Denne rapport tilhorer

L&U DOK. SENTER

L. NR. 20089380009

KODE Wee 31/2-5 nr 12

Returneres etter bruk

WELL SUMMARY

NORSKE SHELL WELL NO. 31/2-5



WELL SUMMARY

NORSKE SHELL WELL NO. 31/2-5

GENERAL SUMMARY

OPERATOR Norske Shell

31/2-5WELL NO.

OPERATOR'S REPRESENTATIVES J.Carlisle

P.Holan

CONTRACTOR Smedviq

RIG West Venture

CONTRACTOR'S REPRESENTATIVES B.Mohlman

H.Brockman

K.Coomber

ANCHOR ENGINEERS C.Meyjes

D.Geddes

338m **WATER DEPTH**

363m **SEABED to RKB**

446m 36" HOLE DRILLED TO

446m 30" CASING SET AT

820m 26" HOLE DRILLED TO

810m 20" CASING SET AT

1.480m 171/2" HOLE DRILLED TO

1.470m

13%" CASING SET AT

121/4" HOLE DRILLED TO

1.801m . 95%" CASING SET AT

1.812m

81/2" HOLE DRILLED TO 2.532m

7" LINER SET AT

6" HOLE DRILLED TO

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 $\overset{+}{_{\sim}}$ 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 $\overset{+}{_{\sim}}$ 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.

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 $17\frac{1}{2}$ " bit and 26" hole opener. After tripping out to remove the 20" hole opener a $17\frac{1}{2}$ " 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 \pm 25 bbls slugs of viscous mud pumped at each connection. After a check trip to the 30" csg. shoe the hole was displaced with \pm 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.

OPERATOR:

Norske Shell

WELL NO.

31/2-5

_______HOLE/ ______13-3/8" CASING INTERVAL

After running and testing BOP's the 20" casing was driled 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.

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 17½" hole was used. KCL and Polymer concentrations were allowed to fall of 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.

OPERATOR:

Norske Shell

WELL NO.

31/2-5

81 " 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 1.80lm 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.



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.



WELL NAME 31/2-5

OPERATOR NORSKE SHELL

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.



WELL NAME 31/2-5

OPERATOR Norske Shell

ENGINEERS D.J.Geddes

DATE 27.10

Run, land and cmt. 30". Diluted back remaining gel to use for $17\frac{1}{2}$ " 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 $17\frac{1}{2}$ " bit and 26" hole opener. Run riser. Run in hole with $17\frac{1}{2}$ " bit and drill ahead to 505m (Midnight) Displaced to mud while drilling allead.

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 \pm 800 bbls Pre-hydrated Bentonite. Weighted \pm 400 bbls to 1,40 s.g. for next (26") section.



WELL NAME 31/2-5

NORSKE SHELL

OPERATOR

ENGINEERS

Dennis GEDDES

DATE

30.10

Run E. Logs (2 runs - both to bottom) displaced hole to seawater. Opened dump valve on riser after loosing returns. (Pumps stopped due to lack of seawater after service pump broke down heavy mud at 30" shoe at this point. Losses occured 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 \pm 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.



WELL NAME 31/2-5

OPERATOR Norske Shell

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 $17\frac{1}{2}$ " bit. Took on \pm 760 bbls KCL Brine. Fabricated \pm 1.800 bbls KCL/Polymer at 1.21 s.g.



WELL NAME 31/2-5

OPERATOR Norske Shell

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.



WELL NAME 31/2-5

OPERATOR Norske Shell

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.



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 $\frac{1}{2}$ core bbl. RIH for core no. 4. 5m fill (1.534 - 1.539,5m) took $2\frac{1}{2}$ hrs to ream. Drop ball and core $2\frac{1}{2}$ m. 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 earler core bedded at 650 angle.

TIME: Ream 4 hrs, Core 8 hrs, Circ. 2 hrs, Trip $7\frac{1}{2}$ hr, Slip line $\frac{1}{2}$ hr, 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 drawworks. 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. lihr. Repair rig 22 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 $20\frac{1}{2}$ hrs. Trip $3\frac{1}{2}$ hrs.

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 $8\frac{1}{2}$ " core head, 6-3/4" bore bbl and new BHA. RIH for core no. 6.

Time: Ream 1, Circ. 1, Trip 9, Repair rig $1\frac{1}{2}$, Test BOP $11\frac{1}{2}$.

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 \pm 55 sccs.

