Paladin
Resources (Norway) Limited

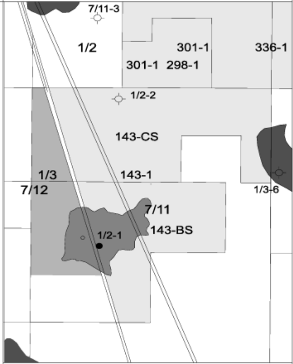
1/2-2

1:500
COMPOSITE WELL LOG

GENERAL WELL DATA

COUNTRY/AREA :	Norway North Sea
BLOCK :	1/2
LICENSE :	PL 143 CS
OPERATOR :	Paladin (Norway) Ltd
License Interest :	Paladin (Norway) Ltd BG Norge AS DNO AS
Pre-Drill Well Status :	Exploration
Primary Objective :	Forties Sandstone Mbr
Post Completion Well Status :	P & A
Formation at TD:	Ekofisk
Rig Name :	Maersk Giant
RTE :	40 m
Water depth :	74 m
Spud Date :	14/12/2005
TD Date :	18/01/2006
Rig Released :	02/02/2006

LOCATION MAP



WELL LOCATION

	Surface Location
Latitude :	56° 59' 32.008"
Longitude :	02° 29' 47.663"
Easting :	469 410.16 m E
Northing :	6 316 774.59m N

	TD Location
Latitude :	56° 59' 34.173"
Longitude :	02° 29' 48.592"
Easting :	469 426.331 m E
Northing :	6 316 841.415m N
TD Depth:	3434.0m MDRT 3392.0 m TVDSS

ENGINEERING DATA

HOLE SIZE	DEPTHS	CASING	SHOE	MUD SYSTEM
36" x 36"	114 - 176 m	30"	172.7 m	Sea-water
9 7/8" x 24"	176 - 703 m	20"	696.8 m	Sea-water/bentonite sweeps
17 1/2"	703 - 1507 m	13 3/8"	1497 m	Peformadrill KCl
8 1/2"	1507 - 3434 m			Enviromul OBM

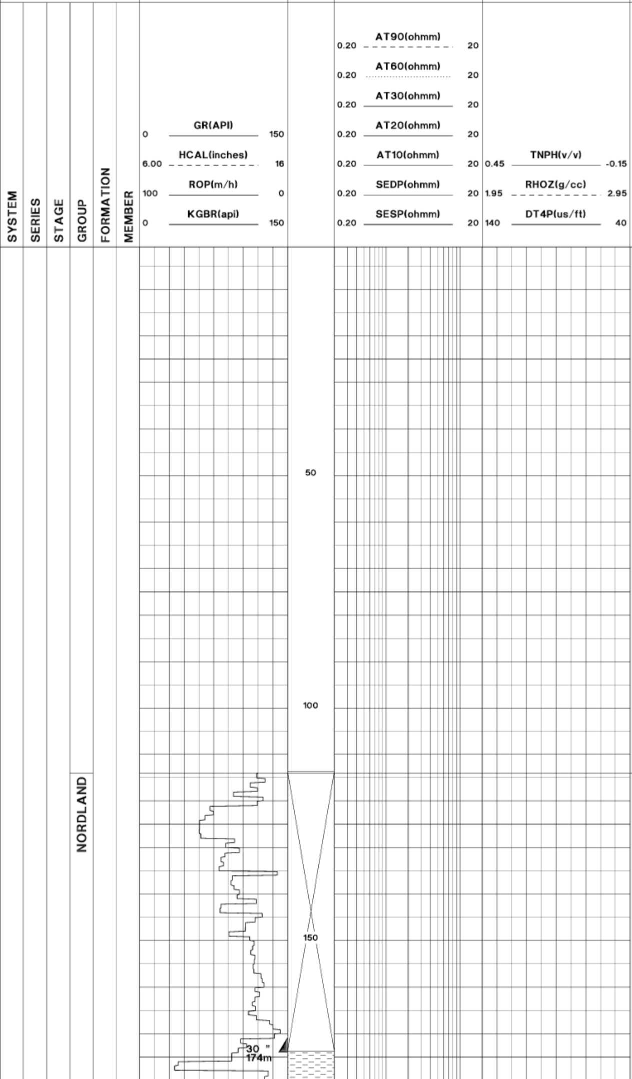
WIRELINE LOG COVERAGE

RUN	DATE	INTERVAL	SUITE
1A	21/01/2006	1496 - 3415 m	PEX-DSI-AIT
1A	22/01/2006	500 - 3400 m	Checkshots

