CUTTINGS SAMPLE
BOOK

29/6-1
BOOK 1

29/6-1 BP

Section from 0 - 1200 m drilled without BP geologist on board. Lithology from 0 - 1200 m is described in Exlog's formation evaluation log. BP Litholog 0 - 1200 m has been copied from Exlog's log.

REMARKS

at 1200m a 18 5/8" casing was set, so cuttings are contaminated with cement.

SHOWS

None

Siderite in fine mudstone grain.

DEPTH	%	LITHOLOGY	DESCRIPTION
1210	90	cement	
	10	SILTSTONE	lt gy, firm, non-swelling, very sandy, sl micromicaceous, sl. calc., glauconitic, occ. argil.
	Tr	Pyrite	
	Tr	LIMESTONE	lt grey-white, hard-v hard, sl. argill.
1220	70	SILTSTONE	m-gry, soft, non-swelling, very sandy, sl micrmica. slcalc. occ argil
	20	MUDSTONE	m-gry, soft, non swelling, sl sandy, sl micrmic, calc.
	10	SANDSTONE	Qtz, lt to m gry, fine, subrounded to rounded, well sorted, hard, poor porosity, siliceous cement. glauc.
	tr	MUDSTONE	green, soft.
	tr	Pyrite	
1230	40	SILTSTONE	v. sandy A/A
	30	MUDSTONE	sl. sandy A/A
	20	SANDSTONE	A/A
	5	MUDSTONE	green, soft, non calc.
	5	SAND.	Qtz, clear med subrounded to subang. mod sorted. hard,
1240	30	SILTSTONE	v. sandy A/A
	25	MUDSTONE	sl. sandy A/A
	25	SANDSTONE	A/A
	15	SAND	A/A
	5	MUDSTONE	green A/A
1250.	50	SANDSTONE	A/A
	30	SILTSTONE	v sandy A/A
	10	MUDSTONE	sl. sandy A/A

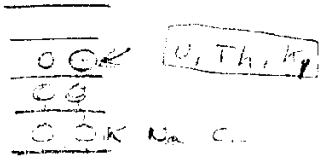
REMARKS

SHOWS

EPTH	%	LITHOLOGY	DESCRIPTION
50m cont	5	SAND	A/A
	5	MUDSTONE	Grey. A/A
	tr	lignite	wood fragment.
60	60	SILTSTONE	V. sandy A/A argill.
	25	SANDSTONE	A/A
	10	MUDSTONE	sl. sandy A/A
	5	SAND	A/A
	tr	mudstone	green, soft
70			Log by Enlog.
80	50	SILTSTONE	v. sandy, A/A argill.
	30	SANDSTONE	A/A
	15	SAND	A/A
	5	MUDSTONE	sl sandy A/A
	tr	Mudstone	green, soft.
90	60	Siltstone	v. sandy, m grey. soft sl. micromicaceous non calc. ca argill
	25	SANDSTONE	A/A
	10	MUDSTONE	sl sandy A/A
	5	Pyrite	
	Tr	foram.	
	tr	shellfrag	

REMARKS

~~STOWS~~ GAS



EPTH	%	LITHOLOGY	DESCRIPTION
00	70	SILTSTONE	grey, soft, v. sandy argill sl micromicaceous. sl glauc.
	20	MUDSTONE	grey, soft, non swelling, sandy, sl micromicaceous. glauc.
	10	SANDSTONE	Gzt, lt grey – clear, m-grain subrounded to subang. mod sort hard siliceous cemented glauc.
	tr	Pyrite	
	tr	Foram.	
10	80	SILTSTONE	A/A
	15	SANDSTONE	A/A
	5	— " —	A/A but not sandy
	tr	chalk	
320	70	SILTSONE	A/A
	20	SANDSTONE	A/A
		[illegible]	
	10	MUDSTONE	grey soft non swelling, sl micromic.
	Tr	Pyrite	
	Tr	Foram	
330.	90	MUDSTONE	lt gy – greenish grey, soft-firm, non-swelling, non-[illegible], sl. micromic, non-calc
	10	SILTSTONE	m-dk gy, firm, non-swelling – v.sl. cryptocrystalline, v.sl. sandy, very argill. (grad. to MUDSTONE), occ. lam argill, micromic, occ. sl. calc
	Tr	SANDSTONE	qtz, clss, fine, subang, well sort, friable, low in ϕ, sil. cem, glauc, occ. sl. calc
	Tr.	SAND	v. coarse well rounded grains
	Tr.	Pyrite	

TG =

40	90	MUDSTONE	lt gy - greenish gy, occ green, occ. sl. carb. also A/A
	10	SILTSTONE	as above
	Tr	SAND	—"—
	Tr	PYRITE	
50	70	MUDSTONE	A/A
	10	SILTSTONE	A/A
	20	SAND	[illegible], qtz, clear, v. coarse, rounded, [illegible]
		PYRITE	
60	100	MUDSTONE	A/A
	Tr	SILTSTONE	A/A
	Tr	SAND	A/A
	Tr	SANDSTONE	cl. qtz, with glauc A/A
	Tr	PYRITE	
	Tr	FOSSIL	tubular "burrow" (?) mode of silica, hole in middle
70	100	MUDSTONE	A/A
	Tr	SILTSTONE	A/A
	Tr	SAND	A/A
	Tr	SANDSTONE	A/A
	Tr	LIMESTONE	white, soft - firm,
0	100	MUDSTONE	A/A
	Tr	SILTSTONE	A/A
	Tr	SAND	A/A
	Tr	LIMESTONE	A/A
	Tr	Pyrite	
	Tr	Fossil	

GAS

TG = — %

TG = —

From ca 1400m the shale shaker-
shd contain v. much clay, that
will be washed away, when
cutting samples are taken
therefore the cuting sample
are unrepresentative.

TG = —

TG = —

TG = —

0	100	MUDSTONE	Lt gry - greenish grey · soft - firm, occ sl carb sl micaceous
	tr	SAND	clear A/A
	tr	SILTSTONE	A/A.
	tr	DOLOMITE	buff, soft, sl argill.
	tr	Pyrite	
0	100	MUDSTONE	A/A become sticky.
	tr	SAND	
	tr	SILTSTONE	
	tr		
	tr		
10	100	MUDSTONE	A/A becomes v. sticky.
	tr	SAND	A/A
	tr	SILTSTONE	A/A
	tr	DOLOMITE	A/A
	tr	Pyrite	
20	100	MUDSTONE	Gradually change to a sticky clay, lt greenish grey
	tr	SAND	A/A
	tr	SILTSTONE	A/A
	tr	DOLOMITE	A/A
	tr	fossil	wood, fragment.
430	100	MUDSTONE	some grading into clay A/A
	tr	SAND	A/A
	tr	siltstone	A/A
	tr	fossil	tubewar ? silica ?

TG =

TG =

TG =

TG =

	%		
	100	MUDSTONE	grading to clay v. sticky. grey, greenish-grey, non calc, sl. micaceous occ silty,
	tr	SAND	coarse, well rounded, A/A.
	tr	SILTSTONE	m. grey brownish grey firm - soft, sl. micaceous, sl. argill, v. sandy
	tr	DOLOMITE	buff, soft, non poros. sl argill.
	tr	Pyrite	
	95	MUDSTONE	grading into clay v. sticky A/A.
	5	CALCTIC DOLOMITE	buff, soft to firm non poros. v sl. argill. occ sandy.
	tr	SILTSTONE	A/A
	tr	SAND	A/A.
	tr	fossile	tubular ?
	tr	pyrite	
60	95	MUDSTONE	A/A
	5	DOLOMITE	A/A but some grain ... hard and microcrystalline, and reddish-brown.
	tr	SILTSTONE	
	tr	SAND	
	tr	pyritic	
	tr	Fossile	?
70	95	MUDSTONE	A/A
	5	DOLOMITE	A/A
	tr	siltstone	A/A
	tr	SAND	A/A
	tr	pyrite	

TG = 0.0

TG = 0.0

WIPER TRIP.

A lot of cutting in cutting sample

30/10/81 — 1500
31/10/81.

TG = 0.0

TG = 0.0

MOSTLY CLAY

480	95	MUDSTONE	grey, greenish grey, soft, non swelling, micromic non calc; grading into a v. soft sticky clay, greenish grey. occ flecky.
	5	DOLOMITE	Buff, some micro crystaline reddish brown, soft to firm non porosity v sl argil
	tr	SILTSTONE	grey, occ brownish grey, soft-firm micromic,
	tr	SAND	Qtz clear med grain, well rounded v. hard.
	tr	Pyrite.	
490	90%	MUDSTONE	A/A MOSTLY CLAY
	10%	DOLOMITE	A/A half v. soft, buff, half firm reddish brown, micro crystaline
	Tr	SILTSTONE	A/A
	Tr	SAND	A/A
	Tr	PYRITE	A/A.
500	100	MUDSTONE	A/A MOSTLY CLAY
	Tr	DOLOMITE	A/A
	Tr	SILTSTONE	A/A
	Tr	PYRITE	A/A
510	100	MUDSTONE	grey, brownish grey, firm, non swelling, micromic., non calc;
	tr	DOLOMITE	buff, soft, some mod hard, non poros, sl argil.
	tr	SILTSTONE	grey, occ brownish grey, soft - firm, micromic
	tr	SAND	Qtz clear mod grain, well rounded, v. hard

t No 5 T 7 B5 G out 3/16" 1516m

t No 6 OSC 3 J 17½"

TG = 0.0%

15

TG = 0.016 %C,

15

TG = 0.018 %C,

154

1544

TG = 0.024 %C,

155

1520m	70	MUDSTONE	grey, firm, non swelling, micaceous, non calc,
	30	SAND	loose, qtz, clear, m grain, subrounded to rounded, mod sort,
	tr	DOLOMITE	buff, soft to mod hard, non gritty, sl argil
	tr	LIMESTONE	white, soft to firm
	tr	PYRITE	
	tr	COAL	
1530m	80	MUDSTONE	A/A, sl silty
	20	SANDSTONE	qtz, clear, f grained, rounded, well sorted, silica cemented, sl calc, tr glauc, low visc, frequently loose qtz grains,
	tr	DOLOMITE	A/A
	tr	LIMESTONE	A/A
	tr	PYRITE	A/A
	tr	COAL	A/A
1540m	100	MUDSTONE	A/A
	tr	DOLOMITE	A/A
	tr	SANDSTONE	A/A
	tr	PYRITE	
1550m	90	MUDSTONE	m gy, occ gy brn, non calc, firm to mod hd, non swelly, occ mod silty, sl carb, sl micaceous
	10	SANDSTONE	Qtz, clr, frag lse f grains, well rnd, well sort, a.a, rare polycrystalline ~~fractured~~ products
	Trace	DOLOMITIC LST	buff to cream, firm to mod hd, rdst text, no vis por, often grades to non calc MDST.

$TG = 0.02\% C_1$

V few microfossils in the matrix.

- 1st appearance

$TG = 0.034\% C_1$

$TG = 0.034\% C_1$

$TG = 0.024\% C_1$

Survey @ 1591 m 1° S 17 W.

$TG = 0.025\% C_1$

1560	90	MDST	mgy to mgy lam, occ blu gy, firm, non calc, a.a
	10	LST (dolom)	buff to yel lm, firm to v hd, no vis por, a.a.
	Tr	SST	clr, wh, f, well sort s rd, mod vis por - as ab.
	Tr	Glauc	dk blu gn - pellet shaped.
1570	90	MDST	mgy to m blu gy, a.a x/t v. silty - occ grades to SST, also [redacted] occ dk blu gy - blu gn.
	10	LST (dol)	a.a.
	Tr	SST	a.a.
	Tr	Glauc	a.a.
1580	90	MDST	A/A
	tr	LST	A/A
	tr	SST	A/A
	tr	PYRITE	A/A
	tr	FOSSIL	tubular "burrow" made of silica
1590	100	MDST	mgy to m gy brn, occ blu gy, firm, non swelling, non calc, occ sl silty, micromic, f gr.
	tr	LST (dol)	A/A
	tr	SST	A/A
1600	100	MDST	A/A
	tr	LST (dol)	A/A
	tr	SST	A/A

$TG = 0.036\% C_1$

$TG = 0.026\% C_1$

$TG = 0.028\% C_1$

$T.G = 0.034\% C_1$

$TG = 0.048\% C_1$

$TG = 0.058\% C_1$

10	100	MDST	mgy to m gy brn, occ blu gy, firm, non swelling, non calc, sl silty, micromic
	tr	LST (DOL)	buff to cream, soft to mod hd, no vis por,
	tr	SAND	loose, qtz, clear, f grain, rounded, well sort
20	100	MDST	A/A
	tr	LST (DOL)	A/A
	tr	SAND	A/A
30	100	MDST	A/A
	tr	LST (DOL)	A/A
	tr	SAND	A/A
40			[illegible], silty, non swell, non calc, tr carb, sl silty, tr micromic.
	Tr	LST (DOL)	buff to crm, firm to hd, zero vis por, a.a.
	Tr	SND/SST	clear, lse f grain qtz.
50	100	MDST	mgy brn - blu gry, a.a. → glauconitic.
	Tr	LST (DOL)	buff, a.a.
	Tr	SST	clr, a.a.
60	100	MDST	m gy brn, firm, non calc, a.a.
	Tr	LST (DOL)	cream → buff, firm to hd, no vis por, a.a.
	Tr	SST	clr lse f qtz grains, well sort (coved).
	Tr	Glauc	, dk blu gry, hd,

- Mdst less silty than before.

TG = 0.05% C_1

50 GAS UNITS = 1% in air
10,000 ppm = 1% in air.

TG = 0.038% C_1

TG = 0.024% C_1

1/11/81 1696. Wiper trip. got stuck in hole @ ± 144.0m.
3/11/81

Survey @ 1696 1½° S 50 W. TG = 0.064%

3/11/81 ~~W.O.H.~~ 1702 Bit No 6 T5 B6 G 0 1/4"
6/11 Bit No 7 HTC OS 3J 17½" TG = 0.044%

The MOST is more silty than above

70	100	MDST	mgy → blugy → blugrn, firm, non calc, occ v sl slty, tr micromic, tr glauconitic, occ sl dol & is finely interlam'd w.
	Tr	LST (DOL)	cream → buff, firm to hd, occ brittle conch fract in tan (purer dol) coloured micrxtln cuttings, tr → sl argil.
	Tr	Glauc	a. a.
	Tr	Pyr.	a. a.
80	100	MDST	A/A
	Tr	LST (DOL)	A/A
	Tr	Glauc	A/A
	Tr	Pyr	A/A
90	100	MDST	A/A
	Tr	LST (DOL)	A/A, slightly more than last sample
	Tr	Pyr	A/A
00	100	MDST	mgy → blu gy, firm, non calc, silty, sl micromic,
	tr	LST (DOL)	cream → buff, firm to hd, tr → sl argil
	tr	Glauc	dk blu grn, hd
	tr	Pyr	A/A
10	80	MDST	m gy to blu gy, firm to mod hd, non calc, stty to v slty, tr micromic, tr glauc,
	10	DOL	cream → buff, mod hd, sl calc,
	10	SLTST	m gy, firm to mod hd, sl micromic,
	tr	SST	

TG = 0.046 %

C_1 = 100%

difficult to average the amount of siltstone as silty mudstone

TG = 0.050 %

C_1 = 100%

Sample from Desitter at 1740m:
- 10-20% f grain qtz, wh-clear

TG = 0.210 %

C_1 = 100%

TG = 0.218 %

C_1 = 100%

20	90	MOST	m gy to blu gy, firm to mod hd, non swelling, non calc, slty to v slty, tr glauconitic
	10	DOL	cream to buff, mod hd to hd, sl calc, sl sandy, non porosity
	tr	SLTST	m gy, mod hd, sl micromic
	tr	sand	Qtz, clear, well rd,
	tr	pyr	
30	100	MOST	A/A
	tr	SLTST	m gy, mod hd, sl micromic
	tr	SST	qtz, wh-clear, f grain, subrd to rd, well sort, hd, calc cem,
	tr	LST/DOL	A/A
40	100	MOST	m gy to light brn gy and gy grn, firm to mod hd, non swelling, non calc, sl slty, tr glauc to glauconitic
	tr	DOL/LST	A/A
	tr	SAND	A/A
	tr	PYR	A/A
50	100	MOST	A/A
	tr	DOL/LST	A/A
	tr	SAND	A/A
	tr	PYR	A/A

TG = 0.242% C_1

TG = 0.330% C_1

TG = 0.244 % C_1

TG = 0.220 % C_1

Survey @ 1800 m $1\frac{1}{4}^{\circ}$ N 77 W

260	100	MDST	m gy to blu grn, firm to mod hd, non swelling, non calc
	tr	LST	cream to buff, dolomitic, mod hd to hd, non por
	tr	Pyr	A/A
270	100	MDST	A/A
	tr	LST	A/A
280	100	MDST	blu gy → blu grn, occ gy grn → gy brn, firm to mod hd, blky, non swell, gen non calc, non slty, non micromic, non carb, mod glauc.
	Tr	LST	cream to tan, mod hd → v hd, occ conch splintery, v. dk, micrsch test, zero vis por, occ sl slty,
	Tr	SST	(coved) wh, qtz, mod hd, occ fria mod rnd, well sort, v f grain, mod calc cmt, low vis por, tr glauc,
	Tr	Pyr	large chunks - up to 1 mm dia, +thin pyrite.
290.	100	MDST	A/A
	Tr	LST	A/A
	Tr	SST	A/A

TG = 0.278 % C_1

TG = 0.392 % C_1

TG = 0.426 % C_1

TG = 1.04 % C_1

	%		
00	100	MDST	green, greenish grey, grey, occ brown, soft to firm, blokey, non swell, non calc non silty non mic, non carb.
	tr	SLST	brownish grey, firm micromic. non calc
	tr	Pyr.	
	tr	DOL	buff, reddish brown. soft to hard non porosity.
	tr	glauc	green, hard.
10	100	MDST	A/A
	tr	SLST	A/A
	tr	Pyr	
	tr	DOL	A/A
20	100	MDST	A/A
	tr	SLST	A/A
	tr	Pyr	
	tr	Dol	A/A
	tr	MDST	Dark grey, firm, non swell pyritic.
30	90	MDST	A/A
	10	SND	clear qzt, coarse, subround, well sorte v. hard.
	tr	Dol	A/A
	tr	LS	White hard - occ soft non poros.
	tr	SLST	A/A.
	tr	Pyr	

gas
TG 0.328
100% C1

TG 0.23
100 % C1

Bit no 7 T5 B 5 1/4
Bit no 8 SEC M44N 17'/2

TG 0.186
100 % C1

867 change bit
Survey.

TG. 0. 146
100 % C1

depth	%	Lith.	
840	50	MDST	lt green, greenish grey, grey. (bluish green) soft-firm, blocky, non swell non silty non carb, non calc
	50	SND	Qtz, clear coarse sub rounded well sorted v. hard .. poorly cemented
	tr	Pyr	
	tr	MDST	dissem pyrite, L. green
	tr	MDST	interbedded with pyrite, grey. hard,
850	50	MDST	A/A
	50	SND	A/A
	tr	Pyr	
	tr	MDST	w dissem pyrite
	tr	Dol	buff, mod hard, sl calc
860	50	MDST	A/A
	50	SND	A/A
	tr	SST	pyrite and qtz cemented together
	tr	DOL	A/A
	tr	LS	A/A
	tr	MDST	speckeld with dark grain A/A.
	tr	Glau	green dark
870	50	MDST	A/A
	50	SND	A/A

TG 0.158

100 % C_1

TG = 0.164

C_1 = 100 %

TG 0.098

C_1 100 %

1880	50	MDST	greenish gr, grean, grey, occ brown soft to firm, blocky, non swell. non silty occ specks of carb. non calc.
	50	SND	qtz, clear to white, coarse to mod grain, subround. well sorted. v. hard, poorly cemented occurs as singel grains non mica, non calc, non glau
	Tr	DOL	buff to brown, soft to hard occ cryptoxl
	Tr	LST	white soft nonvis poros.
	Tr	PYR.	
	Tr	Glauc	
1890	50	MDST	A/A
	50	SND	A/A
	Tr	DOL	A/A
	Tr	LST	A/A more abundant
	T	Pyr	more abundant
1900	50	MDST	A/A
	50	SND	A/A
	Tr	DOL	A/A
	Tr	LST	
	Tr	Pyr	
	Tr	Glau	

TG 0.16

C1. 100

8/11-81 1915m
9/11-81

Survey at 1915 m 1° N 80 W

Bit no 8 T5 B3 I
Bit no 9 HTC OSC3J 17½

TG. 0.244.

