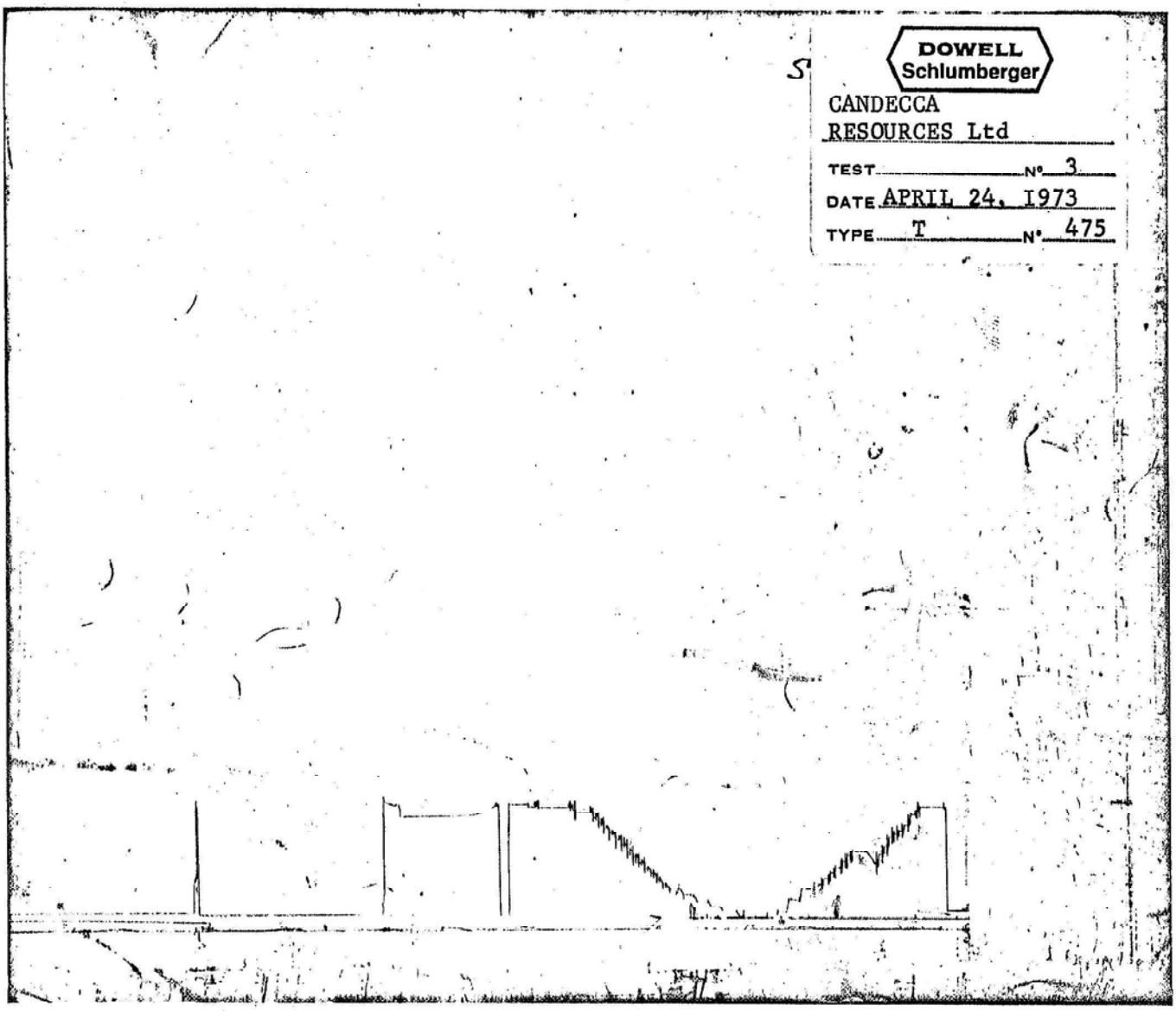

DOWELL
Schlumberger
CANDECCA
RESOURCES Ltd
TEST N° 3
DATE APRIL 24, 1973
TYPE T N° 475

CORE LABORATORIES, INC
Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

TELEPHONE : 01-407 4561

CABLES : CORELABOR LONDON

22 LEATHERMARKET STREET
LONDON, S.E.1 ENGLAND

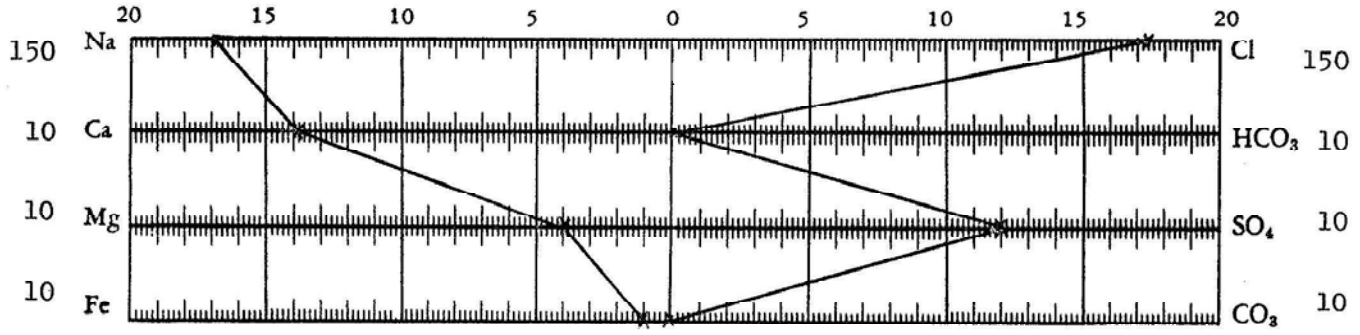
22nd June 1973

WATER ANALYSIS

COMPANY:	CANDECCA RESOURCES LTD.	SAMPLE NO:	DST NO. 2 - Top
WELL:	SEATON ROSS NO. 1	DATE ANALYSED:	JUNE 1973
FILE:	UKC 163	ENGINEER:	F.J.C.

APPEARANCE BEFORE FILTRATION:	Red/Brown, Murky
APPEARANCE AFTER FILTRATION:	Clear
TOTAL DISSOLVED SOLIDS:	160040 mg/L
SP. GR:	1.103 @ 60° F.
RESISTIVITY:	0.073 ohm-meters @ 74° F Measured.
HYDROGEN SULFIDE:	Absent
pH:	7.1

CONSTITUENTS:	meq/L	mg/L
Sodium	2539.43	58381
Calcium	137.52	2756
Magnesium	38.50	468
Iron	10.35	289
Barium	Nil	Nil
Chloride	2605.33	92355
Bicarbonate	0.34	21
Sulfate	120.13	5770
Carbonate	Nil	Nil
Hydroxide	Nil	Nil



Scale: meq/L

All analyses except iron determination performed on a filtered sample.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

TELEPHONE: 01-407 4561
CABLES: CORELABOR LONDON
REPLY TO:
22 LEATHERMARKET STREET
LONDON, S.E.1 ENGLAND

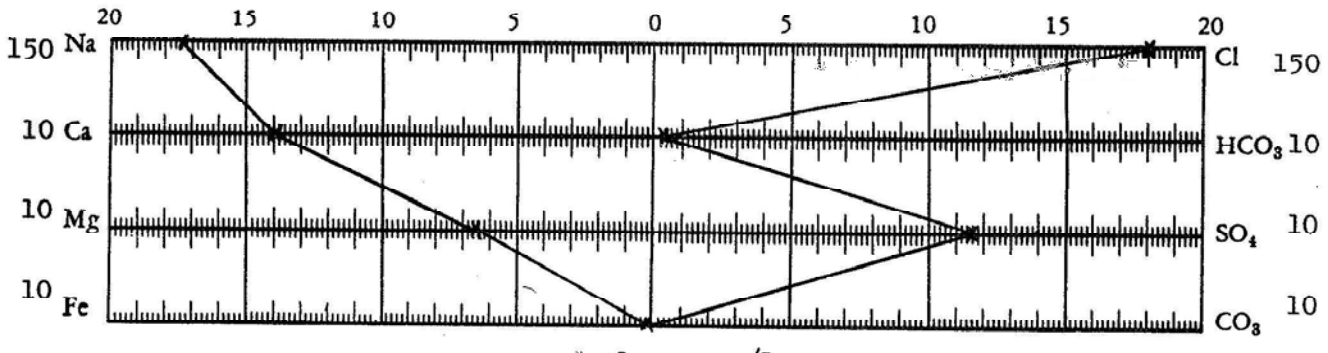
WATER ANALYSIS

22nd June 1973

COMPANY:	CANDECCA RESOURCES LTD.	SAMPLE NO:	DST NO. 2 - Middle
WELL:	SEATON ROSS NO. 1	DATE ANALYSED:	JUNE 1973
FILE:	UKC 163	ENGINEER:	F.J.C.

APPEARANCE BEFORE FILTRATION:	Light Brown - Opaque
APPEARANCE AFTER FILTRATION:	Clear
TOTAL DISSOLVED SOLIDS:	165059 mg/L
SP. GR:	1.106 @ 60° F.
RESISTIVITY:	0.072 ohm-meters @ 74° F Measured
HYDROGEN SULFIDE:	Absent
pH:	7.0

CONSTITUENTS:	meq/L	mg/L
Sodium	2612.18	60054
Calcium	139.02	2786
Magnesium	65.97	802
Iron	0.64	18
Barium	Nil	Nil
Chloride	2700.35	95723
Bicarbonate	2.64	161
Sulfate	114.82	5515
Carbonate	Nil	Nil
Hydroxide	Nil	Nil



Scale: meq/L

All analyses except iron determination performed on a filtered sample.

7th May, 1973.

TO: J. F. FREY

FROM: R. B. MACPHERSON

TIME ANALYSIS - Seaton Ross No.1 : T.D. 3400

A. Rig move - Pocklington to Seaton Ross

April 12 - Load out Sub and Matting	Man hours 62
April 13 - Moving rig	Man hours 180
April 14 - Rig up - repair derrick	Man hours 166
April 15 - Rig up	Man hours 35

B. Drilling - Rig spudded 07.00 hrs April 15/73

(1) Rotating (footage) - 75-3/4
Rotating (daywork) - 32-1/4
Contract - 94-1/2
Contractor - 15-1/4
Daywork - 128-1/4

Time from Spud to Release - 238 hrs

(2) Surface - 12-1/4" hole, 9-5/8" casing 0-233' Total Hrs 22-1/4
Operator hrs - 7
Contractor hrs - 15-1/4

(a)	Rotating	6-1/4*
(b)	Tripping	1/2
(c)	Survey	1/2 *
(d)	Dummy trip	1/4
(e)	Casing	1-1/4
(f)	Cement casing	3/4
(g)	WOC & nipple up	11-1/4
(h)	Pressure test	1/2
(i)	Drill out	1/4 *
(j)	Circulating	3/4

*Operator hrs.

(3) Intermediate - 8-1/2" hole 7" casing 233'-1583'
Total Hrs 54-1/4

Operator hrs (contract)	31-3/4
Operator hrs (daywork)	22-1/2

Time from 1583' to drill out - 22-1/2

(a)	Rotating	18-3/4*
(b)	Tripping	3*
(c)	Survey	1-1/2*
(d)	Circulating	3/4*
(e)	Mix lost circulation material	7*
(f)	Casing	6-1/2
(g)	Cement	1-1/4
(h)	WOC & nipple up	4-3/4
(i)	Pressure test	1/4
(j)	Pick up 4-3/4"collars	1
(k)	Mix mud	5-1/4
(l)	Drill out	3/4
(m)	Rig service	1/2 (1/4*)
(n)	Displace hole to water	1/2*
(o)	Circ. to run casing	1
(p)	Trip in	1/4
(q)	Plugged jets	1/4

*Operator hrs - contract

(4) A. Main hole 6-1/4" 1583-2620 Total Hrs. 73

Operator hrs - Contract	55-3/4
Operator hrs - Daywork	17-1/4

(a)	Rotating	50-3/4*
(b)	Tripping	3-1/2*
(c)	Rig service	1/2*
(d)	Survey	1/4*
(e)	Repair	1/2*

(f)	DST No.1	8-1/2
(g)	Circld Sample	3/4
(h)	DST No.2	8
(i)	Clean to bottom	1/4*

*Operator hrs - contract

(4) B. Main hole 2620-3400 Total Hrs 88-1/2

Operator hrs Daywork 88-1/2
Daywork began 1230 hrs April 21 - Depth 2620

(a)	Rotating	32-1/4
(b)	Tripping	4-1/4
(c)	Clean to bottom	1
(d)	Rig service	1/4
(e)	Survey	1/4
(f)	Plugged jets	1/2
(g)	Logging	16
(h)	Logging (Coal Board)	4
(i)	Plug No. 1	4-1/2
(j)	Plug No. 2	9-1/4
(k)	DST No. 3	5-3/4
(l)	Plug No. 3	6
(m)	Lay down pipe etc.	4-1/2

Number of tours with 4 Man Crews - 17

1

7505378 2

SE 73 NE/1

FOGGATHORPE Foggathorpe Hall.

6" 1/hs. 207 SE/E,

Mr. Whitehead interviewed Mr. Rigby of Southwick's Dairies, Holme on Spalding Moor, 24.3.1938.

"Mr. Rigby has been informed that a 3" borehole at Foggathorpe Hall struck the sandstone at about 70 feet (21.33m) and gave a good yield of water."

Kelly's 1937 Directory gives "Jas Ward, farmer, Foggathorpe Hall."

Letter from Mrs. J. S. Exton, Foggathorpe Hall, Selby, 15 Nov. 1942:-

"With reference to your letter re Water-bore. I am a new tenant here, but I have enquired & understand it is at North Grange. There is plenty of water to supply the district. So if you write to Mr. Blackburn, North Grange, Foggathorpe, he will be able to give you full particulars."

Letter from J. K. Blackburn, Foggathorpe Grange, Selby, 21st Nov. 1942:-

"This [the borehole] was put down in 1934 by J. Villiers, of York, now dead. It goes to a depth of 120ft. (36.58m) through two layers of sandstone and is 4" at the base, at 3" at the top. Very good drinking water was obtained but I had to treat it with alum etc for the house. It came up the bore to 9 ft. of the surface. With a 1½ h.p. engine and pump I could pump 1000 gal. an hour. I have not got an analysis of the water. Since the main water supply has been brought here I use that at the present time, and the engine, pump and tower are sold."

Sited on 6" Sheet 20N S.E./E. (Water Set).

[redacted]

P. T. O.

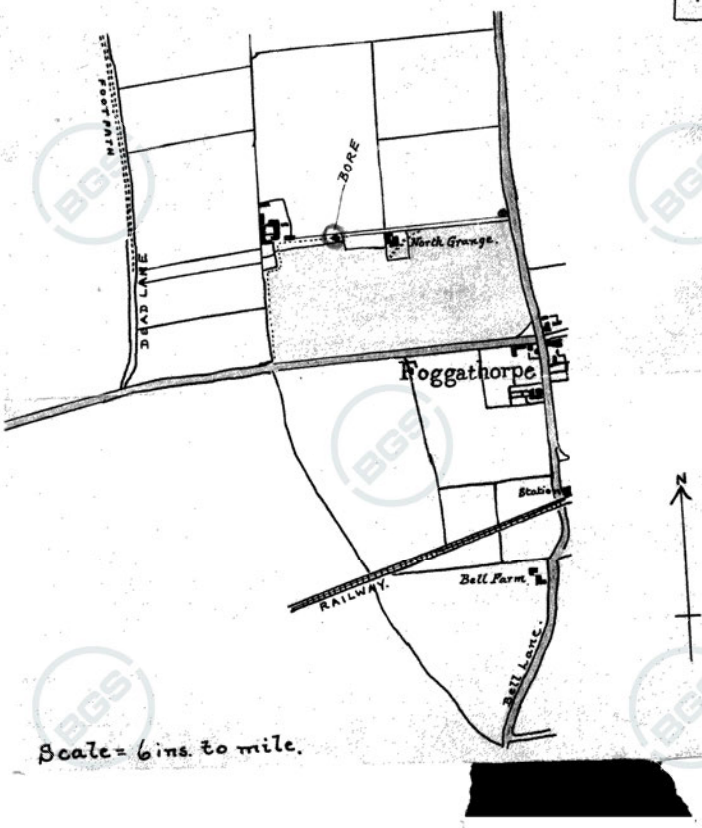
BGS ID: 125278 : BGS Reference: SE73NE1
British National Grid (27700) : 475040,437817

(2)

Letter from Mrs. W. A. Rigby, Rush House, Holme-on-Spalding Moor, 21st. Nov. 1942, in answer to a general enquiry regarding wells :-

" Private bore at Mr. Blackburn's Foggathorpe. 3". 120 ft. deep. 2000-3000 galls. yield per hour. Power operated pump. Discontinued after water supply was brought into district by the Council."

