NORSKE CONOCO A.S.

COMPOSITE WELL LOG

Fortum Petroleum, Statoil

WELL: 6507/7-12

LOCATION :

Latitude: 65° 26' 46.2"N

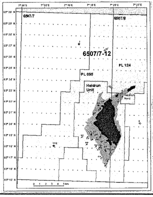
Longitude: 07° 18' 17.7"E

ELEVATIONS :

RT- Mean Sea Level : 23m
Water Depth : 333m
RT- Sea Floor : 356m
Total Depth - Driller : 3976m MD
Total Depth Logger : 3976m MD 3951m TVD SS

Country : Norway
Area : Halten Terrace
Licence : PL 095
Field : Heidrun
Date Spudded : 17.07.99
TD Date : 04.08.99
Date Completed : 12.08.99
Completion Status : P&A, dry well

LOCATION MAP



GEOLOGISTS

F. Johansen (Aker Geo)
A. Knape (Aker Geo)
C. F. Gyllenhammar (CaMa Oil)

MUDLOG SERVICE

Sperry Sun

MWD LOGGING SERVICE

Schlumberger Anadrill

WIRELINE LOGGING SERVICE

Schlumberger Wireline

RIG

Maersk Jutlander

ELECTROPHYSICAL LOGS

TYPE	RUN NO	INTERVAL
AIT-IPLT-DSI	1A	3948 - 2441 m
MDT-GR	1B	3950 - 2870 m
VSP zero offset	1C	3830 - 1100 m
CST/GR	1D	3967 - 2785 m
All logs in 8-1/2" hole		

PLUG NO	INTERVAL	PURPOSE

MUD TYPE	INTERVAL
Seawater / polymer	333-1316 m
KCl/polymer/Barasilc	1316 - 2508 m
Oil Based Mud	2508 - 3976 m

BIT SIZE	BIT INTERVAL
36"	333 - 418 m
17-1/2"	418 - 1316 m
12-1/4"	1316 - 2508 m
8-1/2"	2508-3976 m

CASING DETAILS

SIZE	SHOE DEPTH
30"	416 m
13-3/8"	1308 m
9-5/8"	2500 m

WELLSITE CORE DATA

CORE NO	INTERVAL	CUT	REC	REC%	TYPE
	no core taken				

CORE DATA CORRECTED TO GR LOG

CORE NO	INTERVAL	DEPTH SHIFT
	no core taken	

PREPARED BY :
Jan Stenløkk, NCAS

APPROVED :
Knud Egil Svela

DATE :
January 2000

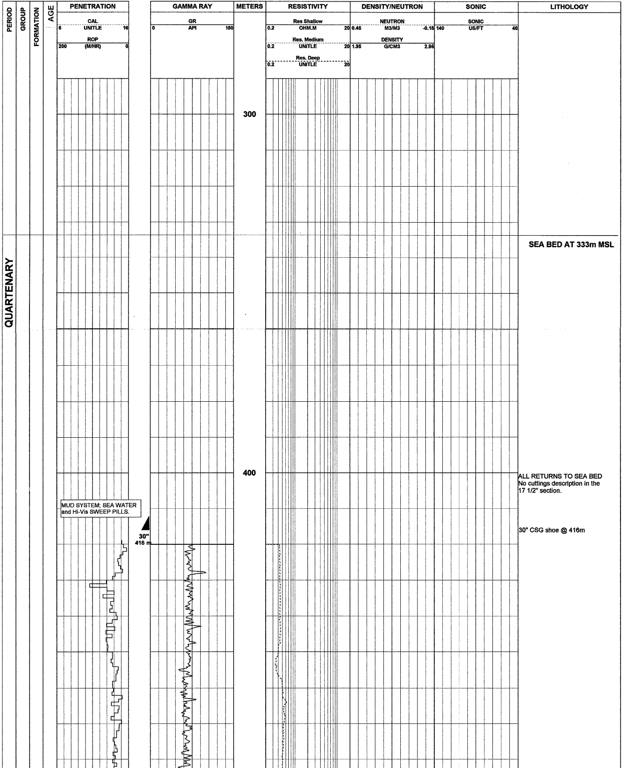
REMARKS

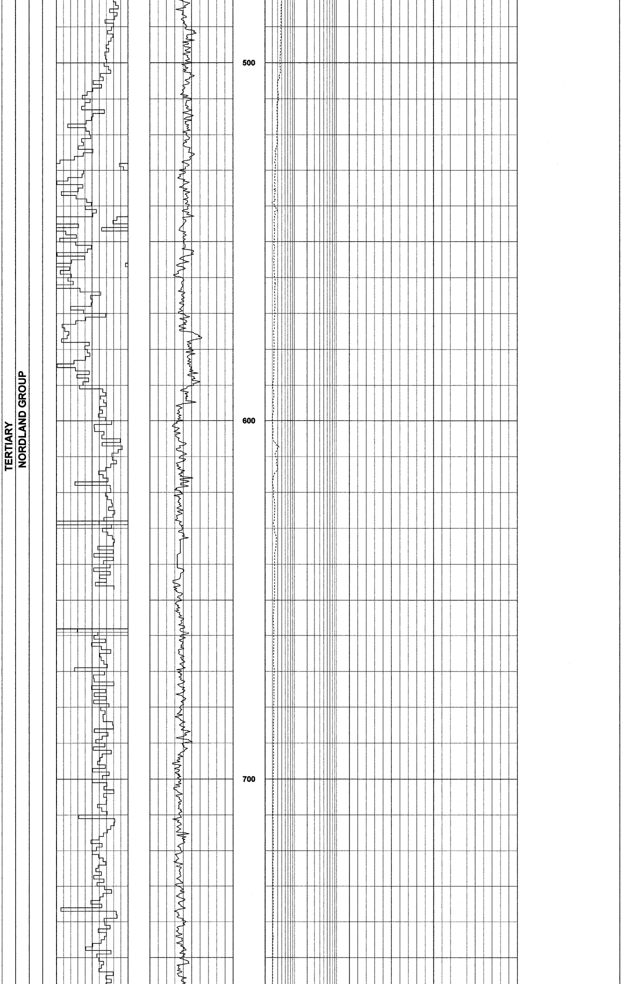
Exploration well 6507/7-12 was drilled to test a stratigraphic closure in an anticipated sand prone wedge of Lower Cretaceous age. The well spudded 17.07.1999, reached TD at 3976m RKB on 4.08.1999 (18 days), and left location on 12.08.1999.
Porous sands were encountered at all prospective intervals. However, Lower Cretaceous sands were relatively thin with interbeds of claystones, and were tight due to diagnoses. The secondary objective in Lysing Fm. sand had permeability, but was found dry.
The well was permanently plugged and abandoned as a dry well.

