WELL SUMMARY

FOR

A/S NORSKE SHELL

WELL NO. 31/2-9

ANCHOR DRILLING FLUIDS

WELL SUMMARY

FOR

A/S NORSKE SHELL

WELL NO. 31/2-9

GENERAL SUMMARY

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-9

OPERATOR'S REPRESENTATIVES

JIM DALY, FRANS VAN KAMPEN, CHRIS WESTON

CONTRACTOR DOLPHIN SERVICES

RIG BORGNY DOLPHIN

CONTRACTOR'S REPRESENTATIVES

JOHN BUTCHART, HARALD FRIGSTAD

ANCHOR ENGINEERS

CHRIS ATKINSON, CHARLES BLANCHARD, PER T. SKADBERG

WATER DEPTH	339 m
SEABED to RKB	364 m
36" HOLE DRILLED TO	460 m
30" CASING SET AT	450 m
26" HOLE DRILLED TO	816 m
20" CASING SET AT	808 m
17½" HOLE DRILLED TO	1509 m
13⅜" CASING SET AT	1498 m
12¼" HOLE DRILLED TO	1770 m
9⅝" CASING SET AT	
8½" HOLE DRILLED TO	
7" LINER SET AT	
6" HOLE DRILLED TO	

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON

DATE 27.08.82

Ran anchors.

Carried out chemical inventory check, whilst waiting for drill water from boat.

DATE 28.08.82

Finished running anchors. Ballasted down rig. Prepared to spud in.

Started mixing pre-hydrated gel spud mud.

Made shaker and Thule screens inventory check. Dressed Thule unit with 2 x 200 mesh.

Made up S.A.P.P./Caustic bags in case of Barite plug

DATE 29.08.82

Prepared to spud. Ran to seabed (364 m) with 17½" bit + 36" H/O. Spudded in at 09:00. Drilled hole 364 m to 455 m. Finished mix total 1400 bbls spud mud.

Dressed shale shakers with $\frac{20}{B60} \times \frac{20}{B60} \times \frac{20}{B60}$.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON

DATE 30.08.82

Drilled 36" hole 455 m to 460 m. Circulated ½ hour. Spotted 250 bbls hivis pill. Circulated ½ hour. Surveyed. POOH to ±370 m. Recovered survey. RIH. No fill. Circulated. Spotted 100 bbls hivis pill. Circulated ½ hour.

Rigged up and ran 30" casing. Pumped last 15 m down with seawater. Cemented casing. Back flow after displacement. Held pressure and waited on cement.

Mixed 170 bbls of 3 % Calcium chloride cement mix water. Mixed ±1125 bbls pre-hydrated gel mud.

DATE 31.08.82

Pulled running tool. Attempted to jet wellhead. No success. Ran universal guideframe and jetted wellhead. POOH. Laid down running tool and 36" BHA. Made up 14 3/4" bit +26" hole.

RIH. Tagged cement at 441 m. Drilled cement and shoe. Drilled new 26" hole 460 m to 465 m. Overpulled 170,000 lbs. Washed and reamed section 460 m to 465 m. POOH. Picked up jetting sub and RIH to jet wellhead clean.

Diluted back hivis gel to give gel/seawater mud for drilling out of 30" casing. Transferred from pit to fill sand traps (±140 bbls). Weighted up 320 bbls (pit no. 4) for kill mud at 1.35 S.G.

DATE 01.09.82

POOH to reposition jetting tool. RIH and jetted guidepost/ wellhead area. Some improvement found. POOH with jetting tool.

Rigged up and ran pin connector and marine riser.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON/ C. BLANCHARD

DATE 02.09.82

Landed hydraulic latch and marine riser. Laid down 26" BHA. Made up 14 3/4" BHA. RIH. Tested diverter system. Displaced hole to mud. Drilled 14 3/4" pilot hole 465 m to 701 m with survey every 100 m.

Maintained mud weight at 1.10 S.G. maximum.

Treated cement contamination initially.

DATE 03.09.82

Circulated hole clean prior to survey. POOH to shoe. RIH and drilled 14 3/4" from 701 m to 785 m. Conditioned mud and drilled to 816 m. Circulated with 500 bbls of 1.35 S.G. mud.

POOH. No drag. Ran logs.

Made up new BHA and RIH with 26" under reamer.

DATE 04.09.82

Opened up 14 3/4" hole to 26" from 465 m to 475 m. Changed pump liner. Opened up hole from 475 m to 816 m. Circulated hole clean with one pump while changing liner. Kept mud weight below 1.10 S.G. with water.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. BLANCHARD/ P.T. SKADBERG

DATE 05.09.82

Circulated hole clean. POOH 30 m inside 30" casing. Displaced 1.08 S.G. native mud to seawater. Observed well for 30 mins.

