

FINAL WELL REPORT

O18a-1

PLACID INTERNATIONAL OIL, LTD

OCTOBER 1993

018-01

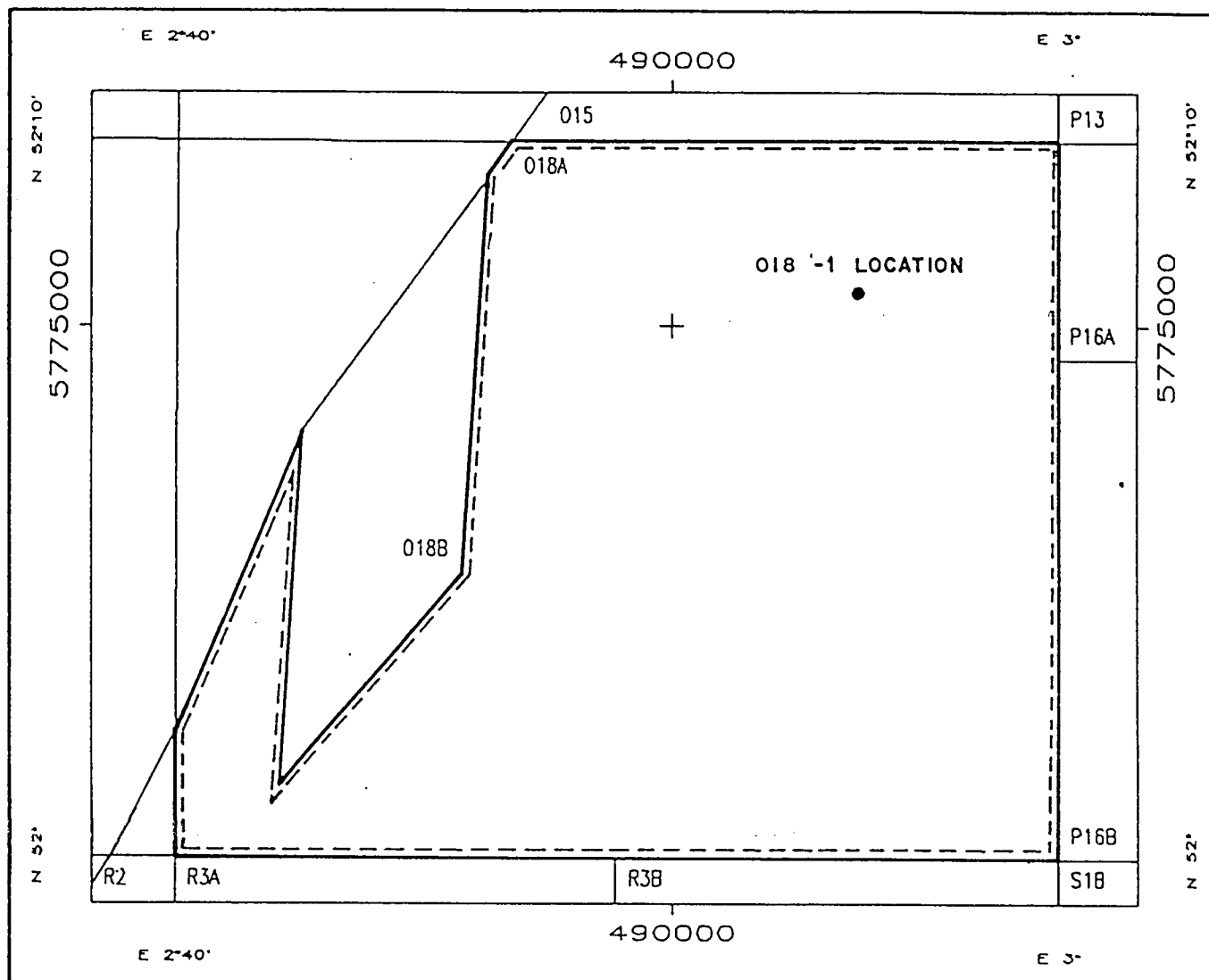


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BLOCK 018



MAP PROJECTION	
UTM	CM 3° E
European Datum 1950	
Zone	30
Scale	1:175000
Units	Meters

PLACID INTERNATIONAL OIL, LTD.

NETHERLANDS OFFSHORE

BLOCK 018

PROPOSED LOCATION 018 -1

Scale - 1 : 175000

Plot Date : 6-AUG-90

Interpretation by :

Drawing No :

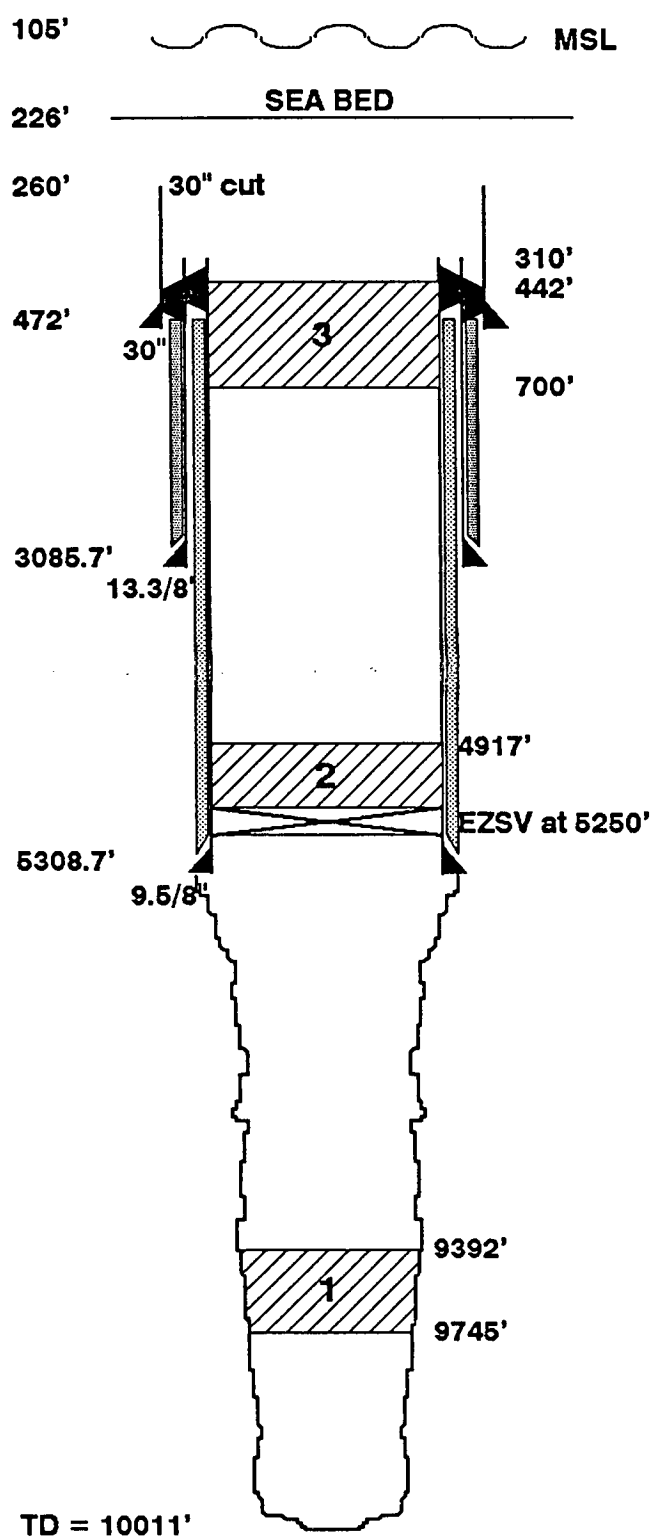
Contour Interval :

Drawn by :

PERTINENT WELL/RIG DATA

Well location	:	Block 018a (Offshore Netherlands)
Well Name	:	018a-1
Slot number	:	N.A.
Type of well	:	Exploration
Objective	:	Devonian HC Potential
Result	:	Dry - P&A
Location		
- surface	:	52° 07' 55.656" N / 5,775,856.9 N 02° 55' 27.185" E / 494,812.6 E
- TD location	:	52° 07' 55.5" N / 5,775,851.0 N 02° 55' 30.0" E / 494,862.0 E
Water depth	:	130 ft/39.6 m
RKB-MSL	:	105.6 ft/32.2 m
Date on contract	:	13 March 1991 19:30 hrs
Spud date	:	17 March 1991
Date reached TD	:	09 May 1991
Date rig released	:	18 May 1991 18:00 hrs
TD (MD RKB)	:	10011 ft/3051.4 m
(MD SS)	:	9905.4 ft/3019.2 m
(TVD SS)	:	9900.5 ft/3017.6 m
PBTD (MD RKB)	:	Abandoned
(TVD SS)	:	Abandoned
Rig contractor	:	Penrod 64
Drilling Fluids Company	:	Milpark
Electric logging	:	Western Atlas
Cementing	:	Halliburton
Directional/Survey	:	Scientific Drilling Controls
Perforating	:	N.A.
Testing	:	Halliburton/Expro
MWD	:	Eastman Christensen (Teledrift)
Mudmotor	:	N.A.
Diving	:	Bodive
Fishing	:	N.A.
Tubing running	:	N.A.
Mud Loggers	:	Exlog
Coring	:	Diamant Boart
Drivepipe	:	Foxdrill
Position Survey	:	Oretech
Casing running	:	Weatherford
Rig positioning	:	Oretech

O18a-1 MECHANICAL STATUS



CMT PLUG TEST RESULTS

PLUG	TEST
1	SET 15KIP WT
2	1000 psi - 15/MIN
3	SET 25KIP WT

WELL OBJECTIVE AND RESULTS

The objective of exploration well 018a-1 was to obtain stratigraphic information and to evaluate hydrocarbon potential of Lower Carboniferous and Devonian sediments on the north slope of the London Brabant Massif.

The main target was a reefal or carbonate build-up located in the upper part of the Dinantian Limestones.

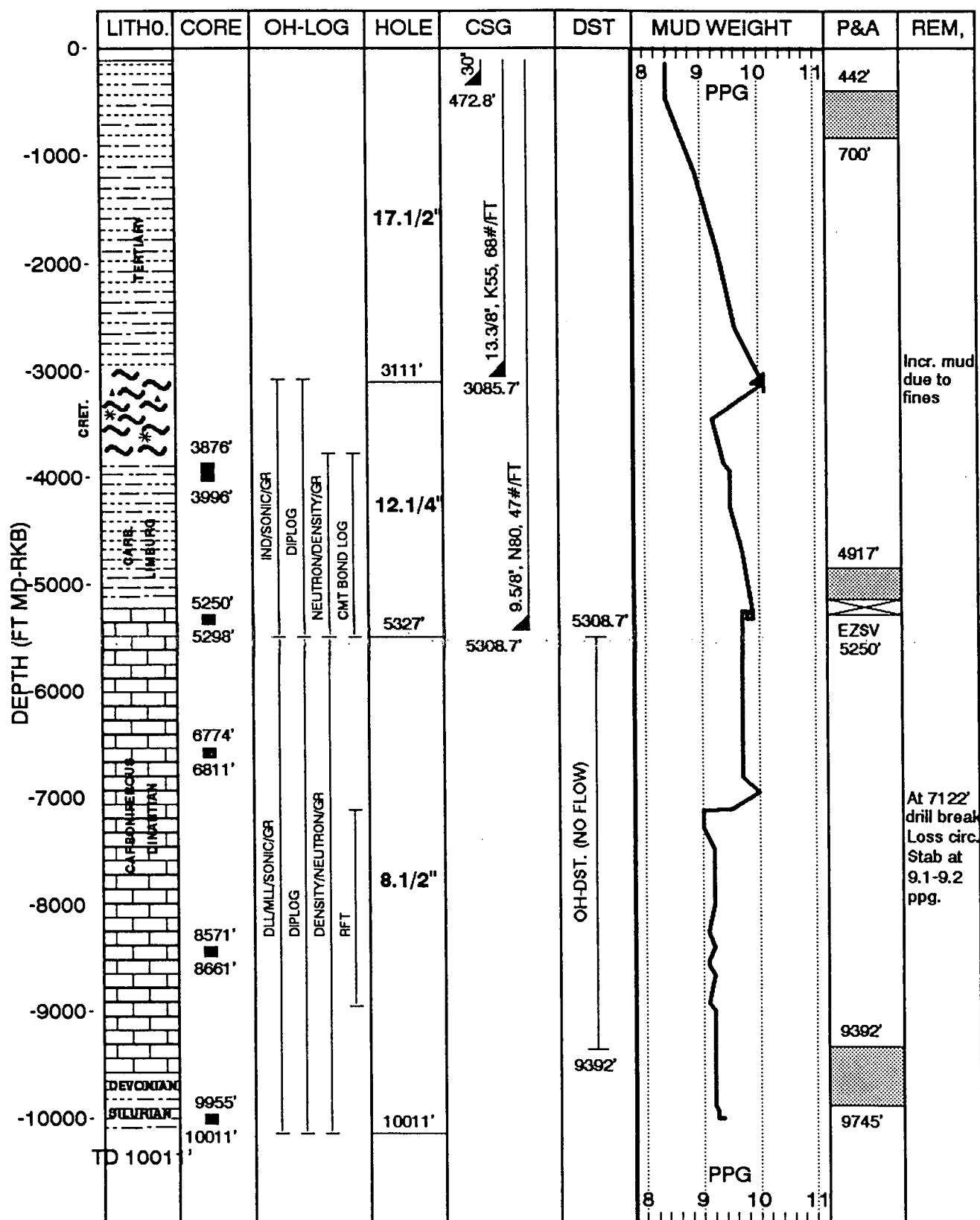
Since the well was to be drilled in a relative virgin exploration area and sour gas pockets might be present, special attention was to be given to H₂S safety equipment. However, as it turned out, no H₂S had been detected throughout the course of the well. But this should by no means clear the region from H₂S danger.