LS. v. w. cut fluor and v. weak with crush cut fluor,

ROP very very slow, so samples are taken more often to find the reason. (ROP. 0.3 m/hr)

	%	Lith.	
910	90	50% MDST	Grey, greenish grey, firm, blocky. non swell, sl silty, micromic
		30% —"—	blue, greenish blue blocky - flacky, firm to hard, non swell. non silty, occ micromic
		10% —"—	brownish red, firm, blocky non swell sl micromic
	10	SND	qtz clear + white coarse to mod, subrounded well sorted v. hard poorly cemented
	Tr	LS	white, soft, no vis poro.
	Tr	DOL	buff, cryptoxln. firm to hard
	Tr	Pyr.	
920	60	SND	A/A
	40	MDST	A/A some of the lt green mudstone are very calcareous, and some of the bluish green are dissem with pyrite (Some look kind of ashy ?)
	tr	LS	A/A
	tr	Pyr.	
924	90	MDST	Varicolor (have dorite or glauc. flakes ↑ Tuff ?)
	10	SS	A/A.
	tr	MDST	pale purple, firm, sl silty non calc.
	tr	LS	bluish green (probably graded unto LST from the lt bluish green MDST.
	tr	Pyrite	

TG .731
C1 100 %

The light blue
MDST. Look kind
of ashy
Tuff ?

TG. 0.104.
C1 100 %

30	60	SND	qtz, clear, med to coarse, subrounded, well sorted hard no visible porosity, poorly cemented - various color.
	40%	MDST	lt blue - soft to firm, blocky, non swell, non silty, occ v. calc dissem pyrite. occ dark green either clorite or glauconitic grain and flakes in them. reddish brown, soft, blocky. non swell, micromic, occ sl cal, non carb, non glauc. green, greenish grey soft to firm blocky, non swell, sl silty sl micromic. occ pyritic
	Tr	LST	white, hard, no vis poros. v. sandy
	Tr	DOL:	buff, soft to firm no vis poros. sl arg,
	Tr	Pyrite	
	Tr	MDST	purple, pale purple, soft blocky, non swell, non calc
	Tr	SST	qtz cemented together with calcite.
	Tr	Glauc	
940	90	SND	A/A
	10	MDST	various color A/A.
	Tr	LST	A/A
	Tr	SST	A/A
	Tr	MDST	purple A/A.

TG 0.96

C, 100

TG 0.11

C, = 100 %

TG. 0.14

C, 100 %

TG 0.104

C, 100 %

950	50	MDST	A / Last page, various color
	50	SND	A / Last page
	Tr	DOL -	A / Last page
	Tr	LST	A / Last page
	Tr	Py	
	Tr	Calcite	transp. - white good devage hard.
	Tr	SST	A / Last page
960	60	SND	A/A
	40	MDST	A/A but some have green flakes of clorite ? Glauconite ?
	Tr.	Calc.	white, clear to yellow good devage v hard.
	Tr	SST	A / A
	Tr	Pyr	
970	70	SND	A/A
	30	MDST	A/A
	Tr	Calc	A/A
	Tr	SST	A/A
	Tr	Dol	A/A
	Tr	LST	A/A
	Tr	Py	
980	60	SND	A/A
	40	MDST	A/A
	Tr	Calc	A/A
	Tr	LST	A/A
	Tr	Dol	A/A
	Tr	Pyr	A/A

ry hard to drill ROP
wn to 3 m/hr probably
me clay into solution
ecause mud did become
ry thick.

TG = 0.112
C_1-100%

9/11-81 1994 m
10/11-81

10 nov. 1995 m.

	%		
90	80	MDST	Mostly grey, but also green blue, reddish brown, soft to firm. The grey is occ v. soft and sl silty. micromica. andrion calc. The bluish green is soft to firm occ calc occ dissem pyrite. non carb The reddish brown, soft blocky, non swell, micromic occ, sl calc,
	20	SND	Qtz, clear coarse to med, well sorted v hard, porly cemented, no vis poros.
	Tr	LST	White soft.
	Tr	Pyrite	
	Tr	SST.	qtz cemented together with calcite. hard, med to fine angular, poorly sorted, micaceous. glauconitic.
	Tr	SLST	lt green, soft, very calcareous

TG ③ 0.074

C_1 100%

Survey at 2003 m

1/2° N78W

TG = 0.068

C_1 100%

TG = 0.064

C_1 = 100%

Date 10 Nov - 81

	%		
000	50	MDST.	lt grey, soft, sticky flaky sl. silty v sl micromic, v. calcareous
			greenish grey, brownish grey. reddish brown (10%) soft to firm sl calc blocky, occ flaky. the grey w sl silty. and occ pyritic. all is sl micromic.
	45	SND.	qtz clear, med to coarse subrounded, well sorted, hard, poor cem;
	5	SST	qtz clear med to fine, ang. poorly sorted, v. calcareous, cemented with with calcite glauconitic and mica.
	Tr	LST	White, soft, no vis poro.
	Tr	Pyrite.	
010	70	MDST.	A/A. Less reddish brown non, lt grey calc,
	30	SND	A/A
	Tr	SST	A/A
	Tr	LST	A/A
	Tr	Pyrite	but bigger grain more abundant
	Tr	Calcite	
020	60	MDST	Grey. sticky v calc A/A
	30	SND	A/A
	10	LS	White, soft to firm no vis por. cryptocrys. v. sandy
	Tr	Pyrite	
	Tr	SST	A/A

TG. 0.06

C_1 100 %

9/11-81

9/11-81 2035 m

TG 0.08

C_1 = 100 %

TG 0.06

C_1 = 100 %

2030	80	MDST	A / last page only grey.
	10	SND	A / last page
	10	LST	A / last page
	Tr	Pyrite	
	Tr	red MDST	
	Tr	gy MDST	
2040	80	MDST	Grey, brownish grey, firm to soft, bloky, non swelling. sl silty occ v. silty, mica, sl carbona v. dissem with pyrite.
	20	SST	Two kind. 1. Qtz, pyrite glauconite clear, to white, med grain angular, mod sorted hard no vis porosity, very calcarious cemented 2. Qtz, glac, dol, mica pyrite cemented together with mudstone lt grey blue. subang, poorly sorted fine to med, mic and sl calc.
	Tr	LST	A/A
	Tr	SND	A/A
	Tr	Pyrite	Good trace
2050	70	MDST	A/A
	20	SST	A/A
	10	SND	A/A

t no 11 T5 87 1/16
t no 12 REED S11T 17 1/2

11/11 -81 — 2057m
12/11 -81

Survey at 2057m 1/4° N35W

TG 0.06
C1 100

TG 0.022
C1 100.

TG. 0.052
C1 100

TG - 0.03
C_1 = 100

SST and LST - yell fluor, slow milky white cut.

2050	Tr	LST	
	Tr	Pyr	
	Tr		
2060	70	SND	Qtz, clear, coarse, subrounded, w. soft. v.hard, poorly cemented.
	30	MDST.	Grey, grenish grey, greyish brown firm to soft. flacky occ bloky. occ silty, occ disem. w/pyrite. occ glauc.
	Tr	MST	yellowish brown, v. soft and sticky, calc, sandy
	Tr	Pyrite	
	Tr	Glauc	
	Tr	LST.	White, sandy, soft to firm, no vis para.
	Tr	SST	qtz white. cemented together with. calcite occ grading into LST.
2070	90	SND	A/A
	10	MDST	A/A
	Tr	LST	A/A
	Tr	Glauc	A/A
	Tr	SST	A/A
	Tr	Mica	clear.
2080	60	SND	A/A
	30	MDST	A/A less of the sticky
	10	LST	

/

TG - 0.02

Shows in SST
yellow fluor.
slow weak milky
white cut.

12/11-81 — 2095
13/11-81

Bit no 12 TS B6 GO — 2100m
Bit no 13 REED S11T 17½

TG = 0.027
C_1 = 100

Shows in SST
yell fluor
slow weak milky
white cut

TG. = 0 06 (C1 = 00)
SST, yel fluor
no cut

13/11-81 — 2113
14/11-81

2080	Tr	SST	A/A
	Tr	Pyr.	more abundan.
	Tr	Glau.	
2090	50	SND	Qtz, clear, coarse to med, subroun w. sort, v. hard, poorly cemente
	30	MDST	Grey, greenish grey, grayish brow firm to soft, occ v. soft an sticky. occ silty occ diss w/pyrite occ glauc.
	10	SST	Qtz, cemented with calcit med, angular mod sort. firm to hard, occ glauc grain
	10	LST.	white, soft,
	Tr	Glauc	
	Tr	Pyrite	
2100	50	SND	A/A
	40	MDST	A/A
	10	SST	A/A
	Tr	LST	
	Tr	SST	grey firm to soft, occ carb.
	Tr	Pyrite	brg grain.
2110	60	MDST	gy to greenish gy, soft to firm, v sl hygroclastic, occ silty, sl calc, carb
	20	SST	qtz, clear, med grain, subangular, mod sort, calc cem, occ glauconiti

13/11-81 — 2113m
14/11-81

Bit no 13 T 2 B2 GI — 2118m
Bit no 14 SEC S 8Y 17½

TG = 0.06%
C_1 = 100

14/11-81 — 2123m
15/11-81

Shows in SST
yel fluor. , no cut

TG = 0.044 %
C_1 = 100%

2110 fms.	10	SND	qtz, clear, med grain, subrnd, mod sort
	10	LST	white, soft, mudst. text, microxln
	tr	DOL	buff, firm to mod hd, no vis por, mudst text microxln
	tr	MDST	red brown, soft to firm, hygroclastic, non slty, non calc
	tr	PYR	
2120	80	MDST	med gy, soft to firm, non swell, sl slty, sl micromic, pyritic
	10	SND	qtz, clear, med to f grain, subrnd, mod sort
	10	SST	qtz, clear, med to f grain, subang, mod sort, calc cem, occ glauconitic
	tr	MDST	red brown, soft to firm, hygroclastic, non slty, non calc
	tr	LST	A/A
	tr	DOL	A/A
	tr	PYR	
2130	70	MDST	med gy to gra gy, firm to mod hd, non swell, sl slty, non calc, pyritic
	30	SST	qtz, clear, f, subrnd, mod sort, calc cem, occ glauconitic
	tr	LST	A/A
	tr	DOL	A/A
	tr	PYR	A/A
	tr	SST	qtz and pyr cem together

TG = 0.03 %

C_1 = 100 %

TG = 0.02 %

C_1 = 100 %

Less tr SNO, LST/DOL and PYR than above

Most of the clay is washed away from the cuttings

TG = 0.022 %

2170 sample in the hole for 20 hours before it was circulated up.

TG = 0.028 %

C_1 = 100 %

Survey at 2174m : 1/4° S15W

15/11-81

16/11-81 2174m

WOW

2140	90	MDST	m gy (to light grn gy), firm to mod hd, non swell to sl hygroturg. (hygroturg.), non calc to sl calc, occ sl slty
	10	SST	gtz, clear, f, subrnd, mod sort, calc cem
	tr	LST	white, soft, medst text
	tr	DOL	buff, firm to mod hd,
	tr	PYR	
	tr	MDST	red brown, soft to firm, non slty, non calc
2150	100	MDST	light gy to med gy to grn gy, soft to firm, non swell to sl hygroturgid, non calc to sl calc, occ sl slty,
	tr	SND	gtz, clear to white, f, subrnd, well sort
	tr	LST	A/A
	tr	DOL	A/A
	tr	PYR	
2160	100	MDST	med gy to gy grn, soft to firm, non swell, non calc to sl calc, occ glauconitic
		CLAY	light gy, v soft, hygroturgid, sl calc, non slty,
	tr	SND	gtz, clear, f, subrnd, mod sort
	tr	LST/DOL	A/A
	tr	PYR	
2170	100	MDST	A/A
		CLAY	A/A
	tr	SND	A/A
	tr	PYR	A/A

TG = 0.03 %
CG = 100%

The amount of green mdst is now greater than in the above samples

TG = 0.034 %

Yel fluor. in SST, no cut

TG = 0.03 %

16/11 - 81
17/11 - 81

2201m

2180	100	80% MDST	- m gy to gy grn ; firm ; non calc, non slty, non swell, occ glauconitic
		20% MDST /CLAY	- light gy, v soft, sticky, calc, non slty, hygroturgid
		tr MDST	- red brown, soft to firm, non swell to sl hygroturgid, non slty, sl calc
		tr SND	lrc, qtz, clear, f, subrnd, mod sort, calc cem
		tr LST	
		tr PYR	
2190	100 MDST	80	- gy grn A/A, occ glauconitic
		20	- m gy A/A
		tr	- red brown, A/A
		tr DOL	cream, mod hd, no vis porosity, microxln
		tr SST	clear to wht, f, subrnd, mod sort, cal cem
		tr SLTST	m gy, mod hd, non calc,
		tr PYR	
200	100	MDST	- m gy, firm, non calc, non slty, non swell
			- gy grn, firm to mod hd, non swell, non calc, occ glauconitic, occ carb,
			- gy brn, firm to mod hd, non swell, non calc, o·
		clay	- light gy, v soft, sticky calc, hygrotu
	tr	SLTST	A/A
	tr	SND	A/A
	tr	LST	A/A
	tr	PYR	

2200 m. Drilling break
Cuttings: 70 SND / 30 MDST

2206 m: SST in unwashed cuttings give yellow fluorescence and show very pale green cut

TG = 0.12 %
C_1 = 100 %

2206 m: Gas Peak: 0.6 %

2212 m: Gas Peak: 0.38 %

2221 m Gas Peak: 0.6 %

TG = 0.16 %
C_1 = 100 %

Shows in SST, yellow fluorescence no cut

TG = 0.14 %
C_1 = 100 %

urvey at 2239, 7/8° S 12 W

T no 14 T2 B6 GT
T no 15 SMITH SDT 17½" 2239 m

17/11-81
18/11-81 2239 m

Shows in SST, yellow fluorescence slow to weak pale green
TG = 0.1 -

Shows in SST
Yellow fluor.
slow, to weak pale green cut

2210	90	MOST	gy grn and gy brn, firm to mod hd, non swell, non calc, occ glauconitic, occ carb with minor clay, light gy, v soft, sticky, hygroturgid, sl calc
	10	SNO	qtz, clear to wh, subrnd, well sort
	tr	LST	white, soft, mudstone text
	tr	OOL	cream to buff, mod hd, no vis por
	tr	PYR	
2220	40	SNO	vfg, qtz, clear, ~~f~~ to m subang to subrnd, well sort,
	60	MOST	gy grn, firm to mod hd, non swell, non calc occ carb
	tr	SST	qtz, f-m clear, subang to subrnd, well sort, calc cem
	tr	LST	A/A
	tr	PYR	
2230	70	SNO	A/A
	30	MOST	A/A
	[illegible]	SST	A/A
	tr	LST	A/A
	tr	PYR	A/A
2240	80	SNO	vfg/qtz, clear, wh, f-m, subang, sort mod
	20	MOST	A/A
	tr	SST	A/A
	tr	LST/OOL	A/A
	tr	PYR	

T : Yellow fluorescence,
r slow and weak pale gm cut

TG = 0.11 %
C_1 = 100%
C_2 = Tr

ST : Yellow fluorescence,
v slow and v weak pale gm cut

[redacted] 0.13 %
C_1 100 %
C_2 = Tr

T : Yellow fluorescence
v slow and v weak pale gm cut

TG = 0.11 %
C_1 = 100%

TG = 0.056

Bit no 15 balled up

Again much sticky clay on the shakers
but are washed away from the cuttings
rvey at 2286 m : 5/8° S 30 W
t no 15 T6 B2 G 0 1/4
t no 16 SMITH 2J S
18/11-81 2286 m
19/11-81

			and occ purple
2250	80	SND	qtz, clear, occ pale reddish orange/red, f to m, subang to subrnd, well sort
	20	MOST	m gy to grn gy, firm to mod hd, non well, non calc, occ carb,
	tr	PYR	
2260	70	SND	A/A
	30	MOST	A/A
	tr	PYR	
2270	50	SND	A/A
	50	MOST	A/A
	tr	SST	qtz, clear, f-m, subang to subrnd, well sort, calc cem
	tr	MART	red brn, firm to mod hd, non calc, non well
	tr	SLTST	med gy, non calc
2280	40	SND	qtz, clear, (occ pale reddish brn/red or purple or pale yellow or pale green), f to m, subang to subrnd, well sort
	30	MOST	gy grn to med gy, firm to mod hd, non well, non calc, occ carb, occ glauconitic
	10	SLTST	med gy, firm to mod hd, non calc, occ carb
	tr	SST	qtz, clear to pale brn, f-m, subang, well sort, calc, occ glauc
	tr	LST	white, firm, mdst text
	tr	CLAY	light gy, v soft, sticky, calc, hygrothurgid
	tr	PYR	

TG = 0.07 %

C_1 = 100

Sticky clay on the shakers →

↓

TG = 0.074 %

C_1 = 100 %

TG = 0.056 %

C_1 = 100 %

19/11-81

20/11-81

2318 m

2290	80	MDST	- mgy and gy grn, firm to mod hd, non swell, non calc, occ carb
		tr CLAY	- light gy, v soft, hygroturgid, sticky, calc
	20	SNO	qtz, clear, occ pale reddish / purpl / pale grn f to m, occ c, subang to subrnd, mod sort
	tr	SST	A/A and calc cem
	tr	LST	white, ~~soft~~ to firm, mdst text
	tr	DOL	cream to buff, hd, no vis por (calcitic dolomite)
2300	90	MDST	- A/A, but tr of gy ~~grn~~ mdst
	tr	CLAY	A/A
	10	SNO	A/A
	tr	SST	A/A
	tr	LST	A/A
	tr	SLTST	~~light gy to~~ med gy, firm, non calc, micromic, occ ◎
	tr	DOL	A/A
	~~tr~~	PYR	
2310.	90	MDST	m gy, gy grn, gy brn
	tr	~~MDST~~ CLAY	A/A
	10	SNO	A/A
	tr	SST	A/A, occ glauconitic
	tr	LST	A/A
	tr	DOL	A/A
	tr	SLTST	A/A

TG = 0.058 %

C_1 = 100 %

Still a much soft, sticky clay on the shakers which is washed away from the cuttings

TG = 0.07 %

TG = 0.04 %

2320	90 { 80	MDST	m gy, firm to mod hd, non swell, non calc
	10	CLAY	light gy, soft, sticky, hygroscopic, calc mod sort
	10	SND	clear to wh, f to m occ c, subang to subrnd,
	tr (~5%	DOL/LST	dolomitic limestone, cream, mod hd to hd, xcrystalline, no vis por, arg
	tr	SST	clear, to wh, clear light brn, f to m, occ c, calc cem, occ mic; mod sort, subang
	tr	LST	white, soft, mdst text,
	tr	PYR	
	tr	SLTST	light gy, firm to mod hd, sl calc, occ mi
2330	100 { 80	CLAY	A/A
	20	MDST	A/A
	tr	SND	A/A
	tr	SST	A/A
	tr	DOL/LST	A/A
	tr	PYR	
2340	90	MDST	A/A
		CLAY	A/A
	10	MDST	light gy to m gy, soft to firm, calc to v calc, slty,
	tr (~5%)	DOL LST	dolomitic limestone, A/A
	tr	SND	A/A
	tr	SST	A/A
	tr	PYR	

TG = 0.04 %

C_1 = 100 %

Top cretaceous ≈ 2355 m

by V. calc mudstone

TG = 0.04 %

C_1 = 100 %

BIT # 16 T2 B2 3/16" 2362 m

BIT # 17 SEC S4 T J 17½"

20/11/81

21/11/81 2362 m

2350	20%	MUDST/CLAY	grey, soft, sticky, non-sl. silty, non-sl. calc, non-micromic, non-swelling, sl. carb, non-pyr, non-glauc,
	70%	CLAY	light grey, calc-v.calc, sticks together with vf sand + ?LST grains on shakers.
	10%	MUDST	md-darkish gy (occ. sl. greenish), soft-firm, non-swelling, non-silty, non-mic, non-calc, sl. carb, non-pyr
	Tr	MUDST	green and red, firm, non-everything
	Tr	SST	yellowish grey, quartz, vf-f, ang, well-mod sor firm-mod hard, no ϕ, calc cem., sl. glauc, v. argill
	Tr	LST	white, soft, microxln, occ. as platy xls
	Tr.	LST	dolomitic, buff, hard, no vis ϕ, microxln argill.
	Tr	SAND	vf-f, quartz, occur together with lt gy clay, occ v coarse grains
	Tr.	PYRITE	
	Tr	FORAMS	
2360 m	80	MUDST.	lt gy-med gy, soft-firm, very calcareous non-silty, non-micromic, non-sl. carb, non-pyr
	Tr	LST	buff, occ. sl. dolomitic, hard, no vis ϕ, micro xln, v. argill, nodul, text also white, soft, pure calcite
	20	MUDST	as above (grouped together)
	Tr	SST	as above
	Tr	Pyrite	
	Tr	Sand	a/a

$TG = 0.03\%$
$C_1 = 100\%$

freq caved glauconitic mdst - non calc

- occ well laminated mdsts indicating some minor faulting in this section

$TG = 0.024\%$
$C_1 = 100\%$.

