

2.1 Bit Run Summaries

Baleen - 4

12.25" Hole Section 30th September 2004

Bit Run No. 1 Summary

Bit Number	NB 1
Bit Size	12.25"
Bit Type	Hughes MX – 1
S/N	6007091
Jets	3 x 24
Depth In (m)	254.5 m (cement)
Depth Out (m)	320.0 m (cement)
Metres Drilled	65.5 m
Drilling Hours	5.7
TBR (krevs)	65.1
Circulating Hours	6.3
Average ROP (m/hr)	11.5
API Condition	1-1-NO-A-E-In-NO-LIH

Drilling Parameters

WOB (klbs)	4	-	12.9
RPM	25	-	81
Torque (kft-lbs)	0.5	-	4.02
Flow In (gpm)	384	-	841
Pump Pressure (psi)	424	-	846

Mud System

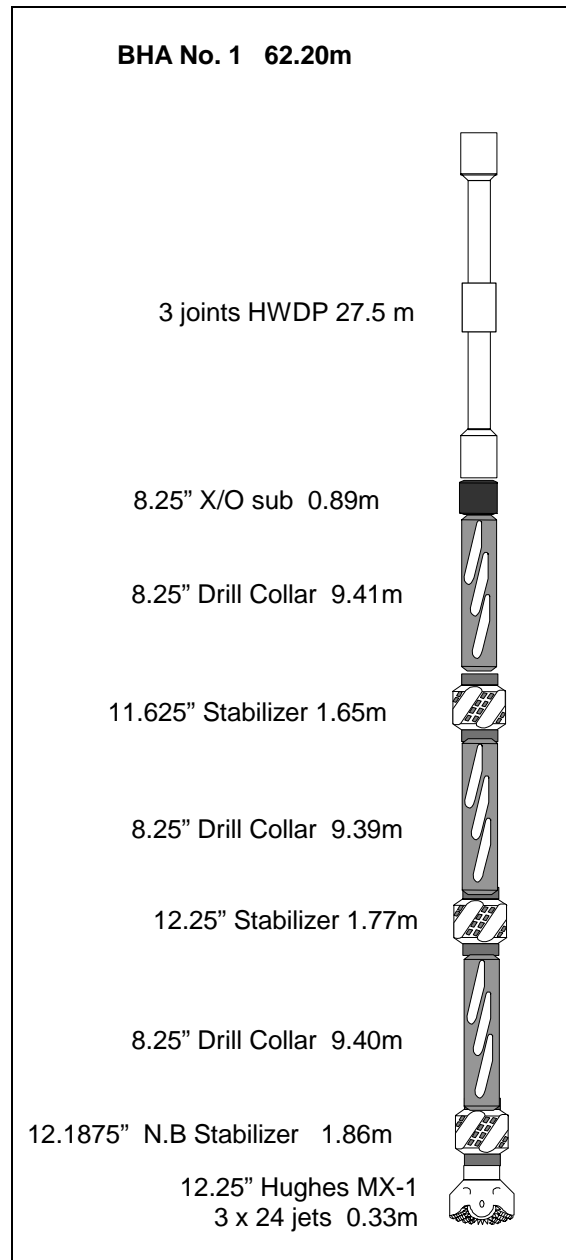
Seawater	1.03 sg
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Lithology

Cement

Drilling Summary

NB1, a 12 1/4" Hughes tricone bit, was made up to a BHA consisting of 3 stabilizers to dress the cement kickoff plug from 254.5m. Cement was drilled from 254.5m to 320m with seawater. At 320m, then the well was circulated with 225bbls at 800gpm, followed by an additional 160bbls circulated while boosting the riser. The drillstring was then pulled back to 315.64m and preparations for the well to be displaced to Synthetic Oil-Based Mud were made. SOBМ was displaced while rotating the string, but after only 165 strokes the drill string packed off with 1100psi. The pressure was then bled off and the string was worked for a free point. 17bbls were then pumped at 4 SPM to register a standpipe pressure increase to 950psi. No rotation, movement up or down of the drillstring and no circulation was possible. Further attempts work pipe were unsuccessful. Wire-line was then run in hole with a back off charge and 44.12m of fish was left in the hole. A jarring assembly was then made up and RIH. The well was then fully



displaced to 9.3ppg SOBМ. The jarring assembly then engaged the fish and jarring operations proceeded. This jarring was unsuccessful and a gyro survey was dropped but hung up at 199.7m. Wire-line ran a blind back-off tool with the run still leaving 125.44m of fish down hole. Open ended drill pipe was run in, with each joint being given extra torque. The fish was engaged and 5 left hand string turns applied, with no weight gain indicated. On pulling out with the string no fish was recovered. Another overshot assembly was run and once engaged to the fish was turned 8 times to the left hand side. A down hole shudder was experienced and 10klb increase in the string weight. On pulling out 7 joints of heavy weight drill-pipe and 6.07m of accelerator were recovered. The next stage of fishing operations required the overshot

