

Denne rapport
tilhører



L&U DOK. SENTER

L. NR. 20088360014

KODE Well 31/2-12 nr 12

Returneres etter bruk

WELL SUMMARY

A/S NORSKE SHELL

WELL NO. 31/2-12



ANCHOR DRILLING FLUIDS

WELL SUMMARY

A/S NORSKE SHELL

WELL NO. 31/2-12

GENERAL SUMMARY

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-12

OPERATOR'S REPRESENTATIVES

C. WESTON, F. VAN KAMPEN, H. FECKEN

CONTRACTOR DOLPHIN SERVICES

RIG BORGNY DOLPHIN

CONTRACTOR'S REPRESENTATIVES

HARALD FRIGSTAD, JOHN BUTCHART

ANCHOR ENGINEERS

C. ATKINSON, C. BLANCHARD

WATER DEPTH 334 m

SEABED to RKB 359 m

36" HOLE DRILLED TO 468 m

30" CASING SET AT 458 m

26" HOLE DRILLED TO 810 m

20" CASING SET AT 802 m

17½" HOLE DRILLED TO 1348 m

13⅜" CASING SET AT 1338 m

12¼" HOLE DRILLED TO 1427 m

9⅝" CASING SET AT 1424 m

8½" HOLE DRILLED TO 1615 m

7" LINER SET AT

6" HOLE DRILLED TO



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS ATKINSON

DATE 26.05.83

Moved rig to new location. Prepared to spud. Made up 26" bit and 36" hole opener. RIH. Spud well at 2300 hrs with seawater and havis pill (slow pump rate initially). Drilled 36" hole from 359 m to 378 m.

Mixed 1380 bbls havis spud mud with CMC (Extra Havis) at 5 ppb.

Made screens inventories for shakers and Thule unit. Dress shakers with $\frac{20}{B60} \times \frac{20}{B40} \times \frac{20}{B40}$ and Thule unit with 150 mesh screens.

DATE 27.05.83

Drilled 36" hole from 378 m to 468 m with surveys. Pumped 25 bbls havis pills at connections. Pumped 50 bbls havis at TD. Chased with 50 bbls seawater. Spotted 250 bbls havis in hole. POOH to TGB. RIH. Tagged bottom with 1 m fill. Spotted 50 bbls havis. Circulated out, checked fill - 1/2 m. Spotted 50 bbls havis. Circulated out - no fill. Displaced hole with 800 bbls havis (hole volume 80 %). Dropped survey. POOH. Rigged up and ran 30" casing.

Mixed 930 bbls new volume of havis mud. Cleaned out pit no. 4 and lines to Halliburton prior to mixing CaCl_2 cement water.

DATE 28.05.83

Ran, landed and cemented 30" casing. Made up 14 3/4" bit and 26" hole opener. RIH. Tagged cement at 453 m. Drilled cement and shoe. Cleaned out rat hole and drilled 26" hole to 471 m. Spotted 50 bbls havis pill. Circulated hole clean with seawater. POOH. Laid down hole opener. Rigged to run pin connector and marine riser.

Mixed 150 bbls of 3 % CaCl_2 cement mix water. Mixed 850 bbls new volume havis mud. (310 bbls water already in pit on previous report). Weighted up pit no. 4 to 1.35 SG as per instruction - total volume of 220 bbls. Transferred 140 bbls havis mud into sand traps.



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OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS ATKINSON

DATE 29.05.83

Ran and landed pin connector with marine riser. Made up new 8 1/2" bit and BHA. RIH to shoe. Tested diverter. Displaced hole to mud. Washed down to 471 m. Drilled 8 1/2" hole from 471 m to 554 m. Circulated bottoms up. Check trip. RIH - no fill. Cleaned hole. Displaced with 100 bbls of 1.35 SG mud. POOH. Rigged up and ran E-logs.

Mixed new volume of 320 bbls CMC (EHV) mud.

DATE 30.05.83

Finished E-logs. Laid down 8 1/2" BHA. Made up new 14 3/4" bit and BHA. RIH. Opened hole from 471 m to 554 m from 8 1/2" to 14 3/4". Drilled 14 3/4" hole from 554 m to 810 m. Circulated bottoms up. Check trip to shoe. RIH. 1/2 m fill. Circulated hole clean. Spotted 520 bbls of 1.35 SG. mud in hole. Dropped survey. POOH. Rigged up and ran E-logs.

Maintained mud weight below 1.15 SG with heavy dilution. Maintained vis with CMC (hivis). Weighted up total of 580 bbls of 1.35 SG mud. Mixed 250 bbls new volume 1.04 SG CMC (EHV) mud. Dumped and cleaned out sand traps.

DATE 31.05.83

Schlumberger unable to go past 730 m. RIH with 14 3/4" bit to shoe. Displaced to seawater. Observed well OK. RIH to bottom. Pumped seawater to displace 1.35 SG mud. Closed dump valve. Displaced hole with 1.13 SG mud to surface. POOH to shoe. Waited on building new 1.35 SG mud volume (4 1/2 hours). RIH to bottom - 5 m fill. Circulated hole clean - no gas. Displaced hole with 520 bbls of 1.35 SG mud. POOH to +450 m. Displaced casing and riser with seawater. Filled all pits with returns. Finished POOH. Rigged up a run Elogs. Rigged and pulled pin connector with marine riser.

Mixed 275 bbls new CMC (EHV) mud volume. Weighted up total of 550 bbls of 1.35 SG mud.



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OPERATOR A/S NORSKE SHELL

ENGINEERS ATKINSON/BLANCHARD

DATE 01.06.83

Pulled and landed pin connector with marine riser. Made up 20" casing hanger and cementing head. Made up 26" BHA. RIH. Cleaned out rat hole from 458 m to 468 m. Opened up 14 3/4" pilot hole from 468 m to 750 m. Pumped 25 bbls havis pills every second joint. Circulated 1 hour while waiting on pump repair.

Made up 200 bbls new CMC (EHV) volume. Mixed CMC (EHV) to give havis mud (100+) for pills to clean hole. Transferred 80 bbls sand traps to pit no. 1. Dumped remainder (60 bbls) and cleaned out sand traps. Checked all dump valves OK. Weighted up total of 1025 bbls mud to 1.35 SG.

DATE 02.06.83

Opened 14 3/4" pilot hole to 26" from 750 m to 810 m. Spotted 25 bbls pill every second joint. Spotted 25 bbls at TD. Circulated. Checked trip - no fill. Pumped 25 bbls pill. Chased with seawater. Check trip - no fill. Pumped 50 bbls pill. Chased with seawater. Displaced hole with 1080 bbls of 1.35 SG and POOH. Rigged up and ran 20" casing. Tight at 643 m. Circulated casing. Continued running and landed casing with shoe at 802 m. Cemented casing. Weighted up further 240 bbls mud to 1.35 SG to a total of 1265 bbls. Displaced hole with all pumpable volume (+1080 bbls). Dumped all remaining mud and cleaned out all pits. Mixed 150 bbls 2 % Calcium Chloride cement mix water.

DATE 03.06.83

Washed and cleaned well head area. Waited on weather prior to running BOP stack.

Ran stack and marine riser.

Mixed total of 1300 bbls of 1.29 SG KCl/Polymer mud.



WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS BLANCHARD

DATE 04.06.83

Tested BOP's.

Puller riser and BOP's due to labour dispute. Strike action taken. Ran corrosion cap.

Mixed 140 bbls new volume for transferring to fill sand traps.

DATE 05.06.83

Stop operation due to strike.

DATE 06.06.83

Operations stopped due to strike. Engineer sent off rig on standby.



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OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/1-12

OPERATOR A/S NORSKE SHELL

ENGINEERS ATKINSON

DATE 17.06.83

Strike action called off. Engineer to rig. Pull corrosion cap. Prepared to run BOP stack.

Checked all mud in pits. Generally 1 - 2 points loss of mud weight. (ie. 1.29 - 1.27 SG). Some suction valves difficult to close. Possible Barite settling. Weighted up mud to 1.28 SG again. Mud had been sheared while waiting on strike. Checked Thule unit - OK.