Sand & Sst caved.

21/11/81
22/11/81

—— 2390 m

$TG = 0.02\%$
$C_1 = 100\%$

1

2370 m	70%	MDST	lt-mgy, sft to firm, v calc, non slty, non micronic, non-sl carb, non fyr.
	10%	LST	lt gy-wh, sft to mod hd, low visc for-zero, mdst text, micrxln, non argil occ - mod glauconite vfs, - (freq, tr free calcite - drag tooth sharp vein infilling.
	10%	MDST	rd brn, sft to firm, v. calc, plastic text, non carb. sl micronic, non fyr occ tr glauc
	10%	MDST	(caved non calc, a.a).
	Tr	SND	lse brine - m grn, ~~well rnd~~, subrnd,
	Tr	LST	bruff, sl dol, a.a.
2380m	70%	MDST	lt-mgy, v. calc, a.a.
	10%	LST	lt gy-wh, micrxln, mdst text, frq tr lse calcite → tr carb, tr glauc - occ tr fyr in lst, zero vis for, tr slty.
	10%	MDST	rd brn, v. calc, a.a, tr glauc
	10%	SND	lse, f-m, qtz, subrnd, occ v. c to gravel grade
	Tr	SST	qtz, clrs to lt brn, v f to m, subrnd → subang, mod sort, weak calc cmt, mod high vis for, tr glauc
	~~Tr~~	MDST	caved m-dk gy.
2390 m	70%	MDST	lt-mgy, v. calc, a.a.
	20%	LST	lt gy-wh, a.a. - freq lse calcite.
	10%	MDST	rd brn, a.a.
	Tr	SND	, a.a, lse qtz.
	~~25~~	MDST	caved m-dk gy non calc

- hrst is finely interlam^{d} w. both the grys & the red/brn mdsts.

TG = 0.01%
C$_1$ = 100%

Bit 17 TS B6 I ——— 2402m
BIT 18 Reed Y21S 17½"

22/11/81 ——— 2406
23/11/81

TG = 0.02%
C$_1$ = 100%

TG = 0.03%
C$_1$ = 100%

2400 m	70%	MDST	lt gy – m gy, sft to mod hd, non fiss, non swell in H_2O, cryptoturgid in HCl, non to v sl slty, non micromic, tr glauc, tr non fyr.
	20%	LST	lt gy – wh, (occ pink') sft to mod hd, zero vis por, mdst text, micro to cryptocrh, v sl slty, tr glauc, non dol.
	10%	MDST	rd brn, sft to firm, non fiss, plastic text, mod – v calc, occ grades into pink-brn lst, & occ into gy grn mdst, tr micromic, tr glauc, tr slty.
	Tr	SND	lse qtz, v f – c, subang to rnd, clss, trans
	Tr	SST	qtz, v.f, mod sort, subang-subrnd, mod hd, lowr vis por due to mod calc cmt, dom grnst, tr glauc, non argil (clean!)
	Tr	SLST	dk gy, micromic, non calc, tr carb.
2410 m	80%	MDST	lt gy – m gy, a.a
	10%	MDST	rd brn, a.a
	10%	LST	lt gy – wh, a.a, occ v. sndy, frg calc
	Tr	SST	qtz – a.a, v calc cmt!
	Tr	SND	a.a, gen c.
2420 m	70%	MDST	lt – m gy, v. calc otherwise a.a,
	10%	MDST	rd brn, v. calc, a.a.
	10%	LST	lt gy – wh, a.a, tr glauc
	10%	SST/SND	qtz v. f, mod calc cmt, a.a.
	Tr	Pyr.	

occ calcite veins with straight
banding ⊥r to vein wall

↳ no zigzagged fibres ∴ shear stress
only tensile

— 75' waves - Force 12 ! 20' heave !
— 78 Knot winds !

WOW! 23/11/81 2438
28/1/82

18 T6 B6 I 2438m
19 Smith 2 JS Insert 1⅞"

T_G = 0.016%
C_1 = 100%

Trip Gas = 0.8% C_1

T_G = 0.016%
C_1 = 100%

T_G = 0.03%
C_1 = 100%

2430m	90%	MDST	[illegible] gy, firm, sub fiss, v calc [illegible] [illegible], occ grades to arg lst ([illegible]!!!!)
	10%	LST	wh, [illegible] to crm, [illegible], occ [illegible] but commonly blocky fract, tr glauc grains, mdst text - [illegible] freq crystals to xln w/ free calcite, tr slty
	Tr	MDST	rd brn, firm, v calc, mod glauc, non [illegible] plastic text, sub fiss, grades into m gy!
	Tr	SST/SND	qtz, v f → m, sub rnd to sub ang, mod sort, good calc cmt, low vis por,
2440m	90%	MDST,	lt-m-dk gy, (occ gy grn) a.a, v. calc, tr slty, occ sl sdy
	10%	LST	wh, a.a, occ ellipsoidal glauc grains - occ v. sndy & grades to v. calc sst ie
	Tr	SST	qtz, v.calc, a.a, predom f, low vis por
	Tr	MDST	rd brn, a.a
2450m	100%	MDST	lt-m-dk gy, occ gy grn, v. calc, a.a
	Tr	LST	wh, a.a, occ tr calcite as free grains - occ mod argil & grades to calc Mdst, tr dol.
	Tr	SST	qtz, v calc, f, a.a
	Tr	Mdst	rd brn, a.a, v. calc, plastic text.

TG =

~~28/4/81~~ 2469m

Pyritic mdst is blue grn & only seen above Tof Cret so may be caved here.

v calc lt gy Mdst occ grades to v argil lst.

Moderate sand contamination from bainte.

TG = 0.02 %

C_1 = 100 %

TG = 0.02 %

C_1 = 100 %

2460m	90%	MDST	lt-m gy, firm to mod hd, blky fract, occ subfiss, v calc, tr slty, tr micromic, sl to hyr, tr glauc
	10%	LST	wh, microxln, mdst text, hd, non argil, tr ellipsoidal dk grn glauc embedded in lst matrix, tr shell frags (benthonic), tr x line calcite, tr pyr
	Tr	MDST	rd brn, firm, plastic text, occ subfiss, v calc, mod glauc, occ v glauc, non micromic, non pyr.
	Tr	SST	Qtz, clrs to off wh, m grain, well sort, subang, good calc cmt, low to mod vis por, grnst text, hd, (occ v.c grain size & poor sorting).
2470m	100%	MDST	lt-m gy, a.a, occ sl slty, occ sl-mod pyr (only blu grn variety-rare)? - may be caved
	Tr	LST	wh, occ lt tan, a.a, except occ sl dol & v hd with zero vis por, tr shell frags & free calcite.
	Tr	MDST	rd brn, v calc, v glauc, a/a.
	Tr	SST	Qtz, clrs to off wh, a/a.
2480 m	100%	MDST	lt-m gy, firm to mod hd, occ subfiss, occ sl slty, v calc, tr micromic, tr pyr, tr glauc
	tr	LST	wh, occ lt tan, microxln, mdst text, mod hd to hd; argill, no vis por, occ sl dol & v hd with zero vis por
	tr	MDST	rd brn, v calc, firm, plastic, v calc, non micromic, non pyr, mod glauc
	tr	SST	qtz, clrs to off wh, m grain, well sort, suban
	tr	Pyr	

28/11-81 — 2482 m
29/11-81

Bit 19 T2 B2 GO 8/16 — 2482 m
Bit 20 SEC S3TJ 17½

Survey at 2482 m, 3/8° N5° W

TG - 0.04 %
C_1 = 100 %

TG = 0.018 %
C_1 = 100 %

the red brn, sl calc mdst is probably
cavings from above.
The non calc, mgy, hd MDST appears
in varying amounts so perhaps some
thin beds of non calc MDST in
between the light gy

29/11-81 — 2508 m
30/11-81

2490 m	100	MOST	- lt gy - mgy, firm to mod hd, subfiss, calc to v calc, occ sl slty, non micromic, non carb
	tr	MOST	▲ and mgy, mod hd, non swell, non calc, occ sl slty rd brn, firm, non swell, sl calc, occ glauc, non micromic, non carb (caved)
	tr	MOST	grn gy to gy grn, firm to mod hd, non swell, non calc, non slty, non micromic (caving?)
	tr	LST	wh, firm to mod hd, occ hd, microxln, mdst text occ - argill, occ sl dol, no vis por
	tr	SST	qtz, clrs to wh, f to m, subang, mod sort, calc cem, low vis por,
	tr	PYR	tr pyr and qtz cemented together
2500 m	100	MOST	lt gy to mgy, firm, calc to v calc, occ sl slty, occ sl glauc, non micromic, non carb
	tr	MOST	m gy and gy grn, mod hd to hd, non swell, non calc, occ glauc (caving)
	tr	MOST	rd brn, firm to mod hd, non swell, sl calc plastic, non micromic, non carb, occ glauc (most probably caving)
	tr	LST	wh, firm to mod hd, mdst text, occ argill and
	tr	LST/DOL	wh to light tan, mod hd to hd, mdst text no vis por
	tr	SST	qtz, clrs to wh, f to m, subang, mod sort, calc cem, low vis por
	tr	Pyr	
	tr		

TG = 0.018%

C_1 = 100%

Bit 20 T4 B6 I

Bit 21 SEC S36J 17½ 2514 m

TG = 0.06%

C_1 = 700%

tr rd brn MUST : more than above so most probably fine laminated sequence of MUST of varying colour

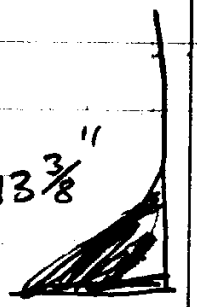
MUST occ grading into v argill LST occurring in irregular patches

argill LST occ sandy and occ grading upto v calc cem SST

25 10 m	100%	MDST	lt gy to m gy, firm, calc to v calc, gen non slty, non micromic, non carb, occ glauc
	tr	MDST	rd brn, firm, mod calc, non swelling, occ slty, occ glauc, non micromic, non carb
	tr	MDST	m gy, firm to mod hd, non calc to sl calc, occ sl slty, non micromic, non carb
	tr	LST	wh, firm to mod hd, mdst text, no vis por, non argill
	tr	SST	qtz, clss to wh, f to m, subang to subrnd, mod sort, v low vis por, occ glauc
	tr	PYR	
25 20 m	90	MDST	lt gy to m gy, firm to mod hd, calc to v calc, occ sl slty, non micromic, non carb; occ glauc, occ grades into v sdy LST
	tr (2%)	MDST	rd brn, firm to mod hd, non calc, glauc, occ slty
	tr	MDST	m gy, firm to mod hd, non calc, occ slty, non micromic,
10%	tr (5%)	LST	wh, firm to mod hd, mdst text, no vis por, occ argill and occ sandy grading into v calc SST
	tr (5%)	SST	qtz, clss to wh, occ v lt brn, f to m, occ c, ang to subrnd, mod sort, occ glauc and mic, calc cem, occ grading into sandy LST
	tr	PYR	
	tr		fossils

TG = 0.02%

C_1 = 100%



TG = 0.018%

C_1 = 100%

V sticky MOST / CLAY on the shakers. Most of it is washed away so it is very little amount of cuttings left and most of that is <u>casings</u>!

TG = 0.02 %

C_1 = 100 %

55m : 100 MOST, lt gy-ggy-soft to firm, sticky, calc. non micromic, non carb

urvey at 2557m 3/4° N60°W

1/12-81

/12-81 2557m → changed 2552m on staffing.

2530m	90	MDST	lt gy to m gy, firm to md hd, calc to v calc, occ sl slty, non micromic, non carb, occ glauc, occ grades into argill LST
	tr	MDST	red brn, firm to md hd, non calc, glauc, occ slty
	tr	MDST	m gy, firm to md hd, non calc, occ slty
	10	LST	wh, firm to md hd, most text, nr ints for occ argill and occ sandy grading into v calc SST.
	tr	SST	gtz, clss to w2, f to m, arg to subrnd, md sort, occ glauc and mic, calc cem, occ grading into sandy LST
2540m	100	MDST	- lt gy to m gy, firm to md hd, calc A/A - red brn, A/A } interlaminated - m gy to lt gy grn, A/A }
	tr	LST	wh, A/A, but occ hd, dol
	tr	SST	A/A
	~~tr~~	Pyr	
	~~tr~~	Lignite	
2550m	100	MDST	- lt gy to m gy, soft, sticky, calc to v na micromic, non carb, (most of this is washed away) - red brn A/A } cavings - m gy to lt gy grn A/A }
	tr	LST	A/A
	tr	SST	A/A
	tr	Pyr	

BIT 21 T B

BIT 22 Reed S 13 J 17½" ~ reaming - ran twice 2552 2552 m

BIT 23 HTC X1G 12¼

2552 m TD 17½" hole

13/12/81 2564
14/12/81

TG = 0.01 4%
C1 = 100%

No BP geologist onboard from 2560 → 2650 m. Descriptions from Exlog cutting sheet.

BIT 23 T6 B4 I
BIT 24 Smith SUH 12¼ in @ 2573 m

TG = 0.02%
C1 = 100%

TG = 0.03%
C1 = 100%

TG = 0.03%
C1 = 100%

TG = 0.03%
C1 = 100%

2610 14/12/81
15/12/81

TG = 0.04%
C1 = 100%

TG = 0.03%
C1 = 100%

1st bbm odst @ 2620 m
Lst stained, in negligible amounts!

TG = 0.03%
C1 = 100%

TG = 0.02%
C1 = 100%

TG = 0.04%
C1 = 100%

TG = 0.03%
C1 = 100%

- turbine often reducing mdst cutting to ~~faster~~ ?

BIT 24 T4 B8 I

BIT 25 D. BOART LX 13 2675 15/12/81
~~drilled 2675~~ w. turbine 16/12/81
not a diamond bit.

TG = 0.04%
C1 = 100%

GENERAL DESCRIPTION FROM EXLOG.

2560m	100%	~~Mdst~~ MDST	MDST Gy - dk gy, occ blu grn, frim - ltd, blky, occ subfiss, mod calc, loc grades to SLST, occ disseim lyg.
2570m	100%	MDST	Tr SST, buff - lt brn, ff, wd, qtz, subang - subrnd, mod sort, tr Snd - lfg ⇒ orange, c-vc, subrnd,
2580m	100%	MDST	Tr Dol - wh ⇒ buff, hd, cryptocln,
			Tr LST, wh, sft, cryptocln
2590m	90%	MDST	MDST, m gy grn, sft - frim, amorphous, slty, mod calc, loc slty, tr lyr.
	10%	SLST	
2600m	90%	MDST	MDST, lt ⇒ m gy, occ dk gy, sft - frim, predom blky, occ amorph, occ subfiss, sl - mod calc, slty, micromic
	10%	SLST	Tr Dol - wh, hd occ calcite & lyr vuis - Tr Snd - clr-translue qtz loc occ calc cmt, f - m, subrnd
2610m	100%	MDST	SLST, m - dk gy, sft - frim, subfiss - blky, mod calc, grades to MDST
		TR LST	Tr SND, wh - clr, occ rd brn - orange stain, lfd - v lfd, arg - subang poor sort, tr lyr.
2620m	100%	MDST ~~90~~ 80 ~~10~~ 20	MDST, lt - m gy, sft - frim, amorph - mod blky, slty, sl calc
		Tr LST	SLST, m - dk gy, frim, blky - subfiss, sl calc, occ micromic, tr lyr.
2630m	100%	MDST ~~80%~~ 80% Tr LST ~~20%~~ 20%	MDST, lt, - occ dk gy w. lt - m rd brn, sft, amorph, predom blky, slty, v calc, glauc, tr xtline calcite, Tr SND, clr, loc qtz, c, arg - subang, Tr LST wh, sft, amorph, tr calcite
2640m	100%	MDST ~~90%~~ 90% Tr LST ~~10%~~ 10%	MDST, predom lt - m rd brn w. lt - m gy, sft - frim, amorph predom blky, occ subfiss, v. calc, tr LST + SND a.a.
2650m	100%	MDST 60 Tr LST 40	MDST, lt gy / rd brn, v. sft - sft, amorph, slty, loc slty, v. calc
2660m	~~50%~~	MDST	- lt ~~to~~ m gy, sft to frim (turbule), micromic, mod amorph calc.
	40%	MDST	- lt rd brn, amorph plastic text, v. calc.
	10%	SLST	m - dk gy, frim - sft, v. argil, mod calc grades into lt gy mdst ⇒ grades to v argil lt gy lst
2670m	60%	MDST	lt rd brn, occ m gy brn, amorph plastic text, v. calc tr micromic, sft (due to turbule) - frim, subfiss, occ grades to rd brn argil lst.
	40%	MDST	m gy, frim, mod calc, subfiss, tr carb micro
	Tr	LST	[illegible]

TG = 0.04%
C_1 = 100%

- fine dunesian lst ltgy Mdst + vargil lst – if classified as an argil lst then up to 50% of 2680 samples

TG = 0.04%
C_1 = 100%

⇒ anywhere else these rocks would be marls !!
⇒ unclear term!
God's in heaven!
↳ going crazy
will midnight ever come ??

220/m 16/12/81 – 17/12/81
TG = 0.04%
C_1 = 100%

sd lsn mdst is very finely laminated w. lt gy ⇒ lt rd lsn lst.

- good fine cuttings from this lst

TG = 0.04%
C_1 = 100%

2680m	60%	MDST	m rd brn – lt rd brn, sft to frm, stky to v stky, v calc plastic amorph text, occ tr micronic, grades to argil lst, tr carb,
	30%	MDST	m gy – lt gy, frm, subfriss, micronic, sl calc, occ v calc, occ grades to lt gy v argil lst
	Tr	LST	varicol, lt gy – lt rd brn, mod argil, sft to frm, microsch, zero vis por, non dol.
	10%	SLST	dk gy, frm, subfriss, mod calc, micronic,
2690m	60%	MDST	lt – m gy, frm to mod hd, occ sft (turbic effect), mod (m gy) to v calc (lt gy), tr micronic, gen plastic text.
	20%	MDST	m rd brn – lt rd brn, sft – frm, a.a, grades to argil lst, occ sl carb, v. calc, a.a.
	10%	LST	varicol, lt gy – lt rd brn, typical marl (!!), v argil microsch mdst text, zero vis por, sft to frm.
	10%	SLST	dk gy, frm to mod hd, subfriss, mod calc, v micro tr carb, tr lyr.
2700	60%	MDST	lt – m gy, a.a, frm to mod hd, v. calc grades to argil lst
	10%	MDST	lt rd brn – m brn, v. calc, plastic amorph text, a.a
	20%	SLST	dk gy, mod hd, subfriss, mod calc, tr carb, tr lyr
	10%	LST	varicol, argil, a.a.
2710	80%	MDST	lt – m gy, frm, hygroturgid – elastic, v. calc, grades to v argil lt gy LST, plastic amorph text.
	10%	MDST	lt rd brn – m brn, frm, plastic, v. calc
	10%	SLST	dk gy, mod hd, mod calc, tr carb
	Tr	LST	varicol, lt gy – lt rd brn, v argil, a.a

TG = 0.04%

C_1 = 100%

Cuttings now better preserved - generally finer than with rock bit.

TG = 0.04%

C_1 = 100%

Turbine working well

constant ROP -

Zero Cuttings gas still.

TG = 0.04%

TG = 100%

2720m	100%	MDST	ltgy - m-gy, occ dkgy, frm to mod hd, occ subfris, occ sl slty (dkgy, a.a) → but generally less silty nowr, v. calc, tr carb, tr pyr.
	Tr	MDST	Rd brn, plastic, v calc, occ grades to argil lst,
	Tr	LST	varical, a.a, v. argil. - finely interbed w. MDST.
2730m	100%	MDST	lt-mgy, occ dkgy & slty, frm, occ mod hd, subfris to dkgy, v calc, tr slty, tr carb, tr pyr, generally [redacted] lst, occ grades to ltgy argil lst.
	Tr	MDST	lt rd brn - m brn, frm, plastic, v. calc, grades to fine lam of v argil lst, finely interbed v. gy MDST
	Tr	LST	varical ltgy - wh - lt rd brn, frm, v. argil, micrxln mdst text, zero vis por, occ sl argil & can grade to a tr clean xthic lst.
2740m	100%	MDST	lt - m gy, occ dkgy - sl slty, frm to mod hd, gen dkgy, v. calc, tr slty, tr carb, tr pyr, grade to argil lst.
	Tr	MDST	lt rd brn - m brn, v calc, a.a
	Tr	LST	varical, a.a, occ com to dff wh - less argil than the rest.

- rd brn mdst - caved, ~~[illegible]~~ occ ~~see~~ good gradational contacts with the lt gy mdst ↳ applies to section down to 2680m. $T_G = 0.04\%$ $C_1 = 100\%$

rd brn mdst is all caved at this stage

$T_G = 0.04\%$ $C_1 = 100\%$

-8 mdst becoming harder

only ltgy & rd brn mdsts are v calc, rest are sl $T_G = 0.04\%$ $C_1 = 100\%$

2776m Survey $1\frac{1}{2}^\circ$ S60W.

