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CORE LAB Grapholog

CORE LABORATORIES, INC.

COMPANY ARGONAUT INTERNATIONAL CORP.
WELL THOMAS No.1
FIELD WILDCAT
COUNTY POEPELL CORNER STATE N.T.
LOCATION LAT. 25° 51' 22" S. ELEVATION GROUND 35m A.S.L.
LONG. 137° 38' 30" E. KB 42m A.S.L.

DEPTH LOGGED, FROM SURFACE TO 2613 m
DATE LOGGED 5-9-81 TO 7-11-81
CREW CHIEF McKEAN FILE NO. 173 S
DRLG. FLUID SALT WATER/NATIVE CLAY TO 750m
NaOH/CELLOGEN TO 2613m

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LEGEND

ABBREVIATIONS

NB = NEW BIT
NCB = NEW CORE BIT
CO = CIRCULATED OUT
DST = DRILL STEM TEST
LAT = LOGGED AFTER TRIP
TG = TRIP GAS
NR = NO RETURNS
DS = DIRECTIONAL SURVEY
DC = DEPTH CORRECTION
DEPTHS CORRESPOND TO DRILL PIPE MEASUREMENTS

RESISTIVITY, OHM-METERS
Rm = MUD
Rmc = MUD CAKE
Rmf = MUD FILTRATE

MUD DATA
CK = CAKE THICKNESS 32nds
V = VISCOSITY API SECONDS
F = FILTRATE API CC'S
W = WEIGHT
S = SALINITY, ppm Cl

LITHOLOGY

SAND	░	SALT	▦	COAL	■	☐
CONG.	░	CLAY	▨	DOLOMITE	▤	☐
ANHYDRITE OR GYPSUM	▨	SHALE	▤	CHERT	▦	☐
LIMESTONE	▤	CHALK	▤	SILTSTONE	▤	☐

DRILLING RATE
MIN/m ☐
m/HR ☒

LITHOLOGY

DEPTH

HYDROCARBON ANALYSIS

CHROMATOGRAPHIC

Drilling Mud Gas
Methane —— • —— Butane —— 4 ——
Ethane —— 2 —— Pentane —— 5 ——
Propane —— 3 —— Hexane + —— 6+ ——

Calibration
½% Methane = 5000 PPM
½% Ethane = 5000 PPM
½% Propane = 5000 PPM
½% Butane = 5000 PPM

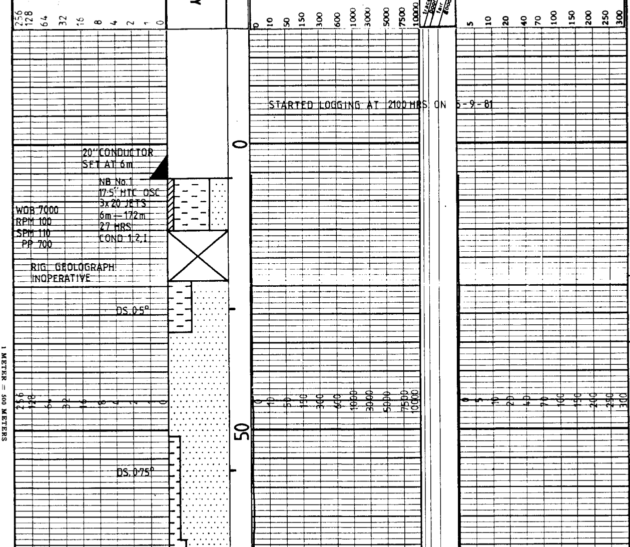
OIL SHOW

HOT WIRE

Drilling Mud Gas ————————
Drill Cuttings Gas — — — — — — —

Calibration
1% Methane = 20 UNITS

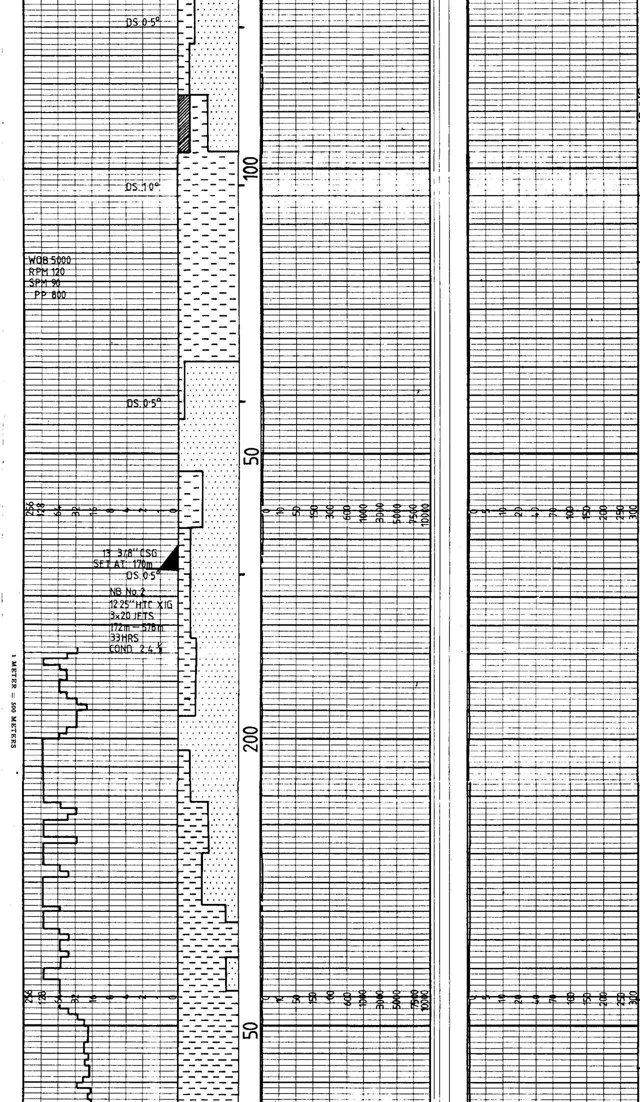
REMARKS
FORMATION DESCRIPTION, MUD DATA, DRILL STEM TESTS, etc.



CLAY.yel-brn,rd,sft,sndy.
SAND,clr-yel,f-m gn,mod srt,sub rd,
GYP,clr,lrg xls,sft.
NO SAMPLE RETURN.

MUD DATA:
SPUD MUD.
Salt water,native clay.

SANDSTONE,clr-yel,rd-brn,m-c gn,sub ang,mod-p srt,fri,arg.
CLAY,yel-brn,sft,sndy.



GYP,clr-wh,xln,sft,
cly incl.
CLAY,wh-lt gy,plas.

MUD DATA:
SPUD MUD.
Salt water,native
clay.