DATE 18.06.83

Ran and landed BOP stack and marine riser.

Tested BOP's. OK except for problem with blue pod. Attempted unlatch blue pod to carry out repairs. Pulled blue pod.

DATE 19.06.83

Repairs to blue pod. Rerun and latched onto BOP stack. Malfunction. Pulled pod again and carry out repairs.



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WELL NAME 31/2-12

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ENGINEERS ATKINSON

DATE 20.06.83

Reran and latched blue pod. Function test. Malfunction on upper annular. Pulled BOP stack and marine riser.

DATE 21.06.83

Finished pulling BOP stack. Carried out repairs to blue pod. Function test stack on surface.

DATE 22.06.83

Finished test stack on surface. Ran BOP stack and marine riser. Landed stack. Tested lines. Pulled wear bushing. Ran test plug. Tested BOP's.



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WELL NAME 31/2-12
OPERATOR A/S NORSKE SHELL

ENGINEERS ATKINSON

DATE 23.06.83

RIH with 17 1/2" bit. Drilled cement to shoe with seawater. Displaced to KCl mud. Drilled 17 1/2" hole to 815 m. Leak off test (equivalent break down at 1.54 SG). Drilled ahead from 815 m to 980 m. Circulated 1/2 hr. Wiper trip to shoe. Tight at 860 m to 870 m. Washed and reamed - no fill. Drilled ahead from 980 m to 1014 m.

Took on 440 bbls KCl brine. Mixed total new volume of 950 bbls mud.

Added reserve slowly to active as whole mud dilution to maintain mud weight at 1.30 SG max. and reduced MBT build up.

DATE 24.06.83

Continued drilling ahead from 1014 m to 1027 m. POOH for bit changed. Tight at 999 m. Reamed and POOH. Tight from 990 m to 858 m. Recovered survey (1^o). Max. overpull 125,000 bls. Finished POOH. Made up new bit. RIH - no fill. Drilled ahead 17 1/2" hole from 1026 m to 1348 m.

Continued treatment of system with whole mud dilution. Maintained alkalinity as per spec. Mixed Ancopol continuously while circulating. Dumped and cleaned out sand trap (40 bbls). Dumped gumbo box each time when full (approx. every 3 joints).

DATE 25.06.83

Circulated hole clean. POOH. Wiper trip. Tight at 1310 m. Circulated out 5 JTS. Continue POOH. Tight. RIH. Washed and reamed from 1312 m to 1348 m (3 m fill). Circulated hole clean (max. 60 % gas). Wiper trip. Tight at 1312 m. Washed same. Pulled 8 stands. RIH. Circulated bottoms up (max 4 % gas). POOH. No overpull. Ran Schlumberger logs. Made up new BHA with 9 1/2" monel. RIH. 10 m fill. Washed from 1338 m to 1345 m. Circulated hole clean (max. 7 % gas). Dropped. Multishot survey tool. POOH to run casing.

Dumped (20 bbls) pit no.4 and cleaned out.



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DATE 26.06.83

POOH to well head. Washed same. Finished POOH. RIH with test sub. Pulled wear bushing. Circulated well head clean. POOH. Rigged up and ran 13 3/8" casing. Landed same. Circulated 1000 bbls of 1.33 SG mud (bottoms up gas - 3 % max.). Chased with 300 bbls of 1.10 SG mud. Cemented casing. Displaced with 486 bbls seawater with full returns. Diluted 1.16 SG mud (pit no. 2) to 1.10 SG with seawater to give total 360 bbls in pit. Dumped and started cleaning out pit no. 1, pit no. 2 and sand traps after cementing.

DATE 27.06.83

Tested BOP's. Malfunction on yellow pod. Pulled pod and repaired. Ran and relatched pod.

While waiting on pod repaired. Made up 12 1/4" BHA and RIH. Circulated riser clean with seawater.

Took on 1310 bbls CaCl₂ Brine at 1.26 SG. Mixed chalk mud. Added 50 bbls drill water with 50 sxs CaCl₂ for extra required volume (due to boat pumping approx. 250 bbls brine overboard).

Concentrations of mix: 0.3 ppb Enorflo S, 1 ppb HEC, 5 ppb N-5 CaCO₃, 20 ppb N-15, 20 ppb N-40.

DATE 28.06.83

Function test pod - OK. Continued RIH with new 12 1/4" bit. Tagged cement at 1324 m. Drilled out cement with seawater from 1324 m to 1336 m. Pumped 40 bbls havis HEC pill (2 ppb). Circulated out same with seawater. Displaced hole to chalk mud. Drilled out shoe. Cleaned out rat hole. Drilled 12 1/4" from 1348 m to 1349 m. Circulated bottoms up. Leak off test (equivalent frac at 1.63 SG). Continued drilling 12 1/4" hole from 1349 m to 1366 m. Circulated bottoms up. POOH to core. Made up 9 m core barrel. RIH to 1366 m. Circulated 1/4 hr. Core from 1366 m to 1375 m. Worked barrel free from rat hole (100000 lbs overpull). POOH with core no. 1.

Mixed total 540 bbls new volume at 1.32 SG after taking on 520 bbls CaCl₂ brine at 1.22 SG.



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DATE 29.06.83	<p>Recovered core no. 1 (100 %). RIH with barrel. Cut and slipped drilling line. RIH to 1348 m. Washed and reamed to 1375 m. Circulated bottoms up. No gas. Cored from 1375 m to 1380 m. Core barrel jammed. POOH. Recovered core no. 2 (74 %). Stand back barrel. Made up 8 1/2" rock bit with junk sub. RIH. Reamed from 1366 m to 1380 m. Circulated and worked junk sub. POOH. Laid down bit. Made up core barrel. RIH. Cored from 1380 m to 1384 m. Core had H₂S type smell with drager tube confirmation (due to degradation of old mud down hole). Circulated bottoms up to check gas. None found - no H₂S. Treated for rheology and fluid loss control with combination Enorflo-S/HEC/Calcium Carbonate. Received Zinc Carbonate at request of Shell in town in case of H₂S.</p>
DATE 30.06.83	<p>Continued coring from 1384 m to 1389 m. POOH. Recovered core no. 3 (83 %). Made up new core head. RIH. Circulated bottoms up (no gas). Cut core from 1389 m to 1398 m. POOH. Recovered core no. 4 (100 %). RIH. Circulated bottoms up (no gas). Cored from 1398 m to 1405 m.</p>
DATE 01.07.83	<p>Cored from 1405 m to 1407 m. POOH. Recovered 100 % of core. RIH for core no. 6 and circulated bottoms up. Cored from 1407 m to 1416 m. POOH. Recovered 100 % of core. RIH and cored from 1416 m to 1424 m. POOH. Ran logs.</p>

closed



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DATE 26.06.83

POOH to well head. Washed same. Finished POOH. RIH with test sub. Pulled wear bushing. Circulated well head clean. POOH. Rigged up and ran 13 3/8" casing. Landed same. Circulated 1000 bbls of 1.33 SG mud (bottoms up gas - 3 % max.). Chased with 300 bbls of 1.10 SG mud. Cemented casing. Displaced with 486 bbls seawater with full returns. Diluted 1.16 SG mud (pit no. 2) to 1.10 SG with seawater to give total 360 bbls in pit. Dumped and started cleaning out pit no. 1, pit no. 2 and sand traps after cementing.

DATE 27.06.83

Tested BOP's. Malfunction on yellow pod. Pulled pod and repaired. Ran and relatched pod.

While waiting on pod repaired. Made up 12 1/4" BHA and RIH. Circulated riser clean with seawater.

Took on 1310 bbls CaCl₂ Brine at 1.26 SG. Mixed chalk mud. Added 50 bbls drill water with 50 sxs CaCl₂ for extra required volume (due to boat pumping approx. 250 bbls brine overboard).