In addition special attention was to be given to shipping traffic monitoring. The rig location was in the vicinity of a busy shipping lane, which required a 24 hours/day radar and Arpa system to warrant the rig from collision danger.

The well was drilled to a TD (MD) of 10011 ft/3052.4 m, which was 326 ft/99.4 m into the Upper Silurian. Hydrocarbon traces had been recorded in some Westphalian-A sands, as well as in Dinantian Limestones. E-logs did not indicate presence of hydrocarbons, but an openhole DST had been performed over the interval of 9392 ft/2862.7 m - 5309 ft/1618.1 m to rule out any ambiguity.

The negative outcome of the DST cleared the path towards abandonment and the well was P&A'ed and cut 7.5 m below seabed.

WELL COMPOSITE



WELL SYNOPSIS

RIG ON LOCATION/CONTRACT

Rig Penrod 64 arrived on location on March 13th, and went on contract at 19:30 hours when the rig was pinned.

30" DRIVE PIPE

The 30" - 309#/ft - ST52 drive pipe was driven to a final depth of 472.78 ft (final blow/ft was 193 with a IHC-S90-8 hammer). Pipe had to be washed-out once to arrive at an acceptable penetration. Furthermore, all connections were welded.

26" HOLE

The well was spudded on March 17th with a 26" bit and the drive pipe was drilled out to 460 ft. Since the next section would be 17½", the 30" was prepared with a 30" x 20" swage.

17½" SECTION

A CR-1 bit drilled the 17.1/2" section to a depth of 3111 ft. Top chalk was encountered at 2961 ft. Hole conditions were good (20 - 40K spot drag).

13¾" CASING

13¾" casing was run to a depth of 3085.7 ft. Mid Omega, 68#/ft - K55 - casing was used below the MLH. Above the MLH 72#/ft - K55 - BTC was used. The well was cemented with the aid of a packer on DP, since no PDC drillable stab-in float had been available. A total of 2037 sx G-neat 13.6 ppg lead and 400 sx G-neat 16 ppg slurry had been placed while full returns had been maintained. Because the 20" casing was not run, a 20"WF housing was lowered over the 13¾" casing and placed on top of the 30". The 20" x 13¾" slip and seal assembly was installed with 30.000# by using a casing spear. Subsequently the 20" x 13¾" WF casing spool was installed and P-seals were tested to 1200 psi.

12½" SECTION

The 13½" casing was tested to 1900 psi before drilling out. A leak-off was performed to an EMW of 13.69 ppg at 3115 ft. Drilling continued in a KCl mud to coring point (3876 ft) which was in the Lower Westphalian. Coring continued to 3996 ft, 6 ft in to the Namurian. Two cores were taken at 5220 ft to determine formation age (Dinantian). While drilling, hole conditions remained stable. Drilling continued to logging point (5327 ft). At which depth the following logging suit was run: GR/Density/PCM Acoustic/DIFL

SDL/NCN/SL

GR/DIPMETER

GR/CBIL

9½" CASING

A 47#/ft - N80 - BTC String was run with the shoe at 5308.7 ft. The string was cemented with 500 sx G-neat 12.2 ppg slurry followed by 300 sx G-neat 16.7 ppg tail slurry. Full returns were maintained while cementing and the casing was tested to 3000 psi.

8½" SECTION

Cement was drilled out and a limit test to 11.24 ppg EMW was performed in new hole. Drilling continued to 6774 ft and a core was run. While coring, a twist-off occurred and the assembly was fished. Managed to recover 34 ft of core. Drilling continued and the frequency of washouts increased. At 7122 ft a drilling break occurred and total returns were lost. A 40 ppb 40 bbl LCM pill cured the losses. Continued drilling to 7126 ft and well started flowing. Circulated and conditioned mud to 9.4 ppg, at which point the well stabilized. Continued to 7130 ft. Repeated above exercise because the well started to flow again. Conditioned mud to 9.1 ppg and continued drilling to 8571 ft. Recovered 90 ft core and drilled to 9955 ft. Found Top Devonian at 9566 ft (drillers depth). Recovered 56 ft core (TD = 11011 ft) and commenced with the logging program.

A GR/MLL/DLL/Acoustic/CAL/CMT

SDL/CN/SL/CHT

GR/FMT

Dipmeter

and 4 VSP were run.

OPENHOLE DST AND ABANDONMENT

A 120 sx G-neat 16.0 ppg plug was set at 9745 ft to isolate the Devonian from the Dinantian. Top cement was tagged at 9392 ft with 15 KIP.

An openhole DST with 1803 ft tail pipe below the packer was performed over the interval of 9392' - 5308.7' (packer depth was at 5256 ft and tubing end was at 7059 ft). Mud was displaced with CT to Nitrogen to a depth of 5234 ft. Tester valves were then opened and the well was allowed to come-in. Because the well remained dead the entire mud column was jetted out with CT to a depth of 7030 ft and the test was repeated. In 5 hours the pressure increased from 115 psi to 310 psi with no indication of hydrocarbons. Subsequently the well was killed and the teststring pulled.

Abandonment consisted of an EZSV at 5250 ft (in 9 5/8" casing) topped with 120 sx G-neat 16.0 ppg slurry. The plug was tested with 1000 psi. A second plug was set at 700 ft and contained 120 sx G-neat 16.0 ppg slurry. Tagged plug at 442 ft. Sections of the 9 5/8" and 13 5/8" were recovered, and the 30" was cut and retrieved from 25 ft below seabed.

Rig went off contract and departed from location May 17th, 1991, at 22:00 hrs.

WELL DIARY

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DATE	HOLE	PROG.	HRS.	TD	OPERATIONS
13/03	--	--	--	--	Rig under tow to O18a-1 location. Rig on contract 19:30 hrs, March 13, 1991. Tow spread: Maersk Blazer, Guardsman and Granit.
14/03	--	--	--	--	Pinned rig on location and preformed preload. Location coordinates: 52° 07' 55.7" N 02° 55' 27.2" E
15/03	--	--	--	--	Skidded derrick in position. Inspected seabed and offloaded boat. PU and welded 30" DP.
16/03	--	--	--	--	Cont'd welding 30"DP. 16 ft freefall. Hammered DP to 328' i.e. 93 ft penetration with 150 bpf. L/D hammer and MU 26" bit + BHA. Washed-out 30" DP to 322'. R/U hammer.
17/03	26	138'	2½	460'	Hammered to 472 ft with 193 bpf. MLH at 312 ft. Penetration 237 ft. Cut 30". L/D hammer and excess DP. P/U 26" bit + BHA and drilled to 460'. Circ 50 bbls Hi-visc pill to clean hole.
18/03	26	0	0	460'	POOH with 26" BHA. Installed 30" x 20" swage, 20" diverter spool and 20" Hydril. Installed spud pump. P/U 5" DP. M/U 17½" bit + BHA.
19/03	17½	681'	15	1141'	RIH with 17½ BHA. Took survey at 452 ft (2°). Displaced to spudmud. Drilled to 955 ft. Made short trip to shoe and washed to 955 ft. (20K drag). Cont'd drilling to 1141 ft.
20/03	17½	739'	20	1880'	Drilled to 1611 ft while taking surveys at 1129 ft (1.75°) and 1595 ft (1°). Made short trip to shoe (20K-40K drag bottom 600 ft). Washed to TD. Cont'd drilling to 1880 ft.
21/03	17½	723'	16	2603'	Cont'd drilling to 2358 ft while taking surveys at 1980' (1°) and 2341 (1°). Made short trip to 30" shoe. Intermittent drag of 20-30 KIP. W/R drag spots and drilled to 2603 ft.

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DATE	HOLE	PROG.	HRS.	TD	OPERATIONS
22/03	17½	508'	17.5	3111'	Cont'd drilling to 3111 ft. Top chalk at 2961 ft. Took survey at 3091 (3.75°) POOH. N/D diverter spool.
23/03	17½	0	0	3111'	N/D Hydril cut off 30" x 20" swage. Made dummy to MLH (312.4 ft). W/R to TD. Circ hole clean (20 ft/ fill) and POOH. R/U and run 13¾" csg. Shoe at 3085.7.
24/03	17½	0	0	3111'	RIH with 5" DP (OE) to 3023 ft. Circ ann. R/U Halco. Pumped 2037 sx G-neat lead and 400 sx tail. Had full returns. Spot sugar water in ann. Lowered 20" WF housing on pup joint onto 30" DP. Installed 20" x 13¾" WL slip and seal assy with 30000 lbs. N/U 20" x 13¾" WF spool and tested P-seals to 1200 psi.
25/03	13¾	--	--	3115'	NU BOP and tested same. Repaired leaking bonnet seals and Kelly valve.
26/03	12¾	4	4	3115'	Installed Bell nipple + pollution covers. L/D 9½ BHA and P/U 8" BHA + 5"DP. RIH to 3023 ft. Test csg to 1800 psi for 30 min. Washed to TOC at 3028 ft. Drilled firm cmt to shoe at 3085 ft. Displaced to KCl-mud.
27/03	12¾	333	12	3448'	Made leak-off test. Had leak-off at 13.69 ppg equivalent mud. Drilled 3218 ft. POOH and changed BHA. RIH and cont'd drilling to 3448 ft.
28/03	12¾	428	13	3876'	Cont'd drilling to 3603 ft. Took survey (1½°) and made short trip to 3085 ft (40K drag). Worked on sidedrive RIH and W/R to TD. Cont'd drilling to 3876 ft. Circ and POOH (max drag 40 KIP). P/U 12¾ core barrel.
29/03	12¾	63	7½	3939'	Assembled core barrel. M/U total of 60 ft. RIH and dropped ball. Cored from 3876 ft to 3936 ft. POOH recovered 100% core. M/U 60 ft core barrel. RIH and dropped ball. Cored from 3936 ft to 3939 ft.