assembly to be run in to engage the fish at 196.83m with 10klb over-pull noted. A wireline back-off charge was then run in and set off with a torque drop in the string occurring. The down hole assembly was then rotated 5 times to the left and the string was free with a 25klb weight gain noted. On pulling out, the rest of the accelerator, 6 drill collars and jars were retrieved. A wash-over assembly was then required to be run to mill over the first of the 3 stabilizers still in hole. The milling proceeded to 295m and the assembly was then pulled out. An overshot string was run in and engaged the top of the fish at 279.82m. Wire-line back-off charge was fired at 290m with a 9klb torque drop experienced. Problems on attempting to back out with the fish occurred and on pulling out, no additional fish was recovered. A back-off assembly was then run and tagged top of fish at 279.82m. Wireline again ran a back-off charge to 290m. On backing out of the fish no extra weight gain was noted but, once the assembly was pulled to surface a cross over joint, 8 1/4" drill collar and a stabilizer were brought to surface. Another wash-over string was run in and tagged the top of fish at 290.25m and milling commenced to 300.36m. On pulling out with the wash-over string, the wear bush was also retrieved due it being jammed on the 12" burn shoe on the trip out of hole. Another back-off assembly was run in, and the well was circulated out 3 times prior to tagging the top of the fish at 290.25m. The fish was engaged with 27klbs/ft torque applied to the string and the pipe worked (jarring up and down, 160klb over-pull) without success in freeing the fish. Wireline prepared and ran another back-off charge. 50klbs of torque was subjected onto the back-off assembly and 5 full turns of the string applied. On picking up the assembly 5klbs of extra weight was noted. When the assembly came to surface, fish recovered was one 8 1/4" drill collar and the second of the three stabilizers. The top of the fish was now 301.35m. The wear-bushing was then run in hole and re-set. Another wash-over assembly was tripped in hole and washed down to 311m and the hole circulated out three times before POOH. An overshot and an 8 1/4" mill control grapple assembly was then run in and the fish engaged, 10klb over-pull was experienced. Circulation was then broken at 580gpm and the string worked and pulled out with the remaining fish.

12.25" Hole Section 9th October 2004

Bit Run No. 2 Summary

Bit Number	RR 1.1
Bit Size	12.25"
Bit Type	Hughes MX – 1
S/N	6007091
Jets	3 x 24
Depth In (m)	320
Depth Out (m)	336.7
Metres Drilled	16.7
Drilling Hours	2.3
TBR (krevs)	11.3
Circulating Hours	4.2
Average ROP (m/hr)	6.9
API Condition	1-1-NO-A-E-In-NO-TD

Drilling Parameters

WOB (klbs)	1.2	-	15.2
RPM	14	-	85
Torque (kft-lbs)	0.7	-	2.9
Flow In (gpm)	582	-	895
Pump Pressure (psi)	733	-	1255

Mud System

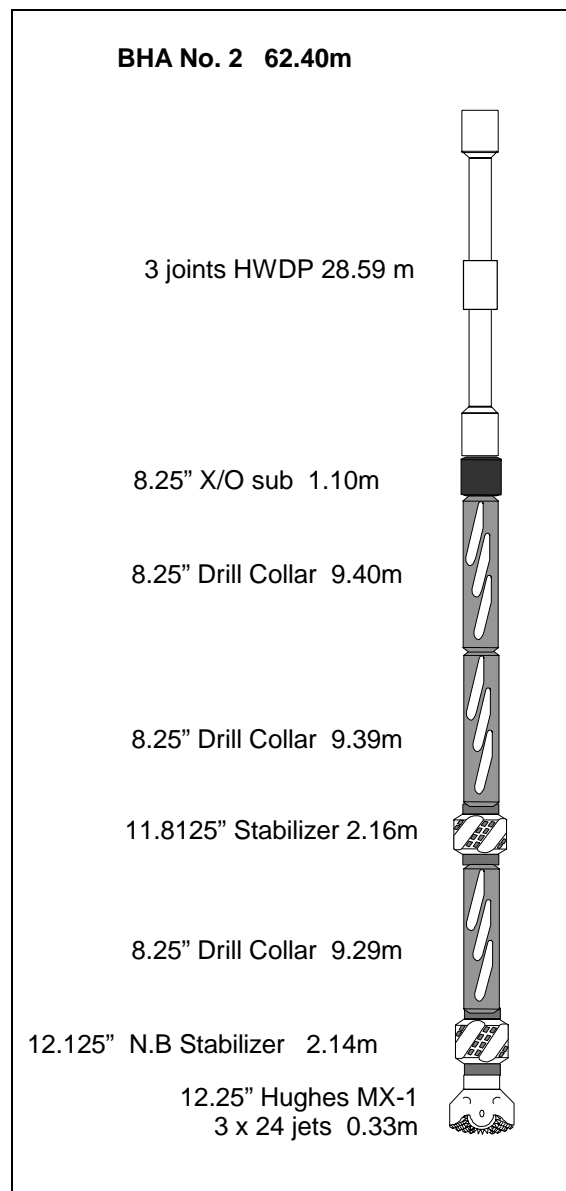
Synthetic oil based mud	1.12	1.13 sg
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Lithology

