

ELF AQUITAINE NORGE A/S
311E-W 78/79/BAH/Agm

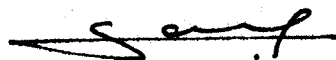
Stavanger, 17.04.78

DRILLING REPORT

25/1-6



Bengt A. Hermansen



R. Sales

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PREFACE

Licence 024 was awarded to the Petronord Group on 23rd May 1969 together with Licences 023, 025 and 026. The Licence covers Block 25/1. Elf Aquitaine Norge is the Operator for the Group which consists of the following companies:

- Elf Aquitaine Norge A/S 43.60%
- Norsk Hydro Produksjon A/S 34.60%
- Total Marine Norsk A/S 21.80%

Statoil has an option to participate to the extent of 5% interest.

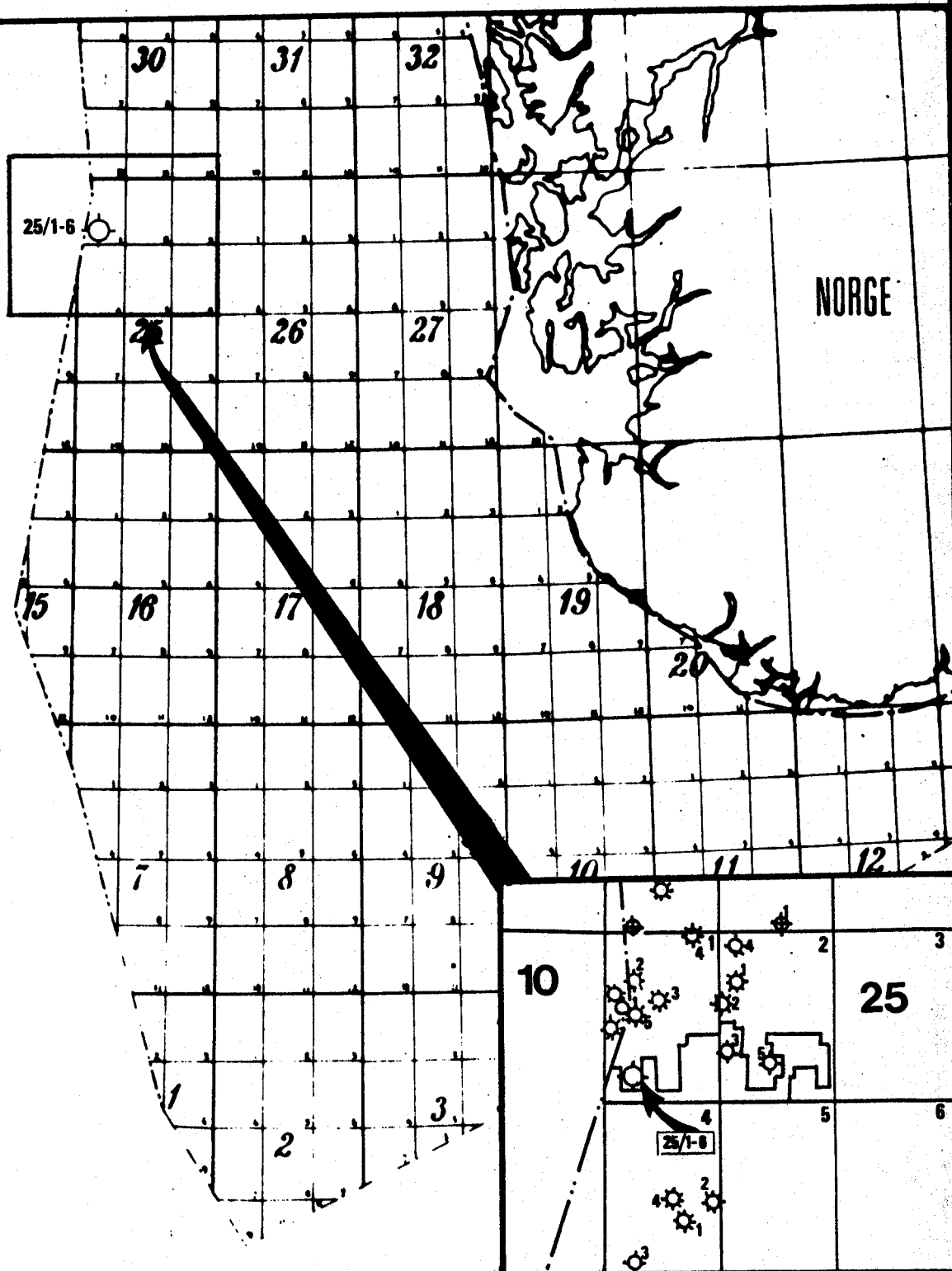
Well 25/1-6 was drilled by Elf Aquitaine Norge on behalf of the Petronord Group with the rig "Pentagone 84". The drilling operations started 27th January 1978 and were terminated 19th March 1978.



Position Map



25/1-6



1. LOCATION SURVEY

A hydrographical and geophysical survey of the location for well 25/1-6 was performed by A/S GEOTEAM in the period January 10th to January 19th 1978.

The objectives of the site survey were to determine the bathymetry of the area, to locate any obstructions that might be present on the sea floor, and to detect indications on precense of shallow trapped gas pockets.

The area surveyed was a 3 x 3 kilometres square with sides aligned N-S and E-W. The area was centered on the coordinates.

Latitude 59°47.000' N

Longitude 02°05.500' E

The sea floor was found to be even with the sea bottom consisting mainly of sandy materials. In some parts of the area an underlying strong reflecting layer was exposed, probably consolidated clay.

At the centre location water depth relative to main sea level was recorded to be 108.0m $\pm$ 1.5 m.

No shallow gas pockets were identified on the analog seismic recordings, and no sea bed protuding objects were identified on the sonograms.

The hydrographical and geophysical instruments used was Echo sounder, Side Scan Sonar and Sparker. The navigation equipment was Decca Pulse-8.

SUMMARY OF WELL DATA

Location	Latitude 59°46'57.68" N Longitude 02°05'42.23" E
Operator	Elf Aquitaine Norge
Rig	Pentagone 84
RKB elevation (to MSL)	24 m
Water depth	105 m
Rig released to Elf Aquitaine Norge	January 16th 1978 at 14:30 hrs
Spudded	January 27th 1978
Abandoned	March 18th 1978 at 21:30 hrs
Rig released to Total Oil Marine Ltd.	March 19th 1978 at 02:00 hrs

Well Program:

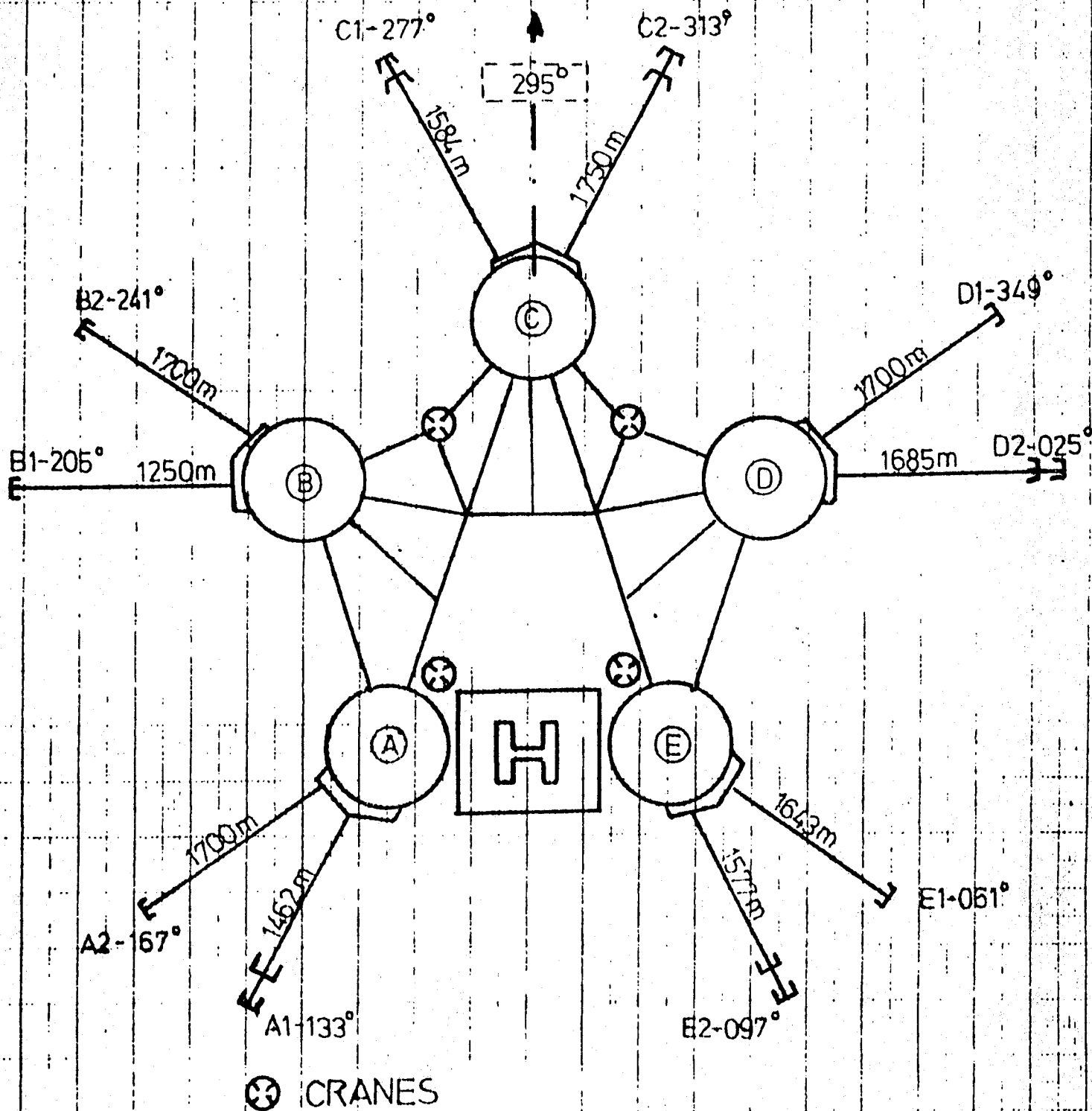
Hole diameter	:	36"	to	192 m
		26"	to	468 m
		17½"	to	1325 m
		12 1/4"	to	2550 m
		8½"	to	2900 m
Casing record	:	30"	set at	192 m
		20"	set at	460 m
		13 3/8"	set at	1314 m
		9 5/8"	set at	2520 m

Well duration - 1476 ½ hours - or 61.52 days.