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DATE	HOLE	PROG.	HRS.	TD	OPERATIONS
30/03	12½	283	14	4279'	Cont'd coring to 3996 ft. POOH, had 97% recovery. RIH to 3085 ft. Slip and cut drill line. Cont'd RIH. W/R to TD and drilled to 4279 ft.
31/03	12½	394	14	4673'	Cont'd drilling to 4552 ft. Dropped Totco. POOH to shoe (max drag 50 KIP). Not able to fish Totco. POOH. RIH to 4266 ft. W/R to TD. Drilled to 4673 ft.
01/04	12½	577	19	5250'	Cont'd drilling to 5008 ft. Dropped Totco and POOH to shoe. (spots of 40 KIP, rest max. 20 KIP). Recovered Totco. RIH W/R from 4900 ft to 5008 ft. Drilled new hole to 5250 ft.
02/04	12½	34	4	5284'	Circ bottoms-up. Dropped Totco and POOH. M/U 90 ft 12½ coring assembly. Had difficulty assembling same (old material & incorrect threading). RIH to 5250 ft. Cored to 5284 ft. No more progress. POOH and recovered 34 ft.
03/04	12½	13	4	5297'	M/U new 60 ft coring assy. RIH and cored to 5297 ft. ROP reduced to 1 ft/hr. POOH recovered 13 ft. Pulled WB and tested BOP. M/U new bit.
04/04	12½	30	5	5327'	RIH W&R 90 ft to TD. Drilled to 5327 ft. POOH RIH to log hole. Logged Induction/Sonic/GF from 5327 ft to 3085 ft and Density/Neutron/GR from 5340 ft to 5056 ft and 4481 ft to 3655 ft. RD logging equipment. M/U jet sub and cleaned MLH.
05/04	12½	--	--	5327'	Changed top rams to 9% rams. Tested seals to 2000 psi. RIH and conditioned hole. RIH with logging string. Run Diplog/GR from 5327 ft to 3085 ft and CBIL/GR from 5327 ft to 3085 ft.
06/04	9%	--	--	4327'	R/D logging equipment. R/U and run 9% csg. Ran 5315 ft and land same at 312 ft. Shoe at 5308.7 ft. Circ csg capacity. Cemented csg with 500 sxs G-neat lead and 300 sx G-neat tail. Bumped plug with 3000 psi for 15 min. ND BOP. Set WA slip with 50 KIP made rough cut on 9%.

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DATE	HOLE	PROG.	HRS.	TD	OPERATIONS
07/04	9%	--	--	5327'	Made final cut on 9% csg. Installed 10 x 10M csg spool. Test seals with 3000 psi. NU BOP stack and test same. L/D 8" drill collars. R/U and run Gyro.
08/04	8½	95	9½	5422'	RIH with 8½" bit. Washed to top cmt. Drilled-out float and shoe. Cleaned rathole and drilled to 5330 ft. Performed leak-off test to 11.24 ppg equivalent mud weight.
09/04	8½	304	22½	5726'	Drilled to 5726 ft.
10/04	8½	320	22½	6064'	Drilled to 6046 ft.
11/04	8½	286	21½	6332'	Drilled to 6087 ft. Made short trip to 9%" shoe. Cont'd drilling to 6332 ft.
12/04	8½	182	17	6514'	Cont'd drilling to 6354 ft. POOH. Changed bit RIH and drilled to 6514 ft.
13/04	8½	223	23	6737'	Cont'd drilling to 6737 ft. Made 6 stands wiper trip.
14/04	8½	75	5½	6812'	Cont'd drilling to 6774 ft. POOH for wash-out. L/D bit and BHA. M/U 90 ft core assembly RIH to 6678 ft. W&R to TD. Cored from 6774 ft to 6812 ft. Had 200 psi pressure drop and lost 17K string WT.
15/04	8½	--	--	6812'	POOH left 323,7 ft fish in hole (DP pin broken). Top fish at 6488.7 ft. MU 7%" overshot on 6" grapple. Washed to top fish. Latched on and POOH. Recovered fish. Had 38 ft core in barrel. L/D fishing BHA. Test BOP's as per SOP.
16/04	8½	--	--	6812'	Cont'd testing BOP. RIH with 8½ bit and BHA. Circ and conditioned mud in stages. POOH and M/U new 8½ bit. RIH and conditioned mud.
17/04	8½	148	16½	6960'	Drilled to 6909 ft. POOH for washout. RIH W&R to btm drilled to 6960 ft while raising mud weight.

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DATE	HOLE	PROG.	HRS.	TD	OPERATIONS
18/04	8½	162	14½	7122'	Drilled to 7122 ft. Had drilling break and lost 200 psi pump pressure. P/U had 50KIP drag and lost total returns. Filled hole with seawater and 40 bbls LCM pill. Pulled into 9% shoe. Cut drilling and circulated to 9.5 ppg mud. Had full returns.
19/04	8½	8	1	7130'	Observed annulus. RIH to 6208 ft and circulated mud to 9.5 ppg. Had full returns. Cont'd drilling to 7126 ft. Had high torque and no WOB. SI well, well was flowing. Circ bottoms up. Had mud cut to 8.9 ppg at the same time gaining and losing circulation. Stabilized well at 9.4 ppg. Dropped Totco. POOH L/D teledrift. RIH to 7100 ft washed to 7120 ft and drilled to 7130 ft. Gained 8 bbls. SI and observed well.
20/04	8½	172	12	7302'	Circulate well over choke. Mud had cut to 8.9 ppg. Stabilized well at 9.1 ppg. Circ and conditioned mud to raise visc. Drilled to 7302 ft.
21/04	8½	83	14½	7485'	Cont'd drilling to 7395 ft. POOH for washout. Changed bit. RIH and drilled to 7485 ft.
22/04	8½	190	17	7675'	Drilled to 7635 ft. POOH for washout. RIH to shoe. Had H ₂ S drill. RIH and drilled to 7675 ft.
23/04	8½	260	23	7935'	Cont'd drilling to 7700 ft. Circ and drilled to 7935 ft.
24/04	8½	73	5½	8008'	Cont'd drilling to 7985 ft. Had drilling break. SI and had 20 psi on annulus. Circ btms up through choke. Cont'd drilling to 8008 ft. Made short trip. At TD could not circulate. POOH and found bit plugged with form. Tested BOP. P/U new bit and RIH.
25/04	8½	253	19½	8261'	RIH, washed from 7726 ft to TD. Cont'd drilling to 8261 ft.
26/04	8½	146	16½	8407'	Cont'd drilling to 8333 ft. POOH for washout. RIH W&R from 7943 ft to TD. Drilled to 8407 ft.

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DATE	HOLE	PROG.	HRS.	TD	OPERATIONS
27/04	8½	126	23	8533'	Cont'd drilling to 8423 ft. Made short trip. Cont'd drilling to 8533 ft.
28/04	8½	50	6	8583'	Drilled to 8571 ft. Dropped Totco and POOH. P/U 90' core assembly. RIH to 9% shoe and slip and cut line. RIH to 8386 ft. W&R to TD and cored to 8583 ft.
29/04	8½	89	12	8672'	Cont'd coring to 8661 ft. POOH recovered 100 ft core. P/U new bit. RIH W&R from 8433 ft to TD. Drilled to 8672 ft.
30/04	8½	269	22½	8941'	Cont'd drilling to 8941 ft. Made check surveys at 7998 ft and 8520 ft.
01/05	8½	61	8½	9002'	Drilled to 8983 ft. Took check survey at 8938 ft. POOH. Pulled WB and tested BOP. P/U new bit RIH to 8900 ft. W&R to TD. Drilled to 9002 ft.
02/05	8½	266	8½	9268'	Cont'd drilling to 9268 ft.
03/05	8½	117	14	9385'	Cont'd drilling to 9291 ft. POOH and RIH with new bit cont'd drilling to 9385 ft.
04/05	8½	104	16	9489'	Cont'd drilling to 9489 ft. POOH. Changed bit and RIH.
05/05	8½	53	17½	9606'	RIH to 9302 ft. W&R to TD and drilled to 9606 ft POOH.
06/05	8½	99	18	9705'	Cont'd POOH changed bit RIH to 9419 ft. W&R to TD and drilled to 9705 ft.
07/05	8½	182	22½	9887'	Cont'd drilling to 9887 ft. Had 1.5 hrs power failure on rig.
08/05	8½	68	8½	9955'	Cont'd drilling to 9955. Dropped Totco. POOH. M/U 90 coring assembly. RIH.

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DATE	HOLE	PROG.	HRS.	TD	OPERATIONS
09/05	8½	56	15	10011'	RIH to 9770 ft. W&R to TD. Cored to 10011. Had indication of jammed core barrel. POOH. Cont'd POOH. L/D core assy, recovered 56 ft core. R/U shoot nipple and run logs: 1. MLL/DLL/GK/Sonic/CAL/CHT 10011 ft - 5249 ft 2. SDL/CN/SL/CHT 10011 ft - 5249 ft
10/05	8½	--	--	10011'	3. FMT/GR. Could not pass 7123 ft.
11/05	8½	--	--	10011'	POOH for run 4. Dipmeter. Also unable to pass 7123 ft. Logged to shoe. RIH and W&R hole. Had spots at 7120 ft and 7186 ft. Cont'd W&R to TD. R/U logging equipment.
12/05	8½	--	--	10011'	RIH with FMT took readings at 2188 m, 2192 m, 2196 m, 2203 m and 2727 m, took sample at 2727 m. POOH and run dipmeter from TD to 5307 ft. RUN VSP from 10011 ft to surface. RIH of W&R to TD.
13/05	8½	--	--	9392'	Circ and conditioned mud. P/U to 9745 ft. Placed 120 sx G-neat plug. Yield=1.14 cuf/sk WT = 16 ppg. PU to 9284 ft. Circ and had no cmt returns. Pulled into 9% csg shoe. Slip and cut drill line. POOH. Tested BOP's. RIH with OE drill pipe to 9261 ft. Washed to 9392 ft. Tagged hard cmt at 9392 ft with 15 KIP. POOH.
14/05	8½	--	--	9392'	Cont'd POOH. RIH with DST string. Set packer in 9% csg at 5256 ft. Tail pipe shoe at 7059 ft. R/U and test choke manifold + surface equipment. Tested N2 and CT to 5000 psi. RIH with CT to 5234 ft. Displaced mud to N2. Press-up to 2200 psi. Opened OMNI valve and flowed well over 20/64" choke. No flow and observed well.

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DATE	HOLE	PROG.	HRS.	TD	OPERATIONS
15/05		--	--	5250 '	RIH with CT while pumping N2. Recovered mud to 7030 ft. Let well come-in. Analyzed gas. No indications of hydrocarbons. POOH. Killed well with 131 bbls. Opened bypass and reverse circulated 185 bbls. RD test equipment. POOH with test string. RIH with 9% EZSV. Set same at 5250 ft.
16/05		--	--	442'	Circ and placed 120 sxs G-neat plug. (Yield = 1.14 cuf/sk and WT = 16 ppg). On top EZSV. POOH to 4785 ft. Rev. out, had no cmt returns. POOH. Closed rams and tested EZSV + cmt to 1000 psi/15 min. RIH OE and placed cmt plug at 700 ft. Pumped 120 sx G-neat. WT = 16.0 ppg Yield = 1.14 cuf. P/U to 273 ft. Wait on cmt. RIH to 415 ft. No cmt indication. POOH. ND BOP.
17/05		--	--	442'	RIH to 442' (top cmt). Test plug with 25 KIP. P/U 9% cutter. RIH to 327 ft and cut csg. RIH with 9% spear and recovered csg. N/D 20" x 13%" spool. RIH with 13%" cutter. Cut same at 324 ft. Recovered 13% with spear assy. MU 30" cutter. Cut same at 260 ft (7.5 m below bed). Wait on slack tide and recovered 30".
18/05	--	--	--	--	L/D DP. Skid derrick in tow position. Performed final leg and seabed inspection. Prepare for move. Hook-up tugs Guardsman, Alphonse Letier and Union 3. Rig off location at 22:07 hrs and under tow to the L10-C location. Rig off contract 18:00 hrs, May 18th, 1991.

FORMATION TOPS

RKB = 105.6 ft/32.2 m

FORMATION TOP/BASE	MD RKB (ft/m)	TVD SS (ft/m)
Base Tertiary	2961 ft/ 902.5 m	2854.3 ft/ 870.0 m
Base/Chalk	3704 ft/1129.0 m	3597.2 ft/1096.4 m
Base Ommelanden		
Late Westphalian-A	3704 ft/1129.0 m	3597.2 ft/1096.4 m
Dinantian	5199 ft/1584.5 m	5092.1 ft/1552.1 m
Devonian	9565 ft/2915.3 m	9455.2 ft/2882.0 m
Upper Silurian	9686 ft/2952.0 m	9576.1 ft/2918.8 m

CASING RECORD	WELL: O18A-1	SIZE: 30" DP
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CEMENT/TEST RESULTS:

1st STAGE	2nd STAGE
RETURNS: FULL / PARTIAL / NO	RETURNS: FULL / PARTIAL / NO
PRESSURE TEST: psi	PRESSURE TEST: psi
TEST DURATION: min	TEST DURATION: min

CENTRALIZER PROGRAM.

