

Denne rapport  
tilhører



**L&U DOK. SENTER**

L. NR. 20088380009

KODE Well 31/2-5 nr 12

Returneres etter bruk

## WELL SUMMARY

NORSKE SHELL

WELL NO. 31/2-5



**ANCHOR DRILLING FLUIDS AS**

## WELL SUMMARY

NORSKE SHELL

WELL NO. 31/2-5

# GENERAL SUMMARY

OPERATOR Norske Shell

WELL NO. 31/2-5

OPERATOR'S REPRESENTATIVES J. Carlisle  
P. Holan

CONTRACTOR Smedvig

RIG West Venture

CONTRACTOR'S REPRESENTATIVES B. Mohlman  
H. Brockman  
K. Coomber

ANCHOR ENGINEERS C. Meyjes  
D. Geddes

WATER DEPTH 338m

SEABED to RKB 363m

36" HOLE DRILLED TO 446m

30" CASING SET AT 446m

26" HOLE DRILLED TO 820m

20" CASING SET AT 810m

17½" HOLE DRILLED TO 1.480m

13⅜" CASING SET AT 1.470m

12¼" HOLE DRILLED TO 1.812m

9⅝" CASING SET AT 1.801m

8½" HOLE DRILLED TO 2.532m

7" LINER SET AT -

6" HOLE DRILLED TO -

## SUMMARY OF EVENTS

OPERATOR: Norske Shell

WELL NO. 31/2-5

36" HOLE/ 30" CASING INTERVAL

Well 31/2-5 was spudded on 26th October 1980 using high viscosity Spud Mud of Pre-hydrated Wyoming Bentonite, Caustic Soda, Soda Ash and Lime.

While drilling the first joint Spud Mud was pumped continuously and thereafter slugs of  $\pm$  35 BBLs were pumped at each connection. Prior to a check trip 100 BBLs of Spud Mud was pumped back to seabed. The check trip showed no indication of fill and  $\pm$  750 BBLs of Spud Mud was left in the hole prior to running 30" conductor pipe.

The 30" casing was run and cemented at 446m.

## SUMMARY OF EVENTS

OPERATOR: Norske Shell

WELL NO. 31/2-5

26" HOLE/ 20" CASING INTERVAL

After running the marine riser the 30" casing shoe was drilled out using 17½" bit and 26" hole opener. After tripping out to remove the 20" hole opener a 17½" pilot hole was drilled. During this time the hole was displaced to mud using Pre-hydrated Bentonite with light additions of CMC L.V. to maintain properties. On reaching 820m a wiper trip of 29 stands showed minimal drag and 400 bbls of Spud Mud weighted to 1.40 sg was left in the hole prior to logging.

Electric logs were run to bottom without problems and the hole was then displaced to Gel/Seawater at 1.07 s.g. prior to pulling the marine riser.

The pilot hole was then enlarged with 26" hole opener with + 25 bbls slugs of viscous mud pumped at each connection. After a check trip to the 30" csg. shoe the hole was displaced with + 950 bbls of 1,40 s.g. weighted mud.

Initial attempts to run 20" casing were hampered by excessive currents and it was impossible to stab into the well head. After waiting on weather for 24 hours a trip into the hole with bit and hole opener gave no indication of drag or fill. The 20" casing was run and cemented at 810m.

## SUMMARY OF EVENTS

OPERATOR: Norske Shell

WELL NO. 31/2-5

17½" HOLE/ 13-3/8" CASING INTERVAL

After running and testing BOP's the 20" casing was drilled out with 17½" bit using KCL/Ploymer mud. Initially 1,000 bbls premixed KCL was delivered to the rig for dilution to the required concentration level. Further volume requirements were then mixed on site. The section was drilled to 13-3/8" casing point of 1.480m without hole problems. On check trips and bit trips little or no drag was experienced and casing point was reached in 26 drilling hours. After logging and circulating the hole clean 13-3/8" casing was run and cemented at 1.470m.

## SUMMARY OF EVENTS

OPERATOR: NORSKE SHELL

WELL NO. 31/2-5

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

For drilling out the 13-3/8" casing shoe and the subsequent 12-1/4" hole the KCL/Polymer mud from the previous 17 1/2" hole was used. KCL and Polymer concentrations were allowed to fall off with water additions and natural usage.

On reaching 1.511 m. the first 3 cores were cut using 12.218" core bits. Conventional drilling was resumed at 1.423 m. and the mud weight raised to 1.25 s.g. and viscosity to 65 secs. Coring re-commenced at 1.536 m. viscosity was raised to 75 secs. after finding it necessary to ream back to bottom with core number 5. On reaching 1.272 m. with core number 5, operations were halted for 3 days for rig repairs. On completion of the repairs coring continued using 8.47" core heads to 1.652 m. At this point 12 1/4" bit was employed to ream through the core section and to drill ahead. On reaching 9-5/8" casing point at 1.812 m. the hole was circulated clean and 9-5/8" casing run and cemented at 1.801 m.

## SUMMARY OF EVENTS

OPERATOR: Norske Shell

WELL NO. 31/2-5

8½" HOLE/ CASING INTERVAL

The 8½" section was drilled using the mud from the previous section weighted back to 1.15 s.g. Drilling this section from 1.801m to T.D. (2.532m) was problem free and no difficulty was expected in maintaining mud properties or hole stability. Pre-hydrated Bentonite was used to control rheology and maintain mud weight. On reaching 2.532m the hole was circulated clean prior to logging. On completion of logging the hole was circulated prior to performing the abandonment programme.