2780m 17/12/81 – 18/12/81 $T_G = 0.04\%$ $C_1 = 100\%$

750m	100%	MDST	lt-m gy, occ dk gy, firm, hygroturgid-elastic, blky, occ sl blky, gen non slty, occ sl slty, tr micromic, v calc, tr carb, tr fyt.
	Tr	MDST	rd brn-m brn, firm, plastic, occ hygroelastic, v. calc, occ grades to calc mdst
	Tr	LST	lt gy-off wh predom, lt rd brn v rare now, v argil, microxln mdst text, zero vis por.
760m	100%	MDST	lt-m gy, occ dk gy, a.a, sl slty & grades to ltgy argil lst, tr fyt.
	Tr	LST	ltgy-off wh, firm, v argil, microxln mdst matrix, zero vis por.
	Tr	MDST	lt rd brn-m brn, a.a, v calc
770m	100%	MDST	lt to m gy, a.a, v. calc, occ dk gy & sl slty, tr fyt, grades to argil lst,
	Tr	LST	ltgy-crm-off wh, mdst text, v argil, a.a.
	Tr	MDST	lt rd brn-m brn, a.a
780	100%	MDST	lt to dk gy, firm to mod hd, blky to subfiss, sl-mod calc, tr slty, tr carb, tr fyt, occ grades to argil lst.
	Tr	LST	ltgy-occ off wh, firm-sft, occ hd, mdst text, v argil zero vis por, non dol.
	Tr	MDST	rd brn, firm, plastic, non fiss, v. calc

$T_G = 0.03\%$
$C_1 = 100\%$

$T_G = 0.02\%$
$C_1 = 100\%$

$T_G = 0.03\%$
$C_1 = 100\%$

dkgy Mdst. are generally less silty than those above.

$T_G = 0.03\%$
$C_1 = 100\%$

2790m	100%	MDST	lt-dk gy, gen m gy, firm to mod hd, occ sft, hygroplastic, sl-mod calc, occ v calc & grades to argil lst, tr micromic, tr pyr, tr carb.
	Tr	LST	lt gy-off wh, sft-firm, occ blky, v argil, mdst text, zero vis por
	Tr	MDST	rd brn, firm, blky, v. calc, a.a.
	Hy Tr		- hydrosulphinate.
	Tr	Coal	m brn, occ translu, v hd, blky fract, sl calc, xline text, zero vis por
800m	100%	MDST	lt-m-dk gy, a.a, occ v. calc & grades to argil lst, tr carb
	Hy Tr	MDST	lt rd brn, firm, plastic text, occ tr micromic, v calc.
	Tr	LST	lt gy-cream, sft-firm, occ mod hd, mdst text-occ cryptocln, zero vis por, gen v argil.
	Tr	Coal	v. rare tr m brn, translu, v hd, a.a
810	100%	MDST	lt-m-dk gy, a.a, occ plastic text & v. calc, gen sl-mod calc, occ sl slty a.a
	Tr	MDST	rd brn, firm, plastic, blky fract, tr micromic, v calc.
	Tr	LST	v. rare, lt gy-buff-cream, firm, a.a
0m	100%	MDST	lt-m-dk gy, occ gy grn, sl-v calc, occ sl slty, a.a
	Tr	MDST	rd brn-m brn, firm, plastic, v. calc.
	Tr	LST	cream-occ pink/cream, mdst text, sft-firm, v argil, occ

TG = 0.03%
C_1 = 100%

TG = 0.03%
C_1 = 100%

TG = 0.03%
C_1 = 100%

Ltgy Mbrk is v cook, dk gy is rl cak!

TG = 0.03%
C_1 = 100%

2830m	100%	MDST	lt-dk gy, firm to mod hd, blky to subfriss, ~~[illegible]~~ gen non swell (v calc is lt gy a hygroclastic), tr slty, tr micromic, sl-v calc, ~~[illegible]~~ occ v calc grades to lt gy crm argil lst., tr lyst.
	Tr	LST	lt gy-cream, v argil, sft-firm, zero vis por, mdst text, microsch,
	Tr	MDST	rd brn-m brn, firm, blky, v. calc, plastic text
	Tr	DOL	dk brn, v hd, blky, zero vis por, x lnc,
2840m	100%	MDST	lt-dk gy, a.a, occ mod carb.
	Tr	LST	lt gy, v argil, a.a, occ free vein calcite.
	Tr	DOL	dk brn, v. hd. a.a. x lnc
	Tr	MDST	rd brn, plastic, v calc, a.a
2850m	100%	MDST	lt-dk gy, firm-mod hd, blky to subfriss, gen non swell but lt gy-hygroclastic & v calc, sl-mdcalc, tr slty, tr micromic, tr carb., tr lyst.
	Tr	LST	lt gy-cream, v argil, a.a
	Tr	DOL	dk brn, v. hd, blky frac, zero vis por, x lnc,
	Tr	MDST	rd brn, plastic, firm, blky, v. calc, a.a
2860m	100%	MDST	lt-dk gy, firm to mod hd, variably calc - sl → v; a.a
	Tr	LST	lt gy, v argil, a.a
	Tr	DOL	dk brn, v hd, a.a
	Tr	MDST	rd brn, plastic, firm, blky frac, v calc, a.a.

$T_G = 0.02\%$

$C_1 = 100\%$

2871 m — 17/12 - 81 → 19/12 - 81

$T_G = 0.03\%$

$C_1 = 100\%$

$T_G = 0.04\%$

$C_1 = 100\%$

$T_G = 0.03\%$

$C_1 = 100\%$

2870m	100	MOST	lt - dk gy, firm to mod hd, blky to sub fiss, gen non swell (but lt gy - hygroclastic & v calc), sl - mod · calc, tr v lty, tr carb,
	tr	MOST	red brn, mod hd, blky, non swell, calc,
	tr	DOL	dk brn, v hd, sl calc blky, zero vis por, x line,
	tr	LST	lt gy - cream, argill, soft - firm, zero vis por, mdst tex
2880m	100	MOST	lt - dk gy, a/a
	tr	MDST	red brn, mod hd to hd, a/a
	tr	DOL	a/a
	tr	LST	lt gy - cream, v argill a/a
2890m	100	MOST	lt - dk gy, firm to mod hd, blky to subfiss, gen non swell but occ lt gy - hygroclastic & v calc, non calc to sl to mod calc, tr v lty, tr pyr
	tr	MOST	rd brn, mod hd, blky, non swell, sl calc - mod.
	tr	DOL	dk brn to buff, sl calc to calc, hd to v hd, blky, zero vis por, x line
	tr	LST	lt gy - cream, soft to firm, argill, no vis por, mdst text.
2900m	100	MOST	m gy - dk gy, firm to hd, blky to subfiss, non swell, non calc to sl calc, dk v lty, tr pyr and lt gy, hygroclastic and v calc mdst (laminated, v thin laminae of different gy-co
	tr	DOL	a/a
	tr	LST	a/a
	tr	MOST	rd brn, mod hd a/a

TG = 0.05 %

C_1 = 100 %

From 2900 - 2920 m :

lens cavings of red brn MDST :

tr tr red brn MDST, ie : very few (1-5) grains in each sample.

TG = 0.05 %

C_1 = 100 %

C_2 = tr

and lens both DOL and LST

=> very homogenous sequence of MDST.

TG = 0.07 %

C_1 = 93.5 %

C_2 = 6.5 %

2910m	100	MOST	m to dk gy, firm to mod hd, blky to subfiss, non swell, non calc to sl calc, tr slty, tr pyr, and lt gy, soft to firm, hygro-turgid, calc to v calc
	tr	SLTST	lt to med gy, firm, non swell, non calc to sl calc, tr carb
	tr	MOST	red brn, firm to mod hd, blky, non swell, sl to mod calc, gen non slty
	tr	OOL	buff to m brn, hd, sl calc, blky, no vis por, xline
	tr	LST	cream, soft to firm, argill, mdst text
2920m	100	MOST	m to dk gy, firm to mod hd a/a and lt gy MOST a/a
	tr	SLTST	lt to med gy a/a
	tr	OOL	a/a
	tr	LST	a/a
2930a	100	MOST	lt gy to dk gy, firm to mod hd, blky to subfiss, non swell, non calc to sl calc (lt gy : soft to firm, calc), tr slty,
	tr	SLTST	lt to med gy, non calc to sl calc, tr carb
	tr	OOL	buff to m brn, hd, occ sl calc, blky, no vis por, xlin
	tr	LST	cream to wh to lt gy, soft to firm, argill, mdst text
	tr	lignite	blk,
	tr	MOST	rd brn, firm to mod hd, blky, non swell, sl to mod calc, gen non slty

less and less lt gy, calc to v calc MOST, i.e. m gy to dk gy, non calc to sl calc more dominating downwards.

TG = 0.08%
C_1 = 92.5%
C_2 = 8.5%

NB! the cuttings is getting more burned downwards (i.e. comparing ~~samples from~~ 2870m til 2940m), that means the MOST appears darker and much harder than above.
But the change to less lt gy, v calc, soft MOST and more m gy (dk gy), sl calc, ~~fm to~~ med hd is thought to a be a formation change!

TG = 0.09%
C_1 = ~~92.8~~ 90.8%
C_2 = 9.2%

m gy to dk gy, non calc MOST predominates over lt gy, soft, calc MOST

TG = 0.06%
C_1 = 91%
C_2 = 9%

2965m 19/12-81 / 20/12-81

Survey at 2967m
1½° S75°W

2967m 20/12-81 / ~~24~~/12-81 WOW

TG = 0.07%
C_1 = 90.3%
C_2 = 9.7%

2940 m	100	MDST	lt gy to dk gy, firm to mod hd, non swell, slty to subfiss, non calc to sl calc (lt gy [illegible] soft to firm mod calc), tr slty,
	tr	[illegible]	[illegible]
	tr	LST	lt gy, [illegible] to soft, [illegible], argill to v argill, zero vis por.
2950 m	100	[illegible]	m gy to dk gy, occ grn gy [illegible] lt gy, [illegible] to mod hd (due to burrowing [illegible]), non swell, slty to subfiss, non calc to sl calc and grading to v calc (lt gy, soft), tr slty, [illegible] pyr, non carb
	tr	LST	lt gy, firm to soft, v argill, mod hd, zero vis por
	tr	DOL	v rare tr, brn gy, hd, no vis por, xline, slty, fract.
2960 m	100	MDST	lt gy to m gy to dk gy, occ grn gy, a/a
	tr	LST	a/a
	tr	DOL	a/a
	tr	SLTST	lt gy, firm to soft, non calc to mod calc, tr carb
	tr	PYR	
2970 m	100	MDST	- m gy to dk gy to gy grn (interlaminated), firm to mod hd, slty to subfiss, non swell, non calc to sl calc, tr slty, occ tr carb
			- lt gy, soft to firm, sl hygroclastic, mod calc to v calc grading into

TG = 0.16 %

C_1 = 90.2%

C_2 = 7.2%

C_3 = 2.5%

TG = 0.16%

C_1 = 82.8%

C_2 = 13.6%

C_3 = 3.6%

3000 m

5m sampling ↓

TG = 0.12%

C_1 = 648 ppm	84.9%
C_2 = 95 ppm	12%
C_3 = 20 ppm	2%

TG = 0.10%

C_1 = 850 ppm	87.6%
C_2 = 105 ppm	10.8%
C_3 = 10 ppm	2.0%

slightly increase in tr of LST v argil and DOL, sl calcitic

970m fair.	.		v argill LST, tr slty, tr pyritic
	tr	MOST	rd brn, firm to mod hd, blky, non swell, sl calc to mod calc, tr carb
	tr	LST	lt gy, to off wh soft, mdst text, v argill (grading into v calc MOST), no vis por
	tr	DOL	lt brn to med brn, hd, no vis por, x line, blky, sl calcitic
980m	100	MOST	m gy to dk gy to gy grn, occ lt gy (calc) A/A
	tr	LST	lt gy A/A
	tr	DOL	m brn A/A (v rare tr)
	tr	MOST	v rare tr dk brn MOST
990m	100	MOST	m gy to dk gy, occ gy grn, occ lt gy (calc) A/A
	tr	LST	lt gy to off wh A/A
	tr	DOL	m brn, A/A (v rare tr)
	tr	MOST	rd brn, A/A
000m	100	MOST	A/A, tr pyritic
	tr	LST	A/A (v rare tr)
	tr	DOL	(v rare tr)
	tr	MOST	rd brn (v rare tr)
05m	100	MOST	m gy to dk gy, A/A
	tr	LST	lt gy A/A
	tr	DOL	m brn to dk brn, A/A
	tr	MOST	rd brn, (v rare tr) A/A

Lignite: probably from the mud;
24 sacks of lignite was added last night

The cuttings is „metamorphosed":
MOST gets dk gy and v hd

TG = 0.12%
C_1 = 795 ppm
C_2 = 70 ppm
C_3 = Tr

TG = 0.08%
C_1 = 647 ppm | 87.9%
C_2 = 69 ppm | 9.4%
C_3 = 20 ppm | 2.7%

TG = 0.10%
C_1 = 76[illegible] ppm | 88.[illegible]
C_2 = 92 ppm | 10.6%
C_3 = 10 ppm | 1.2%

TG = 0.05%
C_1 = 470 ppm | 92.2%
C_2 = 40 | 7.8%
C_3 = tr | Tr

3010m	100	MDST	m gy to dk gy, occ grn gy, occ lt gy, firm to mod hd, (occ v soft : lt gy), non calc to sl calc, occ v calc (lt gy) grading into v argill LST, non swell, blky → subfiss, tr slty, occ tr pyr'ds, occ tr carb
	tr	LST	lt gy, soft, mdst text, no vis por, v argill (grading into v calc MDST)
	tr	DOL	lt brn, hd, no vis por, xline, blky, occ sl calcitic
	tr	MDST	rd brn, firm to mod hd, sl calc to mod calc, blky, non swell,
	tr	Lignite	black → probably from the mud
3015m	100	MDST	m gy to dk gy, occ grn gy, occ lt gy A/A
	tr	DOL	lt brn, A/A
	tr	LST	lt gy A/A
	tr	MDST	rd brn, A/A (v rare tr)
	tr	Lignite	
3020m	100	MDST	A/A
	tr	DOL	A/A
	tr	LST	A/A
	tr	MDST	A/A
3025m	100	MDST	A/A
	tr	DOL	A/A
	tr	LST	A/A
	tr	MDST	A/A

slightly more tr DOL

- m gy and gy gm : interlaminated

GOOD JUL!

Merry Christmas!

Gy gm MOST slightly more silty than m gy to dk gy MOST.

Slightly increased content of Lt gy. v calc MOST

12-81

12-81

3045 m

TG = 0.62%

C_1 = 58? ppm	93?%
C_2 = 3? ppm	6.1%
C_3 = Tr	Tr

TG = 0.08%

C_1 = 412 ppm	91.6%
C_2 = 38	8.4%
C_3 = Tr	Tr

TG = 0.04%

C_1 = 412 ppm	91.6%
C_2 = 38	8.4%

TG = 0.04%

C_1 = 413 ppm	91.6%
C_2 = 38	8.4%

TG = 0.04%

C_1 = 471 ppm	92.5%
C_2 = 38	7.5%

3030m	100	MOST	m gy to dk gy and gy grn, firm to mod hd (to hd: turbine effect), non swell, blky, non calc to sl calc, tr slty, occ tr pyritic, occ tr carb
			occ lt gy, soft, v calc
	tr	COL	lt brn to m brn, hd, blky, no vis por, v fine, occ sl calcitic
	tr	LST	lt gy, soft, mdst text, no vis por, v argill
	tr	MOST	rd brn, firm to mod hd, blky, v sl calc to mod calc, tr carb.
3035m	100	MOST	m gy to dk gy and gy grn A/A
			occ lt gy, soft, v calc grading into:
	tr	LST	lt gy, soft, v argill, no vis por, mdst text
	tr	COL	lt brn to m brn A/A
3040m	100	MOST	A/A
	tr	LST	A/A
	tr	COL	A/A
3045m	100	MOST	m gy to dk gy, occ gy grn A/A and lt gy, soft, v calc
	tr	LST	A/A
	tr	COL	A/A
3050m	100	MOST	m gy to dk gy, occ gy grn A/A, and lt gy A/A
	tr	LST	A/A
	tr	COL	A/A

3

TG = 0.03 %

C_1 = 353 ppm	90.3 %
C_2 = 38 "	9.7 %

5

TG = 0.04 %

sl more gy grn MDST and more ∪ argill LST than above

C_1 = 353 ppm	90.3 %
C_2 = 38 "	9.7 %

Survey at 3065 m
2° N 85° W

TG = 0.06 %

C_1 = 100 %	
C_2 =	

TG = 0.04 %

C_1 = 100 %	
C_2 =	

low ROP : one mud pump broken down !

3055m	100%	MDST	① m gy to dk gy v interlaminated w/ lt gy gm, firm to mod hd, blky to sub fiss, non calc to mod calc, occ slty (gy gm open more slty than m gy), tr pyr, occ tr carb and ② lt gy, soft to firm, mod calc to v calc grading into v argill LST,
	tr	LST	lt gy, soft to firm, v argill, mdst text, no vis por,
	v rare	tr	DOL	lt brn to m brn, hd, blky, no vis por, xline, occ sl calc
3060m	100%	MDST	① + ② A/A
	tr	LST	A/A
	v rare tr	DOL	A/A
3065m	100%	MDST	① m gy to dk gy and gy gm, A/A and ② lt gy. mod calc to v calc A/A, grading into v argill LST. ② predominates
	tr	LST	A/A
	v rare tr	DOL	A/A
3070m	100%	MDST	① + ② A/A
	tr	MDST	rd brn, firm to mod hd, mod calc to v calc, occ tr slty, blky
	tr	LST	A/A
	tr	DOL	A/A

TG = 0.02 %
C_1 = 100 %

slightly more : rd brn MDST, DOL and lt gy v arg ill LST than above

generally more calcareous than the last 100 m

Generally more calc downwards

TG = 0.02 % 3
C_1 = 100 %

TG = 0.03 % 3
C_1 = 100 %

3075m	100%	MOST	- m gy to dk gy, firm to mod hd, blky to subfiss, gen non calc to sl calc, occ tr slty, tr carb, occ tr pyritic - gy grn, firm, blky to subfiss, non calc to mod calc, occ slty (gen more slty than m gy), occ tr carb - lt gy, soft to firm, subfiss, calc, occ v calc grading into v argill LST
	tr	MOST	rd brn, firm to mod hd, v calc, blky to subfiss, occ slty,
	tr	LST	lt gy, occ off wh, soft to firm, v argill, occ grading into v calc MOST, no visp mdst text
	tr	DOL	lt brn to m brn, hd, blky, no vis por, xline, occ sl calcitic
	tr	Lignite	probably from the mud.
3080m	100%	MOST	- m gy to dk gy A/A - predominates - gy grn A/A - lt gy A/A
	v rare	MOST	rd brn, A/A
	v rare tr	LST	lt gy A/A
	v rare tr	DOL	A/A
3085m	100%	MOST	- m gy to dk gy A/A - lt gy A/A - gy grn, A/A, rare tr
	tr	LST	lt gy A/A, slightly more than in 3080m
	tr	DOL	A/A

$T_5 = 0.03\%$ 3c

$C_4 = 100\%$

$T_6 = 0.03\%$

$C_4 = 100\%$

$T_6 = 0.04\%$ 3

$C_4 = 100\%$

Peat at 3102m: $T_6 = 3.4\%$

Generally calc MDST

$T_6 = 1.44\%$ 3,

$C_1 = 13800$ ppm | 99.6%

$C_2 = 52$ ppm | 0.4%

$C_3 = Tr$ | T_r

Peat at 3106m $T_6 = 2.42\%$

— " — 3107m $T_6 = 1.14\%$

3090 m	100%	MDST	- m gy to dk gy, occ gy gn, firm to mod hd, blky to subfiss, non calc to mod calc (gy gn gen more calc and more slty), tr slty, occ tr pyritic
			- 50% →
			- 50% → - lt gy, soft to firm, subfiss, calc to v calc, grading into v argill LST
	tr (5%)	LST	lt gy, soft, mdst text, no vis por, v argill
	v rare tr	DOL	lt brn to m brn, hd, blky, x line, no vis por, occ sl calcit
30 95 m	100%	MDST	- m gy to dk gy, occ gy gn A/A
			- lt gy A/A
	tr	LST	lt gy, v argill A/A
	v rare tr	DOL	A/A
3100	100% v	MDST	m gy to dk gy A/A + lt gy A/A
	tr	LST	A/A
	v rare tr	DOL	A/A
105	100%	MDST	firm to mod hd lt gy to dk gy, gen m gy, blky to subfiss, sl calc to v calc, gen mod calc, tr slty, ... occ grading into v argill LST.
	tr	LST	lt gy to m gy, soft to firm, mdst text, no vis por, v argill grading into v calc MDST
	v rare tr	DOL	lt brn to m brn, hd, blky, x line, no vis por, occ sl calcitic
	tr	lignite	(added in the mud)

TG = 1.4 %

C_1 = 14100 ppm	97.7%
C_2 = 300 "	2.1%
C_3 = 20 "	0.2%

Generally, Calc MDST predominates

TG = 0.75 %

C_1 = 6390 ppm	99.6%
C_2 = 20 "	0.4%

25/12-81
26/12-81 — 3117 m

TG = 0.14 %

C_1 = 100 %

C_2 = Tr

TG = 0.07 %

C_1 = 93.3

C_2 = 6.7

TG = 0.08 %

10m	100%	MOST	lt gy to dk gy, gen m gy, firm to mod hd, blky to subfiss, sl calc to v calc, gen mod calc, tr slty, occ grading into v argill LST
	tr	LST	lt gy to m gy, soft to firm, mdst text, no mic por, v argill grading into v calc MOST
	v rare tr	OOL	lt brn to m brn, hd, blky, [illegible], no mic por, occ sl calcitic
15m	100%	MOST	lt gy to dk gy, gen m gy A/A
	tr	LST	lt gy to m gy, v argill A/A
20m	100%	MOST	- lt gy to m gy, soft to firm to mod hd,
	80% →		calc to v calc, blky to subfiss, tr slty, v occ grading into v argill LST
	20% →		- m gy to dk gy, firm to mod hd, blky, non calc to sl calc, tr slty, occ tr pyritic
	v rare tr	LST	lt gy to m gy, ~~soft~~ to firm, mdst text, no mic por, v argill grading into v calc MOST
	tr	Lignite	coming from the mud
25m	100%	MOST	A/A
	v rare tr	LST	A/A
30m	100%	MOST	A/A
	v rare tr	LST	v argill LST ↔ v calc MOST
35m	100%	MOST	A/A
	v rare tr	LST	A/A

MDST: Slightly more silty than above and less v argill LST;

TG = 0.08%

C_1 = 530 ppm } 96.4%

C_2 = 20 ppm } 3.6%

I would have described Issue like this:

100% MDST lt-dk gy, pred med gy, firm-v hard, mod-v. calc; most fragments are 'cinder-like' w. blocky shape; occ frags plate shaped or 'strapped'; occ. microlamin, often contorted.

