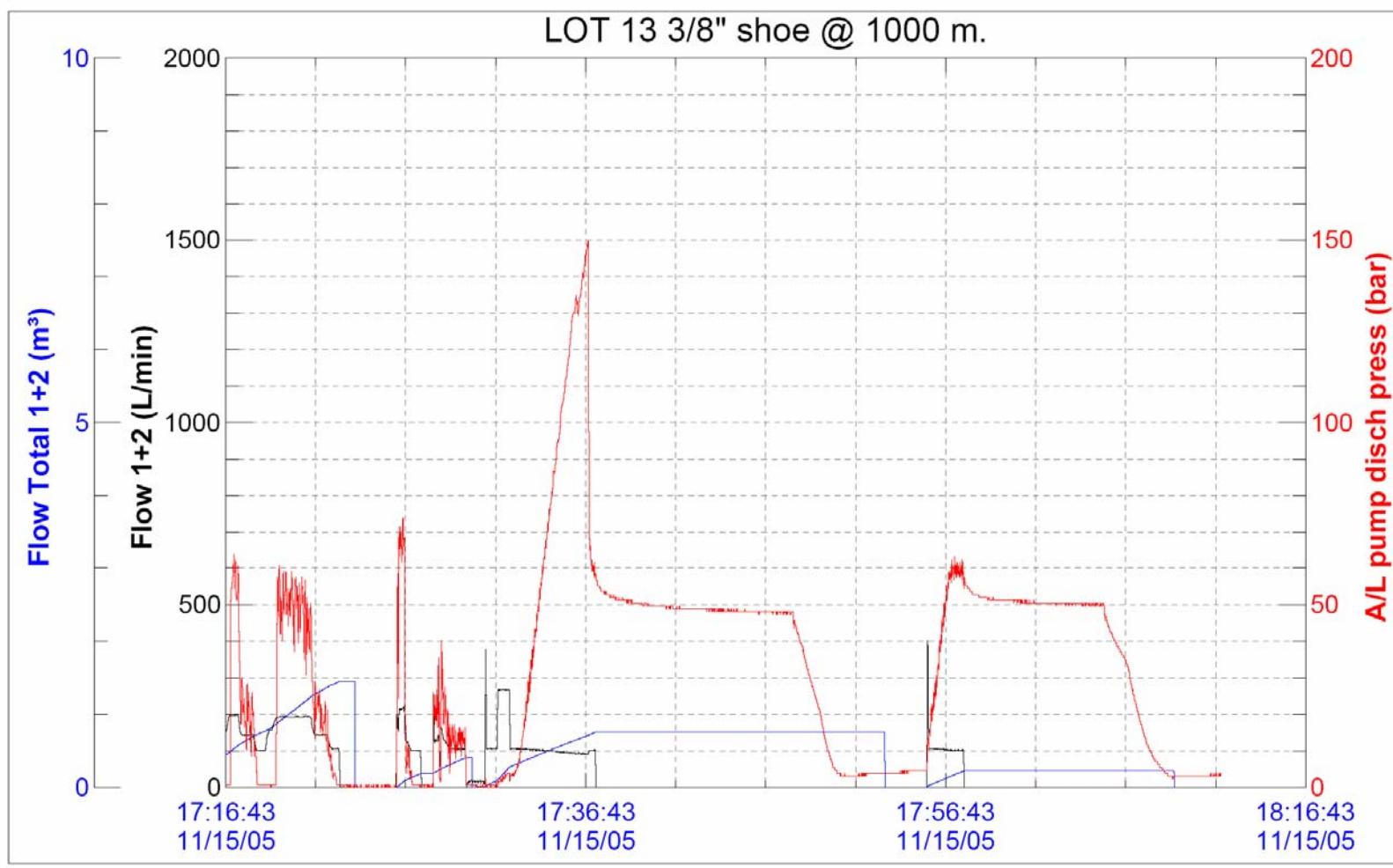


BJ Services JobMaster Program Version 3.00

Job Number:

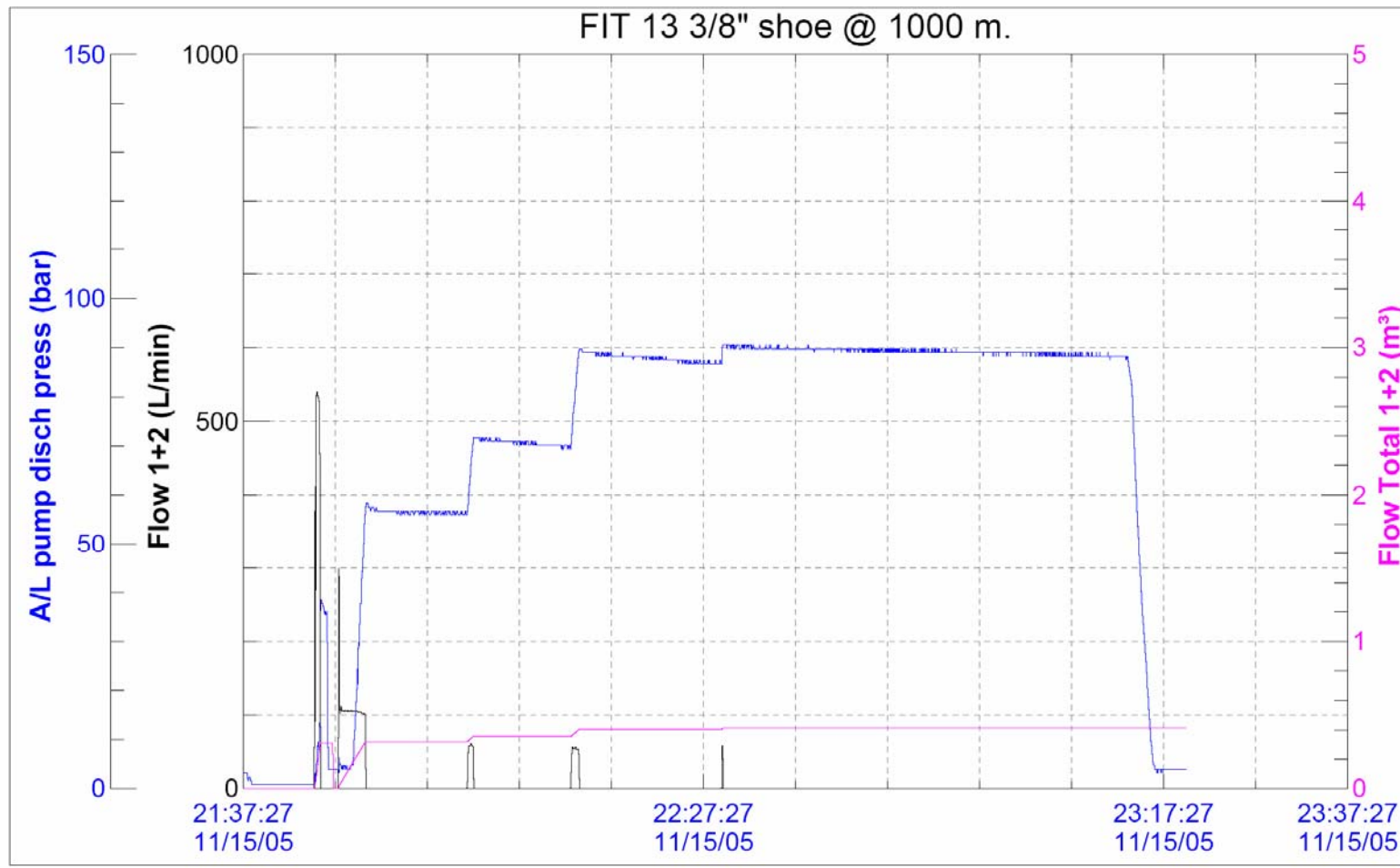
Customer: Eirik Raude

Well Name: Goliat



FIT taken after "Hole Strengthening Test"

BJ Services JobMaster Program Version 3.00
Job Number:
Customer: Eirik Raude
Well Name: Goliat

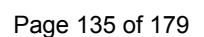


3.5.5 Cementing Reports

Additional data can be found in the final well report produced by BJ Services Norway district Cementing Department, titled "END OF WELL REPORT ENI, GOLIAT WELL 7122/7-3" dated 19th of Jan 2006.

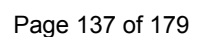
3.5.5.1 30" Conductor x 20" Surface Casing

 Eni Norge C R O U P	CEMENTING JOB REPORT	WELL NAME 7122 7-3 FIELD NAME GOLIATH Cost center _____								
DATE: 10/28/2005 3.DRL.FO.04A										
Operation Purpose: 30" x 20" Dual Casing Cement Job										
Operation Type	Measured Depth Top [m] Bottom [m]	Vertical Depth Top [m] Bottom [m]	Casing Type	Ø [in]	Weight lb/ft	Stage [N°]				
Cementing	368 538	368 538	Dual string	30 x 20	310 / 129,3	1				
Plug			N°	Of: _____						
Squeeze			N°							
Well Situation	Ø [in]	Measured Depth Top [m] Bottom [m]	Vertical depth Top [m] Bottom [m]	Capacity [lt/m]	From log [y/n]	KOP [m] Max. Inclination [°] at m D.O.P. [m]				
Open Hole	36 x 23	368 538	368 538			0.68 526				
Last Casing	30 x 20	366.7 529.3	366.7 529.3							
Perforation	Gradient [Kg/cm²/10m]	Below shoe	Bottom hole	Pressure [kg/cm²]		B.H.S.T. [°C]				
Top [m] Bottom [m]	Pore Gradient	1.03	1.03	Fracture at bottom		at m				
	Fracture Gradient	1.35	1.37	Hydrostatic increase w/slurry		From log [y/n]				
	Abnormal [kg/cm²/10m]	at m: _____		Annular Fracture Margin		After [hr]				
	Abnormal [kg/cm²/10m]	at m: _____		Margin during W.O.C.		B.H.C.T. [°C]				
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]	Water loss [cc]	pH / ES	Cl- [g/l]		
WBM	1	70		12	5 7	6.5	8.7			
Fluid	Type	600	300	200	100	6	3	Density [kg/l]		
Lead								Vol.[m3]		
Tail								h annulus [m]		
Lead Slurry		56	51	46	36	25	1.65	41		
Tail Slurry		116	93	70	30	22	1.95	7.7		
1st Slurry		Preparation		Duration	Pumping time		w/c	Cement	Quantity	
Mixing Date & hour		Method		[min]	[min]	at [°C]	ratio	Type	[t]	
27.10.2005 22:00		Batch		60	60			G	50	
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type		
FP16LG	100	L						Density [kg/l]		
A-3L	2950	L						Quantity [ton]		
A-7L	900	L						Ratio		
2nd Slurry		Preparation		Duration	Pumping time		w/c	Cement	Quantity	
Mixing Date & hour		Method		[min]	[min]	at [°C]	ratio	Type	[t]	
Additives		Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type	
									Density [kg/l]	
									Quantity [ton]	
									Ratio	
Cementing Company BJ Operation Ticket N° _____										
Operation Results				Plug tested with [t]		Record (y / n)				
Theoretical TOC 368 [m]				Plug milled at [m]		Volume		Pression		
Actual TOC 368 [m]				Plug removed [y / n]		Flow rate		Density		
Remarks						Supervisor				
Landed csg and established circulating by pumping 20 m3 seawater. 10 m3 dye pumped ahead of cement for control of return. Mixed and pumped 41 m3 lead slurry at 1.65 sg. Flowrate 1000lt/min. Start with tail when dye was observed.						Superintendent				
Pumped 6 m3 tail at 1,95 sg. with a flowrate of 800 lt/min. Top of tail 504 m. Displaced cement with 7.7m3 seawater.										
No backflow. Several stops juring mixing of tail slurry. This caused plugging in the mixing bowl. Low circulating pressure in cement circulating pump.										