Concentrations of mix: 0.3 ppb Enorflo S, 1 ppb HEC, 5 ppb N-5 CaCO₃, 20 ppb N-15, 20 ppb N-40.

DATE 28.06.83

Function test pod - OK. Continued RIH with new 12 1/4" bit. Tagged cement at 1324 m. Drilled out cement with seawater from 1324 m to 1336 m. Pumped 40 bbls havis HEC pill (2 ppb). Circulated out same with seawater. Displaced hole to chalk mud. Drilled out shoe. Cleaned out rat hole. Drilled 12 1/4" from 1348 m to 1349 m. Circulated bottoms up. Leak off test (equivalent frac at 1.63 SG). Continued drilling 12 1/4" hole from 1349 m to 1366 m. Circulated bottoms up. POOH to core. Made up 9 m core barrel. RIH to 1366 m. Circulated 1/4 hr. Core from 1366 m to 1375 m. Worked barrel free from rat hole (100000 lbs overpull). POOH with core no. 1.

Mixed total 540 bbls new volume at 1.32 SG after taking on 520 bbls CaCl₂ brine at 1.22 SG.



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DAILY SUMMARY REPORT

WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS ATKINSON

DATE 29.06.83

Recovered core no. 1 (100 %). RIH with barrel. Cut and slipped drilling line. RIH to 1348 m. Washed and reamed to 1375 m. Circulated bottoms up. No gas. Cored from 1375 m to 1380 m. Cored jammed. POOH. Recovered core no. 2 (74 %). Stand back barrel. Made up 8 1/2" rock bit with junk sub. RIH. Reamed from 1366 m to 1380 m. Circulated and worked junk sub. POOH. Laid down bit. Made up core barrel. RIH. Cored from 1380 m to 1384 m. Core had H₂S type smell with drager tube confirmation (due to degradation of old mud down hole). Circulated bottoms up to check gas. None found - no H₂S. Treated for rheology and fluid loss control with combination Enorflo-S/HEC/Calcium Carbonate. Received Zinc Carbonate at request of Shell in town in case of H₂S.

DATE 30.06.83

Continued coring from 1384 m to 1389 m. POOH. Recovered core no. 3 (83 %). Made up new core head. RIH. Circulated bottoms up (no gas). Cut core from 1389 m to 1398 m. POOH. Recovered core no. 4 (100 %). RIH. Circulated bottoms up (no gas). Cored from 1398 m to 1405 m.

DATE 01.07.83

Cored from 1405 m to 1407 m. POOH. Recovered 100 % of core. RIH for core no. 6 and circulated bottoms up. Cored from 1407 m to 1416 m. POOH. Recovered 100 % of core. RIH and cored from 1416 m to 1424 m. POOH. Ran logs.



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ENGINEERS BLANCHARD

DATE 02.07.83

Ran logs.

DATE 03.07.83

RIH and reamed 8 1/2" hole to 12 1/4" from 1366 m to 1419 m. POOH and changed bit. RIH and reamed from 1419 m to 1424 m. Reamed from 1424 m to 1427 m. Circulated bottoms up and POOH to well head. Washed well head. POOH.

DATE 04.07.83

Ran and cemented 9 5/8" casing. Worked on Elmagco brake. Reduce all surface volume to 1.27 SG. Dumped and cleaned sand traps.



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DATE 05.07.83

Worked on Elmagco brake. RIH with 8 1/2" bit. Tagged top of cement at 1392.5 m. Drilled cement to 1404 m. Displaced mud system to 1.27 SG mud while drilling cement. Circulated hole clean.

Took 1.31 SG mud into pit no. 2 when displacing to 1.27 SG.

DATE 06.07.83

Pulled out to 9 5/8" casing shoe. Circulated bottoms up and POOH. RIH with junk basket. Circulated and POOH. Made up core barrel and ran in hole. Cut core no. 8 from 1427 m to 1436 m. POOH. Mixed 950 bbls of new 1.27 chalk mud. Dumped 350 bbls of active system.

DATE 07.07.83

Recovered core no. 8. RIH to cut core no. 9. Washed and reamed from 1433 m to 1436 m. Cored from 1436 m to 1449 m. POOH. RIH to cut core no. 10. Circulated bottoms up. Cut core from 1449 m to 1458.5 m. Pulled to shoe. Made rig repair. POOH with core no. 10. Dumped and cleaned sand traps.



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DATE 08.07.83

Recovered core no. 10. Ran logs. RIH to 1445 m with new BHA. Displaced hole with new chalk mud. POOH. Tested under-reaming assembly. RIH with 16" under-reamer. Reamed from 1430 m to 1433.5 m.

350 bbls of active system dumped in order to build new mud system.

DATE 09.07.83

Ran under-reamer to 1433 m. POOH due to slow progress. RIH. Reamed from 1428 m to 1428.5 m. Generator failure. Under-reamed from 1428.5 m to 1430 m and from 1439 m to 1443.5 m. POOH. Pulled wear bushing and tested BOP's. RIH with wearbushing.

DATE 10.07.83

Set wear bushing. RIH to 1433 m and under-reamed to 1439 m. Under-reamed from 1443 m to 1446 m. POOH. Function test new under-reamer. RIH. Under-reamed hole to 15" from 1446 m to 1452 m TD. Pulled back and under-reamed from 1433 to 1436 m. POOH. Assemble A/Z reamer.



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DATE 11.07.83

Under-reamed 8 1/2" hole to 15" from 1436" m to 1439 m. Washed and reamed to bottom 1452 m. Circulated havis pill (100+) around hole. POOH. Lost 1 cone in hole. Ran logs. Ran Circulating basket for junk in hole. POOH. Cleaned basket. Reran basket in hole.

DATE 12.07.83

RIH and tagged bottom at 1456 m. Worked basket (reversed circulating) to 1456 m. POOH with missing cone. Function test reamer and RIH to 1435 m. Reamed section from 1445 m to 1452 m (16" hole). Circulated for 20 minutes. Pulled back and under-reamed section from 1433 m to 1437 m. Circulated and cleaned hole. POOH to shoe. Unable to pull past 9 5/8" shoe at 1424 m. Circulated out and worked pipe free. POOH. 1 cone and 1 arm missing. Ran caliper log. RIH with reverse basket.

DATE 13.07.83

Engineer released from rig.



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ENGINEERS ATKINSON

DATE 19.07.83

Engineer returned to rig at 1400 hrs.

Continued circulating through fish. Monitor returns via trip tank and slug pit. POOH with fish (3 1/2" DP). Pumped out with kelly. Laid out BHA. Safety joint broken. Production screen left in hole. Made up washover assembly and RIH. Tagged top of fish at 1386 m. Washed to bottom. Circulated clean. POOH.

Mixed total volume 300 bbls new chalk mud at 1.27 SG (from 1.21 SG CaCl₂ brine).

DATE 20.07.83

Laid out washover assembly. Made up spear assembly. RIH to 1376 m. Broke circulation. Engaged fish at 1386 m. Pulled fish free with 10000 lbs overpull. Flow check. Slug pipe. POOH. Laid out spear and fish. Rigged up Schlumberger. Ran logs - OK. Pulled wear pushing. Ran test plug. Tested variable rams. OK. Back off test plug. Pulled 6 stands. Tested variable rams OK. Back off test plug. Pulled 6 stands. Tested shear rams to 4000 psi - OK. RIH. Attempted engaged test plug again.

DATE 21.07.83

Finished test BOP's. Set wear bushing. Made up scraper assembly and picked up 3 1/2" DP as RIH. Scraped casing at 1372 m. RIH to TD 1456 m. Pumped 50 bbls havis chalk mud pill. Circulated hole clean. Pumped 70 bbls havis brine with Dowell. Displaced with chalk mud to bottom. Flow check - OK. POOH to 1375 m. Displaced hole with brine. Used Dowell. Tank chalk mud returns to fill pits no. 1 and 2. Flow checked - OK. Started POOH.

