SIMON PETROLEUM TECHNOLOGY

WELL: 33/9 - 14

Print: 5639 G	Units: [✓ M] F	Top	Bottom	Scale	TD
Length: 25 FT	Initials: MC	330	2985	1/500	2982m

DIGITAL WIRELINE LOGS FACKAGE
1993
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SIMON PETROLEUM TECHNOLOGY

COMPLETION LOG

B11 - B14

12605

PARTNERS MOBIL, ESSO, SHELL, CONOCO, SAGA,
AMERADA HESS, TEXAS EASTERN, AMOCO

STATOIL

WELL 33/9 - 14 COMPLETION LOG PROSPECT STRUCTURE STATFJORD NORD

Scale 1:500

AREA: NORTHERN NORTH SEA, TAMPEN SPUR

LICENCE: PL 037

COORDINATES: 61° 26′ 00,26″ N
01° 54′ 04,48″ E

K.B.: 23 M

WATER DEPTH: 248 M

TOTAL DEPTH: 2982 M

DEEPEST FORM. PEN.: DRAKE FM

SPUD DATE: 17.02.88

RIG RELEASE DATE: 11.04.88

WELL STATUS: PLUGGED AND ABANDONED, OIL DISCOVERY

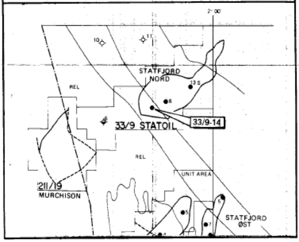
RIG: DEEP SEA BERGEN

CONTRACTOR: ODFJELL DRILLING

GEOLOGISTS: BEYER, FRISTAD, FURMYR, WELHAVEN, CLINT, EKERN, OSBORN

PREPARED BY: B. LAASTAD DATE: SEPT. 1988

LOCATION MAP



CASING DATA:		LEAK OFF TESTS:
30″ at	330 M.	
20″ at	404 M.	1.29 S.G.
16″ at		
13 3/8″ at	1279 M.	1.76 S.G.
9 5/8″ at	2654 M.	1.90 S.G.
7″ at	2978 M.	

VELOCITY SURVEY: READ WELL SERVICES

ZERO OFFSET VSP : 86 LEVELS EVERY 20 M. FROM 2960 TO 1300 M.

CHECK SHOTS AT 1020 AND 1000 M.

LOGS RUN CONTRACTOR: WESTERN ATLAS / EXLOG / BAROID

DIFL / BHC / GR / CAL	CDL / CN / SL / GR	DLL / MLL / GR	DIPLOG	FMT / GR	CBLV / GR	16″ SN - GR (MWD)
RUN 1A : 1278 - 2252 M.	RUN 2A : 2649.5 - 2975.7 M.	RUN 2A : 2665 - 2800 M.	RUN 2A: 2649.5 - 2975.6 M.	RUN 2A : 2675 - 2865 M. RUN 2B : 2798,4M.	RUN 1A : 268 - 1278 M. RUN 2B : 1175 - 2649.5 M. RUN 3C : 2490.8 - 2927.0 M.	RUNS 1 - 7 : 336 - 2682 M. RUN 8 : 2879 - 2981 M.
DIFL / ACL / GR / CAL			SWC			EWR – GR (MWD)
RUN 2B : 2649.5 M - 2975.6 M.			RUN 2A : 2740 - 2966 M.			RUNS 1 - 5 : 2666 - 2879 M.

COMMENTS:

1. THIS COMPLETION LOG WAS MADE USING WESTERN ATLAS' "WELL DATA SYSTEM" ON A PERSONAL COMPUTER. MWD ONLY SECTIONS : 331 - 1280 M. AND 2235 - 2650 M.
2. SHALLOW GAS WAS ENCOUNTERED AT 408 - 409 M. AND 696.5 - 698 M.
3. FINAL POSITION WAS 12M, BEARING 97° FROM PLANNED POSITION ON SEISMIC

LINE E86 - 457, SHOT POINT 716.

4. THE CORES ARE DEPTH SHIFTED TO LOGGER'S DEPTH:

LITHOLOGICAL SYMBOLS

CONGLOMERATE	SHALE	MARL	COAL LIGNITE	FORAMS	MICA
SAND SANDSTONE	LIMESTONE	TUFF	WOOD FRAGS	BURROWS	KAOLINITE
SILT SILTSTONE	CHALK	SALT GEN'L	FOSSILS GEN'L	PYRITE	CHERT
CLAY CLAYSTONE	DOLOMITE	ANHYDRITE	SHELL FRAGS	GLAUCONITE	SIDERITE

STAIN · FLUORESCENCE · CUT FLUOR · GAS SHOWS

SIDEWALL CORES
- o— REC.
- ●— REC. W/SHOW
- → NO REC

CORES

CORE NO.

