WELL SUMMARY

FOR
A/S NORSKE SHELL
EXPLORATION & PRODUCTION

WELL 31/2 - 6

ANCHOR DRILLING FLUIDS

ANCHOR DRILLING FLUIDS AS

WELL SUMMARY

FOR
A/S NORSKE SHELL
EXPLORATION & PRODUCTION

WELL 31/2 - 6

GENERAL SUMMARY

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-6

OPERATOR'S REPRESENTATIVES

J.Hulme, J.Daly

CONTRACTOR Dolphin Services A/S

RIG "Borgny Dolphin"

CONTRACTOR'S REPRESENTATIVES

J.Butchart, H.Frigstad

ANCHOR ENGINEERS

A.Lund, D.Geddes, C.Atkinson

WATER DEPTH

SEABED to RKB	368 m
36" HOLE DRILLED TO	462 m
30" CASING SET AT	448 m
26" HOLE DRILLED TO	820 m
20" CASING SET AT	800 m
17½" HOLE DRILLED TO	1485 m
13⅜" CASING SET AT	1475 m
12¼" HOLE DRILLED TO	1760 m
9⅝" CASING SET AT	1572 m
8½" HOLE DRILLED TO	
7" LINER SET AT	
6" HOLE DRILLED TO	

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-6

OPERATOR A/S NORSKE SHELL

ENGINEERS DENNIS GEDDES

DATE 20/7-81

Locate rig.

Built ± 1400 bbls pre-hydrated Bentonite.

DATE 21/7-81

Spudded well. Drilled 368-420 m (midnight).

Pumped ±20 bbls spud mud at each connection.

DATE 22/7-81

Hit boulder bed at 420 m. Penetration rate Zero. Reamed 406-420 and POOH. Pick up new bit and RIH. Attempt to drill without any progress. POOH and picked up 17½" bit. RIH and drill 17½" pilot hole 420-462 m. POOH, made up new bit and RIH with 17½" bit and 26" hole opener.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-6

OPERATOR A/S NORSKE SHELL

ENGINEERS DENNIS GEDDES

DATE 23/7-81

RIH. Opened hole to 26" from 420-462 m and POOH. RIH with 36" hole opener and opened to 36" from 420-456 m. Wiper trip and POOH after displacing hole to spud mud.

DATE 24/7-81

Rigged up and ran 30" casing. Circulated through casing. (no returns) Worked casing and established circulation. Cemented 30", backed out running tool and POOH.

RIH with 17½" bit and 26" hole opener, Drilled cement 437-449m (midnight)

Mixed ±300 bbls spud mud at 1.40 s.g. and ±740 bbls unweighted spud mud.

DATE 25/7-81

Continued to drill out cement from 449-465 m and POOH. Rigged up and ran pin connector and riser. Tested lines. RIH with 17½" bit and drilled 465-520 m (midnight)

Displaced hole to seawater/gel system. Treated with Drispac to increase viscosity to ±60 sec/qt.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS DENNIS GEDDES

DATE 26/7-81

Drilled ahead with surveys 520-820 m and pulled to shoe for wiper trip. Hole tight at 523 m.

Washed and reamed through tight spot.

Massive dilution with seawater to maintain required mud density through this interval. Used Drispac to keep viscosity at 45-50 sec/qt.

DATE 27/7-81

Continued to wash to shoe. RIH and tagged bottom (no fill). POOH and rigged up Schlumberger. Tool hung up at 562 m. RIH with bit and washed and reamed 608-624 m. Ran to bottom and circulated bottoms up. Made wiper trip and ran back to bottom. Circulated bottoms up and spotted ±500 bbls of 1.40 s.g. mud in open hole. POOH. Rigged up and ran Schlumberger.

DATE 28/7-81

RIH, displaced to seawater, lost returns when displacing 1.40 s.g. mud. Opened seabed dump valve and re-gained returns. Circulated bottoms up. Opened pin connector and observed well. Circulated bottoms up and pumped ±400 bbls viscous mud at 1.15 s.g. POOH. RIH open-ended and set cement plug at 520-445 m. RIH and drilled out cement, ran clean to bottom.

ANCHOR DRILLING FLUIDS AS
OSLO – STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-6

OPERATOR A/S NORSKE SHELL

ENGINEERS DENNIS GEDDES/CHRIS ATKINSON

DATE 29/7-81

Circulated hole to seawater and observed the well. Circulated bottoms up + ±500 bbls of 1.15 S.G. mud. RIH and set 85 m cement plug at 500 m - squeezed 50 bbls. POOH. RIH with bit, circulated bottoms up and observed well. (static). Tagged cement at 443 m. Drilled cement 443-567 m (midnight).

DATE 30/7-81

Circulated hole clean with seawater and observed well. Circulated bottoms up. Drilled ahead 595-820 m. Circulated bottoms up and POOH. Picked up 26" under-reamer and RIH.

Displaced hole to seawater while drilling ahead.

DATE 31/7-81

RIH to 550 m - survey - POOH to 410 m. Washed down 410 -478 m. Under-reamed (26") 478-808 m.

Continuous water addition required for mud weight at 1.12 S.G. max. even with mud cleaner unit and desander running.

Maintained alkalinity with caustic.

Weighted up pit no. 1 and pit no. 3 to 1.35 S.G. as per orders - started weight up pit no. 4 also.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-6

OPERATOR A/S NORSKE SHELL

ENGINEERS CHRIS ATKINSON

DATE 1/8-81

Under-reamed 808-820 m. Circulated bottoms up + 15 mins. Pumped 1050 bbls of 1.35 s.g. mud. Chased with 20 bbls 1.11 s.g. mud. Observed well. Pulled to 500 m. Pumped 325 bbls 1.45 s.g. mud chased with 20 bbls 1.11 s.g. mud. Observed well. Pulled to 367 m. Pumped 25 bbls of 1.45 s.g. mud chased with 20 bbls 1.11 s.g. mud. POOH. Logged. Under gauge several places. Made up 26" undereamer. RIH to 30" shoe. Conditioned system to balance at 1.13 s.g. Under-reamed section joint by joint.