SANDSTONE,clr-wh,
yel,c gn,p srt,arg
cmt,fri.

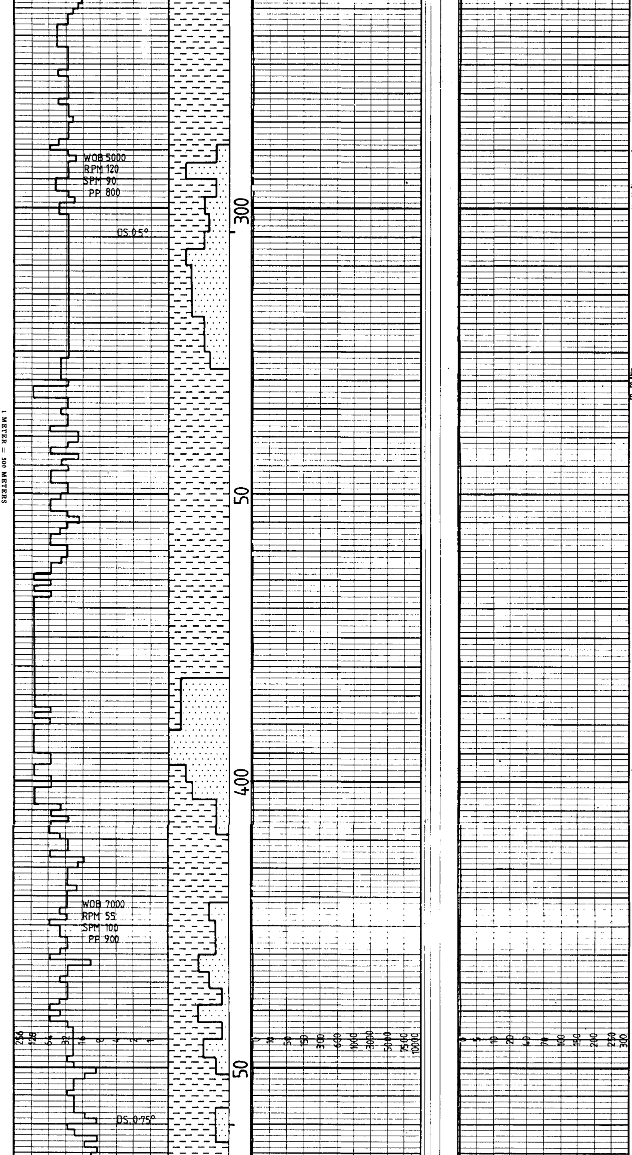
CLAY,pl gy,mod sft
tr carb mat.

MUDSTONE,gy,sft,
sndy,carb,sl calc.

SANDSTONE,clr-wh,c-
v/c gn,w srt,sub,rn
cln,lse,tr py cmt.

MUDSTONE,lt-m gy,
mas,sft,plas,slty,
sl calc,carb.
TR LIGNITE.
TR CALCITE FRAGS.

MUD DATA:
SPUD MUD.
Salt water,native
clay.



SANDSTONE,lt gy,w
srt,m gn,sub ang,
fri,calc.
MUDSTONE.lt gy,mas
sft,plas,slty,carb,
sl carb.

MUDSTONE,lt gy,mas,
sft,plas,slty,carb,
sl calc.

MUDSTONE,lt gy mas
sft,plas,slty,carb
sl calc.
TR LIGNITE.

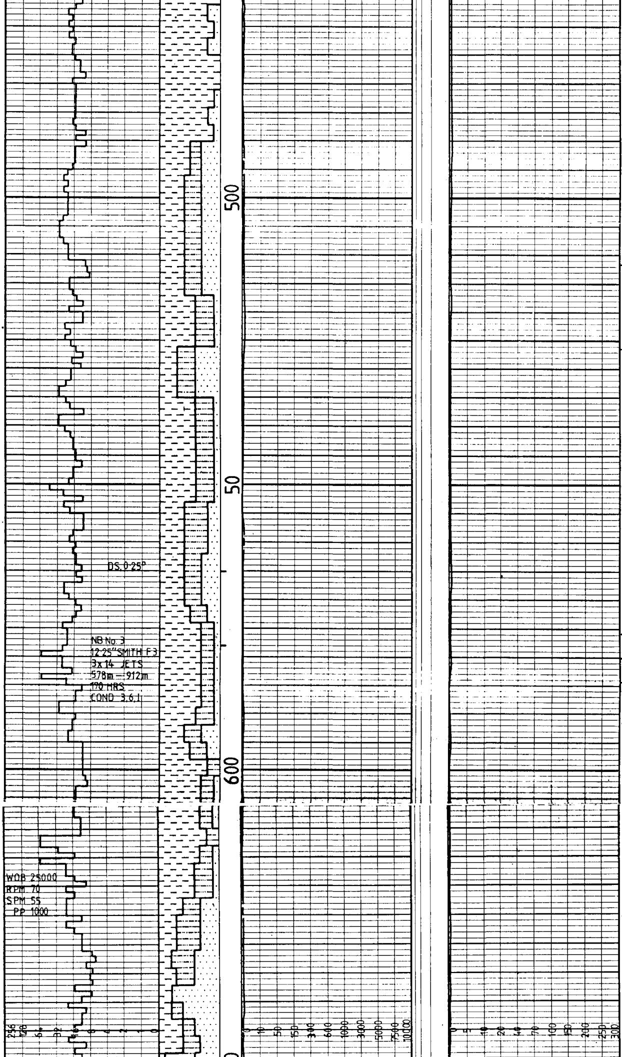
SANDSTONE,clr,gy-gn
f-m gn,sub ang-sub
rd,mod srt,arg,fri

MUDSTONE,gy,gy-brn
slty-sndy,p ind.

SANDSTONE,lt-m gy,
f gn,w srt,sub ang
-sub rn,sl carb,
fri,calc.

MUDSTONE,gy,gy-brn
slty-sndy,p ind,
TR LIGNITE.
SANDSTONE,lt-m gy,
f gn,w srt,sub ang
sub rn,sl carb,
fri,calc.