DST

RFT/FMT

UNSUCCESSFUL

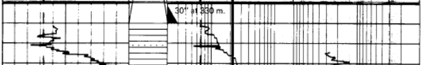
CASING SHOE/LINER

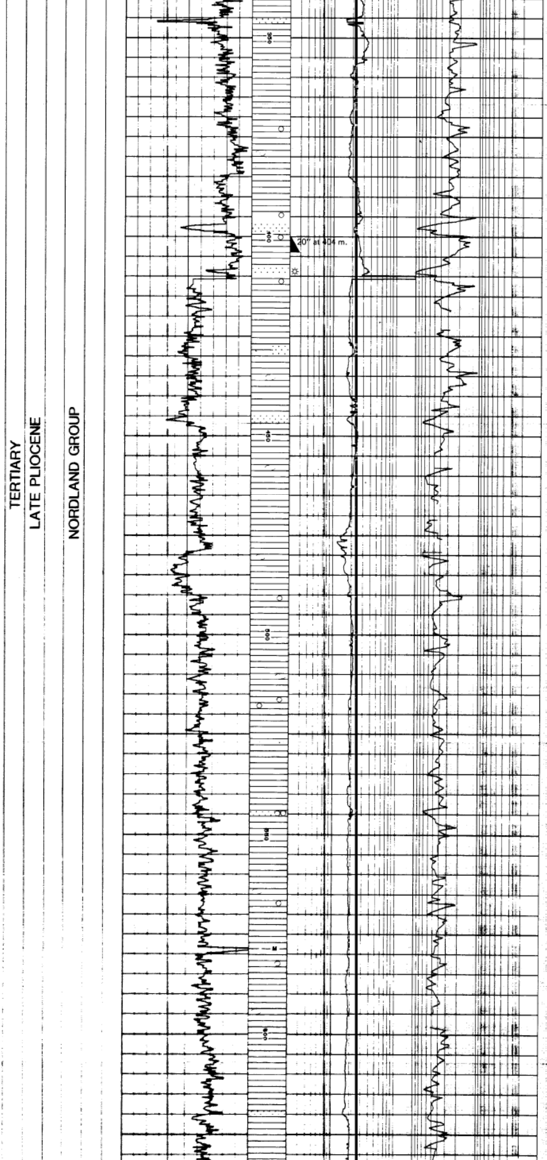
SYSTEM	SERIES	STAGE	GROUP	FORMATION	LITHOLOGY DEPTH M KB	TWO WAY TRAVEL TIME (sec) (DATUM MSL)	LITHOLOGICAL DESCRIPTIONS AND TOPS M. RKB(M MSL)

NORDLAND GROUP (SEA FLOOR) AT

NO RETURNS

Track 1			Depth	Track 2			Track 3		
0	MVDGR-(API)	100		.2	MVDRES-(OHMM)	20	100	MVDROP-(M/T)	1
0	GR	100	DEPTH	.2	ILD	20	140	AC	40
100	GR-BACKUP	200		20	ILD-BACKUP	2000	240	AC-BACKUP	140
6	CALIPER	16		.2	ILM	20			
				20	ILM-BACKUP	2000			
				.2	FOC	20			
				20	FOC-BACKUP	2000			