**ANCHOR DRILLING FLUIDS AS**  
OSLO — STAVANGER

**DAILY SUMMARY REPORT**

WELL NAME 31/2-5

OPERATOR NORSKE SHELL

ENGINEERS Dennis GEDDES

DATE 21.10

Engineer arrived on location. Rig experiencing problems with anchor handling. Checked out chemical stock on board and examined mud system. Unable to mix spud mud due to a total lack of drill water.

DATE 22.10

Drillwater pumped onboard during early morning. Started to prehydrate Bentonite for spudding in.

DATE 23.10

Restacked sack storage area to obtain maximum usage of available space. Emptied containers into sack room and took stock inventory.

Still trying to set anchors.



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ENGINEERS Dennis GEDDES

DATE 24.10

Anchor handling and w.o.w. Run temporary guide to  $\pm$  50 m. off seabed. Unable to land same due to excessive currents.

Finally landed at 22:30. POOH to pick up 36" bit.

DATE 25.10

Anchor handling and w.o.w. Land T.G.B.

DATE 26.10

Spud in. Drilled first joint using spud mud. Thereafter pumped 25 - 30 bbls. on connections. Pumped 100 bbls. prior to check trip. Ran to bottom with no fill. Pumped  $\pm$  750 bbls. spud mud and POOH to run 30" conductor.



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ENGINEERS D.J.Geddes

DATE 27.10

Run, land and cmt. 30". Diluted back remaining gel to use for 17½" pilot hole. 1.350 bbls fabricated this way. Mixed further 400 bbls Pre-hydrated Gel.

Start running riser.

DATE 28.10

RIH and drill out shoe with 17½" bit and 26" hole opener. Run riser. Run in hole with 17½" bit and drill ahead to 505m (Midnight) Displaced to mud while drilling ahead.

DATE 29.10

Drill ahead from 505m to 820m. Pulled 29 std wiper trip with minimal drag. Ran back to bottom with no fill. Spotted 1,40 sg. mud in open hole. POOH to run E.Logs. Retained all surface mud for use in opening hole up to 26". Mixed + 800 bbls Pre-hydrated Bentonite. Weighted + 400 bbls to 1,40 s.g. for next (26") section.



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ENGINEERS

Dennis GEDDES

DATE 30.10

Run E. Logs (2 runs - both to bottom) displaced hole to seawater. Opened dump valve on riser after losing returns. (Pumps stopped due to lack of seawater after service pump broke down heavy mud at 30" shoe at this point. Losses occurred on restarting pumps - presume mud pumped into formation around 30" shoe).  
Observed well after displacing to seawater. Pulled out and pulled riser.

DATE 31.10

RIH with 26" hole opener and reamed to 820 m. Pumped + 25 bbls. at each 3rd connection. Displaced hole with  $\pm$  800 bbls. spud mud prior to wiper trip. Pulled to 30" shoe with no drag. Ran to bottom with no fill and displaced hole with  $\pm$  950 bbls. 1.40 sg. mud.

DATE 1.11

POOH. Rig up and attempt to run 20" csg. Pulled csg. after being unable to stab into wellhead. Waiting on weather.



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ENGINEERS D. J. Geddes

DATE

2.11

Built + 700 bbls of 1,40 mud + 400 bbls gel while waiting on weather.

DATE

3.11

RIH with 17½" bit and 26" H.O. Ran to bottom (no fill) hole had been open for 48 hrs. POOH. Rig up to run 20" csg. Cmt. 20" back off landing string. Run BOP's.

Dumped 1.100 bbls mud mixed for running back into open hole but not used.

Start taking on KCL Brine.

DATE

4.11

Continue running BOP's and riser. Test BOP's. RIH with 17½" bit. Took on + 760 bbls KCL Brine. Fabricated + 1.800 bbls KCL/Polymer at 1.21 s.g.



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## DAILY SUMMARY REPORT

WELL NAME 31/2-5

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ENGINEERS D.J.Geddes

DATE

5.11

RIH, drill out cement and shoe using seawater. Displaced to mud.  
Drilled 10m new hole. Performed leak-off test to 1,55 s.g.  
Drilled ahead to 1.069m (Midnight)

DATE

6.11

Drill ahead to 1.302m and POOH for new bit. Fisrt two stands  
slightly tight but hole in reasonable condition.

DATE

7.11

RIH, no fill. Drill ahead to 1.480m and circ. bottoms up.  
Trip to shoe with one tight spot 3 stds off bottom. Run back  
to bottom without problem. Raised mud wt to 1,25 40 meters  
from TD.



WELL NAME 31/2-5

OPERATOR Norske Shell

ENGINEERS D.J.Geddes

DATE 8.11

POOH with no drag. Rig up and run Schlumberger. Ran ISF/sonic DC/CNL and side wall core. Logging indicated 10m fill ?? RIH to bottom with no indication of fill - circ. and cond. hole. POOH to run 13-3/8" casing.

DATE 9.11

Ran 13-3/8" casing. Cemented with 546 bbls cement and displaced with 591 bbls mud. No losses during circulation, Cementation or displacement.