Time: Ream 2, Core 11½, Trip 8½, Repair rig 1, Service core bb1 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 $\frac{1}{2}$, Core $14\frac{1}{2}$, Trip 8, Repair rig $\frac{1}{2}$, slip and cut line $\frac{1}{2}$.

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 $\frac{1}{2}$, Core 15, Trip $8\frac{1}{2}$.



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 $6\frac{1}{2}$, Circulate $\frac{1}{2}$, Trip $8\frac{1}{2}$, Slip and cut line $\frac{1}{2}$.



WELL NAME 31/2-5

NORSKE SHELL

OPERATOR

ENGINEERS

Chris MEYJES

DATE 29.11

Ream $8\frac{1}{2}$ " hole to 12-1/4" from 1.600 - 1.636 m. Drop survey $(1\frac{1}{2})^0$ 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 $10\frac{1}{2}$, Ream 9, Trip 4, Survey $\frac{1}{2}$.

DATE

30.11

Retrieve survey w/wireline $(1\frac{1}{2}^{O})$ at 1.721 m.) Drill 1.727 - 1.812 m. Circulate bottom's up. Drop survey $(1\frac{1}{2}^{O})$ 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 $11\frac{1}{2}$, Circ. $1\frac{1}{2}$, Trip 2, Slip and cut line $\frac{1}{2}$, Survey $\frac{1}{2}$, Log $8\frac{1}{2}$.

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.



WELL NAME 31/2-5

OPERATOR Norske Shell

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 \pm 90 bbls Prehydrated Bentonite for addition to active system.



WELL NAME 31/2-5

OPERATOR Norske Shell

ENGINEERS

Dennis Geddes

DATE 8.12

Drill 1.941 - 2.15lm. Pull wiper trip to shoe. No drag no fill. Drill ahead 2.151 - 21.62m (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.



WELL NAME

31/2-5

OPERATOR

NORSKE SHELL

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.



WELL NAME 31/2-5

OPERATOR NORSKE SHELL

ENGINEERS

14.12

DATE

Dennis GEDDES

Continue running E. Logs. Ran: 1st sonic, Sp, FDC CNL, DP meter, CST and velocity survey. Rig down Schlumberger. R

circ. bottom up and start setting abandonment plugs.

Rigged down mud lab for shipment to Tananger.

DATE 15.12

Complete setting down hole CMT plugs. Set RTTS and pressure test plugs. Engineer released at 16:15 hrs.

DATE

OPERATOR

Norske Shell

WELL NO. 31/2-5

J:

WIATERIAL CON		_			
36" HOLE, DRILLE	D TO 446	Meters Eeet 30	CASIN	G SET AT	Meters Feet
ACTUAL AMOUNT OF HO	LE DRILLED	83 Meter	S / DA	YS ON INTER	VAL 1
DRILLING FLUID SYSTEM	Pre-H y d	lrated Bent	onite/Spud	Mud	
MATERIAL	UNIT SIZE	PROG.	USED \	/ARIANCE ±	COST
Bentonite	MT	22	27	+ 5	6.750.00
Caustic	25 kg	10	14	+ 4	147.00
Lime	25 kg	12	2	- 10	8.50
Soda Ash	50 kg	5	2	- 3	33.00
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1					
COST/DAY 6.	938.50 To	OTAL COST FO	OR INTERVAL	6.9	38.50
COST/Mt. or Ft.	83.59 PI	ROG. COST FO	OR INTERVAL	6.6	27.50
ENGR. COST 2.	400.00 C	OST VARIANC	E FOR INTERVA	+ 310	.90

WELL NO.

ENGR. COST

/*:::::::::

2.800

31/2-5

MATERIAL CONSUMPTION & COST ANALYSIS

26" HOLE DRILLED	то 820	Meters 20	" CASI	NG SET AT	Meters Feet			
ACTUAL AMOUNT OF HOLI	E DRILLED	Meters 374 Eest	· [AYS ON INTER	RVAL 7			
DRILLING FLUID SYSTEM	Pre-Hyd:	rated Bent	onite/Seaw	vater				
MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST			
Barite	МТ	95	160	+ 65	17.920.0			
Barite	50 kg		150	+ 150	840.0			
Bentonite	MT	40,5	41	+ 0.5	10.250.0			
CMC H.V.	25 kg	-	44	+ 44	2.332.0			
XC Polymer	50 lb	_	14	+ 14	3.906.0			
Caustic	25_kg	35	61	+ 26	640.50			
Soda Ash	20 kg		6	+ 6	99.0			
Mica (Fine)	25 kg	_	10	+ 10	145.00			
LF 5	25 kg	48		- 48	-			
								
		L						
COST/DAY 5.16	51.78 TO	TAL COST FO	R INTERVAL	36.1	32,50			
COST/Mt. or Ft.	96.61 PR	OG. COST FO	R INTERVAL	23 1	23.124.50			

COST VARIANCE FOR INTERVAL

+ 13.008.00

OPERATOR

Norske Shell

WELL NO.