3.5.5.2 Grouting jobs

 Eni Norge G R O U P		CEMENTING JOB REPORT				WELL NAME 7122 7-3					
		FIELD NAME GOLIATH		Cost center _____							
DATE: 11.04.2005		3.DRL.FO.04A									
Operation Purpose: 30" x 20" Dual Casing 1st Remedial Job											
Operation Type	Measured Depth		Vertical Depth		Casing Type		Ø	Weight	Stage		
	Top [m]	Bottom [m]	Top [m]	Bottom [m]			[in]	lb/ft	[N°]		
Cementing	368	403	368	403	Dual string		30 x 20	310 / 129,3	1		
Plug					N°	Of:					
Squeeze					N°						
Well Situation	Ø	Measured Depth		Vertical depth		Capacity	From log	KOP [m]			
	[in]	Top [m]	Bottom [m]	Top [m]	Bottom [m]	[lt/m]	[y/n]	Max. Inclination [°]	1.5		
Open Hole	36	368	403	368	403			at m	368		
Last Casing	30 x 20	366.7	529.3	366.7	529.3			D.O.P. [m]			
Perforation		Gradient [Kg/cm ² /10m]		Below shoe	Bottom hole	Pressure [kg/cm ²]		B.H.S.T. [°C]			
		Pore Gradient						8			
Top [m]	Bottom [m]					Fracture at bottom		at m			
		Fracture Gradient				Hydrostatic increase w/slurry		From log [y/n]			
		Abnormal [kg/cm ² /10m] at m:				Annular Fracture Margin		After [hr]			
		Abnormal [kg/cm ² /10m] at m:				Margin during W.O.C.		B.H.C.T. [°C]			
								8			
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]	Water loss [cc]	pH / ES	Cl- [g/l]			
Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry										Mixing water Cl- [g/l]	
Tail Slurry		116	93	70	30	22	1.95	20		Water Temperature [°C]	
1 st Slurry		Preparation		Duration	Pumping time		w/c	Cement	Quantity		
Mixing Date & hour		Method		[min]	[min] at [°C]		ratio	Type	[t]		
04.11.2005 15:00				30	30			G	18		
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type			
FP16LG	30	L						Density [kg/l]			
A-7L	1250	L						Quantity [ton]			
								Ratio			
2 nd Slurry		Preparation		Duration	Pumping time		w/c	Cement	Quantity		
Mixing Date & hour		Method		[min]	[min] at [°C]		ratio	Type	[t]		
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type			
								Density [kg/l]			
								Quantity [ton]			
								Ratio			
Cementing Company		BJ		Operation Ticket N°							
Operation Results				Plug tested with [t]				Record (y / n)			
Theoretical TOC 368 [m]				Plug milled at [m]				Volume		Pression	
Actual TOC 373 [m]				Plug removed [y / n]				Flow rate		Density	
Remarks RIH with 3 1/2" cement stinger to 403 m. Established circulating pumping seawater. Pumped 17 m3 hi-vis pill ahead of cmt. Mixed and pumped 20 m3 slurry at 1.95 sg. Flowrate 800 - 300 ltr/min.s Cement was underdisplaced .Displaced volum 700 ltr.No backflow.								Supervisor			
								Superintendent			



Grouting job no. 2

 Eni Norge G R O U P	CEMENTING JOB REPORT				WELL NAME <u>7122 7-3</u>	
	DATE: <u>11.05.2005</u>		3.DRL.FO.04A		FIELD NAME <u>GOLIATH</u>	
Operation Purpose: <u>30" x 20" Dual Casing 2st Remedial Job</u>						
Operation Type	Measured Depth Top [m] Bottom [m]		Vertical Depth Top [m] Bottom [m]		Casing Type	Ø [in] Weight lb/ft Stage [N°]
Cementing	368	373	368	373	Dual string	30 x 20 310 / 129,3 1
Plug					N°	Of:
Squeeze					N°	
Well Situation	Ø [in]	Measured Depth Top [m] Bottom [m]		Vertical depth Top [m] Bottom [m]		Capacity [lt/m] From log [y/n] KOP [m] Max. Inclination [°] at m D.O.P. [m]
Open Hole	36	368	373	368	373	
Last Casing	30 x 20	366.7	529.3	366.7	529.3	
Perforation		Gradient [Kg/cm ² /10m]		Below shoe	Bottom hole	Pressure [kg/cm ²] B.H.S.T. [°C] at m From log [y/n] After [hr] B.H.C.T. [°C]
Top [m]	Bottom [m]	Pore Gradient				Fracture at bottom
		Fracture Gradient				Hydrostatic increase w/slurry
		Abnormal [kg/cm ² /10m] at m:				Annular Fracture Margin
		Abnormal [kg/cm ² /10m] at m:				Margin during W.O.C.
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]	Water loss [cc] pH / ES Cl- [g/l]
Fluid	Type	600	300	200	100	6 3 Density [kg/l] Vol.[m3] h annulus [m] Cont. Time [min]
Lead						
Tail						
Lead Slurry						Mixing water Cl- [g/l]
Tail Slurry		126	107	85	34	25 1.95 10 Water Temperature [°C]
1st Slurry		Preparation		Duration	Pumping time	w/c Cement Quantity
Mixing Date & hour		Method		[min]	[min] at [°C]	ratio Type [t]
05.11.2005 15:00				30	30	G 18
Additives		Quantity	u.m.	%	Additives	
FP16LG		30	L			
CaCl2C		900	L			
2nd Slurry		Preparation		Duration	Pumping time	w/c Cement Quantity
Mixing Date & hour		Method		[min]	[min] at [°C]	ratio Type [t]
Additives		Quantity	u.m.	%	Additives	
Cementing Company		BJ		Operation Ticket N°		
Operation Results		Plug tested with [t]		Record (y / n)		
Theoretical TOC 368 [m]		Plug milled at [m]		Volume Pression		
Actual TOC 368 [m]		Plug removed [y / n]		Flow rate Density		
Remarks				Supervisor		
RIH with cement stinger 6 hours after 1st remedial cement job.Stick in 5m and rotated .No observation of cement.						
Tripped out of hole. RIH after 13 hours .Got weiht 5m below seabed behind casing.TOC was 373m.						
Pumped 2 m3 seawater ahead .Mixed and pump 10 m3 slurry at 1.95 sg..Flowrate 800 - 300 ltr/min.s						
Cement was underdisplaced .Displaced volum 500 ltr.No backflow.						
Superintendent						

CEMENTING JOB REPORT

WELL NAME	7122 7-3
-----------	----------

FIELD NAME	GOLIATH
------------	---------

DATE: 11.05.2005 3.DRL.FO.04B

Cost center _____

Operation type _____ Ø [in] _____ Stage / No.: _____ 1

SQUEEZE / PLUG

[illegible]

	Injectivity Test with: _____			Pump Rate [l/min]	Testing Pr. [kg/cm ²]	Tot. Vol. pumped [l]	Final Sqz Pr. [kg/cm ²]	Returns Vol [l]
	Test	[kg/cm ²]	[mins]					
	Stinger Pressure test							
	Annular pressure							

CEMENTATION

Operation (y/n)				[kg/cm ²]		[mins]	
Casing Reciprocation	n	Bump Plug	n	Casing testing pressure			
Casing Rotation	n	Valve holding	n	Annulus pressurization			
Inner string	y						

GENERAL DATA

[illegible]

Circulation / Displacement / Squeeze

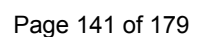
[illegible]

Supervisor

Superintendent

3.5.5.3 13 3/8" Casing

 Eni Norge		CEMENTING JOB REPORT				WELL NAME 7122/7-3		
		DATE: 06.01.2006		3.DRL.FO.04A		FIELD NAME GOLIAT		
Cost center _____								
Operation Purpose: Intermediate Casing 13 3/8"								
Operation Type	Measured Depth		Vertical Depth		Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
	Top [m]	Bottom [m]	Top [m]	Bottom [m]				
Cementing	700	995	700	995	intermediate	13 3/8	72	1
Plug					N°	Of:		
Squeeze					N°			
Well Situation	Ø [in]	Measured Depth		Vertical depth		Capacity [lt/m]	From log [y/n]	KOP [m] _____ Max. Inclination [°] 0.2 at m 979.5
		Top [m]	Bottom [m]	Top [m]	Bottom [m]			
Open Hole	16	538	1001	538	1001	129.7	n	
Last Casing	30 x 20	368	529.2	368	529.2	177.8		D.O.P. [m] _____
Perforation		Gradient [Kg/cm²/10m]		Below shoe	Bottom hole	Pressure [kg/cm²]		B.H.S.T. [°C] _____ at m _____ From log [y/n] _____ After [hr] _____ B.H.C.T. [°C] _____
		Top [m]	Bottom [m]	Pore Gradient	1.03			
				Fracture Gradient	1.45	1.7	Hydrostatic increase w/slurry _____	
		Abnormal [kg/cm²/10m] _____ at m: _____				Annular Fracture Margin _____		
		Abnormal [kg/cm²/10m] _____ at m: _____				Margin during W.O.C. _____		
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]	Water loss [cc]	pH / ES	Cl- [g/l]
WBM	1.2							
Fluid	Type	600	300	200	100	6	3	Density [kg/l]
Lead								
Tail								
Lead Slurry								Mixing water Cl- [g/l] _____
Tail Slurry						1.9	21	Water Temperature [°C] _____
1 st Slurry		Preparation		Duration	Pumping time		w/c	Cement
Mixing Date & hour		Method		[min]	[min]		ratio	Type
13/11/2005 14:30		Batch						G
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type G
FP - 16L	206	L						Density 1.9 [kg/l]
GW - 22	60	L						Quantity 27 [ton]
								Ratio _____
2 nd Slurry		Preparation		Duration	Pumping time		w/c	Cement
Mixing Date & hour		Method		[min]	[min]		ratio	Type
		Batch						G
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type _____
		L						Density _____ [kg/l]
		L						Quantity _____ [ton]
								Ratio _____
Cementing Company Halliburton Baroid Operation Ticket N° _____								
Operation Results				Plug tested with _____ [t]		Record (y / n)		
Theoretical TOC 700 [m]				Plug milled at _____ [m]		Volume _____ Pression _____		
Actual TOC 700 [m]				Plug removed [y / n] _____		Flow rate _____ Density _____		
Remarks _____ _____ _____ _____ _____						Supervisor		
						j. Jaffray Superintendent		



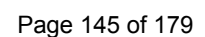
3.5.5.4 9 5/8" Casing

		CEMENTING JOB REPORT				WELL NAME 7122/7-3			
		DATE: 06.01.2006		3.DRL.FO.04A		FIELD NAME GOLIATH			
Cost center									
Operation Purpose: Intermediate Casing 9 5/8"									
Operation Type	Measured Depth		Vertical Depth		Casing Type	Ø [in]	Weight lb/ft	Stage [N°]	
	Top [m]	Bottom [m]	Top [m]	Bottom [m]					
Cementing	1150	1712	1150	1712	Intermediate	9 5/8	53.5	2	
Plug					N°	Of:			
Squeeze					N°				
Well Situation	Ø [in]	Measured Depth		Vertical depth		Capacity [lt/m]	From log [y/n]	KOP [m]	
		Top [m]	Bottom [m]	Top [m]	Bottom [m]			Max. Inclination [°]	
Open Hole	12 1/4	995.2	1712	995.2	1712		n	at m 1703	
Last Casing	13 3/8	365.8	995.2	365.8	995.2			D.O.P. [m]	
Perforation		Gradient [Kg/cm²/10m]		Below shoe	Bottom hole	Pressure [kg/cm²]		B.H.S.T. [°C]	
		Top [m]	Bottom [m]	Pore Gradient	1.03			1.05	Fracture at bottom
				Fracture Gradient	1.7	1.8	Hydrostatic increase w/slurry	From log [y/n]	
		Abnormal [kg/cm²/10m] at m:				Annular Fracture Margin		After [hr]	
		Abnormal [kg/cm²/10m] at m:				Margin during W.O.C.		B.H.C.T. [°C]	
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]	Water loss [cc]	pH / ES	Cl- [g/l]	
WBM	1.34								
Fluid	Type	600	300	200	100	6	3	Density [kg/l]	
Lead								Vol.[m3]	
Tail								h annulus [m]	
Lead Slurry						1.9	23	Mixing water Cl- [g/l]	
Tail Slurry						1.9	9.5	Water Temperature [°C]	
1 st Slurry		Preparation		Duration	Pumping time		w/c	Cement	
Mixing Date & hour		Method		[min]	[min] at [°C]		ratio	Type	
05/12/2005 15:30		Batch						G	
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type G	
FP - 16L		L		R - 12L				Density 1.9 [kg/l]	
CD - 35L		L		BA-58L				Quantity [ton]	
				FL-67L				Ratio	
2 nd Slurry		Preparation		Duration	Pumping time		w/c	Cement	
Mixing Date & hour		Method		[min]	[min] at [°C]		ratio	Type	
		Batch						G	
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type G	
FP - 16L		L						Density 1.9 [kg/l]	
R - 12L		L						Quantity [ton]	
								Ratio	
Cementing Company Halliburton Baroid Operation Ticket N°									
Operation Results				Plug tested with [t]				Record (y / n)	
Theoretical TOC 795 [m]				Plug milled at [m]				Volume Pression	
Actual TOC 1150 [m]				Plug removed [y / n]				Flow rate Density	
Remarks								Supervisor	
								Superintendent	

