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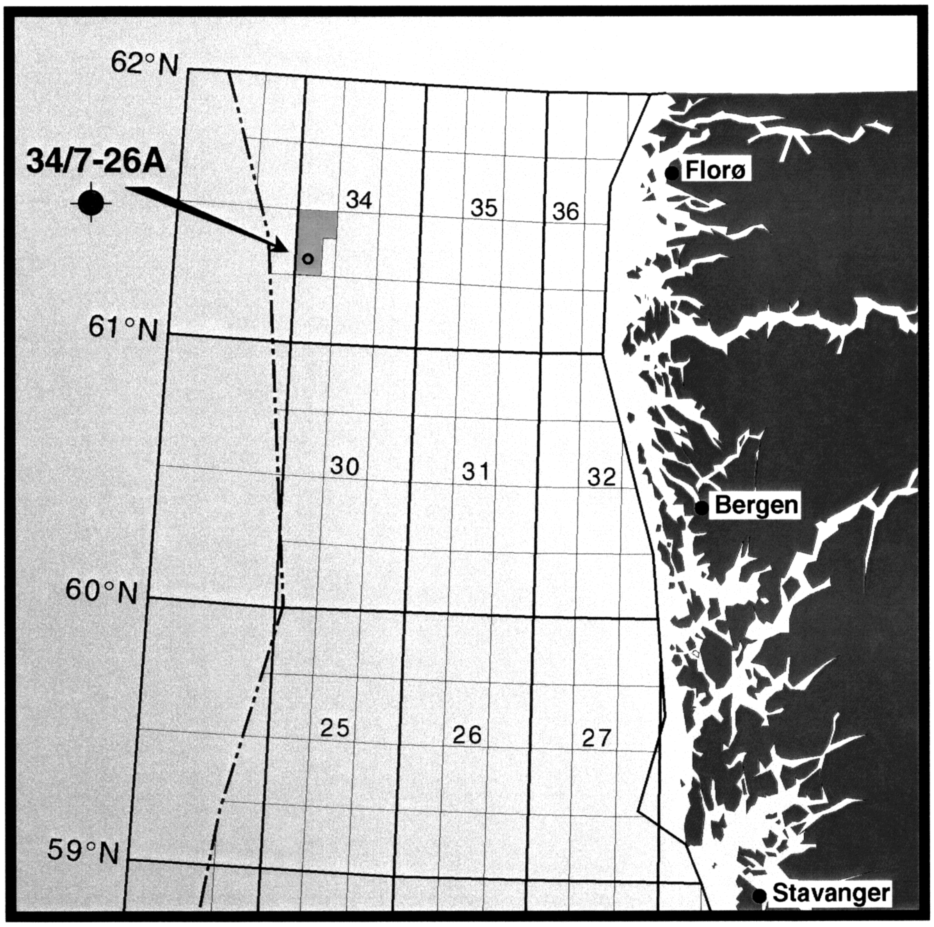

Final Well Report

34/7-26A

RA98-102/EXE
November 1998

Comments to this Final Well Report are appreciated, and will be taken into account when developing our next Final Well Report for the area.

COMMENTS TO FINAL WELL REPORT		
WELL NO.: **34/7-26A**		RIG: **"Scarabeo 5"**
SECT.	PAGE	COMMENTS/RECOMMENDATIONS
DATE:		SIGN.:

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Saga Petroleum

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Title

Final Well Report 34/7-26A

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Classification:

☐ Open ☒ Saga and partners ☐ Internal ☐ Confidential ☐ Strictly confidential

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Reviewed					
Approved					

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1. List of contents

2. Summary

2.1 Exploration

Well 34/7-26A was drilled as a sidetrack from well 34/7-26SR, in the middle part of block 34/7 in the H-central prospect. The H-Central is located in the south-western part of block 34/7, south of the Vigdis field, south east of the Statfjord field and west of the Tordis field. The well was drilled as a deviated well from the Tordis Manifold, south east of the discovery well 34/7-21. The well is placed in an up-dip position relative to the 34/7-21 well.

The primary objectives of well 34/7-26A was to encounter at least 20 m with Top Draupne Sand (TDS) in order to perform a long term production test in H-Central. The well is also adding another data point in the H-central area, and improves the understanding of the distribution and quality of the TDS.

Well 34/7-26A was kicked off from below 13 3/8" casing shoe in well 34/7-26SR, on 6. January 1998. The well reached TD the 26. February 1998. It was then tested through the Tordis manifold to Gullfaks.

The kick off point was at 1384 m MD RKB in the Hordaland Group. In the Hordaland and Rogaland Groups, the well penetrated mainly clay/claystone with some beds of sand. In the Shetland Group claystones with limestone beds were penetrated. A total of 4 cores were cut in the interval 4104 m - 4216 m MD RKB, covering the lower part of the Shetland Group, the whole of the Cromer Knoll Group, and most of the Draupne Formation. The lower part of the Shetland Group consists of claystones with various calcareous content, while the Cromer Knoll Group consists of marls, limestones and minor claystones. The Draupne formation was reached at 4129 m MD RKB, and consists of sandstone, becoming shale with sandstone beds towards base of the formation. The thickness of the Top Draupne sandstone was 51 m TVT, while the total thickness of the Draupne Formation was 73.4 m TVD. Intra Draupne sandstone is found in the interval 4204 m to 4207 m MD RKB giving a gross thickness of 1.6 m TVT. The Heather Formation consists of shale.
TD was reached within the Heather Formation at 4290 m MD RKB (2514.5 m TVD).

From the analysis of the logs and the results from the core analysis, it was decided that the criteria for test production were fulfilled, and the well was tested in the intervals 4140-4149 m, 4161.5-4179.5 m and 4203.5 - 4207.5 m MD RKB.

No oil water contact was encountered in the well. The deepest oil down to is observed at 4206 m MD RKB (2479 m TVD MSL).

2.2 Drilling

2.2.1 Objectives

After plugging back and abandoning the reservoir section of well 34/7-26 SR, the geological side-track 34/7-26 A was performed. Scarabeo 5 was the drilling rig used to drill the well. The two primary purposes for drilling this well was to:

1. Perform an optimum data collection program in the Draupne sandstone, and test for possible sands in the lower part of the Shetland group.
2. Perform a long term production test in H-Central

2.2.2 Operation

If not otherwise is mentioned, all depths refer to m RKB (Rotary Kelly Bushing) for Scarabeo 5 (25 m above MSL).

The geological side-track, well 34/7-26A was performed after plugging back and abandoning the reservoir hole section of well 34/7-26SR. The 9 5/8" casing was cut and retrieved, and the well was kicked off just below the 13 3/8" casing shoe to a new geological target on 06.02.98 20:00hrs. The well was drilled to TD at 4290 m MD in 20.1 days.

2.2.2.1 12 1/4" Hole section - 9 5/8" x 10 ¾" casing

Section depth - 12 ¼" : 3750 m MD / 2193 m TVD
Shoe depth - 9 5/8" : 3746 m MD
Max hole angle : 64.5°
Min / Max mud density : 1.40 / 1.49 s.g

The 12 ¼" hole section was kicked off in open hole at 1384 m and was drilled and oriented to 3750 m. A right hand azimuth turn was made to enter a new geological target approximately 2100 m north-east of the previous target of well 34/7-26SR. Difficulties were encountered in achieving the required doglegs, especially in sand intervals. Overall this resulted in considerable more periods of steering than was originally anticipated. Some losses were encountered while making a trip for a faulty MWD, but were cured. Hole cleaning was affected by the hole inclination and considerable amount of steering. In addition pump failures resulted in limited pump capacity at times.

A combined 10 ¾" and 9 5/8" casing was run. During this casing run mud losses were experienced. Prior to and after the casing hanger was landed, and also during the cement displacement, no returns were observed. The plug was bumped and 9 5/8" casing was tested to 290 bar. Top of cement was identified from logs at 3400 m MD.

2.2.2.2 8 1/2" Hole section / 5 1/2" Liner

Section depth	: 4290 m MD / 2573 m TVD
Hanger depth	: 3687 m MD
Shoe depth	: 4286 m MD / 2576 m TVD
Max hole angle	: 61.6°
Min / Max mud density	: 1.53 / 1.62 s.g
Max est. pore pressure	: 1.38 s.g

The 8 ½" hole was drilled to 3757 m before a FIT to 1.68 s.g equivalent mud weight was achieved. Thereafter the 8 ½" hole was drilled and oriented to 4104 m. Before the core point was reached at the top of reservoir, the inclination in the 8 ½" hole dropped off. In the same depth interval, the mud weight was increased from 1.53 s.g to 1.58 s.g. Core #1 was cut from 4104 m to 4132 m by use of a 90 ft barrel. This core barrel was changed out with a 240 ft barrel. Core #2 was cut from 4132 to 4153.5 m, and core #3 from 4153.5 to 4179 m. Both cores jammed off. When cutting core #4 a core barrel of 120 ft was used from 4179 to 4216 m. The core interval was logged and reamed. When all four cores were cut, the 8 ½" hole was drilled to TD at 4290 m. The mud weight was increased to include a risermargin while suspending operations for weather with the BHA hung off inside the shoe. The first log AIT-H/PEX/GR was run to shoe, but due to bad weather the logging operations were suspended. Logging was continued with the second log, DSI/NGT/UBI. It was unable to pass below 980 m. Log #2 was pulled out of hole, and the UBI was removed. This time it was impossible to pass below 1030 m with the logging string, and again the string was pulled out of the hole. Additional weight was added to the logging string, and finally the second log was obtained. The third log MDT/CMR/GR/ACTS was run on TLC. Difficulties were encountered in establishing tool communication after several attempts to latch the locomotive. The locomotive was pulled out and the string was inspected. A faulty knuckle joint on the CMR was found, and the logging string was rerun with no CMR. Pressure points and fluid samples were taken until the MDT flowline plugged up. An attempt to log CMR/PEX on wireline was made, but it was impossible to get below 1370 m.

2.2.3 Summary Panel

Refer to Figure 2.1, Summary Panel well 34/7-26A.

2.2.4 Well Status

Refer to Figure 8.1 Wellbore schematic well 34/7-26A.

KEY INFO

Licence: PL089

Group Members	Net Interest
Saga (Operater)	7.70%
Esso	10.50%
Statoil	55.40%
Norsk Hydrol	8.40%
Idemitzu	9.60%
Elf	5.60%
Deminex	2.80%

Rig taken over by PL o89:	06.02.98
Spud date:	06.02.98
T.D date:	26.02.98
Rig Released:	22.04.98
Completion status:	Testing to Gullfaks
Final location coordinates:	61°16'29.38"N 02°07'11.41"E
UTM-coordinates:	6793879.1 mN 452806.1 mE
Position refers to UTM zone 31	
Rig:	Scarabeo 5
RKB - MSL:	25 m
MSL - Seabed (waterdepth):	201 m
RKB - Seabed:	226 m
RKB - T.D. (Drillers depth):	4290 m MD 2572.7 m TVD
RKB - T.D. (Loggers depth):	4691 m MD 2573.5 m TVD

FORMATION TOPS

Formations	mMD RKB	mTVD RKB	Thickness mTVD
Rogaland Gr.	2658	1662.4	215.0
Balder fm.	2658	1662.4	54.5
Sele/Lista fm.	2770	1716.9	152.4
Shetland Gr.	3084	1869.3	565.3
Cr. Knoll Gr.	4121	2434.6	6.5
Viking Gr.	4129	2441.1	>131.6
Draupne fm.	4129	2441.1	73.4
Heather fm.	4219	2514.5	>58.2
T.D.	4291	2573.5	

CASING

TYPE OD"	Depths mMD RKB	LOT g/cc EMW
13 3/8"	1371	1.60 (FIT)
9 5/8"	3746	1.68 (FIT)
5 ½"	4286	

PORE PRESSURE

Max gradient:

1.55 g/cc @ Top Draupne fm.

CORE SUMMARY

Core #1: 4104-4132m, cut 28.0m, 26.6m (98.5%) recovered
Core #2: 4132 4153.5m, cut 21.5m, 21.5m(100%) rec.
Core #3: 4153.5-4179m, cut 25.5m, 25.3m (99.2%) rec.
Core #4: 4179-4216m, cut 37m, 37.2m (100%) recovered

WIRELINE AND MWD LOGS

Logged Interval	Type of log	Run	Date
1371 - 3306	MWD (GR-RES-DIR)		06.02.98
3306 - 3750	MWD (GR-RES-DIR)		13.02.98
3750 - 4104	MWD (GR-RES-DIR)		19.02.98
4104-4290	MWD (GR-RES-DIR)		26.02.98
3746-4289m	AIT-H/PEX/GR	1A/A	28.02.98
3746-4281m	UBI/DSI/NGT	1A/A/A	01.03.98
4124-4206m	MDT/CMR/GR	1A/A/A	02.03.98
1370-3663m	RIGS	1A	09.03.98
1523-4229m	VSP	1A	09.03.98

WELL TEST SUMMARY

No.	Interval. m RKB	BHP bar	BHT °C	Referance depth m RKB	WHP bar	WHT °C	Choke size inch	Flow rate Sm^3/D	Comment
1.FL1	4203.5-4207.5	283.45	89.2	3612	125	24	36/64	800	Clean up
1.FL2	4203.5-4207.5	301.14	87.1	3612	140	14	20/64	346	Main flow
1.FL3	4203.5-4207.5	251.26	89.6	3612	100	30	56/64	1750	Hig rate clean up
2.FL1	4140-4149. 4161.5-4179.5	295.42	88.4	3612	139	36	52/64	1730	Clean up
2.FL2	4140-4149. 4161.5-4179.5	296.79	88.4	3612	144	31	44/64	1361	Main flow

Figure 2.1: Summary panel

3. General information

3.1 Licence and general well information

3.1.1 Licence 089

Production Licence No. 089, awarded on March 9, 1984, covers most of block 34/7 offshore West Norway, approximately 240 km north-west of Bergen. The location map is shown in Figure 3.1.

3.1.2 Licence Members

A summary of the licence members and their respective interests is given below.

Saga Petroleum (operator)	7.70%
Esso	10.50%
Statoil	55.40%
Norsk Hydro	8.40%
Idemitsu	9.60%
Elf	5.60%
Deminex	2.80%

3.2 Location

Well:	34/7-26A
Rig taken over by PL 089:	06.02.98
Spud date (sidetrack):	06.02.98
TD date:	26.02.98
Rig released:	22.04.98
Co-ordinates (UTM zone 31):	61° 16' 29.38" N
	02° 07' 11.41" E
UTM co-ordinates:	6 793 879.1 N
	452 806.1 E
Seismic position (surface):	CTM 94: E-W line 1235, N-S line 1284
Rig:	Scarabeo 5
RKB - MSL	25 m
MSL - Seabed (water depth):	201 m
RKB - Seabed:	226 m
RKB - TD (driller's depth):	4290 m RKB MD
	2572.7 m RKB TVD
RKB - TD (logger's depth)	4291 m RKB MD
	2573.5 m RKB TVD

Figure 3.1: Location map

3.3 Saga personnel

3.3.1 Drilling

Onshore:	
Senior Vice Presidents:	A. Unneberg
Vice President, Drilling:	P.T. Klavenes
Drilling Operations Manager	T. Kristiansen
Drilling Superintendent	Ole Tangen
Offshore:	
Drilling supervisors:	R. Millar
	O. Rørvik
	M. Sæbø
	P. Rogerson
	G. Steinsheim
	S. Næsheim

3.3.2 Engineering

Onshore:	
Department Manager, Drilling and Well Technology:	T.P. Ølberg
Section Leader, Drilling Technology:	J.P. Ledsaak

3.3.3 Exploration and Evaluation

Onshore:

Senior Vice President, Exploration and Evaluation	L. T. Bjerke
Vice President, Exploration:	H. Chr. Rønnevik,
Senior Manager, Operation Geology:	B. Gustavsen,
Operation Geologist, Operation Geology:	A. Hansen,
Section Manager, Exploration area south:	T. Solli
Licence Geologist:	Y. Kjellin,
Vice President, Reservoir Evaluation:	H. Høydalsvik
Senior Manager, Formation Evaluation and lab.:	F. Gullichsen
Manager, Well Logging	B.K. Pedersen
Senior Manager, Well Testing:	H. Garseth
Manager, Well Testing:	B. Hultberg
Palyonologist:	I. Throndsen

Offshore:

Well-site Geologists:	T. Pedersen
	A. J. Clark
	L. O. Grøvik
	C. Carstens
Petrophysicists:	G. Smaaskjær
	S. Hubinger

3.4 Contractors and service companies

Drilling Contractor:	Saipem
Casing Running Services:	Weatherford
Cementing Services:	BJ Services
Coring:	Baker Hughes INTEQ
Directional Drilling:	Halliburton
Measurement While Drilling:	Baker Hughes INTEQ
Drilling Fluids and Engineering:	MI
Electric WL Logging:	Schlumberger
VSP:	Read Well Services AS
Biostratigraphy:	Geochem Group Ltd
Helicopter:	Helicopter Service
Mudlogging:	Geoservices
ROV Services:	Oceaneering
Wellhead Systems:	ABB VetcoGray
Supply Boats:	"Siggbas", "Far Superior", "Normand Jarl", "Ocean Knarr", "Edda Frende"
Standby Boats:	"Siggbas", "Strilvard", "Sartor", "Ocean Knarr"

4. Geology and geophysics

4.1 Geographic and Structural setting

The appraisal well 34/7-26A is located in the south-western part of block 34/7. The well was drilled from the Tordis manifold as a side-track from the deviated well 34/7-26 S&SR. Figure 4.1 shows the well location, and Figure 4.2 shows a seismic random line through the well trajectory.

The position of the well is in the middle part of the H-Central compartment, in a position approximately 620 m south-east of the discovery well 34/7-21, and 2140 m north-east of well 34/7-26SR. The well is placed in an up-dip position compared to the 34/7-21 well (Figure 4.2).

4.2 Purposes of the Well

The well had two primary objectives. Firstly, to perform an optimum data collection programme in the Top Draupne sandstone, and in possible Intra Draupne sandstone and lower Shetland Group sandstone. Secondly, if there was thick and good quality Top Draupne sands present, the well was to be long-termed tested for six months (ref. to "Application for H Central Test Production" for testing criteria).

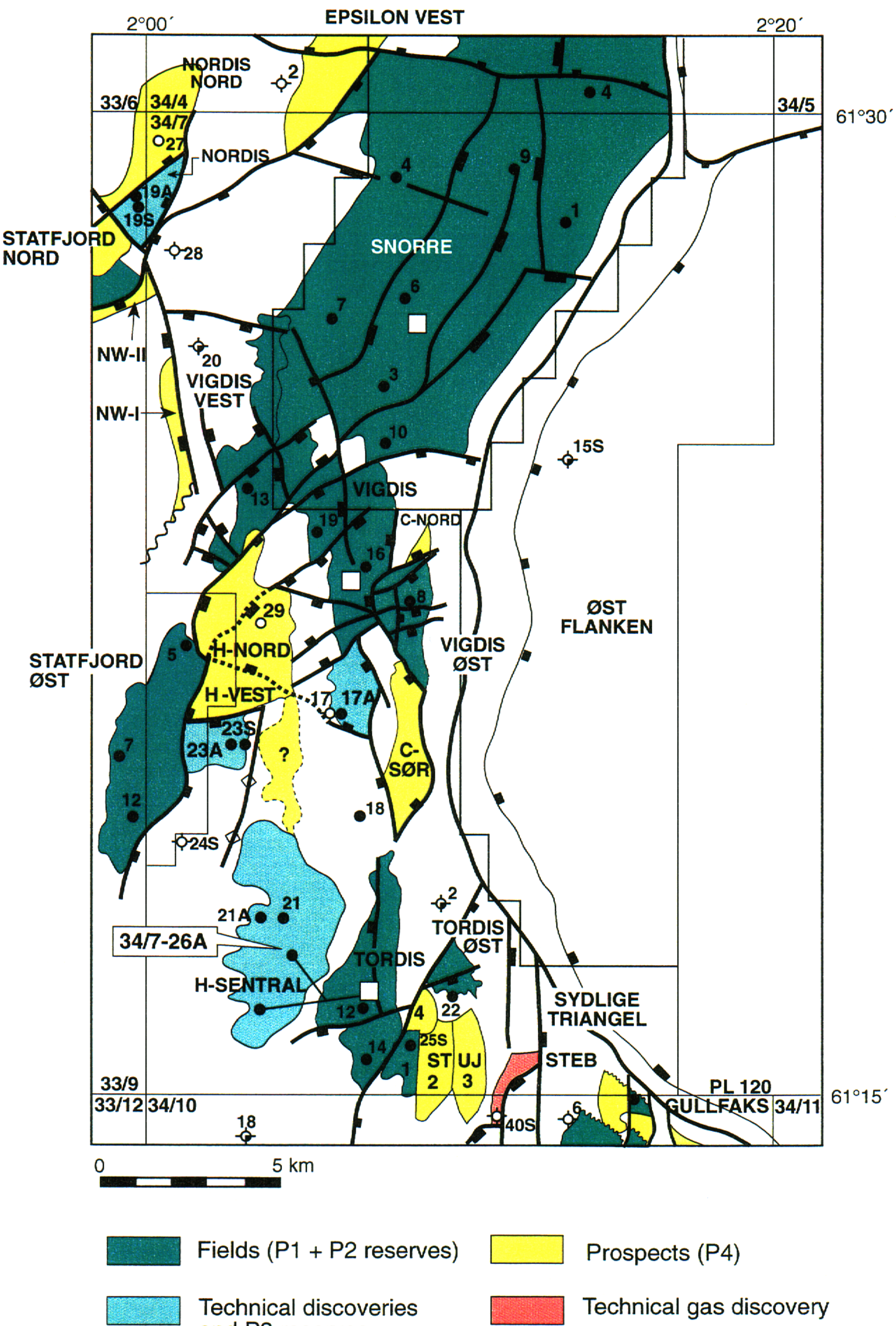


Figure 4.1: Well location 34/7-26A

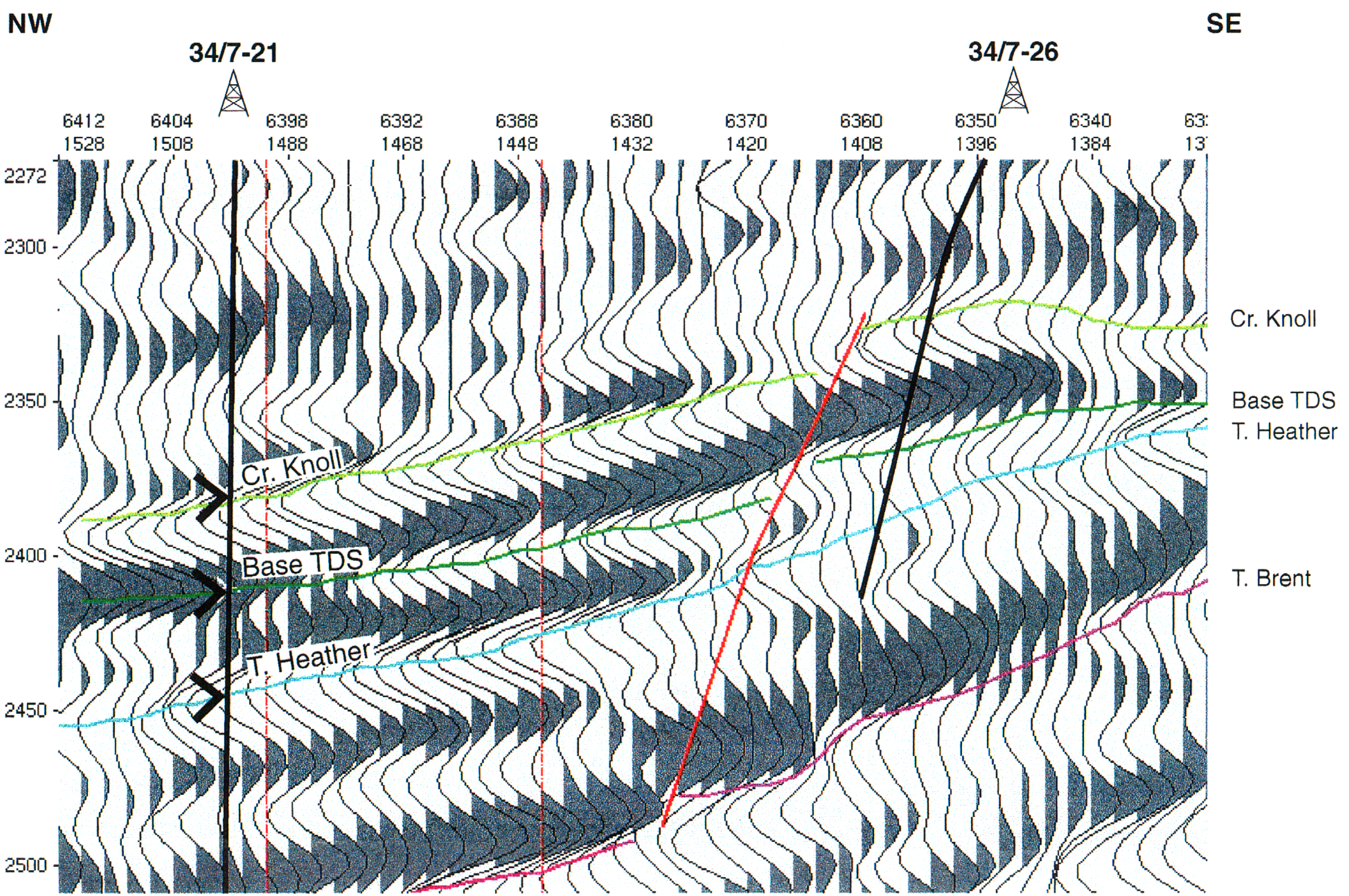


Figure 4.2: Seismic random line through the well trajectory.

4.3 Results of the Well

Coring commenced at a depth of 4104 m MD RKB, circa 20 m MD above estimated Base Cretaceous depth. Four continuous cores were taken to a depth of 4216 m MD RKB.

The Top Cromer Knoll Group was penetrated 6 m MD shallower compared to the prognosis. The difference was mainly caused by a too high prognosed interval velocity. The thickness of Cromer Knoll Group. was 6.5 m TVT. No lower Shetland sandstone was encountered.

The main reservoir interval, the Top Draupne sandstone (TDS), came in 7 m shallower than prognosed, at a depth of 4129 m MD RKB/2441.1 m TVD RKB. The thickness of the TDS was 50 m TVT. Total thickness of the Draupne Formation was 73.4 m TVT.

The reservoir in well 34/7-26A consists of coarsening-upwards sandstones (very fine grained at the base to coarse grained at the top), which mostly are structureless, parallel bedded, and less frequent, graded bedded. The upper four meters consist of medium to coarse grained sands, which are structureless. The lower part of the reservoir is more bioturbated than the upper part. The net-to-gross in the TDS was 93%, the average porosity 28%, the average permeability 1320 mD, and the average water saturation 7%.

In addition to the Top Draupne sandstone, an Intra Draupne sandstone (IDS) was encountered. The IDS was 1.6 m thick TVD, and the bottom half was completely tight (carbonate cemented). Faint parallel lamination may be distinguished in the base of the IDS, otherwise it is structureless. The sands are medium grained. The upper part of the IDS has a net-to-gross of 62%, 29% porosity, 750 mD in permeability (from core), and 19% water saturation.

No oil water contact was encountered in the well. The deepest oil down to is observed at 4206 m MD RKB (2479 m TVD MSL).

The TD was reached within the Heather Formation at 4290 m MD RKB (2572.7 m TVD RKB).

4.4 Sampling

4.4.1 Routine samples

The following routine samples were collected:

a) 9 sets of wet ditch cuttings (a 1/2 kg)

10 m intervals:	1410-3000 m MD RKB
5 m intervals:	3000-4100 m MD RKB
3 m intervals:	4100-4289 m MD RKB

b) 2 sets of wellsite washed and dried cuttings (20g)

10 m intervals:	1410-3000 m MD RKB
5 m intervals:	3000-4100 m MD RKB
3 m intervals:	4100-4289 m MD RKB

c) 1 set of composite wet samples for geochemical analysis.

10 m intervals:	1410-4100 m MD RKB
9 m intervals:	4100-4289 m MD RKB

4.4.2 Distribution and analyses of samples

Wet samples:

A. Saga:	Sent to Geochem Group Ltd. Chester Street, Chester CH4 8RD England for Biostratigraphical analyses
B. NPD:	Sent to Schlumberger Petroleum Laboratory, Sjøhagen 3, Pb 1003 Hillevåg, 4004. After preparation forwarded to Norwegian Petroleum Directorate P.O Box 600, 4001 Stavanger
C. Norsk Hydro:	Sent to Schlumberger Petroleum Laboratory, Sjøhagen 3, Pb 1003 Hillevåg, 4004 Stavanger. After preparation transferred to Norsk Hydro, F-Senter, Varemottak H, Sandsliveien 90, 5049 Sandsli
D. Deminex:	Sent to Schlumberger Petroleum Laboratory, Sjøhagen 3, Pb 1003 Hillevåg, 4004 Stavanger. After preparation forwarded to Deminex, Hays Information Management a.s., Lagerveien 9, 4033 Forus
E. Saga:	Sent to Hays Information Management a.s, Lagerveien 9, 4033 Forus
F. For dry samples:	Sent to Schlumberger Petroleum Laboratory, Sjøhagen 3, Pb 1003 Hillevåg, 4004 Stavanger, to be split and prepared as dry samples for partners
G. Statoil:	Sent to ResLab Nikkelveien 13, 4300 Sandnes
H. Esso:	Sent to Schlumberger Petroleum Laboratory, Sjøhagen 3, Pb 1003 Hillevåg, 4004 Stavanger.
I. Elf:	Sent to ResLab Nikkelveien 13, 4300 Sandnes.

Dried samples:

A. Saga:	Sent to Hays Information Management, Lagerveien 9, 4033 Forus
B. NPD:	Sent to Oljedirektoreatet, Professor Olav Hansens vei 10, 4020 Stavanger.
C. Norsk Hydro:	From wetsample set F. Sent to Schlumberger Petroleum Laboratory, Sjøhagen 3, Pb 1003 Hillevåg, 4004 Stavanger. After preparation transferred to Norsk Hydro, F-Senter, Varemottak H, Sandsliveien 90, 5049 Sandsli
D. Deminex:	From wetsample set F. Sent to Schlumberger Petroleum Laboratory, Sjøhagen 3, Pb 1003 Hillevåg, 4004 Stavanger. After preparation transferred to Deminex, Hays Information Management A.S, Lagerveien 9, 4033 Forus

Canned samples.