POOH. Pulled riser. Made up cement head. RIH with 26" bit. Tight hole from 485 m to 550 m. Circulated hole with seawater and viscous slugs. RIH to 800 m. Circulated and reamed to 816 m. Mixed up 70 bbls 1.35 S.G. mud in order to displace hole before running casing.

DATE 06.09.82

Displaced hole with 665 bbls of 1.35 S.G. mud and 310 bbls of viscous mud. Ran and cemented casing. Ran BOP's and riser. Mixed new KCl mud.

DATE 07.09.82

Unable to land BOP's due to excess cement around guide base.

Mixed up a total of 1360 bbls of 1.26 S.G. KCl mud. Sheared mud through pumps.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. BLANCHARD/ P. T. SKADBERG

DATE 08.09.82

Unable to land BOP's. Jetted cement around well head with seawater. Tried to clean guide base.

DATE 09.09.82

Jetted cement around well head with seawater. Started to run riser and landed BOP stack.

DATE 10.09.82

BOP stack landed. Tested BOP. O.K. Ran in hole with 17½" bit and drilled cement from 792 m to 816 m with KCl mud. Continued drilling hole from 816 m to 825 m. Circulated bottoms up.

Received 600 bbls brine. Mixed 600 bbls new mud.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. BLANCAHRD/ P.T. SKADBERG

DATE 11.09.82

Drilled from 825 m to 1114 m. Dropped survey at 1114 m. POOH. Tight hole from 900 m to 981 m. Circulated at shoe. RIH. Hit tight spot at 933 m. Washed and reamed from 933 m to 952 m. Continued RIH. Drilled from 1114 m to 1152 m.

Lost 100 bbls kill mud while trying to fill slug pit. Also 50 bbls of kill mud was diluted into system.

Changed all shaker screens 20 S over 60 B. Dumped gumbo box and header box every few singles.

DATE 12.09.82

Increased weight of total system to 1.30 S.G. due to tight hole. Drilled from 1152 m to 1362 m. Ran survey at 1362 m.

POOH to 20" casing shoe. RIH tight. Washed and reamed from 933 m to 952 m. Continued RIH. Drilled from 1362 m to 1506 m. Dropped survey. POOH to shoe. Hit tight spot at 1317 m.

Washed and reamed from 1320 m to 1340 m.

DATE 13.09.82

Increased mud weight of active system to 1.35 S.G. due to tight spot. RIH. Circulated hole clean. POOH. No drag.

Rigged up Schlumberger tool and RIH. Not able to pass 1410 m. Logged from 1410 m. Made up new BHA and RIH with 17½" bit. Tagged bottom at 1506 m. Circulated and POOH. Rigged up Schlumberger tool and RIH again. Logged.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. BLANCHARD/ P. T. SKADBERG

DATE 14.09.82

Schlumberger out of hole. RIH with 17½" bit. Tagged bottom at 1506 m. Circulated. Drilled from 1506 m to 1509 m. Circulated hole clean. POOH. Circulated and cleaned area around wear bushing. Rigged up to run 13 3/8" casing.

DATE 15.09.82

Ran and cemented 13 3/8" casing. Diluted back all pits from 1.35 S.G. to 1.18 S.G. Still 1.35 S.G. weight in hole.

Changed screens 2 and 3 on shaker to 60 B over 80 B.

DATE 16.09.82

Tested BOP while waiting on cement. Negative test. Pulled riser with upper BOP package. Worked on BOP.

Changed Thule screens to 200 mesh new on both sides.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON/ P. T. SKADBERG

DATE 17.09.82

Worked on BOP upper package.

Cleaned out pit suction lines to remove settled Barite/solids.

DATE 8.09.82

Finished repairing upper package. Ran package with marine riser.

DATE 19.09.82

Tested BOP. Ran wear bushing. Made up 12 1/4" BHA. RIH. Displaced hole to mud (dumped seawater returns and took 1.35 S.G. mud into pit no. 4 and no. 3). Drilled float, cement and shoe. Drilled 12 1/4" hole to 1514 m. Leak off test 1.55 S.G. equivalent. Drilled ahead.

Diluted back heavy mud to give reserve volume. Mixed chemicals to give desired properties.

Kept active weight at 1.18 S.G. max with dilution. Maintained rheology with Drispac.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON/ P. T. SKADBERG

DATE 20.09.82

Drilled 1518 m to 1527 m. Circulated drill break. Drilled 1527 m to 1536 m. Circulated. Drilled 1536 m to 1554 m. Circulated bottoms up. POOH. Picked up 30' core barrel. RIH. Circulated ½ hour and dropped ball. Cored 1554 m to 1563 m.

