CONFIDENTIAL REPORT NO. 25

A/S NORSKE SHELL

RESUME OF EXPLORATION WELL

30/11-2

BY

PETROLEUM ENGINEERING

AND

EXPLORATION DEPARTMENTS

AUGUST 1975

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C O N T E N T S

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PART A - OPERATIONAL DATA

A 1 - GENERAL SUMMARY

Well - 30/11-2
Classification - Wildcat
Area - Block 30/11 Production licence 035
Drilling permit no 126
Contractor - Odeco
Rig - Ocean Voyager
Coordinates - N 60° 07' 33.214"
E 02° 39' 05.196"
Water depth - 360 ft to mean sea level
Rotary table - 78 ft above mean sea level
Rig heading - 285° true
Objectives - To evaluate a potential stratigraphic trap formed by an up dip shale-out of L. Eocene sands.

Formation Tops	Prognosis(Tvss)	Actual (Tvss)
Frigg Sand	6550	6654
Cod formation	7370	7242 ?
L Shale	7850	7378
U. Cretaceous	8450	8250

GENERAL SUMMARY

Results - Dry hole
Status - Plugged and Abandoned
Total depth - 8490 ft bdf.

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A 2 - DATES OF OPERATIONS

Rig commenced tow from 30/11-1	15th March	1975	0400 hours
Arrived location 30/11-B	17th March	1975	1315 hours
Anchored on location	18th March	1975	1100 hours
Spudded location as 30/11-2	18th March	1975	2100 hours
Reached TD	11th April	1975	1800 hours
Abandoned (with seabed clear)	16th April	1975	0200 hours
Commence tow to Haugesund (for inspection)	16th April	1975	1400 hours

A 3 - RIG MOVE REPORT - OCEAN VOYAGER 30/11-B

Because of two badly worn anchor bolsters, anchors were pulled with the barge deballasted. Slackening of the chains prior to pumping up commenced at 0640 hrs. 14th March. Satellite navigation, which was to be the primary positioning method was brought on board two days previously. This was Shell Expro. equipment operated by UDI of Aberdeen. All anchors were successfully racked in 21-1/4 hrs. and the rig left location 30/11-1 under tow from the Edda Salvator.

Towing distance including the sail line for the dynamic run-in was 13 miles. During the 6 hour 35 minute tow the weather began to deteriorate and upon arrival at the new location the seas were around 15 feet with a N $\frac{1}{Y}$ wind of 30-35 knots. Although conditions were on the limit for anchor handling it was decided to take the rig into location for one attempt. Number 7 gate anchor was successfully dropped and Forties Shore called in for No. 3 pennant. Although it proved possible to come into the rig, the boats were presenting their beam to the wind and were unable to stay long enough to make fast the pennant. The Smøla Salvator could do no better and the attempt was abandoned. No 7 anchor was retrieved together with further deterioration in the weather.

Early the next morning, the towline parted and the rig began drifting South at roughly 1-1/4 knots. After spooling a new towline on her winch, Edda Salvator grappled successfully to retrieve the old line and made fast once more to the rig. At this point, the rig was some 27 miles South of location. After 13 hours steaming, No. 7 anchor was again successfully dropped with the seas and wind steadily dying. The Smøla Salvator dropped a reference buoy and Forties Shore was called in to handle No. 3 anchor. With the wind still from the North and with its beam exposed, the rig again began to drift South.

Anchors 2, 3, 4 and 5 were successfully run. In attempting to run No. 6 in the still heavy seas, Smøla Salvator sustained minor damage to her starboard railing and in the ensuing one hours delay drifted South towards buoy No. 7. This was later rerun. Whilst

running anchor No. 8, the pennant parted and Forties Shore began chasing the chain. The barge meanwhile was listed to change No. 1 pennant, fouled when it was retrieved.

Numbers 1 and 8 were then successfully run. Chains 4 and 5 were hauled in to pull the rig into the tolerance circle as indicated by the satellite navigation equipment and tensioning begun.

The seabed sidescan survey suggested compacted sand with a thin layer of silt providing good holding ground. Within 13 hours all anchors were holding in excess of the 350 kips test tension with no back-up anchors necessary. Total time for the move including 2 days waiting on the weather was 4-1/2 days.

During anchor running operations, the Forties Shore which is a brand new ship performed extremely well taking anchors out beyond 2700 feet. On the other hand, the Smøla Salvator with some 10 tons more bollard pull experienced considerable difficulty and on two occasions had to be hauled back to the rig for a second attempt.

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A 4 - DRILLING HISTORY

Due to a deterioration in the weather during the rig move, anchors could not be laid during the initial approach to location; subsequently the tow line parted and the rig drifted 28 miles from the location 30/11-B; the tow line was grappled, tow recommenced and the rig satisfactorily anchored on position (total time 3 days 1 hour, weather downtime 50 3/4 hours, reference rig move report 30/11-2).

After tensioning tests on the anchors completed by 1100 hours 18.3.75, the seabed was checked at 438' bdf with a 26" on 36" hole opener and penetrated 10' on test. The TGB with a four foot skirt was then run and 30/11-2 spudded at 2100 hours on 18.3.75.

The 36" hole was drilled to 707' using seawater and the hole filled with high viscosity mud prior to pulling. 30" x 1" WT casing was cemented at 686' using 1324 sx Pozmix with 1% $CaCl_2$. No cement returns on the seabed were observed.

Top cement in the 30" was located at 675' and drilled out with a 17-1/2" bit on 26" hole opener before running the 24" marine riser and continuing with a 17-1/2" bit to 1460 feet. The hole was checked with a wiper trip and filled with high viscosity mud (540 psi in part - see page 10 on Shallow Gas). The marine riser was displaced to water and the hole checked for control. Unfortunately, bad weather prevented running the 13-3/8" casing (WOW 22 hours) and a further check trip was necessary before cementing 13-3/8" 72" casing at 1436' with 888 sx Pozmix and 250 sx Class G cement. The plugs were bumped with 2500 psi for 15 minutes.

Due to rough weather, the 13-5/8" BOP stack could not be run immediately. (WOW 34 hours).

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After running the stack, tests on the hydril cock and blue pod failed and the marine riser also leaked from behind the rucker line swivel. After pulling this riser, this leak was found to be due to a 1/4" hole unintentionally drilled through the outer barrel (3 x 1/4" had partially penetrated) whilst installing grease nipples on the rucker line swivel. Total downtime was 41-1/2 hours including tuboscope checks on all the riser joints, the repaired holes and the slip joint.

After running riser and upper part of stack, top cement was located at 1357' and 12-1/4" hole drilled to 4030' (9-5/8" casing point).

The hole was logged with IES, GR/Sonic (GR to surface) and BGT from 3969'.

9-5/8" 47" N-80 casing was then cemented at 4003' with 1000 sx Pozmix followed by 286 sx Class G cement.

The plugs were bumped and the casing tested with 4000 psi for 15 minutes.

9-5/8" seal assembly was run and BOP stack satisfactorily tested after repairing an inner kill valve leak.

Cement and formation was drilled to 4050 with 8-1/2" bit and a formation gradient test carried out equivalent to maximum allowable mud weight 0.764 psi/ft. 8-1/2" hole was continued to 8338 ft, where the hole was logged.

i)	GR/Sonic	No. 2	8328 - 3950
ii)	IES	No. 2	8335 - 4003
iii)	HDT	No. 1	8338 - 4003

After studying the logs, it was decided to drill on to 8490'. The borehole was then again logged with.

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i) MSFL-DLL No. 1 8498 - 6000 (after an additional check-up)
ii) CNL-FDC No. 1 8496 - 6000
iii) SSL ran velocity survey at 15 levels
iv) SWS No. 1 , paid for 24 samples
v) SWS No. 2 , paid for 24 samples

The logs having confirmed the complete absence of hydrocarbons, the well was then abandoned with five cement plugs as described in section A 6.

The wellheads and guide bases were recovered (again described in section A 6) and the divers pronounced the seabed clear at 0200 hrs on 16th April 1975.

After deballasting the rig, anchors were racked and the rig commenced the tow for its inspection at Haugesund at 1400 hrs on April 16th 1975.

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SECTION A 5 - CRITIQUE

a) SHALLOW GAS

After setting 30" conductor at 686', 17-1/2" hole was drilled using a marine riser and diverter providing mud returns to surface. A gel-polymer mud was used having a weight of 0.470 psi/ft. and viscosity of 50 - 55 secs.

The lithology encountered (See Enclosure (a)) was mainly a dark grey plastic clay with some sand stringers. The drilling rate was controlled at 100 ft/hr.

Gas readings were recorded at 0.1% at 707' increasing to 0.4% at 1110'. At 1125', a 30% plus (the maximum scale reading of the gas detector) was recorded which lasted 10 minutes (approximately 16 ft) and then rapidly decreased to 0.3%. The cuttings from the same depth showed 10% sand. Down to casing setting depth of 1460', average gas readings of 0.3% were obtained.

After making a wiper trip to the shoe with frequent flow checks, 200 bbl of 0.54 psi/ft mud were spotted in the open hole from 707' to 1460'. This would provide the same hydrostatic head on the formation at 1125' after pulling the marine riser, without endangering the formation at the shoe.

The marine riser was circulated to water and a surface flow check made. The bit was then pulled and the riser unlatched. Another flow check was made by TV on the wellhead. All were negative.

Bad weather held up the running of the 13-3/8" casing for 22 hours so a check trip was made. On circulating bottoms up, 5% gas was recovered. After conditioning mud, 200 bbls of 0.54 psi/ft mud were again spotted on the open hole.

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Flow checks were again carried out after displacing the riser to water and after unlatching from the wellhead. No flow was observed.

The 13-3/8" casing was run and cemented with no problems. Observation by TV on the wellhead after the cement job showed the well to be steady.

Electric logging was carried out at the next casing depth of 4030' and the gamma ray of GR-Sonic run No. 1 run to seabed. No significant sand layers were indicated at the approximate depth of 1100' or, in fact, anywhere behind the 13-3/8" casing.

b) THE ADVANTAGES OF RUNNING A CASING PROGRAMME 30", 13-3/8", 9-5/8" AS IN WELL 30/11-2 COMPARED TO 30", 20", 13-3/8" in 30/11-1

The 20" casing string was omitted in 30/11-2, the 13-3/8" housing being run locked into the 20" housing.

The main advantage of this casing scheme was a considerable saving in rig time in eliminating the necessity of running, testing and finally pulling the 20-3/4" BOP stack prior to running a 13-3/8" casing string. A conservative estimate of the time involved here is 17 hours or approximately $ 22,000.

Other advantages are:

1) Saving of cement volume in the cementations of the different casing strings.

	30/11-1	30/11-2
Pozmix	4415 sxs	3212 sxs
Class 'G'	2575 "	1415 "

2)

a) 17-1/2" hole can be drilled faster than 26" hole(for the 13-3/8" casing instead of 20")

b) 12-1/4" hole can be drilled faster than 17-1/2" hole (for the 9-5/8" casing instead of 13-3/8")

The volume of cuttings generated is considerably less for the surface equipment to deal with.

3) Mud volumes required are less.

For shallow wells in known areas this casing scheme is certainly to be recommended.

C) LEAKING RISER RUCKER SWIVEL

After running the stack, tests on the hydril cock and blue pod failed and the marine riser also leaked from behind the rucker line swivel, on the trombone joint. After pulling the riser, this leak was found to be due to a 1/4" hole unintentionally drilled through the outer barrel (3 x 1/4" had partially penetrated) whilst installing grease nipples on the rucker line swivel. Total downtime was 41-1/2 hours including tuboscope checks on all the riser joints, the repaired holes and the slip joint. Inadequate supervision by contract personnel was the cause of this downtime.

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A 6 - EVALUATION

WIRELINE OPERATIONS

A list of Schlumberger logs run in the well and the petrophysical evaluation made on them are enclosed as

Appendix V

A list of Schlumberger sidewall samples can be found in

Appendix XI

A description of these is found in Appendix XII

A velocity survey was carried out by SSL at 15 levels, a list of these depths is enclosed as Appendix XIII

HYDROCARBON INDICATIONS

A condensed tabulation of the indications obtained during drilling by formation logging (GAS Analytic) can be found in

Appendix VI

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A 7 - PLUGGING AND ABANDONMENT

On completion of the final logging operations the well was plugged back and abandoned.

Abandonment plug No. 1 - was set from 8480 - 8000 ft with 187 sx class 'G' cement, slurry weight 820 psi/1000 ft mixed with 22.4 bbls drillwater and 0.1% HR-7 retarder.

Abandonment plug No. 2 - was set from 7550 - 7250 ft with 115 sx class 'G' cement, slurry weight 820 psi/1000 ft mixed with 13.7 bbls drillwater and 0.1% HR-7 retarder

Abandonment plug No. 3 - was set from 7150 - 6650 ft with 171 sx class 'G' cement slurry weight 820 psi/1000 ft mixed with 20.4 bbls drillwater and 0.1% HR-7 retarder.

Abandonment plug No. 4 - was set from 4300 - 3700 ft with 228 sx Class 'G' cement slurry weight 820 psi/1000 ft mixed with 27 bbls seawater. After WOC, this plug was tested to 8000 lbs WOB and 1000 psi differential pressure satisfactorily.

Abandonment plug No. 5 - was set from 1000 - 500 ft with 179sx Class 'G' cement, slurry weight 820 psi/1000 ft mixed with 2.3 bbls seawater.

The 9-5/8" and 13-3/8" casing was cut at 450 ft. The 13-5/8" BOP stack and 24" marine riser were pulled and 9-5/8", 13-3/8" casings and 13-3/8" and 20-3/4" housings with the 9-5/8" hanger were recovered.

The 30" casing was cut at 445 ft and the MGB TGB and 30" casing housing recovered.

The seabed was pronounced clear at 0200 hrs 16.4.75 by K.D. Marine and a certificate provided stating the same (see appendix VIII)

WELL 30/11-2

WELL RESUME

PART B GEOLOGICAL DATA

B.1 SUMMARY

Well 30/11-2 was spudded by the "Ocean Voyager" on 18th March 1975 and plugged and abandoned without testing on 16th April 1975. The final SATNAV co-ordinates are:

N 60° 07' 33.2$_1$4"
E 02° 39' 05.196"

The primary objective of this well was a potential stratigraphic trap, formed by a shale-out of the Lower Eocene "Frigg Sand" equivalent. Secondary objectives were sand bodies in the underlying Paleocene (Cod and Danian Sands).

In spite of favourable porosity, the Frigg Sand equivalent was encountered water-bearing. The Cod and Danian Sands were absent, or represented only by thin sandstone streaks and tight siltstones.