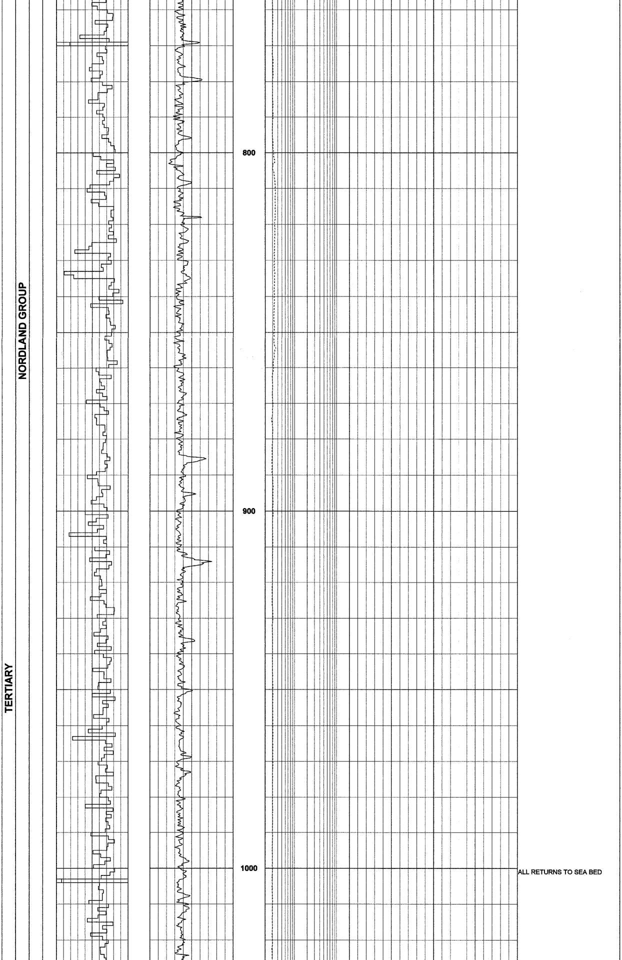
MAIN LITHOLOGICAL SYMBOLS			SECONDARY LITHOLOGICAL SYMBOLS		
SHALE,CLAYSTONE, CLAY,MUDSTONE,	CALCAREOUS DOLOMITE	IGNEOUS (UNDIFFERENTIATED)	– ARGILLACEOUS	◆ HALITE	+ IGNEOUS (UNDIFFERENTIATED)

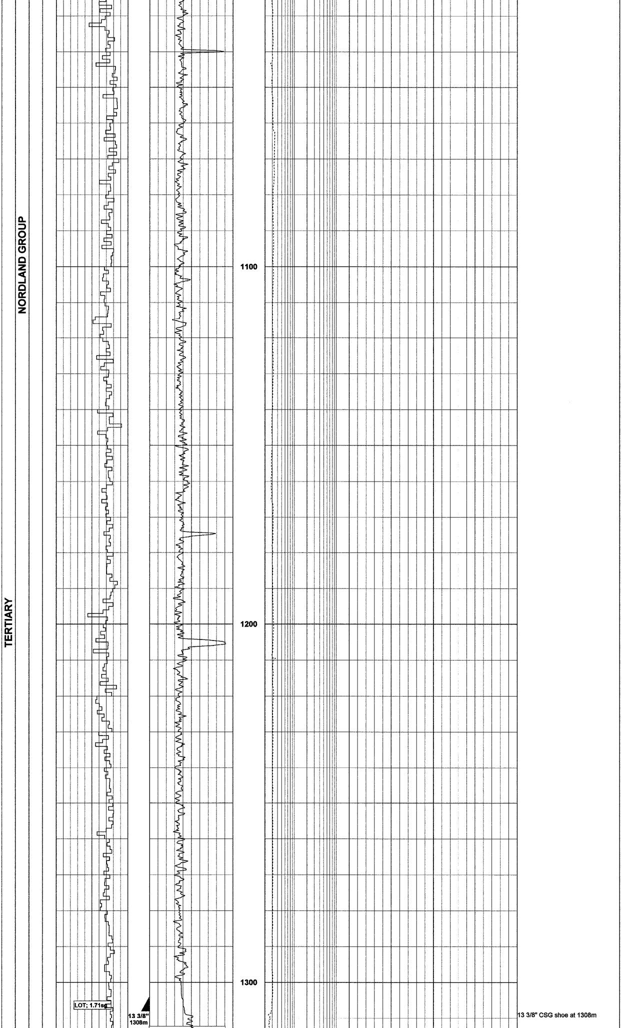
SILTSTONE,SILT	ANHYDRITE	METAMORPHIC ROCKS
SANDSTONE,SAND	HALITE	BASALT
CONGLOMERATE LOOSE PEBBLES	GYPSUM	BRECCIA
BRECCIA	SALT IN GENERAL	
COAL,LIGNITE,ETC.	MARL	
LIMESTONE (UNDIFFERENTIATED)	ONCOLITHS	
DOLOMITIC LIMESTONE	LITHOCLASTS INTRACLASTS	
DOLOMITE	SEDIMENTARY VOLCANICS (TUFFS AGGLOMERATES, ETC)	