CSG ANCILLARY EQUIPMENT

INTREVAL	SPACING	AMOUNT	ITEM	MAKE/TYPE
			MLH	COOPER/ WT-SET
			DV	-
			LINER HAGER	-
			FLOAT	-
			SHOE	-

RTE DEPTH CSG STRING

74.39'

312.35'

472.78'

	JNTS	WEIGHT #/ft	GRADE	BURST psi	COL psi	THREAD	LENGTH ft
Cut Off	1	309	ST52			WELD	32.84
Joints	5	309	ST52			WELD	237.96
ML RING	1						0.63
Pup jnt	1	309	ST52			WELD	12.85
Joints	3	309	ST52			WELD	143.60
Shoe	1					WELD	3.35

CASING RECORD	WELL: O18A-1	SIZE: 13.3/8"
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CEMENT/TEST RESULTS:

1st STAGE			2nd STAGE		
RETURNS:	FULL / PARTIAL / NO-		RETURNS:	FULL / PARTIAL / NO	
PRESSURE TEST:	1900	psi (cmt was set)	PRESSURE TEST:		psi
TEST DURATION:	15	min	TEST DURATION:		min

CENTRALIZER PROGRAM.

CSG ANCILLARY EQUIPMENT

INTREVAL	SPACING	AMOUNT	ITEM	MAKE/TYPE
3080' - 3050'	30 ft	2	MLH	COOPER/ WT-SET
3050' - 2909'	44 ft	3	DV	-
2909' - 2125'	125 ft	15	LINER HAGER	-
			FLOAT	HALCO/ SUPER SEAL II
			SHOE	HALCO/ SUPER SEAL II

CMT	RTE DEPTH	CSG STRING		JNTS	WEIGHT #/ft	GRADE	BURST psi	COL psi	THREAD	LENGTH ft
VOID	71.45'		Cut Off	1	72	N80	5380	2670	BTC	34.45
			Joints	6	72	N80	5380	2670	BTC	218.76
			Pup joint	1	72	N80	5380	2670	BTC	19.63
			RT	1						
			MLH	1						2.84
LEAD	309.84'		Pup joint	1	68	K55	3450	1950	MO	22.20
TAIL	2495'		Joints	61	68	K55	3450	1950	MO	2705.63
	3085.66'		Pup joint	1	68	K55	3450	1950	MO	9.65
			Float	1		N80			MO	1.05
			Joint	1	68	K55	3450	1950	MO	32.20
			Shoe	1		N80			MO	1.75

CASING RECORD	WELL: O18A-1	SIZE: 9.5/8"
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CEMENT/TEST RESULTS:

1st STAGE		2nd STAGE	
RETURNS:	FULL / PARTIAL / NO	RETURNS:	FULL / PARTIAL / NO
PRESSURE TEST:	3000 psi (bumping plug)	PRESSURE TEST:	psi
TEST DURATION:	15 min	TEST DURATION:	min

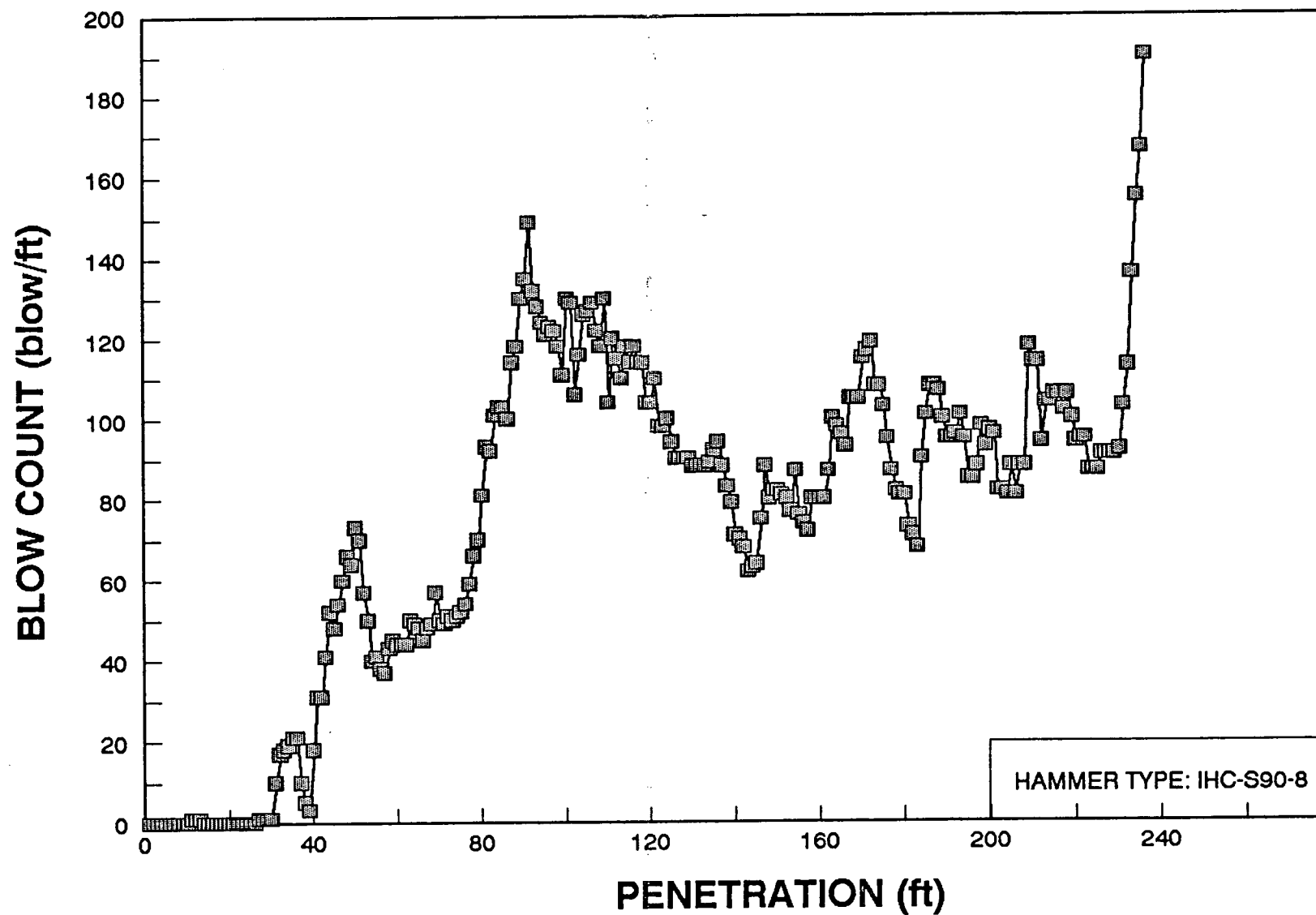
CENTRALIZER PROGRAM.

CSG ANCILLARY EQUIPMENT

INTREVAL	SPACING	AMOUNT	ITEM	MAKE/TYPE
5307' - 5267'	20 ft	2	MLH	COOPER/ WT-SET
5267' - 5140'	42 ft	3	DV	-
5140' - 2018'	125 ft	25	LINER HAGER	-
			FLOAT	HALCO/ SUPER SEAL II
			SHOE	HALCO/ SUPER SEAL II

CMT	RTE DEPTH	CSG STRING		JNTS	WEIGHT #/ft	GRADE	BURST psi	COL psi	THREAD	LENGTH ft
VOID	72.65'		Cut Off	1	47	N80	6870	4750	BTC	39.15
			Joints	5	47	N80	6870	4750	BTC	216.18
			Pup joint	1	47	P110	9440	5310	BTC	20.57
			RT	1					BTC	0.65
			MLH	1					BTC	2.77
			Pup joint	1	47	P110	9440	5310	BTC	16.56
			Joints	120	47	N80	6870	4750	BTC	4936.34
			Float	1		N80			BTC	1.14
TAIL	4412'		Joint	1	47	N80	6870	4750	BTC	39.10
			Shoe	1		N80			BTC	1.75
	5308.7'									

O18a-1 30" DRIVE PIPE PENETRATION PLOT



O18a-1 CASING AND LINER CEMENTING OVERVIEW.

	13.3/8' Lead	13.3/8' Tail	9.5/8' Lead	9.5/8' Tail						
CMT TYPE	2037 sx G-NEAT	400 SX G-NEAT	500 sx G-NEAT	300 sx G-NEAT						
RETARDER	HR-4 0.2 PPB		HR-4 0.3 PPB							
FRICTION ADD.				CFR-3 5.7 PPB						
WTR RETAINER										
FLD LOSS ADD.										
VOLUME ADD.	SALT GEL 13.6 PPB		W. BENT 8.6 PPB							
RETROGRADE ADD.										
CLAY/SALT INHIB										
WEIGHT ADD.										
MIX WTR	10.1 gal/sk SEA WATER	5.0 gal/sk SEA WATER	13.75 gal/sk FRESH WTR	4.2 gal/sk FRESH WTR						
SLURRY YIELD	1.84 cu/sk	1.14 cu/sk	2.32 cu/sk	1.03 cu/sk						
SLURRY DENSITY	13.3 ppg	16.0 ppg	12.2 ppg	16.7 ppg						
SETTING TIME										
BHT (F)										
MUD SYSTEM	10.1 ppg WBM	10.1 ppg WBM	9.9 ppg WBM	9.9 ppg WBM						
SPACER										
ANNULAR VEL.										

O18a-1 ABANDONMENT/PLUGBACK SCHEDULE.

PLUG #	1	2	3							
BOTTOM PLUG	9745'	5250'	700'							
CMT TYPE	120 sx G-NEAT	120 sx G-NEAT	120 sx G-NEAT							
RETARDER/ACC	0.35% HR-4 BWOC	0.35% HR-4 BWOC	2% CaCl2 BWOC							
FRICTION ADD.	0.1% CFR-3 BWOC	0.1% CFR-3 BWOC	0.1% CFR-3 BWOC							
WTR RETAINER										
FLD LOSS ADD.										
VOLUME ADD.										
RETROGRADE ADD.										
CLAY INHIBITOR										
MIX WTR ADDITIVE										
MIX WTR	5.0 gal/sk SEA WATER	5.0 gal/sk SEA WATER	4.9 gal/sk SEA WATER							
SLURRY YIELD	1.14 CUF	1.14 CUF	1.14 CUF							
SLURRY DENSITY	16.0 PPG	16.0 PPG	16.0 PPG							
SETTING TIME										
BHT (F)										
SPACER										
COMMENT	RESERVOIR PLUG	PLUG AT 9.5/8" SHOE								

EZSV IN 9.5/8" CSG AT 5250'

LEAK-OFF/LIMIT-TEST SUMMARY

RKB = 105.6 ft/32.2 m

MD	TVDSS	FORMATION	EQUIV. MUD WEIGHT	REMARK
3115' (949.5 m)	3008.3' (916.9 m)	Ommelanden Chalk	13.69 ppg	Leak-off at 950 psi. Stabilized at 750 psi
5330' (1624.6 m)	5223.1' (1592.0 m)	Dinantian (Upper Visean)	11.24 ppg	No leak-off

MUD SUMMARY

17½" HOLE

A standard spud mud was used for the top hole section, which consisted of unconsolidated tertiary sands and shales.

Prehydrated gel was mixed in water which had been treated with Soda Ash and Caustic Soda to improve gel hydration. The aim was to keep mud weight as low as possible, which was realized by running all solids control equipment, by dumping and by dilution. The weight was maintained in the range of 9.5 ppg. Shales were adequately inhibited with additions of salt (18,000 - 48,000 PPM Cl)

Solids control was difficult when drilling into the top chalk. Rapid build-up of fines could only be dealt with to a certain extent by using 200 mesh screens and the centrifuge.

12½" HOLE

The 12½" section penetrated late Cretaceous and Westphalian sequences. The mudsystem was a KCl-polymer PAC-mud. A 9.1 - 9.4 ppg weight was maintained throughout the Cretaceous LS. In the Westphalian, the weight was increased to 9.8 to combat overpull. Fluid loss was maintained at 5.5 ml, PV/YP was kept in the range of 20/17 and chlorides at a level of \pm 64,000 ppm.

8½" HOLE

The 8½" section penetrated Dinantian limestone and dolomite sequences and Devonian SS/Claystone sequences. The section was TD'ed in Silurian Claystones. A KCl-polymer mud system was used with roughly the same properties as in the 12½" section.