Cement

Drilling Summary

Bit RR1.1 was made up to a BHA consisting of 2 stabilizers to continue dressing the cement kickoff plug. Running in hole to 160m and a casing pressure test was conducted against the MPR's at 500psi for 30 minutes with test judged successful. Ran in hole to 320m and drilling proceeded to 336.7m using synthetic oil based mud system without incidents. At TD the hole was circulated for a period of 1 hour and then further circulated for 30 minutes while boosting the riser at 1364gpm. A gyro survey was taken, and then a wireline USIT log was run to check the integrity of the casing.



12.25" Hole Section 10th – 11th October 2004

Bit Run No. 3 Summary

Bit Number	NB 2
Bit Size	12.25"
Bit Type	Smith GFXIVCPS
S/N	MP7324
Jets	3 x 22, 1 x 19
Depth In (m)	336.7
Depth Out (m)	733
Metres Drilled	396.3
Drilling Hours	11.3
TBR (krevs)	113.2
Circulating Hours	27.4
Average ROP (m/hr)	35.1
API Condition	1-1-NO-A-E-In-NO-BHA

Drilling Parameters

WOB (klbs)	1.2	-	43.3
RPM	120	-	237
Torque (kft-lbs)	0	-	7.3
Flow In (gpm)	458	-	928
Pump Pressure (psi)	1035	-	3519

Mud System

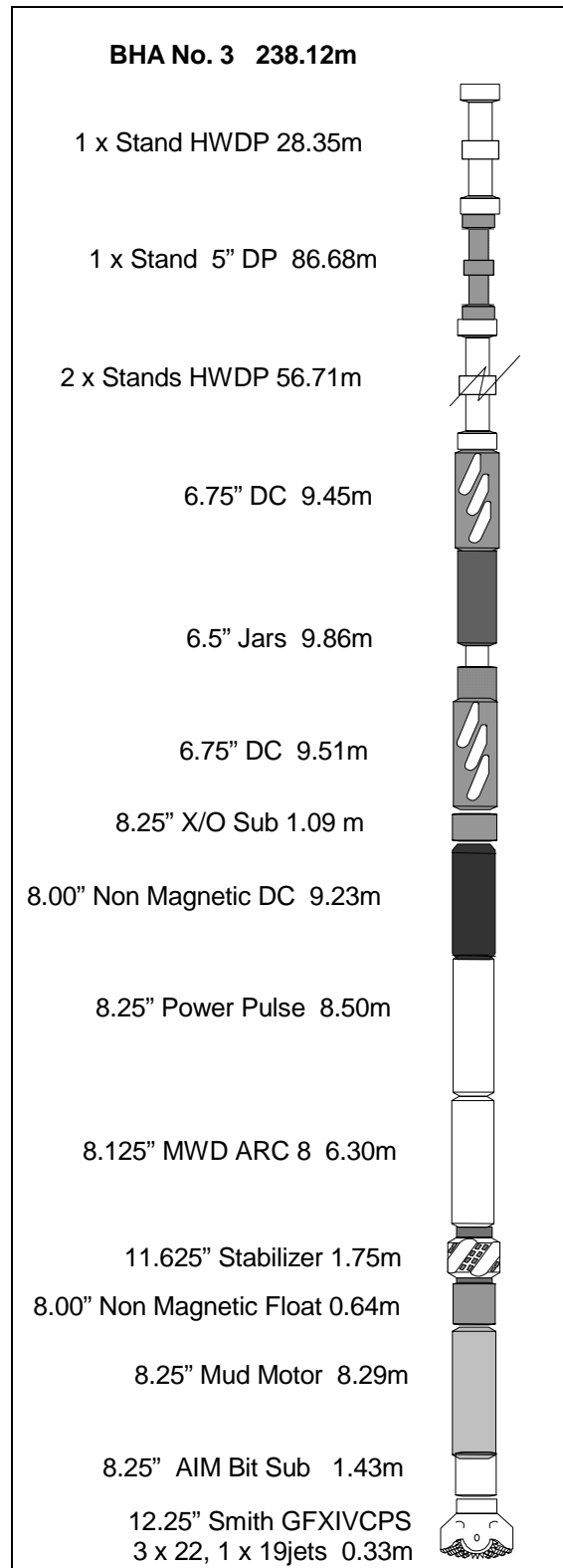
Synthetic oil based mud	1.12	-	1.13sg
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Lithology