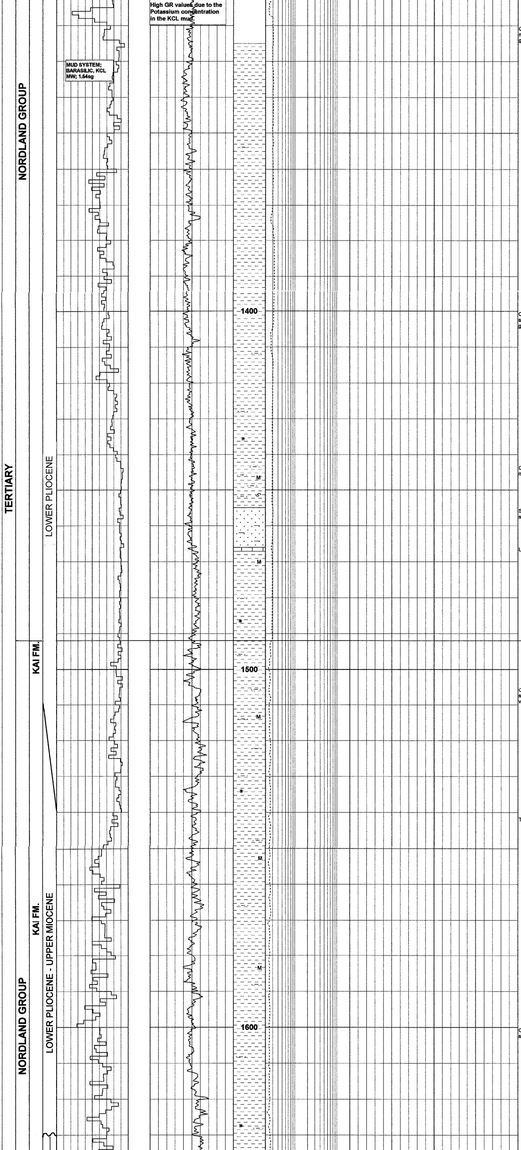
	ARENACEOUS	Ka	KAOLINITE	V	VOLCANIC
M	MICACEOUS	□	PYRITIC		
▬	CARBONACEOUS	Fe	IRONSTONE		
⌶	CALCAREOUS	~	MARLY		
⌶	DOLOMITIC	▲	BITUMEN		
^	ANHYDRITIC	∴	PELLETS		
○	RUDACEOUS	∴	OOLITHS		
*	GLAUCONITE	△	CHERT		











High GR values due to the Potassium concentration in the KCL mud.

MUD SYSTEM;
BARASILIC, KCL
MW; 1.54sg

CLYST: m dk-dk gy, gnsh gy, sbblky, sft, non-sl calc, sl slty, tr mic-mica, occ tr vf Qtz gr.

CLST; m gy-dk gy, blky, sft-frm, non-sl calc, slty, bcm v slty, mic-mica, tr glau, tr mic-pyr, gd tr Qtz gr.

CLST; lt gy-m gy, blky, sft-frm, calc, v slty, mic-mica, mic-pyr, glau, tr Shell frag.

SD; vf-f, occ m-c, bcm f-c, clr-trnsl Qtz gr, sbrd-sbang, lse.

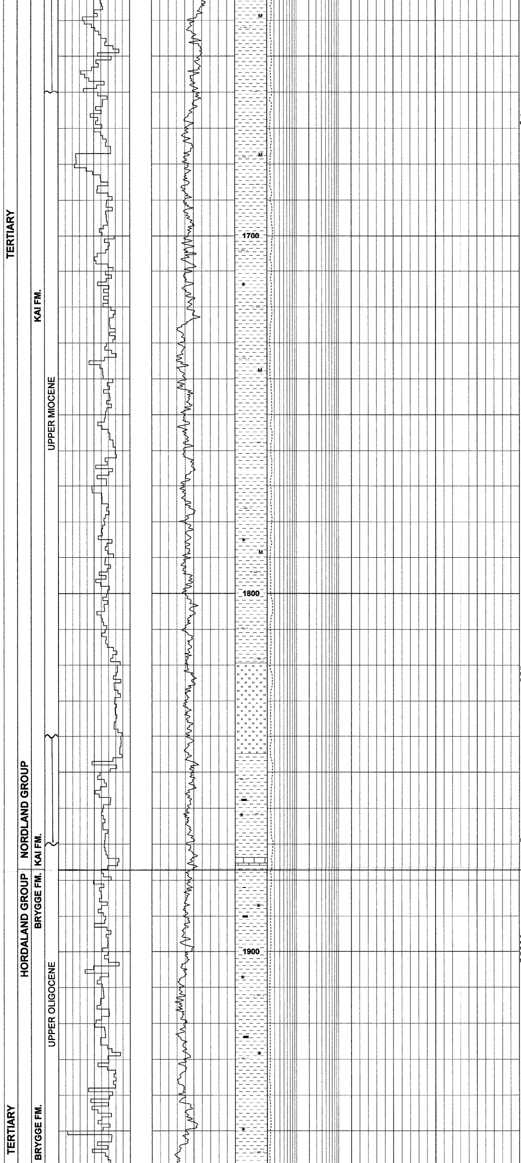
LST; lt gy, occ wh, frm, arg, micxln.

Top Kai Formation
1492m MD
(1469m TVD SS)

CLST; gnsh gy-lt gy, blky, sft-frm, sl calc, v slty, grdg sltst, mic-mica, mic-pyr, glau, occ tr vf-f lse Qtz gr.

Tr SD: vf-f, clr-trnsl, Qtz gr, sbang-sbrd.

CLST; gnsh gy-lt gy, blky, sl-non calc, grdg sltst, mic-mica, mic-pyr, glau.