SLTST, (10 fragments) lt gy, soft, rounded fragments from

LST (5 frags) lt gy. Contaminants lignite, pipe scale

Ams 20/12/81

TG =

C_1 = 100%

slightly more non calc MDST than above

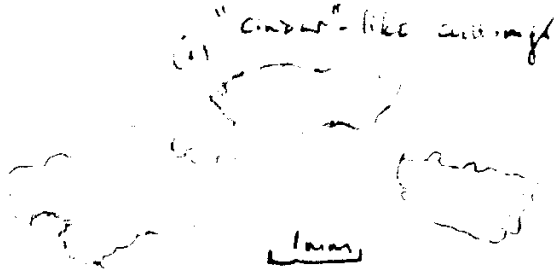
TG = 0.12%

C_1 = 100%

TG =

K. F...

A M. Sp... 1.



C1

3140 m	100%	MOST	- lt gy to dk gy, gen m gy, firm to mod hd (occ hd - turbine effect), blky to subfiss, mod calc to v calc, occ non calc, tr slty,
	tr	MOST	gy gm, firm, blky to subfiss, mod calc, sl slty
	v rare tr	LST	lt gy to m gy, soft to firm, mdst text, no vis por, v argill grading into v calc MDST
3145 m	100%	MOST	A/A
	tr	LST	A/A
3150 m	100%	MOST	- lt gy to dk gy A/A and - m gy to dk gy, blky to subfiss, non calc to sl calc, tr slty; and
	tr	MOST	gy gm A/A
	tr	LST	A/A
	v rare tr	DOL	lt brn to m brn, hd, blky, no vis por, x line
3155 m	100%	MOST	- lt gy to m gy, calc to v calc, A/A - m gy to dk gy, A/A
	tr	MOST	gy gm A/A
	tr	LST	A/A
	v rare tr	DOL	A/A
3160	100%	MOST	- lt gy - dk gy, calc, a/a - m gy - dk gy, a/a

(i) What is actually seen in cuttings whose outer surface is often cinder-like; majority of cuttings do not have cleanly split surfaces.

(ii) Common feature is lamination structure (thickness c. 0.05mm), sometimes as fine x-laminae, otherwise unseen (? destroyed; ? original intergrain depositional texture)

(iii) Contaminants: lignite, pipe-scale,

(iv) Over half of "mudstone" cuttings are amazingly hard.

Tq 0.09%

C1 96%
C2 4%

Survey at 2169 — 4° towards N62°W.

Tq 0.15%
C1 97%
C2 3%

Tq 0.06

CGas 3.78 0.1%

C 95%
C2 5%

Tq 0.07
C 95%
C2 5%

Compounds in width to
width of groove on faces of
cutting pieces :

In another Specimen it fractured
watch glass Cavity — ∴ prob. Diamond

Tq 0.01%
C1 1%

27 Dec. Depth [redacted]
2190m

Tq 0.06%
C1 98%
C2 2%

T. Spencer

		col.	hd.	fract.	other
165	100% MDST	gy (lt-dk), soft-v. hd, irrelevant (see 3160 (1)), soft chips are calc.; hard are not.			
		lamin. structure v. common, particularly in dk gy + in inter-colour banded (lt gy / dk gy): lamination is not planar:- curved or even bent.			
	SLTST	(3 examples), gy, soft, v. calc., carbonaceous			
170	100% MDST	as 3165			
	SLTST	(3 examples), one with green spots (? glauconitic)			
175	100% MDST	as 3165			
	SLTST	(15 examples), gy-grn, non-calc, carb. (a few examples of silty MDST).			
		Contaminants - continue as in 3160			
180	100% MDST	as 3165,			
	SLTST	as 3175 (i.e. tr.)			
	LST	(1 example), cream, hd, microxstll.			
	LST	(4 examples), brown, soft			
		Contaminants a/a + clear, transparent, equant, mineral grains, hardness > steel, common (>20 seen) ? diamonds: grains to 0.4mm diameter, high refractive index (how high?).			
3185	100% MDST	as 3165			
	SLTST	lt gy, soft-firm, glauc. (20 examples seen)			
		Contaminants a/a.			
190	100% MDST	as 3165			
	SLTST	as 3185 (only 5 examples seen)			
	LST	(1 example) cream, hard, microxstll.			

TG 0.06 %

96% C1

4% C2

TG 0.06 %

96% C1

4% C2

TG 0.06 %

96% C1

4% C2

TG 0.06 %

97% C1

3% C2

TG 0.06 %

97% C1

3% C2

TG 0.06 %

100% C1

Art Bauer

3195' 100% MDST gy (lt-dk), soft – v. hd, cinder-like appearance of cuttings/pieces, sl. – v calc., non-planar microlamination is common. Other lithologies are v v minor:

SST 1 (coarse) ~~grained~~, quartz, lt gy, v f. gr.

SLTST (10 examples), quartzose, lt gy, hard, non-sl. calc, pyritic. Contaminants: pipe rust, lignite

LST (?CALCITE VEIN) 2 – 3 (examples) ~~fibrous~~, coarse.

3200 100% { MDST as 3195'

SLTST as 3195', lt gy – grn gy.

3205 100% { MDST as 3195'

SLTST to V.F SDST, lt gy-gy-grn, soft, sl. calc. (15' examples)

3210 100% { MDST as 3195'

SLTST as 3205'

3215' 100% MDST as 3195'

~~SLTST~~ as 3205'

3220 100% MDST as 3195' — Spent 15' mins comparing this with 3200 + can see no difference

SLTST to V.F SDST – as 3205' – (20 examples)

3225' 100% MDST as 3195' (v. soft, smooth, massive, lt gy MDST fragments from c. 5% of total).

LST (1 fragment) brn-yell, hard, xstlln, ? dolomitic.

Description of cuttings fragments according to their shape

(a) 90% — cinder-like (see sketch for 3160): v. hard — friable.
(b) 5% — angular frags with flat faces + sharp, straight, interface creases: hard
(c) 5% — rounded, smooth: v. soft.

Internal structure of fragments

(a) Type: "breccia"-like appearance caused by H/Dk grey colour mottling is common. Micro-lamin also present in few.

(b) Type: micro-lamin normally present; normally not planar

(c) Type — nil.

Interpretation of cuttings fragments

(a) Ground-off by bit +, ?then, recrystallized/etched (how else are the fretted, cinder-like cuttings produced?).

(b) These are more 'normal' cuttings, as from a rock bit, — might be cavings, but contortion of lamination suggests have been deformed by bit.

(c) V. long travelled cuttings — "softened" by mud system.

Conclusion is that the action of the bit is disastrous for inferring original lithology: most of what is seen is an artefact of deformational/metamorphic events in the drilling process.

TG 0.05%
C1 <1%
C2 3%

TG <0.5%
C1 93%
C2 7%

TG 0.08%
C1 94%
C2 6%

TG 0.04%
C1 97%
C2 3%

TG 0.07%
C1 74%
C2 6%

TG 0.07%
C1 95%
C2 5%

TG 0.06%
C1 92%
C2 8%

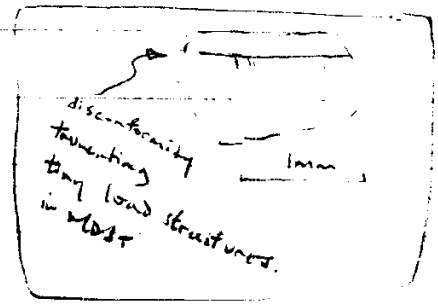
...ings specimens show actual lithologies:

...ST/SLTST: med gy, hard-firm, fissile, non-swelling, non-calc → to sl calc.

...SLT: lt-med gy, hard-firm, fissile, " , calc, silty

...T: wackest/packst, med-brown, firm, sub-fissile.

230	100%	MDST	lt-dk gy, soft-v hd, occurs as nodular cinder-like pitchers, sl.-v calc., non-planar micro-laminations is common.
		SLST.	(20 fragments) qtzose, lt-med gy (med-gy) grained to v f sand gr, sl. calc
		LST	(1 frag) brn-yell, hard, dolomitic
		P/LITE	(1 frag) Contaminants — lignite (2-3% of sample) pipe fitter, "diamond"
235	100%	MDST	as 230
		SLTST	(6 frags) as 230.
240	100%	MDST	as 230 except lt gy colour now dominant (previously it was subordinate)
		SLTST	as 230
		LST	(a few fragments) brn-yell, hard, dolomitic



245	100%	MDST	— lt gy colour dominant
		SLTST	as 230
		LST	
250	100%	MDST	as 230 — lt gy now subordinate; med-dk gy dominant
		SLTST	
			1 fragment v pyritic SLTST.
255	100%	MDST	as 230 — but pred med-dk gy
		SLTST	as 230 — but v few specimens.
260	100%	MDST	as 230 — pred. med-dk gy
		SLTST	

Dec. 3265 m. Well Directional Survey & Short Trip to Casing Shoe 3 3/4° towards N 53°W

TG 0.06%
C1 96%
C2 4%

TG 0.08%
C1 92%
C2 8%

TG 0.06%
C1 96%
C2 4%

TG 0.07%
C1 94%
C2 6%

TG 0.06%
C1 95%
C2 5%

TG 0.06%
C1 96%
C2 4%

TG 0.06%
C1 93%
C2 7%

M. Mueller

3265	99%	MBST	Med-dk gy, mostly v hard, sl-v calc, often microlumin.
	1%	SLTST/SBST	gy3, lt gy, silt-v f. sand grade, friable-firm, micaceous
		LST	(10 fragments) brn-yell, firm, microxstlln.
		LST	(2 ") pale yell, hard,

NB. ① most frags are angular chippings — looking freshly broken (i.e. from 'scrapped', 'cinder-like' fragments).

Explained by being formed after short trip.

② several large casings.

③ more variety of types than usual

3270	100%	MBST	Med-dk gy, firm-v hard, sl.-v calc, fragments now more commonly cinder-like.
		SLTST	to V.F SBST, lt gy-grn gy, fri-firm; rounded + 'abraded' cuttings fragments.
		LST	as 3265

Contaminants. Pipe scale, lignite

3275	100%	MBST	as 3270 — N.B. microlumin seen v. often.
		SLTST	
3280	100%	MBST	as 3270
		SLTST.	
3285	100%	MBST	as 3270 Majority of fragments now are 'cinder-like'.
		SLTST	
3290	100%	MBST	as 3270
		SLTST	(4-5 frags show good v. f gr SBST.)
95	100%	MBST	as 3270.
		SLTST	

most text?

ange fragments (cavings): (i) LST, brn-red, hd, (ii) SLTST, lt gy, f.rim, (iii) (iv) SLTST, gy-grn, f.rim, micaceous, pyritic

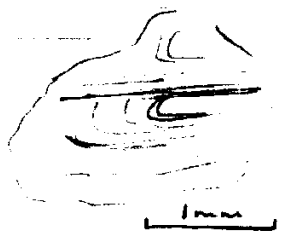
TG 0.09%
C1 92
C2 8%
C3 Tr

TG 0.06%
C1 91%
C2 9%
C3 Tr

ge caved fragment: SLTST, grn-gy, v. f.rim, micac, ?carbonac, ~ lamy) pyritic

TG 0.07%
C1 93%
C2 7%

gy, lamin MDST with tiny convolute lamin. structure



TG 0.07%
C1 93%
C2 7%

keep imagining standing at the bottom of a fjord wall composed of 3160 - 3320. What would I see? A very uniform MDST sequence with no easy-to-see stratal units.

TG 0.08%
C1 92%
C2 8%

TG 0.08%
C1 92%
C2 8%

TG 0.09
C1 93%
C2 7%
C3 Tr.

TG 0.07%
C1 93%
C2 7%
C3 Tr

TG 0.07%
C1 95%
C2 5%

Art Spencer

3000	100%	MDST	med – dk gy, hard – v. hard, 3/4 of frags are fretted + cinder-like, remainder are broken + more normal "cuttings". Microlamination (gy/blk banding) is common.
		SLTST	(5 fragments only) lt gy, firm
05	100%	MDST	as 3000
			Contaminants: lignite, pipe scale
10	100%	MDST	as 3000.
		SLTST	as 3000 (< 10 fragments)
15	100%	MDST	lt – dk gy (lt gy predominant), hard – v hard, still 3/4 of frags with fretted, cinder-like appearance. Microlamin. well shown (lt gy/med gy banding). A few frags of v dk gy MDST, homog + unlamin.
		SLTST	– v. f SDST as 3000 (5 frags only) + 1 frag. calc cmt, yell., fissile v. f gr.
		LST	yellow, hard, (1 frag)
20	100%	MDST	as 3015 pred. lt gy
		SLTST	(5 frags only)
25	100%	MDST	as 3015 pred lt gy
30	100%	MDST	as 3015 pred lt gy
		SLTST	(5 frags only)
35	100%	MDST	as 3015 pred lt gy
40	100%	MDST	as 3015 pred lt gy. Microlamin in "non-cinderized" frags is almost always contorted (c. 5–10% of cuttings).
			(almost no SLTST)

Dec 324 Sm.

Tq. 0.07%
C1 94%
C2 6%
C3 Tr

Tight fold in host

Tq 0.09%
C1 94%
C2 6%
C3 Tr.

Tq. 0.07%
C1 94%
C2 6%

Host Reg. - how did it get this shape?
Scrapped off + curled - like bentos, then made hard (how?)

Tq 0.07%
C1 94%
C2 6%
C3 Tr

Tq 0.07%
C1 94%
C2 6%
C3 Tr

Tq 0.07%
C1 94%
C2 6%
C3 Tr.

Tq 0.08%
C1 92%
C2 8%
C3 Tr

A.M Bowler

3245	100%	MDST	lt-med gy, hard - v hard, sl. - v calc, 3/4 of fragments are cindery-like, 1/4 are more clearly broken + often show micro-lamin caused by lt + dk gy colour banding. Micro-lamin often curved, sometimes in folds.
		SLTST	(4 frags only) lt gy to grn gy, firm, sl carbonac.
			Contaminants: lignite, pipe scale
3350	100%	MDST	— as 3245'
		SLTST	(5 frags) as 3245'.
355	100%	MDST	— as 3245'
		SLTST	— (5 frags) as 3245.
		MDST	— dk gy, hard, sl calc, no visible lamination. (10-20 fragments) — clearly broken cuttings, not "cindered". ? cavings — perhaps this is the real lithology of the 100% MDST?
60	100%	MDST	— as 3245', pred. lt gy
		SLTST	} as 3245'.
		MDST	}
65'	100%	MDST	— as 3245' pred lt gy
		SLTST	— as 3245'
70	100%	MDST	— as 3245' pred. lt gy. Many of fragments now are thin, + contorted flakes, sometimes with striae on faces + often partly cindered.
375	100%	MDST	lt-med gy, hard - v hard, sl. - v. calc, 95% of frags are cinder-like. Almost all are variegated in colour, either with fine, contorted colour banding or breccia-like arrangement.
		SLTST	(10 fragments) lt gy or lt grn-gy, firm,

TG 0.08%.
C1 92%
C2 8%.
C3 Tr.

TG 0.09%.
C1 94%
C2 6%.
C3 Tr

TG 0.09%.
C1 95%.
C2 5%.
C3 Tr

TG 0.04%.
C1 95%.
C2 5%.

TG 0.05%.
C1 92%
C2 8%.

TG 0.06%.
C1 91%.
C2 9%.

A.T Rao

3380 100% MDST lt-med gy, hard - v. hard, sl - v. calc., fragments dominantly cinder-like but ('change') 5/ are cleanly broken med gy MDST often with v. fine lamin structure.

SLTST (5 frags) lt gy or grn gy

Contaminants, pipe scale, some lignite, clear rounded mineral ('Diamond')

3385 100% MDST like 3375
SLTST " 3375

3390 100% MDST like 3375
SLTST " 3375

3395 99% MDST like 3375
1% LST soft, smoothly round 'cuttings' fragments < 2-4 mm across. Lithol. is: wh - lt gy, v. soft (now!), silty (w. qtz grains to fine sand grade). These smoothly rounded fragments are easily distinguished in the sample from the cinder-like lt gy MDST fragments.
SLTST Like 3375

3400 99% MDST like 3375, cinder-like fragments, most of which are plate-shaped.
0.2% LST as 3395.
SLTST like 3375.
? ANHYDRITE (50 frags) pure white, hardness > steel, as veins? - 0.5mm thick plates, sometimes coated with dk mdst.

3405 99% MDST lt gy, hard, v. calc, : fragments still dominantly cinder-like but (as with 3370 - + in all subseq. samples) fragments often generally plate shaped (but contorted). Fine lamin. still seen on cleanly broken faces.
0.5% LST - as 3395.
SLTST - as 3375
"?ANHYD" - as 3400 but only 5 fragments

TG 0·06%
C1 92%
C2 8%

Peter — I have the strong feeling I'm looking at contact metamorphosed rocks! Have you seen the Cambrian limestone around the Beinn an Dobaich granite on Skye? Or the contact metam chalk beside Tertiary intrusives in Ulster? Could any white mineral be a calc-silicate hornfels? Ans 29/12 →
Thin section petrography might then allow estimation of metamorphic grade being generated by this bit!

The carvings show what the "unaltered" limestones is like.

? DEL. 3d 15m

TG 0·04%
C1 100%
C2 Tr

TG 0·06%
C1 95%
C2 5%

TG 0·06%
C1 93%
C2 7%

TG 0·04%
C1 97%
C2 3%

Survey at 3d 3h. 3½° towards N 47°W

TG 0·05·1
C1 95%
C2 5%

A. M Hall

410 100% MIXT (It's an act of faith to write that in view of the appearance of these cuttings!). Med gy dominant, but ranging from lt to dk gy. hard to v hard, mod calc, cinder-like but more blocky fragments. Contorted lamination frequent.

LST white, soft, rounded fragments (c. 20 seen), sandy

SLTST (10 fragments) lt gy - grn gy, firm.

WHITE MINERAL as 3400. Hard, non-calc, sometimes with streaky lamin, in deformed plates and flakes. Could it possibly be a calc-silicate? ? Tremolite

415. 100% MIXT
LST
SLTST
WHITE MINERAL
} as 3410 — (<20 frags only)

420 100% MIXT lt - med gy, hard - v hard, mod - v calc, cinder-like fragments, lt gy / dk gy. Lamin. structure often present.

LST (10 fragments)
SLTST
WHITE MIN.
} as 3410.

425 100% MIXT lt - dk gy, pred med gy — otherwise as 3410
LST (10 frags.) as 3410.

