

tilhører

STATOIL

L&U DOK. SENTER

L. NR. 20088370017

KODE Well 31/2-10 nr 2

Returneres etter bruk

WELL SUMMARY

A/S NORSKE SHELL

WELL NO.: 31/2-10



ANCHOR DRILLING FLUIDS

WELL SUMMARY

A/S NORSKE SHELL

WELL NO.: 31/2-10

GENERAL SUMMARY

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-10

OPERATOR'S REPRESENTATIVES

Mr. Frans van Kampen, Mr. Chris Weston

CONTRACTOR Dolphin Services

RIG Borgny Dolphin

CONTRACTOR'S REPRESENTATIVES

Mr. John Butchart, Mr. Harald Frigstad

ANCHOR ENGINEERS

Mr. C. Blanchard, Mr. C. Atkinson

WATER DEPTH	332	m
SEABED to RKB	357	m
36" HOLE DRILLED TO	472	m
30" CASING SET AT	454	m
26" HOLE DRILLED TO	810	m
20" CASING SET AT	793	m
17 $\frac{1}{2}$ " HOLE DRILLED TO	1530	m
13 $\frac{3}{8}$ " CASING SET AT	1514	m
12 $\frac{1}{4}$ " HOLE DRILLED TO	1575	m
9 $\frac{5}{8}$ " CASING SET AT	-	
8 $\frac{1}{2}$ " HOLE DRILLED TO	1833	m
7" LINER SET AT		
6" HOLE DRILLED TO		



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. BLANCHARD

DATE 01.10.82

Ran anchors. Checked inventory.
Prepared to mix spud mud.

DATE 02.10.82

Mixed 1950 bbls of spud mud for viscous pills while drilling 36" hole. Drilled from 357 to 414 m. Spotted 25 bbls havis mud on connections. During first survey 50 bbls of mud were pumped around, and also a 200 bbl pill of havis mud.

After drilling to casing point 472 m, 50 bbls of mud were spotted and chasedd with seawater. Then 250 bbls of havis mud were spotted on wiper trip.

No fill after running back in hole. Again 50 bbls were pumped around and 900 bbls were displaced to the hole.

DATE 03.10.82

Mixed 200 barrels of cement water with 47 50 kg sacks of CaCl_2 . Mixed 1500 bbls of spud mud for 26" hole.

Ran 30" casing and cemented same. Displaced cement with seawater and circulated well head clean. RIH and tagged cement at 444 m. Drilled cement from 444 m to 470 m.

Drilled 26" hole from 472 m to 474 m.



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. BLANCHARD

DATE 04.10.82

Drilled 14 3/4" hole from 474 m to 475.5 m. Pumped 2 x 50 bbls pills and chased with seawater. POOH and ran marine riser. Made up new BHA. RIH and displaced hole with gel mud. Drilled 14 3/4" hole from 475.5 m to 540 m. Ran wiper trip and survey. Maximum overpull 20,000 lbs. Continued drilling to 704 m. Dropped survey.

DATE 05.10.82

POOH to 30" shoe and recovered survey. RIH and drilled to 810 m. Ran wiper trip and survey. Circulated hole clean and spotted 325 bbls havis of 1.35 SG mud. POOH. Ran logs. Displaced to seawater at 445 m. Opened dump valve. RIH to 650 m and displaced to seawater. RIH to 810 m and displaced to seawater.

Checked for flow. Spotted 350 bbls of havis mud in open hole. POOH. Mixed 600 bbls of 1.35 SG gel mud.

DATE 06.10.82

Pulled riser. RIH to 455 m. Reamed hole from 455 m to 787 m (26" hole). Pumped 25 bbls viscous mud on each connection. Mixed 900 bbls total of 1.35 SG mud.



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. BLANCHARD

DATE 07.10.82

26" hole was drilled to 810 m and cleaned twice with 50 bbls slugs of havis mud. The hole was then filled with 900 bbls of 1.35 SG gel mud after a wiper trip.

20" casing was then run and cemented.