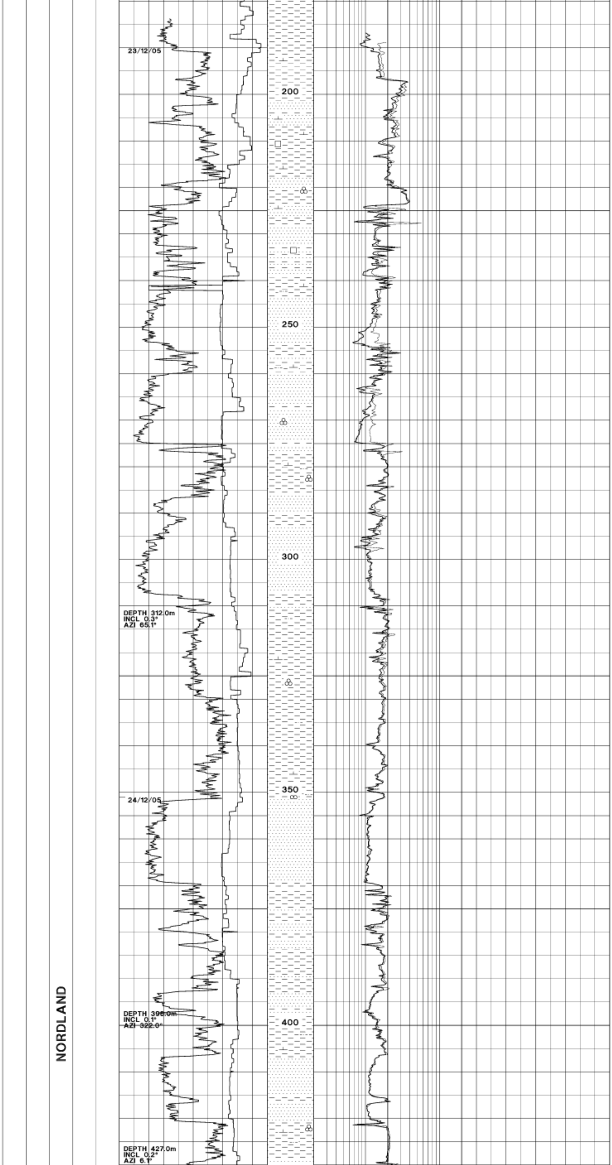
MWD LOG COVERAGE

RUN	INTERVAL	SUITE
1	176 - 703m	DGR/EWR
2	703 - 1507m	DGR/EWR
3	1507 - 3142m	DGR/EWR
4	3142 - 3434m	DGR/EWR

CHRONO/LITHO STRATIGRAPHY	GAMMA RAY	DEPTH AND LITH	RESISTIVITY	NEUTRON/DENSITY SONIC	LITHOLOGY DESCRIPTION



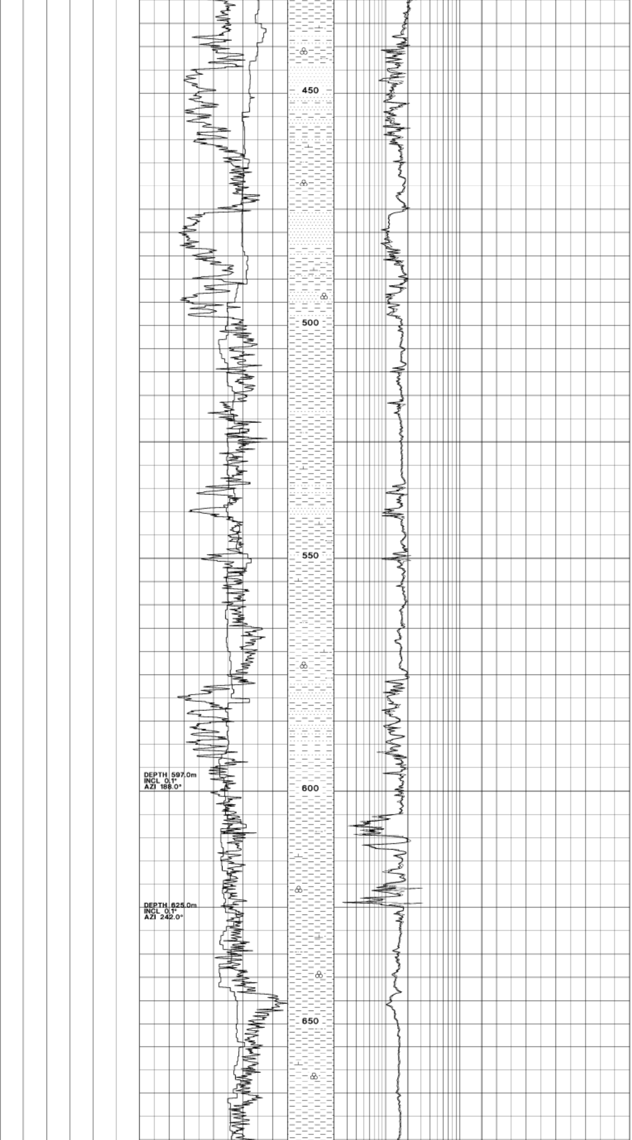
Drilled 36" hole to 174m, ran 30" conductor to 174m, losses noted when drilling out. Spotted and squeezed two cement plugs. Drilled to 190m, POOH to pick up 9 7/8" pilot hole assembly.



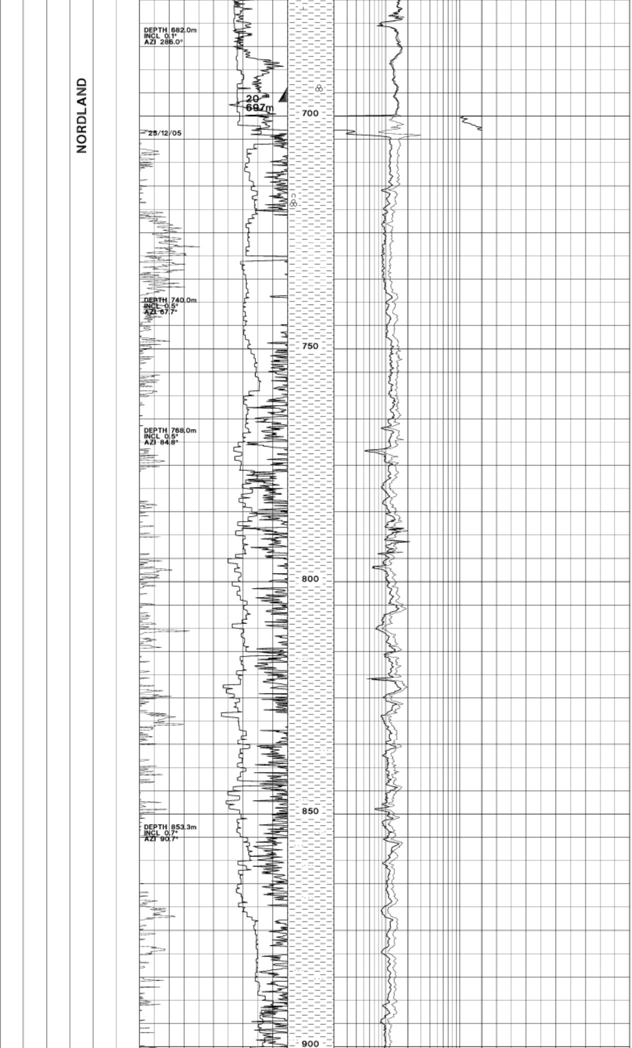
CLAYSTONE: medium grey, soft, sticky, silty, common shell fragments. Interbedded with **SAND:** quartz, translucent, very fine to fine, rarely medium, sub-rounded, moderately spherical, loose, no shows.

CLAYSTONE: medium grey to olive grey, soft to firm, sticky, amorphous, silty, slightly calcareous, common shell fragments. Interbedded with **SAND:** loose quartz, translucent, very fine to fine, rarely medium, well sorted, sub-rounded, moderate sphericity, rarely as a friable sandstone, grain supported, weak calcareous cement, good visible porosity, no shows.

CLAYSTONE: pale greenish grey to light grey, locally olive grey, soft, amorphous, silty, non to slightly calcareous, traces of crystalline pyrite, common forams. Interbedded with **SANDSTONE:** loose quartz grains, translucent to light grey, very fine to fine, well sorted, sub-rounded, not seen as consolidated sandstone.