Cement, Argillaceous Calcilutite, Calcareenite, Calcareous Claystone

Drilling Summary

A new 12.25" bit was made up with an MWD/rotary steerable assembly, the motor set to a 1.5 degree bend. This directional assembly was shallow tested and the tool face aligned before drilling proceeded. On reaching bottom sliding commenced from 336.7m to 361m with pumping parameters being maintained at around 550gpm (1300psi standpipe pressure). At 361m a gyro survey was run on a slick line with circulation rates of around 900gpm (2200psi) being maintained. Sliding continued to 390m and another gyro survey was run. The drill string was then pulled back to the 13 3/8" shoe (254.4m) and the hole circulated for 30 minutes in preparation for a formation integrity test. The FIT was successful with a result of 1.62sg (13.49ppg) EMW being noted. On running back to bottom sliding continued to 417m when another gyro survey was run. Sliding proceeded to 448m with 600gpm (1600psi) pumping parameters and another gyro survey was run. Sliding continued to a section TD of 733m. The well was then circulated out for 2 ¼ hours at 900gpm (3650psi) while rotating at 90rpm as per extended reach drilling (ERD) engineers instructions. After flow checking the drill-string was pulled out of the hole. At 655m to 626m 30klbs



overpull was noted. This area was circulated out for 1 ½ hours at 880gpm (3300psi) while rotating the drill string at around 130rpm (ERD engineers instructions). A 30bbl hi-vis pill was then pumped and circulated out. POOH continued to 550m when another tight spot was encountered (50klbs overpull). This area was circulated out for 30 minutes at 900gpm. The assembly was then run back to bottom

and circulation for 1 hour commenced at 910gpm, shakers were noted as clean. A gyro survey was dropped at TD and the drillstring pulled out of hole with gyro surveys being taken at each joint. At 545m, 50klb drag was experienced and bottoms-up was circulated out. Continued coming out with no further problems.

12.25" Hole Section 12th - 14th October 2004

Bit Run No. 4 Summary

Bit Number	NB 3
Bit Size	12.25"
Bit Type	Smith MRS91GHPX
S/N	JT6155
Jets	4 x 18, 3 x 16
Depth In (m)	733
Depth Out (m)	1890
Metres Drilled	1247
Drilling Hours	24.4
TBR (krevs)	211.6
Circulating Hours	49.2
Average ROP (m/hr)	47.4
API Condition	1-O-WT-G-X-2-WT-TD

Drilling Parameters

WOB (klbs)	0.1	-	16.3
RPM	50	-	234
Torque (kft-lbs)	1.6	-	12.4
Flow In (gpm)	479	-	974
Pump Pressure (psi)	1471	-	4275