DATE 08.10.82

Jetted and cleaned well head to run BOP's. Mixed 500 bbls of new KCl mud, 1.26 SG.

DATE 09.10.82

Ran BOP's and riser. Tested BOP's. Made up new BHA.



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. BLANCHARD

DATE 10.10.82

RIH to top of cement at 780 m. Drilled to 815 m. Pulled into 20" shoe for leak off test. Leak off equivalent to 1.51 SG. Circulated hole clean. Drilled 17½" hole to 1253 m. Ran survey and wiper trip. Tight hole at 1047 m. 130,000 lbs overpull.

DATE 11.10.82

POOH to 20" shoe. Worked tight spot from 1047 m to 906 m. RIH and worked tight spots. Washed to bottom 1253 m with 3 m fill. Drilled to 1348 m. Circulated hole clean. Ran survey.

POOH to shoe. 60,000 lbs overpull. Drilled to 1434 m. Dropped survey and pulled out to the shoe. Tight hole from 1332 m to 1358 m. RIH to 1429 m with 5 m of fill. Drilled from 1434 m to 1530 m.

DATE 12.10.82

Circulated and cleaned hole. Ran survey. Tight hole on wiper trip from 1418 m to 1304 m. RIH to 1380 m. Worked tight spots. RIH to 1530 m with 2 m fill.

Circulated and cleaned hole. POOH to shoe. Maximum overpull 40,000 lbs. RIH to 1519 m. Washed and reamed to 1530 m. Circulated hole clean. POOH. No drag. Ran logs.



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. BLANCHARD / C. ATKINSON

DATE 13.10.82	<p>RIH and tagged bottom at 1530 m. Circulated and cleaned hole. POOH. Ran 13 3/8" casing. Prior to cement casing 300 bbls of 1.20 SG mud were pumped. Bumped plug at 4660 strokes. Lost 85 bbls of mud on displacement of cement. Began to water back mud for next section of hole. Changed all shaker screens.</p>
DATE 14.10.82	<p>Changed over mud system to 1.18 SG. Tagged cement at 1500 m. Drilled to 1535 m. Ran leaks off test.</p> <p>Equivalent mud weight of 1.59 SG. Pipe stuck at 1490 m. Circulated and worked free. Drilled to 1575 m. Circulated bottoms up. POOH.</p>
DATE 15.10.82	<p>Made up 30 ft core barrel. RIH. Cut core from 1575 m to 1585 m. POOH. Recovered core no. 1 (62 %). Made up 60 ft barrel.</p> <p>RIH. Washed and reamed to bottom. Cut core from 1585 m to 1588 m.</p> <p>Maintained system properties as per specification with maximum mud weight at 1.18 SG.</p>



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON/ C. BLANCHARD

DATE 16.10.82

Cut core from 1588 m to 1599 m (very low ROP $\frac{1}{2}$ - 1 m/hr). POOH. Recovered core no. 2 (52 %). RIH. 1 m fill. Washed and reamed to T.D. Cut core from 1599 m to 1613 m.

Maintained rheology with Drispac Regular.

DATE 17.10.82

Cut core from 1613 m to 1617.5 m. POOH. Recovered cores no. 3 (97 %). Changed BHA. RIH. No fill. Cut core from 1617.5 m to 1673 m. POOH. Recovered core no. 4 (91 %).

DATE 18.10.82

Started RIH. Repaired compensator. Continued RIH. Washed and reamed to T.D. (1 m fill). Cut core from 1637 m to 1655.5 m POOH. Recovered core no. 5 (99 %). RIH. Hung off inside casing.

Waited on weather.



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON/ C. BLANCHARD

DATE
19.10.82

Waited on weather. Retrieved hang off tool. RIH. Washed and reamed to T.D. 8 m fill.

Cut core from 1655.5 m to 1663.5 m.

DATE
20.10.82

Cut core from 1663.5 m to 1674 m. POOH. Recovered core no. 6 (100 %). RIH. Washed and reamed to bottom.

Cut core from 1674 m to 1686 m.