DATE 2/8-81

Continued re-underream to 820 m. Continue heavy dilution for maximum mudweight in at 1.16 s.g. Viscosity maintained with XC-Polymer. Pumped 1050 bbls of 1.35 s.g. mud to displace hole. Pulled to 500 m. Pumped 350 bbls of 1.45 s.g. mud and pulled out of hole. Started pulling riser.

DATE 3/8-81

Finished pulling riser. Ran log. Hole O.K. Started to run 20" casing. Added water, Barite and XC to mud giving 800 bbls of 50 visc./1.35 s.g.

Cleaned pit no. 2 and mixed $CaCl_2$ in seawater for cement mix water (160 bbls/23 sxs $CaCl_2$)

ANCHOR DRILLING FLUIDS AS
OSLO – STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS CHRIS ATKINSON

DATE 4/8-81

Displaced hole with 720 bbls of 1.35 specific gravity gel/sea-water. Cemented 20" casing. Ran BOP-stack and riser.

Cleaned out all pits and lines.

Mixed up 1355 bbls KCl/Polymer. Started to weight up the mud to 1.27 s.g.
Dumped and cleaned sand traps. Dressed mud cleaner with 150 mesh screens.

DATE 5/8-81

Landed stack and riser. Tested BOP's. Made up 17½" BHA. RIH. Tagged float at 790 m. Drilled cement, shoe and rathole. Drilled 820-825 m new formation and displaced to mud. Circulated hole clean prior to leak-off test. Finished weighting up pits to 1.26 s.g. Added ½ ppb Ancopol to the mud.

DATE 6/8-81

Performed leak-off test equivalent to 1.41 s.g. POOH. Made up 12 1/4" bit and BHA. RIH. Drilled 12 1/4" hole 825-976 m.

Finished mixing new mud in pits 2, 3 and 4. Weighted up no. 2 and 4 to 1.26 s.g., and no. 3 to 1.45 s.g. for kill mud.

Mixed 40 bbls Hi-vis pill. Pumped pill prior to start drilling to clean out the hole below the shoe.

Increased Ancopol concentration to 1ppb in active.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS CHRIS ATKINSON

DATE 7/8-81

Drilled 12 1/4" pilot hole 976-1050 m. Circulated bottoms up. POOH - tight at 851-880 m. Worked pipe - POOH - changed to 17½" bit and bottom hole assembly - RIH and reamed 825-1050 m and circulated bottoms up prior to survey and short trip.

Continued maintenance of Ancopol and KCl levels. Made up pit no. 2 Dilution mix (350 bbls).

Cuttings very firm and dry.

DATE 8/8-81

Drilled 17½" hole to 1050 m. Circulated to clean hole. Made wiper trip to shoe - tight at 900 m - worked pipe and circulated 900-875 m. Continued POOH. RIH to total depth - circulated to clean hole .

Drilled 1050-1303 m with surveys.

Increased mud weight to 1.31 specific gravity after increasing gas (4% background) and fair amounts of cavings building up over shakers.

DATE 9/8-81

Circulated bottoms up. POOH - tight spots. Picked up new bit and new D.P. - RIH - to bottom at 1298 m - 5 m fill - drilled 17½" hole 1303-1305 m. Lost circulation - regained with 50 spm (100 bbls mud lost) - added Mica to system - gradually increased strokes and maintained circulation - drilled ahead to 1450 m (survey at 1403 m - 3/4°).

Weighted up pit no. 4 to 1.31 specific gravity. Made up new pit no. 2 of dilution mud mix - background gas variable 2-5% with peaks of 10-20%, but no cavings noted - maintained system weight at 1.31 specific gravity minimum.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS CHRIS ATKINSON

DATE 10/8-81

Drilled 17 ½" hole 1450-1485 m (casing pt) - started circulating bottoms up - lost circulation (partial returns) Mixed Mica and circulated with reduced strokes - still loosing. POOH to shoe broke circulation and cleaned out hole (boosted riser with Halliburton pump down choke/kill lines). POOH to lay down 17 ½" stabs (no balling).
RIH - tight at 1400 m - broke circulation - reamed 7 joints to total depth - slight losses. Pumped 50 bbl Hi-vis pill to clean hole. Circulated out. Had 34 % trip gas and lost mud over shakers (25 bbls). Continued circulating until hole clean - Pumped slug and started POOH to log.

DATE 11/8-81

Continued POOH to shoe - lost 40 bbls mud. Observed well. Level dropped 8 bbls. Continued POOH - level steady. Rigged up and ran logs - made up casing hanger assembly. Made up 17 ½" bit and BHA (no stabs) RIH for clean out trip..
No returns from displacements until final 20 stands D.P.
Tripped in to 1475 m (10 m off bottom) - tight spot. Circulated slowly, increased strokes - washed and reamed 1475-1485 m with 80 spm. Circulated bottoms up (4% trip gas only) Continued circulating hole clean (200 spm). Minimal losses. Flow check. Slugged pipe and POOH to run casing.
Added LCM when on bottom circulating, to help seal hole and stop losses.

DATE 12/8-81

Finished POOH with 17 ½" bit. Rigged and ran 13 3/8" casing checked for losses while running casing. Landed casing (shoe at 1475 m) - rigged up to start cement job. Pumped 250 bbls of 1.20 specific gravity mud with 5 ppb Mica prior to cement job.

Lost approx. 35 bbls mud in hole when initially circulating the 500 bbls of 1.31+ specific gravity mud.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS DENNIS GEDDES

DATE 13/8-81

Cemented 13 3/8" casing - displaced cement with 553 bbbls of 1.31 specific gravity mud. Bumped plug. Full returns obtained throughout cementing - no back flow.