Dumped excess returns when displacing hole to brine via gumbo box. Dumped and cleaned out pit no. 3. slug pit. Started cleaning out sand traps.



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ENGINEERS ATKINSON/BLANCHARD

DATE 22.07.83	<p>Continued POOH. Flow check every 10 stands. Laid out scraper assembly. RIH with 8 1/2" bit. Tagged bottom at 1453 m - 3 m fill. POOH to shoe. Waited on cleaning out pit (dumped chalk mud) no. 4. RIH. Washed out fill to TD 1436 m. Pumped 25 bbls havis brine pill. Circulated. Pumped 25 bbl havis pill. Circulated out again to clean hole. Pumped 70 bbls havis brine. Spotted on bottom. Flow checked. POOH to 1400 m. Circulated 2 circulations with "Dirty" brine. Pumped 50 bbls brine and 2000 gals acid +50 bbls brine +50 bbls havis brine. Displaced hole with "clean" brine, dump pit no. 4 and cleaned out pit, ditches, gumbo box and shaker area. Dumped returns of dirty brine. Transferred new "clean" brine to pit no. 3 (mixed 325 bbls) to pit no. 4 and took into circulation when other clean brine circulated out (after dumping acid</p>
DATE	and havis)]. Circulated hole and filter brine with Dowell while waiting on Bentonite with 1080 bbls new clean filtered brine.
DATE	23.07.83 <p>Finished displacing hole to clean filtered brine from boat. Flow checked. POOH. Made up gravel pack assembly. RIH slowly. Tagged bottom at 1456 m. Pressure test surface Lines to 3000 psi. OK. Circulated with Dowell. Dropped ball. Set packer. Carried out gravel packing operations.</p> <p>Engineer released from rig.</p> <p>31.7.83 Engineer back on rig. Mixed 350 bbls of chalk mud in pit no. 3. Prepared to shut and kill well after testing.</p>
DATE 01.08.83	Tested, changed shaker screens to $\frac{10S}{60B}$



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ENGINEERS BLANCHARD

DATE 02.08.83

Flowed well through choke. Tested. Shut in well and bull head tubing content with 1.27 SG brine. Tested surface lines. Reversed circulated with 1.27 SG chalk mud to kill well.

DATE 03.08.83

Displaced riser to mud and observed well. Circulated mud all around. Rigged down surface lines. POOH with test string. Mixed 264 bbls of fresh chalk mud. High fluid loss in mud due to new mud added to system and lack of drill solids.

DATE 04.08.83

Ran logs. Ran in hole to retrieved packer. Circulated mud all around at 1357 m and 1.27 SG weight. POOH with packer assembly. Made up 8 1/2" wash pipe and ran in hole to 1348 m.



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OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS BLANCHARD

DATE 05.08.83

Washed over from 1386 m to 1452 m. Circulated out gas. Wash over from 1452 m to 1456 m. Circulated mud. Flow check. POOH. RIH with 8 1/2" overshot. Pulled liner free. POOH. Made up 8 1/2" bit and junk subs. RIH.

DATE 06.08.83

Washed from 1458 m to 1460 m. Pumped havis pill (100+ sec/qt.) and circulated out. POOH with junk baskets. RIH with reverse circulating basket to 1461 m. Worked basket. POOH. RIH with 8 1/2" drill bit. Drilled to 1568 m.

DATE 07.08.83

Drilled 8 1/2" hole from 1568 m to 1615 m. Circulated bottoms up. Dropped survey and ran wiper trip to shoe. RIH and circulated hole clean at 1615 m. POOH and ran logs.



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS BLANCHARD

DATE 08.08.83

Ran logs.

DATE 09.08.83

Ran logs. Rigged down. RIH with cement stinger on 5" DP. Tagged bottom at 1615 m. Circulated mud and pumped cement plug. Displaced plug and pulled to 1375 m. Reverse circulated and pumped down 5 bbls of cement. POOH. RIH with scraper and bit. Tagged top of cement at 1403 m. Drilled to 1421 m. Circulated hole clean.

DATE 10.08.83

Circulated hole clean. Set cement plug. Dressed top of cement. Unable to pressure test. POOH. RIH and set cement plug no. 2 and squeezed 2 bbls of mud at 500 psi for 1/2 hour. POOH. RIH and drilled cement to 1421 m. Circulated hole clean from 1400 to 1420 m. High fluid loss due to high pH while drilling cement. 50 bbls from slug pit dumped.



ANCHOR DRILLING FLUIDS AS

OSLO — STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS BLANCHARD

DATE 11.08.83

Circulated hole clean. Unable to get pressure test on cement plug no. 2. POOH. Ran junk catcher. Ring gauge and bridge plug. Rigged down and ran RTTS packer at 1421 m. Established circulation and set packer at 1405 m. Pressure test surface lines and ran in flow test for 1 hour with diesel (34.5 bbls) in string. Reversed out diesel. POOH with RTTS packer RIH to retrieve wear bushing.

DATE 12.08.83

Ran BOP test. Tested kelly. RIH to 1413 m. Tagged bridge plug at 1419 m. Displaced hole with seawater. Dumped sand traps and 465 bbls of mud. Cleaned all lines. Dumped 650 bbls of brine. Pressure test surface lines. Pumped acid. Seawater and viscous pill.

Weighted up pits no. 1 and no. 2 to 1.32 SG with CaCl₂ sxs.

DATE 13.08.83

Circulated hole clean with seawater. Displaced with CaCl₂ brine (1.32 SG). Circulated brine through filters.



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS BLANCHARD/ATKINSON

DATE 14.08.83

Ran test tools to prepare for testing. Raised reserve chalk mud viscosity in pits no. 1 and no. 2 to >60 sec.

Raised viscosity on chalk mud in pits no. 1 and no. 2 to 60+ secs.

DATE 15.08.83

Ran logs prior to testing for perforating. Rigged up test tools for test.

DATE 16.08.83

Displaced brine in tubing with 40 bbls diesel (diff pressure 900 psi). Perforated casing from 1385 m to 1405 m. Flowed well through variable choke. Shut well in and monitor pressure build up. POOH with detonating bar. Attempt to kill well by bull head with Dowell. Not dead. Reopened and flowed well. Attempted bull head. Well flowed again. Pumped havis brine on bottom (with CaCO_3). Reverse out with gas. Killed well.

Unseat packer prior to POOH.

WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS ATKINSON

DATE 17.08.83

Circulated 270 bbls down tubing. Lost 30 bbls to formation. Hole dead. Stopped circulation. Lost 27 bbls in 2 hrs on trip tank. Spotted 25 bbls havis CaCO₃ pill on bottom. Observed well. Lost 7 bbls/2 hrs then minimal losses. Rigged up and pulled 4 1/2" tubing and laid down EZ tree. RIH with 3 1/2" DP. Landed EZ hanger in wellhead. Spotted 10 bbls havis brine on bottom. Circulated hole/riser to clean brine. No further sign of losses to formation. Flow check every 1/2 hr. POOH with test string. Lost 21 m fish in hole (geovann gun etc.)

DATE 18.08.83

Made up fishing assembly. RIH. Tagged fish at 1387 m. Engaged fish. Overpulled 25000 lbs to release. POOH. Recovered fish. RIH with 2 7/8" stinger on 3 1/2" DP. Tagged top of fill at 1417 m. Pulled to 1380 m. Circulated brine to clean out sand from hole. POOH. Ran Schlumberger GR/CCL log. Made up gravel pack assembly.

DATE 19.08.83

RIH slowly with gravel pack assembly. Rigged up circulation head. Circulated hole content (700 bbls) with clean brine with Dowell at 2 bbls/min. Dropped ball. Set packer. Checked with 20000 lbs overpull at 500 psi on annulus. Space out string. Pumped gravel pack as per program. Pulled pipe out of GP assembly. Observed well 1/2 hr. Pumped 20 bbls havis brine and displaced out of DP. Flow check. POOH.



