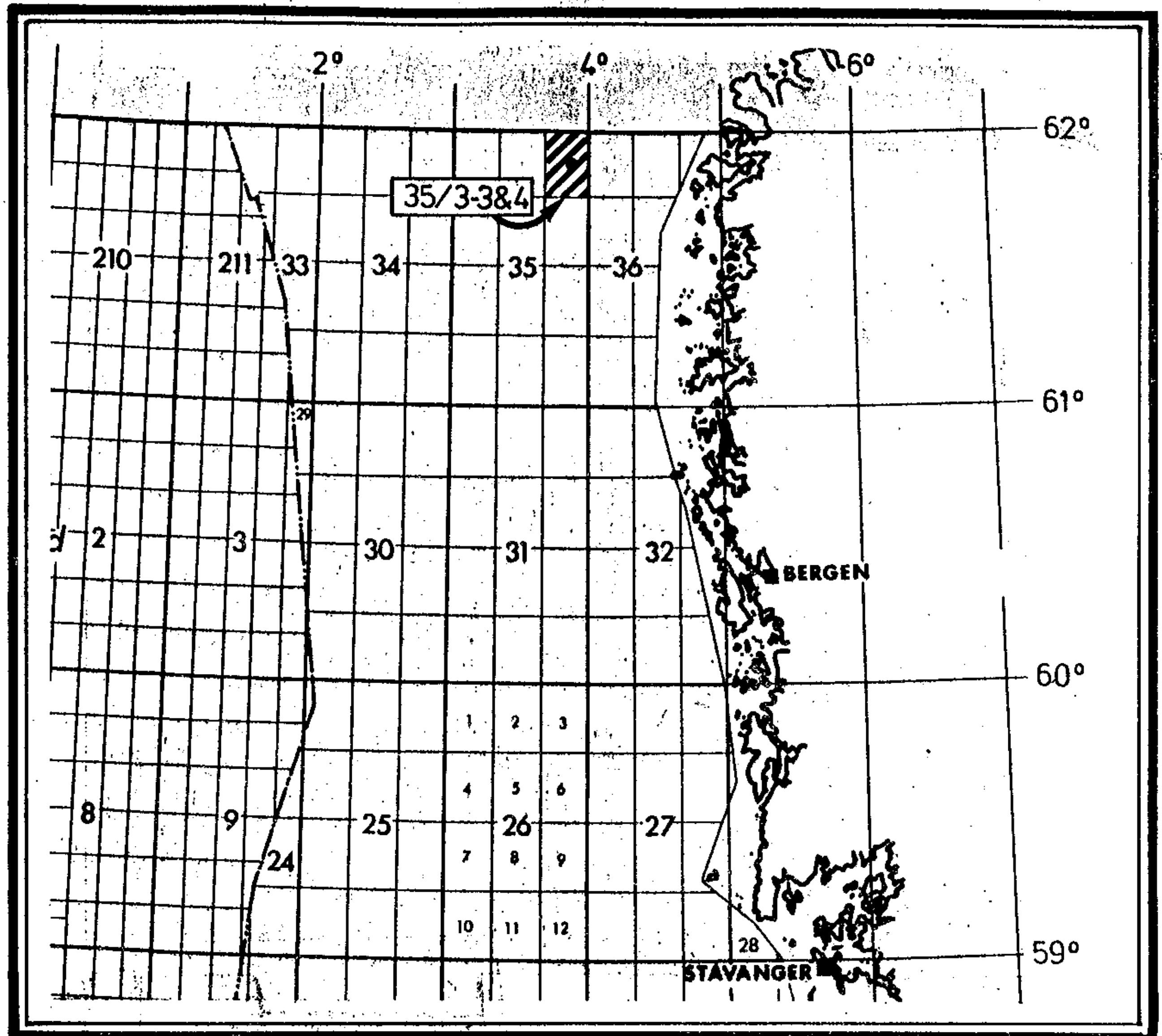


SAGA PETROLEUM A.S.

saga

Final well report

WELL 35/3-3&4 Offsh. NORWAY

FINAL WELL REPORT

GEOLOGICAL AND ENGINEERING

SAGA PETROLEUM A.S./
BP PETROLEUM DEVELOPMENT LTD. NORWAY/
STATOIL

WELL 35/3-3 & 4
LICENCE 041

SANDVIKA, OCTOBER 1981

LICENCE INFORMATION

Licence 041 was awarded to Saga/Statoil/BP-group with Saga Petroleum a.s. as operator.

Company	Working Interest	Net Interest
Saga Petroleum a.s.	30 %	15 %
BP	70 %	35 %
Statoil	-	50 %

FINAL WELL REPORT WELL 35/3-3 & 4

Parts	Contents	Page
1.	SUMMARY	1
2.	GEOLOGY/GEOPHYSICS/PETROPHYSICS	3
	2.1 Key Data Summary	6
	2.2 Stratigraphy	20
	2.3 Sample Analyses	26
	2.4 Formation Evaluation	32
	2.5 Well Velocity Survey	52
3.	DRILLING AND ENGINEERING	54
	3.1 Pertinent Information	56
	3.2 Highlights of Drilling Intervals	58
	3.3 Time Analysis	61
	3.4 Engineering Data	64
	3.5 Daily Activity Report	77
4.	ENCLOSURES	
	I Summary Log	
	II Conventional Core Description	
	III Formation Pressure Evaluation Sheet	
	IV Composite Well Log	

Figures | Page

		Page
2.1	Location of well 35/3-3 & 4	6
2.2	Formation temperature vs depth	16
2.3	RFT Formation Pressure vs depth	44
2.4	Time depth curve	53
3.1	Time analysis	62
3.2	Time Breakdown	63
3.3	Anchor Pattern	65

Tables

2.1	Sidewall cores shot and recovery	10
2.2	Open and cased hole logs	14
2.3	Temperature data	15
2.4	Log analysis summary - Lower Cretaceous formation	33
2.5	Summation of Core Data	35
2.6	Conventional Core Porosities and Permeabilities	35
2.7	RFT Pressure Measurements, Lower Cretaceous	42
2.8	RFT Pressure Measurements, Jurassic	43
3.1	Bit Hydraulic Well Data	66
3.2	Cementing and Casing Details	70
3.3	Mud Recap	71
3.4	Directional Survey	73

PART 1

SUMMARY

1. SUMMARY

The well 35/3-3 was spudded on Oct. 30th 1980 in 258 m waterdepth by the rig Byford Dolphin. It was drilled and logged to 900 m RKB, then abandoned because of technical problems with running 20" casing. The rig was moved about 20 meters, and the well was respudded on Nov. 30th 1980 as 35/3-4. These two wells together are designated as well 35/3-3 & 4.

The well penetrated strata from Tertiary through Jurassic before reaching basement rocks of Caledonian age. A sidetrack was drilled from 3768 m RKB. T.D. is 4089 m RKB.

The well was plugged and abandoned as a gas/condensate producer on June 6th, 1981.

Hydrocarbon shows were encountered in Lower Cretaceous and Lower-Middle Jurassic sand. Two drillstem tests were performed in the Lower Cretaceous sequence. Final gas flow rate under the first main flow period was 24.30 MMSCF/D and the corresponding condensate flow rate was 528 B/D on a 36/64" choke. The gas gravity was 0.62 (air = 1) and condensate gravity was 50.3 ^{o}API.

RFT measurements in Lower Cretaceous indicate an upper zone with a gas gradient of 0.4 psi/m, and a deeper zone with a water gradient of 1,54 psi/m. There seem to be no pressure communication between these two zones.

Log evaluation indicate 13 m net thickness in the interval 3445-3471 m RKB, with an average porosity of 19 % and an average water saturation of 52 %.

The Lower Cretaceous sediments are interpreted as submarine fans.

PART 2

GEOLOGY/GEOPHYSICS/PETROPHYSICS

2. GEOLOGY/GEOPHYSICS/PETROPHYSICS

		Page
2.1	Key Data Summary	6
2.1.1	Geographic Situation	6
2.1.2	Purpose of Test	7
2.1.3	Rock Sampling	7
2.1.4	Special Analysis	12
2.1.5	Wireline Logs	14
2.1.6	Formation Temperatures	15
2.1.7	Biostratigraphic Summary	17
2.1.8	Lithostratigraphic Summary	19
2.2.	Stratigraphy	20
2.2.1	General	20
2.2.2	Nordland Group	20
2.2.3	Hordaland Group	20
2.2.4	Rogaland Group	21
	a) Balder Formation	
	b) Lista/Sele Formation	
2.2.5	Shetland Group	22
	a) "Fm E"	
	b) "Fm D"	
	c) "Fm C"	
	d) "Fm B"	
	e) "Fm A"	
2.2.6	"Cromer Knoll Group"	24
2.2.7	Jurassic Sediments	24
2.2.8	Basement	25
2.3	Sample Analysis	26
2.3.1	Sidewall Core Description	26
2.3.2	Conventional Core Description	31

		Page
2.4	Formation Evaluation	32
	2.4.1 Hydrocarbon Indications	32
	2.4.2 Wireline Log Evaluation	33
	2.4.3 Core Porosity and Permeability	35
	2.4.4 RFT Measurements	41
	2.4.5 DST Measurements	45
2.5	Well velocity Survey	52

2.1 Key Data Summary

2.1.1 Geographic Situation

The exploratory well 35/3-3&4 was drilled in the northern North Sea, approximately 50 km west of Måløy (fig. 2.1).

Final Location Coordinates :

Latitude : 61° 51' 54.54" N
Longitude: 03° 52' 26.99" E

Seismic Line : Line TLGS 78-01A, SP 2727

Water depth : 258 m

Rig : Byford Dolphin

RKB-MSL : 25 m

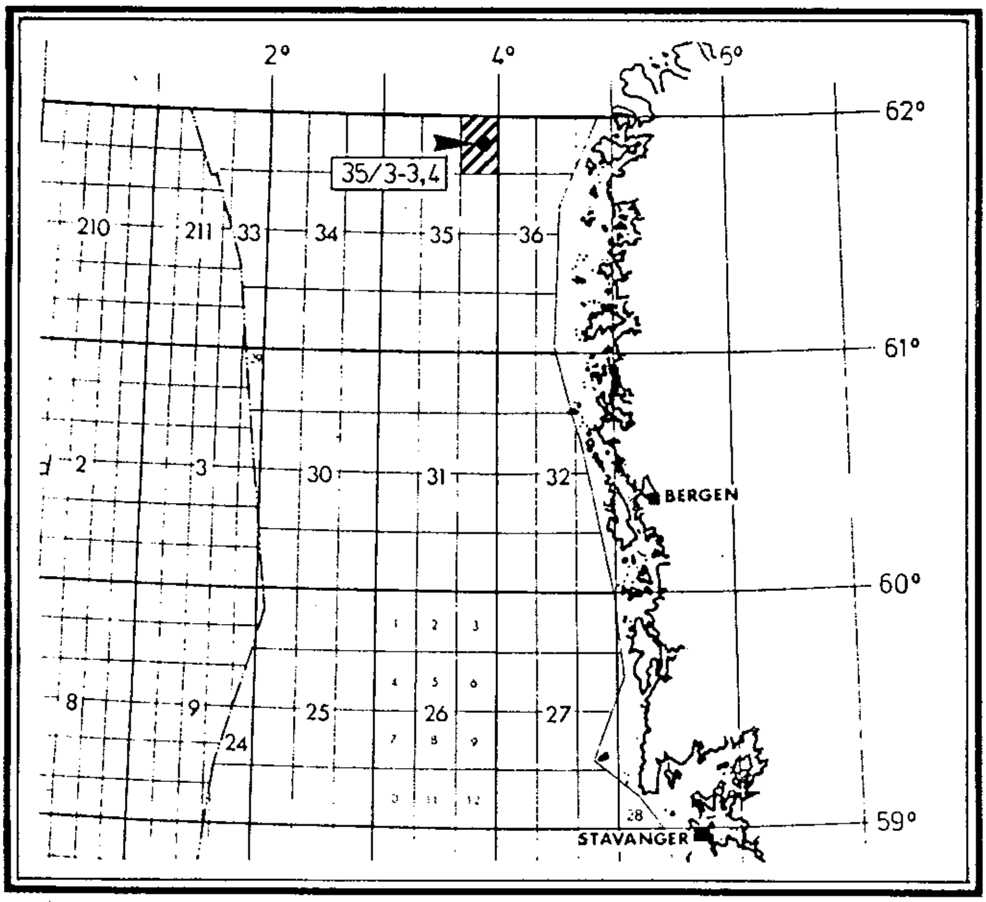


Fig. 2.1 Location of well 35/3-3&4.

2.1.2 Purpose of Test

The primary target of well 35/3-3&4 was to test the extension to the east of the Lower Cretaceous sandstones encountered in 35/3-1 and 35/3-2. These sandstones proved to contain hydrocarbons in well 35/3-2.

A secondary target was a possible sandstone of Lower Jurassic age which also was encountered in 35/3-2.

2.1.3 Rock Sampling

a) The following routine samples were collected :

3 sets of washed and dried cuttings
5 sets of wet ditch cuttings

No returns	:	296 m RKB (seabed) - 450 m RKB
10 m intervals	:	450 m RKB - 2380 m RKB
5 m intervals	:	2380 m RKB - 3200 m RKB
3 m intervals	:	3200 m RKB - 4087 m RKB

b) In addition one set of canned wet samples was collected for geochemical analysis at 20 m intervals from 890 - 2990 m RKB, 10 m intervals from 2990 - 3200 m RKB and 9 m intervals from 3200 - T.D.

c) A total of 11 conventionally cores were cut :

Core No. 1 :	Coring Depth :	3400.6 - 3415.4 m
	Cored :	14.8 m
	Recovered :	14.8 m
	Recovery :	100 %
	Depth Correction :	+ 2.4 m
	Corrected Log Depth :	3403.0 - 3417.8 m
Core No. 2 :	Coring Depth :	3447.3 - 3458.1 m
	Cored :	10.8 m
	Recovered :	10.3 m
	Recovery :	95 %
	Depth Correction :	+ 3.3 m
	Corrected Log Depth :	3450.6 - 3460.9 m

Core No. 3 :	Coring Depth:	3458.5 - 3459.7 m
	Cored :	1.2 m
	Recovered :	1.1 m
	Recovery :	92 %
	Depth Correction :	+ 4.4 m
	Corrected Log Depth :	3462.9 - 3464.0 m
Core No. 4 :	Coring Depth :	3459.7 - 3478.1 m
	Cored :	18.4 m
	Recovered :	18.4 m
	Recovery :	100 %
	Depth Correction :	+ 4.3 m
	Corrected Log Depth :	3464.0 - 3482.4 m
Core No. 5 :	Coring Depth :	3478.1 - 3491.8 m
	Cored :	13.7 m
	Recovered :	8.6 m
	Recovery :	63 %
	Depth Correction :	+ 4.3 m
	Corrected Log Depth :	3482.4 - 3488.2 m and 3490.0 - 3492.8 m
Core No.6 :	Coring Depth :	3491.8 - 3497.8 m
	Cored :	6.0 m
	Recovered :	5.4 m
	Recovery :	90 %
	Depth Correction :	+ 2.7 m
	Corrected Log Depth :	3494.5 - 3999.9 m
Core No. 7 :	Coring Depth :	3497.8 - 3509.5 m
	Cored :	11.7 m
	Recovered :	11.7 m
	Recovery :	100 %
	Depth Correction :	+ 2.7 m
	Corrected Log Depth :	3500.5 - 3512.2 m

Core No. 8 :	Coring Depth :	3509.5 - 3514.8 m
	Cored :	5.3 m
	Recovered :	5.3 m
	Recovery :	100 %
	Depth Correction :	+ 2.7 m
	Corrected Log Depth :	3512.2 - 3517.5 m
Core No. 9 :	Coring Depth :	3518.0 - 3536.0 m
	Cored :	18.0 m
	Recovered :	12.7 m
	Recovery :	70.5 %
	Depth Correction :	+ 3.0 m
	Corrected Log Depth :	3521.0 - 3533.7 m
Core No. 10 :	Coring Depth :	3536.0 - 3543.0 m
	Cored :	7.0 m
	Recovered :	6.8 m
	Recovery :	97 %
	Depth Correction :	+ 1.5 m
	Corrected Log Depth :	3537.5 - 3544.3 m
Core No. 11 :	Coring Depth :	4087.0 - 4088.8 m
	Cored :	1.8 m
	Recovered :	1.45 m
	Recovery :	81 %
	Depth Correction :	0 m
	Corrected Log Depth :	4087.0 - 4088.45 m

d) 3 runs were made with the CST-tool. A total of 90 sidewall cores were shot, and 64 were recovered (71 %).

- In 12 1/4" hole : 1 run consisting of 30 shots. 26 were recovered. 87 % recovery.

- In 8 1/2" hole : 2 runs consisting of 60 shots. 38 were recovered. 63 % recovery.

Table 2.1 Sidewall cores shot and recovery.

Sidewall Cores in 12 1/4" Hole (2383-3800 m RKB)

Depth (m RKB)	Recovery	Depth (m, RKB)	Recovery
2721	60 %	3667	20 %
2815	80 %	3673	20 %
2973	40 %	3688	60 %
3110	20 %	3690	40 %
3325	Lost	3695	40 %
3337	20 %	3710	20 %
3353	40 %	3725	40 %
3379	Lost	3740	20 %
3392	Lost	3760	Lost
3427	40 %	3780	40 %
3439	20 %		
3447	40 %		
3552	60 %		
3565	60 %		
3572	80 %		
3583	40 %		
3596	40 %		
3612	40 %		
3637	60 %		
3652	40 %		

Sidewall Cores in 8 1/2 " Hole (3800-4089 m RKB)

Depth (m RKB)	Recovery	Depth (m RKB)	Recovery
3781	Misfire	3885	Lost
3788	35 %	3889	Misfire
3792	Misfire	3894	35 %
3795	75 %	3900	Misfire
3805	50 %	3904	25 %
3810	Misfire	3909	Misfire
3815	Misfire	3918	30 %
3819	25 %	3925	Misfire
3827	Misfire	3937	25 %
3832	15 %	3945	Misfire
3838	Misfire	3950	35 %
3844	Misfire	3955	Misfire
3850	25 %	3958	25 %
3855	Misfire	3962	Lost
3859.5	75 %	3963.5	Lost
3861	Lost	3964	25 %
3862	25 %	3968	30 %
3866	Misfire	3975	25 %
3869.5	Misfire	3977	30 %
3872	30 %	3980	15 %
3874	Misfire	3985	30 %
3876	35 %	3991	50 %
3996	25 %	4050	35 %
4002	25 %	4057	Mudcake
4005	35 %	4062	35 %
4015	30 %	4064	30 %
4020	30 %	4067	Mudcake
4024	65 %	4070	Lost
4028	35 %	4080	25 %
4035	35 %		
4043	5 %		

2.1.4 Special Analysis

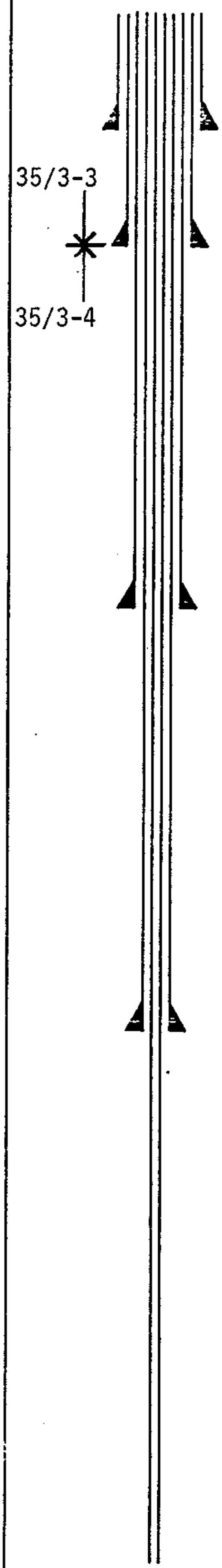
The following reports are completed and have been or will shortly be distributed to partners.

	AUTHOR	TITLE
1.	Geco	Conventional core analysis for 35/3-4
2.	Geco	Core photoes, core 1-11
3.	BP	Depositional Environment and correlation of the Albian-Aptian interval of 35/3-2 and 35/3-4
4.	Robertson Research	Biostratigraphy well 35/3-4
5.	Geochem	Organic geochemistry well 35/3-4
6.	Geochem	Organic geochemical characterization of condensate sample DST 2A
7.	Corelab	PVT analysis well 35/3-4
8.	Sperry Sun	Pressure Survey reports
9.	Saga	Production Testing field report
10.	Baker	Well Test report
11.	Halliburton	Formation Testing service reports: Test 1, 2 and 2A
12.	Decca	Site survey 35/3-3 and 4
13.	Geoteam	Resurvey 35/3-3 and 4
14.	Geoteam	Rig position report
15.	Exlog	Exploration logging well report 35/3-3 and 4

16.	Saga	Amount, type and maturity of kerogen, Lower Cretaceous 35/3-4
17.	Schlum	Coriband log interpretation
18.	R. Selley	Lower Cretaceous reservoir sand. Dipmeter analysis 35/3-4.
19.	BP	A Palynological investigation and correlation of Lower Cretaceous sections in northern Norwegian sector wells 35/3-2, 35/3-4 and 36/1-2.
20.	BP	Preliminary Evaluation of Gas Accumulations in the Lower Cretaceous of NOCS wells 35/3-2 and 35/3-4.