Bentonite mud
MW: 1.14 sg
PV: 3
YP: 9.6
MBT: 45
CL: 10.5K

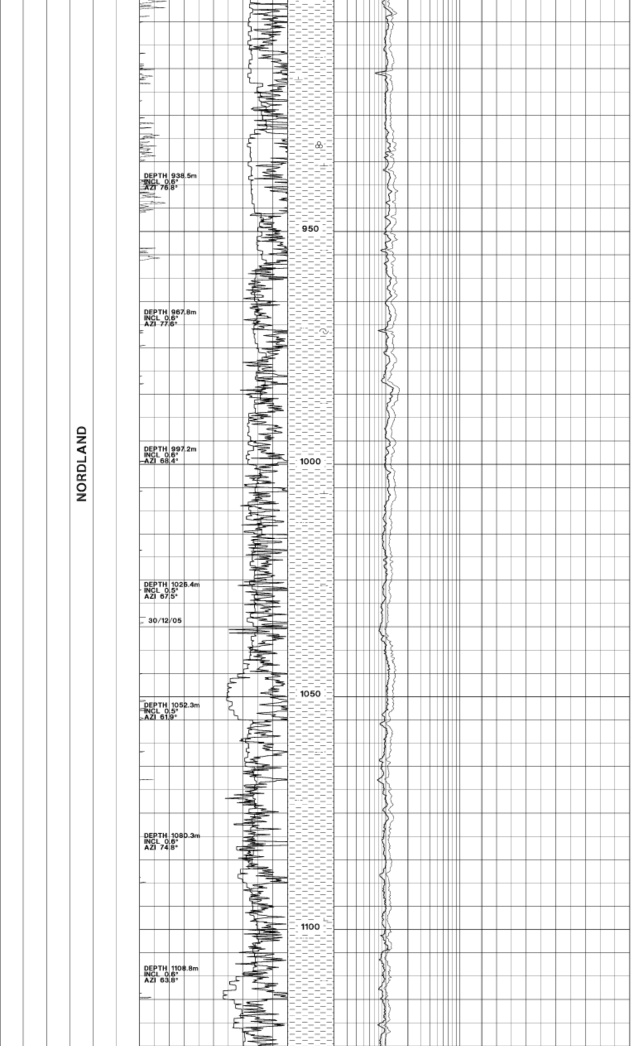


9 7/8" pilot hole drilled to 703m MDBRT to access the presence of shallow gas. Hole opened to 24", prior to running 20" casing.

CLAYSTONE: greenish grey, grey, soft to firm, amorphous, blocky, slightly sticky, slightly silty in places, moderately calcareous.

KCL mud
MW: 1.40 sg
PV: 32
YP: 12
MBT: 5.6
CL: 98K

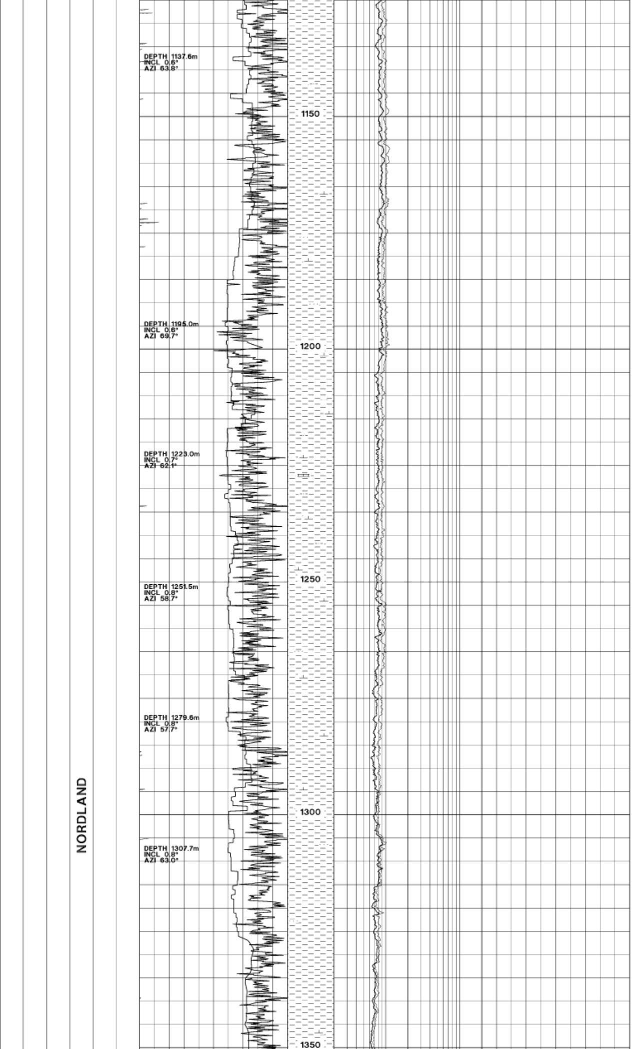
CLAYSTONE: greenish grey, grey, soft to firm, amorphous, blocky, slightly sticky, slightly silty in places, moderately calcareous. Traces of SAND: loose quartz, very fine to fine, clear, transparent, sub angular, poor sorted, occasionally weak calcareous cement, grading to very fine siltstone in places.



CLAYSTONE: medium dark grey to grey, soft to firm, sub-blocky to amorphous, slightly sticky, slightly silty in places, slight micromicaceous, rare Forams, non to locally moderately calcareous.