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

DAILY SUMMARY REPORT

WELL NAME 31/2-12

OPERATOR A/S NORSKE SHELL

ENGINEERS ATKINSON

DATE 20.08.83

Laid down gravel pack assembly. Made up production test string assembly. RIH on 7" tubing space out.

DATE 21.08.83

Prepared for 2nd production test.
Mud engineer released from rig.

DATE

Mud engineer onboard from 31.08.83 to 06.09.83 while the well was plugged and abandoned.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-12

36" HOLE/ 30" CASING INTERVAL

The well was spudded at 2300 hrs 26.5.83 using a 26" bit with 36" hole opener and with seawater plus havis pills made from CMC (extra havis) for hole cleaning.

The 36" hole was drilled from 359 m to 468 m with surveys. Spotted 250 bbls havis mud in hole for a check trip. Then after circulating hole clean the hole was displaced with 800 bbls of havis mud (hole volume +80 %) prior to POOH.

30" casing was run and cemented with no problems. Shoe was at 458 m.

A 14 3/4" bit with 26" hole opener was then run to drill out cement, shoe and new hole to 471 m.

Total of 3160 bbls havis mud mixed during this section.

NOTE: A mix of 5 ppb of CMC (extra havis) gave a YP of 45.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-12

26" HOLE/ 20" CASING INTERVAL

(8 1/2" and 14 3/4" pilot hole)

After running the pin connector and marine riser an 8 1/2" bit and BHA was run and the hole displaced to CMC (extra havis) mud. A pilot hole was drilled to 554 m. Due to suspected gas zone logs were run, but no gas found. A second pilot hole of 14 3/4" was then drilled to 810 m. After a check trip the hole was displaced with 520 bbls of 1.35 SG mud prior to POOH to log.

The mud system used was maintained below a weight of 1.15 SG with heavy dilution and a viscosity maintained at +70 with CMC hvivis.

Schlumberger was unable to pass 730 m and a clean out trip was made. The well was displaced to seawater and the 1.35 SG mud circulated out through riser dump valve due to possibility of losses at casing shoe. Observed well - no flow - then displaced to 1.13 SG mud again and circulated round with no gas. After mixing 550 bbls new 1.35 SG mud the well was displaced with this and logging commenced again with no problems. Again no gas was found so the pin connector and marine riser were pulled prior to a 26" bit run to open the hole with seawater and havis pills for cleaning.

After two check trips and no drag the hole was displaced with 1080 bbls of 1.35 SG mud. The 20" casing was then run and cemented with shoe at 802 m.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-12

~~17 1/2" HOLE/~~ ~~13 3/8" CASING INTERVAL~~

After cementing 20" casing all remaining mud was dumped and all pits and lines cleaned out ready to take on KCl brine from the boat.

A total mix of 1300 bbls of KCl/Polymer of 1.2 SG was made initially and then after transferring 140 bbls to the sand traps a further 140 bbls was mixed in the pit.

The BOP stack and marine riser were run and testing of BOP's commenced. At this point all operations were shut down due to the calling of a strike by the union, so the stack was pulled and a corrosion cap run to secure the well. A total of 14 days were then lost while waiting on an end to the dispute.

The mud engineer was on standby 6.6.83 and on returning to the rig on 17.6.83 a check of the mud showed a loss of 1 to 1 1/2 points in mud weight in pits. More barite was used to bring mud weight to 1.28 SG.

After again running and testing BOP's repairs were necessary to the blue pod which meant a further time loss of 4 days.

Seawater was used for drilling cement and shoe and then the hole was displaced to KCl/polymer mud at 1.28 SG. After drilling to 815 m a leak off test was taken giving equivalent break down at 1.54 SG.

Drilling continued to 980 m where a wiper trip was made, then drilled to 1027 m where a bit change was made. After this the hole was drilled straight to casing point of 1348 m with no further wiper trips. It was then necessary to make 2 check trips due to severe overpull and pumping out of hole was necessary. (Gas was circulated out with a maximum of 60 % after swabbing occurred on first check trip).

For drilling the section a further 950 bls was mixed and added to system as whole mud dilution treatment to maintain MBT below 25 ppb. Also Ancopol was added continuously (at approx. 1 can per hour) to maintain a polymer excess for coating of cuttings. Good inhibition was obtained with a K⁺ concentration of +40 ppb and regular dumping of the gumbo box was made as cuttings filled it.

cont'd

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-12

17 1/2" HOLE/ 13 3/8" CASING INTERVAL cont'd

The mud weight rose during the section to a maximum of 1.33+ SG

Schlumberger logs were then run with no problems and a clean out trip was made running with a 9 1/2" monel to enable multishots survey to be carried out while POOH.

After POOH the 13 3/8" casing was run and landed with the shoe at 1338 m and then 1000 bbls of 1.33+ SG was circulated followed by 300 bbls of 1.10 SG (max. gas at bottoms up was 3 %). The casing was then cemented and displacement carried out with seawater with full returns obtained throughout.

All surface mud was then dumped, pits and sand trap cleaned out ready for mixing the new chalk mud for 12 1/4" section.

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-12

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

The 12 1/4" section of hole was drilled with a non damaging chalk mud of 1.32 SG CaCl₂ brine/CaCl₂/HEC/Enerflo S system). To drill out the 13 3/8" casing shoe 1410 bbls of mud was mixed and displaced after drilling cement with seawater from 1324 m to 1336 m. A leak off test was run (1.36 SG) and the 12 1/4" hole was drilled to 1366 m. Core no. 1 was cut from 1366 m to 1375 m with 100 % recovery. At this point 540 bbls of new CaCl₂ mud was mixed. Core no. 2 was cut from 1375 m to 1380 m after which the barrel jammed. The hole was then reamed from 1366 m to 1380 m with an 8 1/2" bit. Core no. 3 was then cut from 1380 m to 1389 m with 83 % recovery. After circulating bottoms up core no. 4 was cut from 1389 m to 1398 m with 100 % recovery. Core no. 5 was cut from 1398 m to 1407 m with 100 % recovery. Core no. 6 was cut from 1407 m to 1424 m after which logs were run. The 8 1/2" cored section was then reamed to 12 1/4" from 1366 m to 1419 m. A bit change was made and the hole was reamed to 1427 m and bottoms up was circulated in order to run and cement 9 5/8" casing. After cementation all surface volume was reduced to a mud weight of 1.27 SG.

SUMMARY OF EVENTS

OPERATOR: 31/2-12

WELL NO. A/S NORSKE SHELL

8 1/2" HOLE/ _____ CASING INTERVAL

Cement was drilled from 1392.5 to 1404 m while displacing system to 1.27 SG chalk mud and then circulating the hole clean. Drilled the shoe and then ran in the hole with junk basket and circulated. Pulled out and made up core barrel. Cut core no. 8 from 1427 m to 1436 m. Cut core no. 9 from 1436 m to 1449 m. Cut core no. 10 from 1449 m to 1458.5 m.

Logs were then run after which a new assembly was made up and RIH to 1458 m and hole was displaced with new 1.27 SG chalk mud.

A 16" under-reamer was then run and the section from 1433 m to 1452 m under-reamed. After problems with arms and slow progress made (2 1/2 days to under-ream) logs were run. A reverse circulating junk basket was run since one under-reamer cone was left in the hole previously. Worked basket and retrieved cone.

A new under-reamer was run to under-ream section again since logs were under gauge. This time an arm and a cone were lost and an another reverse circulating basket run to retrieve junk. Then another log run was made which was acceptable.

The mud engineer was then released from the rig as the program called for a gravel pack assembly and a production test with 1.27 SG CaCl₂ brine in the hole after displacing the 1.27 SG chalk mud.

While attempting to set a packer in the hole prior to the production test the hole was swabbed and a kick taken, requiring eventual use of shear rams to part the string and control the well which was killed with 1.27 SG chalk mud. Retrieval of the fish was then carried out at which point the mud engineer was requested to return to the rig.