The Dinantian interval had quite some washouts. At first it was attributed to corrosion, but at a later stage mechanical damage appeared to be the cause. While drilling the interval, total loss of circulation had also been experienced. Lowering mud weight and spotting LCM pills appeared to cure the problem. However some type of X-flow was still occurring with an interchange of wellbore fluids and mud.

Increases in calcium and magnesium concentrations were stabilized at respectively 1600 ppm and 5000 ppm by additions of Soda Ash and Caustic Soda. In anticipation of the Ceraman SS, HT-HP fluid loss was reduced to 14 ml/30 min at 200°F and YP and gels were respectively increased to 20-25 and 5-7, to handle increased ROP's.

Logs over the entire section showed quite some washing-out. Roughly 70% of the hole was oversized (concentrated in the upper section).

DRILLING/COMPLETION FLUID OVERVIEW

INTERVAL	HOLE SIZE	MUD TYPE	REMARKS
0-3111'	17½"	PH-Bentonite (spud mud)	WT = 9.30-10.1 ppg PV/YP = 11/30 [Cl⁻] = 19,000 ppm
3111'-5327'	12¼"	KCl-Polymer PAC-Mud	WT = 9.2-9.8 ppg PV/YP = 20/18 [Cl⁻] = 63,000 ppm Gauge hole
5327'-10011'	8½"	KCl-Polymer PAC-Mud	WT = 9.2-10.0 ppg PV/YP = 10/15 [Cl⁻] = 62,000 ppm 70% Washed-out!!

DATE	TIME	DEPTH	WT	FUNNEL VISCOSITY API	PLASTIC VISCOSITY CP	YIELD POINT LB/100 FT		GELS	P.H.	Filtrate (ml/30 min)			CAKE	Pm	Pf	Mr	CHLORIDE PPM	TH PPM	SAND (% by VOL.)	SOLIDS (% by VOL.)	OIL (% by VOL.)	WATER (% by VOL.)	NO ₃ SO ₃ Mg/L
15-Mar	24.00	328	8.40	86																			
16-Mar	24.00	472	8.40	87																			
17-Mar	24.00	472	8.40	86																			
18-Mar	24.00	955	8.90	64	11	47	35	36						0.8	0.20	0.50	6000	160	1.75				
19-Mar	24.00	1648	9.30	160	21	64	52	55									48000	320	1.00				
20-Mar	16.00	2361	9.60	126	12	26	32	35		13.0			2	0.5	0.15	0.80	28000	1200	0.75				
21-Mar	19.30	3111	10.10	74	8	44	22	26						1.8	0.20	0.80	18000	1200	0.75				
22-Mar	14.00	3111	9.90	40	10	22	24	28		12.2			2	1.8	0.20	0.80	19000	560	0.75				
23-Mar	18.00	3084	10.10	40	11	23	15	24		12.6			2	1.8	0.20	0.70	19000	600	0.75				
24-Mar	12.00	3084	10.10	40	11	23	15	24		12.6			2	1.8	0.20	0.70	19000	600	0.75				
25-Mar	12.00	3084	10.10	40	11	23	15	24		12.6			2	1.8	0.20	0.70	19000	600	0.75				
26-Mar	23.00	3290	9.20	41	16	15	1	2	10.0	6.4			1	1.2	0.20	0.80	62000	600					
27-Mar	22.00	3876	9.40	46	22	21	3	3	9.5	5.8			1	1.1	0.10	0.60	63000	160					
28-Mar	23.00	3936	9.50	44	20	21	3	4	9.0	5.4			1	1.0	0.10	0.70	62000	400	0.25				
29-Mar	24.00	4070	9.50	44	20	18	3	4	9.5	5.4			1	2.0	0.10	0.80	54000	400	0.25				
30-Mar	24.00	4560	9.70	42	19	18	3	4	10.0	5.8			1	2.4	0.20	0.80	63000	400	0.25				
31-Mar	24.00	5102	9.90	42	20	17	3	5	9.0	5.2			1	2.0	0.10	0.70	62000	400	0.75				
01-Apr	21.00	5284	9.80	42	19	15	3	3	9.5	5.2			1	2.0	0.10	0.80	63000	500	0.50				
02-Apr	18.00	5297	9.80	42	21	17	3	4	9.5	5.2			1	2.4	0.20	0.80	63000	500	0.50				
03-Apr	14.00	5237	9.80	42	19	17	3	4	9.5	5.4			1	2.4	0.20	0.80	64000	500	0.50				
04-Apr	12.00	5237	9.80	45	21	17	3	4	9.0	5.4			1	2.0	0.10	0.80	64000	500	0.50				
05-Apr	21.00	5327	9.90	44	20	16	3	4	9.0	5.4			1	2.0	0.10	1.70	63000	500	0.50	10.0			90
06-Apr	20.00	5327	9.90	43	20	16	3	4	9.0	5.4			1	2.0	0.10	2.60	63000	500	0.50	10.0			90
07-Apr	23.30	5350	9.70	40	10	14	3	4	10.0	5.8			1		0.60	1.80	62000	450	0.25	10			90
08-Apr	23.30	5665	9.70	40	11	15	4	5	10.0	6.0	11.0	200	1		0.70	1.50	61000	350	0.25	10			90
09-Apr	23.30	5925	9.70	40	10	14	4	5	10.0	7.0	12.0	200	1		0.50	1.40	63000	220	0.25	10			90
10-Apr	23.30	6266	9.70	40	10	14	3	5	10.0	7.0	11.5	200	1		0.50	1.40	64000	220	0.25	10			90
11-Apr	23.30	6438	9.70	40	10	14	3	5	10.0	6.2	13.8	200	1		0.60	1.50	66000	140	0.25	10			90
12-Apr	23.30	6685	9.70	40	11	14	3	5	10.0	6.4	16	200	1		0.50	1.40	66000	120	0.25	10.5			89.5
13-Apr	23.30	6774	9.70	40	12	15	3	5	10.0	5.8	17	200	1		0.50	1.50	67000	140	0.25	10			90
14-Apr	23.00	6812	9.70	42	12	16	3	5	10.0	4.8	16	200	1		0.60	1.50	67000	120	0.25	10			90
15-Apr	17.30	6812	9.70	42	11	15	3	5	10.0	5.6	16	200	1		0.50	1.40	66000	140	0.25	10			90
16-Apr	23.00	6909	9.70	42	11	14	3	5	10.0	5.4	17	200	1		0.50	1.40	66000	120	0.25	10			90
17-Apr	21.00	7095	10.00	40	10	14	1	2	10.0	6.2	17	200	1		0.50	1.50	66000	180	0.25	12			88
18-Apr	16.30	7126	9.50	40	10	15	1	2	10.0	5.0			1		0.30	1.40	66000	1600	0.25	9			91
19-Apr	24.00	7213	9.00	39	7	5	1	2	9.0	10.0			1	1.4	0.20	0.90	64000	16250	0.25	4			96
20-Apr	24.00	7428	9.00	39	5	9	3	4	10.0	10.2			1	1.8	0.20	1.00	62000	15000	0.25	5			95
21-Apr	16.30	7602	9.20	36	8	13	4	6	10.0	10.2			1	1.8	0.20	1.10	62000	12400	0.25	6			94
22-Apr	24.00	7868	9.20	35	10	14	4	5	9.5	8.6			1	1.9	0.20	0.90	62000	9500	0.25	6			94
23-Apr	16.00	8008	9.20	36	10	14	4	5	10.0	8.8			1	2.0	0.20	0.90	62000	9200	0.25	6			94
24-Apr	24.00	8173	9.20	38	11	15	4	5	9.5	7.4			1	1.9	0.20	0.80	63000	9800	0.25	6			94
25-Apr	24.00	8356	9.10	38	12	16	5	5	10.0	7.5			1	1.9	0.20	0.90	63000	10800	0.25	6			94

DATE	TIME	DEPTH	WT	FUNNEL VISCOSITY API	PLASTIC VISCOSITY CP	YIELD POINT LB/100 FT		GELS	P.H.	Filtrate (mV/30 min) API			CAKE	Pm	Pf	Mf	CHLORIDE PPM	TH PPM	SAND (% by VOL.)	SOLIDS (% by VOL.)	OIL (% by VOL.)	WATER (% by VOL.)	NO ₂ SO ₃ Mg/L
													1	2.0	0.15	0.90	61000	7000	0.25	6		94	91
26-Apr	23.30	8505	9.20	35	8	17	5	6	9.5	7.6			1	2.0	0.20	0.90	61000	7000	0.25	6		94	89
27-Apr	10.00	8571	9.10	35	8	14	5	5	9.5	7.6			1	1.9	0.20	0.90	61000	7600	0.25	6		94	75
28-Apr	16.00	8661	9.10	36	11	15	5	6	10.0	7.6			1	1.9	0.20	1.00	60000	5600	0.25	6		94	73
29-Apr	24.00	8900	9.20	35	12	18	5	6	10.0	7.6			1	1.9	0.20	1.00	60000	5600	0.25	6.0		94	83
30-Apr	10.00	8983	9.10	35	10	18	5	6	9.5	7.0		200	1	1.6	0.20	0.90	60000	5600	0.25	6.0		94	73
01-May	24.00	9213	9.20	37	13	16	4	5	10.0	6.2		200	1	2.1	0.20	0.90	60000	5600	0.25	6.0		94	254
02-May	24.00	9325	9.20	35	10	18	4	5	9.5	5.8	20	200	1	1.9	0.20	0.80	60000	6800	0.25	6.0		94	50
03-May	22.00	9489	9.20	36	11	15	3	4	9.6	6.8	19.8	200	1	1.2	0.40	0.55	61000	5800	0.25	7.0		94	44
04-May	24.00	9599	9.20	39	13	20	5	6	9.6	6.5	13.8	200	1	1.2	0.50	0.90	60000	5500	TR	7.0		93	44
05-May	24.00	9668	9.20	40	14	21	4	5	10.4	6.6	14.4	200	1	1.3	0.60	1.40	60000	4900	0.25	6.0		93	240
06-May	24.00	9830	9.20	41	13	25	6	7	9.5	6.3	14	200	1	1.3	0.40	1.30	60000	4600	0.25	7.0		94	44
07-May	24.00	9830	9.20	41	13	25	6	7	9.5	6.3	14	200	1	1.7	0.30	1.10	62000	4300	0.30	6.0		94	57
07-May	24.30	9955	9.20	40	13	21	5	7	9.8	5.5	14	200	1	1.7	0.30	1.10	62000	4300	0.30	6.0		94	57
08-May	20.30	10010	9.25	39	12	19	5	6	9.5	5.4	14.4	200	1	1.1	0.20	0.90	62000	4600	0.25	6.0		94	38
08-May	20.30	10010	9.25	39	12	19	5	6	9.5	5.4	14.4	200	1	1.1	0.20	1.00	61000	4700	TR	6.0		94	38
09-May	24.00	10010	9.25	42	12	20	5	6	9.5	5.5	14.6	200	1	1.1	0.20	1.00	61000	4700	TR	6.0		94	38
10-May	24.00	10011	9.30	40	10	16	4	6	9.0	5.9	15	200	1	0.2	TR	1.30	62000	5800	TR	7.0		93	
11-May	24.00	10011	9.30	42	10	16	4	6	9.0	6.0	15	200	1	0.2	TR	1.30	62000	5800	TR	7.0		93	
12-May	24.00	10011	9.30	42	10	16	4	6	9.0	6.0	15	200	1	0.2	TR	1.30	62000	5700	0.25	7.0		93	19
12-May	8.00	10011	9.35	36	10	14	4	4	9.0	5.2	17.6	200	1	0.1	TR	1.40	62000	5700	0.25	7.0		93	19
13-May	24.00	10011	9.35	39	10	14	4	5	9.0	5.3	17.8	200	1	0.2	TR	1.50	62000	5700	0.25	7.0		93	19
14-May	24.00	10011	9.35	39	10	12	3	4	8.4	5.8	19.2	200	1	TR	0.00	1.20	62000	5800	TR	6.0		94	TR

ELECTRICAL LOGGING OVERVIEW

Logging services were performed by Western Atlas.