1 METER = 500 METERS



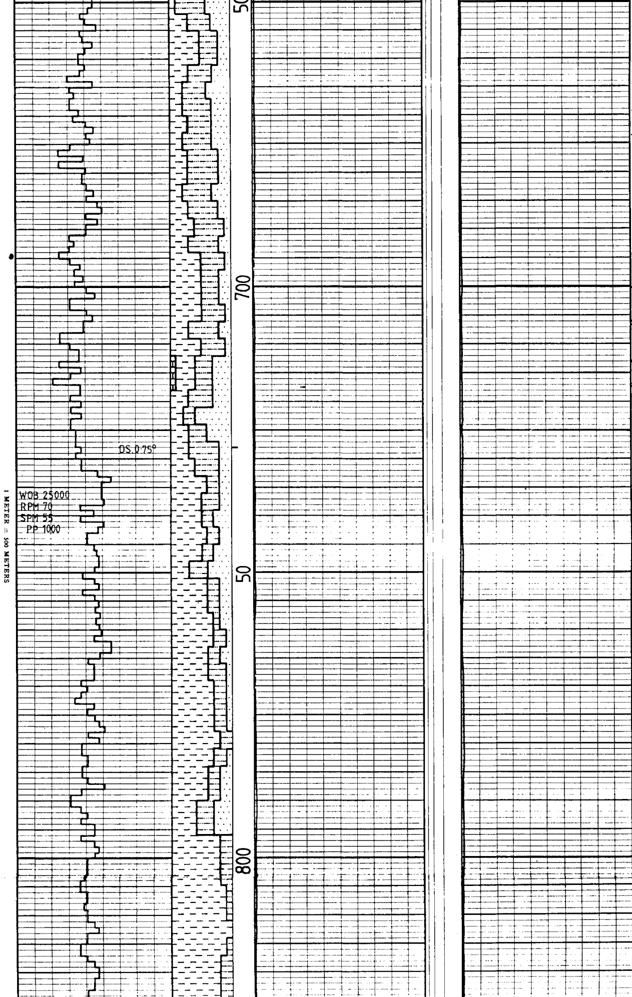
SILTSTONE, lt gy, sl sndy, mod frm, calc, sl carb.
MUDSTONE, pl gy, gy-gn, mod frm, slty, py carb.
SANDSTONE, gy, m gn, mod srt, sub rn, mod hd, slty.

MUD DATA:
SPUD MUD.
Salt water, native clay.
W: 9.2 V: 53 Ph: 9.5
Sand: 1%

SILTSTONE, lt gy, sl sndy, mod frm, calc, sl carb.
MUDSTONE, pl gy, gy-gn, mod ind, slty, py carb.
SANDSTONE, gy, m gn, mod srt, sub rn, mod hd, slty.

MUDSTONE, lt-m gy, mod frm, slty.
SILTSTONE, lt gy, mod frm, sndy, carb, calc,
SANDSTONE, clr-lt gy f-m gy, sub rn-sub ang, mod srt, mod hd, sl calc.
TR PYRITE.

MUDSTONE, lt gy, sft carb, slty, sl calc.
SILTSTONE, gy, carb, mod ind, sl calc.
SANDSTONE, clr, wh, f gn, sub rn, lse.
TR LIMESTONE.



SANDSTONE,lt gy-gn f-m gn,glauc,sl ca-rb,p srt,slty,mod frm-fri.
MUDSTONE,lt gy-lt brn,slty,sl calc,
SILTSTONE,lt gy, sndy-slty,mod ind, carb,calc.

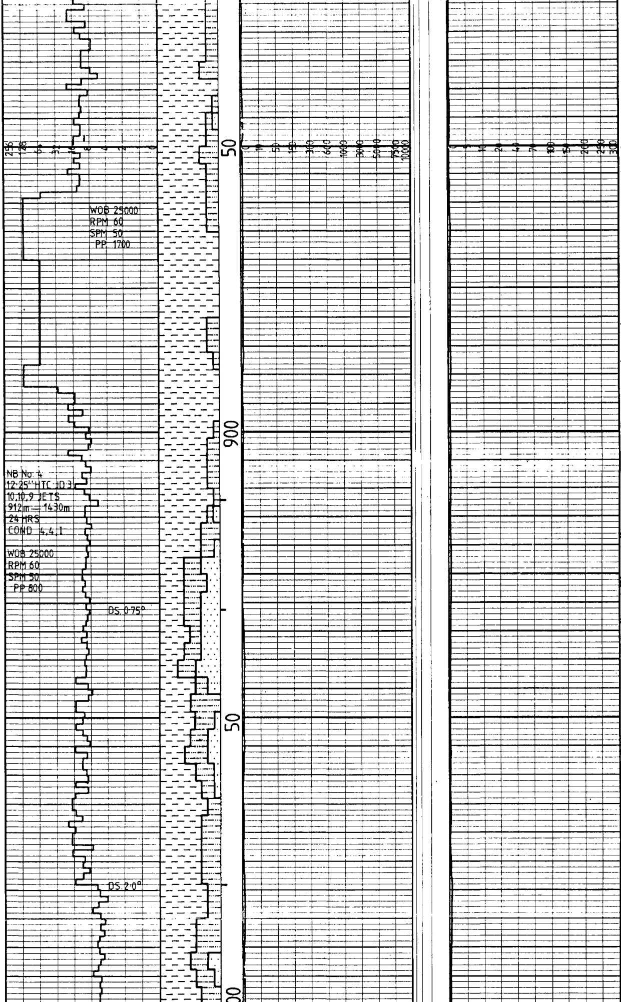
SANDSTONE,lt brn-gy f-m gy,mod srt,mod hd,calc,glauc.
SILTSTONE,brn-gy, sndy,mod ind,carb, calc,tr cl.
LIMESTONE,lt brn-gy sndy-slty,f xln,hd.
MUDSTONE,lt gy,brn-gy,m frm,blky,slty, calc.

SILTSTONE,lt-m gy, carb,calc,tr mica, tr py.

SANDSTONE,lt brn-gy,f gn,mod srt, mod frm,glauc,calc
MUDSTONE,lt-m brn-gy,m sft-frm,slty, carb.
SILTSTONE,lt-m gy, carb,sndy,mod hd, calc.

MUDSTONE,m gy,slty sl carb,sft,calc
SILTSTONE,lt-m gy, carb,sndy,mod hd, calc.
TR SANDSTONE.