B. 2 - CHRONOSTRATIGRAPHY

The preliminary subdivisions based on stratigraphical, paleontological and electric log data are given below:

Age	Interval Depth bdf	Depth m.s.l.
No samples	0 - 700'	
Pleistocene	700 - 900'	622 - 822'
Pliocene	900 - 1860'	822 - 1782'
Miocene - U.Oligocene	1860 - 4560'	1782 - 4482'
L.-M. Oligocene	4560 - 5500'	4482 - 5422'
U.Eocene - PT 27/29 zone	5500 - 5900'	5422 - 5822'
L.Eocene - PT 22/24 zone	5900 - 7390'	5822 - 7302'
L.Eocene - PT 21 zone	At 7440'	7362'
Base Eocene - PT 20 marker	At 7444'	7366'
U. Paleocene - PT 19 zone	7444 - 7800'	7366 - 7722'
L. Paleocene - PT 15 zone	7860 - 8160'	7782 - 8082'
L. Paleocene - PT 11 zone	8220 - 8340'	8082 - 8262'
U.Maastrichtian - Ma 1-3 zones	8340 - 8496'	8262 - 8418'

B. 3 - LITHOSTRATIGRAPHY

Depth in ft bdf	Lithology
0 - 700'	No samples
700 - 1690'	CLAY, grey, plastic, non-swelling, with coarse sand and shell fragments
1690 - 2000'	CLAY as above, interbedded SAND clear fine-grained
2000 - 2540'	CALCISAND , light-dark grey, fine-medium, consolidated: abundant shell fragments
2540 - 2585'	SANDSTONE, brown, fine, with nodules of dark green mineral (volcanic ?)
2585 - 2800'	CALCISAND, as above, with lignite beds.
2800 - 2940'	LIGNITE, dark brown-black with i/b sandstone
2940 - 3130	SANDSTONE, green-brown, fine, porous, consolidated, friable with nodules of green mineral and i/b lignite
3130 - 4015	SANDSTONE a/a becoming more argillaceous with depth
4015 - 5728'	CLAYSTONE, grey-brown, silty, mod. hard, micaceous
5728 - 6692'	CLAYSTONE, grey-brown silty, mod.hd. i/b CLAYSTONE grey-green, crumbly break, mod. hard.
6692 - 6732'	CLAYSTONE, grey-green i/b SHALE, red-grey, mod. hard: with sandstone streaks
6732 - 7014'	SANDSTONE, grey-light brown, porous, fine-medium, well-sorted, crumbly break, unconsolidated, loose. Becoming more silty near base.
7014 - 7182'	SILTSTONE, grey-light brown, earthy break, consolidated, calcareous with coal streaks.
7182 - 7280'	SILTSTONE a/a, interbedded SHALE grey - brown, angular break
7280 - 7350'	CLAYSTONE, grey brown, crumbly break, mod. hard-hard, with SANDSTONE streaks, medium grain, very hard.
7350 - 7456'	SILTSTONE, light grey, earthy break. trace TUFF dark grey green and sandstone streaks a/a.
7456 - 7987'	CLAYSTONE grey-brown, consolidated with sandstone and dolomite streaks

7987 - 8175'	CLAYSTONE, dark grey-grey brown, earthy break, consolidated, soft, i/b SILTSTONE, dark grey-grey brown, friable
8175 - 8185'	LIMESTONE/MARL, white-grey, II A, chalk mudstone, very soft.
8185 - 8328'	Interbedded CLAYSTONE/SILTSTONE a/a
8328 - 8437'	LIMESTONE, white-light grey, I A, compact mudstone, angular break, mod. hard-hard, with flints
8437 - 8453'	CLAYSTONE/SHALE, grey-grey green, angular break
8453 - 8496'	LIMESTONE a/a

B. 4 - HYDROCARBON INDICATIONS WHILE DRILLING

Gas readings are tabulated in Appendix VI and are also indicated on the Composite Log (Encl. b)

Part C

WELL INFORMATION

Costs included are accounts settled up to end June 75

A IDENTIFICATION- AND OPERATIONAL STATEMENTS

1 Well name: 30/11-2 .../o - x(Field/Block - Well No x)

2 Position in coordinates 60°07'33.214". N 02°39'05.196". E

3	Well description:	
	a Exploration	Exploration
	b Step out	
	c Development	
4	Date spudded	18.3.75 2100 hrs
5	Date completed	16.4.75 1400 hrs
6	Water depth	110 metres
7	Total depth drilled (in metres)	2456 BMSL
8	Name and type of rig	Ocean Voyager
		Semisubmer-sible
9	Total days on transport of rig	1.6
10	Total days on drilling site	30.8
11	Total days spent on drilling	12.0
12	Total days spent on tripping	4.6
13	Total days spent on coring	0.0
14	Total days spent on logging and testing	2.1
15	Total days spent on waiting on weather	5.5
16	Total days spent on fishing	0.0
17	Total days spent on comenting	1.6
18	Total days spent on mechanical difficulties	1.9
19	Total days spent on plugging and abandonment	3.1

B COST STATEMENTS

1	Geophysical survey[x]	kr	-
	Recording and processing	kr	
	Interpretation (geophysical and geological)	kr	
		kr	6.867.196
2	Drilling	kr	
	Preparatory work (decca, transport of platforms, Seabottom survey etc)	kr 254.590	
	Lease of drilling rig[xx]	kr 3.780.302	
	Insurance	kr 86.472	
	Drilling equipment (casing, bits etc)	kr 898.656	
	Logging, testing, formation stimulation etc	kr 514.575	
	Transports and communications	kr 784.829	
	Sundries	kr 247.787	
	Mud, cement, chemicals	kr 299.985	
3	Special studies	kr	
	Core and cutting analyses	kr	
	Engineering studies	kr	
	Misc.e.g.weather, sea conditions etc	kr	
		kr	1.347.393
4	General overhead	kr	
	Norway office	kr 1.160.580	
	Taxes and fees	kr	
	Overhead charged from abroad	kr 186.813	
	Total cost	kr	8.214.589

x Initial surveys and interpretations to be broken down on the various blocks. The costs on each block to be proportioned in full to the first exploratory well on that block.

xx Statement also of the various lease rates during transportation, drilling w.o.w. etc.

20.585 $/day operating rate

19.485 $/day reduced rate

18.985 $/day special rate

PART C)

1) LIST OF APPENDICES

I	Weekly Drilling Reports	10 pages
II	Bit and hydraulic data record	1 "
III	Casing and cementing data	2 "
IV	Mud and chemical consumption	3 "
V	Summary of electrical logs and petrophysical evaluation	8 "
VI	Hydrocarbon indications whilst drilling	1 "
VII	Total time breakdown	2 "
VIII	Wellhead clearance certificate	1 "
IX	Well status diagram	1 "
X	Condensed well tabulations	2 "
XI	Summary of sidewall samples	1 "
XII	Sidewall sample report	4 "
XIII	Velocity survey depths	1 "

2) LIST OF ENCLOSURES

a) Well summary sheet 30/11-2

b) Composite well log 30/11-2

3) LIST OF REFERENCES

A) A/S Norske Shell E&P production licence 035 — Exploration well proposal 30/11-B

WELL 30/11-2

STATUS: 1 SUSPEND, 2 COMPLET., 3 ABANDON. | TYPE: 4 EXPLORAT., 5 APPRAIS., 6 DEVELOP. | FIELD: 7 LEMAN, 8 INDEFAT., 9 WILDCAT

10 VERTICAL, 11 DEVIATED, 12 WELL CONTROL, 13 CEMENT PROBLEMS, 14 FISHING, 15 STUCK PIPE, 16 LOGGING PROBLEMS, 17 OVERPULLS, 18 COMPLETION PROBLEMS, 19 DEVIATION PROBLEMS, 20 MUD LOSSES, 21 ACIDISATION, 22 FRAC JOB, 23 PRODUCTION LOGGING, 24 F.I.T., 25 H_2S GAS, 26 BAREFOOT COMPLETION, 27 CORED, 28 ACID FRAC, 29 PRODUCTION PROBLEMS, 30 SHALLOW GAS

GENERAL WELL DATA

FIELD: WILDCAT	LOCATION NAME/Nº: 30/11-B	PLATFORM CO-ORDS.
WELL Nº: 30/11-2	HOLE: 1	COMP. INTERVAL:
COND. CO-ORDS.	FROM	N 60°07'33.214" E 02°39'05.196"

DFE ABOVE SEABED:	438'
DFE ABOVE MSL:	78'
DFE ABOVE	
SPUDDED: 21.00 HRS.	18/3/'75
REACHED T.D: 18.00 HRS.	11/4/'75
TOTAL DEPTH: 8490 FT. AHBDF	
FT. TVSS	
COMPLETED HRS.	
ABANDONED 14.00 HRS.	16/4/'75

SUSPENDED		RESUMED	
HOURS	DATE	HOURS	DATE

OTHER DATA

PRODUCTION LICENCE Nº 035	TIME SPUD TO TOTAL DEPTH: 24⅓ DAYS
CO-ORDINATES N	TIME SPUD TO COMPLETION: DAYS
TOP ROTLIEGENDES E	TIME SPUD TO ABANDONMENT: 28 DAYS

DEVIATION SURVEYS	MSS	GSS	MMS	GMS
FROM				
TO				
FROM				
TO				
FROM				
TO				

DEVIATION CONTRACTOR:
MAX. DOGLEG SEVERITY:
TOTCOS ,MAX AT FT.
FINAL DRIFT:
DEPARTURE:
AZIMUTH:

DRILLING TIME ALLOCATION

WELL STARTED 04.00 HRS. 15/3/'75 | WELL ENDED 14.00 HRS. 16/4/'75

RIG NAME: 'OCEAN VOYAGER'
OWNER: ODECO
TOTAL FOOTAGE DRILLED: 8052'

PREPARATION PHASE	
RIGMOVE / SKIDDING	6½
POSITIONING BARGE	22
JACKING UP / DOWN	
U.W.E. HANDLING	10
CONDUCTOR DRIVING	
DOWNTIME	
WEATHER DOWNTIME	50½
SUB TOTAL	89

DRILLING PHASE			
DRILLING ON BOTTOM	182	FISHING INCL. TRIPS	
DRILLING ROUNDTRIPS	86	DEVIATION (TOTCOS)	
CORING ON BOTTOM		CSG/CEM/TRIP/FLANG.	50
CORING ROUNDTRIPS		U.W.E. HANDLING	45½
REAMING / ENLARGING	6	MISCELLANEOUS	20
HOLE COND. WELL CONTROL		DOWNTIME	46
CIRC. AND COND. MUD	23	WEATHER DOWNTIME	81
SUB TOTAL	297	SUB TOTAL	242½

EVALUATION PHASE	
LOGGING	50½
FIT & DST	
RELEVANT ROUNDTRIPS	25½
FISHING	
MISCELLANEOUS	
DOWNTIME	
WEATHER DOWNTIME	
SUB TOTAL	76

COMPLETION PHASE	
COMPLETION CASING / LINER	
WELL COMPLETION	
PRODUCTION TESTING	
FISHING AND MILLING	
MISCELLANEOUS	
DOWNTIME	
WEATHER DOWNTIME	
SUB TOTAL	

ABANDONMENT PHASE	
ABANDONMENT	73½
U.W.E. HANDLING	
DOWNTIME	
WEATHER DOWNTIME	
SUB TOTAL	73½

TOTAL HOURS: 778

REMARKS:

1) Shallow gas: While drilling at 1125', total gas increased suddenly in exess of 30%, lasting for 5 mins. Mud weight was increased to 490 psi.

2 Slurry weight of class G tailing out in 9⅝" was 15.0 i.s.o. 15.8 as prognosed; low weight due to slow delivery of cement from silo to cement surge.

MUD

TYPE	GRAD PS/1000	PV/YP	FLUID LOSS API	FLUID LOSS HTHP	SOLIDS	O/W
SEAW.+ VISC.M.	463					
GEL-POLYM.	470 ↓ 490	14/12	6.4		8 ↓ 12	
DEXTRID-BENTONITE-LIGNOSULPHANATE	485	18/9	3		5	
	485	9/17	2·5		5	
	490	18/5	4·0		11	
	515	18/6	3·0		9	3·0
	515	16/5	6·0		12	2·0
	520	16/8	3·0		10	1·0

BITS / CORE HEADS

USED	TYPE (Nº)
1 IRR	26" OSC 3A + 36" HO
1	17½" OSC-3A
1	12¼" X3
1	8½" X1G
1	8½" X3A
3	8½" X1G
1	8½" XV
4	8½" X1G

PENETRATION RATE (MINS/5FT)

10 20 30 40 50
(70) (80) (90) (100) (110)

LITH.: Cl, Cl, Lig, Cl

PROGRESS CHART

HOURS 100 200 300 400 HOURS
DAYS 10 20 30 40 DAYS

DEPTH 000 ft BDF

DF — MSL

—— DRILLING HRS. ON BOTTOM
—— DAYS SINCE SPUD.

707' – 36" hole
1460' – 17½" hole
4020' – 12¼" hole
8490' – 8½" hole
182 Hrs.
28 days

STATUS DIAGRAM

DF TO SWAB VALVE		FT.
DF TO LDO		FT.
DF TO BOTT. FLANGE		FT.
DF TO MSL	78	FT.
DF TO SEABED	438	FT.