Dumped and cleaned out sand traps.

DATE 14/8-81

RIH and tagged cement at 1457 m. Drilled out plug and cement. Circulated and reduced mud weight from 1.31 to 1.20 specific gravity.

Drilled out shoe and performed leak-off test to 1.62 specific gravity eqv. mud weight.

Drilled 1485 - 1490 m and POOH.

RIH and drilled 1490-1497m, circulated bottoms up and POOH.

DATE 15/8-81

Circulated bottoms up at 1501 m. Drilled 12 1/4" hole 1501-1504 m, circulated bottoms up and POOH. RIH with core barrel and cored 1504-1514 m and POOH. RIH to cut core no. 2. Reduced mud weight as per instructions from 1.20 to 1.18 specific gravity.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 -6

OPERATOR A/S NORSKE SHELL

ENGINEERS : DENNIS GEDDES

DATE 16/8-81

Cored 1514-1532.5m and POOH. Hole tight at 1518-1509 m.

Recovered core no. 2 and RIH - Cored 1532.5-1549.5 (midnight)

DATE 17/8-81

Cored 1549.5 - 1551m and POOH. Recovered core no. 3 and RIH.

Cored 1556-1567m (midnight)

DATE 18/8-81

Continued to core 1567-1576 m and POOH.

RIH with core head no. 6 and cored 1576.12 - 1583.9m and POOH.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS DENNIS GEDDES

DATE 19/8-81

RIH with core bit no. 3 and cut core no. 7 from 1583.91 m to 1602.8 m and POOH. RIH and cut core no. 8 - 1602.8 -1616m (Midnight.)

DATE 20/8-81

Cored 1616-1618.7 m and POOH. RIH and cored 1618.7 - 1632.06 m and POOH. Made up bit and bottom hole assembly. RIH and reamed 8 ½" hole to 12 1/4". 1504-1540 m (Midnight).

DATE 21/8-81

Continued to ream 8½" hole to 12 1/4" 1540-1632 m. Drilled 12 1/4" hole 1632-1657m and POOH. RIH with new bit and drilled 1657-1700m (midnight).

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS DENNIS GEDDES

DATE 22/8-81

Drilled ahead 1700m - 1760 m. Wiper trip, circulated bottoms up and POOH.
Rigged up Schlumberger for logging.

DATE 23/8-81

Continued to run logs.

DATE 24/8-81

Rigged down Schlumberger. RIH, circulated and conditioned. POOH, rigged up and ran 9 5/8" casing.

ANCHOR DRILLING FLUIDS AS
OSLO – STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS DENNIS GEDDES

DATE 25/8-81

Ran and landed 9 5/8" casing. Circulated through casing without losses. Pumped ±100 bbls. 1.10 specific gravity mud prior to cementing. Cemented 9 5/8" and displaced with 330 bbls 1.18 specific gravity mud without losses. Collapsed 9 5/8" casing at ±761 m while attempting to test rams.

DATE 26/8-81

RIH and tagged bridge at 771.25 m. POOH. RIH with casing swage and attempted to open casing at 767.27 m.
POOH. RIH and cut casing at 391 m below wellhead. POOH.
RIH with spear and retrieved fish.

DATE 27/8-81

Laid out 9 5/8" casing. Attempted to back-off casing below collapsed section. Recovered cut joint. RIH and milled on 9 5/8" casing.
Raised viscosity, PV and YP with XC-Polymer to assist hole cleaning while milling.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS ARNE LUND

DATE 28/8-81

Milled on 9 5/8" casing. Maintained high Y.P. to provide good hole cleaning.
Dumped old mud in pit no. 3 and started make up 300 bbl pre-hydrated gel as per order.
Polymer over shakers probably due to lack of shear and pH increase from old cement between 13 3/8" and 9 5/8" casings.

DATE 29/8-81

Milled on 9 5/8" casing.
Bled 200 bbl pre-hydrated gel in to active mud.

DATE 30/8-81

Milled on 9 5/8" casing with wash over tool.
Two mis-runs with fishing Dye.

Dumped 150 bbls active mud and bled pre-hydrated gel into system to control viscosity.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS ARNE LUND

DATE 31/8-81

Milled on 9 5/8" casing. Made two runs with Dye-collar.
No success . Made up 200 bbls pre-hydrated gel.

DATE 1/9-81

Milled on 9 5/8" casing with wash over tool.
Trip to change tool.
Bled 200 bbls pre-hydrated gel into system for rheology control.

DATE 2/9-81

Milled and washed over fish. POOH. RIH with Dye-collar and latched on to fish.
POOH with fish.

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2 - 6

OPERATOR A/S NORSKE SHELL

ENGINEERS ARNE LUND

DATE 3/9-81

Laid down fish. Top of 9 5/8" casing at 806m. Wiper trip to total depth with 8½" bit. Circulated bottoms up. POOH. Wiper trip with 13 3/8" casing, scraper to 806 m. Logging.

DATE 4/9-81

Logging.
Pressure tested overlap and casing . O.K.
Started testing BOP.
Dumped 532 bbl surface mud.

DATE 5/9-81

Tested BOP.
Ran in hole with casing scraper. Displaced mud in hole with seawater and circulated clean.
Saved mud in pit no. 1,2 and 3.
Cleaned shakers, sandtraps and pit no. 4.
Filled 250 bbls brine in no. 4 and mixed H.E.C., as per program.
Viscosity >200.
Changed screens on 2 shakers to : top 80/80, bottom 100/100.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-6

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

Seabed was tagged at 368 m and drilling commenced with a 26" bit. The hole was drilled to 420 m using seawater and spotting 20 bbls high viscosity, pre-hydrated Bentonite before each connection.