1 METER = 500 METERS



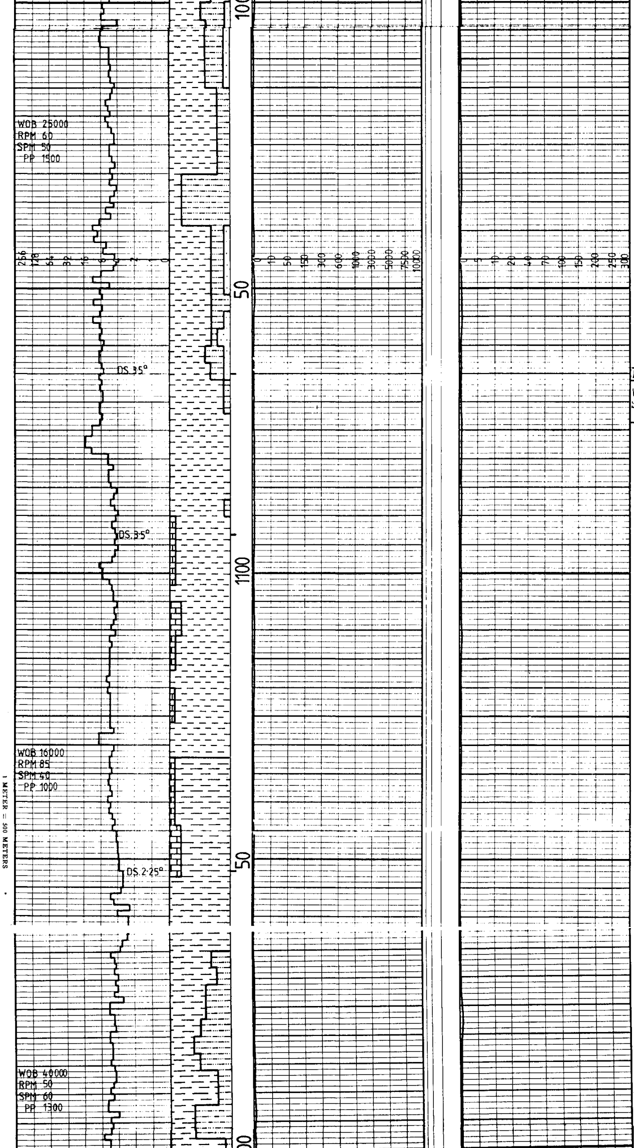
SANDSTONE,wh-lt gy,
f gn,w srt,sub rn,
glauc,fri-lse.
SILTSTONE,m gy,calc
glauc,sl sndy,frm.
MUDSTONE,m gy,calc,
mas,mod sft,glauc,
sl sndy.

SILTSTONE,m gy,calc
glauc,sl sndy,carb,
frm.
MUDSTONE,m gy,calc,
mas,mod sft-frm,sl
sndy,carb.
TR FOSSIL FRAGS.
TR PYRITE.

SANDSTONE,lt gy-pl
gn,slty,glauc,mod
srt,sub ang,v f gn,
calc.
SILTSTONE,gy,blky,
sndy,glauc,blky,mod
frm,calc.
MUDSTONE,m gy,slty,
carb i/p,glauc,mod
frm,sl calc.

SANDSTONE,gy-gn,wh,
v f gn,sub ang,calc
mod fri,glauc.
SILTSTONE,gy,glauc,
mod ind,sl calc.
MUDSTONE,m gy,slty,
glauc,carb,mod ind,
calc.
TR FOSSIL FRAGS.

SANDSTONE,gy-lt gy
wh,v f gn,sub ang,
sl calc,mod fri,
glauc.



MUDSTONE,m gy,slty glauc,carb,mod ind sl calc.
SILTSTONE,m-dk gy, sndy,calc,mod ind, glauc,py.
TR FOSSIL FRAGS.

SANDSTONE,gy-lt gy wh,v f gn,sub ang, sl calc,mod fri, sl glauc.
SILTSTONE,dk gy,sl sndy,mod frm,calc, TR FOSSIL FRAGS.
MUDSTONE,dk gy,mod ind,blky,calc,tr glauc.

MUD DATA:

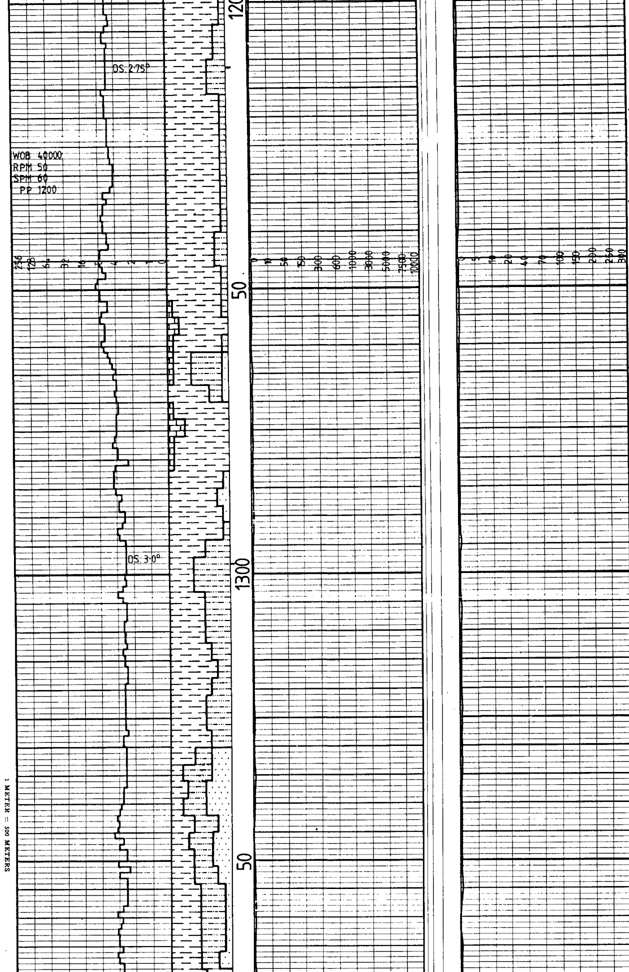
W:9.2 V:45 Ph:9.5
S:125 Sand:0.25%

SILTSTONE,dk gy,sl sndy,mod frm,calc.
LIMESTONE,bf-brn, calcar,f xln,w ind
MUDSTONE,gy,blky, glauc,mod fri,calc
TR FOSSIL FRAGS.

LIMESTONE,bf-brn, calcar,f xln,w ind
MUDSTONE,m-dk gy, slty,carb,mod ind, calc.
ABNT FOSSIL FRAGS.

SHALE,dk gy,slty, sm,carb,sft-frm, fis-mic blky.

SILTSTONE,lt gy, carb,glauc,mod ind
SHALE,gy,slty,sm, sft-frm,fis-mic blky.
ABNT FOSSIL FRAGS.



SILTSTONE,lt gy,
carb,glauc,mod ind
SHALE,dk gy,slty,
sm,sft-frm,fis-
mic blky,
TR FOSSIL FRAGS.