Sent to Robertson Laboratories, Llandudno, Gwynedd, LL30 1SA, North Wales UK for geochemical analyses.

Conventional cores

Sent to Reservoir Laboratoriet A.S, Fabrikkveien 37, 4033 Forus

4.4.3 Conventional cores

A total of four cores were cut in well 34/7-26A, covering the lower parts of the Shetland Group, the Cromer Knoll Group and most of the Draupne Formation.

Table 4.1 shows a core summary, and Table 4.2 shows the core shifts applied to match loggers depth. The wellsite core description is presented in Enclosure III of chapter 9, and the core analyses are given in chapter 5.2.

Core no.	Formation	Cored interval	Cut (m)	Rec (m)	Rec (%)
1	Shetland/Cromer Knoll/Draupne	4104-4132	28.0	26.6	98.5
2	Draupne	4132-4153.5	21.5	21.5	100
3	Draupne	4153.5-4179	25.5	25.3	99.2
4	Draupne	4179-4216	37	37.2	100

Table 4.1: Core summary

Original depth (m MD RKB)	Core-shift (m)	New depth (m MD RKB)
4124.33	-1.50	4122.83
4130.46	-1.44	4129.02
4133.40	-2.25	4131.15
4135.95	-2.33	4133.62
4143.60	-2.45	4141.15
4146.37	-2.21	4144.16
4170.82	-1.80	4169.02
4187.95	-2.58	4185.37
4206.62	-2.09	4204.53
4211.66	-2.04	4209.62

Table 4.2: Core shifts applied to match loggers depth

4.4.4 Sidewall cores

No sidewall cores were cut in well 34/7-26 A.

4.5 Measurement while drilling and wireline logs

The MWD services were provided by Baker Hughes Inteq.
Baker Hughes Inteq MWD services includes directional surveys, gamma ray and induction resistivity measurements. The Baker Hughes Inteq MWD tools was used from 1371 m to 4290 m MD RKB (TD), and a total of 2919 m were logged, giving a total of 2728 m of log.
The MWD Job Summary Form for the Baker Hughes Inteq services is presented in Table 4.3.

The RIGS directional services were also provided by Baker Hughes Inteq, and the deviation data is listed in Table 6.8. The VSP services were provided by Read Well Services, while the rest of the wireline services were provided by Schlumberger. The logging operation is described in detail in chapter 5.

Figure 4.3 presents the performed logging operations.

SAGA MWD JOB SUMMARY FORM **WELL: 34/7-26 A** **MWD COMPANY: BAKER HUGHES INTEQ**

Run #	Date	Hole Size	Bit Depth In (m)	Bit Depth Out (m)	Real-time Log (m)	Memory Log (m)	Tool Type	Tool #	Circ. Hrs	Cum Circ Hrs	Comments/Failures (intervals of reamed data, lost data, etc.)
1	06.02.98	12 ¼"	1371	3306	1821	1821	RNT	8527-03	156.0	156.0	Tool stopped pulsing, lost 3207-3290m.
2	13.02.98	12 ¼"	3306	3750	428	428	RNT	6397-03	31.2	31.2	
3	19.02.98	8 ½"	3750	4104	182	182	DPR	6021-06	34.9	34.9	Tool laid down due to worn threads.
4	26.02.98	8 ½"	4216	4290	193	193	DPR	6195-03	12.4	12.4	Reamed cored interval 4104-4216m.
Sum					2782	2782			238.4		

FAILURE BREAKDOWN	
Due to oper.Cond.:	Due to tool, etc. :

	GR	RES			
Real time log requested (m)	2811	2811			
Real time log delivered (m/%)	2728/97	2728/97			
Memory log requested (m)	2811	2811			
Memory log delivered (m,%)	2728/97	2728/97			

Table 4.3: MWD Job Summary Form; 34/7-26 A

Casing Record mRKB	Hole Size	Logged Interval mRKB MD	Type of log	Run No.	Date
13 3/8"@1371m					Kick off from 34/7-26S&SR 06.02.98
	12 1/4"	1384-3750	MWD (GR-RES-DIR)		06.02.98
		1370-3663	RIGS	1A	09.03.98
9 5/8"@3746m					
	8 1/2"	3750-4290	MWD (GR-RES-DIR)		19.02.98
		3746-4289	AIT-H/PEX/GR	1A/A/A	28.02.98
		3746-4281	UBI/DSI/NGT	1A/A/A	01.03.98
		4124-4206	MDT/CMR/GR	1A/A/A	02.03.98
		1523-4229	VSP	1A	09.03.98
5 1/2"@4286m					
TD@ 4290m					

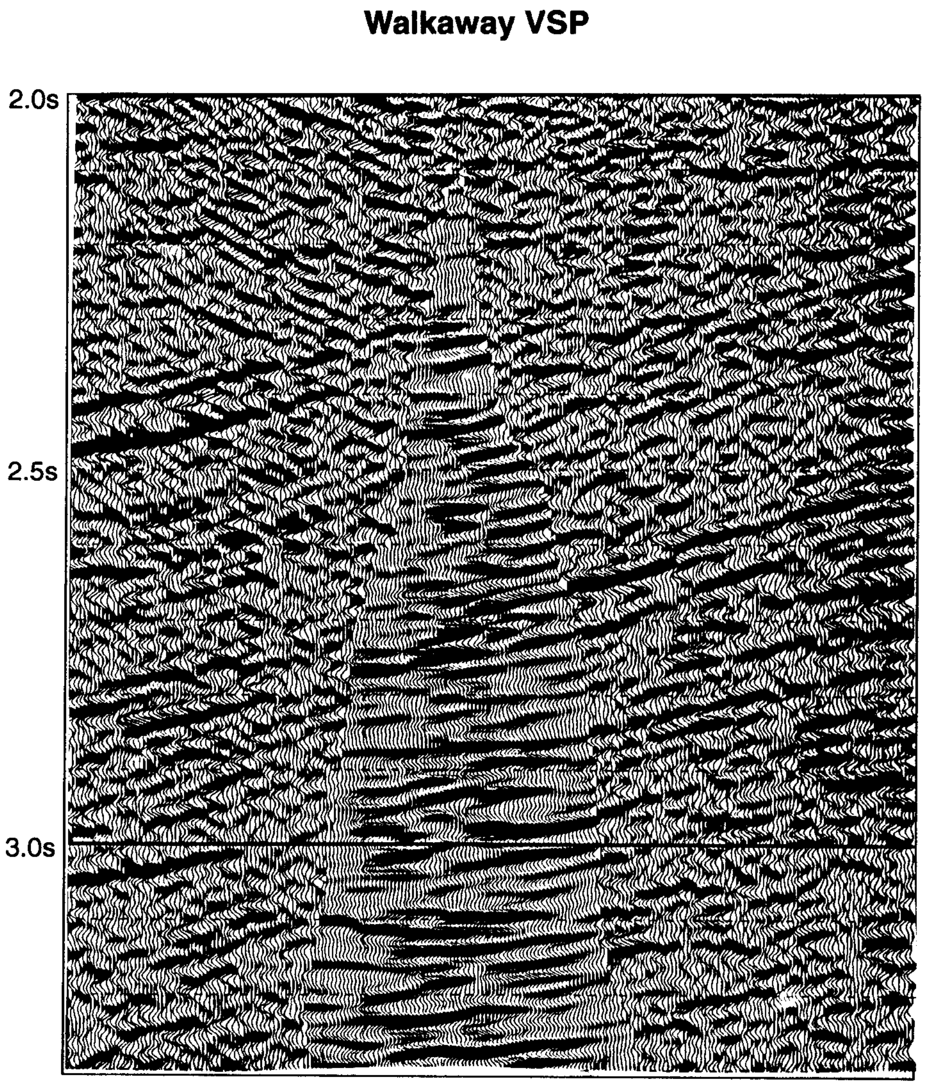
Figure 4.3: Wireline and MWD logs

4.6 Well velocity survey

Read Well Services acquired a Rig Source, a Vertical Incidence and a Walkaway VSP on March 9th and 10th 1998. The survey was performed with a Delta tool with 8 satellites, each containing a 3 component geophone cartridge. The seismic source employed for the survey was an airgun cluster of 2 guns, each with a volume of 150 cu.in., air pressure was 2000 psi.

The Rig Source and Vertical Incidence survey consisted of 255 levels between 4229 and 1523 m MD RKB. Tool setting for the walkaway line was at 3605 m MDRKB, with a total length of 3 km shot. Total rig time was 14 hrs. The weather conditions were moderate during the data acquisition.

Full details concerning the acquisition and processing of the data are presented in the reports: "Normal incidence and Rig Source VSP 34/7-26A" and "Walkaway VSP 34/7-26A". A geophysical summary is given in Figure 4.4 and in Table 4.4.



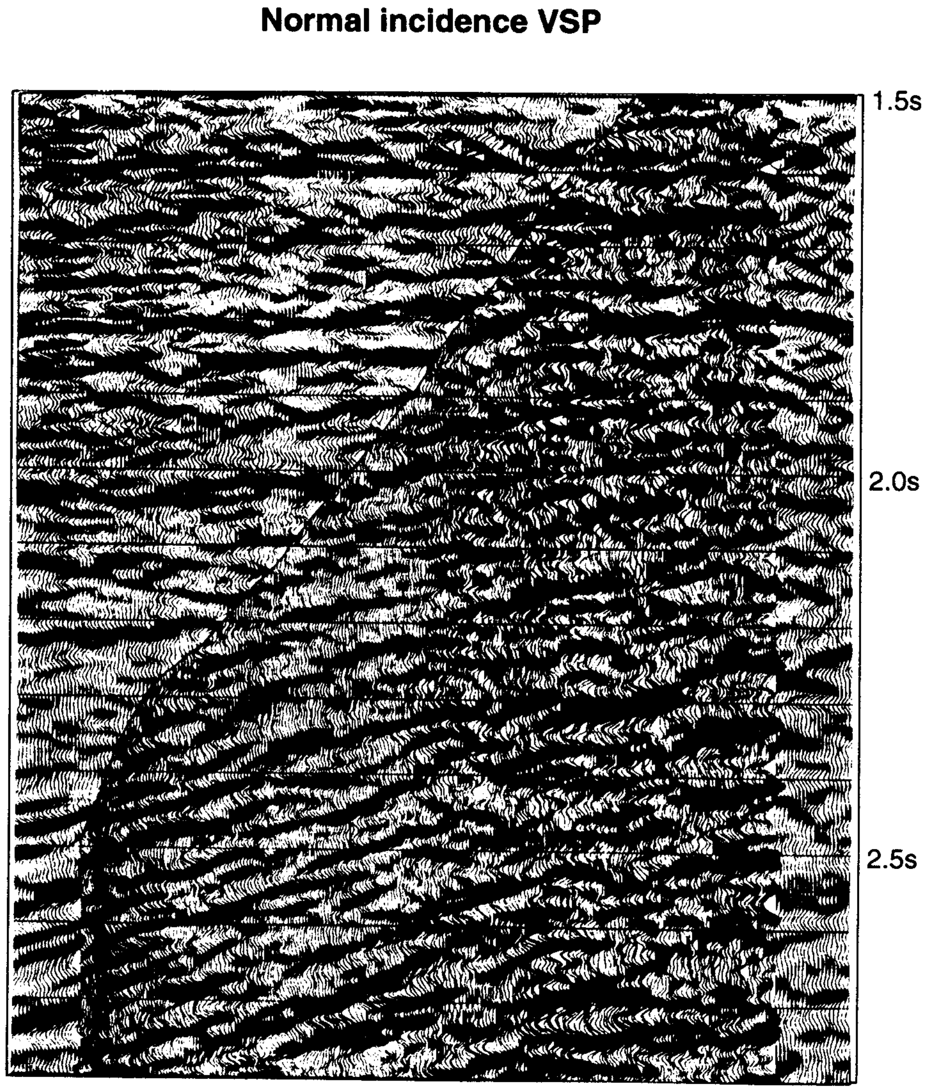


Figure 4.4: Geophysical summary

Horizon	MD RKB (m)	TVD MSL (m)	TWT (s)	ΔD (m)	ΔT (sec)	Int. Vel. (m/s)	Av. Vel. (m/s)
T. Hordaland	1348	991.4	1.043				1900
				646	0.635	2091	
T. Balder	2658	1637.4	1.678				1973
				55	0.044	2273	
T. Sele/Lista	2770	1691.9	1.722				1980
				152	0.153	1922	
T. Shetland	3084	1844.3	1.875				1975
				566	0.503	2425	
T. Cromer Knoll	4121	2409.6	2.327				2071
				6	0.005	2400	
B. Cretaceous	4129	2416.1	2.332				2072
T. Draupne Sand	4129	2416.1	2.332				2072
				62	0.045	2756	
I. Draupne Sand	4204	2478	2.377				2085
				11	0.009	2444	
T. Heather	4219	2489.5	2.386				2086
TD	4290	2548.7					

Table 4.4: Seismic summary

4.7 Formation temperature

The maximum recorded temperatures obtained during each log run do all have the same temperature readings. Due to this, the recorded bottom hole temperatures indicate that the borehole temperature has reached equilibrium with the formation temperature, and thereby represents the formation temperature. The maximum recorded temperatures and the estimated static temperature is listed in Table 4.5. A gradient of 3.5 °C/100m is estimated throughout the well.

Log	Date	Run No.	Temperature. measure point (m MD/m TVD RKB)	Max. recorded temp. °C	Estimated static formation temperature at TD, °C
AIT-H/PEX/GR	28.02.98	1A/A/A	4289/2572	91	
UBI/DSI/NGT	01.03.98	1A/A/A	4281/2565	91	**91**
MDT/CMR/GR	02.03.98	1A/A/A	4206/2504	91	

Table 4.5: Maximum recorded temperatures (BHT) and static formation temperatures

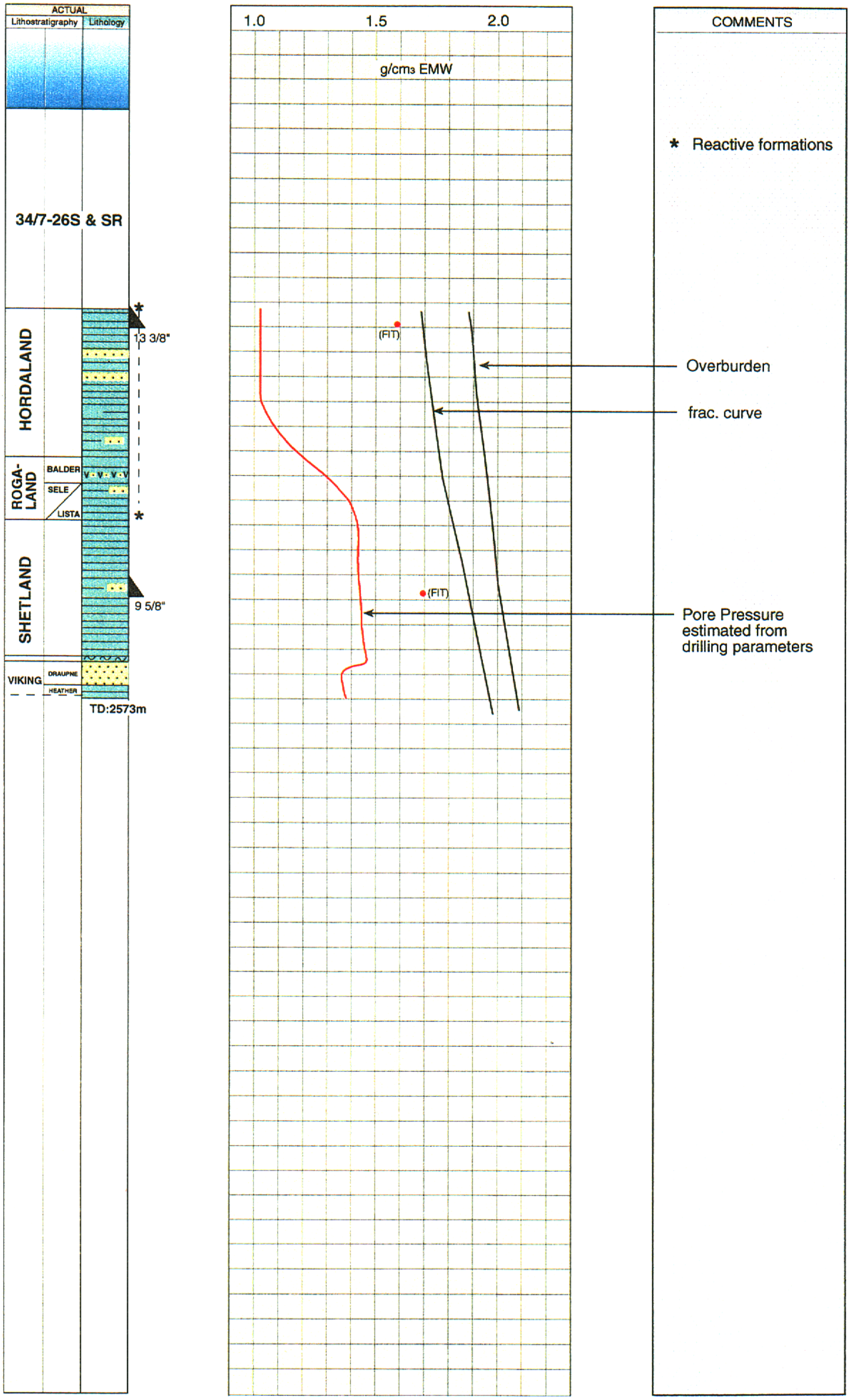
4.8 Formation pressure

A pressure gradient profile is given in Figure 4.5. The pressure evaluation is based on area knowledge, drilling parameters, gas data and MWD data. The drilling parameters, gas and sonic data are plotted in the Pressure Evaluation Sheet (Enclosure II).

From the kick-off point at 1384 m MD RKB (1032 m TVD) in the Hordaland Group, down to 1400 m TVD RKB pore pressure is estimated to be hydrostatic. Below 1400 m TVD RKB, a steady increase in the pressure gradient build-up is estimated throughout the Hordaland Group, through the Rogaland Group towards the top of the Shetland Group, with a estimated pressure gradient of 1.42 s.g at 1850 m TVD RKB. From this depth, the pressure gradient is estimated to increase slightly within the Shetland Group giving a estimated pressure gradient of 1.43 s.g at 2200 m TVD RKB, followed by an increase in the middle and lower parts of the Shetland Group up to 1.45 at 2400 m TVD RKB. From this depth the pressure gradient is estimated to increase through the rest of the Shetland Group and through the Cromer Knoll Group, down to top reservoir in the Draupne Formation at 2441 m TVD RKB, with a maximum pressure gradient estimate of 1.55 s.g. Pressure point measurements in the reservoir section show depletion caused by production from the Tordis field, giving a formation pressure down to 1.34 s.g in the reservoir. Towards base of the Draupne Formation the pressure gradient is slightly increasing with a pressure point measurement of 1.38 s.g at 2512 m TVD RKB. In the Heather Formation the pressure gradient is estimated to have a slight increase giving an pressure gradient estimate at 2573 m TVD RKB (TD) of 1.40 s.g.

A porepressure estimate done rigsite, were based on observed parameters, with emphasis on the d-exponent plot and the gas readings. The pressure prognosis was based on data from surrounding wells and area knowledge. From where the porepressure starts to build up at 1400 m TVD RKB, down to 1850 m TVD RKB, the pressure estimate based on drilling parameters was up to 0.03 s.g below the prognosed pressure gradient. This trend continued down to top reservoir at 2441 m TVD RKB, where the estimate was 0.10 s.g below the prognosis. There were no abnormal gas readings indicating a higher pressure, and the well gave no other signal of having a higher pressure gradient than what was estimated from the drilling parameters. Based on pressure readings from surrounding wells (especially 34/7-17 and 34/7-18), and the fact that the area is known to have good pressure communication, the area knowledge is strongly taken into account when completing the final porepressure evaluation, indicating a pressure gradient close to the prognosis. (See Enclosure II, Chapter 9, “Pressure Evaluation Sheet”).

Well 34/7-26A



ACTUAL
Lithostratigraphy
Lithology
34/7-26S & SR
HORDALAND
ROGA-LAND
BALDER
SELE
LISTA
SHETLAND
VIKING
DRAUPNE
HEATHER
13 3/8"
9 5/8"
TD:2573m
1.0
1.5
2.0
g/cm3 EMW
(FIT)
(FIT)
COMMENTS
* Reactive formations
Overburden
frac. curve
Pore Pressure estimated from drilling parameters

4.9 Stratigraphy

4.9.1 Lithostratigrapic summary

The lithostratigraphic sub-division of well 34/7-26A as presented in Table 4.6 is based on Measurement While Drilling (MWD) and Wireline log responses, conventional cores and cutting descriptions supported by the biostratigraphic breakdown prepared by Geochem Group Ltd. and Saga Petroleum ASA.

Groups	Formation Tops	Depth m MD RKB	Depths m TVD RKB	Thickness (m TVD)
Hordaland Group		1348	1016.4	646
Rogaland Group	Balder Formation Lista/Sele Formation	2658 2770	1662.4 1716.9	54.5 152.4
Shetland Group		3084	1869.3	565.3
Cromer Knoll Group		4121	2434.6	6.5
Viking Group	Draupne Formation Heather Formation	4129 4219	2441.1 2514.5	73.4 >58.2

Table 4.6: Lithostratigraphic sub-division of well 34/7-26 A

4.9.2 Chronostratigraphic summary

The routine biostratigraphy was carried out by Geochem Group Ltd. and Saga Petroleum. The following analyses were carried out on 34/7-26A:

1. Geochem Group Ltd.
   Palynology: 29 ditch cutting samples, 113 core samples.
   Micropaleontology: 18 ditch cutting samples.

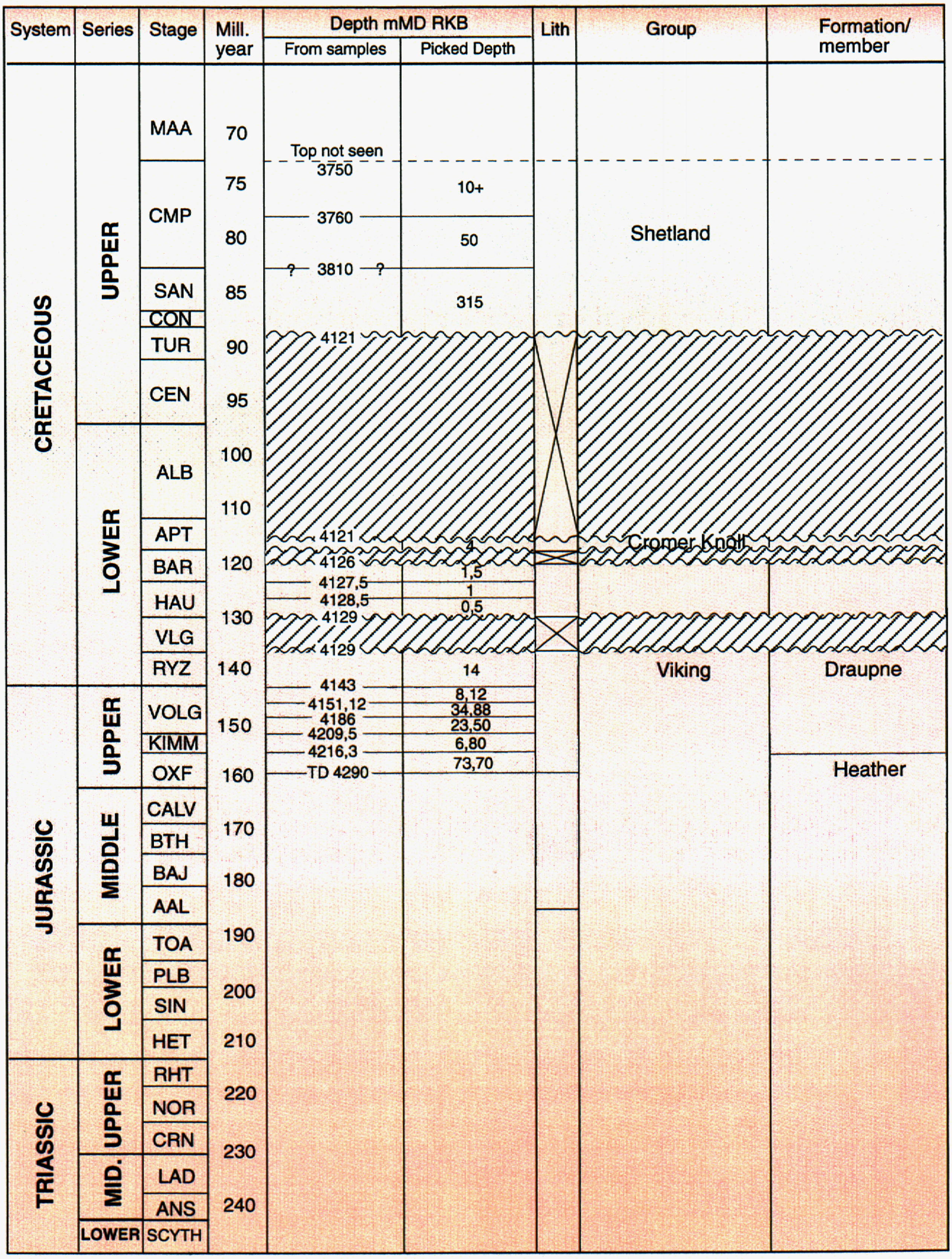
2. Saga Petroleum a.s.
   Palynology: 9 core samples.
   Micropaleontology: 28 core samples.

The biostratigraphic interpretation was made from 3750 m MD RKB to TD, and was prepared Geochem Group Ltd. and Saga Petroleum. The formation ages for the Cenozoic given in chapter 4.10 are based on interpretation made for well 34/7-26S & SR.

The biostratigraphic breakdown is given in Table 4.7. The Mesozoic stratigraphic history is given in Figure 4.6.

Chronostratigraphy	Unit tops (m MD RKB)	Thickness (m)
Upper Campanian	3750	10
Lower Campanian	3760	50
Upper Santonian?	3810	50
Upper-?Lower Santonian	3860	246
Santonian?-Coniacian	4106	11
Coniacian -?Turonian	4117	4
UNCONFORMITY		
Lower Aptian	4121	4
UNCONFORMITY		
Lower-Upper? Barremian	4126	1.5
Upper Hauterivian	4127.5	1
Lower Hauterivian	4128.5	0.5
UNCONFORMITY		
Ryazanian-?Upper Volgian	4129	14
Upper Volgian	4143	8.12
Middle Volgian	4151.12	34.88
Lower Volgian	4186	23.50
Kimmeridgian	4209.50	6.80
Upper Oxfordian	4216.30	73.70
TD	4290	

Table 4.7 Biostratigraphic summary, well 34/7-26A


System
Series
Stage
Mill. year
Depth mMD RKB
From samples
Picked Depth
Lith
Group
Formation/ member
CRETACEOUS
UPPER
LOWER
JURASSIC
UPPER
MIDDLE
LOWER
TRIASSIC
UPPER
MID.
LOWER
MAA
CMP
SAN
CON
TUR
CEN
ALB
APT
BAR
HAU
VLG
RYZ
VOLG
KIMM
OXF
CALV
BTH
BAJ
AAL
TOA
PLB
SIN
HET
RHT
NOR
CRN
LAD
ANS
SCYTH
70
75
80
85
90
95
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
Top not seen
3750
3760
? 3810 ?
4121
4121
4126
4127,5
4128,5
4129
4129
4143
4151,12
4186
4209,5
4216,3
TD 4290
10+
50
315
4
1,5
1
0,5
14
8,12
34,88
23,50
6,80
73,70
Shetland
Cromer Knoll
Viking
Draupne
Heather

4.10 Stratigraphic summary

4.10.1 Viking Group

Depth interval:	4129 - 4291 m MD RKB,	2441.1 - 2573.5 m TVD (TD)
Thickness:	>162 m MD,	>132.4 m TVT
Age:	Early Cretaceous - Late Jurassic,	Ryazan - Late Oxfordian

The Viking Group is represented by the Heather and the Draupne Formations. The Heather Formation consists of shale, while the Draupne Formation consists predominantly of sandstone, but with an increasing amount of shale towards base of the formation.

Heather Formation

Depth interval:	4219 - 4291 m MD RKB,	2514.5 - 2573.5 m TVD (TD)
Thickness:	>72 m MD,	>59.0 m TVT
Age:	Late Jurassic,	Late Oxfordian

The Heather Formation consists of silty shale with traces of limestone.

The shales are slightly silty, dark grey to olive grey, occasionally brownish grey. They are firm, occasionally hard, blocky, , slightly calcareous, occasionally carboniferous, and have traces of glauconite.

The limestones are light brown, firm, blocky and microcrystalline.

The transition to the overlying Draupne Formation is shown by a rapid increase in the gamma ray readings, a resistivity peak followed by a decrease in the resistivity readings, and peak on the sonic log followed by decrease in the sonic log readings.

Draupne Formation

Depth interval:	4129 - 4219 m MD RKB,	2441.1 - 2514.5 m TVD
Thickness:	90 m MD,	73.4 m TVT
Age:	Early Cretaceous - Late Jurassic,	Ryazan - Late Oxfordian

The upper parts of the Draupne Formation consists of sandstones with minor siltstone laminae, becoming sandstones interbedded with sandy and silty shales towards base of the formation.

In the upper part of the formation the sandstones are dark yellowish brown, fine to medium, occasionally coarse, moderately sorted, and have subangular to subrounded grains. The sandstones are hard to friable, are slightly silica cemented, and have good visible porosity.
Towards the middle and lower parts of the formation, the sandstones become argillaceous to very argillaceous, are dusky yellow brown and occasionally very light grey to white. They are fine to medium, well sorted, angular to rounded, and are silica cemented and occasionally very calcareous cemented. They have traces of micromica, glauconite and occasionally organic materials, and have fair to good visible porosity.
Towards base of the formation the sandstones are light grey to white, dusky yellowish brown, very fine to fine, and are well sorted. The quartz grains are angular to rounded, predominantly subrounded, silica cemented and occasionally very calcareous cemented. The sandstones contain traces of glauconite and organic material, and have fair to good visible porosity.