Circulated ½ hour. POOH. Recovered core no. 1 (100 %). Made up 60' core barrel.

DATE 21.09.82

Picked up coring BHA. RIH. Circulated and washed to bottom. 2 m fill. Circulated and dropped ball. Cored 1563 m to 1573 m. POOH inside casing and hung off. Waited on weather.

Continued POOH to recover core no. 2.

Maintained fluid loss control and improved filter cake with LF-5 additions.

DATE 22.09.82

Recovered core no. 2 (83 %). Made up new BHA. RIH. Cored 1573 m to 1591.5 m. POOH. Recovered core no. 3 (100 %). Made up new BHA. RIH. Cored 1591.5 m to 1610 m. POOH to recover core no. 4.

Maintained properties as per spec. Dilution for mud weight at 1.18 S.G. maximum.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON

DATE 23.09.82

Recovered core no. 4 (88 %). RIH. Cored 1610 m to 1628 m. POOH. Recovered core no. 5 (98 %). Laid down coring equipment. Made up 12 1/4" BHA. RIH to 1534 m. Opened hole from 8½" to 12 1/4" from 1554 m to 1616 m.

Maintained system properties and mud weight at 1.18 S.G. maximum.

DATE 24.09.82

Opened hole 1616 m to 1628 m. Drilled 12 1/4" hole 1628 m to 1730 m. Circulated bottoms up. POOH. Changed bit. RIH. Drilled 1730 m to 1770 m. (Well T.D.). Circulated bottoms up.

DATE 25.09.82

Finished circulating bottoms up and cleaning hole. POOH. No drag. Rigged up and ran Schlumberger logs.

Dumped and cleaned out sand trap, gumbo and shaker boxes.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-9

OPERATOR A/S NORSKE SHELL

ENGINEERS C. ATKINSON

DATE 26.09.82

Continued logging 12 1/4" hole.

DATE 27.09.82

Finished logging. Rigged down Schlumberger.

Laid down 6½" D.C.'s at 8½" stabs.

DATE 28.09.82

Made up 2 7/8" tubing and RIH with 5" D.P. Set cement plug at 1765 m to 1625 m. POOH to 1610 m. Reversed out. Set plug 1610m to 1435 m.

POOH to 1400 m. Reversed out. Hole clean. POOH. Laid down 5" D.P. Cut and retrieved 565' of 13 3/8" casing.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-9

36" **HOLE/** 30" **CASING INTERVAL**

Well 31/2-9 was spudded at 09:00 hrs on 29.08.82 with water depth of 339 m and RKB --> seabed 364 m. A 17½" bit with 36" hole opener was used to drill 36" hole to a T.D. of 460 m.

Seawater was used for drilling, with pills of hivis pre-hydrated Bentonite pumped as required for hole cleaning.

The hole was displaced with ±750 bbls hivis gel mud (100 % excess) prior to POOH to run 30" casing. Casing was run and set at 450 m.

Approx. 1400 bbls mud used for this section.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-9

17½" **HOLE/** 13 3/8" **CASING INTERVAL**

A 35 to 40 lb/bbl concentration of KCl Polymer was used on this section due to the Bentonite clays to be encountered. While BOP's were run, 1360 bbls of 1.26 KCl mud was mixed.

While trying to land the BOP's it was found that cement was caked up on the well head and the guide base was cleaned by jetting water around the guide base.

When drilling started, the cement was drilled out from 792 m to 816 m with the new KCl mud with no problems.

During this section of hole, the average drill rate was between 30 - 35 m per hour. Tight spots were found and reamed at 900 m to 981 m. 310 bbls of 1.45 S.G. kill mud was mixed to keep in pits at all time. Due to tight hole, the mud weight was increased to 1.30 S.G. and the interal between 933 m and 952 m was reamed. Another section between 1320 m and 1340 m was also tight. After reaching casing point at 1504 m, a wiper trip was made with all tight spots reamed. Schlumberger was unable to get to bottom so the mud weight was increased to 1.35 S.G. and logs were run. While running in hole for clean out trip for casing, 5 m more were drilled to 1509 m. Casing was run and during the cement job 115 bbls of mud was lost to the hole displacement of cement.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-9

14 3/4" pilot/26" **HOLE/** 20" **CASING INTERVAL**

A native mud was used to drill this section. After drilling out new 26" hole from 460 m, a 14 3/4" pilot hole was drilled to 816 m and 300 bbls of 1.35 S.G. mud was displaced in the hole to run logs.

Also 320 bbls of 1.35 S.G. kill mud was on hand.

