

**EXPLORATION & PRODUCTION DIVISION**

# Completion Report

Well 6506/12 - 2



**statoil**

Den norske stats oljeselskap a.s  
LET-

3

10 OKT. 1985

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OLJEDIREKTORATET**

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COMPLETION REPORT  
WELL 6506/12-2

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EXPLORATION DEPARTMENT-LET				DRILLING DEPARTMENT-BOR	
<b>Section</b>	<b>Evaluation</b>	<b>Operations Geology</b>	<b>Operations Technology</b>		
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PL 094

STATOIL-MOBIL-AGIP-ARCO-TENNECO-NORSK HYDRO

COMPLETION REPORT

WELL 6506/12-2

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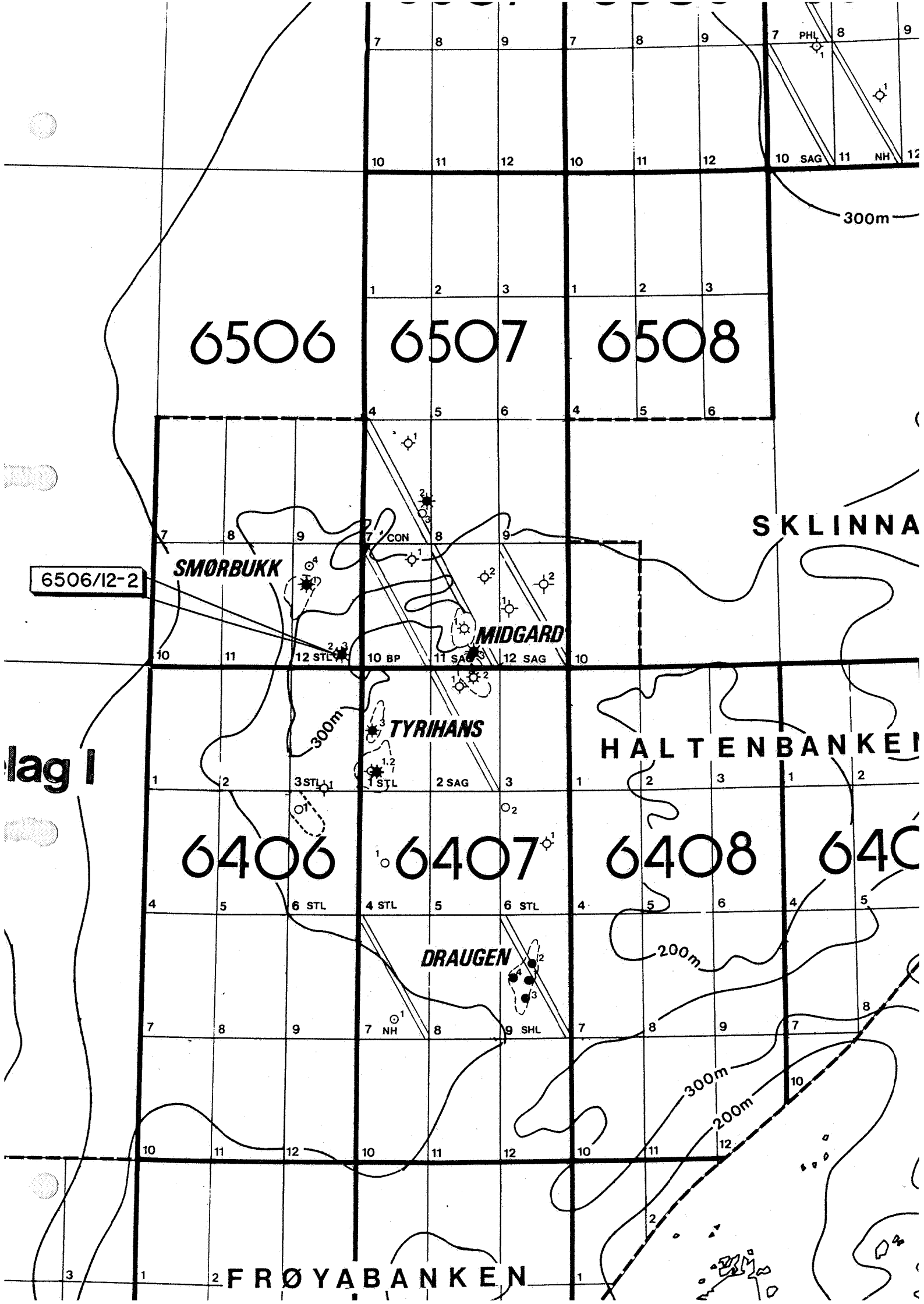
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6506

6507

6508

SKLINNA

SMORBUKK

MIDGARD

TYRIHANS

HALTENBANKEI

6406

6407

6408

6409

DRAUGEN

FRØYABANKEN

6506/12-2

lag I

300m

300m

200m

300m

200m

PHL  
SAG  
NH

STL

BP

SAG

SAG

STL

STL

SAG

NH

SHL

CON

STL

NH

SHL

Handwritten notes and symbols in the bottom right corner.



## I GENERAL INFORMATION

### 1. Well data record

- a) Well designation: 6506/12-2
- b) Well classification: Wildcat - plugged and abandoned dry hole due to technical difficulties.

### c) Well location:

- I Country: Norway, Haltenbanken
- II Licence: 094
- III Latitude: 65°01' 29.85" N  
Longitude: 06°53' 29.41" E
- IV Seismic location: Shotpoint no. 1112,  
line no. 8403-402A
- V Waterdepth: 310 m MSL

### d) Rigdata:

- I Rig name: Ross Isle
- II Drilling draft: 23,5 m
- III RKB-MSL: 22 m

### 2. Purpose of the well

The purpose of well 6506/12-2 was to test possible hydrocarbon accumulations in sandstones of Middle and Lower Jurassic age.

### 3. Results of the well

The well was drilled to a total depth of 955 meters. Due to technical difficulties the hole was plugged and abandoned.

The rig was moved 47 m 325° and the well respudded as 6506/12-3.

4. Well history

a) General

I Spud date: February 12th, 1985  
II Rig released: March 1st, 1985  
III Status: Plugged and abandoned

b) Contractors

Drilling platform: Ross Isle  
Drilling contractor: Ross Drilling A/S  
Cementing: Dowell Schlumberger  
Electric logging: Schlumberger  
Mud contractor: Anchor Drilling Fluids  
Mud logging: Exploration Logging  
MWD contractor: Exploration Logging  
Supply boats: Statoil supply boat pool  
Diving: Subsea Dolphin  
Helicopters: Helikopter Service A/S

c) Casing

I 30" at 406 m  
II 20" at 940 m  
No leak off tests were performed.

e) Logging

1. Mudlogging

A Gemdas-computerised logging unit from Exploration Logging conducted the mudlogging with the following data being recorded:

Drilling rate  
Lithology  
Cutting gas  
Mud gas

Shale density and some 20 other parameters

2. Electrical logging

The electrical logging was performed by Schlumberger.

<u>Type of log</u>	<u>Run no.</u>	<u>Interval (m RKB)</u>
--------------------	----------------	-------------------------

ISF/LSS-MSFL-GR (+SP+CAL)	1	302.0 - 955.0
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3. DLWD

The DLWD was performed by Exploration Logging. It was ran from below 30" casing shoe to the total depth of 955 mKB.

SUMMARY LIST OF REPORTS GENERATED BY THE WELL

Site Survey                      Vol I &II                      Geoteam                      Dec. 1984

Final Well Report DLWD - Well 2 & 3                      Exlog                      May 1985

## II GEOLOGICAL REPORT

### 1. Stratigraphy

The chronostratigraphic tops are based on the work done by biostratigraphical consultants Paleoservices. The 955 m are applicable to both 6506/12-2 and 6506/12-3.

- a) Table of chronostratigraphy (all depths in meters)

<u>Chronostratigr. tops</u>	<u>Depth (RKB)</u>	<u>Depth (MSL)</u>
Quaternary (pleistone)	332	310
Tertiary (Late Pliocene)	580	558

- b) Table of lithostratigraphy (all depths in meters)

<u>Lithostr.tops</u>	<u>Depth (RKB)</u>	<u>Depth (MSL)</u>	<u>Thickness</u>
Sula Group	332	310	623+
Tertiary Unkonf.	582	560	

2. Lithological Description

Sula Group (332-955 m RKB+)

-----  
The Sula Group is composed of interbedded sand and clay. The sand is very fine to very coarse grained, angular to subrounded. The clay is light to dark grey, greenish grey, slightly to moderately calcareous and silty in parts. Trace amounts of different types of rock fragments, shell fragments, foraminifera, mica, pyrite, glauconite and lignite are also observed.