MUD DATA:
W:9.1 V:40 Ph:9.
F:29 CK:3 S:130
Sand:0.5%

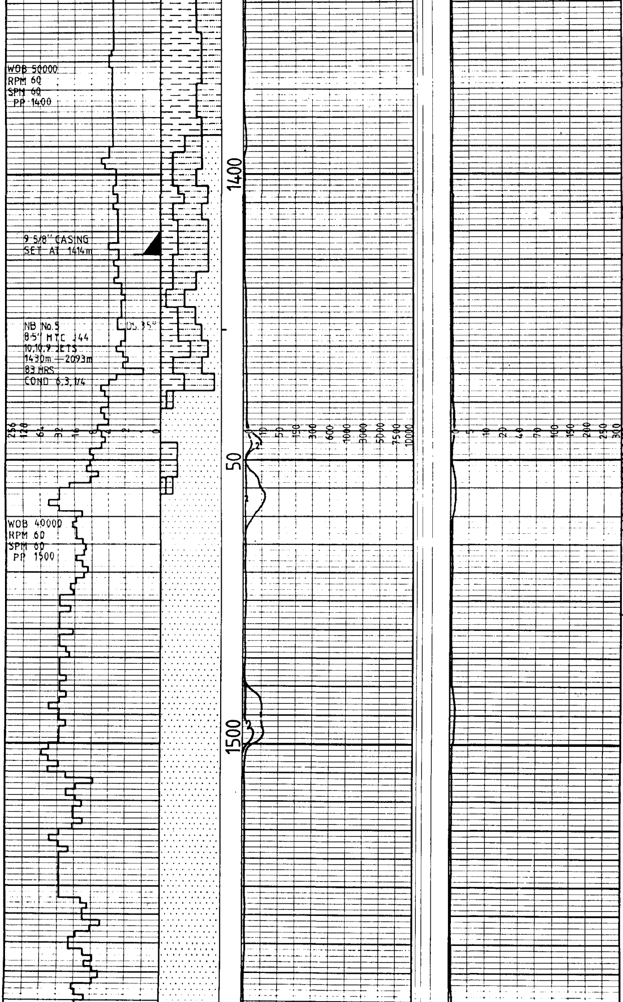
SHALE,m-dk gy,calc
carb,py,fos,frm-hd
fis-mic blky,
SILTSTONE,gy,py,sl
calc,mod ind.
LIMESTONE,bf-gy,
calcar,v f xln,dns
hd.
SANDSTONE,clr-wh,
gy,f gn,sub-ang-
-sub rn,mod srt,py
fri,calc.
ABNT PYRITE.

SANDSTONE,clr-wh,
glauc,sl carb,mod
srt,sub ang,fri,sl
calc,occ lrg qtz
gns.

SHALE,dk gy,calc,
slty,hd,fis,py.
SILTSTONE,lt gy,s
calc,glauc,py,hd.
TR PYRITE.

SANDSTONE,wh-gy,v
f gn,slty,sl calc
glauc,sub ang,mod
srt,hd.

SHALE,dk gy,slty,
sl py,glauc,mod h
calc,fis.
SILTSTONE,m dk gy
sndy,py,glauc,car
mod hd,sl calc.
SANDSTONE,m gy,mo
hd calc,slty,glau
TR PYRITE.



SHALE,dk gy,brn,s
calc,grty,hd,fis.
SILTSTONE,m-dk gy
glauc,sndy,py,mod
ind.
SANDSTONE,clr-wh,
f gn,occ lrg qtz
gns,sub ang,mod
srt,mod hd,sl cal

SILTSTONE,gy-wh,a
sl calc,mod ind.
TR ANHY.
SHALE,dk gy,slty,s
py,mod hd-hd,fis.
SANDSTONE,clr-wh,
gn,clr-bf,occ lrg
qtz gns,glauc,p s
sub ang,mod hd,cal

SHALE,brn,slty,non
calc,frm.
SILTSTONE,gy,sndy,
mod hd-fri.
SANDSTONE,lt gy,m-
v c gn,sub ang-sub
rd,fri.
TR PYRITE.

MUD DATA:

W:9.1 V:39 PH:11

F:24 CK:3 S:185

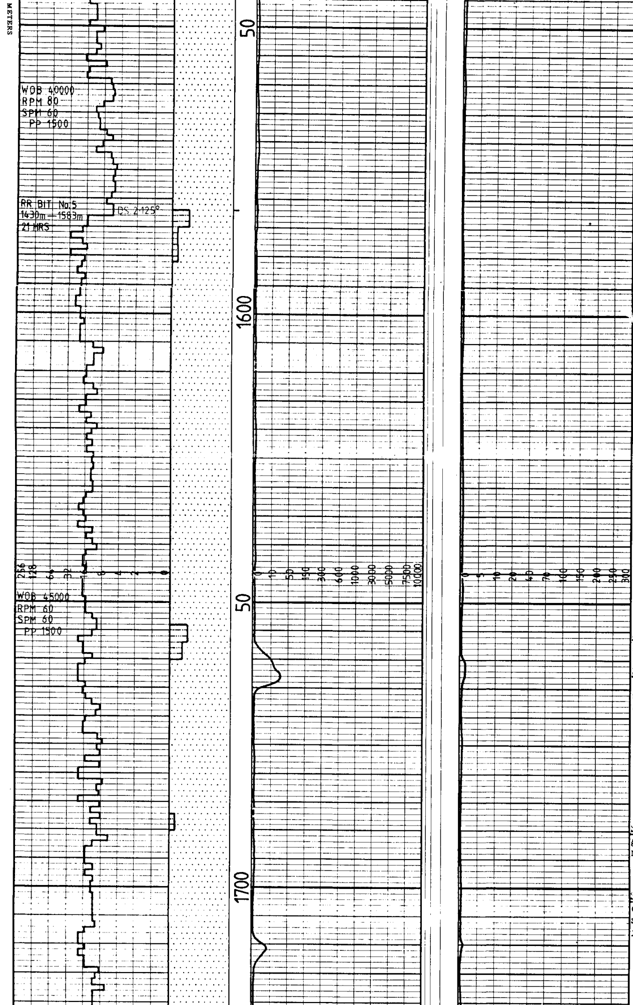
Sand:1.25%

SANDSTONE,clr-wh,
lt gy,m-c gn,p-m
srt,sub ang-sub r
cln,fri-lse.

SANDSTONE,clr-lt
-y,m gn,m srt,sub
rd,fri-lse.

SANDSTONE,clr-wh,

1 METER = 500



c-m gn,p srt,sub rd-sub ang,fri-lse

SANDSTONE,lt gy,m gn,mod srt,sub rd, fri.

SILTSTONE,gy-wh, mod ind,sndy.

SANDSTONE,clr-wh,c gn,mod srt,sub rd-sub ang,cln,fri,sl calc.

SANDSTONE,clr-wh,c gn,mod-p srt,cln, sub ang-sub rd,fri, sl calc.