71/152.



Scale = 6 ins. to mile.

YORKSHIRE RIVER AUTHORITY - **Survey of Existing Boreholes**

I.C.S. Ref. No ..71/152..... N.G.R. SE..749378......... Licence No.

OWNERS NAME .... App No

ADDRESS ..North Grange.......................... **Authorised Abstraction**

..Foggathorpe.......................... g.p.h.

g.p.d.

m.g.a.

Depth	Thick^ns	STRATA DETAILS
	21.34 c 70'	drift
120	c 50	Sst.

Dia. ....

Depth 120'

Lining ? x4"/3"

Well sinker Villiers.

Date 1934.

R.W.L. 9' 2-74

Date

yield. 1000 gph.

c 23' od.

INSPECTION REPORT	WATER QUALITY	DATE OF INSPECTION:- 3.8.78 fh.
Present Owner:- Access (Yes or No) No ½" Probe ..... 3" Instruments ..... Landrover ..... Access Agreed	Date pH ..... Total hard ..... Temp.hard ..... Alk. ..... Ca ..... Mg ..... Na ..... K	Other Comments:- Cow-tail pump on borehole. cannot dip. In yard at grange. Sketch Plan of Location
Water Level at time of insp. ..... metres below ..... Date ..... Datum above O.D. ..... R.W.L. above O.D. ..... Date	HCO_3 ..... SO_4 ..... Cl ..... NO_3 ..... Fe	

(1)

SE73NE/1 NGR SE 73 NE 75 03 37 81

SE73/11

FOGGATHORPE Foggathorpe Hall.

6" 1/25. 207 SE/E.

71/152

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Sited on 6" Sheet 207 S.E./E. (Water Set).

P. T. O.

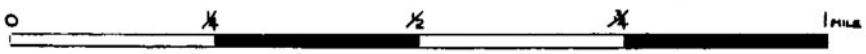
(2)

SE73/11

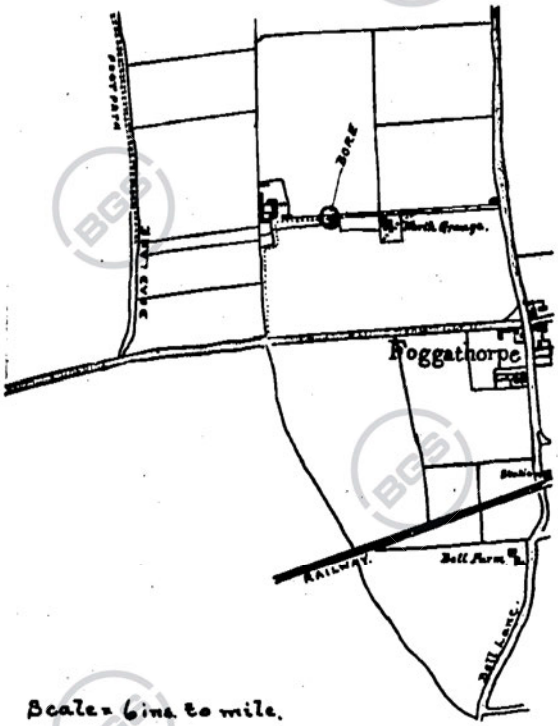
Letter from Mrs. W. A. Rigby, Rush House, Holme-on-Spalding Moor, 21st. Nov. 1942, in answer to a general enquiry regarding wells :-

"Private bore at Mr. Blackburn's

Foggathorpe. 8". 120 ft. deep. 2000-3000 galls. yield per hour. Power operated pump. Discontinued after water supply was brought into district by the Council."



71/152.



Scale - 6 ins. to mile.

BOREHOLE LOG

BOREHOLE No. 298
BOREHOLE DIAMETER 8"
WATER STRUCK AT 6'0"

SITE: Drax - Norton
SE 73 NE 6
75088 38875

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	SAMPLE DETAILS: LEVEL	NUMBER OF BLOWS	TYPE AND REF.
22.4.69				TOPSOIL.	1'6"	+22.0 +20.5	(6.7m)		
			ENTERED 6'0"	SILTY CLAY. Soft to firm, brown mottled grey and orange with some organic content	6'0"	+16.0	5'0" to 6'6"		D
				SANDY SILT. Light brown with pockets of fine sand.			8'6"		D
							10'6" to 11'6"	2 for 18"	X
							12'6"		D
							16'6"		D
				SILTY CLAY. Soft, brown slightly laminated.	18'0"	+4.0			
							20'0" to 21'6"		D
							25'0" to 26'6"		D
23.4.69	30'0"		FINAL LEVEL 1'0"	End of Borehole.	30'0"	-8.0	28'6" to 30'0"		NR

0 10 20 30 40 50 60 70 80 90 100 110
C.P.T. BLOWS FOR THREE INCHES

SCALE: 5 FEET TO 1 INCH
UNDISTURBED SAMPLES □ DISTURBED SAMPLES ○ WATER SAMPLES ▽ S. P. TESTS X
NO RECOVERY OF SAMPLE ○ NR BULK SAMPLE ⇕

HOLST & CO. LTD.

SITE INVESTIGATION DEPT.
5-7, NEW YORK ROAD
LEEDS, 2

SE 73 NE 6
75088 38875

Contract No. L1933/F1212
Location Drax - Norton
Client C.E.G.B.

Borehole No. 298
Ground Level
Date 23.4.69

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	y lb/cu. ft.	N
TOP SOIL		1'6"	1'6"						
Soft Yellow clay		6'0"	4'6"	5'0" □					
Brown silty sand with a little clay		18'0	12'0	10'0 I					
Laminated clay		30'0" (9.14)	12'0"	20'6 □ 25'0 □ 28'6" □					

Water Struck at 6'0" Maximum Observed Water Level 1'0"

Undisturbed Sample []
Disturbed Sample o
Water Sample A
Penetration Test I

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

BOREHOLE No. 88
BOREHOLE DIAMETER 8"
WATER STRUCK AT 3'6"

SITE: Drax - Norton
SE74NE 16
77071 45342

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	SAMPLE DETAILS: LEVEL	NUMBER OF BLOWS	TYPE AND REF.
24.4.69				TOPSOIL.		+36	(104)		
			STRUCK 3'6"	S.M. SILTY SAND. Grey-brown.	2'6"	+33.5			
							5'0"		0
							5'6" to 6'6"	9	X
				SILTY CLAY. Firm, brown, laminated.	9'0"	+27.0	9'0" to 10'6"		0
				SANDY SILT. Brown.	10'6"	+25.5			
							15'0"		0
							15'6" to 16'6"	12	X
				SILTY CLAY. Soft brown laminated with occasional sand and F.-M. gravel.	21'6"	+14.5	20'6" to 21'6"		X
							to 23'0"		
				S.&G. and GRAVEL. F.-M. white pebbles in a matrix of grey-brown silty F.-C. sand.	24'0"	+12.0	25'6" to 25'6"		X
							30'0"		0
							30'6" to 31'6"		X
				SILTY CLAY Firm, red-brown with some green colouring.	31'6"	+4.5			
			FINAL LEVEL 3'6"	(Probably Weathered Keuper Marl.)			33'6" to 35'0"		0
25.4.69	35'0"			End of Borehole.	35'0"	+1.0			

SCALE: 5 FEET TO 1 INCH C.P.T. BLOWS FOR THREE INCHES
UNDISTURBED SAMPLES □ DISTURBED SAMPLES ○ WATER SAMPLES ▽ S. P. TESTS X
NO RECOVERY OF SAMPLE ⊟ NR BULK SAMPLE ⇕

HOLST & CO. LTD.

SITE INVESTIGATION DEPT.
5-7, NEW YORK ROAD
LEEDS, 2

SE 74 NE ~~B~~ 16
77071 45342

Contract No. L1933/F1212
Location Drax-Norton
Client C.E.G.B.

Borehole No. 88
Ground Level
Date 28.3.69

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	y lb/cu. ft.	N
Sandy Topsoil		2'6"	2'6"						
Compact Sand				6'0"					
			9'0"	I					13
				10'6"					
		11'6"		I					17
Silty Sandy clay		14'0"	2'6"						
				14'6"					
Silty Sand		16'6"	2'6"	D					
Dense sand and gravel									
				24'0"					
			24'0"	I					47
				32'0"					
				I					36
				39'0"					
		40'6"		I					34

Water Struck at 9'0" Maximum Observed Water Level 9'0"

Undisturbed Sample []
Disturbed Sample o
Water Sample Δ
Penetration Test I

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

BOREHOLE LOG

BOREHOLE No. 278A
BOREHOLE DIAMETER 8"
WATER STRUCK AT 7'0"

SITE: Drax – Norton
SE74NE 18
77298 45293

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	SAMPLE DETAILS: LEVEL	NUMBER OF BLOWS	TYPE AND REF.
27.3.69				TOPSOIL.		+38.0			
					1'6"	+36.5			
				F.M. SILTY SAND. Grey-brown.					
	6'0"	5'0"							
			7'0" ENTERED				6'6" to 7'6"	12	X
	11'0"	10'0"	7'0"						
					13'0"	+25.0	12'0" to 13'0"	18	X
	16'0"	15'0"	7'0"	SAND and GRAVEL. F-M white pebbles in a matrix of grey-brown silty sand.			16'3" to 17'3"	16	X
					22'6"	+15.5			
				SILTY CLAY. Generally firm, but occasional soft pockets, red-brown with some green beds.			23'6" to 25'0"		D
7.3.69	27'6"	20'0"	7'0"	(Probably weathered Keuper Marl.)			26'0" to 27'6"		D
					27'6"	+10.5			
				End of borehole.					

10 20 30 40 50 60 70 80 90 100 110

SCALE: 5 FEET TO 1 INCH
C.P.T. BLOWS FOR THREE INCHES
UNDISTURBED SAMPLES □ DISTURBED SAMPLES ○ WATER SAMPLES ▽ S. P. TESTS X
NO RECOVERY OF SAMPLE ▣ NR BULK SAMPLE ⇕

HOLST & CO. LTD.

SITE INVESTIGATION DEPT.
5-7, NEW YORK ROAD
LEEDS, 2

SE 74 NE 18
77298 45293

Contract No. L1933/F1212
Location Drax-Norton
Client C.E.G.B.

Borehole No. 278A
Ground Level
Date 23.3.69

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	y lb/cu. ft.	N
Sandy Topsoil		1'6"	1'6"						
Compact Sand				6'0"					
			9'9"	I					12
	3.43m	11'3"		11'6"					
Silty sand	3.96m	13'0"	1'9"	I					18
Compact Silty Sand and Gravel				15'9					
			9'6"	I					16
	6.86m	22'6"							
Red Sandy Clay	7.32m	24'0"	2'6"	23'6					
				□					
Red and Green Sandy Marl			3'6"	26'0"					
	8.38m	27'6"		□					

Water Struck at 7'0" Maximum Observed Water Level 7'0"

Undisturbed Sample []
Disturbed Sample o
Water Sample Δ
Penetration Test I

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

77304180

SE 74 SE/3 180

6" Sheet 208 NW. (Yorks.)

SEATON ROSS.

SEATON ROSS COMMON.

Letter from Mr. H. Preston, Clerk to the Parish Council, "Sunnyside," Seaton Ross, York, 5th Dec. 1943. [Filed under 71/122.]

"In 1922 or thereabouts, however boring was carried out on what is locally known as Seaton Ross Common.

This was a four inch bore 260 feet deep. After a fortnights trial bore, this was closed down as it yielded water unfit for domestic purposes, containing too many chemicals and was classified by the analyst as Spa Water.

Seaton Ross like other villages in the district have now a water supply laid from the Yorkshire Wolds."

Further letter from Mr. H. Preston, 29 February 1944:-

"... With regard to the Boring on Seaton Ross Common (260 ft. deep). I enclose a rough plan which I hope you will be able to follow. I don't remember the names of the well-sinker and chemists who carried out this work but I am fairly sure it was carried out for Pocklington Rural District Council. The present Sanitary Inspector had a lot to do in connection with it. His address is as follows:- J. M. Mundie, Esq., Sanitary Inspector, Council Offices, Pocklington.

As indicated on the enclosed plan, this boring is at the north end of Seaton Ross Village, behind the five sailed windmill + is 30 yards from the end of what we term as Common lane.

My house is not a quarter of a mile from the

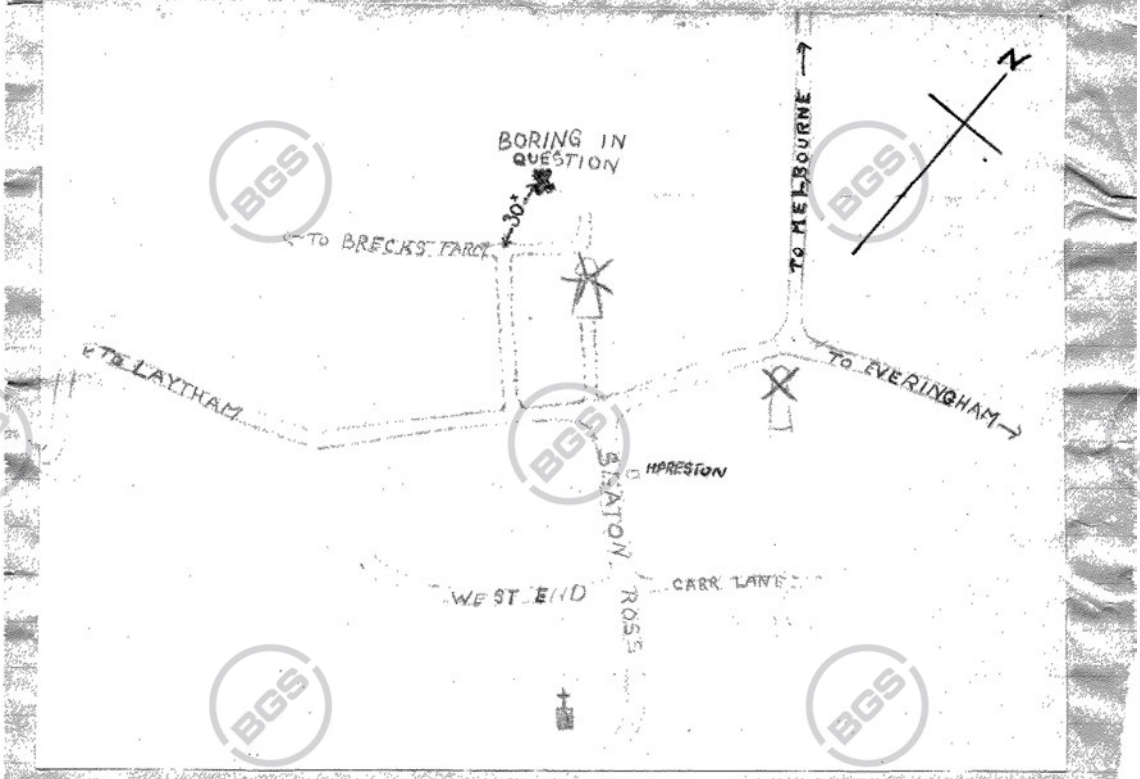
[Sited on 6" Old Field Slip 208 N.W./W.]