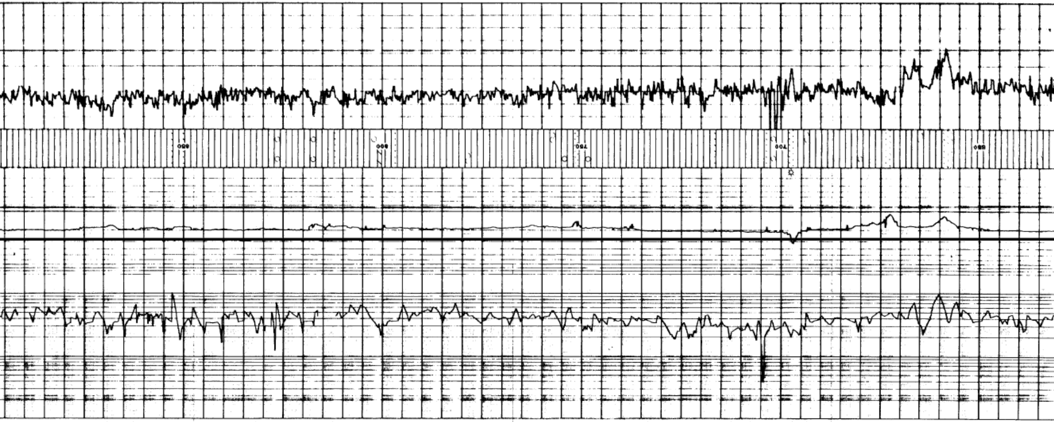


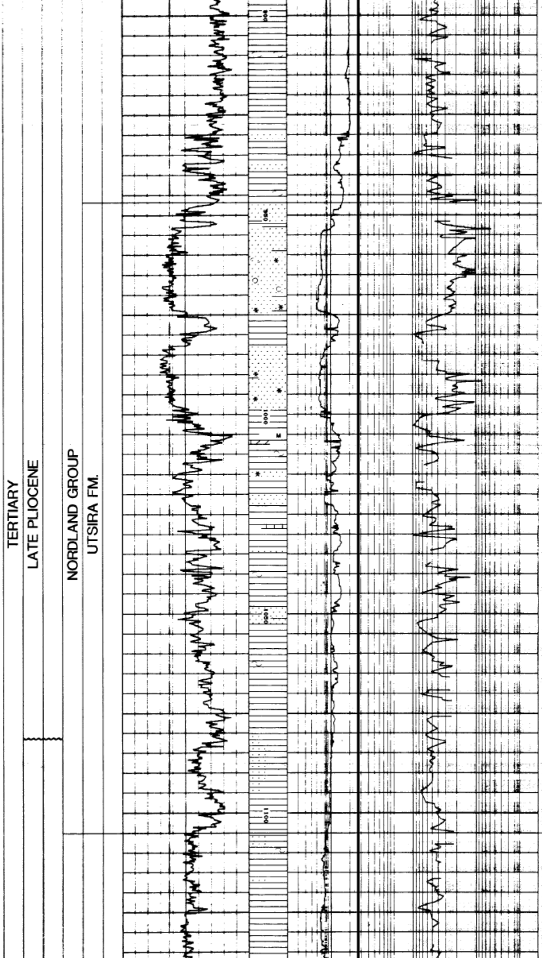
LITHOLOGY INTERPRETED FROM MWD DATA DOWN TO 420 M.

CLY: MED GRY-SL OLV GRY,PRED S
OCC V SDY/LITHIC FRAGS,SF
AMOR-SOL,OCC STCKY,
"GUMBO",BEC SL CALC
SD: CLR-MLKY QTZ,OCC GRY TRAN
MED,OCC V FN,OCC CRS-V CR
MOD SRTD,SUBANG-RND,LSE
TR: ROCK AND SHELL FRAGS

LATE PLIOCENE

NORDLAND GROUP



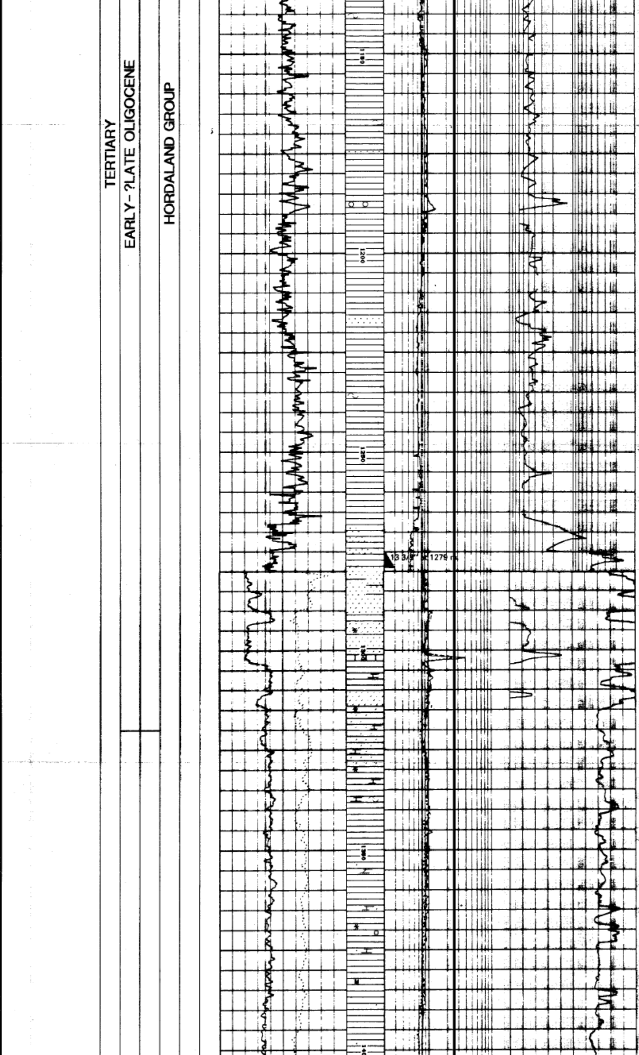


UTSIRA FM 947 m (-924 m)

SD: CLR-MLKY QTZ,MED-CRS,OCC
V CRS,SUBRND,MOD-WLL SRTD,
TR: ROCK FRAGS: PRED A.I. BUT A
CHERT WITH LST)
CLY: MED GRY-OLV GRY,PRED BRGE,
ABUN.SFT-SOL,SL CALC-CALC
TR: SHELL FRAGS
TR: FOSSILS

CLY: PRED MED GN- GN GRY,SFT,AB
PRTLY SOL,SLTY-VF SDY, NON
SD: CLR-TRANSL,MED-CRS,OCC V C
RND-WLL RND,WLL SRTD,LSE
ROCK FRAGS:BIOTITE GNEISS/HORNB
SCHIST,AND PURE GLAU

HORDALAND GROUP 1105 m (-1082 m)