	CEMENTING JOB REPORT		WELL NAME <u>7122/7-3</u>						
	DATE: <u>06.01.2006</u> 3.DRL.FO.04B		FIELD NAME <u>GOLIATH</u>						
Cost center _____									
Operation type <u>9 5/8" CSG Cement Job</u> Ø [in] <u>9 5/8</u> Stage / No.: <u>1</u>									
SQUEEZE / PLUG									
Type	Ø	Length [m]	Cap. [l/m]	Bottom [m]	Cement retainer Squeeze packer	Manufacturer	Model / Type	Ø [inch]	Depth [m]
					Injectivity Test with: _____				
					Pump Rate [l/min]	Testing Pr. [kg/cm²]	Tot. Vol. pumped [l]	Final Sqz Pr. [kg/cm²]	Returns Vol [l]
					Test	[kg/cm²]	[mins]		
					Stinger Pressure test				
					Annular pressure				
CEMENTATION									
Operation (y/n)					[kg/cm²] [mins]				
Casing Reciprocation	<u>n</u>	Bump Plug	<u>y</u>	Casing testing pressure	<u>300</u>	<u>15</u>			
Casing Rotation	<u>n</u>	Valve holding	<u>y</u>	Annulus pressurization					
Inner string	<u>y</u>								
GENERAL DATA									
Slurry Displacement				To Surface			Losses [m³]		
With <u> </u> Rig <u> </u> pumps				Mud Spacer Slurry	Density [kg/l]	pH	Dumped [m³]	During csg run	
Fluid type: <u>WBM</u>								Circulation	
Volume <u> </u> [m³]								Mix/Pump Slurry	
Density: <u>1.34</u> [kg/l]								Displacement	
Duration: <u> </u> [mins]								Opening DV	
Final pressure: <u> </u> [kg/cm²]							Circ. through DV		
							Total		
Circulation / Displacement / Squeeze									
Time [mins.]		Flow Rate	Pressure	Total Volume	Operation Description		Final Press.	Returns	
Partial	Progr.	[l/min]	[kg/cm²]	[l]			[kg/cm²]	Vol. [l]	
		1700	22	62000	Formpro				
		1700	18	15000	Pumped Spacer				
		800	55	23000	Pumped Lead				
		800	55	9500	Pumped Tail				
					Formpro				
Supervisor					Superintendent				
j. Jaffray									

3.5.5.5 7" Liner

		CEMENTING JOB REPORT				WELL NAME 7122/7-3			
		DATE: 06.01.2006		3.DRL.FO.04A		FIELD NAME GOLIATH			
Cost center									
Operation Purpose: Liner 7"									
Operation Type	Measured Depth Top [m] Bottom [m]		Vertical Depth Top [m] Bottom [m]		Casing Type	Ø [in]	Weight lb/ft	Stage [N°]	
Cementing	1493	2405	1493	2405	Intermediate	7"	29	1	
Plug					N°	Of:			
Squeeze					N°				
Well Situation	Ø [in]	Measured Depth Top [m] Bottom [m]		Vertical depth Top [m] Bottom [m]		Capacity [lt/m]	From log [y/n]	KOP [m] Max. Inclination [°] at m	
Open Hole	8 1/2"	1693.5	2420	1693.5	2420		n	2.94 2411	
Last Casing	9 5/8"	366.68	1693.5	366.68	1693.5			D.O.P. [m]	
Perforation Top [m] Bottom [m]		Gradient [Kg/cm²/10m]		Below shoe	Bottom hole	Pressure [kg/cm²]		B.H.S.T. [°C]	
		Pore Gradient		1.08	1.08	Fracture at bottom		at m	
		Fracture Gradient		1.8	2.1	Hydrostatic increase w/slurry		From log [y/n]	
		Abnormal [kg/cm²/10m] at m:				Annular Fracture Margin		After [hr]	
		Abnormal [kg/cm²/10m] at m:				Margin during W.O.C.		B.H.C.T. [°C]	
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]	Water loss [cc]	pH / ES	Cl- [g/l]	
WBM	1.34								
Fluid	Type	600	300	200	100	6	3	Density [kg/l]	
Lead								Vol.[m3]	
Tail								h annulus [m]	
Lead Slurry								Cont. Time [min]	
Tail Slurry								Mixing water Cl- [g/l]	
								Water Temperature [°C]	
1 st Slurry		Preparation		Duration	Pumping time		w/c	Cement	
Mixing Date & hour		Method		[min]	[min] at [°C]		ratio	Type	
21/12/2005 17:00		Batch						G	
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type G	
FP - 16L	200	L		R - 12L	179	L		Density 1.9 [kg/l]	
CD - 35L	103	L		BA-58L	2136	Kg		Quantity [ton]	
Illmenite	15900	Kg		FL-67L	342	Kg		Ratio	
2 nd Slurry		Preparation		Duration	Pumping time		w/c	Cement	
Mixing Date & hour		Method		[min]	[min] at [°C]		ratio	Type	
		Batch						G	
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type G	
		L						Density 1.9 [kg/l]	
		L						Quantity [ton]	
								Ratio	
Cementing Company Halliburton Baroid Operation Ticket N°									
Operation Results				Plug tested with [t]				Record (y / n)	
Theoretical TOC 1493 [m]				Plug milled at [m]				Volume Pression	
Actual TOC 1493 [m]				Plug removed [y / n]				Flow rate Density	
Remarks								Supervisor	
								Superintendent	



3.5.6 Mud Summary by Phase

Mud summary for the 23" x 36" hole section:

The section were drilled with seawater and havis sweeps made of pre-hydrated Bentonite with a concentration of 90 kg/m³ Bentonite and a FV>150 s. Pumped approximately 5 - 10 m³ high viscosity pills every 15 m drilled.

At TD the hole was cleaned by pumping 25 m³ high viscosity sweep and then displaced to a NaCl/Polymer system. The displacement fluid was 1.20sg NaCl brine with 5 kg/m³ Duotec NS and 2 kg/m³ Trol FL. At the end of the section, some extra havis was made with seawater and CMC EHV for use when grouting around the well head.

No solids control in use for this section.

The section was drilled with no drilling fluid related problems, and it is recommended to use the same systems and procedures in future wells in the area.

Mud summary for the 16" hole section:

The KMC Oiltools system had a blocked dump valve at the sand trap between shaker 2 and 3, so the seawater in returns had to be diverted to a separate pit when displacing. It was not allowed to open the master dump valve in case some of the other pits are leaking. Oiltools had to pump the seawater over board (25 – 30 m³/hour).

Displaced the well to 1.20 sg Formpro drilling fluid, with a 10 m³ havis Formpro spacer pumped in front. During displacement, a total of 17 m³ of contaminated inter-phase was diverted into a separate pit. When the inter-phase returned, the shakers over flowed with "gel-lumps". Heavy cement contaminated of the Formpro system was experienced when drilling through the cement. pH went up to 12.3 and polymers came over the shakers. Addition of Potassium Bicarbonate (625kg) and Formic Acid (600ltr) was done to treat the cement contamination. Drilling fluid density decreased due to solids had "dropped" out together with the polymers and high density Formpro was added to increase the drilling fluid weight back to 1.20 sg. Addition of Trol FL and Duovis Plus NS was needed to restore the drilling fluid properties after the contamination.

A LCM pill with a total concentration of 125 kg/m³, (Nutplug M/F, Mica M/F and MIX II, 25 kg/m³ of each), was mixed prior to the second attempt of the FIT test.

The drilling continued to TD with some stops due to problems with Oiltools' equipment for handling cuttings. Oiltools' main problem is the use of conveyers which mechanically are "crushing" the clay solids into a uniform and sticky consistence. The only way to solve this is using water. The amount of water created settling problems in the buffer tanks from where the cuttings are blown to the vessel. The Formpro system performed well with fine shaped and inhibited cuttings separated out at the shakers. An excellent rheology profile, typical 3 rpm = 8 - 12 and 600 rpm = 46 - 53 lb/100ft². The drilling fluid was kept inside specification except for the Ca⁺⁺ concentration, typical concentration around 1 000 mg/l while drilling. Added some Sodium Carbonate to "take out" Ca⁺⁺, recommend planning for use of Potassium Carbonate (ref. Operational Procedure Manual). Measuring density on the filtrate with the Triple beam balance and a 10 ml syringe was too rough to measure accurate density, recommend using pycnometer, (ref. M-I

Engineering Manual), and an electronic balance was used to determine brine density.

The totals of new screens used while drilling this interval were as follows:

Screen size	Quantity used		Screen size	Quantity used
230	6		165	5

The VSM 300 shakers performed well. At start, all five shakers were dressed with 20 mesh scalping screens and 84 mesh bottom screens (used). The bottom screens were changed out to a combination of 165, 200 and 210 mesh after finishing drilling the cement.

When drilling with an average ROP of 15 - 20 meters/hrs and a flow of 3 800 ltr/min, three shakers handled all the cuttings. The three shakers were dressed one with 200 TRSF and two with 230 TRSF bottom screens. At approximately 800 m the scalping screens was changed on three of the shakers to 40 mesh. This resulted in longer lasting bottom screens. The ROP was limited by Oiltool's equipment for cuttings handling.

Recommend using as fine scalping screens as possible to reduce the usage of bottom screens.

Mud summary for the 12 1/4" hole section:

Built 250 m³, 1.30 SG Formpro before starting this section, by mixing the 1.55 SG Kill fluid together with 1.20 SG and 1.26 SG Formpro from shore. The cement was drilled with the 1.20 SG Formpro from the previous section. The 1.20 SG drilling fluid was treated with 325 l Formic Acid and 1 350 kg Potassium Bicarbonate due to cement contamination. The 1.30 SG Formpro was displaced in just after the cement was drilled. A 10 m³ LCM pill was prepared using 1.30 SG mud and 120 kg/m³ G-Seal. This pill sealed off the hole during the "Hole Strengthening Test" after the Leak Off Test.

Before entering the "Realgrunnen reservoir" 20 kg/m³ G-Seal, 10 kg/m³ CaCO₃ medium and 10 kg/m³ CaCO₃ Coarse was added to the drilling fluid due to a very permeable and soft formation. These concentrations of LCM were maintained throughout this reservoir and to 1 400 m depth.

When drilling/coring the sand reservoirs in the Realgrunnen formation some tendency to foaming and aerations was observed. This caused some problems related to well control since volume in active was unstable. Before pulling out to cut core no#1, with a gas level of 18%, foam was observed at the shakers. The foam was coming off the end of the shakers the same way as cuttings come. This was discussed on the rig, but no conclusion could be drawn whether this was caused by the gas or by the additions of CaCO₃. Defoam AL was added to reduce the foaming. The defoamer helped, but the foaming and aeration continued throughout the reservoir.

While drilling cement, Formic Acid and Sodium Bicarbonate was added to lower PH.

The totals of new screens used while drilling this interval were as follows:

Screen size	Quantity used		Screen size	Quantity used
110	2		210	24
165	11		230	19

The VSM 300 Shakers generally performed well throughout this section and no special problems was seen.