2.1.5 Wireline Logs

Table 2.2 Open and cased hole logs



Casing Record	Hole size	Logged interval mRKB	Type of log	Run No	Date
30" at 456 m	36" to 457 m		GR to surface		
		442 - 899	ISF/BHC/GR	1A	8/11-80
35/3-3; 20" at 873 m; 35/3-4	26" to 879 m	442 - 899	FDC/CNL/GR	1A	8/11-80
		450 - 888	WST	1A	8/11-80
13 3/8" at 2370 m	17 1/2" to 2383 m	874 - 2382	ISF/LSS/GR	1A	2/1-81
		874 - 2383	FDC/CNL/GR	1A	3/1-81
		888 - 2382	WST	1A	3/1-81
9 5/8" at 3756 m	12 1/4" to 3800 m	2320 - 3800	ISF/BHC/GR	3B	29/3-81
		2368 - 3798	FDC/CNL/GR	3B	29/3-81
		2650 - 3797	DLL/MSFL/G	3A	29/3-81
		2368 - 3791	HDT	3A	1/4-81
		2368 - 3798	RFT	3A	29/3-81
		2721 - 3780	CST	1	4/4-81
		3200 - 3650	NGS	3A	1/4-81
		2367.5-3798	VSP/WST	3B	1/4-81
		3446 - 3548.7	RFT	4B	2/4-81
TD 4089 m	8 1/2" to 4089 m	3700 - 4084	ISF/MSFL/BHC/GR	5C	3/5-81
		3756 - 4085	LDL/CNL/GR	5C	3/5-81
		3756 - 4085	HDT	5B	4/5-81
		3859 - 3878	RFT	5B	4/5-81
		3781 - 4080	CST	2+3	5/5-81
		2300 - 3756	CBL	5A	4/5-81
		3640 - 4084	WST	5C	3/5-81
		1850 - 3574	CBL	9B	10/5-81
		3388 - 3566	CBL	11C	14/5-81

2.1.6 Formation Temperatures

Saga Petroleum a.s.

TEMPERATURE DATA

FIELD: WELL: 35/3-3 & 4 PAGE: 1

LOG	DATE	RUN no.	Btm log interval	Max rec. temp. (BHT)	Time since circ. (Δt)	Circulation time (t)
ISF	8/11-80	1A	899 m	$80^{\circ}F$/ $26,7^{\circ}C$	5 hrs	
FDC-CNL	8/11-80	1A	900 m	$80^{\circ}F$/ $26,7^{\circ}C$	8½ "	
WST	8/11-80	1A	887 m	$80^{\circ}F$/ $26,7^{\circ}C$	10 "	
ISF-LSS	2/2-81	1A	2382 m	$108^{\circ}F$/ $42,2^{\circ}C$	7½ "	
FDC-CNL	3/2-81	1A	2383 m	$112^{\circ}F$/ $44,4^{\circ}C$	12 "	
ISF-BHC	29/3-81	3B	3800	$183^{\circ}F$/ $83.9^{\circ}C$	12 3/4 "	
FDC-CNL	29/3-81	3B	3798	$200^{\circ}F$/ $93,3^{\circ}C$	19 ½ "	
DLL/MSFL	29/3-81	3A	3797	$210^{\circ}F$/ $98,9^{\circ}C$	26 3/4 "	
HDT	1/4-81	3A	3791	$183^{\circ}F$/ $83,9^{\circ}C$	9 "	
VSP	1/4-81	3B	3798	no reliable data		
RFT	30/3-81	3A	3798	no reliable data		
ISF-MSFL	3/5-81	5C	4084	$224^{\circ}F$/ $106,7^{\circ}C$	9 "	
LDL-CNL	3/5-81	5C	4085	$232^{\circ}F$/ $111,1^{\circ}C$	12 1/4 "	
WST	3/5-81	5C	4084	$237^{\circ}F$/ $113,8^{\circ}C$	17½ "	
HDT	4/5-81	5B	4085	No reliable data		
RFT	4/5-81	5B	3878	$234^{\circ}F$/ $112^{\circ}C$	28½ "	
RFT	2/4-81	4B	3549	$194^{\circ}F$/ $90^{\circ}C$	7½ "	

FORMATION TEMPERATURE

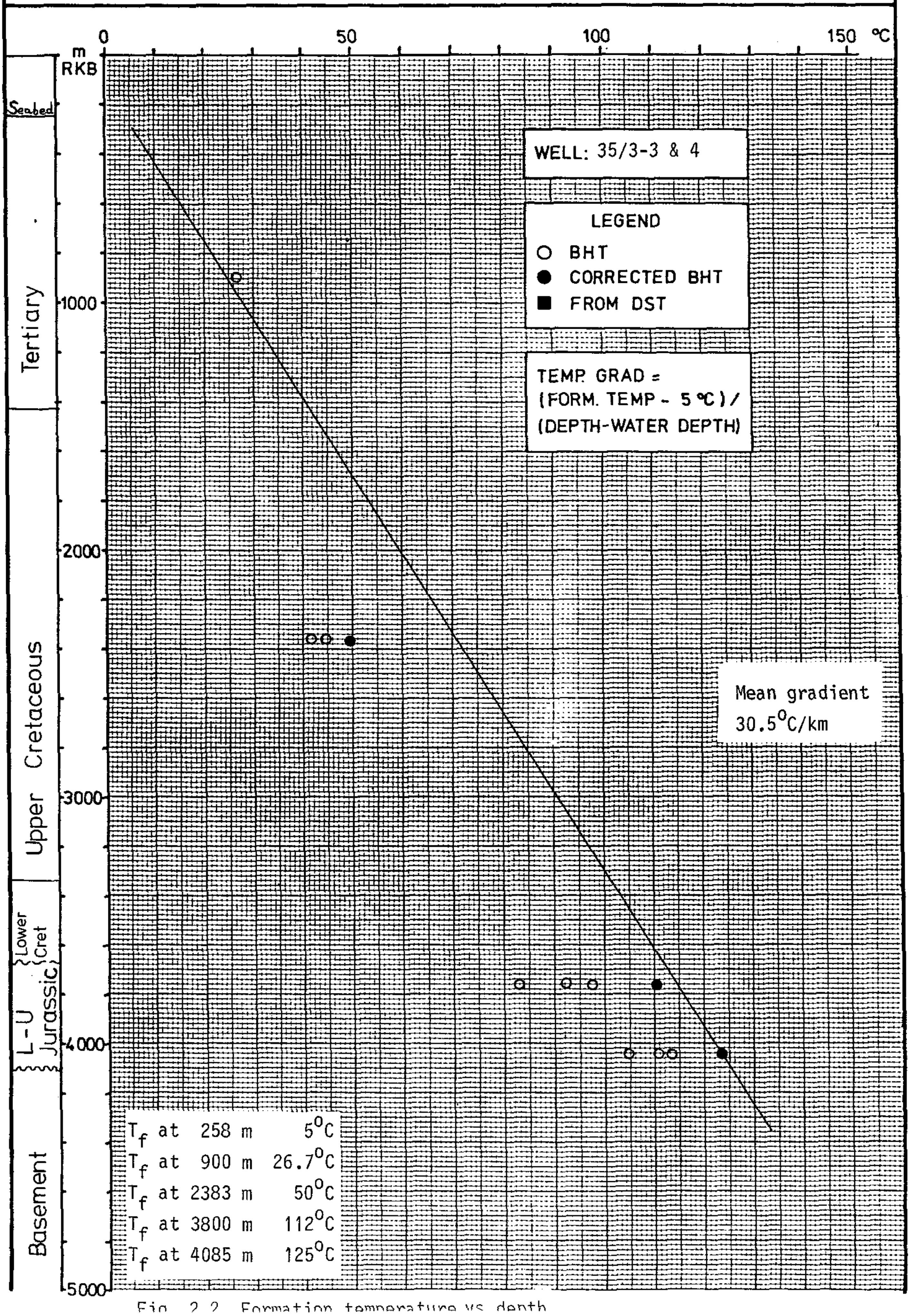


Fig. 2.2 Formation temperature vs depth

2.1.7 Biostratigraphic Summary

(According to Robertson Research)

Tops	Depth (mRKB)	Thickness (m)
QUATERNARY	283	
TERTIARY	Top not seen	
Pliocene	Top not seen	
--- Unconformity ----	-	
Oligocene	650	390
Late - middle? Eocene	1040	30
Middle?-Early? Eocene	1070	90
----Unconformity? ----		
Late Paleocene	1160	290
Early Paleocene, Danian	1450	20
---Unconformity ---		
Maastrichtian	1470	70
Early Maastrichtian-? late Campanian -	1540	20
Early Campanian	1560	660
Santonian	2220	185
Coniacian	2405	85
Turonian	2490	710
Cenomanian	3200	162
Albian	3362	221
Aptian-? Barremian	3583	28
---Unconformity? ---		
Hauterivian	3611	26
Early Hauterivian - Valanginian	3637	30
---Unconformity---		
Early Oxfordian	3667	23
Late-Early Callovian	3690	77
Early Callovian-? Bathonian	3767	33
---Unconformity ---		
Early Bajocian-Middle Toarcian	3800	185
Early Toarcian	3985	11

Tops	Depth (mRKB)	Thickness (m)
Late Pliensbachian	3996	24
?Early Pliensbachian	4020	48
Metamorphic Basement	4068	

2.1.8 Lithostratigraphic Summary

Tops	Depth (mRKB)	Thickness (m)
NORDLAND GROUP	283	292
HORDALAND GROUP	575	585
ROGALAND GROUP	1160	310
Balder Fm	1160	17
Lista/Sele Fm	1177	293
SHETLAND GROUP	1470	1873
"Fm E"	1458	104
"Fm D"	1562	1153
"Fm C"	2715	325
"Fm B"	3040	49
"Fm A"	3089	254
"CROMER KNOLL GROUP"	3343	324
JURASSIC SEDIMENTS	3667	402
BASEMENT	4069	20
T.D.	4089	

2.2 Stratigraphy

2.2.1 General

The interpretation is based on electric logs, well cuttings, sidewall cores, conventional cores and biostratigraphic report prepared by Robertson Research. The lithostratigraphy is according to Deegan and Scull [1].

2.2.2 Nordland Group (283 - 575 mRKB, 292 m)

Age : Quaternary - Pliocene.

Lithology : The Nordland Group consists of grey, soft and sticky silty clay. The clay is slightly calcareous. Stringers of sand, white to clear, occasionally yellow to brown, loose grains, fine to very coarse, poorly sorted, angular to subangular. Rock fragments of gneiss, granite, amphibolite, sandstone and limestone exist throughout the sequence. Some boulders. Traces of shell debris, glauconite, pyrite and mica.

2.2.3 Hordaland Group (575 - 1160 mRKB, 585 m)

Age : Pliocene? - Oligocene - Eocene

Lithology : The Hordaland Group consists mostly of clear to white, occasionally yellow and green sand/sandstone. This sand/sandstone is usually loose, fine to very coarse, predominantly medium, moderate sorted, angular to rounded, sometimes calcite cemented. The claystone/siltstone in the Group are predominantly grey, light brown to red, occasionally yellow, soft to firm, predominantly non calcareous. The claystone increase toward the bottom of the sequence. Stringers of white, firm to hard limestone. Traces of black to green, globular aggregate glauconite. Black to brown lignite, pyrite, shell debris and mica.

[1] Deegan, C.E. and Scull, B.J., 1977 : A Standard Lithostratigraphic Nomenclature for the Central and Northern North Sea. Institute of Geol. Sciences, Report 77/25, 36 p.

Upper Boundary : The upper boundary of the Hordaland Group is defined by a distinct change towards higher interval transit time, and a decrease in both resistivities and gamma ray readings. Some Pliocene sediments are included in the Hordaland Group. However, the interval between 575 - 650 mRKB has an uncertain dating. Because of this doubtful dating and the lithological characteristics the top Hordaland Group is suggested at 575 mRKB.

2.2.4 Rogaland Group (1160 - 1470 mRKB, 310 m)

Age : Paleocene

Rogaland Group is divided into two formations. Balder Formation and Liste/Sele Formation.

a) Balder Formation (1160 - 1177 mRKB, 17 m)

Lithology : This formation represents a silty, predominantly grey, occasionally green or light brown to red, soft to firm claystone. Typical is the black and/or white specks in the tuffaceous component which make up ash layers, and are usually recognized in cuttings.

Upper Boundary : The boundary to the overlaying unit is marked by a decrease in gamma ray reading and higher interval transit time.

b) Lista/Sele Formation (1177 - 1470 mRKB, 293 m)

Lithology : The unit consists of claystone/siltstone, predominantly grey, occasionally brown to green, soft to firm, sometimes subfissile. Trace of tuff in the upper part. Clear to white, sometimes grey, fine to very coarse, but predominantly medium, poor to moderate sorted, angular to subrounded, occasionally calcite cemented sandstone. The sandstone increases to the bottom of the formation, and we have three distinct zones; between 1327 - 1336 mRKB, 1350 - 1355 mRKB and 1401 - 1457 mRKB. Streaks of white, firm to hard limestone. Trace of pyrite, glauconite and mica.

Upper Boundary : The top of this unit is defined by an increasing in gamma ray reading and a smooth increase in interval transit time.

2.2.5 Shetland Group (1470 - 3343 mRKB, 1873 m)

Age : Maastrichtian - Cenomanian

Shetland Group is divided into five formations, "Fm A","Fm B", "Fm C", "FM D" and "Fm E".

a) "Fm E" (1458 - 1562 mRKB, 104 m)

Age : E. Paleocene (Danian) - Maastrichtian - E. Campanian.

Lithology : "Fm E" consists mostly of claystone with beds of limestone and sandstone. The claystone is silty, predominantly grey, occasionally brown and green, soft to firm, sometimes subfissile, slight calcareous. The limestone is white, soft to firm, some chalky and argillaceous, and exists mostly in the upper part of the formation.

Some sandstone beds are consentrated in the lower part, and are clear, white to grey, fine to very coarse, predominantly medium, poor sorted, occasionally calcite cemented. Traces of pyrite and dark green glauconite.

Upper Boundary : The top of this formation is marked by an increase of gamma ray reading and resistivities. Also the sonic has lower interval transit time. A lithological change from the sandstones in the unit above to more claystones and limestones is typical.

b) "Fm D" (1562 - 2715 mRKB, 1153 m)

Age : E. Campanian - Turonian

Lithology : This is a homogeneous series and consists mostly of claystone with minor beds of limestone, dolomite and siderite. Sandstone streaks are usual throughout the sequence, but are concentrated in the lower part of the formation.

The claystone is silty, light to dark grey, occasionally greenish, firm to hard, sometimes subfissile, occasionally very finely laminated, calcareous. The limestones are white to grey, firm to hard, occasionally chalky and argillaceous, partly grading into marl. Dolomite is light to medium brown, hard to very hard. Siderite is concentrated between 2050 m - 2400 mRKB, and often light brown to buff, hard, micro-crystalline. The sandstones are white to light grey and clear, very fine to fine, moderately sorted, firm to hard, occasionally calcite cemented. (Trace of pyrite, glauconite, mica in the formation). Oil is recognized in sandstones between 2675 - 2700 mRKB.

Upper Boundary : An increasing in the gamma ray reading from "Fm E" to "Fm D" defines the top of this homogeneous formation.

c) "Fm C" (2715 - 3040 mRKB, 325 m)

Age : Turonian - Cenomanian

Lithology : Formation C consists of shale with minor beds of sandstone/ siltstone. The shale is silty, medium to dark grey, occasionally light brown, firm to hard, sometimes laminated and subfissile, calcareous. The sandstones/siltstones are light grey, firm to hard, calcite cemented. Trace of light brown, hard limestone and glauconite.

Upper Boundary : A decrease in both gamma ray reading and interval transit time, and an increase in the resistivities are marked at the boundary.

d) "Fm B" (3040 - 3089 mRKB, 49 m)

Age : Cenomanian

Lithology : Consists of a moderate to dark grey, silty shale. Streaks of sandstone.

Upper Boundary : A smooth increasing of gamma ray reading and an increase of interval transit time. Resistivities decrease.

e) "Fm A" (3089 - 3343 mRKB, 254 m)

Age : Cenomanian

Lithology : Shale with minor beds of sandstone. Some streaks of limestone/dolomite. The shale is silty, medium to dark grey, occasionally light grey, firm to hard, sometimes subfissile, calcareous. The sandstone beds are predominantly white, fine to medium, moderate sorted, subangular to subrounded, occasionally calcite cemented. The limestone stringers are light brown, hard, microcrystalline. Dolomite is brown and very hard.

Upper Boundary : Decreasing in interval transit time, and a general increasing in the gamma ray reading.

2.2.6 "Cromer Knoll Group" (3343 - 3667 mRKB, 324 m)

Age : Cenomanian - Valanginian

The lithostratigraphic nomenclature committee organized by the NPD is still working on a new subdivision for the Lower Cretaceous, and no formal group or formation names are therefore suggested.

Lithology : This group consists of shales and sandstones with a few stringers of limestones. The sandstones are concentrated in the middle of "The Cromer Knoll Group". The sandstones are clear, white to light brown, fine to medium, well sorted, angular to subangular, friable, occasionally calcite cemented. Gas/condensate were found in these sandstones.

The shales are silty, dark grey, sometimes black, firm, fissile, occasionally calcareous. The limestone stringers are white to light brown, soft to hard, argillaceous, occasionally chalky. Trace of brown and hard dolomite, glauconite, mica and pyrite.

Upper Boundary : A very irregular pattern occurs in both the resistivities logs and the sonic log at the boundary. This log break marks the top of "Cromer Knoll Group".

2.2.7 Jurassic sediments : (3667 - 4069 mRKB, 402 m)

Age : Early Oxfordian - early? Pliensbachian

The Jurassic sediments have, for the same reason as for Lower Cretaceous, not been devided into formal groups and formation names.

Lithology : All the Jurassic sediment consists mostly of shales with minor beds of sandstones. The sequence is more sandy in the lower part. Middle to Lower Jurassic sandstones are found at the following intervals : 3855-3880 mRKB and 3960-3970 mRKB. The sandstones are clear, white to grey, fine to medium, predominantly fine, moderate to well sorted, subangular to subrounded, occasionally calcite cemented. Sometimes grading into grey to medium brown, firm, non calcareous siltstone in the lower part of the Jurassic. The shale is usually dark grey to brown, firm to hard, subfissile, slightly calcareous. Trace of limestone, white to light grey, firm to hard, occasionally chalky. Occasionally there is brown, hard, crypto-crystalline dolomite. Pyrite exists throughout the sequence.

Upper Boundary : No diagnostic features on logs.

2.2.8 Basement (4069 - T.D. 4089 mRKB, 20 m)

Age : Probably Caledonian metamorphics.

Lithology : The basement consists of green mica schist/gneiss. The rock is foliated with alternating mica rich and minor quartz-feldspar rich bands. The micas are predominantly chlorite and muscovite with minor amounts of biotite. Epidote is also present as a minor constituent.

2.3 Sample Analysis

2.3.1 Sidewall Core Description

Depth (m RKB)	Lithology
2721	CLAYSTONE, silty, light grey, soft, very calcareous.
2815	CLAYSTONE, light to medium grey, firm, very calcareous.
2973	SILTSTONE, medium grey, interlaminated with SANDSTONE, light grey, very fine, soft, glauconitic, very calcareous. No show.
3110	CLAYSTONE/MARL, medium grey, firm, very calcareous.
3325	LOST
3337	CLAYSTONE, medium grey, firm to moderate hard, micaceous, very calcareous.
3353	CLAYSTONE, silty, medium grey, firm, micaceous, very calcareous.
3379	LOST
3392	LOST
3427	SHALE interlaminated with SANDSTONE : SHALE, dark grey, fissile, moderate hard. SANDSTONE, silty, medium grey, fine to very fine, poor sorted, firm to moderate hard, argillaceous, poor porosity. Yellow fluorescence, very slow white cut.
3439	SHALE, dark grey, fissile, moderate hard, very calcareous.
3447	SANDSTONE, silty, argillaceous, light grey, medium to very fine, poor sorted, loose to firm, calcareous, medium porosity. Yellow fluorescence, very slow white cut.
3552	SILTSTONE, sandy, argillaceous, light grey, soft, non calcareous. No show.
3565	CLAYSTONE, silty, dark, firm, micaceous, non calcareous.
3572	CLAYSTONE, silty, dark grey, firm, micaceous, non calcareous.

Depth (m RKB)	Lithology
3583	CLAYSTONE, moderate grey, firm, very calcareous.
3596	CLAYSTONE, silty, moderate grey, firm, micaceous, slight calcareous.
3612	CLAYSTONE, silty, moderate grey, firm to moderate hard, subfissile, micaceous, very calcareous.
3637	CLAYSTONE, silty, moderate grey, firm to hard, mostly very calcareous.
3652	CLAYSTONE, silty, light grey, soft to firm micaceous, very calcareous.
3667	CLAYSTONE, silty, dark grey, soft, very calcareous.
3673	CLAYSTONE, silty, light grey, firm, very calcareous.
3688	SHALE, moderate brown to grey, subfissile, firm to hard, calcareous.
3690	SHALE, silty, dark, subfissile, moderate hard, micaceous, calcareous.
3695	SHALE, silty, dark grey, fissile, moderate hard, micaceous, slight calcareous.
3710	SHALE, as above.
3725	SHALE, dark grey, subfissile, firm to moderate hard, micaceous, slight calcareous.
3740	SHALE, dark grey to black, fissile, moderate hard.
3760	LOST
3780	SHALE, dark grey to black, fissile, moderate hard, slight calcareous.
3781	MISFIRE
3788	CLAYSTONE, dark grey-brownish, sl. firm, subfissile, micromicaceous, sl. calcareous.
3792	MISFIRE
3795	CLAYSTONE, dark grey-brownish, sl. firm, subfissile, micromicaceous, sl. calcareous.