A BGT log was run and found to be satisfactory. The BOP's were tested fully and found to be OK so that the 3 1/2" DP was run with a casing scraper, and after circulating the hole clean it was displaced to 1.27 SG brine at 1375 m, retrieving as much chalk mud as possible.

cont'd

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-12

~~8 1/2"~~ HOLE/ _____ CASING INTERVAL cont'd

After POOH with scraper, an 8 1/2" bit was run and 3 m fill found which was washed out and hole circulated "clean" at TD of 1456 m.

The hole was displaced with "clean" brine at 1.27 SG after circulating two circulations with "dirty" brine to clean the hole. The gravel pack assembly was then run and packer set prior to carrying out the first production test. The mud engineer was released from the rig at this point and returned when the well was to be killed with 1.27 SG chalk mud after completion of production test.

The gravel pack assembly was retrieved and a junk basket run to retrieve as much junk as possible.

An 8 1/2" rock bit was then run and hole drilled to TD of 1615 m. After a wiper trip and cleaning the hole had been carried out the bit was POOH and logs were run. A total of approx. 610 bbls new chalk mud at 1.27 SG was mixed for the section.

After logging a cement plug was set from TD to 1403 m (above shoe at 1424 m). Cement was drilled to 1453 m and a second cement plug set and drilled out to 1421 m, but unable to get pressure test. A bridge plug was then set at 1419 m and an RTTS packer run and set at 1405 m after establishing circulation.

A BOP test was then carried out after which the hole was circulated clean with seawater and then displaced to 1.32 SG brine which was circulated and filtered.

A flow test was carried out with diesel in the string after perforating 9 5/8" casing at 1385 m to 1405 m. Another day was then spent attempting to kill the well after flow testing.

Losses were then encountered and havis brine and carbonate pills pumped until losses stopped.

On POOH with test string, 21 m of string was found to be left in the hole and a fishing trip was necessary to recover this. A clean out trip was then carried out.

cont'd

SUMMARY OF EVENTS

OPERATOR: A/S NORSKE SHELL

WELL NO. 31/2-12

~~8 1/2~~ HOLE/ _____ CASING INTERVAL cont'd

The second production test was then carried out. The mud engineer was back on the rig the 31st August, and stayed for 7 days until the well was plugged and abandoned.

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-12

MATERIAL CONSUMPTION & COST ANALYSIS

36"	HOLE DRILLED TO	468	Meters Feet	30"	CASING SET AT	458	Meters Feet
ACTUAL AMOUNT OF HOLE DRILLED		109	Meters Feet	DAYS ON INTERVAL		3	
DRILLING FLUID SYSTEM							
SPUD MUD (CMC (EXTRA HVIS))							

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US\$ COST
CMC (EXTRA HVIS)	25 KG	127	286	+ 159	20,592.00
CALCIUM CARBONATE	50 KG	0	32	+ 32	1,024.00

COST/DAY	US\$ 7,205.33	TOTAL COST FOR INTERVAL	US\$ 21,616.00
COST/Mt. or Ft.	US\$ 198.31	PROG. COST FOR INTERVAL	US\$ 9,144.00
ENGR. COST	US\$ 1,485.00	COST VARIANCE FOR INTERVAL	US\$ 12,472

OPERATOR

A/S NORSKE SHELL

WELL NO.

31/2-12

MATERIAL CONSUMPTION & COST ANALYSIS

(8 1/2" + 14 3/4" PILOT HOLE)

26" HOLE DRILLED TO 810 ~~Meters~~ ~~XXXX~~ 20" CASING SET AT 802 ~~Meters~~ ~~XXXX~~

ACTUAL AMOUNT OF HOLE DRILLED 342 ~~Meters~~ ~~XXXX~~ DAYS ON INTERVAL 5

DRILLING FLUID SYSTEM CMC (EXTRA HIVIS)

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	COST
CMC (EXTRA HIVIS)	25 KG	227	88	- 139	6,336.00
CMC (HIVIS)	25 KG	0	53	+ 53	3,551.00
BARITE	M/T	0	120	+ 106	16,440.00
DEFOAMER	20 L	0	1	+ 1	70.00
CALCIUM CHLORIDE	50 KG	0	24	+ 24	768.00

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

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-12

MATERIAL CONSUMPTION & COST ANALYSIS

17 1/2" HOLE DRILLED TO 1348 ^{Meters}~~Feet~~ 13 3/8" CASING SET AT 1338 ^{Meters}~~Feet~~

ACTUAL AMOUNT OF HOLE DRILLED 538 ^{Meters}~~Feet~~ DAYS ON INTERVAL 14

DRILLING FLUID SYSTEM KCl/POLYMER

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US\$ COST
BARITE	M/T	160	117	- 43	16,029.00
KCl (BRINE)	BBLS	1000	1100	+ 100	22,680.00
KCl (SXS)	50 KG	200	150	- 50	2,955.00
CAUSTIC SODA	25 KG	80	36	- 44	720.00
SODA ASH	50 KG	35	64	+ 29	1,280.00
LF-5	25 KG	150	139	- 11	7,228.00
CMC (LOVIS)	25 KG	75	69	- 6	4,485.00
DRISPAC REG	50 LBS	80	57	- 12	8,778.00
ANCOPOL	25 KG	70	40	- 30	5,920.00
DRILLING DETERGENT	200 LIT	15	0	- 15	-

COST/DAY US\$ 5,005.36 TOTAL COST FOR INTERVAL US\$ 70,075.00

COST/Mt. ~~XXX~~ US\$ 130.25 PROG. COST FOR INTERVAL US\$ 89,382.90

ENGR. COST US\$ 6,930.00 COST VARIANCE FOR INTERVAL US\$ -19,307.90

OPERATOR A/S NORSKE SHELL

WELL NO 31/2-12

MATERIAL CONSUMPTION & COST ANALYSIS

12 1/4" HOLE DRILLED TO 1427 ~~Meters~~ ~~XXXX~~ 9 5/8" CASING SET AT 1424 ~~Meters~~ ~~XXXX~~

ACTUAL AMOUNT OF HOLE DRILLED 76 ~~Meters~~ ~~XXXX~~ DAYS ON INTERVAL 8

DRILLING FLUID SYSTEM NON DAMAGING CHALK

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US\$ COST
CaCl ₂ BRINE	BBLS	2475	1830	- 645	63,591.80
CaCO ₃	50 KG	630	1201	+ 571	9,608.00
CaCl ₂ 95-98% Pure	50 KG	-	165	+ 165	5,280.00
HEC	25 KG	50	49	- 1	13,313.07
ENOREFLO S	55 GAL/DR.	-	23	+ 23	3,358.00
DEFOAMER (CANS)	20 LIT	-	5	+ 5	350.00
ATTAPULGITE	25 KG	-	8	+ 8	73.60

COST/DAY US\$ 11,946.80 TOTAL COST FOR INTERVAL US\$ 95,574.47

COST/Mt. of ~~XXXX~~ US\$ 1,257.56 PROG. COST FOR INTERVAL US\$ 102,394.75

ENGR. COST US\$ 3,960.00 COST VARIANCE FOR INTERVAL US\$ -6,820.28

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-12

MATERIAL CONSUMPTION & COST ANALYSIS

8 1/2" HOLE DRILLED TO 1615 Meters FEET CASING SET AT - Meters Feet

ACTUAL AMOUNT OF HOLE DRILLED 188 Meters FEET DAYS ON INTERVAL 22

DRILLING FLUID SYSTEM NON DAMAGING CHALK

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US\$ COST
CaCl BRINE	BBLS	1710	1954	+ 244	62,528.00
ENORFLO S	55 GAL/DR	-	19	+ 19	2,774.00
CaCO ₃	50 KG	577	1940	+1363	15,520.00
HEC	25 KG	45	79	+ 34	21,464.30
DEFOAMER (CANS)	20 L	-	16	+ 16	1,120.00
CaCl ₂ (pure)	50 KG	-	350	+ 350	11,200.00
CAUSTIC	25 KG	2	-	- 2	