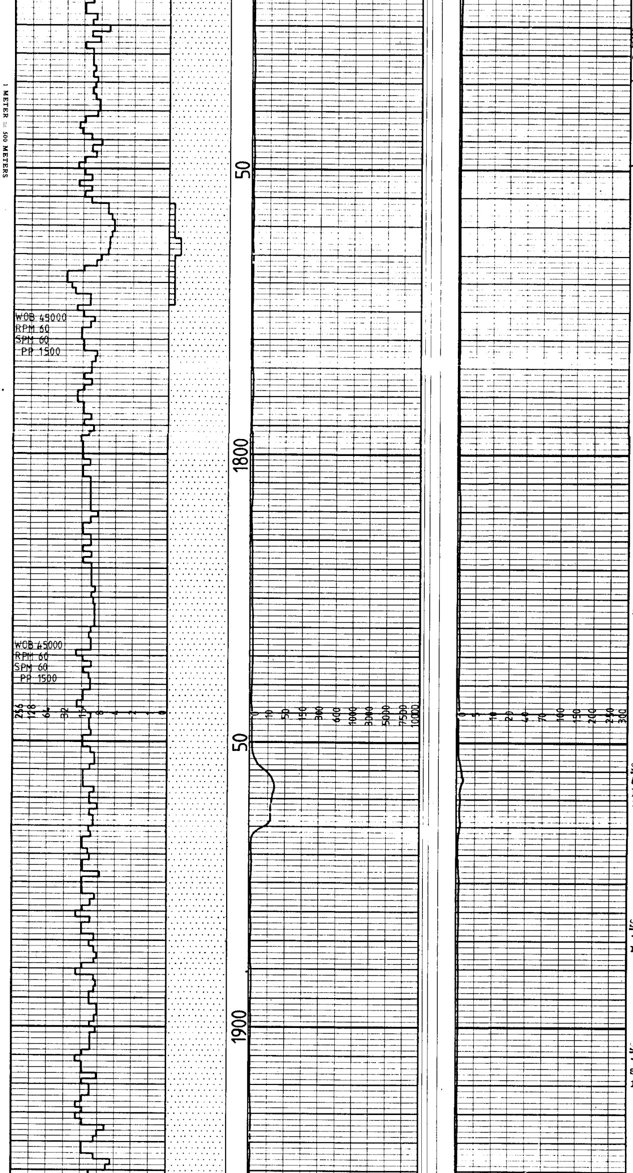
SANDSTONE,clr-wh,m gn,occ lrg qtz gns, sub rd-sub ang,fri, m srt,sl sil cmt.

SILTSTONE,lt gy,dk gy,sndy,sl calc, mod ind.

SANDSTONE,clr-wh,fr -m gn,occ qtz gns, sub rd,mod srt,sil cmt,fri.

SILTSTONE,lt gy,dk gy,sndy,sl calc, mod ind.

SANDSTONE,clr-wh,m-c gn,sub ang-sub rd sil & wh cly cmt, fri-mod hd.



SANDSTONE, clr-wh, c-m gn, sub ang, m srt, cln, sil cmt, fri-lse

MUD DATA:
W: 9.4 V: 40 PH: 9.5
F: 6.4 CK: 2 S: 130
Sand: 0.75%

SANDSTONE, clr-wh, m gn, sub ang, mod srt mod hd.
SILTSTONE, m gy, sl calc, sndy, mod ind.
TR SHALE.
TR PYRITE.

SANDSTONE, clr, m gn sub rd-sub ang, mod srt, sl calc, mod hd -fri.

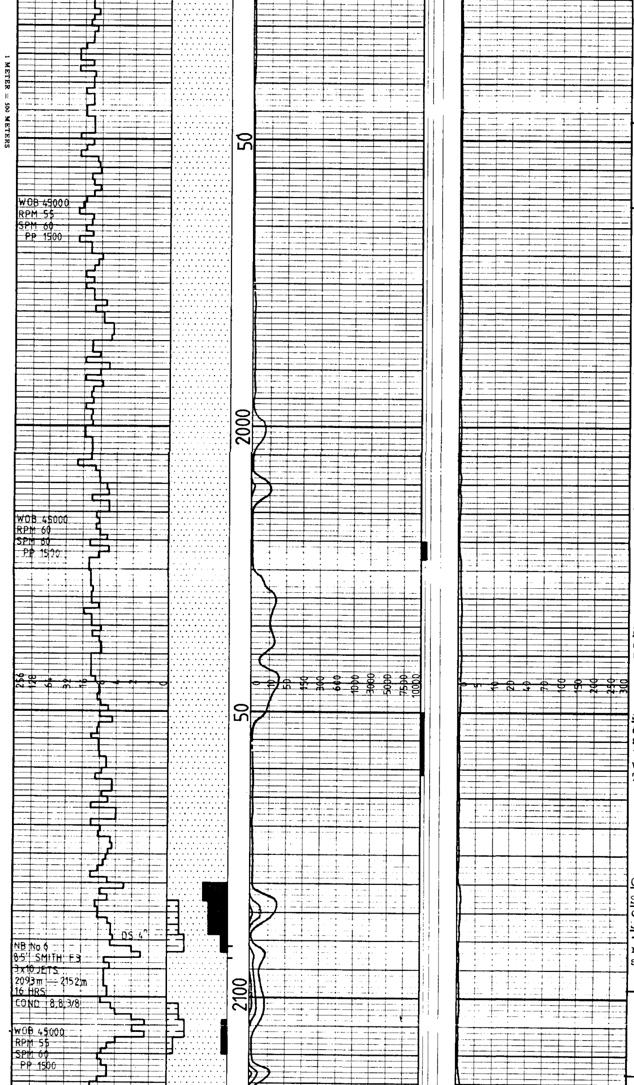
SANDSTONE, clr, f-m gn, p-mod srt, fri-lse, sub ang-sub rd

SANDSTONE, clr, m-c gn, p srt, sub rd, fri-mod hd.

SANDSTONE, clr, m-c gn, sub ang-sub rd, p srt, sl sil cmt, fri-mod hd.

SANDSTONE, wh-clr, c-v/c gn, p srt, sub rd, sil, fri.

SANDSTONE, clr-wh, c-v/c gn, wh cly cmt sil, p srt, sub rd, fri.



SANDSTONE, clr, m gn sub ang-sub rd, sil p srt, fri.

MUD DATA:
W: 9.5 V: 42 PH: 10.5
F: 7.2 CK: 2 S: 155
Sand: 0.5%

SANDSTONE, clr, m-c gn, sub ang, mod srt sil cmt, fri-mod hd

SANDSTONE, clr, m-c gn, sub ang-sub rd, mod srt, sil cmt, fri-mod hd.