Depth (m RKB)	Lithology
3805	CLAYSTONE/SILTSTONE, dark grey-brownish, sl. firm, subfissile, micromicaceous, non calcareous.
3810	MISFIRE
3815	MISFIRE
3819	CLAYSTONE, dark grey-brownish, firm, subfissile, micromicaceous, sl. calcareous.
3827	MISFIRE
3832	CLAYSTONE, dark grey-brownish, firm-hard, subfissile, micromicaceous, sl. calcareous.
3838	MISFIRE
3844	MISFIRE
3850	CLAYSTONE, dark grey-brownish, firm-hard, subfissile, micromicaceous, sl. calcareous.
3855	MISFIRE
3859.5	SANDSTONE/SILTSTONE, light grey, fine-silty, soft-sl. firm, calcite cemented, poor visible porosity, no show.
3861	LOST
3862	SANDSTONE, light grey-clear, fine-medium, subangular, calcite cemented, poor visible porosity, sl. micromicaceous, no show.
3866	MISFIRE
3869.5	MISFIRE
3872	SANDSTONE, light grey-clear, fine-medium, subangular, calcite cemented, poor visible porosity, sl. micromicaceous, no show.
3874	MISFIRE
3876	SANDSTONE, light grey-clear, very fine-fine, subangular, well calcite cemented, no visible porosity, no show.

Depth (m RKB)	Lithology
3885	LOST
3889	MISFIRE
3894	CLAYSTONE, dark grey-brownish, firm, subfissile, micromicaceous, sl. calcareous.
3900	MISFIRE
3904	CLAYSTONE, dark grey-brownish, firm, subfissile, micromicaceous, sl. calcareous.
3909	MISFIRE
3918	CLAYSTONE, dark grey-brownish, firm, subfissile, micromicaceous, sl. calcareous.
3925	MISFIRE
3937	CLAYSTONE, dark grey-brownish, firm, subfissile, micromicaceous, sl. calcareous.
3945	MISFIRE
3950	CLAYSTONE, dark grey-brownish, firm, subfissile, micromicaceous, sl. calcareous.
3955	MISFIRE
3958	CLAYSTONE, dark grey-brownish, firm, subfissile, sl. calcareous.
3962	LOST
3963.5	LOST
3964	SANDSTONE, light grey-clear, occasionally light brown, fine-medium, subangular, moderately sorted, calcite cemented, no visible porosity, no show.
3968	SANDSTONE, clear-grey, very fine-medium occasionally silty, calcite cemented, poor visible porosity, micromicaceous, no show.
3975	CLAYSTONE/SILTSTONE, dark grey-brownish, firm, subfissile, non calcareous, micromicaceous.

Depth (m RKB)	Lithology
3977	CLAYSTONE/SILTSTONE, dark grey-brownish, firm, subfissile, sl. calcareous.
3980	Sample a/a
3985	Sample a/a
3991	Sample a/a
3996	Sample a/a
4002	Sample a/a
4005	SANDSTONE/SILTSTONE, clear-light grey, fine-silty, subfissile, calcite cemented, poor visible porosity, micromicaceous, no show.
4015	SANDSTONE/SILTSTONE, grey, fine-silty, sl. laminated, calcite cemented, poor visible porosity, micromicaceous, no show.
4020	SANDSTONE/SILTSTONE, light grey, fine-silty, calcite cemented, poor visible porosity, no show.
4024	CLAYSTONE/SILTSTONE, dark grey-brownish, firm-hard, subfissile, micromicaceous, sl. calcareous.
4028	SANDSTONE, light grey-clear, fine-medium, moderately sorted, subangular, sl. firm, calcite cemented, poor visible porosity, no show.
4035	SANDSTONE, light grey-clear, very fine-fine occasionally silty, angular-subangular, moderately sorted, calcite cemented, no show.
4043	CLAYSTONE, dark grey-brownish, firm-hard, subfissile, micromicaceous, sl. calcareous.
4050	SANDSTONE, light grey-clear, very fine-fine occasionally silty, angular-subangular, calcite cemented, poor visible porosity, no show.
4057	MUDCAKE
4062	SILTSTONE, light grey-clear, occasionally sandy, firm, calcite cemented, no show.

Depth (m RKB)	Lithology
4064	SANDSTONE, light grey, very fine-fine occasionally silty, subangular, calcite cemented, poor visible porosity, micromicaceous, no show.
4067	MUDCAKE
4070	LOST
4080	Green MICA SCHIST with quartz bands. Basement.

2.3.2 Conventional Core Description

A total of 11 conventional cores were cut.

10 cores were taken in the Lower Cretaceous.

1 core was cut in the metamorphic Basement.

For corrected log depth, see 2.1.3 c).

Core description and pertinent information are attached on the well site Conventional Core Description Log (enclosure 1).

2.4 Formation Evaluation

2.4.1 Hydrocarbon Indications

Throughout the early Tertiary and Upper Cretaceous gas was detected as traces, mostly C1. Also trace of oil at 2680-2700 m RKB in Upper Cretaceous was recognized.

Lower Cretaceous : Due to overbalanced drilling, the total gas reading was low throughout the well. In the sandstone beds from about 3340-3510 m RKB a total max gas reading was 1.26 % (C1 = 9200 ppm, C2 = 450 ppm, C3 = 173 ppm, IC4 = 70 ppm, NC4 = 100 ppm) at 3424 m RKB. There was brown stain, strong golden-yellow fluorescence, slow to instant streaming white-yellow cut, occasionally fast cloudy milky white cut in these sandstones.

Jurassic : The total gas reading was also low in the Jurassic sediments, mostly around 0.1 %. C1 to C4 exist almost throughout all the sequence. In the sandstone beds from 3858 - 3880 m RKB we had dull yellow fluorescence, weak cloudy yellow-white cut.

2.4.2 Wireline Log Evaluation

A full suite of logs (DLL/MSFL, ISF/BHC/GR, FDC/CNL/GR) was run over the Lower Cretaceous interval and a log interpretation has been undertaken between 3340 and 3690m RKB using the Schlumberger Coriband analysis.

The key input parameters to the analysis are:

Rw (ohm m)	0.18
Rmf (ohm m)	0.106
Rce (ohm m)	3.0
Δtma (sec/ft)	53
Δtck (sec/ft)	86
ρcl (g/cc)	2.55
ρh (g/cc)	0.8
ρma (g/cc)	2.67
ΦNcl (%)	40
m	2
n	2
a	1

In determining the net sand thickness a 13% porosity cut-off has been used in addition to the micro-resistivity and caliper logs as guidance. A 13% porosity corresponds to approximately 1md permeability according to the core analyses.

The average values for net sand thickness, porosity and water saturation for the sand zones are listed in Table 2.4.

Table 2.4. Log analysis summary - Lower Cretaceous formation

Top of Zone (m RKB)	3445	3471	3525
Bottom of Zone (m RKB)	3471	3525	3541
Gross Thickness (m)	26	54	16
Net Thickness (m)	13	2	11
Average Log Porosity (%)	19	13	15
Average Water Sat. (%)	52	60	77

All sands are shaly. Their shale content ranges from 10 to 40%.

The Water Saturation increases below 3520m RKB.

2.4.3 Core Porosity and Permeability.

The results of porosity and permeability measurements of conventional cores are listed in Table 2.6. For core recovery, see 2.1.3 c).

For the zones of interest, some key parameters are given in Table 2.5 In defining the net pay intervals, a porosity cut-off of 13% was used.

Table 2.5 Summation of Core Data.

Top of Zone (m RKB)+	3445	3471	3525
Bottom of Zone (m RKB)+	3471	3525	3541
Gross Thickness (m)	26	54	16
Cored Interval (m)			
Helium porosity,			
arithmetic Average (%)	23	14	21
Horizontal air permeability, Klinkenberg corrected:			
Maximum value, mD	971	148	46
Geometric average, mD	103	1.5	13
Vertical air permeability, Klinkenberg corrected:			
Maximum value, mD	466	119	40
Geometric average, mD	24	1.2	10

+Log depths.

Table 2.6 Conventional Core Porosities and Permeabilities.

Core No 1 Depth 3400.6 - 3415.40m RKB.

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3406.27-38	-	3.5
3410.15-29	0.05	3.5

Core No. 2 Depth 3447.30 - 3457.63 m RKB

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3447.30-41	612.0	28.5
3447.59-68	5.4	12.6
3447.90-00	14.0	10.7
3448.41-57	245.0	21.6
3448.70-80	0.14	6.0
3449.04-12	0.095	6.6
3449.50-65	468.0	27.0
3449.88-97	19.0	17.8
3450.90-04	0.14	8.4
3451.26-36	16.0	22.0
3451.68-78	6.1	20.1
3451.93-08	14.0	17.6
3452.31-40	186.0	26.0
3452.61-75	29.0	18.9
3453.09-24	434.0	27.9
3453.53-66	496.0	27.9
3453.87-95	444.0	27.8
3454.20-33	473.0	26.8
3454.68-78	151.0	20.2
3455.06-15	1021.0	27.9
3455.50-63	614.0	29.3

Core No. 3 Depth 3458.50-3459.59 m RKB

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3458.50-63	0.50	13.0
3458.81-89	66.0	17.0

Core No 4 Depth 3459.70 - 3478.10 m RKB

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3459.72-87	557.0	26.3
3460.24-34	334.0	27.9
3460.60-67	317.0	28.1
3460.92-05	215.0	26.4
3461.25-33	156.0	25.0
3461.65-80	127.0	20.6
3462.05-19	0.11	5.7
3462.40-51	0.11	6.1
3462.76-85	120.0	23.7
3463.12-25	130.0	23.7
3463.49-60	190.0	25.9
3463.75-87	189.0	25.5
3464.04-20	3.1	17.1
3464.40-52	0.26	10.3
3465.10-20	483.0	27.2
3465.55-67	472.0	27.9
3466.56-66	77.0	24.4
3466.90-00	539.0	27.0
3467.37-52	0.16	8.0
3467.74-80	0.17	6.8
3468.03-11	26.0	22.1
3468.52-70	2.6	14.9
3469.02-13	0.81	13.5

Core No 5 Depth 3478.10 - 3488.60 m RKB

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3478.10-24	0.13	7.4
3478.44-53	0.15	6.1
3478.78-88	0.81	9.7
3479.12-26	0.13	5.6
3479.54-64	0.31	11.1
3479.90-00	0.19	8.3
3480.23-34	164.0	20.7
3480.60-67	108.0	23.8
3481.64-73	1.04	13.4
3481.95-07	0.41	13.0
3483.33-42	1.2	14.4
3485.60-71	0.70	14.5
3485.99-11	2.7	18.1
3486.42-50	2.1	17.0
3486.68-76	2.4	16.8
3487.20-32	0.12	4.1
3487.48-59	0.07	4.0

Core No 6 Depth 3491.80 - 3497.00 m RKB

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3495.35-51	3.3	15.7
3495.70-79	1.4	13.0
3496.48-55	1.07	13.6
3496.64-78	1.6	13.7

Core No 7 Depth 3497.80 - 3509.50 m RKB

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3497.97-11	2.0	14.8
3498.40-50	2.0	13.4
3498.91-03	1.8	13.2
3499.25-42	1.4	12.4
3499.64-74	2.1	12.9
3499.98-09	2.4	13.4
3500.30-43	0.09	5.1
3500.73-82	0.07	3.4
3501.06-16	0.06	2.8
3501.43-57	0.09	3.1
3501.75-86	0.46	10.5
3502.12-22	0.97	12.1
3502.26-43	1.7	12.9
3502.64-75	2.3	14.1
3503.00-10	0.96	12.0
3503.30-45	2.1	14.5
3503.61-70	2.5	15.4
3504.00-10	2.5	14.7
3504.33-47	1.9	14.4
3504.73-83	1.8	15.1
3505.10-22	0.25	8.7
3506.39-55	7.6	18.2

Core No 8 Depth 3509.50 - 3514.80 mRKB

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3509.57-73	0.07	6.7
3510.12-24	0.12	7.6
3511.28-40	0.07	2.8
3512.60-71	0.10	6.5

Core No 9 Depth 3518.00 - 3530.70 m RKB

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3518.74-90	0.73	15.4
3520.03-18	0.69	18.0
3520.55-62	0.50	16.8
3522.95-09	25.0	23.2
3523.30-39	21.0	22.4
3523.75-84	27.0	23.2
3524.68-83	29.0	22.6
3525.64-77	32.0	22.5
3528.20-35	4.6	16.4
3529.95-11	11.3	18.4

Core No 10 Depth 3536.00 - 3542.75 m RKB

Depth m RKB	Permeability (mD) (Horizontal-air)	Porosity (Helium %)
3536.00-13	26.0	20.9
3536.32-41	46.0	23.1
3536.65-77	41.0	23.1
3536.97-11	54.0	23.3
3537.30-40	52.0	23.1
3537.63-72	31.0	22.7
3537.98-13	19.0	21.9
3538.33-43	11.3	21.1
3538.74-84	2.1	16.6
3539.00-20	0.35	12.9
3539.32-41	0.24	11.7
3539.59-68	0.22	9.3
3539.99-16	0.12	4.2
3541.46-61	0.06	1.8

2.4.4 RFT Measurements

Formation pressures were measured in the Cretaceous using the Schlumberger RFT tool. The data is listed in Table 2.7. In figure 2.3 the pressures are plotted versus depth. As the data show, some points were tight and could not be used.

The upper zone between 3445 and 3471m RKB has a gas gradient of 0.4 psi/m. In the deeper zone between 3525 and 3541m RKB a water gradient of 1.54 psi/m is indicated. This gradient is less reliable due to few points of measurement and some spreading in the values.

The two zones mentioned seem to belong to different pressure systems.

In Table 2.8, the RFT pressure readings in the Jurassic Sandstones are listed.

Table 2.7 : RFT Pressure Measurements, Lower Cretaceous.
WELL 35/3 - 4

DEPTH	NUMBER	HYDROSTATIC	DRAWDOWN	FORMATION	REMARKS
3446	2	7187	4792	5093	
3449.5	3	7193	4938	5090	
3451.5	4	7198	5040	5091	
3456.5	5	7210	5025	5092	
3465	6	7228	5063	5095	
3467.5	23	7210+	5005	5097	+ Test made coming up, may
3469.8	22	7215+	0	5125	affect repeatability still
3483.8	12	7263+	5311	7088	building when retract
3484.2	13	7265+	4800	7092	
3486.3	14	7268+	0	5231	
3489	7	7280	83	5390	
3491	8	7279	10	26	Tight
3491.3	9	7280	0	0	Tight
3492.5	11	7283	0	0	Tight
3493	10	7283	0	0	Tight
3501	15	7300	0	0	Tight
3506	16	7312	0	0	Tight
3527	17	7356	2860	5291	
3531.5	18	7364	1459	5299	
3535.5	21	7362+	0	5315	
3538.5	19	7380	681	5719	Still building when retract
3548.7	20	7401	0	0	Tight

+ The Formation Pressure is Temperature Compensated.

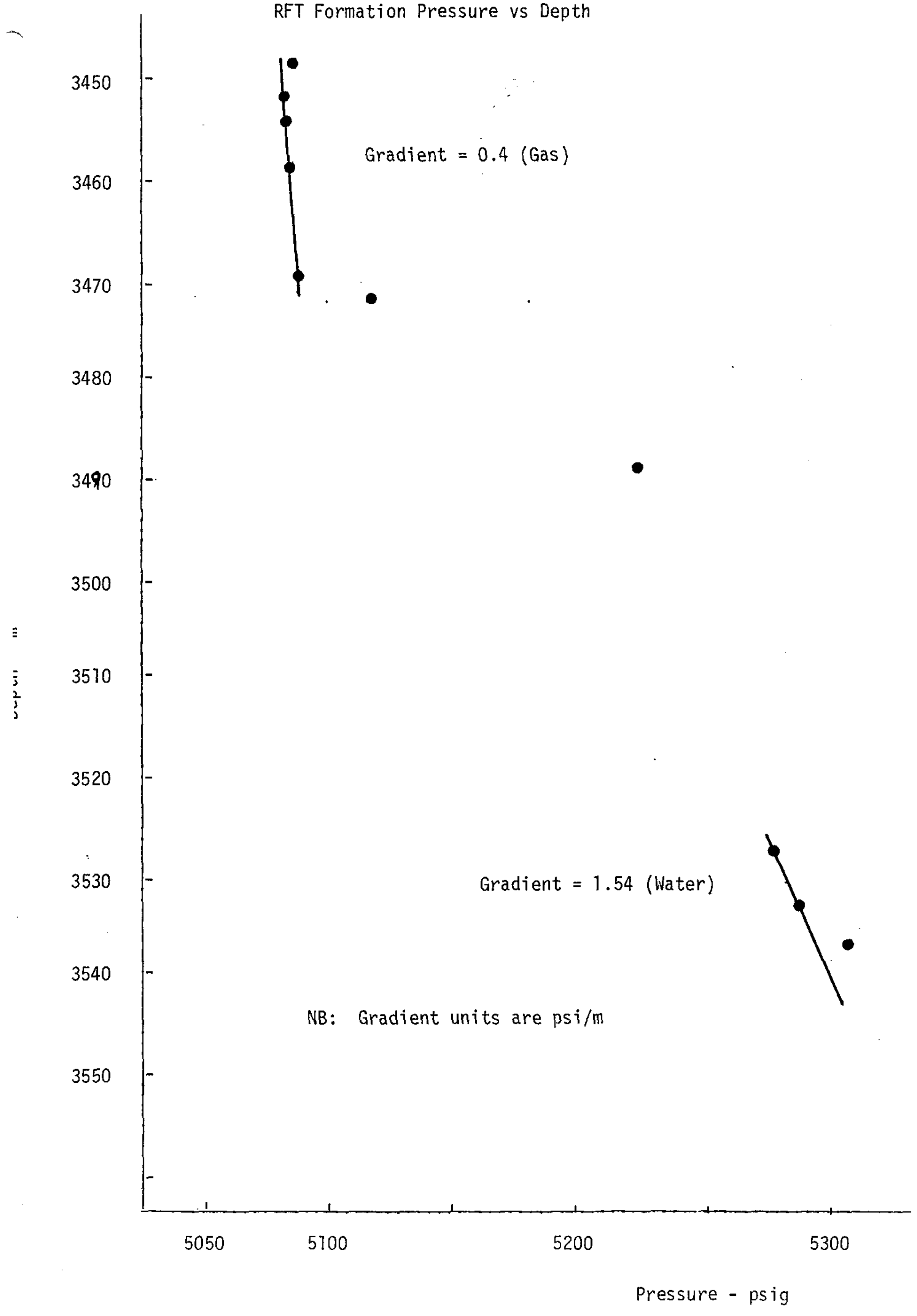
TABLE 2.8 RFT PRESSURE MEASUREMENTS, JURASSIC
WELL 35 / 3 - 4

Depth	Formation (psi)	Remarks
3859.5		No seal
3859.0		Tight
3859.3	6148	No seal
3860.0		Sampling point
3862.0		No seal
3861.8		No seal
3869.5		No seal
3872.5		No seal
3872.5		Tight
3874.0	6941	No permeability, super charge
3873.0		Tight
3875.5	6395	
3877.0		Tight
3877.0		Tight
3876.5		Tight
3877.5	6410	
3874.5		Tight

+ The Formation Pressure is Temperature Compensated.

35/3 - 4 Figure 2.3

RFT Formation Pressure vs Depth



2.4.5 . DST MEASUREMENTS

35/3-4 DST-1 SUMMARY AND DISCUSSION OF RESULTS

1. Test interval

The lower Cretaceous sandstone was perforated with 4" csg. guns (4SPF) over the following interval:

3488,50 - 3495,00
3498,25 - 3503,25
3504,50 - 3507,75

Depths are in mBRT ref. ISF/SONIC Run 3B.

2. Flow and Shut-in periods

The well was opened for appx. 10 minutes for initial flow followed by initial p.b.u of 134 minutes.

Due to no indications of flow during first period it was decided to attempt injection into the formation. After bullheading into formation the N_2 backpressure was bled off to start the main flow period. The wellhead pressure was decreased to atmospheric pressure with no indications of flow. While observing the well, the APR-M valve inadvertently sheared. Mud from annulus U-tubed into D.P. and pushed cushion and a small amount of h.c. gas to surface. This concluded the flow test and the final p.b.u. of 197 minutes was recorded during reversing out.

3. Fluid production

No rates were measured since production was not established.

4. Fluid sampling

Four one litre water samples were taken as the well was reversed out.