Drilled / cored the Realgrunnen sand reservoir with 20/40 mesh over 165 mesh on 3 shakers and 210/230 mesh on the other 2 shakers with most of the flow going across the 165 mesh screens. The 165 mesh screens were used to maintain the level of added LCM through this section. According to the FSR# 50 18 X 210 and 4 X165 mesh screens are charged off on the 8 1/2" section, but these screens have been used on the 12 1/4" section.

As a new formation type was reached at 1400 m the screens were changed back to 210 and 230 mesh since it was no longer required to maintain the level of LCM.

Recommend using as fine scalping screens as possible to reduce the usage of bottom screens. Adding Defoam AL with premix instead of directly into the active system is more efficient to reduce foaming.

Mud summary for the 8 1/2" hole section:

To combat cement contamination while drilling out the shoe, Sodium Bicarbonate, Citric Acid and Formic Acid was added to the active drilling system. After drilling 5 m of new formation, the well was displaced to all new built 1.51 sg Formpro drilling fluid made from brine.

The drilling was slow and when experiencing formation losses it was decided to displace back to 1.34 sg Formpro used in the previous interval. From about 1 850 m the density was increased slowly using 1.47 sg and 1.50 sg fluids (were not allowed to use Illminite as far as possible due to logging).

At 2 049 m the hole was displaced back to 1.51 sg. At 2 196 m some moderate formation losses was experienced and some G-Seal and CaCO₃ Medium/Fine was added to the active system to increase the bridging properties of the fluid. A 150 kg/m³ LCM pill was also mixed up, but never pumped into the well. It was decided after a while to stop adding G-Seal because it was thought that it influenced the analysis of the cuttings samples done by the geologist. The addition of CaCO₃ Fine and Medium was continued towards TD. Lost to the formation at the following rates; 1 850 l/min lost ~10 m³/hour, 1 600 l/min ~2.7 m³/hour, 1 550 l/min no losses.

When drilled to TD, a wiper trip to the shoe was done and after circulating bottoms up when back on TD, the string was pulled out of the hole. Also this time, high amount of air in the drilling fluid was experienced when circulating bottoms up after the wiper trip. Air in the drilling fluid was also seen when circulating bottoms up on the clean up run after the wire line logging. The air/foam in the drilling fluid was treated with addition of defoamer, Defoam AL.

The totals of new screens used while drilling this interval were as follows:

Screen size	Quantity used		Screen size	Quantity used
20	4		210	25
60	3		230	1
165	4		250	9

At start of the interval the same screen configuration as for the 12 1/4" section was used. At 2 100 m an increase in sand content (maximum 0.75%) was seen and the scalping screens was changed from 20 mesh to a combination of 40 and 60 mesh. Also changed over to 250 mesh on one of the shakers whilst the rest of the shakers were dressed with 210 and 230 mesh. At TD the sand content was reduced to 0.5%.

Recommend using as fine scalping screens as possible to reduce the usage of bottom screens.

Mud summary for the 6" hole section:

This section was drilling with the same drilling fluid as used on last section. Cement contamination was treated with addition of Formic Acid and Sodium Bicarbonate. Also addition of Sodium Bicarbonate and Soda Ash was done to lower the Ca^{++} content in the drilling fluid. As on sections above foaming/aeration caused problems with pump suctions and addition of Defoam AL was added to reduce this problem.

Some Calcium Carbonate bridging material was added throughout this section to maintain concentrations for optimum bridging while drilling the sand reservoir.

The totals of new screens used while drilling this interval were as follows:

Screen size	Quantity used		Screen size	Quantity used
210	5			

The same shaker screen configuration was used in this interval as used in the 8 1/2" interval.

Recommend using as fine scalping screens as possible to reduce the usage of bottom screens.

Be aware of possible aeration/foaming. This causes problems for pumps and may also give well control problems. The usage of defoamer may be higher than planned. On this well usage of defoamer was very close to maximum amount applied for to the environmental department. Consider applying for a higher amount on future wells.

Mud summary for the P&A operations:

Started the P&A operations with 1.54 sg Formpro from previous section. The active system was pre-treated with Citric Acid, Potassium Bicarbonate and Sodium Bicarbonate prior to the cement jobs and more of the same chemicals were added to treat out cement contamination after each cement jobs.

Isolated 13 m³ cement contaminated drilling fluid on surface when circulating bottom up above cement plug #2 at 1233 m, due to over displacement when performing cement job.

The well was displaced to 1.25 sg Formpro drilling fluid from 750 m inside the 13 3/8" casing, after cutting the 9 5/8" casing.



DRILLING FLUID PROPERTIES



Eni Norge

OPERATOR: ENI Norge

WELL: 7122/7-3

RIG: Eirik Raude

FSR no.	Date	Depth m	MW SG	T °C	FV s	VG-meter readings @ 50C						AV	PV cP	YP Pa	Gel 10 sec Pa	Gel 10 min Pa	API mls	pH	Pf	Cl- mg/l	Solids corr %	MBT kg/m³	Sand %	KCOOH kg/m³	K+ mg/l
						600	300	200	100	6	3														
						lb/100ft²																			
12 1/4" SECTION FORMPRO																									
24																									
25	16.nov.05	1083	1.3	15	65	51	37	32	25	11	9	25.5	14	11.5	5.5	8	4.3	9.1	0.3	7000	25	21	0.1	434	202000
26	17.nov.05	1086	1.3	16	68	52	39	33	25	11	9	26	13	13	5.5	8	4.2	9.0	0.3	7000	25	21	0.1	430	200000
27	18.nov.05	1104	1.3	15	64	49	38	28	22	10	8	24.5	11	13.5	4.5	8	4.1	9.1	0.3	7000	25	14	0.1	434	202000
28	19.nov.05	1156	1.3	16	60	48	37	31	24	10	8	24	11	13	5	8	4.7	9.1	0.2	7000	25	14	0.2	426	198000
29	20.nov.05	1046	1.3	19	60	46	34	28	22	10	8	23	12	11	5	8	4.6	9.0	0.2	7000	25	14	0.15	426	198000
30	21.nov.05	1156	1.3	18	52	47	35		22	10	8	23.5	12	11.5	5	8	4.7	9.0	0.2	7000	25	14	0.15	426	198000
31	22.nov.05	1170	1.3	18	52	47	35	28	22	10	8	23.5	12	11.5	5	8	5.5	8.9	0.2	7000	28	14	0.15	387	180000
32	23.nov.05	1192	1.3	18	52	47	35	28	22	10	8	23.5	12	11.5	5	8	5.5	8.9	0.2	7000	28	14	0.15	387	180000
33	24.nov.05	1712	1.34	22	63	58	43	36	28	11	9	29	15	14	5.5	12	5.3	8.5	0.1	5000	28.5	14	0.15	432	201000
34	25.nov.05	1712	1.34	12	63	57	43	35	28	11	9	28.5	14	14.5	5.5	12	5.3	8.7	0.1	5000	28.5	14	0.1	432	201000
35	26.nov.05	1712	1.34	10	63	57	43	35	28	11	9	28.5	14	14.5	5.5	10	5.3	8.7	0.1	5000	28.5	14	0.1	432	201000
36	27.nov.05	1712	1.34	10	63	57	43	35	28	11	9	28.5	14	14.5	5.5	10	5.3	8.7	0.1	5000	28.5	14	0.1	432	201000
37	28.nov.05	1712	1.34	10	63	57	43	35	28	11	9	28.5	14	14.5	5.5	10	5.3	8.7	0.1	5000	28.5	14	0.1	432	201000
38	29.nov.05	1712	1.34	10	63	57	43	35	28	11	9	28.5	14	14.5	5.5	10	5.3	8.7	0.1	5000	28.5	14	0.1	432	201000
39	30.nov.05	1712	1.34	10	63	53	40	34	26	11	9	26.5	13	13.5	5	9.5	5.3	8.8	0.1	5000	28.5	14	0.1	432	201000
40	01-des-05	1712	1.34	10	63	53	40	34	26	11	9	26.5	13	13.5	5	9.5	5.3	8.8	0.1	5000	28.5	14	0.1	432	201000
41	02-des-05	1712	1.34	10	63	53	40	34	26	11	9	26.5	13	13.5	5	9.5	5.3	8.8	0.1	5000	28.5	14	0.1	432	201000
42	03-des-05	1712	1.34	10	63	53	39	33	25	10	8	26.5	14	12.5	5	10	5.3	8.8	0.1	5000	28.5	14	0.1	432	201000
43	04-des-05	1712	1.34	10	63	53	39	33	25	10	8	26.5	14	12.5	5	10	5.3	8.8	0.1	5000	28.5	14	0.1	432	201000
44	05-des-05	1712	1.34	10	63	52	38	32	24	11	9	26	14	12	5	10	5.3	8.9	0.1	5000	28.5	14	0.1	432	201000
Minimum			1.30	10	52	46	34	28	22	10	8	23	11	11	5	8	4	6.9	0.1	5000	25	14	0.1	387	180000
Maximum			1.34	22	68	58	43	36	28	11	9	29	15	15	6	12	6	9.1	0.3	7000	29	21	0.2	434	202000
Average			1.32	13.5	61	52	39	33	25	11	9	26.2	13.2	13.0	5.2	9.3	5.1	8.7	0.2	5800	27.4	15	0.1	427	198500



DRILLING FLUID PROPERTIES



OPERATOR: ENI Norge

WELL: 7122/7-3

RIG: Eirik Raude

FSR no.	Date	Depth m	MW SG	T °C	FV s	VG-meter readings @ 50C						AV	PV cP	YP Pa	Gel 10 sec Pa	Gel 10 min Pa	API mls	pH	Pf	Cl- mg/l	Solids corr %	MBT kg/m³	Sand %	KCOOH kg/m³	K+ mg/l	
						600	300	200	100	6	3															
						lb/100ft²																				
8 1/2" SECTION FORMPRO																										
45	06-des-05	1722	1.54	16	96	87	57	45	31	9	8	43.5	30	13.5	4	6	2.4	10.2	0.2	10000	51	12	0.25	268.9	125000	
46	07-des-05	1806	1.34	16	51	50	36	31	23	10	8	25	14	11	4.5	9	4.8	9.3	0.2	7000	29	14	0.25	454	212000	
47	08-des-05	1816	1.36	16	56	51	37	31	23	9	7	25.5	14	11.5	4	9	4.8	9.9	0.2	7000	29	14	0.25	454	212000	
48	09-des-05	1824	1.38	16	51	52	38	31	23	10	8	26	14	12	5	9	5.6	9.3	0.2	12000	29	14	0.25	454	212000	
49	10-des-05	1837	1.36	16	56	52	38	31	23	10	8	26	14	12	5	9	5.6	9.3	0.2	12000	29	14	0.25	454	212000	
50	11-des-05	2029	1.41	18	51	52	37	32	23	9	7	26	15	11	4	9	5.4	9.2	0.2	7000	29	14	0.25	546	264000	
51	12-des-05	2070	1.52	15	70	61	40	33	23	8	5	30.5	21	9.5	3	5	2.2	9.8	0.2	5000	48	14	0.5	948	441000	
52	13-des-05	2420	1.54	18	61	65	43	35	24	7	5	32.5	22	10.5	3.5	6	2.4	9.8	0.2	5000	49	14	0.4	948	441000	
53	14-des-05	2420	1.54	15	65	67	45	37	25	7	5	33.5	22	11.5	3.5	6	2.4	9.8	0.2	5000	49	14	0.4	948	441000	
54	15-des-05	2420	1.54	15	68	68	46	38	25	7	5	34	22	12	4	6	2.5	9.8	0.2	5000	49	14	0.3	950	440000	
55	16-des-05	2420	1.54	15	65	67	45	37	25	7	5	33.5	22	11.5	3.5	6	2.4	9.8	0.2	5000	49	14	0.4	948	441000	
56	17-des-05	2420	1.54	15	68	68	46	38	25	7	5	34	22	12	4	6	2.5	9.8	0.2	5000	49	14	0.3	950	440000	
57	18-des-05	2420	1.54	15	65	67	45	37	25	7	5	33.5	22	11.5	3.5	6	2.4	9.8	0.2	5000	49	14	0.4	948	441000	
58	19-des-05	2420	1.54	15	125	82	41	33	21	6	5	31	21	10	3	5	2.6	9.8	0.2	5000	49	14	0.2	952	443000	
59	20-des-05	2420	1.54	15	66	63	42	34	21	7	5	31.5	21	10.5	4	5	2.4	9.8	0.2	5500	49	14	0.2	952	443000	
Minimum			1.34	15	51	50	36	31	21	6	5	25	14	10	3	5	2	8.9	0.2	5000	29	12	0.2	269	125000	
Maximum			1.54	18	125	87	57	45	31	10	8	44	30	14	5	9	6	10.2	0.2	12000	51	14	0.5	952	443000	
Average			1.48	15.7	68	62	42	35	24	8	6	31.1	19.7	11.3	3.9	6.8	3.4	9.6	0.2	6700	42.4	14	0.3	745	346533	