DATE 10.11

Attempt to land seal assy. Displaced to seawater and setted well-head. Landed seal assy. Run test plug and test BOP's.



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ENGINEERS D.J. Geddes

DATE 11.11

Finish testing BOP's. Displaced riser back to mud. RIH. Drill out float collar, cmt and shoe, drill 5m new hole and perform leak-off test to 1.60 sg. equivalent mud wt. Drill ahead. POOH for core barrel.

DATE 12.11

POOH. Rih with core bit. Ran to 1.497m. Had 14m fill. Washed back to bottom cored 1.511 - 1.513m and POOH. (2,5m recovery). RIH with core no. 2. Washed from 1.495 - 1.511m.

DATE 13.11

POOH with core no. 2. RIH and core. POOH with core no. 3 raised wt to 1,25 and vis. to 65.





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OSLO - STAVANGER

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WELL NAME 31/2-5

OPERATOR Norske Shell

ENGINEERS Geddes/Meyjes

DATE

14.11

Lay down core bbl. Pick up 12-1/4" bit and RIH to 1.511m. Reamed to 1.521m. Drilled to 1.529m. Circulate up sample. Drilled to 1.536m. Circulate up sample and POOH to core. RIH with 12-1/4" core bbl. Took wt at 1.524m. Ream to 1.530m.

Lost 200 bbl from surface system to gain access to degasser suction. Mixed 200 bbl reserve mud.

TIME: Drill 2 hr, Ream 1½ hr, Trips 8 hr, Circ. 4½ hr, Rig repair 4½ hr, Slip and cut line ½ hr, service core bbl 3 hr.

DATE

15.11

Ream 1.530 - 1.536m. Drop ball and core to 1.539,5m. BBL jammed. POOH and retrieve core no. 4. Lay down ½ core bbl. RIH for core no. 4. 5m fill (1.534 - 1.539,5m) took 2½hrs to ream. Drop ball and core 2½m. No progress at 1.542m. Spotted high vis (120 scc) pill in open hole and POOH.

Instructed by P.E. to raise viscosity of mud to + 75 scc. Expressed concern about effect on increased ECD on unstable shale below shoe. Cavings in evidence on shakers but no signs of inhibition problems. Shale in earlier core bedded at 65° angle.

TIME: Ream 4 hrs, Core 8 hrs, Circ. 2 hrs, Trip 7½ hr, Slip line ½hr, Service core BBL 2 hr.

DATE

16.11

POOH and retrieve core no 5. Start RIH core no. 6. At 1.273m brakes failed to engage while RIH. Falling blocks damaged draw-works. Clear floor and repair rig.

TIME. Trips 2 hr, Service core bbl ½ hr, Repair rig 21½hrs.



WELL NAME 31/2-5

OPERATOR NORSKE SHELL

ENGINEERS Chris MEYJES

DATE 17.11

Repair rig. At 18:00 hr. circulate bottoms up + 25%.  
No gas.

Time: Circ. 1½ hr. Repair rig 22½ hrs.

DATE 18.11

Continue repairs to draw works. Power tongs, etc- at 13:00  
hrs. POOH 6 stds, pick up hang off tool and RIH. Circ.  
bottoms up. Hang off and POOH with running string.  
Repair rig.

Time: Repair rig - 24 hrs.

DATE 19.11

Continue and complete rig repairs. RIH to retrieve.  
Hang off tool and POOH with same.

Time: Rig repairs 20½ hrs. Trip 3½ hrs.



# ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

## DAILY SUMMARY REPORT

WELL NAME 31/2-5

OPERATOR NORSKE SHELL

ENGINEERS

Chris MEYJES

DATE 20.11

POOH. Lay down. Hang off tool and 20 jts DP for inspection. RIH to 1.434 m. Tag fill (8 m.). Ream to 1.542 m. Circ. bottoms up and spot high vis. (120 scc.) Fill on open hole. POOH. Retrieve wear bushing, test BOP's. Run wear bushing. Pick up 8½" core head, 6-¾" bore bbl and new BHA. RIH for core no. 6.

Time: Ream 1, Circ. 1, Trip 9, Repair rig 1½, Test BOP 1½.

DATE 21.11

RIH. Tag fill at 1.538 m. (4 m.). Wash down to 1.542 m. Drop ball and core 1.542 - 1.547 m. Bbl jammed. POOH and recover core no. 6. RIH for core no. 7. Tag fill at 1.545 (2 m.). Ream to bottom core 1.547 - 1.555 m. POOH.

Start dispersing mud with ligno. Aiming to bring viscosity back to ± 55 sccs.

Time: Ream 2, Core 1½, Trip 8½, Repair rig 1, Service core bbl 1.

DATE 22.11

Finish POOH. Retrieve core no. 7. Pick up 6½" DC and RIH for core no. 8. Tag fill at 1.551 (4 m.) Ream to bottom and core 1.555 - 1.555,5 m. BBL jammed. POOH and retrieve core- hard chert jammed in catcher. Change catcher to RIH for core no. 9. Reamed 1.547 to 1.555,5 m. Cored to 1.565 m. Tried to continue coring after making connection. No progress so POOH. Recover core no. 9.

Mixed 200 bbls. prehydrated gel.

Time: Ream 2, Core 10, Trip 12.