**WELLSITE SAMPLE DESCRIPTION**

Country: NORWAY		Area: HALTENBANKEN		Field: BETA	
Well no.: 6506/12-2					
K.B.E. 22 meters		Company: STATOIL/MOBIL/AGIP/ARCO/TENNECO/NORSK HYDRO			
Hole size: 12 1/4"		Geologist: MAD S HELLE		Date: 14/2-85	
Depth (m KB)	Lith (%)	Lithological Description			Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination			Shows, cavings, mud additives, etc.
420	80	CLAY: slty,lt-med gry,sft,stcky,amor,hydr			no shows
	20	SD: clr qtz,occ trans,lse,f-crs,subang-subrnd, partly rock frags,mostly ang			
	TR	SHELL FRAGS			
430		A/A			
440	90	CLY:A/A			
	10	SD:A/A			
	TR	SHELL FRAGS			
450		A/A			
460	95	CLY:A/A			
	5	SD:A/A			
	TR	SHELL FRAGS			
470		A/A			
480		A/A			
490	90	CLY:A/A			
	5	SD:A/A			
	5	ROCK FRAGS: igneous,mica schists,metamorphics gneis,mostly ang-subang,med-v crs			
	TR	SHELL FRAGS;FORAMS			
500		A/A			
510	90	CLY:A/A			
	10	SD:A/A			
	TR	ROCK FRAGS:A/A			
	TR	SHELL FRAGS			
520	80	CLY:A/A			
	20	SD:A/A			
	TR	ROCK FRAGS			
	TR	SHELL FRAGS			
530	90	CLY:A/A			
	10	SD:A/A			
	TR	ROCK FRAGS			
	TR	SHELL FRAGS			
540		A/A			
550		A/A			

### WELLSITE SAMPLE DESCRIPTION

Country: NORWAY		Area: HALTENBANKEN		Field: BETA	
Well no.: 6506/12-2					
K.B.E. 22 meters		Company: STATOIL/MOBIL/AGIP/ARCO/TENNECO/NORSK HYDRO			
Hole size: 12 1/4"		Geologist: HELLE /LAW/FALT		Date: 15/2-85	
Depth (m KB)	Lith (%)	Lithological Description			Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination			Shows, cavings, mud additives, etc.
560	90	CLY: lt-med gry, sft, stcky, amor, sdy and slty i/p, hydrtd			
	10	SD: clr-transp, f-crs, subang-ang, occ subrnd, lse			
	TR	ROCK FRAGS: varicoloured, igneous, metam, mica schists, gneis, mostly ang-subang, med-v crs			Gas peak: 6.9% at 572 m 6800 ppmC <sub>1</sub>
	TR	SHELL FRAGS AND FORAMS			5.9% at 580 m
570		A/A			5800 ppmC <sub>1</sub>
580		A/A			
590	85	CLY: A/A			
	10	SD: A/A			
600		A/A			2.4% at 600 m bgd. 190
					C <sub>1</sub> only
610	80	CLY: lt-med gry, v sft, stcky amor, v hydrated,			
	20	SD: pred qtz, v prly srted, v fine-v crs, sizes pred med, variable rdd, ang-subrnd, pred ang, all lse, tr biotite,			
	TR	LIGNITE			
	TR	SHELL FRAGS + FORAMS. MOL + GAST			
620	80	CLY: A/A + GLAUC GRNS PELLLETOID			
	20	SD: pred qtz, clr+mlky a/a			
	GTR	LIGNITE WOOD			
	TR	SHELL FRAGS + FORAMS A/A			
630	80	CLY: A/A sl slty, v sft			
	20	SD: pred qtz, v prly srted, vf-v crs, pred subang, some ang + mod rdd 10% lithic frags, tr biotite			
	TR	SHELL FRAGS			
640	80	CLY: lt-med gry, v sft, hydrated, amor, sl slty			
	20	SD: A/A, sl crsr			
650	80	CLY: A/A mod slty			
	20	SD: A/A but crsr again, pred med-crs, subang-ang, all lse			
660	90	CLY: lt-med gry, sl slty, v sft, amor, stky, no vis struc			
	10	SD: clr+mlky qtz+lith frags, v prly srted, vf-v crs, surnd-subang, lse			





**WELLSITE SAMPLE DESCRIPTION**

Country: NORWAY		Area: HALTENBANKEN		Field: BETA	
Well no.: 6506/12-2					
K.B.E. 22 meters		Company: STATOIL/MOBIL/AGIP/ARCO/TENNECO/NORSK HYDRO			
Hole size: 12 1/4"		Geologist: HELLE/LAW/FALT		Date: 15/2-85	
Depth (m KB)	Lith (%)	Lithological Description			Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination			Shows, cavings, mud additives, etc.
670	80	CLAY: lt-med gry, v sft, sl stcky, amor, sl calc, tr glau			
	20	SD: clr + mlky qtz and lith frags, v prly srted, vf-v crs, sd, pred med gr, ang-subrnd, pre subang, all lse			NO SHOWS
	TR	SHELL FRAGS: (MOL) + FORAM			
680	80	CLY: A/A			
	20	SD: A/A			
690	90	CLY: lt-med gry, sl slty, v sft amor, sl calc, tr coal/lignite, tr glauc			
	10	SD: A/A, but f-med, subang-subrnd, pred, all lse			
	TR	SHELL FRAG			BGD gas: .590
700	90	CLY: A/A			
	10	SD: A/A, pred f-med, subang, clr qtz			
710	90	CLY: A/A			
	10	SD: A/A pred f-med, subang-subrnd, clr qtz, lse			
720	90	CLY: lt-med gry, v sft, sl slty, amor, sl calc sl slty			
	10	SD: cl + mlky qtz, lith frags, vf-v crs, subrnd-subang, pred f-med, subrnd, lse			NO SHOWS
	TR	SHELL FRAGS			
730	90	CLY: A/A tr gry-grn, frm cly			
	10	SD: A/A blk lith frags common			
740	90	CLY: A/A, bec sl-mod calc			
	10	SD: A/A v prly srted			
750	90	CLY: A/A			
	10	SD: A/A pred f-med, clr, subrnd qtz, all lse			BGD GAS: .45%
	TR	PYRITE			C <sub>1</sub> only
	TR	SHELL FRAGS ? FORAM			
760	80	CLY: lt gry-med gry, sl slty, sl calc, v sft, amor stcky			
	20	SD: clr + mlky qtz, pred tr blk lith frags, pred f-med, subang, lse			
	TR	SHELL FRAGS			



### WELLSITE SAMPLE DESCRIPTION

Country: NORWAY		Area: HALTENBANKEN		Field: BETA	
Well no.: 6506/12-2					
K.B.E. 22 meters		Company:			
Hole size: 12 1/4"		Geologist: HELLE/LAW/FALT		Date: 15/2-85	
Depth (m KB)	Lith (%)	Lithological Description		Remarks	
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination		Shows, cavings, mud additives, etc.	
770	80	CLY: lt-med gry, occ gry-gn, v sft, sl slty, sl calc, amor		NO SHOWS	
	20	SD: clr+mlky qtz+minr lith frag, pred f-m cr, occ crse-v crs, subrnd-subang, lse			
	TR	SHELL FRAGS PYR GLAU			
780	80	CLY:A/A sl-mod calc			
	20	SD:A/A			
	TR	LIGNITE			
790	80	CLY:A/A but mod calc			
	20	SD:A/A w/prolific lith gr, pred blk, metamorp, tr biotite			
	TR	SHELL FRAGS (MOLL + FORAM)			
800	90	CLY:A/A			
	10	SD:A/A, f-med gr, pred clr + mlky qtz, subrnd-subang prly srtd, lse		BGD: ,5% C <sub>1</sub> only	
	TR	SHELL FRAGS			
810	90	CLY:A/A			
	10	SD:A/A			
820	90	CLY:A/A mod calc mod slty		NO SHOWS	
	10	SD: pred cl + mlky qtz, f-med gr, subrnd-subang prly srtd, lse			
830	90	CLY:A/A			
	10	SD:A/A but bec pre vf-f w./tr med-crs			
840	90	CLY:A/A			
	10	SD:A/A			
850	90	CLY lt-med gry, mod slty, sl-mod calc, v sft-sft, less stcky but still hydr, amor		BGD: 0,45%	
	10	SD: cl + mlky qtz, minor lith frags, vf-med gr pred vf-f, subang-subrnd, mod srtd, lse		No shows	
	TR	LIGNITE/COAL + FORAM FRAGS			
860	90	CLY:A/A			
	10	SD:A/A			
870	90	CLY:A/A			
	10	SD:A/A			





**WELLSITE SAMPLE DESCRIPTION**

Country: NORWAY		Area: HALTEN BANKEN		Field: BETA	
Well no.: 6506/12-2					
K.B.E. 22 meters		Company: STATOIL			
Hole size: 12 1/4"		Geologist: M. HELLE		Date: 14/2-85.	
Depth (m KB)	Lith (%)	Lithological Description			Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination			Shows, cavings, mud additives, etc.
420	80	CLAY, SLTY, LT-MED GRY, SFT, STCKY, AMOR, HYDRTD			NO SHOWS
	20	SD, CLR QTZ, OCC TRANS, LSE, F-CRS, SUBANG-SUBRND, PARTLY ROCK FRAGS, MOSTLY ANG TR SHELL FRAGS			
430	A/A				
440	90	CLY, A/A			
	10	SD, A/A			
		TR SHELL FRAGS			
450	A/A				
460	95	CLY, A/A			
	5	SD, A/A			
		TR SHELL FRAGS			
470	A/A				
480	A/A				
490	90	CLY, A/A			
	5	SD, A/A			
	5	ROCK FRAGS, IGENOUS, MICA SCHISTS, METAMORPHICS GNEIS, MOSTLY ANG-SUBANG, MED-V CRS			
		TR SHELL FRAGS, FORAMIS,			
500	A/A				
510	90	CLY, A/A			
	10	SD, A/A			
		TR ROCK FRAGS, A/A			
		TR SHELL FRAGS			
520	80	CLY, A/A			
	20	SD, A/A			
		TR ROCK FRAGS			
		TR SHELL FRAGS			
530	90	CLY, A/A			
	10	SD, A/A			
		TR ROCK FRAGS			
		TR SHELL FRAGS			
540	A/A				
550	A/A				