31/2-5

MATERIAL CONSUMPTION & COST ANALYSIS

17½" HOLE DRILLED	TO 1.480	Meters Feet	13-3/8"	CASING SET AT	1.470	Meters Feet
ACTUAL AMOUNT OF HOLE	DRILLED	660	Meters Eect	DAYS ON IN	TERVAL	6
DRILLING FLUID SYSTEM	KCL/Pol	Lymer			······································	

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
Barite	MT	278	173	- 105	21.452.00
CMC L.V.	25 kg	65	178	+ 113	8.900.00
Drispac Regular	50 lb	60	155	+ 95	7.800.00
Ancopol	50 lb	110	127	+ 17	15.868.66
Caustic	25 kg	69	136	+ 67	1.428.00
Soda Ash	50 kg	6	84	+ 78	1.386.00
KCL	50 kg	820	706	- 144	10.413,00
LF 5	25 kg	125	255	+ 130	10.582.00
Drilling Metergent	200 litre	20	8	- 12	1.400.00
,					
·		···			

 COST/DAY
 13.205.11
 TOTAL COST FOR INTERVAL
 79.230.66

 COST/Mt. or Ft.
 120.04
 PROG. COST FOR INTERVAL
 77.536.50

 ENGR. COST
 2.400.00
 COST VARIANCE FOR INTERVAL
 + 1.694.16

/:********

WELL NO.

31/2-5

MATERIAL CONSUMPTION & COST ANALYSIS

8½" HOLE	DRILLED	го _{2.5}	32	Meters Feet	CASIN	IG SET AT	Meters Feet						
ACTUAL AMOUN	T OF HOLE	DRILLED)	731 Meters	11	AYS ON INTER	RVAL 10						
DRILLING FLUID	SYSTEM	Seaw	ater	/Bentonit	Bentonite/Dispersed								
MATERI	AL	UNIT S	IZE	PROG.	USED	VARIANCE ±	COST						
Barite		ĽМ	-	129	9	- 120	1.116.00						
Bentonite	-	ТМ		10	16	+ 6	4.000.00						
Caustic		25	kg	65	55	- 10	577.50						
Ligno		25	kg	168	42	- 126	630.00						
CMC L.V.	·····	25	kg	55	85	+ 30	4.250.00						
Drispac Reg	ular	50	lb	40	42	+ 2	5.460.00						
XC Polymer		50	1b	0	11	+ 11	3.069.00						
Soda Ash		50) kg	0	4	+ 4	66.00						
Drilling De	tergent	200 li	.tre	15	7	- 8	1.225.00						
	_												
				·									
													
<u> </u>		7											
COST/DAY	2.03	9.35	TC	TAL COST FO	OR INTERVAL	20.39	20.393.50						
COST/Mt. or Ft.	2	7.89	PR	OG. COST FC	R INTERVAL	34.83	832.00						
ENGR. COST	4.00	0 00	CC	ST VARIANC	E FOR INTERV	AL - 14.4	38.50						

WELL NO.

COST/Mt. or Ft.

ENGR. COST

/:···

31/2-5

MATERIAL CONSUMPTION & COST ANALYSIS

12-1/4" HOLE DRILLED	1.813	Meters 1	.801 CASI	NG SET AT 1.	801 Meters Feet			
ACTUAL AMOUNT OF HOLE	DRILLED 33	Meter Feet	s D	AYS ON INTERV	/AL 24			
DRILLING FLUID SÝSTEM	Seawater/	'Bentonite	/Dispersed	·				
MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST			
Barite	МТ	95	156	+ 61	19.344.0			
Bentonite	MT	3.6	16	+ 12,4	4.000.0			
Caustic	25 kg	82	62	, - 20	651.0			
Soda Ash	50 kg	0	11	+ 11	181.5			
Drispac Regular	50 lb	0	.68	+ 68	8.840.0			
Ligno	25 kg	190	165	- 25	2.475.0			
XC Polymer .	50 lb	15	20	+ 5	5.580.0			
Drilling Detergent	200 litr	20	6	- 14	1.050.0			
CMC L.V.	25 kg	65	0	- 65				
CMC H.V.	25 kg	75	0	- 70	<u>-</u>			
<u> </u>								
· · · · · · · · · · · · · · · · · · ·								
COST/DAY	т.	TAL COST FO)R INTERVAL	1				
<u> </u>	755.06	71AL 0031 FC	ZII IITI CIIVAL		42.121.50			
COST/Mt. or Ft.	126.49 PR	OG. COST FO	R INTERVAL	31.073	31.073.50			

PROG. COST FOR INTERVAL

COST VARIANCE FOR INTERVAL

+ 11.048.00

126.49

9,600,00

OPERATOR

Norske Shell

WELL NO.