DRILLING FLUID PROPERTIES



OPERATOR: ENI Norge
WELL: 7122/7-3
RIG: Eirik Raude

FSR no.	Date	Depth	MW	T	FV	VG-meter readings @ 50C						AV	PV	YP	Gel 10 sec	Gel 10 min	API	pH	Pf	Cl-	Solids corr	MBT	Sand	KCOOH	K+	
						600	300	200	100	6	3															
						lb/100ft²																				
6" SECTION FORMPRO																										
60	21-des-05	2420	1.54	15	64	53	35	29	20	6	5	26.5	18	8.5	3	5	4.4	10.1	0.2	6000	49	14	0.15	924	430000	
61	22-des-05	2420	1.54	15	56	51	35	28	20	5	4	25.5	16	9.5	3	4.5	4.3	9.7	0.2	5500	49	14	0.15	924	430000	
62	23-des-05	2440	1.54	16	80	76	53	44	32	11	8	38	23	15	5	10	4.2	9.7	0.2	500	47	14	0.25	753	350000	
63	24-des-05	2458	1.53	15	69	71	50	41	29	10	8	35.5	21	14.5	4.5	8.5	4.2	9.7	0.2	5500	48.5	14	0.25	731	340000	
64	25-des-05	2519	1.54	17	73	64	44	36	26	9	7	32	20	12	4	7	4.6	9.7	0.2	5000	46	14	0.25	731	340000	
65	26-des-05	2521	1.54	16	68	63	43	35	26	9	7	31.5	20	11.5	4	7	4.5	9.6	0.2	5000	46	14	0.25	722	336000	
66	27-des-05	2440	1.55	15	68	60	43	35	25	9	7	30	17	13	4	7	4.8	9.6	0.2	5000	45	14	0.1	720	335000	
67	28-des-05	2719	1.54	14	63	61	42	35	25	8	6	30.5	19	11.5	4	6	4.9	9.5	0.2	5000	45	14	0.2	667	310000	
68	29-des-05	2726	1.54	14	63	61	42	35	25	8	6	30.5	19	11.5	4	6	4.9	9.5	0.2	5000	45	14	0.2	667	310000	
69	30-des-05	2726	1.54	10	63	61	42	35	25	8	6	30.5	19	11.5	4	6	4.9	9.5	0.2	5000	45	14	0.2	667	310000	
70	31-des-05	2726	1.54	10	63	61	42	35	25	8	6	30.5	19	11.5	4	6	4.9	9.5	0.2	5000	45	14	0.2	667	310000	
71	01-Jan-06	2726	1.54	10	63	61	42	35	25	8	6	30.5	19	11.5	4	6	4.9	9.4	0.2	5000	45	14	0.2	667	310000	
72	02-Jan-06	2726	1.54	10	63	61	42	35	25	8	6	30.5	19	11.5	4	6	4.9	9.4	0.2	5000	45	14	0.2	667	310000	
73	03-Jan-06	2726	1.54	10	63	61	42	35	25	8	6	30.5	19	11.5	4	6	4.9	9.4	0.2	5000	45	14	0.2	667	310000	
74	04-Jan-06	2726	1.54	10	63	61	42	35	25	8	6	30.5	19	11.5	4	6	4.9	9.4	0.2	5000	45	14	0.2	667	310000	
Minimum			1.53	10	56	51	35	28	20	5	4	26	16	9	3	5	4	9.4	0.2	500	45	14	0.1	667	310000	
Maximum			1.55	17	80	76	53	44	32	11	8	38	23	15	5	10	5	10.1	0.2	6000	49	14	0.3	924	430000	
Average			1.54	13.1	65	62	43	35	25	8	6	30.9	19.1	11.7	4.0	6.5	4.7	9.6	0.2	4833	45.9	14	0.2	723	336067	

3.5.8 Deviation Summary

Note: Datum is 25 m above MSL (water depth = 343 m). Well spudded 1.83 m in direction 277.3 deg true north of intended location.

Survey extrapolated to TD:

TMD: 2726m, Angle: 4.46 deg, Azimuth: 69.28 deg, TVD: 2724.81 m, N/-S: 24.18 m, E/-W: 12.45 m.

Deviation Summary

Legal Well Name:	7122/7-3	Spud Date:		S/T #	V.S. AZI (°)
Common Well Name:	7122/7-3	Start:	10/19/2005	OH	0.00
Event Name:	ORIG DRILLING	End:			
Contractor Name:	OCEAN RIG	Rig Release:			
Rig Name:	EIRIK RAUDE	Rig Number:			
TMD: 2,710.04 (m)	TVD: 2,708.90 (m)	Calculation Method:	Minimum Curvature		

S/T #	TMD (m)	Angle (°)	Azimuth (°)	CTM	TVD (m)	N/-S (m)	E/-W (m)	Section (m)	DLS (°/30m)	BUR (°/30m)	Type
OH	0.00	0.000	0.00	NYN	0.00	0.00	0.00	0.00	0.00	0.00	
OH	368.00	0.000	0.00	YNN	368.00	0.00	0.00	0.00	0.00	0.00	INC
OH	396.00	1.300	0.00	YNN	396.00	0.32	0.00	0.32	1.39	1.39	INC
OH	420.00	1.300	0.00	YNN	419.99	0.86	0.00	0.86	0.00	0.00	INC
OH	448.00	0.970	0.00	YNN	447.99	1.42	0.00	1.42	0.35	-0.35	INC
OH	474.00	0.750	0.00	YNN	473.98	1.81	0.00	1.81	0.25	-0.25	INC
OH	496.00	0.630	0.00	YNN	495.98	2.07	0.00	2.07	0.16	-0.16	INC
OH	526.00	0.680	0.00	YNN	525.98	2.41	0.00	2.41	0.05	0.05	INC
OH	560.40	0.720	313.68	YNN	560.38	2.77	-0.16	2.77	0.48	0.03	MWD
OH	587.50	0.180	3.31	YNN	587.48	2.93	-0.28	2.93	0.69	-0.60	MWD
OH	617.50	0.150	57.10	YNN	617.48	3.00	-0.24	3.00	0.15	-0.03	MWD
OH	643.70	0.170	51.08	YNN	643.68	3.04	-0.18	3.04	0.03	0.02	MWD
OH	676.80	0.370	67.54	YNN	676.78	3.11	-0.05	3.11	0.19	0.18	MWD
OH	701.60	0.200	31.99	YNN	701.58	3.18	0.05	3.18	0.29	-0.21	MWD
OH	730.50	0.330	150.05	YNN	730.48	3.15	0.12	3.15	0.48	0.13	MWD
OH	760.10	0.300	131.10	YNN	760.07	3.02	0.22	3.02	0.11	-0.03	MWD
OH	788.80	0.250	142.52	YNN	788.77	2.93	0.32	2.93	0.08	-0.05	MWD
OH	817.80	0.310	100.60	YNN	817.77	2.86	0.43	2.86	0.22	0.06	MWD
OH	847.30	0.310	85.18	YNN	847.27	2.85	0.59	2.85	0.08	0.00	MWD
OH	877.60	0.340	90.91	YNN	877.57	2.86	0.76	2.86	0.04	0.03	MWD
OH	904.10	0.310	62.04	YNN	904.07	2.89	0.90	2.89	0.19	-0.03	MWD
OH	932.70	0.180	320.45	YNN	932.67	2.96	0.94	2.96	0.41	-0.14	MWD
OH	962.00	0.300	225.09	YNN	961.97	2.94	0.86	2.94	0.37	0.12	MWD
OH	979.50	0.200	228.04	YNN	979.47	2.89	0.80	2.89	0.17	-0.17	MWD
OH	1,022.00	0.270	239.68	YNN	1,021.97	2.79	0.66	2.79	0.06	0.05	MWD
OH	1,050.20	0.450	219.03	YNN	1,050.17	2.67	0.53	2.67	0.23	0.19	MWD
OH	1,074.90	0.590	248.48	YNN	1,074.87	2.55	0.36	2.55	0.36	0.17	MWD
OH	1,098.00	0.780	263.28	YNN	1,097.97	2.49	0.09	2.49	0.34	0.25	MWD

Deviation Summary

Legal Well Name:		7122/7-3		Spud Date:				S/T #		V.S. AZI (°)	
Common Well Name:		7122/7-3		Start:		10/19/2005		OH		0.00	
Event Name:		ORIG DRILLING		End:							
Contractor Name:		OCEAN RIG		Rig Release:							
Rig Name:		EIRIK RAUDE		Rig Number:							
TMD: 2,710.04 (m)		TVD: 2,708.90 (m)		Calculation Method: Minimum Curvature							
S/T #	TMD (m)	Angle (°)	Azimuth (°)	CTM	TVD (m)	N/-S (m)	E/-W (m)	Section (m)	DLS (°/30m)	BUR (°/30m)	Type
OH	1,125.10	1.020	257.17	YNN	1,125.07	2.41	-0.33	2.41	0.29	0.27	MWD
OH	1,162.70	1.210	252.11	YNN	1,162.66	2.22	-1.03	2.22	0.17	0.15	MWD
OH	1,191.60	1.380	250.60	YNN	1,191.55	2.01	-1.65	2.01	0.18	0.18	MWD
OH	1,221.80	1.400	248.32	YNN	1,221.74	1.75	-2.34	1.75	0.06	0.02	MWD
OH	1,250.50	1.340	246.42	YNN	1,250.43	1.48	-2.97	1.48	0.08	-0.06	MWD
OH	1,307.10	1.120	243.61	YNN	1,307.02	0.97	-4.07	0.97	0.12	-0.12	MWD
OH	1,366.20	0.990	236.65	YNN	1,366.11	0.44	-5.02	0.44	0.09	-0.07	MWD
OH	1,393.10	0.940	238.79	YNN	1,393.01	0.19	-5.40	0.19	0.07	-0.06	MWD
OH	1,421.80	0.830	236.45	YNN	1,421.70	-0.04	-5.77	-0.04	0.12	-0.11	MWD
OH	1,452.40	0.820	238.22	YNN	1,452.30	-0.28	-6.15	-0.28	0.03	-0.01	MWD
OH	1,479.70	0.880	242.17	YNN	1,479.60	-0.48	-6.50	-0.48	0.09	0.07	MWD
OH	1,509.60	0.850	243.10	YNN	1,509.49	-0.69	-6.90	-0.69	0.03	-0.03	MWD
OH	1,538.80	0.760	244.00	YNN	1,538.69	-0.87	-7.27	-0.87	0.09	-0.09	MWD
OH	1,566.90	0.840	249.46	YNN	1,566.79	-1.02	-7.63	-1.02	0.12	0.09	MWD
OH	1,595.70	0.830	254.23	YNN	1,595.59	-1.16	-8.02	-1.16	0.07	-0.01	MWD
OH	1,625.10	0.800	261.58	YNN	1,624.98	-1.24	-8.43	-1.24	0.11	-0.03	MWD
OH	1,651.70	0.710	266.33	YNN	1,651.58	-1.28	-8.78	-1.28	0.12	-0.10	MWD
OH	1,681.30	0.680	269.44	YNN	1,681.18	-1.29	-9.14	-1.29	0.05	-0.03	MWD
OH	1,703.20	0.630	267.85	YNN	1,703.08	-1.30	-9.39	-1.30	0.07	-0.07	MWD
OH	1,725.00	0.450	288.84	YNN	1,724.88	-1.28	-9.59	-1.28	0.36	-0.25	MWD
OH	1,756.80	0.450	295.35	YNN	1,756.67	-1.18	-9.82	-1.18	0.05	0.00	MWD
OH	1,782.90	0.480	305.40	YNN	1,782.77	-1.08	-10.00	-1.08	0.10	0.03	MWD
OH	1,802.80	0.530	310.67	YNN	1,802.67	-0.97	-10.14	-0.97	0.10	0.08	MWD
OH	1,812.90	0.450	312.90	YNN	1,812.77	-0.91	-10.20	-0.91	0.24	-0.24	MWD
OH	1,842.30	0.410	312.34	YNN	1,842.17	-0.76	-10.37	-0.76	0.04	-0.04	MWD
OH	1,867.50	0.510	316.82	YNN	1,867.37	-0.62	-10.51	-0.62	0.13	0.12	MWD
OH	1,898.50	0.570	322.88	YNN	1,898.37	-0.40	-10.70	-0.40	0.08	0.06	MWD
OH	1,924.50	0.500	326.14	YNN	1,924.37	-0.20	-10.84	-0.20	0.09	-0.08	MWD