On site analysis as follows:

Sample	Cl^-	Ca^{++}	Mg^{++}
1	19000	400	543
2	19000	240	243
3	8000	280	437
4	15000	240	583
Mud filtrate	9000	280	0
Sea water	18500	240	720
Fresh water	500	40	50

Gas samples were taken for on site analysis only. Exlog's chromatograph gave the following composition:

C_1	90,5 %
C_2	5,4 %
C_3	2,6 %
iC_4	0,5 %
nC_4	0,8 %
C_5	0,2 %

There was no trace of H_2S.

5. Interpretation of Pressure data

The Horner plot from the initial build-up based on Sperry Sun gauge No. 0121 shows the extrapolated pressure p* = 5375 psig and a slope of 795 psi/log cycle. The gauge was set at 3469 mBRT. The Horner plot from the second build-up period shows a continuous curvature upwards indicating that the well has not been shut-in long enough.

No value for kh has been determined since no good estimates for flow rates exist.

35/3-4 DST-2 SUMMARY AND DISCUSSION OF RESULTS

1. Test interval

The lower Cretaceous sandstone was perforated with 4" csg. guns (4SPF) over the following interval:

3445,00 - 3447,50
3449,25 - 3453,50
3454,50 - 3459,50
3464,00 - 3471,50

Depths are in mBRT ref. ISF/SONIC Run 3B.

2. Flow and Shut in Periods

Prior to opening the well, it had been established during the pressure testing of the well that the APR-N valve leaked when pressurized from above. Despite of this, it was decided to go ahead with the test. The well was flowed for a 7 minute initial flow period and the shut-in for a 84 minute initial shut-in. An increase of 25 psi was observed in 2 minutes at the well head after opening the APR-N tester valve, prior to opening the choke manifold, indicating the APR-N valve to be open.

While trying to open the APR-N tester valve for the first main flow period, the APR-M circulating valve sheared at 2000 psig, aborting the test. The APR-M valve was set to shear at 2400 psig annulus pressure.

3. Fluid Production

There was no trace of gas while reverse circulating the string.

4. Fluid Sampling

2 samples of the fluid reversed out through the drill pipe was taken. The analysis of the fluid indicates that it was water cushion.

5. Pressure data

The APR-N valve appears to have leaked during the whole test and the pressure data does not seem to be valid. The report from Sperry Sun is not available yet, but will be distributed as soon as it is received.

5/3-4 DST-2A SUMMARY AND DISCUSSION OF RESULTS

1. Test interval

The lower Cretaceous sandstone was perforated with 4" csg. gun (4SPF) over the following interval:

3445,00 - 3447,50
3449,25 - 3453,50
3454,50 - 3459,50
3464,00 - 3471,50

Depths are in mBRT ref. ISF/SONIC Run 3B. The interval was perforated prior to DST-2.

2. Flow and Shut-in Periods

The well was flowed for 6 minutes initial flow and then shut-in for 63 minutes initial build-up. The well was then opened up for the first main flow period on a 32/64" choke for 3 hrs and 47 min before flowing through a 36/64" fixed choke for the remaining part of the first main flow period, 13 hrs 12 min.

The well was then shut-in for 16 hrs and 28 min. Wellhead pressure increased to 3840 psig during the first hour of shut-in, indicating that the downhole APR-N tester value did not close.

When the down hole valve was "opened" for the second main flow period, no increase in wellhead pressure was observed while keeping choke manifold closed.

The choke manifold was then opened and due to hydrate problems the well was flowed at a high rate initially to warm up the well. After 3 hrs and 45 min the well was stabilized on a 24/64" fixed choke and flowed at this setting for 13 hrs and 5 minutes.

The well was then shut-in by shearing the APR-M circulating valve to ensure proper bottom hole shut-in. The well was shut in for 16 hrs and 30 min before the packer was released.

3. Fluid production

The well flowed gas during the first main flow period at 24.30 MMSCF/D on a 36/64" shoke and a flowing wellhead pressure of 3055 psig. The corresponding condensate flow rate was 528 B/D.

The last gas rate measured during the second main flow period was 12.63 MMSCF/D on a 24/64" shoke and a flowing well head pressure of 3584 psig. The corresponding condensate flow rate was 326 B/D.

The gas gravity was 0.62 (air = 1) and condensate gravity was 50.3 ^{o}API.

4. Fluid sampling

Three sets of gas and condensate samples for recombination were taken under separator conditions during each of the two main flow periods.

Samples of water and condensate from the separator were also taken under atmospheric conditions.

5. Interpretation

The reservoir encountered in 35/3-2 is thought to be very close to its dew point. The reservoir penetrated by 35/3-4 is in a different pressure regime showing the two reservoirs to be different. From the current data it is difficult to say if the 35/3-4 reservoir is close to its dew point or not. This may be clarified by the PVT analysis. The preliminary pressure analysis presented is based on Sperry Sun gauge No. 0124 located at 3424.6 mBRT.

The extrapolated pressure, p*, for the initial flow, from the Horner plot is 5067 psig.

The build-up period following the first main flow period was analyzed by regular Horner plot. A log-log plot of p vs t shows that the pressures after about 100 minutes are not affected by wellbore storage and can be used for traditional build-up analysis. The extrapolated pressure p* was 5025 psig and the slope m was 118 psi/log cycle. This gives a permeability of 14.5 md and no skin using net thickness of 46 ft.

The build-up period following the second main flow period was analyzed by using the principle of superposition. Extrapolated pressure, p*, was 5025 psig and the slope, m, was 88 psi/log cycle. This gives a permeability of 9.1 md and a skin of -2.7.

The skin was less for the lower flow rate as expected considering turbulence. The possible effect of any liquid condensation in the formation on skin and permeability will be evaluated when the PVT data are available.

2.5 Well Velocity Survey

The well velocity survey was carried out by Schlumberger in four steps. The first survey was run in 35/3-3 down to 889 mRKB. This well was later abandoned, but the results were transfered to 35/3-4. The second survey was run at 13 3/8" casing shoe (2369 mRKB), the third down to 3800 mRKB and the fourth at T.D. Only the third survey included check shots and vertical seismic profile (V.S.P.). 92 levels were shot including 50 VSP levels from 2650 mRKB to 3800 mRKB. Three of the VSP levels are not included in processing due to poor quality.

The recorded data was processed by Schlumberger together with the sonic and density logs.

A time depth curve based on check shots is attached.

Synthetic Seismograms

The velocity and density data was used for processing of synthetic seismograms. A zero phase and a minimum phase Ricker Wavelet was used in the convolution. The synthetic seismogram was band pass filtered with the same filter in the processing of seismic section :

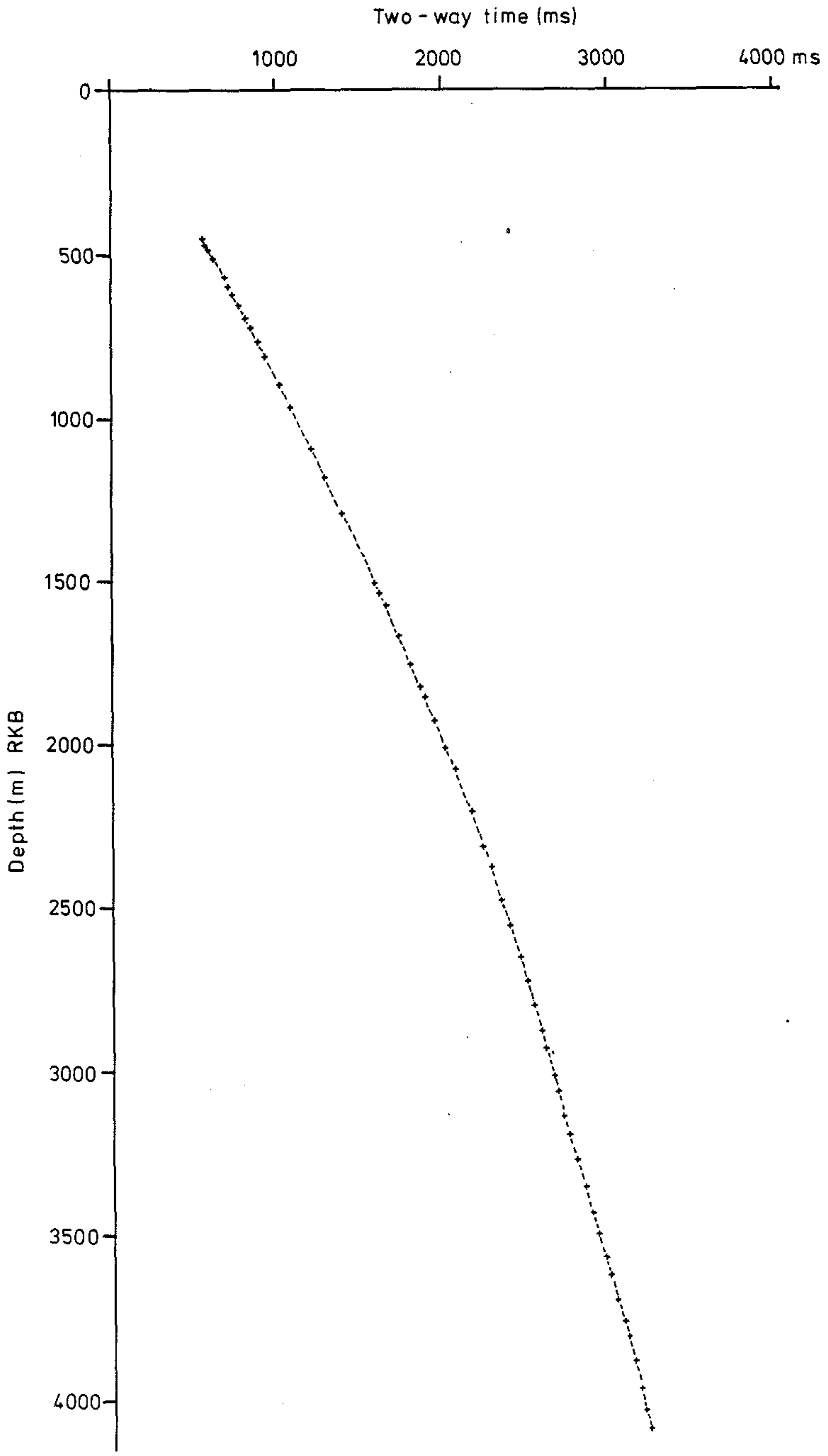
TLGS 1978 Airgun data shot by S & A Geophysical Ltd.

VSP

The records of each VSP level were stacked and the data were band pass filtered. The upgoing VSP section after one predictive decon and without wave shaping deconvolution was preferred because this had the best visual match with the seismic section and best continuity of reflectors. However, the tie was not convincing.

Finally two traces, the first one an average of the 11 deepest VSP levels and the second an average of the 13 shallowest levels, were displayed 21 times at a vertical scale of 10 cm/sec. The purpose was to correlate with the seismic data, but still the matching was not good.

Fig. 2.4 Time depth Curve



PART 3

DRILLING AND ENGINEERING

		Page
3.	DRILLING AND ENGINEERING	
3.1	Pertinent Information	56
3.2	Highlights of Drilling Intervals	58
3.3	Time Analysis	61
3.4	Engineering Data	64
	3.4.1 Anchor Pattern	65
	3.4.2 Bit Hydraulic Well Data	66
	3.4.3 Cement and Casing Details	70
	3.4.4 Mud Recap	71
	3.4.5 Directional Survey	73
3.5	Daily Activity Report	77

3.1 Pertinent Information

Well Data

Well	: 35/3-3 & 35/3-4
Classification	: Wildcat
Rig	: Byford Dolphin
Rig heading	: 225°
Rotary Kelly Bushing elevation	: 25 m
Rotary Kelly Bushing to seabed	: 282 m
Water depth	: 258 m
Total depth driller	: 4089 m
Date rig on location	: 28.10.80
Spud date	: 30.10.80 (35/3-3)
	: 30.11.80 (35/3-4)
Date abandoned	: 28.11.80 (35/3-3)
	: 05.06.81 (35/3-4)
Date released	: 06.06.81 (35/3-4)
Total days from mobilization to release of rig	: 223 days
	33 days on 35/3-3
Present status	: Well final plugged and abandoned

3.2 Highlights of Drilling Intervals

HIGHLIGHTS OF DRILLING INTERVALS

The following is a short summary of the drilling activities for each hole interval. For more detailed information, see Daily Activity Report, section

35/3-3

36 inch hole : Spudded well at 18.15 hrs on October 30th, 1980
Drilled to 450 m using 26" bit and 36" hole opener.
Drilled hole with seawater while slugging with viscous mud.
Landed and cemented 30" casing at 443m.

26 inch hole : Ran 20 3/4" BOP - stack and 24" riser.
Drilled 12 1/4" hole from 450 to 900 m using mud.
Logged hole and opened to 17 1/2 inch using hole opener. Opened hole to 26 inch using underreamer.
Displaced mud in riser with seawater and pulled BOP - stack and riser. Ran 20" casing, stuck at 810m.
Unable to free casing. Cut 20" casing at 408 m and ran 20" casing patch. While testing 20" casing, casing parted. Plugged and abandoned hole.

35/3-4

36 inch hole : Spudded well at 11.00 hrs on November 30th, 1980.
Drilled to 457m using 26" bit and 36" hole opener.
Drilled hole with seawater while slugging with viscous mud. Displaced hole with high viscous mud.
Landed and cemented 30" casing at 455m.

26 inch hole : Drilled 26" hole from 457 to 879m using mud.
Landed and cemented 20" casing at 873m.
Ran 20 3/4" BOP - stack and 24" riser.
Drilled 3 m of new hole and tested formation to 11,6 ppg equivalent mud weight.

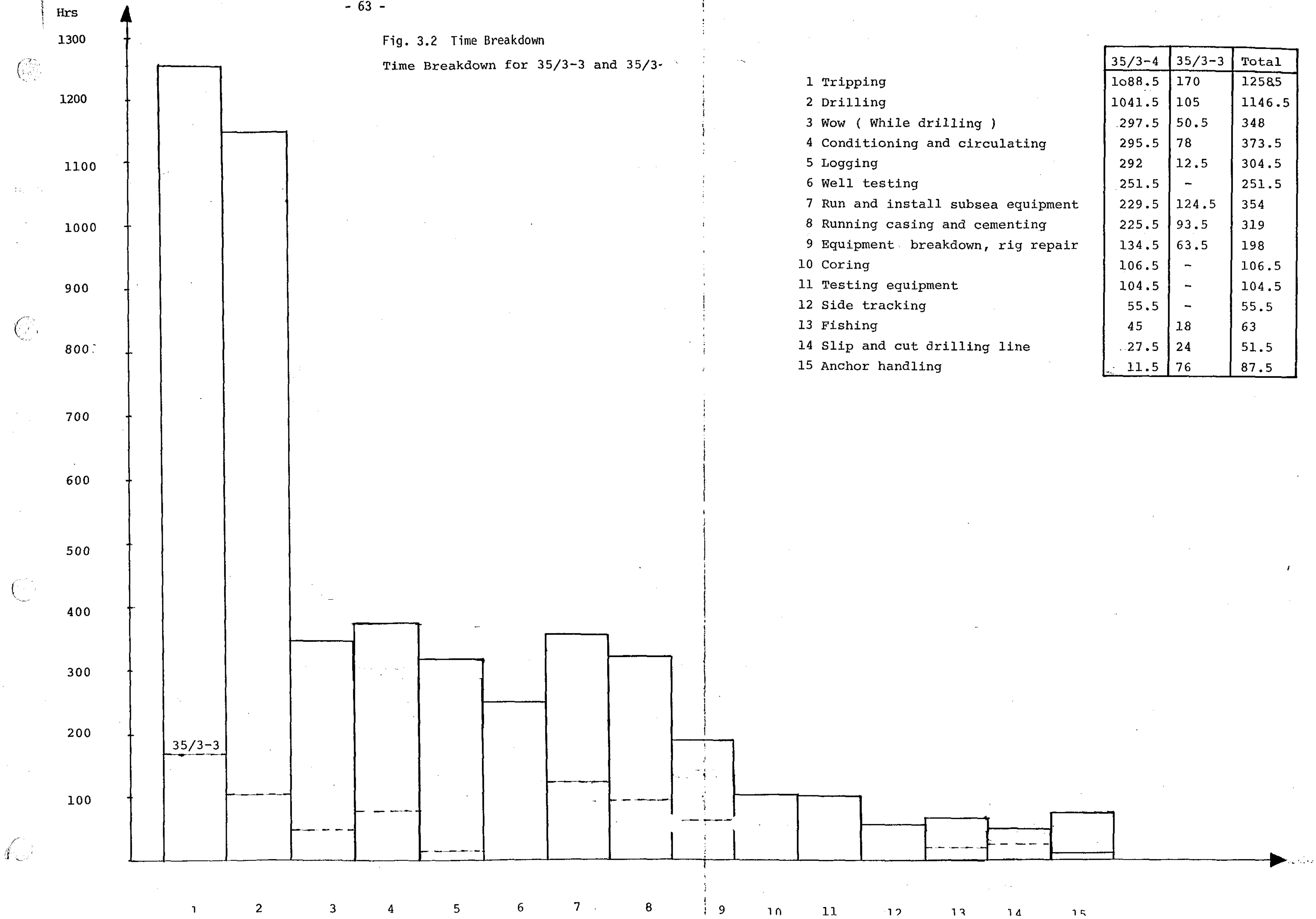
35/3-4

17 1/2 inch hole :	Drilled 17 1/2" hole from 882 to 2383m and logged. Landed and cemented 13 3/8" casing at 2369m. Pulled 20 3/4" BOP - stack and 24" riser. Ran 13 5/8" BOP - stack and 16" riser. Drilled 2m of new hole and tested formation to 13.7 ppg equivalent mud weight.
12 1/4 inch hole :	Drilled and cored 12 1/4" hole from 2385 to 3800m and logged. Landed and cemented 9 5/8" casing at 3756m. Drilled 3m of new hole and tested formation to 14.7 ppg equivalent mud weight.
8 1/2 inch hole :	Drilled and cored 8 1/2" hole from 3800 to 4089m and logged. Plugged back and conducted drill stem test. Plugged and final abandoned well.

3.3 Time Analysis

Fig. 3.2 Time Breakdown

Time Breakdown for 35/3-3 and 35/3-



		35/3-4	35/3-3	Total
1	Tripping	1088.5	170	1258.5
2	Drilling	1041.5	105	1146.5
3	Wow (While drilling)	297.5	50.5	348
4	Conditioning and circulating	295.5	78	373.5
5	Logging	292	12.5	304.5
6	Well testing	251.5	-	251.5
7	Run and install subsea equipment	229.5	124.5	354
8	Running casing and cementing	225.5	93.5	319
9	Equipment breakdown, rig repair	134.5	63.5	198
10	Coring	106.5	-	106.5
11	Testing equipment	104.5	-	104.5
12	Side tracking	55.5	-	55.5
13	Fishing	45	18	63
14	Slip and cut drilling line	27.5	24	51.5
15	Anchor handling	11.5	76	87.5

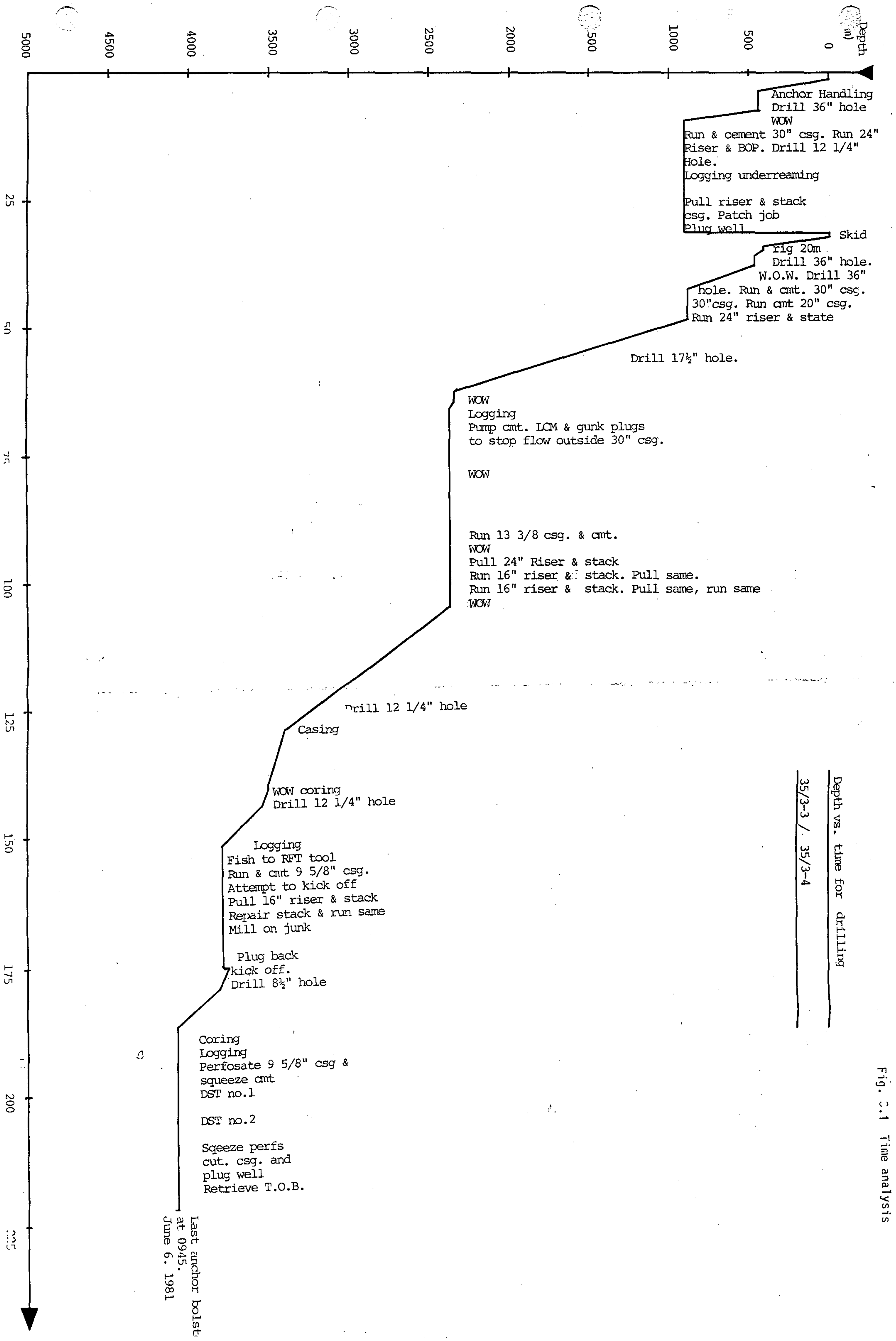


Fig. [illegible].1 Time analysis

3.4 Engineering Data

3.4.1 Anchor Pattern
3.4.2 Bit Hydraulic Well Data
3.4.3 Cement and Casing Details
3.4.4 Mud Recap
3.4.5 Directional Survey