31/2-5

TOTAL CONSUMPTION & COST ANALYSIS

TOTAL DEPTH	2.532	Meters Feet
TOTAL DAYS	54	

TOTAL HOLE DRILLED	2.169	Meters
		ורפפו

MATERIAL	UNIŢ 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	<u> 1</u> 00 .	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 3.822.53 184.816.66 COST/Mt. or Ft. PROG. COST FOR INTERVAL 81.52 173.194.10

ENGR. COST

/: .~....

21.600.00

COST VARIANCE FOR INTERVAL

11.622.50

ANCHOR DRILLING FLUIDS AS

Drilling Fluid & Material Consumption Report
Spud Mud - KCL Polymer OSLO — STAVANGER

No.

LOSSES SUB SURFACE

DATE

MUD SYSTEM _

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

2897			1514				864	386	133						i	LOSSE SURFACE		ESTI
8750		1800		1100		1350	400	800	400	900	400		•		1600	WOLUN MUD BUIL	5 =	ESTIMATED DAILY
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68						15		12		4	ω	-			20	BARITE	t:	MAT
8 <u>150</u>				9		5	л	2		-						BENTONI		BULK MATERIALS
-				150				-								Barite	,	MAI
	-		-					-		-								SACK MATERIALS
-								-	-	-						Ligno		
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							-		-	1							THINNERS	
44				-				34	10							CMC		
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56		56					<u> </u>									ISA	Poe	z
14						4		9	<u> </u>				<i>-</i>			Drista reg. XC Anco-	MERS	ATERIAL
56		56			-								-			Anco	¥	S ADDE
95		20	 	4		6	2	34	15	2	2							MATERIALS ADDED TO CONTROL PROPERTIES
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2											2					Lime		ROPER
																KCL		TIES
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ESTIMATED TOTALS

4053

REMARKS:

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FORWARD

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Drilling Fluid & Material Consumption Report

MUD SYSTEM _

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

Day DATE	_	ESTI	ESTIMATED DAILY		BULK		/ SACK	s					MATE	RIALSA	MATERIALS ADDED TO CONTROL PROPERTIES	CONT	ROL PR	OPERT	ËS		•		
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28 18.11						ļ	-		-				-	_	-	_	-	_	-				
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1 0	4053	4311	10838	430	68	150					44	178 1	196	32 1	127	211	102	2	706	255	5 14	10	-
REMARKS:																							



WUD SYSTEM KCL Polymer/Dispersed Drilling Fluid & Material Consumption Report

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

ESTI TC	FOI		41	40	39	38	37	36	35	3	33	32	31	30	29			Day	
ESTIMATED TOTALS	FORWARD	2 12	1.12	30.11	29.11	28.11	27, 11	26.11	25.11	24 11	23, 11	22.11	21.11	20.11	19.11	1980		DATE	
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273 1	211 1	-	<u>\</u>	10	8	4		-		80		10	20			Policausti Soda Soda Ash	e	MATERIALS ADDED TO CONTROL PROPERTIES	
103	102		 	 	-	-	-				-	-	-	-	-	Ash Ash		ROL PRO	
2	2	-	-	-	-	-	<u> </u>	-	-					-	-	Lime		OPERTIE	
706	706	-	-	<u> </u>	-		-		-	-	-	+-			 	KCL		S)	
255	22	-	-	-				<u> </u>	╁	-	-	-	-	-			OTHERS		
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10	10	-	-	-	-	<u> .</u>		-			-		-	-	<u> </u>	Drg. Det. Mica (Fine			
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REMARKS



Drilling Fluid & Material Consumption Report

OPERATOR Norske Shell WELL NAME 31/2-5

Offshore Norway West Venture

engineers Dennis Geddes/Chris Meyjes HIG.