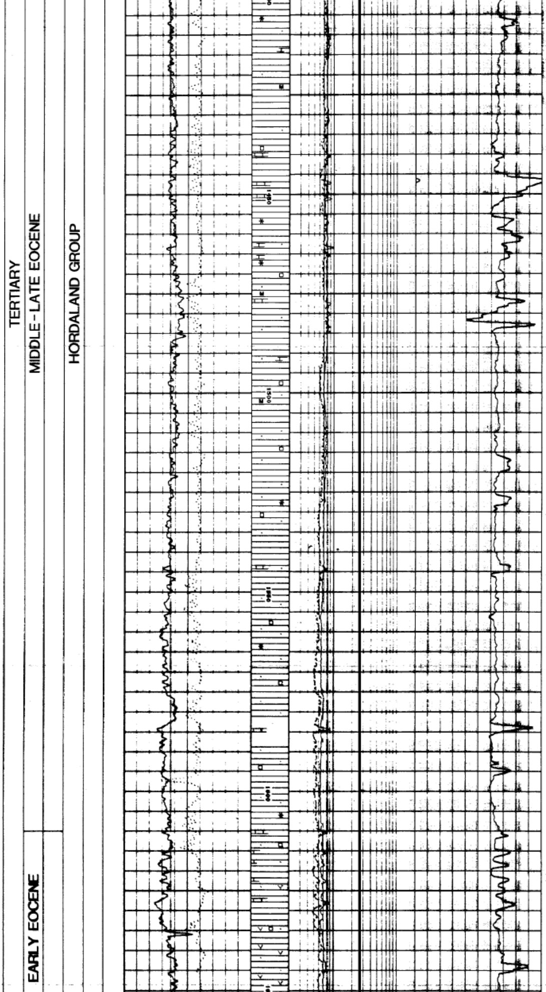


CLY'CLYST:DEC PRED MED BRN GRY,
FRMNG JP/PRTLY BLKY,NON CA
SD: PRED A/A
TR: SHELL FRAGS
TR: FOSSILS,MICA,DOL LST,CAL

SD: CLR QTZ,FN-CRS,POOR-MOD SR
SUBRND-RND
TR: KAOL:LT GRY,SFT,SDY,BLKY-A
GLAU
CLYST:MED-DK BRN,MED GRY-GN GRY
BLKY-PLTY,FRM,NON CALC
TR: GLAU,PYR,LITH FRAGS,MICA

CLYST:SLTY,MED GRY,OLV GRY,OCC
GRY,FRM-SFT,BLKY,SL MICRO
SL MICROCARB,NONCALC
SST: WH-TRANSLUC,FN-MED,SUBANG
SUBRND,MOD-WELL SRT, KAOL
CALC CMT,MOD HD,SL MICA A
POOR POR
SD: CLR QTZ,MED-CRS,OCC V CRS
RND,WELL SRT,LSE,POSS FRO
LST/DOL:LT BRN-PL YEL BRN,MOD H
BLKY-ANG,ALSO LT GRY-LT O
SFT-FRM,SL ARG,CRYPTOXLN
GLAU: DK GN,GN BLK,RND PELLETS
TR: PYR,MICA

CLYST:OLV GRY,DK GN GRY,OCC GRD
TO BL GRY,FRM,BLKY,PREDOM
NON SLTY,OCC SL SLTY,SL
MICROMIC,OCC SL GLAU,NON
FROM 1580m TR TUFF
TR: LST/DOL:PL YEL BRN,LT OLV
LT GRY-WH,BLKY-ANG,MOD HD
HD,CRYPTOXLN,OCC SL ARG,O
TR: SD,PYR,GLAU,MICA



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TUFFACEOUS CLYST:MULTICOLOURED,
                 BRN GRY,BL GRY
                 MOD BRN,FRM-M
                 SUBFISS,SL CA
                 W/WH AND BLK
                 GLAU I/P
TR:   LST/DOL:OCC SUCROSIC,ELS
TR:   PYR,QTZ GRNS
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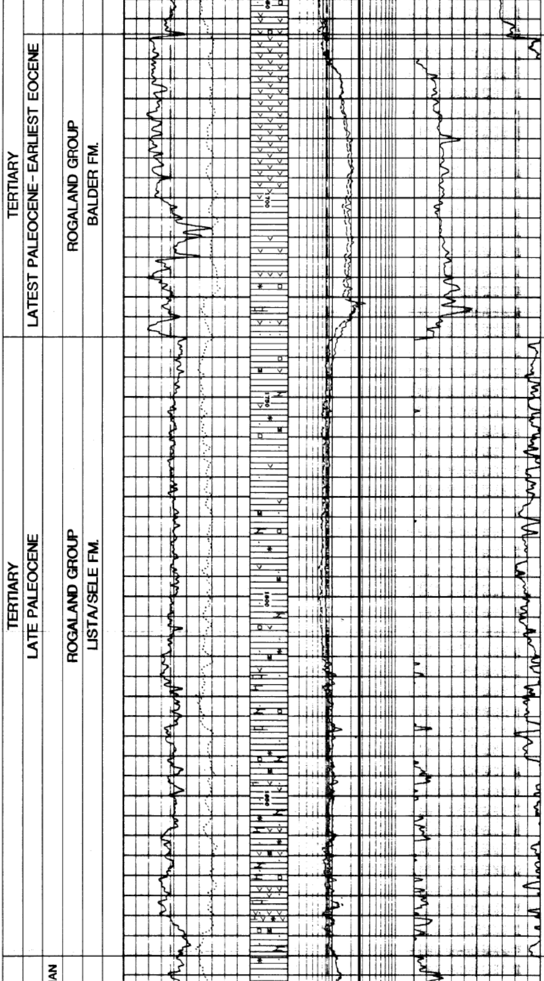