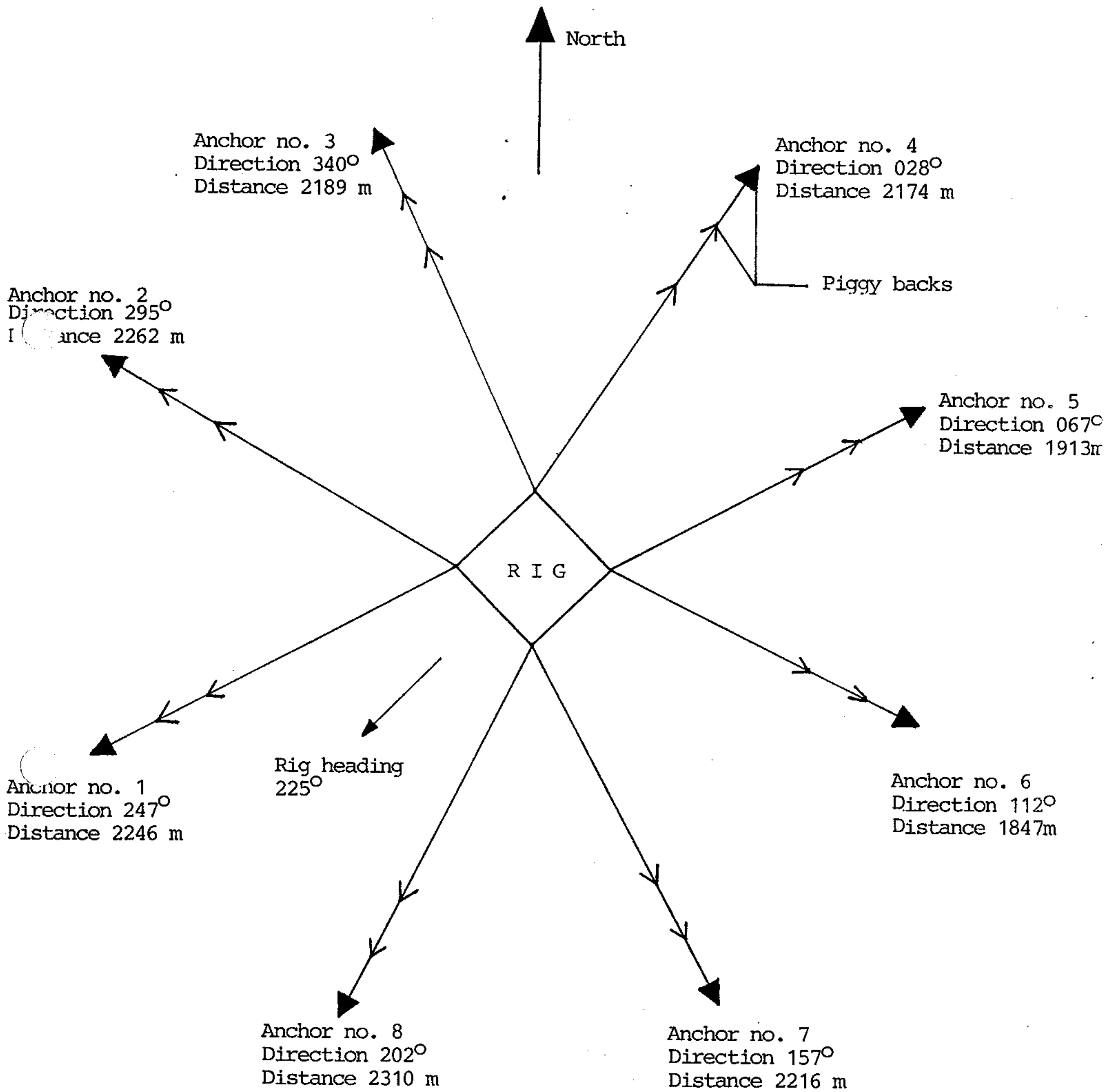
3.4.1 ANCHOR PATTERN WELL 35/3-3,4

Fig. 3.3

Final position : 61° 51' 53.00" N

03° 52' 27.70" E

Waterdepth : 259 m



Distance between main anchor and first piggy back anchor : 350 m

Distance between first and second piggy back anchor : 380 m

3.4.2 BIT HYDRAULIC, WELL DATA

Table 3.1

WELL 35/3-3

BIT NO	SIZE	MAKE	TYPE	JETS	DEPTH OUT (M)	DRILLED (M)	HOURS	M/HR	ACCUM. DRLG. HRS.	WOB (1000 lbs)	RPM	VERTICAL DEV.	PUMP PRESS. (PSI)	PUMP SPM No 1	No 2	MUD WT.	VISC	F.L.	PULL COND. T	B	G
1	26	TSK	S3	3x24	450	166	32	5,2	32	10	80	3/4	1500	100	100	-	-	-	6	4	I
2	26	TSK	35B	3x24	449	16	3,5	4,6	35,5	5/10	35	-	1400	100	80	-	-	-	-	-	-
3	12 1/4	HTC	X3A	3x19	900	450	33	13,6	68,5	5/10	130	½	2500	80	80	9	50	24	4	3	1
4	12 1/4	REED	S13G	16.16. BLANK	900	450	3,5	128	68,5	0/5	130	½	700	50	50	9	50	20	-	-	-
5	17½	SMF	TS5	18.18. 20	900	450	6,4	70	68,5	0/10	120	½	2500	98	98	9	50	20	-	-	-

WELL 35/3-4

BIT NO	SIZE	MAKE	TYPE	JETS	DEPTH OUT (M)	DRILLED (M)	HOURS	M/HR	ACCUM. DRLG. HRS.	WOB (1000 lbs)	RPM	VERTICAL DEV.	PUMP PRESS. (PSI)	PUMP SPM No 1	No 2	MUD WT.	VISC	F.L.	PULL COND. T	B	G
1	26	TSK	S3	3x24	428	145	36	4	36	10/15	70/80	½	1500	100	100	-	-	-	8	8	-
2	26	SMITH	DS	3x24	457	29	6	5	42	10/12	75	½	1600	105	95	-	-	-	2	2	-
3	26	HTC	OSC3AJ	3x24	879	422	24	16,5	66	10/40	80/100	3/4	1700	80	85	9,5	100	-	4	3	I
RR3	26	HTC	OSC3AJ	OUT		CLEAN	OUT	TRIP	FOR	20"	CSG								5	4	I
4	17½	SMF	T52	OUT	882	3	1	3	67	DRILL	CMT &	FLOAT	EQUIPM.	+ 3	M NEW HOLE				1	4	I
5	17½	HTC	X3A	3x16	1506	624	39,5	15,8	106,5	30/35	100/130	3/4	3000	75	75	10,3	56	15	6	3	1/4
6	17½	HTC	X3A	3x18	1836	330	24	13,8	130,5	35/40	90/120	3/4	3000	75	75	10,5	50	13	4	3	I
7	17½	HTC	OSC3AJ	20.20. 22	1956	120	11,5	10,4	142	40/45	100/125	1	3000	82	82	10,5	55	11	4	5	I
8	17½	HTC	OSC3AJ	3x22	2000	44	3	14,7	145	35/45	90/125	1	3100	82	82	10,8	48	8	5	3	I
9	17½	HTC	OSC3AJ	3x22	2096	96	13,5	7	158,5	40/50	80	1 1/4	3150	80	82	10,8	58	7	3	5	I

BIT NO	SIZE	MAKE	TYPE	JETS	DEPTH OUT (M)	DRILLED (M)	HOURS	M/HR	ACCUM. DRLG. HRS.	WOB (1000 lbs)	RPM	VERTICAL DEV.	PUMP PRESS (PSI)	PUMP SPM No 1	PUMP SPM No 2	MUD WT.	MUD VISC	MUD F.L.	PULL COND. T	PULL COND. B	PULL COND. G
10	17½	REED	Y11	3x20	2197	101	14	7,2	172,5	30/45	80/110	2	3200	80	80	11,3	71	6,5	4	5	I
11	17½	SMF	TS2J	16.16.10	2321	124	18,5	6,7	191	35/45	100/115	2	3200	85	85	11,1	55	7	2	5	I
12	17½	SMF	TS2J	16.16.10	2380	59	16	3,7	207	35/48	115/120	2 3/4	3200	84	84	11,1/10,5	47	9,4	2	5	I
13	17½	HTC	OSC3J	3x22	2383	3	1,5	2	2085	40	120	3	3150	82	82	10,7	55	6	1	1	I
RR13	17½	HTC	OSC3J	OUT		DRILL CMT PLUGS															
14	12 1/4	REED	Y13G	3x16	2384	1	1	1	209,5	DRILL	CMT &	FLOAT	EQUIPM.	+	1 M	NEW	HOLE		5	4	I
15	12 1/4	HTC	X3A	16.16.18	2505	121	20,9	5,8	230,4	25/40	85/145	4	3000	65	65	10,7	52	9	3	3	I
16	12 1/4	HTC	X3A	3x16	2559	54	12,8	4,2	243,2	26/35	140	3½	3000	64	64	10,7	47	9	3	4	I
17	12 1/4	SMITH	A-1	16.16.10	2663	104	41,6	2,5	284,8	20/30	70/80	3	3000	61	61	10,3	45	7	3	4	I
18	12 1/4	HTC	X3	3x16	2722	59	17,9	3,3	302,7	25/35	100/125	2	3000	65	64	10,3	46	6	4	3	I
19	12 1/4	HTC	X1G	3x16	2730	8	2,3	3,5	305	30/35	118	2 3/4	3000	65	64	10,3	45	6	3	3	I
20	12 1/4	DB	LX13	DIAM.	3200	470	156	3	461	30/35	TURBO	2½	3800	60	60	10,8	44	7	25%	WORN	
21	12 1/4	SMITH	SVH	16.16.15.	3256	56	32	1,7	493	40/50	70	2½	3300	67	67	11,2	47	7	4	4	I
22	12 1/4	HTC	J33	16.16.15	3269	13	12,5	1,1	505,5	40/50	50/60	2½	3300	67	67	11,2	46	6,8	2	2	I
23	12 1/4	HTC	X1G	16.16.15	3333	64	42	1,5	547,5	35/45	70	3½	3400	67	67	11,2	46	6,4	6	3	I
24	12 1/4	HTC	X1G	16.16.15	3401	68	44,5	1,5	592	40/50	80	2 3/4	3400	67	67	11,3	47	6,4	6	8	I

BIT HYDRAULIC, WELL DATA

WELL 35/3-4

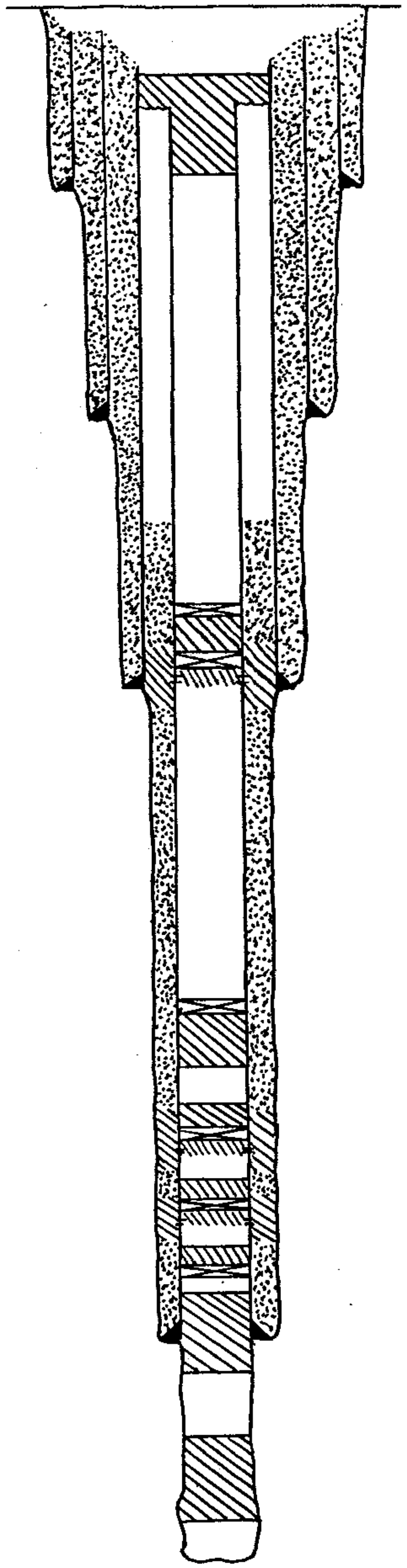
BIT NO	SIZE	MAKE	TYPE	JETS	DEPTH OUT (M)	DRILLED (M)	HRS	M/HR	ACCUM. DRLG. HRS.	WOB (1000 lbs)	RPM	VERT. DEV.	PUMP PRESS (psi)	PUMP SPM		MUD			PULL COND.		
														NO	NO	WT	VISC	F.L.	T	B	G
25	8 15/32	CRIST	C-22	COREH.	3417	16	19,5	0,85	611,5	10/18	80/110	2 3/4	3400	50	-	11,3	70	6,6	35/40	11/0	worn
26	12 1/4	SMITH	SVH	3x16	3447	30	16,5	1,8	628	15/50	75/110	2 3/4	3450	66	67	11,3	45	6,4	5	7	I
27	8 15/32	D.B	CB303	COREH.	3458	11	7,5	1,5	635,5	10/15	100	2 3/4	1150	44	-	11,7	42	6,8	50%	worn	
28	12 1/4	SMITH	SDGH	3 x16	3458	REAM	RAT	HOLE											3	2	I
29	8 15/32	CHRIST	C-20	COREH.	3460	2	1,5	1,3	637	10/15	50/90	2 3/4	1200/1300	-	45	11,5	57	6,8			
RR29	8 15/32	CHRIST	C-20	COREH.	3478	18	11,6	1,6	648,6	12/15	27/100	2 3/4	1000/1250	-	42	11,5	50	4,8			
30	12 1/4	SMITH	SDGH	3 x 16	3478	REAM	RAT	HOLE											4	3	1/4
RR29	8 17/32	CHRIST	C-20	COREH.	3492	14	8,6	1,6	657,2	15	95	2 3/4	1000/1300	44	-	11,5	50	5,5	-	-	-
RR29	8 15/32	CHRIST	C-20	COREH.	3498	6	3,1	1,9	660,3	15	88	2 3/4	1280	41	-	11,5	41	5,6	-	-	-
RR29	8 15/32	CHRIST	C-20	COREH.	3510	12	9,5	1,2	669,8	15	50/100	2 3/4	1500	48	-	11,5	50	5,8	-	-	-
RR29	8 15/32	CHRIST	C-20	COREH.	3515	5	5,5	0,9	675,8	15	75	2 3/4	1500	48	-	11,5	50	5,8	25%	worn	
31	12 1/4	REED	Y13G	3 x 16	3518	3	1	3	676,3	45	80	2 3/4	2900	63	62	11,6	43	6	6	4	I
RR29	8 15/32	CHRIST	C-20	COREH.	3536	18	6,7	2,7	683	20	95	2 3/4	1750	53	-	11,5	46	5,8			
RR29	8 15/32	CHRIST	C-20	COREH.	3543	7	4,1	1,8	687,1	15	90	2 3/4	1320	49	-	11,5	48	6	50%	worn	
32	12 1/4	SMITH	25S	3 x 16	3601	58	33,8	1,7	720,9	40/45	75	2 3/4	3150	63	64	11,5	47	5,8	5	6	I
33	12 1/4	SMITH	A-1	16,16,10	3633	32	20,3	1,7	741,2	25	60	13/4	330	61	61	11,5	46	5	1	3	I

WELL 35/3-4

BIT NO	SIZE	MAKE	TYPE	JETS	DEPTH OUT (M)	DRILLED (M)	HOURS	M/HR	ACCUM. DRLG. HRS.	WOB (1000 lbs)	RPM	VERT. DEV.	PUMP PRESS. (PSI)	PUMP SPM		MUD			PULL COND.		
RR20	12 1/4	DB	LX13	DIAM.	3800	167	51,2	3,2	792,4	35/45	TURB.	3/4	4150	68	68	11,4	47	6	80%	WORN	
34	8½	SEC.	S44	OUT	3766		DRILL CMT & FLOAT EQUIPM.														
35	8½	DB	TB26	DIAM.	3768	2	7,5	0,2	799,9	0/17	TURB.	–	2300	53	53	12,1	50	6,5			
36	8½	SMITH	SVH	3x11	3802	4	4	1	803,9	0/1	70	–	3000	45	45	12,0	52	6,5	5	3	1/4
37	8½	SMITH	SVH	OUT	3805	3	4,5	0,7	808,4	47	56	–	2600	70	70	12,1	48	9	4	4	1/8
38	8½	HTC	X1G	OUT	3803		DRILL CMT PLUG					–									
39	8½	HTC	X1G	OUT	3760		DRILL CMT PLUG					–									
RR35	8½	DB	TB26	DIAM.	3784	14	17	0,8	825,4	1/10	TURB.	–	4300	75	75	12	52	6,9	AS	NEW	
RR39	8½	HTC	X1G	3x12	3822	38	14	2,7	839,4	35	80	1½	3200	50	50	12	50	6,4	4	7	I
40	8½	DB	LX16	DIAM.	4007	185	46	4,0	885,4	20/30	TURB.	2½	4200	63	63	12	54	6,2	100%	WORN	
41	8½	SEC.	S86	11.11 12.	4018	11	5	2,2	890,4	35	50	2½	3700	55	55	12	59	6,4	1	1	I
42	8½	DB	LX16	DIAM.	4070	52	11,8	4,4	902,2	20	TURB.	3 3/4	4300	61	61	12	56	6,4	100%	WORN	
RR41	8½	SEC.	S86	11.11 12	4087	17	4,9	3,4	907,1	32	66	3 3/4	3700	53	53	12	56	6,8	1	3	I
43	8 15/32	ACC		COREH	4089	2	5,6	0,3	912,7	18	85	3 3/4	2100	61	–	12	52	6,2	GOOD		
RR41	8½	SEC.	S86	11.11 12	CONDITIONING TRIP ONLY																
44	8½	HTC	X1G	OUT	CSG SCRAPER TRIP ONLY																

Table 3.2

PRIMARY CEMENT
SECONDARY CEMENT



3.4.3 CEMENT AND CASING DETAILS

CEMENT AND BRIDGE PLUGS			CASING DETAILS								PRIMARY CEMENT		
SACKS	TYPE PLUG	DEPTH M-RKB	CASING SIZE	HOLE SIZE	WEIGHT LBS/FT	GRADE	NO. OF JOINTS	CASING LENGTH M	COUPL.	SHOE M-RKB	SACKS	TYPE	ADDI-TIVES
129	CEMENT	300-400											
			30"	36"	309	API "B"	14	175.82	Vetco "squnch"	455	2057	Class"G"	
			20"	26"	94	X-52	46	593,71	Vetco"L"	873	2638	Class"G"	36ghs A-3L 30ghs D-19LN 18ghs R-12L
											500	Class"G"	20ghs A-7L 20ghs D19LN 20ghs D31LN
120	Bridge Cement Retainer	2270 2350	13 3/8"	17 1/2"	72	N-82	177	2090.54	Buttress	2370	2772	Class"G"	36ghs A-3L 20ghs D31LN 20ghs, R12L
											168	Class"G"	20ghs D-19L 7ghs R-12L
125	Bridge Cement	3311 3311 - 3440											
100	Cement Retainer	3476											
100	Cement Retainer	3520											
25	Cement Bridge	3635 - 3695 3695											
	Cement	2720 - 3790	9 5/8"	12 1/4"	53.5	P-110	285	3.476,60	Buttress	3756	1788	Class"G"	40 ghs A-3L 30ghs D-21LN 1.75ghs R-14L
	Cement	3830 - 4007											20ghs D-19LN 6.5ghs R-12L