MOORING LINE PATTERN

WELL 25/1-6

PENTAGONE 84



TOWING HOOKS ON CHARLIE, BRAVO, DELTA
PROPELLER UNDER CHARLIE, ALPHA, ECHO

NOTE: PIGGY BACK ON ANCHORS NO: C.1 - C.2 - D.2 - E.2 - A.1

WELL : 25/1-6

PENTAGONE 84

RIG ELEVATION

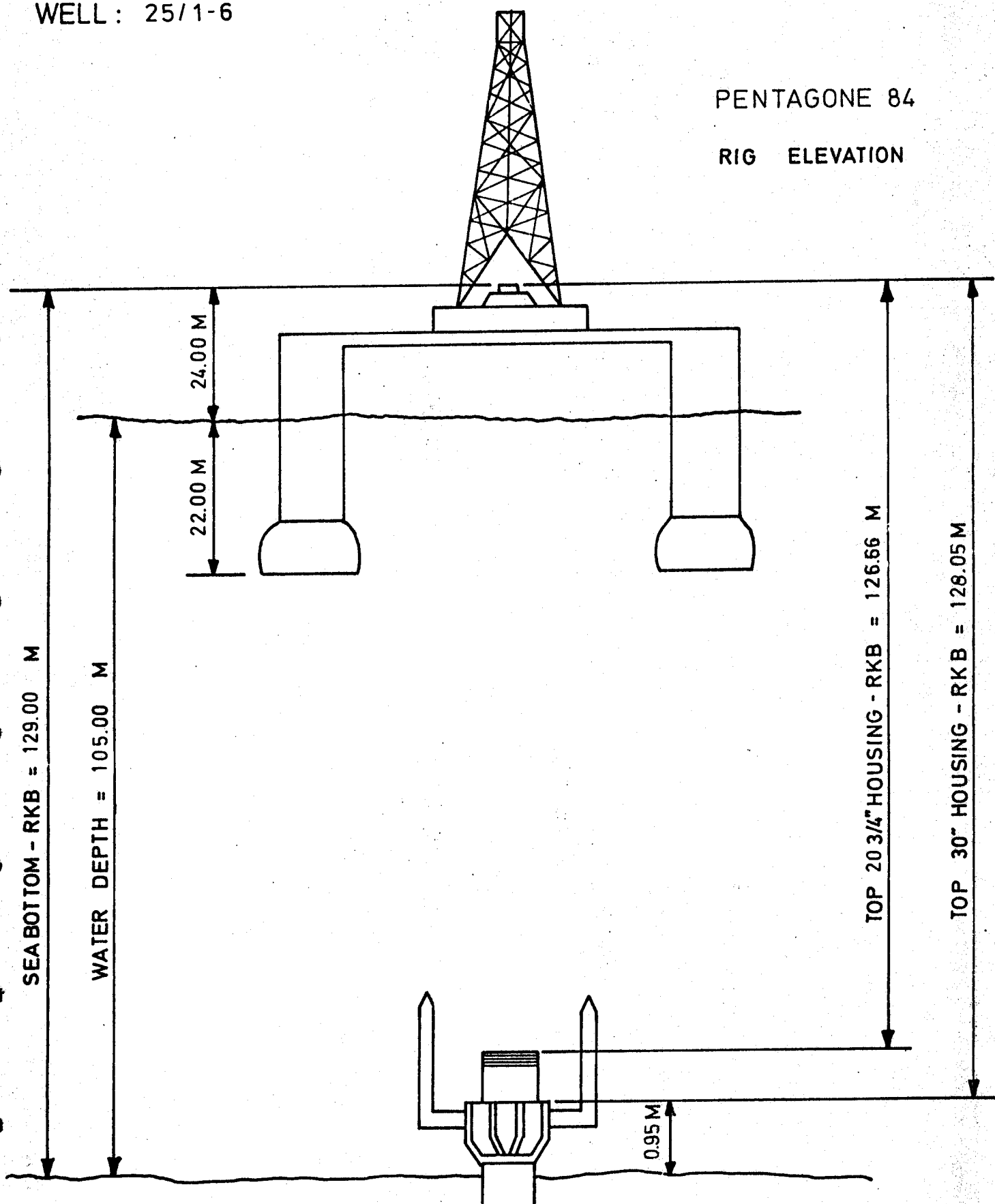


Fig: A - 2

RKB

PENTAGONE 84
25/1-6

BOP 20 3/4" x 2000 MSP
ELEVATION

24.00 m

SEA LEVEL 24.00 m

105 m

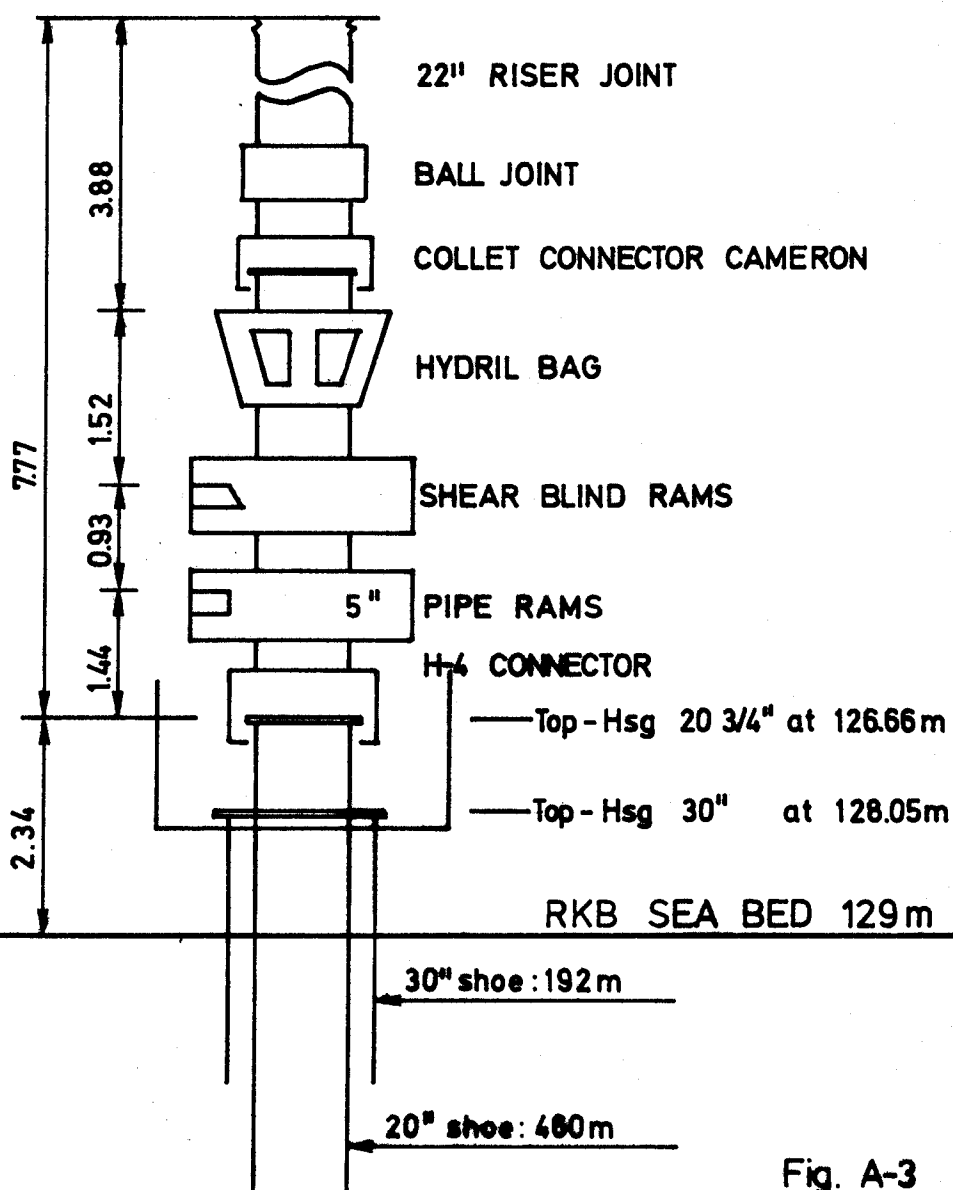


Fig. A-3

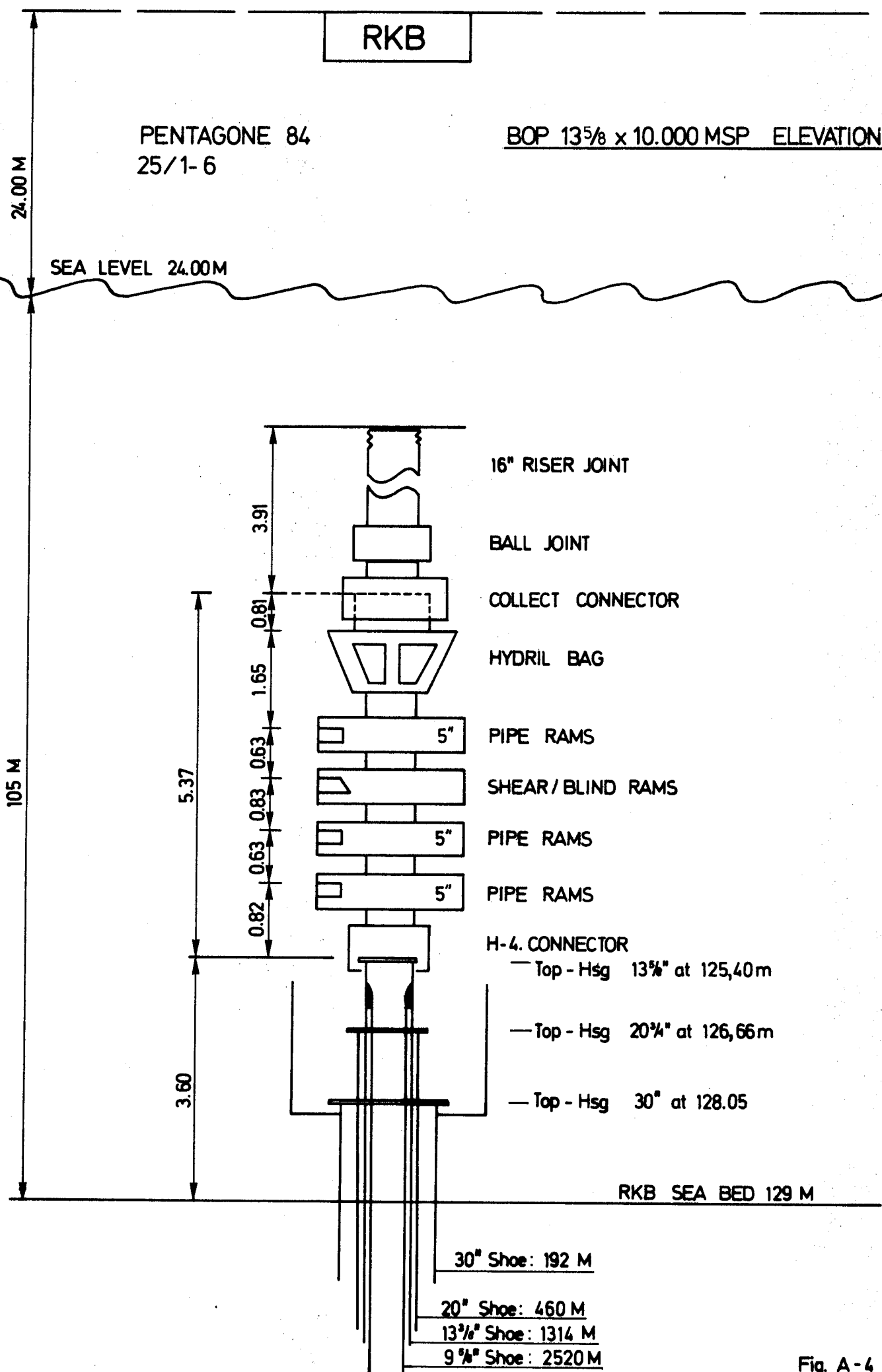


Fig. A - 4

OPERATION SUMMARY

The well 25/1-6 was located on a flat seismic event which could indicate presence of gas in the Heimdal formation of a small satellite structure south of Frigg.

The well was drilled by "Pentagone 84" which was taken over from Total Oil Marine Ltd (TOM) January 16th 1978. The "P-84" is equipped with one 2.000 psi WP 20 3/4" BOP, one 10.000 psi WP 13 5/8" BOP and one 15.000 psi WP 11" BOP. The 20 3/4" and 13 5/8" BOP's were used when drilling 25/1-6.

Due to severe weather conditions, 11 days elapsed prior spud which took place 27.01.78. No special problems were encountered during the drilling operation.

20" csg set at 460m the 01.02.78, 13 3/8" csg set at 1314m the 08.02.78 and 9 5/8" csg set at 2520m the 03.03.78.

Drilling with 8 1/2" bit, TD at 2900 m was reached the 12.03.78.

A standard logging program was run prior abandoning the well 18.03.78.

BIT PERFORMANCES

- OPERATION

- F - Drilling
K - Coring
RA - Redrilling (formation or cement).
P - Reaming and control trip
E - Pilot hole drilling
PE - Hole opening
PE - Simultaneous piloting and hole opening

Note: Use one line for each operation

Ex.: Redrilling followed by drilling =
2 lines

- DRIVE

- R - Rotary
T - Turbine
M - Bottom hole motor other than turbine

- BIT DESIGN

- T - Tricones (rock bits)
B - Bicones
M - Other cone rock bits
F - Mill
D - Diamond bit
C - Diamond core head
A - Rock bit w/removable center
E - Diamond bit w/removable center
L - Drag bit
S - Special

- MANUFACTURER

The code constitute the first three letters of the manufacturer name

- HUG - Hughes
SMI - Smith
REE - Reed
SEC - Security
SMF - SMF
DIA - Diamond board
DRI - Drilling service
CHR - Christensen

CODE

IADC code for rock bits (SEE Formulaire Foreur, p. 200 à 204).

TIME DISTRIBUTION

D. MOVING

D1 - RU and TD

Rigging up, tearing down, moving of drilling rig on land or offshore, including time for running, testing, raising anchors, ballasting, deballasting, driving-in piles, skidding the rigs, driving conductor pipes.

D2 - Waiting on Weather

And time spent on repairs due to bad weather.

D3 - Other Waiting Time

For means of transport, orders, shut down for repairs.

A. INTERRUPTION OF OPERATIONS UNDER F OR G

A1 - Sticking, fishing

Any work resulting from sticking of drill string, an object falling into the well, presence of a fish in the hole, jarring, back-off trips, redrilling, milling, washing over, well control, mud treatment, setting of cement plug, circulation until normal drilling, operations are resumed or a decision is taken to abandon the well.

In the case of partial plugging of the well and continuation in side-track hole, all operations are counted under A1 until success of side-tracking is confirmed. Time distribution will then be counted under F preceded by an asterisk (1).

A2 - Losses - Flows - Mud treatment

Treatment and fabrication of mud at surface with circulating at bottom. Preparation injection of cement plugs, lost circulation, materials, resins. Related trips, waiting on water, mud chemicals and ancillary operations.

A3 - Waiting on weather

Including related operations temporary plugging of well, drill string trips and setting of hang off tool, closing of BOP, trips of BOP stack and riser and reconnection, control and redrilling. Consequent BOP tests and repairs until normal drilling is resumed.

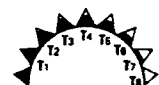
A4 - Other waiting time

Repairs and any connected trips, including repairs to BOP stack, riser, BOP operating units. Waiting on equipment, orders, vacation.

- DULL BIT CONDITION GRADING (IADC Method)

A. ROCK-BITS

TOOTH TYPE ROCK BITS

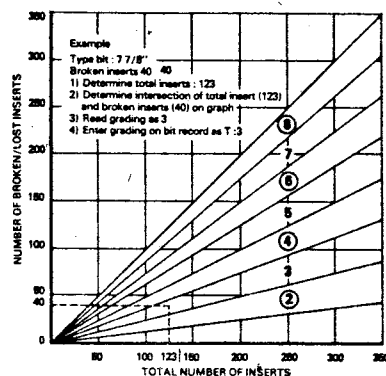


Degree of tooth dullness

- T1 - Tooth height 1/8 gone
T2 - Tooth height 1/4 gone
T3 - Tooth height 3/8 gone
T4 - Tooth height 1/2 gone
T5 - Tooth height 5/8 gone
T6 - Tooth height 3/4 gone
T7 - Tooth height 7/8 gone
T8 - Tooth height all gone

1. Tooth wear or insert damage T1 to T8

INSERT TYPE ROCK BIT



3. Bit gauge

Record diameter lost in fraction of inches or in millimeter.

2. Bearing wear B1 to B8

- B1 - 1/8 of life elapsed
B2 - 2/8 of life elapsed
B8 - Out of service

- FORMATION

- A - Clay
C - Limestone or dolomite
M - Marl or shale
D - Chalk
S - Sand
G - Sandstone
Q - Quartz
V - Chert
X - Granite
K - Conglomerate
I - Gypsum - Anhydrite
L - Salt

The lithology drilled in the previous 24 Hrs will be defined by the codes of the last formations drilled, with a maximum of three placed in order of relative importance.

- Ex. (1) Ap : Plastic clay
(2) AS : Clay and sand
(3) Mct : Marl and soft limestone
(4) MChv: Marl and tight dolomite w/Chert

Add if necessary a small letter showing the formation characteristics : p: plastic - h: tight - f: laminated - t: soft

Ex.: 1) Af : Laminated clay
2) Ch: Tight dolomite

4. Observations on grading:

4.1 Teeth and cones

- CT - Chipped teeth
ET - Eroded teeth or inserts
BT - Broken teeth or inserts
BU - Bit balled up
RG - Rounded gauge teeth or inserts
WG - Worn or lost gauge teeth or inserts
FC - Flat crested
EC - Eroded cone shell
BS - Broken, worn or lost spear point

4.2. Bearings

- CL - Cone(s) locked
BF - Bearing failure
SF - Seal failure
LC - Lost cone(s)
BP - Broken bearing pins or journals

4.3. Bit body

- BL - Bent legs - Pinched
PN - Plugged nozzle(s)
EN - Eroded nozzle(s)
LN - Lost nozzle(s)
DB - Damaged nozzle(s)

B. DIAMONDS BITS

Do not use the TBG column, use the "remarks on dull bit condition" column.

- BE - Good condition
CE - Eroded cone
TD - Bit grooved
DB - Diamonds burnt
PD - Abnormal loss of diamonds
ME - Matrix damaged
FE - Thread damaged

- REASON FOR TRIPPING

- A - Penetration slowing down
B - Increasing torque
C - Hydraulic problems
D - Bit drill maximum hours allowed
E - Reason other than bit problems

- Ex. (1) Drillstring modification
(2) Casing
(3) Test
etc...

F. DRILLING - CASING

*F1 - Drilling at bottom

With bit in main hole or in side-track hole, including adding of drill pipes.

*F2 - Trips for new bit

*F3 - Ancillary Drilling Operations

Totco and normal circulation.

Redrilling - Reaming - Hole-opening - Hole-control - Short trip - Totco with sand line - Directional surveys - Pressure testing of open hole, of casing, or of BOP, during drilling, pick up or laying down drill strings.

*F4 - Casing and cementing

Conditioning of hole before running in casing. Casing, cementing, waiting on cement setting, setting casing in well Head. Assembling testing, trips of BOP stack and riser. Testing of casing column before drilling out shoe. Drilling out of cement, scraping. Additional cementing or squeezing with related trips. Checking and repairing of casings and cementing.

C. FORMATION SURVEYS

G1 - Bottom hole coring

With core barrel including time for adding drill-pipes.

G2 - Related coring operations

Preparation and checking of core barrel - trip - recovery of core. Reaming time of length cored and related trips.

Time spent dropping, fishing and pulling to shoe for wire line coring.

If a drilling bit is pulled too soon, to carry out a coring operation and is run in again after taking a core, this trip will also be counted under this item.

G3 - Tests and related operations

Time spent in relation to formation testing operations, from the moment drilling is stopped until normal operations are started up again, including waiting time, preparation of equipment and reconditioning of well.

*G4 - Logging and ancillary operations

Time spent on any logging operations, including CLABS, FIT, HRT, Caliper, CBL, Extensimetry, Back-off, etc. Time taken for conditioning well before, during operations. Waiting time, shut down for these operations.

C. COMPLETION - PLUGGING

C1 - Completion, Stimulation and Production Tests

All operations after setting production casing, including logging, squeezing, setting cement plugs, bridge plugs, flow rate and pressure measurements, running in of tubing, packer, Amerada gauges or any other production testing equipment and all fishing jobs or incidents arising during operations.

C2 - Abandonment of well

Operations carried out at end of drilling or testing for temporary or permanent plugging of well including pressure test or dry test, trip time. Included in this item are partial well plugging operations, with a view to drilling a side-track hole due to a change in the geological target.

Time taken for pulling out casing with related trips of casing cutter and casing spear.

Time taken to destroy, equipment (well head casing) at mud line level, setting of corrosion cap, cleaning of sea bed.

C3 - Waiting on weather

During completion or plugging and any resulting operations.

C4 - Other waiting time

Waiting on equipment orders, vacation.

* N.B.

- 1) Should side-track drilling be undertaken due to failure of a fishing job, to correction of drill path or to accidental side-tracking on plug, time spent on F1 - F2 and F3 will be preceded by an asterisk until the initial depth of the old hole is reached.

- Side track drilling further to a change in the geological target, will not come under a special heading but will for example be marked "bit".
2) Logging (G4) necessitated by a fishing job (extensimetry, back-off, CBL, etc.) will also be marked with an asterisk.

TIME DISTRIBUTION

OPERATOR EAN		COUNTRY NORWAY			WELL 25/1-6				RIG P.84				CONTRACTOR NEPFOR				MONTH/YEAR JANUARY 78			
DAY	Number of day from start drilling	D MOVING			F DRILLING-CASING				G FORMATION SURVEYS				A INTERRUPTION OF OPERATIONS UNDER ForG				C COMPLETION AND PLUGGING			
		D ₁	D ₂	D ₃	F ₁	F ₂	F ₃	F ₄	G ₁	G ₂	G ₃	G ₄	A ₁	A ₂	A ₃	A ₄	C ₁	C ₂	C ₃	C ₄
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13		P.84 was assigned to EAN on January 16, 1978 at																		
14																				
15																				
16	RU1	10 ³⁰																		
17	RU2	24 ⁰⁰																		
18	RU3	10 ³⁰	13 ³⁰																	
19	RU4		24 ⁰⁰																	
20	RU5		24 ⁰⁰																	
21	RU6		24 ⁰⁰																	
22	RU7		24 ⁰⁰																	
23	RU8		24 ⁰⁰																	
24	RU9	2 ³⁰	21 ³⁰																	
25	RU10	21 ⁴⁵	2 ¹⁵																	
26	RU11	24 ⁰⁰																		
27	1	5 ³⁰			11 ⁰⁰	1 ⁰⁰		6 ⁰⁰												
28	2							24 ⁰⁰												
29	3				6 ⁴⁵	5 ³⁰	2 ⁴⁵	8 ⁰⁰					1 ⁰⁰							
30	4					2	10 ³⁰					11 ³⁰								
31	5					2	1 ⁰⁰	21 ⁰⁰												
TOTAL		98 ⁴⁵	57 ¹⁵	/	18 ¹⁵	12 ¹⁵	16 ⁰⁰	55 ³⁰	/	/	/	11 ³⁰	1 ⁰⁰	/	/	/	/	/	/	
TIME OF SIDE-TRACK DRILLING								TIME OF LOGGING BY A FISHING JOB					Causes of side-track							
NB: 1) Each day time spent on F ₁ , F ₂ , F ₃ will be preceded by an asterisk until the initial depth of the old hole is reached and logging G ₄ necessitated by a fishing job.					Fishing job unsolved..... ☐															
					Accidental on Plug..... ☐															
					Correction op drill-path ☐															
2) Side-track drilling further to a change in the geological target will not come under a special heading but will for example be marked "Bis" or new number and new record will be open-up.																				