BGS ID: 125401 : BGS Reference: SE74SE3
British National Grid (27700) : 477359,441821

SE 74 SE 9

site, which is marked with a small cement flag..."

Plan made by Mr. H. Preston, 28/2/1944.



(3)

a0 71 SE74SE/3
180

SEATON ROSS.

Letter from Mr. J. M. Mundie, Surveyor & Sanitary Officer, Pocklington R.D.C., Council Offices, Grove House, Pocklington, York, 9th March 1944:-

SEATON ROSS COMMON BORE.

"In reply to yours of the 7th inst., this bore was found in October 1921 by Mr. Villiers of Harrogate for the Pocklington R.D.C. It was five inch bore yielding 9,000 per 24 hours. The depth was about 200 feet. The water came from 140 (42-67m) feet and copies of analyses are enclosed.

The water was so hard & so resembled a "Spa Water" in colour & taste that it was abandoned as a supply, the tubes were drawn and the bore closed in 1922.

I have not been able to find a plan of the strata but I remember after passing through about 12 feet of sandy clay it was fairly evenly alternately blue and red marl."

Further letter from Mr. J. M. Mundie, Pocklington R.D.C., 15th March 1944:-

"I have looked up the minutes of 1921 and find the bore was sunk by Mr. J. Villiers of 36, Huntington Road, York.

I was quoting from memory previously and remember a quotation from Symons of Harrogate and Villiers of York and that is where the confusion arose."

Abandoned.

YORKSHIRE RIVER AUTHORITY - **Survey of Existing Boreholes**

I.G.S. Ref. No 71/180 N.G.R. c SE 775 417 Licence No.

OWNERS NAME
ADDRESS Trial bore. Seaton Ross.
Pocklington RDC waterworks.

3.66 clay

App No
Authorised Abstraction
g.p.h.
g.p.d.
m.g.a.

STRATA DETAILS	Thick^ns		Depth
Sandy clay	12	3.66	
Keuper Marl	248	75.59	260 79.25

Dia.
Depth 260'
Lining N.K.
Well sinker Vivian
Date 1921
R.W.L. 140'
Date
Yield. 9000 gpd.
c26' OD

INSPECTION REPORT	WATER QUALITY	DATE OF INSPECTION:-
Present Owner:-	Date June 21	Other Comments:-
Access (Yes or No)	pH	
½" Probe	Total hard ... Perm. ... 1450	
3" Instruments	Temp.hard ... Temp. ... 280	
Landrover	Alk.	
Access Agreed	Ca	
	Mg	
	Na	
	K	Sketch Plan of Location
Water Level at time of insp.	HCO_3	
..... metres below	SO_4	
Date	Cl 60	
Datum above O.D.	NO_3	
R.W.L. above O.D.	Fe	
Date		

SE74/6

71/180

SE 74 SE/3

6" Sheet 208 NW. (Yorks.)

SEATON ROSS.

SEATON ROSS COMMON.

NGR SE 7739 4177

Letter from Mrs. H. Preston, Clerk to the Parish Council, "Sunnyside," Seaton Ross, York, 5th Dec. 1943. [Filed under 71/122.]

"In 1922 or thereabouts, however boring was carried out on what is locally known as Seaton Ross Common.

This was a four inch bore 260 feet deep. After a fortnight's trial bore, this was closed down as it yielded water unfit for domestic purposes, containing too many chemicals and was classified by the analyst as Spa Water.

Seaton Ross like other villages in the district have now a water supply laid from the Yorkshire Wolds."

Further letter from Mrs. H. Preston, 29 February 1944:-

"... With regard to the Boring on Seaton Ross Common (260 ft. deep). I enclose a rough plan which I hope you will be able to follow. I don't remember the names of the well-sinker and chemists who carried out this work but I am fairly sure it was carried out for Pocklington Rural District Council. The present Sanitary Inspector had a lot to do in connection with it. His address is as follows:- J. Mc. Nicholl, Esq., Sanitary Inspector, Council Offices, Pocklington.

As indicated on the enclosed plan, this boring is at the north end of Seaton Ross Village, behind the five sailed windmill & is 30 yards from the end of what we term as Common Lane.

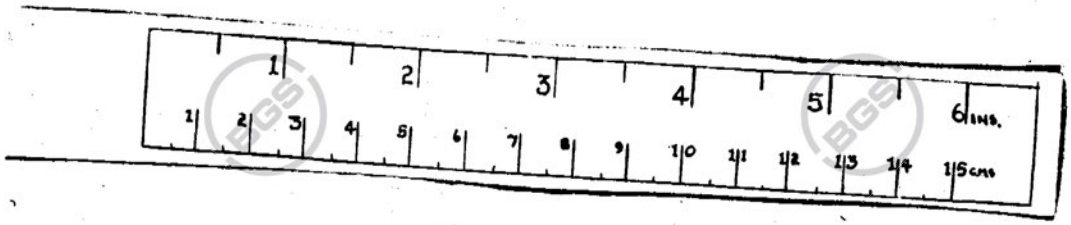
My house is not a quarter of a mile from the

[Sited on 6" Old Field Slip 208 N.W./W.]

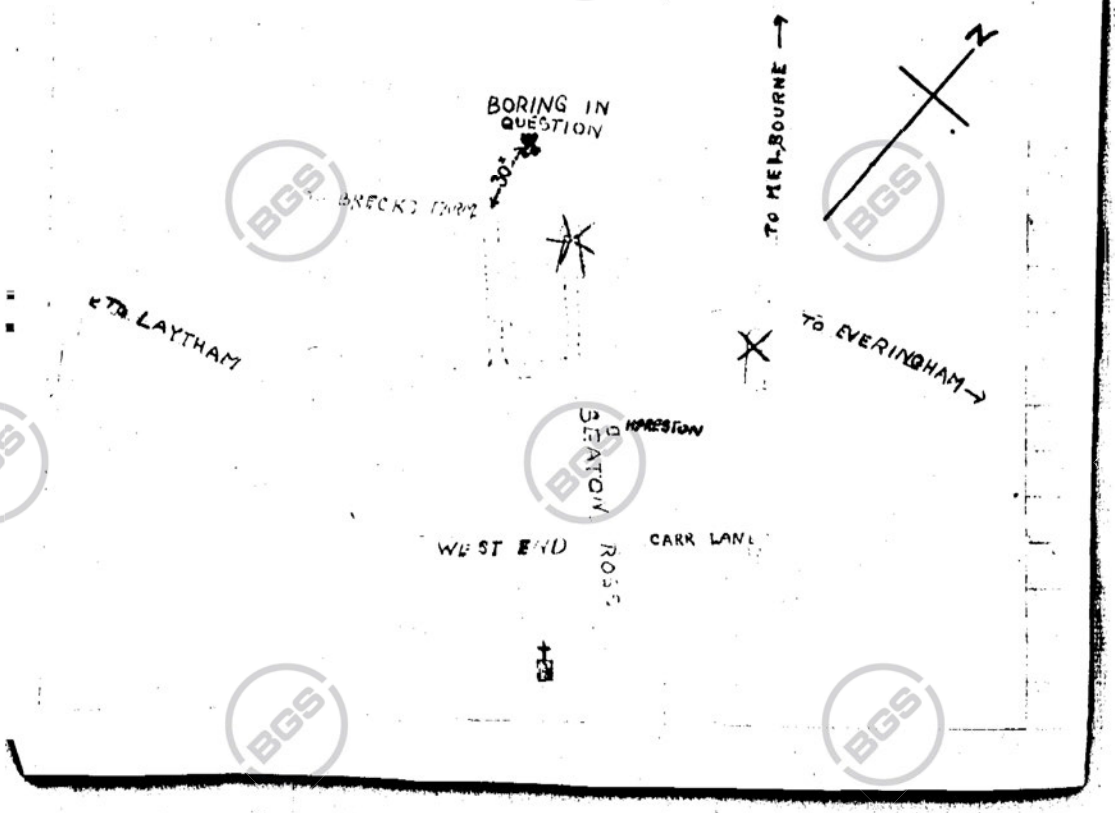
(2)

SE74/6

site, which is marked with a small cement flag..."



Plan made by Thos. H. Preston, 28/2/1944.



(3)

71 SE74/6
71/180

SEATON ROSS.

Letter from Mr. J. M. Hamilton, Surveyor & Sanitary Officer, Pocklington R.D.C., Council Offices, Grove House, Pocklington, York, 9th March 1944:-

SEATON ROSS COMMON BORE.

"In reply to yours of the 7th inst., this bore was found in October 1921 by Mr. Villiers of Harrogate for the Pocklington R.D.C. It was five inch bore yielding 9,000 per 24 hours. The depth was about 200 feet. The water came from 140 feet and copies of analyses are enclosed.

The water was so hard & so resembled an "Spa Water" in colour & taste that it was abandoned as a supply, the tubes were drawn and the bore closed in 1922.

I have not been able to find a plan of the strata but I remember after passing through about 12 feet of sandy clay it was fairly evenly alternately blue and red marl."

Further letter from Mr. J. M. Hamilton, Pocklington R.D.C., 15th March 1944:-

"I have looked up the minutes of 1921 and find the bore was sunk by Mr. J. Villiers of 36, Huntington Road, York.

I was quoting from memory previously and remember a quotation from Symes of Harrogate and Villiers of York and that is where the confusion arose."

---

(4).

71 SE74/6

(COPY.)

PRIVATE.

Telephone: TEMPLE BAR 8993 (3 lines).

The Clinical Research Association, Limited. 180

Telegrams: EDOLE, RAND, LONDON.

WATERGATE HOUSE.
YORK BUILDINGS.
ADELPHI.
LONDON. W.C. 2.

To J. L. Murdie, Esq.,
Pocklington R.D.C.,
Council Offices,
Pocklington.

13/10/1921

In any communication about this report please quote this number

The sample of water marked Seaton Ross, Bore.
collected on 29th. September/21 and received here on 30th. September 1921 has been chemically examined, and I have been instructed to forward the following report thereon:—

ANALYSIS (B).

	PARTS PER 100,000.	GRAINS PER GALLON.
Total solids (dried at 120° C.)	253.90	177.73
Combined chlorine	2.80	1.96
equivalent to Na Cl	4.62	3.23
Nitric nitrogen (nitrates)	0.02	0.014
Nitrous nitrogen (nitrites)	Nil	Nil
Ammoniacal Nitrogen	0.0244	0.0171
Albuminoid Nitrogen	0.0038	0.0027
Oxygen absorbed in 4 hours at 27° C.	0.081	0.057
Lead or copper	Nil	Nil
Temporary Hardness (equivalent to $Ca\ Co_3$)		
Permanent Hardness " "		
Total Hardness " "		

Remarks. As will be seen from the above figures this water contains an enormous amount of mineral solids, sufficient to render it quite unsuitable for domestic purposes.

(Signed) W. J. CURRY
Secretary.

The Association is prepared to make more extended Analyses, both chemical and bacteriological, for special purposes. The fees for such Analyses will be quoted on application to the Secretary.
If a bacteriological examination is required please send for the special apparatus provided by this Association.

(5)

71 SE74/6

(COPY.)

PRIVATE.

71/180

Telephone: TEMPLE BAR 8993 (3 lines).

The Clinical Research Association, Limited. Telegrams: TERRIBLE, RAND, LONDON.

WATERGATE HOUSE,
YORK BUILDINGS,
ADELPHI,
LONDON, W.C. 2.

To J. M. Murdie, Esq.,
Pocklington R.D.C.,
Council Offices,
POCKLINGTON.

14/11/1921

In any communication about this report please quote this number

The sample of water marked Deep Bore, Seaton Ross collected on 11/11/21 and received here on 12/11/21 has been chemically examined, and I have been instructed to forward the following report thereon:—

ANALYSIS (B).

	PARTS PER 100,000.	GRAINS PER GALLON.
Total solids (dried at 120° C.)	258.50	180.95
Combined chlorine	3.00	2.10
equivalent to Na Cl	4.95	3.47
Nitric nitrogen (nitrates)	0.02	0.01
Nitrous nitrogen (nitrites)	Nil	Nil
Ammoniacal Nitrogen	0.0260	0.0182
Albuminoid Nitrogen	0.0044	0.0031
Oxygen absorbed in 4 hours at 27° C.	0.079	0.055
Lead or copper	Nil	Nil
Temporary Hardness (equivalent to $Ca Co_3$)	22.7	15.9
Permanent Hardness " "	145.0	101.5
Total Hardness " "	167.7	117.4

Remarks. As will be seen from the above figures, the high solids and excessive hardness render this water unfit for domestic use. Probably analysis of the mineral constituents would show it similarity to a Spa water.

(Signed) W. J. CURRY
Secretary.

The Association is prepared to make more extended Analyses, both chemical and bacteriological, for special purposes. The fees for such Analyses will be quoted on application to the Secretary.
If a bacteriological examination is required please send for the special apparatus provided by this Association.

RECORD OF WELL (SHAFT OR BORE)

SE 74 SE/5

TKY SE 74 SW. No site

At Park Farm.

Town or Village Melbourne.

County East Yorks. Six-inch quarter sheet SE 74 SE/5

For Mr. Sir Henry Vavasour.

Exact site of well ____ { Attach a tracing from a map, or a sketch-map, if possible.

Level of ground surface above sea-level (O.D.) ____ feet.

Is well-top at ground level? ____ If not, state how far above / below ; ____ feet.

Shaft ____ ft., diameter ____ ft. Details of headings ____

Bore ____ ft. ; diameter of bore : at top ____ ins. ; at bottom ____ ins.

Lengths, diameters, perforations, etc., of lining tubes ____

Water struck at depths, below well-top, of (feet) ____

TEST DETAILS
Month ____
Year ____

Rest-level of water ____ ft. above / below well-top. Suction at ____ ft. Yield on ____ hours' / days'
pumping ____ gallons per ____ (max. capacity of pump ____ g.p.h.),
with depression of ____ feet. Recovery to ____ in ____ mins. / hours.

WORKING CONDITIONS

Rest-level of water in ____ (month), ____ (year), ____ ft. above / below well-top.
Highest " in ____ (month), ____ (year), ____ ft. above / below "
Lowest " in ____ (month), ____ (year), ____ ft. above / below "
Suction at ____ ft. Rate of pumping ____ galls. per ____ for ____ hours per day.
with average depression of ____ ft. Recovery to ____ in ____ mins. / hours

Quality of water (*attach copy of analysis if available*) ____

Well made by ____ Date of well 1796.

Information from ____

ADDITIONAL NOTES.

Section copied from "A General View of the Agriculture of the East Riding of Yorkshire. H.E.Strickland. 1812. p.24. by V.Wilson.

LOG OF STRATA OVERLEAF.

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON, S.W.7.

Date received.	G.S.M. Office File No.	1" N.S. Map No.	1" O.S. Map No.	Site marked (use symbol) on 1" Map.	on 6" Map.

(17208) Wt.42901/0377 10,000 2/41 A.& E.W.Ltd. Gp.686

SE 74 SE/5

71/23

(For Survey use only) GEOLOGICAL CLASSIFICATION	NATURE OF STRATA. If measurements start below ground surface, state how far...		THICKNESS Feet	THICKNESS Inches	DEPTH Feet	DEPTH Inches	
(2) DRIFT	Sandy Loam.	3·05	10	0	10	0	3·05
	Clay, stirs with acids.	1·22	4	0	14	0	4·27
	Quicksands.	2·13	7	0	21	0	6·40
	Warp.	3·96	13	0	34	0	10·36
	Red soapy stone, mixed with warp.	1·83	6	0	40	0	12·19
	Purple gravel.	0·11	2	4	42	4	12·90
MERCIA MUDSTONE GROUP	Blue shale.	0·46	1	6	43	10	13·36
	Red soapy stone.	1·52	5	0	48	10	14·88
	Red soapy stone mixed with colours.	5·49	18	0	66	10	20·37
	White soapy stone.	0·30	1	0	67	10	20·68
	Mixed soapy stone.	0·91	3	0	70	10	21·59
	Blue shale.	0·30	1	0	71	10	21·89
	Red stone.	1·22	4	0	75	10	23·11
	Blue stone mixed with plaster.	0·30	1	0	76	10	23·42
	Hard stone.	0·46	1	6	78	4	23·88
	Rock, mixed with plaster.	0·20		8	79	0	24·08
TRIASSIC OLDERWOOD SANDSTONE GROUP	Grey gritstone.	0·61	2	0	81	0	24·69
	Grey gritstone in layers.	1·52	5	0	86	0	26·21
	Blue shale.	1·22	4	0	90	0	27·43
	Grey gritstone in layers.	5·49	18	0	108	0	32·92
	Blue shale.	0·30	1	0	109	0	33·22
	Red rock in which boring was ceased.		1	0	110	0	33·53

Nov: 12 1796.