430 100% MIXT lt - dk gy, pred med gy — otherwise as 3410.
LST (5 frags) — as 3410.
SLTST (5 frags) — " "

435 100% MIXT lt - med gy, pred lt gy — otherwise as 3410.
LST
SLTST
} as 3430.

TG 0.04%
C1 96%
C2 4%

TG 0.06%
C1 96%
C2 4%

large coarse fragment: LST, wh, thin, v. v.f.
qtz grains, unlaminated

TG 0.0
C1 96%
C2 4%

TG 0.0
C1 96%
C2 6%

5 big coatings of lt gy SLTST, fm-
med Lt, calc,

C1 92%
C2 8%
C3 Tr

C1
C2
C3 Tr

TG 0.9
C1 92%
C2 8%

40 100% MUST lt-med gy, hard - v hard, mod - v. calc, 'cinder'-like often platy fragments. Distorted microlamin common.

LST wh, v soft, rounded fragments (< 10 seen), sandy

SLTST (2 frags) lt gy, firm, sl. carbonac.

Contaminants. Pipe scale only

45 100% MUST as 3440.

LST "

SLTST "

50 100% MUST as 3440 - incl med gy.

LST " "

SLTST " " - incl. grn-gy.

WHITE MINERAL - 3 fragments.

55 100% MUST pred med gy, hard, mod - v. calc, 'cinder'-like etc, microlamin common

LST (40 fragments) lt gy - wh, v. soft, rounded fragments, sandy

WHITE MINERAL - 2 fragments.

60 100% MUST med-dk gy, - as 3455.

LST - as 3455

SLTST lt gy - green gy, firm, carbonac, (10 fragments)

LST (2 fragment) red-brown, soft rounded grains ?Calcite.

65 100% MUST - as 3460

LST - as 3455

SLTST (5 fragments) - as 3460

2/ A sample = LIGNITE.

70 100% MUST - as 3460

LST - as 3455 (< 10 fragments).

SLTST - as 3460 (< 10 frags)

Dec 3476m.

Tg 0.03%
C1 96%
C2 4%

Peter

This surface texture (copy) + internal flow banding reminds of features seen the vitrified hill forts of Aberdeenshire !!

Ann.

How could this frag. have become this shape? Surely not original?

"flow" banding in non-calc lt gy ? CHALK

Tg 0.03%
C1 96%
C2 4%

Tg 0.03%
C1 94%
C2 6%

Tg 0.03%
C1 97%
C2 3%

Tg 0.02%
C1 100%
C2 Tr.

Tg 0.04%
C1 97%
C2 3%

3

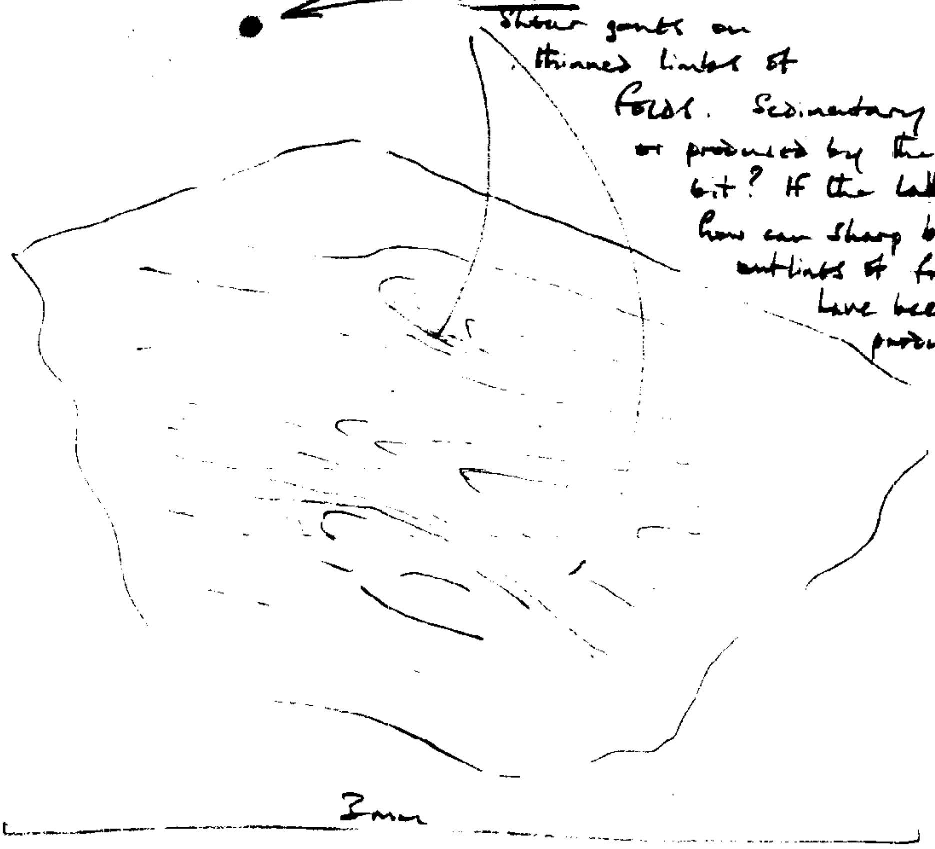
M. Spencer

3475'	100%	MDST	Med gy, hard, calc – v. calc, magnesian, some cinder-like pieces, micro-laminated – often distorted. Occ. chunky broken dk gy fragments?
		LST	(20 frags) lt gy, soft, in rounded fragments.
		SLTST	(< 5 frags) lt gy – gren gy, firm.
		WHITE MIN.	Pure white. Other fragments are lt gy + have laminae of dk mudstone. Non-calc V. hard. Could it be chert? Rope-like 'Stylolite' surface shape patterns + stressed out internal visibles suggest that the lithology also has been deformed
3480	98%	MDST	lt gy – med gy, otherwise as 3475, plate-shaped frags common.
	2%	LST	wh – lt gy, soft to f. hard, some as soft rounded grains others as plate shaped, brittle fragments. The latter are probably contaminants into calc. mdst.
		SLTST	(< 10 grains) lt gy – gren gy, firm
		WHITE MIN.	(25 frags) white – lt gy, V. hard, non-calc, ? CHERT
3485	100%	MDST	Med-gy — as 3475
		LST	(< 10 frags) as 3480
		SLTST	(< 10 frags) as 3480.
3490	100%	MDST	Pred med gy — as 3475
		LST	(< 20 frags) } as 3480. → some siliceous.
		SLTST	(< 10 frags) }
3495	100%	MDST	Pred med gy — as 3475.
		LST	(25 frags) lt gy, soft rounded frags., silty
		SLTST	— as 3490
3500	99%	MDST	lt-med gy, as 3475.
	1%	LST	lt gy – wh, soft (rounded grains) to hard (plates) – latter are siliceous
		SLTST	(< 10 frags) – as 3490

Contaminants – lignite, pipe scale, ?"diamond"

T4 0.02%
C1 100%
C2 Tr

in 3525
Shear joints on thinned limbs of folds. Sedimentary or produced by the bit? If the latter how can sharp broken outlines of fragment have been produced?



T4 0.04%
C1 93%
C2 7%

T4 0.03%
C1 97%
C2 3%

T4 0.04%
C1 91%
C2 9%

T4 0.05%
C1 91%
C2 9%
C3 Tr

3 large coarse fragments:
SLTST, lt gm/gy - med gy, firm, sl. calc, v. sl carbonac

T4 0.05%
C1 88%
C2 9.4%
C3 ~~[illegible]~~ 2.4%

T4 0.05%
C1 87.1%
C2 9.7%
C3 3.1%

T4 0.06%
C1 89.3%
C2 9.8%
C3 1.8%

1. Spencer

05'	100/	MDST	med med gy, hard, mod – v calc, "cinder"-like frags some with internal microlamin.
		LST	(50 gravel) lt gy, soft round frags w. dk gy matrix (silt – v f sand)
		SLTST	(< 15 fragments) lt gy – grn gy, firm.
0	100/	MDST	med. occ lt gy – – like 3505'
		LST	– as 3505'
		SLTST	– " "
5'	100/	MDST	med – dk gy, hard – v hard, mod – v. calc, "cinder"-like fragments, some with internal lamin. Dk gy frags especially tend to be blocky in shape; lt gy are plate-shaped.
		LST	(< 20 fragments) as 3505'.
20	100/	MDST	like 3505 – occ sl. brown-grey.
		LST	(25 frags) – as 3505'
		SLTST	(10 frags) – as 3505'.
25'	100/	MDST	like 3505' – often with v. fine lamination, contorted and mottled opposite. ∴ is it Rotomahana?
		LST.	(15' frags) as 3505'.
		SLTST	(10 frags) as 3505'.
30	100/	MDST	like 3505'
		LST	(15' frags) as 3505'
		SLTST	(10 frags) as 3505'.
5'	100/	MDST LST SLTST	as 3510
0	100/	MDST	med gy, hard, mod – v calc, "cinder"-like + often "fossilised"
		LST	(–? < 10 frags) as 3505

Tg 0.06%
C1 92%
C2 8%

Tg 0.06%
C1 92%
C2 8%

31/12/81
1/1/82

3553

Good Night Ar !!

Tg 0.05%
C1 92%
C2 8%

3560.
Most w. rope-like fingers. Products Lost by melting?

Tg 0.05%
C1 90%
C2 10%
C3 Tr

Tg 0.05%
C1 90%
C2 10%
C3 Tr

3560
Are there blade bands in mylonite?

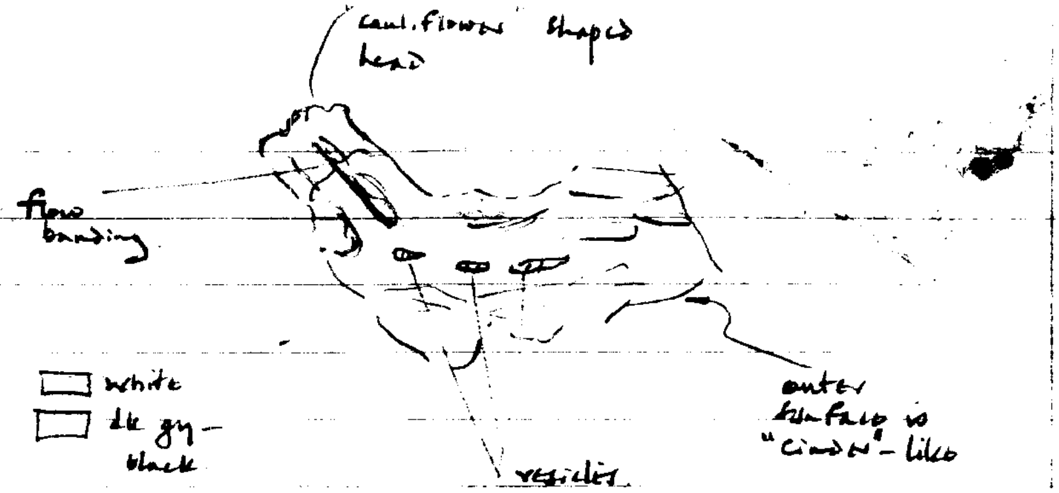
Tg 0.05%
C1 90%
C2 10%
C3 Tr

Tg 0.06%
C1 92%
C2 8%
C3 Tr

Tg 0.06%
C1 83.0%
C2 14.1%
C3 3.0%

M. T. Spain

5'45'	100%	MDST	Pred med gy, hard, mod – v calc, 'cinder'-like surface texture, plate shaped fragments common, fine internal microlamination often arranged in folds (some wrinkled).
		LST	(< 20 frags) lt gy, soft, rounded frags.
		SLTST	(< 10 frags) gy – gy/grn, firm, as f. angular, flat-platy fragments.
5'50	100%	MDST	as 5'45' –
		LST	(< 20 frags) – as 5'45'
5'55	100%	MDST	V. uniform med gy mudstone. – as 5'45'.
		LST	(< 20 frags) – as 5'45'
		SLTST	(< 5 frags) med gy, firm, angular flat-platy fragments
6'0	100%	MDST	V uniform, med gy mudstone – as 5'45'.
		LST	(< 20 frags) as 5'45'.
		SLTST	(< 5 frag) – as 5'55'.
6'5'	100%	MDST	as 5'60
		LST	
		SLTST	
6'10	100%	MDST	as 5'60
		LST	
		SLTST	
6'15	100%	MDST	as 5'60
		LST	
		SLTST	
6'20	100%	MDST	as 5'60
		LST	
		SLTST	



TG 0.06%.
C1 87.1%.
C2 10.2%.
C3 2.7%.

3585. — "Mudstone" fragment. — looks more like piece of small pillow - lava!

TG 0.06%,
C1 89.5%
C2 9.0%.
C3 1.5%.

TG 0.07%
C1 85.4%
C2 ~~10.6%~~ 10.0%.
C3 4.0%.
iC4 ? Tr

TG 0.07%.
C1 88.2%.
C2 8.1%.
C3 3.7%.
iC4 ?Tr

A large cavings SLTST, med gy + lt grn gy, + hard, sl carbonate, sl. pyrite.

~ [illegible]!!

8/1 - 82
9/1 - 82

[S]tart drilling with a regular bit [a]t 3610. (Sample are probably mostly [c]avings.)

T.G = 0.06
C_1 = 87.5
C_2 = 10.6
C_3 = 1.9
C_4 = Tr.

Survey at 3610 m
6 3/4 N 60 W

[illegible]

3585	100%	MDST	Pred. med gy, hard, mod – v calc, as "cinder"-like fragments, often plate-shaped. Often w internal micro-lamination.
		LST	lt gy, soft, as smooth round frags (20 frags).
3590	100%	MDST	– as 3585
		LST	(20 frags) – as 3585
3595	100%	MDST	– as 3585
		LST	(20 frags) – as 3585
		SLTST	(< 10 frags) lt gy - gn gy, firm, & 'sharp' cuttings
3600	100%	MDST	– as 3585
		LST	(20 frags) – as 3585
3605	100%	MDST	– as 3585
		LST	(20 frags) – as 3585
3610	100%	MDST	– as 3585
		LST	(20 frags) – as 3585
10	100%	MDST	bottoms up. decribtions. multicolored (cavings) (redish brown) grn, gr, firm - v. calc, nonswelling!
	tr	MOST	grainds altere by turbine
	tr	Pyr.	
	tr	LST.	A/ A.

TG : 0.7 %
C_1 = 100 %.

sh density : 2.15

TG · 0.038 C_1 = 100

Shows in the argil limestone. yellow fluor, clss cut, dull. wh cut - fluor.

TG = 0.036
C_1 = 100 %

Shows in the Lst. yell fluor, clss cut dull, wh cut fluor.
TG = 0.04 %
C_1 = 100

1-82 3637
1-82

cavings of red and green gray mudstone

sh density - 2.14

Shows in Lst yel fluor, clss cut slow dull white cut fluor
TG = 0.03
C_1 = 100

Roger H Hadland.

3615 100% MDST L. Gry to m. Gry. v. soft to firm, blocky to subfiss sl silty, non mic, no carb, v. calc.

Tr LST clear to buff, hard no vis por non argil.

Tr MDST Green. firm non swell. non silty non mica. - non calc probably - glauconitic.

3620. 100% MDST A/A.

Tr LST A/A.

3625 90% MDST A/A but more calc, parts grading into ~~argil~~ limestone. And also getting more silty.

10% LST buff to gry, h to firm, no vis porosity crypto cryst. occ silty, sl argil

3630 100% MDST As 3625 m.

Tr LST A/A.

3635. 100% MDST As 3625

6 Tr LST A/A

3640 80% MDST L Gry occ d. gry. v. soft to hard. blocky to subfiss. silty. occ. sandy. the L Gry ~ A/A, the dark grey getting less calc and micro mic.

20% LST. wh to L. gry., buff, soft to hard no vis por, occ crypto xln, occ

3m interval is taken from this section to be use to spot top Kimm Clay.

Cutting gas/PV = 10unit/2unit

shale density = 2.26

shows in Lst yel fluor, clss cut slow dull wh cut fluor.

TG = 0.04

C_1 = 100

3.

The MDST gets from v cal 3615m to base calc in 3640 and back to v cal in 3650 m

in 3650 Cutting gas / P.V. = 4unit / 1

shale density : 2.26

TG = 0.06

C_1 = 100

shows in Lst and SST yel fluor clss cut slow v dull wh cut fluor

			calcite grain and glauconite com together with calcite cement. occ argil. occ silty.
645	MDST	30	l. to med gry occ d gry. soft to firm, blocky to subfiss, sl. silty occ micro-mic. occ carb
	LST	70.	wh-gry and buff, soft to h. no vis por occ cryptoxln. occ glauc, occ silty occ argil.
648	MDST	20	A/A
	LST	20	A/A
	SST	60	qt and glauc, clss to white, occ gry. fine to v fine, occ med. ang to subang. poorly sorted. Wackestone tex hard to firm, no vis por. v. well cem with calcite, occ micromic occ argil v calc.
650	MDST	50	A/A Getting v calc.
	LST	20	A/A
	SST	30	A/A.
653	MDST	70	A/A: but cu. calc
	LST	20	A/A
	SST	10	A/A.

TG = 0.044
C_1 = 100
Shden = 2.26

TG = 0.04
C_1 = 100
shows in LST
yell fluor
clss cut. slow
v dull wh cut
fluor.

10/1-82
11/1-82 3663 changing bit.

survey at 3663
6 2/3 N 60 W

TG = 0.04
C_1 = 100.

TG = 0.03
C_1 = 100

3655.	MDST	80	L-Gry to m gry., soft to firm, blocky to amorph, occ v silty v calc occ glauc. occ d gry. hard. blocky, sl silty micromic, sl calc
	LST	10	buff to wh, occ l.gry. firm to soft occ hard and cryptoxln, no vis por. occ sl argil. occ silty, occ sandy
	SST.	10	qtz and glac, wh to clss. to l gry. fine to v. fine. occ med, ang to sub ang. poorly sorted. firm to h. no vis por. v. well calcite cemt.
	Clay	Tr	Wh to lt. gm. Clay. (kaolenite?) firm, flaccy, sl silty, non carb, non calc.
3660	MDST	50.	A/A less calc.
	Clay	20	A/A
	LST	30	A/A
3665	MDST	60	As/ 3660 m
	LST	20	As/A
	SLST	10	m to d gry. firm to h, micromic sl calc.
	Clay	10	A/A.
3670.	MDST	90	As 3655
	LST	10	A/A
	Clay	Tr	A/A

St. U take 3m interval to be sure to not go to far into KClay.
Description is taken (on 3m int) only if lithology change

TG. 0.03
C_1 = 100

Shows in SST
lt yell fluor, no cut, cream cut fluor.
TG = .13
C_1 = 87.21
C_2 = 10.5
C_3 = 2.3
C_4 = Tr

Gas peak. $\frac{TG}{PV}$ = 18/6 unit

$\frac{TG}{P.V.}$ = 5/1 unit.

TG = .03
C_1 = 100

I H Maddard

75	MST	70	Lt gry to m gry soft to firm blocky to amorph. occ v silty. occ mic sl to v calc occ pyr.
	SLTST	30.	Lt gry to d gry firm to h. occ mic, sl to v calc occ glauc.
	SST	Tr	qtz and glauc (lt gry) cemted w/ calcite f - vf occ m. poorly sorted hard, no vis por, calc, glauc,
78	MST	30	A/A
	SLTST	20	A/A
	SST	50	qtz, glauc, lt gry - m gry occ. gry-brn vf to f poorly sorted, firm to h no vis por, calcite cemented. occ mic, occ v. argl, v calc glauc.
80	MST	30	A/A
	SLTST	20	A/A
	SST	50	A/A.
83	MST	100	A/A
	SLTST	Tr	
	SST	Tr.	

11/1-81
12/1-81

3683 m

TG = 0.04 %
C_1 = 100%

Shows in SST
pale yell fluor
no cut, slow
. dull white
cut fluor.

TG = 0.05 %
C_1 = 100 %

TG = 0.05
C_1 = 100%

TG = 0.72 %
CG = 4u T.G. 10u
Peak 32u (4u BGG.)

Good shows in LST
cream yell fluor
no cut slow
white streaming
cut and crush
cut

epth	%	Lith.	
685	80	MDST.	L grn to m grn, soft to firm. blocky to amorph. hygrofissile, occ v. silty occ micromic. occ v. calc. grading into siltstone occ
	10	SST	qtz, mica, glauc, clss to grey-brown v.f to f, poorly sorted, firm to h, no vis por: v, well cem with calcite. micromic), v calc, glauc,
	10	LST.	buff, hd, blocky, no v. por. cryptoxln.
690	50	MST	A/A
	40	SLTST.	lt to m.grn, f to occ h, blocky Packstone tex sl to v calc micromic tr of carb.
	10	SST	A/A
	Tr	LST	
95	40	MST	A/A
	50	SLTST	A/A
	10	SST	A/A
98	80	LST	A/A but softer and only occ cpypto×ln
	10	SLTST	A/A
	10	MST	A/A.
	Tr	SST.	A/A.