TYPE LOG	DATE	INTERVAL	TEMP	HOLE
DIFL/AL/GR	03/04/91	1624.2 m - 940.3 m	57°C	12¼
Diplog	04/04/91	1624.2 m - 940.0 m	--	12¼
Densilog/Neutron/GR	04/04/91		62°C	12¼
CBIL/GR	04/04/91	1623.8 m - 940.5 m	--	csg
Spectralog	04/04/91	1624.1 m - 1125.0 m	62°C	12¼
Seeker Gyro	06/04/91	1585.0 m - surface	--	csg
DLL/MLL/AC/GR	09/05/91	3051.5 m - 1616.2 m	92°C	8½
Densilog/Neutron/GR	10/05/91	3051.5 m - 1616.2 m	95°C	8½
Spectralog	10/05/91	2051.5 m - 1616.2 m	95°C	8½
RFT/GR	11/05/91	2727.0 m - 2165.0 m	92°C	8½
Diplog/GR	11/05/91	3050.0 m - 1620.0 m	95°C	8½
Bore Hole Seismic	11/05/91	--	--	--

BITRECORD WELL : 018a-1

PENROD 64

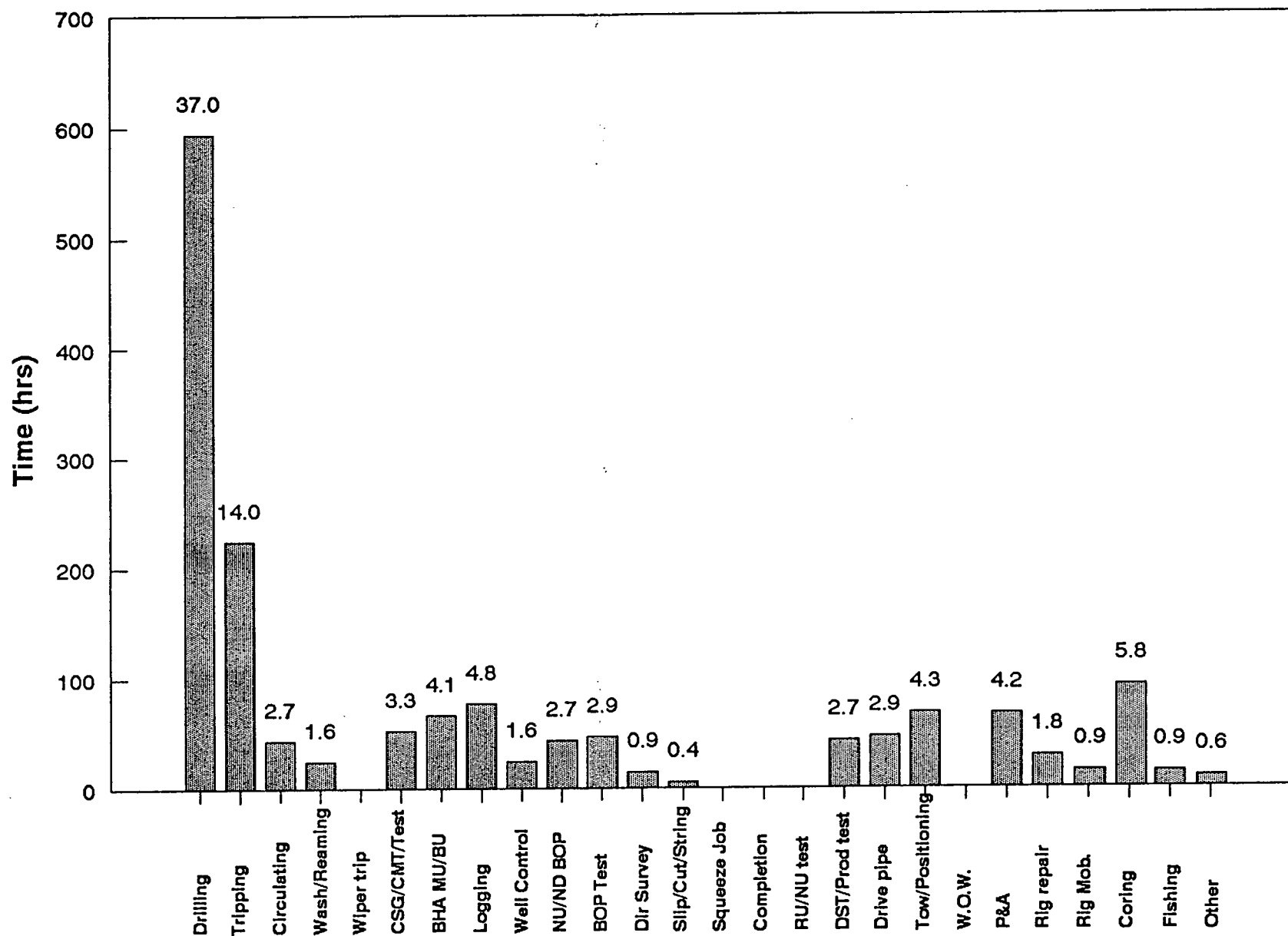
Date spud : 17-03-1991

Bit	Size	Make	Type	IADC	Nozzles	Depth out	Feet	Hours	ROP ft/hr	WOB klbs	RPM	GPM	Pres psi	WT ppg	VIS sec	PV/YP	Lithology	Formations drilled	Grading
RR	26	HTC	CR1	111	OPEN	460	225	3.0	75.00	5/10	20/40	936	650	8.4	87	--/--	SD	Clean drive pipe	2 2 WT A 2 0 NO TD
1	17 1/2	HTC	CR1	111	OPEN	3111	2651	67.0	39.57	10/25	110	946	1400	10.1	74	8/44	CL CK CT	Tertiary/Ommelanden chalk	4 4 WT A 4 0 -- TD
2	12 1/4	RTC	Y11	111	16 16 16	3218	107	3.5	30.57	25/30	110	666	1700	10.1	40	11/23	CMT CK	Ommelanden chalk	2 2 WT A 2 0 NO BHA
3	12 1/4	HTC	ATM11H	447	16 16 28	3876	658	21.5	30.60	30	150	676	1300	9.4	46	21/21	MR SD CL DL	Ommelanden chalk	1 1 NO A E 0 NO CP
4	12 1/4	DBS	CT303	T5X9	W.C.	3936	60	7.0	8.57	35	120	338	1000	9.5	44	20/21	SH ST CO	Westphalian	1 1 NO A X 0 NO FULL
RR4	12 1/4	DBS	CT303	T5X9	W.C.	3996	60	7.1	8.45	30/35	120	338	1000	9.5	44	20/18	SH ST	Westphalian/Namurian	1 1 NO A X 0 NO FULL
RR3	12 1/4	HTC	ATM11H	447	13 13 24	5250	1254	36.5	34.36	45/30	150/180	760	2460	9.9	42	20/17	SH ST	Namurian	4 4 BT A E 0 CT/CW CP
5	12 1/4	EC	SC226	T6X8	W.C.	5284	34	2.6	13.08	20/35	60/130	312	700	9.8	42	19/15	LS	Dinantian	20% wear X 0 -- PR
RR5	12 1/4	EC	SC226	T6X8	W.C.	5297	13	4.0	3.25	20/40	140/110	312	800	9.8	42	21/17	LS	Dinantian	5 6 NO G X 0 -- PR
6	12 1/4	SII	3JS	535	16 16 16	5327	30	4.8	6.25	25/28	140	780	3050	9.8	42	19/17	LS	Dinantian	2 2 WT A E 2 NO TD
7	8 1/2	HTC	ATM22G	517	14 15 15	6354	1027	79.0	13.00	25/30	125/120	593	3000	9.7	40	10/14	LS	Dinantian	2 2 CT 2/3 F 0 WT HR
8	8 1/2	SII	F27DL	517	14 15 15	6774	420	41.0	10.24	25	140	603	3000	9.7	40	12/15	LS	Dinantian	2 5 BT H E 0 RG/FC CP
9	8 1/2	DBS	CBT303	O5X9	W.C.	6812	38	6.0	6.33	5/10	100	260	900	9.7	42	12/10	LS	Dinantian	4 4 LT N X 0 ER TW
10	8 1/2	SII	F27DL	517	14 15 15	7126	314	28.1	11.17	30	130	572	3000	9.7	40	10/15	LS	Dinantian	1 1 NO A E 0 NO HP
RR10	8 1/2	SII	F27DL	517	OPEN	7395	269	8.1	33.21	15/30	120	468	900	9.0	39	5/ 9	LS	Dinantian	1 1 NO A E 0 NO PP
11	8 1/2	HTC	ATM22G	517	18 18 24	8008	613	51.0	12.02	30	120	520	1400	9.2	36	10/14	LS	Dinantian	2 3 BT H E 0 CT PN
12	8 1/2	HTC	ATM22	517	18 18 24	8571	563	64.0	8.80	30	130	551	1650	9.1	35	8/14	LS DL	Dinantian	5 7 BT M E 0 LT HR
13	8 1/2	DBS	CB303	T5X9	W.C.	8661	90	12.5	7.20	10/12	100	270	900	9.1	36	11/15	LS DL	Dinantian	2 3 WT A X 0 NO TD
14	8 1/2	HTC	ATM22	517	18 18 24	8983	322	29.5	10.92	25/30	120	551	1725	9.1	35	10/10	DL LS	Dinantian	5 8 BT A E 0 LT PR
15	8 1/2	HTC	ATM33	537	13 13 18	9291	308	28.0	11.00	30	140	582	2900	9.2	35	10/18	DL LS	Dinantian	6 8 BT A E 0 LT PR
16	8 1/2	HTC	ATM33	537	13 13 18	9489	198	25.0	7.92	30	110	582	2900	9.2	36	11/15	LS	Dinantian	6 5 BT M E 0 LT PR
RR10	8 1/2	SII	F27DL	517	14 15 15	9606	117	17.0	6.88	30	50/110	582	2800	9.2	40	14/21	CS ST DL	Devonian	5 2 BT M E 0 RG PR
17	8 1/2	HTC	ATM22G	517	13 13 18	9955	349	48.5	7.20	30/35	70/110	520	2300	9.2	40	13/21	SH ST	Devonian	2 2 FC A E 0 RG HR
RR13	8 1/2	DBS	CB303	D5X9	W.C.	10011	56	15.0	3.73	20	100	286	1050	9.2	42	12/20	SH ST	Devonian	4 4 WT A X 0 ER PR/TD

DRILLING TIME DISTRIBUTION

<u>NO.</u>	<u>OPERATION</u>	<u>TIME (hrs)</u>	<u>%</u>
1	Drilling	593.5	37.0
2	Trippint	224.0	14.0
3	Circulation	43.5	2.7
4	Wash/Reaming	12.0	0.7
5	Wiper trip	13.0	0.8
6	Casing/Cementing/Testing	52.5	3.3
7	BHA MU/BU	66.5	4.1
8	Logging	77.0	4.8
9	Well Control	25.0	1.6
10	NU/ND BOP	43.0	2.7
11	BOP Test	47.0	2.9
12	Dir Survey	15.0	0.9
13	Slip/Cut/String	6.0	0.4
14	Squeeze job	0.0	0.0
15	Completion	0.0	0.0
16	RU/ND Test	0.0	0.0
17	DST/Production Test	43.5	2.7
18	Drive Pipe	46.5	2.9
19	Tow/Positioning	68.5	4.3
20	W.O.W.	0.0	0.0
21	P&A	68.0	4.2
22	Rig Repair	29.0	1.8
23	Rig Mob	14.5	0.9
24	Coring	92.5	5.8
25	Fishing	14.0	0.9
26	Other	<u>9.0</u>	<u>0.6</u>
	TOTAL	1003.5	100%

DRILL TIME DISTRIBUTION O18a-1



DEVIATION SURVEY 018a-1.

Merged data form GYRO SURVEY dd 06/04/91 and
DIPMETER results dd. 11/05/91.

Calculation method: AVERAGE ANGLE.