OPERATOR		COUNTRY	WELL	RIG	CONTRACTOR	MONTH/YEAR																		
EAN		NORWAY	25/1-6	P-84	NEPFOR	FEBRUARY 1978																		
DAY	Number of day from start drilling	D MOVING			F DRILLING - CASING				G FORMATION SURVEYS				A INTERRUPTION OF OPERATIONS UNDER F or G				C COMPLETION AND PLUGGING							
		D ₁	D ₂	D ₃	F ₁	F ₂	F ₃	F ₄	G ₁	G ₂	G ₃	G ₄	A ₁	A ₂	A ₃	A ₄	C ₁	C ₂	C ₃	C ₄				
1	6							8							16									
2	7							14 ⁴⁵							9 ¹⁵									
3	8				11 ³⁰		10 ⁰⁰	2 ³⁰																
4	9				16 ⁴⁵	1 ⁰⁰	6 ¹⁵																	
5	10				4 ³⁰	6 ⁴⁵	0 ¹⁵					12 ³⁰												
6	11											24 ⁰⁰												
7	12							15 ³⁰				8 ³⁰												
8	13							24 ⁰⁰																
9	14				0 ³⁰		0 ⁴⁵	22 ⁴⁵																
10	15				5 ³⁰	4 ⁴⁵	7 ³⁰					6 ¹⁵												
11	16				16 ³⁰		7 ³⁰																	
12	17				13 ⁰⁰	7 ⁰⁰	4 ⁰⁰																	
13	18				19 ¹⁵		4 ⁴⁵																	
14	19				1 ³⁰	4 ¹⁵	2 ¹⁵	8 ⁰⁰	8 ⁰⁰															
15	20				6 ⁰⁰	3 ⁴⁵	2 ⁴⁵	6 ⁰⁰	5 ³⁰															
16	21				9 ⁰⁰		4 ³⁰							10 ³⁰										
17	22													24 ⁰⁰										
18	23													24 ⁰⁰										
19	24						0 ¹⁵					1 ⁰⁰		22 ⁴⁵										
20	25				12 ⁰⁰	3 ³⁰	2 ⁰⁰					6 ³⁰												
21	26				4 ¹⁵	7 ¹⁵	12 ³⁰																	
22	27				11 ⁰⁰		7 ⁰⁰																	
23	28				7 ⁰⁰							3 ⁴⁵			12 ⁰⁰	6 ⁰⁰	1 ¹⁵							
24	29														24 ⁰⁰									
25	30						0 ⁴⁵					15 ¹⁵			5 ³⁰	2 ³⁰								
26	31				15 ³⁰							8 ³⁰												
27	32				13 ⁰⁰		9 ¹⁵					1 ⁴⁵												
28	33					0 ³⁰						23 ³⁰												
TOTAL		/	/	/	16 ⁴⁵	38 ⁴⁵	82 ¹⁵	30 ³⁰	14	13 ³⁰	/	11 ³⁰	81 ¹⁵	/	66 ⁴⁵	9 ⁴⁵	/	/	/	/				
TIME OF SIDE-TRACK DRILLING									TIME OF LOGGING BY A FISHING JOB								Causes of side-track							

F6bis/ 2-77

TIME DISTRIBUTION

OPERATOR EAN		COUNTRY NORWAY		WELL 25/1-6		RIG P-84		CONTRACTOR NEPFOR		MONTH/YEAR MARCH 1978										
DAY	Number of day from start drilling	D MOVING			F DRILLING CASING				G FORMATION SURVEYS				A INTERRUPTION OF OPERATIONS UNDER F or G				C COMPLETION AND PLUGGING			
		D ₁	D ₂	D ₃	F ₁	F ₂	F ₃	F ₄	G ₁	G ₂	G ₃	G ₄	A ₁	A ₂	A ₃	A ₄	C ₁	C ₂	C ₃	C ₄
1	34							11				13								
2	35							24												
3	36							24												
4	37							8 ⁴⁵				15 ¹⁵								
5	38				16 ⁴⁵			2 ¹⁵				5 ⁰⁰								
6	39				8 ¹⁵	7 ⁴⁵		2 ¹⁵							5 ⁴⁵					
7	40				20 ³⁰			3 ⁰⁰							0 ³⁰					
8	41				3 ¹⁵	13 ⁰⁰		1 ³⁰					6 ¹⁵							
9	42				7 ¹⁵	12 ⁴⁵		2 ⁴⁵					1 ¹⁵							
10	43				19 ³⁰	1 ³⁰		3 ⁰⁰												
11	44				17 ¹⁵	6 ⁴⁵														
12	45				12 ³⁰	3 ³⁰		3 ⁴⁵				4 ¹⁵								
13	46											24 ⁰⁰								
14	47					7 ⁴⁵		2 ⁰⁰				14 ¹⁵								
15	48											5 ³⁰					18 ³⁰			
16	49																24 ⁰⁰			
17	50																15 ⁴⁵	8 ¹⁵		
18	RU1	24 ⁰⁰																		
19	RU2	2 ⁰⁰																		
20																				
21		P-84 was assigned to TOM on March 19th 1978																		
22																				
23																				
24																				
25																				
26																				
27																				
28																				
29																				
30																				
31																				
TOTAL		26 ⁰⁰	/	/	15	00	15	15				00	30	/	/	15	/	15	15	/
TIME OF SIDE TRACK DRILLING									TIME OF LOGGING BY A FISHING JOB											
NB : 1) Each day time spent on F ₁ , F ₂ , F ₃ will be preceded by an asterisk until the initial depth of the old hole is reached and logging G ₄ necessitated by a fishing job.												Causes of side track { Fishing job unsolved ☐ Accidental on Plug ☐ Correction op drill-path ☐								
2) Side-track drilling further to a change in the geological target will not come under a special heading but will for example be marked "Bis" or new number and new record will be open up.																				

COMPLEMENTARY OFF-SHORE TIME SHARING CHART

F 6/3-68

Well: NORWAY 25/1-6

MONTH: JANUARY 78

Day of the month	1 - MOVING (1)				CASING AND 11 - CEMENTATIONS			REPAIR 15 - MAINTENANCE			WAITING 16 - (Various)			
	Duration of moving	Anchor handling	W.O.W.	TOTAL, to be reported on F. 6	Casing, cementation, W.O.C.	Put underwater equipment into work	TOTAL, to be reported on F. 6	Repair on underwater equipment	Other repairing Lubrication Maintenance	TOTAL, to be reported on F. 6	W.O.W.	Waiting due to repositioning of platform and repairing on anchor equipm.	Waiting, various reasons.	TOTAL, to be reported on F. 6
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16	10 ³⁰			10 ³⁰										
17	24 ⁰⁰			24 ⁰⁰										
18	10 ³⁰		13 ³⁰	24 ⁰⁰										
19			24 ⁰⁰	24 ⁰⁰										
20			24 ⁰⁰	24 ⁰⁰										
21			24 ⁰⁰	24 ⁰⁰										
22			24 ⁰⁰	24 ⁰⁰										
23			24 ⁰⁰	24 ⁰⁰										
24	2 ³⁰		21 ³⁰	24 ⁰⁰										
25	2 ¹⁵	21 ⁴⁵		24 ⁰⁰										
26		24 ⁰⁰		24 ⁰⁰										
27		5 ³⁰		5 ³⁰	2 ¹⁵		2 ¹⁵							
28					24 ⁰⁰		24 ⁰⁰							
29					2 ³⁰		2 ³⁰							
30						6 ³⁰	6 ³⁰		0 ³⁰	0 ³⁰				
31					11 ⁰⁰	4 ⁰⁰	15 ⁰⁰							
TOTAL (H)	a 49 ⁴⁵	b 51 ¹⁵	c 155 ⁰⁰	d 256 ⁰⁰	e 39 ⁴⁵	f 10 ³⁰	g 50 ¹⁵	h	i 0 ³⁰	j 0 ³⁰	k	l	m	n

(1) The time spent on a single well corresponds to the duration of the rig contract in the event of several wells in succession the starting up moment takes place at the preceeding drilling site: when the test anchor has been picked up (semisub, Drillship), when the jacking down operations are completed and the rig is afloat.

COMPLEMENTARY OFF-SHORE TIME SHARING CHART

F 6/3-68

Well: NORWEAY 25/1-6

MONTH: FEBRUARY 1978

Day of the month	1 - MOVING (1)				CASING AND 11 - CEMENTATIONS			REPAIR 15 - MAINTENANCE			WAITING 16 - (Various)			
	Duration of moving	Anchor handling	W.O.W.	TOTAL, to be reported on F. 6	Casing, cementation, W.O.C.	Put underwater equipment into work	TOTAL, to be reported on F. 6	Repair on underwater equipment	Other repairing Lubrication Maintenance	TOTAL, to be reported on F. 6	W.O.W.	Waiting due to repositioning of platform and repairing on anchor equipm.	Waiting, various reasons.	TOTAL, to be reported on F. 6
1					530	230	800				1600			1600
2						1130	1130				915			915
3						030	030							
4									030	030				
5														
6														
7					915		915							
8					1815	545	2400							
9						1530	1330							
10									030	030				
11														
12														
13														
14														
15														
16														
17														
18														
19														
20									030	030				
21						700	700		045	045				
22									400	400				
23						430	430				730			730
24						1030	1030				1330			1330
25						100	100	430	230	700				
26									030	030				
27														
28														
29														
30														
31														
TOTAL (H)	a	b	c	d	e	f	g	h	i	j	k	l	m	n
					3300	5645	8975	430	915	1345	4615			4615

(1) The time spent on a single well corresponds to the duration of the rig contract in the event of several wells in succession the starting up moment takes place at the preceding drilling site:
 when the test anchor has been picked up (semisub, Drillship)
 when the jacking down operations are completed and the rig is afloat.

COMPLEMENTARY OFF-SHORE TIME SHARING CHART

F 6/3-68

Well: NORWAY 25/1-6

MONTH: MARCH 1978

Day of the month	1 - MOVING (1)				CASING AND 11 - CEMENTATIONS			REPAIR 15 - MAINTENANCE			WAITING 16 - (Various)			
	Duration of moving	Anchor handling	W.O.W.	TOTAL, to be reported on F. 6	Casing, cementation, W.O.C.	Put underwater equipment into work	TOTAL, to be reported on F. 6	Repair on underwater equipment	Other repairing Lubrication Maintenance	TOTAL, to be reported on F. 6	W.O.W.	Waiting due to repositioning of platform and repairing on anchor equipm.	Waiting, various reasons.	TOTAL, to be reported on F. 6
1									045	045				
2					015	145	200							
3					2245		2245							
4						1000	1000							
5									045	045				
6									545	545				
7								030		030				
8														
9														
10														
11									030	030				
12														
13														
14														
15									030	030				
16						645	645							
17		915		915							815			815
18	230	2130		2400										
19	200			200										
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
31														
TOTAL (H)	a 430	b 3045	c	d 3515	e 2300	f 1830	g 4130	h 030	i 815	j 845	k 815	l	m	n 815

(1) The time spent on a single well corresponds to the duration of the rig contract in the event of several wells in succession the starting up moment takes place at the preceding drilling site.

— when the test anchor has been picked up (semisub, Drillship).
— when the jacking down operations are completed and the rig is afloat.

BIT RECORD

F 7/2-67

OPERATOR: ELF AQUITAINE N.	WELL: 25/1-6	CONTRACTOR: NEPFOR	RIG: PENTAGONE 84	PUMPS AND LINERS: 2 x G.D. - 1600. P2-11 6 $\frac{1}{2}$ Liner - 11" stroke
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Bit No	Ø Bit Dia	Make	Type	Jets	Serie No	Reaming Time (h)	Opening		Drilling			Depth out (m)	Parameters				Mud		Bit wear				Type of formation
							Length (m)	Time (h)	Length (m)	Time (h)	Prog. m/n		W.O.B. (T)	R.P.M.	Pump press	Flow rate	S.G.	Vis	T	B	G	RG	
1	26"	TSK	3S	20/32	2396				63	11 ³⁰	5,48	192	2/5	60	63	3900	1.05	85	2	1	0		
-	36"	GRANT	H.O.		Nepfor		=	Simultaneous drilling and hole opening															
2	17 $\frac{1}{2}$ "	HUGHES	OSC3A	20	MJ 675				276	6 ³⁰	42,46	468	0/5	100	120	3600	1.07	62	2	1	0		SAND-CLAY
2R	17 $\frac{1}{2}$ "	HUGHES	OSC3A	20	MJ 675	8 ³⁰						468	3/7	80	115	3600	1.07	62	3	2	0		SAND-CLAY
-	26"	SERVO	1500				276	8 ³⁰			32,47	468	REAMED 26" HOLE						4	4	0		
3	17 $\frac{1}{2}$ "	HUG	OSC 3A	20	EX 304				766	28 ¹⁵	27,12	1234	0/12	120	140	3800	1.09	50	4	2	0		SAND-CLAY
2PR	17 $\frac{1}{2}$ "	HUG	OSC 3A	20	NJ 675				91	4 ³⁰	20,22	1325	15/20	140	140	3800	1.09	52	4	2	0		SAND SHALE CLAY
4	12 1/2	SMF	ES3K	16	69683	3 ³⁰			30	3 ⁴⁵	8,00	1355	10/15	100	140	2400	1.18	65	3	3	0		DRLG - DV - Float Shoe
5	12 1/4	SMF	ES3K	13	69530				496	25 ¹⁵	19,64	1851	13/18	120	210	2400	1.20	70	4	4	0		SHALE -
6	12 1/4	SMF	ES3K	14	61285				276	27 ⁴⁵	9,95	2127	15/18	120	210	2400	1.20	65	6	8	0		SHALE + DOWNITE
K1	8 $\frac{15}{32}$	CHRIS	C22	-	P2660				9	22 ⁰⁰	0,41	2136	6/10	80	80	1000	1.22	70	-	-	-		Rec.-100% SHALE
7	12 1/4	HUG	XV	14	63333	0 ³⁰	9	0 ¹⁵	79	15 ⁰⁰	5,27	2215	18/20	120	205	2400	1.24	78	6	7	0		SHALE - SAND
8	12 1/4	HUG	X3A	14	591PL	32 ⁴⁵			-	-	-	2215	0/15	100	210	2400	1.26	80	3	4	3		Reaming Shale
9	12 1/4	HUG	XV	15	6330	0 ³⁰			67	16 ⁰⁰	4,19	2282	15/20	110	195	2400	1.25	75	6	8	0		Shale Sand
10	12 1/4	SMITH	2JS	15	936KL	6 ⁰⁰			118	18 ⁰⁰	6,56	2400	18/20	60/40	170	2400	1.29	75	1	1	0		Sand Shale
10R	12 1/4	SMITH	2JS	15	936KL				150	46 ³⁰	3,23	2550	18/20	60	170	2400	1.30	75	3	8	0		Sabd Shale
11	12 1/4	SMF	EM8K	-	50615	5 ¹⁵	262		-	-	-	2550	0/10	100	170	2400	1.30	75	1	1	1		
12	8 $\frac{1}{2}$	HUG	XV	14	6198				63	16 ⁴⁵	3,76	2613	10/20	100	100	1500	1.12	43	7	8	1/4		Sand Shale Clay
TOTAL >						57 00	547	8 45	2484	241 45													

BIT RECORD

F 7/2-67

OPERATOR:

WELL:

CONTRACTOR:**RIG:**

PUMPS AND LINERS:

2 x G.D. - 1600 P2 - 11

ELF AQUITAINE
NORGE

25/1-6

NEPFOR

PENTAGONE 84

6 $\frac{1}{2}$ " Liner - 11" Stroke

Bit No	Ø Bit Dia	Make	Type	Size	Serie No	Reaming	Opening		Drilling			Depth out (m)		Parameters				Mud		Bit wear				Type of formation
						Time (h)	Length (m)	Time (h)	Length (m)	Time (h)	Prog. m/n			W.O.B. (T)	R.P.M.	Pump press	Flow rate	S.G.	Vis	T	B	G	RG	
13	8½	SMITH	F2	11	VW382				120	31 ³⁰	3.81	2733		20	60	130	1300	1.16	45	8	8	-		1 cone lost
14	8½	HUG	XV	11	61991				2	2 ⁴⁵	0.73	2735		10/15	100	130	1300	1.16	45	8	8	CB		Drill junk fish
15	8½	SMITH	SWC	11	PH128				4	1 ³⁰	2.67	2739		10/15	50	130	1300	1.16	45	1	1	I		drill junk - fish without basket
16	8½	SMF	ES5K	11	15654				38	8 ³⁰	4.47	2777		12	110	140	1350	1.16	44	6	8	1/8	LC	1 cone locked
17	8½	SMITH	F3	11	BR103				55	19 ³⁰	2.82	2832		20	60	140	1350	1.17	48	1	3	I		marle - limestone
18	8½	HUG	J33	11	R2149				68	29 ⁴⁵	2.29	2900		20	60	140	1350	1.16	45	1	4	I	-	limestone

CORE BIT RECORD

F 8/2-67

OPERATOR:

ELF AQUITAINE NORGE

WELL:

25/1-6

CONTRACTOR:

NEPFOR

RIG:

P-84

PUMP AND LINER:

2 x G.D. 1600 P2 - 11

6½" Liners - 11" stroke

[illegible]

WELL: 25/1-6

PAGE 3

CASING AND CEMENTING REPORT

F5/2-67

OPERATOR	COUNTRY	WELL	CONTR.	RIG	DIAMETER	DATE
EAN	NORWAY	25/1-6	NEPFOR	P-84	30"	THE 28.01.78

IMPORTANT. - All depths calculated from RKB

WELL CONDITION

 Open hole size 36" Deviation: Max 1 ° 00 at 192 m. Min: ° at m
 Cavings (depths - size....)

 Mud losses during drilling
 (depth - quantities)

 No of reamings 1 short trip Reamer at: above 26" bit m from bit

 Last casing diameter: shoe at: m

 BOP-stack during RIH (type, equipm., test pressure):

 MUD: TYPE HTC Spud mud S.G = 1.05 VIS. = 85 f?
OBSERVATIONS OR REMARKS
Drilled 36" hole w/sea water + 5 m³ slugs of mud.
Spotted high visc. mud to stabilize hole prior RIH casing
CASING DETAILS

ELEMENTS	TYPE	WALL THICKNESS m m.	GRADE	WEIGHT P.P.F.	VOLUME INSIDE	LENGTH (m)	Nº OF JOINTS
SHOE	Baker Float shoe, welded				in liter	0.55	×
FLOAT COLLAR							×
Joint	Squnch ATD	25.4	x 52	309.7	397.2	12.11	1
Joint	Squnch ATD	25.4	x 52	309.7	397.2	12.52	1
Joint	Squnch ATD	25.4	x 52	309.7	397.2	12.52	1
Joint	Squnch ATD	25.4	x 52	309.7	397.2	12.47	
Joint	Squnch ATL	25.4	x 52	309.7	397.2	12.68	1
Housing	30" Vetco housing w/30" Extension		x-52				
	w/ATD Squnch joint box down						
LANDING STRING	Drill pipe 5"					128.05	×
DRIFT DIAMETER: <u> </u> TOTAL >						192.00	m.

 MAX ALLOWED TENSION: 2110 · 10³ da N (2152 Tons)

 WEIGHT OF CASING STRING: in air 29.5 tons in mud 25.4 tons

CASING EQUIPMENT

CENTRALIZERS	SCRATCHERS	SPECIAL EQUIPMENT (SPECIFICATION — DEPTH)
TYPE <u> </u>	TYPE <u> </u>	
QUANTITY <u> </u>	QUANTITY <u> </u>	Housing 30" VETCO ass. No. 110684
DEPTH — RKB <u> </u>	DEPTH — RKB <u> </u>	
		Permanent base plate 2/4 x 10ft guide posts. Ass. No. 130610
		Transpinger fixed on base plate at 127 m

R.I.H.