COST/DAY US\$ 5,209.38 TOTAL COST FOR INTERVAL US\$ 114,606.30 *

COST/Mt. ~~XXXX~~ US\$ 609.61 PROG. COST FOR INTERVAL US\$ 75,582.25

ENGR. COST US\$ 10,890.00 COST VARIANCE FOR INTERVAL US\$ +39,024.05

* TOTAL COST FOR THIS SECTION INCLUDES TEST NO. 1

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-12

MATERIAL CONSUMPTION & COST ANALYSIS

PRODUCTION TEST ZONES NO.2(INSIDE 9 5/8" CASING)

HOLE DRILLED TO Meters Feet CASING SET AT Meters Feet

ACTUAL AMOUNT OF HOLE DRILLED Meters Feet DAYS ON INTERVAL

DRILLING FLUID SYSTEM

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US\$ COST
CaCO ₃	50 KG		176	+ 176	1,408.00
HEC	25 KG		6	+ 6	1,630.20
CaCl ₂ (sx - pure)	50 KG		297	+ 297	9,504.00

COST/DAY TOTAL COST FOR INTERVAL

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

ENGR. COST COST VARIANCE FOR INTERVAL

OPERATOR A/S NORSKE SHELL

WELL NO. 31/2-12

TOTAL CONSUMPTION & COST ANALYSIS

TOTAL DEPTH 1615 Meters ~~XXXX~~ TOTAL HOLE DRILLED 1256 Meters ~~XXXX~~

TOTAL DAYS 64

MATERIAL	UNIT SIZE	PROG.	USED	VARIANCE ±	US\$ COST
BARITE	M/T	160	237	+ 77	32,469.00
CMC EXTRA HIVIS	25 KG	354	374	+ 20	26,928.00
CMC HIVIS	25 KG	-	53	+ 53	3,551.00
KCl BRINE	BBLs	1000	1100	+ 100	22,680.00
KCl (SXS)	50 KG	200	150	- 50	2,955.00
CAUSTIC	25 KG	84	36	- 48	720.00
SODA ASH	50 KG	35	64	+ 29	1,280.00
LF-5	25 KG	150	139	- 11	7,228.00
CMC (LOVIS)	25 KG	75	69	- 6	4,485.00
DRISPAC REG	50 LBS	80	57	- 23	8,778.00
ANCOPOL (CAN)	25 KG	70	40	- 30	5,920.00
DRILLING DETERGENT	200 L	15	0	- 15	-
CaCl ₂ BRINE	BBLs	-	3784	+ 3784	126,119.57
CaCl ₂ (sx - pure)	50 KG	4185	868	- 3317	27,776.00
CALCIUM CARBONATE	50 KG	1207	3317	+ 2110	26,536.00
HEC	25 KG	95	134	+ 39	36,407.80
ENORFLO S (DR)	55 GAL	-	42	+ 42	6,132.00
DEFOAMER (CANS)	20 LIT	-	22	+ 22	1,540.00
ATTAPULGITE	25 KG	-	8	+ 8	73.60

COST/DAY US\$ 5,337.17 TOTAL COST FOR INTERVAL US\$ 341,578.97

COST/Mt. ~~XXXX~~ US\$ 271.96 PROG. COST FOR INTERVAL US\$ 292,847.90

ENGR. COST US\$ 31,680.00 COST VARIANCE FOR INTERVAL US\$ 48,731.07



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

Drilling Mud Properties Record
MUD SYSTEM SPUD MUD/KCL/POLYMER

WELL NAME 31/2-12 AREA NORTH SEA
OPERATOR A/S NORSKE SHELL RIG BORGNY DOLPHIN
ENGINEERS ATKINSON/BLANCHARD

Day No.	DATE	DEPTH FEET <input type="checkbox"/> METERS <input type="checkbox"/>	SCG	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			BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS		
					sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq ft.						X 1000	Ca. ++ ppm	Pf	% OIL	% SOLIDS	% SAND							OPRR.	
1	26/ 5	360	1.04	100																							
2	27/ 5	468	1.04	100																							
3	28/ 5	471	1.04	100																							
4	29/ 5	554	1.04	87					10.5	1		9.0	22														
5	30/ 5	810	1.12	70																							
6	31/ 5	810	1.13	70																							
7	1/ 6	750	1.13	100																							
8	2/ 6	810																									
9	3/ 6	810	1.29	58	36.5	25.0	23.0	2	6.0	1	11.0	80	350	.70													
10	4/ 6	810	1.29	57	36.5	25.0	23.0	2	5.6	1		80	350	.70													
11	5/ 6	810	1.29	57	41.0	27.0	27.0	3	5.5	1	11.6	30	350	.70													
12	6/ 6	810	1.29	57	41.0	27.0	27.0	3	5.5	1	11.0	80	300	.70													
13	17/ 6	810	1.28	54	39.0	27.0	24.0	2	5.5	1	11.0	78	220	.70													
14	18/ 6	810	1.28	54	39.0	27.0	24.0	1	5.5	1	11.0	78	220	.70													
REMARKS																											



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

Drilling Mud Properties Record

MUD SYSTEM KCL/POLYMER

WELL NAME 31/2-12 AREA NORTH SEA
 OPERATOR A/S NORSKE SHELL RIG BORGNY DOLPHIN
 ENGINEERS ATKINSON

Day No.	DATE	DEPTH METER	DENSITY		VISCOSITY	GELS	FLUID LOSS 30 Min cc's	CAKE 32 nds	H.T.H.P. cc's	pH	Filtrate Analysis	RETORT	MUD PROPERTIES					OPERATION REMARKS									
			PPG	SG									sec/qt	A.V. cps	P.V. cps	Y.P. #/100 sq.ft.	X 1000		Cl ppm	Ca. ++ ppm	Pf	% OIL	% SOLIDS	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL
15	19/ 6	810	1.28	54	39.0	27.0	24.0	2	4	5.5	1	11.0	78	220	.70	13.00	40.00	40.00					.61	1.55			
16	20/ 6	810	1.28	54	39.0	27.0	24.0	2	4	5.5	1	11.0	78	220	.70	13.00	40.00	40.00					.61	1.55			
17	21/ 6	810	1.28	54	39.0	27.0	24.0	1	1	5.5	1	11.0	78	220	.70	13.00	40.00	40.00					.61	1.55			
18	22/ 6	810	1.28	54	39.0	27.0	24.0	4	2	5.5	1	11.0	78	220	.70	13.00	40.00	40.00					.61	1.55			
19	23/ 6	1014	1.29	54	37.5	25.0	25.0	2	4	4.6	1	10.7	70	240	.40	12.50	.50	30.00					.58	1.78			
20	24/ 6	1348	1.34	53	35.5	26.0	19.0	2	4	4.8	1	10.6	68	180	.35	13.00	.75	21.00					.66	1.06			
21	25/ 6	1348						1	1																		
22	26/ 6	1348	1.33	52	35.0	26.0	18.0	1	3	4.8	1	10.6	64	150	.25	13.00	.75	22.50					.67	.97			
23	27/ 6	1375	1.31	60	42.0	24.0	36.0	5	8	78.0	2	8.9				12.00							.49	3.77			
24	28/ 6	1348	1.32	70	41.0	23.0	36.0	6	7	26.0	2	9.0				12.00							.47	3.94			
25	29/ 6	1348	1.31	63	45.0	26.0	39.0	6	6	39.0	1	8.6				12.20		1.00					.49	4.08			
26	30/ 6	1405	1.31	60	45.0	26.0	28.0	6	6	15.0	8	8.2				13.00	.75	2.00					.57	2.13			
27	1/ 7	1424	1.31	58	47.0	28.0	37.0	6	6	15.0	1	8.1				13.00	.75	2.00					.52	3.42			
28	2/ 7	1424	1.31	56	41.5	24.0	35.0	6	6	15.0	1	8.0				13.00	.50	2.00					.49	3.56			