SANDSTONE, clr-wh, c gn, sub ang, m srt sil cmt, fri-mod hd tr dull yel flor w/cut.

SANDSTONE, clr-wh, c gn, m srt, sub ang-sub rd, sil cmt, fri-mod hd.

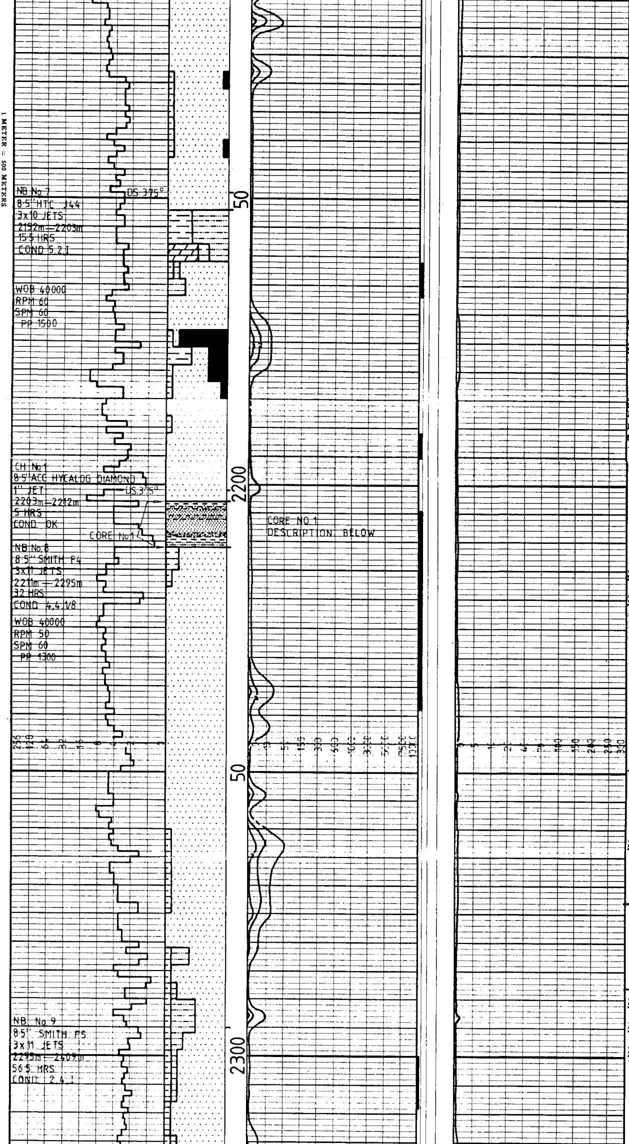
SANDSTONE, clr-wh, c gn, sub ang, m-p srt sil cmt, fri-mod hd tr dull yel flor w/cut, lt brn stain TR CARB SHALE

COAL, blk, bit, shly

SHALE, blk-dk gy, hd carb, fis.

SANDSTONE, wh-clr, c-m gn, sub ang-sub rd, m-p srt, sil cmt sl calc, mod hd.

MUD DATA:
W: 9.5 V: 41 PH: 10.5
F: 6.4 CK: 2 S: 18
Sand: 0.75%



SANDSTONE,wh-gy,m gn,sub rd,sil & wh cly cmt,mod hd.
TR PYRITE.
SHALE,blk-dk gy,mod hd,carb,fis.
COAL,blk,bit,shly,sft.

SILTSTONE,brn-gy,py sndy,mod ind.
SHALE,dk brn-gy,sl calc,slty,mas,hd.
DOLOMITE,brn-dk brn shly,slty,mas,hd.
SANDSTONE,lt gy,f-m gn,sub rd,m srt,sil cmt,fri-mod hd.
COAL,blk,brit,shly.

SHALE,blk-dk brn, carb,sndy,fis.

SANDSTONE,lt gy-wh, m gn,sub rd,sil cmt mod hd
sl dull gold flor, tr res oil stain.

SHALE,dk brn-blk,w ind,slty,carb,fis.
SANDSTONE,wh-brn,fn gn,sub ang-sub rd, mod srt,sil,mod hd-fri.
sl dull gold flor, res brn oil stain.

SANDSTONE,clr-wh,fn -m gn,sub rd,m srt, sil cmt,fri-mod hd. brn res oil stain.

SHALE,dk gy-brn,mod ind,slty,carb,
TR COAL.

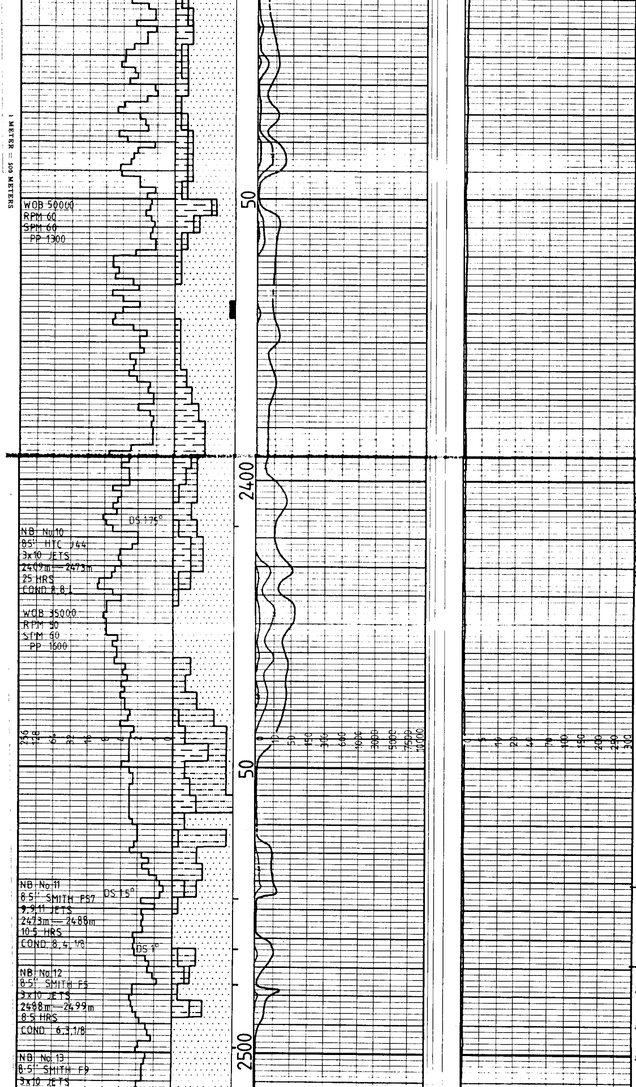
MUD DATA:

W:9.5 V:39 PH:9.0

F:7.2 CK:2 S:22

Sand:0.5%

SILTSTONE,lt brn, sndy,carb,mod ind.
SHALE,lt brn,slty, carb,mod ind.
SANDSTONE,lt brn, wh,m-c gn,sub rd,m -p srt,fri-mod hd.
hvy brn res oil stain,tr dull gold flor,no cut.