TYPE OF POWER TONG (Squench joints)
 THREAD DOPE
 MAKE UP TORQUE lbs. ft or m kg
 FILLING UP EACH . . . JOINTS
 CIRCULATION WHILE RIH (duration-depth)

TOTAL RIH TIME (circ. included) 4 h. 15 RATE 5 joints/h
 CASING SHOE SET AT 192 m
 DISTANCE, RKB-MUD LINE 129 m
 DATUM OR DATE PLAN DEFINITION Water depth 105 m
 Top 30" housing RKB 128m

CIRCULATED AT TD: Hours Flow Rate Pressure
 HANDLING CASING: Hours 4 1/2 Cadence Amplitude
 M.D. READINGS AFTER CIRCULATION
 OBSERVATIONS (OR REMARKS) Run w/sea water + running tool

FIRST STAGE OR ONE STAGE CEMENT

CEMENTING OPERATOR: Dowell Schlumberger
 MIXING PUMP B.J. Low pressure
 SLURRY PUMP Dowell 3 3/4" x 3"
 SLURRY DISPLACEMENT PUMP Dowell
 STARTED SLURRY FABRICATION AT 0 3:3 8 h.
 ENDED SLURRY PUMPING AT 0 4:4 1 h.
 ENDED DISPLACEMENT AT 0 4:4 8 h.
 BLEDDED OFF AT 0 4:5 0 h.

TYPE OF CEMENT	SACKS, BULK	% ADDITIONAL CEMENT	ADDITIVES USED	d SLURRY	QUANTITY
Light weight	735	150%		1.52	25 T.
					T.
					T.

WATER PLUG, TYPE Sea water VOLUME 144 bbl ADDITIVES
 SLURRY FLOW RATE 3 BPM DISPLACING FLOW RATE 4 BPM
 TYPE OF DISPLACING FLUID sea H2O PUMPED VOLUME 21 bbl
 DISPLACING PRESSURE START END BUMPED PLUG AT: kg/cm²
 ESTIMATED LOSSES
 TESTED CASING TO RESULT
 EVENT. PRESSURE AFTER BLEED OFF

CASING ON SPOOL

M.D. READING AFTER DISPLACEMENT
 M.D. READING AFTER WOC Casing tension on spool T.
 AID DOWN CASING ON SPOOL h. after displacement
 SPOOL: TYPE Housing VETCO 30" DIMENSION SERIE Ass. No. 110684
 TYPE OF SLIPS AND PACK ASSY.
 SUPPLEMENTARY PACK OFF (SEAL)
 DISTANCE «SPOOL-ROTARY TABLE» Top of housing at 128 m
 CUT CASING cm OVER SPOOL

TEST CASING

TEMP. LOGGING h. after woc
 CBL h. after woc Cement Top annulus Mud line 129 m
 RESULTS:
 TEST CASING AND BOP (hydril and rams) Pressure test
 PACKER SET AT:
 RESULTS:

CASING AND CEMENTING REPORT

F5/2-67

OPERATOR	COUNTRY	WELL	CONTR.	RIG	DIAMETER	DATE
EAN	NORWAY	25/1-6	NEPFOR	P84	20"	THE 31.01.78

IMPORTANT. - All depths calculated from RKB

WELL CONDITION

Open hole size 26" Deviation: Max 1 ° 00 at 182 m. Min: 0 ° 45 at 468 m
 Cavings (depths - size....) /

Mud losses during drilling no
 (depth - quantities)

Nº of reamings 1 Reamer at: 9 m m from bit
 Last casing diameter: 30" shoe at: 192 m

BOP-stack during RIH (type, equipm., test pressure): no

MUD: TYPE Bentonite/CMC S.G = 1,08 vis. = 56 ft 6

OBSERVATIONS OR REMARKS Drill in 17 1/2. Open hole to 26" with hydraulic underreamer.

CASING DETAILS

ELEMENTS	TYPE	WALL THICKNESS m m.	GRADE	WEIGHT P.P.F.	VOLUME INSIDE	LENGTH (m)	Nº OF JOINTS
SHOE	Baker				1/m	0.61	×
	Casing joint	12.70	K55	106	182.92	11.00	1
FLOAT COLLAR	Baker					0.69	×
	Casing joint	12.70	K55	106	182.92	302.13	27
	buttress pin/Vetco box	12.70	K55	106	"	11.22	1
Housing	Vetco 20 3/4 - 16" 2000 psi					7.69	1
LANDING STRING	5" drill pipe + running tool.					126.66	×
DRIFT DIAMETER: 19"						TOTAL >	460 m. 30
MAX ALLOWED TENSION: 749 ^T							
WEIGHT OF CASING STRING: in air 52 ^T tons in mud 44 ^T tons							

CASING EQUIPMENT

CENTRALIZERS	SCRATCHERS	SPECIAL EQUIPMENT (SPECIFICATION — DEPTH)
TYPE <u>Blade and Positive</u>	TYPE _____	
QUANTITY <u>5</u>	QUANTITY _____	
DEPTH — RKB	DEPTH — RKB	
458		- special 20 3/4-2000 psi
455		VETCO Housing P/N 111381
445		w/20" OD x.750 wall casing
		extension w/VETCO type "L"
		Pin down.
185		- special seat protector
165		for 20 3/4 housing - PN
		111386

R.I.H.

TYPE OF POWER TONG ECKEL 20"

THREAD DOPE Bestolife ZN

MAKE UP TORQUE 1500 M/Kfs lbs. ft or m kg

FILLING UP EACH 1 JOINTS -

CIRCULATION WHILE RIH (duration-depth) no

TOTAL RIH TIME (circ. included) 12 h. 30 RATE 3 joints/h

460 m

CASING SHOE SET AT

DISTANCE,RKB-MUD LINE 129 m

DATUM OR DATE PLAN DEFINITION

CIRCULATED AT TD: Hours Break circulation Flow Rate / Pressure /

HANDLING CASING: Hours / Cadence / Amplitude /

M.D. READINGS AFTER CIRCULATION /

OBSERVATIONS (OR REMARKS) Casing set on hanger

FIRST STAGE OR ONE STAGE CEMENT

CEMENTING OPERATOR: DOWELL

MIXING PUMP DOWELL

SLURRY PUMP DOWELL

SLURRY DISPLACEMENT PUMP Rig bumps

STARTED SLURRY FABRICATION AT 2h00 h.

ENDED SLURRY PUMPING AT 4h05 h.

ENDED DISPLACEMENT AT 4h35 h.

BLEEDED OFF AT 4h45 h.

TYPE OF CEMENT	SACKS, BULK	% ADDITIONAL CEMENT	ADDITIVES USED	d SLURRY	QUANTITY
light cement	Bulk	130%	no	1.52	85 T.
					T.
					T.

WATER PLUG, TYPE no VOLUME / ADDITIVES /

SLURRY FLOW RATE 5.5 bbls/mn DISPLACING FLOW RATE 2500 l/mn

TYPE OF DISPLACING FLUID sea water PUMPED VOLUME 59 m³

DISPLACING PRESSURE START 0 END 450 psi BUMPED PLUG AT: 800 psi ~~800 psi~~

ESTIMATED LOSSES

TESTED CASING TO RESULT

EVENT. PRESSURE AFTER BLEED OFF

CASING ON SPOOL

M.D. READING AFTER DISPLACEMENT

M.D. READING AFTER WOC

AID DOWN CASING ON SPOOL h. after displacement

SPOOL: TYPE DIMENSION SERIE

TYPE OF SLIPS AND PACK ASSY.

SUPPLEMENTARY PACK OFF (SEAL)

DISTANCE «SPOOL-ROTARY TABLE»

CUT CASING cm OVER SPOOL

Casing tension on spool >

T.

TEST CASING

TEMP. LOGGING h. after woc

CBL h. after woc

RESULTS:

Cement Top annulus >

Sea bed 129 m

TEST CASING AND BOP (hydril and rams) Pressure test >

1000 psi

PACKER SET AT:

RESULTS:

IMPORTANT. - THE CASING STRING COMPOSITION BEGINS WITH THE LANDING STRING LENGTH FROM RRB TO WELL HEAD, THEN ADD THE LENGTH JOINT BY JOINT FROM THE WELLHEAD.

CASING AND CEMENTING REPORT

F5/2-67

OPERATOR	COUNTRY	WELL	CONTR.	RIG	DIAMETER	DATE
EAN	NORWAY	25/1-6	NEPFOR	P-84	13 3/8	THE 08.02.78

IMPORTANT. - All depths calculated from RKB

WELL CONDITION

Open hole size 17½ Deviation: Max 1 ° 45 at 1325 m. Min: 0 ° 3 at 1186 m
 Cavings (depths - size....) OVER 22" BELOW 20" SHOE.
 Mud losses during drilling _____
 (depth - quantities) _____
 No of reamings 2 Reamer at: NEAR BIT-9m-18m-27m m from bit
 Last casing diameter: 20" shoe at: 460 m
 BOP-stack during RIH (type, equipm., test pressure):
20 3/4 x 2000 psi - WP
VETCO ASSY - WITH CAMERON DOUBLE U + HYDRILL HSP 20 -
 MUD: TYPE ECL S.G = 1,16 vis. = 70 ft 4,5
 OBSERVATIONS OR REMARKS _____

CASING DETAILS

ELEMENTS	TYPE	WALL THICKNESS m m.	GRADE	WEIGHT P.P.F.	VOLUME INSIDE	LENGTH (m)	NO OF JOINTS
SHOE	DOWELL		K55			0,60	×
	2 CSGS JOINTS	12,19		68#	78,08	24,80	2
FLOAT COLLAR	DOWELL					0,52	×
	CSG JOINTS	12,19	K55	68#	78,08	657,67	61
DV	DOWELL STAGE COLLAR					0,75	1
	CSG JOINTS	12,19	K55	68#		97,18	8
	CSG JOINTS	13,06	N80	72#	77,24	400,09	22
HOUSING	VETCO					6,82	
LANDING STRING	CASING 13 3/8		N80	72#	77,24	125,40	×
						1313,83	
MAX ALLOWED TENSION: <u>475^T</u> DRIFT DIAMETER: _____ TOTAL >							
WEIGHT OF CASING STRING: in air <u>132^T</u> tons in mud <u>112^T</u> tons							

CASING EQUIPMENT

CENTRALIZERS BLADE + POSITIVES		SCRATCHERS	SPECIAL EQUIPMENT (SPECIFICATION — DEPTH)
TYPE _____		TYPE _____	
QUANTITY <u>0</u>		QUANTITY _____	- special housing 13 5/8 well-
DEPTH — RKB		DEPTH — RKB	head Type SG1 - 10.000 psi
POSITIVE <u>430 m</u>			P/N 111383 w/13 5/8 68 lb/ft
<u>455</u>			BUTTRESS EXTENSION.
BLADES <u>492</u>			
<u>516</u>			- seat protector P/N 111386
<u>1274</u>			
<u>1244</u>			
<u>1301</u>			
<u>1308</u>			

R.I.H.

TYPE OF POWER TONG 13 3/8 ECKELS TONG
 THREAD DOPE 11000/13000 Bestolite
 MAKE UP TORQUE 1100/13000 lbs. ft or m kg
 FILLING UP EACH JOINTS + adjustment every 10 joints
 CIRCULATION WHILE RIH (duration-depth) _____

TOTAL RIH TIME (circ. included) 13 h. 30 RATE 7 joints/h 1313,80 m
 CASING SHOE SET AT _____
 DISTANCE, RKB-MUD LINE 129m
 DATUM OR DATE PLAN DEFINITION _____

CIRCULATED AT TD: Hours 2^H 15 Flow Rate 1200 l Pressure 50 kps
 HANDLING CASING: Hours _____ Cadence _____ Amplitude _____
 M.D. READINGS AFTER CIRCULATION 150 T
 OBSERVATIONS (OR REMARKS) CASING SET ON HOUSING FOR CIRCULATION

FIRST STAGE OR ONE STAGE CEMENT

CEMENTING OPERATOR: DOWELL STARTED SLURRY FABRICATION AT 5⁰⁰ h.
 MIXING PUMP DOWELL ENDED SLURRY PUMPING AT 7⁴⁵ h.
 SLURRY PUMP DOWELL ENDED DISPLACEMENT AT 8⁰⁰ h.
 SLURRY DISPLACEMENT PUMP RIG PUMP BLEED OFF AT 9⁰⁰ h.

TYPE OF CEMENT	SACKS, BULK	% ADDITIONAL CEMENT	ADDITIVES USED	d SLURRY	QUANTITY
LIGMT CMT	BULK	CALIPER	1% D 80	1,52	55 T.
CLASS G	BULK	CALIPER	1,4% D 80	1,90	15 T.
					 T.

WATER PLUG, TYPE THICK MUD VOLUME 5 m³ ADDITIVES _____
 SLURRY FLOW RATE 800/1000 l DISPLACING FLOW RATE 1200 l
 TYPE OF DISPLACING FLUID DRLG MUD PUMPED VOLUME 100 m³
 DISPLACING PRESSURE START 7000 psi END 1500 psi BUMPED PLUG AT: 2000 psi
 ESTIMATED LOSSES _____
 TESTED CASING TO 3000 psi RESULT OK
 EVENT. PRESSURE AFTER BLEED OFF /

CASING ON SPOOL

M.D. READING AFTER DISPLACEMENT CSG SET
 M.D. READING AFTER WOC _____ Casing tension on spool > SET T.
 AID DOWN CASING ON SPOOL _____ h. after displacement
 SPOOL: TYPE VETCO HOUSING DIMENSION BODY 13 5/8 SERIE PART NO. 111010-2
 TYPE OF SLIPS AND PACK ASSY. _____
 SUPPLEMENTARY PACK OFF (SEAL) _____
 DISTANCE «SPOOL-ROTARY TABLE» 125 m 40
 CUT CASING _____ cm OVER SPOOL _____

TEST CASING

TEMP. LOGGING _____ h. after woc
 CBL 48 h. after woc First Cement Top annulus > 685 m
 RESULTS: _____ Second " " " MUD LINE
 TEST CASING AND BOP (hydril and rams) CASING 3000 PSI - BOP'S Pressure test > 7500 psi
 PACKER SET AT: _____
 RESULTS: ALL TESTS OK.

MULTISTAGE CEMENTING REPORT

F 5/2-67

WELL:

25/1-6

CASING
DIAMETER

13 3/8

Date

08.02.78

BEFORE CEMENTATION

depth of perforations or D.V. (Stagging Tool)

504 m

Type, Grade, DV

68*

K55 Buttress

DV OPENING

PERFORATIONS DONE 45 min AFTER DISPLACING FIRST STAGE

CEMENT

DV OPENING PRESSURE: 850 psi

CIRCULATION BEFORE CEMENTATION: duration 4H30 Flow rate 1200 Pressure 1000

OBSERVATIONS OR REMARKS

CEMENTATION

OPERATOR

Dowell Schlumberger

MIXING PUMP

B.J. Low pressure

SLURRY PUMP

Dowell 3 3/4 x 3

SLURRY DISPLACEMENT PUMP:

Dowell

STARTED SLURRY FABRICATION AT: 14H00 h.

ENDED SLURRY PUMPING AT: 14H45 h.

ENDED DISPLACEMENT AT: 15H30 h.

BLEED OFF AT: 15H45 h.

Type of cement

Sacks,
Bulk

% Additional
Cement

Additive used

S.G.
Slurry

Quantity

NORCEM light

Bulk

w/caliper

Mixed w/sea water

1.52

26 Tons

without additives

WATER PLUG: Type

Sea water

Volume 5 m³

Additive none

SLURRY PUMPING RATE 1000 l/min

DISPLACING FLOW RATE 1200 l/min

TYPE OF DISPLACING FLUID: Drlg. mud

PUMPED VOLUME 40.000 liters

DISPLACING, PRESSURE, START: 250 psi

AT THE END: 255 psi

CLOSED DV at 2050 psi

kg/cm²

ESTIMATED LOSSES none

CHECK

TEMPERATURE LOG AFTER

h. after cementation

CBL

h. after cementation

top of cement in annulus

179 m

RESULTS OF LOGGING:

TESTING DV

15 min

OR PERFORATION AFTER DRILLING OUT

DURATION

PACKER SET. AT 12 1/4 bit below DV

test pressure

3000 psi

RESULTS OF TEST

13 3/8" csg test at 3000 psi - 15 min. OK. w/12 1/4 drlg.

bit below DV and 5" drill string set on upper pipe ram.