ROGALAND GROUP 1659 m (- 1636 m)

BALDER FM

```
TUFF: MULTICOLOURED,OLV GRY,BRN
      GRY,BL GRY,GN GRY,MOD BRN
      FRM-MOD HD,BLKY,ALSO SFT,
      HYDR,STKY,MOTTLED W/WH AN
      BLK SPCKS,SL GLAU AND
      BENTONITIC
CLYST:OLV GRY,GN GRY,BL GRY,BRN
      GRY,FRM,BLKY,NONCALC
TR:   LST/DOL: PL YEL BRN,LT OL
      GRY,LT GRY-WH,BLKY-ANG,MO
      OCC HD,CRYPTOXLN,OCC SL A
      OCC XLN,OCC SUCROSIC
TR:   SD: CLR,LSE QTZ,PRED MED-
      CRS,RND
TR:   PYR,GLAU
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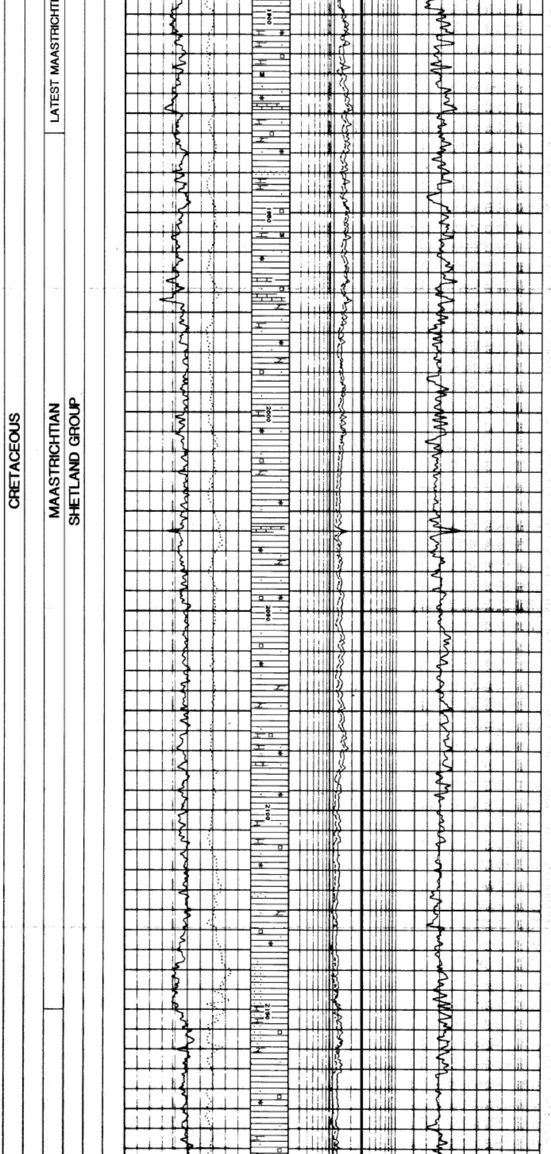
LISTA / SELE FM 1735 m (- 1712 m)