Reference : True North

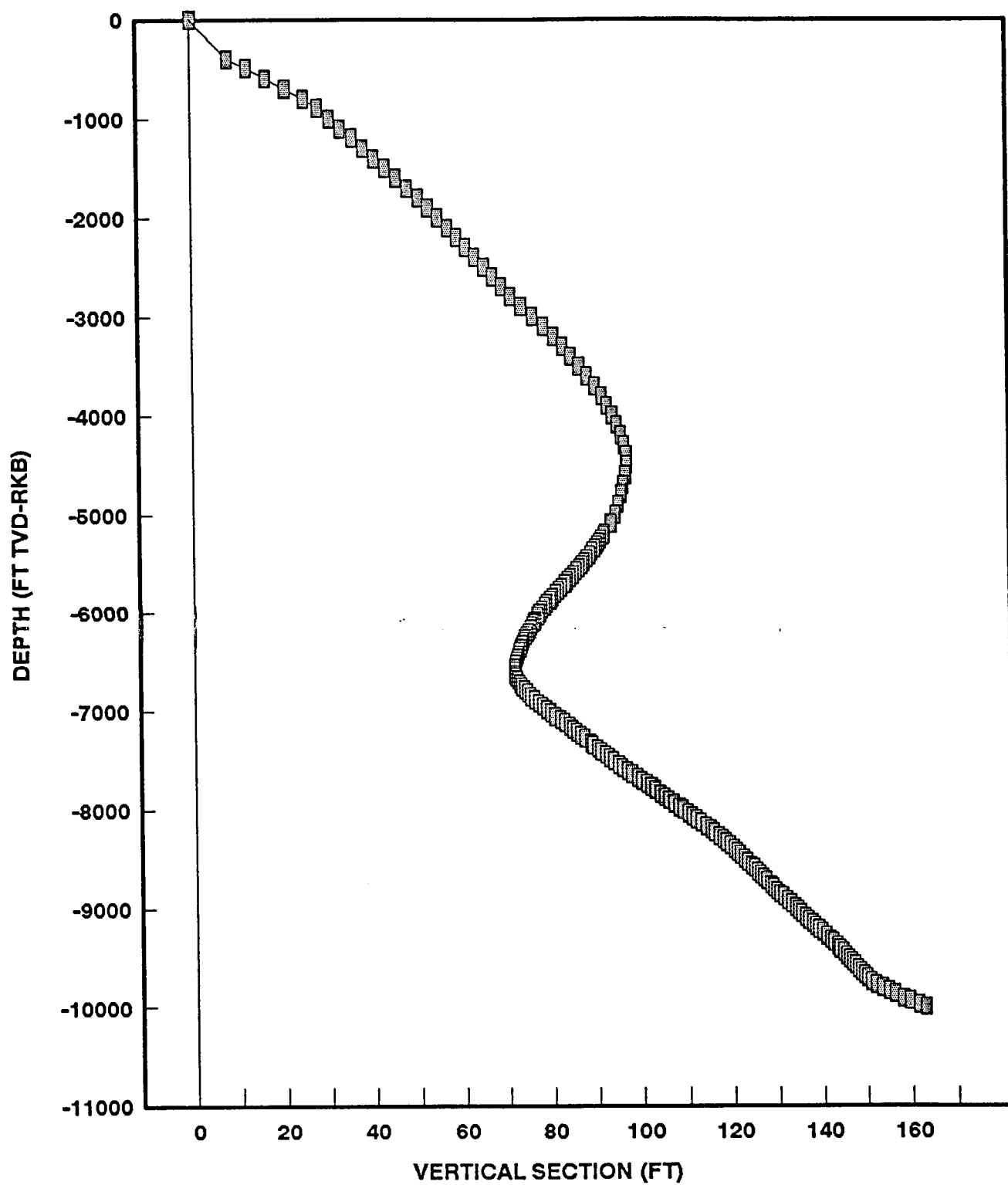
MD (FT)	TVD (FT)	SECTION (FT)	AZI (DEG)	INC (DEG)	Y-AXIS (FT)	X-AXIS (FT)	D-LEG /100 FT
0.0	0.00	0.0	0.00	0.00	0.00	0.00	0
400.0	399.89	8.1	169.37	2.32	-8.00	1.50	0.58
500.0	499.80	12.3	166.64	2.43	-12.05	2.36	0.16
600.0	599.71	16.6	167.15	2.52	-16.26	3.34	0.09
700.0	699.61	21.0	166.47	2.50	-20.52	4.34	0.04
800.0	799.53	25.0	167.60	2.15	-24.48	5.25	0.35
900.0	899.48	28.3	171.90	1.56	-27.66	5.83	0.61
1000.0	999.45	30.9	179.08	1.43	-30.26	6.03	0.23
1100.0	1099.41	33.3	179.91	1.45	-32.78	6.05	0.03
1200.0	1199.38	35.9	181.11	1.53	-35.38	6.03	0.09
1300.0	1299.35	38.4	180.43	1.42	-37.95	6.00	0.11
1400.0	1399.32	40.9	178.42	1.45	-40.45	6.02	0.06
1500.0	1499.28	43.4	179.45	1.42	-42.96	6.07	0.04
1600.0	1599.25	45.8	177.14	1.40	-45.42	6.14	0.06
1700.0	1699.22	48.3	175.53	1.39	-47.85	6.30	0.04
1800.0	1799.20	50.6	175.28	1.29	-50.18	6.48	0.10
1900.0	1899.17	52.8	173.38	1.24	-52.37	6.70	0.07
2000.0	1999.15	55.0	173.43	1.26	-54.54	6.95	0.02
2100.0	2099.13	57.1	172.36	1.18	-56.65	7.22	0.08
2200.0	2199.11	59.2	170.02	1.18	-58.69	7.53	0.05
2300.0	2299.08	61.2	168.38	1.19	-60.72	7.92	0.04
2400.0	2399.06	63.3	168.46	1.13	-62.70	8.32	0.06
2500.0	2499.04	65.2	165.90	1.16	-64.65	8.77	0.06
2600.0	2599.02	67.2	173.13	1.11	-66.60	9.13	0.15
2700.0	2699.00	69.2	178.93	1.14	-68.56	9.26	0.12
2800.0	2798.98	71.2	179.71	1.24	-70.64	9.29	0.10
2990.0	2988.93	75.7	183.00	1.46	-75.11	9.18	0.12
3000.0	2998.93	75.9	183.06	1.52	-75.37	9.17	0.60
3100.0	3098.90	78.4	180.71	1.34	-77.86	9.09	0.19
3200.0	3198.87	80.5	187.08	1.14	-80.02	8.94	0.24
3300.0	3298.85	82.5	184.91	1.18	-82.04	8.73	0.06
3400.0	3398.83	84.4	180.95	1.04	-83.97	8.63	0.16
3500.0	3498.82	86.2	177.56	1.03	-85.78	8.65	0.06
3600.0	3598.80	88.0	166.62	1.02	-87.55	8.90	0.20
3700.0	3698.79	89.7	181.57	0.89	-89.21	9.07	0.28
3800.0	3798.78	91.2	192.62	0.87	-90.73	8.88	0.17
3900.0	3898.77	92.4	205.28	0.74	-92.06	8.43	0.22
4000.0	3998.76	93.6	202.90	0.74	-93.24	7.90	0.03
4100.0	4098.75	94.6	205.28	0.65	-94.35	7.40	0.09
4200.0	4198.75	95.5	164.83	0.37	-95.23	7.32	0.44
4300.0	4298.74	96.2	127.84	0.50	-95.87	7.75	0.30
4400.0	4398.74	96.7	124.06	0.44	-96.35	8.41	0.07
4500.0	4498.74	96.8	64.57	0.30	-96.40	9.05	0.39

MD (FT)	TVD (FT)	SECTION (FT)	AZI (DEG)	INC (DEG)	Y-AXIS (FT)	X-AXIS (FT)	D-LEG /100 FT
4600.0	4598.74	96.5	17.30	0.24	-96.04	9.36	0.22
4700.0	4698.74	96.0	348.06	0.29	-95.58	9.38	0.14
4800.0	4798.73	95.5	338.62	0.39	-95.01	9.21	0.11
4900.0	4898.73	94.8	330.45	0.44	-94.36	8.90	0.08
5000.0	4998.73	94.1	326.68	0.43	-93.71	8.51	0.03
5100.0	5098.72	93.1	18.78	0.66	-92.76	8.39	0.52
5200.0	5198.71	91.7	41.41	1.44	-91.18	9.30	0.87
5218.2	5216.88	91.4	41.30	1.20	-90.86	9.58	1.32
5255.2	5253.94	90.8	44.00	1.30	-90.27	10.13	0.31
5290.4	5289.04	90.3	41.70	1.30	-89.69	10.67	0.15
5316.6	5315.28	89.9	39.90	1.30	-89.23	11.06	0.16
5347.8	5346.44	89.4	42.60	1.50	-88.66	11.56	0.68
5380.6	5379.23	88.9	40.60	1.50	-88.02	12.13	0.16
5415.0	5413.67	88.3	40.10	1.50	-87.33	12.72	0.04
5452.8	5451.39	87.6	40.10	1.50	-86.58	13.35	0.00
5483.9	5482.54	87.0	39.20	1.60	-85.93	13.89	0.33
5515.1	5513.70	86.4	38.90	1.70	-85.23	14.46	0.32
5545.6	5544.20	85.9	39.70	1.70	-84.53	15.03	0.08
5577.4	5576.01	85.2	39.40	1.70	-83.80	15.63	0.03
5610.2	5608.80	84.6	38.30	1.70	-83.04	16.24	0.10
5643.7	5642.25	84.0	39.40	1.80	-82.25	16.88	0.32
5678.8	5677.34	83.3	40.30	1.80	-81.40	17.59	0.08
5708.7	5707.18	82.7	40.80	1.90	-80.67	18.21	0.34
5748.0	5746.53	81.9	39.40	1.90	-79.67	19.06	0.12
5780.8	5779.32	81.2	39.00	2.00	-78.81	19.76	0.31
5808.7	5807.19	80.7	38.90	2.00	-78.05	20.37	0.01
5845.5	5843.91	79.9	38.50	1.90	-77.07	21.15	0.27
5873.4	5871.78	79.4	39.00	2.00	-76.33	21.75	0.36
5907.8	5906.21	78.7	40.60	2.00	-75.41	22.52	0.16
5938.3	5936.70	78.1	40.40	2.00	-74.60	23.21	0.02
5971.1	5969.49	77.5	41.70	2.00	-73.74	23.96	0.14
6007.2	6005.56	76.9	44.30	2.00	-72.82	24.82	0.25
6036.7	6035.07	76.5	45.90	2.00	-72.09	25.55	0.19
6084.3	6082.61	75.8	46.30	2.10	-70.91	26.78	0.21
6105.6	6103.92	75.5	48.20	2.10	-70.38	27.35	0.33
6135.2	6133.43	75.1	48.90	2.10	-69.66	28.16	0.09
6168.0	6166.21	74.7	48.90	2.20	-68.85	29.09	0.30
6202.4	6200.64	74.3	48.50	2.20	-67.98	30.08	0.04
6233.6	6231.78	74.0	48.40	2.40	-67.15	31.02	0.64
6273.6	6271.77	73.5	50.60	2.50	-66.04	32.32	0.34
6301.2	6299.30	73.2	49.90	2.50	-65.27	33.24	0.11
6333.7	6331.75	72.9	50.10	2.50	-64.36	34.33	0.03
6364.8	6362.89	72.7	51.20	2.60	-63.48	35.40	0.36
6397.6	6395.66	72.4	48.90	2.70	-62.51	36.56	0.44
6433.7	6431.71	72.1	49.20	2.70	-61.39	37.85	0.04
6464.9	6462.85	71.9	48.50	2.70	-60.43	38.95	0.11
6496.1	6493.98	71.7	49.60	2.70	-59.46	40.06	0.17
6530.5	6528.39	71.5	46.60	2.70	-58.38	41.27	0.41
6565.0	6562.80	71.3	49.90	2.70	-57.30	42.48	0.45
6599.4	6597.21	71.3	52.20	2.70	-56.28	43.74	0.31
6637.1	6634.89	71.4	58.00	2.90	-55.22	45.26	0.92