It should be noted that there was some silt/cement built-up around the guide base and jetting was done prior to running marine riser.

After the 14 3/4" pilot hole was logged, a 26" under reamer was run to 816 m. The native mud was kept below 1.10 S.G. After circulating the hole clean, 30" casing was displaced to seawater and the well was observed. The riser was pulled and a 26" bit was run. Tight hole was encountered at 485 m to 550 m. While drilling, viscous slugs were pumped and the hole was drilled to 816 m. The hole was displaced with 665 bbls of 1.35 S.G. mud and 310 bbls of hivis mud was pumped prior to 20" casing. Casing was cemented and BOP's and riser were run for next section of hole.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-9

12 1/4" **HOLE/** 9 5/8" **CASING INTERVAL**

A total of 3 days was lost after cementing 13 3/8" casing due to necessary repairs to the BOP upper package. During this time, mud at surface was reduced to 1.18 S.G. mud weight and treated to retain required properties. (Especially fluid loss below 5 cc).

After rerunning BOP and marine riser, the hole was displaced, and high weight returns (approx. 1.33 S.G.) from the cased plug was taken into reserve pit. Some of this mud was kept as kill mud and the remainder diluted and treated to give reserve volume of 1.18 S.G. mud.

After drilling 4 m of new hole a leak-off test at 1513 m gave an equivalent break-down of 1.54 S.G. Drilling ahead, continued until a drilling break at 1554 m was circulated and coring commenced. Five cores were taken in all in the interval 1554 m to 1628 m.

Mud for this section was run as a seawater/Drispac system with no further KCl/Ancopol additions necessary for inhibition. Additions of LF-5 were continuous to maintain a good filter cake through the sands of the reservoir section and mud weight was maintained at a maximum of 1.18+ S.G. to reduce the chances of any differential sticking through this normaly pressured section.

After opening the hole from 8½" (core section), drilling of 12 1/4" hole continued to a T.D. of 1770 m. The hole was circulated clean and with no drag on POOH, logging was started.

Testing was not required after the logging and cement plugs were then set prior to abandoning location.

RECOMMENDATIONS

36" HOLE SECTION

The drilling went as per program. No alterations to be made for this section.

RECOMMENDATIONS

26" HOLE SECTION

The drilling went as per program. No alterations to be made for this section.

RECOMMENDATIONS

17 1/2" HOLE SECTION

The drilling went very smooth in this section. The sticky formation seems to have been taken well care of by the KCl. However, a few tight spots occurred, and also, the logging tool did not get to bottom on the first run. This might be solved by increasing the mudweight slightly throughout the section.

Also, with the high penetration rae in this section, it would be advised a yield point in the 20-25 lbs/100ft^2 range to secure a 100% hole cleaning. This is obtained by increasing the Drispac concentration to 2-2.5 lbs/bbl.

RECOMMENDATIONS

12 1/4" HOLE SECTION

This section went as per program with no severe problems and section costs well below programmed costs. No changes should be made for this section.

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-9

MATERIAL CONSUMPTION & COST ANALYSIS

36" HOLE DRILLED TO 460 Meters ~~Feet~~ 30" CASING SET AT 450 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 96 Meters ~~Feet~~ DAYS ON INTERVAL 2

DRILLING FLUID SYSTEM SPUD MUD

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BENTONITE	M/T	20	23	+ 3	7,544.00
CAUSTIC SODA	25 KG	20	8	-12	152.00
SODA ASH	50 KG	3	8	+ 5	148.00
LIME	25 KG	6	0	- 6	
*S.A.P.P.	50 KG	0	1	+ 1	105.00

COST/DAY $ 3,974.50 TOTAL COST FOR INTERVAL $ 7,949.00

COST/Mt. ~~Ft.~~ $ 82.80 PROG. COST FOR INTERVAL $ 7,025.50

ENGR. COST COST VARIANCE FOR INTERVAL $ 923.50

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-9

MATERIAL CONSUMPTION & COST ANALYSIS

14 3/4" PILOT

26" HOLE DRILLED TO 816 Meters ~~Feet~~ 20 CASING SET AT 808 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 356 Meters ~~Feet~~ DAYS ON INTERVAL 4

DRILLING FLUID SYSTEM GEL/SEAWATER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BENTONITE	M/T	45	15	-30	4,920.00
BARITE	M/T	0	67	+67	8,978.00
CAUSTIC SODA	25 KG	50	51	+ 1	969.00
SODA ASH	50 KG	8	12	- 4	222.00
LF-5	25 KG	44	0	-44	
$CaCl_2$	50 KG	0	56	+56	1,288.00
BICARBONATE	50 KG	0	8	+ 8	154.00