Printed: 1/13/2006 1:13:13 PM

Deviation Summary

Legal Well Name:	7122/7-3	Spud Date:		S/T #	V.S. AZI (°)
Common Well Name:	7122/7-3	Start:	10/19/2005	OH	0.00
Event Name:	ORIG DRILLING	End:			
Contractor Name:	OCEAN RIG	Rig Release:			
Rig Name:	EIRIK RAUDE	Rig Number:			
TMD: 2,710.04 (m)	TVD: 2,708.90 (m)	Calculation Method: Minimum Curvature			

S/T #	TMD (m)	Angle (°)	Azimuth (°)	CTM	TVD (m)	N-S (m)	E-W (m)	Section (m)	DLS (°/30m)	BUR (°/30m)	Type
OH	1,956.20	0.510	336.21	YNN	1,956.07	0.05	-10.97	0.05	0.08	0.01	MWD
OH	1,987.20	0.650	0.51	YNN	1,987.07	0.35	-11.03	0.35	0.27	0.14	MWD
OH	2,016.10	0.870	6.18	YNN	2,015.96	0.73	-11.00	0.73	0.24	0.23	MWD
OH	2,041.80	0.940	16.02	YNN	2,041.66	1.13	-10.92	1.13	0.20	0.08	MWD
OH	2,068.60	1.190	18.41	YNN	2,068.45	1.60	-10.77	1.60	0.28	0.28	MWD
OH	2,098.40	1.420	19.87	YNN	2,098.25	2.24	-10.55	2.24	0.23	0.23	MWD
OH	2,127.50	1.480	18.68	YNN	2,127.34	2.94	-10.31	2.94	0.07	0.06	MWD
OH	2,155.50	1.430	11.84	YNN	2,155.33	3.62	-10.12	3.62	0.19	-0.05	MWD
OH	2,187.10	1.490	13.59	YNN	2,186.92	4.41	-9.94	4.41	0.07	0.06	MWD
OH	2,214.40	1.660	8.34	YNN	2,214.21	5.14	-9.80	5.14	0.24	0.19	MWD
OH	2,244.60	1.800	10.44	YNN	2,244.39	6.04	-9.65	6.04	0.15	0.14	MWD
OH	2,331.50	2.340	24.11	YNN	2,331.24	9.00	-8.68	9.00	0.25	0.19	MWD
OH	2,361.50	2.420	31.02	YNN	2,361.21	10.11	-8.10	10.11	0.30	0.08	MWD
OH	2,389.20	2.690	35.21	YNN	2,388.88	11.14	-7.43	11.14	0.36	0.29	MWD
OH	2,411.10	2.940	38.11	YNN	2,410.76	12.00	-6.79	12.00	0.39	0.34	MWD
OH	2,426.41	3.380	41.96	YNN	2,426.04	12.65	-6.24	12.65	0.96	0.86	MWD
OH	2,479.27	3.820	48.59	YNN	2,478.80	14.97	-3.88	14.97	0.34	0.25	MWD
OH	2,508.32	4.060	55.28	YNN	2,507.78	16.19	-2.31	16.19	0.54	0.25	MWD
OH	2,532.12	4.440	61.18	YNN	2,531.52	17.12	-0.81	17.12	0.73	0.48	MWD
OH	2,598.74	4.720	59.87	YNN	2,597.92	19.74	3.82	19.74	0.13	0.13	MWD
OH	2,624.18	4.500	58.72	YNN	2,623.28	20.78	5.58	20.78	0.28	-0.26	MWD
OH	2,653.01	4.360	61.21	YNN	2,652.03	21.90	7.51	21.90	0.25	-0.15	MWD
OH	2,682.03	4.060	62.53	YNN	2,680.97	22.90	9.38	22.90	0.33	-0.31	MWD
OH	2,710.04	4.460	69.28	YNN	2,708.90	23.74	11.28	23.74	0.69	0.43	MWD

Printed: 1/13/2006 1:13:13 PM

3.6 PLUGGING AND ABANDONMENT OF THE WELL

3.6.1 Objectives

The plugging and abandonment program has the following objectives:

- 1) Isolate the permeable zones with cement plugs to permanently prevent the flow of gas or other formation fluids.
- 2) Isolate the casing annuli; 30" x 20", 20" x 13 3/8", 13 3/8" x 9 5/8" and 9 5/8" x 7". Then remove casings a minimum of 5 m below the mud line.
- 3) To ensure that there will be no obstructions of any kind remaining on the seabed at the location site which may cause damage or impediment to fishing, shipping or other activities.

3.6.2 Plugging program

Plug #1 will be a cement plug isolating the open hole interval: 2726 m (planned well TD) – 2300 m. The plug will be set in several stages as a continuous cement plug. (No longer than 200m interval).

The plug will be tagged and pressure tested.

Plug #2 will be a balanced cement plug set across the liner hanger from 1800 m (approx. 100 m below the hanger) to 1600 m.

The plug will be tagged and pressure tested.

The 9 5/8" casing will then be cut at 900 m. Use the CBL log to determine the best place to cut the casing.

A 13 3/8" bridge plug will be set at 890 m.

Plug #3 will be a balanced cement plug, dumped on top of the 13 3/8" bridge plug, from 890 m to 840 m.

The plug will be tagged and pressure tested.

The 13 3/8" casing will then be cut at 500 m.

Plug #4 will be a balanced cement plug set from 750 m to 400 m. The bottom of the plug is set at 750 m in order to cover the uncemented part of the 13 3/8" casing enabling two barriers as per Norsok D-010.

The plug will be tagged and pressure tested.

BOP-stack will then be pulled.

The 30" conductor together with the 20" casing will be cut at 374 m (6 m below seabed).

A seabed survey will be conducted at the conclusion of the well operations.

3.6.3 Actual plugging and abandonment of the well

Well 7122/7-3 was permanently plugged and abandoned as follows:

Plug #1: Plug set in two stages and cemented from 2726 m to 2241 m. The entire 6" open hole section and 164 m into 7" liner was filled with cement. This plug was tagged with 10 ton and pressure tested to 192 bar with 1.54 sg mud in the hole.

Plug #2: Cemented across 7" liner hanger. Bottom of cement plug set at 1585 m and top located at 1379 m, which is 101 m above liner top. This plug was tagged with 10 ton and pressure tested to 143 bar with 1.54 sg mud in the hole.

9 5/8" casing was cut at 904 m and retrieved.

13 3/8" bridge plug set at 894 m and pressure tested to 149 bar with 1.54 sg mud in the hole.

Plug #3: A 50m cement plug was placed on top of retainer and set from 890 m to 840 m.

13 3/8" casing was cut at 494 m and retrieved.

Plug #4: This plug was set in two stages. First stage cemented from 750 m to 500 m inside the 13 3/8" casing and the second stage cemented from 750 to 422 m. This plug was tagged with 10 ton and pressure tested to 149 bar with 1.25 sg mud in the hole. Losses were observed during cementing and top of cement was found lower than expected. The cement slurry was changed to gas tight slurry.

Retrieved riser and BOP.

20" surface casing x 30" conductor were cut at 373 m and retrieved.

Plug #5: This cement plug was set in addition to the planned cement plugs to fill up the hole. Plug set from 412 m to seafloor at 368 m.

Seabed survey conducted with the ROV.

3.6.3.1 Cement Plug no. 1

 Eni Norge		CEMENTING JOB REPORT				WELL NAME 7122/7-3					
		DATE: 1/1/2006		3.DRL.FO.04A		FIELD NAME GOLIAT					
Cost center _____											
Operation Purpose: _____ P&A											
Operation Type	Measured Depth		Vertical Depth		Casing Type		Ø	Weight	Stage		
	Top [m]	Bottom [m]	Top [m]	Bottom [m]			[in]	lb/ft	[N°]		
Cementing											
Plug	2241	2726	2241	2726	N° 1	Of:	5				
Squeeze					N°						
Well Situation	Ø	Measured Depth		Vertical depth		Capacity	From log	KOP	[m]		
	[in]	Top [m]	Bottom [m]	Top [m]	Bottom [m]	[lt/m]	[y/n]	Max. Inclination [°]	4.4		
Open Hole	6"	2405	2726	2405	2726		n	at m	2710		
Last Casing	7"	1493	2405	1493	2405			D.O.P.	[m]		
Perforation		Gradient [Kg/cm ² /10m]		Below shoe	Bottom hole	Pressure [kg/cm ²]		B.H.S.T. [°C]			
Top [m]	Bottom [m]	Pore Gradient	1.08	1.08	Fracture at bottom		at m				
		Fracture Gradient	2.1	2.2	Hydrostatic increase w/slurry		From log [y/n]				
		Abnormal [kg/cm ² /10m] _____ at m: _____			Annular Fracture Margin		After [hr]				
		Abnormal [kg/cm ² /10m] _____ at m: _____			Margin during W.O.C.		B.H.C.T. [°C]				
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P. (Pa)	Gel 10"/10'[Pa]	Water loss [cc]	pH / ES	Cl- [g/l]			
WBM	1.55										
Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry										Mixing water Cl- [g/l]	
Tail Slurry								1.9	8.3	Water Temperature [°C]	
1 st Slurry		Preparation			Duration	Pumping time		w/c	Cement	Quantity	
Mixing Date & hour		Method			[min]	[min]	at [°C]	ratio	Type	[t]	
01/01/2006 05:30AM									G		
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type _____			
FP - 16L	10	L		BA 58L	1068	L		Density _____ [kg/l]			
CD- 35L	56	L		FL-67LE	245	L		Quantity _____ [ton]			
R-12L	66	L						Ratio _____			
2 nd Slurry		Preparation			Duration	Pumping time		w/c	Cement	Quantity	
Mixing Date & hour		Method			[min]	[min]	at [°C]	ratio	Type	[t]	
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type _____			
								Density _____ [kg/l]			
								Quantity _____ [ton]			
								Ratio _____			
Cementing Company _____ Operation Ticket N° _____											
Operation Results				Plug tested with _____ [t]				Record (y / n)			
Theoretical TOC 2284 [m]				Plug milled at _____ [m]				Volume _____ Pression _____			
Actual TOC 2241 [m]				Plug removed [y / n] _____				Flow rate _____ Density _____			
Remarks _____ _____ _____ _____ _____								Supervisor			
								Superintendent			