Mud System

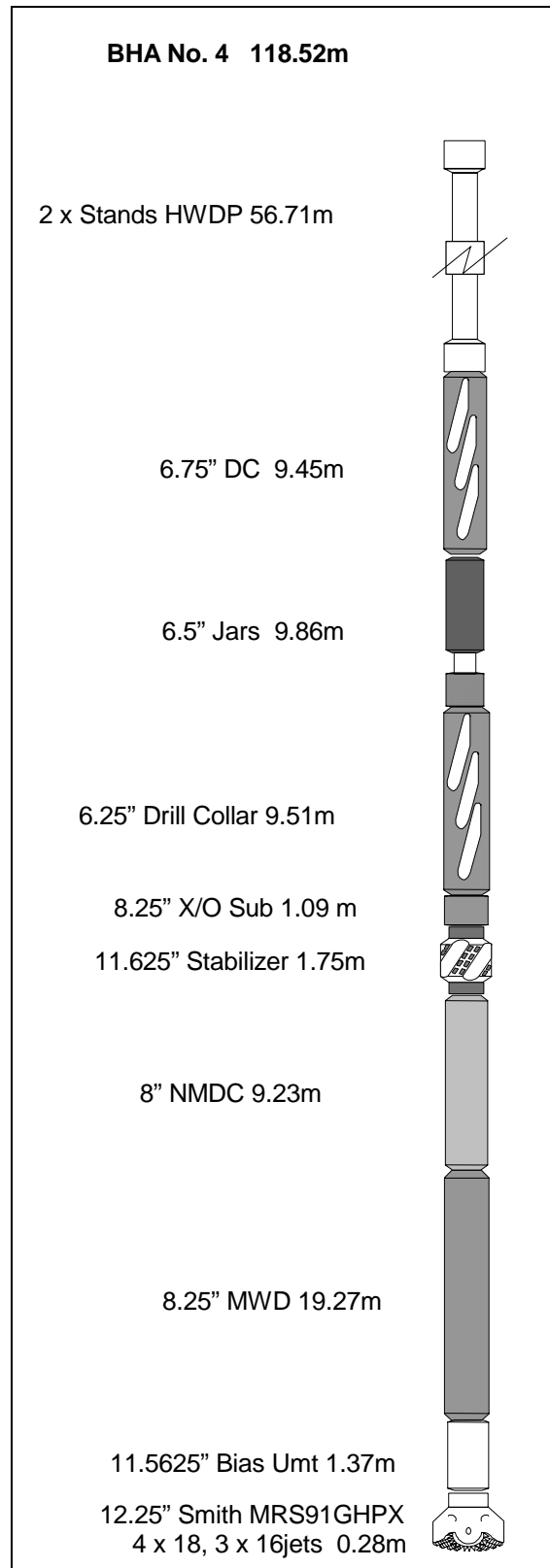
Synthetic oil based mud	1.13	-	1.18 _{sg}
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Lithology

Calcareous Claystone, minor Calcareenite,
Claystone, Sandstone

Drilling Summary

A new 12.25" PDC fixed cutter bit was made up to a MWD rotary steerable unit and RIH to 580m with a 10-20klb drag noted. The drilling assembly was then washed down to 733m with a flow 900gpm and a 40rpm rotating speed. New formation was drilled to 1289m at 900gpm (2300psi) and at 140rpm. At this point the hole was circulated out for 1 ¼ hours. Drilling then proceeded to 1582m and the hole was cleaned by circulating bottoms up 4 times at a flow of 950gpm (4100psi). At 1726m a pressure relief valve on a mud pump needed to be repaired and with the MWD tool unable to transmit its signal properly, drilling ceased for 45 minutes and the hole circulated during this period. Drilling continued to 1811m when a large gas peak of 33% was noted. Drilling ceased and the well was circulated and a flow check preformed (static). Drill ahead to 1861m, when another circulation of the hole was conducted for 30 minutes to improve the ROP. Reached TD for this run at 1890m and the well was circulated out for 3 hours. On the trip out 25klb overpull was noted at 1072m. Circulating bottoms up 3 times remedied the tight spot and tripping resumed with 0-10klb overpull noted up



until the 13 3/8" shoe, where the well was flow checked (static) and the drilling assembly pulled completely.

12.25" Hole Section 14th – 17th October 2004

Bit Run No. 5 Summary

Bit Number	RR2.1
Bit Size	12.25"
Bit Type	Smith GFXIVCPS
S/N	MP7324
Jets	3 x 22, 1 x 19
Depth In (m)	1980
Depth Out (m)	1980
Metres Drilled	0
Drilling Hours	0
TBR (krevs)	113.2
Circulating Hours	25.8
Average ROP (m/hr)	0
API Condition	1-1-NO-A-E-In-NO-BHA