The 26" bit was pulled at 420 m and replaced with a 17½" bit. Drilled the 17½" hole to 462 m and opened up to 26" and then to 36".

The hole was displaced to high viscous spud mud and the 30" casing landed at 448 m. The casing had to be worked in order to get cement returns to seabed.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-6

26" **HOLE/** 20" **CASING INTERVAL**

Drilled cement and shoe with seawater to 465 m where the bit was pulled and riser nippled up.

Resumed drilling with 17½" bit, using pre-hydrated Bentonite/ Seawater with some Drispac to ensure hole cleaning. The 17½" was drilled to 820 m where a wiper trip was made. The hole was tight at 523 m and required reaming.

Although all solids removal equipment was utelized, heavy dilution was necessary to control funnel viscosity and mud weight.

Schlumberger logs were hung up at 562 m. A wiper trip was made with tight hole 608-624 m. Circulated bottoms up and made wiper trip to shoe. Ran back to bottom and spotted 500 bbls 1.40 specific gravity mud before running logs successfully.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-6

26" **HOLE/** 20" **CASING INTERVAL**

After logging the hole was displaced back to seawater and the returns were lost.

Established returns and spotted 400 bbls of high viscous mud at 1.15 specific gravity in the hole before setting a cement plug 445-520 m due to shallow gas problems. The cement plug was drilled out and the hole cleaned out to 820 m before displacing back to seawater to observe well.

A 500 bbl viscous mud, 1.15 specific gravity, was then spotted in the hole and a cement plug with 15 ppb LCM squeezed at 500 m. The cement plug was tagged at 443 m and drilled out. The hole was circulated clean with seawater and observed before cleaned out to 820 m.

The hole was opened up to 26" to 820 m. Pumped 1050 bbls of 1.35 specific gravity mud and pulled out to 500 m and pumped 325 bbls of 1.45 specific gravity mud. Observed the well. Pumped an additional 25 bbls of 1.45 specific gravity mud at 376 m. The well was then logged and found to be undergauged in several places.

Made up 26" BHA and conditioned mud to 1.13 specific gravity at the 30" shoe. Reamed back to bottom using large amounts of seawater to control mud weights of maximum 1.16 specific gravity going in the hole. Viscosity was maintained with the additions of XC-Polymer.

The hole was displaced with 1050 bbls of 1.35 specific gravity mud and the pipe pulled to 500 m where another 350 bbl 1.45 specific gravity was pumped.

Ran logs successfully and rigged up and ran 20" casing to 800 m. Displaced with 720 bbls 1.35 specific gravity before cementing 20" casing.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-6

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

Mud pits, sand traps etc. were cleaned out prior to taking brine fluid onboard rig. Recieved an initial 600 bbls of brine, diluted back with seawater and mixed 1350 bbls of KCl/Polymer mud as per programme.

This mud was weighted up to 1.27 S.G.

The cement and shoe was drilled out with the old mud to 825 m where a leak off test was performed to a equivalent mud weight of 1.49 S.G.

Resumed drilling with KCl mud and 12 1/4" bit. Drilled ahead to 1050 m where the 12 1/4" bit was replaced with a 17½" bit. The mud weight was gradually increased to 1.31 S.G. At 1305 m lost circulation occured but was regained at reduced pump rates.

Added Mica to the active system and resumed drilling to 1485 m were partial loss of returns were experienced. Added Mica and reduced pump strokes still with partial returns. Pulled back to the casing shoe and circulated the mud clean. On running back in the hole it was found to be tight at 1400 m. Also reamed the last seven joints to bottom with slight mud losses. A 50 bbls viscous pill was pumped around to ensure hole cleaning before running logs. A wiper trip was made prior to running casing.

The 13 3/8" casing shoe was landed at 1475 m and circulated with 500 bbls of mud and then 250 bbls of 1.20 S.G. mud with 5 ppb L.C.M. prior to pumping cement.

Throughout this section the KCl/Polymer system was maintained with a continuous addition of KCl/Polymer dilution fluid.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-6

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

This section was drilled and cored without any mud or hole problems.

The mud from previous section was utilized, but no additions of KCl or Ancopol were made, and consentrations of these materials allowed to decrease naturally.

Mud weight was cut back in two stages from 1.31 s.g. to 1.18 s.g.

After 9 5/8" casing had been run and cemented, casing collapsed during attempt to test rams. Casing was cut at 759 m and pulled out of hole. Attempt to back off casing below collapsed joint failed, and only cut joint was recovered. After this, several days were spent milling on and washing over collapsed joint, and casing finally backed off at 806 m.

During milling and wash over operations viscosity and yield point was raised as instructed to ensure good hole cleaning.

Preparations for testing were made.

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-6

MATERIAL CONSUMPTION & COST ANALYSIS

36" HOLE DRILLED TO 462 Meters 30" CASING SET AT 448 Meters

ACTUAL AMOUNT OF HOLE DRILLED 94 Meters DAYS ON INTERVAL 5

DRILLING FLUID SYSTEM PRE-HYDRATED BENTONITE SPUD MUD

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BENTONITE	M/T	17	15	- 2	US$ 4.920,-
BENTONITE	50 kg		20	+ 20	" 324,-
CAUSTIC	25 kg	20	10	- 10	" 190,-
SODA ASH	50 kg	3	10	+ 7	" 185,00
LIME	40 kg	6	6		" 30,-
BARITE	50 kg		150	+ 150	" 945,-

COST/DAY	US$ 1.318,80	TOTAL COST FOR INTERVAL	US$ 6.594,-
COST/Mt. on Ft.	US$ 70,14	PROG. COST FOR INTERVAL	US$ 6.041,50
ENGR. COST	US$ 2.475,-	COST VARIANCE FOR INTERVAL	US$+ 552,50