COST/DAY $4,132.75 TOTAL COST FOR INTERVAL $ 16,636.00

COST/M~~T~~ $ 46.00 PROG. COST FOR INTERVAL $ 17,970.00

ENGR. COST COST VARIANCE FOR INTERVAL $ - 1,439.00

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-9

MATERIAL CONSUMPTION & COST ANALYSIS

17½" HOLE DRILLED TO 1509 Meters ~~Feet~~ 13 3/8" CASING SET AT 1498 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 693 Meters ~~Feet~~ DAYS ON INTERVAL 4

DRILLING FLUID SYSTEM KCl -POLYMER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BARITE	M/T	205	166	- 39	22,244.00
KCl SX	50 KG	954	450	- 504	8,055.00
KCl BRINE	BBLS	0	1200	+1200	25,428.00
CAUSTIC	25 KG	115	92	- 23	1,748.00
SODA ASH	50 KG	30	41	+ 11	758.50
LF-5	25 KG	180	120	- 60	5,760.00
DRISPAC REG.	50 LBS	90	85	- 5	14,390.50
ANCOPOL	25 KG	85	80	- 5	11,840.00
DRILLING DETERGENT	200 L	15	0	- 15	
CMC (LOVIS)	25 KG	81	71	- 10	4,189.00

COST/DAY $23,603.25

TOTAL COST FOR INTERVAL $ 94,413.00

COST/Mt. ~~Ft.~~ $ 136.24

PROG. COST FOR INTERVAL $ 92,412.60

ENGR. COST

COST VARIANCE FOR INTERVAL $+ 2,000.40

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-9

MATERIAL CONSUMPTION & COST ANALYSIS

12 1/4" HOLE DRILLED TO 1770 Meters

CASING SET AT Meters

ACTUAL AMOUNT OF HOLE DRILLED 261 Meters

DAYS ON INTERVAL 14

DRILLING FLUID SYSTEM SEAWATER/DRISPAC

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BARITE	M/T	100	21	- 79	2,814.00
BENTONITE	50 KG	220	0	-220	
LIGNO	25 KG	175	0	-175	
CAUSTIC	25 KG	70	41	- 29	779.00
SODA ASH	50 KG	4	15	- 11	277.50
CMC (LOVIS)	25 KG	25	23	- 2	1,357.00
LF-5	25 KG	50	112	- 62	5,376.00
DRILLING DETERGENT	200 L	10	0	- 10	
XC-POLYMER	50 LBS	15	0	- 15	
DRISPAC REG.	50 LBS	60	53	- 7	8,972.90

COST/DAY $ 1,398.31

TOTAL COST FOR INTERVAL $ 19,576.40

COST/Mt. $ 75.00

PROG. COST FOR INTERVAL $ 44,221.00

ENGR. COST

COST VARIANCE FOR INTERVAL $-24,644.60

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-9

TOTAL CONSUMPTION & COST ANALYSIS

TOTAL DEPTH 1770 Meters ~~Feet~~

TOTAL HOLE DRILLED 1406 Meters ~~Feet~~

TOTAL DAYS 33

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BARITE	M/T	305	254	- 51	34,036.00
BENTONITE	M/T	65	38	- 27	12,464.00
BENTONITE	50 KG	220	0	-220	
CAUSTIC SODA	25 KG	255	192	- 63	3,648.00
SODA ASH	50 KG	45	76	+ 31	1,406.00
LIME	25 KG	6	0	- 6	
BICARBONATE	50 KG	0	8	- 8	154.00
DRISPAC REG.	50 LBS	150	138	- 12	23,363.40
XC-POLYMER	50 LBS	15	0	- 15	
LF-5	25 KG	274	232	- 42	11,136.00
CMC (LOVIS)	25 KG	106	94	- 12	5,546.00
KCl BRINE	BBLS	0	1200	+1200	25,428.00
KCl	50 KG	954	450	-504	8,055.00
ANCOPOL	25 KG	85	80	- 5	11,840.00
DRILLING DETERGENT	200 L	25	0	- 25	
LIGNOSULPHONATE	25 KG	175	0	-175	
CALCIUM CHLORIDE	50 KG	0	56	+ 56	1,288.00
S.A.P.P.	50 KG	0	1	+ 1	105.00