ACB
19/7/77

SE 74 SE 5

(3)

MELBOURNE.

(1 in. Map 93 S.E., N.S. 71 ; 6 in. Map 193.)

Well sunk in 1796.

From "a general view of the agriculture of the East Riding of York," 1812, p. 24.

6" sht. 192 SE/

			Thickness. Ft.	Thickness. in.	Depth. Ft.	Depth. in.
DRIFT	Alluvium and Glacial Drift.	Sandy loam	10	0	10	0
		Clay, calcareous	4	0	14	0
		Quicksand	7	0	21	0
		Warp	13	0	34	0
		Red soapy stone mixed with warp	6	0	40	0
		Purple gravel	2	4	42	4
TRIASSIC — MERCIA MUDSTONE GROUP	Keuper Marl.	Blue shale	1	6	43	10
		Red soapy stone	5	0	48	10
		Red soapy stone, mixed with colours	18	0	66	10
		White soapy stone	1	0	67	10
		Mixed soapy stone	3	0	70	10
		Blue shale	1	0	71	10
		Red stone	4	0	75	10
		Blue stone mixed with plaster	1	0	76	10
		Hard stone	1	6	78	4

This record is not complete as original MS.

Also given as above in Mem. Geol. Surv., Geol. York & Hull, 1886, p. 9.

Lapworth, 1933. E.R.W.S., Hydrogeol. Surv., p. 57:

"Melbourne. Depth of well at top 78 ft.

Thickness of drift or alluvium above Trias 42 ft.

In Keuper Marl. Not in use."

Printed record checked with Prof. Kendall's notebook, p. 49:-

Surface C. 25' 0. D. (7·62) [E.K.B., 16/8/42]

The purple gravel is stated to be 2' 6" in notebook.

Letter from Mrs G. H. Mainwaring, Kingsbrook, Melbourne, York, 24 May 1943 :-

"... Next there may be a deep well at Waplington Hall an old place 3 miles from here in the other direction towards Pocklington 6 miles. Address. The Mother Superior, Waplington Hall, Melbourne, York. I thought you might write to that address as it is an old place & nearest Melbourne. I am told by many there are no very deep wells at Melbourne. We have lived here

Published in

"Water Supply of the

page 46

= 193 c.w./fd. (Water Lvl) + 6" [illegible] 192 SE/E

2/W2 25 35

here nearly 50 years, my dear late husband was School-master here & knew most of the village from end to end.

I will keep the matter before me & if any further information comes to hand I will let you know."

Letter rec'd [illegible] 22/6/43.

Further letter received from Mrs Hainwaring, 19/6/43:-

" I have to-day heard that the 78 ft. deep well at Melbourne is at Park Farm, Melbourne. Also there is a deep bore there, I remember something about it just before the last War, boring for coal or minerals etc. I don't know the present tenants name the farm has changed hands many times since then, but the owners is Messrs. H. Reeves & Co., 42 Old Broad St., London, E.C. who owns part of the Melbourne Estate."

[redacted]

[redacted]

SE 74 SE/5

SE 75 SW 1/23

MELBOURNE.

PARK FARM.

Letter from Mrs G. H. Mainwaring, Kingsbrook, Melbourne, York, 18th June 1943:-

"I have to day heard that the 78 ft. deep well at Melbourne is at Park Farm. Also there is a deep bore there, I remember something about it just before the last war, boring for coal or minerals etc."

Letter from messrs. H. Reeves & Co., Solicitors, 42 Old Broad St., London, E.C.2, 10th August 1943:-

"Our Clients, The Beamborough Estate Co., Ltd., are the owners of the Melbourne Estate, and we believe there is a deep well at Park Farm, Melbourne and enclose a sketch showing the exact position according to their records. We have no precise information as to the well. We believe the previous owners or their licencees undertook some boring for coal in the past but very much regret we have no details. No doubt the Mines Department could help us to this."

Letter sent to the Occupier, Park Farm requesting details. 3rd August 1943.

It is doubtful whether this is the well mentioned 1796 - we have no actual proof.

E.K. Burch 13/8/43.

Reminder sent, 28/9/43.

YORKSHIRE RIVER AUTHORITY – Survey of Existing Boreholes

Site Investigation.

I.G.S. Ref. No 71/23 N.G.R. approx SE 75 428

Licence No.

OWNERS NAME .....

ADDRESS Park Farm. Helmsley

App No

Authorised Abstraction

g.p.h.
g.p.d.
m.g.a.

12.9 diam.?

Depth	Thickns	STRATA DETAILS
12.9	12.9	Warp etc.
43½	0.16	Gravel
78½	2¾	Keuper Marl
230	db	

Dia. .....
Depth .....
Lining .....
Well sinker .....
Date .....
R.W.L. .....
Date .....

c30'd.

INSPECTION REPORT	WATER QUALITY	DATE OF INSPECTION:-
Present Owner:-	Date	Other Comments:-
Access (Yes or No)	pH	
½" Probe	Total hard	
3" Instruments	Temp.hard	
Landrover	Alk.	
Access Agreed	Ca	
	Mg	
	Na	
	K	Sketch Plan of Location
Water Level at time of insp.	HCO_3	
..... metres below	SO_4	
Date	Cl	
Datum above O.D.	NO_3	
R.W.L. above O.D.	Fe	
Date		

RECORD OF WELL (SHAFT OR BORE)

~~NE~~ SE 74 SE/5

SE 74/21

7 1/23

N/S.

At Park Farm.

Town or Village Kelbourne.

County East Yorks. Six-inch quarter sheet

For Mr. Sir Henry Vavasour.

Exact site of well SE 7512 4286 (NGR taken from NGDC Ref 14.12.99)

Attach a tracing from a map, or a sketch-map, if possible.

Level of ground surface above sea-level (O.D.) feet.

Is well-top at ground level? If not, state how far above / below feet.

Shaft ft., diameter ft. Details of headings

Bore ft.; diameter of bore: at top ins.; at bottom ins.

Lengths, diameters, perforations, etc., of lining tubes

Water struck at depths, below well-top, of (feet)

TEST DETAILS Month Year

Rest-level of water ft. above / below well-top. Suction at ft. Yield on hours' / days'

pumping gallons per (max. capacity of pump g.p.h.),

with depression of feet. Recovery to in mins. / hours.

WORKING CONDITIONS

Rest-level of water in (month), (year), ft. above / below well-top.

Highest " in (month), (year), ft. above / below "

Lowest " in (month), (year), ft. above / below "

Suction at ft. Rate of pumping galls. per for hours per day.

with average depression of ft. Recovery to in mins. / hours

Quality of water (*attach copy of analysis if available*)

Well made by Date of well 1796.

Information from

ADDITIONAL NOTES.

Section copied from "A General View of the Agriculture of the East Riding of Yorkshire. H.E.Strickland. 1812. p.24. by V.Wilson.

LOG OF STRATA OVERLEAF.

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON, S.W.7.

Date received.	G.S.M. Office File No.	1" N.S. Map No.	1" O.S. Map No.	Site marked (use symbol) on 1" Map.	on 6" Map.

(17308) Wt.42901/0377 10,000 2/41 J.J. & E.W.Ltd. Gp.656

SE74/21.

(For Survey use only) Geological Classification	Nature of Strata. If measurements start below ground surface, state how far...	Thickness Feet	Thickness Inches	Depth Feet	Depth Inches
(2)	Sandy Loam.	10	0	10	0
	Clay, stirs with acids.	4	0	14	0
	Quicksands.	7	0	21	0
DRIFT	Warp.	13	0	34	0
	Red soapy stone, mixed with warp.	6	0	40	0
	Purple gravel.	2	4	42	4
	Blue shale.	1	6	43	10
	Red soapy stone.	5	0	48	10
Marlstone	Red soapy stone mixed with colours.	18	0	66	10
Marlstone	White soapy stone.	1	0	67	10
Group.	Mixed soapy stone.	3	0	70	10
	Blue shale.	1	0	71	10
	Red stone.	4	0	75	10
	Blue stone mixed with plaster.	1	0	76	10
	Hard stone.	1	6	78	4
Triassic	Rock, mixed with plaster.		8	79	0
	Grey gritstone.	2	0	81	0
Sherwood	Grey gritstone in layers.	5	0	86	0
Sandstone	Blue shale.	4	0	90	0
Group	Grey gritstone in layers.	18	0	108	0
	Blue shale.	1	0	109	0
	Red rock in which spring was ceased.	1	0	110	0

Nov: 12 1796.

per A.C. Benfield
19.7.77

? 71/3

(5) MELBOURNE. SE74/21 23

PARK FARM.

letter from Mrs G. H. Mainwaring, Kingsbrook, Melbourne, York, 18th June 1943:-

"I have to day heard that the 78 ft. deep well at Melbourne is at Park Farm. Also there is a deep bore there, I remember something about it just before the last war, boring for coal or minerals etc."

---

letter from messrs. H. Reeves & Co., Solicitors, 42 Old Broad St., London, E.C.2, 10th August 1943:-

"Our Clients, The Bramborough Estate Co., Ltd., are the owners of the Melbourne Estate, and we believe there is a deep well at Park Farm, Melbourne and enclose a sketch showing the exact position according to their records. We have no precise information as to the well. We believe the previous owners or their licencees undertook some boring for coal in the past but very much regret we have no details. No doubt the Mines Department could help us to this."

Letter sent to the Occupier, Park Farm requesting details, 3rd August 1943.

It is doubtful whether this is the well made in 1796 — we have no actual proof.

EK Bush 13/8/43.

Reminder sent, 28/9/43.

SE 74 SE/5

SE74/21

71/23

(3)

MELBOURNE.

(1 in. Map 93 S.E., N.S. 71 ; 6 in. Map 193.)
Well sunk in 1796.
From "a general view of the agriculture of the East Riding of York." 1812, p. 24.

6" shts.
192 SE/

			Thickness Ft.	Thickness in.	Depth Ft.	Depth in.
Drift	Alluvium and Glacial Drift.	Sandy loam	10	0	10	0
		Clay, calcareous	4	0	14	0
		Quicksand	7	0	21	0
		Warp	13	0	34	0
		Red soapy stone mixed with warp	6	0	40	0
		Purple gravel	2	4	42	4
Triassic	Mercia Mudstone Group / Keuper Marl.	Blue shale	1	6	43	10
		Red soapy stone	5	0	48	10
		Red soapy stone, mixed with colours	18	0	66	10
		White soapy stone	1	0	67	10
		Mixed soapy stone	3	0	70	10
		Blue shale	1	0	71	10
		Red stone	4	0	75	10
		Blue stone mixed with plaster	1	0	76	10
		Hard stone	1	6	78	4

This record is not complete see original. G.B.

per A.C. Benfield 19.7.77

Also quoted as above in Mem. Geol. Surv., Geol. York & Hull, 1886, p. 9.

Lapworth, 1933. E.R.W.S., Hydrogeol. Surv., p. 57:
"Melbourne. Depth of well & bore 78 ft.
Thickness of drift & alluvium above Trias 42 ft.
In Keuper Marl. not in use."

Printed record checked with Prof. Kendall's notebook, p. 49:-
Surface c. 25' O.D. [G.R.B., 16/8/42.]
The purple gravel is stated to be 2' 6" in notebook.

Letter from Mrs. G. H. Mainwaring, Kingsbrook, Melbourne, York. 24 May 1943:-
"... Next there may be a deep well at Waplington Hall an old place 3 miles from here in the other direction towards Pocklington 6 miles. Address. The Mother Superior, Waplington Hall, Melbourne, York. I thought you might write to that address as it is an old place & nearest Melbourne. I am told by many there are no very deep wells at Melbourne. We have lived here

Published in
"Water Supply of the [illegible]"
page 46

N[illegible] 193 [illegible] (Water [illegible]) & 6" Old Field [illegible], 192 S.E.

SE74/21*.

(A)

here nearly 50 years, my dear late husband was School-master here & knew most of the village from end to end.

I will keep the matter before me & if any further information comes to hand I will let you know."

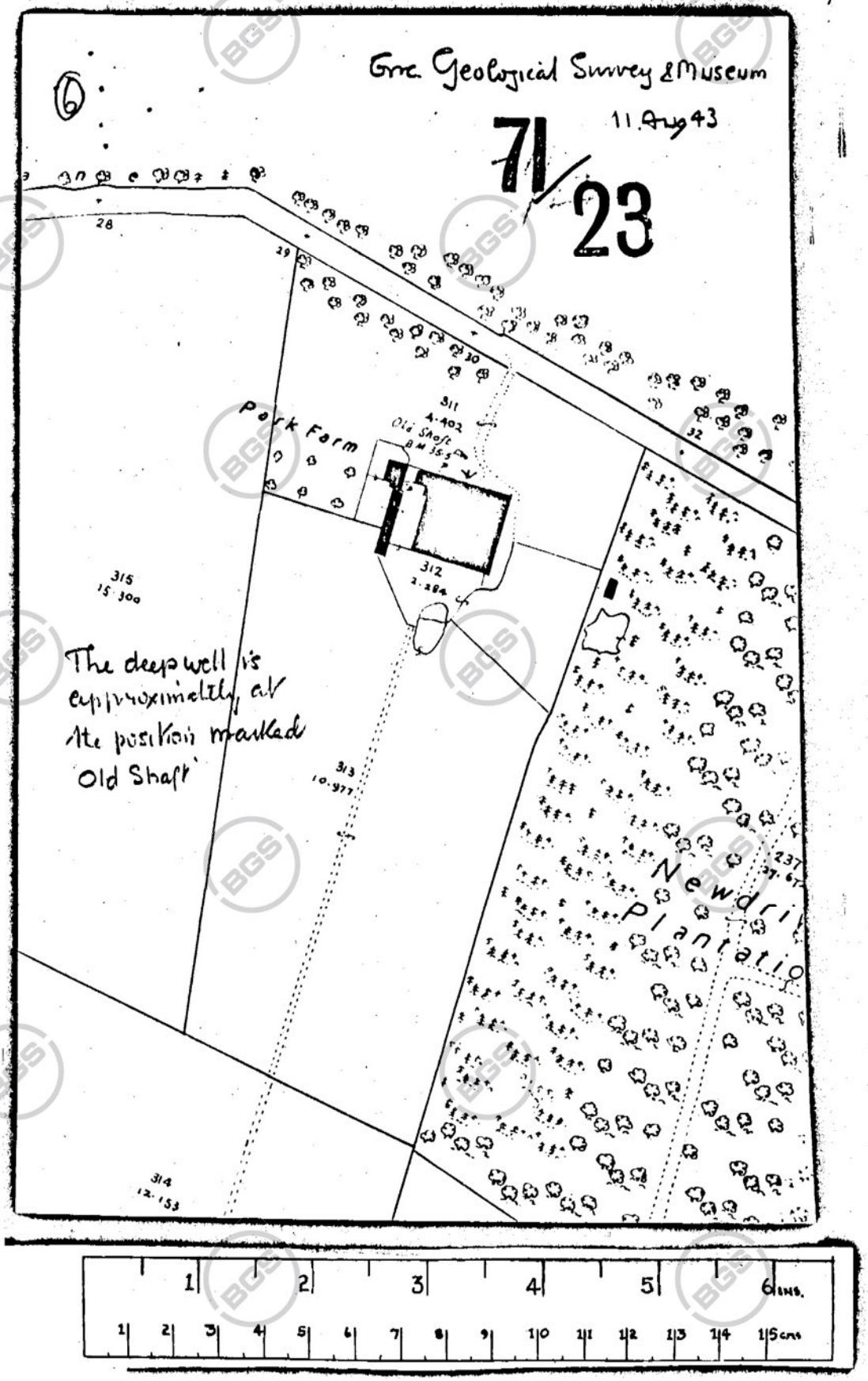
Letter sent to Wapletington Hall. 22/6/43.