SEABED
PLUG No 5 1000-500'
30" 686'
13⅜" 1436'
9⅝" 4003'
PLUG No 4 4300-3700'
8½" hole
PLUG No 3 7150-6650'
PLUG No 2 7550-7250'
PLUG No 1 8480-8000'

ALL DEPTHS IN FEET BELOW DERRICK FLOOR

CASING

MA-1

DEPTH FROM	DEPTH TO	SIZE INS	WGHT lbs/ft	GRADE	COUPL.	DEPTH STAGE COLLAR
432.5	686	30"	310	1"WT	ST	
427	1436	13⅜"	72	N80	BTS	
428	4003	9⅝"	47	N80	BTS	

CEMENTATION

MH-1

N° OF SACKS	TYPE	SLURRY WEIGHT PPG	TOP OF CEMENT	MIXING WATER / ADDIT.	REMARKS
1324	POZZO	13·5	seabed	240bbls.1%CACL2	30"
880	"	13.5	"	160 bbls	13⅜"
250	Cl. 'G'	15.8	"	30 "	
1000	POZZO	13.5	700'	180 "	9⅝"
286	Cl. 'G'	15.8		40 "	
187	Cl.'G'	15.8	8000'	22.4/0.1%HR7	Plug 1
115	"	15.8	7250'	13.7/ "	" 2
171	"	15.8	6650'	20.4/ "	" 3
228	"	15.8	3700'	27/ none	" 4
178	"	15.8	500'	21.3/ "	" 5

LINER

MB-1

TYPE	DEPTH PACKER

LINER CEMENTATION

TUBING

ME-1

DEPTH PACKER AHBDF	TVSS

PETROPHYSICAL EVALUATION

	GROSS INTERVAL		SAND. THICK. GROSS	NETT	GAS WATER CONTACT	ø (%)	Sg (%)	E.G.C. (FT)
BDF								
TVSS								

PERFORATIONS

INTERVAL AHBDF TOP	AHBDF BOTTOM	TVSS TOP	TVSS BOTTOM	SHOTS PER FT.	GUN TYPE	GUN SIZE	REMARKS

CORES

N°	INTERVAL FROM	INTERVAL TO	RECOV. FT.	RECOV. %	REMARKS

SWS

GUN N°	INTERVAL DEPTH	Nr. of MM	REC.	L/E	MF	REMARKS
1	8490'	10	X			
	8465'	10	X			
	8450'	40	X			
	8410'	20	X			
	8350'			X		
	8321'	60	X			
	8250'	50	X			
	8177'	25	X			
	8100'	30	X			
	8030'	30	X			
	7952'	60	X			
	7890'	60	X			
	7820'	25	X			
	7750'	55	X			
	7680'	60	X			
	7605'	20	X			
	7534'			X		
	7468'				X	
	7440'	60	X			
	7425'	30	X			
	7415'	55	X			
	7388'			X		
	7340'	30	X			
	7294'			X		
	7252'	55	X			
	7190'	55	X			
	7110'				X	
	7038'	60	X			
	6956'	40	X			
	6860'	45	X			
2	8350'	10	X			
	7468'	35	X			
	7294'	60	X			
	7110'			X		
	6750'	60	X			
	6715'			X		
	6650'			X		
	7534'	55	X			
	6550'	60	X			
	6450'	60	X			
	6350'	60	X			
	6250'	30	X			
	6150'	60	X			
	6050'	65	X			
	5950'	60	X			
	5840'	50	X			
	5740'	55	X			
	5630'	70	X			
	5510'			X		
	5390'	55	X			
	5270'	55	X			
	5150'	60	X			
	5030'	50	X			
	4910'	60	X			
	4790'	60	X			
	4670'	55	X			
	4550'				X	
	4430'	70	X			
	4270'			X		
	4100'	60	X			

LOGS

TYPE	RUN N°	INTERVAL-FT BDF TOP	INTERVAL-FT BDF BOTTOM	SCALE	REMARKS
GR/Sonic	1	1436'	3974'	GR 0-80/120 Sonic 100-200	Held up at 3974'
IES	1	1436'	3981'	SP 0-100 IND. 0.2-2000	" " 3981'
BGT	1	1434'	3979'	6-26"	" 3979'
GR/Sonic	2	3950'	8328'	GR 0-120 Sonic 140-40	Recorded Caliper 7½' too shallow. Csg.shoe at 4007'
IES	2	4003'	8335'	SP 0-100 IND. 0.2-2000	" Csg.shoe at 4010'
HDT	1	4003'	8338'	Dev. 0-9°	" " 4011'
MSFL	1	6000'	8498'	GR 1-100 DLL 0.2-2000	Camera malfunctioning in Track 1 on 1:500 film
CNL/FDC	1	6000'	8496'	CNL 45-15 FDC 1.95-2.95	
SSL	1	15 Levels			
SWS					I.O. Paid none. Feeder-lines in Gunblock wrongly installed
"	1				Misfires 2. Lost none. Paid for 24
"	2				" 1 " 2 " 24

FORMATION TESTS

TYPE OF TEST			
NUMBER:			
TOP INTERVAL:			
BOTTOM INTERVAL:			
DATE:			
OIL PROD./DAY:			
G.O.R.:			
WATER CUT			
OIL GRAVITY			
SULPHUR %			
DISS SALTS MG/L			
DURATION TEST			
GAS (MMscf/d)			
GAS GRAVITY			
CONDENSATE (BBL/D)			
COND. GRAVITY			
WATER BBL/DAY			
DURATION TEST			
BEAN SIZE TUBING			
BEAN SIZE CASING			
FTHP PSI			
CHP PSI			

FORMATION TOPS

FORMATION DEPTH	AHBDF	TVSS
'Lignite Series'	±2000'	±1922'
'Gumbo Series'	±3800'	±3722'
'Sand lens' (Frigg Sand)	6732'	6654'
'Upper Sand Shale'	7010'	6932'
Cod Formation ?	7320'	7242'
Basal Shale Member	7456'	7378'
Upper Cretaceous Chalk	8328'	8250'

FLUID TESTS

TYPE																						
DEPTH																						
DATE																						
FAILURE (TYPE)																						
FLOWING TIME																						
FLUID RECOVERY: WATER / MUD																						
FLUID RECOVERY: OIL / CONDENSATE																						
FLUID RECOVERY: SOLIDS																						
FLUID RECOVERY: FORM GAS																						
FLUID RECOVERY: EXPL GAS																						
ICIBHP PSI																						
FFBHP PSI																						
FCIBHP PSI																						

REMARKS

WELL 30/11-2

A/S NORSKE SHELL | FIELD North Sea Wildcat | WELL 30/11-2

WEEKLY DRILLING REPORT No. 1 from 14.3 to 16.3 | RIG Ocean Voyager

Derrick Floor Elevation ft above MSL
Sea Bottom Depth ft below MSL
Elevation of casing flange ft above MSL

CASING						
Size						
Depth						

DATE	DEPTH (PROGRESS) (feet)	MUD			OPERATIONS
		Weight psi/foot	Viscosity (MF secs)	Waterloss (cc/30 mins)	
		pH	oil (%)	Cl (ppm)	
14.3					Rig commenced tow from location 30/11-1 to to 30/11-B at 0400 hours 15. 3. 75. Heading 050° speed 3 knots. Edda Salvator towing.
15.3					Under tow speed 3 knots. Arrived on location 1030 hours 15. 3. 75. Dropped No. 7 anchor, weather deteriorated, had to rerack anchor and WOW Wind W 20 knots. Waves 16 feet. Swell 6 1/2 sec. Tow line parted at 0450 hours 16. 3. 75.
16.3					Edda Salvator grappled tow line after several attempts. Wind W N W 26 knots. Waves 16 feet. Swell 7 secs. On tow again at 0030 7. 3. 75. 28 miles from 30/11-B location. Speed 2 1/2 knots.
					Shell T P's Somerville and van Ierrsel. Shell P E Kilvington. Shell D E's Strand and Woodall-Mason.

D. M. Adams.
Operations Engr.

A/S NORSKE SHELL | FIELD North Sea WILDCAT | WELL 30/11-2

WEEKLY DRILLING REPORT No. 2 from 17.3 to 23.3.75 | RIG Ocean Voyager

Derrick Floor Elevation 78 ft above MSL

Sea Bottom Depth 360 ft below MSL

Elevation of 30" casing flange 5 1/2 ft above MSL

CASING

Size	30"					
Depth	686					

DATE	DEPTH (PROGRESS) (feet)	MUD Weight psi/foot / pH	Viscosity (MF secs) / oil (%)	Waterloss (cc/30 mins) / Cl (ppm)	OPERATIONS
17/3	ANCHORING:				Rig arrived on location at 13.15 hrs. 17.3.75. Rig was anchored and in position at 05.00 hrs. 18.3.75 Subsequently the rig was ballasted to 74' drilling draft.
18/3	520 (82)	463	120+		All anchors pretentioned satisfactorily to 350 kips. (operational tension ~ 150 kips) at 11.00hrs. 18.3.75. Divers inspected seabed. Ran to seabed with Bit No.1 (26" OSC3A) (RR) and 36" hole opener. Distance derrick floor to seabed 438' (Water depth 360') Lowered T.G.B. to seabed. Ran bit no.1 on guide frame and stabbed into T.G.B. Spudded location 30/11-B as 30/11-2 At 21.00 hrs. 18.3.75. Final coordinates (SATNAV) 60° 07' 33".214 N 02° 39' 05".196 E On a heading of 285° true. (38 mtrs. and 211° T. off planned location) Drilled to 520' flushing the hole with 25 bbls viscous mud each single.
19/3	707 (187)	PV/YP 463	GELS 120+	CA/MG -	Drilled to 707'. Made wipertrip to seabed. Flushed and spotted 600 bbls viscous mud. P.O.O.H. Ran 6 jnts 30"x1" WT casing and MGB. Landed casing with shoe at 686' and drillpipe stinger at 660' Divers inspected position of T.G.B. Cemented 30" CSG with 1324 sxs pozmix cement + 1% cacl 2 Average slurry weight 700 psi/1000'. No cement returns observed on seabed. Mixing stopped after 200% excess open hole volume pumped. Divers connected T.G.B. to MGB. W.O.C.
		-	-	-	
		-	-	-	

A/S NORSKE SHELL | FIELD North Sea WILDCAT | WELL 30/11-2

WEEKLY DRILLING REPORT No. 2 | from 17.3 to 23.3.75 | RIG Ocean Voyager

Derrick Floor Elevation 78 ft above MSL

Sea Bottom Depth 360 ft below MSL

Elevation of 30" casing flange 5 1/2 ft above MSL

CASING						
Size	30"					
Depth	686					

DATE	DEPTH (PROGRESS) (feet)	MUD Weight psi/foot / pH	Viscosity (MF secs) / oil (%)	Waterloss (cc/30 mins) / Cl (ppm)	OPERATIONS
20/3	1122 (415)	486 8.0 14/12 Solids 8%	50 - 1/4	- - -	R.I.H. with bit No 1.(RR) Tagged T.O.C. at 675' Drilled out cement and shoe. P.O.O.H. Ran 30" pin connector and marine riser, with diverter. R.I.H. with bit No 2 (17 1/2" OSC 3A, 2x20) 1x18) Drilled to 1122'. made check trip to shoe.
21/3	1460 (338)	490 8.0 11/4 Solids 11%	50 - 1/4	- - -	Drilled to 1460' While drilling at 1125', a rapid increase in gas (C1) was recorded in excess of 30%. (lasting for 5 mins.) Mud weight was increased to 490 psi/1000ft. A checktrip was made to the shoe and 230 bbls of heavy mud (WT 540 psi/1000 ft) were spotted in the open 17 1/2 " hole. P.O.O.H. displaced riser to seawater. Pulled riser and pin connector.
22/3	1460 (-)	PV/YP 500 9.5 11/4 Solids 11%	GELS 40 - 1/4	CA/MG 12.4 20.000 200	Attempted to run 13 3/8" csg, weather too rough. W.O.W. (23 hrs).
23/3	1460	495 8.5 21/3	55 - 1/3	6.4 20.000 280	WOW (1 hr) Ran pin connector + Marine riser. R.I.H. with bit No 2 RR no circulation, bit plugged. P.O.O.H. Cleaned bit. R.I.H. again. Circulated and conditioned mud (5% C1 gas). P.O.O.H. Pulled riser and pin connector.

Deviation (TOTCO) : 1 1/2° at 528'
3/4° at 1122'
0° at 1460'

Shell PE: Braagman
Kilvington.

Shell Dr. Eng's: Woodall-Mason
Strand

Shell TP: Somerville
Leblanc
Schouten
V. Iersel

M. Adams
Operations Engr.
D.M. Adams.

A/S NORSKE SHELL | FIELD North Sea WILDCAT | WELL 30/11-2

WEEKLY DRILLING REPORT No. 3 from 24.3 to 30.3.75 | RIG Ocean Voyager

Derrick Floor Elevation 78 ft above MSL

Sea Bottom Depth 360 ft below MSL

Elevation of 30" casing flange 5 1/2 ft above MSL

CASING						
Size	30	13 3/8				
Depth	686	1436				

DATE	DEPTH (PROGRESS) (feet)	MUD: Weight psi/foot / pH	MUD: Viscosity (MF secs) / oil (%)	MUD: Waterloss (cc/30 mins) / Cl (ppm)	OPERATIONS
24/3	1460 (-)	PV/YP 490 11 30/10 Solids 9%	GELS 55 - 1/2	Ca/Mg 4 5000 400	Ran and landed 25 joints 13 3/8" casing (72 lbs. Ft. BTS) with shoe at 1436' Cemented with 888 sx Pozmix and 250 sx Class G, average slurry weights 700 and 800 psi/1000 ft respectively. Prepared to run 13 5/8" BOP stack WOW (downtime 12 hrs.) Wind NW 20-32 knots. Wave 12-20 ft. Swell 6-18 Ft. Heave 3-14 ft.
25/3	1460 (-)	490 11 30/10 Solids 9%	55 - 1/2	4 5000 400	WOW (20 hours downtime) Wind N 15 to W 38 knots. Wave 16-20 feet. Swell 6-8 feet Heave 12-8 feet Prepared to run BOP stack and riser.
26/3	1460 (-)	490 " 30/10 Solids 9%	55 - 1/2	4 5000 400	Ran and landed BOP stack and marine riser installed choke and kill lines Satisfactorily tested rams at 5000 psi and hydril at 2500 psi Ran wear bushing and tested kelly cock to 5000 psi; Found kelly hydril valve leaking; Repaired same. Ran bit No 3 (12 1/4", X3, 3x15) to seabed Blue pod was found to be leaking-removed booster line and freed blue pod. Displaced marine riser to mud. Found riser to be leaking at rucker line swivel. Displaced marine riser to seawater.
27/3	1460 (-)				Pulled marine riser and upper part of stack Found 4x1/4" holes in marine riser beneath grease fittings on rucker line swivel. Holes caused by inadequate supervision during drilling of grease fitting. Repaired holes and replaced swivel. Repaired and reran blue pod.

A/S NORSKE SHELL | FIELD North Sea WILDCAT | WELL 30/11-2

WEEKLY DRILLING REPORT No. 3 from 24.3 to 30.3 | RIG Ocean Voyager.