CASING STRING COMPOSITION							F 5 ^{ter} /2-67		
well		25/1-6		casing diameter	13 3/8	distance RKB mud-line			129 m
JOINT NO.	WEIGHT GRADE	THREAD JOINT	LENGTH OF JOINT	CUMUL. LENGTH	JOINT NO.	WALLTHICKNESS AND GRADE	THREAD	LENGTH OF JOINT	CUMUL. LENGTH
- LANDING ASSY		RKB	TOP HOUSING		36	68* K55	BUTT	13,03	580,66
			125,40		37	"	"	12,84	593,50
HOUSING			6,84	132,22	38	"	"	13,58	616,68
1	72* N80	BUTT	12,96	145,18	39	"	"	13,10	619,78
2	"	"	11,36	156,54	40	"	"	13,02	632,80
3	"	"	12,00	168,54	41	"	"	13,04	645,84
4	"	"	13,13	181,67	42	"	"	13,16	659,00
5	"	"	11,70	193,37	43	"	"	13,22	672,22
6	"	"	12,78	206,15	44	"	"	12,89	685,11
7	"	"	11,99	218,14	45	"	"	12,98	698,09
8	"	"	13,54	231,68	46	"	"	12,86	710,95
9	"	"	12,62	244,35	47	"	"	13,23	724,15
10	"	"	11,86	256,16	48	"	"	12,98	737,16
11	"	"	13,24	269,40	49	"	"	12,64	749,80
12	"	"	11,71	281,11	50	"	"	13,06	762,86
13	"	"	12,80	243,91	51	"	"	13,07	775,93
14	"	"	12,26	306,17	52	"	"	12,42	788,35
15	"	"	12,60	318,77	53	"	"	13,35	801,70
16	"	"	11,88	330,65	54	"	"	11,19	812,89
17	"	"	11,83	342,48	55	"	"	11,88	824,77
18	"	"	12,49	355,47	56	"	"	12,92	837,69
19	"	"	12,48	367,95	57	"	"	12,04	849,73
20	"	"	12,85	380,80	58	"	"	13,21	862,94
21	"	"	12,87	393,67	59	"	"	12,85	875,79
22	"	"	13,24	406,90	60	"	"	13,19	888,98
23	68* K55	BUTT	11,40	418,31	61	"	"	12,81	901,79
24	"	"	11,81	430,12	62	"	"	12,95	914,74
25	"	"	11,83	441,95	63	"	"	13,15	927,89
26	"	"	13,05	455,00	64	"	"	13,18	941,07
27	"	"	11,38	466,38	65	"	"	12,99	954,06
28	"	"	12,85	479,23	66	"	"	13,02	467,08
29	"	"	13,17	492,40	67	"	"	12,41	979,49
30	"	"	11,69	504,09	68	"	"	13,25	992,74
DV	"	"	0,75	504,84	69	"	"	13,07	1005,81
31	"	"	11,60	516,44	70	"	"	12,84	1018,65
32	"	"	11,84	528,28	71	"	"	13,08	1031,73
33	"	"	13,16	541,44	72	"	"	12,66	1044,39
34	"	"	13,26	554,70	73	"	"	12,79	1057,18
35	"	"	12,43	567,63	74	"	"	13,07	1070,25

IMPORTANT. - THE CASING STRING COMPOSITION BEGINS WITH THE LANDING STRING LENGTH FROM RRB TO WELL HEAD, THEN ADD THE LENGTH JOINT BY JOINT FROM THE WELLHEAD.

CASING STRING COMPOSITION

F 5^{ter} / 2-67

[illegible]

IMPORTANT. - THE CASING STRING COMPOSITION BEGINS WITH THE LANDING STRING LENGTH FROM RRB TO WELL HEAD, THEN ADD THE LENGTH JOINT BY JOINT FROM THE WELLHEAD.

CASING AND CEMENTING REPORT

F5/2-67

OPERATOR	COUNTRY	WELL	CONTR.	RIG	DIAMETER	DATE
E.A.N.	NORWAY	25/1-6	NEPFOR	P-84	9 5/8	THE 03.03.78

IMPORTANT. - All depths calculated from RKB

WELL CONDITION

Open hole size 12 1/4" Deviation: Max 1 ° 57 at 1847 m. Min: 0 ° 43 at 1448 m
 Cavings (depths - size....) caving 17" to 25" - from 1570m to 2000m

Mud losses during drilling _____
 (depth - quantities)

No of reamings 1 Reamer at: Near bit - 9 m m from bit
 Last casing diameter: 13 3/8" shoe at: 1313,83 m m
 BOP-stack during RIH (type, equipm., test pressure): Cameron type U 13 5/8 10.000 psi
HYDRIL 13 5/8 10.000 psi

MUD: TYPE L.F.C. + DEXTRID S.G. = 1,30 VIS. = 70 ft 3,2

OBSERVATIONS OR REMARKS _____

CASING DETAILS

ELEMENTS	TYPE	WALL THICKNESS m m.	GRADE	WEIGHT P.P.F.	VOLUME INSIDE	LENGTH (m)	Nº OF JOINTS
SHOE	DOWELL				1/m	0,55	×
	2 Csg JOINTS	11,99	N80	47 lbs	38,19	25,35	2
FLOAT COLLAR	DOWELL					0,48	×
	Csgs JOINTS	11,99	N80	47 lbs	38,19	2360,01	199
	Pup joint	11,99	N80	47 lbs	38,19	7,21	1
LANDING STRING	DRILL PIPE 5"		S-135	19,5		126,56	×
						2520,16	m.
MAX ALLOWED TENSION: <u>482 T</u>		DRIFT DIAMETER: _____		TOTAL >			
WEIGHT OF CASING STRING: in air <u>164,5^T</u>		tons in mud <u>137,2^T</u>					

CASING EQUIPMENT

CENTRALIZERS		SCRATCHERS	SPECIAL EQUIPMENT (SPECIFICATION — DEPTH)
BLADES + POSITIVES			
TYPE _____		TYPE _____	
QUANTITY <u>8</u>		QUANTITY _____	
DEPTH — RKB		DEPTH — RKB	
POSITIVE	1308m		- casing hanger - VETCO Type
	1296m		SG1 13 5/8x9 5/8 PM 111018
BLADES	2514m		w/extension pup joint 9 5/8
	2500m		47 lb/ft N80 - BUTTRESS.
	2481m		
	2455m		
	2442m		- wear bushing - 13 5/8x9 5/8
	2430m		Type SG1 P/N 111026

R.I.H.	TYPE OF POWER TONG <u>9 5/8 hydraulic tong</u>				
	THREAD DOPE <u>BESTOLITE</u>				
	MAKE UP TORQUE <u>11000 lbs/ft</u> lbs. ft or m kg				
	FILLING UP EACH <u>5</u> JOINTS				
	CIRCULATION WHILE RIH (duration-depth)				
	TOTAL RIH TIME (circ. included) <u>16</u> h. <u>00</u> RATE <u>16</u> joints/h				
	CASING SHOE SET AT				2520 m
	DISTANCE, RKB-MUD LINE <u>129m</u>				
	DATUM OR DATE PLAN DEFINITION				
	CIRCULATED AT TD: Hours <u>3H15</u> Flow Rate <u>1700 psi</u> Pressure <u>1200 psi</u>				
HANDLING CASING: Hours Cadence Amplitude					
M.D. READINGS AFTER CIRCULATION					
OBSERVATIONS (OR REMARKS) <u>casing set on cgs hanger for circulation</u>					
FIRST STAGE OR ONE STAGE CEMENT	CEMENTING OPERATOR: <u>DOWELL</u>		STARTED SLURRY FABRICATION AT <u>16H30</u> h.		
	MIXING PUMP <u>DOWELL</u>		ENDED SLURRY PUMPING AT <u>19H00</u> h.		
	SLURRY PUMP <u>DOWELL</u>		ENDED DISPLACEMENT AT <u>20H25</u> h.		
	SLURRY DISPLACEMENT PUMP <u>RIG PUMP</u>		BLEDDED OFF AT <u>20H30</u> h.		
	TYPE OF CEMENT	SACKS, BULK	% ADDITIONAL CEMENT	ADDITIVES USED	d SLURRY QUANTITY
	LIGHT CMT	BULK	Caliper	D80 4,44% D81 0,01% D73 0,89%	1,52 90 T.
	CLASS G	BULK	Caliper	D80 D81 D73 4,44% 0,09% 0,89%	1,90 25 T.
					 T.
	WATER PLUG, TYPE VOLUME ADDITIVES				
	SLURRY FLOW RATE <u>800 l</u> DISPLACING FLOW RATE <u>1600-800-700</u> liters				
TYPE OF DISPLACING FLUID <u>Mud</u> PUMPED VOLUME <u>91,7 m³</u>					
DISPLACING PRESSURE START <u>800 psi</u> END <u>1400 psi</u> BUMPED PLUG AT: <u>105,5</u> kg/cm ²					
ESTIMATED LOSSES					
TESTED CASING TO <u>4500 psi</u> RESULT <u>GOOD</u>					
EVENT. PRESSURE AFTER BLEED OFF					
CASING ON SPOOL	M.D. READING AFTER DISPLACEMENT <u>csg set</u>				
	M.D. READING AFTER WOC				Casing tension on spool SET T.
	AID DOWN CASING ON SPOOL h. after displacement				
	SPOOL: TYPE <u>VETCO HOUSING</u>		DIMENSION <u>13 5/8</u> SERIE		
	TYPE OF SLIPS AND PACK ASSY. <u>Casing Hanger 13 5/8 x 9 5/8</u>				<u>1000 psi</u>
	SUPPLEMENTARY PACK OFF (SEAL)				
	DISTANCE «SPOOL-ROTARY TABLE» <u>126,56 m</u>				
	CUT CASING cm OVER SPOOL				
TEST CASING	TEMP. LOGGING h. after woc				
	CBL h. after woc				Cement Top annulus 1170 m
	RESULTS:				
	<u>CBL ran 13.03.78 prior abandoning the well.</u>				
	TEST CASING AND BOP (hydrl and rams)				Pressure test
PACKER SET AT:					
RESULTS:					

CASING STRING COMPOSITION							F 5 ^{ter} /2-67		
well		25/1-6		casing diameter	9 5/8	distance RKB mud-line			129 m
JOINT NO.	WEIGHT GRADE	THREAD JOINT	LENGTH OF JOINT	CUMUL. LENGTH	JOINT NO.	WALLTHICKNESS AND GRADE	THREAD	LENGTH OF JOINT	CUMUL. LENGTH
LANDING ASSY		RKB TOP	HOUSING	126,56	38	11,99 N80	VAM	11,14	576,49
HOUSING			7,21	133,77	39	"	"	11,06	587,55
1	47* N80	VAM	12,20	145,97	40	"	"	11,71	599,26
2	"	"	12,46	158,43	41	"	"	10,91	610,17
3	"	"	10,60	169,03	42	"	"	11,01	621,18
4	"	"	12,47	181,50	43	"	"	11,26	632,44
5	"	"	10,70	192,20	44	"	"	11,99	644,43
6	"	"	10,82	203,02	45	"	"	11,00	655,43
7	"	"	12,34	215,36	46	"	"	12,27	667,70
8	"	"	10,92	226,28	47	"	"	12,44	680,14
9	"	"	12,24	238,52	48	"	"	12,81	692,95
10	"	"	11,32	249,84	49	"	"	11,29	704,24
11	"	"	12,11	261,95	50	"	"	12,24	716,48
12	"	"	11,94	273,89	51	"	"	12,13	728,61
13	"	"	11,46	285,35	52	"	"	12,48	741,09
14	"	"	11,33	296,68	53	"	"	12,17	753,26
15	"	"	12,29	308,97	54	"	"	10,97	764,23
16	"	"	11,27	320,24	55	"	"	12,87	777,10
17	"	"	10,56	330,80	56	"	"	11,10	788,20
18	"	"	11,55	342,35	57	"	"	11,38	799,58
19	"	"	11,16	353,51	58	"	"	11,19	810,77
20	"	"	12,11	365,62	59	"	"	12,22	822,99
21	"	"	12,24	377,86	60	"	"	11,34	834,33
22	"	"	12,11	389,97	61	"	"	11,55	845,88
23	"	"	11,08	401,05	62	"	"	11,95	857,83
24	"	"	12,05	413,10	63	"	"	10,83	868,66
25	"	"	11,15	424,25	64	"	"	11,94	880,60
26	"	"	11,97	436,22	65	"	"	11,40	892,00
27	"	"	12,42	448,64	66	"	"	12,00	904,00
28	"	"	11,52	460,16	67	"	"	11,17	915,17
29	"	"	11,46	471,62	68	"	"	11,76	926,93
30	"	"	11,24	482,86	69	"	"	11,72	938,65
31	"	"	12,24	495,10	70	"	"	12,87	951,52
32	"	"	12,88	507,98	71	"	"	12,98	964,50
33	"	"	12,27	520,25	72	"	"	12,19	976,69
34	"	"	11,19	531,44	73	"	"	12,09	988,78
35	"	"	10,89	542,33	74	"	"	10,83	999,61
36	"	"	10,48	552,81	75	"	"	12,75	1012,36
37	"	"	12,54	565,35	76	"	"	11,19	1023,55

IMPORTANT. - THE CASING STRING COMPOSITION BEGINS WITH THE LANDING STRING LENGTH FROM RRB TO WELL HEAD, THEN ADD THE LENGTH JOINT BY JOINT FROM THE WELLHEAD.

CASING STRING COMPOSITION

F 5^{ter}/2-67

well		25/1-6	casing diameter	9 5/8	distance RKB mud-line				129m
JOINT NO.	WEIGHT GRADE	THREAD JOINT	LENGTH OF JOINT	CUMUL. LENGTH	JOINT NO.	WALLTHICKNESS AND GRADE	THREAD	LENGTH OF JOINT	CUMUL. LENGTH
77	47 ¹ - N80	VAM	12,20	1035,75	116	11,99 N80	VAM	12,85	1502,16
78	"	"	12,54	1048,29	117	"	"	11,61	1513,77
79	"	"	12,84	1061,13	118	"	"	10,92	1524,69
80	"	"	11,04	1072,17	119	"	"	12,75	1537,44
81	"	"	10,88	1083,05	120	"	"	12,09	1549,53
82	"	"	11,11	1094,16	121	"	"	11,05	1560,58
83	"	"	12,79	1106,95	122	"	"	11,75	1572,33
84	"	"	12,61	1119,56	123	"	"	12,12	1584,45
85	"	"	12,39	1131,95	124	"	"	12,77	1597,22
86	"	"	12,65	1144,60	125	"	"	12,42	1609,64
87	"	"	12,59	1157,19	126	"	"	12,50	1622,14
88	"	"	12,25	1169,44	127	"	"	12,64	1634,78
89	"	"	10,08	1179,52	128	"	"	12,16	1646,94
90	"	"	10,73	1190,25	129	"	"	11,77	1658,71
91	"	"	12,54	1202,79	130	"	"	11,49	1670,20
92	"	"	12,21	1215,00	131	"	"	10,36	1680,56
93	"	"	11,71	1226,71	132	"	"	12,50	1693,06
94	"	"	11,43	1238,14	133	"	"	12,78	1705,84
95	"	"	11,54	1249,68	134	"	"	12,01	1717,85
96	"	"	11,06	1260,74	135	"	"	11,21	1729,06
97	"	"	11,29	1272,03	136	"	"	12,32	1741,38
98	"	"	12,13	1284,16	137	"	"	10,06	1751,44
99	"	"	11,97	1296,13	138	"	"	12,14	1763,58
100	"	"	12,67	1308,80	139	"	"	11,22	1774,80
101	"	"	12,21	1321,01	140	"	"	10,56	1785,36
102	"	"	12,78	1333,79	141	"	"	12,17	1797,53
103	"	"	12,94	1346,73	142	"	"	12,38	1809,91
104	"	"	12,81	1359,54	143	"	"	11,45	1821,36
105	"	"	12,26	1371,80	144	"	"	12,24	1833,60
106	"	"	12,65	1384,45	145	"	"	11,98	1845,58
107	"	"	9,96	1394,41	146	"	"	12,67	1858,25
108	"	"	10,77	1405,18	147	"	"	11,15	1869,40
109	"	"	11,91	1417,09	148	"	"	10,58	1879,98
110	"	"	11,30	1428,39	149	"	"	12,66	1892,64
111	"	"	12,69	1441,08	150	"	"	12,01	1904,65
112	"	"	11,95	1453,03	151	"	"	12,58	1917,23
113	"	"	12,08	1465,11	152	"	"	12,77	1930,00
114	"	"	12,12	1477,23	153	"	"	12,82	1942,82
115	"	"	12,08	1489,31	154	"	"	12,28	1955,10

IMPORTANT. - THE CASING STRING COMPOSITION BEGINS WITH THE LANDING STRING LENGTH FROM RRB TO WELL HEAD, THEN ADD THE LENGTH JOINT BY JOINT FROM THE WELLHEAD.

CASING STRING COMPOSITION

F 5^{ter}/2-67

well		25/1-6	casing diameter	9 5/8	distance RKB mud-line			129 m	
JOINT NO.	WEIGHT GRADE	THREAD JOINT	LENGTH OF JOINT	CUMUL. LENGTH	JOINT NO.	WALLTHICKNESS AND GRADE	THREAD	LENGTH OF JOINT	CUMUL. LENGTH
155	47# - N80	VAM	12,30	1967,40	194	11,90 N80	VAM	12,63	2430,13
156	"	"	10,71	1978,11	195	"	"	12,64	2442,77
157	"	"	12,00	1990,11	196	"	"	12,79	2455,56
158	"	"	11,43	2001,54	197	"	"	12,81	2468,37
159	"	"	11,65	2013,19	198	"	"	12,69	2481,06
160	"	"	11,01	2024,20	199	"	"	12,72	2493,78
161	"	"	12,18	2036,38	FLOAT	COLLAR	"	0,48	2494,26
162	"	"	12,76	2049,14	200	"	"	12,42	2506,68
163	"	"	11,98	2061,12	201	"	"	12,93	2519,61
164	"	"	11,83	2072,95	SHOE	"	"	0,55	2520,16
165	"	"	11,53	2084,48					
166	"	"	10,49	2094,97					
167	"	"	10,45	2105,42					
168	"	"	10,63	2116,05					
169	"	"	12,70	2128,75					
170	"	"	12,20	2140,95					
171	"	"	12,60	2153,55					
172	"	"	12,30	2165,85					
173	"	"	11,90	2177,75					
174	"	"	12,90	2190,65					
175	"	"	12,30	2202,95					
176	"	"	12,20	2215,15					
177	"	"	11,33	2226,48					
178	"	"	10,49	2236,97					
179	"	"	10,79	2247,76					
180	"	"	12,29	2260,05					
181	"	"	11,37	2271,42					
182	"	"	12,06	2283,48					
183	"	"	12,97	2296,45					
184	"	"	11,01	2307,46					
185	"	"	10,88	2318,34					
186	"	"	12,37	2330,71					
187	"	"	12,47	2343,18					
188	"	"	12,36	2355,54					
189	"	"	12,71	2368,25					
190	"	"	12,44	2380,69					
191	"	"	11,59	2392,28					
192	"	"	12,65	2404,93					
193	"	"	12,57	2417,50					

IMPORTANT. - THE CASING STRING COMPOSITION BEGINS WITH THE LANDING STRING LENGTH FROM RRB TO WELL HEAD, THEN ADD THE LENGTH JOINT BY JOINT FROM THE WELLHEAD.