SILTSTONE,lt brn, sndy,carb,mod ind.
SHALE,lt-dk gy, p ind-sft,carb.
SANDSTONE,wh-bf,vf-f gn,occ lrg qtz gns,mod hd-hd.

SHALE,blk,tr coal, lam,hd,fis.
SILTSTONE,lt gy,sl carb,mod-p ind,sl mica.
SANDSTONE,wh-gy,fn gn-m gn,occ lrg qt-z gns,m-p srt,ang sl calc,cly cmt,hd-mod hd,sil.
COAL,blk,shly,mod ind.

SANDSTONE,clr-wh,lt gy,fn-v fn gn,mod-w srt,sil cmt,tr py mod hd-fri.
SILTSTONE,lt gn-gy, sndy,mic mica,sft.
SHALE,gy-purp,purp, lam,hd,fis.

SILTSTONE,lt gy-gn purp,sl sndy,m ind

SHALE,dk gy,slty, w ind,fis,non calc
SANDSTONE,dk gy,dk gy-gn,v/fn-fn gn, m-p srt,sil cmt, mod hd-hd.

SANDSTONE,clr-wh, v/fn gn,mod srt, sub ang-sub rd,lt brn specs,w cmtd, py.

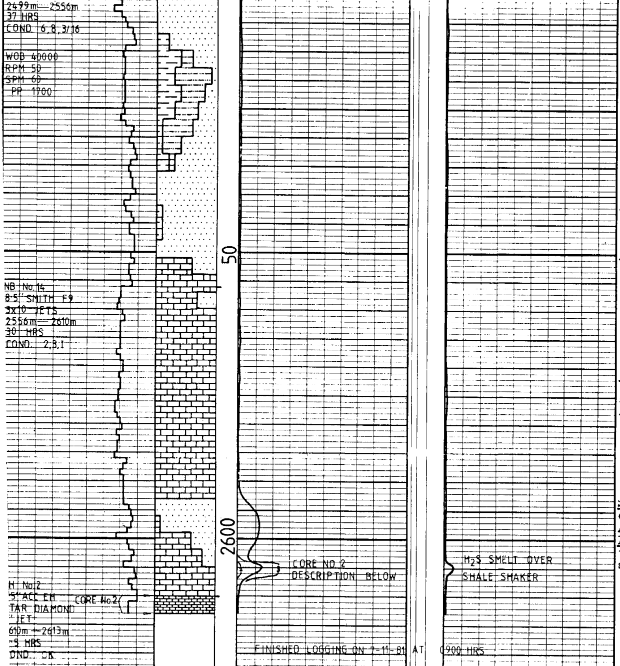
MUD DATA:

W:9.6 V:42 PH:9.0

F:8.2 CK:2 S:26
Sand:0.25%

SHALE,blk-gy-gn,hd slty,calc,sil,fis, TR PYRITE.
SILTSTONE,dk gy,hd calc,sil,py.

SANDSTONE,clr-wh, mica,ang,calc,v hd py



SHALE,lt gy,gy,slty mica,mod ind,fis.
SILTSTONE,dk gy,v shly,v/w ind,py
SANDSTONE,wh,mica, v/fn gn,qtzc,v hd brit.

SHALE,gy-gn,slty, mic mica,mod ind, fis.

LIMESTONE,tn,dk tn calcar,v/f xln,hd-w ind,brit,py.

LIMESTONE,lt brn-tn,calcar,v/fn xln sil,w ind-hd,dol. ABUNDANT PYRITE.

SANDSTONE,wh,qtzc, cln,sil,py,v hd. ABUNDANT PYRITE.
LIMESTONE,lt brn-tn,calcar,v/fn xln sil,w ind-hd,dol.

CORE No.1:

INTERVAL:2203m-2211.2m
RECOVERY:8.0m (97%)
DESCRIPTION:

2203m-2204.2m:
Shale,passing down to siltstone.Shale is dark brown to grey to black,moderatly hard,silty, and carbonadeous.Thin horizontal fractures at 2203.05 & 2203.2 are filled with silica and calcite.The interval 2203.6-2204.2m contains abundant thin beds of silt and fine sand,with shaley/coaly interfaces.

2204.2m-2204.5m:
Sandstone,fine to median grain.Hard,quartzose with silica and minor clay cement.Porosity at about 10%.Permeability low.

2204.[illegible]
Sandstone,coarse grain,moderaty hard,friable, fairly sorted,sub rounded,quartzose.Clean with silica and minor clay cement.Porosity at about 12-15%.Fair permeabilty.Minor cross bedding defined by mica and carbonaceous laminae.

2205.42m-2205.65m:
Shale and fine grained sandstone.Shale is black and coally.Sandstone is hard,fine grained and tight.

2205.65m-2209.4m:
Sandstone,coarse to very coarse grained,pale brown to grey.Moderatly hard and friable to hard,consisting of subrounded quartz with silica outgrowths,silica and lesser clay cement.Rare mica's and grey lithic grains. Porosity is fair at 12-15%,14% at best.The basal 150mm of the unit is a quartz pebble layer with an erosional base.Pebbles are up to 20mm diametre and subrounded.

2209.4m-2211m:
Shale.The top of the unit contains abundant

organic material and minor iron oxide, passing down rapidly to silty shale with rootlets and intense bioturbation. Below about 2210m, the shale is less bioturbated, and more stratified. The lithologies are dark brown to black, moderatly hard, carbonaceous throughout with coally fragments and laminae.

HYDROCARBONS:

Rare dull gold florescence, minor brown staining, very weak crush cut, no odour, no bleeding gas. Interpreted as water saturated with minor residual oil stain.

CORE No.2

INTERVAL: 2610.3m-2613.3m

RECOVERY: 2.3m (77%)

DESCRIPTION:

2610.3m-2610.4m:

The top 100mm of core is shale-apparently a caved fragment from up hole. Red brown and grey mottled, veined with silaceous material, and some yellow brown mineral enrichment. Hard dense, silty, massive, no obvious bedding.

2610.4m-2612.6m:

Limestone. Very hard, brittle, dense, sandy and grading to very fine grained, limey and dolomitic sandstone. It is finely bedded, with individual laminae between 1-10mm thick, defined by grain size variations. It is silaceous, dolomitic (and ankerite), pyritic, tight with no shows. Bedding dip is approximatly 70°