DATE
21.10.82

Cut core from 1686 m to 1622.5 m. POOH. Recovered core no. 7 (67 %). RIH. Washed and reamed to T.D.

Cut core from 1692.5 m to 1704.5 m. POOH due to high angle on riser (more than 5°).



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WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON/ C. BLANCHARD

DATE
22.10.82

Recovered core no. 8 (99 %). Waited on weather. Rig off location.

Displaced riser to seawater (dumped + 200 bbls mud. Surface pits full). Moved rig back over location. Displaced riser to mud. RIH. Cut core from 1704 m to 1706.5 m.

Mixed new volume in pit no. 2 at 1.18 SG (60 bbls water to give 265 bbls total).

Reserve pit no. 3 at 1.24 SG.

DATE 23.10.82

Cut core from 1706.5 m to 1723 m. POOH. Recovered core no. 9 (100 %). RIH. Cut core from 1723 m to 1741.5 m. POOH.

DATE
24.10.82

Recovered core no. 10 (100 %). Laid down core barrel. Made up rock bit and BHA. RIH. Drilled 8½" hole from 1741.5 m to 1805 m. Circulated 1/4 hour. Surveyed (1°). Wiper trip to shoe. RIH. Drilled from 1805 m to 1833 m. Circulated to clean hole.

POOH. No drag. Rigged up and ran Schlumberger logs.

Ran 2nd mud pump down choke line to give extra cleaning capacity in riser.



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DAILY SUMMARY REPORT

WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON

DATE 25.10.82

Ran logs.

Cleaned out gumbo box, header box and shaker ditch.

Changed shaker screens to $\frac{S20}{S40} \times \frac{B 60}{B100} \times \frac{B 60}{S50}$.

Serviced Thule unit. (Ordered spare set of hydraulic hoses).

Carried out chemical inventory.

DATE 26.10.82

Continued logging.

Rigged down and waited on weather.

Started to make up 2 7/8" tubing.

DATE 27.10.82

RIH and set cement plugs. No. 1 at 1790 m to 1590 m. POOH. Reversed circulation at 1570 m. Dumped water. Plug no.2 set at 1570 m to 1420 m. POOH. Reversed circulation at 1370 m. No contamination. POOH. Laid down drill pipe. Made up 12 1/4" bit and RIH. Tagged cement. Pressure test plug to 1500 psi. POOH. Laid down drill pipe.

Picked up casing cutters. RIH to cut 13 3/8" casing at 757 m.



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DAILY SUMMARY REPORT

WELL NAME 31/2-10

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON

DATE
28.10.82

Finished pulling 13 3/8" casing. RIH with 2 7/8" tubing on drill pipe. Pumped 50 m havis pill at 860 m. POOH to 810 m

Set cement plug no. 3. POOH to 630 m. Reversed circulation. No contamination.

DATE

DATE

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-10

36" HOLE/ 30" CASING INTERVAL

The 36" hole was drilled with seawater and viscous pre-hydrated Bentonite slugs. While spudding in, approximately 300 bbls of viscous mud was used to begin the well. 25 bbls havis pills were pumped on connections.

During surveys, 50 bbls of havis mud was pumped and circulated with seawater, and then 200 bbls havis mud was pumped after drilling to T.D. 472 m. Again 50 bbls of havis mud were spotted and circulated with seawater and then hole was displaced with 250 bbls havis mud during the wiper trip with no fill. Before setting casing another 50 bbls of havis mud were spotted and circulated, and the hole was displaced with 900 bbls of viscous mud. 200 bbls of CaCl_2 water was mixed for the cement job and 30" casing was set at 454 m.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-10
14 3/4" PILOT HOLE
26" HOLE/ 20" CASING INTERVAL

This section was drilled with pre-hydrated Bentonite/ seawater mud, using slugs of mud as necessary to clean the hole. 1500 bbls were initially mixed up for drilling this section and cement was tagged at 444 m with 26" hole being drilled to 474 m.

14 3/4" hole was then drilled from 474 m to 475 m and 50 bbls of havis mud was spotted and circulated with seawater after which the marine riser and BHA were made up. The hole was then displaced to gel mud.