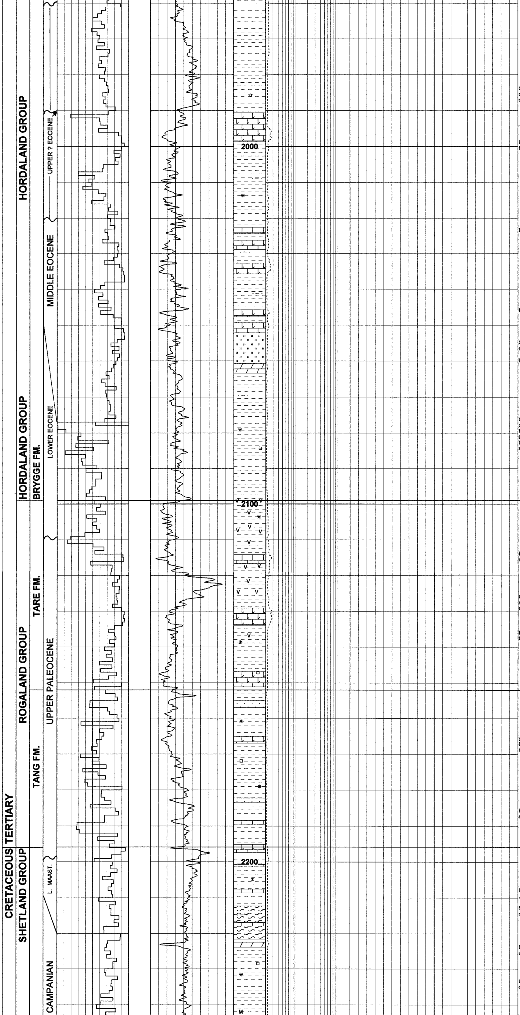
Tr SD: vf-f, clr-trnsl, Qtz gr, sbang-sbrd, mod srt.

SLTST; m gy-brn, pred lt brnsh gy, blky, frm-mod hd, occ stky, non-sl calc, mic-mica, mic-pyr.

LST: m brn-gysh wh, frm, britt, micxln, sl arg.

TOP HORDALAND GP.
Brygge Formation
1877m MD
(1854m TVD SS)

CLST: brn-lt brnsh gy, blky, frm-mod hd, non calc, slty, carb, glau, abd glau agg,blk spk, mic-mica, mic-pyr.
In part m gy-lt gy, sbblky, sft-stky, calc, sl slty, glau, mic-mica occ sl sdy.



CLST:pl gn-gysh gn, plty, fiss, sft-frm, non calc, glau, tr Foram, tr sd m-v c, clr-trnsl, Qtz gr.

In parts: olv gy-olv blk, blky, sft.frm, non calc, v slty, mic-pyr, tr mic-mica.

LST / DOL: lt brn-pl yelsh or, wh-off wh, frm-hd, britt, micxln, occ arg, occ vf sdy.

LST / DOL: as above

LST / DOL: as above

SLTST: olv blk-olv gy, blky, frm-mod hd, arg, mic-pyr.

DOL: dsky brn, wh-off wh, hd, crpxln.

CLST: m blsh gy-dk blsh gy, blky, frm, non calc, spkl, glassy I.P. pl gn-gysh gn, plty, fiss, sft-frm, non calc, glau, occ sdy, m-v c, clr trnsl Qtz gr,
In part rd brn-gysh brn, blky, sft-frm, non calc, sl slty, mic-pyr.

TOP ROGALAND GP.
Tare Fm 2099m MD
(2076m TVD SS)

LST / DOL: lt brn-pl yelsh or-wh, frm-hd, brit, micxln, occ arg.

CLST: olv gy-olv blk, dk gnsh gy-m gy, sbblky-plty, frm, non calc, occ slty lam, occ carb, glau, mic-pyr, tr mic-mica.

LST / DOL: dsky brn, wh-off wh, frm-v hd, britt, micxln, occ arg, occ vf sdy.

Top Tang Fm.
2152 m MD
(2128,8 m TVD SS)

SST: vf-vc, clr-trnsl Qtz, ang-sbang, pr srt,
LST / DOL: dsky brn, wh-off wh, frm-v hd, britt, micxln, occ arg, occ vf sdy.

LST: wh-blsh wh, frm, blky, micxln, v glau, sl slty, mic-pyr.

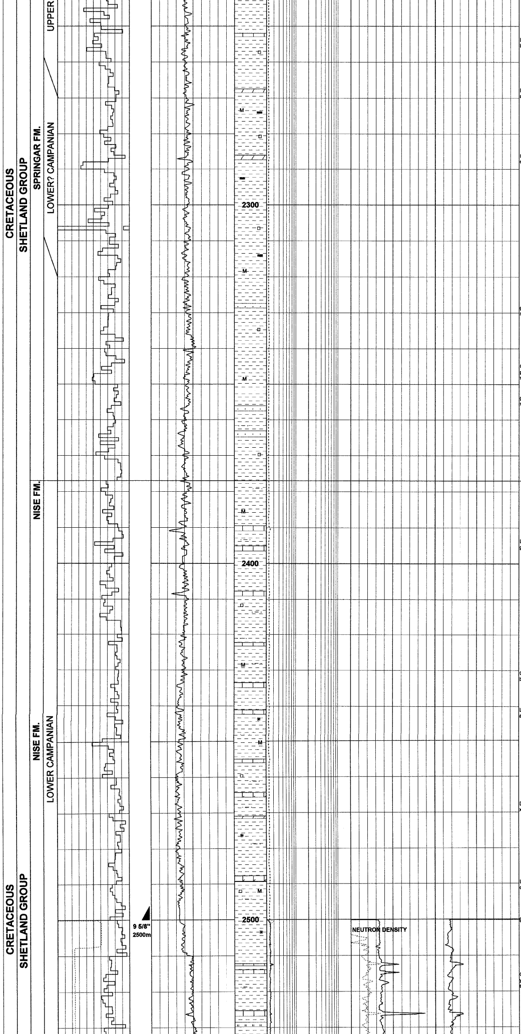
SHETLAND GP.
Springar Fm. 2196m MD
(2173m TVD SS)

LST: wh-blsh wh, dsky yel-pl yelsh or, frm-hd, , blky, micxln, v glau, sl slty, mic-pyr.