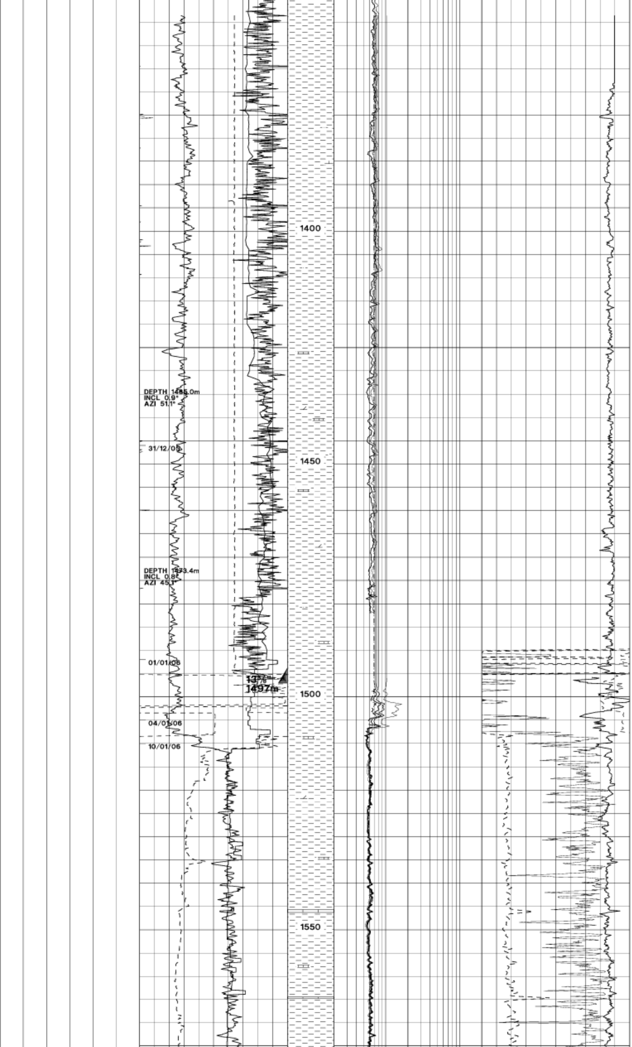
CLAYSTONE: medium dark grey to grey, trace light olive grey, amorphous to sub blocky, slight silty, slight micromicaceous, rare microcarbonaceous specks, non to locally moderately calcareous, rare shell fragments.

CLAYSTONE: olive grey, occasionally medium to medium light grey, soft, sub-blocky to amorphous, slightly sticky, slight micromicaeous, moderately calcareous.



CLAYSTONE: olive grey, occasionally medium to medium light grey, soft, sub-blocky to amorphous, slightly sticky, slight micromicaeous, moderately calcareous. Traces of LIMESTONE: off white, firm, blocky, sub angular, occasional argillaceous laminations, microcrystalline.

KCL mud
MW: 1.40 sg
PV: 36
YP: 13
MBT: 17
CL: 90K

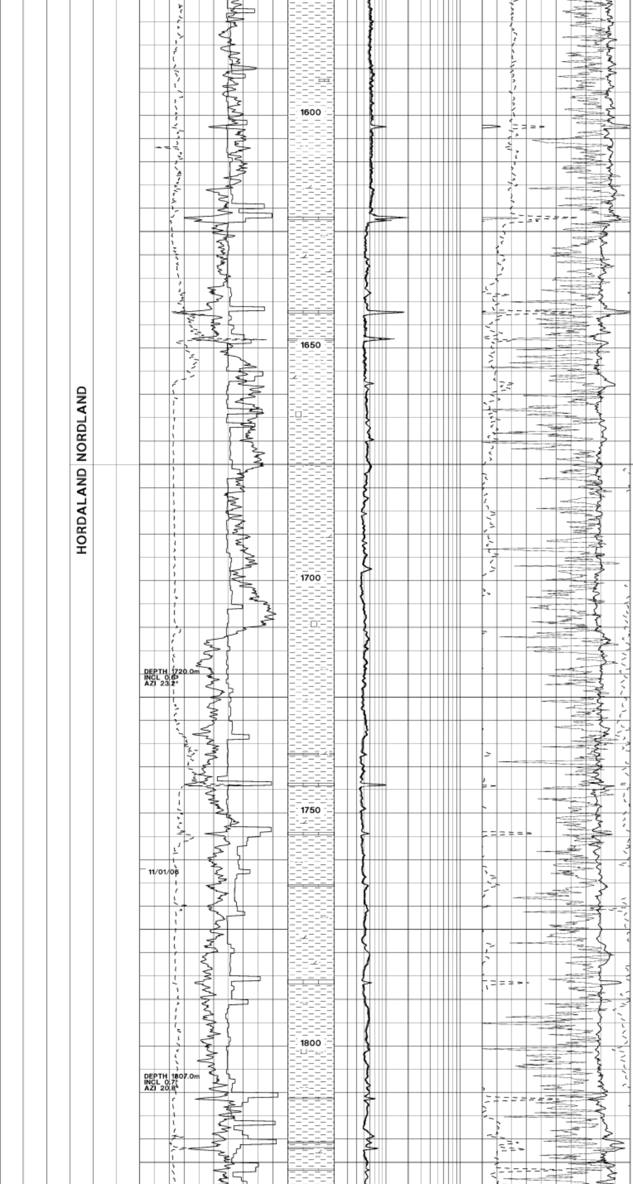


CLAYSTONE: olive grey to medium dark grey, occasionally medium to medium light grey, soft to becoming firm, sub-blocky to blocky, locally sub fissile slightly silty, slightly micromicaeous, non calcareous. Traces of LIMESTONE: pale yellowish brown, firm, sub blocky, sub-angular, microcrystalline. Rare DOLOMITE: dark brownish grey, blocky, hard, microcrystalline.

KCL mud
MW: 1.40 sg
PV: 61
YP: 21
MBT: 28
CL: 79K
Increased MW to 1.43 sg at 1492m.
Increased MW to 1.47sg after hole packing off at 1360m during backream OOH.
Increased MW 1.55sg, made wiper trip and drilled from 1492m to 1507m.

Displaced hole to 1.55 sg OBM
Performed LOT to 1.81 sg EMW
Enviromul
MW : 1.55 sg
PV : 40
YP : 12
OWR : 77:23

CLAYSTONE: olive black, medium dark grey, firm, sub-blocky to blocky, slightly micromicaeous, non calcareous. Traces of LIMESTONE: pale yellowish brown, firm, sub blocky, sub-angular, microcrystalline. Rare DOLOMITE: dark brownish grey, blocky, hard, microcrystalline