Mud System

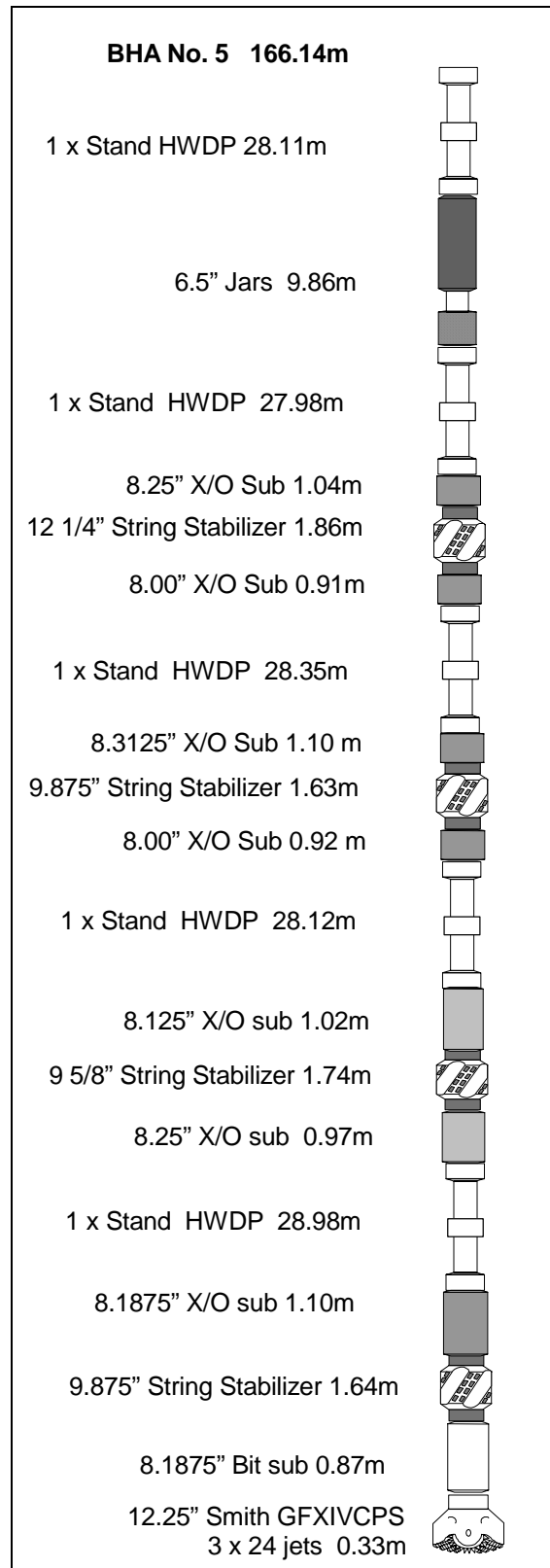
Synthetic oil based mud 1.18_{sg}

Lithology

Hole conditioning trip

Drilling Summary

An altered BHA was made up and Run in for a wash down trip. The assembly was run in to 810m and washing down proceeded to 915m. Continued to run in to 990m and washed down to 1020m. Running in continued to 1220m and the string was washed down to 1640m. Running in continued from 1640m to 1890m, with the last stand being washed down to section TD with no fill noted. Circulation of bottoms up was then undertaken for a period of 1 ½ hours. The string was pulled out with washing and reaming (as per hole cleaning guidelines) to 800m with notable overpull occurring at 1379m(25klbs) and at 936m(20klbs). At 744m 20klbs overpull was experienced and all returns were lost (128bbls). A stand was picked up and the pipe worked to 772m with full returns being gradually reestablished over a period of 1 ¼ hours circulation. The hole was then swept with a 40bbl hi-vis pill and bottoms up circulated out 8 times the hole volume. Pulling out of hole (washing and back reaming) resumed to 538m where 20klbs overpull occurred. This area was circulated out 4 ½ times bottoms up. The assembly was then pulled out to the 13 3/8" shoe and circulation for 1 hour in which time 2 x 40bbls hi-vis sweeps were pumped. The assembly was then tripped back in hole with the only notable drag being at evident at 522m-535m (25klbs). Once the string reached bottom an extended circulation run was undertaken for 4 hours. A side entry stand was rigged up and 45bbls of tuned spacer pumped.



Then 80bbls of channel seal was displaced into the hole from 1863m to 1725m. POOH to 1629m where 7bbls of spacer was spotted and the assembly then completely pulled to the surface.

8.5" Hole Section 19th – 21st October 2004

Bit Run No. 5 Summary

Bit Number	NB4
Bit Size	8.5"
Bit Type	Reed Hycalog TC11
S/N	B73551
Jets	3 x 22
Depth In (m)	1890
Depth Out (m)	2010.5
Metres Drilled	121.5
Drilling Hours	3.2
TBR (krevs)	39.6
Circulating Hours	26.6
Average ROP (m/hr)	38.1
API Condition	6-2-CT-G-E-1-BT-BHA

Drilling Parameters

WOB (klbs)	2.2	-	68.4
RPM	180	-	272
Torque (kft-lbs)	0	-	16.1
Flow In (gpm)	571	-	612
Pump Pressure (psi)	2112	-	2426