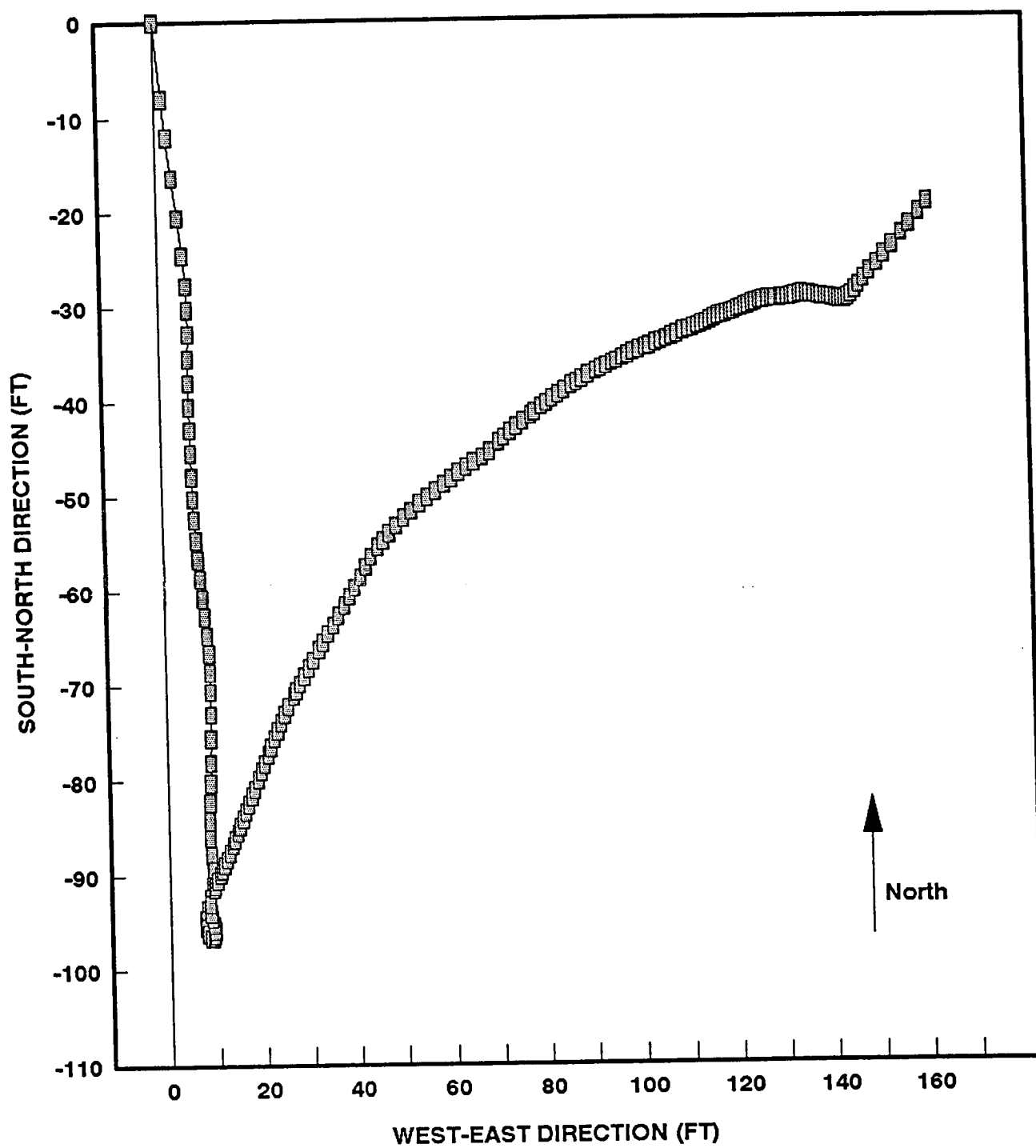
MD (FT)	TVD (FT)	SECTION (FT)	AZI (DEG)	INC (DEG)	Y-AXIS (FT)	X-AXIS (FT)	D-LEG /100 FT
6662.1	6659.80	71.6	59.40	2.90	-54.57	46.33	0.28
6692.9	6690.60	71.9	61.70	3.00	-53.79	47.72	0.50
6725.7	6723.36	72.3	63.00	3.00	-52.99	49.24	0.21
6758.5	6756.12	72.9	64.20	3.20	-52.20	50.83	0.64
6791.3	6788.88	73.5	66.30	3.20	-51.44	52.49	0.36
6824.1	6821.63	74.2	67.00	3.20	-50.71	54.17	0.12
6857.0	6854.39	75.0	68.60	3.20	-50.02	55.87	0.27
6889.8	6887.15	75.8	68.60	3.10	-49.36	57.54	0.30
6925.9	6923.19	76.8	68.80	3.10	-48.65	59.36	0.03
6957.0	6954.31	77.6	68.90	3.10	-48.04	60.93	0.02
6988.2	6985.43	78.5	69.30	3.00	-47.45	62.48	0.33
7021.0	7018.20	79.4	71.20	2.90	-46.88	64.07	0.43
7053.8	7050.96	80.4	73.00	2.90	-46.37	65.65	0.28
7091.5	7088.65	81.5	73.50	2.80	-45.83	67.45	0.27
7122.7	7119.77	82.5	62.80	3.30	-45.21	68.99	2.42
7161.7	7158.75	83.7	67.40	3.10	-44.30	70.96	0.83
7186.7	7183.66	84.4	66.50	2.60	-43.81	72.11	2.01
7219.2	7216.10	85.2	66.70	2.60	-43.23	73.46	0.03
7250.7	7247.57	86.1	68.10	2.50	-42.69	74.75	0.37
7285.1	7281.99	87.0	68.20	2.40	-42.14	76.12	0.29
7331.0	7327.87	88.3	69.60	2.50	-41.43	77.95	0.25
7350.4	7347.21	88.8	68.80	2.30	-41.14	78.71	1.05
7388.5	7385.24	89.9	69.50	2.40	-40.59	80.17	0.27
7416.3	7413.10	90.6	69.80	2.30	-40.19	81.24	0.36
7448.5	7445.23	91.6	70.50	2.40	-39.74	82.48	0.32
7480.3	7477.03	92.5	71.50	2.40	-39.31	83.74	0.13
7513.1	7509.81	93.5	70.70	2.40	-38.86	85.04	0.10
7551.8	7548.49	94.7	72.50	2.30	-38.36	86.54	0.32
7580.4	7577.01	95.6	73.90	2.40	-38.02	87.66	0.40
7611.5	7608.15	96.5	73.20	2.30	-37.66	88.89	0.33
7644.4	7640.93	97.6	74.40	2.40	-37.29	90.18	0.34
7683.7	7680.27	98.9	76.00	2.30	-36.88	91.74	0.30
7711.6	7708.13	99.8	76.00	2.20	-36.61	92.81	0.36
7746.1	7742.56	100.8	76.30	2.10	-36.30	94.06	0.29
7778.9	7775.34	101.8	76.50	2.10	-36.02	95.23	0.02
7808.4	7804.85	102.7	75.80	2.00	-35.77	96.25	0.35
7846.1	7842.56	103.8	76.00	2.00	-35.44	97.53	0.02
7877.3	7873.71	104.7	74.70	2.00	-35.17	98.58	0.15
7908.5	7904.85	105.6	76.50	2.10	-34.89	99.66	0.38
7940.9	7937.31	106.6	78.60	2.10	-34.64	100.83	0.24
7980.6	7976.99	107.8	80.00	2.00	-34.37	102.22	0.28
8005.2	8001.58	108.6	76.20	2.00	-34.20	103.06	0.54
8041.3	8037.64	109.7	80.40	2.00	-33.94	104.29	0.41
8071.5	8067.81	110.6	79.50	2.10	-33.75	105.36	0.35
8103.7	8099.94	111.6	77.00	2.00	-33.52	106.48	0.42
8136.5	8132.73	112.6	77.70	2.00	-33.27	107.60	0.07
8170.9	8167.16	113.7	76.30	2.00	-33.00	108.77	0.14
8208.7	8204.86	114.8	80.50	1.90	-32.74	110.03	0.46
8236.9	8233.06	115.6	78.40	1.90	-32.57	110.95	0.25
8272.6	8268.81	116.7	82.50	1.80	-32.37	112.09	0.46
8302.2	8298.32	117.5	80.50	1.70	-32.24	112.98	0.40

MD (FT)	TVD (FT)	SECTION (FT)	AZI (DEG)	INC (DEG)	Y-AXIS (FT)	X-AXIS (FT)	D-LEG /100 FT
8333.3	8329.48	118.3	76.20	1.60	-32.06	113.86	0.51
8366.1	8362.27	119.1	76.90	1.50	-31.85	114.72	0.31
8402.2	8398.35	119.9	75.30	1.60	-31.62	115.67	0.30
8433.4	8429.50	120.6	76.30	1.50	-31.41	116.49	0.33
8464.6	8460.66	121.4	80.40	1.50	-31.25	117.29	0.34
8499.0	8495.10	122.2	81.40	1.50	-31.11	118.18	0.08
8531.8	8527.90	123.0	82.00	1.40	-30.99	119.00	0.31
8570.2	8566.27	123.8	77.60	1.40	-30.82	119.92	0.28
8597.8	8593.82	124.4	78.40	1.40	-30.68	120.58	0.07
8630.6	8626.62	125.1	79.50	1.40	-30.53	121.37	0.08
8661.4	8657.45	125.8	79.30	1.40	-30.39	122.11	0.02
8695.9	8691.89	126.6	78.60	1.30	-30.23	122.90	0.29
8727.0	8723.05	127.2	78.80	1.30	-30.09	123.60	0.01
8769.4	8765.36	128.1	78.60	1.40	-29.90	124.58	0.24
8792.7	8788.65	128.6	77.00	1.40	-29.78	125.13	0.17
8828.1	8824.07	129.4	80.70	1.40	-29.61	125.98	0.26
8858.3	8854.25	130.1	87.90	1.50	-29.53	126.74	0.69
8892.7	8888.68	131.0	86.20	1.50	-29.49	127.64	0.13
8925.2	8921.15	131.8	86.50	1.50	-29.43	128.49	0.02
8958.0	8953.95	132.6	89.30	1.50	-29.40	129.35	0.22
8999.0	8994.94	133.7	86.50	1.50	-29.36	130.42	0.18
9024.0	9019.87	134.3	87.10	1.40	-29.33	131.05	0.41
9055.1	9051.03	135.0	87.90	1.40	-29.29	131.81	0.06
9091.2	9087.11	135.9	83.00	1.40	-29.22	132.69	0.33
9122.4	9118.27	136.6	81.80	1.40	-29.12	133.45	0.09
9158.5	9154.35	137.4	83.50	1.40	-29.01	134.32	0.12
9186.4	9182.22	138.1	90.20	1.40	-28.97	135.00	0.59
9219.5	9215.35	138.9	91.50	1.40	-28.99	135.81	0.10
9252.0	9247.82	139.7	93.00	1.40	-29.02	136.60	0.11
9285.1	9280.95	140.5	96.90	1.40	-29.09	137.41	0.29
9319.2	9315.06	141.3	96.40	1.50	-29.19	138.27	0.30
9350.4	9346.22	142.1	93.00	1.40	-29.25	139.05	0.42
9384.8	9380.66	142.9	91.10	1.30	-29.28	139.86	0.32
9416.0	9411.82	143.6	95.30	1.20	-29.32	140.54	0.43
9448.8	9444.62	144.3	98.10	1.20	-29.40	141.23	0.18
9483.3	9479.06	145.0	96.90	1.20	-29.49	141.94	0.07
9514.4	9510.22	145.6	92.70	1.20	-29.55	142.59	0.28
9547.2	9543.02	146.3	91.10	1.20	-29.57	143.28	0.10
9580.1	9575.82	147.0	83.00	1.20	-29.53	143.96	0.52
9612.9	9608.62	147.6	70.90	1.30	-29.37	144.66	0.86
9645.7	9641.42	148.2	61.90	1.40	-29.06	145.37	0.71
9680.8	9676.51	148.9	57.00	1.60	-28.60	146.16	0.68
9711.6	9707.34	149.6	57.30	1.90	-28.09	146.95	0.97
9745.7	9741.44	150.6	57.70	2.50	-27.38	148.06	1.76
9776.9	9772.57	151.7	62.10	2.90	-26.65	149.33	1.44
9811.4	9806.97	153.1	62.10	3.10	-25.80	150.92	0.58
9842.5	9838.09	154.5	58.60	3.30	-24.94	152.43	0.90
9875.3	9870.84	156.0	60.50	3.60	-23.94	154.13	0.98
9912.4	9907.84	157.9	59.60	3.80	-22.75	156.21	0.56
9940.9	9936.31	159.3	58.00	3.90	-21.75	157.85	0.51
9975.4	9970.68	161.2	58.70	4.20	-20.48	159.92	0.88
10003.0	9998.16	162.8	59.60	4.20	-19.44	161.65	0.24

O18a-1 DISPLACEMENT PLOT



018a-1 DEPARTURE PLOT



PROGRESS PLOT O18a-1