3.4.4
Ta

Mud recap 35/3-3

Casing interval		Total	30"	20"			
Material	Unit Weight	Quantiy	Quantity	Quantity			
Milbar	L/T	407		407			
Wyoming Bentonite	50 kg	1986	968	1018			
Milgel	50 kg	1227	120	1107			
Soda Ash	50 kg	9	2	7			
Bicarb. of Soda	50 kg	10	10				
Caustic Soda	25 kg	107	15	92			
Gypsum	50 kg	21	21				
Drispac.Reg	50 lbs	2		2			
CMC HiVis	25 kg	8		8			
Milfree	55 gal	4		4			
Milspot	50 lbs	73		73			

Mud recap 35/3-4

Casing interval		Total	30"	20"	13 3/8"	9 5/8"	8 1/2" hole & testing
Material	Unit Weight	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity
Barite	M Ton	2.447,92		466,3	1.077,2	626	278,42
Wyoming Bentonite	50 kg	1.941	345	1.095	141	360	
Milgel	50 kg	4.473	95	1.056	2.402	530	390
Caustic Soda	25 kg	706	12	60	276	338	20
Soda Ash	50 kg	12	1		7		4
Milmica fine	25 kg	158	35		123		
Milmica coarse	25 kg	153	30		123		
Unical	25 kg	2.277		11	1.365	705	196
Drispac S/L	50 lbs	394			171	117	106
Drispac Reg	50 lbs	113			33	79	1
CMC HiVis	25 kg	52			36		16
CMC LoVis	25 kg	65			24	12	29
Gypsum	50 kg	454			454		
EML	55 gal	73			73		
MD-detergent	55 gal	6			6		
Bicarbonate	50 kg	48			25	8	15
Milfibre	40 lbs	20			20		
LD-8	5 gal	14			5	9	
Lime	50 kg	12			12		
Milplug fine	25 kg	58			58		
Milplug coarse	25 kg	38			38		
Lubrisal	55 gal	24				22	2
Ammonium Nitr.	25 kg	5				5	

3.4.5 Table 3.4

Directional Survey

SPERRY-SUN INTERNATIONAL
GYROSCOPIC/MAGNETIC MULTISHOT/SINGLE-SHOT SURVEY

PAGE 1

SAGA PETROLEUM CO. NORWAY SU3-760/MSA-837/SSR-NOR
35/3-4 12 MAY 1981

TOTAL DEPTH	DIRECTION DEG MIN	ANGLE DEG MIN	VERTICAL DEPTH	LATITUDE METRES	DEPARTURE METRES	VERTICAL SECTION	DOG LEG
259	TIE COORDINATES		259.00	0.00 N	0.00 E	0.00	0.00
280	S 24 9 W	0 14	280.00	0.05 S	0.03 W	-0.04	0.34
310	S 58 47 W	0 23	310.00	0.16 S	0.14 W	-0.19	0.23
340	S 67 33 W	0 20	340.00	0.24 S	0.30 W	-0.35	0.07
370	S 60 56 W	0 22	370.00	0.32 S	0.47 W	-0.51	0.06
400	S 81 22 W	0 20	400.00	0.38 S	0.64 W	-0.66	0.13
430	N 89 19 W	0 18	430.00	0.40 S	0.81 W	-0.75	0.06
460	N 71 23 W	0 13	460.00	0.38 S	0.94 W	-0.81	0.11
490	N 51 35 W	0 11	490.00	0.33 S	1.03 W	-0.82	0.08
520	N 12 7 E	0 5	520.00	0.28 S	1.06 W	-0.79	0.17
550	N 13 41 E	0 12	550.00	0.21 S	1.05 W	-0.72	0.13
580	S 87 19 E	0 12	580.00	0.16 S	0.98 W	-0.65	0.25
610	S 84 52 E	0 21	609.99	0.17 S	0.84 W	-0.58	0.15
640	S 79 34 E	0 20	639.99	0.19 S	0.67 W	-0.51	0.04
670	S 71 53 E	0 21	669.99	0.23 S	0.50 W	-0.45	0.05
700	S 76 15 E	0 26	699.99	0.29 S	0.30 W	-0.39	0.09
730	S 80 57 E	0 26	729.99	0.33 S	0.08 W	-0.31	0.04
760	S 83 43 E	0 19	759.99	0.36 S	0.12 E	-0.23	0.12
790	S 48 27 E	0 21	789.99	0.43 S	0.27 E	-0.21	0.20
820	N 81 41 E	0 21	819.99	0.48 S	0.43 E	-0.16	0.30
850	N 70 13 E	0 27	849.99	0.42 S	0.64 E	-0.01	0.12
880	S 82 39 E	1 29	879.98	0.43 S	1.13 E	0.25	1.10
910	N 86 43 E	1 35	909.97	0.46 S	1.93 E	0.66	0.30
940	N 86 52 E	1 33	939.96	0.41 S	2.74 E	1.14	0.04
970	S 85 44 E	1 27	969.95	0.42 S	3.52 E	1.56	0.21
1000	S 86 28 E	1 29	999.94	0.47 S	4.29 E	1.93	0.04
1030	S 81 26 E	1 31	1029.93	0.56 S	5.07 E	2.28	0.14
1060	S 78 2 E	1 33	1059.92	0.70 S	5.86 E	2.58	0.09
1090	S 74 44 E	1 30	1089.91	0.89 S	6.64 E	2.84	0.10
1120	S 72 33 E	1 24	1119.90	1.10 S	7.36 E	3.06	0.11
1150	S 64 52 E	1 27	1149.89	1.37 S	8.06 E	3.20	0.20
1180	S 65 30 E	1 29	1179.88	1.69 S	8.75 E	3.31	0.04
1210	S 67 35 E	1 34	1209.87	2.01 S	9.48 E	3.43	0.10
1240	S 66 19 E	1 31	1239.86	2.33 S	10.23 E	3.57	0.06
1270	S 63 30 E	1 25	1269.85	2.65 S	10.93 E	3.67	0.12
1300	S 63 22 E	1 18	1299.84	2.97 S	11.56 E	3.75	0.13
1330	S 70 54 E	1 9	1329.83	3.22 S	12.15 E	3.85	0.22
1360	S 73 32 E	1 1	1359.83	3.39 S	12.69 E	4.00	0.14
1390	S 68 55 E	0 56	1389.82	3.55 S	13.17 E	4.12	0.12
1420	S 66 6 E	0 57	1419.82	3.74 S	13.62 E	4.21	0.05

SPERRY-SUN INTERNATIONAL
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SAGA PETROLEUM CO. NORWAY SU3-760/MSA-837/SSR-NOR
35/3-4 12 MAY 1981

TOTAL DEPTH	DIRECTION DEG MIN	ANGLE DEG MIN	VERTICAL DEPTH	LATITUDE METRES	DEPARTURE METRES	VERTICAL SECTION	DOG LEG
1450	S 66 39 E	0 58	1449.81	3.94 S	14.08 E	4.29	0.01
1480	S 61 39 E	0 54	1479.81	4.16 S	14.52 E	4.34	0.11
1510	S 61 25 E	0 55	1509.81	4.38 S	14.94 E	4.38	0.02
1540	S 68 47 E	0 47	1539.80	4.57 S	15.34 E	4.44	0.17
1570	S 70 25 E	0 41	1569.80	4.70 S	15.69 E	4.52	0.10
1600	S 69 49 E	0 44	1599.80	4.83 S	16.04 E	4.60	0.05
1630	S 69 50 E	0 41	1629.80	4.96 S	16.39 E	4.68	0.05
1660	S 72 51 E	0 39	1659.79	5.07 S	16.72 E	4.76	0.04
1690	S 79 55 E	0 37	1689.79	5.15 S	17.05 E	4.87	0.09
1720	S 83 22 E	0 34	1719.79	5.19 S	17.36 E	5.00	0.06
1750	N 87 56 E	0 34	1749.79	5.21 S	17.66 E	5.15	0.09
1780	N 69 37 E	0 32	1779.79	5.15 S	17.94 E	5.35	0.18
1810	N 53 32 E	0 37	1809.79	5.01 S	18.20 E	5.61	0.18
1840	N 45 15 E	0 42	1839.78	4.78 S	18.46 E	5.94	0.13
1870	N 38 6 E	0 46	1869.78	4.50 S	18.71 E	6.32	0.12
1900	N 33 21 E	0 51	1899.78	4.15 S	18.96 E	6.74	0.10
1930	N 36 20 E	0 57	1929.77	3.77 S	19.22 E	7.21	0.11
1960	N 31 46 E	1 2	1959.77	3.34 S	19.51 E	7.72	0.12
1990	N 29 24 E	1 6	1989.76	2.86 S	19.80 E	8.28	0.08
2020	N 29 53 E	1 9	2019.76	2.35 S	20.09 E	8.87	0.05
2050	N 30 38 E	1 13	2049.75	1.81 S	20.40 E	9.49	0.07
2080	N 33 43 E	1 16	2079.74	1.26 S	20.75 E	10.14	0.09
2110	N 34 45 E	1 21	2109.74	0.69 S	21.13 E	10.83	0.08
2140	N 39 57 E	1 23	2139.73	0.13 S	21.57 E	11.54	0.13
2170	N 41 3 E	1 20	2169.72	0.42 N	22.03 E	12.24	0.06
2200	N 38 59 E	1 23	2199.71	0.96 N	22.48 E	12.94	0.07
2230	N 40 20 E	1 32	2229.70	1.55 N	22.97 E	13.70	0.16
2260	N 40 1 E	1 42	2259.69	2.20 N	23.52 E	14.54	0.17
2290	N 42 50 E	2 3	2289.67	2.94 N	24.17 E	15.51	0.35
2320	N 43 42 E	2 32	2319.65	3.81 N	24.99 E	16.69	0.49
2340	N 43 34 E	2 48	2339.63	4.48 N	25.63 E	17.60	0.41
2384	N 35 0 E	3 16	2383.56	6.29 N	27.10 E	19.91	0.44
2413	N 41 0 E	3 15	2412.52	7.59 N	28.11 E	21.55	0.35
2442	N 40 0 E	3 15	2441.47	8.84 N	29.18 E	23.18	0.06
2471	N 41 0 E	3 18	2470.42	10.10 N	30.25 E	24.82	0.08
2500	N 44 0 E	3 5	2499.38	11.29 N	31.34 E	26.41	0.28
2529	N 44 0 E	3 30	2528.33	12.49 N	32.50 E	28.05	0.43
2557	N 41 0 E	3 18	2556.28	13.71 N	33.62 E	29.68	0.29
2587	N 36 0 E	3 27	2586.23	15.09 N	34.72 E	31.44	0.33
2616	N 36 0 E	3 16	2615.18	16.46 N	35.72 E	33.13	0.19

SPERRY-SUN INTERNATIONAL

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SAGA PETROLEUM CO. NORWAY SU3-760/MSA-837/SSR-NOR

35/3-4 12 MAY 1981

TOTAL DEPTH	DIRECTION DEG MIN		ANGLE DEG MIN	VERTICAL DEPTH	LATITUDE METRES	DEPARTURE METRES	VERTICAL SECTION	DOG LEG
2644	N 33	0 E	3 17	2643.13	17.78 N	36.62 E	34.73	0.19
2673	N 30	0 E	3 23	2672.08	19.22 N	37.50 E	36.42	0.21
2701	N 31	0 E	3 14	2700.03	20.61 N	38.32 E	38.03	0.17
2729	N 26	0 E	3 0	2727.99	21.95 N	39.05 E	39.55	0.39
2758	N 21	0 E	2 45	2756.96	23.28 N	39.63 E	40.98	0.37
2787	N 17	0 E	2 15	2785.93	24.47 N	40.05 E	42.21	0.55
2815	N 29	0 E	2 35	2813.90	25.55 N	40.51 E	43.37	0.65
2844	N 11	0 E	2 13	2842.88	26.67 N	40.94 E	44.55	0.86
2873	N 10	0 E	1 45	2871.86	27.66 N	41.12 E	45.48	0.49
2901	N 20	0 E	1 40	2899.85	28.46 N	41.34 E	46.27	0.33
2929	N 27	0 E	2 0	2927.83	29.28 N	41.70 E	47.15	0.43
2958	N 23	0 E	2 12	2956.81	30.24 N	42.14 E	48.20	0.26
2987	N 7	0 E	2 20	2985.79	31.34 N	42.43 E	49.28	0.67
3015	N 3	0 E	2 16	3013.77	32.46 N	42.53 E	50.28	0.19
3044	N 3	0 W	2 15	3042.75	33.60 N	42.53 E	51.24	0.25
3072	N 5	0 W	1 53	3070.73	34.61 N	42.46 E	52.05	0.40
3101	N 4	0 W	1 47	3099.71	35.53 N	42.39 E	52.79	0.11
3129	N 4	0 W	1 45	3127.70	36.40 N	42.33 E	53.48	0.04
3158	N 5	0 W	1 44	3156.69	37.27 N	42.26 E	54.18	0.04
3186	N 0	0 E	1 45	3184.67	38.12 N	42.22 E	54.88	0.16
3215	N 4	0 E	2 0	3213.66	39.07 N	42.26 E	55.70	0.29
3244	N 5	0 W	2 43	3242.63	40.26 N	42.23 E	56.69	0.83
3273	N 11	0 W	3 8	3271.60	41.72 N	42.02 E	57.80	0.53
3301	N 12	0 W	3 10	3299.55	43.23 N	41.72 E	58.91	0.07
3330	N 5	0 W	2 25	3328.52	44.62 N	41.50 E	59.96	0.85
3358	N 7	0 E	2 20	3356.49	45.78 N	41.51 E	60.94	0.54
3387	N 21	0 E	2 35	3385.47	46.97 N	41.82 E	62.11	0.67
3415	N 27	0 E	2 45	3413.44	48.16 N	42.35 E	63.40	0.35
3443	N 19	0 E	3 3	3441.40	49.46 N	42.90 E	64.79	0.54
3472	N 8	0 E	2 35	3470.37	50.84 N	43.24 E	66.14	0.74
3501	N 7	0 E	1 46	3499.34	51.93 N	43.39 E	67.13	0.85
3530	N 4	0 E	1 47	3528.33	52.83 N	43.47 E	67.93	0.10
3558	N 6	0 E	1 37	3556.32	53.65 N	43.54 E	68.67	0.19
3587	N 8	0 E	1 51	3585.30	54.52 N	43.65 E	69.46	0.25
3616	N 17	0 E	1 42	3614.29	55.40 N	43.84 E	70.30	0.33
3644	N 14	0 E	1 2	3642.28	56.04 N	44.03 E	70.94	0.72
3673	N 30	0 E	0 50	3671.28	56.48 N	44.19 E	71.40	0.34
3702	N 57	0 E	0 37	3700.28	56.74 N	44.43 E	71.75	0.41
3730	N 63	0 E	0 43	3728.27	56.91 N	44.71 E	72.04	0.13
3759	S 81	0 E	1 0	3757.27	56.95 N	45.12 E	72.29	0.62

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3771	S 88 0 E	0 52	3769.27	56.93 N	45.32 E	72.38	0.44
3781	N 83 0 W	1 30	3779.27	56.94 N	45.26 E	72.36	7.09
3822	S 83 0 W	1 30	3820.25	56.94 N	44.20 E	71.79	0.27
3914	N 41 0 W	2 0	3912.22	58.01 N	41.95 E	71.47	0.55
3964	N 17 0 W	2 0	3962.19	59.50 N	41.12 E	72.28	0.50
3995	N 23 0 W	2 30	3993.16	60.64 N	40.70 E	73.02	0.53
4070	N 28 0 E	3 45	4068.06	64.31 N	41.21 E	76.38	1.17

THE DOGLEG SEVERITY IS IN DEGREES PER 30 METRES.
THE VERTICAL SECTION WAS COMPUTED ALONG N 32 39 E

BASED UPON MINIMUM CURVATURE TYPE CALCULATIONS. THE BOTTOM HOLE DISPLACEMENT IS 76.38 METRES, IN THE DIRECTION OF N 32 39 E
BOTTOM HOLE DISPLACEMENT IS RELATIVE TO WELLHEAD.
VERTICAL SECTION IS RELATIVE TO WELLHEAD.
0 TO 259 METRES ASSUMED VERTICAL

3.5 Daily Activity Report

D A I L Y A C T I V I T Y R E P O R T

Oct.	26	Underway to location.
Oct.	27	Underway to location.
Oct.	28	Arrived location 09.15. Ran anchors.
Oct.	29	Ran piggybacks. Positioned rig.
Oct.	30	Picked up BHA. Ran and landed temporary guide base. Tagged seabed at 284m. Spudded in and drilled 36" hole from 284 to 302m.
Oct.	31	Drilled 36" hole from 302 to 434m.
Nov.	1	Drilled 36" hole from 434m to 450m. Displaced hole with high viscous mud. WOW. Lost tension on anchor no. 7. Pulled bit.
Nov.	2	WOW.
Nov.	3	WOW. Repositioned rig. Wiper trip to 450m. Spot viscous mud. Ran 30" casing.
Nov.	4	Continued running casing. Ran a total of 13 jts. 30", 309 lbs/ft grade "B", Weatherford float shoe, National wellhead and Vetco "squnch" joint connectors. Overall string length 163,10m. Cemented casing w/2625 sxs class "G" cement + 20 ghs A.7L and seawater. Waited on cement. Made up 26" bit and BHA. Drilled firm cement from 433m to 443m.
Nov.	5	Drilled cement from 443 to 449m. Assembled 20 3/4 BOP and ran same on 24" riser.

Nov. 6 Landed BOP. Made up 12 1/4" bit and BHA. Drilled 12 1/4" pilot hole from 450m to 604m.

Nov. 7 Drilled from 604m to 900m. Displaced hole with seawater to flow check.

Nov. 8 Flow check. No flow. Displaced hole to 9 ppg mud. Logged, ran ISF, Sonic, Density Neutron and Seismic. Made up BHA.

Nov. 9 Made up BHA. Opened hole to 17 1/2" from 449 to 900m. Made up 26" underreamer and RIH.

Nov. 10 Opened hole to 26". Displaced hole with 11 ppg mud to 30" csg. shoe. Displaced riser to seawater. Prepared to pull BOP and riser.

Nov. 11 Pulled BOP and riser. Disassembled connector to unlatch lower marine riser.

Nov. 12 Ran in hole with 26" bit and reamed hole from 593m to 900m. Rigged to run 20" casing. Ran casing, stuck in hole at 810m. Pumped mud while attempting to work casing free.

Nov. 13 Circulated with 11 ppg mud. Attempted to free stuck casing. Circulated with seawater while attempting to free casing with overpull.

Nov. 14 Worked stuck casing. Circulated mill free pills. Circulated with seawater. Well flowed, displaced hole with 10,7 ppg mud.

Nov. 15 Attempted to free stuck casing. Made up 20" cutting assembly and cut 20" casing.

Nov. 16 Pulled out cutting assembly. Ran casing spear and pulled out cut of casing.

Nov. 17 Layed down 20" cut off casing. Milled and dressed casing stump. Rigged to run casing. Made up casing patch. Removed top sub from patch, sent to Stavanger for rethreading.

Nov. 18 Waited on casingpatch. Patch connection damaged, sent onshore for repair. Waited for patch part. Prepared milling on casing stump.

Nov. 19 Milled casing stump. Ran casing patch. Connection 20" running tool parted, pulled out of hole.
Ran in hole with overshot, unable to engage fish.
Ran in hole with taper mill and backed out running tool.

Nov. 20 Made up 18 3/4" spear and attempted to sting into 20" wellhead. WOW.
Latched spear and attempted to land patch. Unable to latch. Unlatched spear and pulled out.

Nov. 21 Retrieved 20" casing with spear. Layed down casing.
Milled on 20" casing stump.
Ran in hole with 20" casing and patch. Worked patch and landed wellhead.
Attempted to circulate, pressured up to 1000 psi, casing parted.

Nov. 22 Layed down casing. Rigged up for abandoning. Cut casing at 503m. Pulled out cut off casing with spear.

Nov. 23 Layed down patch and casing. Ran in hole to cement.
Repaired electrical failure on drawwork.

Nov. 24 Repaired electrical failure on drawwork.

Nov. 25 Finished reparing electrical failure on drawwork.
Ran in hole with cement stinger to 525m. Attemted to circulate, tubing plugged.

Nov. 26 Set cement plug from 600m to 320m. Cut 30" casing at 285m. Retrieved wellhead and 30" cut off casing.

Nov. 27 Set cement plug from 230m to seabed. Washed around Temporary Guide Base with open ended drill pipe.

Nov.	28	Broke UTV guide wire. Re-positioned camera on guide lines 1 and 2. Retrieved Temporary Guide Base.
Nov.	29	Modified J-slot on TGB while waiting on supply boat to pick up anchor. Ran TGB, water depth 280,7m.
Nov.	30	Repair no. 7 anchor chain. Positioned rig over Temporary Guide Base. RIH with spudding assembly and drilled to 300m.
Dec.	1	Drilled 36" hole to 388m. Repaired Elmoco Brake.
Dec.	2	Drilled 36" hole from 388m to 405m. WOW.
Dec.	3	WOW. Drilled 36" hole to 428m.
Dec.	4	Drilled 36" hole to 457m. Circulated and spotted 700 bbls mud.
Dec.	5	Ran 30" casing, 309 lbs/ft, total casing string length 175,82m. Moved rig to stab casing in hole. Lost circulation. Mixed and pumped 100 bbls L.C.M. pill twice. Cemented casing with 2057 sxs class "G" cement. Casing shoe at 455,5m and wellhead at 279,7m.
Dec.	6	W.O.C. Made up 26" BHA and drilled cement and 26" hole from 457m to 511m.
Dec.	7	Drilled 26" hole to 823m. Repaired drawwork control panel and dropped deviation survey at 530, 672 and 794m.
Dec.	8	Drilled 26" hole to 879m. Cleaned hole, dropped survey. Pulled out to shoe and reamed.
Dec.	9	Worked pipe and reamed. Started running 20" casing Tight hole at 665m. Pulled out casing.
Dec.	10	Pulled rest of the 20" casing. Made up BHA, RIH to 575m and reamed to 662m.