Derrick Floor Elevation 78 ft above MSL

Sea Bottom Depth 360 ft below MSL

Elevation of 30" casing flange 51/2 ft above MSL

CASING						
Size	30	13 3/8				
Depth	686	1436				

DATE	DEPTH (PROGRESS) (feet)	MUD: Weight psi/foot / pH	MUD: Viscosity (MF secs) / oil (%)	MUD: Waterloss (cc/30 mins) / Cl (ppm)	OPERATIONS
		PV/YP	Gels	Ca/Mg	
28/3	1943 (483)	485 10 9/18	43 - 0/1	6 19000 360	Ran and landed marine riser. Hooked up choke and kill lines and tested to 5000 psi. Set wear bushing and function tested yellow pod. Ran in with bit No 3 (RR) TOC 1357 Drilled cement and shoe Drilled
29/3	3890 (1947)	485 9.0 9/17 Solids 5%	41 - 0/1	3.0 20000 400	Drilled.
30/3	4030 (140)	485 8.5 15/2 Solids 4%	41 - 0/1	2.5 20000 400	Drilled and circulated clean. Made wiper trip to the shoe. SCHLUMBERGER OPERATIONS 1 GR/SONIC Run No 1. 3974-1436, GR to seabed. 2 IES Run No 1 3981-1436 3 Dual caliper Run No 1 3979-1436 Tools held up at 3982. Made up 9 5/8 casing hanger and running tool Ran bit No 3 (RR) and made check trip for running casing.
					DEVIATION (TOTCO) 1/2° 1725 3/4° 2723 3/4° 3221 1/2 3625 1/2 4030 Shell TP Leblanc, Schouten, Boonstra. Shell PE Kilvington, Praagman. D.M. Adams Operations Engr. D.M. Adams

A/S NORSKE SHELL | FIELD North Sea WILDCAT | WELL 30/11-2

WEEKLY DRILLING REPORT No. 4 from 31.3 to 6.4.75 | RIG Ocean Voyager

Derrick Floor Elevation 78 ft above MSL

Sea Bottom Depth 360 ft below MSL

Elevation of 30" casing flange 5 1/2 ft above ~~MSL~~ Seabed

CASING						
Size	30	13 3/8	9 5/8			
Depth	686	1436	4003			

DATE	DEPTH (PROGRESS) (feet)	MUD: Weight psi/foot / pH	MUD: Viscosity (MF secs) / oil (%)	MUD: Waterloss (cc/30 mins) / Cl (ppm)	OPERATIONS
31.3	4030 (-)	PV/YP 485 8.5 15 1/2 Solids 5%	0/10 Gel 41 - 0/1	Ca/Mg 2.5 20,000 400	Pulled wear bushing. Ran 93 joints 9 5/8" (N80, 47 lb/ft, BTS) casing and landed with shoe at 4003 ft. Circulated. Cemented with 1000 sx pozmix and 286 sx Class G; Average slurry weight 0.700 and 0.820 psi/ft respectively. Bumped plug and pressure tested casing to 4000 psi for 15 mins. Pulled running string, layed down 8" DC and made up 6 1/2" DC. Ran in to 13 3/8" hanger and cleaned out prior to running 9 5/8" seal assembly.
1.4	4176 (146)	480 9.5 10/1 Solids 5%	35 - 0/1	4.8 20,000 380	Tested 9 5/8" seal assembly to 5000 psi. Tested BOP stack to 5000 psi on rams and valves and 2000 psi on hydril satisfactorily. Leak discovered in inner kill valve. Ran to 3000 ft with Bit No 4 (XIG 8 1/2" 3x13) and tested top and bottom kelly valves to 5000 psi. Ran in to T.O.C. at 3917' and drilled cement float shoe and formation to 4050. Made formation strength test. Stopped at pressure of 1150 psi-equivalent to maximum mud gradient 764 psi/1000ft. Drilled.

A/S NORSKE SHELL | FIELD North Sea WILDCAT; | WELL 30/11-2

WEEKLY DRILLING REPORT No. 4 from 31.3 to 6.4.75. | RIG Ocean Voyager.

Derrick Floor Elevation 64 ft above MSL

Sea Bottom Depth 360 ft below MSL

Elevation of 30" casing flange 5 1/2 ft above ~~MSL~~ Seabed

CASING						
Size	30"	13 3/8"	9 5/8"			
Depth	686'	1436'	4003'			

DATE	DEPTH (PROGRESS) (feet)	MUD: Weight psi/foot / pH	Viscosity (MF secs) / oil (%)	Waterloss (cc/30 mins) / Cl (ppm)	OPERATIONS
		PV/YP	0/10 Gel	Ca/Mg	
2/4	4900 (724)	490 9.5 21/1 Solids 7%	50 - 1/8	5.2 18000 320	Drilled to 4208', circulated, and POH. Added stabilisers to BHA and ran Bit No 5 (8 1/2" X3A 2 x 12, 1 x 10) and drilled to 4707'. Made flowcheck and circulated bottoms up due to drilling break. Drilled.
3/4	5580 (680)	500 9.5 18/5 Solids 11%	53 3 1/4	4.0 20,000 400	Drilled to 4967. Circulated. Ran Bit No 6 (8 1/2",XIG, 2x10, 1x12) and drilled. Pumped viscous slug to remove cuttings accumulation and regain normal circulation and pump pressure. Drilled.
4/4	6436 (856)	515 9.0 18/6 Solids 9%	50 - 3/12	3.0 20,000 400	Drilled. Ran Bit No 7 (8 1/2", XIG, 2x10, 1x12)
5/4	7220 (784)	515 8.5 16/5	53 2 4/25	6.0 20,000 400	Drilled to 6657', 6608' and 6780' and circulated for cuttings. Drilled.
6/4	7396 (176)	515 9 14/4	43 1 3/8	4.6 20,000 400	Ran Bit No 8 (8 1/2", XIG, 1x10, 2x12) and washed bottom 90' of hole and circulated viscous slug. Drilled to 7369. Ran Bit No 9 (8 1/2", XV, 1x10, 2x12) Reamed from 7251-7369. Drilled.

DEVIATION (TOTCO)

1/2° 4967
1 3/4° 6430
1 3/4° 7215

D.M. Adams.
Operations Engr.

Shell T.P. Leblanc,
Schouten
Boonstra.
Shell P.E. Kilvington.

A/S NORSKE SHELL | FIELD North Sea WILDCAT | WELL 30/11-2

WEEKLY DRILLING REPORT No. 5 from 7.4 to 13.4.75. | RIG Ocean Voyager.

Derrick Floor Elevation 78 ft above MSL

Sea Bottom Depth 360 ft below MSL

Elevation of 30" casing flange 5½ ft above MSL

CASING						
Size	30	13 3/8	9 5/8			
Depth	686	1436	4003			

DATE	DEPTH (PROGRESS) (feet)	MUD			OPERATIONS
		Weight psi/foot	Viscosity (MF secs)	Waterloss (cc/30 mins)	
		pH	oil (%)	Cl (ppm)	
		PV/YP	0/10 gel	Ca/Mg	
7/4	7569 (173)	515	45	3½	Drilled to 7406' and circulated.
		8 1/2	1	18000	Ran bit No 10 (81/2", XIG, 1x10. 2x12)
		16/10	3/12	1200	Drilled to 7569. P.O.O.H.
		Solids 8%			
8/4	7872 (303)	520	48	3	Ran bit No 11 (8 1/2", XIG, 1x10, 2x12)
		8 1/2	1	17000	Drilled to 7872' and circulated.
		16/8	4/14	1200	Ran bit No 12 (8½, XIG, 1x10, 2x12)
		Solids 10%			
9/4	8338 (466)	520	48	3	Drilled to 8338 and circulated.
		8½	1	1700	Made a short check trip.
		16/10	3/14	650	
		Solids 8%			
10/4	8338 (-)	515	46	3	Circulated, conditioned mud and displaced
		9	1	18000	viscous slug.
		14/9	3/14	500	SCHLUMBERGER OPERATIONS
		Solids 9%			1) GR-Sonic run No 2. 8328'-3950'
					2) IES Run No 2. 8335'-4003'
					3) HDT Run No 1 8338'-4003'
					Ran Bit no 13. (8½",XIG,1x10, 2x12)
11/4	8490 (152)	515	45	2.5	Drilled to 8490 (1588 m), made short check trip and
		8	1	19000	displaced viscous slug.
		15/8	3/12	450	SCHLUMBERGER OPERATIONS
		Solids 8%			1) MPSL-DLL I.O. Stood up at 6007'

A/S NORSKE SHELL | FIELD North Sea WILDCAT | WELL 30/11-2

WEEKLY DRILLING REPORT No. 5 from 7.4 to 13.4.75 | RIG Ocean Voyager

Derrick Floor Elevation 78 ft above MSL

Sea Bottom Depth 360 ft below MSL

Elevation of 30" casing flange 5½ ft above MSL

CASING						
Size	30"	13 3/8"	3 5/8"			
Depth	686	1436	4003			

DATE	DEPTH (PROGRESS) (feet)	MUD Weight psi/foot / pH	Viscosity (MF secs) / oil (%)	Waterloss (cc/30 mins) / Cl (ppm)	OPERATIONS
		PV/YP	0/10 gel	Ca/Mg	
12/4	8490	515	44	3.5	Ran bit no. 13 (HR) to bottom and circulated.
	(-)	8.5	1	19000	SCHLUMBERGER OPERATIONS
		16/8	3/14	500	1) MFSL-DLL Run No. 1 8498'-6000'
		Solids 9%			2) CNL-FDC Run No.1 8496'-6000'
					3) SSL- velocity survey: recorded 15 levels.
					4) Sidewall sampler Gun No.1.-IO feeder lines in gun block installed incorrectly.
13/4	8490 Plug back depth 3700'				5) Sidewall sampler Gun No.2, 30 bullets, 2 misfires, lost none, paid for 24.
					6) Sidewall sampler Gun no.3, 30 bullets, 1 misfire, lost 2, paid for 24.
					RIH with 450' of 2 7/8" tubing stinger and 5" DP.
					Set ABANDONMENT PLUG NO.1 from 8480'-8000' with 187 sxs class 'G' cement with 0.1% HR-7, slurry weight 0.820 psi/ft as per cementation report No.4. circulated clean at 7750'.
					Set ABANDONMENT PLUG NO.2. from 7550'-7250' with 115 sxs Class 'G' cement with 0.1% HR-7, slurry weight 820 psi/ft as per cementation report No.5. Circulated clean at 7150'
					Set ABANDONMENT PLUG NO.3. from 7150'-6650' with 171 sxs Class 'G' cement 0.1% HR-7 slurry weight 820 psi/ft as per cementation report No 6. Circulated clean at 6300'
					Set ABANDONMENT PLUG NO.4. from 4300'-3700' with 228 sxs Class 'G' cement, slurry weight 820 psi/ft as per cementation report No 7. Circulated clean at 3400' P.O.O.H. WOC
					Deviation (TOTCOS) at: 330 1° 7400 2°
					Shell TP's LEBLANC, SCHOUTEN and MAC GREGOR.
					Shell PE's PRAAGMAN AND KILVINGTON.

D.M. Adams.

Operations Engr.

A/S NORSKE SHELL | FIELD North Sea Wildcat | WELL 30/11-2

WEEKLY DRILLING REPORT No. 6 from 14.4 to 16.4.75 | RIG Ocean Voyager

Derrick Floor Elevation 78 ft above MSL

Sea Bottom Depth 360 ft below MSL

Elevation of 30" casing flange 5½ ft above MSL

CASING						
Size	30"	13-3/8"	9-5/8"			
Depth	686'	1436'	4003'			

DATE	DEPTH (PROGRESS) (feet)	MUD Weight psi/foot / pH	MUD Viscosity (MF secs) / oil (%)	MUD Waterloss (cc/30 mins) / Cl (ppm)	OPERATIONS
14/4	500' Plugged back 8490'				WOC RIH with bit and tagged TOC at 3800'. Weight tested 8000 lbs WOB and pressure tested to 1000 psi. RIH with 2-7/8" tubing and DP. Set abandonment plug no 5 from 1000'-500' with 178 sxs of class 'G' cement with 1.5% $CaCl_2$ slurry weight 0.820 psi/ft, as per cementation report no. 8. Circulated clean at 500'. Ran 8-3/8" casing cutter and cut 9-5/8" and 13-3/8" casing at 450'. Retrieved 9-5/8" wear bushing.
15/4	500' 8490'				Pulled 13-3/8" BOP stack and riser. Ran 13-5/8" running tool with hydraulic jar and pulled 13-5/8" and 20-3/4" housing. Ran 30" casing cutter and cut 30" casing at 445'. Ran 30" running tool + hydraulic jar and pulled 30" housing with TGB and MGB. Divers confirmed seabed clear at 02.00 hrs 16.4.75. Deballasted rig and started anchor handling.
16/4	500' 8490'				Finished anchor handling; rig under tow and well 30/11-2 completed at 14.00 hrs 16.4.75. Status: plugged and abandoned. Total time taken 32 days 10 hrs of which 5-1/2 days was weather downtime. Time from spud to seabed clear 28 days 5 hrs.
					Shell TP's MacGregor Schouten Shell PE Praagman Shell Dr.Eng. Strand

D.M. Adams

D.M. Adams (Ops. Eng.)

INTERVAL VELOCITIES (M/SEC.) →

GUMBO CLAY VELOCITY

FRIGG SS VEL.

TUFF VEL.

CHALK VEL.

2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000

2000 4000 2000 4000

COD / DANIAN } SS, SILTS, SH VEL.

← 2-WAY TIME (SECS.)

1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5

(A)

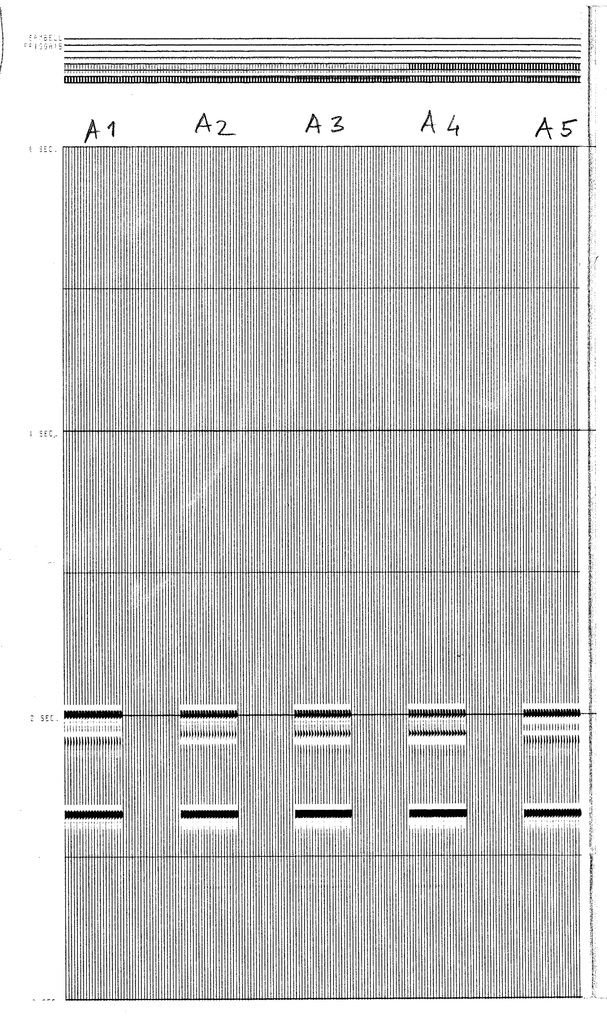
(B)

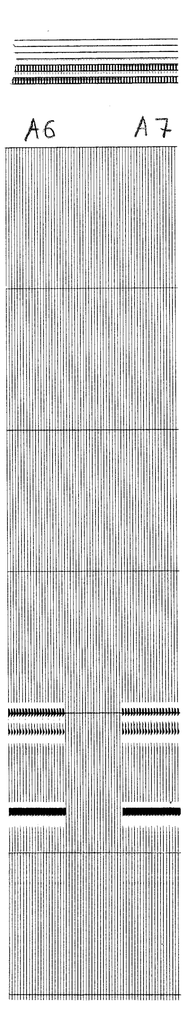
(C)