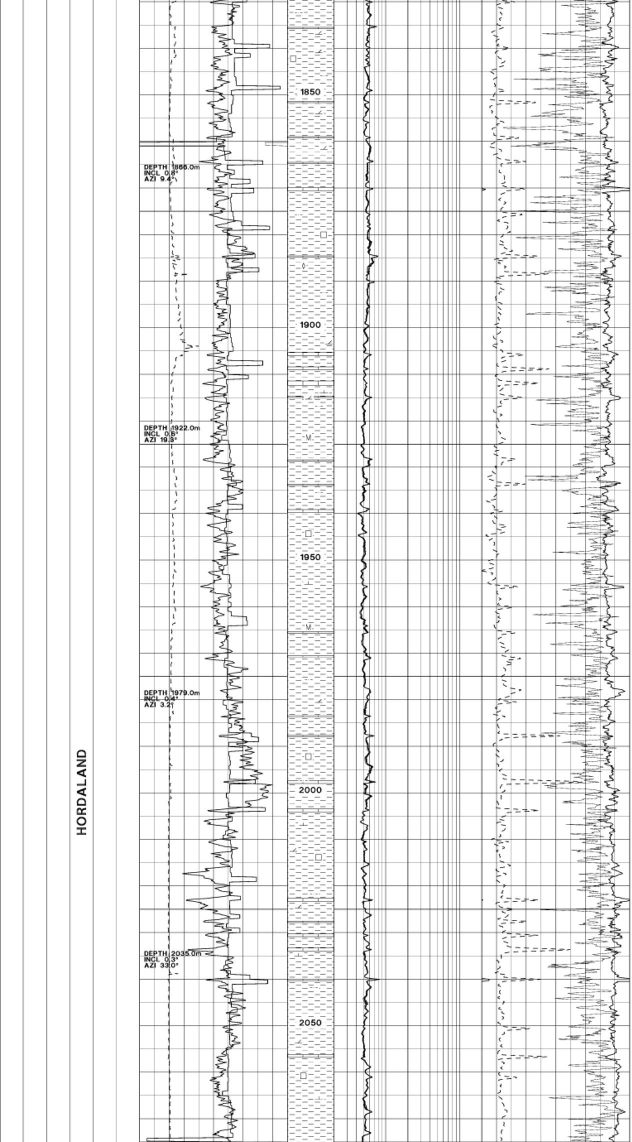
CLAYSTONE: dark grey to olive black to olive grey, firm, sub-blocky, slightly silty, non to very slightly calcareous, traces of disseminated pyrite, rare traces of carbonaceous material, with thin interbeds of **LIMESTONE:** light grey to pale yellowish brown, firm, sub-blocky, microcrystalline. Traces of **DOLOMITE:** dark brownish grey, blocky, hard, microcrystalline.

HORDALAND GP 1675 m MDRT (1635 m TVDSS)

CLAYSTONE: olive black to olive grey to dark grey, firm to moderately hard, sub-blocky to blocky, slightly silty, slightly calcareous, micromicaceous, traces of disseminated pyrite, traces of carbonaceous material, with thin stringers of **LIMESTONE:** light grey to pale yellowish brown, moderately hard to hard, blocky, microcrystalline, common dark grey argillaceous laminations, no visible porosity.

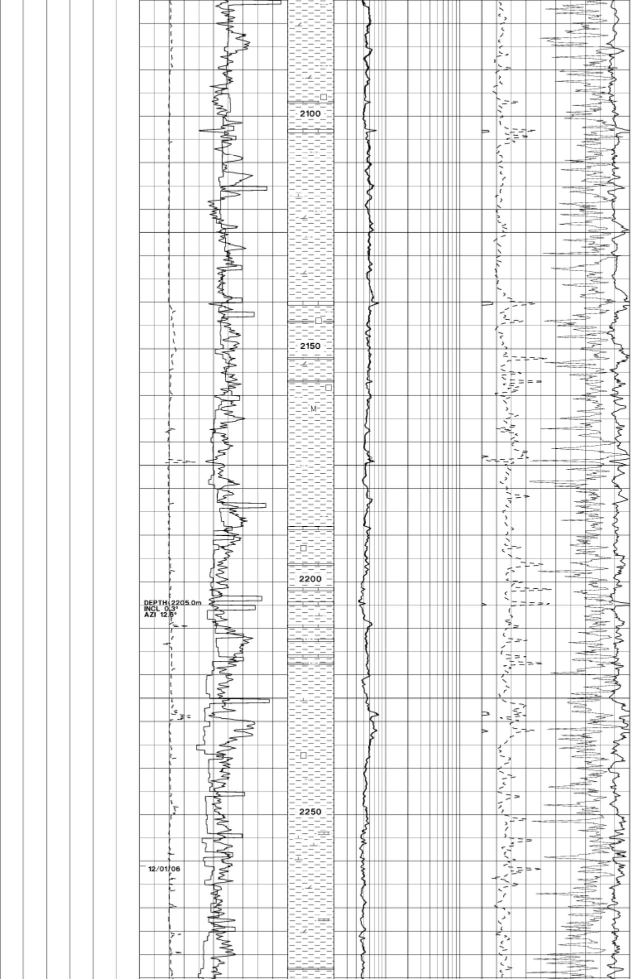
CLAYSTONE: dark grey to olive grey, becoming brownish black to olive black, firm to moderately hard, sub-blocky, slightly silty, very slightly calcareous, rare traces of disseminated pyrite, with stringers of **LIMESTONE:** light grey to pale yellowish brown, hard, angular, microcrystalline, common dark grey argillaceous laminations, no visible porosity, with - with traces of **DOLOMITE:** light grey, hard, angular, microcrystalline.

CLAYSTONE: brownish black to olive black, firm, sub-blocky to blocky, slightly silty, slightly calcareous, rare traces of disseminated pyrite, with thin stringers of **LIMESTONE:** yellowish brown, moderately hard, angular, blocky, microcrystalline, common dark grey argillaceous laminations, no visible porosity.



CLAYSTONE: olive black to dark grey, firm to moderately hard, sub-blocky to blocky, slightly silty, slightly calcareous, micromicaceous, traces of disseminated pyrite, traces of carbonaceous material, with thin stringers of LIMESTONE: light grey to pale yellowish brown, moderately hard to hard, blocky, microcrystalline, common dark grey argillaceous laminations with traces of DOLOMITE: light grey, light brownish grey, hard, angular, microcrystalline

CLAYSTONE: brownish black to olive black, firm, locally moderately hard, sub-blocky to blocky, slightly silty, slightly calcareous, occasionally micromicaceous, rare traces of disseminated pyrite, common black carbonaceous inclusions, with stringers of LIMESTONE: pale yellowish brown, moderately hard, blocky, microcrystalline, occasional dark grey argillaceous laminations, poor visible porosity.