The siltstones are dusky yellowish brown, firm, subfissile, micromicaceous and non calcareous.

The shales are silty, dark grey, soft to firm, and non calcareous in the upper parts becoming very calcareous towards base of the formation. They are micaceous to very micaceous, and have traces of glauconite and organic material.

The transition to the overlying Cromer Knoll Group is shown by a rapid decrease in the gamma ray readings, an increasing trend in the resistivity readings and a sharp increase in the sonic interval transit time.

4.10.2 Cromer Knoll Group

Depth interval:	4121 - 4129 m MD RKB,	2434.6 - 2441.1 m TVD
Thickness:	8 m MD,	6.5 m TVT
Age:	Early Cretaceous,	Early Aptian - Early Hauterivian

The Cromer Knoll Group consists of claystones in the upper parts, and marl interbedded with limestones in the lower parts.

The claystones are olive black to dark grey, medium dark grey, firm and blocky to subfissile. It is non calcareous becoming calcareous to very calcareous towards base of the group, and is micaceous to very micaceous.

The limestones are argillaceous, pale yellow brown, hard and microcrystalline.

The marl is occasionally sandy, greenish grey, hard, blocky and glauconitic.

The boundary to the overlying Shetland Group is picked by an increasing gamma ray value which stabilises at the boundary, and sharp decreasing resistivity and sonic readings that stabilise in the Shetland Group.

4.10.3 Shetland Group

Depth interval:	3084 - 4121 m MD RKB,	1869.3 - 2434.6 m TVD
Thickness:	1037 m MD,	565.3 m TVT
Age:	Late Cretaceous	last Maastrichtian - ?Turonian

The Shetland Group consists of claystones with various calcareous content interbedded with minor limestone layers, and occasional traces of sand. The content of limestone beds increases towards base of the group.

The upper and middle parts of the claystones are slightly silty, varicoloured, olive grey to dark grey, occasionally dark reddish brown, occasionally greenish grey, and occasionally olive black. They have a greasy surface, are firm and blocky to subfissile. They vary from non calcareous to very calcareous, but are predominantly slightly calcareous to calcareous. Traces of micromica and pyrite are observed in the middle part of the group.
Towards the lower parts of the group, the claystones become more silty grading from slightly silty to silty. They are varicoloured, greenish grey, light brownish grey, occasionally light brown, occasionally dark greenish grey, becoming olive black to dark grey and medium dark grey towards base of the group. The claystones are soft to firm, subfissile to blocky, predominantly non calcareous, but becoming very calcareous towards the lowermost parts of the group. They have traces of micromica, pyrite and glauconite.

The limestones are slightly argillaceous, occasionally dolomitic, light grey to yellowish white, occasionally pink grey, occasionally light brownish grey, firm to hard, blocky and occasionally microcrystalline.

The sandstone traces consist of translucent and clear quartz grains that are very fine to fine and well sorted. In the upper parts of the group the sandstones are subangular, becoming subrounded to rounded towards base of the group. The quartz grains are loose and no visible porosity is observed.

The transition to the overlying Lista/Sele Formation is picked from the break point of the slightly decreasing resistivity value and the decrease of the gamma ray readings.

4.10.4 Rogaland Group

Depth interval:	2658 - 3084 m MD RKB,	1662.4 - 1869.3 m TVD
Thickness:	457 m MD,	206.9 m TVT
Age:	Early Eocene - Late Paleocene	

The Rogaland Group consist of the undifferentiated Lista/Sele Formation with silty claystones and traces of limestones, and the overlying Balder Formation with tuffaceous claystone and traces of limestones and sandstones.

Lista/Sele Formation

Depth interval:	2770 - 3084 m MD RKB,	1716.9 - 1869.3 m TVD
Thickness:	314 m MD,	152.4 m TVT
Age:	Early Eocene - Late Paleocene	

The undifferentiated Lista/Sele Formation consists of silty claystones with traces of limestones. The content of limestone stringers increases towards the base of the formation.

The claystones are silty, occasionally tuffaceous, olive grey to dark grey, occasionally dark greenish grey to greenish blue grey and occasionally black speckled. They have a frosted surface, are soft to firm, blocky and occasionally slightly calcareous.

The limestones are slightly argillaceous, white to brownish white and firm.

The transition to the overlying Balder Formation is shown by a distinct gamma ray decrease, and increasing resistivity values due to limestone layers in the lower parts of the Balder Formation.

Balder Formation

Depth interval:	2658 - 2770 m MD RKB,	1662.4 - 1716.9 m TVD
Thickness:	112 m MD,	54.5 m TVT
Age:	Early Eocene - earliest Eocene/latest Paleocene	

The Balder Formation consists of tuffaceous claystones with traces of limestones and sandstones.

The claystones are tuffaceous, occasionally slightly silty, predominantly dark greenish grey to greyish green, occasionally brownish grey, occasionally olive grey, and have greasy to frosted surface. They are firm, blocky and occasionally slightly calcareous.

The limestones are light grey to brownish white and firm.

The sandstones are silty, light grey to brownish grey with grains that are very fine to medium, moderately sorted and subangular. They are firm, calcareous cemented, slightly silica cemented and have poor visible porosity.

The transition to the overlying Hordaland Group is picked on increasing gamma ray readings, and overall decreasing resistivity values in the lower parts of the Hordaland Group than in the Balder Formation.

4.10.5 Hordaland Group[1]

Depth interval:	1348 - 2658 m MD RKB,	1016.4 - 1662.4 m TVD
Thickness:	1310 m MD,	646.0 m TVT
Age:	Late oligocene - Early Eocene	

The upper and middle part of the Hordaland Group consists mainly of silty claystones with sandstone beds and minor limestone stringers. From the middle towards bottom, the Hordaland group consists of silty claystones with minor limestone stringers, and with traces of tuffaceous claystones towards base of the group.

The claystones are silty, occasionally sandy, brownish grey to brownish black to olive black, dark grey to dark greenish grey. They are soft to firm, sub-blocky to blocky, have a greasy to predominantly frosted surface, is occasionally slightly calcareous cemented, occasional micaceous to micaceous and have traces of pyrite. Towards base of the group the claystones become tuffaceous.

The sandstones consist of translucent to clear quarts. They are also occasionally light brown. The grains are very fine to coarse, predominantly fine to medium, well to moderately sorted, subangular to well rounded, predominantly subangular to subrounded . The sandstones are non to slightly calcareous cemented, occasionally silica cemented, occasionally glauconitic and have poor to good visible porosity.

The limestones are slightly argillaceous, white to greyish white, occasionally pink grey, are firm and occasionally blocky.

[1] Top Hordaland Group is not present in 34/7-26A, but is picked from well 34/7-26S & SR

4.11 Hydrocarbon indications

The 12 ¼ section was drilled from 1384 to 3750m MD RKB, with a mudweight from 1.40 to 1.49 s.g. The section covers the lower part of the Hordaland Group including several sandbeds, the Rogaland Group, and the upper and middle part of the Shetland Group. No shows are described in the interval, and the background gas had an average of approximately 0.6 %, with a maximum gas of 1.8 % at 3005 m MD RKB.

The 8 ½" section was drilled from 3750 to 4290 m MD RKB, with a mudweight from 1.53 to 1.62 s.g. The section covers the lower part of the Shetland Group, the Cromer Knoll Group, the Draupne Formation with reservoir sandstones, and the Heather Formation. No shows are reported down to the sandstones in the Draupne Formation of the Viking Group at 4129 m MD RKB, and the background gas to this depth had an average of approximately 0.2 %, with a maximum gas of 0.6 % at 3945 m MD RKB.

Shows in the Draupne sandstones had fair to good odour, good to excellent stain, 50-100% moderate to strong yellow to yellowish white fluorescence, fast to instant streaming streaming moderate bluish white to yellow cut, and yellow to light yellow residium upon evaporation. The background gas for the Draupne sandstone had an average of approximately 1.0 %, with a maximum gas of 2.0 % at 4160 m MD RKB.

The shows in the Intra Draupne sandstones, 4204 to 4207 m MD RKB, had fair to good odour, good stain, 50-100% strong yellow fluorescence, fast streaming streaming moderate yellowish white cut, leaving a light yellow residium upon evaporation. The background gas for the Intra Draupne sandstones had an average of approximately 1.0 %, with a maximum gas of 1.4 % at 4205 m MD RKB.

No shows are reported below the Intra Draupne sandstone, and the background gas towards TD for the well, covering the lower part of the Draupne Formation and the upper part of the Heather Formation, had an average of approximately 0.5 %, with a maximum gas of 1.1 % at 4280 m MD RKB.

For further details on gas chromatograph recordings, reference is made to Geoservices "End of Well Report", and for details on hydrocarbon shows, see enclosure I and III, Chapter 9.

5. Formation evaluation

5.1 Log Data

The wireline logging in well 34/7-26 A was performed by Schlumberger Wireline & Testing, Bergen. The planned and actual logging programme is shown in Table 5.1. The well was drilled with Novaplus oil-based mud.

Holesize	Casing	Planned logging program	Actual logging program
12 1/4"	9 5/8"	MWD **optional:** PI-DSI-LDT+ MDT++ MSCT+++	MWD only
8 1/2"	5 ½" liner	AIT/PEX/CMR*/GR/ACTS UBI/GPIT/DSI/NGT/AMS MDT/GR/ACTS on TLC MSCT-GR-ACTS** VSP***	AIT-H/PEX/GR/ACTS DSI/NGT/ACTS MDT/GR/ACTS VSP

+	If MWD not sufficient	*	To be run if hydrocarbons are encountered
++	If HC encountered	**	To be run depending on core recovery
+++	Depending on conventional core recovery	***	If liner is run the VSP will be run inside liner

Table 5.1: 34/7-26 A; Planned and actual logging program.

5.2 Conventional Core Analysis

In well 34/7-26 A, 4 cores were cut. the cored intervals are summarised in Table 5.2. Out of a total of 112 m cored, 110.8 m were recovered, yielding a recovery of 98.9 %. The cores cover the transition from Shetland to Cromer Knoll, and most of the Draupne Formation.

All 4 cores have been dynamically depth matched to the log data. Together with the cored intervals and recovery, the shifts are listed in Table 5.2.

Conventional Core Analysis has been performed on all cores, including measurements of fluid saturation, horizontal and vertical gas permeability, helium porosity and grain density. A detailed summary is given in the report "Conventional Core Analysis Well 34/7-26 A" by ResLab.

Results from the special core analysis (SCAL) were not available at the time of petrophysical evaluation done prior to this report. The SCAL program is initiated and results will be used in the final and more detailed petrophysical interpretation.

Core no.	Top(m MD RKB driller's depth)	Bottom(m MD RKB driller's depth)	Recovery	Shift applied to match loggers depth (m)
1	4104	4132	98.5 %	-1.5 m @ 4124.33 m -1.4 m @ 4130.45 m
2	4132	4153.5	100 %	-2.25 m @ 4133.40 m -2.33 m @ 4135.96 m -2.45 m @ 4143.60 m -2.21 m @ 4146.37 m
3	4153.5	4179	99.2%	-1.8 m @ 4170.82 m
4	4179	4216	100 %	-2.58 m @ 4187.95 m -2.08 m @ 4206.62 m -2.04 m @ 4211.66 m

Table 5.2: Cored intervals and shifts applied to match loggers depth.

5.3 Petrophysical Evaluation

A preliminary evaluation has been performed using the Z&S petrophysical analysis program in Recall (Petros 3). The log curves used in the petrophysical evaluation are listed in Table 5.3. The evaluation is based on parameters used for the H-Central area, mainly from well 34-7-21. The input parameters used for petrophysical evaluation is listed in Table 5.4. The net sand average for the Draupne Sandstone Formation is presented in Table 5.5.

A final and detailed petrophysical evaluation will be performed and presented in a separate Petrophysical Report, after the Special Core Analysis (SCAL) data will be available.

Original Log	Source	Run #	Original Curve name	Comment
TDL/CNL/AITH	Schlumberger	1A	HGR	Gamma Ray
TDL/CNL/AITH	Schlumberger	1A	RHO8	Density
TDL/CNL/AITH	Schlumberger	1A	TNPH	Neutron Porosity
TDL/CNL/AITH	Schlumberger	1A	RHO90	Deep Resistivity

Table 5.3: Formation evaluation input logs well 34/7-26 A

	Units	SHETLAND (bottom) & CROMER KNOLL	DRAUPNE (top)	DRAUPNE	DRAUPNE (bottom) & HEATHER
Top	m MD RKB	4100	4129	4133	4210
Bottom	m MD RKB	4129	4133	4210	4290
Rw@20°C	OHMM	0.25	0.25	0.25	0.25
a		1	1	1	1
m		1.75	1.75	1.75	1.75
n		1.8	1.8	1.8	1.8
GRmax	API	-	150	150	110
GRmin	API	-	35	45	45
DENmatrix	g/cc	2.71	2.65	2.65	2.65
DENfluid	g/cc	0.8	0.8	0.8	0.8
DENshale	g/cc	2.35	2.3	2.3	2.3
DENclay	g/cc	2.65	-	-	-
PHIshale	FRAC	0.42	-	-	-
RESshale	OHMM	1	1	1	1

Temp. 100°C @ 2800 m   Tgrad. 3.5°C/100m

Table 5.4: Input parameters used for petrophysical evaluation

Reservoir Zones	Top Draupne sand	Intra Draupne sand
Top [m RKB]	4129	4204.3
Bottom [m RKB]	4195	4207
Gross thickness [m RKB]	66	3.2
Net pay [m RKB]	61.4	2
Top [m TVD]	2416.11	2477.26
Bottom [m TVD]	2470.03	2479.87
Gross thickness [m TVD]	53.92	2.62
Net pay [m TVD]	50.19	1.62
N/G	0.93	0.62
Average Porosity [%]	27.8	29.3
Average water saturation [%]	7	19
Average permeability [mD] (Arithmetic)	1320 (log/Horizon))	748 (core)
VSH cutoff	50	50
Porosity cutoff	12	12
Water saturation cutoff	65	65

Table 5.5: Summary of preliminary petrophysical results

5.4 Formation Pressure Measurements, OWC and Fluid Samples

A Modular Formation Dynamics Tester (MDT) with a combined Quartz Gauge sensor (CQG) was used to obtain formation pressure measurements. The MDT wellsite worksheet is presented in Table 5.6. From 13 attempts to take a pre-test, 9 were successful and 4 were abandoned due to tight formation. In Top Draupne and Intra Draupne sands it was possible to obtain pressure information, whereas the Cromer Knoll Formation was too tight. A preliminary interpretation of the results is presented in Figure 5.1. There is no oil-water contact observed.

Due to sealing problems when starting to pump, only two fluid samples were taken. The first sample was taken in the Top Draupne sand at a depth of 4153 m MD RKB, and the other in the Intra Draupne sand at a depth of 4205 m MD RKB. Preliminary laboratory measurements indicate that the fluid samples are contaminated by base oil from the mud.

PRESSURE UNITS:			BAR		RIG:	Scarabeo 5				DATE:	04.03.98
					KB (M):	25.0 m					
RUN #:	DEPTH	DEPTH	IN. HYDROST.		FORMATION		FIN. HYDROST		TEMP	MOB.	REMARKS
1A	MD	TVD	PRESSURE		PRESSURE		PRESSURE			INDEX	
TEST #	RKB	RKB	EMW	HP	EMW	HP	EMW	HP			
1	4205.5	2511.9	1.62	397.97	1.38	340.51	1.62	399.42	90.8	254.0	Volumetric pre-test 20 cc
2	4204.8	2511.4	1.62	398.81					90.7		Tight, abandon test
3	4205.3	2511.8	1.62	398.40	1.38	340.50	1.62	398.32	90.7	2754.0	Volumetric pre-test 20 cc
4	4187.0	2496.6	1.61	394.81	1.34	327.63	1.62	395.61	90.7	187.0	Volumetric pre-test 20 cc
5	4184.5	2494.5	1.61	394.40	1.34	327.48	1.61	394.97	90.6	139.0	Volumetric pre-test 20 cc
6	4173.0	2485.0	1.61	391.90	1.34	326.79	1.61	392.82	90.1	2795.0	Volumetric pre-test 20 cc
7	4164.0	2477.6	1.60	389.58	1.34	326.29	1.61	390.92	89.6	1448.0	Volumetric pre-test 20 cc
8	4150.0	2466.0	1.60	387.76	1.35	325.47	1.61	388.39	89.3	98.0	Volumetric pre-test 20 cc
9	4135.0	2453.5	1.60	384.00	1.35	324.62	1.60	385.29	88.9	292.0	Volumetric pre-test 20 cc
10	4131.5	2449.8	1.60	383.40	1.35	324.34	1.60	384.56	88.5	40.0	Volumetric pre-test 20 cc
11	4124.0	2444.4	1.59	382.03					88.1		Tight, abandon test
12	4205.0	2511.5	1.62	399.40	1.38	340.55	1.63	400.48	93.4		Sampling point (2 3/4 +1 gal)
13	4182.0	2492.5									Stop log due to increase in head tension
14	4181.0	2491.6	1.62	395.51	1.34	327.37					Loosing seal when starting pump
15	4175.0	2486.7	1.61	392.98	1.34	326.94	0.00				Stop due to plugging of flowline
16	4175.0	2486.7	1.61	393.74	1.34	327.40	0.00				Loosing seal when starting pump
17	4153.0	2468.4	1.61	388.69	1.34	325.68	0.00				Leak in pump out, retract
18	4153.0	2468.4	1.61	389.12	0.00		0.00				One 1 gal filled in 1.5 hrs
19	4125.0	2445.3	1.59	382.48					89.9		Tight, abandon test
20	4123.5	2444.0	1.59	381.84					89.7		Tight, abandon test

Table 5.6: MDT wellsite worksheet

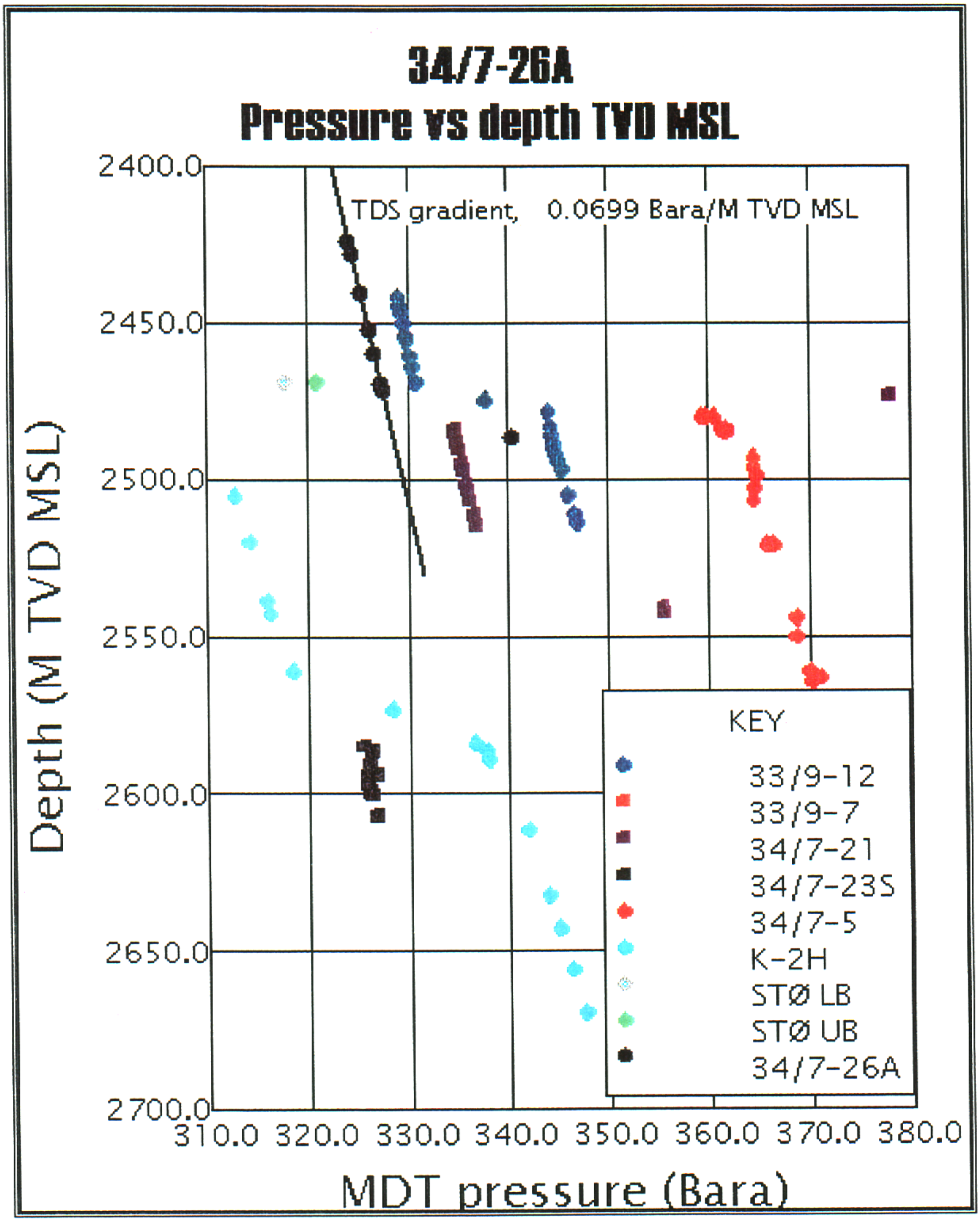


Figure 5.1: **34/7-26 A; Formation pressures from MDT.**

5.5 Production test no. 1 (Intra Draupne Sandstone, 4203.5 - 4207.5 m MD RKB)

5.5.1 Operations

The interval 4203.5 - 4207.5 m MD RKB (2477.0 - 2480.3 m TVD MSL) in the Intra Draupne Sand was perforated 28.03.98 (approx. 9 bars) underbalanced on wireline against a closed choke manifold. A Schlumberger 3 3/8" (RDX, "Clean Shot", 20.5 gr., 60deg. phasing, 6 SPF) gun was used.

The well was opened for clean-up flow after the gun was out of hole and rigged down. After 4.5 hours clean-up, the flow was directed through the separator for about 2 hours. The max. rate during this flow was estimated to approximately 800 Sm3/d. There were no water or sand measured during the last 3-4 hours.

Prior to the sampling/main flow, a drift run was made. Due to sand/high deviation, the drift stopped at 3240 m MD RKB. After three bailing runs (filled with sand), another 200 meters was achieved. Due to the sand problem, it was decided not to run the down-hole shut-in valve as planed. To get as much data as possible, without having to clean-up the well twice, samplers and gauges were run separate to a depth of 2500 m MD RKB (expected to provide single phase sampling). A short sampling flow and a pressure build-up were then performed.

After nine bailing runs, a max. depth of 4027 m MD RKB was reached. Due to slow progress and little/no sand in bail, the options were to clean out the sand by flowing the well or using coiled tubing. A high rate clean-up flow (to the burner) was performed and sand was measured at surface during maximum rate, 1700-1800 Sm3/d (56/64" choke). The well was flowed at max. rate for 7 hours, with slugs of sand, but only traces at the end. However, only a depth of 3650 m MD RKB was reached during the following bailing run. An injection attempt (water/glycol) was also made, but with no success.

While waiting on CT (coiled tubing), the rig spent about one week doing well intervention on Tordis. The well was cleaned up, using CT, and drifted down to 4220 m MD RKB. The amount of sand obtained at surface was less than 1 m^3.

Main results are shown in Table 5.7 and Table 5.8, and graphically in Figure 5.2 and Figure 5.3.

Period	Event	Duration (hr)
FL1	Cleanup flow (up to 36/64" choke)	7.68
BU1	Clean-up build-up	3.00
FL2	Sampling / main flow (20/64" choke)	5.08
BU2	Sampling / main build-up	5.72
FL3	High rate clean-up flow (up to 56/64" choke)	21.23
BU2	High rate clean-up build-up	1.00

Table 5.7: Flow- and build-up periods, 34/7-26A test # 1

Period	WHP (bar)	WHT (DegC)	BHP* (bar)	BHT* (DegC)	Q_{GAS}** (sm^3/d)	Q_{oil}** (sm^3/d)	GOR** (sm^3/sm^3)	PI*** ($sm^3/d/bar$)
FL1	125.0	24	283.45	89.2	-	800 (estim.)	-	< 26
FL2	140.0	14	301.14	87.1	31 560	346	91	< 26
FL3	100.0	30	251.26	89.6	-	1750 (estim.)	-	< 28

*) Permanent downhole gauge at 3612 m MD RKB (2131 m TVD RKB). **) Refers to 14 bar (GasP), 50 DegC (OilT) separator conditions.
***) Steady state flow was not reached.

Table 5.8: Summary of production results (data from end of period), 34/7-26A test # 1

5.5.2 Fluid Sampling

The following samples were collected:

Date	Time	Set no.	Sample point
31.03.98	02:30	BHS	down hole
31.03.98	02:30	BHS	down hole
31.03.98	02:30	BHS	down hole
31.03.98	02:30	BHS	down hole

Bottom hole samples contains approximately 0.55 lt.

The following additional samples were taken:
2 gas samples for geochemistry (each 0.3 lt.)
2 oil samples for geochemistry (each 0.5 lt.)
3 oil samples for SCAL/TBP (each 20 lt.)
10 dead oil samples, (each 18 lt.)
2 oil samples for Ni/V/Po 210 (each 1.0 lt.)

5.5.3 Data acquisition

5.5.3.1 Flowrate and separator measurements

Due to clean-up and sand production, the well was not flowed through the separator very long. The separator data were also read manually. The flowrates shown in Figure 5.2 are therefore measured and estimated rates used in the transient analyses. The oil rates were measured by the Rotron oil meter at separator conditions and calculated to standard conditions by correcting for shrinkage, temperature and meter factors.

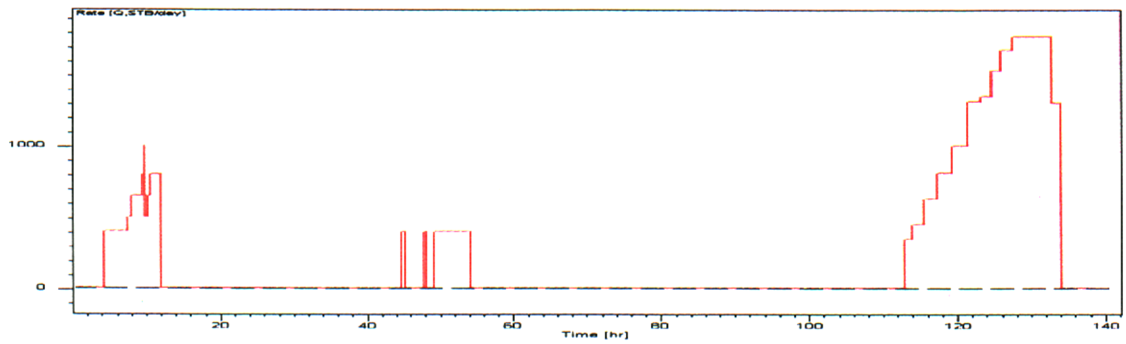


Figure 5.2: Oil rate vs. time, 34/7-T-26A test # 1 (IDS formation)

5.5.3.2 Bottomhole pressure and temperature

Bottomhole pressure and temperature were measured by the permanent gauge installed at 3612 m MDR KB (2106 m TVD MSL), see Figure 5.3. During the sampling flow, two Sperry Sun gauges were used on the sampling string. However they were measuring pressure at about 2500 m MD RKB and are therefore not as representative for the reservoir pressure.

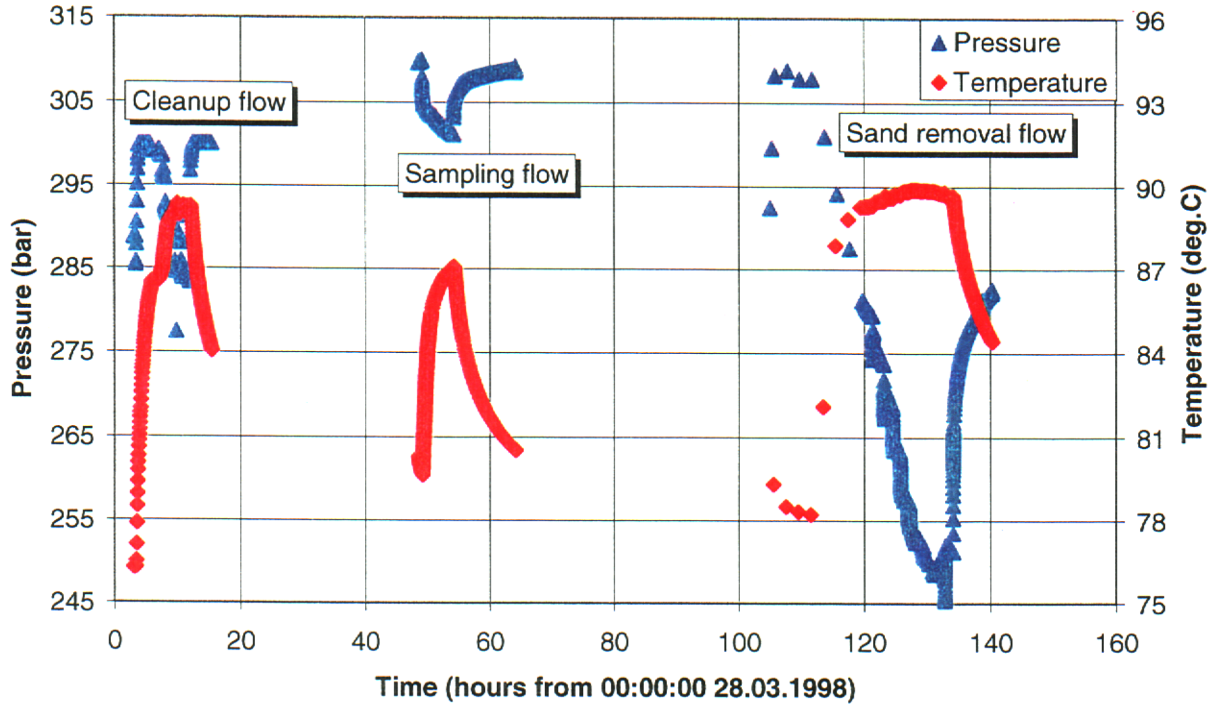


Figure 5.3: Bottomhole pressure and temperature, 34/7-T-26A test # 1 (IDS formation)

5.6 Production test no. 2 (Top Draupne Sandstone 4140-4149 and 4161.5-4179.5 m MD RKB)

5.6.1 Operations

Due to sand production during test no.1, the well was cleaned up using coiled tubing before the bridge plug was sat at 4200 m MD RKB (had to bullhead to get it down). The intervals were perforated 16.04.98 in two wireline runs. The lower interval, 4161.5-4179.5 m MD RKB (2442.7-2457.4 m TVD MSL), was perforated first with an overbalance of 2 bars (used to avoid sand production). After one miss-run, the second perforation interval, 4140.0-4149.0 m MD RKB (2425.1-2432.4 m TVD MSL) was perforated with the well shut-in. Schlumberger 3 3/8" (RDX, "Clean Shot", 20.5 gr., 60deg. phasing, 6 SPF) guns were used.