14 3/4" hole was drilled to 590 m and survey with 20,000 lbs overpull when running to shoe. Drilling was then continued to 704 m and a survey was run. 310 bbls of 1.35 SG of kill mud was also mixed while drilling. After running in hole this section was drilled to 810 m and survey and wiper trip were done with no fill. 325 bbls of 1.35 SG mud was then spotted in the hole and logs were run. The hole was then displaced to seawater in stages at 445 m. 650 m and at 810 m.

The hole was then checked for flow and 350 bbls of havis mud was spotted in the hole. The riser was then pulled and the hole was reamed from 455 m to 810 m with 26" bit. 25 bbls viscous slugs were pumped on each connection while reaming.

The hole was then cleaned twice with 50 bbls of havis slugs and circulated with seawater. The hole then was displaced with 900 bbls 1.35 SG mud after a wiper trip and 20" casing was run and cemented.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL
WELL NO. 31/2-10
17½" HOLE/ 13 3/8" CASING INTERVAL

The 17½" hole was drilled with a KCl/Polymer mud. While running BOP's 1500 bbls of 1.26 SG mud was built and 650 bbls of KCl 90 lbs/bbl brine was received prior to mixing.

Cement was tagged at 780 m in the 20" casing and new hole was drilled to 815 m and the leak off test done (290 psi equivalent to 1.51 SG). Drilling continued to 1005 m and a wiper trip and survey was run with 20 - 30,000 lbs of drag while pulling to the shoe. The next survey was run at 1253 m and during the wiper trip tight hole was encountered at 1047 m with 130,000 lbs overpull. When running back in hole the tight spot from 946 m to 1047 m was reamed and 3 m of fill were encountered while starting to drill at 1253 m.

Drilling continued to 1348 m and during wiper trip 60,000 lbs of overpull occurred. At 1434 m another wiper trip was done to the shoe and tight hole found from 1332 m to 1358 m. When running in the hole 5 m of fill were encountered and the hole was drilled to casing point from 1434 m to 1530 m. The hole was then circulated clean and a survey was run with tight hole from 1418 m to 1304 m. Tight spots were worked and the hole circulated clean again with 2 m of fill. Another wiper trip was run with 40,000 lbs overpull. While running in, the hole was washed and reamed from 1519 m to 1530 m and then circulated clean. When pulling out for logs there was no drag. After running logs the hole was circulated clean and 13 3/8" casing was run and cemented with 85 bbls lost to the formation during cement displacement.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-10

12 1/4" - 8 1/2" HOLE/ - CASING INTERVAL

Before drilling out cement at 13 3/8" shoe the mud system was diluted and treated for mud weight at 1.18 SG. A leak off test was taken at 1535 m, giving an equivalent formation break down of 1.59 SG.

The drilling of 12 1/4" hole then continued as far as 1575 m when it was decided to start coring with an 8 1/2" core bit. A total of 10 cores were taken between depths 1575 m and 1741.5 m. This taking 9 days altogether due greatly to a slower than normal ROP in this section.

The mud system was basically a seawater/Drispac system with little treatment required, only occasional additions for rheology and fluid loss control (specifications were YP 15 - 20 and fluid loss less than 5 cc). The KCl/Polymer system used in 17 1/2" section was allowed to naturally deplete in the 12 1/4" section since no reactive clays were encountered.

After coring it was decided to just continue drilling ahead with an 8 1/2" bit to T.D. Rather than open the hole to 12 1/4" and drill a 12 1/4" hole, since the cores had resulted in the probable decision not to test the well.

A T.D. of 1833 m was reached and a logging programme commenced.

Cement plugs were then set prior to abandoning location.

RECOMMENDATIONS

CONCLUSION

Although this section was drilled rapidly there were no serious hole problems. It is, however, pertinent that some tight spots were in evidence and some fill was experienced after trips.