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-6

MATERIAL CONSUMPTION & COST ANALYSIS

26" HOLE DRILLED TO 820 Meters ~~Feet~~ 20" CASING SET AT 800 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 358 Meters ~~Feet~~ DAYS ON INTERVAL 12

DRILLING FLUID SYSTEM GEL/SEAWATER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BARITE	M/T		321	+ 321	US$ 43.014,-
BENTONITE	M/T	27	66	+ 29	" 21.648,-
DRISPAC REG	50 lbs		79	+ 79	" 13.374,70
XC-POLYMER	50 ls		33	+ 33	" 10.956,-
CAUSTIC	25 kg	45	61	+ 16	" 1.159,-
SODA ASH	50 kg	8	20	+ 12	" 370,-
SAPP	25 kg		1	+ 1	" 105,-
LIGNOSULPHONATE	25 kg		3	+ 3	" 51,60
LF-5	25 kg	44		- 44	
NUT PLUG	25 kg		17	+ 17	" 290,70
MICA F	25 kg		17	+ 17	" 290,70

COST/DAY US$ 7.604,98 TOTAL COST FOR INTERVAL US$ 91.259,70

COST/Mt. ~~Ft.~~ US$ 254,92 PROG. COST FOR INTERVAL US$ 11.971,-

ENGR. COST US$ 5.940,- COST VARIANCE FOR INTERVAL US$+79.288,70

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-6

MATERIAL CONSUMPTION & COST ANALYSIS

17½" HOLE DRILLED TO 1485 Meters ~~Feet~~ 13 3/8" CASING SET AT 1475 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 665 Meters ~~Feet~~ DAYS ON INTERVAL 8

DRILLING FLUID SYSTEM KCl/POLYMER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BARITE	M/T	205	205	-	US$ 27.470,-
BENTONITE	50 kg		1	+ 1	" 16,20
KCl	bbl		920	+ 920	" 14.803,63
KCl	50 kg	954	570	- 384	" 10.203,-
DRISPAC R	50 lbs	90	95	+ 5	" 16.083,-
LF-5	25 kg	164	184	+ 20	" 8.832,-
CMC Lo-Vis	25 kg	81	92	+ 11	" 5.428,-
CAUSTIC	25 kg	109	114	+ 5	" 2.166,-
SODA ASH	50 kg	10	43	+ 33	" 795,50
ANCOPOL	50 lbs	85	74	- 11	" 9.768,-
DRILLING DETERGENT	200 ltr	15	4	- 11	" 1.400,-
MICA F	25 kg		90	+ 90	" 1.539,-
MICA C	25 kg		40	+ 40	" 684,-
NUT PLUG	25 kg		13	+ 13	" 222,30
ALUMINUM STEARATE	25 kg		1		" 80,-

COST/DAY US$ 12.436,91 TOTAL COST FOR INTERVAL US$ 99.491,13

COST/Mt. ~~oxxx~~ US$ 149,61 PROG. COST FOR INTERVAL US$ 91.160,-

ENGR. COST US$ 3.960,- COST VARIANCE FOR INTERVAL US$ + 8.331,13

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-6

MATERIAL CONSUMPTION & COST ANALYSIS

12 1/4" HOLE DRILLED TO 1760 Meters ~~Feet~~ | 9 5/8" CASING SET AT 1752 Meters ~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 275 Meters ~~Feet~~ | DAYS ON INTERVAL 23

DRILLING FLUID SYSTEM KCl/POLYMER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BARITE	M/T	112	67	- 45	US$ 8.978,-
BENTONITE	M/T	13.5	9	- 4.5	" 2.952,-
DRISPAC R	50 lbs	60	73	+ 13	" 12.358,90
LF-5	25 kg	50	39	- 8	" 1.872,-
XC-POLYMER	50 lbs	15	34	+ 19	" 11.288,-
CAUSTIC	25 kg	80	39	- 41	" 741,-
SODA ASH	50 kg	4	27	+ 18	" 407.-
CMC LV	25 kg	25		- 25	-
DRILLING DETERGENT	200 ltr	10		- 10	-
SPERCELL C	25 kg	200		- 200	-
BICARBONATE	50 kg		5	+ 5	" 96,25

COST/DAY US$ 1.682,31 | TOTAL COST FOR INTERVAL US$ 38.693,15

COST/Mt. or ~~Ft~~ US$ 140,70 | PROG. COST FOR INTERVAL US$ 47.334,-

ENGR. COST US$ 11.385,- | COST VARIANCE FOR INTERVAL US$ - 8.640,85

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-6

TOTAL CONSUMPTION & COST ANALYSIS

TOTAL DEPTH 1760 Meters

TOTAL HOLE DRILLED 1392 Meters

TOTAL DAYS 48

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
BARITE BULK	M/T	317	593	+ 276	US$ 79.462,-
BARITE SXS	50 kg	0	150	+ 150	" 945,-
BENTONITE	M/T	57,5	90	+ 32,5	" 29.520,-
BENTONITE	50 kg	0	21	+ 21	" 340,20
CAUSTIC	25 kg	254	224	- 30	" 4.256,-
SODA ASH	50 kg	25	95	+ 53	" 1.757,50
LIME	40 kg	6	6	-	" 30,-
DRISPAC R	50 lbs	150	247	+ 97	" 41.817,10
XC POLYMER	50 lbs	15	67	+ 50	" 22.244,-
SAPP	25 kg	-	1	+ 1	" 105,-
LIGNOSULFONATE	25 kg	200	3	- 197	" 51,60
LF 5	25 kg	258	223	66	" 10.704,-
NUT PLUG	25 kg	-	30	+ 13	" 513,70
MICA F/C	25 kg		107/40	+ 107/40	" 2.513,70
KCl	Bbls		920	+ 920	" 14.803,63
KCl	50 kg	954	570	- 384	" 10.203,-
CMC Lovis	25 kg	81	92	+ 11	" 5.428,-
ANCOPOL	50 lbs	85	74	- 11	" 9.768,-
DRILLING DETERGENT	200 ltr	15	4	- 11	" 1.400,-
ALUMINUM STEARATE			1	+ 1	" 80,-
BICARBONATE	50 kg		5	+ 5	" 96,25