MUD SYSTEM	1	ymer/D	Polymer/Dispersed	மு							<u>m</u>	ENGINEERS		Dennis	Gedde	es/C	Geddes/Chris Meyjes	yjes			
Day DATE		ESTI	ESTIMATED DAILY	X	BULK		SACK				MAT	ERIALS	MATERIALS ADDED TO CONTROL PROPERTIES	ro con	TROL PR	OPERT	IES				
	<u> </u>	58	S & / E	_		1		THINNERS	RS /		мхФод	ERS	7	C				OTHERS		יו	
1980	LOSSES S SURFACE	LOSSES SURFACE	MUD BUIL	BARITE	BENTONI	Barite		Ligno	CMC	HV CMC LV	OFISA	Anco-	Anco-	Causti Soda) 2/51 20/35 da/da Ash	Lime	KCL	LF-5	D_{rg}	Drg. Det. Mica (Fine	
43 3.12				ω											-	<u> </u>					
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ועו	4053	4688	11348	485	84	150	162		44	178	223	34	127	273	103	2	706	255	14	10	-
ESTIMATED TOTALS	4053	5379	12010	498	100	150	207		44	263	265	45	127	328	107	2	706	255	21	10	
REMARKS										1											



Drilling Mud Properties Record

MUD SYSTEM _

Spud mud - KCL/Polymer-

WELL NAME 31/2-5

AREA Offshore Norway RIG. West Venture

OPERATOR Norske Shell

ENGINEERS _D. Geddes

14	13	12	E	10	9	00	7	9	ഗ	4	w	2	۳		Day
4.11	3.11	2.11		31, 10	30.10	29.10	28, 10	27.10	26.10	25.10	24 10	23.10	22.10	1980	DATE
820	820		820	0 820	0 820	0 820	0 505	<u> </u>	0 446	0		o	0	FEET D	DEPTH
1,21 75		1,03+	1,03 +	1,03+	1,03 +	1,07	1,05	1,03	1,03+	1,03 +	ည်	ည	1,03 +	DENSITY PAG DE	
5 54		120	120	140	140	34 17	36 11	48	140	140	140	140	140	sec/91	
41						14	<u>α</u>							A.V. Cps	
26						6	6 .							VISCOSITY VISCOSITY	
7						12/24	B							Y.P. \$/100 sq.h.	
6,02			-			28	37						<u> </u>	FLUID LOSS 30 Min cc's	
1						5	5 7							CAKE 32 nas	
9.5						10,0	10,0							H.T.H.P. CC.'S	
71000 400	`					15000	15000							PH	2
400						400	400							Cr ppm File	MUD PRO
0.2 -				<u> </u>		0,2 -	0,5							Ca. ++ Pom Pr	PERTIES
N/C	<u> </u> 		-			6	l 5							% O/L	
C			-			另	1	1						% SOLIOS RETOR	
0		22,5	22,5	25	25	15	15	15	25	25	25	25	25	"SAAL	
N/C														BENTONITE #JBBL	
N/C	-	-	-		<u> </u>	<u> </u>		-				<u></u>		POTASH */BBL POLYMER */BBL	
						Drill				<u> </u>	<u> </u>			" */BBL	
160)	Tak	Buil:	W C	Ope	opei	l pilo	ril.	mud						,;;,	,
60 bbl KC	ing on	Built volume	W O W	ned ho	opening hole to	ot hole	Ling I	mud for 1		point a	rille	mixed	Spud mud	OPER,	
60 bbl KCL Brine	Taking on KCL Brine	me for		Opened hole to 26"	opening hole to 26"	о С	7] "p i 1	remaining s	•	point at 446m	drilled to 30"	mixed while	mud	OPERATION REMARKS	
e with	rine	RIH		26"	5 26"	pilot hole to csg poin	rilling_17½"pilot_bole	ng spua		a	0" csg.	mixed while settin		MARKS	