If sufficient data is not already available on the formation at the tight spots 1047 m, 1332 m, 1358 m and 1418 m it would be advisable to determine what this formation is and what can be done to alleviate the problem. It is also possible that a small increase in mud weight may assist in controlling this situation. The leak off test established a 290 psi equivalent to 1.51 SG the actual mud weights used were 1.26 to 1.36 maximum. The mud weight could be increased to 1.36 SG - 1.46 SG over this hole section, and if the hydraulics and rheology are controlled the resulting increase in E.C.D. can be maintained below 1.51 SG.

After trips samples of the fill should be analyzed by Shell on location and Anchor Drillings laboratory in Tananger. This would enable an accurate assesment to be made as to the reason for this fill. However, until this can be done it is recommended that sufficient time be allowed to enable a full circulation of the hole to be made before a trip, consideration should also be given to the slip velocity of the cuttings when carrying out this operation. Additional hole cleaning can be achieved by making a 40 bbl sweep of 'mud' with a yield point of 25 lbs/100 sq.ft. This should be pumped slightly slower than normal circulation rate so as to give a flatter flow profile resulting in greater carrying capacity and lower E.C.D.

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-10

MATERIAL CONSUMPTION & COST ANALYSIS

36" HOLE DRILLED TO 472 Meters ~~XXX~~ 30" CASING SET AT 454 Meters ~~XXX~~

ACTUAL AMOUNT OF HOLE DRILLED 113 Meters ~~XXX~~ DAYS ON INTERVAL 1

DRILLING FLUID SYSTEM SPUD MUD

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST US \$
BENTONITE	MT	20	20	-	6.560,-
CAUSTIC SODA	25 kg	20	14	- 6	266,-
SODA ASH	50 kg	3	14	+11	259,-
CaCl ₂	50 kg	0	58	-	1.334,-

COST/DAY US\$ 8.419,- TOTAL COST FOR INTERVAL US\$ 8.419,-
COST/Mt. ~~XXX~~ US\$ 74,50 PROG. COST FOR INTERVAL US\$ 7.025,-
ENGR. COST COST VARIANCE FOR INTERVAL US\$+1.394,-

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-10

MATERIAL CONSUMPTION & COST ANALYSIS

17 1/2" HOLE DRILLED TO 1530 ^{Meters}~~Feet~~ 13 3/8" CASING SET AT 1514 ^{Meters}~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 720 ^{Meters}~~Feet~~ DAYS ON INTERVAL 6

DRILLING FLUID SYSTEM

KCl/POLYMER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST US \$
BARITE	MT	205	168	- 137	22.512,-
DRISPAC REGULAR	50 lbs	90	82	- 8	13.882,60
CAUSTIC SODA	25 kg	115	61	- 54	1.159,-
SODA ASH	50 kg	30	45	+ 15	832,50
CMC LOVIS	25 kg	81	58	- 23	3.422,-
LF-5	25 kg	180	117	- 63	5.616,-
ANCOPOL	55 lbs	85	68	- 17	10.064,-
KCl sacks	50 kg	954	73	- 881	1.306,70
KCl brine	bbls	0	1408	+1408	30.835,20
DRILLING DETERGENT	200 ltr.	15	0	- 15	-

COST/DAY US\$ 14.938,33 TOTAL COST FOR INTERVAL US\$ 89.630,-

COST/Mt. ~~of Fe~~ US\$ 124,49 PROG. COST FOR INTERVAL US\$ 92.412,60

ENGR. COST COST VARIANCE FOR INTERVAL US\$ 2.782,60

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-10

MATERIAL CONSUMPTION & COST ANALYSIS

HOLE DRILLED TO Meters Feet CASING SET AT Meters Feet
^{8 1/2"}
 ACTUAL AMOUNT OF HOLE DRILLED Meters ~~Feet~~ DAYS ON INTERVAL