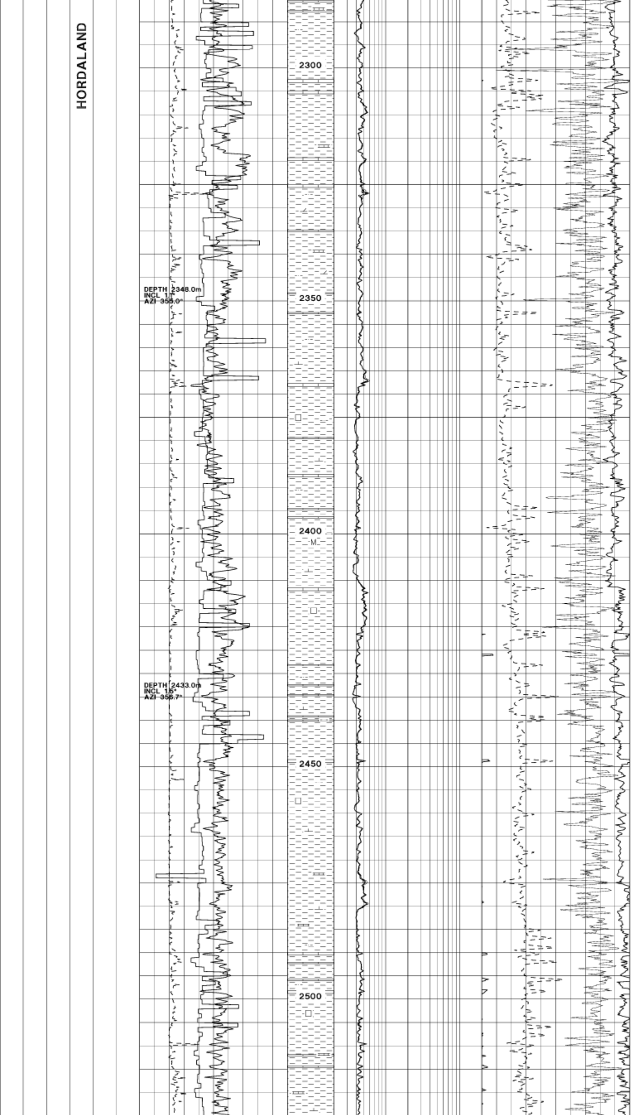
DEPTH 2205.0m
INCL 0.3°
AZI 12.6°

12/01/06

CLAYSTONE: brownish black to olive black, firm, occasionally moderately hard, sub-blocky to blocky, silty, non, to slightly calcareous, traces of mica, occasional disseminated pyrite, common black carbonaceous inclusions, with thin stringers of **LIMESTONE**: dark yellowish brown, firm to moderately hard, blocky, microcrystalline, occasional argillaceous laminations, poor visible porosity, with traces of **DOLOMITE**: light to medium grey, hard, angular, cryptocrystalline.

Enviromul
MW : 1.55 sg
PV : 34
YP : 8.6
OWR : 77:23

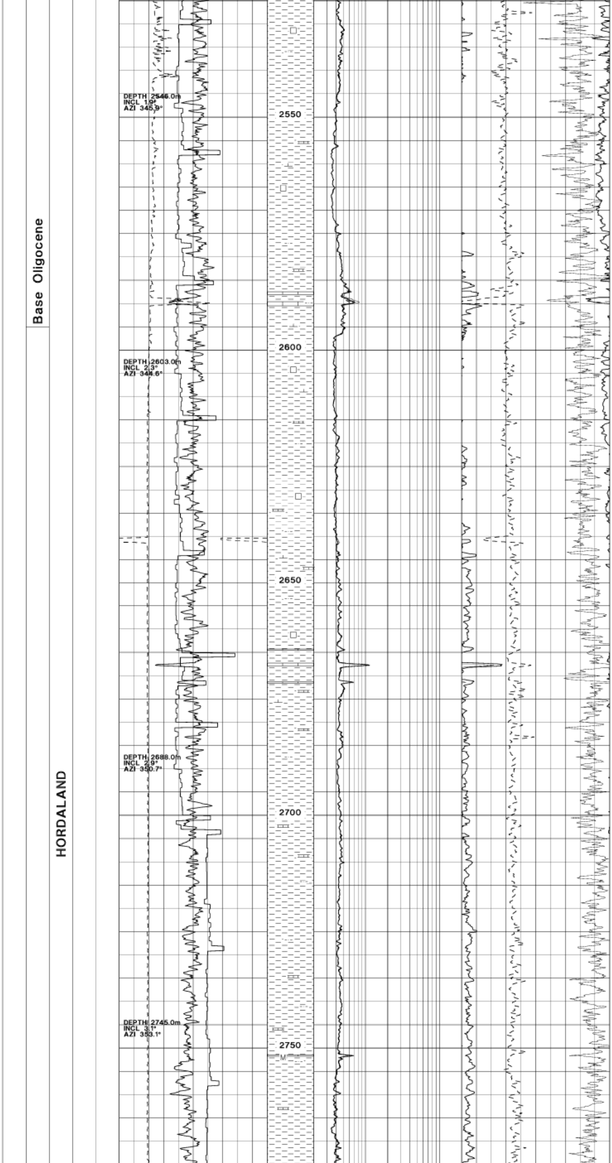
CLAYSTONE: brownish black to olive black, firm, occasionally moderately hard, sub-blocky, silty, slightly to moderately calcareous, traces of mica, traces of disseminated and crystalline pyrite, common black carbonaceous fragments, with thin stringers of **LIMESTONE**: dark yellowish brown, moderately hard, blocky, crypto to microcrystalline, angular, dolomitic in part, common argillaceous laminations, poor visible porosity.



CLAYSTONE: olive black to brownish black becoming olive grey to olive black, moderately hard occasionally firm, sub-blocky to blocky, slightly silty, slightly calcareous, micromicaceous, traces of disseminated and crystalline pyrite, traces of carbonaceous material, with thin stringers of **LIMESTONE:** light grey to dark yellowish brown, moderately hard to hard, blocky, microcrystalline, occasionally dark grey argillaceous laminations