Page 162 of 179

3.6.3.2 Cement Plug no. 2

		CEMENTING JOB REPORT				WELL NAME 7122/7-3	
		DATE: 2/1/2006		3.DRL.FO.04A		FIELD NAME GOLIAT	
Cost center _____							
Operation Purpose: P&A							
Operation Type	Measured Depth Top [m] Bottom [m]		Vertical Depth Top [m] Bottom [m]		Casing Type		Ø [in]
Cementing							
Plug	1379	1585	1379	1585	N° 2	Of:	5
Squeeze					N°		
Well Situation	Ø [in]	Measured Depth Top [m] Bottom [m]		Vertical depth Top [m] Bottom [m]		Capacity [lt/m]	From log [y/n]
Open Hole	6"	2405	2726	2405	2726		n
Last Casing	7"	1493	2405	1493	2405		
							KOP [m] _____
							Max. Inclination [°] 4.4
							at m 2710
							D.O.P. [m] _____
Perforation		Gradient [Kg/cm ² /10m]		Below shoe	Bottom hole	Pressure [kg/cm ²]	
Top [m]	Bottom [m]	Pore Gradient				Fracture at bottom _____	
		Fracture Gradient				Hydrostatic increase w/slurry _____	
		Abnormal [kg/cm ² /10m] _____ at m: _____				Annular Fracture Margin _____	
		Abnormal [kg/cm ² /10m] _____ at m: _____				Margin during W.O.C. _____	
						B.H.S.T. [°C] 48	
						at m _____	
						From log [y/n] _____	
						After [hr] _____	
						B.H.C.T. [°C] 39	
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P. (Pa)	Gel 10"/10'[Pa]	Water loss [cc]	pH / ES
WBM	1.54						
Fluid	Type	600	300	200	100	6	3
Lead							
Tail							
Lead Slurry							
Tail Slurry						1.9	5.5
						Mixing water Cl- _____ [g/l]	
						Water Temperature _____ [°C]	
1 st Slurry		Preparation		Duration	Pumping time	w/c	Cement
Mixing Date & hour		Method		[min]	[min]	at [°C]	Type
1/2/2006 6:30							G
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%
FP - 16LG	7.17	L					
R-12L	46.6	L					
						Dry blended Type G	
						Density 1.90 [kg/l]	
						Quantity 7.2 [ton]	
						Ratio _____	
2 nd Slurry		Preparation		Duration	Pumping time	w/c	Cement
Mixing Date & hour		Method		[min]	[min]	at [°C]	Type
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%
						Dry blended Type _____	
						Density _____ [kg/l]	
						Quantity _____ [ton]	
						Ratio _____	
Cementing Company _____ Operation Ticket N° _____							
Operation Results				Plug tested with 10 [t]		Record (y / n)	
Theoretical TOC 1385 [m]				Plug milled at _____ [m]		Volume y Pression _____	
Actual TOC 1379 [m]				Plug removed [y / n] n		Flow rate y Density y	
Remarks Plug set across 7" liner hanger (7" x 9 5/8")						Supervisor	
						Superintendent	

3.6.3.3 Cement Plug no. 3

 Eni Norge GROUP		CEMENTING JOB REPORT				WELL NAME 7122/7-3					
		DATE: 4/1/2006		3.DRL.FO.04A		FIELD NAME GOLIAT					
Operation Purpose: P&A											
Operation Type	Measured Depth		Vertical Depth		Casing Type		Ø	Weight	Stage		
	Top [m]	Bottom [m]	Top [m]	Bottom [m]			[in]	lb/ft	[N°]		
Cementing											
Plug	890	840	890	840	N° 3	Of:	5				
Squeeze					N°						
Well Situation	Ø	Measured Depth		Vertical depth		Capacity	From log	KOP [m]			
	[in]	Top [m]	Bottom [m]	Top [m]	Bottom [m]	[lt/m]	[y/n]	Max. Inclination [°] 4.4			
Last Casing	13 3/8	WH	995	WH	995	0.07725	n	at m 2710			
Cut Casing	9 5/8	804	1712	804	1712			D.O.P. [m]			
Perforation		Gradient [Kg/cm ² /10m]		Below shoe	Bottom hole	Pressure [kg/cm²]		B.H.S.T. [°C] 22			
Top [m]	Bottom [m]	Pore Gradient				Fracture at bottom		at m 840			
		Fracture Gradient				Hydrostatic increase w/slurry		From log [y/n]			
		Abnormal [kg/cm ² /10m] at m:				Annular Fracture Margin		After [hr]			
		Abnormal [kg/cm ² /10m] at m:				Margin during W.O.C.		B.H.C.T. [°C] 21			
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P. (Pa)	Gel 10"/10"[Pa]	Water loss [cc]	pH / ES	Cl- [g/l]			
WBM	1.54										
Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry										Mixing water Cl- [g/l]	
Tail Slurry								1.9	3.8	Water Temperature [°C]	
1st Slurry		Preparation			Duration	Pumping time		w/c	Cement	Quantity	
Mixing Date & hour		Method			[min]	[min] at [°C]		ratio	Type	[t]	
04/01/2006 04:45AM									G		
Additives		Quantity	u.m.	%	Additives		Quantity	u.m.	%	Dry blended Type G	
FP - 16LG		5.14	L							Density 1.90 [kg/l]	
A-7L		51.38	L							Quantity 5.1 [ton]	
										Ratio	
2nd Slurry		Preparation			Duration	Pumping time		w/c	Cement	Quantity	
Mixing Date & hour		Method			[min]	[min] at [°C]		ratio	Type	[t]	
Additives		Quantity	u.m.	%	Additives		Quantity	u.m.	%	Dry blended Type	
										Density [kg/l]	
										Quantity [ton]	
										Ratio	
Cementing Company _____ Operation Ticket N° _____											
Operation Results					Plug tested with [t]			Record (y / n)			
Theoretical TOC 840 [m]					Plug milled at [m]			Volume		Pression	
Actual TOC 840 [m]					Plug removed [y / n]			Flow rate		Density	
Remarks P&A cement plug set on top of 13 3/8" cement reatainer set at 894 m 10 m above 9 5/8" casing cut.								Supervisor			
								Superintendent			

Page 166 of 179

3.6.3.4 Cement Plug no. 4A

 Eni Norge		CEMENTING JOB REPORT				WELL NAME 7122/7-3		
		DATE: 4/1/2006		3.DRL.FO.04A		FIELD NAME GOLIAT		
Cost center _____								
Operation Purpose: P&A								
Operation Type	Measured Depth Top [m] Bottom [m]		Vertical Depth Top [m] Bottom [m]		Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
Cementing								
Plug	550	750	550	750	N° 4A	Of: 5		
Squeeze					N°			
Well Situation	Ø [in]	Measured Depth Top [m] Bottom [m]		Vertical depth Top [m] Bottom [m]		Capacity [lt/m]	From log [y/n]	KOP [m] Max. Inclination [°] at m D.O.P. [m]
Last Casing	20	WH 529		WH 539		0.07725	n	4.4 2710
Cut Casing	13 3/8	494 995		494 995				
Perforation		Gradient [Kg/cm ² /10m]	Below shoe	Bottom hole	Pressure [kg/cm ²]		B.H.S.T. [°C]	
Top [m]	Bottom [m]	Pore Gradient			Fracture at bottom		at m	
		Fracture Gradient			Hydrostatic increase w/slurry		From log [y/n]	
		Abnormal [kg/cm ² /10m] at m:			Annular Fracture Margin		After [hr]	
		Abnormal [kg/cm ² /10m] at m:			Margin during W.O.C.		B.H.C.T. [°C]	
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P. (Pa)	Gel 10"/10"[Pa]	Water loss [cc]	pH / ES	Cl- [g/l]
WBM	1.54							
Fluid	Type	600	300	200	100	6	3	Density [kg/l]
Lead								
Tail								
Lead Slurry								Mixing water Cl- [g/l]
Tail Slurry						1.9	15.5	Water Temperature [°C]
1 st Slurry		Preparation		Duration	Pumping time	w/c	Cement	Quantity
Mixing Date & hour		Method		[min]	[min]	at [°C]	Type	[t]
04/01/2006 04:45AM							G	
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type
FP - 16LG	48.23	L						G
A-7L	428.34	L						Density [kg/l]
								Quantity [ton]
								Ratio
2 nd Slurry		Preparation		Duration	Pumping time	w/c	Cement	Quantity
Mixing Date & hour		Method		[min]	[min]	at [°C]	Type	[t]
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type
								Density [kg/l]
								Quantity [ton]
								Ratio
Cementing Company _____ Operation Ticket N° _____								
Operation Results		OK		Plug tested with 10 [t]		Record (y / n)		
Theoretical TOC 550 [m]				Plug milled at [m]		Volume y Pression		
Actual TOC 550 [m]				Plug removed [y / n]		Flow rate y Density y		
Remarks P&A cement plug set in 13 3/8" casing below 13 3/8" cut						Supervisor		
						Superintendent		

3.6.3.5 Cement Plug no. 4B

		CEMENTING JOB REPORT				WELL NAME 7122/7-3	
		DATE: 5/1/2006		3.DRL.FO.04A		FIELD NAME GOLIAT	
Cost center _____							
Operation Purpose: _____ P&A							
Operation Type	Measured Depth Top [m] Bottom [m]		Vertical Depth Top [m] Bottom [m]		Casing Type		Ø [in]
Cementing							
Plug	422	550	422	550	N° 4B	Of: 5	
Squeeze					N°		
Well Situation	Ø [in]	Measured Depth Top [m] Bottom [m]		Vertical depth Top [m] Bottom [m]		Capacity [lt/m]	From log [y/n]
Last Casing	20	WH	529	WH	539	0.17776	n
Cut Casing	13 3/8	494	995	494	995	0.07725	
							KOP [m] _____ Max. Inclination [°] 4.4 at m 2710 D.O.P. [m] _____
Perforation		Gradient [Kg/cm ² /10m]		Below shoe	Bottom hole	Pressure [kg/cm ²]	
Top [m]	Bottom [m]	Pore Gradient				Fracture at bottom _____	
		Fracture Gradient				Hydrostatic increase w/slurry _____	
		Abnormal [kg/cm ² /10m] _____ at m: _____				Annular Fracture Margin _____	
		Abnormal [kg/cm ² /10m] _____ at m: _____				Margin during W.O.C. _____	
						B.H.S.T. [°C] 13 at m 550 From log [y/n] _____ After [hr] _____ B.H.C.T. [°C] 13	
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P. (Pa)	Gel 10"/10"[Pa]	Water loss [cc]	pH / ES
WBM	1.54						
Fluid	Type	600	300	200	100	6	3
Lead							
Tail							
Lead Slurry							
Tail Slurry						1.9	22
						Mixing water Cl- _____ [g/l] Water Temperature _____ [°C]	
1 st Slurry		Preparation		Duration	Pumping time	w/c	Cement
Mixing Date & hour		Method		[min]	[min] at [°C]	ratio	Type
5/1/2006 16:45							G
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%
FP - 16LG	48.23	L					
R-12L	313.52	L					
						Dry blended Type G	
						Density 1.90 [kg/l]	
						Quantity 48.2 [ton]	
						Ratio _____	
2 nd Slurry		Preparation		Duration	Pumping time	w/c	Cement
Mixing Date & hour		Method		[min]	[min] at [°C]	ratio	Type
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%
						Dry blended Type _____	
						Density _____ [kg/l]	
						Quantity _____ [ton]	
						Ratio _____	
Cementing Company _____ Operation Ticket N° _____							
Operation Results		OK		Plug tested with 10 [t]		Record (y / n)	
Theoretical TOC 400 [m]				Plug milled at _____ [m]		Volume y Pression _____	
Actual TOC 422 [m]				Plug removed [y / n] _____		Flow rate y Density y	
Remarks _____ P&A cement plug set in 20" casing across 13 3/8" cut _____ _____ _____ _____						Supervisor	
						Superintendent	