DRILLING FLUID SYSTEM

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BARITE	MT	100	36	- 64	4.824,-
BENTONITE	MT	0	0	0	-
BENTONITE	50 kg	220	0	- 220	-
CAUSTIC SODA	25 kg	70	36	- 34	684,-
SODA ASH	50 kg	4	18	+ 14	333,-
LF-5	25 kg	50	74	+ 24	3.552,-
CMC LOVIS	25 kg	25	55	+ 30	3.245,-
DRISPAC REGULAR	50 lbs	60	51	- 9	8.634,30
LIGNO	25 kg	175	0	- 175	-
XC-POLYMER	50 lbs	15	0	- 15	-
DRILLING DETERGENT	200 l.	10	0	- 10	-

COST/DAY TOTAL COST FOR INTERVAL
 COST/Mt. ~~or Ft.~~ PROG. COST FOR INTERVAL
 ENGR. COST COST VARIANCE FOR INTERVAL

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-10

TOTAL CONSUMPTION & COST ANALYSIS

TOTAL DEPTH Meters
~~feet~~

TOTAL HOLE DRILLED Meters
~~feet~~

TOTAL DAYS

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BARITE	MT	305	278	- 27	US\$ 37.252,-
BENTONITE	MT	65	50	- 15	16.400,-
BENTONITE	50 kg	220	0	- 220	-
CAUSTIC SODA	25 kg	255	140	- 115	2.660,-
SODA ASH	50 kg	45	96	+ 51	1.776,-
LIME	25 kg	6	0	- 6	-
KCl brine	bbls	0	1408	+ 1408	30.835,20
KCl sxs	50 kg	954	73	- 881	1.306,70
ANCOPOL	25 kg	85	68	- 17	10.064,-
DRILLING DETERGENT	200 l.	25	0	- 25	-
LF-5	25 kg	274	191	- 83	9.168,-
CMC LOVIS	25 kg	106	113	+ 7	6.667,-
LIGNO	25 kg	175	0	- 175	-
DRISPAC REGULAR	50 lbs	150	133	- 17	22.516,90
XC-POLYMER	50 lbs	15	0	- 15	-
CALCIUM CHLORIDE	50 kg	0	84	+ 84	1.932,-

COST/DAY

TOTAL COST FOR WELL

COST/Mt

PROG. COST FOR WELL

ENGR. COST

COST VARIANCE FOR WELL

Drilling Fluid & Material Consumption Report

SEAWATER/DRISPC

OPERATOR A/S NORSKE SHELL
 ENGINEERS BLANCHARD/ATKINSON

RIG. BORONY DOLPHIN

UJD SYSTEM

DATE	ESTIMATED DAILY MUD VOLUMES			BULK MATERIALS		SACK MATERIALS		THINNERS	MATERIALS ADDED TO CONTROL PROPERTIES																		
	LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BENTONITE	BARITE	MT	MT		DRISPC	CMC	CMC	LOVIS	CMC	HIVIS	ANCO-	POL	KCl	SXS	KCl	CaCl ₂	SODA	CAUSTIC	SODA	ASH	CaCl ₂	LF-5	OTHERS
1982																											
15 15.10	20	63	4																		3					8	
16 16.10	19	10							5																		
17 17.10		11	10						4																		
18 18.10			4																		4						
19 19.10			3																							12	
20 20.10			3																							8	
21 21.10			3						2																		
22 22.10	170	60	4						2												1					4	
23 23.10			3						2																		
24 24.10	21		2						4																		
25 25.10			NONE																								
26 26.10																											
27 27.10																											
28 28.10																											
FORWARD	5350	1432	9150	242	50				114	111		68				73	1408	128	95	84	159						
ESTIMATED TOTALS	5350	1673	9294	278	50				133	113		68				73	1408	140	96	84	191						

REMARKS

WELL NAME 31/2-10 AREA NORTH SEA NORWAY
 OPERATOR A/S NORSE SHELL RIG. BORGNY DOLPHIN
 ENGINEERS C. BLANCHARD

Drilling Mud Properties Record
 GEL/SEAWATER (SPUD MUD) - KCl/POLYMER
 MUD SYSTEM