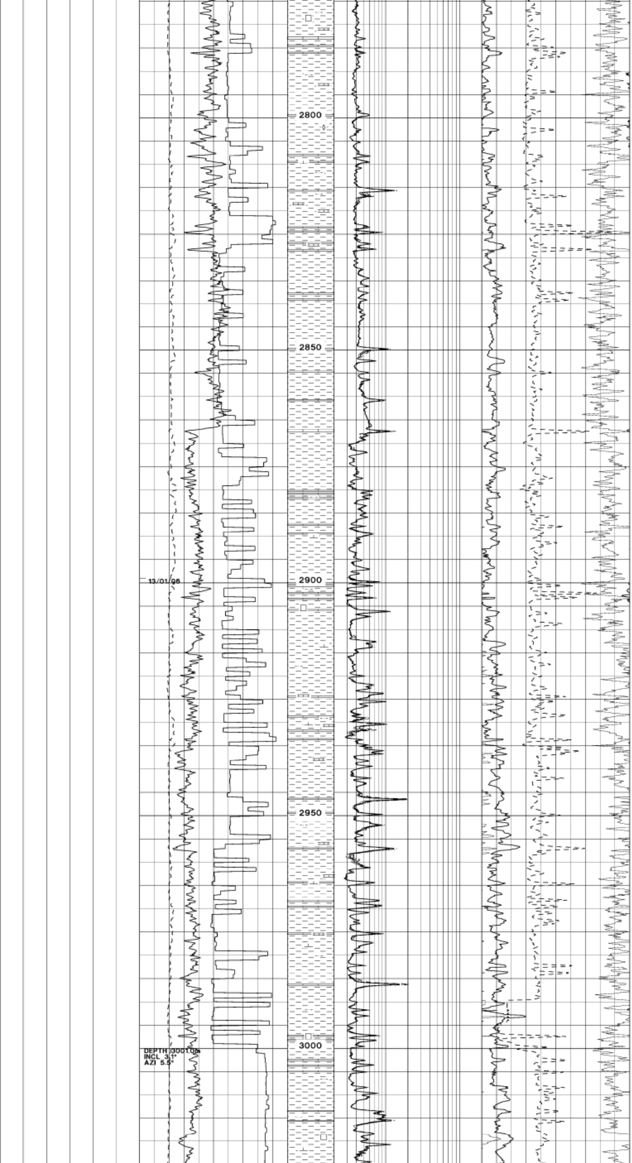
CLAYSTONE: olive black to brownish black becoming olive grey to olive black, moderately hard occasionally firm, sub-blocky to blocky, slightly silty, slightly calcareous, micromicaceous, traces of disseminated and crystalline pyrite, traces of carbonaceous material, with thin stringers of **LIMESTONE:** light grey to dark yellowish brown, moderately hard to hard, blocky, microcrystalline, occasionally dark grey argillaceous laminations.

CLAYSTONE: olive black to brownish black becoming olive grey to olive black, moderately hard occasionally firm, sub-blocky to blocky, slightly silty, slightly calcareous, micromicaceous, traces of disseminated and crystalline pyrite, traces of carbonaceous material, with thin stringers of **LIMESTONE:** light grey to dark yellowish brown, moderately hard to hard, blocky, microcrystalline, occasionally dark grey argillaceous laminations.



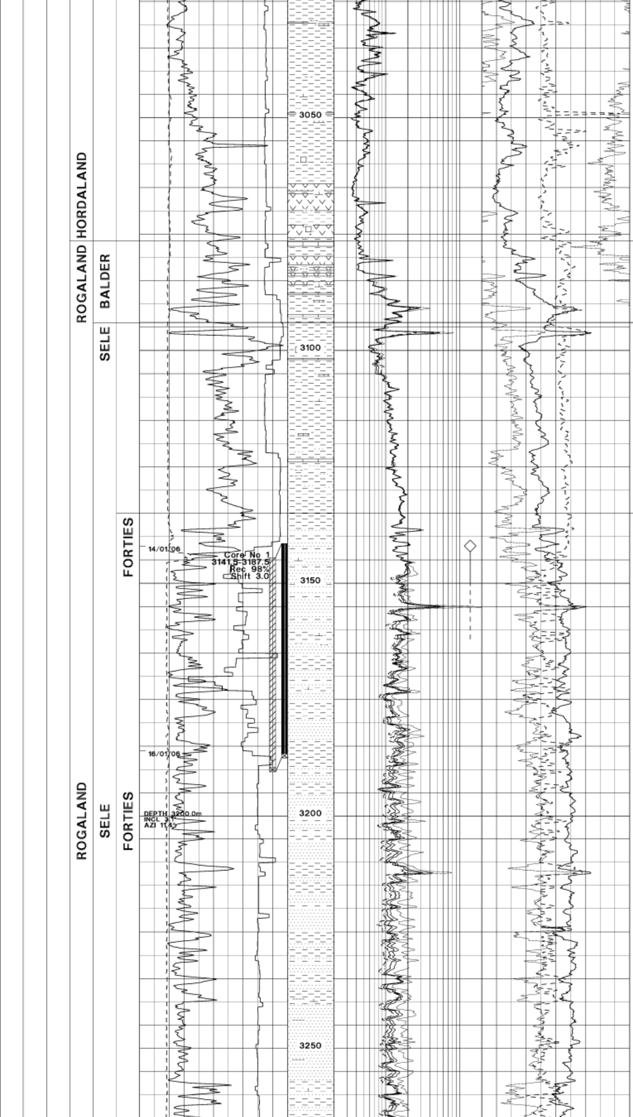
CLAYSTONE: olive black to olive grey, firm to moderately hard, sub-blocky to blocky, slightly silty, traces of micromica, occasional disseminated and crystalline pyrite, common black carbonaceous inclusions, with thin stringers of **LIMESTONE:** dusky yellow brown to dark yellow brown, moderately hard, angular, microcrystalline, occasionally argillaceous.

CLAYSTONE: olive black to olive grey, firm to moderately hard, sub-blocky to blocky, slightly silty, rarely micromicaceous, micropyritic, non, to slightly calcareous, traces of carbonaceous material, with thin stringers of **LIMESTONE:** dusky yellow brown to dark yellow brown, moderately hard, angular, microcrystalline, argillaceous, poor visible porosity.



CLAYSTONE: olive black to olive grey, firm to moderately hard, sub-blocky to blocky, slightly silty, rarely micromicaceous, micropyritic, non, to slightly calcareous, traces of carbonaceous material, with thin stringers of **LIMESTONE:** dusky yellow brown to dark yellow brown, moderately hard, angular, microcrystalline, argillaceous, poor visible porosity.

CLAYSTONE: dark greenish grey, greenish grey, dusky brown, firm to moderately hard , sub-blocky, slightly silty, slightly calcareous, micromicaceous, traces of disseminated and crystalline pyrite, traces of carbonaceous material. Rare traces of tuffaceous material, with thin stringers of **LIMESTONE:** light grey to dark yellowish brown, moderately hard to hard, blocky, microcrystalline, occasional dark grey argillaceous laminations, locally dolomitic, poor visible porosity.



BALDER FM 3076.5 m MDRT (3035 m TVDSS)

CLAYSTONE: olive black, firm to moderately hard, sub-blocky, silty, slightly calcareous, common disseminated pyrite, becoming greyish blue green to very light grey,tuffaceous, soft to firm, sub-blocky, very pyritic, commonly speckled with black inclusions, strongly calcareous.