REMARKS



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

Drilling Mud Properties Record

MUD SYSTEM NON DAMAGING CHALK

WELL NAME 31/2-12

AREA NORTH SEA

OPERATOR A/S NORSE SHELL

RIG BORGNY DOLPHIN

ENGINEERS BLANCHARD/ATKINSON

Day No.	DATE	DEPTH FEET <input type="checkbox"/> METERS <input type="checkbox"/>	SG 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			BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	OPERATION REMARKS	
				sec/qt	A.V. cps	P.V. cps	Y.P #/100 sq.ft	0	10	1000 X Cl ⁻ ppm					Ca. ++ ppm	Pf	% OIL	% SOLIDS	% SAND	COORR.									
29	3/ 7	1427	1.32	56	41.5	24.0	35.0	6	6	10.0	1	8.0				14.00	.75	3.00				.49	3.56						
30	4/ 7	1427	1.27	62	41.0	23.0	36.0	5	5	10.0		7.5				12.00	.50	2.00				.47	3.94						
31	5/ 7	1404	1.27	54	38.0	23.0	30.0	5	5	10.0	1	10.0				12.00	.75	2.00				.52	2.73						
32	6/ 7	1436	1.27	57	40.0	25.0	30.0	5	5	10.0	1	10.2				12.00	.75	2.00				.54	2.52						
33	7/ 7	1459	1.26	57	40.5	25.0	31.0	5	5	10.0	1	10.0				12.00	.75	2.00				.53	2.69						
34	8/ 7	1434	1.27	62	39.5	23.0	33.0	6	7	12.0	1	9.0				10.00						.50	3.31						
35	9/ 7	1444	1.27	58	46.5	24.0	45.0	7	7	12.0	1	8.5				11.00						.43	5.93						
36	10/ 7	1452	1.26	62	44.0	24.0	40.0	7	7	12.0	1	8.0				11.00	.50	1.00				.46	4.66						
37	11/ 7	1452	1.26	62	45.0	24.0	42.0	7	7	11.0	1	8.0				12.00	.50	1.00				.45	5.15						
38	12/ 7	1456	1.27	61	44.0	24.0	40.0	7	7	11.0	1	8.0				12.00	.50	1.00				.46	4.66			Engineer off the rig.			
39	19/7	1456	1.27	55	41.5	24.0	35.0	5	5	12.0	1	8.0				12.00	.50	1.00				.49	3.56						
40	20/ 7	1456	1.27	54	40.0	24.0	32.0	5	5	12.0	1	7.9				12.00	.50	1.00				.51	2.98						
41	21/ 7	1456	1.26	53	39.5	24.0	31.0	5	5	12.0	1	7.9				.5	12.00					1.00	.52	2.80					
42	22/ 7	1456	1.27																										

REMARKS

ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

Drilling Mud Properties Record
MUD SYSTEM NON DAMAGING CHALK

WELL NAME 31/2-12
AREA NORTH SEA
OPERATOR A/S NORSE SHELL
RIG BORGNY DOLPHIN
ENGINEERS BLANCHARD/ATKINSON

Day No	DATE	DEPTH METER	MUD PROPERTIES										REMARKS											
			DENSITY PPG SG	VISCOSITY			GELS		FLUID LOSS 30 Min cc's			Filtrate Analysis			RETURN									
				sec/qt	A.V cps	P.V cps	Y P #/100 sq.ft.		FLUID LOSS 30 Min cc's	CAKE 32 nds	H T.H.P. cc's	pH	Cl ppm	Ca. ++ ppm	PI	% OIL	% SOLIDS	% SAND	BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"	
43	31/ 7	1456	1.27	60	39.5	24.0	31.0	6	6	13.0	1	8.0				12.00						.52	2.80	
44	1/ 8	1456	1.27	60	39.5	24.0	31.0	5	5	13.0	1	8.0				12.00						.52	2.80	
45	2/ 8	1456	1.27	53	36.0	22.0	28.0	5	5	13.0	1	8.0				12.00						.53	2.49	
46	3/ 8	1456	1.26	55	35.0	20.0	30.0	5	5	28.0	1	8.0				12.00						.49	3.14	
47	4/ 8	1456	1.17	63	41.0	22.0	38.0	6	6	16.0	1	8.0				13.00						.45	4.60	
48	5/ 8	1456	1.27	60	48.5	26.0	45.0	0	4	16.0	1	7.5				13.00						.45	5.45	
49	6/ 8	1568	1.27	60	47.5	30.0	35.0	6	6	15.0	1	7.5				14.00	1.00	2.00				.55	2.87	
50	7/ 8	1615	1.27	62	47.5	28.0	39.0	6	6	15.0	1	7.5				14.00	1.00	2.00				.50	3.79	
51	8/ 8	1615	1.27	58	41.0	22.0	38.0	5	5	17.0	1	7.5				14.00	1.00	2.00				.45	4.60	
52	9/ 8		1.28	58	36.0	22.0	28.0	6	6	17.0	1	10.5				14.00	1.00	2.00				.53	2.49	
53	10/ 8	1421	1.27	62	51.0	32.0	38.0	4	5	31.0	2	11.8				14.00	1.00	2.00				.54	3.17	
54	11/ 8	1421	1.28	60	49.0	30.0	38.0	5	5	32.0	1	11.5				14.00	1.00	2.00				.53	3.37	
55	12/ 8	1421	1.28	58	47.5	30.0	35.0	5	5	33.0	2	10.8				14.00	1.00	2.00				.55	2.87	
56	13/ 8	1420	1.32	50	30.0	23.0	14.0	2	2	30.0	2	10.0				15.00	1.00	2.00				.70	.69	

REMARKS

7-sec



ANCHOR DRILLING FLUIDS AS

OSLO - STAVANGER

Drilling Mud Properties Record

MUD SYSTEM NON DAMAGING CHALK

WELL NAME 31/2-12 AREA NORTH SEA
 OPERATOR A/S NORSE SHELL RIG BORGNY DOLPHIN
 ENGINEERS BLANCHARD/ATKINSON

Day No	DATE	DEPTH	MUD PROPERTIES										OPERATION REMARKS													
			SC 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			BENTONITE #/BBL	POTASH #/BBL	POLYMER #/BBL	"N"	"K"				
FEET <input type="checkbox"/> METERS <input type="checkbox"/>	sec/qt	A.V. cps		P.V. cps	Y.P. #/100 sq.ft	10						0	Ca ++ ppm	Cl ppm	PH	% OIL	% SOLIDS						% SAND			
1983	METER																									
57	14/ 8	1420	1.32	62	30.0	23.0	14.0	3	3	30.0	1		10.0					15.00	2.00	2.00				.70	.69	
58	15/ 8	1420	1.32	68	30.0	23.0	14.0	3	3	30.0	1		10.0					15.00	1.00	2.00				.70	.69	
59	16/ 8	1420	1.32	68	35.0	23.0	24.0	3	3	30.0	1		10.0					15.00	1.00	2.00				.57	1.78	
60	17/ 8	1420	1.32	68	35.0	23.0	24.0	3	3	30.0	2		10.0					15.00	1.00	2.00				.57	1.78	
61	18/ 8	1420	1.32	68	35.0	23.0	24.0	3	3	30.0	2		10.0					15.00	1.00	2.00				.57	1.78	
62	19/ 8	1420	1.32	68	35.0	23.0	24.0	3	3	30.0	2		10.0					15.00	1.00	2.00				.57	1.78	
63	20/ 8	1420	1.32	68	35.0	23.0	24.0	3	3	30.0	2		10.0					15.00	1.00	2.00				.57	1.78	
64	21/ 8	1420	1.32	68	35.0	23.0	24.0	3	3	30.0	2		10.0					15.00	1.00	2.00				.57	1.78	

REMARKS

REMARKS



ANCHOR DRILLING FLUIDS AS

GRAPHI-CAP

OPERATOR: R/S NORSE SHELL PAGE NO: 1
 WELL NAME: 31/2-12 SPUD IN DATE: 26/5-83
 CONTRACTOR: DOLPHIN SERVICES RIG: BORGNY DOLPHIN