F3t		Bl 2-78		MUD SUMMARY BY INTERVAL				WELL : 25/1-6	
INTERVAL		36"		From		129		to 192	
Mud type used in this interval		SPUD MUD		page 39					
• USEFUL DATA •									
CASINGS			BALANCE OF VOLUMES bbl on m3			DRILLING			
- Diameter : 30"			- Initial volume : 0			Drilled (m or ft) { from: 129 to: 192		duration (date) { from: 27.01.78 to: 28.01.78	
- Hanger : 192m			- Added volume : 210			Footage (m or ft) : 63		in : 36"	
- Shoe :			- Jetted volume : 180			Average dlig rate 5,48 77 m		drilling hours : 11h30	
- Casing :			- Losses in formation :			Internal casing vol. :		Losses : /	
- Lenght :			- Final volume : 30			Pumping rate :			
• MUD CHARACTERISTICS •									
				• CONSUMPTIONS •					
				QUANTITY			COST		
				CHEMICALS					
				Total m ³ or T			Kg ft or m drilled		
				Kg m ³			Unit Price		
				Total Cost					
Weight in flow				1,05			1,05		
Weight out flow				1,06			1,06		
Viscosity M.V.				85			CAUSTIC SODA		
Viscosity A.V.							0,6		
Viscosity P.V.							9,52		
Viscosity Y.P.							2,86		
Gels 0'							460		
Gels 10'							276		
API WL							4		
API HP-HT							63		
API Pressure							6600		
Ph							3960		
Pf							63		
Pm							159,46		
Co (g/l)							2073		
SO4Co							33		
Cl na									
CaCl2									
% water									
% oil									
oil water ratio									
% solids									
Solids density									
% Sand									
T °C									
Depth (ft)				Lithology					
				UNKNOWN			TOTAL		
							6309		
							Total cost of { Interval 6309 \$		
							Drilled meter 100 \$ / m		
							foot DOLLARS		
							Currency		
							Conversion rate used 1 \$ = 4,75 F.F.		

F31 Bis 2-78		MUD SUMMARY BY INTERVAL			WELL : 25/1-6					
INTERVAL 26"		From 192		to 468						
Mud type used in this interval		CMC - BENTONITE			page 40					
• USEFUL DATA •										
CASINGS		BALANCE OF VOLUMES bbl on m3		DRILLING						
- Diameter : 20"		- Initial volume : 30		Drilled { from: 192 to: 468		{ from: 29.01.78 to: 31.01.78				
- Hanger :		- Added volume : 525		(m or ft) : 276		(date) : 26"				
- Shoe : 460		- Jetted volume : 505		Footage (m or ft) :		in : 26"				
- Casing :		- Losses in formation : 80		Average dillg rate 42,46		drilling hours : 6h30				
- Lenght :		- Final volume : 50		Internal casing vol. : 52,3		Losses : /				
				Pumping rate : 3600 l/mn						
• MUD CHARACTERISTICS •				• CONSUMPTIONS •						
				QUANTITY			COST			
				CHEMICALS	Total m ³ or T	Kg ft or m drilled	Kg m ³	Unit Price	Total Cost	
Weight										
In flow										
Out flow										
				BARITE	3	10,87	5,71	109	327	1,46
Viscosity				BENTONITE	27	97,83	51,43	203	5481	24,55
M.V.										
A.V.										
P.V.				CAUSTIC	2,95	10,69	5,62	460	1357	6,08
Y.P.										
Gels				CMC	3	10,87	5,71	1960	5880	26,34
0'										
10'										
API				CELLOSIZ	1	3,62	1,9	6600	6600	29,57
HP-HT										
API WL				SODA ASH	0,1	0,36	0,19	255	25,5	0,11
Pressure										
T				CMC ,	0,65	2,36	1,24	4080	2652	11,88
Ph				R110/R190						
Pi										
Pm										
Ca (g/l)										
SO4Ca										
ClNa										
CaCl2										
% water										
% oil										
oil water ratio										
% solids										
Solids density										
% Sand										
T °C										
Depth (ft)								TOTAL	22322	100
Lithology										
200				TOTAL						
SAND + CLAYS				Total cost of { Interval 22322						
375				Drilled meter 80,88 \$/m						
SANDSTONE				foot						
				Currency DOLLARS						
				Conversion rate used 1 \$ = 4,75 F.F.						
468										

F3f		Bis 2-78	MUD SUMMARY BY INTERVAL				WELL : <u>25/1-6</u>	
INTERVAL <u>17 1/2</u>		From <u>468 m</u>		to <u>1325 m</u>				
Mud type used in this interval <u>Lignosulfonate + Dextrid</u>		— page 41 —						

• USEFUL DATA •

CASINGS	BALANCE OF VOLUMES bbl on m3
- Diameter : <u>13 3/8</u>	- Initial volume : <u>50</u>
- Hanger : <u> </u>	- Added volume : <u>645</u>
- Shoe : <u>1314 m</u>	- Jetted volume : <u>344</u>
- Casing : <u> </u>	- Losses in formation : <u>/</u>
- Length : <u>1314 m</u>	- Final volume : <u>351</u>

DRILLING

Drilled (m or ft) { from: 468 m to: 1325 m } duration { from: 01.02.78 to: 08.02.78 }
857 m (date) 8 days

Footage (m or ft) : in :

Average dlig rate 27m/h drilling hours : 31h15

Internal casing vol. : 93 m³ Losses : /

Pumping rate : 3600 l/mn

• MUD CHARACTERISTICS •				• CONSUMPTIONS •							
				CHEMICALS	QUANTITY			COST			
	mini	maxi	average		Total m ³ or T	Kg l ^{tr} or m ³ drilled	Kg m ³	Unit Price	Total Cost		
Weight	In flow	<u>1,09</u>	<u>1,17</u>	<u>1,13</u>							
	Out flow				Barite	59 T	68,8	91,5	109	6431	18
Viscosity	M.V.	<u>49</u>	<u>65</u>	<u>52</u>	Bentonite	27 T	31,5	41,9	203	5481	15
	A.V.				Caustic						
	P.V.	<u>17</u>	<u>24</u>	<u>19</u>	Soda	4,800	5,6	7,4	460	2200	6
	Y.P	<u>12</u>	<u>20</u>	<u>14</u>							
Gels	0	<u>0</u>	<u>3</u>	<u>2</u>	Brixel	9,150	10,7	14,2	630	5764	16
	10	<u>1</u>	<u>20</u>	<u>7</u>							
API WL	API	<u>4</u>	<u>5</u>	<u>5</u>	CMC	3,200	3,7	5	1960	6272	17
	HP-HT				Dextrid	2,150	2,5	3,3	1759	3781	10
	Pressure										
Ph	<u>9.5</u>	<u>10.5</u>	<u>10</u>	Lubricant	0,400	0,5	0,6	2750	1100	3	
	<u>0,2</u>	<u>0,6</u>	<u>0,5</u>								
Pm				Detergent	0,800	0,9	1,2	1860	1488	4	
				Defoamer	0,225	0,26	0,4	3596,5	809	2	
Co (g/l)	<u>0,1</u>	<u>0,15</u>	<u>0,1</u>	Soda Ash	0,600	0,7	0,9	255	153	0,4	
				Bicarbonate	0,100	0,1	0,2	274	27	0,1	
SO4Co				CMC R110	0,750	0,9	1,2	4080	3060	8,5	
	<u>23</u>	<u>27</u>	<u>25</u>								
Clno	<u>88</u>	<u>96</u>	<u>93</u>								
CaCl2											
% water											
% oil											
% water ratio											
% solids	<u>4</u>	<u>12</u>	<u>7</u>								
Solids density											
% Sand	<u>0,25</u>	<u>1</u>	<u>1</u>								
T °C											

Depth (ft)	Lithology	TOTAL	Interval	36568 \$
460-700	Sands			
700-1325	Silts - Clays			

Total cost of { Interval 36568 \$

Drilled meter 42,67 \$ /m

foot

Currency Dollar

Conversion rate used 1 \$ = 4,75 F.F.

F3t		Bis 2-78		MUD SUMMARY BY INTERVAL				WELL : 25/1-6	
INTERVAL		12 1/4		From		1314		to 2550	
Mud type used in this interval		Lignosulfonate + Dextrid — page 42 —							
• USEFUL DATA •									
CASINGS			BALANCE OF VOLUMES bbl on m3			DRILLING			
• Diameter : 9 5/8			• Initial volume : 351			Drilled {from: 1314 to: 2550 duration {from: 09.02.78 to: 03.03.78			
• Hanger :			• Added volume : 757			Footage (m or ft) : 1236 m in : 23 days			
• Shoe : 2520			• Jetted volume : 727			Average dlig rate 8,4 m/h drilling hours : 148			
• Casing :			• Losses in formation: /			Internal casing vol.: 100 Losses :			
• Lenght : 2520			• Final volume : 349			Pumping rate : 2400 l/mn			
• MUD CHARACTERISTICS •				• CONSUMPTIONS •					
				CHEMICALS	QUANTITY			COST	
					Total m ³ or T	Kg ft or m drilled	Kg m ³	Unit Price	Total Cost
Weight in flow									
Weight out flow									
1,18									
1,30									
1,25									
Barite				194	157	256	109	21146	24
Bentonite				30,600	24,8	40,4	203	6211,8	7
Caustic Soda				9,450	7,7	12,5	460	4347	5
Dextrid				10,550	8,5	13,9	1759	18557,5	21
H921				0,900	0,7	1,2	1960	1764	2
Ferro Lignosulf.				17,650	14,3	23,3	630	11119,5	13
Lignite				0,800	0,7	1,1	627	501,6	1
Bicarbonate				0,500	0,4	0,7	274	137	0,2
Soda Ash				1,250	1	1,7	255	318,7	0,4
Lubricant				2,800	2,3	3,7	2750	7700	9
Detergent				1,400	1,1	1,9	1860	2604	3
Defoamer				0,350	0,3	0,5	3596,5	1258,8	1,4
Flocgel				3,400	2,8	4,5	900	3060	3
CMC				0,250	0,2	0,3	4080	1020	1
F.C.L.				16,800	13,6	22,2	441	7408,8	8
Pipe free				0,400	0,3	0,5	3450	1380	1
TOTAL									100
Depth (ft)		Lithology		Total cost of { Interval 88534,70 \$					
1314-2095		Silty shales grey to dark		Drilled meter 71,63 \$/m					
2095-2200		Shale grey, red brown w/ sandstone and dolomite		Dollar					
2200-2248		Free Sand		1 \$ = 4,75 F.F.					
2248-2315		Sandstone grey w/ calc. cement							
2315-2550		Sandstone a/a w/ levels of clay grey, very soft							

INTERVAL 8 1 2 From 2550 m to 2990 m

Mud type used in this interval : Lignosulfonate + Dextrid → page 43 ←

● USEFUL DATA ●

CASINGS

• Diameter :	_____
• Hanger :	_____
• Shoe :	_____
• Casing :	_____
• Lenght :	_____

BALANCE OF VOLUMES

bbl on m3

-Initial volume :	<u>349</u>
-Added volume :	<u>157</u>
-Jetted volume :	<u>506</u>
-Losses in formation:	<u>0</u>
-Final volume :	<u>0</u>

DRILLING

Drilled { from : 2550 m duration { from : 04.03.78
(m or ft) { to : 2900 m (date) { to : 16.03.78

Footage (m or ft) : 350 m in : 13 days

Average dlig rate 3,2 m/h **drilling hours** : 109

Internal casing vol. : / **Losses** : /

Pumping rate : 1300 l/mn

• MUD CHARACTERISTICS •

				CHEMICALS	QUANTITY			COST		
	mini	maxi	average		Total m ³ or T	Kg ft or m drilled	Kg m ³	Unit Price	Total Cost	
Weight In flow out flow	1,16	1,17	1,17	Barite	29,000	83	185	109	3161	18
Viscosity M.V. A.V. P.V. Y.P	43 8	48 8	48 8	Bentonite	30,000	86	191	203	6090	34
Gels 0 10	0 1	1 2	1 2	Caustic Soda	2,650	8	17	460	1219	7
API HL	3	3	3	CMC H921	0,600	2	4	1960	1176	7
API WL HP-HT Pressure T				Lignosulfon.	8,500	24	54	441	3748	21
Ph P Pm Ca (g/l) SO4Co Clno CaCl2	10 0,4 0,3 32	10 0,5 0,4 35	10 0,4 0,3 34	Bicarbonate	0,100	0,3	0,6	274	27	0,1
% water % oil oil water ratio % solids Solids density % Sand	 / 8 E	 / 9 E	 / 8 E	Soda Ash	0,200	0,6	1,2	255	51	0,3
T °C				Lubricant	0,500	1,4	3	2750	1375	8
				Detergent	0,200	0,6	1,2	1860	372	2
				Defoamer	0,225	0,6	1,3	3596,5	809	2,6

Depth (ft)	Lithology						
2550-2800	Sand + Shale	TOTAL				18028	100
2800-2900	Limestone	Total cost of { Interval 18028 \$ Drilled ^{meter} 51.5 \$ / m _{foot} Dollar Currency : _____ Conversion rate used 1 \$ = 4,75 F.F.					

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

ELF AQUITHINE NORGE A/S
WELL # 25/1-06

SU3-505/SSA-321-NOR
14 MARCH 1978

TOTAL DEPTH	DIRECTION DEG	ANGLE DEG MIN	VERTICAL DEPTH	LATITUDE METERS	DEPARTURE METERS	VERTICAL SECTION	DOG LEG
	N .0 E		.00	.00 N	.00 E	.00	.00
30	N .0 E		30.00	.00 N	.00 E	.00	.00
60	N .0 E		60.00	.00 N	.00 E	.00	.00
90	N .0 E		90.00	.00 N	.00 E	.00	.00
120	N .0 E		120.00	.00 N	.00 E	.00	.00
150	N .0 E		150.00	.00 N	.00 E	.00	.00
180	N 26.4 E	42	180.00	.16 N	.08 E	-.17	.71
210	N 32.6 E	45	210.00	.49 N	.27 E	-.53	.09
240	N 25.1 E	54	239.99	.87 N	.47 E	-.94	.19
270	N 32.5 E	51	269.99	1.27 N	.69 E	-1.38	.13
300	N 34.5 E	55	299.99	1.66 N	.95 E	-1.83	.07
330	N 50.7 E	36	329.98	1.96 N	1.21 E	-2.22	.39
360	N 71.5 E	44	359.98	2.12 N	1.51 E	-2.55	.28
390	N 73.2 E	50	389.98	2.24 N	1.90 E	-2.92	.00
420	N 82.4 E	37	419.98	2.32 N	2.27 E	-3.25	.25
450	N 79.6 E	45	449.97	2.38 N	2.62 E	-3.54	.14
480	S 82.5 E	1 2	479.97	2.38 N	3.08 E	-3.88	.40
510	S 84.8 E	46	509.96	2.33 N	3.55 E	-4.18	.27
540	S 76.1 E	51	539.96	2.26 N	3.97 E	-4.44	.15
570	S 71.8 E	59	569.96	2.12 N	4.43 E	-4.68	.15
600	S 68.8 E	58	599.95	1.95 N	4.91 E	-4.91	.05
630	S 71.4 E	52	629.95	1.79 N	5.36 E	-5.13	.11
660	S 69.3 E	1 3	659.95	1.62 N	5.83 E	-5.36	.19
690	S 61.2 E	1 5	689.94	1.38 N	6.34 E	-5.56	.16
720	S 62.9 E	53	719.94	1.14 N	6.79 E	-5.73	.21
750	S 65.7 E	52	749.93	.94 N	7.21 E	-5.89	.05
780	S 67.2 E	51	779.93	.76 N	7.62 E	-6.07	.03
810	S 52.9 E	55	809.92	.53 N	8.01 E	-6.26	.23
840	S 54.1 E	55	839.92	.25 N	8.40 E	-6.29	.02
870	S 51.2 E	1	869.92	.10 N	8.60 E	-6.33	.91
900	S 52.3 E	1 5	899.92	.07 S	8.83 E	-6.38	1.08
930	S 43.8 E	1 6	929.91	.45 S	9.25 E	-6.42	.17
960	S 36.6 E	1 11	959.91	.91 S	9.63 E	-6.39	.17
990	S 40.4 E	1 23	989.90	1.43 S	10.05 E	-6.34	.22
1020	S 38.2 E	1 14	1019.89	1.96 S	10.49 E	-6.29	.16
1050	S 37.3 E	1 15	1049.88	2.48 S	10.88 E	-6.23	.03
1080	S 59.8 E	1 15	1079.87	2.90 S	11.37 E	-6.29	.50
1110	S 33.4 E	1 24	1109.87	3.37 S	11.85 E	-6.32	.63
1140	S 26.0 E	1 25	1139.86	4.01 S	12.21 E	-6.14	.19
1170	S 34.4 E	1 23	1169.85	4.65 S	12.58 E	-5.98	.21

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

ELF AQUITAINE NORGE A/S
WELL # 25/1-06

SU3-505/SSA-521-NOR
14 MARCH 1978

TOTAL DEPTH	DIRECTION DEG	ANGLE DEG MIN	VERTICAL DEPTH	LATITUDE METERS	DEPARTURE METERS	VERTICAL SECTION	DOG LEG
1200	S 25.1 E	1 19	1199.84	5.26 S	12.93 E	-5.81	.23
1230	S 26.5 E	1 28	1229.83	5.91 S	13.25 E	-5.59	.16
1260	S 23.6 E	1 23	1259.82	6.59 S	13.57 E	-5.36	.11
1290	S 24.2 E	1 34	1289.81	7.29 S	13.88 E	-5.11	.19
1300	S 22.3 E	1 37	1299.81	7.55 S	13.99 E	-5.01	.22
1446	S 20.5 E	43	1445.77	10.31 S	15.09 E	-3.92	.19
1543	S 26.5 E	49	1542.77	11.50 S	15.61 E	-3.49	.04
1647	S 21.5 W	1 15	1646.75	13.21 S	15.53 E	-2.25	.27
1744	S 38.5 W	1 21	1743.72	15.09 S	14.43 E	-.16	.12
1847	S 56.5 W	1 58	1846.68	17.02 S	12.20 E	2.78	.24
1941	S 66.5 W	1 23	1940.64	18.36 S	9.81 E	5.44	.21
2047	S 69.5 W	1 33	2046.60	19.37 S	7.30 E	7.97	.05
2123	S 65.5 W	1 45	2122.57	20.21 S	5.28 E	10.01	.09
2211	S 86.5 W	1 33	2210.53	20.84 S	2.87 E	12.20	.22
2396	S 87.5 W	1 38	2395.46	21.11 S	2.26 W	16.12	.01
2496	N 84.0 W	55	2495.43	21.09 S	4.48 W	17.72	.23
2546	N 84.5 W	1 30	2545.42	20.99 S	5.53 W	18.41	.36
2613	N 37.5 W	2 3	2612.39	19.95 S	7.14 W	18.87	.68
2717	N 30.5 W	2 22	2716.31	16.63 S	9.36 W	18.21	.12
2771	N 21.5 W	1 47	2770.28	14.88 S	10.23 W	17.65	.38
2826	N 23.0 W	2 2	2825.25	13.19 S	10.93 W	17.00	.14
2895	N 19.5 W	1 45	2894.21	11.07 S	11.76 W	16.15	.14

THE DOGLEG SEVERITY IS IN DEGREES PER ONE HUNDRED FEET.
THE VERTICAL SECTION WAS COMPUTED ALONG S 46 44 W.