MRL: v lt gy-lt gy, frm-mod hd, brit, blky, sl slty, mic-mica, loc sft-stky, tr pyr, tr glau.

DOL: lt brn-pl yelsh brn, frm-hd, xln-micxln, arg.

CLST: dk gy-m dk gy, frm, sbblky-blky, non calc, mic-pyr, mic-mica, carb I.P.



LST / DOL: dsky brn, wh-off wh, frm-v hd, britt, micxln, occ arg, occ vf sdy.

DOL: lt brn-pl yelsh brn, frm-mod hd, micxln, arg.

DOL: lt brn-pl yelsh brn, buff, frm-v hd, crpxln-xln, occ arg.

gd tr SST: f-c, clr-trnsl Qtz, sbang-ang, mod-pr srt, lse, mic, pyr.

CLST: dk gy-m dk gy, frm, sbblky-blky, occ plty, sl slty, non calc, mic-pyr, mic-mic.

gd tr SST: f-c, clr-trnsl Qtz, sbang-ang, mod-pr srt, lse, mic, pyr.

Top Nise Fm.
2377 m MD
(2353,8 m TVD SS)

LST: v lt gy-off wh, sft-frm, v arg, grdg mrl, glau, mic-pyr, mic-mic.

CLST: dk gy-m dk gy, blsh gy, frm-mod hd, blky, non calc, sl slty, glau, mic-pyr, Pyr nod.

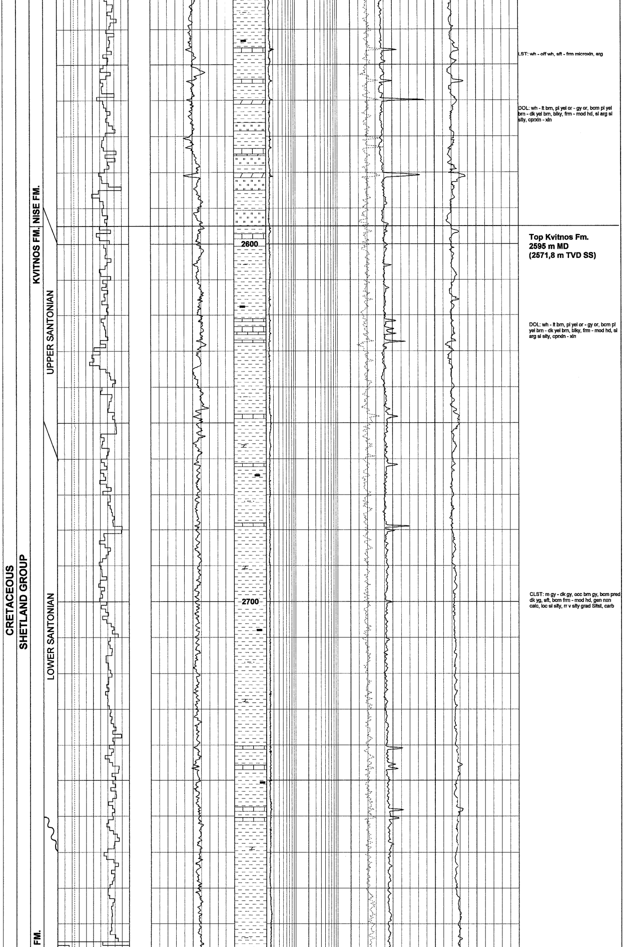
LST: wh-off wh, lt gy-pl yelsh or, frm, blky, v arg, arg lam, slty.

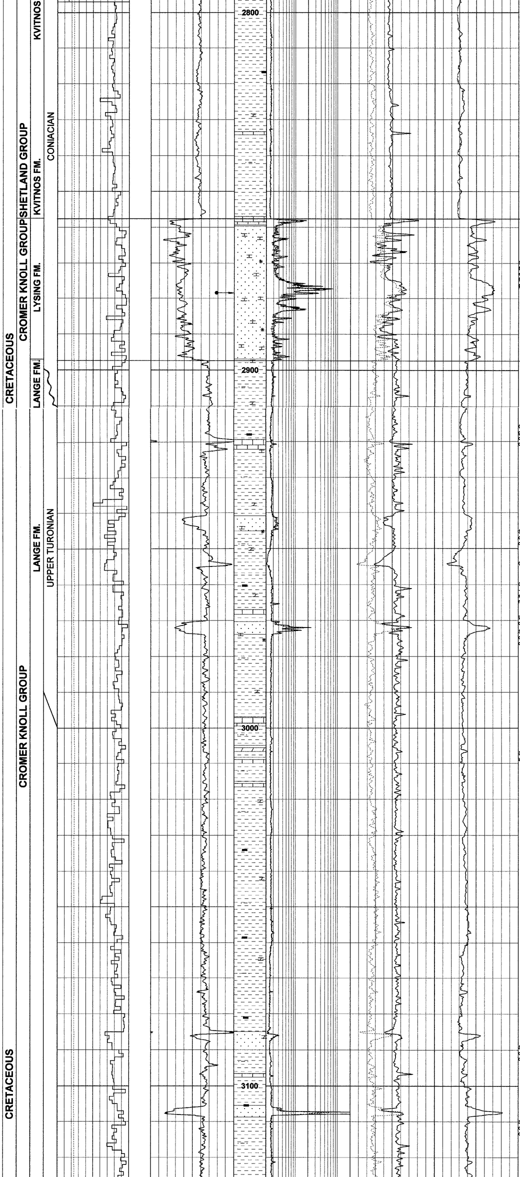
DOL: dsky brn-pl yelsh brn, hd, blky, xln-micxln, sl arg.

LST / DOL: wh-v lt gy, frm, brit, arg, sl slty, occ vf sdy.

9 5/8" CSG shoe at 2500m.