The well was opened for clean-up flow after the gun was out of hole and rigged down. After 7.5 hours clean-up, the flow was directed through the heater, separator and sand-separator. The choke size was increased in steps, while checking for sand, to a max. separator rate of about 1750 Sm^3/d. After a total clean-up time of 17.5 hours and no sand production, the well was shut-in at the choke manifold for a pressure build-up.

After a successful drift run to 3600 m MD RKB, a tool string made up of packer element, pre set shut-in valve, four bottomhole samplers and three gauges were put together and run in hole. Due to high deviation and little clearance, about nine hours were spend running in hole. To assist getting down, the well had to be flowed on a small rate for four hours. The tool was set at 3602 m MD RKB (just above the permanent gauge). After the running tool was pulled out and rigged down, the well was opened for sampling/main flow. The well was opened gradually to desired rate, in about one hour, and flowed on this rate (Oil rate of about 1350 Sm^3/d at a 44/64" fixed choke) for 12 hours. The well was shut-in automatically, on the downhole valve, and soon after on the choke manifold. After 14 hours build-up, the downhole valve automatically opened and the tool string was pulled out of hole.

When investigating the bottomhole samplers, it was found that three had failed. However, one good sample was considered acceptable. Before finishing off the test, two gauges (set to read pressure for 284 and 355 days) were placed above the plug at 4202 m MD RKB. The well was handed over the GFC 22.04.1998.

Main results are shown in Table 5.9 and Table 5.10, and graphically in Figure 5.4 and Figure 5.5.

Period	Event	Duration (hr)
FL1	Clean-up flow (up to 52/64")	17.60
BU1	Clean-up build-up	3.00
	Shut-in/flowing (drift run and placing tool string at right depth)	27.72
FL2	Sampling / main flow (44/64")	13.03
BU2	Main build up	14.00

Table 5.9: Flow- and build-up periods, 34/7-26A test # 2

Period	WHP (bar)	WHT (DegC)	BHP* (bar)	BHT* (DegC)	Q_{GAS}** (sm^3/d)	Q_{Oil}** (sm^3/d)	GOR** (sm^3/sm^3)	PI_{Oil}*** ($sm^3/d/bar$)
FL1	139	36	295.42	88.4	-	1730	-	241
FL2	144	31	296.79	88.4	99664	1361	73	234

*) Permanent gauge at 3612 m MD RKB (2131 m TVD RKB). **) Refers to 54 bar (GasP) and 46 deg C (OilT) separator conditions.

***) Inclusive formation skin and friction loss between perforation and gauge.

Table 5.10: Summary of production results (data from end of period), 34/7-26A test # 2

5.6.2 Fluid sampling

The following samples were collected :

Date	Time	Set no.	Sample point
19.04.98	14:33	PVT set no.1	test separator
19.04.98	15:20	PVT set no.2	test separator
19.04.98	16:00	PVT set no.3	test separator
19.04.98	16:40	PVT set no.4	test separator
19.04.98	10:50	BHS	down hole
19.04.98	10:30	BHS	down hole
19.04.98	10:40	BHS	down hole
19.04.98	11:43	BHS	down hole

Bottom hole samples contains approximately 0.55 lt.
All PVT sets consists of 0.5 lt. oil and 20 lt. gas pressurised bottles.

The following additional samples were taken:

2 gas samples for geochemistry (each 0.3 lt.)
2 oil samples for geochemistry (each 0.5 lt.)
4 oil samples for SCAL/TBP (each 20 lt.)
10 dead oil samples, (each 18 lt.)
2 oil samples for Ni/V/Po 210 (each 1.0 lt.)

5.6.3 Data acquisition

5.6.3.1 Flowrate and separator measurements

The oil flowrate is shown in Figure 5.4. It was measured by a 2" Rotron oil meter at separator conditions and calculated to standard conditions by correcting for shrinkage, temperature and meter factors. All surface data were read manually.

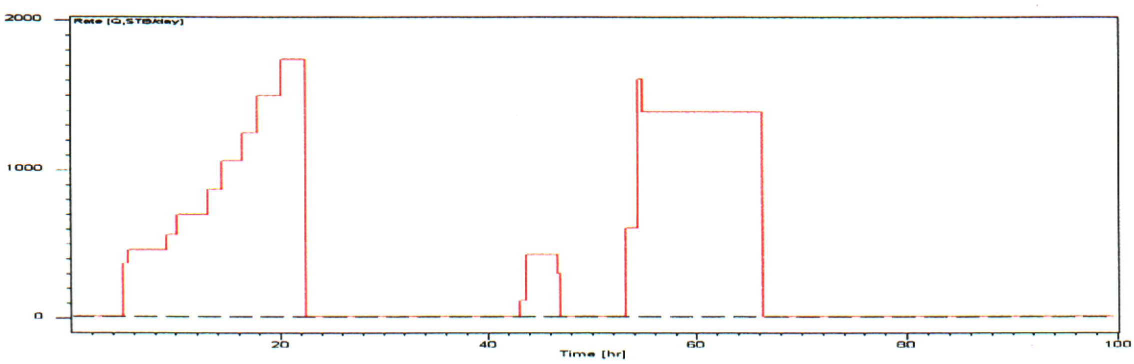


Figure 5.4: Oil rate vs. time, 34/7-26A test # 2 (TDS formation)

5.6.3.2 Bottomhole pressure and temperature

Bottomhole pressure and temperature were measured, throughout the test, by the permanent gauge installed at 3612 m MD RKB (2131 m TVD RKB), see Figure 5.5. During the sampling/main flow/build-up, two Sperry Sun gauges and one Expro gauge were used as backup. All gauges performed acceptable.

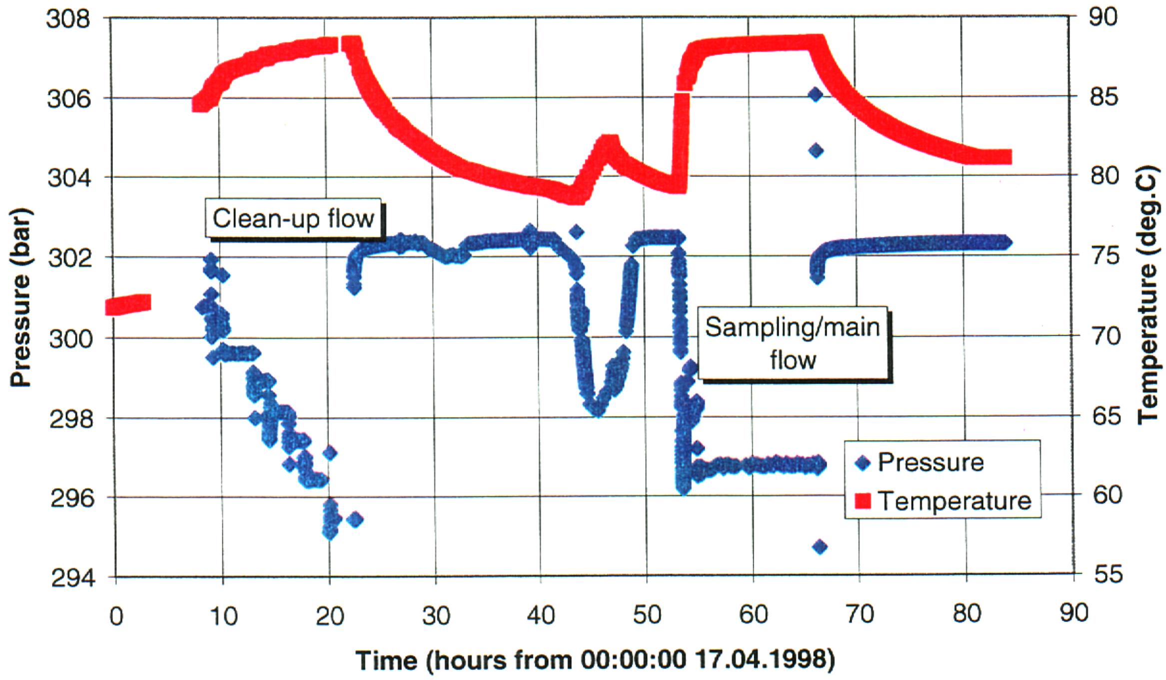


Figure 5.5: Bottomhole pressure and temperature, 34/7-26A test # 2 (TDS formation)

6. Drilling data

6.1 Daily operational description

Daily operational descriptions are listed in Table 6.1.

Date	Stop	Operational Description
980206	24:00	Time drilled 12 1/4" hole from 1384m to 1396m.
980207	01:30	Time drilled 12 1/4" hole from 1396m to 1402m.
	24:00	Drilled and surveyed 12 1/4" hole from 1402m-1708m
980208	24:00	Drilled and surveyed 12 1/4" hole from 1708m-2051m
980209	24:00	Drilled and surveyed 12 1/4" hole from 2051m-2507m Increased mud weight to 1.42 SG from 2380m-2420m.
980210	03:00	Drilled and surveyed 12 1/4" hole from 2507m-2565m
	03:30	Troubleshot and repaired TDS torque assy.
	24:00	Drilled and surveyed 12 1/4" hole from 2565m-3071m
980211	06:30	Drilled and surveyed 12 1/4" hole from 3071m-3224m
	07:00	Pumped 4m3 base oil and 4m3 1.9 SG kill mud to sweep hole clean.
	08:00	Troubleshot MWD tools. Meanwhile, circulated hole.
	08:30	Continued to drill 12 1/4" hole from 3224m-3249m.
	09:00	Continued to troubleshoot MWD tools. Meanwhile, circulated hole.
	10:30	Continued to drill 12 1/4" hole from 3249m-3306m.
	14:00	Circulated bottoms up whilst increasing mud weight to 1.47 SG.
	14:30	Flow checked well static.
	24:00	Pumped 6m3 slug and POOH to replace MWD tools. Back-reamed tight hole from 2537m-2509m and from 2390m-2370m, circulating 2500 l/min. Attempted to back-ream tight hole at 2282m - lost mud returns. RIH to 2338m and re-established circulation. Back-reamed hole from 2282m-2090m, then observed total losses of returns. RIH to 2135m. Attempted to re-establish circulation, no go.

Table 6.1: Daily operational description, part 1.

Date	Stop	Operational Description
980212	01:00	Reciprocated pipe at 2135m while evaluating losses. Prepared LCM (lost circulation materials).
	03:30	RIH to 2360m and took weight. Washed and reamed through tight spot. Observed mud returns while reaming through. Continued RIH to 2600m. Washed and reamed through tight spot at 2452m.
	04:30	Spotted 15m3 of 1.47 SG LCM pill at bottom.
	06:00	POOH to 2370m. Broke circulation and observed mud returns.
	09:00	Increased pumping rate gradually and established circulation at 2800 l/min without losses.
	15:00	Washed and back-reamed hole from 2370m-1966m.
	16:00	POOH from 1966m-1835m, then took overpull. RIH to 1875m and broke circulation.
	16:30	Increased pumping rate gradually and established circulation at 2800 l/min.
	23:30	Washed and back-reamed hole from 1875m-1370m.
	24:00	Reciprocated pipe and circulating at casing shoe for 15 min. Changed to 5" DP handling equipment.
980213	00:30	Changed TDS saver sub from 6 5/8" FH to 4 1/2" IF.
	04:30	POOH to 700m, while pumping 3000 l/min down DP. Simultaneously, circulating riser with booster.
	05:30	Circulated bottoms up while reciprocating pipe. Simultaneously, circulated riser with booster. Received large amount of cuttings on shakers.
	07:30	Slugged pipe and POOH. Flow checked well prior to pulling BHA through BOP.
	09:00	Changed MWD tools.
	11:00	Removed 11 1/2" sleeve on motor assy. Changed float, inspected and gauged bit. Function checked motor.
	13:00	RIH with 12 1/4" BHA to 500m.
	13:30	Function tested BOP.
	14:00	Function tested MWD tools.
	15:30	Continued RIH to 1330m.
	17:00	Made up cement stand. Racked same back in derrick.
	20:00	Cut and slipped drill line.
	22:30	Dismantled lower inner Dolly wheel bracket for repair.
	23:00	Changed saver sub from 4 1/2" IF to 6 5/8" FH.
	24:00	Continued RIH to 1507m.
980214	03:00	Continued RIH with 12 1/4" BHA to 2480m. Washed and reamed tight interval from 2440m-2480m.
	03:30	Circulated and cleaned hole, pumping 2450 l/min.
	09:00	RIH to 3306m. Washed and reamed tight intervals from 2512m-2537m, 2623m-2681m and 3013m-3052m.
	24:00	Drilled and surveyed 12 1/4" hole from 3306m-3681m.

Table 6-1: Daily operational description, part 2.

Date	Stop	Operational Description
980215	02:30	Drilled and surveyed 12 1/4" hole from 3681-3750m.
	12:00	Increased mud weight to 1.49 SG and circulated hole clean. Pumped 2600 l/min until 1.49 SG around and well stable, then increased to 3000 l/min and 120 RPM with riser booster pump running all the time. Massive amounts of cuttings coming over shakers on first five (!) bottoms up, then on last bottoms up cleared up significantly.
	18:30	POOH from 3725-1795m. Slugged pipe and continued POOH to 1330m. Hole slick and taking correct amount of fluid.
	19:00	Changed TDS saver sub from 6 5/8" FH to 4 1/2" IF.
	19:30	Changed to handling equipment for 5" DP. Continued POOH to 1250m.
	20:00	Flow checked well-static. While flow checking, installed lower inner Dolly wheel bracket.
	24:00	Continued POOH to surface. Flow checked well prior to pulling BHA through BOP. Laid out MWD tools.
980216	00:30	Continued to lay down BHA; bit and motor assy.
	04:30	RIH with jet sub on DP and washed wellhead area. Continued to RIH with wear bushing R&R tool. Retrieved wear bushing. Washed and cleaned wellhead area while POOH.
	05:30	Prepared surface handling equipment for 9 5/8" casing. Held safety meeting for crew on rig floor.
	24:00	Made up 9 5/8" casing shoe, float and spacer joints. Baker locked same and checked floats. Continued to RIH with 9 5/8" casing to 2067m.

Table 6-1: Daily operational description, part 3.

Date	Stop	Operational Description
980217	18:00	Continued to RIH with 9 5/8" and 10 3/4" casing. Installed 10 3/4" casing hanger. Casing hanger equipped with lock ring. Ran 5" landing string and landed casing hanger in wellhead. Broke circulation both prior to landing casing hanger and after - no returns. Had partly mud returns while running casing. Total losses 52m3.
	18:30	Pressure tested surface lines from BJ to 345 bar.
	19:30	Pumped 10m3 of cement spacer, then mixed and pumped 12m3 of cement. Displaced cement with BJ untill top plug sheared out. Had no mud returns during pumping operations. Total losses 23m3.
	21:00	Continued to displace cement with mud, using rig pumps. Observed 20 bar pressure increase when cement entered into annulus. Bumped cement plug 35 bar above final circulating pressure. Pump efficiency 95 %. Started to displace cement with 1500 l/min, then increased to 2000 l/min after 15 min and to 2500 l/min when cement entered into the annulus. Had no mud returns while displacing cement. Total mud losses 142m3.
	23:00	Pressure tested 9 5/8" x 10 3/4" casing to 290 bar Checked float - OK. Sat seal assy with 8.5 turns and 16000 ft lbs torque. Pressure tested seal assy to 35/345 bar, then re-torqued same to 16000 ft lbs.
	24:00	Pressure tested BOP to 35/345 bar.
980218	01:30	Continued to pressure and function test BOP.
	03:00	POOH and laid down casing hanger running tool.
	05:00	Installed 10 3/4" wear bushing.
	06:30	Changed bails. Laid down cement head from derrick.
	08:30	Laid down remaining 12 1/4" BHA's from derrick.
	09:00	Cleared rig floor, prepared to lay down 6 5/8" DP.
	09:30	Laid down cement running mandrel from casing hanger running tool.
	24:00	Laid down 50 stands of 6 5/8" DP from derrick.
980219	00:30	Continued to lay down 6 5/8" DP (total 156 joints)
	12:30	Picked up 50 stand 5" DP.
	13:00	Rearranged stands in derrick.
	13:30	Laid down old 6 1/2" jar and picked up new 6 1/2" jar.
	16:30	Made up and tested motor. Made up, initiated and aligned MWD.Made up 8 1/2" bit and started to RIH.
	23:00	RIH to 3650m.
	24:00	Washed down to float and tagged same @ 3710m.

Table 6-1: Daily operational description, part 4.

Date	Stop	Operational Description
980220	01:00	Recorded SCR's and performed choke drill with crew.
	05:00	Drilled float, cement and shoe. Cleaned rat hole and drilled 7m new formation to 3757m.
	07:00	Racked back one stand and circulated hole clean.
	07:30	Performed FIT to 1.68 SG.
	24:00	Drilled and surveyed 8 1/2" hole from 3757m to 4010m.
980221	02:30	Continued to drill and survey 8 1/2" hole from 4010m to 4030m.
	03:00	Observed slight increase in active, shut in well. No pressure build up detected. Flow checked 15 mins, negative.
	09:30	Continued to drill and survey 8 1/2" hole to 4104m.
	12:30	Circulated hole clean, increased mud weight to 1.58 SG.
	14:30	POOH to 9 5/8" shoe, held kick drill, flow checked and pumped slug.
	19:00	Continued to POOH, flow checked prior to pulling BHA through BOP.
	21:00	Continued to POOH, downloaded MWD and racked BHA.
	21:30	Changed saver sub on TDS to 6 5/8" FH.
	24:00	Held safety meeting with crew, prepared and made up coring assy #1 (90 ft).
980222	07:30	Continued to make up coring assy #1 and RIH on 5" DP.
	10:30	Changed to 6 5/8" DP and continued to RIH. Took weight @ 3888m. Washed and reamed down to 4104m.
	11:30	Dropped ball and seated same. Took new SCR.
	12:30	Cut core from 4104m to 4132m. Ran MP#1 on booster line.
	14:30	POOH to shoe with pumps on.
	16:00	Draw work motor B (1 of three) broke down. Isolated same by disconnecting shaft. Meanwhile circulated hole @ 1200 l/min and ran booster pump.
	23:30	Pumped slug, changed to 5" DP equipment and continued to POOH. Flow checked prior to entering BOP.
	24:00	Recovered core #1.

Table 6-1: Daily operational description, part 5.

Date	Stop	Operational Description
980223	01:30	Continued to recover core #1. 98.5% recovery.
	05:30	Made up 240 ft core bbl.
	07:00	Continued to make up BHA.
	15:00	RIH with coring assy #2. Broke circulation every 1000m and tagged bottom @ 4132m.
	15:30	Dropped ball and chased same.
	17:00	Cut core #2 from 4132m to 4153.5m. Core jammed off.
	24:00	Pumped out two stands, and pulled into shoe. Flow checked and continued to POOH.
980224	01:30	Continued to POOH with coring assy #2.
	03:00	Recovered core #2, 100% recovery.
	04:00	Racked back core bbl.
	05:30	Made up coring assy #3.
	13:00	RIH and tagged bottom @ 4153m.
	13:30	Dropped ball and chased same.
	15:00	Cut core #3 from 4153.5m to 4179m. Core jammed off.
	23:00	POOH, flow checked at the shoe and prior to entering the BOP.
	24:00	Recovered core #3.
980225	01:00	Continued to recover core #3 (99.2% recovery).
	03:30	Service broke and rearranged core barrel. Made up coring assy #4 (120 ft).
	10:30	RIH and tagged bottom @ 4179m. Broke circulation every 1000m.
	11:00	Dropped ball, chased and seated same.
	13:30	Cut core #4 from 4179m to 4216m.
	22:30	POOH. Flow checked at the shoe and prior to entering the BOP.
	24:00	Recovered core #4.
980226	01:00	Continued to recover core #4 (100% recovery).
	02:00	Laid down coring assy.
	04:00	Picked up new BHA. Unable to make up MWD due to galled threads. Changed out MWD and NM stab, retarted MWD and lined up motor/MWD.
	05:00	Continued to make up 8 1/2" drilling BHA.
	12:30	Continued to RIH to 4104m. Broke circulation every 1000m.
	16:00	Reamed from 4104m to 4216m while logging with MWD.
	22:00	Drilled 8 1/2" hole from 4216m to TD @ 4290m.
	24:00	Attempted to take survey at TD, no go. Circulated hole clean.

Table 6-1: Daily operational description, part 6.

Date	Stop	Operational Description
980227	01:00	Continued to circulate hole clean.
	04:00	POOH to shoe.
	08:00	Pulled 10 stands, made up hang-off tool, RIH and landed hang-off tool. Backed out running tool and POOH.
	13:30	Waiting on weather and improvement in forecast. Maximum heave 7.8m.

Time	Roll	Pitch	Heave	Wind	Dir	Wave
0800	3.6	5.6	6.4	20	263	10.0
0900	2.9	3.3	5.2	11	280	10.2
1000	3.0	3.9	4.6	14	303	9.9
1100	3.4	3.7	4.8	13	287	10.1
1200	2.9	2.9	4.6	17	267	10.1
1300	2.9	3.1	4.4	18	264	7.0

Date	Stop	Operational Description
	16:00	Made up running tool, RIH and retrieved drill string. Threads on Hang-off Tool damaged. Laid down and repaired same.
	17:00	POOH.
	17:30	Made up Hang-off Tool and racked same.
	24:00	Continued to POOH. Flow checked prior to entering the BOP. Laid down monels, MWD and motor.
980228	04:00	Waited on weather due to excessive heave.

Time	Roll	Pitch	Heave	Wind	Dir	Wave
0000	2.4	4.5	7.2	17	354	10.9
0100	3.0	4.7	5.6	19	344	11.0
0200	2.5	3.4	5.0	22	346	12.0
0300	3.9	5.3	4.2	24	351	11.2
0400	4.0	4.2	4.8	21	352	10.8

Date	Stop	Operational Description
	08:30	Rigged up Schlumberger and RIH with logging run #1, AIT-H/PEX/GR/ACTS to shoe.
	09:30	Had to stop logging operation due to excessive heave. (POOH and clamped tool at rotary @ 12:00 hrs.)
	24:00	

Time	Roll	Pitch	Heave	Wind	Dir	Wave
1000	3.6	4.1	6.2	19	323	11.8
1100	4.4	4.0	6.2	18	330	12.6
1200	4.2	3.9	6.6	20	330	10.7
1300	4.9	3.9	6.8	18	329	9.3
1400	3.9	3.9	7.2	12	332	11.4
1500	5.0	4.2	8.4	21	322	13.3
1600	4.3	3.9	7.0	17	324	10.9
1700	3.2	3.1	5.6	17	330	10.9
1800	4.8	3.6	6.0	16	351	10.3
1900	4.6	3.9	7.0	16	348	10.3
2000	3.9	5.5	6.0	16	339	10.1
2100	4.1	3.3	7.8	16	356	10.0
2200	4.6	3.9	6.8	16	334	9.5
2300	3.8	4.3	6.0	15	324	9.7
2400	4.3	4.3	7.4	14	325	8.2

Table 6-1: Daily operational description, part 7.

Date	Stop	Operational Description
980301	07:00	Continued to wait on weather.

Time	Roll	Pitch	Heave	Wind	Dir	Wave
0000	4.3	4.3	7.4	14	325	8.2
0100	4.0	4.2	6.2	12	334	8.3
0200	4.8	3.0	6.0	12	340	8.0
0300	3.9	3.9	6.0	13	343	8.6
0400	3.4	3.2	5.8	15	334	11.9
0500	4.3	3.7	7.0	17	337	8.4
0600	3.3	3.5	5.8	14	316	9.7

Date	Stop	Operational Description
	08:00	Unclamped logging string, performed tool checks and loaded sources.
	10:00	RIH with logging string #1, AIT-H/PEX/GR/ACTS, second attempt.
	14:30	Logged down from shoe. Logged from TD at 4291m to 9 5/8" casing shoe @ 3746m (depths Schlumberger) POOH and rigged down with log #1.
	16:00	Rigged up string #2 and checked same.
	18:00	RIH with toolstring #2, DSI/NGT/UBI/ACTS. Hang up @ 900m, worked string down to 980m. No further progress. POOH.
	21:00	Rigged down UBI, RIH and attempted again. Tool hung up @ 960m. Attempted to work toolstring down, reached 1030m. No further progress. POOH.
	22:00	Modified toolstring by adding extra weight on bottom of DSI.
	24:00	RIH with modified logging run #2, DSI/NGT/ACTS.
980302	11:00	Logged down from shoe to TD with DSI/NGT/ACTS. POOH to 500m and RIH to attempt logging top of cement in 9 5/8" casing with DSI,no go. Tool hung up @ 1000m. POOH and rigged down logging string.
	12:00	Slipped and cut drilling line.
	13:00	Changed saver sub and installed drilling bails and elevator.
	15:30	Rigged up TLC logging string and tested same.
	24:00	RIH with logging string #3,MDT/CMR/GR/ACTS, on TLC

Table 6-1: Daily operational description, part 8.

Date	Stop	Operational Description
980303	02:00	Continued to RIH with MDT/CMR/GR/ACTS on TLC.
	04:00	Rigged up surface equipment and installed SES.
	05:30	Pumnped down locomotive with 500 l/min.
	06:00	Latched locomotive in docking head and function tested connection, no go.
	07:30	Relatched locomotive several times without solving problem.
	09:00	Pulled out locomotive and checked same, no signs of damage.
	09:30	Rigged down sheaves and SES.
	15:30	Pumped slug and POOH.
	19:30	Troubleshot toolstring, found broken conductor in knuckle joint. Laid down CMR and knuckle joints and function checked new tool string.
	24:00	RIH with TLC logging string MDT/GR/ACTS on 5" DP.
980304	05:00	Continued to RIH with logging string MDT/GR/ACTS on 5 " DP.
	06:00	Rigged up surface equipment and latched SES.
	08:00	Pumped down and latched locomotive in docking head. Checked connection, OK. Held pre-job meeting.
	12:30	RIH to TD and took pressure points from 4205.5m to 4124m.
	15:30	RIH and took fluid samples from 4205m and up.
	21:00	Attempted to take fluid sample @ 4182m, no go, probably due to plugged flowline in MDT tool. Aborted additional sampling after several attempts.
	24:00	Flow checked and POOH to 3695m. Flow checked.
980305	02:30	POOH with locomotive on wireline
	03:00	Rigged down Schlumberger Wireline
	09:00	POOH with Schlumberger tools on DP.
	12:30	Down loaded MDT and Rigged down TLC tools Rigged up wireline.
	15:30	Ran log run #4 to 1370m. (CMR + PEX for weight) Could not get down. Log hanging up from 1050 to 1370m.
	16:30	Rigged down schlumberger
	18:30	Made up cement head.Rigged down hang off line.
	24:00	Made up 8 1/2" bit and BHA for wiper trip.

Table 6-1: Daily operational description, part 9.

Date	Stop	Operational Description
980306	03:00	RIH to TD. Washed last stand to bottom No fill or drag.
	07:00	Circulated on bottom and reduced mud weight from 1.62 SG to 1.55 SG. Conditioned mud prior to POOH and run casing.
	15:00	Pumped slug and POOH. Checked drill string torque at TD and shoe.
	16:00	Cleared rig floor and rigged up to run casing.
	24:00	Picked up and made up 50 joints 5 1/2" liner. (5 1/2" 20lb L-80 Vam Ace Mod.) Picked up and made up hanger.Circulated liner and filled liner.
980307	11:30	RIH with 599m of 5 1/2" 20# L-80 13 Cr Vam Ace liner on 5" DP.
	12:00	Circulated at 400 l/min and 345 bar. Tagged bottom and pulled back 4m to 4286m.
	19:00	Dropped ball and rotated and circulated liner. Set liner hanger with 1700 psi.Released running tool and mixed and pumped 18m3 (22.1T) of cement + additives as per programme.Released dart and displaced cement with 39.4m3 mud. Bumped plug and pressure tested liner to 290 bar for 15 mins. Checked for back flow and set top packer. Pulled out of PBR. No mud losses for job.
	21:30	Racked back cement stand and circulated out cement contaminated mud.Tested top packer to 152 bar for 15 mins.
	24:00	Flow checked, pumped slug and POOH with hanger running tool.
980308	03:00	POOH with liner hanger running tool.
	04:30	Made up bullnose. RIH jet wellhead. POOH.
	07:00	Laid down: Nodeco cement head,8 1/2" stabs, bit sub, 2 stands 6 1/2" DC, jars.
	18:30	Picked up 4 1/2" mill and clean up/scraper BHA: 3 1/8" DC and 2 7/8" DP. RIH. Tagged cement @ 3700m. Washed through with 30 rpm, 940 l/min. Continued to RIH. Tagged top PBR @ 3687.5m. Dressed top of PBR with 50 rpm, and 2-3 tons. Torque 18-21000 ft-lb. Max 4 1/2" mill depth @ 4243m (liner clean out depth).
	24:00	Circulated 340m3 (2 hole volumes) to clean up well Circulation rate 1100 l/min at 300 bar.

Table 6-1: Daily operational description, part 10.