WELL NAME 31/2-5

OPERATOR NORSKE SHELL

ENGINEERS Chris MEYJES

DATE 23.11

Recover core no. 9. Lay down core bbl. Pick up 3 x 6-3/8" DC and RIH. Tag fill at 1.653 (2m.) Wash down and core 1.565 to 1.573 m. POOH and retrieve core no. 10. Pick up extra core bbl. and RIH. No fill. Core from 1.573 m.

Viscosity back to 53 secs. YP still above spec. but agreed with Shell representatives to hold in this region due to slow annular velocities, probable large hole below shoe and possibility of further problems with shale section.

Time: Ream ½, Core 14½, Trip 8, Repair rig ½, slip and cut line ½.

DATE 24.11

Core from 1.573,5 m. No progress. POOH. Recover core no. 11. Stand back 8" DS and pick up 6-3/8" BHA. RIH to bottom (No fill). Core from 1.753,5 to 1.586 m.

Time: Core 17, Circ. ½ Trip 6, slip and cut line ½.

DATE 25.11

Core 1.586 to 1.589,5 m. Recover core no. 12. RIH. Ream 1.586 - 1.589,5 m. (3,5 m. fill). Core bbl. jammed after 1 m. POOH and recover core no. 13. RIH to 1.590,5 m. (No fill). Core 1.590,5 - 1.595,5 m.

Dumped D'sander pit, shaker boxes, top trap, cleaned surface ditches.

Weighted up prehydrated Bentonite to 1.24 prior to bleeding into active system.

Time: Ream ½, Core 15, Trip 8½.



WELL NAME 31/2-5

OPERATOR Norske Shell

ENGINEERS Chris Meyjes/Dennis Geddes

DATE

26.11

Core 1.595,5 to 1.599,5m. POOH and recover core no. 14. RIH (No fill). Core 1.599.5 - 1.604m. Core bbl jammed. POOH and recover core no. 15. RIH (No fill). Core 1.604 - 1.613m. POOH and recover core no. 16.

Transferred 100 bbl Prehydrated Bentonite to active at 25 bbl/hr. while cutting core no. 16.

Time: Core 14, circulate 1, Trip 9.

DATE

27.11.

RIH to shoe. Slip and cut line. RIH to bottom and core 1.613 - 1.616m. Core bbl jammed. POOH and recover core no. 17. RIH and core 1.616 - 1.625m. POOH and recover no. 18. RIH and core 1.625 - 1.634m. POOH and recover core no. 19. RIH and core 1.634 - 1.638m.

Time: Core 8½, Circulate 2, Trip 13, Slip and cut line ½.

DATE

28.11

Core 1.638 - 1.643m. POOH and recover no. 20. RIH and core 1.643 - 1.652m. POOH and recover core no. 21. Lay DN core bbl. Pick up 12-1/4" bit and 8" D.C. Rih to 1.512m. Ream 1.512 - 1.600m.

Large quantities of very fine solids while reaming. Small mud losses on mud cleaners with 150 mesh screens due to high volume of solids being removed.

Time: Ream 8, Core 6½, Circulate ½, Trip 8½, Slip and cut line ½.



# ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

## DAILY SUMMARY REPORT

WELL NAME 31/2-5

OPERATOR NORSKE SHELL

ENGINEERS Chris MEYJES

DATE 29.11

Ream 8½" hole to 12-1/4" from 1.600 - 1.636 m. Drop survey (1½° at 1.630 m.) and POOH for new bit. RIH and ream 1.636 - 1.652 m. Drill to 1.727 m. Drop survey.

Cutting v. sticky on shakers and mud cleaner. Some plugging off of screens causing mud losses (average 3 - 4 bbls. hr.) in places cuttings very fine passing thru 40 mesh screens on brandt shakers and 60 mesh on Milchem shakers.

Transferred 100 bbls. prehydrated Bentonite to active while reaming. Treating heavily with Ligno./Drispac in anticipation of logging and for extra encapsulation of cuttings.

Time: Drill 10½, Ream 9, Trip 4, Survey ½.

DATE 30.11

Retrieve survey w/wireline (1½° at 1.721 m.) Drill 1.727 - 1.812 m. Circulate bottom's up. Drop survey (1½° at 1.806 m.) and POOH. (No significant overpull). Rig up Schlumberger and run logs. No hole problems.

Difficulty in removing v. fine solids while drilling. Deluted with seawater to control wt. and vis. some mud losses as before on shakers and mud cleaner. All mud being processed thru mud cleaner so some considerable quantity of solids must be too fine to remove with 150 mesh screens.

Time: Drill 11½, Circ. 1½, Trip 2, Slip and cut line ½, Survey ½, Log 8½.

DATE 1.12

Logging all day. No hole problems.

Mixed 220 bbls. mud at 1.10 sg. for pumping ahead of cement on 9-5/8" cement job.

Loosing mud while logging. (Surge from slip joint displacing mud over bell nipple with rig heave). Losses for 24 hrs. - 60 bbls.



WELL NAME 31/2-5

OPERATOR NORSKE SHELL

ENGINEERS

Chris MEYJES

DATE 2.12

Run CBL. (1 run) RFT (3 runs)

Time: Log 24 hrs.