```
CLYST:OLV GRY,GN GRY GRDG TO BL
      GRY,BRN GRY,MOD BRN,FRM,B
      OCC SUBPLTY,OCC SFT AND S
      STKY,SL MICROMIC,NON CALC
TUFF: A/A
LST/DOL:A/A
TR:   PYR,GLAU,MICA,SD
```

SHETLAND GROUP 1890 m (- 1867 m)



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CLYST:CALC,OCC GRDG TO MARL,ME
      GRY-LT OLV GRY,SFT,AMOR,
      HYDR,STKY
CLYST:OLV GRY,GN GRY GRDG TO B
      GRY,BRN GRY,MOD BRN,FRM,
      OCC SUBPLTY,OCC SFT AND S
      STKY,SL MICROMIC,NON CALC
TR:   LST/DOL:A/A
TR:   SD,GLAU,PYR
```

```
CLYST:MED GRY-LT OLV GRY,SFT,A
      HYDR,STKY,MOD CALC,OCC SL
      ALSO OLV GRY,GN GRY GRDG
      BL GRY,BRN GRY,FRM,BLKY,
      OCC SUBPLTY,SL MICROMIC,N
      CALC-SL CALC
TR:   LST/DOL:PL YEL BRN,LT OLV
      LT GRY-WH,BLKY-ANG,MOD HD
      OCC HD,CRYPTOXLN-MICROXLN
      XLN CALCITE,OCC SUCROSIC
TR:   SD: CLR,LSE QTZ,PRED MED-
      RND
TR:   GLAU,PYR
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```
CLYST:MED GRY-LT OLV GRY,SFT,A
      HYDR,STKY,MOD CALC,OCC SL
      ALSO OLV GRY,GN GRY GRDG
      BL GRY,BRN GRY,FRM,BLKY,O
      SUBPLTY,SL MICROMIC,NON C
      SL CALC
TR:   LST/DOL:PL YEL BRN,LT OLV
      LT GRY-WH,BLKY-ANG,MOD HD
      CRYPTOXLN-MICROXLN,OCC XL
      CALCITE,OCC SUCROSIC
TR:   SD: CLR,LSE QTZ,PRED MED-
TR:   GLAU,PYR,MICROFOSS INCL F
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CLYST:PREDOM MED GRY-LT OLV GRY
      AMOR,STKY,HYDR,MOD CALC,
      AND OCC SLTY A/A
TR:   SD:CLR QTZ,FN-MED,SUBANG-
      SUBRND,MOD SRT,LSE
TR:   DOL:LT BRN,BLKY-ANG,MOD H
      CRYPTOXLN
TR:   GLAU,PYR,MICROFOSS,LST
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CRETACEOUS

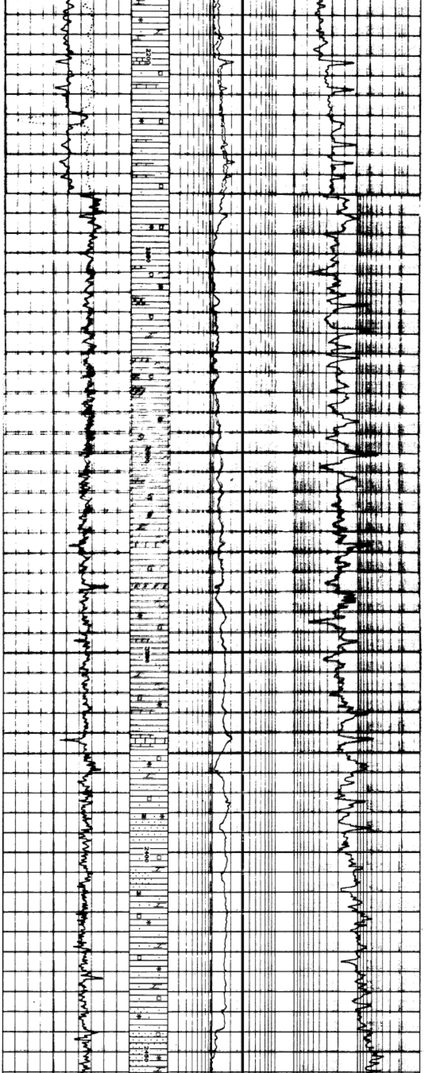
CAMPANIAN

SHETLAND GROUP

CRETACEOUS

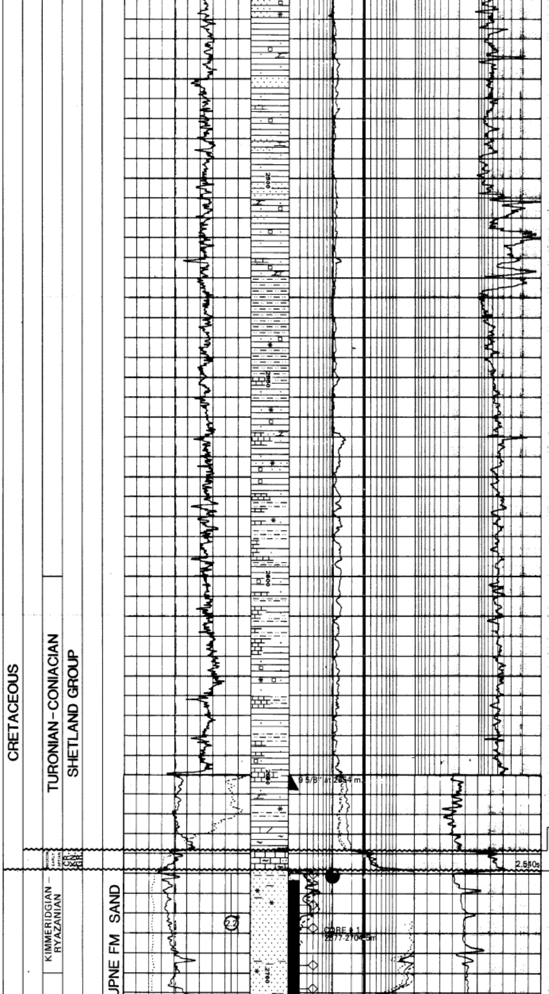
SANTONIAN

SHETLAND GROUP



CLYST:DK GRY,MED GRY,OLV GRY,OCC
GN GRY,PREDOM FRM,BLKY,OCC
SFT,HYDR,NON CALC-SL CALC,
OCC SLTY GRDG TO SLTST
TR: DOL/LST:PREDOM DOL,LT BRN,
MOD HD,BLKY-ANG,CRYPTOXLN,
LST:OLV GRY-WH,MOD HD,OCC
XLN CALCITE
TR: SD/SST:LT GRY VFN-FN SST
AND CLR MED-CRS LSE QTZ
TR: GLAU,PYR,MICROFOSS INCL FO

CLYST:MED GRY,OLV GRY,GN GRY,[illegible]
BLKY,NONCALC,I/P V SLTY
SST: LT GRY,WH-TRANSLUC,VFN-FN