Date	Stop	Operational Description
980309	12:00	POOH with liner scraper assy. Laid down Saga rental pipe and washed BOP on way through.
	13:00	Rigged up Schlumberger for wireline logging
	18:00	Ran RIGS Gyro survey of 10 3/4" and 9 5/8" casing to 3663m. POOH and rigged down.
	24:00	Rigged up and ran VSP walk away survey on Schlumberger cable.
980310	08:00	Continued to run walkaway VSP on Schlumberger cable. Shot 31 depths from landing collar @ 4249m to 1500m.
	11:30	Ran in with CBL logging string. Tool failure. Recovered tool,failure caused by leak in seal section of roller weight- mud in telemetry sub.
	12:30	Rigged down schlumberger.
	14:00	RIH with BOP test plug.
	16:30	Tested BOP.
	23:00	Laid down 6 5/8"(27 joints) and 5" DP (42 joints).
	24:00	Rigged up Schlumberger and made up CBL tools.
980311	02:00	Made up and checked out CBL tool string. Laid out faulty AMS and re-checked tool.
	06:00	RIH with CBL/VBDL/USIT tool string. Unable to run into liner. POOH tool string.
	19:00	Rearranged tool string centralisers and changed roller. RIH and made log CBL/VDL only from 4239m to 3300m. Top cement outside 9 5/8" casing. at approximately 3400m. POOH
	20:00	Rigged down Schlumberger.
	21:30	Tested TDS, stab in valves and Kelly Hose to 345 bar. Tested liner lap to 290 bar, OK.
	24:00	Rigged up and laid out 20 joints 6 5/8" DP from derrick.
980312	14:00	Cleared excess tubulars from derrick.
	15:00	Rig repair - performed thickness measurements on draw-works brakes.
	17:30	Continued to lay down excess tubulars from derrick
	18:00	Rig repair - short circuit of electrical cable on iron roughneck.
	19:30	Continued to lay down excess tubulars from derrick
	23:00	Made up circulating and displacing BHA. Held safety meeting.
	23:30	Circulated and conditioned mud in riser.
	24:00	Continued to RIH.

Table 6-1: Daily operational description, part 11.

6.2 Bit Record

Table 6.2 presents the bit record for the well.

Bit No.	Size	Make Type	Serial No.	Jets	Depth Out (m)	Int. (m)	Hrs. Act. IADC	ROP Act. IADC	WOB	RPM TDS Motor	Flow Press	Condition I-O-D-L-B-G-O-R	Act.	Remarks
1RR	12 1/4"	Security FM2943R	5972228	6x20	3750.0	2366.0	59.5 126.0	39.8 18.8	25.1	52/79 194/228	2944.0 256.6	1-1-CT-C-X-1/16-NO-TD	DRILLING	Second re-run of the bit.
2RR	8 1/2"	LYNG LA 250 BV	1830	4x18	4104.0	354.0	14.6 30.0	24.2 11.8	28.0	0/80 250/260	1800.0 298.0	4-2-CT-C-X-I-BT-CP	DRILLING	
3RR	8 1/2"	Diamant CD93 QFD	I7950877		4132.0	28.0	1.0 1.0	27.2 28.0	90.0	85/111 0/0	1139.0 133.0	--CT-S-X-I-70%-CP	CORING	Coring assy #1 (90' bbl, 98.5% recovery)
3RR	8 1/2"	Diamant CD93 QFD	I7950877	0.7 TFA	4153.5	21.5	1.1 1.5	19.7 14.3	8.0	51/109 0/0	1267.0 176.0	-3-CT-S-X-I-70%-TQ	CORING	Core jammed off.
3RR	8 1/2"	Diamant CD93 QFD	I7950877	0.7 TFA	4179.0	25.5	1.2 1.5	21.4 17.0	10.0	67/108 0/0	1099.0 176.0	-3-CT-S-X-I-70%-TQ	CORING	Core jammed off.
3RR	8 1/2"	Diamant CD93 QFD	I7950877	0.7 TFA	4216.0	37.0	2.0 2.5	18.7 14.8	15.0	2/108 0/0	1117.0 163.0	-4-CT-S-X-I-60%-TD	CORING	Core #4 to bottom of coring interval.
4	8 1/2"	LYNG LA250BX	1485	4x18	4290.0	74.0	3.9 6.0	18.9 12.3	12.0	9/106 90/233	1850.0 301.0	3-3-WT-N-X-I-NO-TD	DRILLING	Used to drill to TD below cored interval.

Table 6.2: Bit record 34/7-26A

6.3 BHA Record

Table 6.3 presents the bottom hole assemblies for the well.

Well: 34/7-26A Depth ref: Drillers md.rkb(25.0) (Original rkb

BHA no. 1: Kick off below 13 3/8" shoe. Drilled 12 1/4" section to 330 m.

Item no./Name/OD(inch)/Tot. Length(m) Depth interval(md): -3306.0

1	Bit	12.250	0.30	9	Monel	8.000	18.01
2	Mud Motor	11.500	11.71	10	Drill Col	8.000	9.02
3	Float Sub	8.000	0.80	11	Jar	8.000	9.78
4	Stabilizer	12.000	1.48	12	Drill Col	8.000	18.07
5	Pin-Pin sub	8.250	0.68	13	XO Sub	8.000	0.96
6	MWD Tool	8.250	15.95	14	HW Drill Pipe	5.000	27.33
7	Saver Sub	8.250	0.69	15	Dart Sub	6.625	0.51
8	Stabilizer	11.750	1.59	16	HW Drill Pipe	5.000	109.38

BHA no. 2: Drilled 12 1/4" hole from 3306 m to section TD at 3750 m.

Item no./Name/OD(inch)/Tot. Length(m) Depth interval(md):1384.0 -3750.0

1	Bit	12.250	0.30	9	Monel	8.000	18.01
2	Mud Motor	9.625	11.71	10	Drill Col	8.000	9.02
3	Float Sub	8.000	0.80	11	Jar	8.000	9.78
4	Stabilizer	12.000	1.48	12	Drill Col	8.000	18.07
5	Pin-Pin sub	8.250	0.68	13	XO Sub	8.000	0.96
6	MWD Tool	8.250	15.99	14	HW Drill Pipe	5.000	27.33
7	Saver Sub	8.250	0.69	15	Dart Sub	6.625	0.51
8	Stabilizer	11.750	1.59	16	HW Drill Pipe	5.000	109.38

BHA no. 3: 8 1/2" section to core point.

Item no./Name/OD(inch)/Tot. Length(m) Depth interval(md):3750.0 -4104.0

1	Bit	8.500	0.29	8	NM Pony DC	6.750	17.38
2	Mud Motor	8.000	11.74	9	Drill Col	6.500	8.99
3	Stabilizer	8.250	1.68	10	Jar	6.500	9.43
4	Float Sub	6.500	0.66	11	Drill Col	6.500	18.30
5	Pin-Pin sub	6.750	0.83	12	HW Drill Pipe	5.000	27.33
6	MWD Tool	6.750	12.96	13	Dart Sub	6.250	0.51
7	Stabilizer	6.500	1.64	14	HW Drill Pipe	5.000	27.33

Table 6.3: BHA record, Well 34/7-26 A, Part 1

Well: 34/7-26A Depth ref: Drillers md.rkb(25.0) (Original rkb

BHA no. 5: Coring assembly #2 (240').
Item no./Name/OD(inch)/Tot. Length(m) Depth interval(md):4132.0 -4153.5

1	Core Bit	8.500	0.36	6	Jar	6.500	9.43
2	Core Barrel	8.500	75.87	7	Drill Col	6.380	18.30
3	Drill Col	6.375	9.15	8	HW Drill Pipe	5.000	27.30
4	Roller Reamer	8.500	2.13	9	Dart Sub	5.000	0.51
5	Drill Col	6.380	54.90	10	HW Drill Pipe	5.000	54.61

BHA no. 6: Coring assembly #3(240').
Item no./Name/OD(inch)/Tot. Length(m) Depth interval(md):4153.5 -4179.0

1	Core Bit	8.500	0.36	6	Jar	6.500	9.43
2	Core Barrel	8.500	75.87	7	Drill Col	6.380	18.30
3	Drill Col	6.375	9.15	8	HW Drill Pipe	5.000	27.30
4	Roller Reamer	8.500	2.13	9	Dart Sub	5.000	0.51
5	Drill Col	6.380	54.90	10	HW Drill Pipe	5.000	54.61

BHA no. 7: Coring assy #4 (120').
Item no./Name/OD(inch)/Tot. Length(m) Depth interval(md):4179.0 -4216.0

1	Core Bit	8.500	0.36	6	Jar	6.500	9.43
2	Core Barrel	8.500	39.59	7	Drill Col	6.380	18.30
3	Drill Col	6.375	9.15	8	HW Drill Pipe	5.000	27.30
4	Roller Reamer	8.500	2.13	9	Dart Sub	5.000	0.51
5	Drill Col	6.380	54.90	10	HW Drill Pipe	5.000	54.61

BHA no. 8: 8 1/2" drilling assy to TD.
Item no./Name/OD(inch)/Tot. Length(m) Depth interval(md):4216.0 -4290.0

1	Bit	8.500	0.29	8	NM Pony DC	6.750	17.38
2	Mud Motor	8.000	11.74	9	Drill Col	6.500	8.99
3	Stabilizer	8.250	1.68	10	Jar	6.500	9.43
4	Float Sub	6.500	0.66	11	Drill Col	6.500	18.30
5	Pin-Pin sub	6.750	0.83	12	HW Drill Pipe	5.000	27.33
6	MWD Tool	6.750	12.65	13	Dart Sub	6.250	0.51
7	Stabilizer	6.500	1.90	14	HW Drill Pipe	5.000	27.33

BHA no. 4: Coring assy #1 (90')
Item no./Name/OD(inch)/Tot. Length(m) Depth interval(md):4104.0 -4132.0

1	Core Bit	8.500	0.36	5	Drill Col	6.380	54.90
2	Core Barrel	8.500	30.13	6	Jar	6.500	9.43
3	Drill Col	6.375	9.15	7	Drill Col	6.380	18.30
4	Roller Reamer	8.500	2.13	8	HW Drill Pipe	5.000	81.91

Table 6.3: BHA record, Well 34/7-26 A, Part 2

6.4 Drilled depth vs. Rotating Hours

Figure 6.1 shows drilled depth plotted against rotating hours.

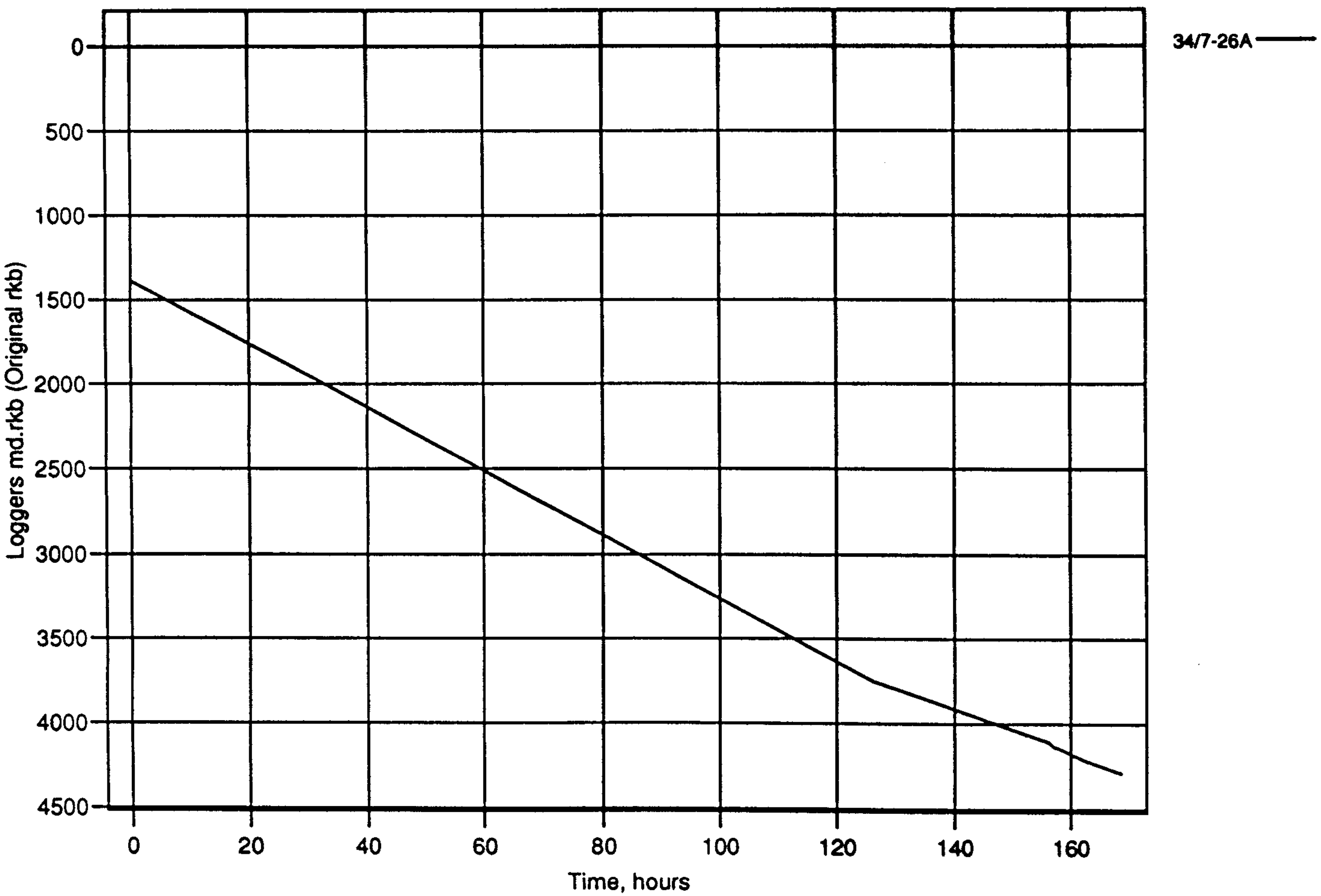


Figure 6.1: Drilling Depth vs. Rotating Hours, Well 34/7-26A

6.5 Mud Data

6.5.1 Mud properties, daily reports

Table 6.4 shows the daily reported mud properties.

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
980206	12 1/4"	1396.0	1.40	21.0	18.0	11/15		/		105000	.3	17.5	PSEUDO OIL BASED
980207	12 1/4"	1708.0	1.40	26.0	19.0	14/19		/		112000	.7	18.0	PSEUDO OIL BASED
980208	12 1/4"	2051.0	1.40	26.0	21.0	17/23		/		123000	.6	18.5	PSEUDO OIL BASED
980209	12 1/4"	2507.0	1.42	27.0	20.0	16/22		/		126000	.6	19.0	PSEUDO OIL BASED
980210	12 1/4"	3071.0	1.45	32.0	22.0	17/24		/		114000	.6	20.0	PSEUDO OIL BASED
980211	12 1/4"	3306.0	1.47	34.0	21.0	17/23		/		116000	.5	21.0	PSEUDO OIL BASED
980212	12 1/4"	3306.0	1.47	31.0	19.0	15/21		/		109000	.5	20.5	PSEUDO OIL BASED
980213	12 1/4"	3306.0	1.47	29.0	17.0	14/21		/		107000	.5	20.5	PSEUDO OIL BASED
980214	12 1/4"	3681.0	1.47	33.0	20.0	16/23		/		114000	.9	21.0	PSEUDO OIL BASED
980215	12 1/4"	3750.0	1.49	33.0	20.0	16/25		/		116000	1.0	21.5	PSEUDO OIL BASED
980216	12 1/4"	3750.0	1.49	33.0	20.0	16/24		/		116000	1.0	21.5	PSEUDO OIL BASED
980217	12 1/4"	3750.0	1.49	24.0	18.0	15/22		/		110000	.3	20.0	PSEUDO OIL BASED
980218	8 1/2"	3750.0	1.49	24.0	18.0	15/22		/		110000	.3	20.0	PSEUDO OIL BASED
980219	8 1/2"	3750.0	1.49	24.0	18.0	15/22		/		110000	.3	23.0	PSEUDO OIL BASED
980220	8 1/2"	4009.0	1.53	30.0	19.0	17/22		/		112000	.5	22.0	PSEUDO OIL BASED
980221	8 1/2"	4104.0	1.58	31.0	22.0	16/25		/		112000	.8	23.0	PSEUDO OIL BASED
980222	8 1/2"	4104.0	1.58	30.0	22.0	16/24		/		114000	.8	23.0	PSEUDO OIL BASED
980223	8 1/2"	4130.0	1.58	33.0	20.0	16/26		/		114000	.6	23.0	PSEUDO OIL BASED
980224	8 1/2"	4130.0	1.58	32.0	20.0	15/25		/		114000	.6	23.0	PSEUDO OIL BASED
980225	8 1/2"	4130.0	1.58	29.0	22.0	15/25		/		117000	.6	23.0	PSEUDO OIL BASED
980226	8 1/2"	4130.0	1.58	33.0	22.0	14/24		/		107000	.8	23.0	PSEUDO OIL BASED
980227	8 1/2"	4290.0	1.62	35.0	19.0	14/24		/		109000	.6	24.0	PSEUDO OIL BASED
980228	8 1/2"	4290.0	1.62	35.0	20.0	14/24		/		107000	.5	24.0	PSEUDO OIL BASED
980301	8 1/2"	4290.0	1.62	34.0	21.0	14/24		/		107000	.5	24.0	PSEUDO OIL BASED
980302	8 1/2"	4290.0	1.62	35.0	19.0	14/24		/		107000	.5	24.0	PSEUDO OIL BASED
980303	8 1/2"	4290.0	1.62	33.0	22.0	14/25		/		109000	.5	24.0	PSEUDO OIL BASED
980304	8 1/2"	4290.0	1.62	34.0	25.0	14/25		/		109000	.5	24.0	PSEUDO OIL BASED

Table 6.4: Mud Properties, Well 34/7-26A, Daily Report, Part 1

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
980305	8 1/2"	4205.0	1.62	34.0	21.0	14/24		/		107000	.5	24.0	PSEUDO OIL BASED
980306	CO#1	4205.0	1.55	30.0	21.0	15/23		/		110000	.5	22.0	PSEUDO OIL BASED
980307	CO#1	4205.0	1.55	36.0	20.0	13/20		/		98000	.4	21.5	PSEUDO OIL BASED
980308	CO#1	4205.0	1.55	32.0	18.0	14/20		/		97000	.3	22.0	PSEUDO OIL BASED
980309	CO#1	4205.0	1.55	32.0	19.0	14/20		/		97000	.3	22.0	PSEUDO OIL BASED
980310	CO#1	4205.0	1.55	32.0	18.0	14/20		/		97000	.3	22.0	PSEUDO OIL BASED
980311	CO#1	4205.0	1.55	32.0	19.0	14/20		/		97000	.3	22.0	PSEUDO OIL BASED
980312	CO#1	4205.0	1.55	32.0	18.0	14/19		/		97000	.3	22.0	PSEUDO OIL BASED

Table 6.4: Mud Properties, Well 34/7-26A, Daily Report, Part 2

6.5.2 Mud materials used

The mud materials used is shown in Table 6.5.

Material	Unit	12 1/4"	8 1/2"	Total
Ancotec B	M3		1	1
A Tec B with 40kg/m3 Novamul	M3	216	48	264
Barite	MT	281	99	380
Bentone 128	KG	2725	475	3200
Cal. Chloride	KG	21450	1050	22500
Calcium Carbonate Coarse	KG	600		600
Kwik Seal Medium	KG	561		561
Lime	KG	14775	4180	18955
Mica Fine	KG	550		550
Mix-II Fine	KG	547		547
Novamod	KG	1496	187	1683
Novamul	Litre	3750	2450	6200
Nut Plug Fine	KG	725		725
XC Polymer	kKG		100	100
Venn Fyber 201	KG	543		543

Table 6.5: Mud materials used in well 34/7-26A

6.6 Casing Data

Casing data is given in Table 6.6.

Size Inches	Date Run	Grade	No. of joints	Total length m	Weight kg/m (lbs/ft)	Couplings	Shoe depth m-RKB	Float Collar depth m-RKB	Centralizers		Remarks
									Type	Depth - m	
10 3/4" 10 3/4" 9 5/8"	18.02.98	C-95 L-80 L-80	3 21 266	35 252 3229	68 (45.5) 82 (55.5) 70 (47)	New Vam New Vam New Vam	3746	3707	BOW	2640-2850	2 centr. on shoe jnt. 1 centr. per jnt. next 9 full length jnts.
5 1/2"	05.03.98	L-80, 13Cr	54	599	30 (20)	New Vam	4286	4261	Spiro	4286-3687	2 centr.on shoe jnt, 1 centr. per jnt on remainder

Table 6.6: Casing data, Well 34/7-26 A

6.7 Cementation

Cement data and operation are given in Table 6.7.

6.7.1 Cement Evaluation

9 5/8" x 10 3/4" casing
The plug was displaced and bumped. The casing was tested to 290 bar. The casing hanger pack-off was set and tested to 345 bar. Top of cement was established at 3400 m MD from the CBL/VDL log while evaluating the
5 ½" liner. Casing was re-tested to 152 bar while testing the liner top packer and 290 bar while testing the liner lap.

5 1/2" liner
The plug was bumped and liner was pressure tested to 290 bar. The packer was set and liner lap tested to 152 bar i.e. 70 bar over expected fracture gradient. Tested liner lap to 290 bar after cement had hardened. CBL/VDL log provided top of cement at TOL 3687 m MD and the required isolation between TDS and IDS formation. A total of 75 m^3 mud was lost during the job.

Date	Job Description	Shoe Depth m-RKB	Cement Type	Slurry Weight SG	Slurry Volume Used m3	Additives L/100 kg Cement	Mix Water L/100 kg Cement	Losses m3	Remarks
17.02.98	9 5/8" X 10 3/4" casing	3746	G	T: 1.90	12,00	R-12L: 0.75 FP-9L: 0.2 CD-31L: 0.5 Microblock: 5.0	FW: 41.56	165	Yield: 77.9 l/100 kg Bumped plug
07.03.98	5 1/2" liner	4286	G	T: 1.90	18,30	FP-9LN: 0.2 CD-31L: 0.8 R-12L: 0.90 Microblock: 10.5 FL-45LN: 6.75	FW: 31.60	-	Yield: 81.81 l/100 kg Bumped plug Liner tested to 290 bar

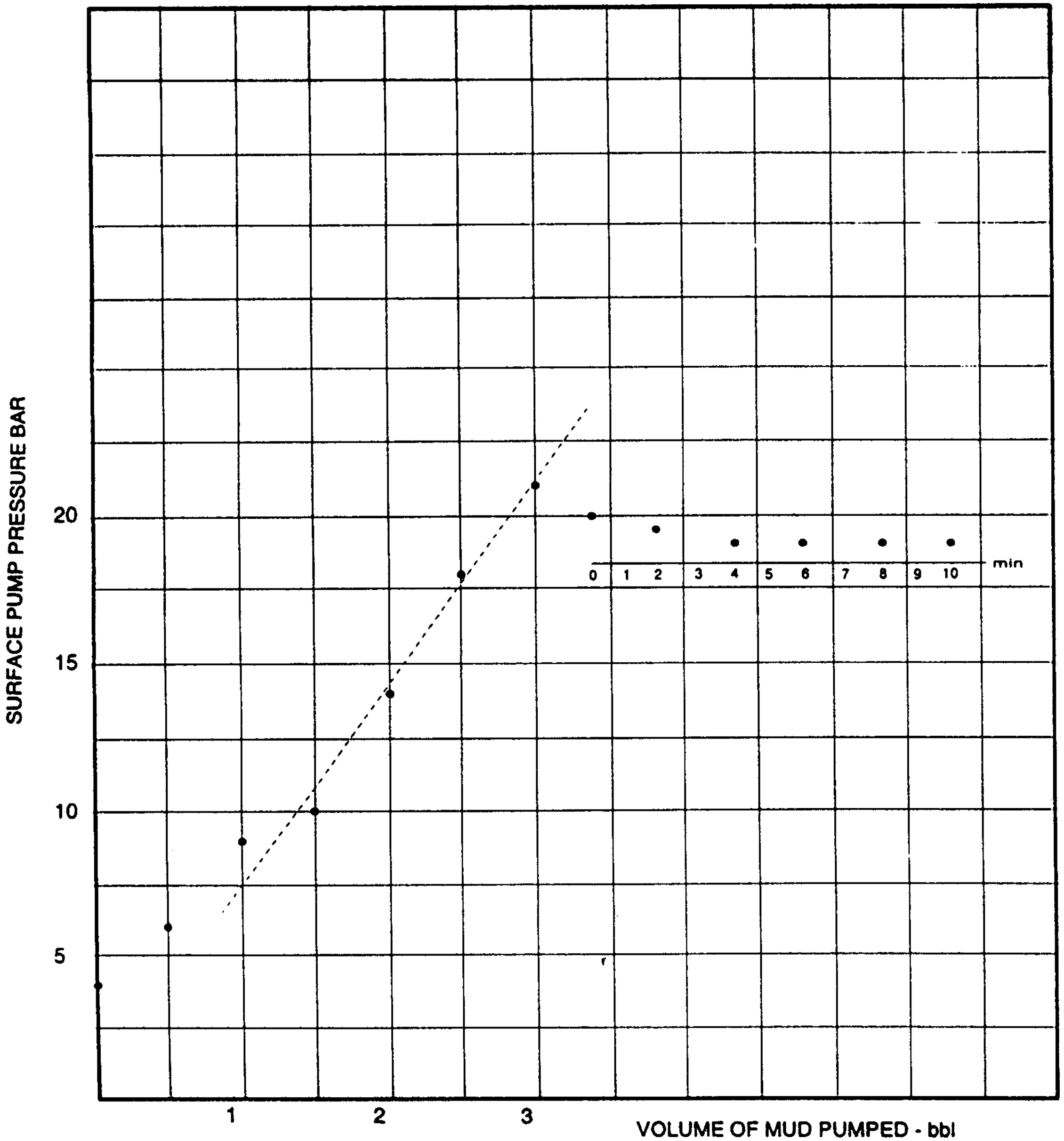
Table 6.7: Cement Data, Well 34/7-26 A

6.8 Formation Strength Tests

Formation leak-off test / formation integrity test have been conducted at the shoe after drilling 5 m new formation below TD of the previous section.

The results are shown in Figure 6.2 and Figure 6.3.

Mark that the FIT below 13 3/8" casing shoe, was done when drilling well 34/7-26S.



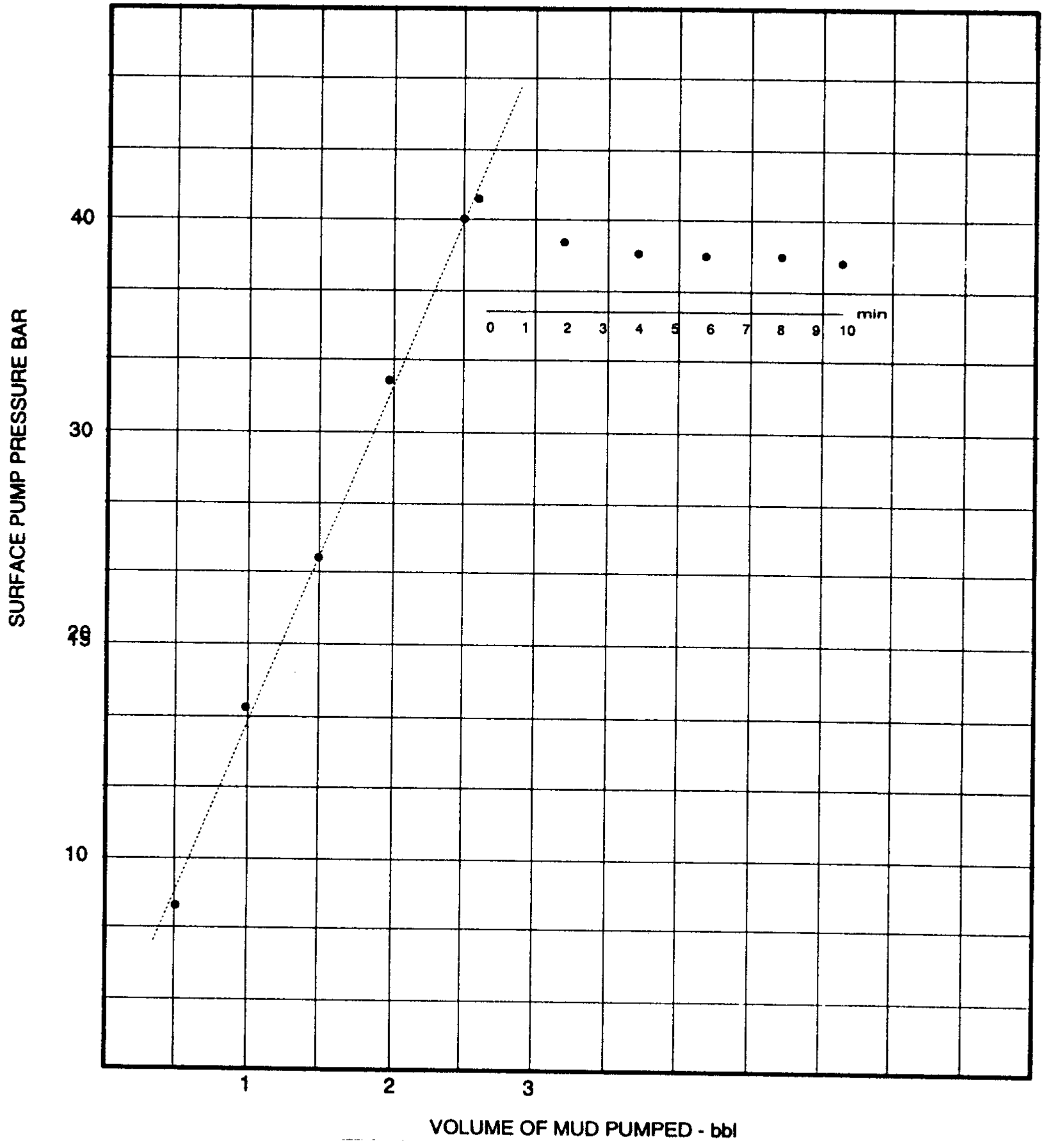
WELL	34/7-26 SR (A)	DATE	02.07.97

CSG.SIZE 13 3/8"	VOLUME PUMPED 3 bbl / 477 ltr
CSG.SHOE DEPTH 1031 mTVD / 1371 mMD	VOLUME RECOVERED 2,5 bbl / 397 ltr
WATER DEPTH 201 m	FORMATION TYPE -
HOLE SIZE 12 1/4"	PRESSURE FIT
HOLE DEPTH 1385 mMD	SHUT-IN PRESSURE
MUD WEIGHT 1,4 sg	SHUT-IN TIME 10 min
PUMP RATE 0.5 bbl/min / 79,5 ltr/min	

EQV. MUD WEIGHT AT CSG. SHOE: 1,6

bbl	bar	min	bar
0	4	0	20
0.5	6	2	19,5
1	9	4	19
1,5	10	6	-
2	14	8	-
2,5	18	10	-
3	21		

Figure 6.2: Formation FIT Data below 13 3/8" casing shoe, Well 34/7-26 A



WELL	34/7-26 A	DATE	20.02.98
CSG.SIZE	9 5/8"	VOLUME PUMPED	2.6 bbl / 413,5 ltr
CSG.SHOE DEPTH	2200 mTVD / 3746 mMD	VOLUME RECOVERED	2,55 bbl / 405,5 ltr
WATER DEPTH	201 m	FORMATION TYPE	-
HOLE SIZE	8 1/2"	PRESSURE	41 bar
HOLE DEPTH	3757 mMD	SHUT-IN PRESSURE	41 bar
MUD WEIGHT	1,49 sg	SHUT-IN TIME	10 min
PUMP RATE	0.5 bbl/min / 79,5 ltr/min		
EQV. MUD WEIGHT AT CSG. SHOE:	1,68		

bbl	bar	min	bar
0.5	8	0	41
1	17	2	39
1.5	24	4	38,5
2	32.5	6	38,4
2.5	40	8	38,2
2.6	41	10	38

Figure 6.3: Formation FIT Data below 9 5/8" casing shoe, Well 34/7-26 A

6.9 Deviation data

The deviation data are based on Baker Hughes Inteq's MWD survey, and the Baker Hughes Inteq RIGS measurement. The azimuth reference is UTM Grid North, and all displacements are relative to the wellhead. The correction used from magnetic north reference to UTM grid north reference is -3.85°.