TG = 0.11
C_1 = 83.5
C_2 = 12.7
C_3 = 3.8
C_4 Tr

Shows as 3698
only in LST.

Shows as 3698
only in LST
TG = 0.064 C_1 = 90.2
C_2 = 9.8 C_3 = Tr

513
56

TG = 0.06
C_1 = 100 %

12/1-82
13/1-82 3715m

Shows in few of the cryptoxlnls rock yell fluor no cut. Stewin white [illegible] cut and crush cut
TG = 0.05
C_1 = 100

Gas peak at 3718 · 250 · 300.

Servey at 3715 m
5¾ N 60 W

7000	70	LST	wh to buff. soft to h, blocky to amorph, occ cryptoxln occ mudstone tex
	10	SST	qtz, lgry to wh, vf. to f, poly sorted firm to h. no ns poc, calcite cemented occ micromic, v. calc, occ glauc
	10	SLTST	gry to d gry, firm, micromic, v calc.
	10	MST	L gry to m gry, soft, blocky to amophose occ hygrodastic occ silty v calc
7005	50	MST	A/A
	40	LST	A/A
	10	SILST	A/A.
	Tr	SST	A/A
7010.	60	MST	A/A
	20	SILST	A/A
	10	SST	A/A
	10	LST	A/A
7015	80	MDST	A/A
	10	SST	A/A
	10	LST	A/A

cutting gas

TG/PV = 2/Tr. u

TG = 0.07
C_1 = 96.3 %
C_2 = 3.7 %
C_3 = Tr

953

seems that the farther down we get the gas increases in the limestone stringers within the mudstone/siltstone sequence

TG/PV 98/28 u

TG = 1.92 %
C_1 = 84.7 %
C_2 = 8.8 %
C_3 = 4.5 %
C_4 = 2.0 %

Shows in LST
yell fluor, no cut,
steam. wh. cut fluor
and crush cut.

TG/PV = 12/2 unit

TG = 0.14
C_1 89 %
C_2 = 7.3 %
C_3 = 3.7 %
C_4 = Tr

Shows A/A
but only in LST

peak (gas) 3726 = 23u (10 bg)

3720	50.	MDST	lgy-m gy occ d·gry, blocky to (occ flky) amorph, occ. v. silty, micromic, sl to v calc,
	30	SILTST	m gry to d gry, soft to firm occ hd calcite cemented, mic. sl to v calc, occ glauc
	10	LST.	buff, hard cryptoxln blocky, occ sl argil
	10	SST	qtz, wh to lt gry-brown firm to hard, vf to f. poorly sorted, calcite cement, occ micromic, occ glauc v calc.
3723	90	LST	buff to a brownish-grey soft to hard, blocky, occ sl argil
	10	MST	A/A
	Tr	SST	A/A
	Tr	SILST	A/A
725	30	LST	A/A
	30	SLST	A/A
	20	MDST	A/A
	20	SST	A/A

Cutting gas

13/1-82 — 3730 — TG/PV = 16/7 u — TG = 0.08 %
14/1-82 — C_1 = 88.7 %
C_2 11.3 %

Shows in LST.
yell fluor, no cut
blow bright wh
streaming cut
fluor and crush
cut fluor

TG/PV = 16/7

Shows as above
in LST
TG = 0.07 C_1 = 83%
C_2 = 12% C_3 = Tr

TG/PV = 27/9 — Shows as above
in LST.
TG. 0.2 %
C_1 = 83.2% C_2 = 11.1
C_3 = 5.7% IC_4 Tr

TG/PV = 8/2.

TG: 0.09
C_1 = 89.7 %
C_2 = 10.3
C_3 = Tr

730	50	LST	buff. to lt. brown, soft to hd. blocky to amorph, no vis por, cryptoxln, mudstone texture, occ argil.
	20	SLTST	m to dark gy. firm to hd. mic to micromic, sl to v calc occ sl pyr
	20	MDST	m. to occ. d. gy, soft, occ v. silty, occ micromic, sl to v carb.
	10	SST	qtz, wh to lt brown, v.f to f poorly sorted, firm to hd, calcite cemented, occ micromic, v calc occ glauc.
8735	30	LST	A/A
	30	MST	A/A
	20	SILST	A/A
	20	SST	A/A
740	50	LST	A/A
	20	SLST	A/A getting darker gy
	30	MDST	A/A — " —
	Tr	SST	
8745	60	LST	A/A
	20	SILST	A/A
	20	MDST	A/A occ pyrite occ v sticky
	Tr	SST	

~~curing gas~~

TG/PV = 2/Tr

TG = 0.08

C_1 = 100%.

C_2 = Tr

Shows as before only in the LST grains.

TG/PV = 2/Tr.

TG = 0.08

C_1 = 100 %

C_2 = Tr.

TG = .09

C_1 = 100 %

TG/PV = 2/0

C_2 = Tr

4/1 - 82
5/1 - 82

3761 m

50	80	MDST	Lt grn to med grn, occ d grn v.soft to soft, occ firm, amorph to blocky, occ sticky, occ silty occ micromic, v. calc
	10	SLTST	m grn to d.grn, blocky, firm, occ micromic, v calc, occ pyritic
	10	LST	buff occ white, hard to soft no vis por. cryptoxln, occ argill.
	Tr	Chalk	wh, soft
755.	90	MDST	A/A getting softer and stickier and also more lt grey-brown also getting more calcareous
	10	LST	A/A
	Tr	Chalk	A/A
760	90	MDST	① Lt to m grn-brn with occ dark grn streaks soft to firm, amorph to blocky, occ sticky, occ silty v calc. ② d grn, firm occ soft, blocky, occ silty and only sl calc
	10	SLTST	A/A
	Tr	LST	A/A
	Tr	Dol.	

less calcareous

cutting gas.

TG/PV = 2/Tr

T.G. 0.07 %
C_1 - 91.1 %
C_2 = 8.9 %

TG/PV = 9/Tr

TG = 0.07 %
C_1 = 91.1 % C_2 = 8.9 %
shows in dol.
white to pale yell fluor.
v. slow pale wh crush cut fluor.
no cut

gnite put into the mudsystem
2day. so cuttings contaminated
ith lignite pieces.

TG/PV = 4/Tr

TG = 0.14
C_1 = 73.7 %
C_2 = 13.3 %
C_3 = 7.9 %
IC_4 = 5.1 %

15/1-82
16/1-82 3776m

Bit 28 T7 B7 I
Be 20 + TC x RPM 45
124

survey at 3776
5 3/4° N 65 W

dynamic overbalance = 550 psi
static " = 450.

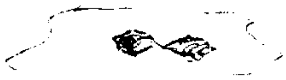
- high overbalance suppressing TG ??

depth m	%	lith	
765.	90	MDST	① m. gry, occ d gry, soft to firm, occ stickey, blocky to amorph, occ silty, occ only sl calc, ② lt gry, soft and sticky. amorph glauc. v. sl calc.
	10	DOL	buff to gry-brn, hard cryptoxln, sl argil
770	90	MDST	both ① and ② A/A occ grades into siltstone
	10	DOL	A/A
	Tr	LST	White to buff, soft to hd, occ cryptoxln, occ glauc.
775	100	MDST	① m gry occ v.d. gry soft to firm. occ. stickey, blocky to amorph occ fissile. occ very silty. only sl calc ② gry-brown, stickey and soft amorph. no calc.
	Tr	LST	A/A.
	Tr	DOL	A/A.

Re-examination of samples → had a look @ these again Ingar - to familiarise myself.
P. Ratter

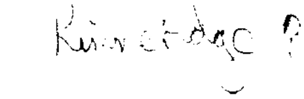
- contaminants - pipe scale
- lignosulfonate.

— wide variety of lithotypes.

- ltgy mdst occ contains patches of ~~as~~ secondary dol - often rhomb shapes
ie 

- Lot of, cavings.

- get mdst slabs w. abundant lt grain sized spherical objects - all equidimensional
~ possibly replacement str ? ⇒ translucent lt brn in v sft cht in ltr Mdst.



— 1st appearance of gy brn, sl carb Mdst
(poss Kimmeridge ?)

↑ Gas @ 3776 m TG = 4.4% $C_1 = 45\%$, $C_2 = 6\%$, $C_3 = 37\%$, $iC_4 = 3\%$, ~~n~~$nC_4 = 9\%$.
P. Ratter

TG = 0.07%
$C_1 = 91\%$
$C_2 = 9\%$

TG/PV 9/Tr.

Cutting Gas 4/Tr.
TG = 0.4%
$C_1 = 74\%$
$C_2 = 13\%$
$C_3 = 8\%$
$iC_4 = 5\%$

- V. slow cream stream cut from gy brn Mdst - no nat fluor. (Lst shows good yel nat fluor [illegible])

3770m

MDST, 3 distinct types

30% MDST, M → dk gy, frm, sulfiss, non swell, tr slty, tr micromic, gen non → v sl calc.

60% MDST, lt gy, sft to frm, slty, occ arnth, gen sl calc, occ v calc, non slty), hygroturgid, occ grades to v argil lt gy lst.

Tr MDST, lt rd brn, frm, sulfiss, sl calc, — caved.

10% DOL, lt tan → brn, v hd, brittle, conch → splintery fract, gen vis por, gen sl calc — occ tr dol mdst.

Tr LST, wh-ltgy, sft-frm, v argil, mdst text, gen vis por, tr glauc, occ micrach & sl dol.

Tr Pyr

3775m

60% MDST, m-dk gy, frm to mod hd, sulfiss, a.a → mainly ca

20% MDST dk gy brn, slt, slty, hygroblastic, sl carb, occ mod carb, gen non calc, occ v sl calc, tr dol, amorph text.

10% DOL, lt tan, subtranslu to m brn, variably calc — gen v sl, v hd, xln, gen vis por, splintery fract, occ occurs as secondary product in the mdst (lst gy & gy brn).

10% LST, wh to buff to lt gy, sl dol, otherwise a.a, gen grades to argil dol.

— high Cγ in Trip gas & BG. suggests we have just entered the top Kimmeridge.

3776 – virtually all cavings after return to drilling

3777m – Dolst & calc Dol occurs intimately with gy brn Mdst as lenses & thin laminae
– m-dk gy mdst is caved (all occurs as sharp edged flakes) Carb material is v. finely divided in the mdst.

v. slow crush cut off Mdst, no sat fluor.

3778 – Higher % cavings than 3777m.
– oil stain on cuttings gas sample surfaces.
– strong hydrocarbon odour from sample.

TG = 0.72% $\frac{TG}{PV} = \frac{29}{4}$

C_1 = 82%
C_2 = 10%
C_3 = 6%
IC_4 = 2%
nC_4 = Tr.

TG = 0.42% $\frac{TG}{PV} = \frac{31}{7}$

3780 – lt gy & muddy lst becoming frominat.

C_1 = 74%
C_2 = 11%
C_3 = 10%
IC_4 = 5%
nC_4 = Tr.

3777m	60%	MDST	dk gy lrn, sft to frm, hygroclastic?, sl carb, occ mod (v. fine carb), sl calc, gen sl dol, tr lyr.
	20%	MDST	m-dk gy, frm to mod hd, subfiss, micaceous, v. sl calc, occ tr slty, occ iron calc
	10%	DOL	lt tan → lt brn, semi-translue, v. hd, blky but with occ splintery fract, brittle, zero vis por, gen sl calc.
	10%	LST	wh → lt gy → lt brn gy, frm to hard, variably dol from non to mod, mdst text, occ xln (when dolomitic), gen v argil Pipe Scales hygroclastic contaminants.
3778m.	50%	MDST	dk gy brn, sft, occ v slty, v sl calc, occ mod dol, tr lyr
	40%	MDST	m-dk gy, frm → hd, subfiss, a.a.
	10%	DOL	lt tan - m brn, v. hd, a.a.
	Tr	LST	wh → lt gy, often v. argil otherwise a.a.
3780m	50%	MDST	dk gy brn, sft, slty, v sl calc, sl dol, tr v. f carb, tr dissem lyr.
	40%	MDST	m-dk gy, frm → mod hd, subfiss, a.a.
	10%	LST.	lt gy, mdst text, ~~sft to~~ frm (sft in sample occ), zero vis por, mod argil, tr slty.
	Tr	DOL	lt tan - brn, v hd, a.a.

– inc in % argil lst.

TG = 1.94% TG PV 38/8

C_1 = 67%

C_2 = 4%

C_3 = 14%

IC_4 < 5°

nC_4 = 10%.

asing 9 5/8" (TD 3780.5 m??)

↳ 3772m

5/1 - 82
6/1 - 82 3782.m.

1

a lots of cavings
and cement.

Dolomite have wh-yell fluor no cut dull yel cut fluor.

Trip gas · 20 u

Leak off Test. 4 unit 3785.05 m

CG = 2 unit 3785.57 m

TG · 0.02

C_1 83.7

C_2 12.

C_3 5.6

wrong depth supposed to be 3780.5 m

3783 m 40% LST lt gy, firm to sft, stky, hygroclastic, ~~v calc~~ mdst text, v. argil, zero vis por, (non silty, non calc), tr silty
50% MDST dk gy brn, sft to firm, stky, hygroclastic, sl calc, microfyntic, tr carb (v.f), tr dol.
10% MDST ~~dk~~ m gy, subfiss, mod hd, micromic, v sl calc, gs
Tr DOL lt brn → dk brn, v. hd, splintery fract, v. brittle, xline, zero vis por, occ sl calc, occurs with gy brn mdst. (colour varies from lt gy - m gy - blu gy - rd brn).

3783m 10 LST lt gry firm to soft, mudstone tex. V. argil, zero v por. occ silty
40 MST dk gy. brown as / above.
30 MST m gy as / above
20 DOL lt brown to dk brn as / above

3786 50 MST med gy as above.
20 MST dk gy to black as above.
30 DOL A / A

shows.

TG = 0.01

C_1 = 100

TG/PV = 10/4

collect every meter because of increase in sand.

TG = 0.01

C_1 = 100

TG/PV = 13/4

grite put into the mud system.

M.

epth	%	Lith	description
89m.	40	MDST	lt - m gy, soft to firm, amorph - blocky, occ silty, occ micromic, sl to v calc occ carb streaks,
	20	MDST	d gy to black, soft, hygrodact micromic, occ calc occ diss with pyrite.
	20	LST	lt brown to m brown, hard mdst text, occ microcrystalline argill,
	20	DOL	lt tan lt brown v hard blocky with occ splintery fracture. no vis por, microxln sl argil.
192.	20	MDST	lt to m gry else A/A
	30	LST	lt brn to m brn occ gry brn A/A occ grading into
	10	DOL	Dolomitic Limestone A/A.
	40	SST	qtz, clear to pink, coarse grain subrounde to subangular, poorly sorted, loose, no vis por, poorly cemented.
93	30	SST	A/A
	10	LST	A/A
	20	MDST	A/A
	Tr	Dol.	
94.	50	MDST	A/A
	30	LST	A/A
	20	SST	A/A
	Tr	DOL	A/A

11

trip bit...

16/1-82 3795m (changing bit)
17/1-82

TG = 0.01
C_1 = 100
TG/PV = 9/3

in 3796 and 3797m there is about 40% loose sand with no shows, no increase in gas.

The mudstone is interbedded with DOLomite because often half a grain is MDST and the other half is DOL

TG = 0.02%
C_1 = 100
TG/PV = 6/2
Dull yell fluor DOL no cut, slow streaming dull wh cut and cut fluor

TG = 0.02%
C_1 = 100

95	30	MDST	m to d gry, frm to soft, amorph, micromic, sl to v calc occ carb,
	50	SST.	qtz clear to pink, m to coarse subround to subang, poorly sorted, loose, no vis por v poorly cem,
	20	DOL	lt tan to lt brn, occ m brn and gry brn, mod hd to hd, no vis porosity micro to cryptoxln, mudstone text sl to mod algil,
98	60	MDST	m to d gry, v calc, occ hard and grading into a Argil Limestone A/A
	30	DOL	or DOLOMITIC LIMESTONE A/A
	10	SST	A/A
01	40%	SST	A/A
	20	DOL	A/A
	30	MDST	A/A occ also glauc.
	10	LST	white to cream, soft and stickey, amorph,
	Tr	Calcite	white, hard, blocky,
	Tr	Pyr.	

gnite and Lignosulfonate
ntaminate the cuttings.

TG = 0.08
C_1 82.5 %
C_2 12.1 %
C_3 5.4 %
pale yel fluor DOL LST, no cut slow white cut and cut fluor.
TG/PV = 31/8

from MDST
no not fluor
no cut
pale wh slow steaming
Cut fluor and
crush cut fluor
TG = 0.18 C_1 = 80.8
C_2 = 12.3 C_3 = 6.9 %
(TG / PV = 28/7 unit)

TG : 0.21 (TG/PV = 41/11)
C_1 = 80.6
C_2 11.9
C_3 6.2
NC_4 1.3

804	70	LST	Lt tan, lt brown soft and sticky, no vis por, mudstone text, occ argil occ v. pyritic,
	10	DOL.	lt brn, to m brn, cryptoxln hard, no vis poor, occ argil,
	10	MDST.	lt gr, soft and sticky, hygroclastic, occ sl silty, occ micromic, v. calc, occ pyritic.
	10	SST.	qtz, clear to pink, med to coarse, occ f. subang to subround, poorly sorted, loose, no vis por, poorly cmtd
807	50	MDST	lt gy to d gy brn. lt gy A/A d. gy brn, soft and sticky. hygroclastic occ silty, v sl calc, carbonaceous.
	30	SST	A/A
	10	LST	A/A
	10	DOL	A/A
810	60	MDST	d gry brn A/A
	10	MDST	Lt gry A/A
	30	SST	A/A but qzt occ yell and orange
	Good Tr	DOL	A/A
	Tr	Pyr.	

lot of metal in the
uttings.

TG = 0.24
C_1 = 80.1
C_2 = 12.3
C_3 = 6.4
NC_4 = 1.2
TG/PV = 39/11 unit.

TG = 0:24
C_1 = 80.0 %
C_2 = 12.7 %
C_3 = 6.1 %
NC_4 = 1.2 %

w grain look like they
etharmorphic. grey v.hard.
diss pyrite.
probably from
turbine.

TG =

813	40	MDST	d gy-brn, soft and sticky hygroclastic, v sl calc to non. v carbonaceous occ dissem w/pyrite
	20	MDST	lt gy to m gy, firm, occ silty, occ dissem w/pyrite. calc, occ glauc.
	20	SST	qtz clear, yel occ orange, coarse occ med ang to subrounded, poorly sorted. loose, no cem,
	20	DOL	tan to m brn, hard, no vis por, sl to med calc, crypto to micro xln occ grading into dolomitic Limestone
	Tr	Pyr	
816.	70	MDST	d gy-brn occ black an v carb A/A
	10	-"-	Lt gy A/A.
	10	DOL	A/A
	10	SST	A/A
819	90	MDST	d gy-brn occ tree remains A/A occ v diss w/ pyrite
	10	DOL	A/A.
	Tr	LST	wh, soft, amorph, no vis por
	Tr	SST	A/A

Some of the mudstone (dgy-brn) is very carb almost like coal. Some grain is v dissem with pyrite that it have becom v hard.

TG : 0.36
C_1 = 77.3
C_2 = 12.2.
C_3 = 7.8
NC_4 = 2.7.
slow streaming cream cut fluor and crush cut fluor. from MDST.
pale yel fluor DOL
no cut slow stream
pale wh cut fluor
and crush cut fluor.

7/1-81
8/1-81 3825m.