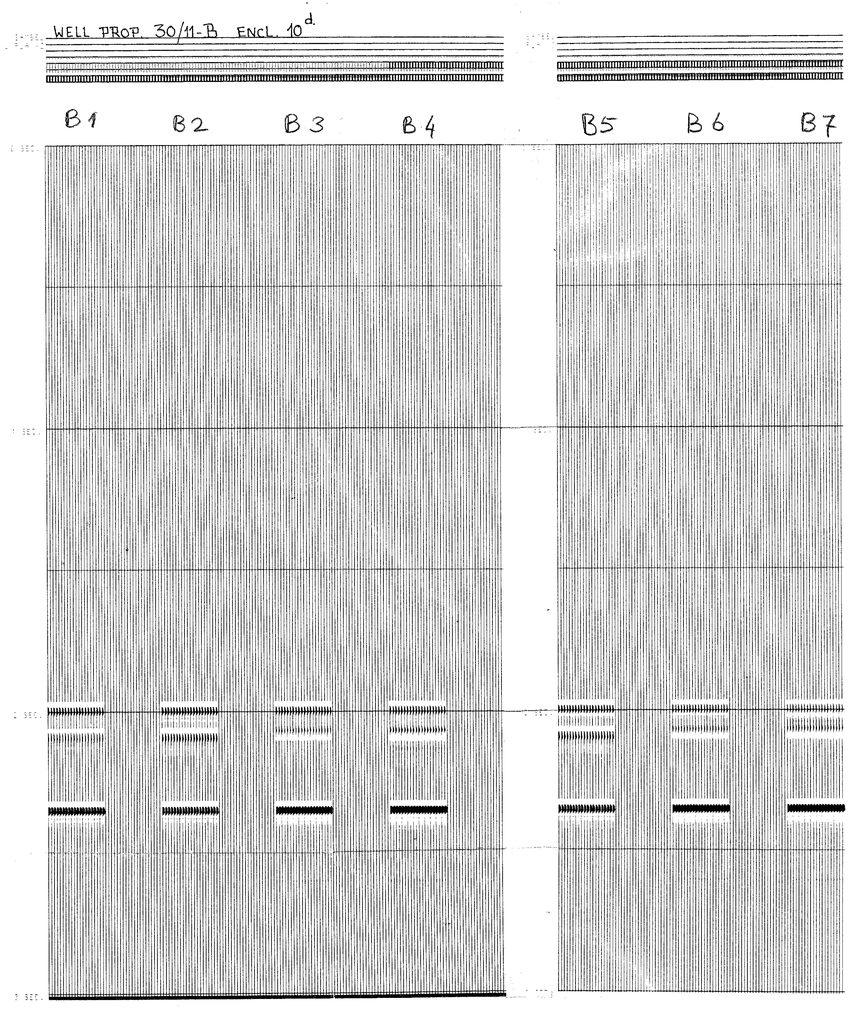
1
2
3
4
5
6
7

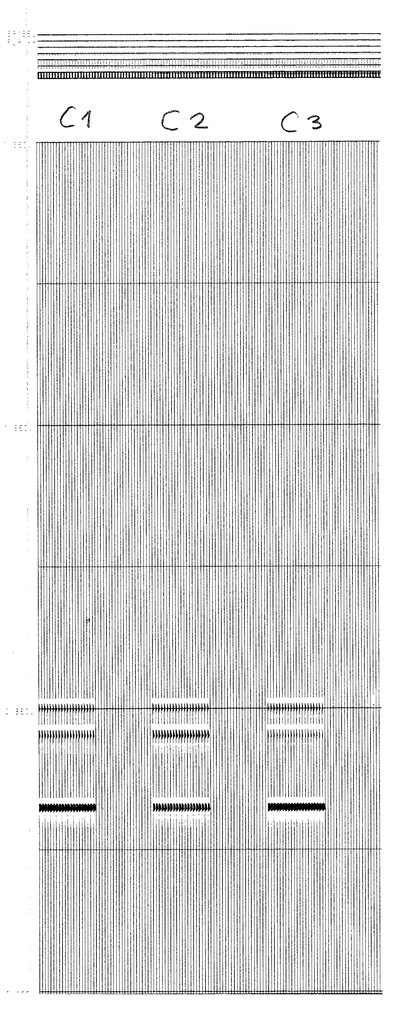
A/S NORSKE SHELL		
Norway Offshore MODEL STUDY 30/11-B FRIGG AREA INPUT		
Author: EP 11/1 Well Proposal 30/11-B	Encl.: 10c	Date: January 1975 Draw. No.: G 63012/3

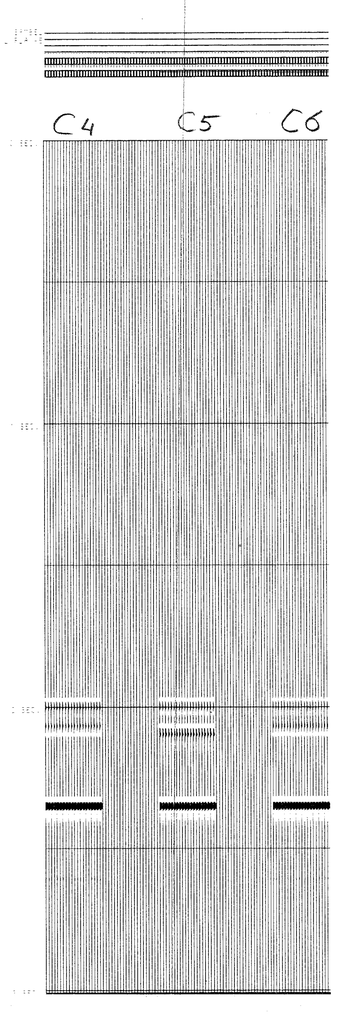
WELL PROP. 30/11-B ENCL. 10d.











A/S NORSKE SHELL

Appendix XI
Page 1 0f 1

SIDEWAL SAMPLE REPORT No 1.

Well 30/11-2

Date 13/4/75

Fired 60

Misfired 3

Lost 2

Paid for 48

Schlumberger Engineer P. Devree

Petroleum Engineer N. Praagman

Depth	RECOVERY (mm) Gun	Gun	Gun	Paid for
8490	10			✓
8465	10			✓
8450	40			✓
8410	20			✓
8350	MT			–
8321	60			✓
8290	50			✓
8177	25			✓
8100	30			✓
8030	30			✓
7952	60			✓
7890	60			✓
7820	25			✓
7750	55			✓
7680	60			✓
7605	20			✓
7534	MT			–
7468	Misfire			–
7440	60			✓
7425	30			✓
7415	55			✓
7388	MT			–
7340	30			✓
7294	MT			–
7252	55			✓
7190	55			✓
7110	Misfire			–
7038	60			✓
6956	40			✓
6860	45			✓

GUN NO:1.

Depth	RECOVERY (mm) Gun	Gun	Gun	Paid for
8350	10			✓
7468	35			✓
7294	60			✓
7110	MT			–
6750	60			✓
6715	Lost			–
6650	Lost			–
7534	55			✓
6550	60			✓
6450	60			✓
6350	60			✓
6250	30			✓
6150	60			✓
6050	65			✓
5950	60			✓
5840	50			✓
5740	55			✓
5630	70			✓
5510	MT			–
5390	55			✓
5270	55			✓
5150	60			✓
5030	50			✓
4910	60			✓
4790	60			✓
4670	55			✓
4550	Misfire			–
4430	70			✓
4270	MT			–
4100	60			✓

GUN NO. 2.

Depth	RECOVERY (mm) Gun	Gun	Gun	Paid for

VELOCITY SURVEY 30/11-2

Shot point no.	Depth bdf	S.S.
1	984	906
2	1640	1562
3	2297	2219
4	2953	2875
5	3609	3531
6	4265	4187
7	4921	4843
8	5584	5506
9	6236	6158
10	6700	6622
11	6890	6812
12	7300	7222
13	7874	7796
14	8308	8230
15	8480	8402

HYDROCARBON SHOWS DURING DRILLING 30/11-2

DEPTH	LITHOLOGY	FLUOR	FLUOR OF CUT	TOTAL GAS	REMARKS
700-1110	Clay with sand	nil	nil	4-5%(C1)	
1110-1140	Clay with sand	nil	nil	> 30%(C1)	
1140-1440	Clay with sand	nil	nil	1-0.0%(C1)	Trip gas 5% (C1)
1470-1840	Clay with sand	nil	nil	0.25-0.5% (C1)	
6440	Claystone/shale	nil	nil	TR 0.06%(C1)	Trip gas 3% (C1)
7230	Claystone/shale	nil	nil		Trip gas 1% (C1)
7360	SST/Clayst/ shale	nil	nil	TR - nil	Trip gas 0.05% (C1)
7410	SST/Clayst/ shale	nil	nil		Trip gas 0.01% (C1)
7880	Claystone	nil	nil		Trip gas 0.01% (C1)
8340	Limestone	nil	nil		Trip gas 3% (C1)

HYDROCARBON SHOWS DURING DRILLING 30/11-2

DEPTH	LITHOLOGY	FLUOR	FLUOR OF CUT	TOTAL GAS	REMARKS
700-1110	Clay with sand	nil	nil	4-5%(C1)	
1110-1140	Clay with sand	nil	nil	>30%(C1)	
1140-1440	Clay with sand	nil	nil	1-0.0%(C1)	Trip gas 5% (C1)
1470-1840	Clay with sand	nil	nil	0.25-0.5% (C1)	
6440	Claystone/shale	nil	nil	TR 0.06%(C1)	Trip gas 3% (C1)
7230	Claystone/shale	nil	nil		Trip gas 1% (C1)
7360	SST/Clayst/ shale	nil	nil	TR - nil	Trip gas 0.05%(C1)
7410	SST/Clayst/ shale	nil	nil		Trip gas 0.01% (C1)
7880	Claystone	nil	nil		Trip gas 0.01% (C1)
8340	Limestone	nil	nil		Trip gas 3% (C1)

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700-1110	Clay with sand	nil	nil	4-5%(C1)	
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7410	SST/Clayst/ shale	nil	nil		Trip gas 0.01% (C1)
7880	Claystone	nil	nil		Trip gas 0.01% (C1)
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7410	SST/Clayst/ shale	nil	nil		Trip gas 0.01% (C1)
7880	Claystone	nil	nil		Trip gas 0.01% (C1)
8340	Limestone	nil	nil		Trip gas 3% (C1)

LIST OF SCHLUMBERGER OPERATIONS 30/11-2

Type fo survey	Run no	Logging interval		Vertical scales		horizontal scales	Remarks
		Requested	Recorded				
GR-Sonic	1	GR to sea bed 4026-1436	3974-434 3974-1436	1/200	1/500	GR 0-80 0-120 Sonic 100-120	Held up at 3969'
IES	1	4026-1436	3981-1436	1/200	1/500	SP 0-100 ind 10-2000	
BGT	1	4026-1436	3979-1434	1/200	1/500	6" - 26"	
GR-Sonic	2	TD-shoe	8328-3950	1/200	1/500	GR 0-120 Sonic 40-140	Cal 7½' too shallow
IES	2	TD-shoe	8335-4003	1/200	1/500	SP 0-100 IES 02-2000	
HDT	1	TD-shoe	8338-4003	1/20	1/200	Dev 0^{o}-9^{o}	
MSFL-DLL	I.O.	TD-6000'					Tool held up at 6007'
MSFL-DLL	1	TD-6000'	8498-6000	1/200	1/500	GR 0-100 DLL/MSFL 02-200	Resistance at 7110' (6" hole)
CNL-FDC	1	TD-6000'	8496-6000	1/200	1/500	CNL 45-15 FDC 1.95-2.95	
SSL velocity survey	1	15 levels	15 levels				
Sidewall sampler	IO	30 cores	paid none				Feeder lines in gun block malfunctioning
Sidewall sampler	gun no1	30 cores	2 misfires lost none paid 24				
Sidewall sampler	gun no2	30 cores	1 misfire lost 2 paid 24				

PETROPHYSICAL NOTE 30/11-2

The logs used in this analysis were

1. GR-Sonic	Run no 2	8328 - 4003
2. IES	Run no 2	8335 - 4003
3. DLL-MSDL	Run no 1	8498 - 6000
4. CNL-FDC	Run no 1	8496 - 6000

During the drilling of the well, no appreciable shows were observed, only a trace of gas being recorded on the detector. (Ref. Gas Analytic Master Log 30/11-2).

Sidewall samples were taken at various depths mainly in the shales for palynological purposes (Ref. Sidewall samples report nos 1 and 2). A total of 48 samples were paid for from a total of 60 bullets. A very faint solvent cut fluorescence was observed at 6956 in the Frigg sand but otherwise there were no other hydrocarbon indications.

SUMMARY

The Frigg sand was the only sand layer of interest encountered in the well. Between 7376 and 7387 a bed of doubtful lithology was observed and was interpreted as a tight sandstone/siltstone layer. The Danian/Upper Cretaceous limestone was also drilled into. All these zones were interpreted as being water bearing.

CALCULATION

The CNL/FDC run no 1 was used as the correlation log because the GR-Sonic run no 2 was not run to TD but only to 8328. The GR-Sonic run no 2 reads some 2 ft deeper than the CNL/FDC. Correlation with 30/11-2 and 25/2-1 was extremely difficult below the Frigg sand.

The N/G ratio of the Frigg sand was calculated from the CNL/FDC log with confirmation from the GR.

A neutron-density crossplot (figure 1) was used for confirmation of the lithology and also to calculate the porosity of the Frigg sand. Clean readings were selected and no shale correction applied.

The Rt reading was calculated from the DLL-MSFL log using Schlumberger chart RINT-8, correcting the RLLD reading for invasion.

The Rw values of both the sand and limestone were also calculated from the ratio method Rw = (Rt/Rxo) x Rmf.
Rmf was taken as 0.306 ohm/m at 50°F and the temperature of the Frigg sand as 125° F and the limestone as 150° F.

CONCLUSION

A) FRIGG SAND 6732-7010

Two clear zones are seen here, the upper part being quite clean and the lower very shaly.

	6732-6867	6867-7010
Gross	135 ft	143 ft
Net	117 ft	74 ft
N/G ratio	86%	51%

Giving a total of 278 ft gross, 191 ft net and an N/G ratio of 69%.
Average porosity 33% (range 30-35%).

The Rt/Ø crossplot (fig. 3) shows the sand to be water bearing, the Rw value calculated as 0.09 ohm/m (range 0.075-0.1) or 45,000 ppm (range 55-40,000 ppm). This compares with a value of 0.08 ohm/m calculated from the ratio method.

In 30/11-1 and 25/2-1 the Rw value calculated was 0.06 ohm/m on 65,000 ppm.

The bottom of the sand is difficult to determine, 7047 also being a possible depth from the shape of the resistivity logs. Howevever, a sidewall sample at 7038 recovered a siltstone which does not disagree with the log values.