BASED UPON MINIMUM CURVATURE TYPE CALCULATIONS. THE BOTTOM HOLE
DISPLACEMENT IS 16.15 METERS, IN THE DIRECTION OF S 46 44 W.

* BOTTOM HOLE DISPLACEMENT CALCULATED FROM WELLHEAD.

DIARY REPORT

Report No. D1-1

16.01.78 Rig assigned to ELF AQUITAINE NORGE at 14:30
start moving from location UK 14/30-1.
17.01. D1-2 Moving to location NORWAY 25/1-6.
18.01. D1-3 Moving. WOW.
19.01. D1-4 WOW.
20.01. D1-5 WOW.
21.01. D1-6 WOW.
22.01. D1-7 WOW.
23.01. D1-8 WOW.
24.01. D1-9 WOW.
25.01. D1-10 Moving. On location at 02:15. Anchoring
26.01. D1-11 Testing anchors.

27.01.78 Report

No.1 Testing anchors. RIH w/26" bit + 36" H.O.
Sea bed at 129m RKB. Drilled and opened hole to 36"
down to 192m. Spotted viscous mud to stabilize the
hole. POOH. RIH 30" casing.
28.01. No. 2 Finished RIH 30" csg. Shoe at 192m. Cmt casing w/25 tons
"Lett cmt", d = 1,52. WOC.
29.01. No. 3 WOC. RIH w/bit No. 2. Drilled cmt from 190m to 192m.
Drilling 17½" hole w/26" H.O. from 192m to 194m.
POOH. Ran Ball joint + 22" riser. RIH w/bit No. 2R.
Drilled 17½" pilot hole from 194m to 468m.
30.01. No. 4 POOH. Logging: ISF-BHC-GR-SP-FDC-CNL-CAL.
RIH w/bit No. 2RR + 26" underreamer. Underreaming to
26" from 194m to 444m.
31.01. No. 5 Underreaming from 444m to 468m. POOH. Pulled ball
joint and riser. RIH w/bit No. 1R checking hole.
POOH. RIH 20" casing.
01.02. No. 6 RIH 20" csg. Shoe at 460m. Cemented 20" casing w/85T
"Lett cement", d = 1,52. WOW.
02.02. No. 7 WOW. Ran 20 3/4" - 2000 psi BOP-stack and tested
same. OK.
03.02. No. 8 RIH w/bit No. 3. Drilled cmt and shoe from 443 m to
468m. Drilled 17½" hole to 500m. Leak-off test.
Gradient 0.14 kg/cm²/m. Drilled 17½" hole from 500m
to 818m.

- 04.02. No. 9 Drilled 17½" hole from 818m to 1234m.
- 05.02. No.10 POOH. RIH w/bit No. 2RR. Drilled 17½" hole from 1234m to 1325m. Drag when POOH. Circ. and cond. mud.
- 06.02. No.11 POOH. Ran Schlumberger. Tool stopped at 710m. POOH. RIH w/bit No. 2RR. Reamed from 637m to 750m. RIH to 1325m. Circ. POOH. RIH Schlumberger.
- 07.02. No.12 Logging. RIH w/bit No. 2 RR. Circ. POOH. RIH w/13 3/8" casing.
- 08.02. No.13 RIH w/13 3/8" casing. Shoe at 1314m. Cemented casing in 2 stages. 1. stage w/55^T "Lett cmt" d = 1,50 followed by 15^T class "G" cmt d = 1,90. 2. stage w/26^T "Lett" cmt d = 1,52. Disconnected and pulled 20 3/4 - 2000 psi BOP-stack.
- 09.02. No.14 Ran 13 5/8 - 10.000 psi BOP stack and tested same on wellhead. OK. RIH w/bit No. 4. Drilled DV. Tested casing and DV to 3000 psi. OK. Drilled cmt, float and shoe.
- 10.02. No.15 Leak off test. Equal. d = 1,71. Drilled 12 1/4" hole from 1330m to 1355m. POOH. Logging: CBL. Deviation survey. RIH w/bit No. 5. Drilled 12 1/4" hole from 1355m to 1410m.
- 11.02. No.16 Drilled 12 1/4" hole from 1410m to 1756m. Surveys.
- 12.02. No.17 Drilled 12 1/4" hole from 1756m to 1851m. POOH. RIH 2/bit No. 6. Drilled 12 1/4" hole from 1851m to 1937m. Survey.
- 13.02. No.18 Drilled 12 1/4" hole from 1937m to 1953m. Deviation survey. Drilled 12 1/4" hole from 1953m to 2120m.
- 14.02. No.19 Drilled 12 1/4" hole from 2120m to 2127m. Survey. POOH. RIH w/6 1/4" x 3" corebarrel and Chris. 8 15/32" C-22 corehead. Coring from 2127m to 2132m.
- 15.02. No.20 Coring from 2132m to 2136m. POOH w/core. Recovered 100% of core. RIH w/bit No. 7. Opened 8 15/32" hole to 12 1/4" hole. Drilled 12 1/4" hole from 2136m to 2176m.
- 16.02. No.21 Drilled 12 1/4" hole from 2176m to 2215m. Reamed from 2005m to 2155m. Circulated out gas bubble. Mud loss. Circ. and cond. mud.
- 17.02. No.22 Circulated new mud. Reamed from 1570m to 1617m. Circ. POOH. RIH w/bit No. 8. Reamed from 1617m to 1688m.
- 18.02. No.23 Reamed from 1688m to 2005m. Circ. high viscous mud plugs.

19.02. No.24 Reamed from 2055m to 2215m. Circ. high viscous mud. POOH.

20.02. No.25 Logging. RIH w/bit No. 9. Reamed from 2100m to 2140m. Drilled 12 1/4" hole from 2215m to 2271m.

21.02. No.26 Drilled 12 1/4" hole from 2271m to 2282m. Survey. POOH. RIH w/test tool and tested BOP. OK. RIH w/bit No. 10.

22.02. No.27 Reaming from 2120m to 2282m. Drilled 12 1/4" hole from 2282m to 2360m. POOH to 13 3/8" csg shoe. Changed kelly.

23.02. No.28 RIH. Drilled 12 1/4" hole from 2360m to 2400m. POOH to 1270m and set DP on emergency hang off tool. Disconnected riser. WOW.

24.02. No.29 WOW. Pulled 16" riser. Checked H4 connector. Ran riser and H4 connector. Tested kill and choke lines.

25.02. No.30 Repaired blue pod. Pulled emergency hang-off tool. RIH. Circ. survey. POOH. Logging.

26.02. No.31 Logging. RIH w/bit No. 10R. Drilled 12 1/4" hole from 2400m to 2498m.

27.02. No.32 Drilled 12 1/4" hole from 2498m to 2550m. Survey.

28.02. No.33 Wiper trip. Circ. POOH. Logging.

01.03. No.34 Logging. SWC. RIH w/bit No. 11. Reamed from 2387m to 2530m. Jared and worked pipe.

02.03. No.35 Reamed from 2530m to 2550m. Wiper trip to 2168m. RIH to 2550m. Circ. and cond. mud. POOH.

03.03. No.36 RIH 9 5/8" casing. Shoe at 2520m. Cemented csg w/90^T "Lett cmt", d = 1,52 followed by 25^T class "G" d = 1,90. Tested pack-off at 7500 psi. OK. Gyro survey.

04.03. No.37 Gyro survey. RIH w/testing tool and tested BOP. OK. RIH w/bit No. 12.

05.03. No.38 RIH w/bit No. 12. Tested csg to 3300 psi. Drilled float, cmt and shoe. Drilled 8½" hole from 2550m to 2612m.

06.03. No.39 Drilled 8½" hole from 2612m to 2613m. Survey. POOH. RIH w/bit No. 13. Reamed from 2565m to 2613m. Drilled 8½" hole from 2613m to 2661m.

07.03. No.40 Drilled 8½" hole from 2661m to 2725m. Survey. Reamed from 2715m to 2721m.

08.03. No.41 Drilled 8½" hole from 2772m to 2733m. POOH. One core lost in hole. RIH w/bit No. 14. Fishing and drilling 8½" hole from 2733m to 2735m. POOH. RIH w/bit No.15. Fishing and drilling 8½" hole from 2735m to 2739m. Circ.

- 09.03. No.42 POOH. RIH w/bit No. 16. Fishing and drilling 8½" hole from 2739m to 2777m. Survey. POOH. RIH w/bit No. 17.
- 10.03. No.43 RIH w/bit No. 18. Reaming and fishing w/basket from 2764m to 2777m. Drilling 8½" hole from 2777m to 2832m. Survey. POOH.
- 11.03. No.44 POOH. RIH w/bit No. 18. Drilled 8½" hole from 2832m to 2871m.
- 12.03. No.45 Drilling 8½" hole from 2871m to 2900m. Wiper trip to 9 5/8" shoe. Deviation survey. POOH. Logging.
- 13.03. No.46 Logging. SL-CBL-FDC-CNL-Seismic survey.
- 14.03. No.47 Logging. Side wall coring. RIH w/bit No. 18R. Reamed from 2886m to 2900m. Circ. POOH. RIH w/scrapper to 2400m. POOH. Logging - seismic survey.
- 15.03. No.48 Logging. Seismic survey. RIH w/18 stds 3½" open end tubing + 5" DP to 2900m. Set cmt.plugs. Plug No.1 from 2900m to 2800m. No.2 from 2600m to 2450m. POOH. RIH w/Schl. junk basket.
- 16.03. No.49 RIH and set bridge plug at 2298m w/Schlumberger tool. RIH w/open end 3½" tubing + 5"DP to 1350m. Set cmt. plug No. 3 from 1350m to 1200m. POOH. RIH open DP to 180m. RIH w/Schlumberger perforating gun and perforated 9 5/8" csg at 200m. POOH w/DP. Pulled 16" riser + 13 5/8" x 10.000 psi BOP-stack. Cut wellhead with explosives at 133m.
- 17.03. No.50 RIH open end 5"DP + 9 5/8" spear. Picked up casings + baseplate 7m. Set cmt. plug No.4 from 250m to sea bed. Pulled and retrieved wellhead. Inspected sea bed by divers. OK. Pulled anchors E2, D1, B1 and piggy backs E2, D2, A1 + B1.
- 18.03. No.51 Pulled anchors A2, C1, C2, B2, D2, E1 and A1. Start moving at 21:30.
- 19.03. No.52 Moving to new location. Dropped first anchor on location UK 9/10-B1 at 02:00 hrs. (01:00 hrs GMT) and rig released to TOM.
-

TECNICAL STATUS-END OF DRILLING										WELL: 25/1-6	
COUNTRY: NORWAY		OPERATOR: ELF AQUITAINE NORGE		CONTRACTOR: NEPFOR		RIG: P-84		T.D.: 2900 m			
GENERALIZATIONS	Wildcat	☒	OPEN HOLES		CASING						
	Extention drilling	☐	DIA Ø	TO	DIA Ø	SHOE	CEMENTED FROM....				
	Development drilling	☐					 TO				
	Injection well	☐	36"	192m	30"	192	192 - 129				
	Onshore well	☐	26"	468m	20"	460	460 - 129				
	Offshore well (waterdepth.) 105m	☒	17 1/2	1325	13 3/8	DV:504 Shoe:1314	CBL:504 - 179 CBL:1314 - 685				
	Oil well	☐	12 1/4	2550	9 5/8	2520	2520 - 1170				
	Gas well	☐	8 1/2	2900							
	Oils shows	☐									
	Gas shows	☐									
Dry	☒										
Producing	☐										
Completed	☐										
Abandoned	☒										
All depths calculated from RKB (RKB - sea bed = 129 m)											
FOOTAGE	Hole Dia Ø	Length pr. diameter	Drilled		Coring		Opening	Turbine Drilling	Direct. Drilling	Air - Drilling	Length abandoned
			Dia Ø	Footage (m)	Dia Ø	Footage (m)					
	36"	63	36"	63 m							
	26"	276 m	17 1/2	276 m			276m				
	17 1/2	857	17 1/2	857							
	12 1/4	1225	12 1/4	1216	8 15/32	9 m	9 m				
	8 1/2	350	8 1/2	350							
	TOTAL	2771		2762		9 m	285 m				
TESTS	NUMBER OF TEST	EXECUTED	NOT SUCCEED	REASON FOR FAILURE		No	TIME SHARING		HOURS	%	
	Open hole			Packer leakage Formation plugged Failed to open			1. Mooving	136,15	9,23		
	Casing						2. Drilling	295,00	19,98		
	TOTAL						3. Coring	14,00	0,95		
FISHING JOBS	Causes	Object dropping into hole	Stuck pipe	Twist off	Drill bit	Core barrel	Casing	Logging	TOTAL		
	Duration										
	Less than 24 h.				1					1	
	From 1 to 5 days.										
	More than 5 days.										
	Not succeeded.										
	NUMBERS TOTAL				1					1	
						4. Trips drilling	186,45	12,65			
						5. Trips, coring	12,00	0,81			
						6. Reaming	41,00	2,78			
						7. Opening hole	9,15	0,63			
						8. Test	0	0			
						9. Logging, Survey	172,30	11,68			
						10. RUN Csg.	38,30	2,61			
						11. Completion	0	0			
						12. Casing cementation	173,45	11,77			
						13. Cond. mud.	102,00	6,91			
						14. Fishing	0	0			
						15. Shutting in well	49,00	3,32			
						16. Repair rig	32,30	2,20			
						17. Waiting various	214,00	14,49			
						TOTAL	1476 1/2 H	100%			
						RIG UTILISATION	2,02 month rig				

EQUIPMENT FINAL WELL STATUS				WELL: 25/1-6		
RIG	DRAW WORKS: 3000 E. GARDNER DENVER		PUMPS	NO	MANUFACTURE	TYPE
	DERRICK CAPACITY: LEE G. MOORE 1.150.000 lbs			1	Gardner Denver	PZ11
	TOTAL HP: 4000 HP			2	"	Triplex 7"x11"
	AVAILABLE HYDRAULIC POWER: 3200 HP			3	EMSCO D 375	Mixing 7½"x14"
	DISTANCE RKB-MUDLINE: 129 m			4	6 Mission	6 x 8 RD Centrif. Mixing
DRILLING STRING	FROM....TO....	DRILLPIPE (Ø, grade, thickness, «TJ»	DRILLCOLLARS Ø. length			
	129 - 192	5" E19.5 ⁵ TJ 6 3/8 4½ IF	9DC9" 85,5m - 170m HW 5"			
	192 - 468	"	12DC9" 114m - 170m HW 5"			
	468 - 1325	"	15DC9" 142,5 - 170m HW 5"			
	1325 - 2550	"	12DC9" 114m - 6DC 8 3/8" 57m-170m HW 5"			
	2550 - 2900	5" E19.5 + 5"x95, 19,5.4½ IF	24DC 6½ 228m + 170m HW 5"			
BOP	FROM....TO....	MANUFACTURE - TYPE - SERIE				
	192 - 468	Regan Diverter				
	468 - 1225	20"3/4x2.000 BOP w/1-20"3/4x2.000 psi Hydril+1-20"3/4x2.000 psi C.I.W Type "U" double ram preventer. Blind/Shear upper, 5" ram lower				
	1225-2900	13"5/8x10.000 psi BOP w/1-13"5/8x10.000 psi Hydril+2-13"5/8x2.000 psi C.I.W. Type "U" double ram preventer. 2-5" ram lower, blind/shear + 1 ram upper				
SPECIAL EQUIP.	(TURBINE, BUMPERSUB, AIR INSTALATIONS, DEVIATION DRILLING.....)					
	DIALEY JAR. - 7 3/4 - 6½					
CONTRACT	(TYPE OF CONTRACT)					
	DAILY CONTRACT					
FINAL OPERATION	(GIVE A RESUME OF OPERATIONS FOR THE COMPLETION, TESTING, OR ABANDONMENT, tubing, plugs, recovering wellhead etc.....)					
	Abandon well - cement plug from 2900 to 2800m					
	cement plug from 2600 to 2450m					
	Bridge plug a. 2298m					
	Cement plug from 1350 to 1200m					
	Cement plug from 250m to sea bed					
	cut wellhead at 133m and retrieved same					
	Sea bed inspections by divers. OK. No debris on seafloor.					
TYPE OF MUD LEFT IN HOLE		LFC-DEXTRID				

25/1-6

PAGE 4

INFORMATION ON OFFSHORE OPERATIONS

F 15/3-68

Well: 25/1-6

Rig: P-84

- 53 -

1. Time sharing percentages due to marine operations.

Items	Duration (h)	% of total time of well
MOVING+ OTHER OPERATIONS BEFORE SPUDDING IN AND AFTER ENDED DRILLING (a+b)	136 <u>15</u>	9,23
WORKING ON UNDERWATER EQUIPMENT (f+h)	90 <u>45</u>	6,15
WOW (c+k)	209 <u>30</u>	14,20
WAITING DUE TO REPOSITIONING OF PLATFORM AND REPAIRING ANCHORS EQUIPMENT (l)	0	0