**WELLSITE SAMPLE DESCRIPTION**

Country: NORWAY		Area: HALTENBANKEN		Field: Beta	
Well no.: 6506/12-2					
K.B.E. 2-2 meters		Company: STATOIL/MOBIL/AGIP/ARCO/Tenneco/NORSK HYDRO		Date: 15/2-85	
Hole size: 12 1/4"		Geologist: M. Helle / C. Law / L.M. FALT			
Depth (m KB)	Lith (%)	Lithological Description		Remarks	
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination		Shows, cavings, mud additives, etc.	
560	90	CLY, LT-MED GRAY, SFT, STCKY, AMOR, SADY AND SLTY IN PARTS, HYDRD			
	10	SD, CLR-TRANSP, F-CRS, SUBANG-ANG, OCC SUBAND, USE			
	TR	ROCK FRAGS, VARICOLLOURED IGENIOUS, METAM. MICA SCHISTS, GNEIS, MOSTLY ANG-SUBANG, MED-V CRS			
	TR	SHELL FRAGS AND FORAMS			
570	A/A			Gas peak: 6.9% at 572m 6500 ppm C1	
580	A/A			5.9% at 580 m 5300 ppm C1	
590	85	CLY, A/A			
	10	SD, A/A			
	5	ROCK FRAGS, A/A			
	TR	SHELL FRAGS, FORAMS			
600	A/A			2.4% at 600m bag. 1% C1 ONLY	
610	80%	CLY; LT-MED GRAY V. SFT, STCKY AMOR V. HYDRATED			
	20%	SD; PRED QTZ V. PRLY SRTD V. FINE - V. COARSE SIZES PRED MED VARIABLE RDD, ANG-SUBRDD PRED ANG, ALL USE, TR BIOTITE.			
	TR	LIGNITE			
	TR	SHELL FRAGS + FORAMS MOL + GAST.			
620	80	CLY A/A. + CLAVIC GRNS PELLETOID			
	20	SD; PRED QTZ; CLEAR + MILKY A/A			
	OD	TR LIGNITE WOOD			
	TR	SHELL FRAGS + FORAMS A/A			
630	80	CLY: A/A SL SLTY V. SOFT.			
	20	SD: PRED QTZ V. PRLY SRTD V.F -> V. CSE PRED SUBANG, SOME ANG + MOD RDD.			
	10%	LITHIC FRAGS TR BIOTITE			
	TR	SHELL FRAGS			
640	80	CLY: LT-MED GRAY, V. SFT, HYDRATED, AMOR SL SLTY.			
	20	SD: A/A SL CRSR.			
650	80	CLY: A/A mod SLTY			
	20	SD: A/A BUT CRSR AGAIN, PRED MED-CRS SUB-ANG - ANG, ALL USE.			
660	90	CLY: LT-MED GRAY, V. SFT, AMOR STCKY, NO VIS STRUC.			
	10	SD: CLR + MILKY QTZ + LITH FRAGS. V. PRLY SRTD. V.F -> V. COAR CLR SRTD - SUB ANG USE			



**WELLSITE SAMPLE DESCRIPTION**

Country: NORWAY		Area: HALTENBANKEN		Field: BETA	
Well no.: 6506 / 12-2					
K.B.E. 22 meters		Company: STATOIL / MOBIL / AGIP / ARCO / TENECO / NORPK HYDRO			
Hole size: 12 1/4" PILOT		Geologist: M. HELLE / C. LAW / L. M. FALT		Date: 15/2-85	
Depth (m KB)	Lith (%)	Lithological Description			Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination			
670	20	SD: CLR + MLKY QTZ AND LITH FRAG, V. PRVY SRTD, V.F - V. CRS SD, PRED MED GR, ANG - SB RDD, PRED SUB ANG, ALL LSE.			No shows
	80	CLAY: LT-MED GRY, V. SFT, SL SLTY, STKY, AMOR, SL CALC, TR GLAUC. TR SHELL FRAGS (MOL) + FORAM.			
680	80	CLY: A/A			
	20	SD: A/A			
690	90	CLY: LT-MED GRY SL SLTY V. SFT AMOR SL CALC. TR COAL/LIGNITE. TR GLAUC.			
	10	SD: A/A, BUT FINE-MED SUB ANG - SUB RDD PRED, ALL LSE TR SHELL FRAG.			
					BGD GAS .59%
700	90	CLY: A/A			
	10	SD: A/A. PRED F-MED, SUBANG, CLR QTZ.			
710	90	CLY: A/A			
	10	SD A/A PRED F-MED SUB-ANG - SUB RDD CLR QTZ LSE.			
720	90	CLY: LT-MED GRY, V. SFT, SL SLTY AMOR SL CALC SL SLTY.			No shows
	10	SD: CL + MLKY QTZ, LITH FRAGS VF - V CSE SUB RD - SUB ANG. PRED F-MED SUB RDD LSE. TR: SHELL FRAG.			
730	90	CLY: A/A TR GRY-GRN. FRM CLY.			
	10	SD: A/A. BLK LITH FRAG COMMON.			
740	90	CLY: A/A BECOMING SL-MOD CALC.			
	10	SD: A/A. V PRVY SRTD			
750	90	CLY: A/A			
	10	SD: A/A. PRED F-MED CLR SUB RDD QTZ ALL LSE			BGD GAS .45% CI ONLY.
		TR PYRITE			
		TR SHELL FRAGS + FORAMIN			
760	80	CLY: LT GRY-MED GRY, SL SLTY, SL CALC, V SFT, AMOR STICKY.			
	20	SD: CLR + MLKY QTZ PRED TR BLK LITH FRAGS PRED F-MED SUB ANG LSE TR SHELL FRAGS			



**WELLSITE SAMPLE DESCRIPTION**

Country: NORWAY		Area: HALTENBANK		Field: BETA
Well no.: 6506/12-2				
K.B.E. 2.2 meters		Company: STATOIL ETC.		
Hole size: 12 1/4" PILOT		Geologist: M. HELLE / CLAW / L. FAELT		Date: 15/2/85
Depth (m KB)	Lith (%)	Lithological Description		Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination		Shows, cavings, mud additives, etc.
770	80	CLY: KT-MED GRY OCC CRT-CRN, V. SFT SL SILTY, SL CALC, AMOR.		NO SHOWS.
	20	SD: CLR + MLKY QTZ + MINR LITH FRAG PRED F-M CR, OCC CSE - V. CSE, SUBRD - SUB ANG. LSE		
		TR: SHELL FRAG., PYR, CLAUC.		
780	80	CLY: A/A SL-MOD CALC.		
	20	SD: A/A		
		TR: LIGNITE.		
790	80	CLY: A/A BUT MOD CALC		
	20	SD: A/A W/PROLIFIC LITH CR PRED BLK METAMORPH TR BIOTITE.		
		TR: SHELL FRAG. (MOLL + FORAMN).		
800	90	CLY: A/A		
	10	SD: A/A F-MED CR PRED CLR + MLKY QTZ SUBRD - SUB ANG, DRY SRTD LSE.		3GD 5% CI ONLY
		TR SHELL FRAGS.		
810	90	CLY: A/A		
	10	SD: A/A		
820	90	CLY: A/A MOD CALC MOD SILTY		
	10	SD: PRED CL + MLKY QTZ F-MED CR SUBRD - SUBANG. DRY SRTD LSE		NO SHOWS
830	90	CLY: A/A		
	10	SD: A/A BUT BECOMING PRED VE - F W/ TR MED - CSE.		
840	90	CLY: A/A		
	10	SD: A/A		
850	90	CLY: LT-MED GRY, MOD SILTY, SL-MOD CALC. V. SFT - SFT, LSS STICKY, BUT STILL HARD AMOR		3GD: 0.45%
	10	SD: CL-MLKY QTZ, MINOR LITH CR, VE-MED CR PRED VE - E SUBANG - SUBRD MOD SRTD LSE		NO SHOWS
		TR LIGNITE / CAL, SHELL + FORAMN FRAGS		
860	90	CLY: A/A		
	10	SD: A/A		
870	90	CLY: A/A		
	10	SD: A/A		



**WELLSITE SAMPLE DESCRIPTION**

Country: <i>NORWAY</i>		Area: <i>HALTENBANKE</i>		Field: <i>BETA</i>	
Well no.: <i>6506/12-2</i>					
K.B.E. <i>2.2</i> meters		Company: <i>STATOIL / ETC</i>			
Hole size: <i>12 1/4" PILOT</i>		Geologist: <i>M. HELLE / C. LAW / L. FALTE</i>		Date: <i>16/02/85</i>	
Depth (m KB)	Lith (%)	Lithological Description			Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination			Shows, cavings, mud additives, etc.
<i>880</i>	<i>90</i>	<i>CLY: LT-MED GR. SL SLTY SL CALC, SFT, STCKY AMOR, HYDRD.</i>			
	<i>10%</i>	<i>SD: FRED CL QTZ, MNR LITH FRAGS, PRLY SRTD VF-CRSE CR FRED F-MED CR. SUB ANG - SUB RD. ALL LSE. TR SHELL FRAGS + FORAM., COAL.</i>			<i>NO SHOW.</i>
<i>890</i>	<i>90</i>	<i>CLY: A/A</i>			
	<i>10</i>	<i>SD A/A.</i>			
<i>900</i>	<i>A/A</i>				
<i>910</i>	<i>90</i>	<i>CNY, A/A</i>			
	<i>10</i>	<i>SD, A/A</i>			
	<i>TR</i>	<i>SHELL FRAGS, FORAMS, GLAUC AND COAL</i>			
<i>920</i>	<i>A/A</i>				
<i>930</i>	<i>A/A</i>				
<i>940</i>	<i>A/A</i>				
<i>950</i>	<i>A/A</i>				<i>Bottom up at 955m</i>
<i>WELL PLUGGED AND ABANDONED AT 955m.</i>					



111 . DRILLING REPORT

III 1. SUMMARY

### III 1 SUMMARY

6506/12-2 was an exploration well designed to test possible hydrocarbon accumulations in the 6506/12 Beta structure. The primary objective was the Middle Jurassic Sandstones with the Lower Jurassic Sandstone as a secondary objective. The total depth was planned to 4380 m.