DATE 3.12

Run RFT. stuck at 1.597 m. after 8 hrs. in hole. Work free and POOH. Rig down Schlumberger and RIH w/bit. Tag fill at 1.802 (10 m.) Wash and ream to bottom. Circ. bottoms up and POOH. Rig up Schlumberger and run sws (2 runs).

Time: Ream  $\frac{1}{2}$ , Circ.  $3\frac{1}{2}$ , Trip  $4\frac{1}{2}$ , Log  $15\frac{1}{2}$ .

DATE 4.12

Complete 2n sws. run. Rig down Schlumberger. Pick up junk sub and RIH w/bit. 4 m. fill. Wash to bottom. Work junk sub. Drill to 1.813 m. Work junk sub. POOH and run 9-5/8" csg. Rig up circulating head. Circulate 6.000 str. Pump 110 bbls. 1,10 sg. mud and prepared to cmt.

Time: Ream  $1\frac{1}{2}$ , Circ. 3, Trip  $8\frac{1}{2}$ , Slip and cut lite  $\frac{1}{2}$ ,  
Run csg. 8.



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ENGINEERS Dennis Geddes

DATE

5.12

Cemented 9-5/8" csg. Displace with mud without losses. Set seal assy. Test BOP's. RIH and drill out cement, float and shoe. Tagged cement at 1.777m. Drill 5m new hole and reduced mud wt from 1,25 - 1.15 sg. while drilling cement and new hole.

Reduced mud wt with premixed Drispac/CMC L.V. dilution solution.

DATE

6.12

Circ. and condition mud. POOH. Run RTTS and perform leak-off test to 1.69 equ. mud wt. Rig up Schlumberger and run C.B.L. RIH and drill 1.818 - 1.838m.

DATE

7.12

Drill 1.838 - 1.902m and POOH. RIH with new bit and drill 1.902 - 1.942m (Midnight depth)

Mixed + 90 bbls Prehydrated Bentonite for addition to active system.





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ENGINEERS Dennis Geddes

DATE 8.12

Drill 1.941 - 2.151m. Pull wiper trip to shoe. No drag no fill.  
Drill ahead 2.151 - 2.162m (Midnight)

Added further + 40 bbls Prehydrated Bentonite to active system.

DATE 9.12

Drill ahead 2.162 - 2.221 m and POOH. Left 1 cone in hole.  
RIH with reverse circ. junk basket and work over fish - POOH  
after making 2 feet.

Dumped and cleaned settling pits.

DATE 10.12

POOH w/ junk basket. Redress mill and run in hole. Work over  
fish and POOH. Retrieved  $\frac{1}{2}$  cone on first run and  $\frac{1}{2}$  on second.  
RIH in bit no. 12 and drill 2.223 - 2.332m POOH for new bit.



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ENGINEERS

Dennis GEDDES

DATE 11.12

RIH with bit no. 13. Drill 2.331 - 2443 m. POOH for new bit. Pick up bit no. 14 and RIH.

Added 4 drms. drilling detergent to active in an effort to reduce excessive torque. (Torque due to pipe rubbers and limestone and sand interbeds).

DATE 12.12

RIH with bit no. 14 and drill 2.433 - 2432 m. (TD) circ. bottoms up and pull wiper trip to 9-5/8' shoe.

DATE 13.12

Run back to bottom. circ. bottoms up and POH. Rig up Schlumberger and start running E logs.



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ENGINEERS    Dennis GEDDES

DATE 14.12	<p>Continue running E. Logs. Ran: 1st sonic, Sp, FDC CNL, DP meter, CST and velocity survey. Rig down Schlumberger. RIH, circ. bottom up and start setting abandonment plugs.</p> <p>Rigged down mud lab for shipment to Tananger.</p>
DATE 15.12	<p>Complete setting down hole CMT plugs. Set RTTS and pressure test plugs. Engineer released at 16:15 hrs.</p>
DATE	













OPERATOR Norske Shell

WELL NO. 31/2-5

# TOTAL CONSUMPTION & COST ANALYSIS

TOTAL DEPTH  Meters  
Feet

TOTAL HOLE DRILLED  Meters  
Feet

TOTAL DAYS

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
Barite	MT	597	498	-99	55.776.00
Bentonite	MT	76,1	100	+23,9	25.000.00
Barite	50kg	-	150	+ 150	840,00
Caustic	25 kg	261	328	+ 67	3.444.00
Soda Ash	50kg	18	107	+89	1.765.00
Ligno	25kg	358	207	-151	3.105.00
Lime	25kg	12	2	-10	8.50
Drispac Regular	50 lb	100	265	+165	34.450.00
XC Polymer	50 lb	15	31	+16	8.649.00
CMC L.V.	25 kg	185	263	+78	13.150.00
CMC H.V.	25 kg	75	44	-31	2.332.00
Drilling Detergent	200 l@trs	55	21	-34	3.675.00
KCL	50kg	820	706	-144	10.413,50
LF 5	25kg	173	255	+130	10.582.00
Mica (Fine)	25 kg	-	10	+ 10	145.00

COST/DAY

TOTAL COST FOR INTERVAL

COST/Mt. or Ft.