COST/DAY	US$ 4.917,46	TOTAL COST FOR INTERVAL	US$ 236.037,98
COST/Mt. o/Ft.	US$ 169,57	PROG. COST FOR INTERVAL	US$ 156.506,50
ENGR. COST	US$ 23.760,-	COST VARIANCE FOR INTERVAL	US$ + 79.531,48

ANCHOR DRILLING FLUIDS AS

OSLO – STAVANGER

Drilling Fluid & Material Consumption Report

WELL NAME 31/2-6 AREA OFFSHORE NORWAY

OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN

MUD SYSTEM GEL/SEAWATER ENGINEERS DENNIS GEDDES/CHRIS ATKINSON

Day No	DATE 1981	ESTIMATED DAILY MUD VOLUMES: LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BULK MATERIALS: BARITE	BENTONITE	SACK MATERIALS: BENTONITE	BARITE	MATERIALS ADDED TO CONTROL PROPERTIES — THINNERS: LIGNO				POLYMERS: DRISPAC REG	XC POLYMER				OTHERS: CAUSTIC	SODA ASH	LIME						MICA F/C	MUT PLUG	SAPP
1	20.7			1400		15	20	150										8	8								
2	21.7		100																								
3	22.7		100																								
4	~~23.7~~		~~1200~~	~~260~~														2	2	6							
5	24.7			1040	28	5												6	2								1
6	25.7			860	18	22							14					3	2								
7	26.7		580	800									52					1	2								
8	27.7		820	300	32	2							11					1	1								
9	28.7		1060	600	4	6								2				2	2								
10	29.7		600	600		10												5	4							17/ /17	
11	30.7		350	1400		19												15	7								
12	31.7		80	348	46	2												10									
13	1.8		250		80									5				13									
14	2.8		592		74				3					21				5									
FORWARD																											
ESTIMATED TOTALS			5732	7608	282	81	20	150	3				77	28				71	30	6						17/ /17	1

REMARKS

VOLUMES CORRECT: 1876 BBL MUD IN SYSTEM = 7608-5732

ANCHOR DRILLING FLUIDS AS

OSLO — STAVANGER

Drilling Fluid & Material Consumption Report

WELL NAME 31/2-6 AREA OFFSHORE NORWAY

OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN

MUD SYSTEM GEL/SEAWATER/KCl/POLYMER ENGINEERS CHRIS ATKINSON

Day No	DATE	ESTIMATED DAILY MUD VOLUMES			BULK MATERIALS		SACK MATERIALS			MATERIALS ADDED TO CONTROL PROPERTIES																
		LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BARITE	BENTONITE	BENTONITE	BARITE	LIGNO	THINNERS			DRISPAC R	XC POLYMER	POLYMERS CMC LVG	CMC EHV	LF-5	CAUSTIC	SODA ASH	LIME	KCl BBL/SXS	ANCO PAL	OTHERS BICARB	AL. STEARATE	DRLG. DETERGENT FREE PIPE	MICA F/C MUT PLUG	SAPP
15	3.8			280	39									5												
16	4.8		2156	1355									41		39		78	23	15		600/ -			1			
17	5.8		17	680	64													11	8		320/-	12					
18	6.8		69	335	73								27		29		58	4	3		-/120	12					
19	7.8		89	325	10								8		8		16	11	9		-/160	12			2/-		
20	8.8		72	300	24								8		8		16	35	4		-/150	12					
21	9.8	100	62	300	16								8		8		16	18	4		-/140	12			2/-	24/4/ -	
22	10.8	275	35	-	14								3					10				14				34/29/ 7	
23	11.8	66	4	-	4		1											2								6/7/ 6	
24	12.8	78	280	-																						26/-/ -	
25	13.8		136	-																							
26	14.8		391	700									28				23		9								
27	15.8		200	287	9								14				8	6									
28	16.8		15	-									4					8	8								
FORWARD			5732	7608	282	81	20	150	3				77	28				71	30			74				17/ /17	1
ESTIMATED TOTALS		519	9258	12170	535	81	21	150	3				218	33	92		215	199	90		920/ 570	74		1	4/-	1077 40/30	1

REMARKS ~~VOLUMES CORRECT : 2393 BBL MUD IN SYSTEM = 12170-9258-519~~

ANCHOR DRILLING FLUIDS AS

OSLO — STAVANGER

Drilling Fluid & Material Consumption Report

WELL NAME 31/2-6 AREA OFFSHORE NORWAY

OPERATOR A/S NORSKE SHELL RIG BORGNY DOLPHIN

MUD SYSTEM KCl/POLYMER ENGINEERS DENNIS GEDDES/ARNE LUND

Day No	DATE	ESTIMATED DAILY MUD VOLUMES			BULK MATERIALS			SACK MATERIALS	MATERIALS ADDED TO CONTROL PROPERTIES																			
									THINNERS				POLYMERS						OTHERS									
		LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BARITE	BENTONITE	BENTONITE	BARITE	LIGNO				DRISPAC R	XC POLYMER	CMC:LV	CMC EHV	LF-5	CAUSTIC	SODA ASH	LIME	KCl	ANCO POL	BICARB	AL.STEARATE	DRLG.DETERGENT FREE PIPE	MICA F/C NUT PLUG	SAPP	
29	17.8		58										1					16	3									
30	18.8		37		2																							
31	19.8		15										5															
32	20.8		8																									
33	21.8		14	36	17								8															
34	22.8		6	100									8															
35	23.8		136																									
36	24.8			6																								
37	25.8		446																									
38	26.8													2														
39	27.8		50											20														
40	28.8		150	300	7								3	2			8	7	1									
41	29.8				10	4								2														
42	30.8		155		3																							
FORWARD		519	9258	12170	535	81	21	150	3				218	33	92		215	199	90		920/570	74	1	4/-	107/40/30	1		
ESTIMATED TOTALS		519	10333	12612	574	85	21	150	3				243	59	92		223	222	94		920/570	74	1	4/-	107/40/30	1		