The well had to be plugged and abandoned after a total depth of 955 m. The reason for this was that during pressure testing of the BOP the 18 3/4" wearbushing was squeezed below the landing shoulder for the 13 3/8" casing hanger in the wellhead housing, and therefore impossible to retrieve. After several attempts to pull and mill the wearbushing, the well had to be plugged and abandoned.

The well was left after 18 days and with a total cost of  $32,3 \times 10^6$  NKr.

Ross Isle was moved a short distance to drill 6506/12-3 at 00.00 hours the 2nd March.

III 2. DRILLING OPERATIONS IN INTERVALS

### III 2. DRILLING OPERATIONS IN INTERVAL

The rig was on location the 11th February 1985 and the first anchor was dropped at 16:50 hrs. The well was spudded at 19:58 hrs the 12th.

#### 36" hole, 332 - 408 m

The 36" hole was drilled from 332-408 m by using a 26" bit and a 36" hole opener in 13.5 hrs, averaging 6 m/hr. The hole was displaced to high viscosity mud at TD.

The 30" casing was stabbed in assisted by the TV camera. The casing was filled with seawater when running in. 3m fill was identified when running in and the casing was washed to the bottom. Seawater was then circulated before the casing was cemented with the shoe set at 406 m.

#### 26" hole, 408 - 955 m

The 30" casing shoe was drilled out with a 26" bit. A 12 1/4" pilot hole was drilled to 955 m. A DLWD tool was run right above the bit and functioned satisfactorily throughout the interval. The pilot hole was drilled in 1 bit run using a Smith F1C bit. The average drilling rate was 29.2 m/hr.

ISF, sonic, GR and MSFL logs were then run in the 12 1/4" hole. The hole was opened to 26" with a 12 1/4" bit, 17 1/2" hole opener and a 26" underreamer. This operation took 3 runs; 409-731m, 457-849m and 849-952m. During the first run all cones on the 26" underreamer were lost and in the second run the underreaming started up the hole. The 12 1/4" bit was quite worn in all the runs. After the hole was opened to 26" it was

displaced to 1.25 S.G. mud to the wellhead. The riser was displaced to seawater and 450 liters of fluid was then gained. The riser was displaced to 1.12 S.G. mud and the "flow" stopped. The string was stepwise RIH and it was circulated bottoms up from as deep as 573 m, below the potential gas bearing sand. 15 m<sup>3</sup> was lost to the formation but no gas was circulated out. The string was POOH to the wellhead and the well observed. A 15 m<sup>3</sup> LCM pill was spotted at the 30" casing shoe. The riser was displaced to 1.11 S.G. mud and the 26" hole from 513 m to 406 m with 1.25 S.G. mud. A second 5 m<sup>3</sup> LCM pill was pumped at the 30" casing shoe and the riser displaced to seawater. The well was then stable, the riser was pulled and the 20" casing run and cemented with the shoe set at 940 m.

Installed riser and BOP. Tensioners on the pods collapsed while installing the slip joint due to communication problems. RIH with tam tester to pressure test the BOP. Test failed and wear bushing was then installed. Reran the tam tester and attempted to test the BOP with 408 bar. The pressure suddenly dropped off to 138 bar. Attempted to reset the tam tester without success and pulled it then out. Installed a new tam tester and completed the BOP pressure and function tests successfully.

Made up 17½" bit, ran in hole, but unable to get through wellhead. POOH. Attempted several times to retrieve the wearbushing, without success. Max. 100 tons overpull. Made up 17 3/8" milling assembly and milled out the wearbushing. Dropped through when 0,2 m was milled.

Attempted several times to retrieve the wearbushing without success. Max. 75 tons overpull.

Decided to leave the location.

Retrieved the wellhead and found the top of the 18 3/4" wearbushing squeezed below the 13 3/8" landing shoulder in the wellhead housing.

III 3. EXTRACT OF DAILY ACTIVITIES

### III 3. EXTRACT OF DAILY ACTIVITIES 6506/12-2

11.02.85

On the way to location from 14:00 hrs. Arrived at the location at 16.00 hrs. and started to drop anchors, 4 anchors were on the bottom by midnight.

12.02

Continued with anchor handling. Started to ballast the rig at 03:30 hrs. All anchors were on bottom at 06:30 hrs. Made up drillstring and 30" casing landing string BHA's while tensioning the anchors and positioning the rig. RIH with 26" bit and 36" hole opener. Dropped the mantis and observed when tagging the bottom. The water depth was 310m. Deballasted the rig to 22m to get the rotary bushing in. Spudded at 19:58 hrs, and drilled 36" hole from 332 to 348 meters.

13.02

Continued drilled 36" hole until 9:30 hrs at 408m. Circulated the hole with seawater and displaced with high viscosity mud. Dropped survey, made wiper trip to the seabed, and retrieved the survey showing 0.25<sup>o</sup> deviation. RIH and got 0.5m<sup>3</sup> fill. Pumped 97m<sup>3</sup> high viscosity mud and POOH. Started to run 30" casing, filling each joint with seawater. Installed stinger and permanent guide base (PGB) on the 30" casing. Ran mantis to assist during stabbing. Had to wash down the last 3m. The level indicator showed 1/2<sup>o</sup> when the casing was landed. Picked up 1m and circulated seawater. Pumped the cement and displaced with seawater. Observed returns by TV camera. Camera failed after the cement job and was repaired and rerun prior to backing the running tool out. Inspected the wellhead and the level indicator. 2.5m were sticking up and the



level indicator showed 0.5 degrees. POOH. The 30" casing shoe was set at 406m.

14.02

Changed the AX-ring gasket on the lower marine riser package. Made up 26" bit and RIH using TV camera and guide arm. Tagged the top of the cement at 404,5m. Drilled 1 m into the formation at 409 m. POOH and installed the marine riser.

15.02

Pull tested the riser with 25 tons overpull. OK. RIH w/12 1/4" bit and DLWD tool. Drilled 12 1/4" hole from 409 m to 806 m. Took directional surveys.

16.02

Drilled 12 1/4" hole to 955 m. POOH and swabbed 0.7 m<sup>3</sup> in 5 stds. RIH and circulated, max. gas 3,74%. Made wiper trip to the 30 casing shoe. RIH and circulated, max. 12,1% gas. POOH. Ran ISF, Sonic, GR and MDFL logs on Schlumberger. Made up 12 1/4" bit, 17½" hole opener and 26" underreamer and RIH.

17.02

Continued RIH. Opened the 12 1/4" hole to 26".

18.02

Continued underreaming to 731 m. Circulated bottoms up and POOH. All cones on the 26" UR were lost. RIH with new hole opener and underreamer. Started to ream again at 457 m.

19.02

Continued underreaming down to 849 meters until 22 hrs. Circulated bottoms up and POOH.

20.02

RIH w/new hole opener and underreamer and restarted at 849 m. Opened the hole to 952 m and displaced to 1.25 s.g mud to the wellhead. Dropped survey. Displaced the riser to seawater and gained 450 l. Circulated 1.12 s.g. mud into the riser and stopped the "flow."

21.02

RIH to 573 m, below the potential gas zone. Circulated bottoms up with 1.12 s.g. mud and lost 15 m<sup>3</sup> mud. The mud level continued to drop and the annulus was refilled with seawater. The losses dropped when observing the well. Mixed a LCM pill and circulated it around the 30" casing shoe. Pumped a second pill with marker. Displaced the hole with 1.25 mud from 573 m and the riser with seawater. Observed the well.

22.02

Pulled the riser. Made wiper trip to 950 m. Ran the 20" casing and set shoe at 940 m.

23.02

Cemented the casing. Waited 13 hrs on the weather to run riser and BOP.

24.02

Ran the BOP and the riser. Tensioners on the blue and the yellow pod collapsed while installing the slip joint due to communication failure. 2 sheaves and a high pressure air line were damaged. RIH w/tam tester and attempted to pressure test BOP. The test failed. Installed wear bushing.

25.02

RIH w/tam tester. The plug held 408 bar until the pressure suddenly dropped off. Attempted to reset the tam tester, but it failed and was POOH. Ran new. Pressure tested the BOP on the blue pod and function tested it on the yellow pod. OK. Was unable to pull the wearbushing. Pulled w/20, 50 and 100 tons. Attempted to pass through the wear bushing with 17½" bit without success. Ran 17½" part of boll weevil 0,3 m into the bushing.

26.02

Ran 18 3/16" spear and jar. Jared 151 times without success. POOH. RIH with spear with 12 9/16" grapple. No obstruction - POOH. Reran wear bushing R/P tool without success. Operated LPR on painted joint which indicated that the wear bushing was 0,27 m too low. RIH w/boll weevil and worked it in the wear bushing. The UPR was operated on the painted joint which indicated that the top of the boll weevil had been 0,68 m below the wellhead. RIH w/15" lip guide. No obstruction was identified - POOH. RIH with 17½" stabilizer and attempted to work it through the wear bushing without success. Mark from UPR on the painted joint indicated that the stabilizer had been 1,45 m below the wellhead.

27.02

Attempted to run TV camera inside the riser but could not get clear pictures. RIH with 17 3/8" mill and milled 0,2 m before it dropped through the wellhead. POOH and RIH with boll weevil to pull wear bushing without success. POOH and RIH with spear. Pulled with 75 tons without retrieving the bushing. Worked the jar, but the bushing was still not retrieved. POOH. Pressure tested the 20" casing to 218 bar. Installed cement plugs from 583-383 m. Prepared to pull the BOP and the riser.