Dec. 11 Ran in hole to 690m. Remaed, pulled and ran in with pipe and pumped mud to condition hole.

Dec. 12 Conditioned hole. Ran casing and landed with shoe at 873m, collar at 845m and wellhead at 279,28m.

Dec. 13 Cement 20" casing with 2638 sxs class "G" cement + 36 ghs A-3L + 30 ghs D-19LN + 18 ghs R-12L mixed at 13,2 ppg followed by 500 sxs class "G" cement + 20 ghs A-7L + 20 ghs D-19LN + 20 ghs D-31LN + seawater mixed at 15,9 ppg. Pulled out of hole running tool Nippled up BOP.

Dec. 14 Ran BOP and riser. Landed and latched BOP. Made up 17 1/2" BHA and drilled 1 m of cement.

Dec. 15 Drilled 3m new hole, and performed leak off test (11,6ppg) Picked up 17 1/2" BHA, and drilled to 973m.

Dec. 16 Drilled 17 1/2" hole to 1334m. Single shot survey at 1154m (1 1/2 deg S 61 E). Totco suvey at 973m (1deg), 1068m (1 3/4 deg) and 1248m (1 3/4 deg).

Dec. 17 Drilled to 1420m. Tight hole from 920 to 980m, worked pipe and circulated hole clean. Drilled to 1506m.

Dec. 18 Leak off test at 1506m (13,6 ppg). Drilled to 1661m. Survey at 1506m (3/4 deg).

Dec. 19 Drilled to 1836m conditioned hole.

Dec. 20 Drilled to 1944m. Survey at 1931m (1 deg N 81E).

Dec. 21 Drilled, circulated to condition mud and reamed to 1961m.

Dec. 22 Drilled to 2014m. Tight hole at 1790m. Max overpull 75000 lbs. Tested BOP stack.

Dec. 23 Drilled to 2054m. Single shot survey at 2035m, 1 deg N 70E. Wiper trip to 20" casing shoe. Wash and ream tight hole from 1830m to 1893m.

Dec. 24 Circ. to clean hole. Drilled 17 1/2" hole to 2095m. Ream tight section from 1865 to 1893m.

Dec. 25 Drilled to 2197m. Single shot survey at 2197m, 1 3/4 deg N 38 deg E.

Dec. 26 Drilled to 2273m. Conditioned hole. Dropped survey at 2273m (2 1/2 deg N 53 E).

Dec. 27 Drilled to 2338m. Dropped deviation survey at 2321m, (2 1/2 deg N 53 E)

Dec. 28 Drilled to 2373m. Deviation survey at 2373m, 2 3/4 deg N 72 deg E. 12 stds wiper trip. Circulated and conditioned hole. POOH and hang off at shoe due to bad weather.

Dec. 29 WOW

Dec. 30 WOW

Dec. 31 WOW. Hole bridged at 2324m. Reamed from 2324 to 2373m. Drilled to 2380m.

Jan. 1 Reamed from 2353 to 2380m. Drilled to 2383m. POOH to casing shoe and hang off due to bad weather.

Jan 2 WOW. Washed down to 2383m. Dropped deviation survey at2383m. Rig up Schlumberger. Ran ISF, LSS, GR, SP.

Jan 3 Ran FDC, CNL, GR, CAL from 2382m to 873m. Rig down Schlumberger. RIH to 800m and pumped 13 bbls of cement. Failure on BJ equipment. Reversed out cement. Well flowed on outside of 30" wellhead.

Jan 4 Set 100m cement plug from 800m to 700m using 574 sacks class "G" cement with 20 ghs A.7L. Failed to perforate 3 times.

Jan. 5 Perforated with 12 shots at 452m. RIH with cement stinger.

Jan 6	Pumped and squeezed 930 sacks cement with 40 ghs A-7L. WOW. POOH with cement stringer. RIH with bit and drilled out cement from 440 to 457m. Tested perforations, broke at 700 psi. Pumped 200 bbls 17 ppg mud, flow stopped.
Jan 7	Pumped 50 bbls 18,5 ppg mud and displaced with 46 bbls 10,9 ppg mud. Observed well. No flow. Drilled cement from 700m to 728m. Established injection rate. Set balanced cement plug at 450m. Squeezed 20 bbls with pressure from 600 to 1000 psi.
Jan 8	Drilled cement plug from 441m to 463m. Attempted to test casing, failed. Sealed off perforations with coarse mica mud. RIH with 17 1/2" BHA.
Jan 10	Squeezed 125 bbls cement through perforations.
Jan 11	Tested squeeze job, failed. Resqueezed with 110 bbl cement and placed balanced cement plug across upper perforation.
Jan 12	Cleaned out cement in 20" casing. RIH to 2247m and broke circulation.
Jan 13	WOW.
Jan 14	RIH to 2225m. Reamed from 2225m to 2330m.
Jan 15	Displaced riser with seawater. WOW.
Jan 16	WOW. Pulled riser. Inspected and tested H-4 connector.
Jan 17	Ran LMRP and riser. Displaced riser with mud. RIH to 2143m.
Jan 18	RIH. Reamed from 2169m to 2383m. Circulated to condition hole and mud.

Jan 19	Lost circulation. Pumped 100 bbl LCM pill. Squeezed 20 bbls LCM pill. Observed well, stand full of mud.
Jan 20	Circulated to clean hole. Well started flowing on the outside. Set balanced cement plug from 625m to 575m.
Jan 21	Pumped 50 bbls gunk squeeze. Formation sealed off after 15 bbls. Set balanced cement plug (200 sacks) at 455m. Squeezed cement and held pressure on annulus.
Jan 22	Drilled cement from 422m to 451m. Circulated, return ouside 30" casing. POOH. Pumped 35 bbls gunk plug. Squeezed 20 bbls cement.
Jan 23	Drilled cement from 440 to 458m. Started loosing mud. Squeezed 100 bbls diesel oil - bentonite - cement pill. Squeezed 23 bbls fresh water across pill.
Jan 24	Drilled cement from 583m to 642m. WOW.
Jan 25	Pulled hang off tool. Circulated and conditioned mud. POOH for running 13 3/8" casing.
Jan 24	Ran 13 3/8" casing, 177 joints with casing shoe at 2370m, collar at 2346m. Total casing length 2091m.
Jan 27	Cemented 13 3/8" casing. 2772 sacks lead slurry with 36 ghs A-3L, 20 ghs D-31LN and 20 ghs R-12L. Tail slurry 168 sacks with 20 ghs D-19LN and 7 ghs R-21L. POOH. Ran temperature survey and gyro.
Jan 28	Pulled riser and BOP stack. RIH with jetting assembly and washed wellhead.
Jan 29	Repaired 13 5/8" BOP. WOW to run 13 5/8" BOP stack.
Jan 30	WOW
Jan 31	Ran 13 5/8" BOP stack and riser. Lost locking dog in riser. Pulled BOP and landed on beams. WOW.

Feb 1	Ran 13 5/8" BOP and riser.
Feb 2	Failed to test 13 5/8" BOP. Rig up to pull BOP stack. WOW.
Feb 3	Pulled BOP and riser.
Feb 4	Changed laurent ring and replaced two hydraulic hoses. Ran BOP stack.
Feb 5	Installed diverter and tested BOP stack. Lost holding tool for L.H. subs down riser. Ran magnet and recovered fish.
Feb 6	Set wear bushing. Drilled out cement and performed leak off test, EMW to 13,7 ppg.
Feb 7	RIH with 12 1/4" BHA. Hung off DP. WOW.
Feb 8	WOW.
Feb 9	RIH. Drilled 12 1/4" hole from 2384m to 2468m.
Feb 10	Drilled from 2468m to 2520m. Survey at 2520m, 3 1/2 deg N 38 E.
Feb 11	Drilled to 2559m. Dropped survey. POOH.
Feb 12	RIH. Drilled to 2594m.
Feb 13	Drilled to 2646m. Dropped Sperry Sun single shot survey, 3 1/4 deg N 33 E at 2626m.
Feb 14	Drilled to 2665m. Tested BOP stack.
Feb 15	Drilled to 2721m. Dropped Sperry Sun single shot survey, 2 deg at 2721. POOH.
Feb 16	RIH with junk basket. Drilled to 2729m. Dropped survey. POOH. RIH with turbo-drill.
Feb 17	Turbo-drilled to 2815m.

Feb 18	Turbo-drilled to 2889m.
Feb 19	Turbo-drilled to 2949m.
Feb 20	Turbo-drilled to 2993m. Dropped and retrieved Sperry Sun survey, 1 3/4 deg. Turbo-drilled to 3015m.
Feb 21	Turbo-drilled to 3077m.
Feb 22	Turbo-drilled to 3142m.
Feb 23	Turbo-drilled to 3200m. Dropped single shot survey.
Feb 24	POOH. Retrieved bore protector and tested BOP stack. Made up new BHA.
Feb 25	RIH and drilled to 3227m.
Feb 26	Drilled 12 1/4" hole to 3256m. Dropped survey. POOH.
Feb 27	Changed bit and RIH. Drilled from 3256m to 3269m. POOH.
Feb 28	RIH with new bit and drilled from 3269m to 3303m.
March 1	Drilled to 3333m and drop survey. POOH.
March 2	Retrieved wear bushing. RIH test plug and tested BOP. Made up new BHA with junk sub. Drilled to 3347m.
March 3	Drilled to 3367m. RIH and hung off in wellhead. Changed slip joint box end seal. Drilled to 3370m.
March 4	Drilled down to 3400m.
March 5	5 stands wiper trip. Dropped survey. Picked up core barrel and RIH. Cut core no. 1 from 3408m to 3412m.
March 6	Cut core no. 1 from 3412m to 3415m. POOH- Made up new BHA and RIH.

March 7	Reamed rat hole from 3407m to 3415m. Drilled 12 1/4" hole to 3447m.
March 8	RIH with core barrel. Cut core no. 2 from 3447m to 3458m. Core barrel jammed. POOH.
March 10	Reamed 8 15/32" hole to 12 1/4" from 3452 to 3458m. Found washout in 12 1/4" steel stabilizer. Cut core no. 3 from 3458m to 3460m. POOH.
March 11	Cut core no. 4 from 3462m to 3480m. POOH.
March 12	Reamed rathole from 3460m to 3480m. Circulated bottoms up and dropped survey. POOH.
March 13	RIH with core barrel and cut core no. 5 from 3480m to 3494m. POOH.
March 14	Repaired compensator. RIH and cut core no. 6 from 3494m to 3500m.
March 15	Cut core no. 7 from 3500m to 3510m. POOH and serviced core bbl. RIH and cut core no. 8 from 3510m to 3514m.
March 16	POOH. Made up 12 1/4" BHA. Tested BOP stack.
March 17	Repaired slip joint inner bbl. RIH and reamed rat hole. Drilled to 3519m. Circulated bottoms up. Dropped survey and POOH.
March 18	Hung off due to weather condition. WOW.
March 19	RIH and cut core no. 9 from 3519m to 3356m.
March 20	Cut core no. 10 from 3536m to 3543m. POOH.
March 21	Reamed rat hole. Drilled to 3569m.
Marhc 22	Drilled from 3569m to 3600m. Dropped survey and POOH.

March 23	Tested BOP stack. WOW.
March 24	RIH. Drilled to 3623m. Changed coupling on rotary.
March 25	Drilled to 3633m. Dropped survey. RIH with turbo. Drilled from 3633m to 3637m.
March 26	Turbo-drilled to 3711m.
March 27	Turbo-drilled to 3727m. Dropped survey and POOH. Drilled to 3774m.
March 28	Turbo-drilled to 3800m. Ran Sperry Sun multishot survey. POOH.
March 29	Rigged up Schlumberger and ran ISF, Sonic, GR, FDC, CNL, NDT, DLL and MSFL.
March 30	Ran RFT log and got stuck. RIH with fishing tool. Latched fish into overshot. Rigged down Schlumberger and POOH with fish.
March 31	Tested BOP stack. RIH and circulated and conditioned mud. Drillpipe got stuck. Circulated and worked pipe free. POOH.
April 1	Rigged up Schlumberger and ran HDT and WST log.
April 2	Reamed section from 3774m to 3800m. Tight hole. Circulated and conditioned mud.
April 3	Ran RFT in hole and got stuck at 1359m. Pulled out of rope socket. Rigged down Schlumberger. RIH with fishing tool and fished for the RFT-tool.
April 4	Lost fish in hole. Attempted to latch on fish, failed. POOH. Rigged up Schlumberger and ran NGT log and side-wall core tool.

4

April 5 RIH with bit and pushed RFT tool down to 3786m. POOH. RIH with tubing and cemented fish in hole.

April 6 Circulated and conditioned mud. Dressed of cement plug from 3756m to 3765m.

April 7 POOH. Started running 9 5/8" casing.

April 8 Ran 285 joints 9 5/8" casing, P110 53,5 lbs/ft with buttress threads. Baker float shoe and collar. Lynes ECP and 9 5/8" National casing hanger. Shoe depth at 3756m. Float collar at 3742m. Center of ECP at 2329m.
Cemented casing with 1788 sacks class "G" cement. Lead slurry weight 13,2 ppg with 40 ghs A3L, 30 ghs D-31LN, 1.75 ghs R-14L. Tail slurry weight 15,8 ppg with 20 ghs D-19LN and 6,5 ghs R-12L additives.
Tested BOP stack.

April 9 Layed down 12 1/4" BHA. Made up 8 1/2" BHA, RIH and tagged float collar. Attempted to test casing, failed. Drilled float collar and shoe and performed leak off test. POOH.

April 10 RIH with kick off assembly. Turbo-drilled from kick off point 3766m to 3768m. POOH.
RIH with 8 1/2" bit and drilled to 3802m.
Performed leak off test, EMW = 13,2 ppg. POOH.

April 11 RIH with RTTS packer and circulating sub. Set packer at 3722m. Attempted to pressure test casing, all three sets of rams failed to hold pressure. Unseated RTTS packer and POOH.

April 12 Set cement plug at 3760m. Rigged up and pulled BOP stack.

April 13 Changed all ram rubbers and stump tested BOP stack.

April 14 Ran riser and BOP stack.

April 15	Tested BOP stack on bottom. Drilled cement from 3680m to 3760m. Performed leak off test, EMW = 14,7 ppg. Drilled on junk to 3805m. POOH.
April 16	RIH with junk mill, could not pass wellhead. POOH and changed mill. RIH and milled on junk to 3806m.
April 17	POOH and changed mill. RIH and milled from 3803m to 3805m. POOH. Set 83 sacks cement plug.
April 18	RIH with 8 1/2" bit and attempted to tag cement, failed. POOH.
April 19	RIH with tubing and set 83 sacks cement plug at 3800m. WOC. Drilled cement from 3781m to 3803m. POOH.
April 20	Set new cement plug at 3803m. Dressed of cement plug to 3760m. POOH. RIH with test plug.
April 21	Tested BOP stack. RIH with turbo and turbo-drilled from kick off point at 3760m to 3770m.
April 22	Turbo-drilled to 3771m. Dropped survey and POOH. RIH with new turbine.
April 23	Changed compensator chains. Turbo-drilled to 3774m.
April 24	Turbo-drilled to 3784m. Dropped survey. POOH and RIH with rock bit assembly.
April 25	Reamed hole from 3768m to 3784m. Drilled to 3822m. Dropped survey and worked junk basket. POOH.
April 26	RIH with turbine and turbo-drilled to 3882m.

April 27	Turbo-drilled to 3972m.
April 28	Turbo-drilled to 3974m. POOH to shoe and RIH test plug. Tested BOP stack. Turbo-drilled to 4007m. Dropped survey. POOH.
April 29	RIH with 8 1/2" rock bit assembly. Drilled to 4018m. POOH.
April 30	RIH with turbine, turbo-drilled to 4070m. Tight hole at 4040m. POOH.
May 1	RIH with rock-bit assembly. Drilled to 4087m. POOH. Cut core no. 11 from 4087 to 4089m.
May 2	POOH with core barrel. Slipped and cut drill-line. RIH. Circulated and conditioned mud. POOH.
May 3	Rigged up Schlumberger and ran ISF, GR, Sonic, MSFL, LDT, CNL and velocity survey. RIH and circulated bottoms up.
May 4	POOH. Rigged up Schlumberger. Ran HDT, CBL, VDL, and RFT log. Reran RFT log due to missrun.
May 5	Ran CST log and rigged down Schlumberger. RIH with tubing and drillpipe. Layed cement plug from 4007 to 3830m. Pulled back to 3790m and layed cement plug from 3790 to 3720m.
May 6	POOH. Rigged up Schlumberger and ran gauge ring. Set bridge plug at 3695m and dumped 25 sacks cement on top of bridge plug.
May 7	Pressure tested plugs and casing to 3000 psi. Perforated 9 5/8" casing at 3524m. Set cement retainer at 3520m. RIH with cement stinger and squeezed 85 sacks into perforation and dump 15 sacks on top of retainer.
May 8	Perforated with 10 shots at 3480m and set cement retainer at 3476m. RIH with stinger and squeezed 85 sacks through perforation and dumped 15 sacks on top of cement retainer.

May 9	RIH with flat bottom mill. Milled out cement retainers at 3476m and 3520m. POOH.
May 10	Ran CBL twice. Second time with 1000 psi on annulus. Perforated at 3520m and set cement retainer at 3518 m.
May 11	RIH with stinger, mixed and pumped 100 sacks cement. Squeezed 4bbl cement. POOH. RIH with casing scraper to 3510m. Perforated at 3480m.
May 12	Set cement retainer at 3478m. Squeezed cement. RIH with concave mill and attempted to mill. POOH.
May 13	RIH with flat bottom mill and cleaned out hole down to 3571m. Layed out mill and RIH with bit and casing scraper to 3517m.
May 14	POOH. Ran CBL. Tested BOP stack. Made up Halliburton teststring.
May 15	RIH with Halliburton D.S.T. tools.
May 16	RIH with teststring. Tested Flopetrol SSTT latch-mechanism. POOH with test string. RIH with CCL and junk basket to 3480m.
May 17	RIH with bit and worked pipe from 3480m to 3540m. Set bridge plug at 3520m on wireline. Perforated from 3498m to 3507m. POOH.
May 18	Perforated from 3488m to 3498m. Pressure tested complete test-assembly to 3000 psi. RIH with landing string.
May 19	Set packer and landed SSTT. Tested string, surface lines and valves to 5000 psi, filled up with nitrogen. Conducted DST no. 1 over interval 3488m to 3507. No flow. Rigged down surface equipment. POOH.

May 20	RIH with cement retainer could not pass 3440m. RIH bit and junk sub to 3500 m. POOH.
May 21	Set cement retainer at 3475m. RIH with stinger and squeezed cement through perforations. Perforated interval 3464m to 3471m and 3459m to 3454m.
May 22	Perforated from 3445m to 3447m and 3449m to 3453m. RIH with test string. Spaced out and set packer.
May 23	Pumped nitrogen to 4000 psi. Bled of pressure and opened choke. No flow. POOH test string.
May 24	RIH with test string, spaced out and set packer at 3410m. Started DST no. 2.
May 25	Flowed well through 36/64" choke. Shut well in for main build up.
May 26	Final flow periode through choke size 24/64".
May 27	Final build up on DST no. 2. Released packer and layed down surface tree, POOH.
May 28	Attempted to run cement retainer on DP, failed. Circulated gass cut mud. POOH.
May 29	Set a 125 sacks balanced plug, 15,9 ppg, squeezed 11,5 bbl into perforation at 3440m. RIH and set bridge plug at 3311m. Perforated at 2370m and squeezed 50 sacks through perforatio POOH.
May 30	RIH and set bridge plug at 2270m. Perforated with 4 shots at 306m. RIH and cut 9 5/8" casing.

May	31	POOH 9 5/8" cut off casing. Set balanced cement plug from 300m to 400m. RIH on Schlumberger line, 13 3/8" bridge plug. Plug hang up at 281m. Broke weekpoint on Schlumberger line. Failed to push plug down. Displaced riser with seawater.
June	1	Attempted to fish plug, failed. RIH with flat bottom mill and junk sub. Milled on fish to 284m. POOH.
June	2	Pulled riser and BOP stack. Cut 13 3/8" and 20" casing at 283,5m. Retrieved 13 5/8" wellhead.
June	3	Retrieved 20" cut off casing. Pulled and layed down 30" cut off casing and PGB. Washed TGB.
June	4	Attempted to retrieve TGB.
June	5	Retrieved TGB. Pulled anchors.
June	6	Pulled anchors. Last anhcor bolstered at 09.45 hrs.

Saga Petroleum a.s.