REMARKS VOLUMES ARE CORRECT, 1760 BBL IN SYSTEM

ANCHOR DRILLING FLUIDS AS

OSLO — STAVANGER

Drilling Fluid & Material Consumption Report

WELL NAME 31/2-6 AREA OFFSHORE NORWAY

OPERATOR A/S NORSKE SHELL RIG BORGNY DOLPHIN

MUD SYSTEM KCl/POLYMER ENGINEERS ARNE LUND

Day No	DATE	ESTIMATED DAILY MUD VOLUMES: LOSSES SUB SURFACE	LOSSES SURFACE	VOLUME MUD BUILT	BULK MATERIALS: BARITE	BENTONITE	SACK MATERIALS: BENTONITE	BARITE	THINNERS: LIGNO				POLYMERS: DRISPAC R	XC POLYMER	CMC LV	CMC EHV	LF-5	OTHERS: CAUSTIC	SODA ASH	LIME	KCl	ANCO PAC	BICARB	AL. STEARATE	DRLG: DETERGENT FREE PIPE	MICA F/C NUT PLUG	SAPP
43	31.8		5		8													2	1								
44	1.9		150	200	3	5								1									5				
45	2.9				8								2	7													
46	3.9		-	-																							
47	4.9		532																								
48	5.9		263																								
		1010	LEFT IN PITS																								
FORWARD		519	10333	12612	574	85	21	150	3				245	59	92		223	222	94	6	920/570	74	5	1	4/-	107/40/30	1
ESTIMATED TOTALS		519	11283	12812	593	90	21	150	3				247	67	92	-	223	224	95	6	920/570	74	5	1	4/-	107/40/30	1

REMARKS VOLUMES AND CONSUMPTIONS ARE CORRECT AND IN ACCORDANCE WITH MATERIAL AND CONSUMPTION LIST FOR THE DIFFERENT SECTIONS.

ANCHOR DRILLING FLUIDS AS
OSLO – STAVANGER

Drilling Mud Properties Record

WELL NAME 31/2-6 AREA OFFSHORE NORWA
OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN
MUD SYSTEM ~~GEL/SEAWATER~~ ENGINEERS DENNIS GEDDES / CHRIS ATKINSON

Day No	DATE 1981	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	Ca ++ ppm	Pf	RETORT: % OIL	% SOLIDS	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
1	20.7	.....	1.03	100+																				Mixed spud mud
2	21.7	420	1.03	100+																				Spudded in
3	22.7	462	1.03	100+																				Drilled Surface hole
4	23.7	462	1.03	100+																				Opened hole to 36"
5	24.7	449	1.03	100+																				Ran and cmt. 30" csg.
6	25.7	520	1.07	53																				Drilled 17½" pilot ho
7	26.7	820	1.07	42																				Drilled 17½" pilot ho
8	27.7	820	1.12	63																				Ream and log pilot ho
9	28.7	820	1.07	60																				Circulate, set cmt.pl in Gas zone below 30"
10	29.7	820	1.05	50																				Circ., set cmt plug, drlg. cmt.& new hole.
11	30.7	820	1.07	53																				Re-drill 17½" hole
12	~~31.7~~	~~808~~	~~1.11+~~	~~50~~																				Under-reamed to 26"
13	1.8	627	1.19	52																				Re-under-ream hole.
14	2.8	820	1.17	48																				Re-under-ream, displa hole to 1.35s.g. mud

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO – STAVANGER

Drilling Mud Properties Record

WELL NAME 31/2-6 AREA OFFSHORE NORWAY

OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN

MUD SYSTEM GEL/SEAWATER/KCl/POLYMER ENGINEERS CHRIS ATKINSON

Day No	DATE	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	BENTONITE #/BBL	K+ POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
15	3.8	820	1.35	48																				Bottom log-ran 20" csg Displace hole to 1.35m
16	4.8	820	1.10	54																				Cmt. 20" csg.-ran stac Mix up KCl/POLYMER mud
17	5.8	825	1.26	56	36	24	24	2/3	6.3	1	-	10.3	58	120	.6/1.6	-	7	tr	-	40.5	0.4			Ran stack-drilled cmt. Displ to mud, drl 17½" hole to 825 m.
18	6.8	976	1.26	56	38.5	26	25	2/3	5.4	1	-	10.2	56	200	.45/1.05	-	8	tr	4.0	38	0.8			Change to 12 1/4" bit Drill pilot hole.
19	7.8	1050	1.27	52	37.5	26	23	2/3	4.8	1	-	10.2	59	160	.35/.75	-	9½	1/4	14.0	38	1.0			Change to 17½" bit-rea to 1050m. Drill 17½" hole.
20	8.8	1303	1.31	49	37	27	20	2/6	4.8	1	-	10.0	60	260	.3/.65	-	12	½	20.0	38	0.8			Drill to 1050m-wiper trip-drill to 1303m-Circ. for trip.
21	9.8	1450	1.31	50	37.5	27	21	2/6	4.7	1	-	10.2	61	190	.5/1.0	-	12½	½	23.0	38	0.8			POOH-new bit-RIH-drill 1303-1450 m
22	10.8	1485	1.32	50	38	28	20	2/6	4.9	1	-	10.1	62	200	.35/.8	-	13	½	25.0	37.5	0.9			Drill 1485m-loss circ. POOH-lay down stabs-RI Circ. hole clean-POOH log.
23	11.8	1485	1.31+	47	36.5	28	17	2/6	4.9	1	-	10.1	62.5	190	.4/.75	-	13	½	25.0	37.5	0.85			Log-RIH for clean out trip-POH to run csg.
24	12.8	1485	1.31+	47	36.5	28	17	2/6	4.9	1	-	10.1	62	200	.35/.70	-	13	½	25.0	37.5	0.85			Run 13 3/8" csg.-circ. prior to cmt.-some los
25	13.8	1485	1.31+	47	36.5	28	17	2/6	4.9	1	-	10.1	62	200	.35/.70	-	13	½	25.0	37.5	0.85			Cmt. csg.-test BOP's work on draw works.
26	14.8	1494	1.20	47	28	22	14	1/3	5.0	1		10.0	47.5	220	.3/.5		10	1/4	20.0	24				Drill out cmt, float & shell-drill 12 1/4" ho to 1497
27	15.8	1514	1.18	51	35	24	16	1/3	4.0	1		10.0	42	320	.3/.6		9	1/4	17.5					Coring
28	16	1544	1.18	52	35	26	18	1/3	4.0	1		10.0	42	320	.2/.4			1/4	17.5					Coring