COST/DAY $ 4,196.04

TOTAL COST FOR WELL $ 138,469.00

COST/Mt. ~~Ft.~~ $ 98.48

PROG. COST FOR WELL $ 161,629.10

ENGR. COST

COST VARIANCE FOR WELL $ - 23,159.70

ANCHOR DRILLING FLUIDS AS

OSLO – STAVANGER

Drilling Fluid & Material Consumption Report

WELL NAME 31/2-9 AREA NORWAY, N. SEA

OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN

MUD SYSTEM SPUD MUD/ GEL/SEAWATER/ KCl/ ENGINEERS

Day No	DATE 1982	ESTIMATED DAILY MUD VOLUMES: LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BULK MATERIALS: BARITE M/T	BENTONITE M/T	SACK MATERIALS: BARITE	BENTONITE	LIGNO	THINNERS: SODA ASH	CAUSTIC	BICARBONATE	LIME	POLYMERS: DRISPAC REG.	CMC	LOVIS	LF-5	ANCOPOL	KCl (bbls)	KCl (sxs)	OTHERS: DR. DET.	AL. STEARATE	S.A.P.	DEFOAMER	$CaCl_2$	DEFOAMER
1	27.8							NONE USED																		
2	28.8			1170						8	8												1			
3	29.8			230		23																				
4	30.8		1200	1125		15				8	12														35	
5	31.8			345	19																					
6	1.9							NONE USED																		
7	2.9		210	464						4	3	8														
8	3.9			620							16															
9	4.9		200	704							20															
10	5.9	1600	300		48																					
11	6.9			350	16					4	6			8	7	15	3								21	
12	7.9			1010	25					15	16			23	21	45	16									
13	8.9				25														600							
14	9.9							NONE USED																		
FORWARD																										
ESTIMATED TOTALS		1600	1910	6018	133	38				39	81	8		31	28	60	19	600					1		56	

REMARKS

ANCHOR DRILLING FLUIDS AS

OSLO — STAVANGER

Drilling Fluid & Material Consumption Report

WELL NAME 31/2-9 AREA NORWAY, N. SEA

OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN

MUD SYSTEM KCl-POLYMER/SEAWATER/DRISPAC ENGINEERS C. BLANCHARD/ P. T. SKADBERG/ C. ATKINSON

Day No.	DATE 1982	ESTIMATED DAILY MUD VOLUMES: LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BULK MATERIALS: BARITE M/T	BENTONITE M/T	SACK MATERIALS: BARITE	BENTONITE	MATERIALS ADDED TO CONTROL PROPERTIES — THINNERS: LIGNO	SODA ASH	CAUSTIC	BICARBONATE	LIME	POLYMERS: DRISPAC REG.	CMC	LOVIS	LF-5	ANCOPOL	KCl (bbls)	KCl (sxs)	DR. DET.	AL. STEARATE	OTHERS: S.A.P.	DEFOAMER	$CaCl_2$	DEFOAMER
15	10.9		36	600	5						13			11	14	22	15	600	20							
16	11.9		193	650	20					8	10			21	12	23	30		115							
17	12.9		252	600	63					14	40			22	17	15	16		265							
18	13.9				7						7								50		10					
19	14.9		61		5																					
20	15.9		692	650	8					11	11			14	23	37					10					
21	16.9		587						NONE USED																	
22	17.9								NONE USED																	
23	18.9								NONE USED																	
24	19.9		27	300						4	7			15		6										
25	20.9		15	69	6						3			4		9										
26	21.9		20	45	3						2			1		10										
27	22.9			83	2						3			3		12										
28	23.9		90	40							4			8		12										
FORWARD		1600	1910	6018	133	38				39	81	8		31	28	60	19	600				1		56		
ESTIMATED TOTALS		1715	3793	9055	252	38				76	181	8		130	94	216	80	1200	450			1		56		

REMARKS

ANCHOR DRILLING FLUIDS AS

OSLO — STAVANGER

Drilling Fluid & Material Consumption Report

WELL NAME 31/2-9 AREA NORWAY, N. SEA

OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN

MUD SYSTEM SEAWATER/DRISPAC ENGINEERS C. ATKINSON

Day No	DATE 1982	ESTIMATED DAILY MUD VOLUMES: LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BULK MATERIALS: BARITE M/T	BENTONITE M/T	SACK MATERIALS: BARITE	BENTONITE	MATERIALS ADDED TO CONTROL PROPERTIES — THINNERS: LIGNO	SODA ASH	CAUSTIC	BICARBONATE	LIME	POLYMERS: DRISPAC REG.	CMC LOVIS	LF-5	ANCOPOL	OTHERS: KCl (bbls)	KCl (sxs)	DR. DET.	AL. STEARATE	S.A.P.	DEFOAMER	$CaCl_2$	DEFOAMER
29	24.9		95	212	2						8			7		16									
30	25.9		50								3			1											
31	26.9								N O N E U S E D																
32	27.9								N O N E U S E D																
33	28.9		66						N O N E U S E D																
34	29.9																								
35	30.9																								
FORWARD		1715	3793	9055	252	38				76	181	8		130	94	216	80	1200	450			1		56	
ESTIMATED TOTALS		1715	4004	9267	254	38				76	192			138	94	232	80	1200	450			1		56	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