REMARKS



Drilling Mud Properties Record

мud sysтем <u>КСГ/Роју</u>тег

WELL NAME 31/2-5 AREA Offshore Norway

OPERATOR Norske Shell RIG. West Venture

ENGINEERS D.Geddes/C.Meyjes

						:													1 = 1	REM
Rig	12,0 0,1	!	1/4 9	10 1		0,2	0 560	41000	9,7	1	6 2	8 4	7	33 39	52,5	71	1,25	1542	18.11	28 1
Rig repair	0,1	12,0	1/4 9	10 1		0,2	0 560	41000	9,7	1	6 2	4.	7	3 40	53 33	74	1,25	1542	17.11	
Rig repair	0,1	12,0	1/4 9	10 1		0,2	0 560	41000	9,8	ı	2	4,4	38 7 9	-	51 32	67	1,25	1542	11,91	26
core after trips, on	0,05	12,0	1/4 9	10 1		0,3	0 560	42000	9,8	,	4 2	4	45 6 7	29	51,5	73	1,25	1542	15.11	25
Core 12-1/4"	0,1	,5 19,0	1/4 12,	10 1		0,3	0 520	48000	10,0	ı	,4	4	25 3	30	42,5	66	1,25	1536	14.11	24 1
& core	0,2	0 21,0	1/4 10,0	11		0,2	0 600	62000	10,5	1	0 2	4 5,	20.	28	38	64	1.25	1523	13.11	
Core 2	0,3	0 21,0	1/4 10,0	8		0,2	0.600	64000	10,5	ı	2 2	5	18 2	24	33	49	1,20	1515	11 2	22 1
shoe. Leak	0,6	0,00	TR 10,	8		0,3	0 720	50000	10,0	-	6 2	5	19 2	24	5	49 33	1,20	1511		21.
to test 1	0,8	,0 37,5	1/4 10,	11 1		0,2	0 360	7400	9,5	1	ω ω	<u>4</u> _5	15 2	25	75	53 32	1,25	1480	11.01	20 1
Run & cant	8,0	,0 37,5	1/4 10,	11 1,		0,2	0 360	7400	9,5	1	<u>δ</u>	4 5,	15 2	25	,5	54 32	1,25	1480	.11	19 9.
E. log.circ & cond. prior to running 13-3/8 csg	0,9	0 38	10,0	11 3	1	0,2	0 400	75000	10,0	1	6	5,	15 2	25	35	55 32	1,25	1480	11	18 8
raised v	0,9	0 38	10,0	11 *	ı	0,2	0 400	75000	10,0	ı	ნ ധ	5	15 2	25	ភ	55 32	1,25	1480	F	17 7
	0,8	38	7,5	7		0,1	0 360	75000	9,5		3	<u>4</u>	17 2	26	5	54 34	1,21	1302	L	16 6.
no test eq.ment	N/C	N/C	1/4 5,0	7 1	1	0,2	0 320	75000	9,5	1	8 4	5	15 2	25	2,5	54 3:	1,20	1050	11	15 5.
z _i	POTASH #/BBL POLYMER #/BBL	SENTONITE !	"SAM	% OIL RETORT		rate A	Cr ppm Fill	PH	HT.H.P. CC'S	\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	CAKE 20		*/100 so	P.V. Co.	A.V. cos	SG ×	DENSITY PPG O	FEET D METERS X	1980	
			1		ES	OPERTIES	MUD PRO											DEPTH	DATE	No.
i																				-



Drilling Mud Properties Record

WELL NAME

31/2-5

OPERATOR

NOTSKE Shell

OPERATOR

NOTSKE Shell

RIG.