A well profile plot is shown in Figure 6.4. Deviation data is shown in Table 6.8.

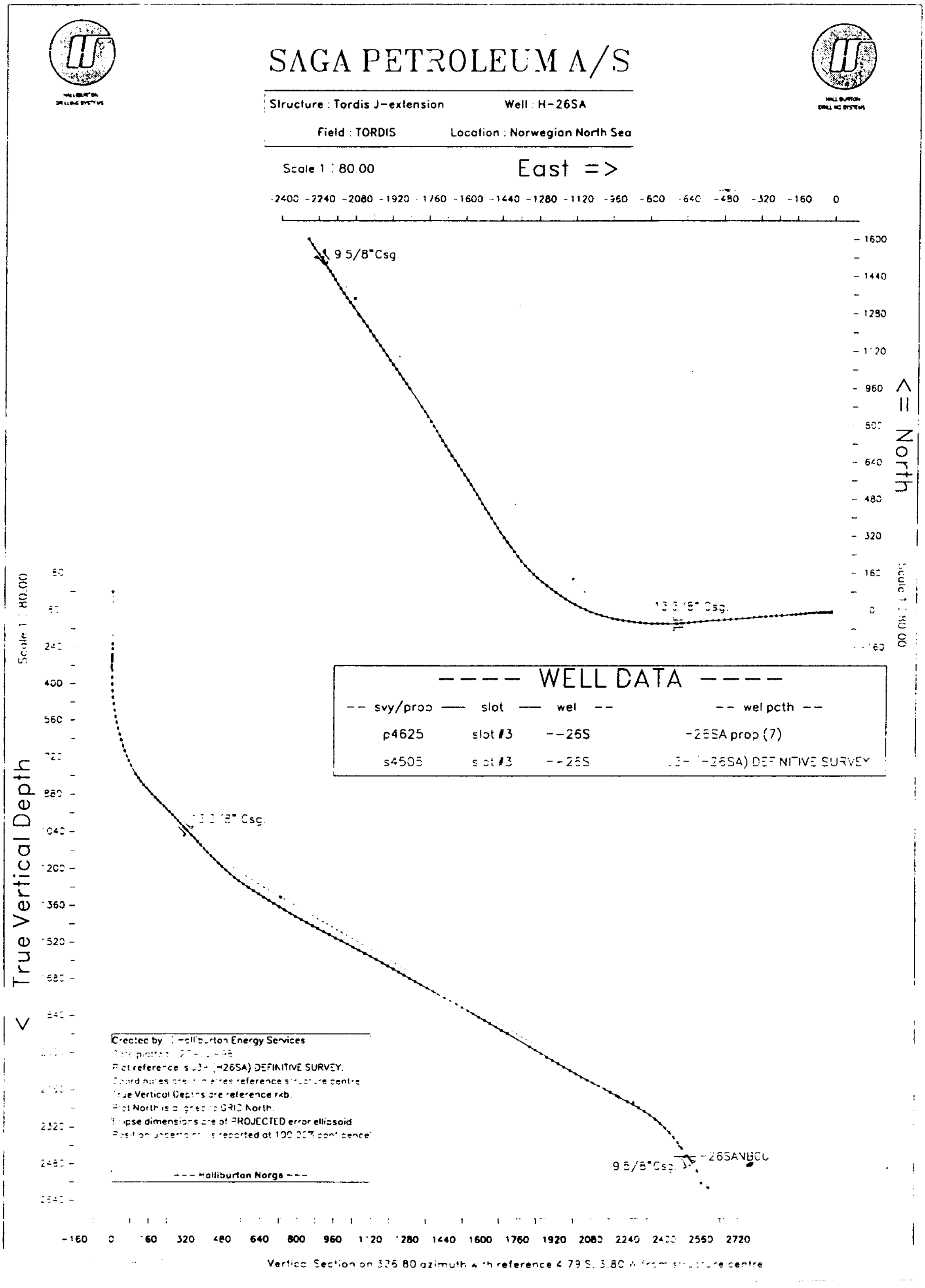


Figure 6.4: Well Profile plot, Well 34/7-26A

Saga Petroleum A/S
Depth.ref:Loggers md.rkb(25.0) (Original rkb)
Horizontal.ref:Relative to Wellhead

DEVIATION DATA
Well:34/7-26A
GRID NORTH

MD meter	TVD meter	INCLIN deg.	AZIMUT deg.	DOGLEG deg/30m	+N,-S meter	+E,-W meter
0.0	0.0	0.00	0.0	0.00	0.00	0.00
226.0	226.0	0.00	0.0	0.00	0.00	0.00
239.9	239.9	1.03	208.7	2.22	-0.11	-0.06
249.9	249.9	1.21	203.4	0.64	-0.28	-0.14
259.9	259.9	1.34	198.5	0.51	-0.49	-0.22
269.9	269.9	1.40	193.6	0.40	-0.72	-0.29
279.9	279.9	1.42	190.3	0.25	-0.96	-0.34
289.8	289.8	1.43	187.1	0.24	-1.21	-0.38
299.9	299.9	1.38	184.4	0.25	-1.45	-0.40
309.8	309.8	1.51	185.5	0.38	-1.70	-0.42
319.9	319.9	1.48	180.7	0.38	-1.97	-0.44
329.9	329.8	1.47	180.5	0.05	-2.22	-0.44
339.9	339.8	1.43	180.0	0.13	-2.47	-0.44
349.9	349.8	1.32	176.2	0.42	-2.71	-0.44
359.9	359.8	1.11	175.7	0.63	-2.93	-0.42
369.9	369.8	0.95	195.6	1.18	-3.10	-0.44
379.8	379.8	0.98	243.6	2.37	-3.22	-0.53
389.8	389.8	1.99	273.1	3.69	-3.25	-0.78
399.9	399.8	3.09	282.2	3.51	-3.18	-1.22
409.9	409.8	4.72	286.4	4.95	-3.01	-1.88
419.9	419.8	6.09	286.2	4.11	-2.74	-2.79
429.8	429.6	7.31	282.9	3.84	-2.46	-3.91
439.8	439.6	8.26	280.5	3.01	-2.18	-5.24
449.9	449.5	9.08	277.9	2.73	-1.94	-6.73
459.8	459.3	10.04	274.7	3.30	-1.76	-8.37
469.8	469.1	11.05	272.3	3.30	-1.65	-10.20
479.9	479.0	11.91	270.3	2.83	-1.61	-12.20
489.9	488.7	13.16	268.0	4.04	-1.65	-14.37
499.9	498.4	14.16	267.3	3.04	-1.74	-16.72
509.9	508.1	15.23	267.7	3.23	-1.85	-19.26
519.9	517.7	16.79	268.9	4.79	-1.94	-22.02
529.8	527.2	18.04	269.2	3.77	-1.98	-25.00
539.9	536.7	19.11	268.9	3.20	-2.04	-28.20
549.8	546.1	20.39	268.2	3.93	-2.12	-31.56
559.9	555.5	21.47	267.9	3.25	-2.24	-35.14
569.8	564.7	22.51	267.3	3.21	-2.40	-38.88
579.9	574.0	23.79	267.1	3.83	-2.59	-42.81
589.8	583.0	24.89	267.0	3.32	-2.81	-46.91
599.9	592.1	25.99	266.7	3.28	-3.05	-51.22
609.8	601.0	27.06	266.4	3.25	-3.31	-55.66
619.9	609.9	28.10	266.1	3.14	-3.62	-60.31
629.9	618.7	28.96	265.6	2.66	-3.96	-65.06
639.8	627.4	29.76	265.5	2.42	-4.34	-69.94
649.8	636.0	30.51	265.4	2.25	-4.74	-74.93
659.9	644.6	31.56	265.6	3.18	-5.14	-80.09
669.8	653.1	32.66	265.9	3.32	-5.53	-85.39
679.8	661.4	33.75	265.8	3.26	-5.93	-90.83
689.9	669.7	35.02	265.6	3.83	-6.36	-96.50
699.8	677.8	36.35	265.6	4.01	-6.81	-102.28
709.8	685.8	37.72	265.2	4.16	-7.29	-108.29

Table 6.8: Deviation Data, Well 34/7-26A, Part 1

MD meter	TVD meter	INCLIN deg.	AZIMUT deg.	DOGLEG deg/30m	+N,-S meter	+E,-W meter
719.9	693.7	39.17	265.0	4.36	-7.83	-114.51
729.9	701.3	40.31	264.9	3.42	-8.39	-120.87
739.9	708.9	41.29	264.8	2.96	-8.98	-127.38
749.9	716.4	42.29	264.7	2.99	-9.60	-134.01
759.9	723.7	42.96	265.0	2.09	-10.21	-140.78
769.8	731.0	43.72	265.6	2.63	-10.78	-147.57
779.8	738.2	44.47	265.6	2.25	-11.32	-154.52
789.8	745.2	45.19	265.9	2.24	-11.84	-161.54
799.8	752.3	46.03	265.8	2.51	-12.36	-168.68
809.9	759.1	47.22	265.7	3.58	-12.90	-175.94
819.8	765.8	48.57	265.2	4.18	-13.49	-183.31
829.9	772.4	49.96	265.4	4.17	-14.11	-190.89
839.8	778.7	51.08	265.6	3.42	-14.72	-198.56
849.9	784.9	52.03	266.0	3.01	-15.29	-206.39
859.8	791.0	53.32	266.2	3.91	-15.83	-214.32
869.8	796.9	54.33	266.2	3.05	-16.36	-222.35
879.8	802.7	55.03	266.1	2.11	-16.91	-230.50
889.8	808.4	55.72	265.6	2.38	-17.51	-238.71
899.9	813.9	56.56	265.3	2.60	-18.17	-247.00
909.9	819.4	57.49	265.0	2.94	-18.88	-255.36
919.8	824.6	58.76	264.8	3.85	-19.64	-263.79
929.8	829.8	59.46	264.7	2.11	-20.43	-272.35
939.8	834.8	60.27	264.9	2.48	-21.22	-280.97
949.8	839.7	61.51	265.1	3.77	-21.98	-289.66
959.8	844.4	62.55	265.2	3.13	-22.72	-298.45
969.8	848.9	63.21	265.3	1.99	-23.45	-307.32
979.8	853.4	63.50	265.2	0.92	-24.19	-316.24
989.8	857.8	63.73	265.2	0.72	-24.94	-325.15
999.8	862.3	63.43	265.1	0.93	-25.70	-334.09
1009.8	866.8	62.98	265.2	1.37	-26.46	-342.97
1019.8	871.3	63.15	265.3	0.58	-27.21	-351.85
1029.8	875.8	63.95	265.4	2.45	-27.94	-360.80
1039.8	880.2	64.30	265.4	1.05	-28.65	-369.77
1049.8	884.5	64.03	265.5	0.87	-29.36	-378.72
1059.8	888.9	63.42	265.6	1.81	-30.05	-387.66
1069.8	893.4	63.21	265.7	0.76	-30.73	-396.58
1079.8	897.9	63.37	265.7	0.54	-31.40	-405.48
1089.8	902.4	63.55	265.8	0.66	-32.07	-414.40
1099.8	906.9	63.41	265.8	0.42	-32.72	-423.33
1109.8	911.3	63.77	265.7	1.10	-33.38	-432.28
1119.8	915.7	64.38	265.8	1.82	-34.05	-441.22
1129.8	920.0	64.58	265.8	0.61	-34.71	-450.23
1139.8	924.3	64.37	265.6	0.73	-35.39	-459.23
1149.8	928.7	63.90	265.8	1.51	-36.06	-468.20
1159.8	933.1	63.72	265.8	0.54	-36.72	-477.14
1169.8	937.5	63.19	265.9	1.62	-37.36	-486.06
1179.8	942.1	62.78	265.9	1.23	-38.00	-494.96
1189.8	946.7	62.87	265.8	0.31	-38.65	-503.84
1199.8	951.2	63.35	266.1	1.65	-39.28	-512.73
1209.8	955.6	63.94	266.0	1.81	-39.90	-521.67

Table 6.8: Deviation Data, Well 34/7-26A, Part 2

MD meter	TVD meter	INCLIN deg.	AZIMUT deg.	DOGLEG deg/30m	+N,-S meter	+E,-W meter
1219.8	960.0	63.46	266.0	1.44	-40.52	-530.62
1229.8	964.5	63.26	265.9	0.60	-41.15	-539.52
1239.8	969.0	63.55	265.6	1.19	-41.81	-548.43
1249.8	973.4	64.20	265.2	2.32	-42.53	-557.39
1259.8	977.8	64.26	265.0	0.45	-43.30	-566.36
1269.8	982.1	64.30	264.8	0.60	-44.10	-575.34
1279.8	986.5	63.88	265.0	1.35	-44.90	-584.29
1289.8	990.9	63.57	264.9	0.94	-45.69	-593.22
1299.8	995.3	63.40	264.8	0.53	-46.49	-602.13
1309.8	999.8	63.75	264.6	1.21	-47.32	-611.05
1319.8	1004.2	64.51	264.5	2.31	-48.17	-620.03
1329.8	1008.5	64.44	264.2	0.94	-49.06	-629.00
1339.8	1012.8	64.27	264.4	0.81	-49.96	-637.97
1349.8	1017.2	64.23	264.1	0.71	-50.86	-646.94
1359.8	1021.5	64.19	264.3	0.49	-51.77	-655.89
1369.8	1025.8	64.30	265.0	1.97	-52.61	-664.84
1379.8	1030.4	62.03	264.9	6.84	-53.39	-673.73
1389.8	1035.2	60.57	265.7	4.89	-54.11	-682.48
1399.8	1040.1	60.03	266.5	2.49	-54.70	-691.16
1409.8	1045.1	59.65	266.6	1.25	-55.21	-699.76
1419.8	1050.2	59.53	267.0	1.10	-55.69	-708.38
1429.8	1055.3	59.25	268.1	2.75	-56.06	-716.97
1439.8	1060.4	58.84	268.6	1.90	-56.31	-725.58
1449.8	1065.6	58.60	269.2	1.62	-56.47	-734.10
1459.8	1070.9	58.49	270.0	2.14	-56.53	-742.64
1469.8	1076.1	58.29	270.6	1.54	-56.49	-751.14
1479.8	1081.4	58.13	270.9	1.00	-56.38	-759.67
1489.8	1086.7	57.87	271.6	2.01	-56.19	-768.13
1499.9	1092.0	57.63	272.1	1.31	-55.91	-776.61
1509.8	1097.4	57.68	272.8	1.79	-55.56	-785.04
1519.8	1102.7	58.04	273.4	1.85	-55.10	-793.48
1529.8	1107.9	58.26	274.1	1.95	-54.55	-801.95
1539.8	1113.2	58.33	274.9	2.21	-53.88	-810.43
1549.8	1118.5	58.19	275.6	1.69	-53.10	-818.90
1559.8	1123.7	58.22	275.6	0.08	-52.27	-827.38
1569.8	1129.0	58.15	276.0	0.97	-51.42	-835.81
1579.8	1134.3	58.11	276.7	1.77	-50.49	-844.27
1589.8	1139.5	58.13	277.0	0.91	-49.48	-852.66
1599.9	1144.9	58.07	277.6	1.39	-48.40	-861.14
1609.8	1150.1	57.90	278.2	1.61	-47.24	-869.50
1619.8	1155.5	57.75	278.6	1.31	-46.00	-877.89
1629.8	1160.8	57.72	279.0	0.80	-44.71	-886.22
1639.8	1166.2	57.58	279.2	0.78	-43.38	-894.56
1649.8	1171.5	57.50	279.3	0.42	-42.02	-902.91
1659.8	1176.9	57.65	279.5	0.64	-40.64	-911.21
1669.8	1182.3	57.45	280.2	1.78	-39.19	-919.55
1679.8	1187.7	57.20	281.0	2.07	-37.64	-927.83
1689.8	1193.1	57.14	281.9	2.44	-35.97	-936.07
1699.8	1198.5	56.89	282.8	2.25	-34.18	-944.26
1709.8	1204.0	56.99	283.2	1.15	-32.30	-952.41

Table 6.8: Deviation Data, Well 34/7-26A, Part 3

MD meter	TVD meter	INCLIN deg.	AZIMUT deg.	DOGLEG deg/30m	+N,-S meter	+E,-W meter
1719.8	1209.4	57.13	283.8	1.66	-30.34	-960.56
1729.8	1214.9	57.04	284.2	0.85	-28.31	-968.74
1739.8	1220.3	57.22	284.5	1.04	-26.23	-976.85
1749.8	1225.7	57.50	284.8	1.22	-24.10	-985.00
1759.8	1231.0	58.19	285.5	2.67	-21.88	-993.20
1769.8	1236.2	59.06	286.2	3.09	-19.56	-1001.38
1779.8	1241.3	59.69	286.8	2.51	-17.10	-1009.66
1789.8	1246.3	60.14	287.4	2.02	-14.57	-1017.91
1799.8	1251.3	60.42	288.0	1.71	-11.93	-1026.19
1809.8	1256.2	60.64	288.9	2.57	-9.18	-1034.45
1819.8	1261.1	60.98	289.7	2.23	-6.30	-1042.68
1829.8	1265.9	61.17	290.8	3.06	-3.26	-1050.92
1839.8	1270.7	61.33	292.0	3.18	-0.06	-1059.08
1849.8	1275.5	61.56	292.7	2.01	3.27	-1067.19
1859.8	1280.3	61.57	293.4	1.88	6.72	-1075.29
1869.8	1285.1	61.00	294.4	3.03	10.27	-1083.29
1879.8	1289.9	60.45	295.0	2.34	13.91	-1091.20
1889.8	1294.9	59.93	295.8	2.53	17.63	-1099.05
1899.8	1299.9	59.76	296.5	1.83	21.45	-1106.83
1909.8	1304.9	59.97	297.0	1.51	25.32	-1114.52
1919.8	1310.0	59.78	297.7	1.99	29.30	-1122.22
1929.8	1315.0	59.43	298.1	1.51	33.34	-1129.84
1939.8	1320.1	59.28	298.6	1.15	37.42	-1137.40
1949.8	1325.2	59.40	299.3	1.87	41.60	-1144.96
1959.8	1330.3	59.78	299.9	2.01	45.84	-1152.44
1969.8	1335.3	59.99	300.9	2.59	50.23	-1159.91
1979.8	1340.3	60.13	301.8	2.54	54.73	-1167.30
1989.8	1345.3	59.94	302.6	1.96	59.34	-1174.62
1999.8	1350.2	60.66	302.9	2.29	64.04	-1181.94
2009.8	1355.1	60.97	303.7	2.43	68.84	-1189.26
2019.8	1360.0	61.14	304.2	1.31	73.72	-1196.49
2029.8	1364.8	61.31	304.5	1.04	78.68	-1203.76
2039.8	1369.6	61.46	304.8	0.81	83.67	-1210.97
2049.8	1374.3	61.49	305.0	0.58	88.68	-1218.16
2059.8	1379.1	61.14	305.1	1.06	93.73	-1225.35
2069.8	1384.0	61.05	305.5	1.01	98.77	-1232.49
2079.8	1388.8	61.50	305.9	1.84	103.89	-1239.62
2089.9	1393.6	61.69	306.8	2.43	109.13	-1246.73
2099.8	1398.3	61.60	307.7	2.22	114.45	-1253.72
2109.8	1403.0	61.81	308.2	1.54	119.85	-1260.66
2119.8	1407.7	62.15	308.6	1.49	125.34	-1267.58
2129.8	1412.4	62.13	309.3	1.93	130.90	-1274.46
2139.8	1417.1	62.03	310.1	2.07	136.54	-1281.25
2149.8	1421.8	62.14	311.4	3.42	142.31	-1287.94
2159.8	1426.4	62.03	312.0	1.65	148.18	-1294.54
2169.8	1431.1	61.94	312.6	1.68	154.13	-1301.07
2179.9	1435.9	61.86	313.5	2.21	160.16	-1307.54
2189.8	1440.5	62.22	313.8	1.48	166.24	-1313.91
2199.8	1445.2	62.55	314.8	2.79	172.43	-1320.25
2209.8	1449.8	62.59	315.9	2.92	178.74	-1326.48

Table 6.8: Deviation Data, Well 34/7-26A, Part 4

MD meter	TVD meter	INCLIN deg.	AZIMUT deg.	DOGLEG deg/30m	+N,-S meter	+E,-W meter
2219.8	1454.4	63.00	316.4	1.74	185.15	-1332.64
2229.8	1458.9	62.96	317.3	2.50	191.64	-1338.73
2239.8	1463.5	62.84	318.1	2.18	198.25	-1344.74
2249.8	1468.0	62.92	318.6	1.32	204.89	-1350.65
2259.8	1472.6	62.62	319.3	2.18	211.60	-1356.49
2269.9	1477.2	62.24	320.1	2.40	218.37	-1362.23
2279.9	1481.9	62.00	320.8	1.82	225.19	-1367.86
2289.9	1486.6	62.15	321.4	1.78	232.06	-1373.41
2299.9	1491.2	62.67	322.0	2.25	239.02	-1378.90
2309.8	1495.8	62.79	322.6	1.68	246.02	-1384.31
2319.8	1500.4	62.59	322.6	0.60	253.10	-1389.72
2329.8	1505.0	62.42	322.6	0.54	260.15	-1395.11
2339.8	1509.6	62.20	322.5	0.70	267.17	-1400.50
2349.8	1514.3	62.03	322.4	0.52	274.17	-1405.87
2359.8	1519.0	61.64	322.3	1.21	281.15	-1411.26
2369.8	1523.8	61.45	322.4	0.56	288.10	-1416.62
2379.8	1528.6	61.64	322.3	0.62	295.09	-1422.02
2389.8	1533.3	61.22	322.4	1.33	302.02	-1427.37
2399.8	1538.2	61.21	322.9	1.23	309.00	-1432.69
2409.8	1542.9	61.81	323.2	2.04	316.02	-1437.97
2419.8	1547.6	62.29	323.7	1.96	323.13	-1443.23
2429.8	1552.3	62.45	324.4	1.89	330.30	-1448.42
2439.8	1556.9	62.47	325.3	2.26	337.53	-1453.51
2449.8	1561.5	62.06	326.2	2.66	344.85	-1458.50
2459.8	1566.2	61.79	326.4	0.97	352.20	-1463.41
2469.8	1571.0	61.76	326.5	0.39	359.54	-1468.27
2479.8	1575.7	61.52	326.2	1.10	366.85	-1473.14
2489.8	1580.5	61.44	326.2	0.25	374.19	-1478.04
2499.8	1585.3	61.54	326.5	0.65	381.49	-1482.90
2509.8	1590.0	61.42	326.6	0.47	388.81	-1487.75
2519.8	1594.9	60.97	326.4	1.42	396.13	-1492.59
2529.8	1599.7	61.04	326.5	0.28	403.40	-1497.41
2539.9	1604.6	60.58	326.5	1.35	410.72	-1502.26
2549.8	1609.5	60.64	326.5	0.19	417.97	-1507.05
2559.8	1614.4	60.34	326.7	1.04	425.22	-1511.84
2569.8	1619.3	60.69	326.8	1.06	432.49	-1516.61
2579.8	1624.2	61.22	327.1	1.81	439.83	-1521.39
2589.8	1629.0	61.35	327.2	0.53	447.20	-1526.14
2599.8	1633.8	61.10	327.3	0.76	454.58	-1530.89
2609.8	1638.6	60.99	327.4	0.40	461.93	-1535.60
2619.8	1643.5	60.89	327.3	0.36	469.31	-1540.32
2629.8	1648.4	60.60	327.3	0.87	476.64	-1545.02
2639.8	1653.3	60.33	327.4	0.81	483.98	-1549.73
2649.8	1658.3	60.16	327.4	0.54	491.28	-1554.40
2659.8	1663.3	60.25	327.3	0.49	498.58	-1559.07
2669.8	1668.2	60.87	326.7	2.41	505.90	-1563.83
2679.9	1673.0	60.94	326.5	0.61	513.21	-1568.65
2689.8	1677.9	60.78	326.4	0.50	520.47	-1573.47
2699.8	1682.8	60.60	326.4	0.60	527.72	-1578.28
2709.8	1687.7	60.47	326.3	0.42	534.97	-1583.12

Table 6.8: Deviation Data, Well 34/7-26A, Part 5

MD meter	TVD meter	INCLIN deg.	AZIMUT deg.	DOGLEG deg/30m	+N,-S meter	+E,-W meter
2719.8	1692.6	60.96	325.9	1.82	542.22	-1587.99
2729.8	1697.5	61.23	325.8	0.84	549.47	-1592.91
2739.8	1702.3	61.31	325.8	0.24	556.72	-1597.84
2749.8	1707.1	61.05	325.8	0.78	563.96	-1602.77
2759.8	1711.9	60.83	325.8	0.67	571.17	-1607.67
2769.8	1716.8	60.77	325.9	0.38	578.40	-1612.58
2779.8	1721.7	60.69	325.8	0.28	585.61	-1617.46
2789.8	1726.6	60.65	325.8	0.14	592.83	-1622.37
2799.8	1731.5	60.39	325.8	0.79	600.05	-1627.27
2809.9	1736.5	60.49	326.2	1.03	607.27	-1632.14
2819.8	1741.3	61.00	326.3	1.56	614.48	-1636.97
2829.8	1746.1	61.53	326.6	1.80	621.80	-1641.83
2839.8	1750.9	61.98	326.5	1.39	629.15	-1646.68
2849.8	1755.6	62.08	326.3	0.70	636.51	-1651.57
2859.8	1760.2	62.13	326.2	0.28	643.86	-1656.49
2869.8	1764.9	62.02	326.2	0.36	651.19	-1661.40
2879.8	1769.6	61.91	326.3	0.43	658.52	-1666.31
2889.8	1774.4	61.68	326.3	0.69	665.87	-1671.20
2899.9	1779.1	61.48	326.3	0.60	673.21	-1676.09
2909.8	1783.9	61.15	326.4	1.06	680.49	-1680.93
2919.8	1788.7	60.88	326.4	0.81	687.76	-1685.76
2929.8	1793.7	60.65	326.4	0.69	695.06	-1690.61
2939.8	1798.6	60.32	326.4	1.01	702.30	-1695.42
2949.8	1803.5	60.38	326.5	0.20	709.53	-1700.21
2959.8	1808.5	59.91	326.5	1.40	716.77	-1705.01
2969.8	1813.5	60.07	326.6	0.62	724.00	-1709.79
2979.8	1818.5	60.33	327.4	2.09	731.27	-1714.51
2989.9	1823.4	60.55	327.9	1.67	738.64	-1719.18
2999.8	1828.3	60.34	328.0	0.63	745.98	-1723.77
3009.8	1833.3	60.07	328.0	0.82	753.35	-1728.39
3019.8	1838.3	60.34	327.9	0.82	760.69	-1732.98
3029.8	1843.2	61.09	327.4	2.57	768.06	-1737.65
3039.8	1847.9	61.97	327.5	2.63	775.47	-1742.37
3049.9	1852.7	61.55	327.4	1.29	782.93	-1747.13
3059.8	1857.5	61.06	327.5	1.48	790.30	-1751.84
3069.8	1862.3	60.63	327.6	1.32	797.68	-1756.54
3079.8	1867.3	60.36	327.6	0.81	805.03	-1761.20
3089.8	1872.2	59.95	327.7	1.24	812.35	-1765.84
3099.8	1877.3	59.67	327.6	0.90	819.65	-1770.47
3109.8	1882.3	59.77	327.2	1.14	826.92	-1775.13
3119.8	1887.3	59.96	326.4	1.94	834.17	-1779.87
3129.8	1892.3	60.60	326.2	2.03	841.40	-1784.68
3139.8	1897.2	60.47	326.0	0.59	848.61	-1789.53
3149.8	1902.2	60.20	326.2	0.89	855.84	-1794.38
3159.8	1907.1	59.84	326.1	1.12	863.01	-1799.19
3169.8	1912.1	60.36	325.6	1.93	870.17	-1804.05
3179.8	1917.0	61.28	325.2	2.94	877.38	-1809.02
3189.8	1921.8	61.47	325.2	0.61	884.59	-1814.03
3199.8	1926.6	61.31	325.1	0.60	891.78	-1819.04
3209.8	1931.4	61.16	325.3	0.81	898.98	-1824.05