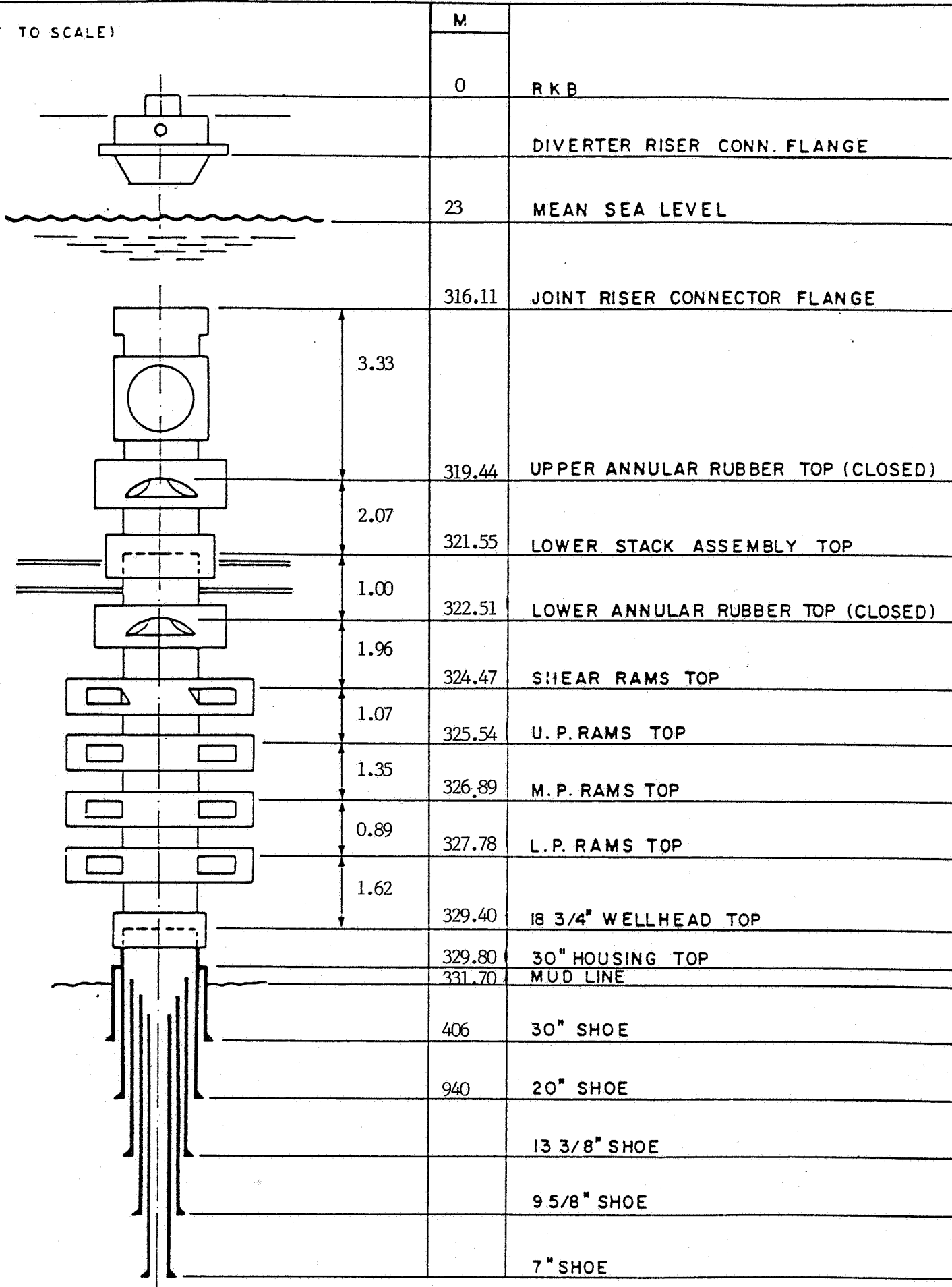
28.02

Pulled the BOP and the riser. Ran explosives on sand line and cut the casing 6 m below the seabed at 338 m. Was not able to pull the equipment and refired explosives 1 m deeper. Pulled 20" casing and 18 3/4" housing. RIH and retrieved 30" casing, wellhead and guide base.

Moved the rig 40 m in 325 degrees direction on anchors.

III 4. WELLBORE SHEMATIC

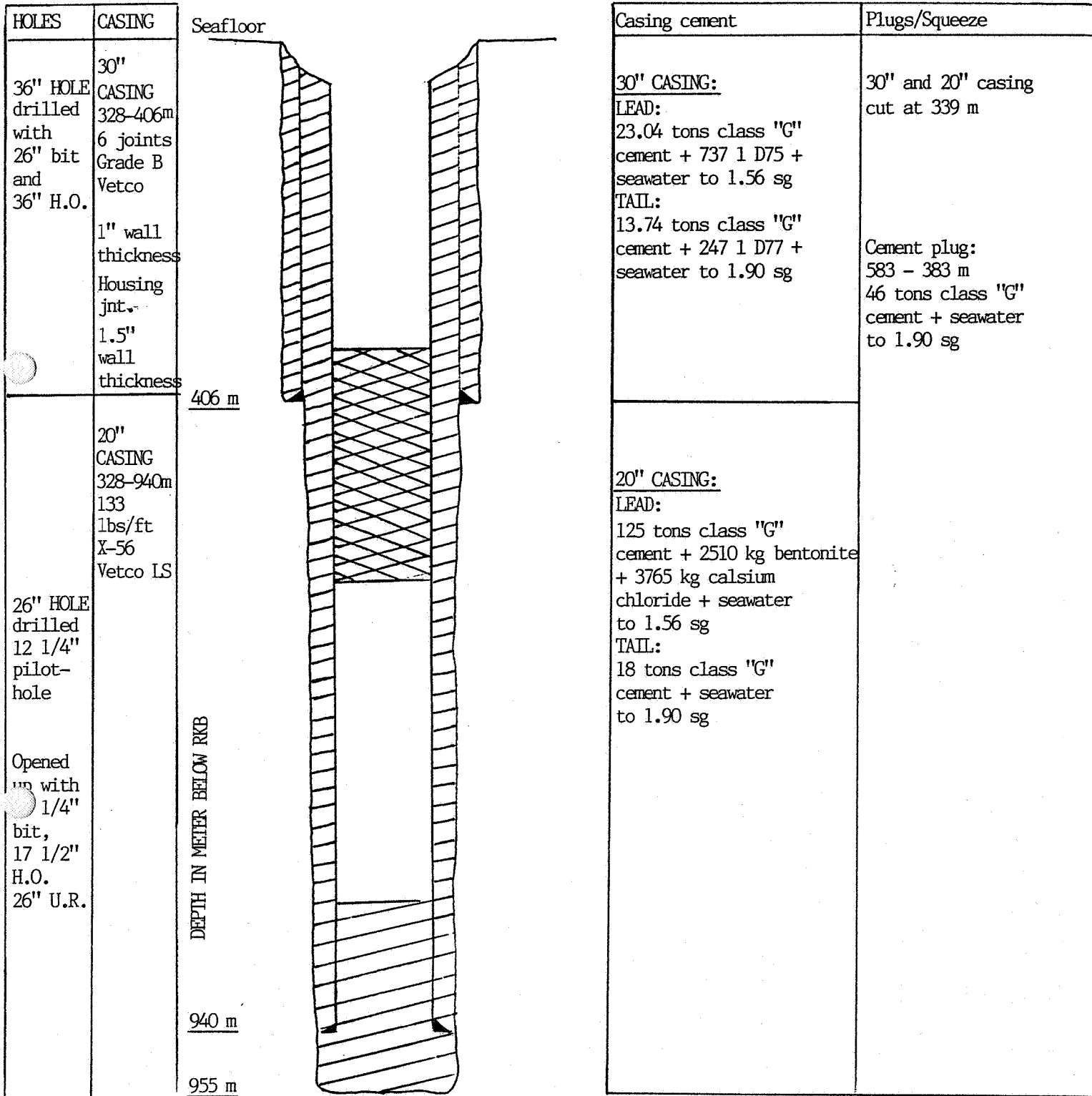
(NOT TO SCALE)