CLST: m gy - dk gy, occ brn gy, bcm pred dk yg, sft, bcm frm - mod hd, gen non calc, loc sl slty, rr v slty grad Sltst, carb





CLST: m gy - dk gy, occ brn gy, bcm pred dk yg, sft, bcm frm - mod hd, gen non calc, loc sl slty, rr v slty grad Sltst, carb

Top Lysing sand
2857,5m MD
(2344m TVD SS)

SST: mod yel brn . pl yel brn, wh, gy gn, clr - trnsl Qtz, f - v crs, pred m - crs, sbang - sbrnd, mod srt, com lse gr, com agg, abd calc cmt, loc grad sdy Lst, fri - mod hd, Glauc, no vis por.

Top Lange Formation
2897m MD
(2874m TVD SS)

CLST: dk gy - by blk - olv blk, mnr m gy - m lt gy, blky - sbplty, frm - mod hd, mnr gh, non - sl calc, gen sl slty, rr v slty grad Sltst, rr vf sdy, crb, rr micromic/micrpyr

SST: lse gr, clr - trnsl Qtz, vf - crs, pred m - crs, sbang - sbrnd, occ rndd, mod - wl srt, occ calc cmt, Glauc, no vis por

CLST: wh - v lt gy, sft, sbblky, stky, non calc

CLST: dk gy - gy blk - olv blk, blky - sbplty, frm - mod hd, mnr hd, non - sl calc, gen sl slty, rr v slty grad Sltst, rr vf sdy, carb rr micromic/micropyr

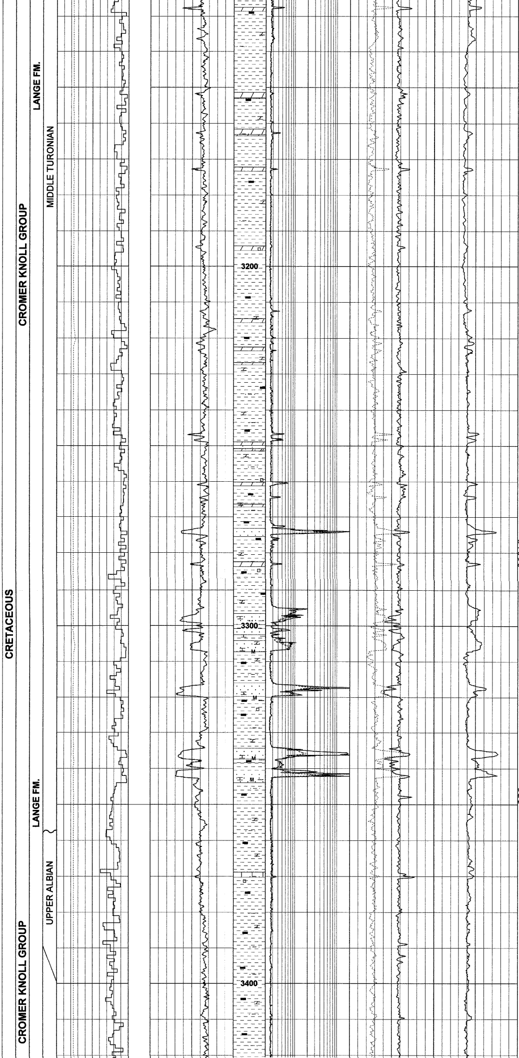
LST: wh - off wh, loc lt brn, frm - dh, microxln, occ arg

SST: lse gr, clr - trnsl Qtz, vf - crs, pred m - crs, sbang - sbrnd, occ rndd, mod - wl srt, occ calc cmt, Glauc, no vis por

DOL: pl yel brn - dk yel brn, blky, sft - frm, sl arg, blk specs, cpxln

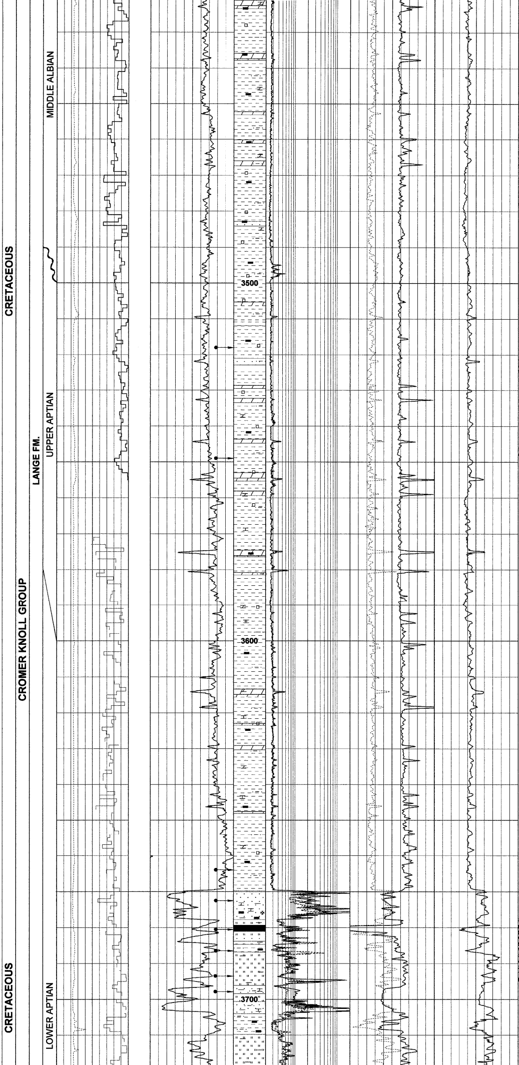
SST: lse gr, clr - trnsl Qtz, vf - crs, pred m - crs, sbang - sbrnd, occ rndd, mod - wl srt, occ calc cmt, Glauc, no vis por

SST: lse gr, clr - trnsl Qtz, vf - crs, pred m - crs, sbang - sbrnd, occ rndd, mod - wl srt, occ calc cmt, Glauc, no vis por