SELE FM 3094 m MDRT (3053 m TVDSS)

CLAYSTONE: olive black, firm to moderately hard, sub-blocky to blocky, silty, abundant disseminated pyrite, traces of carbonaceous material, calcareous, rare traces of tuffaceous claystone, with traces of **SANDSTONE:** dark grey, quartz, very fine, sub-rounded, well sorted, friable, abundant grey calcareous matrix, calcareous cement, traces of glauconite, poor visible porosity, no direct fluorescence, no cut fluorescence, very slow pale white blue cut fluorescence, no cut colour.

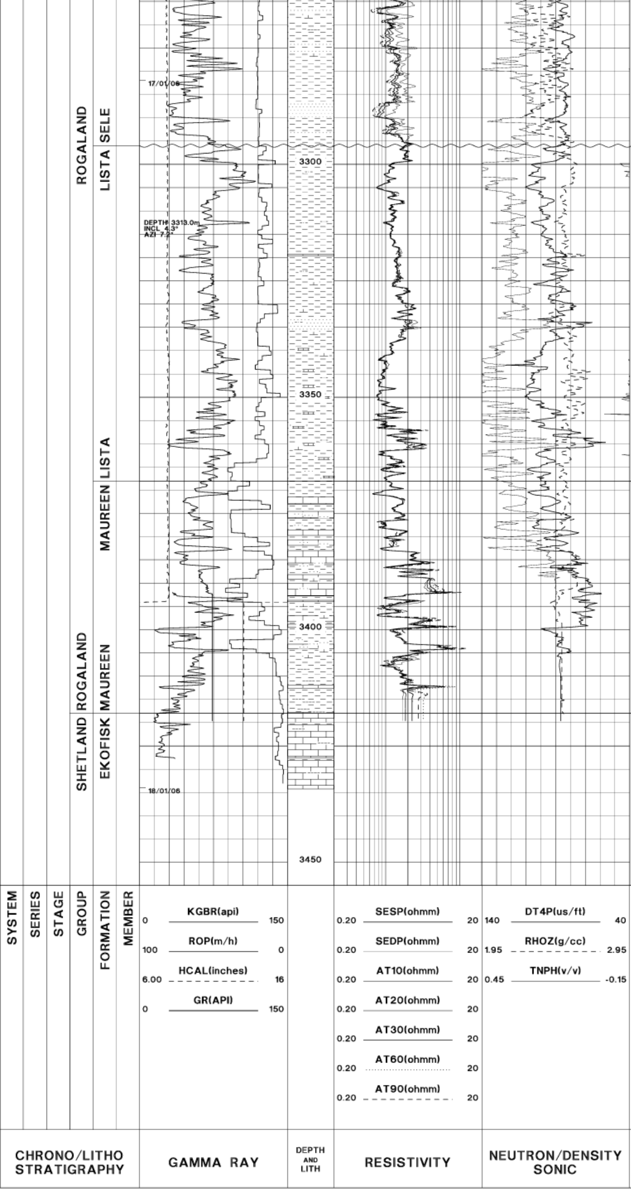
FORTIES MBR 3135 m MDRT (3094 m TVDSS)

SANDSTONE: light to medium grey to light olive grey, quartz, colourless to translucent grey, very fine to medium, rarely coarse, predominantly very fine to fine, moderately sorted, sub-rounded, hard, grain supported, abundant siliceous cement, occasionally calcitic cement, traces of mica and chlorite, poor visible porosity. Bright white to yellow uniform direct fluorescence, slow streaming bluish white cut fluorescence, pale yellow white residual ring, no cut colour, shows are patchy with depth, with interbeds of **SHALE:** medium dark grey, hard, fissile, slightly silty, non calcareous.

SANDSTONE: very light grey, light grey , olive grey, clear and translucent quartz grains, very fine to fine , occasionally medium, sub-angular, sub-spherical, well to locally moderate sorted, firm, silica cemented, slightly calcareous cemented, rare white clay mineral matrix, rare glauconite, no visual porosity. No shows.

CLAYSTONE: olive grey, medium dark grey, occasionally olive black, moderately hard, blocky, brittle, non to slightly calcareous.

SANDSTONE: becoming locally moderate calcite cemented and less silica cemented, else as above.



LISTA FM 3296 m MDRT (3255 m TVDSS)

CLAYSTONE: dominantly olive grey, occasionally dark grey, occasionally dark greenish grey, rarely brownish grey to dusky brown, blocky, firm to moderately hard, slightly micromicaceous, slightly micropyritic, slightly silty, non calcareous, with traces of **LIMESTONE:** white, yellowish grey, moderately hard, blocky, microcrystalline.

SANDSTONE: light grey, medium grey, clear and translucent quartz grains, very fine to fine, rare medium, well sorted, sub angular, sub spherical, firm, calcareous cemented, slight argillaceous matrix, rare glauconite, no visible porosity. Shows: no oil stain, dull yellow direct fluorescence, slow hazy dull blue white cut fluorescence, no visible cut colour.

CLAYSTONE: dominantly dusky brown, firm to moderately hard, blocky, silty, micromicaceous, traces of pyrite, slightly to strongly calcareous, with thin interbeds of **SANDSTONE:** very light grey, clear and translucent quartz, very fine to fine, sub-rounded, very well sorted, matrix supported with abundant calcareous matrix material and cement, grading in part to sandy limestone, poor visible porosity. No shows.

MAUREEN FM 3368 m MDRT (3326 m TVDSS)

CLAYSTONE: dominantely dusky brown to olive black, occasionally grey to green, firm to moderately hard, blocky,silty, slightly calcareous, becoming strongly calcareous and grading to Marl, interbedded with **SANDSTONE:** light grey, quartz, very fine to fine, subrounded, well sorted, friable to firm, abundant cream calcareous matrix and cement, commonly grading to Sandy Limestone, poor visible porosity. Interbedded with **LIMESTONE:** off white to light grey, firm to moderately hard, blocky, microcrystalline, sandy, common dark grey argillaceous inclusions, poor visible porosity.

EKOFISK FM 3418 m MDRT (3376 m TVDSS)

LIMESTONE: mudstone texture, chalky, off white, light grey, firm to moderately hard, blocky, locally argillaceous streaks, microcrystalline.

CLAYSTONE: medium dark grey to dark grey, firm, blocky, slight calcareous.

1/2-2 HUMMER Reached TD of 3434m MDBRT (3392m TVDSS) 18/01/2006

LITHOLOGY DESCRIPTION