OCC GRDG SLTST,SUBRND,
MOD-WELL SRT,CALC CMT,OCC
ARG MTX,FRI-MOD HD,GLAU
MICA,POOR POR
TR: DOL:GRY ORNG,LT [illegible]
HD-HD,BLKY-ANG,CRYPTOXLN-
MICROXLN,OCC SUCR TXT
TR: LST:LT OLV GRY,WH,MOD HD,
BLKY,OCC XLN CALCITE
TR: SD:CLR,LSE QTZ,MED-CRS
TR: MICA,GLAU,PYR



CLYST: PREDOM OLV GRY AND BRN GRY
OCC GN GRY, FRM, BLKY, I/P
SLTY GRDG SLTST, NON-MOD C
OCC MED GRY, SFT, AMOR, MOD C
TR: SST: LT GRY, WH-TRANSLUC, VF
OCC GRDG SLTST, SUBRND, MOD-
SRT, CALC CMT, OCC ARG MTX,
FRI-MOD HD, GLAU-V GLAU, MIC
POOR POR
TR: DOL: GRY ORNG, LT BRN, MOD H
BLKY-ANG, CRYPTOXLN-MICROX
OCC SUCR TXT
TR: LST: LT OLV GRY, WH, FRM-MOD
BLKY, OCC XLN CALCITE
TR: PYR, QTZ

CLYST: PREDOM OLV GRY AND BRN GRY
OCC GN GRY, FRM, BLKY, I/P
SLTY, PREDOM NON CALC, OCC
SL-MOD CALC, MICROMIC
SLTST: BRN GRY, FRM, BLKY, MICROMIC,
SL MICROCARB, NON-SL CALC
TR: DOL: GRY ORNG, LT BRN, MOD
HD-HD, BLKY-ANG, CRYPTOXLN-
MICROXLN, OCC SUCR TXT
TR: SST: LT GRY, WH-TRANSLUC, VF
OCC GRDG SLTST, SUBRND,
MOD-WELL SRT, CALC CMT, OCC
MTX, FRI-MOD HD, GLAU-V GLA
MICA, POOR POR
TR: LST, PYR, GLAU, LOOSE QTZ

CLYST: BRN GRY, OLV GRY, GN GRY, FR
BLKY, I/P SLTY, NON CALC-SL
MICROMIC, OCC LT OLV GRY, S
SL HYDR AND STKY
SLTST: BRN GRY, LT BRN, MED GRY-GN
FRM, OCC MOD HD, BLKY, V MIC
SL MICROCARB, NON-MOD CALC,
GRDG TO VFN SST AND SL GL
LST: WH, LT BRN, MOD HD, BLKY-ANG,
CRYPTOXLN, OCC WH-TRANSP X
CALCITE, FROM 2669M ALSO L
GRY-WH, SFT, ARGIL GRDG TO
TR: DOL: GRY ORNG, LT BRN, MOD H
BLKY-ANG, CRYPTOXLN-MICROX
OCC SUCR TXT
TR: PYR, GLAU, LOOSE QTZ

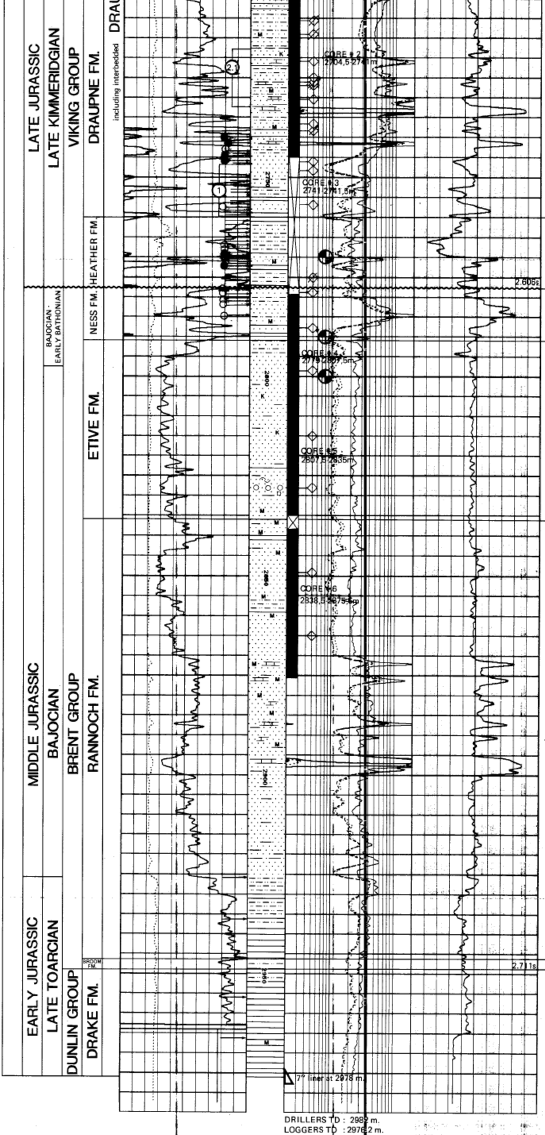
CROMER KNOLL GROUP 2669 m (- 2646

LST: lt gry-wh, pa brn wh,
frm-sft, blky, occ
marly

VIKING GROUP 2674 m (- 2651 m)

DRAUPNE FM

SST: clr-transluc, v lt
brn oil stain, v fn-
mod, occ v crs-crs,
mod-fair srtd, subang-
subrnd, occ rnd, fri-
mod hd, pred silic cmt,
occ weak calc, abdt
glauc-decr downwards
Tr Mica



SLTST: dk gry-brn blk, olv blk, mod hd-hd, layered with sst. lam. non-mod calc i/p, micromic occ grds to SHALE: dk gry-blk, fiss, v micac, hd, sl carb & pyr

SST: lt brn gry-med brn gry, wh gry, v fn-med i/p, mod srtd, subang-subrnd, fri, sl calc, sl micromic, tr dk gry clayey inclusion

HEATHER FM 2760 m (- 2737 m)