Mud System

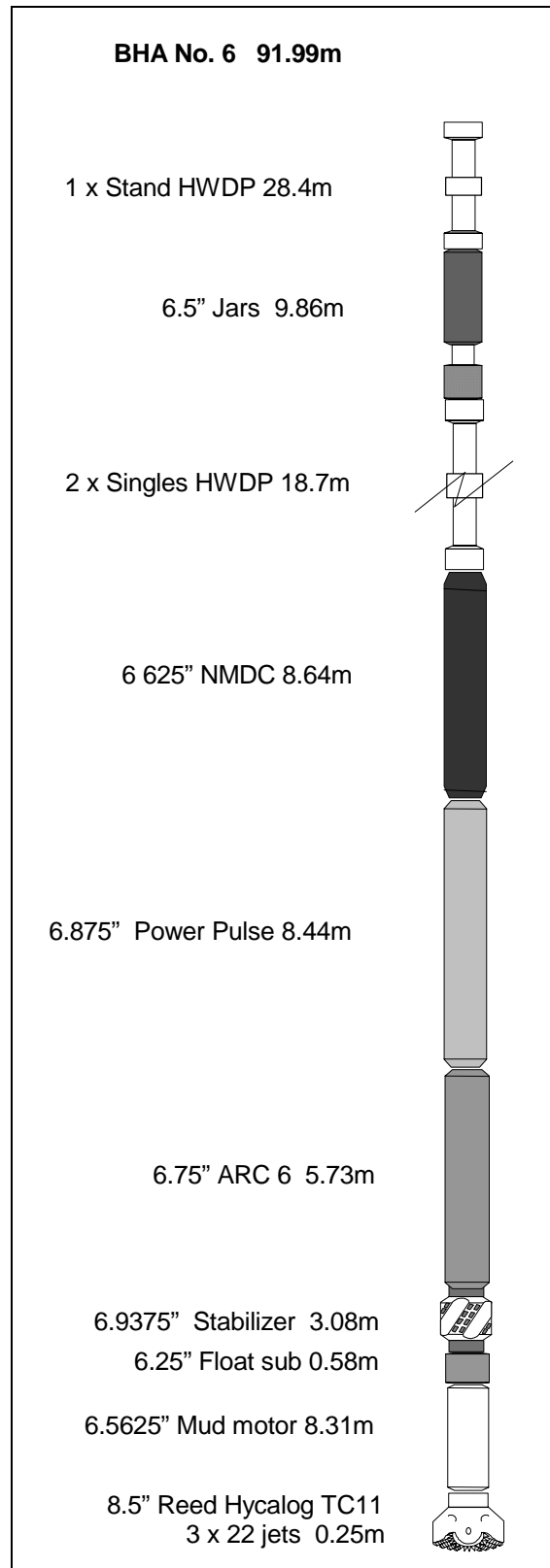
Water based KCL brine	1.08	-	1.09sg
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Lithology

Sandstone

Drilling Summary

After the completion of the 9.625" casing run, NB4 was made up to a directional assembly with a motor bend of 0.78 degrees. This was then run in to tag the top of cement at 1859m, and the cement, plugs & float collar was drilled out with seawater and Guar Gum sweeps. The hole was then displaced to 1.09sg water-based KCl mud before drilling out the shoe and rat-hole. With 3m of new formation drilled, the hole was circulated and the mud system conditioned before conducting a FIT with 265psi (1.34sg EMW). Drilling of new hole commenced with rotary and slide drilling (with slide drilling becoming increasingly more difficult) down to 2010.5m where attempts at sliding were met with no success. The hole was circulated clean & the string washed out of the hole to alter the BHA configuration.



8.5" Hole Section 21st – 22nd October 2004

Bit Run No. 6 Summary

Bit Number	NB5
Bit Size	8.5"
Bit Type	Hughes, MXS20D
S/N	L8420DB6S
Jets	2 x 24
Depth In (m)	2010.5
Depth Out (m)	2290
Metres Drilled	279.5
Drilling Hours	9.3
TBR (krevs)	42.4
Circulating Hours	20.1
Average ROP (m/hr)	30.1
API Condition	1-1-ER-A-E-In-WT-TD

Drilling Parameters

WOB (klbs)	15.3	-	65.0
RPM	56	-	253
Torque (kft-lbs)	11.9	-	20.3
Flow In (gpm)	125	-	913
Pump Pressure (psi)	529	-	3115