PROG. COST FOR INTERVAL

ENGR. COST

COST VARIANCE FOR INTERVAL







# ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

## Drilling Fluid & Material Consumption Report

MUD SYSTEM KCL Polymer/Dispersed

WELL NAME 31/2-5 AREA Offshore Norway  
 OPERATOR Norske Shell RIG. West Venture  
 ENGINEERS \_\_\_\_\_

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	Barite	Ligno	THINNERS		POLYMERS			OTHERS						
									CMC HV	CMC LV	Dispers reg.	XC Polymer	Anco-pol	Caustic Soda	Soda Ash	Lime	KCL	LF-5	Drg. Det. Mica (Fine)	
1980																				
29	19.11																			
30	20.11		20									2								
31	21.11		8											20						
32	22.11		6	200										10	1					
33	23.11																			
34	24.11		4											8						
35	25.11		156																	
36	26.11		4																	
37	27.11		1										6							
38	28.11		15										4	4						
39	29.11		73										8	8						
40	30.11		20	90									4	10						
41	1.12		60	220									1	2						
42	2.12		10																	
FORWARD	4053	4311	10838	430	68	150		-	44	178	196	32	127	211	102	2	706	255	14	10
ESTIMATED TOTALS	4053	4688	11348	485	84	150		162	44	178	223	34	127	273	103	2	706	255	14	10

REMARKS:





# ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

Drilling Mud Properties Record

MUD SYSTEM Spud mud - KCL/Polymer

WELL NAME 31/2-5

OPERATOR Norske Shell

ENGINEERS D. Geddes

AREA Offshore Norway

RIG West Venture

DAY No.	DATE	DEPTH FEET METERS	MUD PROPERTIES										OPERATION REMARKS																						
			DENSITY PPG <input type="checkbox"/> SG <input type="checkbox"/>		VISCOSITY				GELS		FLUID LOSS 30 Min cc's			CAKE 32 nds		H.T.H.P. cc's		pH		Filtrate Analysis		RETORT		% OIL		% SOLIDS		% SAND		BENTONITE #/BBL		POTASH #/BBL		POLYMER #/BBL	
				sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	0	10																										
1980																																			
1	22.10			1,03	+ 140																														Spud mud
2	23.10			1,03	+ 140																														mixed while settin anchors spudded in drilled to 30" csg.
3	24.10			1,03	+ 140																													point at 446m	
4	25.10			1,03	+ 140																														
5	26.10			1,03	+ 140																														Diluted remaining spud mud for 17 1/2" pilot hole
6	27.10			1,03	48																														
7	28.10	505		1,05	36	11	8	6	4	10	37	5	-	10,0	15000	400	0,5	-	5	TR	15														Drilling 17 1/2" pilot hole
8	29.10	820		1,07	34	17	14	6	11	24	28	5	.	10,0	15000	400	0,2	-	6	TR	15													Drill pilot hole to csg point Mixed spud mud for opening hole to 26"	
9	30.10	820		1,03	+ 140																														Opened hole to 26"
10	31.10	820		1,03	+ 140																														Opened hole to 26"
11	1.11	820		1,03	+ 120																														W.O.W. Built volume for RIH after W.O.W.
12	2.11	820		1,03	+ 120																														W.O.W. Built volume for RIH after W.O.W.
13	3.11	820																																	Taking on KCL Brine Building volume with 760 bbl KCL Brine
14	4.11	820		1,21	75	54	41	26	8	7	6,0	2	-	9,5	71000	400	0,2	-	N/C	0	0	0													

REMARKS



# ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

Drilling Mud Properties Record

MUD SYSTEM KCl/Polymer

WELL NAME 31/2-5 AREA Offshore Norway  
 OPERATOR Norske Shell RIG. West Venture  
 ENGINEERS D.Geddes/C.Meyjes

Day No.	DATE	DEPTH FEET <input type="checkbox"/> METERS <input checked="" type="checkbox"/>	MUD PROPERTIES										OPERATION REMARKS												
			VISCOSITY				GELS		FLUID LOSS 30 Min cc's			RETORT													
			DENSITY PPG <input type="checkbox"/> SG <input checked="" type="checkbox"/>	sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	0	10	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	Filtrate Analysis			% OIL	% SOLIDS	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"		
												pH	CF ppm	Ca. ++ ppm	Pf										
1980																									
15	5.11	1050	1,20	54	32,5	25	15	2	4	5,8	4	-	9,5	75000	320	0,2	-	7	1/4	5,0	N/C	N/C			Start drilling 17 <sup>h</sup> note no test eq.ment for KCl/P.
16	6.11	1302	1,21	54	34,5	26	17	2	4	5,4	3	-	9,5	75000	360	0,1	-	7	1/4	7,5	38	0,8			Drill to 1302
17	7.11	1480	1,25	55	32,5	25	15	2	4	5,6	3	-	10,0	75000	400	0,2	-	11	1/4	10,0	38	0,9			Drill to 13-3/8 csg polr raised wt to 1,25
18	8.11	1480	1,25	55	32,5	25	15	2	4	5,6	3	-	10,0	75000	400	0,2	-	11	1/4	10,0	38	0,9			E.log circ & cond. prior to running 13-3/8 csg.
19	9.11	1480	1,25	54	32,5	25	15	2	4	5,6	3	-	9,5	74000	360	0,2	-	11	1/4	10,0	37,5	0,8			Run & cmt 13-3/8 csg. Run seal assy & start to test BOP's
20	10.11	1480	1,25	53	32,5	25	15	2	4	5,6	3	-	9,5	74000	360	0,2	-	11	1/4	10,0	37,5	0,8			Drill out float cmt & shoe
21	11.11	1511	1,20	49	33,5	24	19	2	4	5,6	2	-	10,0	50000	720	0,3	-	8	TR	10,0	30,0	0,6			shoe
22	12.11	1515	1,20	49	33	24	18	2	4	5,2	2	-	10,5	64000	600	0,2	-	8	1/4	10,0	21,0	0,3			Core 2 runs 12-1/4"
23	13.11	1523	1,25	64	38	28	20	2	4	5,0	2	-	10,5	62000	600	0,2	-	11	1/4	10,0	21,0	0,2			Core & trip. Trip & core
24	14.11	1536	1,25	66	42,5	30	25	3	4	4,4	2	-	10,0	48000	520	0,3	-	10	1/4	12,5	19,0	0,1			Core 12-1/4"
25	15.11	1542	1,25	73	51,5	29	45	6	7	4,4	2	-	9,8	42000	560	0,3	-	10	1/4	9	12,0	0,05			Core after trips, on shell ins
26	16.11	1542	1,25	67	51	32	38	7	9	4,4	2	-	9,8	41000	560	0,2	-	10	1/4	9	12,0	0,1			Rane vis. because of fill
27	17.11	1542	1,25	74	53	33	40	7	8	4,6	2	-	9,7	41000	560	0,2	-	10	1/4	9	12,0	0,1			Rig repair
28	18.11	1542	1,25	71	52,5	33	39	7	8	4,6	2	-	9,7	41000	560	0,2	-	10	1/4	9	12,0	0,1			Rig repair