Summary log

Well: 35/3-3 & 4

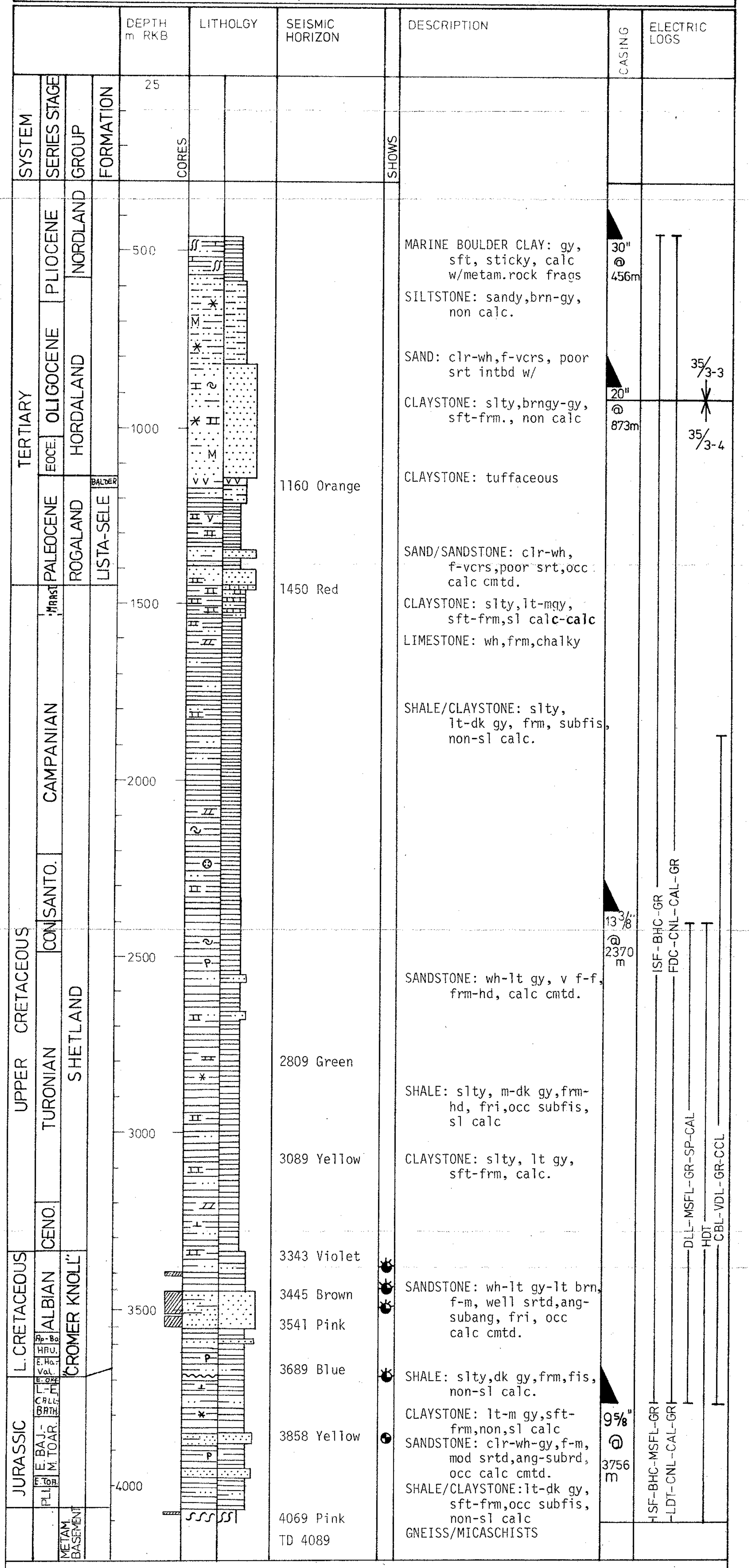
LOCATION: 61° 51' 54,54" N
03° 52' 26,36" E

VERTICAL SCALE: 1:10.000

KB ELEVATION : 25 m
WATER DEPTH : 258 m
TOTAL DEPTH : 4089 m

NR/SA .-81

RIG: BYFORD DOLPHIN.
SPUDDED: 30.10.80 RESPUD: 30.11.80 COMPLETED: 6/6-81
COMPLETION STATUS: Plugged and abandoned as a gas/condensate well.



11 cores, 10 in Lower Cretaceous, 1 in metamorph. basement. Cored 108.7 m, recovered 96.6 m. 90 sidewall cores shot, 64 recovered.

Summary of RFT results taken in the 12 1/4 inch hole, Lower Cretaceous.

DEPTH (mBRT)	FORMATION (PSIG)	REMARKS
3446	5093	
3449.5	5090	
3451.5	5091	
3456.5	5092	
3465	5095	
3467.5	5097	
3469.8	5125	
3483.8	7088	
3484.2	7092	
3486.3	5231	
3489	5390	
3491	26	Tight
3491.3	0	Tight
3492.5	0	Tight
3493	0	Tight
3501	0	Tight
3506	0	Tight
3527	5291	
3531.5	5299	
3535.5	5315	
3538.5	5719	Still building when retract
3548.7	0	Tight

Summary of RFT results taken in Jurassic

DEPTH (mBRT)	FORMATION (psig)	REMARKS
3859.5		No seal
3859.0		Tight
3859.3		No seal
3860.0	6148	Sampling point. Slow build-up 30 min.
3862.0		No seal
3861.8		No seal
3869.5		No seal
3872.5		No seal
3872.5		Tight
3874	6941	No perm. super charge
3873		Tight
3875.5	6395	
3877.0		Tight
3877.0		Tight on second trial
3876.5		Tight
3877.5	6410	
3874.5		Tight

DST SUMMARY

DST 1 Formation: Lower Cretaceous
Perforations: 3488.50 - 3495.00 mBRT, 3498.25 - 3503.25 mBRT, 3504.50 - 3507.75 mBRT

No rates were measured since production was not established. Estimated formation pressure 5375 psig at 3469 mBRT.

DST 2 Formation: Lower Cretaceous
Perforations: 3445.00 - 3447.50 mBRT, 3449.25 - 3453.50 mBRT, 3454.50 - 3459.50 mBRT. 3464.00 - 3471.50 mBRT

The test was aborted because of defective valve.

DST 2A Formation: Same as DST 2. Perforations: Same as DST 2

Final gas flow rate first main flow period: 24.30 MMSCF/D (36/64" choke)
Final gas flow rate second main flow period: 12.63 MMSCF/D (24/64" choke)
Final condensate flow rate first main flow period: 528 B/D
" " " " second " " " : 326 B/D
Condensate gravity: 50.3°API Gas gravity: 0.62 (air = 1)
Final flowing bottom hole pressure first main flow period: 4306 psig
" " " " " second " " " : 4685 psig
Estimated formation pressure : 5025 psig at 3424.6 mBRT

SAGA PETROLEUM

CONVENTIONAL CORE DESCRIPTION WELL 35/3-4 WELL SITE

[illegible]

DESCRIPTION

Shale/Clyst: slty, gy-dk gy, hd, [illegible], calc, [illegible], macrofossils

Sandstone: clr-wh, lt brn, f-m, well srtd, ang-subang, fri, [illegible]

Sandstone: [illegible] occ frm, calc cmtd, mica, nil-poor por. Slight-good odour, weak yel stain, 50% strong gold yel fluor, instant cloudy-strmg milky wh cut, no nat cut colour, wh residue.

Shale/Clyst, slty, gy-dk gy, hd, fiss, calc, micromic, macrofossils

Massive sandstone, in parts with very thin laminated shale.

Sandstone: wh-lt gy-lt brn, f-m, well srtd. ang-subang fri. Occasionally very calcite cmtd. In pts trace of very thin wispy dk laminated soft shale. Sl glauc, sl micaceous, sl odour, gold yel fluor in streaks, slow strmg wh-yel cut. Predom no show.

Fining up sequences (Bouma). Eroded and load cast at bases. Begins with massive f-m ss, internally plane parallel laminated and wavy, ripple laminated. Grade transitional up into Shale, dk gy, brittle, v fissile, non calc, micromicaceous. Sl odour, strong lt yel fluor, v slow strmg milky wh cut in thin ss bed at top of sequence.

Massive sandstone, in parts with very thin laminated shale.

Sandstone: lt gy, occ lt brn, f-m, well srtd, ang-subang, fri. Occasionally very calcite cmtd. In parts trace of very thin laminated blk sft shale and sometimes lt gy laminae, dipping 20°. Sl glauc,

sl micaceous.
Sl odour, gold yel fluor, fast cloudy milky wh cut, sl yel nat cut color, leaving wh residue.

Shale interbedded with sandstone, often disturbed and slumped. Load casts.

Shale: sl slty, dk gy hd, micromicaceous, sl calcareous

Sandstone: lt gy, occ lt brn, f-m, well srtd, ang-subang fri, sl calcareous.

Massive sandstone.

Sandstone: lt gy-lt brn, f-m, well srtd, ang-subang, fri, well calcite cmtd. sl odour, lt yel fluor in streaks, no cut.

Sandstone interbedded in parts w thin laminated shales.

Sandstone, clr-wh, occ lt brn, f-m, w srtd, ang-sbang, frm-hd, micaceous, glauc, in pts sl calc cmtd, fair-good por, in pts well cmtd w calc, occ non calcite cmt, w nil occ poor por. Sl odour, trace-90% gold yel fluor, no-slow strmy milky wh cut, no nat cut color leaving wh residue.

Shale, blk, frm-hd, non calc-sl calc, micromic

Limestone, lt brn gy, v. hd, no por.

Ss: wh-lt gy, v f-m, pred f, w srtd, fm, v sl calc cmt, glau, sl mica. Good por.

Ss: wh-lt gy, v f-f, w srtd, hd, calc cmt.

Ss: wh-tan, v f-m, pred f, w srtd, subrd, fm, v sl calc cmt, glau, mica, v sl arg. Fair por.

Ss: wh-lt gy, v f, w srtd, subang, fm, non calc cmt, mica, glau, sl arg. Poor por. Weak dull yel fluor. V slow strm wh cut. Laminae of

Sh: dk gy, micromica, grading into slt.

Sh: dk gy-blk, hd, micromica, non calc, abnt slicken sides

Ss: wh-tan, pred f, w srtd, subrd, fm-fri, v sl calc cmt, glau, mica. Good por.

Show: Downward increasing from spotty weak dull yel fluor at top to 80% bright yel fluor and strm wh cut at base.

Ss: a/a, hd. No show

Ss: wh-tan, fm, f, subrd. w srtd, v sl calc cmt, glau, mica. Good por. Shows as below.

Ss: with thin shale laminations.

Ss: tan, v f-f, w srtd, v mica w/ streaks. Fair por.

Shale interbedded with sandstone, occasionally thick sandstone beds.

Shale: dk, gy-blk, hd, fis, micromica, abnt sks, partly bedding.

Sandstone: wh-lt, gy, v f-f, calc cmt, sl glau, mica.

Sandstone interbedded with shale

Ss : lt gy, occ tan, f-m, pred f, w srtd, subrd, hd-fm, calc cmt-sl calc cmt, mica, glau. The sandstone has in parts fair-good por, occ fair por, lt brn stain, 90 % bright yel fluor, instant-fast strmg milky wh cut.

Sh: dk gy, fm-hd, occ brit, fis, micromica, occ partly micalam, non calc, abnt sks.

Ss: lt gy-tan, v f-m, pred f, w-fair srtd, subrd, v hd-fm, occ fri, sl calc cmt, mica, glau. Poor-fair por. Lt brn stain, occ no. 100%-partly bright yel fluor. Instant-fast strmg white cut. In parts Ss are good calc cmt and no snow.

Sandstone interbedded with shale.

Ss: Lt gy, v f-f, w srtd, subrd, hd, calc cmt, v mica, glau, arg incls, sh clast incls. In part lt brn stain. Yel fluor.

Sh: dk gy-blk, hd, fis, micromica, non calc.

Sandstone with thin shale bed.

Ss: Massiv, homog, lt gy-tan, pred f, w srtd, subrd, mica, glau, vertical frac. Fair-good por. Brn stain, 100% bright yel fluor. Instant cloudy-fast streaming cut.

Ss: homog, massiv, lt gy-tan, f, occ m, w srtd, subrd, fm, sl silica cmt, partly clay cmt, v mica, glau. Fair por. Brn oil stain. 100% bright yel fluor. Fast streaming wh cut.

Ss: wh-lt gy, f-m, w srtd, subrd-rd, v hd, tight calc cmt, mica, glau.

Ss: lt gy-tan, f, occ m, w srtd, subrd, fm, sl silica cmt, partly clay matrix, v mica, glau. Fair-good por. Lt brn oil stain. 100% bright yel fluor. Instant wh cloudy cut.

Sandstone with minor shale.

Ss: wh-lt gy-lt brn, f, occ m, w srtd, subang-subrd, fm-hd, mica, glau. Poor-fair por. Spotty - 100% bright yel fluor. Fast-instant streaming-cloudy wh cut.

Sh: blk, fm, micromica, non calc, app partly lm.

Shale with minor sandstones bed.

Sh: blk, fm, micromica, non calc

Ss: gy, v f-f, w srtd, v arg, tight.

Shale interbedded with sandstone.

Shale: sl slty, dk gy-blk, hd-v hd, micromica, non calc, abnt slickensides, dipping about 30°.

Sandstone: lt gy-gy, v f-f, w srtd, hd-v hd, mica, arg, silica cmt, tight, in part lenticular bedding.

Sandstone interbedded with shale.

Ss: Clr - lt gy, fri, f-m, pred m, subang-subrd, w srt, w srtd, partly cmt, glau, mica, (chl, biot, musc). Fair porosity. No show.

Ss: As above

Thin shale laminae 45° to core axis at 3520.7 m forming several 2 cm thick beds. Convoluted bedding.

Sandstone interbedded with shale, as above.

Sandstone, as above, but becoming fine grained below 3525 m.

Massiv Sandstone, lt gy, m-crs, pred m, fm-fri, mica (musc, biot, chl), biot partly chloritized. Good-fair porosity. No show.

At 3538.7 m the sandstone is richer in biot and crs musc with a few shale clasts (1 x 5 cm).

Shale with minor sandstone.

Shale: dk gy, fm, mic-mica, non calc, becoming thinly laminated with depth.

Ss: As above

Green mica schist/gneiss. Foliated rock with alternating mica rich and minor quartz-feldspar rich bands (metamorphic texture). The micas are predominantly chlorite and muscovite with minor amounts of biotite. Epidote is also present as a minor constituent.

FORMATION PRESSURE EVALUATION SHEET 35/3-3&4

37377 37378
2035 066687

II/NOR 35/3-4 B1

12605

Saga Petroleum a.s.

Composite Well Log

Well 35/3-3 & 4

COUNTRY	NORWAY	LOCATION	
AREA	NORTHERN NORTH SEA	LATITUDE	[illegible]
CONCESSION	PL 041	LONGITUDE	03° 52' 26.[illegible]
DATE SPUDDED	30.10.1980	ELEVATIONS	
DATE RESPUDDED	30.11.1980		
DATE COMPLETED	6.6.1981		
TD DATE	[illegible]	WATER DEPTH	[illegible]
COMPLETION STATUS	GAS/CONDENSATE WELL, P & A		
RIG	BYFORD DOLPHIN	SIDETRACK FROM	[illegible]

DRILLING CONTRACTOR: DOLPHIN SERVICES A/S

MUDLOGGING SERVICE: EXPLORATION LOGGING

CASING	SHOE		HOLE SIZE	INTERVAL	
30"	456	M	36"	283-457	M
20"	873	M	26"	457-879	M
13 3/8"	2370	M	17 1/2"	879-2383	M
9 5/8"	3756	M	12 1/4"	2383-3800	M
			8 1/2"	3800-4089	M

SCHLUMBERGER LOGS

LOCATION MAP

AUTHOR: A. KLEPPE

GEOLOGICAL SYMBOLS

WELL LOG SYMBOLS

SIDEWALL CORE

SIDEWALL CORE NO RECOVERY

CORE INFORMATION 35/3-4

CORING DEPTH (M RKB)	CORED	RECOVERED	DEPTH CORRECTION	CORRECTED DEPTH (USED ON LOG) (M RKB)
CORE 1 : 3400.6 - 3415.4 M	14.8 M	14.8 M, 100 %	+ 2.4 M	3403.0 - 3417.8 M
CORE 2 : 3447.3 - 3458.1 "	10.8 "	10.3 " 95 %	+ 3.3 "	3450.6 - 3460.9 "
CORE 3 : 3458.5 - 3459.7 "	1.2 "	1.1 " 92 %	+ 4.4 "	3462.9 - 3464.0 "
CORE 4 : 3459.7 - 3478.1 "	18.4 "	18.4 " 100 %	+ 4.3 "	3464.0 - 3482.4 "
CORE 5 : 3478.1 - 3491.8 "	13.7 "	8.6 " 63 %	+ 4.3 "	3482.4 - 3488.2 " and 3490.0 - 3497.8 "
CORE 6 : 3491.8 - 3497.8 "	6.0 "	5.4 " 90 %	+ 2.7 "	3494.5 - 3999.9 "
CORE 7 : 3497.8 - 3509.5 "	11.7 "	11.7 " 100 %	+ 2.7 "	3500.5 - 3512.2 "
CORE 8 : 3509.5 - 3514.8 "	5.3 "	5.3 " 100 %	+ 2.7 "	3512.2 - 3517.5 "
CORE 9 : 3518.0 - 3536.0 "	18.0 "	12.7 " 70.5 %	+ 3.0 "	3521.0 - 3533.7 "
CORE 10: 3536.0 - 3543.0 "	7.0 "	6.6 " 97 %	+ 1.5 "	3537.5 - 3544.3 "
CORE 11: 4087.0 - 4088.8 "	1.8 "	1.45" 81	0 "	4087.0 - 4088.45"

TOTAL CORED 108.7 M
RECOVERED 96.6 M - 89

CORE NO. 1 - 10 FROM LOWER CRETACEOUS
CORE NO. 11 IS FROM METAMORPHIC BASEMENT

3 RUNS WITH CST-TOOL WERE MADE. 90 SIDEWALL CORES WERE SHOT, 64 RECOVERED (71 %).

SUMMARY OF RFT RESULTS TAKEN IN THE 12 1/4 INCH HOLE, LOWER CRETACEOUS.

DEPTH (MBRT)	FORMATION (P SIG)	REMARKS
3446	5093	
3449.5	5090	
3451.5	5091	
3456.5	5092	
3465	5095	
3467.5	5097	
3469.8	5175	
3483.8	7088	
3484.2	7092	
3486.3	5231	
3489	5390	
3491	26	TIGHT
3491.3	0	TIGHT
3492.5	0	TIGHT
3493	0	TIGHT
3501	0	TIGHT
3506	0	TIGHT
3527	5291	
3531.5	5299	
3535.5	5314	
3538.5	5719	STILL BUILDING WHEN RETRACT
3540.7	0	TIGHT

SUMMARY OF RFT RESULTS TAKEN IN JURASSIC.

DEPTH (MBRT)	FORMATION (P SIG)	REMARKS
3859.5		NO SEAL
3859.0		TIGHT
3859.3		NO SEAL
3860.0	6140	SAMPLING POINT. SLOW BUILD-UP 30 MIN.
3862.4		NO SEAL
3861.8		NO SEAL
3869.5		NO SEAL
3872.5		NO SEAL
3872.5		TIGHT
3874	6947	NO PERM. SUPER CHARGE
3873		TIGHT
3875.5	6395	
3877.0		TIGHT
3877.0		TIGHT ON SECOND TRIAL
3876.5		TIGHT
3877.5	6418	
3874.5		TIGHT

DST SUMMARY

DST 1 FORMATION: LOWER CRETACEOUS
PERFORATIONS: 3480.50 - 3495.00 MBRT, 3498.25 - 3503.25 MBRT, 3504.50 - 3507.75 MBRT.

NO RATES WERE MEASURED SINCE PRODUCTION WAS NOT ESTABLISHED. ESTIMATED FORMATION PRESSURE 5375 PSIG AT 3469 MBRT.

DST 2 FORMATION: LOWER CRETACEOUS
PERFORATIONS: 3445.00 - 3447.50 MBRT, 3449.25 - 3453.50 MBRT, 3454.50 - 3459.50 MBRT, 3464.00 - 3471.50 MBRT.

THE TEST WAS ABORTED BECAUSE OF DEFECTIVE VALVE.

DST 2A FORMATION: SAME AS DST 2.
PERFORATIONS: SAME AS DST 2.

FINAL GAS FLOW RATE FIRST MAIN FLOW PERIOD: 24.30 MMSCF/D (36/64" CHOKE)
FINAL GAS FLOW RATE SECOND MAIN FLOW PERIOD: 12.63 MMSCF/D (24/64" CHOKE)
FINAL CONDENSATE FLOW RATE FIRST MAIN FLOW PERIOD: 526 B/D
" " " " SECOND " " " : 375 B/D
CONDENSATE GRAVITY: 50.3°API. GAS GRAVITY: 0.62 (AIR = 1)
FINAL FLOWING BOTTOM HOLE PRESSURE FIRST MAIN FLOW PERIOD: 4306 PSIG
" " " " SECOND " " " : 4685 PSIG
ESTIMATED FORMATION PRESSURE: 5085 PSIG AT 3424.6 MBRT.