Table 6.8: Deviation Data, Well 34/7-26A, Part 6

MD meter	TVD meter	INCLIN deg.	AZIMUT deg.	DOGLEG deg/30m	+N,-S meter	+E,-W meter
3219.8	1936.2	60.90	325.3	0.80	906.19	-1829.04
3229.8	1941.1	60.69	325.2	0.66	913.35	-1834.01
3239.8	1946.0	60.42	325.2	0.80	920.49	-1838.97
3249.8	1951.0	60.29	325.3	0.46	927.64	-1843.92
3259.8	1955.9	60.13	325.4	0.50	934.78	-1848.86
3269.8	1960.9	59.84	325.5	0.92	941.91	-1853.77
3279.8	1966.0	59.53	325.4	0.99	949.03	-1858.68
3289.8	1971.1	59.50	325.4	0.20	956.13	-1863.58
3299.8	1976.2	59.35	325.4	0.46	963.20	-1868.45
3309.8	1981.3	59.28	325.4	0.20	970.30	-1873.34
3319.8	1986.4	59.17	325.4	0.33	977.36	-1878.20
3329.8	1991.5	58.94	325.5	0.70	984.42	-1883.06
3339.8	1996.7	58.79	325.5	0.46	991.48	-1887.92
3349.8	2001.9	58.56	325.5	0.70	998.51	-1892.75
3359.8	2007.1	58.35	325.5	0.65	1005.56	-1897.59
3369.8	2012.3	58.93	325.4	1.75	1012.57	-1902.43
3379.8	2017.5	59.02	325.4	0.29	1019.61	-1907.29
3389.8	2022.6	59.13	325.3	0.36	1026.69	-1912.18
3399.8	2027.7	59.30	325.2	0.62	1033.72	-1917.07
3409.8	2032.8	59.85	324.7	1.99	1040.81	-1922.04
3419.8	2037.8	60.08	324.8	0.69	1047.86	-1927.02
3429.8	2042.7	60.86	324.7	2.36	1054.98	-1932.06
3439.8	2047.6	61.10	324.6	0.78	1062.10	-1937.11
3449.8	2052.4	61.06	324.7	0.37	1069.23	-1942.18
3459.8	2057.3	61.05	324.7	0.02	1076.37	-1947.23
3469.8	2062.1	60.92	324.8	0.50	1083.51	-1952.28
3479.8	2067.0	60.90	324.8	0.09	1090.68	-1957.33
3489.8	2071.8	60.85	324.9	0.17	1097.81	-1962.35
3499.8	2076.7	60.74	324.9	0.33	1104.96	-1967.38
3509.8	2081.6	61.05	324.8	0.93	1112.10	-1972.41
3519.8	2086.3	62.05	324.8	3.02	1119.27	-1977.47
3529.8	2091.0	62.64	324.9	1.78	1126.51	-1982.57
3539.8	2095.6	62.68	324.8	0.23	1133.79	-1987.70
3549.8	2100.2	62.66	324.9	0.19	1141.04	-1992.80
3559.8	2104.8	62.62	324.8	0.23	1148.30	-1997.92
3569.8	2109.4	62.59	325.0	0.46	1155.56	-2003.03
3579.8	2114.0	62.73	324.9	0.45	1162.83	-2008.13
3589.8	2118.5	62.78	324.9	0.15	1170.10	-2013.24
3599.8	2123.1	62.79	324.9	0.07	1177.39	-2018.36
3609.8	2127.7	62.71	324.9	0.26	1184.64	-2023.45
3619.8	2132.3	62.52	324.9	0.57	1191.91	-2028.57
3629.8	2136.9	62.48	324.9	0.12	1199.17	-2033.66
3639.8	2141.5	62.54	324.9	0.21	1206.42	-2038.76
3649.8	2146.1	62.41	324.8	0.46	1213.68	-2043.87
3659.8	2150.8	62.29	324.9	0.46	1220.92	-2048.97
3663.1	2152.3	62.27	324.9	0.32	1223.32	-2050.66
3683.0	2161.6	62.20	324.3	0.86	1237.66	-2060.84
3713.0	2175.7	61.50	324.6	0.75	1259.18	-2076.22
3725.0	2181.5	61.60	323.8	1.78	1267.74	-2082.39
3768.0	2201.9	61.60	324.8	0.61	1298.46	-2104.46

Table 6.8: Deviation Data, Well 34/7-26A, Part 7

Saga Petroleum A/S
Depth.ref:Loggers md.rkb(25.0) (Original rkb)
Horizontal.ref:Relative to Wellhead

DEVIATION DATA
Well:34/7-26A
GRID NORTH

MD meter	TVD meter	INCLIN deg.	AZIMUT deg.	DOGLEG deg/30m	+N,-S meter	+E,-W meter
3795.0	2214.9	60.90	323.1	1.83	1317.60	-2118.39
3823.0	2229.0	58.70	324.6	2.74	1337.13	-2132.67
3852.0	2244.4	56.90	326.8	2.68	1357.40	-2146.50
3880.0	2260.3	54.10	327.5	3.06	1376.78	-2159.02
3909.0	2277.9	51.20	329.1	3.28	1396.39	-2171.13
3938.0	2296.6	48.60	328.9	2.69	1415.40	-2182.56
3967.0	2316.2	46.00	327.8	2.82	1433.54	-2193.74
3996.0	2336.7	44.20	327.1	1.93	1450.86	-2204.79
4023.0	2356.4	42.10	324.7	2.96	1466.15	-2215.13
4052.0	2378.6	38.00	326.8	4.47	1481.56	-2225.64
4081.0	2401.9	35.20	325.3	3.04	1495.91	-2235.29
4290.0	2572.7	35.20	325.3	0.00	1594.95	-2303.87

Table 6.8: Deviation Data, Well 34/7-26A, Part 8

6.10 Rig Time Distribution

Time consumption's versus main operations are shown in Figure 6.5.

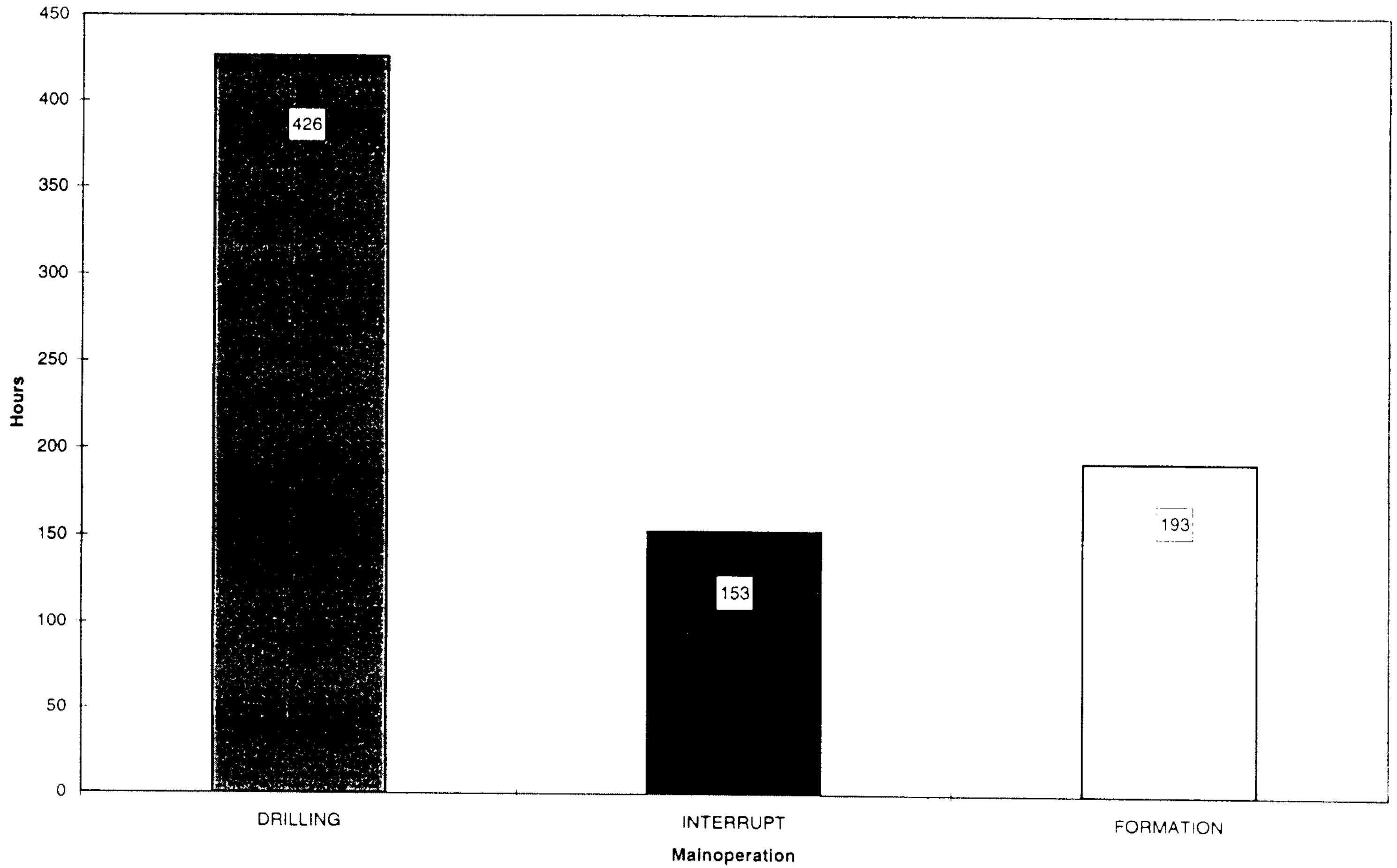


Figure 6.5: Time consumption vs. Main Operations, Well 34/7-26 A

6.11 Time Depth Curve

Figure 6.6 shows the progress curve, drilled depth versus rig time.

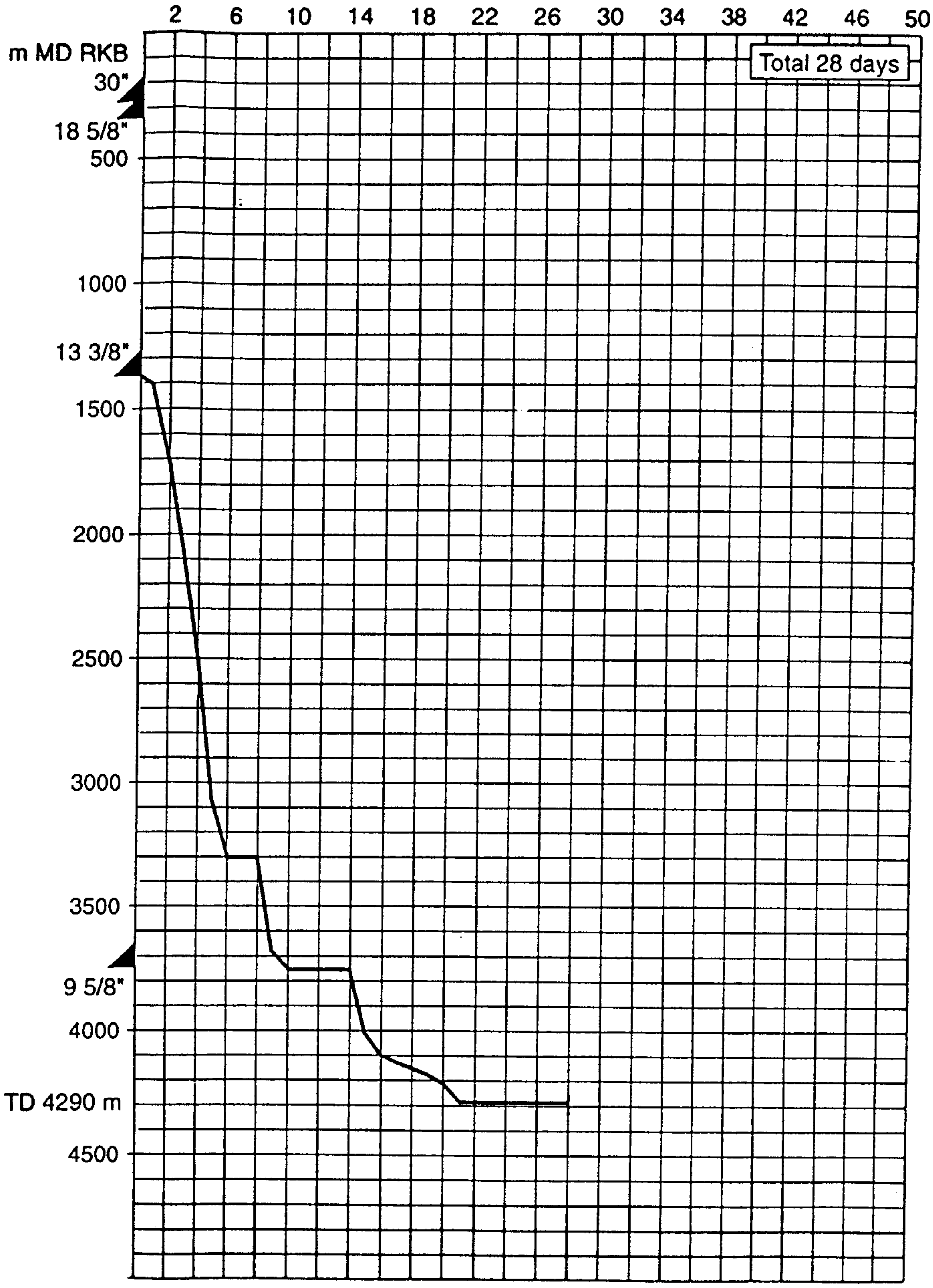


Figure 6.6: Drilled depth vs. rigtime

6.12 Daily rig time distribution

Table 6.9 shows the daily rig time distribution.

Date	Mainoperation	Suboperation	Hours/Activity	
980206	DRILLING	DRILL	4.0	
		Sum:		4.0
980207	DRILLING	DRILL	24.0	
		Sum:		24.0
980208	DRILLING	DRILL	24.0	
		Sum:		24.0
980209	DRILLING	DRILL	24.0	
		Sum:		24.0
980210	DRILLING	DRILL	23.5	
	INTERRUPTION	SURFACE DRILLING	.5	
		Sum:		24.0
980211	DRILLING	CIRC/COND	4.0	
		DRILL	8.5	
		PRESS DETECTION	.5	
	INTERRUPTION	MWD EQ.(E)	11.0	
		Sum:		24.0
980212	INTERRUPTION	MWD EQ.(E)	24.0	
		Sum:		24.0
980213	DRILLING	BOP ACTIVITIES	.5	
		CASING	1.5	
		SLIP & CUT	3.0	
	INTERRUPTION	MWD EQ.(E)	16.5	
		SURFACE DRILLING	2.5	
		Sum:		24.0
980214	DRILLING	DRILL	15.0	
	INTERRUPTION	MWD EQ.(E)	9.0	
		Sum:		24.0
980215	DRILLING	CIRC/COND	9.5	
		DRILL	2.5	
		OTHER	.5	
		PRESS DETECTION	.5	
		TRIP	11.0	
		Sum:		24.0

Table 6.9: Daily rig time distribution Well 34/7-26A, Part 1

Date	Mainoperation	Suboperation	Hours/Activity	
980216	DRILLING	BOP/WELLHEAD EQ	4.0	
		CASING	19.5	
		TRIP	.5	
		Sum:		24.0
980217	DRILLING	BOP ACTIVITIES	1.0	
		CASING	20.5	
		CEMENT	2.5	
		Sum:		24.0
980218	DRILLING	BOP ACTIVITIES	1.5	
		BOP/WELLHEAD EQ	2.0	
		CASING	1.5	
		CEMENT	2.0	
		TRIP	17.0	
		Sum:		24.0
980219	DRILLING	REAM	1.0	
		TRIP	23.0	
		Sum:		24.0
980220	DRILLING	CEMENT	4.0	
		CIRC/COND	3.0	
		DRILL	16.5	
		LOT/FIT	.5	
		Sum:		24.0
980221	DRILLING	CIRC/COND	3.0	
		DRILL	9.0	
		PRESS DETECTION	.5	
		TRIP	8.5	
	FORMATION EVAL	TRIP	3.0	
		Sum:		24.0
980222	FORMATION EVAL	CIRC/COND	1.0	
		CORE	1.5	
		TRIP	20.0	
	INTERRUPTION	SURFACE DRILLING	1.5	
		Sum:		24.0
980223	FORMATION EVAL	CORE	17.0	
		TRIP	7.0	
		Sum:		24.0

Table 6.9: Daily rig time distribution Well 34/7-26A, Part 2

Date	Mainoperation	Suboperation	Hours/Activity	
980224	FORMATION EVAL	CORE	7.0	
		TRIP	17.0	
		Sum:		24.0
980225	FORMATION EVAL	CORE	8.0	
		TRIP	16.0	
		Sum:		24.0
980226	DRILLING	CIRC/COND	2.0	
		DRILL	6.0	
	FORMATION EVAL	CIRC/COND	3.5	
		CORE	2.0	
		TRIP	8.5	
	INTERRUPTION	MWD EQ.(E)	2.0	
		Sum:		24.0
980227	DRILLING	CIRC/COND	1.0	
		TRIP	10.5	
	INTERRUPTION	WOW	12.5	
		Sum:		24.0
980228	FORMATION EVAL	LOG WL	4.5	
	INTERRUPTION	WOW	19.5	
		Sum:		24.0
980301	FORMATION EVAL	LOG WL	6.0	
	INTERRUPTION	LOG(F)	8.0	
		WOW	10.0	
		Sum:		24.0
980302	DRILLING	SLIP & CUT	1.0	
	FORMATION EVAL	LOG DP	3.5	
		LOG WL	11.0	
		TRIP	8.5	
		Sum:		24.0

Table 6.9: Daily rig time distribution Well 34/7-26A, Part 3

Date	Mainoperation	Suboperation	Hours/Activity	
980303	FORMATION EVAL	LOG DP	6.0	
	INTERRUPTION	LOGGING EQ.(E)	18.0	
		Sum:		24.0
980304	FORMATION EVAL	LOG DP	7.5	
		TRIP	3.0	
	INTERRUPTION	LOGGING EQ.(E)	13.5	
		Sum:		24.0
980305	DRILLING	CASING	5.5	
		CEMENT	2.0	
	FORMATION EVAL	LOG WL	4.0	
		TRIP	12.5	
		Sum:		24.0
980306	DRILLING	CASING	24.0	
		Sum:		24.0
980307	DRILLING	CASING	14.5	
		CEMENT	9.5	
		Sum:		24.0
980308	DRILLING	CASING	4.5	
		CEMENT	19.5	
		Sum:		24.0
980309	DRILLING	CEMENT	12.0	
		SURVEY	5.0	
	FORMATION EVAL	LOG WL	7.0	
		Sum:		24.0
980310	DRILLING	BOP ACTIVITIES	4.0	
		CEMENT	1.0	
		TRIP	6.5	
	FORMATION EVAL	LOG WL	8.0	
	INTERRUPTION	LOGGING EQ.(E)	4.5	
		Sum:		24.0

Table 6.9: Daily rig time distribution Well 34/7-26A, Part 4

Date	Mainoperation	Suboperation	Hours/Activity	
980311	COMPLETION	BOP/WELLHEAD EQ	1.5	
		TRIP	2.5	
	DRILLING	CEMENT	16.0	
	INTERRUPTION	LOGGING EQ.(E)	4.0	
		Sum:		24.0
980312	COMPLETION	CIRC/COND	.5	
		TRIP	22.0	
	INTERRUPTION	SURFACE DRILLING	1.5	
		Sum:		24.0
980313	COMPLETION	CIRC/COND	13.5	
		INFLOW TESTING	1.0	
		TRIP	9.5	
		Sum:		24.0
980314	COMPLETION	BOP/WELLHEAD EQ	3.5	
		CIRC/COND	11.0	
		TRIP	9.5	
		Sum:		24.0
980315	COMPLETION	BOP/WELLHEAD EQ	4.0	
		COMPL STRING	20.0	
		Sum:		24.0
980316	COMPLETION	COMPL STRING	19.0	
		TUBING HANGER	5.0	
		Sum:		24.0
980317	COMPLETION	TEST SCSSSV	1.0	
		TUBING HANGER	14.5	
	INTERRUPTION	WOW	8.5	
		Sum:		24.0
980318	COMPLETION	CIRC/COND	6.0	
		ELECTRIC-LINE	1.0	
		TUBING HANGER	6.5	
	INTERRUPTION	CO/WO/WS DOWNHOL	1.5	
		WOW	9.0	
		Sum:		24.0

Table 6.9: Daily rig time distribution Well 34/7-26A, Part 5

Date	Mainoperation	Suboperation	Hours/Activity	
980319	COMPLETION	BOP/WELLHEAD EQ	2.0	
		COMPL STRING	2.0	
		ELECTRIC-LINE	6.5	
		SLICK-LINE	7.5	
	INTERRUPTION	CO/WO/WS DOWNHOL	3.5	
		WOW	2.5	
		Sum:		24.0
980320	COMPLETION	BOP/WELLHEAD EQ	24.0	
		Sum:		24.0
980321	COMPLETION	BOP/WELLHEAD EQ	1.5	
		X-MAS TREE	16.0	
	DRILLING	BOP/WELLHEAD EQ	5.0	
		SLIP & CUT	1.5	
		Sum:		24.0
980322	COMPLETION	SLICK-LINE	5.0	
		X-MAS TREE	6.5	
	INTERRUPTION	CO/WO/WS X-MASTR	12.5	
		Sum:		24.0
980323	INTERRUPTION	CO/WO/WS X-MASTR	24.0	
		Sum:		24.0
980324	INTERRUPTION	CO/WO/WS X-MASTR	24.0	
		Sum:		24.0
980325	INTERRUPTION	CO/WO/WS X-MASTR	24.0	
		Sum:		24.0
980326	INTERRUPTION	CO/WO/WS X-MASTR	24.0	
		Sum:		24.0
980327	COMPLETION	X-MAS TREE	2.0	
	INTERRUPTION	CO/WO/WS X-MASTR	22.0	
		Sum:		24.0

Table 6.9: Daily rig time distribution Well 34/7-26A, Part 6

Date	Mainoperation	Suboperation	Hours/Activity	
980328	COMPLETION	BRAIDED-LINE	8.0	
		COMPL STRING	1.0	
		PERFORATE	11.0	
		TEST SCSSSV	1.0	
	INTERRUPTION	WOW	3.0	
		Sum:		24.0
980329	COMPLETION	FLOW/INJECTION	11.0	
		PERFORATE	1.5	
		SLICK-LINE	3.0	
	INTERRUPTION	OTHER	2.5	
		OTHER EQ.(E)	3.0	
		WOW	2.0	
		Sum:		23.0
980330	COMPLETION	FLOW/INJECTION	1.5	
		SLICK-LINE	4.5	
	INTERRUPTION	OTHER	17.5	
		OTHER EQ.(E)	.5	
		Sum:		24.0
980331	COMPLETION	FLOW/INJECTION	11.0	
		SLICK-LINE	4.0	
	INTERRUPTION	OTHER	9.0	
		Sum:		24.0
980401	INTERRUPTION	OTHER	24.0	
		Sum:		24.0
980402	INTERRUPTION	OTHER	24.0	
		Sum:		24.0
980403	COMPLETION	BUILD UP/FALL OF	1.5	
	INTERRUPTION	OTHER	22.5	
		Sum:		24.0
980404	INTERRUPTION	OTHER	21.0	
		Sum:		21.0

Table 6.9: Daily rig time distribution Well 34/7-26A, Part 7

Date	Mainoperation	Suboperation	Hours/Activity	
980408	INTERRUPTION	OTHER	6.5	
		ROV (operation)	.5	
		Sum:		7.0
980409	INTERRUPTION	OTHER	24.0	
		Sum:		24.0
980410	INTERRUPTION	OTHER	24.0	
		Sum:		24.0
980411	INTERRUPTION	OTHER	24.0	
		Sum:		24.0
980412	INTERRUPTION	OTHER	19.0	
		WOW	5.0	
		Sum:		24.0
980413	INTERRUPTION	OTHER	24.0	
		Sum:		24.0
980414	COMPLETION	SLICK-LINE	.5	
	INTERRUPTION	OTHER	23.5	
		Sum:		24.0
980415	COMPLETION	SLICK-LINE	24.0	
		Sum:		24.0
980416	COMPLETION	PERFORATE	16.0	
		SLICK-LINE	.5	
	INTERRUPTION	WL TOOL(E)	7.5	
		Sum:		24.0
980417	COMPLETION	BUILD UP/FALL OF	1.5	
		FLOW/INJECTION	20.0	
		PERFORATE	2.5	
		Sum:		24.0

Table 6.9: Daily rig time distribution Well 34/7-26A, Part 8

Date	Mainoperation	Suboperation	Hours/Activity	
980418	COMPLETION	BUILD UP/FALL OF	1.5	
		ELECTRIC-LINE	14.0	
		SLICK-LINE	7.5	
	INTERRUPTION	LOGGING EQ.(E)	1.0	
		Sum:		24.0
980419	COMPLETION	BUILD UP/FALL OF	5.5	
		ELECTRIC-LINE	4.0	
		FLOW/INJECTION	14.5	
		Sum:		24.0
980420	COMPLETION	BRAIDED-LINE	6.0	
		BUILD UP/FALL OF	10.5	
	INTERRUPTION	CO/WO/WS DOWNHOL	7.5	
		Sum:		24.0
980421	COMPLETION	BRAIDED-LINE	8.0	
		COMMISSIONING	2.0	
		INFLOW TESTING	2.5	
		X-MAS TREE	9.5	
	INTERRUPTION	ROV (E)	2.0	
		Sum:		24.0
980422	COMPLETION	COMMISSIONING	6.0	
		OTHER	5.0	
		X-MAS TREE	2.5	
	INTERRUPTION	ROV (E)	1.5	
		Sum:		15.0

Table 6.9: Daily rig time distribution Well 34/7-26A, Part 9

6.13 Wellbore Stability/Losses

Considering the amount of orientation, hole cleaning may not have been optimal, with high inclination of 60°-63°, lack of rotation and limited pump capacity at times. Cutting beds most likely formed, hampering the drilling and tripping activities as described below.

Mud weight was initially kept at 1.40 s.g down to 2000 m. Thereafter the mud weight was gradually increased from 1.40 s.g to 1.45 s.g down to a drilling depth at 3224 m where MWD problems were experienced. Minor losses were encountered while drilling with no signs of well bore instability.
It was decided to pull out of hole and replace the MWD. The hole was circulated while the string was reciprocated/rotated to assist in hole cleaning, and the mud weight was raised to 1.47 s.g to include a trip margin and the occurrence of cavings in the returns.
Difficulties were encountered to come out of hole with indications of overpulls and losses. The losses may were a result of packing off above/around the BHA, insufficient hole cleaning action and pressuring up the lower Balder formation to the point of break down.
A LCM pill was pumped and the returns were recovered. The rotation and circulation were then brought up in stages to normal values without losses, and pulling out of hole was continued by combinations of backreaming, conventional pulling and pumping out of hole to 700 m, meanwhile circulating the riser using the booster lines. Inside casing circulation was performed to clean up the hole. During this circulation period, large amounts of cuttings were received.
Eventually the BHA was pulled out of hole and the MWD was replaced. The hole was re-entered and washed/reamed to bottom. The hole was then drilled and surveyed to TD, while the average drilling rate was reduced to 45-60 min/std including time for circulation, reaming and surveying. No indication of hole instability were reported.

Before pulling out and running casing, the mud weight was increased for trip margin and hole stabilisation. The hole was circulated clean with six bottoms up, string rotation and reciprocation. To assist in hole cleaning and circulation on the riser, the booster pump was used. When starting to pull out of hole light overpulls from 3750 m to 1795 m was experienced. Thereafter, the pipe was slugged and pulled to 1330 m with slick hole conditions experienced. When the pipe was pulled to surface, casing was run and cemented. During the casing run mud losses were experienced. Also, prior to and after landing casing hanger, and during displacement of the cement there were no returns.

7. Operational data

7.1 Experience Transfer

The main experiences is covered in the separate Experience Transfer Reports, "Experience Transfer Report - Well 34/7-26 A", doc. id.:RA98-221/DFD.

7.2 Helicopter flights

Table 7.1 gives an overview of the helicopter flights for well 34/7-26 A.

Well: 34/7-26A **Rig: Scarabeo-5** **Period: 06.02.-27.02.98**

No of flights	Schedule/extra	From	Passengers out	Passengers in	Remarks
9	Schedule	FRO	124	132	
1	Extra	BGO	7	6	Mob log crew
Extra seats					
13	Saga	FRO	17	20	Split ordinary / extra flights to Snorre and Scarabeo 5

Table 7.1: Helicopter flights Well 34/7-26 A

7.3 Accident reports

Table 7.2 shows the accident reports for well 34/7-26 A.

Incidents, Accidents, LTA, etc.	
Safe Job analysis	?
Incident reported (LTA included)	20
Near misses reported	15
Lost time accidents	2
Dropped objects	5
Oil spill	0

Table 7.2: Accident reports Well 34/7-26 A

7.4 Daily operation conditions

Table 7.3 shows the daily operation conditions.