West Venture

ENGINEERS

Dennis Geddes/Chris Meyjes

MUD SYSTEM	STEM .	Polymer	mer												ā	ENGINEERS	1	Dennis		les/C	Geddes/Chris	Meyjes	Se				
Day D	DATE	DEPTH				}						~	MUD PR	PROPERTIES	Sal												
Z C			,	H	VISC	VISCOSITY		GELS		Y	\	$ \downarrow $	\ F	Filtrate Analysis	nalysis) RE	RETORT		'BL	\sim	2	\neg					
•	<u> </u>	FEET O	PPG D	,	s		\$9.ft.	\°	30.	λη. 2	cc's		w _	PPM			os	V O	TE #/B	**	9 */86	"N"	,	Open	ATION	OPERATION REMARKS	RKS
			NSITY I	Sec/q	A.V. COS	P.V. CPS	P. #/100	10100	CAKE	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	H.T.H.E	PH	C/pp/	Ca. ++ p	PI	% O/L	% SOL/	% SAN	NTONIT	<u> ,₀₩</u>	POLYMER			. 6			
1:0	1980		OE			۲.	10	FLU		1								8,		I ^							
29 19.	ㅁ	1542	1,25 70	52	<u>ස</u>	38	7/8	4,6	Ν	1	9,7	41000	560	0;2		10	TR	9	12	0,1			Rig	Repairs	s		1
30 20	11 1	1542	1,25 72	52,5	33	39	8 10	4,8	2	ı	9,8	42000	0 520	0,2		10	1/4	9	12	0,1		POOH _	ord &	pick up	ြထ	de core	<u>g</u> 4
31 21	. 11	ົ້ນ ເກີ	1,25 60	48,5	31	35	5 6	4.3	2	1	10,0	39500	0 360	0,3		9	1/4	9	11	0,05			Core	8			
32 22	1	1565	1.25 57	43	27	32	7	43	N		10,5	39000	0 240	0,5		9	1/4	10	10	0,05			Core	83=			
33 23	<u></u>	1573	1, 25 53	6	27	26	5	ယ စာ	-		10,2	38500	240	0,3		9	1/4	6	0	0,05			Core	81 =			
1	다		1	41,5	28	<u> </u>	3 5	3,7	۳	1	10,4	38000	0 240	0,4		9	爿	ω	7	0,05			Core	82=			
35 25	1111	1596	1,25 51	39	27	24	2/4	3,8	μ	ı	10,3	3800	0 260	0,4		9	Ħ	7,5	7	0,05			Core	8			
36 26		1613	1,25 50	37,5	27	21	8	4.6	-	ı	0,01	35000	0 320	0,3		9	1/4	12,5	ı	ı			Core	8			
37 27		1638	1, 25, 49	ω 4	24	20	2/4	4 2	.		0,0I	35000	0 320	0,3		9	1/4	72	ı	ı			Core 84"	8			
28		1652	1,25 50	36	26	20	4/8	4,3	1	1	10,1	34500	28	0 0,3		9	RAB	12	ı	1		Fini	Finish core	1	Ream t	to 12•	12-1/4
1		1727	1,25 53	39,5	29	21	4, 6	4,1	1	1	10,2	35000	24	0 0,3		10	1/4	16	ı	1			Drill	i .	12-1/4"	hole	
40 30	. 11 1	1812	1,25 51	35.5	26	19	3 6	4,2	μ	1	10,7	32500	0 200	0,4		10	1/4	12,5					Drill	8	18:2	Į į	
41 1.	12 1	1812	1,25 49	33	24	18	3 5	4,1	سر	1	10,7	32500	22	0 0,4		10	TR	12,5					158				
42 2.	12 1	1812	1,25 49	33	24	18	5	4,1	٢	ı	10,7	32500	22	0 0,4		10	兌	12,5					Log				
REMARKS	KS																										



MUD SYSTEM Polymer/Dispersed **Drilling Mud Properties Record**

ENGINEERS _ OPERATOR Norske Shell

WELL NAME

31/2-5

Norske Shell RIG West Venture
Dennis Geddes/Chris Meyjes AREA Offshore Norway

	54 14.12	13.12	52 12 12	12	50 10.12	49 9.12	48 8 12	47 7.12	46 6.12	45 5.12	44 4.12	43 3.12	,	Ž	Day DATE	
	2532	2532	2532	2443	2332	2221	2162	1942	1838	1818	1813	1812	METERS X		DEPTH	
	1,15 52 31,	1,15 48 25	1,15 47 25	1,15 47 27,	1,15 46 31,	1,15 47 27	1,15 52 30	, 15 51 27,	1,15 50 30	1,25 47 32,	1,25 51 37	1, 25 48 37,	DENSITY PPG SG SK	7 7		
	5 23	19	19	5 21	5 23	20	22	5 20	22	5 24	27	5 28	A.V. Cps	VISC		
	17 2	12 2	12 2	15 2	17 2	15 2	16 2	15 2	16 2	17 3	20 3	19 3	PV CDS V P #/100 SQ 11	VISCOSITY	Ì	
	4 4,7	4 4,8	4 4 8	5 5,0	4 5,0	4 4,5	4 4,4	4 4.8	4 4,6	4 4,5	5 4,4	4 4.3	\ \	1		
)	2	2	3	2	2	٢	Ъ) —	FLUID LOSS 30 MIN	LS cos		
		_		1-4	9			-		9	- 10	ı	CAKE 32 nas	7		_
	10,0 26	9,8 26	9,6 26	10,0 28	8	10,5 28	10,6 281	10,2 28	10,4 28	,8 320	0,2 32500	10,3 32500	DH CC'S			
	26000 400	26000 400	26000 440	28000 400	28000 400	28000 400	28.000 560	28000 600	28000 600	32000 280	SQQQ 240	24	Cr _{ppm}	E	MUD PR	
	0 0,5	0 0,5	0 0,4	0 0,4	0,4	0,5	0 0,6	0 0,5	0,6	0 0,2	0,3	0 0,3	Ca. ++ ppm	Filtrate Analysis	ROPERTIES	
	0	0	0	5	5	0 4	0 4	0 4	0 4	0 10	0 10	0 10	% OIL	lysis	S	
	Ħ	1/4		13	景	景	178	IF.	ij	1/4	景	1/4	% SOL105	RETORT		
	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	10,0	12	12	12,5	% SANO BENTON	$ \downarrow $		
							-	1	1	1	l l	1	BENTONITE #/B			
									Run				POLYMER #/BE			
									B.	ا			, Z	/		
	bandonment	Logging	Drill	Drill ahead	fishing	brill 2162- brill ahead	1 '	brill 1] ∞ C	shoe. r	Log. R	Log	·**			
	ment	ſĞ	Drill to TD:	ahead.	ng for junk.	Drill 2162- 2221	1941 - 2162 2151 - 2162	-1945 -1945		reducing wt to 1,	Log. Run 95/8 csg.		OPERATION REMARKS			