Below this sand, correlation is extremely difficult and two possible depths for the bottom tuff may be suggested. The CNL/FDC log suggests 7389 but the characteristic GR shape indicates 7440. Geological analysis of the sidewall samples will be needed to resolve this.

B) 7376 - 7389

Unfortunately the sidewall sample bullet from this layer shot at 7388 was empty when recovered. The CNL/FDC log suggests a tight silty sand and the point at 7386 is plotted on fig (3). There were no indications from this zone. An extremely high (for the area) water salinity of 150,000 ppm would be needed before this one could possibly be hydrocarbon bearing.

No Cod or Danian sands were encountered.

C) DAINAN/UPPER CRETACEOUS LIMESTONE - TOP AT 8328

Average porosity 7%, (range 5-8%).

A plot of Rt vs Ø indicates the limestone to be water bearing with a calculated Rw value of 0.038 ohm/m. The ratio method indicates 0.044 ohm/m.

A seemingly porous section at 8434-8455 plots on the limestone line in the neutron/density crossplot (fig 2) but a sidewall sample from 8450 recovered calcareous siltstone.
The limestone does become more shaly from 8469 onwards.

LOG ANALYSIS 30/11-2

Figure (1)

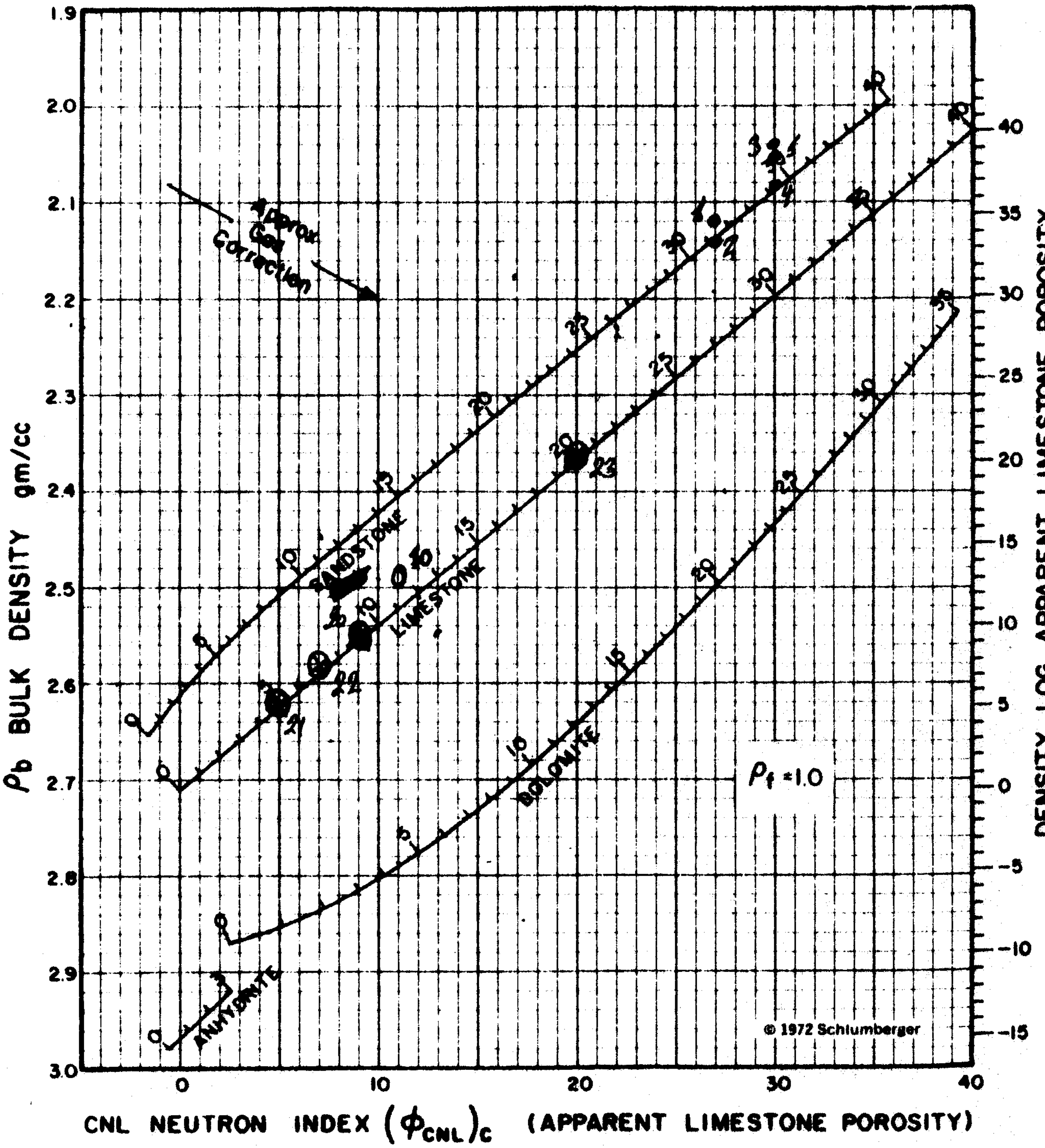
No	Depth interval	h (ft)	R_{IND} Ωm	R_{ILM} Ωm	R_{ILD} Ωm	R_{xo} Ωm	ρ_b gm/cc	ϕ_N %	Δt_c μsec/ft	ϕ Density	LLD/LLS	LLD/R_{xo}	R_t/R_{xo}	R_t	S_w	Lithology
1	6764		0.7	0.7	0.7	1.2	2.12	27	103	32	1	0.58	0.5	0.6	100	Sand
2.	6830		0.6	0.7	0.6	1.1	2.14	29	98	31	0.86	0.55	0.5	0.55	100	Sand
3	6894		0.55	0.6	0.6	1.1	2.04	30	108	37	1	0.55	0.5	0.55	100	Sand
4	6970		0.6	0.6	0.6	1.2	2.08	30	105	34	1	0.5	0.5	0.6	100	Sand
5.	7008		0.6	0.8	0.7	1.3	2.05	30	113	36	0.88	0.64	0.5	0.65	100	Sand
10.	7386		8	3	2	1.4	2.49	10	85							Siltstone
20.	8366			8	7	14	2.55	9		9	0.88	0.5	0.4	5.6	100	Limestone
21.	8392			20	16	40	2.62	5		5	0.8	0.4	0.35	14	100	Limestone
22.	8416			12	11	16	2.58	7		7	0.92	0.69	0.45	7.2	100	Limestone
23.	8445			1.9	1.5	2.0	2.36	20		20	0.79	0.75	0.4	0.8	100	Limestone ?

Fig (2)

Schlumberger

POROSITY AND LITHOLOGY DETERMINATION FROM FORMATION DENSITY LOG AND COMPENSATED NEUTRON LOG (CNL)

FRESH WATER, LIQUID-FILLED HOLES



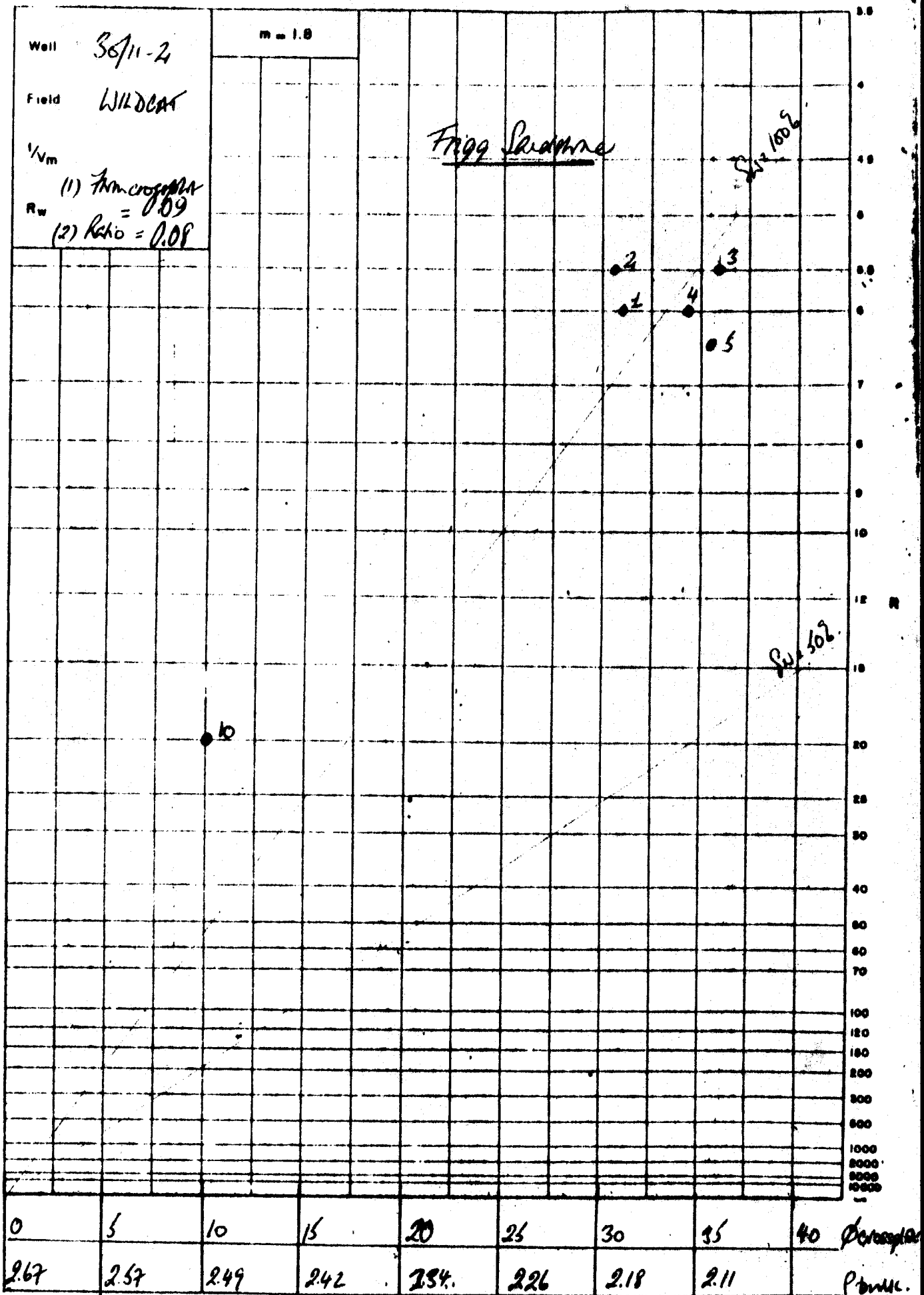
• Frigg sand

⊗ Danian / Cretaceous limestone

○ Siltstone?

Figure (3)

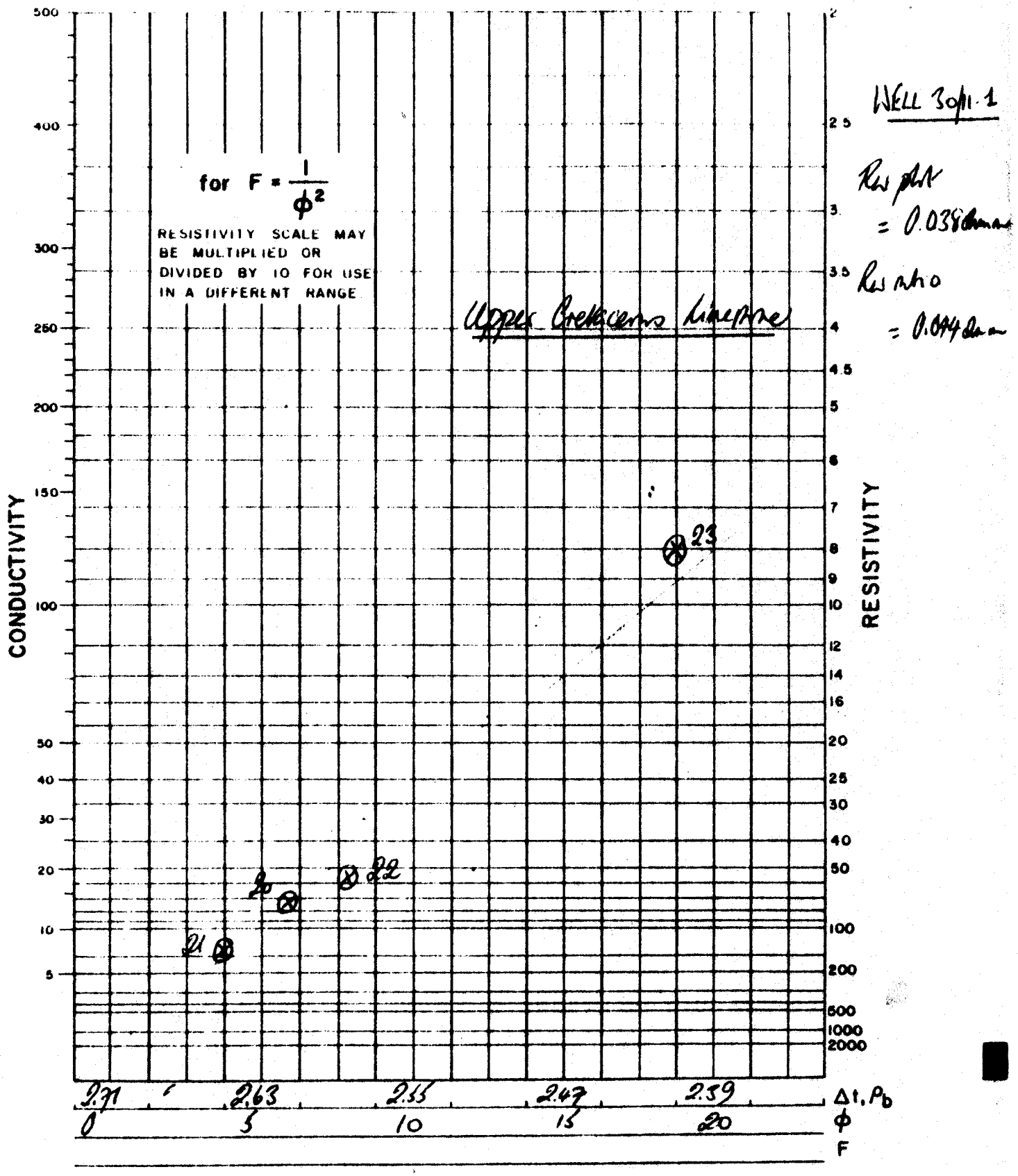
RESISTIVITY VS SONIC TRAVEL TIME



[redacted]