WELL NAME 31/2-9 AREA NORWAY, N. SEA
OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN
MUD SYSTEM SPUD MUD/ GEL/SEAWATER/ KCl-POLYMER
ENGINEERS CHRIS ATKINSON/ C. BLANCHARD/ P. T. SKADBERG

Day No.	DATE 1982	DEPTH FEET ☐ METERS ☒	MUD PROPERTIES: DENSITY PPG ☐ SG ☒	VISCOSITY: sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	GELS 0/10	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	pH	Filtrate Analysis: Cl⁻ ppm x1000	Ca ++ ppm	Pf/Mf	RETORT: % OIL	% SOLIDS	% SAND	MBT BENTONITE #/BBL	KCl POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
1	27.8																							
2	28.8				MIXING				PRE-HYDRATED								SPUD MUD							
3	29.8	455	1.06	100+																				
4	30.8	460	1.06	100+																				
5	31.8	465	1.06	60																				
6	1.9	465	1.06	60																				
7	2.9	670	+ 1.09	72																				
8	3.9	816	1.07	55																				
9	4.9	816	+ 1.08	47																				
10	5.9	816	1.08 / 1.35	55																				
11	6.9	816			MIXING				KCl MUD															
12	7.9	816	1.26	52	31	22	18	2/4	4.6	1		11.0	70	240	1.0/2.0		11		2	40		.63	.77	
13	8.9	816	1.26	56	31	22	18	2/3	4.5	1		10.9	70	240	1.0/2.0		11		2	40		.6	.7	
14	9.9	816	1.26	57	31	22	18	2/4	4.5	1		10.9	70	240	1.0/2.0		11		2	40		.6	.7	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

WELL NAME 31/2-9 AREA NORWAY, N. SEA

OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN

MUD SYSTEM KCl-POLYMER/ SEAWATER/DRISPAC

ENGINEERS C. BLANCHARD/ P. T. SKADBERG/ C. ATKINSON

Day No.	DATE 1982	DEPTH FEET □ METERS ☒	MUD PROPERTIES: DENSITY PPG □ SG ☒	VISCOSITY: sec/qt	A.V. cps	P.V. cps	Y.P #/100 sq.ft.	GELS 0/10	FLUID LOSS 30 Min cc's	CAKE 32nds	H.T.H.P. cc's	pH	Filtrate Analysis: Cl ppm x1000	Ca ++ ppm	Pf/Mf	RETORT: % OIL	% SOLIDS	% SAND	MBT BENTONITE #/BBL	KCl POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
15	10.9	825	1.26	48	30	21	19	4/5	4.9	1		12	63	60	1.15/1.15		9	TR	2	34		.6	.7	
16	11.9	1154	1.30	52	31	24	14	3/4	4.9	1		11.2	64	180	.3/.65		12	TR	6	38		.7	.46	
17	12.9	1504	1.31	57	39	31	16	3/11	5.5	1		11.1	69	120	.25/.50		15		15	35		.72	.49	
18	13.9	1504	1.36	52	31	30	12	3/7	6.2	1		11.0	64	100	.3/.6		16	.25	19	39		.82	.36	
19	14.9	1509	1.35	52	37	30	14	5/19	6.0	1		10.4	71	120	.2/.45		15	.5	23	35		.75	.61	
20	15.9	1509	1.18	53	26	26	19	4/9	4.4	1		10.7	48	180	.95/1.95		8	TR	11	23		.66	1.0	
21	16.9	1509	1.18	50	30	22	16	3/4	3.6	1		10.4	45	140	.65/1.5		8	TR	11	17		.65	0.9	
22	17.9	1509	+1.18	49	30.5	23	15	3/4	3.6	1		10.4	47	120	.6/.15		8	TR	11	17		.68	0.58	
23	18.9	1509	+1.18	49	30.5	23	15	3/4	3.6	1		10.4	47	120	.6/1.5		8	TR	11	17		.68	.58	
24	19.9	1518	1.18	50	28.5	21	15	3/4	3.8	1		11.2	44	100	.5/.95		8	TR	11			.71	.57	
25	20.9	1563	1.18	50	32.5	23	19	4/5	3.7	1		11.4	45	80	.55/.45	SL/TR	8	TR	11			.65	.77	
26	21.9	1573	1.18	50	31.5	22	19	4/5	3.6	1		11.4	43	80	.5/.85	SL/TR	8	TR	11			.67	.80	
27	22.9	1610	1.18	50	31.5	22	19	3/4	3.5	1		11.4	44	80	.5/.95	SL/TR	8	TR	12			.66	.89	
28	23.9	1616	1.18	51	33	23	20	3/4	3.5	1		11.4	43	80	.5/.95	SL/TR	8	TR	11.5			.66	.95	