CLYST/SLTST: med gry-dk brn gry, frm-mod hd, blk micromic, interbedde sandstone: v lt gry-dk gry slty strkd, v calc

BRENT GROUP 2777.5 m (- 2754.5 m) NE

SST: lt med gry, v fn-fn, grding to slt, well srtd, subang-subrnd, fri-frm, sl micromic, weak to mod well calc cmtd

SLTST: lt-med brnish gry, frm, v micac laminae i/p, sndy streaks, sl calc

ETIVE FM 2792 m (- 2769 m)

SST: lt-med gry, off wh-wh, vfn-fn, occ med, subang-subrnd, well srtd, fri, tr cly mtrx, tr lithic grns, tr pyr, mod to occ v micac layers occ crs-v crs grns, minor shale partings: v dk brn-brn blk, v fiss, hd, brit, v micac, traces plant remains

RANNOCH FM 2836 m (- 2813 m)

SST: wh-clr-transluc, v lt gry-lt med gry-lt brn vfn-fn, well srtd, subang-subrnd, fri-mod hd, silic cmt i/p, sl tr cly spks slrt pyr, good por, locally abundt mica locally calc cmtd and mod hd

SH: dk gry-blk, frm-hd, fiss, tr pyr & micropyr, tr mica

CLYST: lt-med gry, sft, slty

BROOM FM 2946.5 m (- 2923.5 m)

DUNLIN GROUP 2949 m (- 2926 m)

CLYST: med gry, sft, stcky, plas, occ frm, slty, tr pyr

FLOW DATA

33/9-14

Test no.	Formation	Perf. int. (m KB)	Flow period no.	Duration (min)	Choke diam. (mm)	Oil rate (Sm3/d)	Gas rate (1000 Sm3/d)	Water rate (m3/d)	GOR (Sm3/Sm3)	Oil dens. (kg/m3)	Gas sp.g. (air=1)	WHP (kPa)	WHT (°C)	BHP[1] (kPa)	Res. temp. (°C)	Res. press.[1] (kPa)
1	Upper Jurassic (Volgian) sandstone	2746.8- 2759.8	1	1402	15.9	-[3]	8.5	1287[2]	(GWR) 6.[illegible]	(water) 1014	0.78	6700	67	35430[4]	96.0	40230
2.1	Upper Jurassic (Volgian) sandstone	2718.0- 2732.0	1 2	366 1483	17.5[5] 14.3	-[6] 1310	- 74.67	- -	- 57	- 836	- 0.744	13000 14500	53 57	36710 36670	95.0	39915
2.2	Upper Jurassic (Volgian) sandstone	2718.0 2732.0- and 2675.0 2705.0-	1 2 3	189 869 551	15.9[7] 14.3 12.7[9]	-[8] 1416 1164	- 58.06 42.90	- - -	- 41 37	- 837 836	- 0.704 0.703	15860 16600 17720	48 64 59	39203 39215 39327	95.0	39915

'09.10.88 R. Johannessen, DDH-LBP

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[1] Pressures corrected to the middle of the perforation interval. (KB Elevation = 23 m)

[2] DST no. 1: Water production rate was declining from 1400 m3/d to 1287 m3/d during 23.4 hours of production