REMARKS



# ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

## Drilling Mud Properties Record

MUD SYSTEM Polymer

WELL NAME 31/2-5 AREA Offshore Norway  
 OPERATOR Norske Shell RIG West Venture  
 ENGINEERS Dennis Geddes/Chris Meyjes

Day No.	DATE	DEPTH FEET D METERS X	MUD PROPERTIES										OPERATION REMARKS																								
			DENSITY PPG SG		VISCOSITY				GELS		FLUID LOSS 30 Min cc's			CAKE 32 nds		H.T.H.P. cc's		pH		Filtrate Analysis		RETORT		% OIL		% SOLIDS		% SAND		BENTONITE #/BBL		POTASH #/BBL		POLYMER #/BBL		"N"	
				sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	10	0									Ca. ++ ppm	PI																		
1980																																					
29	19.11	1542	1,25	70	52	33	38	7	8	4,6	2	-	9,7	41000	560	0,2																				Rig Repairs	
30	20.11	1542	1,25	72	52,5	33	39	8	10	4,8	2	-	9,8	42000	520	0,2																				POOH & pick up 8 1/4" core bb:	
31	21.11	1555	1,25	60	48,5	31	35	5	6	4,3	2	-	10,0	39500	360	0,3																				Core 8 1/4"	
32	22.11	1565	1,25	57	43	27	32	4	7	4,3	2	-	10,5	39000	240	0,5																				Core 8 1/4"	
33	23.11	1573	1,25	53	40	27	26	3	5	3,8	1	-	10,2	38500	240	0,3																				Core 8 1/4"	
34	24.11	1583	1,25	53	41,5	28	25	3	5	3,7	1	-	10,4	38000	240	0,4																				Core 8 1/4"	
35	25.11	1596	1,25	51	39	27	24	2	4	3,8	1	-	10,3	38000	260	0,4																				Core 8 1/4"	
36	26.11	1613	1,25	50	37,5	27	21	4	8	4,6	1	-	10,0	35000	320	0,3																				Core 8 1/4"	
37	27.11	1638	1,25	49	34	24	20	3	4	4,2	1	-	10,0	35000	320	0,3																				Core 8 1/4"	
38	28.11	1652	1,25	50	36	26	20	4	8	4,3	1	-	10,1	34500	280	0,3																				Finish core Ream to 12-1/4"	
39	29.11	1727	1,25	53	39,5	29	21	4	6	4,1	1	-	10,2	35000	240	0,3																				Drill 12-1/4" hole	
40	30.11	1812	1,25	51	35,5	26	19	3	6	4,2	1	-	10,7	32500	200	0,4																				Drill to 18:2 Log	
41	1.12	1812	1,25	49	33	24	18	3	5	4,1	1	-	10,7	32500	220	0,4																				Log	
42	2.12	1812	1,25	49	33	24	18	3	5	4,1	1	-	10,7	32500	220	0,4																				Log	

REMARKS





# ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

Drilling Mud Properties Record  
MUD SYSTEM Polymer/Dispersed

WELL NAME 31/2-5 AREA Offshore Norway  
OPERATOR Norske Shell RIG West Venture  
ENGINEERS Dennis Geddes/Chris Meyjes