2. Further or additional information Specificate on offshore drilling - Interesting the Elf Graup

Subject	Observation	Reference
1st BOP stack	20 3/4" 2000 psi BOP stack with Cameron double unit	
Riser + CL + KL	type U21 1/4" 2000* + Hydrill sperical 21 1/4" 2000*	
2nd BOP stack	22" riser with intergrated kill and choke line 3 1/2 nominal	
Riser + CL + KL	2 CIW straight fail safe valve 3 1/2 5000 psi. 2 90° angle fail safe valve 3 1/8" 5000*, 13 5/8" 10.000 psi BOP stack	
Pods	2 cameron "U" double unit 13 5/8"	
BOP Control	1 HYDRILL GK 13 5/8 10000 psi	
CHOKE Manifold	16" riser with integrated kill and choke line 4 1/4 OD-2 5/8 ID	
GUIDE Line Tensioner	15.000 psi-2cameron gate valve 3 1/8 10.000 2 CIW F.gate valve 3 1/8 10.000	
Riser Tensioner	2.RHCS 28-7	
Miscellaneous	Komey - 1 electric driller Panel-1 mini Panel 1 control station	
	Cameron 15.000* with 2 cameron choke hydraulic operated	
	4 Rucker Shaffer 16.000 lbs capacity 40 ft stroke	
	6 Ruber shaffer 60.000 lbs 40 ft stroke	

SUBJECT	OBSERVATIONS	REFERENCES
DRILLING RIG (Design.) PENTAGONE 84 Location 25/1-6 59°46'57.68"N 02°05'42.23"E	Semi submersible Rig class PENTAGONE 10 Anchor 15 ^T + 10 Anchor lines 5600 ft 2 3/4 + 10 mooring winch BRISSONNEAU and LOTZ 155 ^T pulling capacity - 2 main crane Richier G 90 2 ausciliary Crane Richier G80 - Auxiliary propulsion composed of 3 Pleuger Model 2000 HP. Power plant of 7 Diesel electric AC generator with Caterpillar D399. 1250 HP/930 KW each - 600 volt 60 cycles - storage capacity - dry mud and cement - 360 m ³ - mud 365 m ³ - drill water 800 m ³ - potable water 580 m ³ fuel 800 m ³ - 1600 ^T variable Deck Loads - Piggy back on anchors A1, C1, C2, D2, E2	
OPERATIONS ON WELL AND DRILLING EQUIPMENT (Drilling, coring, reaming, testing, SPE)	- 36" hole to 192 m - 30" csg shoe at 192m - 17½" hole to 468m - Logging ISF-BHC-GR-SP-FDC-CNL-CAL - 26" underreamed hole to 468m. - 20 csg shoe at 460m - Leak off test at 20" csg shoe. Equiv. mud wt 1.40 S.G. - 17½" hole to 1325m.-Logging ISF-GR-FDC-CL-Velocity survey - 13 3/8" shoe at 1314m. Leak off test at 13 3/8" csg shoe. Equiv. mud wt 1.71 S.G. - 12 1/4" hole to 2550m. Coring 9m at 2127m - 2136m. Logging ISF-SL-GR-FDC-CNL-HDT-BGT-SWE. - 9 5/8" shoe at 2520m. Leak off test at 9 5/8" shoe. Equiv. mud wt 1.70. S.G. - 8½" hole to 2900m. Logging ISF-SL-GR-HDT-FDC-CNL-CBL.	
MOVING SUPPLY logistic (Supply boats, Helicopters, distance: base — location)	Distance 140 miles average speed in moving. 3 kn Total power used 12000 IHP Name on tugs MUSQUETEER FURY. Bollard pull } <u>Moving in</u> - Distance Stavanger 25/1-6 = 126 miles - Crew change by Helicopter Service A/S, Stavanger with SIKORSKY S-61 (and from ABERDEEN by TOM/BEA). - Supply-boats: STAR AQUARIUS : 7040 BHP SEAFORTH HERO : 5000 BHP - Stand by boat : STRANDINGUR <u>Moving out:</u> 10 miles (average speed - 2,2 kn) Total power used: 12000 IHP Name of tug: MUSQUETEER FRIEND.	

SUBJECT	OBSERVATIONS	REFERENCES
Subcontractor Companies	Electrical logging - Schlumberger Cementing - Dowell Schlumberger Deviation Survey - Sperry Sun . Diving - Comex Diving Ltd. Mud logging - Geoservice Mud Engineering - CECA Sa. Testing Equipment - Dowell Schlumberger - OTIS - Flopetrol	- 55 -

ABANDONMENT

1. Abandonment operations

The approved abandonment program is shown in fig. A-5.

Prior abandonment a CBL was run to estimate the level of the cement inside the 13 3/8" annulus. Top cement was found at 1170m, i.e. 144m above the 13 3/8" casing shoe.

The step by step abandonment operation was as follows:

- RIH w/3½" stinger and set cmt plug No. 1 from 2900m to 2800m in 8½" open hole.
- Set cmt plug No. 2 from 2600m to 2400m inside 9 5/8" casing in front of 9 5/8" csg shoe.
- Set "BAKER" Bridge Plug at 2298m w/Schlumberger.
- RIH w/3½" stinger and set cmt plug No. 3 from 1350m to 1200m in front of 13 3/8" shoe.
- RIH w/open DP to 180m, RIH w/Schlumberger perforating gun and perforated 9 5/8" csg at 200m.
- Disconnected diverter. Pulled 16" riser and 13 5/8" x 10.000 psi BOP-stack.
- RIH w/explosives and cut wellhead at 133m.
- RIH w/5" open end DP + 9 5/8" spear. Pulled casings + baseplate 7m.
- Set cmt plug No. 4 from 250m to seabed.
- Pulled and retrieved cut off wellhead.

See fig.A-6 for drawing of wellbore as abandoned.

II. Seabed Inspection

- Before leaving location, divers inspected the seabed in the wellhead area which was found to be clear of obstructions.
- Seabed inspection reports are enclosed at pages 59 and 60.

"

ABANDONMENT SCHEME WELL 25/1-6

MUD LINE 129 m RKB

TOP CMT 179 m

30" SHOE AT 192 m

20" SHOE AT 460 m

DV at 504 m

TOP CMT 685 m

TOP CMT 1100 m (THEOR)

13 3/8" SHOE AT 1314 m

9 5/8" SHOE AT 2520 m

8 1/2" TD ~ 2900 m

CUT 9 5/8", 13 3/8", 20" AND 30" AT 140 m.
CMT PLUG 250 m to MUD LINE 129 m.
PERFORATE 9 5/8" AT 200 m.
250 m

300 m
CMT. PLUG 100 m
400 m CUT 9 5/8" CSG at 400 m
If cmt in 13 3/8" x 9 5/8" annulus is less than 100 m above 13 3/8" shoe, the 9 5/8" csg will be cut at 400 m and a 100 m CMT plug set from 400 m - 300 m inside 13 3/8" csg.

1200 m

CMT PLUG 150 m

1350 m

2300 m BRIDGE PLUG

2450 m

CMT PLUG 150 m

2600 m

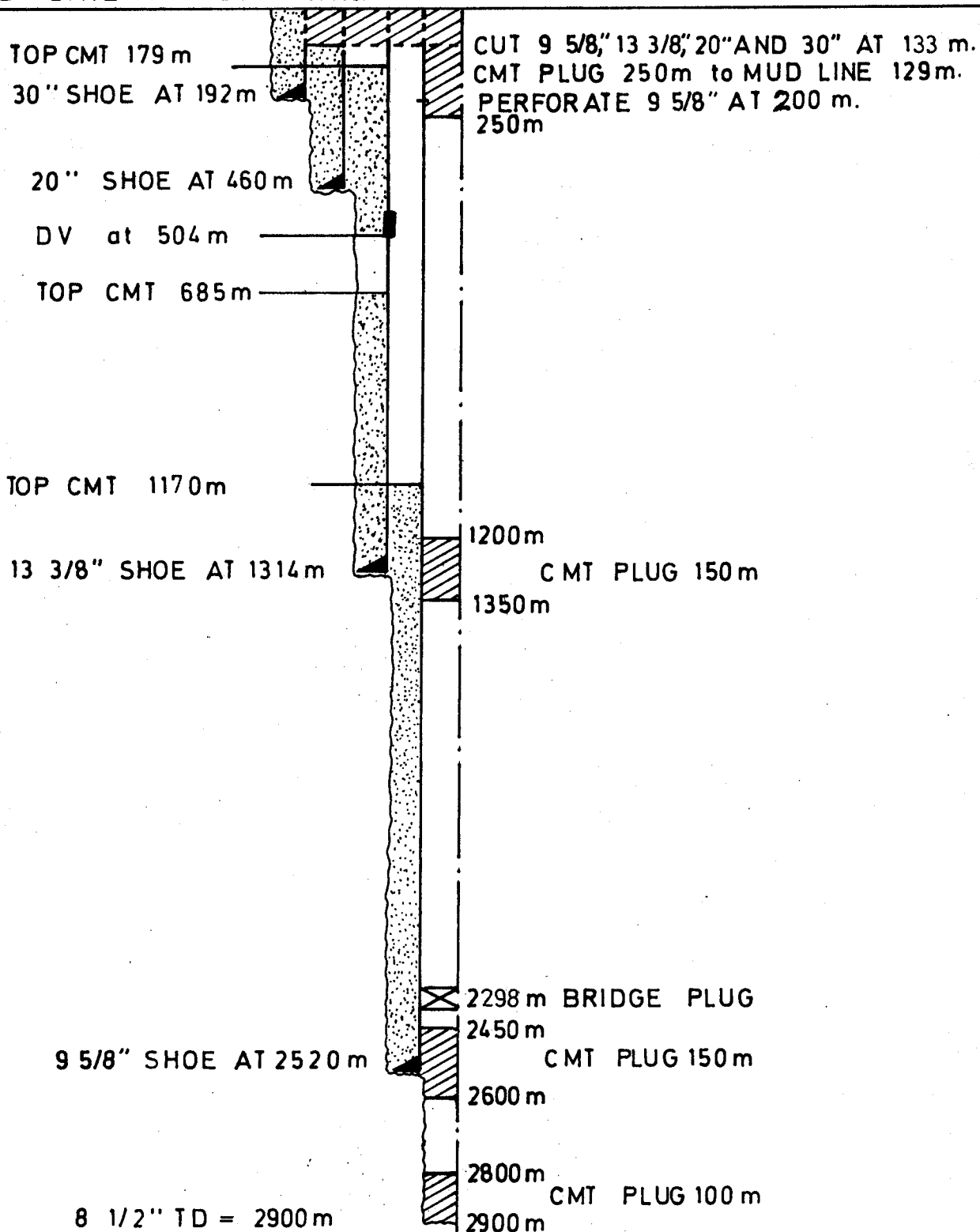
2800 m

CMT PLUG 100 m

2900 m

Fig. A - 5

DRAWING OF 25/1-6 WELL BORE AS ABANDONED





COMEX DIVING LIMITED

REF/MS/NYC/OPS/89/78

17th March 1978	
	STAVANGER

A Member of the Comex Group of Companies

BUCKSBURN HOUSE
HOWES ROAD
BUCKSBURN
ABERDEEN AB2 9RQ

TELEPHONE:
BUCKSBURN 3001
(STD Code 0224-71)
TELEX: 73394

22nd March, 1978

Elf Norge A/S,
P.O. Box 168,
4001 Stavanger,
Norway.

For the attention of Mr. Sales

Dear Sir,

Subject: Pentagone 84 Seabed Clearance Certificate

This is to certify that when the Pentagone 84 completed operations on location 26/I-6 on the 17th March, 1978, a sea bed clearance dive was carried out as per the attached Inspection Report.

The area was found to be clear of all obstructions and sub sea workings.

Yours faithfully,
for COMEX DIVING LIMITED

M. Sisley
Diving Manager

encs.

Directors: J. M. HOULDER, C.B.E. (Chairman), M. J. RIMMER (Managing), J. P. GRES (Fr.) (General Manager), H. G. DELAUZE (Fr.), J. P. DONNET (Fr.),
M. ROGER, P. GUINCHARD (Fr.).

DEEP OCEAN SYSTEMS :: DIVING ASSISTANCE FOR OFFSHORE INDUSTRY :: UNDERWATER ENGINEERING :: RESEARCH

Registered in London, Reg. No. 974791 Registered Office, Bessemer Way, Harfreys Industrial Estate, Great Yarmouth, Norfolk

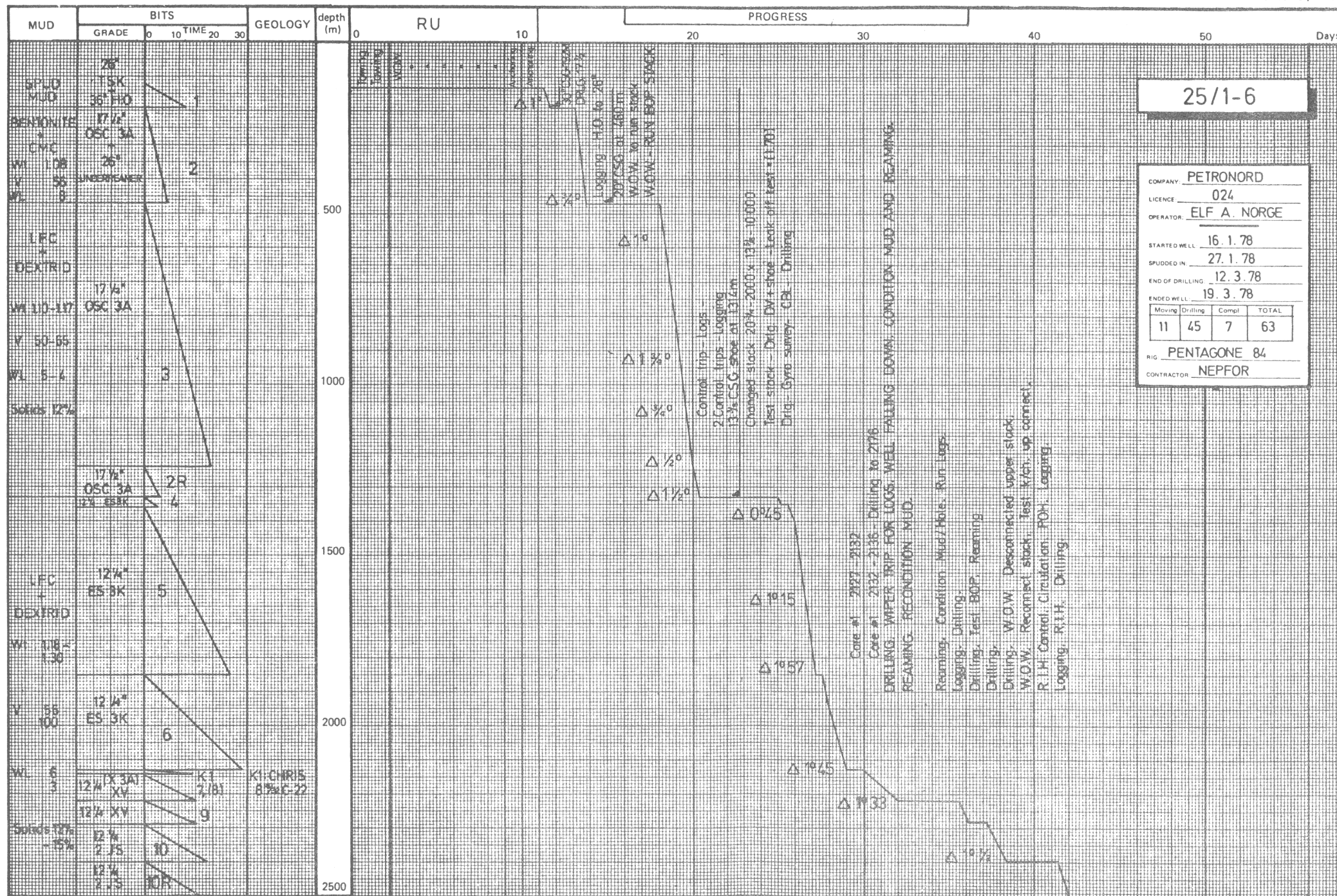
SEABED CLEARANCE REPORT

PRIOR TO LEAVING WELL No. 26-1-6
 WITH RIG P84, A LOCK-OUT DIVE WAS PERFORMED
 ACCORDING TO N.P.D. REGULATIONS TO OBSERVE IF THE SEABED
 WAS CLEAR OF ANY DEBRIS.

THE DIVER MADE A COMPLETE CIRCLE AROUND THE BELL ON THE
 END OF HIS UMBILICAL. THE VISIBILITY ON THE SEA BOTTOM
 WAS 5 METERS. THIS ENSURE THAT AN AREA AROUND THE
 WELLHEAD POSITION OF RADIUS 30 METERS WAS PROPERLY
 OBSERVED.

IT WAS FOUND THAT THE WELLHEAD WITH BASEPLATE WAS CUT AND
 THAT THE ENTIRE OBSERVED AREA WAS CLEAN OF ANY DEBRIS.

DIVE No. 35 TIME 1456 DATE 17 MAR 78
 LOCK-OUT DIVER: NAME P. HALL SIGN P. Hall
 BELLMAN: NAME P. YALLEN SIGN P. Yallen
 DIVER SUPERVISOR: NAME J. Nicholas SIGN J. Nicholas



25/1-6

COMPANY: PETRONORD			
LICENCE: 024			
OPERATOR: ELF A. NORGE			
STARTED WELL: 16. 1. 78			
SPUDDED IN: 27. 1. 78			
END OF DRILLING: 12. 3. 78			
ENDED WELL: 19. 3. 78			
Moving	Drilling	Compl	TOTAL
11	45	7	63
RIG: PENTAGONE 84			
CONTRACTOR: NEPFOR			