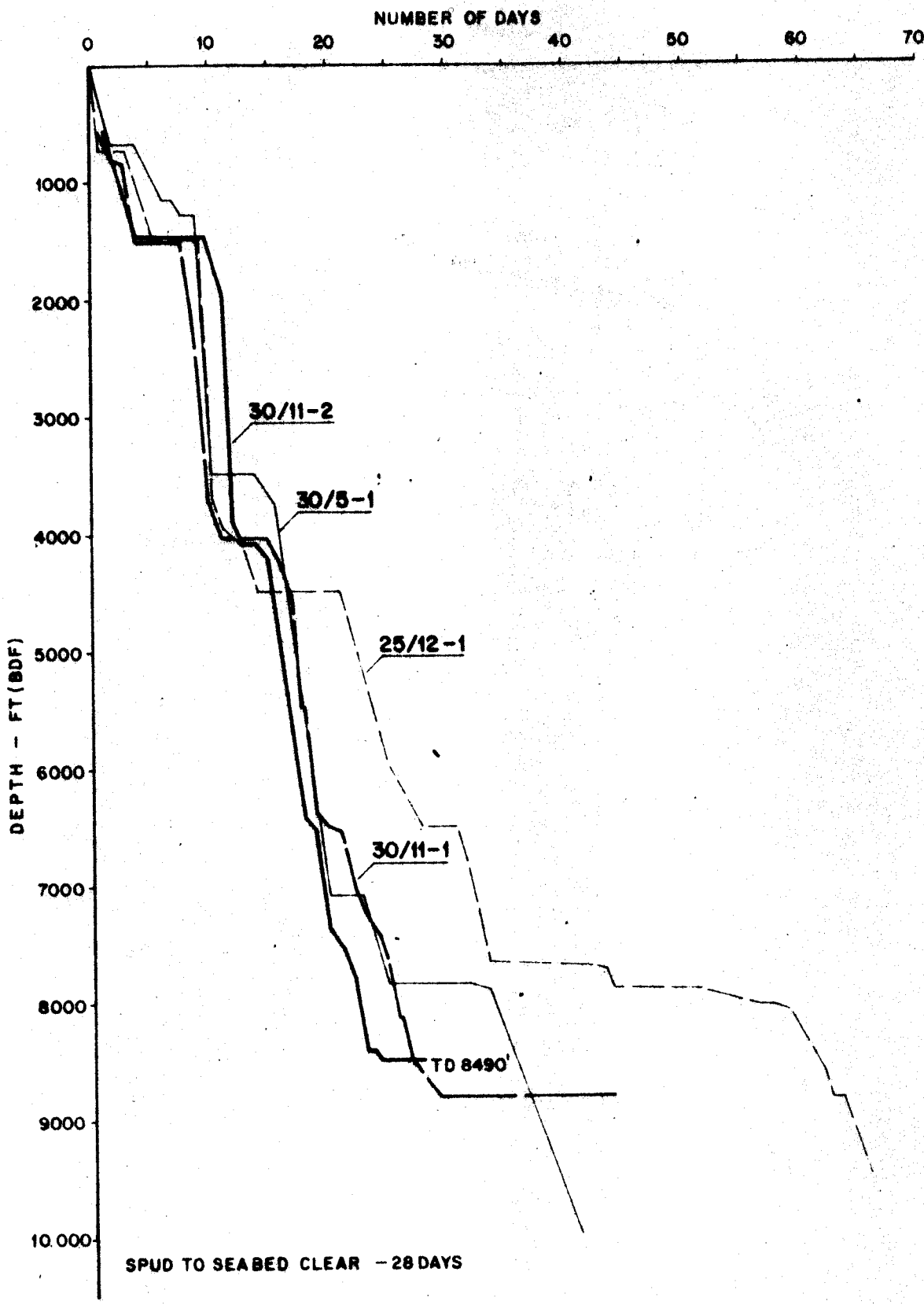
RESISTIVITY VS POROSITY

Figure (4)



A/S NORSKE SHELL

TIME SINCE SPUD VS DEPTH
WELL 30/11-2
SPUDDED 2100 HRS 18-3-'75



TOTAL TIME BREAKDOWN 30/11-2

		TOTAL HRS	%
PREPARATION			
1	Towing	6½	.8
2	Anchoring/Ballasting	22	2.8
3	Waiting on weather	50½	6.5
4	Preparing to spud	10	1.3
	SUB TOTAL PREPARATION	89	11.4
DRILLING			
5	Hrs on bottom	182	23.2
6	Round trip	86	11.0
7	Reaming enlarging	6	.8
8	Circulation/Cond mud/Cleaning flowline	23	3.0
9	Running casing/Cementing	38	4.9
10	Running/Testing U.W:E./Diving	45½	5.9
11	W.O.C./D.O.C.	12	1.6
12	Miscellaneous (Totco, slip line etc).	20	2.6
	SUB TOTAL DRILLING	412½	53.0
EVALUATION			
13	Logging	50½	6.5
14	Roundtrips/Circ. for logging	25½	3.3
	SUB TOTAL EVALUATION	76	9.8
ABANDONING			
15	Abandonment	73½	9.4
	SUB TOTAL ABANDONMENT	73½	9.4
LOST TIME			
16	Repair U.W.E.	44	5.7
17	Repair miscellaneous	2	.3
18	Waiting on weather	81	10.4
	SUB TOTAL LOST TIME	127	16.4
	GRAND TOTAL	778	100

WELL NR. 30/11-2 16.4.75

SEABED INSPECTION COMPLETED AFTER REMOVAL OF BASE-PLATES.

Bottom found to be clear.

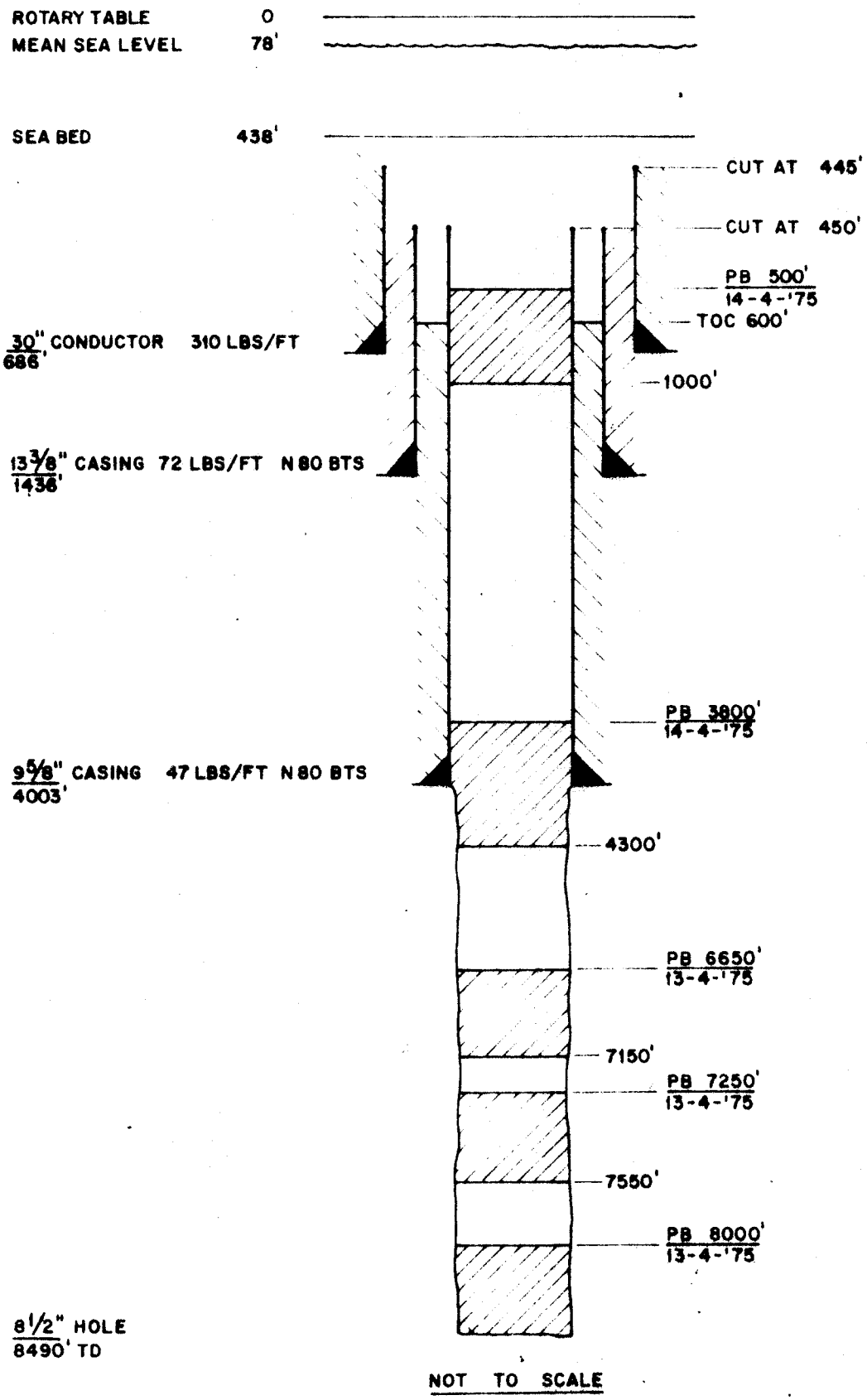
Signed: W.S.McLeod (Bill McLead K.D. Marine)

(original in wellfile 30/11-2)

A/S NORSKE SHELL FINAL STATUS DIAGRAM

WELL 30/11-2

ABANDONED 0200 HRS. 16-4-'75



NOT TO SCALE

CONFIDENTIAL

C O N T E N T S

PART C)

1) LIST OF APPENDICES

I	Weekly Drilling Reports	10 pages
II	Bit and hydraulic data record	1 "
III	Casing and cementing data	2 "
IV	Mud and chemical consumption	3 "
V	Summary of electrical logs and petrophysical evaluation	8 "
VI	Hydrocarbon indications whilst drilling	1 "
VII	Total time breakdown	2 "
VIII	Wellhead clearance certificate	1 "
IX	Well status diagram	1 "
X	Condensed well tabulations	2 "
XI	Summary of sidewall samples	1 "
XII	Sidewall sample report	4 "
XIII	Velocity survey depths	1 "

2) LIST OF ENCLOSURES

a) Well summary sheet 30/11-2
b) Composite well log 30/11-2

3) LIST OF REFERENCES

A) A/S Norske Shell E&P production licence 035 — Exploration well proposal 30/11-B

BIT RECORD

Well No. 30/11-2

Rig: Ocean Voyager
Seawater and

Mud Type: visc. slugs Interval: 438-707

Bentonite/suspension Interval: 707-1460

Bentonite/lignosulp Interval: 1460-8490
Dextrid

Drill Pipe O. D. 5" T. J. Type 4½" IF S135 13.5 lb/ft Interval 438-8490

O. D. ____ T. J. Type ____ Interval ____

Drill Collars Length 61/308 O. D. 9½"/8" I. D. ____ Interval 438-1460

Length 642 O. D. 8" I. D. ____ Interval 1460-4030

Length 660 O. D. 6½" I. D. ____ Interval 4030-8490

No.	Pump Manufacturer	Pump Type
1	EMSCO TRIPLEX	F1600(12")
2	EMSCO TRIPLEX	F1600(12")
3		

Observed Data																								Bit Condition				
Bit No.	Serial No.	Bit Size	Bit Mfr.	Bit Type	Jet-J Conv-C	Nozzles Size	Nozzles No.	Depth Out	Footage	Hours Drld	Feet per Hour	Bit Weight	Table R. P. M.	Mud Wt.	Mud Vis.	Deviation	Pump No. 1 Liner	Pump No. 1 SPM	Pump No. 1 GPM	Pump No. 2 Liner	Pump No. 2 SPM	Pump No. 2 GPM	Pump* Operation	Pump Press	Total GPM	Teeth	Bearing	Gauge	Remarks
1	FR204 +	36 / 26	HTC	H.O. / OSC3A	J	14 x / 20 x	4 / 1	~~707~~	~~269~~	16	17	10	70	Seawater and viscous slug.		1½°	6½	110	544	6½	110	544	P	2100	1088	-			
2	59142	17½	HTC	OSC3AJ	J	20 x / 18 x	2 / 1	1460	743	10½	71	10	60/120	470	50	3/4°	6½	110	544	6½	110	544	P	2200	1088				
3	46269	12 1/4	HTC	X3	J	15 x	3	4030	2673	31	86	10/25	110	480	45	1/2	6½	80	396	6½	80	396	P	2350	792	1	4	0	
4	50606	8½	HTC	XIG	J	13 x	3	4208	178	8	22	35	120	480	40		6½	60	297	6½	60	297	P	2650	594	6	3	0	4½ hrs. DOC.
5	27104	8½	HTC	X3A	J	12 x / 10 x	2 / 1	4967	759	18	42	25/30	110	500	53	1/2	6½	80	396	----------			S	2150	396	6	4	0	
6	50608	8½	HTC	XIG	J	10 x / 12 x	2 / 1	6436	1469	27	55	25/30	110	510	50	1¾	6½	80	396				S	2800	396	3	4	0	
7	50695	8½	HTC	XIG	J	10 x / 12 x	2 / 1	7220	784	18	43	25/30	110	515	53	1¾	6½	80	396				S	2800	396	6	6	0	
8	49719	8½	HTC	XIG	J	10 x / 12 x	2 / 1	7369	149	6	25	25/30	110	515	50	2	6½	80	396				S	2250	396	8	2	0 5/8	90' soft reaming.
9	53238	8½	HTC	XV	J	10 x / 12 x	1 / 2	7406	37	4½	82	25/30	80/100	515	50	1¾	6½	80	396				S	2250	396	8	2	3/8	118' reaming.
10	50622	8½	HTC	XIG	J	10 x / 12 x	1 / 2	7569	163	10	16.3	35	75	515	45	1¾	6½	85	420				S	2450	420	5	2	2/8	110' reaming.
11	50618	8½	HTC	XIG	J	10 x / 12 x	1 / 2	7872	303	14	21.6	35	75	520	78	1¾	6½	85	420				S	2450	420	4	4	1	
12	50612	8½	HTC	XIG	J	10 x / 12 x	1 / 2	8338	466	18½	25	25/35	90	520	47	1°	6½	85	420				S	2650	420	4	5	1/8	
13	50609	8½	HTC	XIG	J	10 x / 12 x	1 / 2	8490	152	10½	14½	25/35	90	520	47	2°	6½	85	420				S	2500	420	4	5	1	TOTAL DEPTH.

*Pump Operation: S - Single; P - Parallel; C - Compound.