SST: m gy, occ lt brn, pred lse gr, mnr agg, clr - trnsl Qtz, vf - m, loc slty, mod rnd, pr - wl srt, occ calc cmt, sl arg mtrx, loc tr Mic, loc tr C, no vis por. On SST agg; sl brn O stn, bri wh uni dir Fluor, fst strmg wh fluor cut

CLST: gy blk - olv blk, mnr dk gy, blky - sbplty, frm - hd, non - sl calc, mnr mod calc, loc sl slty, loc tr carb



CLST: gy brn - dusky yel brn, frm - hd, non calc

CLST: gy blk - olv blk, mnr dk gy, blky - sbplty, frm - hd, non - sl calc, mnr mod calc, loc sl slty, loc tr carb

DOL: a.a

CLST: gy blk - olv blk, mnr dk gy, blky - sbfiss, rr fiss, frm - hd, non sl calc mnr mod cal, loc v slty grad Sltst, loc tr carb, rr Pyr

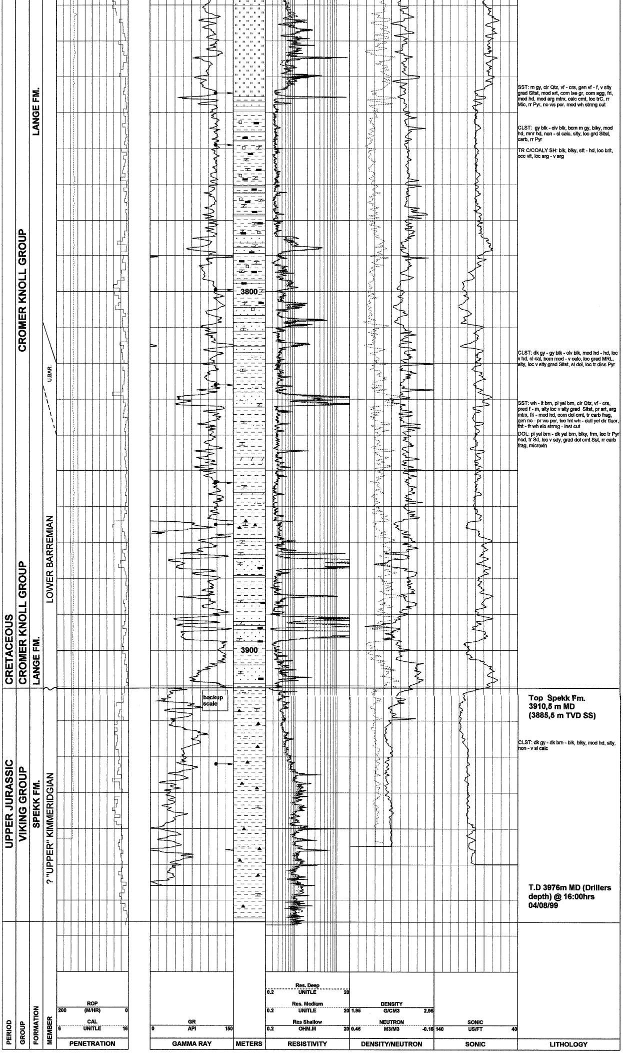
DOL: dk yel brn - pl yel brn, sft - frm, arg, loc vf sdy, com blk specs/carb, crpxln - microxln

**TOP ALBIAN
SANDSTONE 3670m MD**

SST: m lt gy - lt gy, wh - lt yel, clr Qtz, vf - crs, pred f - m, sbang - sbrnd, mnr ang (crs frac), pr - mod srt, com lse gr, com agg, fri, arg mtrx, com sil cmt, loc mod calc cmt, loc tr C, rr glauc, no vis por. SHOWS: slo blmg/strmg bl wh - yel wh fluor cut, bl wh - yel wh fluor res

SLTST: dk gy, blky, frm, no - sl calc, arg grad Clst, loc vf sdy grad Sst, carb. SHOWS: as for SST

TRACE C/COALY SH: blk, blky, sft - hd, loc brit, occ vit, loc arg - v arg



SST: m gy, clr Qtz, vf - crs, gen vf - f, v slty grad Sltst, mod srt, com lse gr, com agg, fri, mod hd, mod arg mtrx, calc cmt, loc trC, rr Mic, rr Pyr, no vis por. mod wh strmg cut

CLST: gy blk - olv blk, bcm m gy, blky, mod hd, mnr hd, non - sl calc, slty, loc grd Sltst, carb, rr Pyr

TR C/COALY SH: blk, blky, sft - hd, loc brit, occ vit, loc arg - v arg

CLST: dk gy - gy blk - olv blk, mod hd - hd, loc v hd, sl cal, bcm mod - v calc, loc grad MRL, slty, loc v slty grad Sltst, sl dol, loc tr diss Pyr

SST: wh - lt brn, pl yel brn, clr Qtz, vf - crs, pred f - m, slty loc v slty grad Sltst, pr srt, arg mtrx, fri - mod hd, com dol cmt, tr carb frag, gen no - pr vis por, loc fnt wh - dull yel dir fluor, fnt - fr wh slo strmg - inst cut

DOL: pl yel brn - dk yel brn, blky, frm, loc tr Pyr nod, tr Sd, loc v sdy, grad dol cmt Sst, rr carb frag, microxln

Top Spekk Fm.
3910,5 m MD
(3885,5 m TVD SS)