III 4 WELLBORE SCHEMATIC 6506/12-2

RKB-MSL: 22 m

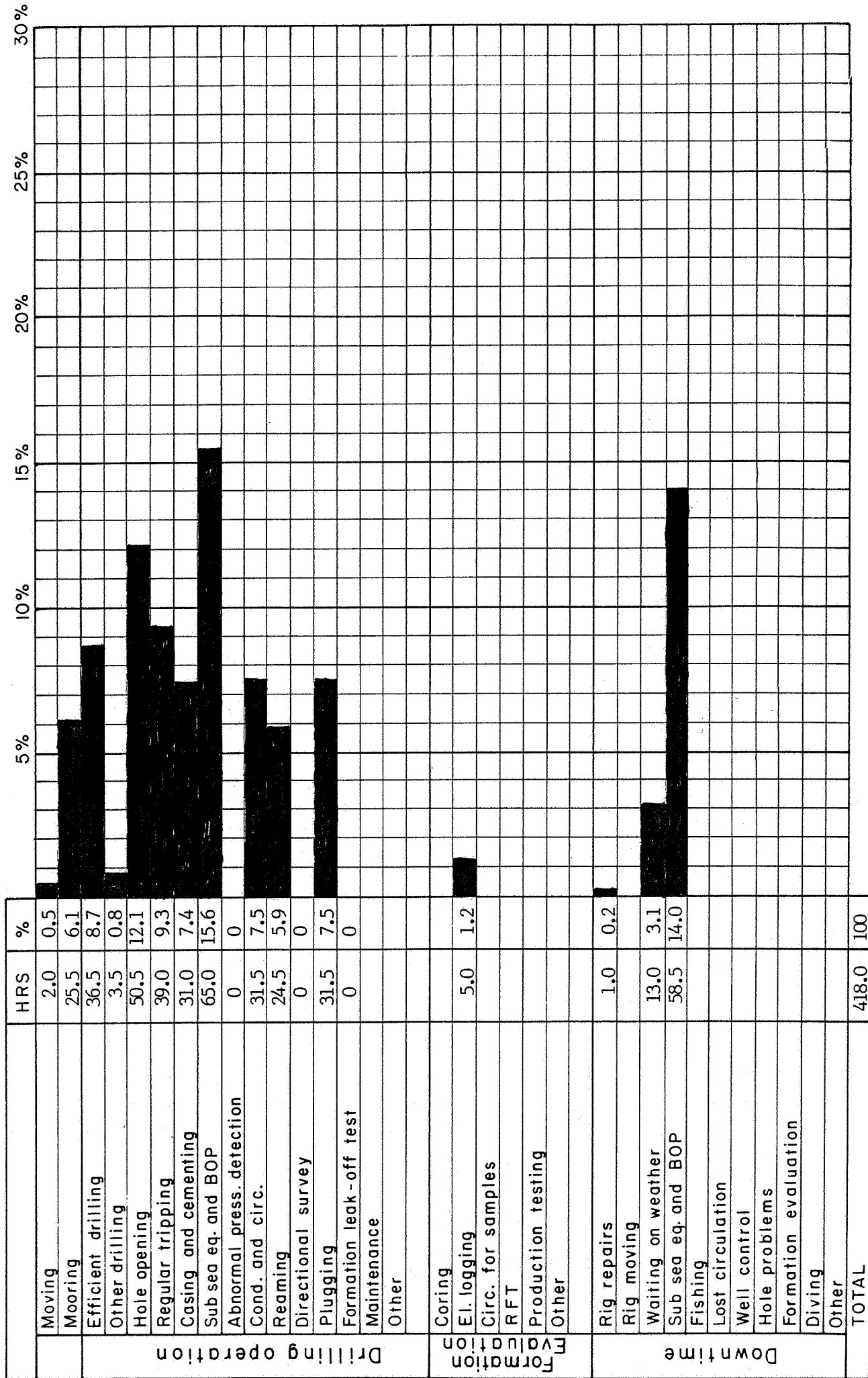
WATER DEPTH 302 m

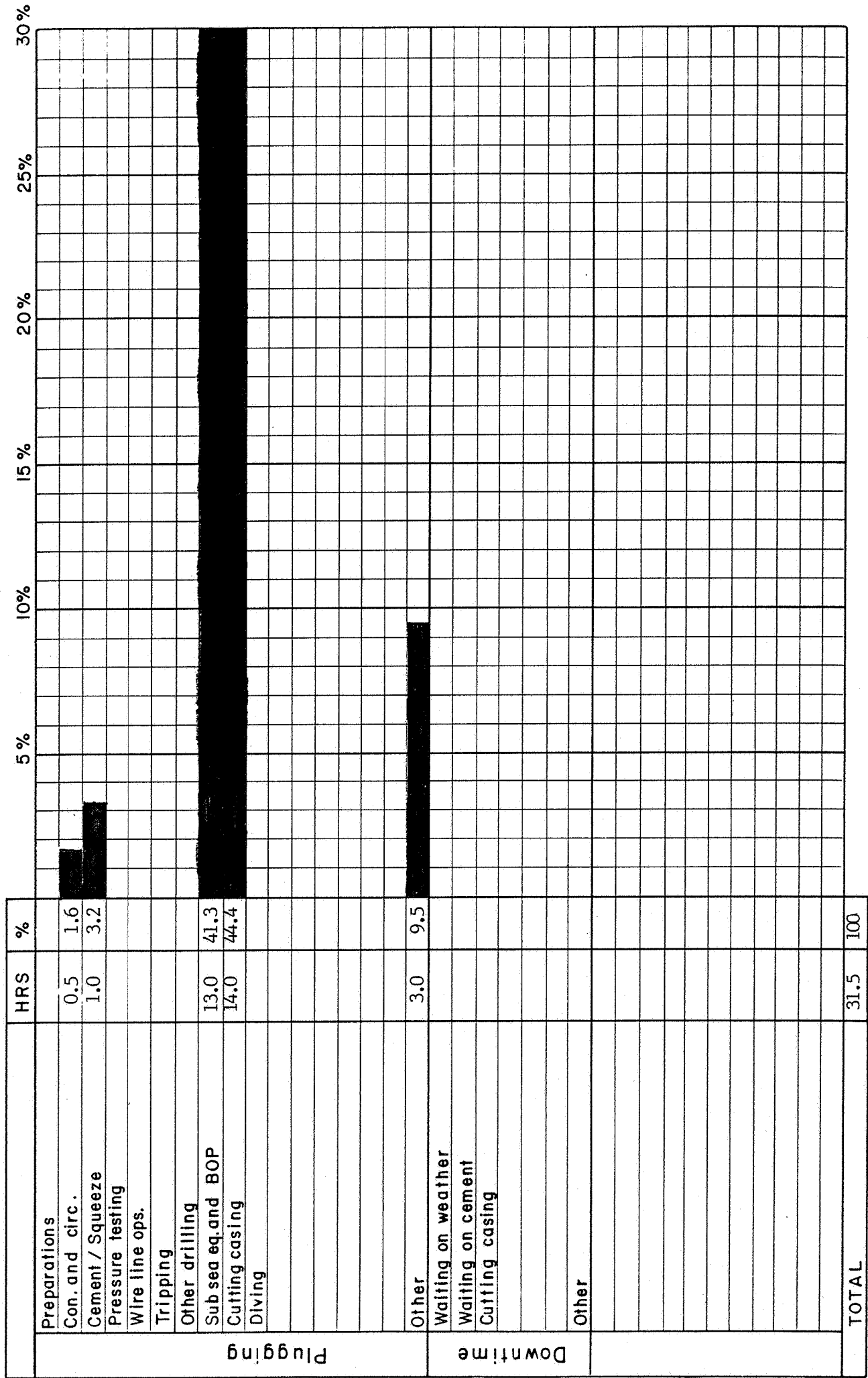


III 5. RIG TIME DISTRIBUTION

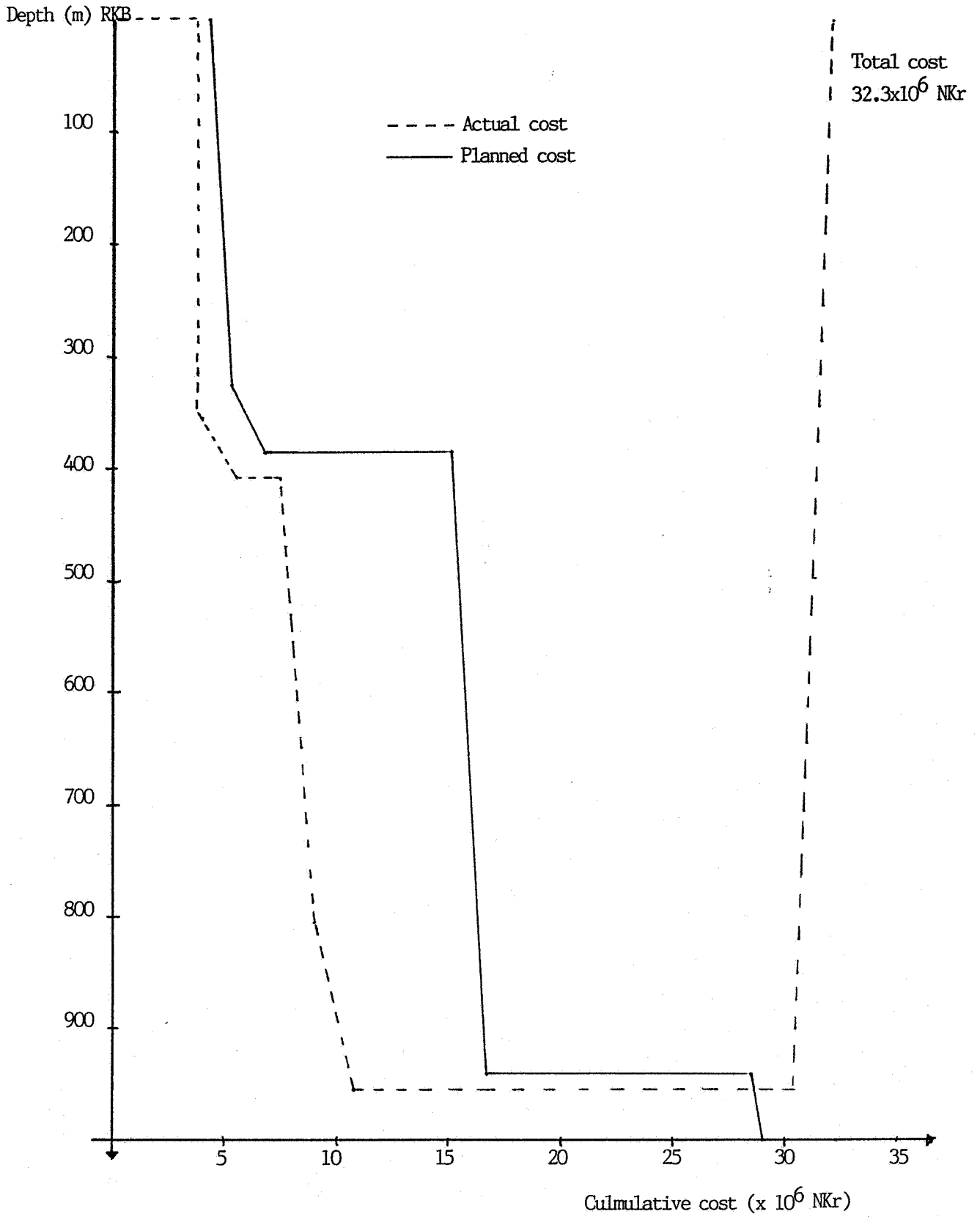


TOTAL RIG TIME DISTRIBUTION FOR WELL 6506/12-2



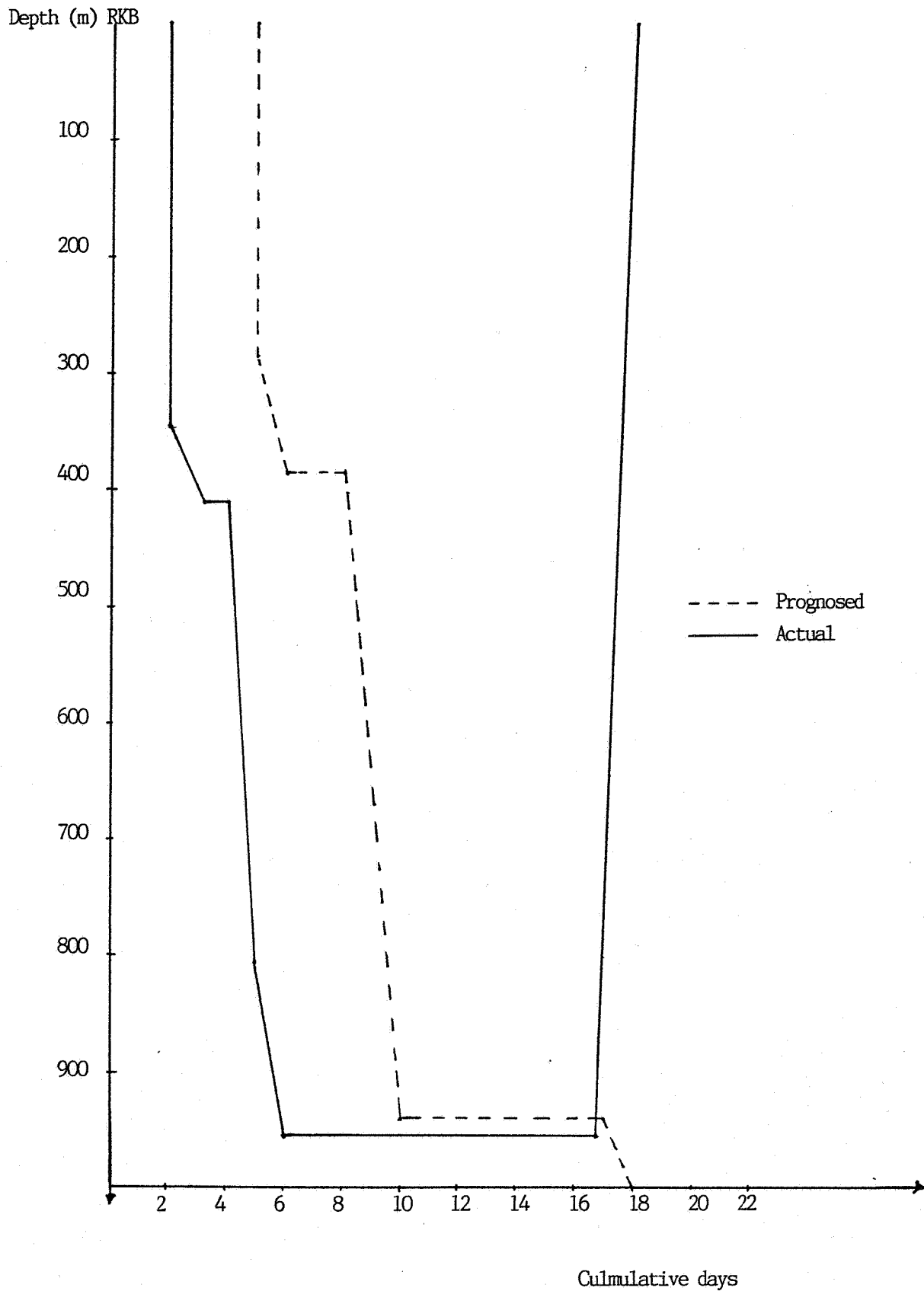
**RIG TIME DISTRIBUTION FOR PLUGGING, INCL. IN TOTAL RIG TIME DISTRIBUTION.**


DRILLING COST VS. DEPTH



WELL 6506/12-2

DRILLING TIME VS. DEPTH



III 6. BIT RECORD



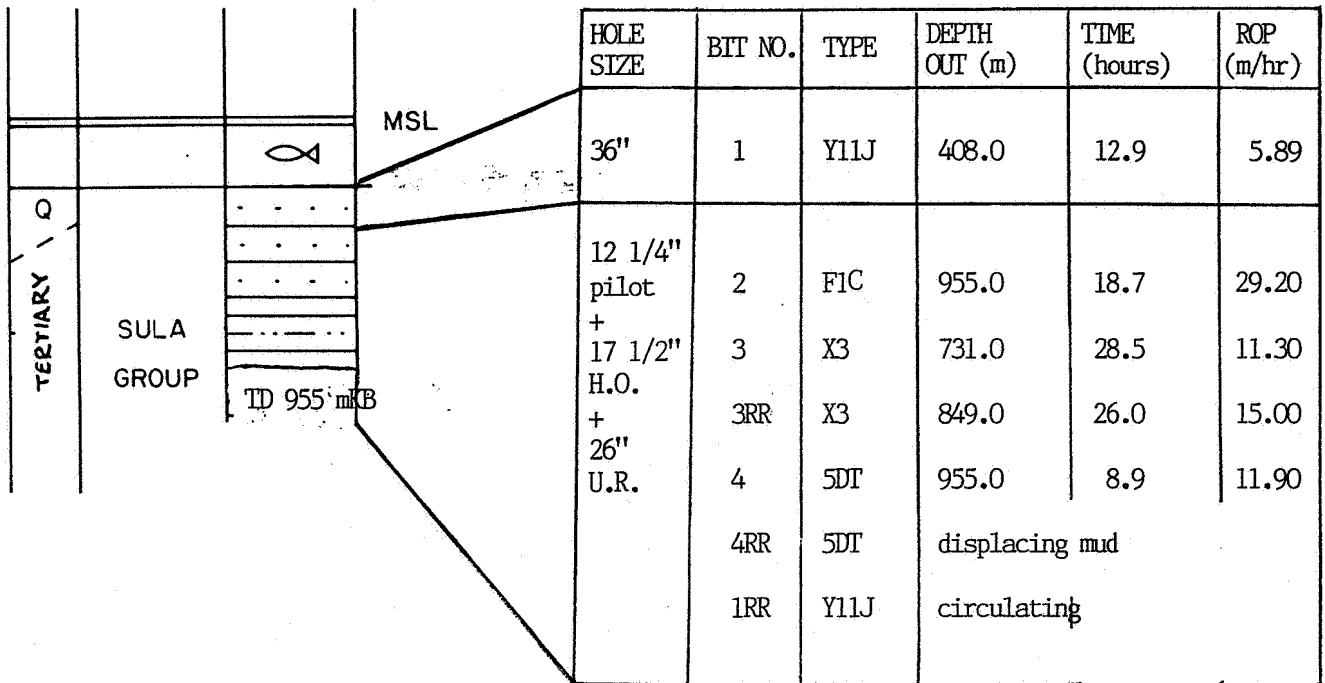
BORKRONEDATA

Brønn nr.: 6506/12-2

Nr.	B. k. Nr.	Diam.	Fabr.	Type	Serie no.	Dyser 1/32"	Dybde ut	Fremdrift	Rot. tid	Total rot.tid	Bore- hast.	V.p.b.	O.p.m.	Pumpe			Tilstand			Anmerkninger
														Trykk	V.grad	v/t	T	B	G	
1	1	26"x36"	REED	Y11J		7x22	408	76	12.9	12.9	5.89	2-4	50-70	63	2850	-	-	-		
2	1RR	"	"	"		"	DRILLING OUT		CEMENT	+ 1M OF	FORMATION BELOW					2	2	1		
3	2	12 1/4"	SMITH	F1C		3x14 1x11	955	546	18.7	31.6	29.2	0/8	100	130/ 140	2500	2	3	8		
4	3	12 1/4" +17"H.C +26"U.B	HUGHES	X3		2x14 1x13 3x15 3x7	731	323	28.5	60.1	11.3	0/10	110/ 120	110	3400	2	2	1	12 1/4" bit H.O. cones lost on 26 U.	