Day No.	DATE	DEPTH FEET <input type="checkbox"/> METERS <input checked="" type="checkbox"/>	DENSITY PPG <input type="checkbox"/> SG <input checked="" type="checkbox"/>				VISCOSITY				GELS	FLUIDLOSS 30Min cc's	CAKE 32 nds	HTHP cc's	PH	Cl ⁻ ppm x 1000	Ca ++ ppm	Filtrate Analysis			RETORT	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS								
			sec/ql	A V cps	P.V. cps	Y.P. #/100 sq ft	% OIL	% SOLIDS	% OIL																											
1	1.10									0																										
2	2.10	470	1.06	100+																																
3	3.10	474	1.06	70+																																
4	4.10	704	1.06	55	40	10	60																													
5	5.10	812	1.08	70																																
6	6.10	787	1.06	100+																																
7	7.10																																			
8	8.10	810	1.26	50	32.5	22	21	2	2	5.0	1																									
9	9.10	810	1.26	52	32.5	22	21	2	3	5.0	1																									
10	10.10	1250	1.29	48	36	26	20	2	3	4.7	1																									
11	11.10	1530	1.35	58	45	35	20	6	16	6.0	1																									
12	12.10	1530	1.36	47	37	30	14	4	10	6.0	1																									
13	13.10	1530	1.35	51	37	30	14	3	10	6.0	1																									
14	14.10	1575	1.17	47	31.5	21	21	4	4	4.2	1																									

REMARKS

WELL NAME 31/2-10 AREA NORTH SEA NORWAY
 OPERATOR A/S NORSE SHELL RIG BORGNY DOLPHIN
 ENGINEERS CHRIS ATKINSON

Drilling Mud Properties Record
 MUD SYSTEM SEAWATER/DRISPAC

Day No	DATE	DEPTH FEET METERS	DENSITY PG #	VISCOSITY				FLUIDLOSS 30 Min cc/s	CAKE 32 nds	HTHP ccs	PH	X Cl ppm 1000	Filtrate Analysis			RETORT			BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS		
				sec/dl	A.V cps	P.V cps	Y.P #/100 sq ft						GELS	% SAND	% SOLIDS	% OIL	Ca + ppm	PI								
15	15.10	1588	1.17	49	29	20	18	2	3	3.9	1	11.5	38	100	0.6	10	TR	12.5			0.64	0.95				
16	16.10	1610	1.17	50	29	20	18	2	3	3.9	1	11.5	38	100	0.5	10	TR	12.5			0.64	0.95				
17	17.10	1637	1.18	50	30.5	21	19	2	3	3.8	1	11.5	38	100	0.9	10	TR	13			0.63	1.02				
18	18.10	1655	1.18	49	30.5	21	19	2	3	3.9	1	11.5	38	80	1.15	10	TR	12.5			0.63	1.02				
19	19.10	1663	1.18	49	30	21	18	2	2	3.7	1	11.5	38	80	1.10	10	TR	12.5			0.62	0.97				
20	20.10	1686	1.18	50	30.5	21	19	2	3	3.6	1	11.5	37.5	80	0.45	10	1/4	12			0.63	1.02				
21	21.10	1704.5	1.18	50	30	21	18	2	2	3.6	1	11.4	37	80	0.95	10	1/4	12.5			0.62	0.97				
22	22.10	1706.5	1.18	50	30	21	18	2	2	3.6	1	11.4	37	80	0.425	10	1/4	12.5			0.62	0.97				
23	23.10	1741.5	1.18	51	30	21	18	2	3	3.6	1	11.4	37	80	0.55	10	TR	12.5			0.62	0.97				
24	24.10	1833	1.18	50	30	21	18	2	3	3.6	1	11.3	37	80	0.85	10	TR	12.5			0.65	0.92				
25	25.10	1833	1.18	50	30	21	18	2	3	3.6	1	11.3	37	80	0.4	10	TR	12.5			0.65	0.92				
26	26.10	1833																								

REMARKS



ANCHOR DRILLING FLUID

OSLO - STAVANGER

OPERATOR: A/S Norske Shell
 WELL NAME: 31/2 - 10
 CONTRACTOR: Dolphin Services