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO – STAVANGER

Drilling Mud Properties Record

WELL NAME 31/2-6 AREA OFFSHORE NORWAY
OPERATOR A/S NORSKE SHELL RIG BORGNY DOLPHIN
ENGINEERS GEDDES/LUND
MUD SYSTEM KCl/POLYMER

Day No	DATE	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 X 1000	Ca ++ ppm	Pf	RETORT: % SOLIDS	% SAND	BENTONITE #/BBL	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
29	17.8	1565	1.18	53	35	26	18	1/3	4.0	1		10.0	42	280	.4/.6	9	1/4	17.5							Coring
30	18.8	1583	1.18	52	34	24	20	1/3	4.0	1		10.0	42	200	.4/.6	9	tr	17.5							"
31	19.8	1614	1.18	53	35	26	18	1/3	4.0	1		10.0	42	120	.3/.5	9	tr	17.5							"
32	20.8	1632	1.18	52	32.5	23	14	1/3	4.0	1		10.0	42	120	.3/.5	9	tr	17.5							"
33	21.8	1700	1.18	54	34	24	20	1/3	4.0	1		10.0	40	120	.4/.6	9	tr	17.5							Ream & drill
34	22.8	1760	1.18	53	36	25	20	1/3	4.0	1		10.0	40	120	.5/.7	9	1/4	17.5							Drill & log
35	23.8	1760	1.18	52	33	24	18	1/3	4.0	1		10.0	40	120	.5/.7	9	1/4	17.5							Log
36	24.8	1760	1.18	53	31.5	23	17	1/3	4.0	1		10.0	40	120	.5/.7	9	1/4	17.5							Run 9 5/8" casing
37	25.8	1760	1.18	52	31.5	23	17	1/3	4.0	1		10.0	40	120	.5/.7	9	1/4	17.5							Run and cement 9 5/8" casing
38	26.8	1760	1.18	55	38	27	22	1/3	4.0	1		10.0	40	120	.4/.6	9	1/4	17.5							Cut casing
39	27.8	1760	1.18	83	45	32	26	4/7	4.3	1		10.0	36	240	.3/.6	9	1/4	17.5							Raised visc. for milling on casing.
40	28.8	1760	1.18	64	51.5	29	45	5/12	4.9	1		10.6	32	160	.55/.8	9+	1/4	17.5							" "
41	29.8	1760	1.18	77	48	28	40	9/33	4.8	1		10.8	26	140	.5/.7	9	1/4	17.5							" "
42	30.8	1760	1.18	74	47.5	28	39	8/31	5.2	1		10.8	24	120	.55/.8	9	tr	17.5							" "

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

Drilling Mud Properties Record

WELL NAME 31/2 - 6 AREA OFFSHORE NORWAY
OPERATOR A/S NORSKE SHELL RIG. BORGNY DOLPHIN
ENGINEERS LUND
MUD SYSTEM

Day No	DATE	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 x 1000	Ca ++ ppm	Pf/Mf	RETORT: % OIL	% SOLIDS	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS
43	31.8	1760	1.18	65	48	30	36	9/29	5.3	1		10.9	25	160	.5/.75	-	9	tr	17.5					
44	1.9	1760	1.18	76	46	27	38	11/36	5.7	1		10.5	22	140	.4/.65	-	9	tr	20					
45	2.9	1760	1.18	72	48.5	27	43	12/36	6.1	1		10.5	21	160	.6/.7	-	9	tr	20					Freed fish
46	3.9	1760	1.18	72	46	27	38	9/32	6.3	1		10.8	21	180	.6/.85	-	9	tr	20					Tripping to clean casing - logging
47	4.9	Pit	1.18	70																				
48	5.9	Pit	1.18	71																				

REMARKS

ANCHOR DRILLING FLUIDS AS
OSLO — STAVANGER

GRAPHI-CAP

OPERATOR: Norske Shell
WELL NAME: 31/2-6
CONTRACTOR: Dolphin Services

PAGE NO: 1
SPUD DATE: 21/7-81
RIG: Borgny Dolphin

DEPTH
METERS ☒
FEET ☐

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

250
500
750
1000
1250
1500
1750
2000

Total costs US$ 236037,98

T.D. 1760 M.

COST
$ ☒ £ ☐
250000
200000
150000
100000
50000
0

CASING PLAN
30" 20" 13 3/8" 9 5/8" 7"

DENSITY
PPG ☐ SG ☒
1.10 1.20 1.30

FILTRATE
API —— HTHP·····
4.0 5.0 6.0
No control

RHEOLOGY
PV —— YP·····
10 20 30