Further letter received from Mrs Hainwaring. 19/6/43:-

" I have to-day heard that the 78 ft. deep well at Hasbourne is at Park Farm, Hasbourne. Also there is a deep bore there, I remember something about it just before the last War, boring for coal or minerals etc. I don't know the present tenants name the farm has changed hands many times since then, but the owners is Messrs. H. Reeves & Co. 42 Old Broad St, London, E.C. who owns part of the Hasbourne Estate."

BGS ID: 125403 : BGS Reference: SE74SE5
British National Grid (27700) : 475128,442860

SE 74/21



RECORD OF WELL

For Institute use only Licence No. N/5406.

SE74SE/8

71/223

At ....MELROSE FARM..........
..........(OLD AIRFIELD)..........
Town or Village .....MELBOURNE.......
County ....YORK.................

EXACT SITE OF WELL

Six-inch National Grid sheet and reference ......SE74SE 7631 4263..................
For ....J. R. ROWBOTTOM ....(FARMER)..............................
State whether owner, tenant, builder, contractor, consultant, etc.: ....OWNER..............
Address (if different from above) ....A/A..............................
....

Level of ground surface above sea level (O.D.) ....25........ft (.........................m)

*DELETE AS NECESSARY

If well top is not at ground level state how far above:* below: ....ft (......................m)
SHAFT...........ft (............m); diameter............ft (............m);
HEADINGS (please attach details—dimensions and directions)
BORE...............ft (...1[illegible]........m); diameter: at top...............in (..3[illegible]........mm);
at bottom...............in (...[illegible].......mm)
Full details of permanent lining tubes (position, length, inner and outer diameters, plain slotted etc.):
...[illegible] metres....solid steel...25[illegible]mm...........................
...[illegible] metres....slotted steel....2[illegible]mm..........................
....
....

Water struck at depths of ....ft (.....[illegible]...26........m) [illegible]

TEST CONDITIONS

Rest level of water..........ft (....4....m) ~~above~~* below well top. Suction at.......... ft (...30......m)
Yield on...22...... hours'* ~~days'~~ test pumping at [illegible]...galls per hour.... (............ l/s) with depression to............ft (...12......m) below well top. Recovery to rest level in .... ~~mins~~* hours
Capacity of pump.[illegible]...g.p.h. (............l/s)
Date of measurements.........................

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:
Make and/or type .[illegible]...3........... Motive power..Electric............
Capacity..[illegible]....galls (............m³) per hour. Suction at .... ft (.......30........m) below well top. Amount pumped.....[illegible]....galls (...................m³) per day. Estimated consumption ....galls (...............m³) per week

Well made by ..A. [illegible] Ltd.................. Date of sinking..March...1981.....

ADDITIONAL NOTES ANALYSIS (please attach copy if available)

LOG OF STRATA OVERLEAF

Received from ....
....A. Munro & Co.........
....
Date.....14/10/82........
Observation well...................
Recorder ....
ER log ....
Site marked on 1" map ....⊙.........

INSTITUTE OF GEOLOGICAL SCIENCES

SE 74 SE/8

For Institute use only

Geological Classification	Nature of Strata *If measurements start below ground surface, state how far.*	Thickness Feet	Thickness Inches	Thickness Metres	Depth Feet	Depth Inches	Depth Metres
DRIFT	Top Soil & Sand			2:5			2:5
	Blue Clay			11:5		14:0	13:6
MERCIA MUDSTONE GROUP	Marl with Gypsum Beds			43:00		57:0	56:0
SHERWOOD SANDSTONE GROUP	Weathered Sandstone			8:00		65:0	64:0
	Sandstone			76:00		141:0	140:

ACS
24/12/82.

SE 74 SE 8

J. Howe[illegible], Esq.,
Melrose Farm,
~~YORKSHIRE~~, MELBOURNE
York.

30th March, 1[illegible].

Strata Details- Borehole at SE 763 427

	~~Thickness~~ (metres)	~~Depth~~ (metres)
Top Soil & Sand	2.5	2.5
Blue Clay	11.5	13.5
Marl with Gypsum Bands	43.0	56.0
Sandstone (weathered)	[illegible]	4.0
Sandstone	70.0	140.0

[illegible] will be cutting to [illegible] metres.
[illegible] about a week doing to 140 metres.

YORKSHIRE WATER AUTHORITY – Survey of Existing Boreholes

I.G.S. Ref. No ..... N.G.R. SE 763 427

Licence No 2/26/34/78

OWNERS NAME J. BOWBOTTOM

ADDRESS MELROSE FARM
MELBOURNE, YORK

App No 5730

Authorised Abstraction
55 m³/h 12,100 g.p.h.
1·32 tcmd 290,400 g.p.d.
51·5 tcm 11·3 m.g.a.
May - Sept.

11·50 day

Depth m	Thick m	STRATA DETAILS
2·5	2·5	TOP SOIL AND SAND
13·0	11·5	BLUE CLAY
56·0	43·0	MARL WITH GYPSUM BANDS
64·0	8·0	SANDSTONE (WATER BEARING)
140·0	76·0	SANDSTONE

Dia. 250 mm
Depth 140 m
Lining 250 mm to 140 m slotted
Well sinker MUMFORD
Date March 1981
R.W.L. 4·83 m
P.W.L. 12·30 m
AT 45 m³/h

TRANSMISSIVITY & SS = 191 m²/d

INSPECTION REPORT	WATER QUALITY	DATE OF INSPECTION:-
Present Owner:-	Date	Other Comments:-
Access (Yes or No)	pH	
½" Probe	Total hard	
3" Instruments	Temp.hard	
Landrover	Alk.	
Access Agreed	Ca	
	Mg	
	Na	
	K	Sketch Plan of Location
Water Level at time of insp.	HCO_3	
..... metres below	SO_4	
Date	Cl	
Datum above O.D.	NO_3	
R.W.L. above O.D.	Fe	
Date		

RECORD OF WELL

For Institute use only Licence No. N 15406.

SE74/13.

71/223

At MELROSE FARM
(OLD AIRFIELD)
Town or Village MELBOURNE
County YORK

EXACT SITE OF WELL

Six-inch National Grid sheet and reference SE74SE 7631 4263

For J. R. ROWBOTTOM (FARMER)

State whether owner, tenant, builder, contractor, consultant, etc.: OWNER

Address (if different from above) A/A

Level of ground surface above sea level (O.D.) 25 ft (.....m)

*DELETE AS NECESSARY

If well top is not at ground level state how far above:* below: ~~.....~~ ft (.....m)

SHAFT ~~.....~~ ft (.....m); diameter ~~.....~~ ft (.....m);

HEADINGS (please attach details—dimensions and directions)

BORE.....ft (...140.....m); diameter: at top.....in (..350.....mm);

at bottom.....in (...200.....mm)

Full details of permanent lining tubes (position, length, inner and outer diameters, plain slotted etc.):

0 - 69 metres solid steel 350 mm

60 - 140 metres slotted steel 200 mm

TEST CONDITIONS

Water struck at depths of .....ft (.....56.....m) below well top

Rest level of water.....ft (....4....m) ~~above~~ below well top. Suction at..... ft (...30..... m)

Yield on...22.....hours'* ~~days~~ test pumping at 12,000 ...galls per hour.... (..... l/s) with

depression to.....ft (...12.....m) below well top. Recovery to rest level in ..... ~~mins~~ hours

Capacity of pump 18,000 ...g.p.h. (.....l/s)

Date of measurements.....

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type Grundfos SP 70-3..... Motive power Electric.....

Capacity 12,000 ...galls (.....m³) per hour. Suction at ..... ft (.....30..... m)

below well top. Amount pumped.....288,000...galls (.....m³) per day. Estimated

consumption .....galls (.....m³) per week

Well made by A. Munro & Co Ltd..... Date of sinking. March ...1981.....

ADDITIONAL NOTES ANALYSIS (please attach copy if available)

LOG OF STRATA OVERLEAF

Received from .....
A. Munro & Co.....
.....
Date 14/10/82.....
Observation well.....
Recorder .....
ER log .....
Site marked on
1" map ..... O .....
6" map—Grid Sheet... O .....
(use symbol)
Copy to... Y.A.W. Hide ...
.....
Date.....

INSTITUTE OF GEOLOGICAL SCIENCES
HYDROGEOLOGY UNIT
EXHIBITION ROAD
LONDON SW7 2DE

IGS 2494 10 000 7/79

71/223.

For Institute use only

Geological Classification	Nature of Strata *If measurements start below ground surface, state how far.*	Thickness Feet	Thickness Inches	Thickness Metres	Depth Feet	Depth Inches	Depth Metres
Drift	Top Soil & Sand			2:5			2:5
	Blue Clay			11:4			13:9
Mercia Mudstone Group	Marl with Gypsum Bands			43:00			56:00
Sherwood Sandstone Group	Weathered Sandstone			8:00			64:00
	Sandstone			76:00			140:0

pp ACB.
24/12/82

Central L.S.
Yorkshire N.R.A.

SE74/13

71

SE74SE/8

J. Boulton, Esq.,
Melrose Farm,
MELBOURNE,
York.

30th March, 1961.

Strata Details- Borehole at SE 763 427

		Thickness (metres)	Depth (metres)
DRIFT	Top Soil & Sand	2.5	2.5
	Blue Clay	11.5	13.0
MERCIA MUDSTONE G	Marl with Gypsum Bands	43.0	56.0
SHERWOOD SANDSTONE G.	Sandstone (weathered)	8.0	64.0
	Sandstone	76.0	140.0

RDL 23.1.91,

250 m.m. Solid Steel Casing to 68 Metres.

200 m.m. Slotted Steel Casing to 140 Metres.

Information from
A. Munro + Co Ltd
2.11.90

DATA ACQUISITION SHEET

MTB/0/1671

MTB1/93

NRA region: Yorks / Northumbria – York

File Number: SE PTD1 – SE64-75

Pump Well Identification:

NRA id No:

BGS (WL) No: SE 74/13

NGR: SE 763 427

Elevation:

Measuring Point:

Site Name: Melrose Farm
Melbourne

Locality: York
N. Yorkshire

Well details:

depth of pumping well: 140m

diameter:

casing details: 0-68m 250mm solid steel
68-140m 200mm slotted steel

☒ observation boreholes

number of obs bhs:

obs bh details:

Aquifer Details:

confined / semi-confined / unconfined

confining layer: Clay + marl above 55ft.

Borehole Stratigraphy	from	to	thick	units
Topsoil + sand	0	2.5	2.5	m
Blue clay	12.5	13.0	11.5	m
Marl + gypsum bands	13.0	56.0	43.0	m
Weathered sandstone	56.0	64.0	8.0	m
AQUIFER → Sandstone	64.0	140	76.0	m

this is as written but it doesn't add up!

Pumping Test Details:

date of test: 3 September 1980

length of test: 3 days

RWL: 4.83m
(DD = 7.47m)

PWL: 12.30m

pumping rate: 10,000 gph

Additional Well Information:

- ☐ Well Loss Data: B..... C..... Efficiency.....
- ☐ Well Acidified
- ☐ Flow Logs
- ☐ Other Geophysical Logs
- ☐ Fissure Information: major inflows from.....to.....
  from.....to.....
  from.....to.....

Aquifer Parameters:

Analysis Type	Transmissivity	Storativity
Calculated Recovery		
Early Recharge	434 m^2/d	
Late Recharge	373 m^2/d	
Residual Drawdown (middle to late time)	360 / 380 m^2/d (Depending upon slope interpretation)	
Reverse Type curve	170 m^2/d *	
Leaky curve plot.	145 m^2/d *	

Confidence:

excellent ☐ ☐ ☑ ☐ ☐ very poor

Notes: It was thought that the original values 360-434 were too high - indicating leakage.

Leaky solutions were tried and zero leakage was found but lower T values resulted.

Work that one out!

* NRA preferred value on summary sheet is $T = 150 m^2/d$ (Average of these two)

BOREHOLE LOG

BOREHOLE No. 280
BOREHOLE DIAMETER 6"
WATER STRUCK AT 2'6"

SITE: Drax - Norton
SE 74SE 11
77066 44801

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	SAMPLE DETAILS LEVEL	NUMBER OF BLOWS	TYPE AND REF.
11.3.69				TOPSOIL.		+34 (10·36m)			
			2'6" ENTERED	F.M. SAND. Grey-brown, silty.	1'6"	+32.5	2'6"		▽
							5'6" to 6'6"	9	X
	12'0"	11'0"					11'0" to 12'0"	10	X
	17'0"	16'0"							
			WATER SEALED 19'6"	SILTY CLAY. Soft to firm, light brown laminated with lenses of brown F.M. sand and silt.	18'0"	+16	18'9" to 20'3"		▯
				SAND and GRAVEL. F.M. white pebbles in a matrix of grey-brown silty F.M.C. sand.	20'0"	+14	22'0"		O
	22'0"	21'0"	WATER SEALED 24'0"	MARL CLAY. Stiff becoming hard with depth. Red-brown and green, friable and weakly cemented in places. (Probably weathered Keuper marl.)	22'6"	+11.5	23'9" to 24'9"	25	X
							26'6" to 28'0"		▯
							29'0" to 30'0"	42	X
11.3.69	32'6"	26'0"	SEALED				32'0"		O
				End of Borehole.	32'6"	+1.5			

C.P.T. BLOWS FOR THREE INCHES: 10 20 30 40 50 60 70 80 90 100 110

SCALE: 5 FEET TO 1 INCH
UNDISTURBED SAMPLES ▯ DISTURBED SAMPLES O WATER SAMPLES ▽ S. P. TESTS X
NO RECOVERY OF SAMPLE ▯ NR BULK SAMPLE ⇕

HOLST & CO. LTD.

SITE INVESTIGATION DEPT.
5-7, NEW YORK ROAD
LEEDS, 2

SE 74 SE 11
77066 44801

Contract No. L1933/F1212 Borehole No. 280
Location Drax-Norton Ground Level
Client C.E.G.B. Date 12.3.69

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	y lb/cu. ft.	N
Sandy Topsoil		1'6"	1'6"						
Loose to compact sand				5'0" I					9
			16'6"	10'6 I					10
		18'0"		18'9					
Sandy Silt		20'0"	2'0"	▯					25
Silty Laminated Clay		21'6"	1'6"						
Compact sand and gravel	7.55m	24'9"	3'3"	23'3 I					
Sandy Green & Red mottled clay		27'0"	2'3"	26'6 ▯					29
Green Marly sandy clay	9	31'6"	4'6"	28'6 I					
Green shaley Marl	9.91m	32'6"	1'0"						

Water Struck at 2'6" Maximum Observed Water Level 2'6"

Undisturbed Sample ▯
Disturbed Sample o
Water Sample Δ
Penetration Test I

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

BOREHOLE No. 281
BOREHOLE DIAMETER 6"
WATER STRUCK AT 3'0"

SITE: Drax - Norton
SE 74SE 12
769134 44407

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	SAMPLE DETAILS: LEVEL	NUMBER OF BLOWS	TYPE AND REF.
11.3.69				TOPSOIL.	1'0"	+26 +25	(7.92m)		
			WATER ENTERED 3'0"	SANDY CLAY. Firm, brown.	2'0"	+24			
				Sandy Sand. Grey-brown.			5'6" to 6'6"	5	X 0
							10'0" 10'6" to 11'6"	4	X 0
			SEALED 14'0"	SILTY CLAY. Firm, light brown, with pockets of light brown F...G. silty sand.	12'6"	+13.5			
			ENTERED 16'6"				15'0" to 16'6"		0
				Sand and Silty Clay. Firm, with cobbles in a matrix of [illegible]	18'0"	+8.0	19'0"		0
				Firm, Clay. Firm, [illegible] brown and green, [illegible] weak [illegible] fissured. (Probably weathered Till or Marl.)	21'0"	+5.0	20'6" to 21'6"	8	X 0
							23'0" to 24'6"		0
							27'6" to 29'0" 29'6" to 30'6"	56	0 X 0
11.3.69			10'0"				31'0" to 32'0"		0
				Hit Outer Hole.	33'0"	-7.0	to 33'0"	90*	X 0

10 20 30 40 50 60 70 80 90 100 110

SCALE: 5 FEET TO 1 INCH C.P.T.: BLOWS FOR THREE INCHES
UNDISTURBED SAMPLES □ DISTURBED SAMPLES ○ WATER SAMPLES ▽ S. P. TESTS X
NO RECOVERY OF SAMPLE ◻ NR EXTRAPLATED VALUE * BULK SAMPLE ⇕

HOLST & CO. LTD.