5	3RR	"	"	"		"	849	391	26	86.1	15	0/7	75/80	118	3400	3	3	3	1/8	
6	4	"	SMITH	5DT		2x14 3x15 3x7	955	106	8.9	95.0	11.9	0/7	80	110	3400	4	4	3	1	
7	4RR		"	"		OPEN	DISPLACING MUD													
8	1RR	26"	REED	Y11J		7x22	CIRCULATING													

# BIT RECORD VS. LITHOLOGY COLUMN

WELL 6506/12-2



III 7. SURVEY



SURVEY RECORD

This is a list of surveys taken during drilling of the well:

meters (RKB)	degrees	direction
409	0,25	
497	0,9	S18E
545	1,1	S8E
593	0,8	S12E
687	0,9	S32E
783	0,9	S53E
878	1,2	S85E
951	1,0	N68E

III 8. DRILLING FLUID SUMMARY

# SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 6506/12-2

36" HOLE/ 30" CASING INTERVAL

This section was drilled to 408 m with a 26" bit and 36" hole opener in 2 days, using seawater and pumping pills of viscous Gel mud on every connection with returns to seabed. At TD the hole was circulated clean, and then displaced to viscous mud. Made short trip to seabed. RIH again, circulated bottoms up and displaced hole to mud once more. POOH and ran and cemented 30" casing at 407 m without problems.

# SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 6506/12-2

26" HOLE/ 20" CASING INTERVAL

Drilled 12 1/4" pilot hole to 955 m in 2 days, using spud mud with returns to pits. Prehydrated Bentonite was added to the mud to provide adequate hole cleaning properties, and seawater was added to keep mud weight at a low level. All solids removal equipment was run continuousle to assist in maintaining low mud weights. At TD the hole was circulated clean and a short trip was made to seabed. Before POOH for logging, mud was conditoned and weight adjusted to 1.08 - 1.09 SG.

After the log-runs the hole was opened using a 12 1/4" bit and 26" underreamer. The mud utilized was ordinary spudmud, prehydrated Bentonite and seawater. In order to keep the mud weight low, all solids removal equipment was run and dilution with seawater was made whenever necessary. Additions of prehydrated Bentonite were made to assist in providing good hole cleaning properties.

Three bit runs had to be made before the hole was opened to 955 m, occasionally the hole was a bit tight, but aside from the necessity to ream parts of the hole, no problems were encountered.

Circulated bottoms up at TD, and open hole was displaced to 1.25 SG mud, and riser was displaced to seawater. Seawater in riser was then displaced to mud again because of backflow. Two Lost Circulation Material pills, 10 m<sup>3</sup> and 5 m<sup>3</sup>, were pumped before 20" casing was run and cemented at 940 m with 1.25 SG mud in open hole.

# SUMMARY OF EVENTS

OPERATOR: STATOIL

WELL NO. 6506/12-2

17 1/2" HOLE/ \_\_\_\_\_ CASING INTERVAL

Due to problems with the wear-bushing, this well was abandoned after the 20" casing, and the Gyp-mud mixed for the 17 1/2" - section was brought forward to the next well.

OPERATOR STAI OIL

WELL NO. 6506/12-2

# MATERIAL CONSUMPTION & COST ANALYSIS

36" HOLE DRILLED TO 408 Meters ~~FEET~~ 30 CASING SET AT 407 Meters ~~FEET~~

ACTUAL AMOUNT OF HOLE DRILLED 76 Meters ~~FEET~~ DAYS ON INTERVAL 2

DRILLING FLUID SYSTEM SPUD MUD

MATERIAL	UNIT SIZE	UNIT PRICE	CONSUMPTION	COST
WYOMING BENTONITE	M/T	380	26	9880
CAUSTIC SODA	25 KG	20	12	240
SODA ASH	50 KG	21	7	147

COST/DAY US\$ 5133.50 COST FOR INTERVAL US\$ 10,267

COST/M US\$ 135.09

WELL NO. 6506/12-2

# MATERIAL CONSUMPTION & COST ANALYSIS

HOLE DRILLED TO  Meters  Meters  
~~feet~~ ~~feet~~ CASING SET AT  Meters  
 ACTUAL AMOUNT OF HOLE DRILLED  Meters  DAYS ON INTERVAL  
~~feet~~  
 DRILLING FLUID SYSTEM

MATERIAL	UNIT SIZE	UNIT PRICE	CONSUMPTION	COST
ANCOBAR	M/T	148.-	199	29,452.-
WYOMING BENTONITE	M/T	380.-	31	11,780.-
WYOMING BENTONITE * SXS	50 KG	20.-	64	1,280
SPERCELL C	25 KG	19.50	25	487.50
DESCO	25 LBS	51.-	4	204.-
CAUSTIC SODA	25 KG	20.-	92	1,840.-
SODA ASH	50 KG	21.-	5	105.-
CaCl <sub>2</sub>	50 KG	38.-	90	3,420.-
NUT PLUG FINE	25 KG	22.-	5	110.-
NUT PLUG COARSE	25 KG	22.-	20	440.-
MICA FINE	25 KG	22.-	16	352.-
MICA COARSE	25 KG	22.-	22	484.-
IVCO SPOT	25 KG	99.-	4	396.-

COST/DAY  COST FOR INTERVAL   
 COST/M

\* Cement mixing water agents for Dowell







# TOTAL CONSUMPTION & COST ANALYSIS

TOTAL DEPTH 955 Meters  
XXXX TOTAL HOLE DRILLED 648 Meters  
XXXX

TOTAL DAYS 9 + 8 days mixing mud for 17 1/2" section.

MATERIAL	UNIT SIZE	UNIT PRICE	CONSUMPTION	COST
ANCOBAR	MT	148	199	29,452
WYOMING BENTONITE	MT	380	85	32,300
WYOMING BENTONITE	50 KG	20	64	1,280
CAUSTIC SODA	25 KG	20	140	2,800
SODA ASH	50 KG	21	16	336
CMC LV	25 KG	65	31	2,015
CMC HV	25 KG	67	34	2,278
SPERCELL C	25 KG	19.50	26	507
DESCO	25 LBS	51	4	204
NUT PLUG	25 KG	22	25	550
MICA	25 KG	22	38	836
IMCO SPOT	25 KG	99	4	396
CaCl <sub>2</sub>	50 KG	38	90	3,420
GYPSUM	40 KG	10.56	81	855.36

COST/DAY SEE SECTION TOTAL CHEMICAL COSTS US\$ 77,229.32

COST/   TOTAL ENGINEERING CHARGES  

TOTAL DRILLING FLUID RELATED COSTS









IV MARINE REPORT

WEATHER AND ANCHOR TENSION 6506/12-2

There was a total of 13 hours downtime due to bad weather. This is 3,1% of the total time spent on the well.

The main wind direction was from S-SW.

The maximum reported wind speed was 30 m/s from SW. The main wave direction was from S. The maximum reported wave height was 12 m from SW.

The maximum experienced anchor tension was 140 tons on anchor no. 8. Rig heading was 238 deg.

# LOCATION WEATHER DATA SUMMARY



WELL: 6506/12-2 RIG: ROSS ISLE

TIME PERIOD: FROM 11.02.85 TO 28.02.85 -19 85

READINGS PR. MONTH: each day at 05:00 hrs

## WIND

dir. \ m/sec.	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	> 30	total
N								
NNE								
NE	1							1
ENE								
E								
ESE								
SE								
SSE								
S		1			2			3
SSW			1			2		3
SW			1	2				3
WSW								
W		1	1					2
WNW		1						1
NW		3		1				4
NNW								
total	1	6	3	3	2	2		17 / 17

## WAVE

dir. \ height (m)	0 - 1	1 - 2	2 - 3	3 - 5	5 - 7	7 - 10	> 10	total
N			1	1				2
NNE								
NE			1					1
ENE								
E								
ESE								
SE								
SSE								
S		1		2		1		4
SSW				1		1		2
SW			1		1	1		3
WSW								
W			1	1				2
WNW			1					1
NW			2					2
NNW								
total		1	7	5	1	3		17 / 17



## NAVIGATIONS REPORT

RIG MOVE OF "ROSS ISLE" TO WELL 6506/12-2

### Final position (ED 1950)

65° 01' 29.85" N, 06° 53' 29.41"E

Accuracy: +/- 5 meters (Translocation)

Rig heading: 237°

Deviation from intended position: 49 m - 193°

### 2. Decca Main Chain readings

Chain : Trøndelag 4E

Red: : 2A 10.05

Green : 1E 32.73

Purple: 1A 66.71

### 3. Navigation/positioning method

#### a) Navigation

Decca Main Chain with HP 9815 computer and HP 9862 plotter

Contractor: Racal Survey Norge, Bergen

Personell : R. Lindseth

#### b) Positioning

MX-1502 satellite positioning system

Contractor: Geoteam, Oslo

Personell : E.B. Johannesen

4. Duration of the rig move

Personell and equipment onboard	: 10 Feb. 1985 at 13.30 hours
Rig left Freifjorden	: 10 Feb. 1985 at 16.20 hours
Start run in 5 km from location	: 11 Feb. 1985 at 16.00 hours
Dropped first anchor (no. 4)	: 11 Feb. 1985 at 16.36 hours
Dropped last anchor (no. 7)	: 12 Feb. 1985 at 06.15 hours
All anchors tensioned tested and ready for drilling	: 12 Feb. 1985 at 17.15 hours

5. Techniques/problems

The operation was performed according to Statoil's procedures without navigational problems.

To improve navigation control at location two Simrad transponders (symbol x and  $\Delta$ ) were dropped at the intended location by a site survey boat late January 1985.

By using the rig's Simrad HPR system together with the Decca Main Chain, these transponders were of great help during the anchorhandling. The Decca Main Chain system can be unstable from time to time especially at night. The system can also have unknown fixed errors in the order of 50-150 meters.

The final position of the rig was fixed by satellite using the translocation method. A geodetic point onshore at NTH, Trondheim, was used for the fixed point satellite receiver.

Discrepancy between Decca M/C position and Sat.nav. position was 65 m - 302 degrees (Decca M/C position WNW of satnav. position)