**Hydraulic HP based on 85 Pump Mechanical Efficiency; 95 % Volumetric Efficiency

TOTAL CEMENT CONSUMPTION

30/11-2

TYPE	UNIT	NKR UNIT COST	CONSUMPTION	NKR TOTAL
Dyckerhoff Pozmix	94lbs sack	23.80	3212	76,445.60
Norcem class 'G'	94 lbs sack	21.20	1415	29,998.00
$CaCl_2$	50 kg sack	54.20	17	921.40
HR-7	lb	316.50	100	3,165.00

Total cost NKR 110,530,00 NKR

+ All prices include 75 ¢ handling charge
+ Exchange rate 1 US $ = 5.02 NKR

MUD DATA 30/11-2

Depth Interval	Weight psi/1000 ft	Viscosity sec MF	Waterloss cc api	Fann properties			pH	Solids	Cl ppm	Ca ppm
				Plastic viscosity	Yield point	Gels 0/10min				
0-707	460	120+	Seawater and viscous slugs (H920 Polymer and gel)							
707-1460	490	55	6.4	18	12	2/4	8.5	11	20,000	200
1460-4030	485	43	3.0	18	9	0/1	10	5	20,000	360
4030-8490	495-515	45	3.5	16	5	3/8	9.0	8	20,000	400

Mud type

707-3800 H921 Polymer/lignosulphonate/Gel, with Ferrobar weighting material

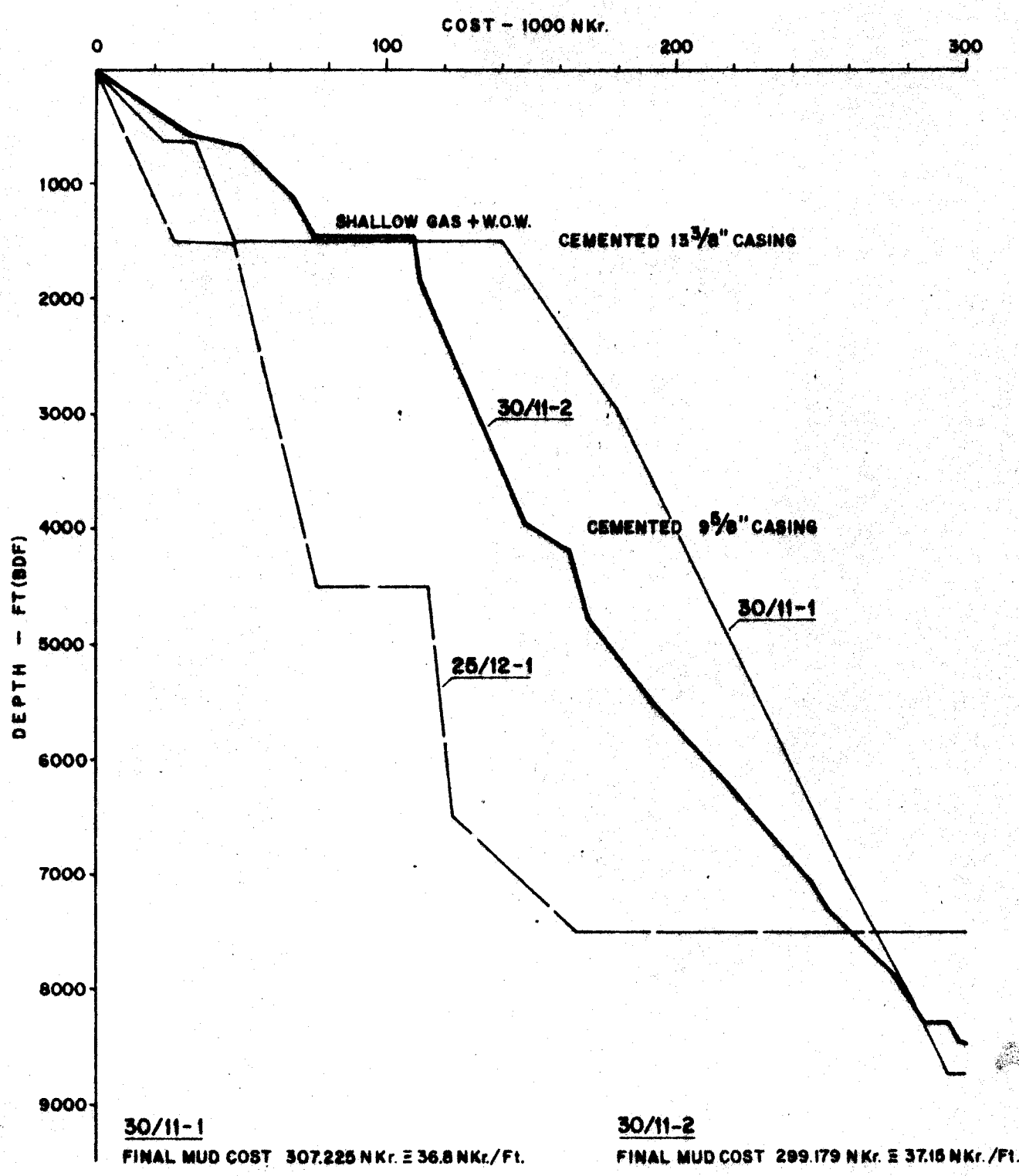
3800-8490 Dextrid/Gel/Lignosulphonate, with ferrobar weighting material

COST OF MUD CHEMICALS 30/11-2

PRODUCT	UNIT	NKR UNIT COST	CONSUMPTION	NKR TOTAL COST
Baroid bentonite	50 kg sxs	37.75	694	26198.50
Imco gel	100 lb sxs	34.39	137	4711.43
Caustic soda	100 lb sxs	60.14	120	7216.80
Sodium bicarb.	50 kg dr/ sxs	148.84	85	12651.40
Sodium carbonate	50 kg sxs	66.36	50	3318.00
Staflo	50 lb sxs	624.61	4	2498.44
H921	25 kg sxs	313.65	200	62730.00
Drillaid	25 kg sxs	58.48	269	15731.12
Dextrid	50 lb sxs	174.29	342	59607.18
Starch	25 kg sxs	108.43	133	14421.19
Formal dehyde	25 kg sxs	61.09	10	610.90
Al. Stearate	25 kg sxs	169.73	5	848.65
RD-555	25 kg sxs	75.83	3	277.49
Fer-o-Bar	MT	410.00	211½	86715.00
			Total NKR	299178.90

Depth of well	8490'		
Footage drilled	8052'	Mud engineer	= 30.595
Drilling days on well	24	29 days at 1055 NKR/day	
Mud cost per ft	37.15 NKR		
Mud cost per day	12.405,79 NKR		
Mud losses surface	1355 bbls		
Mud losses sub-seafloor	nil		
Mud made	3480 bbls		
Mud cost per bbl	85.97 NKR		
1 US $ = 5.02 NKR			
		Grand total	= 329.774 NKR

A/S NORSKE SHELL MUD COST VS DEPTH WELL 30/11-2



30/11-1
FINAL MUD COST 307.225 NKr. ≡ 36.8 NKr./Ft.

30/11-2
FINAL MUD COST 299.179 NKr. ≡ 37.16 NKr./Ft.

(1 US$ = 5.02 NKr.)

APPENDIX XII

A/S NORSKE SHELL

SIDEWALL SAMPLE DESCRIPTION Gun no. 1

FIELD: Wildcat North Sea WELL NO. 36/11-2 DEPTH OF HOLE 8496 DATE TAKEN PAGE NO

DEPTH	RECOVERY m m	LITHOLOGY	SAMPLE FLUORESCENCE	COLOUR OF CUT	CUT FLUORESCENCE
1. 8490		Lst,Wh-Lt Gy,IA,copt mdst,mod hd-hc,ang Brk	Mineral		"
2. 8465		Lst,Wh-Lt Gy,IA,copt mdst,mod hd-hd,ang Brk	Mineral		"
3. 8450		Clst,Sh,Gy-Gy Grn,ang Brk,Cons,non calc,			
		non swelling, Fri.	Nil		"
4. 8410		Lst,Wh,IA,Copt mdst,Mod hd-hd, Ang Brk.	Mineral		"
5. 8350		No Recovery	-		-
6. 8321		Slst,Dk Gy,Cmb Brk,Cons,Calc,Fri.	Nil		"
7. 8250		Clst,Gy-Gy Grn,Cmb Brk,Cons,Calc,Mod hd-hd	"		"
8. 8177		Clst,Lt Gy-Gy Grn,Earthy Brk,Cons,Calc,Sft.	"		"
9. 8106		Slst,Dk Gy-Gy Brn,Cmb Brk,Cons,Calc,Fri.	"		"
10. 8030		Clst,Dk Gy-Gy Grn,Earthy Brk,Cons,			
		Non Calc, Non swelling, Sft.	"		"
11. 7952		Clst,Gy-Grn,Ang Brk,Cons,Non Calc,			
		Non swelling, Mod hd-hd.	"		"
12. 7890		Clst,Gy Grn,Cmb Brk, Cons, (calc), Fri,	"		"
13. 7820		Clst, Dr Gy-Gy Grn, Ang Brk,Cons,Non Calc,			
		Md hd-hd.	"		"
14. 7750		As above.	"		"
15. 7680		Sltst, Gy-Gy Brn, Earthy Brk,Cons,			
		Non Calc, mod hd	"		"
16. 7605		Clst,Gy Gn,Earthy Brk, Cons,Non Calc,			
		Sft-Fri,	"		"

A/S NORSKE SHELL

SIDEWALL SAMPLE DESCRIPTION Gun No. 1.

FIELD: Wildcat, North Sea. WELL No. 30/11-2 DEPTH OF HOLE: 8496 DATE TAKEN 12.4.75. PAGE No. 2.

DEPTH	RECOVERY m m	LITHOLOGY	SAMPLE FLUORESCENCE	COLOUR OF CUT	CUT FLUORESCENCE
17. 7534		No Recovery	-		-
18. 7468		No Recovery	-		-
19. 7440		Sltst, Lt Gy, Earthy Brk, Cons, Calc, Fri.	Nil		Nil
20. 7425		Shale, Gy-Gy Brn, Ang Brk, Cons, Non Calc,			
		Mod Hd.	"		"
21. 7415		Sltst, Lt Gy, Earthy Brk, Cons, Calc, Fri.	"		"
22. 7388		No Recovery	-		-
23. 7340		Clst, Gy Brn, Cmb Brk, Cons, Non Calc, Mod hd-hd	Nil		Nil
24. 7294		No Recovery	-		-
25. 7252		Sltst, Gy-Gy Brn, Earthy Brk, Cons, Non Calc,			
		Fri, Mic.	Nil		Nil
26. 7190		Sh, Slt, Gy-Gry Brn, Ang Brk, Cons, Calc, Mod Hd,			
		Mic.	"		"
27. 7110		No Recovery	-		-
28. 7038		Sltst, Gy-Lt Brn, Earthy Brk, Cons, Calc, Fri,			
		Mic.	Nil		Nil
29. 6956		Sst, Slt, Dk Gy, Por, fsu, (fsu-msl), srt,			
		Ang, Cmb Brk, Mod Hd-Fm, Mic.	"		Slight cut fl.
" "		Sedimentary Structures:- Banded with	"		"
		Alternative light&dark bands, colour of			
		banding light grey-green & dark grey-black,			
		dark colour due to mica, bands generally			
		0.5mm thick. regular max width 1.5 mm.			

A/S NORSKE SHELL

SIDEWALL SAMPLE DESCRIPTION Gun No.1.

FIELD : Wildcat, North Sea WELL No.30/11-2 DEPTH OF HOLE: 8496 DATE TAKEN 12.4.75 PAGE No. 3.

DEPTH	RECOVERY m m	LITHOLOGY	SAMPLE FLUORESCENCE	COLOUR OF CUT	CUT FLUORESCENCE
30. 8860		Sst, Lt Gy-Wh, Por, fsu-Msl, Srt, Ang,			
		Cmb Brk, Fri, Mic,	Nil		Nil

A/S NORSKE SHELL

SIDEWALL SAMPLE DESCRIPTION Gun No.2.

FIELD Wildcat, North Sea WELL No. 30/11-2 DEPTH OF HOLE: 8496 DATE TAKEN 12.4.75. PAGE No. 1.

DEPTH	RECOVERY m m	LITHOLOGY	SAMPLE FLUORESCENCE	COLOUR OF CUT	CUT FLUORESCENCE
1. 8350		Lst,Wh, IA,Copt Mdst,Ang Brk,cmt,mod hd-hd	Mineral		Nil
2. 7468		Clst,Gy-Gy Brn,Non swelling,Earthy Brk,Cons,			
		Non Calc, Fm, Py.	Nil		"
3. 7294		Clst,Lt Gy-Gy Bl, Non swelling, Earthy Brk,			
		Cons, Calc, Sft-Fm.	"		"
4. 7110		No Recovery	-		-
5. 6750		Sst, Gy-Lt Brn,Por, fsu-Msl,Srt, (sph)-			
		Sph,(Ang)-(Rnd) Cmb Brk,Uncons,Lse,(Glc).	Nil		Nil
6. 6715		No Recovery	-		-
7. 6650		No Recovery	-		-
8. 7534		Clst, Dk Gy Gn-Brn,Swelling, Earthy Brk;			
		Cons, Plastic.	Nil		Nil
9. 6550		Clst, Dk Gy Gn-Brn.a/a	"		"
10. 6450		Clst, Dk Gy Gn-Brn,a/a	"		"
11. 6350		Clst, Dk Gy Gn-Brn,a/a	"		"
12. 6250		Clst, Dk Gy Gn-Brn,a/a	"		"
13. 6150		Clst, Dk Gy Gn-Brn,a/a.	"		"
14. 6050		Clst, Dk Gy Gn-Brn,a/a	"		"
15. 5950		Clst, Dk Gy Gn-Brn,a/a	"		"
16. 5840		Clst, Dk Gy Gn-Brn,a/a	"		"
17. 5740		Clst, Dk Gy Gn-Brn,a/a	"		"
18. 5630		Clst, Dk Gy Gn-Brn, Hygroturgid,mod Hd,	"		"
		Non calc, Cons.			

A/S NORSKE SHELL

SIDEWALL SAMPLE DESCRIPTION Gun No. 2.

Field : Wildcat, North Sea **Well No.** 30/11-2 **Depth of hole:** 8496 **Date Taken** 12.4.75 **Page No.** 2.

Depth	Recovery m m	Lithology	Sample Fluorescence	Colour of Cut	Cut Fluorescence
19. 5510		No Recovery	-		-
20. 5390		Clst, Dk Gy Gn-Brn, (Slt), Mod Hd, Earthy Brk			
		Hygroturgid, Non Calc.	Nil		Nil
21. 5270		Clst, Dk Gy Gn-Brn, a/a	"		"
22. 5150		Clst, Dk Gy Gn-Brn, a/a	"		"
23. 5030		Clst, Dk Gy Gn-Brn, a/a	"		"
24. 4910		Clst, Dk Gy Gn Brn, a/a	"		"
25. 4790		Clst, Dk Gy Gn-Brn, a/a	"		"
26. 4670		Clst, Dk Gy Gn-Brn, a/a	"		"
27. 4550		No Recovery	-		-
28. 4430		Clst, Dk Gy Gn-Brn, a/a	Nil		Nil
29. 4270		No Recovery	-		-
30. 4100		Sst, (Slt), Dk Gy, Poorly cemented, Por,			
		fsu, Srt, Cnb Brk, Mic,	Nil		Nil
" "		Non Calc.			