TG/PY = 51/16

TG = 0.20%
C_1 = 80.0%
C_2 = 11.6%
C_3 = 6.3
nC_4 = 2.1
shows as 3822m

TG = 0.19 %
C_1 = 78.1 %
C_2 = 12.4 %
C_3 = 6.4 %
nC_4 = 3.1 %
TG/PY = 81/33 unit
Shows as 3822

H Madland

822	70	MDST	dk gr-brn to black soft and sticky, earthy looking, amorph. hygroclastic, occ silty occ v dissem wh/pyrite, no calc v carb (fossile remains)
	10	MDST	Gy gr-grn, firm, angular to blocky, occ silty occ v dissem ww/pyrite, sl carb
	10	DOL	m brn, hard, ang to blocky, occ mudstone text, occ cryptoxl sl to v calc occ argil
	Tr	LST	wh, soft, amorph, occ argil
	Tr	SST	qtz clear to yell, f to occ coarse poorly sorted. loose.
	Tr	Pyr.	
825	80	MDST	d gr-brn to black A/A.
	10	MDST	ltgr to gr-grn occ v. glauc A/A
	10	DOL	A/A
	Tr	LST	A/A
	Tr	SST	A/A
	Tr-Good	Pyr.	
828	100	MDST	d gr-brn to black A/A
	Tr	DOL	
	Tr	SST	
	Tr	Pyr.	

still v much metal

TG = 0.20 %.
C_1 77.1 %
C_2 12.7 %
C_3 7.5 %
nC_4 2.7 %
TG/PV = 74/30
No cut no fluor but slow with stream cut fluor and crush cut fluor in MDST

LC at 3833

TG = 0.20
C_1 = 79.8 %
C_2 = 11.8 %
C_3 = 6.5 %
nC_4 = 1.9 %
TG/PV = 53/17
CG • 3 unit

TG 0.20 TG/PV = 69/25
C_1 82.3 shows
C_2 11.9 as
C_3 4.6 above
nC_4 1.1

TG = 0.26 TG/PV: 63/25
C_1 81.4 Shows
C_2 11.6 A/A
C_3 5.5
nC_4 1.5

8831	100	MDST	Dk gr-brn to black, soft and sticky earthy looking, amorph, hygroclastic occ silty occ. v dissem wh/pyrite no calc v. carbo.
	Tr	MDST	Lt gy to ltgr-grn, firm, angl to blocky, occ silty occ v dissem with pyrite sl carb
	Tr	Dol	m brn to tan, hard, ang to blocky. occ mudstone text, occ cryptoxln, sl to v calc occ argil.
	Tr	LST	wh soft, amorp, occ silty
	Tr	Pyr.	
8834	50	MDST	dk gr-brn to black, occ v sl calc or else A/A
	30	MDST	Lt gy to ltgr-grn occ green A/A
	10	LST	A/A occ sandy
	10	DOL	A/A
	Tr	Pyr	
8837.	80	MDST	dk gr-brn A/A
	10	MDST	Lt gy to ltgr-grn occ grn A/A
	10	DOL	A/A occ d gy.
	Tr	LST	A/A
	Tr	Pyr	
8840	100	MDST	dk gr-brn to black A/A
	Tr	MDST	Lt gy to Lt gy-grn A/A
	Tr	DOL	A/A
	Tr	Pyr	

28/1 - 82
29/1 - 82

3842 m

TG = 0.4 TG/PV = 23/4 =

C_1 83.1
C_2 10.2
C_3 4.5
nC_4 2.2

Shows: dk gr-brn MDST no fluor but slow to mod wh stream cut fluor and crush cut. fluor.

TG = 48 % TG/PV = 68/25

C_1 = 76.4
C_2 = 10.3
C_3 = 9.8
nC_4 = 3.5

Shows as above

TG = 0.40 TG/PV = 72/29 u

C_1 77.7% C_2 9.9%
C_3 10.2% nC_4 2.2

Shows as above

lot of metal in the cuttings
nd also contaminated with
pe dope

TG = 0.52 TG/PV = 48/14

C_1 74.0 %
C_2 11.3 %
C_3 11.7 %
nC_4 3.0 %

Shows as above

8843	50	MDST	Dk gr-brn to black, soft and sticky, amorp, occ silty v dissem w pyrite no to v sl calc, v carb.
	10	MDST	lt gr to gr grn, firm to m hard ang to blocky occ silty occ v dissem w pyrite, sl to m calc
	40	LST	buff, soft and sticky no vis por sandy, sl argil.
	Tr	SST	qtz, clear to yel, f to med, ang to subrounded poorly sorted loose
	Tr	DOL	tan to m brn, hard, no vis por. ang to blocky. cryptoxln occ mudstone text. sl argil.
8846	90	MDST	dk gr-brn A/A
	10	MDST	lt gr A/A
	Tr	LST	A/A
	Tr	DOL	A/A
	Tr	Pyr	
8849	100	MDST	dk g-brn to black A/A
	Tr	MDST	lt gr A/A
	Tr	LST	A/A
8852	80	MDST	dk g-br A/A
	10	LST	A/A
	10	SST	A/A
	Tr	MDST	lt gr ∞ A/A

Shows: dkgr-bm MDST	TG = 058%
No fluor no cut	TG/PV = 67/28 unit
slow to mod	C_1 = 72.%
wh streaming	C_2 = 19.%
cut fluor and	C_3 = 5.8%
crush cut fluor	nC_4 = 3.2%

Shows as above	TG = 0.42%
	TG/PV = 80/32 unit
	C_1 = 77.9%
Survey @ 3861m 5¼° N57W.	C_2 13.3%
	C_3 6.4%
	nC_4 2.4%

#32 T1 B2 I 29/1/82 3861m

#33 Sec M44NG 8 3/8" 30/1/82

No natural fluor or u/v fluor from mdst, sl-dull wh strm & crush cut fluor.

TG = 0.32%
C_1 - 81%
C_2 = 11%
C_3 = 6%
nC_4 - 2%
iC_4 = Tr.

abundant metallic frags from float collar? & possibly tool wear! - + pipe dope & pipe scale contaminants,

TG/PV = 41/13

TG = 0.80%
C_1 = [illegible]
C_2 10%
C_3 = 5%
iC_4 = Tr
nC_4 = 2%

- high cuttings gas.

TG/PV = 132/61

P. [illegible]

855	100	MDST	d gr brn to blk, soft and sticky amorph, occ silty, r dissem w pyrite no to r sl calc
	Tr	MDST	lt gr to gy-grn firm angl to blocky r dissem w pyrite non + r sl calc
	Tr	LST	buff to wh soft amorph occ silty. no vis por occ argil.
858	100	MDST	d gr brn to blk A/A
	Tr	MDST	Lt gr to gy-grn A/A
	Tr	LST	A/A
	Tr	Pyr.	
861 m	80%	MDST,	dk gy brn, occ dk gy brn-blk, sft-firm, stky, gen non calc, abund microfy & carb, occ tr slty.
	20%	LST	buff-pink brn, sft-firm, microsdy, sl argil, occ sl slty, no vis por, a.a.
	Tr	Mdst	lt gy-gy grn, a.a.
64 m	100%	MDST	dk gy brn, firm, occ stky, occ sl slty, gen non calc, occ ~~modcal~~ v sl calc, abund microfyr, tr carb-occ occurs as lrg flakes, mdst is occ subfiss.
	Tr	MDST	lt gy, firm, blky, gen non calc, tr fyr.
	Tr	LST	crm, sft, mdst, zero vis por, v. argil.
	Tr	SNS	qtz, m-c, frosted, subrnd, lrg.

- mdst v rarely grades into lt gy & v calc mdst onto v argil slt. 2° mdst becomes blky & firm to mod hd.

- mdst has no nat fluor or u/v fluor but slow dull wh strm & crush cut.

TG = 0.50%	C_1 = 79%, C_2 = 13%
	C_3 = 8% iC_4 = Tr
TG/PV = 81/38	nC_4 = Tr

- heavy pipe scale & metal contam^n. + mud additives - lignosulphonate & dispersants.

TG = 0.44%	C_1 = 79.3% C_2 = 11.2%
	C_3 = 6.5% iC_4 = 0.6%
TG/PV = 101/47	nC_4 = 2.4%

- both types of mdst are in-situ, no apparent cavings & both can occ be seen to intergrade
- sst is a mystery - may be from upr section of Humber Gp. 2° sst in Heather ?

TG = 0.48%	C_1 = 80% C_2 = 11.1%
	C_3 = 6.8%, iC_4 = 0.8
TG/PV = 68/24	nC_4 = 1.8%

30/1/82 —————— 3874 m
31/1/82

- occ gy grn & cream mottled mdst - non calc blky, mod hd,

mdst gives no nat or u/v fluor but slow dull yell strm & crush cut

TG = 0.44	C_1 = 82.8% C_2 = 10.0%
	C_3 = 6.3% iC_4 = Tr.
TG/PV = 68/22	nC_4 = 1.4%

P. R[illegible]

867m.	100%	Mudstone	dk gy brn, sft to firm, stky to subfiss, mod carb (often lrg flakes - gen micro-carb), micropyr, tr slty, gen non-calc but occ sl calc & can grade to argil lst (see below),
	Tr	Mudstone	lt gy, mod hd, blky, occ sl calc, gen non-calc, ~~occ calc~~, abund v. f dissem pyr - occ grades to tr lt gy, v. argil lst.
	Tr	Dol	lt purple gy - buff, v. hd, brittle, microxln, zero vis por, v. rare.
870m	90%	Mudstone	dk gy brn, dom sft, occ firm, a.a, gen non-calc,
	0%	Mudstone	lt gy, hd, blky - brittle, gen non-calc, occ sl calc → v calc w. tr free calcite, abund dissem pyr, occ ~~to~~ gy grn in colour.
	Tr	SST !	Qtz, f, clr → milky wh, gnst - pkst, mod hd, abund milky wh cmt, low vis por, well sort, subrnd, abund glauc, tr carb, gen v. clean.
873 m	80%	MUDSTONE	dk gy brn, sft, stky, gen non calc, mod carb, a.a.
	20%	MDST	lt gy - gy grn, mod hd, blky - brittle & splintery, abund dissem u pyrite, gen non-calc but occ sl calc, sl glauc.
	Tr	Free Calcite	euhedral xls clr calcite - well formed.
876m	90%	Mudstone	dk gy brn, sft, stky, gen non-calc, sl carb, a.a
	10%	Mudstone	lt gy - gy grn, mod hd, brittle, abund dissem pyr, gen n-c
	Tr	LST	lt pink - buff, sft, mdst text, stky, v low vis por, tr sndy, - may be caved. - sl argill.
	Tr	Pyr, Sd, Carb	all lse frags.

laminants

- lignosulphonate
- resins
- metal shavings still abundant
- life scale.

TG = 0.96% C_1 = 80.4%, C_2 = 12.5%
C_3 = 5.4% iC_4 = 0.2%
nC_4 = 2.5%

TG/PV = 76/28

Shows a a - moist shows no sat or U/V fluor, but a slow dull yell stream cut & crush cut fluor.

dk gy lam mdst is freq highly laminated:

→ rounded grain splits along laminae when H_2O added.
→ lam vary from dk gy - blk carb to speckled golden dk gy lam (due to microlyr)

- lt gy mdst becomes more calc w. depth

TG = 0.54% C_1 = 76.7% C_2 = 12%
C_3 = 8.9% iC_4 = Tr nC_4 = 2.2%

TG/PV = 98/34.

TG = 0.54% C_1 = 79.3% C_2 = 12.2%
C_3 = 6.3% iC_4 = Tr
nC_4 = 2.2%

TG/PV = 88/38

Mdst lam ... dull ...

TG = 0.42% C_1 = 79% C_2 = 12%
C_3 = 7.4% iC_4 = Tr
nC_4 = 1.6%.

TG/PV = 76/26.

Peter Rolt

3879m	100%	MDST	dk gy lam, occ blk, frm to sft, occ mod stky, v rarely sulfuris, gen non-calc, occ v sl calc, mod carb (gen micro-carb), microfyr, tr slty
	Tr	MDST	lt gy - gy grn, mod hd, occ brittle, gen non calc-bors sl dol, but varies greatly & can be sl - mod calc, tr glauc, grades to tr lst, abund ~~mica~~ divisen fyr
	Tr	LST	lt tan - buff - lt pink, sft, stky, mdst text, sl - v argil, v low vis por, tr rndy, tr free calcite.
	Tr	SNS	lse qtz, frosted, subrnd - rnd, - may be bainte contam^, gen m grain size - but occ f - vf.
3882m	90%	MDST	dk gy lam, occ blk, a.a, gen non-calc, sl carb.
	10%	MDST	lt gy (v rare gy grn nods - bors glauc & rare calc), hd, brittle, sl - mod calc & occ grades to argil lst, a.a.
	Tr	LST	lt tan - lt ~~gy~~ pink, sft - mod hd, mdst text, low vis por, tr free calcite, otherwise a.a.
	Tr	SNS	- a.a, bainte contam^.
3885m	100%	MDST	dk gy lam, occ blk, gen non-calc, occ v sl calc, sl carb, a.a
	Tr	MDST	lt gy, mod hd - hd, blky - brittle, sl - mod calc, abund divisen fyr, grades to argil lst
	Tr	LST	lt tan - lt pink, a.a, low vis por
	Tr	SNS	- lse qtz, a.a, from bainte.
3888m	80%	MDST	dk gy lam - blk, sl carb, gen non-calc, occ sl calc, a.a
	20%	MDST	lt gy, mod hd, sl - mod calc, abund divisen fyr, a.a.
	Tr	LST	lt tan, a.a.
	Tr	SNS	lse qtz, a.a.

Contaminants

- pipe scale
- metal shavings (heavy wt pipe jts on 9 5/8" casing?)
- resinex
- lignosulfonate
- sand from baryte.

TG = 0.41% C_1 = 79% C_2 = 11% C_3 = 7% iC_4 = Tr nC_4 = 3%

TG/PV = 68/24.

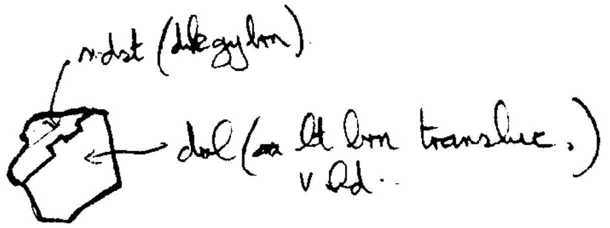
Mdst has no nat fluor, weak dull yell stmg crush cut fluor

TG = 0.32 C_1 = 77% C_2 = 12% C_3 = 7.5% iC_4 = Tr nC_4 = 3.5%

TG/PV = 76/28

↓ Suddenly much more calc

Mdst is noticeably more calc than above & grades to dol !



TG = 0.32 C_1 = 77% C_2 = 11% C_3 = 8% iC_4 = Tr nC_4 = 4%

TG/PV = 78/26.

- mdst returns to gen non-calc state w. less dol - however still abund mod calc lumps
lt & lt gy mdst returns.

TG = 0.36% C_1 = 75% C_2 = 12% C_3 = 9% iC_4 = Tr nC_4 = 4%

TG/PV = 70/26.

3891m	90%	MDST	dk gy brn, sft to firm, stky to subfiss, micropyritic, sl carb, gen non-calc, occ sl calc, tr slty.
	10%	MDST	lt gy, hd, blky to brittle & splintery, gen non-calc & non-dol, occ sl calc & can locally become mod calc (varies greatly!), abund dissem pyr
	Tr	LST	lt tan, occ mod dol!, v. argil, mdst text, sft to firm, v. low vis por, tr sndy.
	Tr	Calcite	lse euhedral clrs to milky wh, a.a
	Tr	Snd	lse, clrs to frosted, vf–m, (barite contaminated)
3894m	100%	MDST	dk gy brn–blk, a.a, occ m gy brn, non-calc, sl carb
	Tr	MDST	lt gy, occ gy grn, hd, gen non-calc
	Tr	LST	lt tan, mod dol, a.a.
	Tr	Snd	lse clrs qtz, vf–m, a.a
3897m	100%	MDST	dk gy brn–blk, occ mottled m brn, firm to sft, stky to subfiss, sl to mod calc, tr dolomitic, sl carb, micropyritic, occ becoming xtline with dol rhombs set in mdst matrix!!
	TR	MDST	lt gy – v. rare, a.a, only 5 grains.
	TR	DOL	lt brn, v. hd, subtransluc, blky – often nearly euhedral rhombs set in mdst, 2°dy product.
	Tr	LST	m brn, v argil, sft, stky, a.a, often v. dol.
3900m.	100%	MDST	dk gy brn, occ mottled m brn, a.a xpt less calc & less dol again, sl calc, tr dol.
	Tr	MDST	lt gy, mod hd, blky, sl calc, a.a. – more abund ago
	Tr	LST	m brn – m gy, v argil, zero vis por, a.a
	Tr	Snd	lse clrs to frosted qtz from barite.
	Tr	DOL	a.a.

...rge amount of metal shavings – up to 20% of sample
...ecurred from heavy wt drill collars acting on 9 5/8"
...asing.

...taminants :– metal shavings
– pipe scale
– resin ex.
– lignosulphonate.
– and from barite.

traces of well cut^d (non-calc) SST, – don't relate to any of the other lithologies in sample – may be caved!

Peter Rattin

$TG = 0.32\%$ $C_1 = 76\%$ $C_2 = 12\%$
$C_3 = 8\%$ $iC_4 = Tr$
$nC_4 = 4\%$

$TG/PV = 52/24$.

Mdst has no fluor but v slow straw yell strm & crush cut

$TG = 0.35$ $C_1 = 76\%$ $C_2 = 12\%$
$C_3 = 8\%$ $iC_4 = Tr$
$nC_4 = 4\%$

$TG/PV = \frac{80}{46}$

LST has dull yell min^l fluor w. no cut or crush cut.

$TG = 0.26$ $C_1 = 78\%$ $C_2 = 12\%$
$C_3 = 7\%$ $iC_4 = Tr$
$nC_4 = 3\%$

$TG/PV = 84/16$.

No shows from SST.

3903m	80%	MDST	dk gy brn, firm-sft, stky to subfiss, non swell to hygrofiss, sl-mod carb, micropyritic, non-sl calc, tr slty.
	10%	MDST	lt gy, mod hd, brittle, v. variable calc from non to mod calc, abund dissem xtln pyrite, may grade to v argil lst.
	10%	SND	lse qtz, f-m, clss to frosted, subrnd, no tr of SST ∴ presumed barite contamination??
	Tr	LST	pink to lt brn, sft, stky, mdst text, sl carb, v low vis por, (tr free calcite).
3906m	70%	MDST	dk gy brn, occ blk, sft to firm, stky to subfiss, mod to v. carb, micropyr, variably calc from non (generally) to mod calc, tr slty.
	20%	MDST	lt gy, mod hd, brittle, variably calc from non- to v calc, grades to argil lst, tr dissem pyr.
	10%	LST	lt gy-lt tan, sft-firm, mdst text, v argil, occ tr sndy, v low vis por.
	Tr	SND	lse qtz, a.a - barite??
3909m	70%	MDST	dk gy brn, occ blk, a.a, variably calc
	30%	MDST	lt gy, mod hd, a.a, grading to:
	Tr	LST	lt gy, firm, a.a, occ lt tan.
	Tr	SST	lt gy, qtz → clss qtz w. milky wh cmt, v f to f, mod sort, subrnd, grnst text, good non calc cmt, low vis por, only 2 frags (cont' tr carb

Mdst is V. finely laminated (striped like waves).

TG = 0.28 C_1 = 81% C_2 = 11%
C_3 = 6% iC_4 = Tr
TG/P_0 = 84/33 nC_4 = 2%

Shows A/A.

31/1/82 — 3915m
1/2/82.

↓ Mdst suddenly more calc from gen non to gen V. + appearance of a V. f calc cmtd rest.

↓ shows decrease, no stn cut from mdst now, weak crush cut

TG = 0.18% C_1 = 80% C_2 = 12%
C_3 = 5.7% iC_4 = Tr
nC_4 = 2.3%
TG/P_0 = 66/16.

% metal showing rapidly decreasing

→ Mdst is lt lighter gy lam + suddenly V calc - grading to V argil lst

TG = 0.25% C_1 = 80% C_2 = 11%
C_3 = 6.6% iC_4 = Tr
nC_4 = 2.4%.
TG/P_0 = 62/16.

(- V. calc sample unlike this general seq.)

No not or u/v fluor, no stain cut but weak dull wh crush cut from mdst

(No tr SST as in 3915m)

more calc + less carb mdst has weaker shows than previously.

#33 T 4 B 6 0. 1/16" 3920m — STACK TEST.

#34 SEC M 4 4 N G 8 3/8".

Trip Gas @ 3920m = 3.5%
C_1 = 89% C_2 = 7% C_3 = 3%
iC_4 = 0.3% nC_4 = 0.6%

3920 1/2/81
2/2/81

2m	90%	MDST	dk gy lbn, sft-frm, stky-sulfris, gen non-calc, occ sl calc, mod pyr, mod carb, tr slty
	10%	SND	qtz, lse, v f-m, frosted & clss, subang-subrnd occ pink - tr SST - v f, a.a (2 grains).
	Tr	MDST	lt gy, hd, brittle, abund diseas pyr, variably calc from non-v,
	Tr	LST	pink to lt tan, sft-frm, mdst text, occ sl dol, occ tr free calcite.
15 m	100%	MDST	dk-m gy lbn, a.a, x lt less carb & mod-v calc.
	Tr	MDST	lt gy, hd, brittle a.a
	Tr	LST+SND	, a.a
	Tr	SST	qtz, v. f, v. well sort, subrnd, grainst text, mod calc cmt, tr carb, mod vis por, fria, tr argil.
3918m	70%	MDST	dk-m gy lbn, sft-frm, stky-sulfris, mod-v calc, occ non calc, less carb than above ie sl carb, tr microfoss, grades to argil lst.
	20%	LST	m-lt gy lbn, occ tan, frm-, mdst text, v argil, v. low vis por
	10%	SND	lse clss to frosted qtz, v f-m, subrnd, a.a
	Tr	MDST	lt gy, hd, brittle, sl-mod calc, a.a,
	Tr	LST	pink, a.a, tr sndy & carb,