No.

REMARKS

MUD SYSTEM Polymer/Dispersed **Drilling Mud Properties Record** ANCHOR DRILLING FLUIDS AS

OPERATOR Norske Shell 31/2-5 Dennis Geddes/Chris Meyjes AREA Offshore Norwa

WELL NAME

MUD Day	MUD SYSTEM	0 1	Polymer/Dispersed	er/D	ispe	rsec								<u> </u>	MUD PROPERTIES	PERTIE		ENGINEERS	11	Dennis	ပ	ြုစ္စ	Gedder	Geddes/Cn	Geddes/Chris
							VISCOSITY	YTIS		/GELS	c's				Filt	Filtrate Analysis	alysis	RE	1-1	RETORT		7	82	82	82
)))	FEET METERS	, RS	DENSITY PPG D	Sec/qI	A.V. Cps	PV CPS	Y.P. #/100 sq. //	$\langle \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	CAKE 30	CAKE 32 nas	H.T.H.P. CC.'S	_	Cr ppm	C _{a. *}	Ca. ++ ppm		% O/L	~ •0, •	% SOLIOS	% SAAL	% SAND BENTONITE	% SAND BENTONITE #/B	% SAND BENTONITE #/B	% SAND BENTONITE
43	3.12	1812	-	25 4	48 37	5	28	19 3	344	ω)	1	10,3	32500	240	0,3	0	10		1/4	1/4 12,5	12,	12,5	12,5 -	12,5 -
	•		13			•		20 3	5 4	~	<u>, , , , , , , , , , , , , , , , , , , </u>	- 1	10,2	32500	240	0,3	0	10		겼	TR 12		72	12 -	12 -
45	5.12	1818	 -	25	47 32	2,5	24	17 3	4 4	1,5	μ .	9	&	32000	280	0,2	0	10	<u> </u>	1/4	1/4 12	1	12	12 -	12 -
46	6.12	1838	8	15 5	50 30		22	16 2	4	1,6	2	H-3	10,4	28000	600	0,6	0	4		ij	TR 10,0	10,	10,0	10,0 R	10,0 -
47	7.12	1942	2.	15	51 27	7,5 20	ļ	15 2	4	8	2		10,2	28000	600	0,5	0	4	<u> </u>	景	TR 15,0	15,	15,0	15,0 -	15,0 -
1	8112		2	5 5	52 30		22	16 2	4	4	N	<u> </u>	10,61	28.000	560	0,6	P	4	<u> </u>	133		<u> </u>	<u> </u>	<u> </u>	<u> </u>
L	9.12	2221		1,15 4	47 27		20	15 2	4 4	4,5	2		10,5	28000	400	0,5	0	4.		Ħ	ITR 15,0	ls.	ls.	ls.	ls.
50	10.1	12 2332	2	15	46 31	5 23		17 2	4 5	5,0	N	و	8	28000	400	0,4	0	ហ		둿	TR 15,0	ᅜ	ᅜ	ᅜ	ᅜ
	11.12	2 2443	ω 	15 4	47 27	7,5 21		15 2	5 5	0	 	1-0	10,0	28000	400	0,4	0	lσ		. 9		15	15	15	15
	12 12	2 2532	2	15.4	47 25	<u> </u>	19	12	4	8			9,6	26000	440	0.4	o	b)	<u> </u>			15	15	15	15
	13.1	12 2532		1,15 4	48 25		19	12 2	4 4	4,8			ω	26000	400	0,5	0	0		1/4		1/4 15	1/4 15	1/4 15	1/4 15
54	14.1	12 2532	2 1	15	52 31	5	23	17 2	4	4,7	-		10,0	26000	400	0,5	0	lσ	0.	爿	<u> </u>	TR 15	TR 15	TR 15	TR 15
4								ļ																	

REMARKS