SITE INVESTIGATION DEPT.
5-7, NEW YORK ROAD
LEEDS, 2

SE 74 SE 12
76913 44407

Contract No. L1933/F1212
Location Drax-Norton
Client C.E.G.B.

Borehole No. 281
Ground Level
Date 12.3.69

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	y lb/cu. ft.	N
~~Sandy soil~~		~~1'0"~~	~~1'0"~~						
Soft firm brown sandy clay		2'0"	1'0"	5'0"					5
Loose fine brown sand		12'6"	10'6"	10'0"					4
Firm brown clay with silt partings		18'0"	5'6"	15'0"					
Small gravel sand and flints	6.4m	21'0"	3'0"	20'0					
Firm silty mark turning stiff with green bands from 28'6" and hard sandy bands from 32'0"	10.1m	33'0"	12'0"	23'0" 27'6" 29'0" 31'0" 32'0"					8 56 90*

Water Struck at 3'0"
Maximum Observed Water Level 3'0"

Undisturbed Sample []
Disturbed Sample o
Water Sample Δ
Penetration Test I

*extrapolated value

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

BOREHOLE LOG

BOREHOLE No. 283
BOREHOLE DIAMETER 8"
WATER STRUCK AT 5'0"

SITE: Drax - Norton
SE 74 SE 13
76673 43769

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	SAMPLE DETAILS: LEVEL	NUMBER OF BLOWS	TYPE AND REF.
18.3.69				Top Soil.		+32 (9.75m)			
				Sandy Clay. Grey-brown.	1'9"	+30.25	1'9"		0
							3'0"		0
			ENTERED 5'0"						
	6'0"	5'0"					5'0" to 6'0"	1 for 18"	X-0
							8'0"		0
	11'0"	10'0"					10'6" to 11'6"	1 for 18"	X-0
	16'0"	15'0"					15'6" to 16'6"	5	X
	21'0"	20'0"					20'2"		0
			23'6"						
			SEALED	Silty Clay. Brown laminated with light brown silty fine sand.	23'0"	+9.0	23'6" to 25'0"		
	26'0"	25'0"							
			ENTERED 28'0"						
				Sandy Gravel. White ... pebbles in a matrix of grey ... silty ... sand.	28'0"	+4.0	29'6" to 30'6"	16	X
	31'0"	30'0"							
					35'0"	-3.0	35'0" to 36'6"		
18.3.69	36'6"	35'0"		Silty Clay. Firm, red-brown friable, with weakly cemented patches coloured green. (Probably weathered Keuper Marl.)	36'6"	-4.5			

0 10 20 30 40 50 60 70 80 90 100 110

SCALE: 5 FEET TO 1 INCH
C.P.T. BLOWS FOR THREE INCHES
UNDISTURBED SAMPLES □ DISTURBED SAMPLES ○ WATER SAMPLES ▽ S. P. TESTS X
NO RECOVERY OF SAMPLE ◻ NR BULK SAMPLE ⇕

HOLST & CO. LTD.

SITE INVESTIGATION DEPT.
5-7, NEW YORK ROAD
LEEDS, 2

SE 74 SE [redacted] 13
76673 43769

Contract No. L1933/F1212
Location Drax-Norton
Client C.E.G.B.

Borehole No. 283
Ground Level
Date 15.3.69

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	y lb/cu. ft.	N
Sandy Topsoil		1'9"	1'9"						
				4'6" I					1
Very loose sand				10'0" I					1
			21'6"	15'0" I					5
		23'3"		23'6" □					
Silty laminated clay			5'0"	28'0" I					16
		28'3"							
Compact Sand and Gravel			4'3"						
		32'6"							
Red Sandy Clay & Gravel		10.06m 33'0"	6"	35'0" □					
Red Sandy Clay		36'3"	3'3"						
Red and Green Sandy clay		36'6" 11.13m	3"						

Water Struck at 5'0" Maximum Observed Water Level 5'0"

Undisturbed Sample □
Disturbed Sample o
Water Sample Δ
Penetration Test I

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

BOREHOLE LOG

BOREHOLE No. 286
BOREHOLE DIAMETER 6"
WATER STRUCK AT 4'0"

SITE: Drax - Norton
SE 74 SE 14
76143 42936

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	SAMPLE DETAILS: LEVEL	NUMBER OF BLOWS	TYPE AND REF.
14.3.69				TOPSOIL.		+28.0	(8-53)		
					2'0"	+26.0			
			ENTERED 4'0"	Peat, dark grey brown.			3'0"		0
							5'6" to 6'6"	5	X
							8'0"		0
							10'6" to 11'6"	7	X
							13'0"		0
							15'6" to 16'6"	7	X
							18'0"		0
					21'0"	+7.0	20'6" to 21'6" to 23'0"	8	X
		23'0"	SEALED	Fine, dark brown, saturated silt with fine sand.					
							25'0"		0
		28'0"	28'0"				26'6" to 28'0"		
				Sand, dark grey brown, fine to medium.	28'0"	0.0			
							30'0"		0
							32'0" to 33'0"	28	X
		39'0"					37'0" to 38'0"	40	X 0
14.3.69					40'6"	-12.5			
			FINAL LEVEL 1'6"	End of Borehole					

SCALE: 5 FEET TO 1 INCH
UNDISTURBED SAMPLES □ DISTURBED SAMPLES O WATER SAMPLES ▽ S. P. TESTS X
NO RECOVERY OF SAMPLE ⊡ NR BULK SAMPLE ⇕

C.P.T. BLOWS FOR THREE INCHES

HOLST & CO. LTD.
SITE INVESTIGATION DEPT.
5-7, NEW YORK ROAD
LEEDS, 2

SE 74 SE 14
76143 42936

Contract No. L1933/F1212
Location Drax-Norton
Client C.E.G.B.

Borehole No. 286
Ground Level
Date 15.3.69

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	y lb/cu. ft.	N
Sandy Soil		2'0"	2'0"						
loose brown sand				5'0" I					5
			19'0"	10'0" I					7
				15'0" I					7
		21'0"		20'0" I					8
Firm Stiff brown clay with silt partings			7'0"	21'6" U					
		28'0"		U					
Compact to dense sand gravel and flints				31'6" I					29
			12'6"	36'6" I					40
	12.35m	40'6"							

Water Struck at 4'0" Maximum Observed Water Level 1'6"

Undisturbed Sample []
Disturbed Sample o
Water Sample Δ
Penetration Test I

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

BOREHOLE LOG

BOREHOLE No. 288
BOREHOLE DIAMETER 8"
WATER STRUCK AT 7'6"

SITE: Drax - Norton
SE 74SE 15
75978 42280

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	SAMPLE DETAILS: LEVEL	NUMBER OF BLOWS	TYPE AND REF.
29.4.69				(Soil)	0'6"	+28.0 +27.5	(8'6"n)		
				SAND. Light brown.					
				SILTY CLAY. Firm, brown, mottled grey, slightly laminated.	4'0"	+24.0	5'0" to 6'6"		NR 0
			STRUCK 7'6"		8'0"	+20.0	8'6" to 9'6"	18	X 0
				SANDY SILT. Light brown.			10'0"		0
					12'6"	+15.5	12'6" to 13'6"	31	X
				SAND. Fine bands of brown clay.			17'6" to 18'6"	35	X
			25'0" SEALED				21'0"		▽
							22'6" to 23'6"	41	X
					25'0"	+3.0	25'0"		0
				SILTY CLAY. Brown, laminated with some fine sand.			28'6" to 33'6"	42	X 0
			STRUCK 31'0"						
			34'0" SEALED	SAND. With some fine gravel.	32'0"	-4.0	32'6" to 33'6"	53	X 0
				SILTY CLAY. Red-brown. (Probably weathered Keuper Marl.)	34'0"	-6.0			
2.5.69			FINAL LEVEL 1'0"		39'0"	-11.0			
				...ns of Borehole.					

SCALE: 5 FEET TO 1 INCH
C.P.T. BLOWS FOR THREE INCHES
UNDISTURBED SAMPLES □ DISTURBED SAMPLES ○ WATER SAMPLES ▽ S. P. TESTS X
NO RECOVERY OF SAMPLE ◘ NR BULK SAMPLE ⇕

HOLST & CO. LTD.

SITE INVESTIGATION DEPT.
5-7, NEW YORK ROAD
LEEDS, 2

SE 74 SE [redacted] 15
75978 42280

Contract No. L.1933/F.1212
Location Drax - Norton
Client C.E.G.B.

Borehole No. 288
Ground Level
Date 2.5.69

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	y lb/cu. ft.	N
~~TOPSOIL~~		~~0'6"~~	~~0'6"~~						
Light brown sand		4'0"	3'6"	5'0"					
Firm brown mottled clay		8'0"	4'0"	8'0"					18
Silty sand		12'6"	4'6"	12'0"					31
Compact sand and bands of firm brown clay		25'0"	12'6"	17'0					35
				22'0"					41
Stiff laminated clay		32'0"	7'0"	28'0"					42
				32'0"					
~~Sand and occasional gravel~~		34'0"	2'0"						53
Red grey marl		59'0"	5'0"						

Water Struck at 7'6" Maximum Observed Water Level 1'0"

Undisturbed Sample []
Disturbed Sample o
Water Sample Δ
Penetration Test I

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

BOREHOLE LOG

BOREHOLE No. 291 A
BOREHOLE DIAMETER 8"
WATER STRUCK AT 6'0"

SITE: Drax - Norton
SE74SE - 17
75719 41250

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION	DEPTH	O.D. LEVEL	SAMPLE DETAILS: LEVEL	NUMBER OF BLOWS	TYPE AND REF.
26.4.69				Top Soil.	0'6"	+24.0 +23.5	(7.3)		
				SILTY CLAY. Brown, mottled grey and orange.			3'6"		0
			STRUCK 6'0"		6'6"	+17.5			
				SANDY SILT. Light brown.			7'6" to 8'6"	18	X
							11'6" to 12'6"	19	X
							14'6" to 15'6"	23	X
			SEALED 20'0"		19'6"	+4.5			
				SILTY CLAY. Brown laminated with much silt in laminations.					
26.4.69			FINAL LEVEL 1'0"		23'0"	+1.0	22'6"		0
				End of Borehole.					

SCALE: 5 FEET TO 1 INCH
C.P.T. BLOWS FOR THREE INCHES
UNDISTURBED SAMPLES □ DISTURBED SAMPLES ○ WATER SAMPLES ▽ S. P. TESTS X
NO RECOVERY OF SAMPLE ⊡ NR BULK SAMPLE ⇕

HOLST & CO. LTD.

SITE INVESTIGATION DEPT.
5-7, NEW YORK ROAD
LEEDS, 2

NOT MISSED

SE 74 SE-17

Contract No. L.1933/F1212
Location Drax - Norton
Client C.E.G.B.

Borehole No. 291 Rept
Ground Level
Date

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	y lb/cu. ft.	N
TOP SOIL		6"	6"						
Yellow mottled clay		6'6"	6'0"	7'0" I					18
Brown silty sand			7'6"	11'0 I					19
	4-88	16'0"		14'0 I					24
Brown silty sand and laminated clay	5.95	19'6"	3'6"						
Stiff brown clay	701	23'0"	3'6"						

Water Struck at 6'0" Maximum Observed Water Level 1'0"

Undisturbed Sample □
Disturbed Sample o
Water Sample ▲
Penetration Test I

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

(1)

SE 74 SW 2 71/184

73004170

6" Yks. 207 NE/W. ELLERTON.

SOUTH ROSS FARM.

Letter from Mrs. John R. Wake, Ellerton Priory, Ellerton, York, 5/11/42. [Filed under 71/37.] :-

"... Mrs. Reginald Lund of Ash Lea, Bratton, may be able to give particulars of deep bore on North Ross Farm [71/183] as he owned these two farms until 1925. Likewise he owns South Ross where another deep bore was put down..."

Letter from Mrs. M. L. Wheldon, F.S.I., F.L.A.S., 5 Coney St., York, 19/11/42:-

"Mrs. Lund has sent me your letter of the 12th instant in reference to Bore holes at North Ross [71/183] & South Ross Farms.

In both cases the water supply was in existence when I took over Mrs. Lund's Agency and I do not know of the existence of any papers that contain the information you ask for.

The pump at South Ross farm is the ordinary type of hand pump and the water is used for drinking and other domestic purposes.

I believe the same remarks apply to North Ross Farm [71/183], but Mrs. Wake will be able to supply the information about that as he purchased the farm from Mrs. Lund some years ago."

Other letter from Mrs. J. R. Wake, 2/2/43:-

South Ross bore (I have evidence) was made on the old hand drawn well & was situate some 15 or 20 feet from a loose-horse box (stable) which was built at the end of the farm house for

6" Sheet 207 N.E./W. (Water-Set).

(2)

SE74SW 32

100

favourite Entines; if one stands in the doorway of this building & steps south towards the pond it should be easy to locate & further the pipe from the hand pump should be a sure guide: I have had chat with a man who remembers following the line when the pipe had gone wrong & was [sic] to repair ..."

(1)

SE74/5 71/184

SE 74 SW/2
NGR SE 73004160

6" Yks. 207 NE/W. ELLERTON.

SOUTH ROSS FARM.

Letter from Mrs. John R. Wake, Ellerton Priory, Ellerton, York, 5/11/42 [Filed under 71/37.] :-

"... Mrs. Reginald Lund of Ash Lea, Thalton, may be able to give particulars of deep bore on South Ross Farm [71/183] as he owned these two farms until 1925: likewise he owns South Ross where another deep bore was put down ..."

Letter from Mrs. M. H. Wheldon, F.S.I., F.L.A.S., 5 Coney St., York, 14/11/42:-

"Mrs. Lund has sent me your letter of the 12th instant in reference to Bore holes at South Ross [71/183] South Ross Farms.

In both cases the water supply was in existence when I took over Mrs. Lund's Agency and I do not know of the existence of any papers that contain the information you ask for.

The pump at South Ross farm is the ordinary type of hand pump and the water is used for drinking and other domestic purposes.

I believe the same remarks apply to South Ross Farm [71/183] but Mrs. Wake will be able to supply the information as that as she purchased the farm from Mrs. Lund some years ago."

Further letter from Mrs. J. R. Wake, 2/12/42:-

"... South Ross well (I have evidence) was made down the old hand dug well & was situate some 15 or 20 feet from a loose-horse box (stable) which was built at the end of the farm house for

R.S. on 6" Sheet 207 NE/W (Water Set).

(2)

SE74/5

favourite entries; if one stands in the doorway of this building & steps one pace towards the pond it should be easy to locate & position the pipe from the hand pump should be a sure guide: I have read somewhere a man who remembers forgetting the line when the pipe had gone wrong & was [sic] to again ..."