CLST: dk gy - dk brn - blk, blky, mod hd, slty, non - v sl calc

T.D 3976m MD (Drillers depth) @ 16:00hrs 04/08/99

SIDEWALL CORE DESCRIPTION

Sidewall Core No	Depth (m)	Recovery (cm)	Lithology Description
1	3932	1.4	CLST: dkgy-bk, sb fis, slty, non calc, no shows
11	3865	1.0	CLST: dk gy - blk, frm, sbfiss, slty, non calc, interlam w/ mm thin SLTST; mod grn yel, fri mod calc. Shows: uni fnt wh dir fluor, slo blmng wh cut
13	3853.5	0.8	CLST: dk gy blk to blk, frm, subfiss, slty, mod to v calc, interlam w/ mm thin Sst: wh lt gy, m – vf snd, pr srt, ang, frm, wl cmtd, fri, calc cmt, fnt wh fluor, slo strmg pl wh fluor cut
15	3826	1.3	CLST: dk gy – blk, frm, fiss, sltyn non calc, no shows
17	3799.5	1.4	CLST: dk gy – blk, frm, fiss, slty, sl calc, interlam w/ mm thin Sst; wh, lt gy, vf – f, mod srt, ang – sbang, mod cmt, calc cmt, Shows: bri wh pchy dir fluor, fst strmg wh cut
19	3759	1.0	CLST: dk gy – blk, frm, sbfiss, slty, non calc
20	3744.5	1.9	CLST: dk gy – brn blk, frm, sbfiss, slty, mic, interlam w/ mm thin Sst; wh – lt gy, m – vf, v slty, pr srtd, ang – sbang, mod cmtd, calc cmt, Shows: fnt wh pchy fluor, mod wh clow strmg cut
24	3698	2.5	SST: lt gy – wh, m – vf, slty, pr srt, mod cmtd, calc cmt, mic, pchy pl wh dir fluor, slo strmg fnt wh cut, bri wh res
25	3693.5	2.1	SLTST: lt gy, blky, mod hd, v wl cmtd, non calc, arg, mic, carb specs, Shows: v fnt slo strmg wh cut, bri wh res
26	3686.5	2.5	CLST: blk brn, frm splint, non calc, wxy lust, microfrac?, micro-slickensides?
27	3680.5	2.0	C: blk, loc brn blk, frm, non calc, loc vit
28	3672.5	2.0	SST: wh, lt gy – lt olv gy, clr Qtz, vf – m, ang – sbrnd, mod srt, fri, wk cmt, v sl calc cmtd, sil cmt, rr Mic occ blk specs w/ carb mtrl, Shows: tr brn blk spts w/ O stn, ini bl wh dir fluor, inst bl wh fluor cut, no vis cut, bl wh fluor res, yel sptd vis res
30	3664	1.0	CLST: dk gy – gy blk, blky – subfis, mod hd, mon calc, slty, loc vf sdy, carb
35	3549	2.0	CLST: dk gy – gy blk, sbfiss, hd, non calc, microfrac?, micro-slickensides?
36	3518	2.0	CLST: dk gy – brn blk – olv blk, hd – v hd, blk, v calc, grad arg Clst, sl slty
57	2878.5	1.0	SST: wh, pl yel brn, gn gy – dk gn gy, Qtz, vf – f, mnr m, mod – wl srt, loc fri, loc v hd clac cmtd, Glauc/glauc, no visible por Shows: pchy bl wh fluor, mod – inst blmg dull yel fluor cut, no vis cut, bl wh fluor res, no vis res

MDT PRESSURE RESULTS

No	Zone	Planned depth mMD	Actual depth mMD	m TVD RKB	Formation Pressure (bars)	Hydrostatic Pressure (bars)	Gauge	MOB. MD/cp	Comments	Pore Pressure g/cc
1		3897	3897	3895,3	551,019?	599,648	HP	Tight	0,8cc	1,44?
2		3897,5	3897,5	3895,8	-	600,185	HP	Tight	0,7cc dry	
3		3898,5	3898,5	3893,8	-	599,981	HP	Tight	0,9cc dry	
4		3893,5	3893,5	3891,9	-	599,786	HP	Tight	1,0cc dry	
5		3876	3876	3874,1	-	596,717	HP	Tight	0,7cc dry	
6		3875,5	3875,5	3874,1	-	596,301	HP	Tight	0,6cc dry	
7		3831	3831	3829,3	-	588,624	HP	Tight	0,6cc dry	
8		3829	3829	3828	-	588,411	HP	Tight	0,6cc dry	
9		3703	3703	3702,4	-	568,934	HP	Tight	0,4cc dry	
10		3702	3702	3701,1	-	569,216	HP	Tight	0,4cc dry	
11		3701	3701	3700,4	-	569,184	HP	Tight	0,7cc dry	
12		3699	3699	3698,4	535,819?	569,063	HP	Tight	0,6cc dry	1,47?
13		3697,5	3697,5	3696,9	-	569,159	HP	Tight	0,3cc dry	
14		3684	3684	3683,5	-	566,630	HP	Tight	0,2cc dry	
15		3677,1	3677,1	3676,7	-	565,423	HP	Tight	0,2cc dry	
16		3675,5	3675,5	3674,9	-	565,337	HP	Tight	0,3cc dry	
17		3672,5	3672,5	3672	-	564,864	HP	Tight	0,2cc dry	
18		3671	3671	3670,5	-	564,715	HP	Tight	0,2cc dry	
19		3342	3342	3341,6	-	515,412	HP	Tight	0,3cc dry	
20		3341	3341	3340,6	-	515,385	HP	Tight	0,2cc dry	
21		3337	3337	3336,9	-	514,663	HP	Tight	0,2cc dry	
22		3318,8	3318,8	3318,7	-	511, 232	HP	Tight	0,8cc dry	
23		3298	3298	3297,8	-	507,882	HP	Tight	1,0cc dry	
24		2890,8	2890,8	2889,9	366,442	446,286	HP	622	20.0 good	1,29
25		2885	2885	2884,9	-	445,444	HP	Tight	1,4cc dry	
26		2869,8	2869,8	2869,7	374,501	442,681	HP	1153	20,0cc good	1,33
27		2868,9	2868,9	2868,8	-	442,943	HP	Tight	1,6cc dry	
28		2859,2	2859,2	2859,1	-	441,473	HP	Tight	1,6cc dry	
29		2869,8	2869,8	2869,7	374,031	442,931	HP	337	20,0cc good	1,33