DAY No.	DATE	DEPTH FEET METERS	MUD PROPERTIES															OPERATION REMARKS							
			DENSITY PPG SG			VISCOSITY			GELS			FLUID LOSS 30 Min cc's			CAKE 32 nds				H.T.H.P. cc's			Filtrate Analysis			RETORT
			DENSITY	sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	10	0	FLUID LOSS	CAKE	H.T.H.P.	pH	CF ppm	Ca. ++ ppm	PI	% OIL	% SOLIDS	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	
1980																									
43	3.12	1812	1,25	48	37,5	28	19	3	4	4,3	1	-	10,3	32500	240	0,3	0	10	1/4	12,5	-	-			Log
44	4.12	1813	1,25	51	37	27	20	3	5	4,4	1	-	10,2	32500	240	0,3	0	10	TR	12	-	-			Log. Run 95/8 csg. QTR 95/8 csg. drill out shoe. reducing wt. to 1,1
45	5.12	1818	1,25	47	32,5	24	17	3	4	4,5	1	-	9,8	32000	280	0,2	0	10	1/4	12	-	-			POOH: leak off test 1,69 eq. Run CBL R1H & drill 1818-1838
46	6.12	1838	1,15	50	30	22	16	2	4	4,6	2	-	10,4	28000	600	0,6	0	4	TR	10,0	-	-			Drill 1835-1402 TRIP
47	7.12	1942	1,15	51	27,5	20	15	2	4	4,8	2	-	10,2	28000	600	0,5	0	4	TR	15,0	-	-			Drill 1902-1945
48	8.12	2162	1,15	52	30	22	16	2	4	4,4	2	-	10,6	28000	560	0,6	0	4	TR	15,0	-	-			Drill 1941 - 2151 Trip
49	9.12	2221	1,15	47	27	20	15	2	4	4,5	2	-	10,5	28000	400	0,5	0	4	TR	15,0	-	-			Drill 2151 - 2162
50	10.12	2332	1,15	46	31,5	23	17	2	4	5,0	2	-	9,8	28000	400	0,4	0	5	TR	15,0	-	-			Drill 2162- 2221 Drill ahead after fishing for junk.
51	11.12	2443	1,15	47	27,5	21	15	2	5	5,0	1	-	10,0	28000	400	0,4	0	5	1	15,0	-	-			Drill ahead.
52	12.12	2532	1,15	47	25	19	12	2	4	4,8		-	9,6	26000	440	0,4	0	6	1	15,0	-	-			Drill to TD:
53	13.12	2532	1,15	48	25	19	12	2	4	4,8		-	9,8	26000	400	0,5	0	6	1/4	15,0	-	-			Logging
54	14.12	2532	1,15	52	31,5	23	17	2	4	4,7		-	10,0	26000	400	0,5	0	5	TR	15,0	-	-			Abandonment

REMARKS



# ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

Drilling Mud Properties Record  
MUD SYSTEM Polymer/Dispersed

WELL NAME 31/2-5 AREA Offshore Norwa  
OPERATOR Norske Shell RIG West Venture  
ENGINEERS Dennis Geddes/Chris Meyjes

DAY No.	DATE	DEPTH FEET METERS	MUD PROPERTIES														OPERATION REMARKS								
			DENSITY PPG SG	sec/qt	VISCOSITY				GELS Y.P. #/100 sq.ft.	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	pH	Filtrate Analysis				RETORT	% OIL	% SOLIDS	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"
A.V. cps	P.V. cps	Y.P. #/100 sq.ft.			0	10	Ca. ++ ppm	PT						%											
1980																									
43	3.12	1812	1,25	48	37,5	28	19	3,4	4,3	1	-	10,3	32500	240	0,3	0	10	1/4	12,5	-	-				Log
44	4.12	1813	1,25	51	37	27	20	3,5	4,4	1	-	10,2	32500	240	0,3	0	10	TR	12	-	-				Log. Run 95/8 csg. DTR 95/8 csg. drill off shoe. reducing wt. to 1
45	5.12	1818	1,25	47	32,5	24	17	3,4	4,5	1		9,8	32000	280	0,2	0	10	1/4	12	-	-				POOH: leak off test 1,69 eg. Run CBL RH & drill 1818-1838
46	6.12	1838	1,15	50	30	22	16	2,4	4,6	2		10,4	28000	600	0,6	0	4	TR	10,0	-	-				Drill 1835-1402 TRIP
47	7.12	1942	1,15	51	27,5	20	15	2,4	4,8	2		10,2	28000	600	0,5	0	4	TR	15,0	-	-				Drill 1902-1945
48	8.12	2162	1,15	52	30	22	16	2,4	4,4	2		10,6	28000	560	0,6	0	4	TR	15,0						Drill 1941 - 2151 TRIP
49	9.12	2221	1,15	47	27	20	15	2,4	4,5	2		10,5	28000	400	0,5	0	4	TR	15,0						Drill 2151 - 2162
50	10.12	2332	1,15	46	31,5	23	17	2,4	5,0	2		9,8	28000	400	0,4	0	5	TR	15,0						Drill ahead after fishing for junk.
51	11.12	2443	1,15	47	27,5	21	15	2,5	5,0	1		10,0	28000	400	0,4	0	5	↓	15,0						Drill ahead.
52	12.12	2532	1,15	47	25	19	12	2,4	4,8			9,6	26000	440	0,4	0	6	↓	15,0						Drill to TD:
53	13.12	2532	1,15	48	25	19	12	2,4	4,8			9,8	26000	400	0,5	0	6	1/4	15,0						Logging
54	14.12	2532	1,15	52	31,5	23	17	2,4	4,7			10,0	26000	400	0,5	0	5	TR	15,0						Abandonment

REMARKS