NN 030032

FORM WR - 38

Agency No: DB0492

ENVIRONMENT AGENCY

BOREHOLE RECORD

71 : SE74/26

A. SITE DETAILS

NORTHEAST EA

SE74SW/4

Borehole drilled for	T W SEWELL & SONS	
Location	SOUTH ROSS FARM ELLERTON	
NGR (8 fig) Ground Level (if known)	SE 7296 4165	Please attach site plan
Drilling Company	M & D DRILLING	
Date of drilling	Commenced: 6/3/03	Completed: 11/3/03

B. CONSTRUCTION DETAILS

Borehole datum (if not ground level)..... GL: above m below GL
(point from which all measurements of depth are taken eg flange, edge of chamber, etc)

Borehole drilled diameter ..... 150 mm from 0 to 49.0 m/depth

_____ mm from _____ to _____ m/depth

_____ mm from _____ to _____ m/depth

Casing material STEEL diameter and type (eg plain steel, plastic slotted) 150 mm from 0 to 19.5 m/depth

OPEN diameter 150 mm from 19.5 to 49.0 m/depth

_____ diameter _____ mm from _____ to _____ m/depth

_____ diameter _____ mm from _____ to _____ m/depth

Grouting details ..... STEEL ANNULAS GROUTED

Water struck at ..... 19.5m m (depth below datum - mbd)

_____ m (depth below datum - mbd)

Rest water level on completion 5.94m. m (depth below datum - mbd)

C. *TEST PUMPING SUMMARY* (Please supply fully details on Form WR - 39)

Test Pumping Datum (if different from borehole datum)	0.77	above / ~~below~~ borehole datum (mbd)
Pump Suction Depth	17.0	mbd
Water Level (Start of Test)	5.94	mbd
Water Level (End of Test)	6.41	mbd
Pumping rate	5.21 m^3/HR	~~m^3/d : l/s~~
for	24	~~days~~/hours
Recovery to (from end of pumping)	5.94 mbd in 6	~~mins~~ : hrs : ~~days~~
Date(s) of measurements	8/9/4/03.	
Please Supply Chemical Analysis If Available	ATTACHED	

D. *STRATA LOG*

Geological Classification (BGS only)	Description of Strata	Thickness m	Depth m
	TOP SOIL	0.40	0.40
	CLAY	1.20	1.60
	SAND BROWN	4.80	6.40
	SANDY CLAY	3.70	10.00
	CLAY	6.00	16.00
	SANDSTONE GREY	33.00	49.00
	[continue on separate page if necessary]		
	Other Comments (eg gas encountered, saline water intercepted, etc) —		

FOR OFFICIAL USE ONLY

FILE ..... CONSENT NO ..... BGS REF NO .....

LICENCE NO ..... USE OF BH ..... NGR.....

SE74/26

ALcontrol Laboratories

Bradford Laboratory, George Street, Bradford. BD1 5PZ. (UKAS Lab No. 0996)
Rotherham Laboratory, Mill Close, Rotherham. S60 1BZ. (UKAS Lab No. 2300)
Telephone: 0845 1 200 400 Fax: 01709 841079 E-mail: customer.services@alcontrol.co.uk

Certificate ID : 80005597/S/0/1

Certificate of Analysis

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 28/03/03
Sample Received: 31/03/03
Analysis Completed: 23/04/03

Batch Number: 8000940

Laboratory Number: 80005597

BORE HOLE SR FM

Method	Determination	Result	Units	
RP901.0	Conductivity 20C	992	uS/cm	Limit
RP901.0	pH	7.7	-	
RP901.0	Turbidity	26.0	FTU	
RP902.0.6	Nitrate	< 1.000	mg/l N03	
RP902.0.5	Nitrite	< 0.010	mg/l N02	
*RP902.0.	Nitrogen tot oxid	< 1.000	mg/l NO3	
RP902.0.4	Ammoniacal Nitrogen	0.31	mg/l NH4	
RP908.B	Iron	161	ug/l Fe	200ug/l
RP908.B	Aluminium	< 13	ug/l Al	
RP908.B	Manganese	383	ug/l Mn	50ug/l
RP901.0	Colour True	6.8	Hazen	
RP908.B	Copper	< 3	ug/l Cu	
RP908.D	Lead	< 0.1	ug/l Pb	
RP902.0.3	Chloride	12.5	mg/l Cl	
RP908.B	Calcium	167	mg/l Ca	
RP908.B	Magnesium	28.7	mg/l Mg	
RP903.4	Fluoride	332	ug/l F	
RP908.B	Hardness total	214	mg/l Ca	

Methods prefixed B were performed at our Bradford Laboratory. A method prefixed R denotes a test carried out in Rotherham, D denotes Dunstable and $ denotes a subcontracted determination. Methods marked * are not included in the UKAS Accreditation Schedule for our laboratory. Sampling, opinions, interpretations and comments expressed herein are outside the scope of UKAS accreditation. Details of the methods used and their performance characteristics are available on request. < = less than, > = greater than. # denotes data supplied by (or calcluated using a method supplied by) the client. For taste and odour: 1 = present, 0 = absent.

UKAS TESTING
0995
0996
2300

ALcontrol Laboratories
Bradford Laboratory, George Street, Bradford. BD1 5PZ. (UKAS Lab No. 0996)
Rotherham Laboratory, Mill Close, Rotherham. S60 1BZ. (UKAS Lab No. 2300)
Telephone: 0845 1 200 400 Fax: 01709 841079 E-mail: customer.services@alcontrol.co.uk

Certificate ID : 99448148/S/0,

Certificate of Analysis SE74/26

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 27/03/03
Sample Received: 28/03/03
Analysis Completed: 07/04/03

Batch Number: 2008118

Laboratory Number: 99448148

Borehole
Site: South Ross Farm
Job Ref: Borehole
Order Number: 56292
Sampled By: Ralph Burton

Method	Determination	Result	Units
BP50.15	Total coliforms	0	No/100ml
BP50.15	Faecal coliforms	0	No/100ml
BP50.5	Colonies 2 day 37c	286	No/ml
BP50.5	Colonies 3 day 22c	660	No/ml
BP50.7	Faecal Streptococci	0	No/100ml
BP50.12	Sulphite red clostridia	0	No/100ml

Approved by

AHowarth

Alison Howarth(Section Leader, Biology)
08/04/03

Methods prefixed B were performed at our Bradford Laboratory. A method prefixed R denotes a test carried out in Rotherham, D denotes Dunstable and $ denotes a subcontracted determination. Methods marked * are not included in the UKAS Accreditation Schedule for our laboratory. Sampling, opinions, interpretations and comments expressed herein are outside the scope of UKAS accreditation. Details of the methods used and their performance characteristics are available on request. < = less than, > = greater than. # denotes data supplied by (or calcluated using a method supplied by) the client. For taste and odour: 1 = present, 0 = absent.

UKAS TESTING
0995
0996
2300

ALcontrol Laboratories

Bradford Laboratory, George Street, Bradford. BD1 5PZ. (UKAS Lab No. 0996)
Rotherham Laboratory, Mill Close, Rotherham. S60 1BZ. (UKAS Lab No. 2300)
Telephone: 0845 1 200 400 Fax: 01709 841079 E-mail: customer.services@alcontrol.co.uk

Certificate ID : 80005597/S/0/1

Certificate of Analysis

SE 74/26

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 28/03/03
Sample Received: 31/03/03
Analysis Completed: 23/04/03

Batch Number: 8000940

Laboratory Number: 80005597

BORE HOLE SR FM

Method	Determination	Result	Units
RP902.0.7	Alkalinity total	460.5	mg/l HCO3

Approved by

Andrew Timms (Laboratory Manager (Inorganics))
25/04/03

Methods prefixed B were performed at our Bradford Laboratory. A method prefixed R denotes a test carried out in Rotherham, D denotes Dunstable and $ denotes a subcontracted determination. Methods marked * are not included in the UKAS Accreditation Schedule for our laboratory. Sampling, opinions, interpretations and comments expressed herein are outside the scope of UKAS accreditation. Details of the methods used and their performance characteristics are available on request. < = less than, > = greater than. # denotes data supplied by (or calcluated using a method supplied by) the client. For taste and odour: 1 = present, 0 = absent.

UKAS TESTING
0995
0996
2300

(1)

SE 74 71 SW/1

183

6" 1/ks. 207 NE/W. ELLERTON. 72404170

NORTH ROSS FARM.

Letter from Mr. John R. Wake, Ellerton Priory, Ellerton, York, 22 Oct. 1942. [Filed under 71/37.] :-

"... I have another deep bore on North Ross farm about the same depth [127 feet] & will give particulars if you desire, but its post time..."

Further correspondence from Mr. J. R. Wake, 5/11/42:-

"... Mr. Reginald Lund of Ashtea, Malton, may be able ... to give particulars of deep bore on North Ross Farm... as he owned these two farms until 1926..."

Letter from Mr. M. L. Wheldon, F.S.I., F.L.A.S., 5 Coney St., York, 19/11/42:-

"Mr. Lund has sent me your letter of the 12th instant in reference to Bore holes at North Ross & South Ross [71/184] Farms.

In both cases the water supply was in existence when I took over Mr. Lund's Agency and I do not know of the existence of any papers that contain the information you ask for.

The pump at South Ross Farm [71/184] is the ordinary type of hand pump and the water is used for drinking and other domestic purposes.

I believe the same remarks apply to North Ross Farm but Mr. Wake will be able to supply the information about that as he purchased the farms from Mr. Lund some years ago."

Letter from Mr. J. R. Wake, 2. 2. 43:-

"... The hand pump on North Ross Farm I expect would be fixed above the base & it is opposite the back door

= R.S. on 6" Sheet 207 N.E/W. (Water Set)

BGS ID: 125417 : BGS Reference: SE74SW1
British National Grid (27700) : 472434,441691

(2) SE 74 SW 1

98

of the house a few feet across the yard ..."

(1)

SE74/4 71

SE 74 SW/1
NGR SE 7244170

6" Yks. 207 NE/W. ELLERTON. 183

NORTH ROSS FARM.

Letter from Mrs. John R. Wake, Ellerton Priory, Ellerton, York, 22 Oct. 1942. [Filed under 71/37] :-

"... I have another deep bore on North Ross farm about the same depth [127 feet] & will give particulars if you desire, but its post time..."

Further correspondence from Mrs. J. R. Wake, 5/11/42:-

"... Mrs Reginald Lund of Ash Lea, Malton, may be able ... to give particulars of deep bore on North Ross Farm ... as he owned these two farms until 1926..."

Letter from Mr. H. L. Wheldon, F.S.I., F.L.A.S., 5 Coney St., York, 19/11/42:-

"Mrs Lund has sent me your letter of the 12th instant in reference to Bore holes at North Ross & South Ross [71/184] Farms.

In both cases the water supply was in existence when I took over Mrs Lund's Agency and I do not know of the existence of any papers that contain the information you ask for.

The pump at South Ross Farm [71/184] is the ordinary type of hand pump and the water is used for drinking and other domestic purposes.

I believe the same remarks apply to North Ross Farm but Mrs Wake will be able to supply the information as to what was purchased the farms from Mrs Lund some years ago."

Letter from Mrs. J. R. Wake, 2. 2. 43:-

"... The hand pump on North Ross Farm I expect would be fixed above the base & it is opposite the back door

R.S. on 6" Sheet 207 N.E./W. (Water Sct)

SE74/4

of the house a few feet across the yard ..."

(1)

SE 74 SW 2 71/184

73004170

6" Yks. 207 NE/W. ELLERTON.

SOUTH ROSS FARM.

Letter from Mrs. John R. Wake, Ellerton Priory, Ellerton, York, 5/11/42. [Filed under 71/37.] :-

"... Mrs. Reginald Lund of Ash Lea, Bratton, may be able to give particulars of deep bore on North Ross Farm [71/183] as he owned these two farms until 1925. Likewise he owns South Ross where another deep bore was put down..."

Letter from Mrs. M. L. Wheldon, F.S.I., F.L.A.S., 5 Coney St., York, 19/11/42:-

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Other letter from Mrs. J. R. Wake, 2/2/43:-

South Ross bore (I have evidence) was made on the old hand drawn well & was situate some 15 or 20 feet from a loose-horse box (stable) which was built at the end of the farm house for

6" Sheet 207 N.E./W. (Water-Set).

(2)

SE74SW 32

100

favourite Entines; if one stands in the doorway of this building & steps south towards the pond it should be easy to locate & further the pipe from the hand pump should be a sure guide: I have had chat with a man who remembers following the line when the pipe had gone wrong & was [sic] to repair ..."

(1)

SE74/5 71/184

SE 74 SW/2
NGR SE 73004160

6" Yks. 207 NE/W. ELLERTON.

SOUTH ROSS FARM.

Letter from Mrs. John R. Wake, Ellerton Priory, Ellerton, York, 5/11/42 [Filed under 71/37.] :-

"... Mrs. Reginald Lund of Ash Lea, Thalton, may be able to give particulars of deep bore on South Ross Farm [71/183] as he owned these two farms until 1925: likewise he owns South Ross where another deep bore was put down ..."

Letter from Mrs. M. H. Wheldon, F.S.I., F.L.A.S., 5 Coney St., York, 14/11/42:-

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Further letter from Mrs. J. R. Wake, 2/12/42:-

"... South Ross well (I have evidence) was made down the old hand dug well & was situate some 15 or 20 feet from a loose-horse box (stable) which was built at the end of the farm house for

R.S. on 6" Sheet 207 NE/W (Water Set).

(2)

SE74/5

favourite entries; if one stands in the doorway of this building & steps one pace towards the pond it should be easy to locate & position the pipe from the hand pump should be a sure guide: I have read somewhere a man who remembers forgetting the line when the pipe had gone wrong & was [sic] to again ..."

NN 030032

FORM WR - 38

Agency No: DB0492

ENVIRONMENT AGENCY

BOREHOLE RECORD

71 : SE74/26

A. SITE DETAILS

NORTHEAST EA

SE74SW/4

Borehole drilled for	T W SEWELL & SONS	
Location	SOUTH ROSS FARM ELLERTON	
NGR (8 fig) Ground Level (if known)	SE 7296 4165	Please attach site plan
Drilling Company	M & D DRILLING	
Date of drilling	Commenced: 6/3/03	Completed: 11/3/03

B. CONSTRUCTION DETAILS

Borehole datum (if not ground level)..... GL: above m below GL
(point from which all measurements of depth are taken eg flange, edge of chamber, etc)

Borehole drilled diameter ..... 150 mm from 0 to 49.0 m/depth

_____ mm from _____ to _____ m/depth

_____ mm from _____ to _____ m/depth

Casing material STEEL diameter and type (eg plain steel, plastic slotted) 150 mm from 0 to 19.5 m/depth

OPEN diameter 150 mm from 19.5 to 49.0 m/depth

_____ diameter _____ mm from _____ to _____ m/depth

_____ diameter _____ mm from _____ to _____ m/depth

Grouting details ..... STEEL ANNULAS GROUTED

Water struck at ..... 19.5m m (depth below datum - mbd)

_____ m (depth below datum - mbd)

Rest water level on completion 5.94m. m (depth below datum - mbd)

C. *TEST PUMPING SUMMARY* (Please supply fully details on Form WR - 39)

Test Pumping Datum (if different from borehole datum)	0.77	above / ~~below~~ borehole datum (mbd)
Pump Suction Depth	17.0	mbd
Water Level (Start of Test)	5.94	mbd
Water Level (End of Test)	6.41	mbd
Pumping rate	5.21 m^3/HR	~~m^3/d : l/s~~
for	24	~~days~~/hours
Recovery to (from end of pumping)	5.94 mbd in 6	~~mins~~ : hrs : ~~days~~
Date(s) of measurements	8/9/4/03.	
Please Supply Chemical Analysis If Available	ATTACHED	

D. *STRATA LOG*

Geological Classification (BGS only)	Description of Strata	Thickness m	Depth m
	TOP SOIL	0.40	0.40
	CLAY	1.20	1.60
	SAND BROWN	4.80	6.40
	SANDY CLAY	3.70	10.00
	CLAY	6.00	16.00
	SANDSTONE GREY	33.00	49.00
	[continue on separate page if necessary]		
	Other Comments (eg gas encountered, saline water intercepted, etc) —		

FOR OFFICIAL USE ONLY

FILE ..... CONSENT NO ..... BGS REF NO .....