	WIND		SEAS		SWELL			RIG MOVEMENT				ANCHOR		RISER	
Date	Speed m/s	Dir deg	Height m	Dir deg	Height m	Dir deg	Periode sec	Heave m	Roll deg	Pitch deg	Head deg	Tons min	Tons max	max	Remarks
980206	14.0	200		200				2.2	2.0	2.1		81	134	162	
980207	7.0	272		272				2.0	1.7	1.7		81	136	162	
980208	18.0	228		228				2.4	2.1	2.8		77	129	162	
980209	18.0	232		232				2.0	1.4	1.7		76	132	162	
980210	18.0	210		210				1.8	2.4	2.2		76	138	162	
980211	3.0	63		63				2.0	1.3	2.0		79	125	162	
980212	7.0	69		69				1.2	1.5	1.5		71	130	162	
980213	13.0	224		224				1.2	1.5	1.3		75	121	162	
980214	5.0	274		274				1.0	.5	.9		74	123	162	
980215	8.0	61		61				1.6	.9	1.2		74	126	162	
980216	4.0	274		274				.6	.8	.8		73	124	162	
980217	16.0	218		218				1.2	1.6	1.7		80	128	162	
980218	12.0	231		231				2.2	1.5	1.8		76	129	162	
980219	15.0	231		231				2.0	1.4	2.0		75	127		
980220	23.0	195		195				2.2	2.7	3.2		73	125	162	
980221	15.0	285		285				1.2	1.8	1.6		92	124	162	
980222	20.0	227	6.2	227				3.0	2.6	2.5		82	126	162	
980223	4.0	78		78				2.4	1.2	1.6		76	127	162	
980224	11.0	255		255				1.8	1.7	2.1		81	124	162	
980225	22.0	191	7.1	191				2.6	2.3	1.2		80	133	162	
980226	15.0	225	9.6	225				3.8	3.1	3.6		91	133	162	
980227	17.0	354	10.9	354				7.2	2.4	4.5		77	135	162	WOW 12 hrs
980228	14.0	325	8.2	325				7.4	4.3	4.3		87	129	162	WOW: 19.5 hrs
980301	7.0	106		315				2.2	2.5	1.8		95	124	168	
980302				315				1.6	1.0	.8		95	125	168	
980303	6.0	31		31				1.4	1.3	1.4		87	127	168	
980304	3.0	17		17				.8	1.3	1.0		93	128	168	

Table 7.3: Daily operation conditions Well 34/7-26 A, Part 1

	WIND		SEAS		SWELL			RIG MOVEMENT				ANCHOR		RISER	
Date	Speed m/s	Dir deg	Height m	Dir deg	Height m	Dir deg	Periode sec	Heave m	Roll deg	Pitch deg	Head deg	Tons min	Tons max	max	Remarks
980305	28.0	302	4.0	302				3.0	1.8	3.0		77	146	168	
980306	5.0	292		292				1.0	.9	.9		96	124	168	
980307	3.0	353		353				1.0	1.3	1.9		93	134	168	
980308	13.0	32		320				1.0	1.2	1.5		95	131	168	
980309	17.0	174		174				.6	.9	1.1		82	128		
980310	23.0	159	7.7	159				3.2	3.2	2.9		75	140	168	
980312	10.0	287		287				1.4	1.1	1.3		90	125	168	
980313	9.0	311		311				2.0	2.1	2.4		90	123	168	
980314	5.0	271		271				1.4	1.2	1.9		93	123	168	
980315	14.0	277		277				1.0	1.0	1.1		94	117	175	
980316	12.0	231		231				3.2	1.2	1.5		96	117	175	
980317	20.0	277	7.3	277				3.0	2.3	2.1		96	123	175	
980318	14.0	303	6.4	303				3.6	2.1	2.6		99	123	175	
980319	7.0	312		312				2.8	1.7	2.4		92	125	175	
980320	5.0	286		315				2.0	1.2	1.3		86	127		
980321	8.0	243		270				.6	1.8	1.3		74	125		
980322	4.0	192		270				1.2	1.2	.9		87	135		
980323	28.0	172		172				4.2	4.7	5.4					
980324	10.0	253		253				2.2	1.4	2.4		84	133		
980325	15.0	171		171				1.4	1.7	1.5		80	126		
980326	20.0	199		199				2.6	3.0	3.5		83	125		
980327	10.0	158		158				1.8	1.3	1.4		80	131	110	
980328	14.0	277		277				3.0	1.1	1.9		71	133	110	
980329	4.0	109		109				1.0	1.3	1.8		66	135	110	
980330	7.0	201	2.0	201				1.0	1.8	1.0		65	133	110	
980331	13.0	24		24				.8	1.1	1.2		65	129	110	
980401	9.0	41		41				.6	1.3	.4		65	131	110	

Table 7-3: Daily operation conditions Well 34/7-26 A, Part 2

	WIND		SEAS		SWELL			RIG MOVEMENT				ANCHOR		RISER	
Date	Speed m/s	Dir deg	Height m	Dir deg	Height m	Dir deg	Periode sec	Heave m	Roll deg	Pitch deg	Head deg	Tons min	Tons max	max	Remarks
980402	5.0	99		99				.6	1.6	1.5		91	136		
980403	9.0	100		100				.8	.8	.8		89	133	110	
980404	8.0	91		91				.6	1.4	1.5		71	114	110	
980408	10.0	10		10				.8	1.2	.9		74	133		
980409	15.0	21		21				1.4	1.8	2.0		71	132	57	
980410	13.0	17		17				1.0	1.5	2.0		72	131	57	
980411	14.0	18		18				1.0	2.2	3.3		65	131	57	
980412	17.0	1		1				1.8	3.4	3.4		64	131	57	
980413	10.0	13		13				1.0	1.2	2.1		90	127	57	
980414	10.0	11		11				.8	1.8	1.1		82	132	57	
980415	5.0	104		104				.6	.9	1.0		83	132	57	
980416	17.0	17		17				.8	2.2	2.1		85	131		
980417	4.0	345		345				.4	.8	.5		86	123		
980418	4.0	211		211				.4	.3	.5		89	126		
980419	9.0	210		210				.2	1.3	1.3		84	130		
980420	8.0	187		187				.6	.4	.7		86	129		
980421	14.0	142		142				.4	.7	.9		62	123		

Table 7-3: Daily operation conditions Well 34/7-26 A, Part 3

8. Well profiles

8.1 Drilling schematic profile

Figure 8.1 shows a drilling schematic profile of well 34/7-26 A

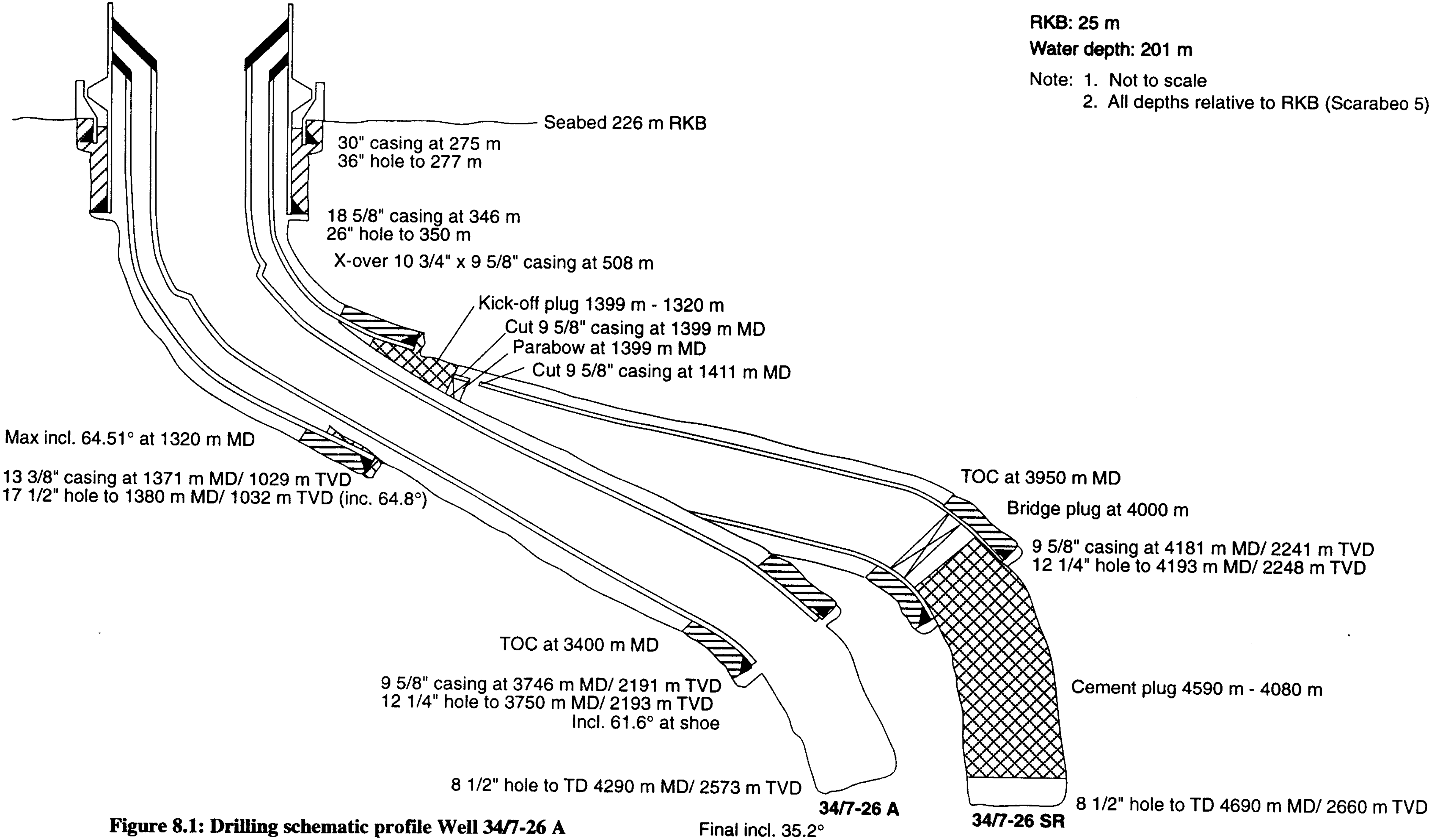


Figure 8.1: Drilling schematic profile Well 34/7-26 A

9. Enclosures

Enclosure I: **Composite log**

Enclosure II: **Pressure evaluation sheet**

Enclosure III: **Wellsite core description**

Saga/Esso/Statoil/
Norsk Hydro/Idemitsu/Elf/Deminex

Saga Petroleum ASA

Composite Well Log

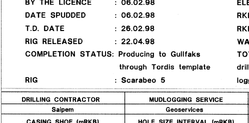
Well 34/7-26A

SCALE	: 1:500	LOCATION COORDINATES	
COUNTRY	: NORWAY	DATUM	: UTM ZONE 31
AREA	: Block 34/7	LATITUDE	: 61 26 29.38 N
LICENCE	: PL089	LONGITUDE	: 2 7 11.41 E
RIG TAKEN OVER BY THE LICENCE	: 06.02.98	UTM COORDINATES	: 6793879.1mN 452806.1mE
DATE SPUDDED	: 06.02.98	ELEVATIONS	
T.D. DATE	: 26.02.98	RKB-MEAN SEA LEVEL	: 25m
RIG RELEASED	: 22.04.98	RKB-SEA FLOOR	: 226m
COMPLETION STATUS	: Producing to Gullfaks through Tordis template	WATER DEPTH	: 201m
RIG	: Scarabeo 5	TOTAL DEPTH driller's depth	: 4290m RKB (2572.7m TVD RKB)
		loggers depth	: 4291m RKB (2573.5m TVD RKB)

DRILLING CONTRACTOR	MUDLOGGING SERVICE
Saipem	Geoservices

CASING SHOE (mRKB)		HOLE SIZE INTERVAL (mRKB)	
13 3/8"	1371m	17 1/2"	1380m
9 5/8"	3746m	12 1/4"	3750m
		8 1/2"	4290m

LOCATION MAP



LOGS

Casing Record mRKB	Hole Size mRKB MD	Logged Interval mRKB MD	Type of Log	Run No	Date
13 3/8" @ 1371m	12 1/4" 1384-3750m	1384-3734m 1370-3663m	MWD (DIR/GR/RES) RIGS	1A	06/02/98 09/03/98
9 5/8" @ 3742m	8 1/2" 3750-4290m	3746-4279m 3746-4289m 3746-4281m 4124-4209m 1523-4229m	MWD (DIR/GR/RES) AIT-H/PEX/GR UBI/DSI/NGT MDT/CMR/GR VSP	1 A/A/A 1 A/A/A 1 A/A/A 1A	19/02/98 28/02/98 01/03/98 02/03/98 09/03/98
5 1/2" @ 4286m					
TD @ 4290m RKB					

AUTHOR : E.Skottlien DRAFTED BY : E.Skottlien APPR : A.Hansen DATE : 01/11/98

MAIN ROCK KEYS: CONGLOMERATE, GENERAL; SEDIMENTARY BRECCIA; SANDSTONE; SILTSTONE; SILTY CLAYSTONE; CLAYSTONE; SHALE; LIMESTONE; DOLOMITIC LIMESTONE; DOLOMITE; CALCAREOUS DOLOMITE; CHALK; MARL; TUFF; COAL; SALT; ANHYDRITE; METAMORPHIC ROCKS; NO SAMPLES

LITHOLOGICAL PREFIXES: CALCITIC; DOLOMITIC; KAOLINITIC; SILICA; CHERTY; GLAUCONITIC; PYRITIC; MICACEOUS; CARBONACEOUS; ROCK FRAGMENT

FOSSILS: FORAMINIFERA; SHELL DEBRIS; FOSSILS IN GENERAL

SIDEWALL CORES: NO. RECOVERED; NO RECOVERY

CONVENTIONAL CORES: TOP; TOTAL CORED INTERVAL; CORE NO.; NO RECOVERY; BASE

CASING: CASING SHOE; LINER SHOE

FMT/RFT:

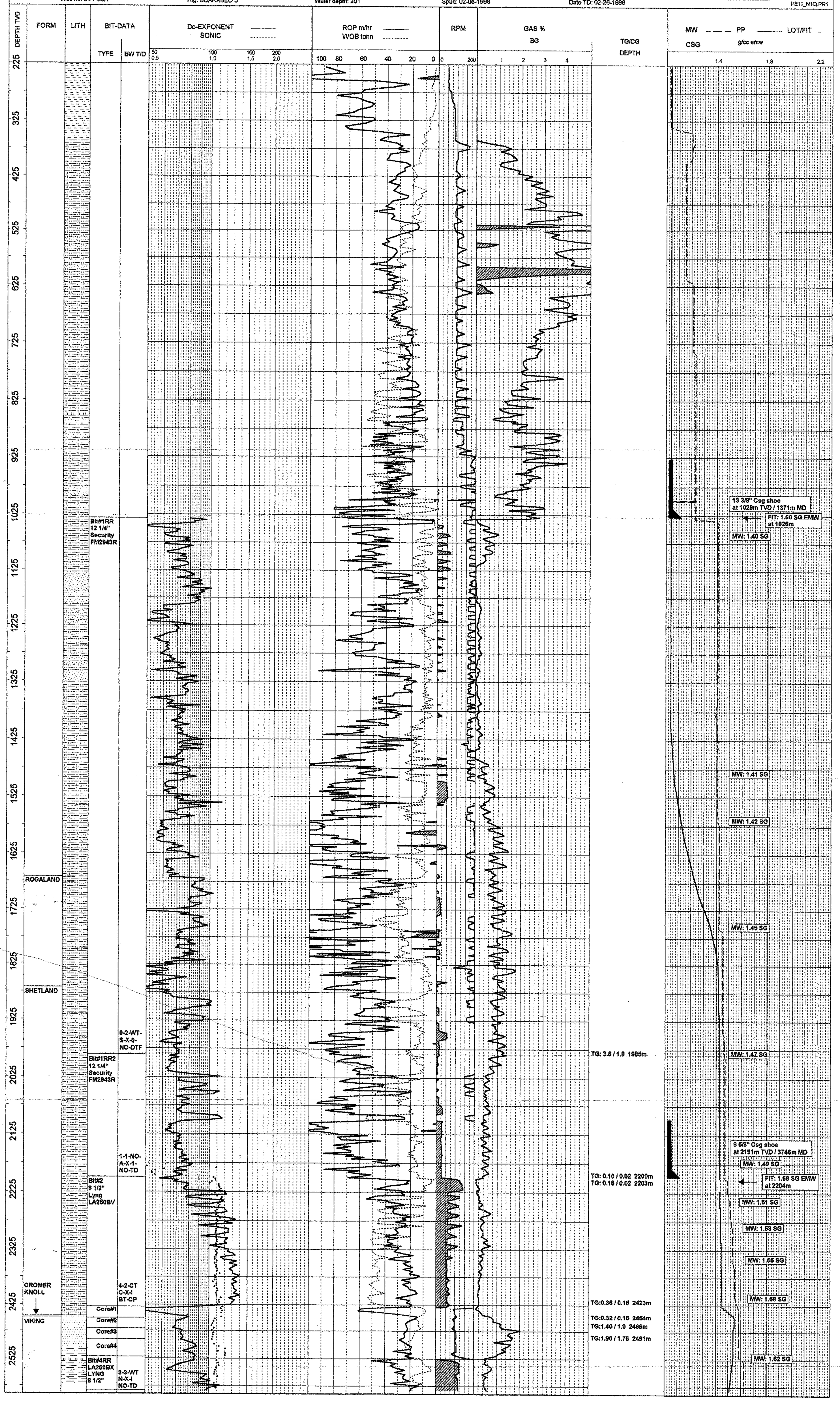
DST:

OIL STAINING; FLUORESCENCE; VISIBLE CUT; FLUORESCENCE CUT; GAS SHOWS

STRATIGRAPHY GEOLOGICAL TIME PANEL	GR/SP/CAL LOGS PANEL	CORES PANEL	LITHOLOGY DEPTH	RES LOGS PANEL	SONIC LOGS PANEL	DESCRIPTION ANNOTATION PANEL	CNC/ZDEN LOGS PANEL
SYSTEM SERIES STAGE GROUP FORMATION	SP(MV) -200 – 100; CAL(INCH) 6.00 – 26; GR(API) 0 – 150			RS(OHMM) 0.20 – 20; RD(OHMM) 0.20 – 20; RM(OHMM) 0.20 – 20	DT(msec/ft) 140 – 40		RHOB(g/cc) 1.95 – 2.95; PHIN(UM) 45 – -15

Pressure / Evaluation Sheet

Well no: 34/7-26A Rig: SCARABEO 5 Water depth: 201 Spud: 02-06-1998 Date TD: 02-26-1998 PE11_N1Q.PR1



WELLSITE CORE DESCRIPTION

WELL: 34/7-26A	DATE: 23.02.98	GEOL: AJC / TAP / TUM	SCALE 1: 50

CORE NO: 1	FROM: 4104	m TO: 4132	m CORED: 28	m REC: 26.6 m. 98.5 %.	FORMATION: SHETLAND.

DESCRIPTION

CLAYSTONE

CLST: OLV BLK - DK GY, MOD HD, BLKY - SB FIS. NON CALC, MIC MICA.

CLST: SL CALC - CALC ELSE A/A.

AT 4110m : CLST: NON CALC, ELSE A/A.

CLST: MED DK GY, MOD HD, SBFIS, V MIC MICA, SL CALC - CALC.

CLST: MIC MICA, ELSE A/A.

AT 4121m : CLST: V MIC MICA, OCC MICA, V CALC.

AT 4123m : CLST: DK GNGY, MOD HD - HD, SB FIS, CALC-DOL, WITH SST INCL: GY BRN, M GY GRS, FRM, FRI, RND, CALC-DOL MTRX MOD VIS POR IN SST.

AT 4124m: MRL: MOD BRN, HD, SB FIS, CONTAINS HOLLOW SPHERICAL (FOSSIL?) NODULES AND OCC QTZ GRS: VF-F, ANG, MICA.

LIMESTONE

LS: PA YEL BRN, HD, MICXL; ABD ARG INCL, OCC CALCITE VN.

SHOWS IN LS: MOD OD, NO STN, 50% STRONG YEL - GN YEL FLOR, SLW STRMG, STRMG WK - MOD BL WH CUT, BL WH RES.

MARL

MRL : GN GY, HD, BLKY, GLAUC, ABD QTZ GRS; TRNSL GY - GY BRN, PRED F, OCC M - CRS, RND - SBRND.

SHOWS IN MRL: GD OD, NO STN, 70% STRONG YEL - YEL WH FLOR, SLW STRMG, STRMG - CLDY, MOD BL WH CUT, BL WH RES.

SANDSTONE

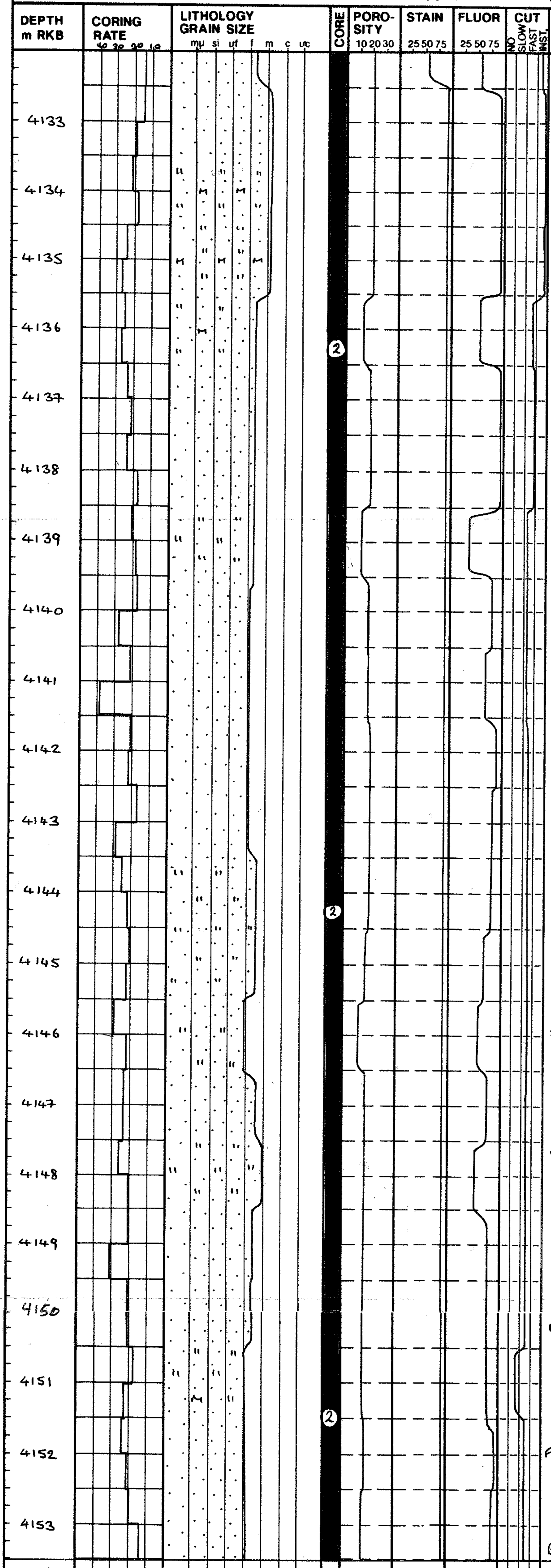
SST: QTZ, DK YEL BRN, F-M, OCC CRS, MOD SRTD, SBANG - SBRND, HD, FRI, P SIL CMT, G VIS POR

SHOWS: GD OD, GD - EXC STN, 100% STRONG YEL - YEL WH FLOR, INST STRMG, STRMG, MOD BL WH CUT, YEL RES EVAP.

WELLSITE CORE DESCRIPTION

WELL: 34/7-26A DATE: 24.02.98 GEOL: AJC/TAP/TUM SCALE 1: 50

CORE NO: 2 FROM: 4132 m TO: 4153.5 m CORED: 21.5 m REC: 21.5 m. 100 %. FORMATION:



DESCRIPTION

SANDSTONE

SST: QTZ, DK YEL BRN, CLR QTZ GR, F-C, MOD SRTD, SBANG - SBRND, LSE - OCC WK CMT, SIL CMT, G VIS POR.

FROM 4134m: SANDSTONE WITH SILTSTONE LAMINAE

SST: SLT, DSK YEL BRN - DSK BRN, CLR QTZ GR, F-M OCC CRS, MOD SRTD, SBANG - SB RND, OCC ANG LSE - W CMT, SIL CMT, G VIS POR,

SLTST: DSK YEL BRN, FRM, SBFIS, NON CALC, V MIC MICA.

SHOWS IN SST: G OD, G BRN STN, 100% STRONG YEL FLOR, INST STRMG, FLASH, STRONG YEL WH CUT, PA YEL RES, FROM 4136m BCM 50 - 100% STRONG YEL FLOR, FAST STRMG, CLDY - STRMG, STRONG YEL WH CUT. PA YEL RES EVAP.

SHOWS AT 4139m: 30% MOD YEL FLOR, ELSE A/A.

FROM 4144m: SST: SLT - VSLT, SB RND - ANG, LSE - MOD CMT ELSE A/A.

SST AT 4146m: F-M, W SRTD, FR VIS POR, ELSE A/A.

SHOWS FROM 4148m: MOD YEL WH CUT, ELSE A/A.

FROM 4151m: SST: SLT - VSLT, DSK YEL BRN, CLR QTZ, F-M, OCC VCRS GR, W SRTD, SBRND - ANG, LSE - WK CMT, SIL CMT, MICA, FR - G VIS POR.

FROM 4152m: SST: A/A INTERLAM W/ SST: DK YELBRN, F-M, W SRTD, SB RND - RND, WK CMT, SIL CMT, SL ARG, FR - G VIS POR.

BOTTOM CORE #2 @ 4153.5 mMD / 2469.5 m TVD.

WELLSITE CORE DESCRIPTION

WELL: 34/7-26A	DATE: 25.02.98	GEOL: AJC / TAP / TUM			SCALE 1: 50
CORE NO: 3	FROM: 4153.5 m	TO: 4179 m	CORED: 25.5 m	REC: 25.3 m. 99.2 %.	FORMATION: DRAUPNE

DESCRIPTION

SANDSTONE

SST: DK YEL BRN, F-M, W SRTD, SB RND-RND, SL CALC - PRED SIL CMT, G TR BLK ORG MAT, G VIS POR.

SHOWS: FR OD, G STN, 50% STRONG LT YEL FLOR, MOD FST STRMG, STRMG, LT YEL WH CUT PA YEL RES.

SANDSTONE WITH THIN SHALE LAMINAE

SST: AS ABOVE

SH: DK GY, SFT-FRM, FIS, BRIT, NON CALC, SDY.

SHOWS IN SST: 50-80% FLOR, ELSE A/A.

ARGILLACEOUS SANDSTONE

SST: BCM ARG-V ARG, DSK YEL BRN, CLR QTZ, F-M, W SRTD, RND, BRIT-HD, MOD CMT, SIL CMT, MIC MICA, TR GLAUC, TR ORG MAT, FR-G VIS POR.

SHOWS: FR OD, G STN, 50-80% MOD YEL FLOR, MOD FST STRMG, STRMG, YEL-WH CUT, LT YEL RES EVAP.

ARGILLACEOUS SANDSTONE WITH THIN SHALE LAMINAE

SST: AS ABOVE

SH: DK GY, SFT, NON CALC, MICA.

SHOWS: AS ABOVE

SST: BCM DK YEL BRN, SBRND, ELSE A/A.

SHOWS: FR OD, G STN, 80% MOD-STRONG YEL FLOR, MOD FST STRMG, STRMG, YEL-WH CUT, LT YEL RES EVAP.

INTERBEDDED SHALE AND SANDSTONE

SST: AS ABOVE
SH: DK GY, SFT.

SHOWS: FR-G OD, G STH, 50% WK PA YEL FLOR, SLW STRMG, STRMG, LT YEL CUT, YEL RES EVAP.

ARGILLACEOUS SANDSTONE

SST: AS ABOVE

SHOWS: FR-G OD, G STH, 80% MOD DK YEL FLOR, SLW-MOD FST STRMG, STRMG, YEL CUT YEL RES EVAP.

SHOWS FROM 4177m: FR-G OD, GD STH, 50-80% PA YEL FLOR, SLW STRMG, STRMG, WK PA YEL CUT, DK YEL-OR RES EVAP.

END OF CORE 3: 4179 MMD / 2490.8 m TVD

WELLSITE CORE DESCRIPTION

WELL: 34/7-26 A	DATE: 26.02.98	GEOL: AJC / TAP / TUM			SCALE 1: 50		
CORE NO: 4	FROM: 4179 m	TO: 4216 m	CORED: 37 m	REC: 37.2 m. 100 %.	FORMATION:		

DEPTH m RKB | CORING RATE | LITHOLOGY GRAIN SIZE | CORE | POROSITY | STAIN | FLUOR | CUT | DESCRIPTION

SANDSTONE WITH THIN SHALE LAMINAE

SST: ARG, DSK YEL BRN, CLR QTZ, F-M, W SRTD, RND, FRI, MOD CMT, SIL CMT, TR GLAUC, TR PYR, TR ORG MAT, G VIS POR

SH: DK GY, SFT, SL ARG.

SHOWS: V G OD, EXC STN, 100% V STRONG LT YEL FLOR, FST STRMG, STRMG STRONG YEL-WH CUT, PA-DK YEL RES EVAP.

SANDSTONE

SST: LT GY, CLR QTZ, VF-F, SBRND, SL-MOD CALC CMT, MIC MICA, G TR GLAUC, TR ORG MAT, G VIS POR.

SHOWS: G OD, G STN, 70% MOD YEL FLOR, FST STRMG, STRMG MOD LT YEL CUT, WK LT YEL RES.

(AT 4188MMD: NO SHOWS)

INTERBEDDED SANDSTONES AND SHALES

SST(1): ARG, DSK YEL BRN, VF-F, W SRTD, RND, MOD-W CMT, SIL CMT, MIC MICA, TR GLAUC, TR ORG MAT, G VIS POR.

SST(2): V LT GY-WH, PRED VF, OCC F, W SRTD, SBRND-ANG, HD, V CALC CMT, G TR GLAUC, FR-G VIS POR.

SH: AS ABOVE

SHOWS IN SST: NO-FR OD, NO-FR STN, 0-70% WK-MOD YEL FLOR, SLW STRMG, STRMG, WK-MOD LT YEL WH CUT, LT YEL RES EVAP.

SHALE

SH: SLTY, DK GY, FRM, V CALC, V MICA, TR GLAUC, TR ORG MAT, TR SH FRAG.

NO SHOWS.

(AT 4198MMD: SANDSTONE

SST: LT GY-WH, CLR + MLKY WH QTZ, VF-F, SBRND-ANG, MOD SRTD, V CALC CMT, TR ORG MAT, G TR SHL FRAG. FR VIS POR.
SHOWS IN SST: PR OD, PR STN, 50% WK-MOD PA YEL FLOR, SLW STRMG, STRMG, WK LT YEL WH CUT, LT YEL RES)

INTERBEDDED SANDSTONES

SST(1): LT GY, DSK YEL BRN, VF-F, W SRTD, RND-SB RND, MOD CMT, PRED SIL CMT, TR GLAUC, TR ORG MAT. G VIS POR.

SST(2): LT GY-WH, CLR + MLKY WH QTZ, VF-F, SBRND-ANG, MOD SRTD, MOD CMT, V CALC CMT, TR ORG MAT, G TR SHL FRAG, FR VIS POR.

SHOWS IN SST(1): FR-G OD, G STN, 100% STRONG YEL FLOR, FST STRMG, STRMG, MOD YEL WH CUT, LT YEL RES EVAP.

SHALE

SH: SLTY, DK GY, FRM, V CALC, V MICA, TR GLAUC, TR ORG MAT, TR SHL FRAG.

NO SHOWS

END OF CORE 4, 4216.2MMD/2521.8 MTVD.