3.6.3.6 Cement Plug no. 5

 Eni Norge GROUP	CEMENTING JOB REPORT	WELL NAME 7122/7-3 FIELD NAME GOLIAT Cost center				
DATE: 8/1/2006 3.DRL.FO.04A						
Operation Purpose: P&A						
Operation Type	Measured Depth Top [m] Bottom [m]	Vertical Depth Top [m] Bottom [m]	Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
Cementing						
Plug	368	412	368	412	N° 5	Of: 5
Squeeze					N°	
Well Situation	Ø [in]	Measured Depth Top [m] Bottom [m]	Vertical depth Top [m] Bottom [m]	Capacity [lt/m]	From log [y/n]	KOP [m]
Last Casing	20 x 30	373	529		n	Max. Inclination [°] 4.4
Cut Casing						at m 2710
						D.O.P. [m]
Perforation	Gradient [Kg/cm ² /10m]	Below shoe	Bottom hole	Pressure [kg/cm²]		B.H.S.T. [°C]
Top [m] Bottom[m]	Pore Gradient			Fracture at bottom		at m 412
	Fracture Gradient			Hydrostatic increase w/slurry		From log [y/n]
	Abnormal [kg/cm ² /10m]	at m:		Annular Fracture Margin		After [hr]
	Abnormal [kg/cm ² /10m]	at m:		Margin during W.O.C.		B.H.C.T. [°C] 8
Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P. (Pa)	Gel 10"/10'[Pa]	Water loss [cc]
WBM	1.54					
Fluid	Type	600	300	200	100	6
Lead						
Tail						
Lead Slurry						
Tail Slurry						
					1.9	10
						Mixing water Cl- [g/l]
						Water Temperature [°C]
1st Slurry		Preparation		Duration	Pumping time	w/c
Mixing Date & hour		Method		[min]	[min] at [°C]	ratio
8/1/2006 10:45						Cement Type [t]
						G
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.
FP - 16LG	13.36	L				
2nd Slurry		Preparation		Duration	Pumping time	w/c
Mixing Date & hour		Method		[min]	[min] at [°C]	ratio
						Cement Type [t]
Additives	Quantity	u.m.	%	Additives	Quantity	u.m.
Cementing Company		Operation Ticket N°				
Operation Results OK		Plug tested with [t]				Record (y / n)
Theoretical TOC 368 [m]		Plug milled at [m]				Volume y Pression
Actual TOC 368 [m]		Plug removed [y / n]				Flow rate y Density y
Remarks P&A cement plug set in open hole across 20" x 30" casing cut due to gas bubbles seen after previous plug						Supervisor
						Superintendent

Page 172 of 179

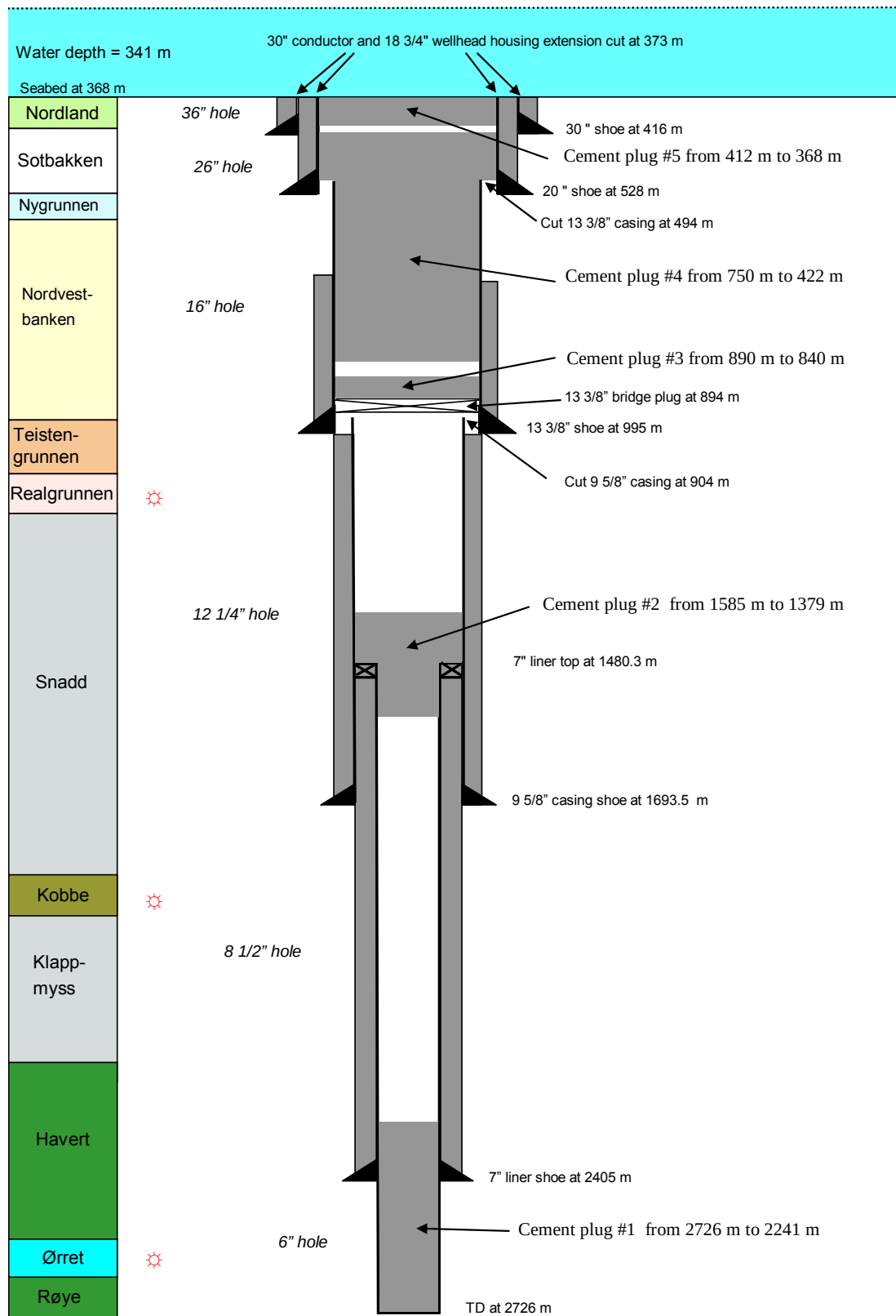
3.6.4 P&A Sketch

Well 7122/7-3 Permanent P&A

Rotary Table

Rig: Eirik Raude

RT - MSL = 25 m



3.7 LOGISTICS

3.7.1 Offices

The drilling operations office was located at Eni Norge offices at Forus. The main logistics coordinators were placed at Polar base in Hammerfest.

3.7.2 Base

The operating base for the rig during the drilling of well 7122/7-3 was Polar base in Hammerfest.

The base was manned by John Wahl and 2 two Drilling Coordinators, Bob Kennedy and Odvin Kinden, which alternated on a 14/14 days schedule. The team was strengthened by adding Runar Tverland to the team during the project.

Majority of the transport on road was handled by NorCargo.

3.7.3 Helicopter

The helicopter services were contracted from Norsk Helicopter AS. Eni Norge bought into Statoil Snøhvit helicopter agreement and Eni Norge had one assigned scheduled flight per weekday. The helicopter base was at Hammerfest airport.

3.7.4 Boats

Due to the Barents Sea northern location, together with limited marine support in the area, it was an early decision to ensure a self contained fleet with full contingency to meet the needs of the rig operations.

The aim was to have two main support vessels both mutually capable of carrying out the duties of Anchor Handling, Safety Standby, NOFO oil recovery and Supply. The focal points on supply duties being quick turnaround in field and base (four hours passage time from shore to rig) and the efficient integrating of the cuttings transportation system.

Two vessels were selected for this multipurpose duty was 'Northern Corona' and 'Northern Challenger'. The basic specification for these ME303 mkII, sister vessels included: 15,612 bhp, 168 t bollard pull, sf, 555 m² deck area, +1000 m³ oil recovery and 600 m³ mud tanks.

The vessel were taken on charter during rig mobilization in Kristiansund where all rig anchors and mooring chain tails were inspected utilizing the N. Challenger whilst the N. Corona completed her demobilization duty with Statoil.

From Kristiansund, the N. Corona sailed to Goliat field in escort with the 'Eirik Raude' proceeding under her own propulsion and the N. Challenger transferred via Hammerfest, fully laden, from the logistics base in Kristiansund.

Following transit to the field, rendezvous and timely anchor handling operations, the vessels took up their standby and supply roles.

In addition to the main vessels it was necessary to incorporate two smaller local working vessels / tug boats into the fleet to assist with NOFO oil recovery boom deployment. Together with the two main vessels complete oil recovery training

exercises were carried out during the early phases of the drilling operation, prior to entry into oil bearing strata.

The vessel philosophy was cost effective and worked efficiently. No delays were experienced by the rig for any vessel requirements. One challenge that was not foreseen however, was the conflict of deck space required by the fixed location of the cuttings containers. In particular with regard to leaving adequate space for helicopter pick up when the vessel was under safety standby orders. This was resolved with the addition of 'Supporter', an auxiliary in field safety vessel of a smaller class. This ensured that at all times, helicopter winch area was available. The primary safety standby function, in particular for close standby, remained with the larger vessels.

Following completion of the well, the mooring retrieval took place utilizing the 'N. Corona' and 'N. Challenger' during a narrow weather window prior to the onset of a storm weather period. This was successfully accomplished and due to the deteriorating weather situation, the rig and attending vessels proceeded to an inshore sheltered location to complete the rig demobilization and eventual handover to Statoil on the 10 January 2006.

4. SAFETY AND ENVIRONMENT

4.1 RISK ANALYSIS SUMMARY AND IMPLEMENTATION

Before starting the drilling operation on the well 7122/7-3 a site and well specific risk analysis were performed. Actions from this report were followed up and closed prior start-up of operation. The report was distributed to the rig for information purposes.

During the drilling of the well, several types of safety meetings and drills were performed. Care Cards and Unwanted Event Reports were discussed and reviewed on a daily basis, both internally on the rig and with the onshore organization.

Time-out for safety was performed in order to emphasize the high focus on safety and environment. All critical jobs were discussed in Tool-box talks.

4.2 DISCHARGES, EMISSIONS AND WASTE

Total discharges are given in the table below. Mud chemicals dominate the discharges, which again mostly contains water. Of the 279 ton of chemicals discharged, approximately 522 kg were yellow substances, while of the green substances, almost 190 ton was water. Of the remaining 63 ton, 61 ton constituted sodium chloride (table salt) and Bentonite (clay).

Regular discharges to sea

Component			Discharge in ton
Cementing chemicals			21.46
Mud chemicals, including water			252.04
Mud chemicals, excluding water			63.24
Rig chemicals			6.00
Cuttings			414.00
Total	discharges, including water		693.5
Total	discharges, excluding water		504.7

Chemical discharges, categorized using SFT's color categories:

Category	Discharges in ton			
	Cement	Mud	Rig	Total
Green	21.44	252.04	5.50	278.98
Yellow	0.018	0	0.504	0.522
Total	21.46	252.04	6.00	279.50
Total, excluding water	21.46	63.24	3.35	88.05

The total emissions to air are given in the table below.

Emissions to air from drilling operations:

Component	Emissions from rig (ton)
CO ₂	7702
NO _x	168.5
VOC	12.0
CO	16.8
NO ₂	0.5
SO ₂	6.7
Total emissions	7 907

The waste generation is shown in the table below. The main category of waste generated is drill cuttings and slop water. The slop water was treated and discharged in accordance with Perpetuum Spesialavfall's requirements, while drill cuttings are used as a resource at Stormoen land fill (not deposited). The only fraction of waste deposited is the unsorted residue waste, along with sand/gravel/cement. The total amounts of deposited waste are 21 ton, out of a total of 1627 ton.

Regular industrial waste	ton
Sorted residue waste	17.8
Residue waste	15.94
Scrap iron and mixed metals	23.86
Wood	7.15
Cabelreels, dismanteling	1.82
Food waste (deep-fry oil)	0.2
Brown paper / Cardboard	1
EE-waste (electrical and electronic waste)	0.88
Paper for destruction	2.02
Plastic	0.88
Total amount	71.55

Hazardous waste	ton
Spill oil	23
Sludge from tank cleaning	25
Oily waste	2
Fuel residue	0.4
Slops	320
Slops	373
Cooling fluids	0.025
Paint residue	0.2
Spray cans	0.2
Organic waste, not containing halogens	3
Cement mixing water	10
Water based cuttings	781

Waterbased cuttings, contaminated with hydrocarbons	13
Sand/gravel/cement	5
Total amount	1 556

The summary table for all emissions, discharges and wastes is given below.

Total emissions, discharges and non-recycled waste generation

Component	Amount in ton
Chemicals used during drilling	280
Drill Cuttings	414
Emissions to air	7 702
Waste deposited at land fills	21
Total discharges, emissions and deposited wastes	8 417

5. ENCLOSURES

ENCLOSURE 1: 7122/7-3 Composite Log

ENCLOSURE 2: 7122/7-3 C.P.I.