Mud System

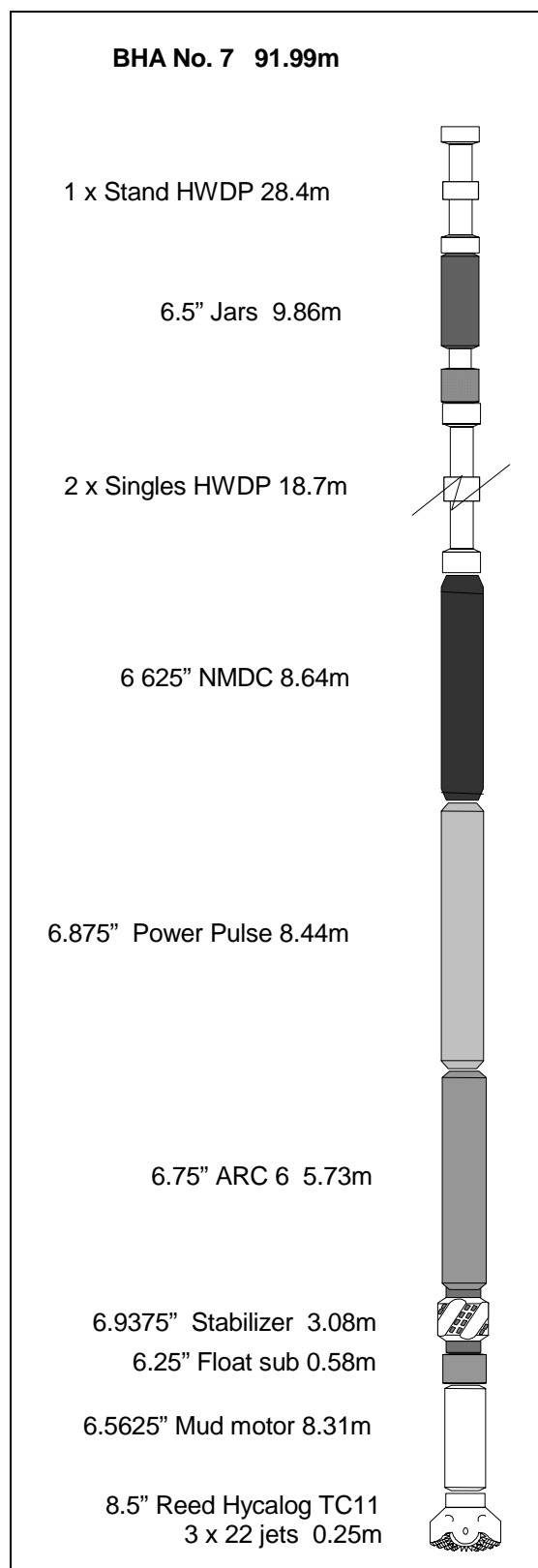
Water based KCL brine	1.09	-	1.12sg
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Lithology

Sandstone

Drilling Summary

The final drilling bit run consisted of a roller cone bit on a rotary assembly with an Andergauge to control angle. This was run in to the casing shoe where an obstruction was encountered. Initially this was unable to be worked past. After numerous attempts, the string was worked past the obstruction & reamed down to 1905m. The string was then pulled back into the casing where the string stalled out and became stuck inside the casing at 1880m. Using rotation, the string was worked free & washed and reamed down to 2010.5m. Drilling commenced with the string being worked twice on connections, but with rotation required to move the string. The third mud pump was lined up as a booster at 250gpm to attempt to assist with hole cleaning. TD for the well was reached at 2290m, where the hole was circulated 5 times to clean the hole. After a flow-check (static) the string was pulled back (tight hole at 1891m, where 2 30bbl sweeps were circulated) to the casing shoe. The string was then run back to bottom – which required rotation. The hole was circulated clean at TD before pulling out of the hole. The hole was circulated clean (including the use of the booster) at 850m. Overpull of 40klb was encountered at 278m which was worked. The hole



was circulated again and pulling out continued with 5 to 15 klb drag encountered inside casing. The 8.5" BHA was layed out and Bit 5 was then made up to a clean-out assembly consisting of the bit attached to a near-bit stabilizer, a single stand of HWDP, then three stabilizers spaced by single stands of drillpipe. This 91m BHA was run in, with the string

hanging up from 915m, and unable to proceed without rotation from 1400m to 2290m. After circulating the hole clean, the string was pulled back to the shoe, where the hole was circulated at 850gpm until the weighted brine system was ready. The string was then rotated down to 2290m, and 135bbls of Baradrill-N-SF was pumped and chased with 92bbls of mud. The string was then pumped back to 100m above the casing shoe, displacing Baradrill-N-SF as it was pulled. The hole was then displaced to a 9.0ppg KCl Brine. The string was then rotary-back-washed to 700m, where a Baralift pill was circulated, and again at 500m. The string was then run back to 100m above the casing shoe and a spacer train pumped before displacing the hole to 9.0ppg KCl Brine, flow-checking, and pulling out of hole on the elevators.

The 6.625" 'Excluder 2000' Sand Screens were then run, with a 2.875" tubing stinger run within, and the hanger run in on drillpipe. With 2290m tagged, bottoms-up was circulated. The cementing unit was then used to circulate the enzyme pill to clean out the sands of filtrate. The Hanger was then set and the running tool pulled out of the hole & the tubing laid out. A number of casing scraper runs were then conducted, first to clean out the riser, then the 9.625" casing. Production tubing was then run and the completion program proceeded.