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

WELL NAME 31/2-9 AREA NORWAY/ N. SEA
OPERATOR A/S NORSKE SHELL RIG. BORGY DOLPHIN
MUD SYSTEM SEAWATER/ DRISPAC ENGINEERS C. ATKINSON

Day No.	DATE 1982	DEPTH FEET ☐ METERS ☒	MUD PROPERTIES: DENSITY PPG ☐ SG ☒	VISCOSITY sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	GELS 0 / 10	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	Filtrate Analysis pH	Cl ppm ×1000	Ca. ++ ppm	Pf/Mf	RETORT % OIL	% SOLIDS	% SAND	MBT BENTONITE #/BBL	KCl POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
29	24.9	1770	+ 1.18	50	33	23	20	3 / 4	3.5	1		11.3	41	80	.45 / .85		8	1/4	11			.66	.95	
30	25.9	1770	+ 1.18	50	33	23	20	3 / 4	3.6	1		11.4	41	80	.45 / .85		8	1/4	11			.66	.95	
31	26.9	1770	+ 1.18	50	33	23	20	3 / 4	3.6	1		11.4	41	80	.5 / .9		8	1/4	11			.66	.95	
32	27.9	1770	+ 1.18	50	33	23	20	3 / 4	3.6	1		11.4	41	80	.5 / .9		8	1/4	11			.66	.95	
33	28.9	1430	+ 1.18	48	33	23	20	3 / 4	3.6	1		11.6	41	80	.65 / 1.15		8	1/4	11			.65	.98	
34	29.9							/																
35	30.9							/																

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

INFO-GRAPH

OPERATOR: A/s Norske Shell
WELL NAME: 31/2-9
CONTRACTOR: Dolphin Services

DEPTH
METERS ☒
FEET ☐

DAYS FROM SPUD
10 20 30 40 50 60 70 80 90

250
500
750
1000
1250
1500
1750
2000

T.D 1770 m.

COST
$ ☐ £ ☐
x 1000
150
125
100
75
50
25
0

CASING PLAN
30" 20" 13⅜" 9⅝" 7"

DENSITY
PPG ☐ SG ☒
1.05 1.20 1.35

FILTRATE
API
4 5 6

RHEOLOGY
PV
YP
10 20 30

HYDRAULICS REVIEW

WELL #: 31/2-9 RIG: BORGNY DOLPHIN MUD PUMPS: CONTINENTAL EMSCO

DATE	HOLE SIZE ins	DEPTH m	CIRC. PRESS. psi	PUMP		BIT DATA							ANN. VEL.			MUD WT.	ECD	COMMENTS
				LINER SIZE	SPM	#	TYPE	NOS.	M/Bit	HRS run	ACC. hours	M/hr	DC	DP	CSG			
28.8	17½	460	2220	6½	190	1 RRG	DGJ	4 x 14	96	16	16	6						
1.9	14 3/4	465	2400	6½	190	2 RRG	DSJ	14,14, 14,14,	5	½	½	10						Drl.cement w/26" H/O
2.9	14 3/4	816	3050	6½	200	3	DGJ	14,18, 14,14	351	18½	18½	19				1.09		
" "	14 3/4	816	1750	6½	200	3 RRG	DGJ	20, 20 20, 18		22½	22½					1.08		Run w/under-reamer
4.9	26"	816	1800	6½			OSC-3A	22,22,22		2								Ream&check trip 26" hole
9.9	17½	1506	3300	6½	200	4	OSCIGJ	18,18,18	690	32	32	22				1.35		
	17½	1509	3200	6½	200	4 RR		22,24,24	3	½	32½	6						
19.9	12 1/4	1554	3100	6½	140	5	SDGH	14,14,15	45	7½	7½	6				1.18		
20.9	8½	1563	900	6½	50	6	Core bit		9							1.18		
	8½	1573	900	6½	50	6 RR	" "		10									
	8½	1591,5	900	6½	50	6 RR	" "		18,5									
	8½	1610	950	6½	50	6 RR	" "		18,5									
	8½	1628	950	6½	50	6 RR	" "		18									
23.9	12 1/4	1730	3100	6½	110	5 RR	SDGH	14,14,12	102	10½		10						
24.9	12 1/4	1770	3100	6½	110	7	SDGH	14,14,12	40	6		7				1.18		