LICENCE NO ..... USE OF BH ..... NGR.....

SE74/26

ALcontrol Laboratories

Bradford Laboratory, George Street, Bradford. BD1 5PZ. (UKAS Lab No. 0996)
Rotherham Laboratory, Mill Close, Rotherham. S60 1BZ. (UKAS Lab No. 2300)
Telephone: 0845 1 200 400 Fax: 01709 841079 E-mail: customer.services@alcontrol.co.uk

Certificate ID : 80005597/S/0/1

Certificate of Analysis

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 28/03/03
Sample Received: 31/03/03
Analysis Completed: 23/04/03

Batch Number: 8000940

Laboratory Number: 80005597

BORE HOLE SR FM

Method	Determination	Result	Units	
RP901.0	Conductivity 20C	992	uS/cm	Limit
RP901.0	pH	7.7	-	
RP901.0	Turbidity	26.0	FTU	
RP902.0.6	Nitrate	< 1.000	mg/l N03	
RP902.0.5	Nitrite	< 0.010	mg/l N02	
*RP902.0.	Nitrogen tot oxid	< 1.000	mg/l NO3	
RP902.0.4	Ammoniacal Nitrogen	0.31	mg/l NH4	
RP908.B	Iron	161	ug/l Fe	200ug/l
RP908.B	Aluminium	< 13	ug/l Al	
RP908.B	Manganese	383	ug/l Mn	50ug/l
RP901.0	Colour True	6.8	Hazen	
RP908.B	Copper	< 3	ug/l Cu	
RP908.D	Lead	< 0.1	ug/l Pb	
RP902.0.3	Chloride	12.5	mg/l Cl	
RP908.B	Calcium	167	mg/l Ca	
RP908.B	Magnesium	28.7	mg/l Mg	
RP903.4	Fluoride	332	ug/l F	
RP908.B	Hardness total	214	mg/l Ca	

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0996
2300

ALcontrol Laboratories
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Rotherham Laboratory, Mill Close, Rotherham. S60 1BZ. (UKAS Lab No. 2300)
Telephone: 0845 1 200 400 Fax: 01709 841079 E-mail: customer.services@alcontrol.co.uk

Certificate ID : 99448148/S/0,

Certificate of Analysis SE74/26

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 27/03/03
Sample Received: 28/03/03
Analysis Completed: 07/04/03

Batch Number: 2008118

Laboratory Number: 99448148

Borehole
Site: South Ross Farm
Job Ref: Borehole
Order Number: 56292
Sampled By: Ralph Burton

Method	Determination	Result	Units
BP50.15	Total coliforms	0	No/100ml
BP50.15	Faecal coliforms	0	No/100ml
BP50.5	Colonies 2 day 37c	286	No/ml
BP50.5	Colonies 3 day 22c	660	No/ml
BP50.7	Faecal Streptococci	0	No/100ml
BP50.12	Sulphite red clostridia	0	No/100ml

Approved by

AHowarth

Alison Howarth(Section Leader, Biology)
08/04/03

Methods prefixed B were performed at our Bradford Laboratory. A method prefixed R denotes a test carried out in Rotherham, D denotes Dunstable and $ denotes a subcontracted determination. Methods marked * are not included in the UKAS Accreditation Schedule for our laboratory. Sampling, opinions, interpretations and comments expressed herein are outside the scope of UKAS accreditation. Details of the methods used and their performance characteristics are available on request. < = less than, > = greater than. # denotes data supplied by (or calcluated using a method supplied by) the client. For taste and odour: 1 = present, 0 = absent.

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Telephone: 0845 1 200 400 Fax: 01709 841079 E-mail: customer.services@alcontrol.co.uk

Certificate ID : 80005597/S/0/1

Certificate of Analysis

SE 74/26

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 28/03/03
Sample Received: 31/03/03
Analysis Completed: 23/04/03

Batch Number: 8000940

Laboratory Number: 80005597

BORE HOLE SR FM

Method	Determination	Result	Units
RP902.0.7	Alkalinity total	460.5	mg/l HCO3

Approved by

Andrew Timms (Laboratory Manager (Inorganics))
25/04/03

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UKAS TESTING
0995
0996
2300

71 NW 030041

FORM WR - 38

Agency No: DB0493

ENVIRONMENT AGENCY

BOREHOLE RECORD

SE74/27

SE74SW/5

A. **SITE DETAILS**

NORTH EAST EA.

Borehole drilled for	MR I P HALL	
Location	SOUTH ACRES FARM MELBOURNE YORK	
NGR (8 fig) Ground Level (if known)	SE7345 4230	Please attach site plan
Drilling Company	MUD DRILLING.	
Date of drilling	Commenced: 14/4/03	Completed: 18/4/03.

B. **CONSTRUCTION DETAILS**

Borehole datum (if not ground level)..... GROUND LEVEL above m below GL
(point from which all measurements of depth are taken eg flange, edge of chamber, etc)

Borehole drilled diameter ..... 150 mm from 0 to 49.0 m/depth
_____ mm from _____ to _____ m/depth
_____ mm from _____ to _____ m/depth

Casing material STEEL diameter 150 mm from 0 to 19.5 m/depth
and type (eg plain steel, plastic slotted)
OPEN diameter 150 mm from 19.5 to 49.0 m/depth
_____ diameter _____ mm from _____ to _____ m/depth
_____ diameter _____ mm from _____ to _____ m/depth

Grouting details ..... ~~PUMPED~~ GRAVITY FED.

Water struck at ..... 20.0 m (depth below datum - mbd)
37.0 m (depth below datum - mbd)

Rest water level on completion 5.74 m (depth below datum - mbd)

RECEIVED
11 SEP 2003
Raf

SE74 127

C. **TEST PUMPING SUMMARY** (Please supply fully details on Form WR - 39)

Test Pumping Datum (If different from borehole datum)	0.60	above / m below borehole datum (mbd)
Pump Suction Depth	17.0	mbd
Water Level (Start of Test)	5.22	mbd
Water Level (End of Test)	5.74	mbd
Pumping rate	2.36m³/HR	~~m³/d + l/s~~
for	24	~~days~~/hours
Recovery to (from end of pumping)	mbd 5.27 in 3	~~mins~~ : hrs : ~~days~~
Date(s) of measurements	29 to 30th APRIL 2003	
Please Supply Chemical Analysis If Available	APPROVED.	

D. **STRATA LOG**

Geological Classification (BGS only)	Description of Strata	Thickness m	Depth m
	TOP SOIL	0.40	0.40
	CLAY	1.10	1.50
	SAND BROWN	0.80	2.30
	SAND GREY	4.00	6.30
	CLAY	9.40	15.70
	SANDSTONE GREY	33.30	49.0
	[continue on separate page if necessary]		
	Other Comments (eg gas encountered, saline water intercepted, etc) SMELL OF HYDROGEN SULPHIDE @ 31.0M.		

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FILE ..... CONSENT NO ..... BGS REF NO .....

LICENCE NO ..... USE OF BH ..... NGR .....

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Rotherham Laboratory, Mill Close, Rotherham. S60 1BZ. (UKAS Lab No. 2300)
Telephone: 0845 1 200 400 Fax: 01709 841079 E-mail: customer.services@alcontrol.co.uk

Certificate ID : 99451884/S/0/1

Certificate of Analysis SE74/27

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 30/04/03
Sample Received: 30/04/03
Analysis Completed: 07/05/03

Batch Number: 2008739

Laboratory Number: 99451884

Borehole Sample
Order Number: 56719
Site: South Acre Farm

Method	Determination	Result	Units
RP908.B	Hardness total	339	mg/l Ca
RP902.0.7	Alkalinity total	305.4	mg/l HCO3
BP50.15	Total coliforms	0	No/100ml
BP50.15	Faecal coliforms	0	No/100ml
BP50.5	Colonies 2 day 37c	0	No/ml
BP50.5	Colonies 3 day 22c	30	No/ml
BP50.7	Faecal Streptococci	0	No/100ml
BP50.12	Sulphite red clostridia	0	No/100ml

Approved by

Andrew Hockin (Microbiology Manager)
09/05/03

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0996
2300

SE74/27

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Telephone: 0845 1 200 400 Fax: 01709 841079 E-mail: customer.services@alcontrol.co.uk

Certificate ID : 99451884/S/0/1

Certificate of Analysis

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 30/04/03
Sample Received: 30/04/03
Analysis Completed: 07/05/03

Batch Number: 2008739

Laboratory Number: 99451884

Borehole Sample
Order Number: 56719
Site: South Acre Farm

Method	Determination	Result	Units
RP901.0	Conductivity 20C	1430	uS/cm
RP901.0	pH	7.1	-
RP901.0	Turbidity	38.7	FTU
RP902.0.6	Nitrate	< 0.580	mg/l NO3
RP902.0.5	Nitrite	< 0.009	mg/l NO2
*RP902.0.	Nitrogen tot oxid	< 0.580	mg/l NO3
RP902.0.4	Ammoniacal Nitrogen	0.41	mg/l NH4
RP908.B	Iron	2050	ug/l Fe
RP908.B	Aluminium	< 13	ug/l Al
RP908.B	Manganese	374	ug/l Mn
RP901.0	Colour True	< 1.7	Hazen
RP908.B	Copper	< 3	ug/l Cu
RP908.D	Lead	< 0.1	ug/l Pb
RP902.0.3	Chloride	19.4	mg/l Cl
RP908.B	Calcium	250	mg/l Ca
RP908.B	Magnesium	53.7	mg/l Mg
RP903.4	Fluoride	182	ug/l F

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UKAS TESTING 0995 0996 2300

FORM WR - 38

Agency No:

SE73 /21

ENVIRONMENT AGENCY

BOREHOLE RECORD

71

A. **SITE DETAILS**

NORTHEAST EA

SE73NW /16

Borehole drilled for	ARA WAKE . ELLERTON YORK .	
Location	YORK .	
NGR (8 fig) Ground Level (if known)	SE7305 3986	Please attach site plan
Drilling Company	MED DRILLING	
Date of drilling	Commenced: 20-5-2004 Completed: 2-6-2004	

B. **CONSTRUCTION DETAILS**

Borehole datum (if not ground level)..... GROUND LEVEL above m below GL
(point from which all measurements of depth are taken eg flange, edge of chamber, etc)

Borehole drilled diameter ..... 250 mm from 0 to 19-50 m/depth

150 mm from 19-50 to 40-00 m/depth

mm from to m/depth

Casing material STEEL diameter 150 mm from 0 to 19-50 m/depth
and type (eg plain steel, plastic slotted)

diameter mm from to m/depth

diameter mm from to m/depth

diameter mm from to m/depth

Grouting details ..... ANNULUS GROUTED

Water struck at ..... 19-50 m (depth below datum - mbd)

30-00 m (depth below datum - mbd)

Rest water level on completion 8-00 m (depth below datum - mbd)

WAKE

SE73 /21

C. **TEST PUMPING SUMMARY** (Please supply fully details on Form WR - 39)

Test Pumping Datum (if different from borehole datum)	GROUND LEVEL (mbd)	above m ~~below~~ borehole datum
Pump Suction Depth	19	mbd
Water Level (Start of Test)	7.30	mbd
Water Level (End of Test)	8.53	mbd
Pumping rate	3.59 m3/HR	m³/d : l/s
for	24	~~days~~/hours
Recovery to (from end of pumping)	7.30mbd in 8	~~mins~~ : hrs : ~~days~~
Date(s) of measurements	31-08-04 to 01-09-04	
Please Supply Chemical Analysis If Available	ATTACHED	

D. **STRATA LOG**

Geological Classification (BGS only)	Description of Strata	Thickness m	Depth m
	TOP SOIL	0-40	0-40
	CLAY, BROWN	1-60	2-00
	SAND	2-10	4-10
	SANDY CLAY	1-90	6-00
	CLAY	11-40	17-40
	SANDSTONE, GREY	22-60	40-00
	{continue on separate page if necessary}		
	Other Comments (eg gas encountered, saline water intercepted, etc)		

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FILE ..... CONSENT NO ..... BGS REF NO .....

LICENCE NO ..... USE OF BH ..... NGR.....

SE73/21

ALcontrol Laboratories
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Rotherham Laboratory, Mill Close, Rotherham. S60 1BZ (UKAS Lab Nos. 0995/2300)
Telephone: 01709 841096 Fax: 01709 841079 E-mail: customer.services@alcontrol.co.uk

Certificate ID : 70000263/S/0/1

Certificate of Analysis

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 01/09/04
Sample Received: 02/09/04
Analysis Completed: 17/09/04

Batch Number: 7000046

Laboratory Number: 70000263

Borehole
Order Number: 63443
Site: A&A Wake
Job Ref: Borehole
Sampled By: RG Burton

Method	Determination	Result	Units
RP901.0	Conductivity 20C	1370	uS/cm
RP901.0	pH	6.9	-
RP901.0	Turbidity	15.0	NTU
RP902	Nitrate	< 0.5800	mg/l NO3
RP902	Nitrite	< 0.0093	mg/l NO2
RP902	Nitrogen tot oxid	< 0.580	mg/l NO3
RP902	Ammoniacal Nitrogen	0.12	mg/l NH4
R8P	Iron	1270	ug/l Fe
R8P	Aluminium	< 13	ug/l Al
R8P	Manganese	212	ug/l Mn
RP901.0	Colour True	2.5	mg/l Pt/Co
R8P	Copper	< 2	ug/l Cu
R8P	Lead	0.47	ug/l Pb
RP902	Chloride	41.4	mg/l Cl
R8P	Sulphate	333	mg/l SO4

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SE73 /21

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Certificate ID : 70000263/S/0/1

Certificate of Analysis

Marral Chemicals Ltd
260a Castleford Road
Normanton
Wakefield
WF6 1PY

Sample Date: 01/09/04
Sample Received: 02/09/04
Analysis Completed: 17/09/04

Batch Number: 7000046

Laboratory Number: 70000263

Borehole
Order Number: 63443
Site: A&A Wake
Job Ref: Borehole
Sampled By: RG Burton

Method	Determination	Result	Units
R8P	Calcium	208	mg/l Ca
R8P	Magnesium	42.2	mg/l Mg
R8P	Sodium	102	mg/l Na
RP903.4	Fluoride	144	ug/l F
R8P	Hardness total	278	mg/l Ca
RP902	Alkalinity total	581.4	mg/l HCO3
BP50.15	Total coliforms	0	CFU/100ml
BP50.15	Escherichia coli	0	CFU/100ml
BP50.5	Colonies 2 day 37c	2	CFU/ml
BP50.5	Colonies 3 day 22c	138	CFU/ml
BP50.12	Sulphite red clostridia	0	CFU/100ml
BP50.7	Faecal streptococci	0	CFU/100ml

Approved by

Phil Slater (Laboratory Manager Microbiology)
17/09/04

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UKAS TESTING 0995 0996 2300

To be filled in by NGDC only

SOBI Registration Number assigned by NGDC:

This borehole metadata record be completed before any borehole can be registered in the NGDC system

Borehole cannot be allocated a registration before drilling has begun

Name of Borehole: Melbourne 1

National Grid Reference

100 km square :

Easting : 476314.54

Northing : 443088.23mN

How was this measured?: Surveyed

Minimum precision of 3 figures is required 6/7 figures accuracy is strongly preferred

Datum = RT, Elev (RT) = 10.21m, Elev (GL) = 5.03

How was this measured?: Surveyed

Total Depth: 1477.21

Data owner: COMPOSITE ENERGY

Type of data deposited: Digital Geophysical Logs

Type of Logs: Various geophysical logs and pump tests

Data locations: In RECALL DB

Data manager / contact: Andy Kingdon / Tony Morigi

Physical records to be deposited in NGDC: No

Confidentiality Status:

Commercial in Confidence until released by DECC

Comments:

DECC onshore hydrocarbons explorations borehole REG: **L46/01- 3**

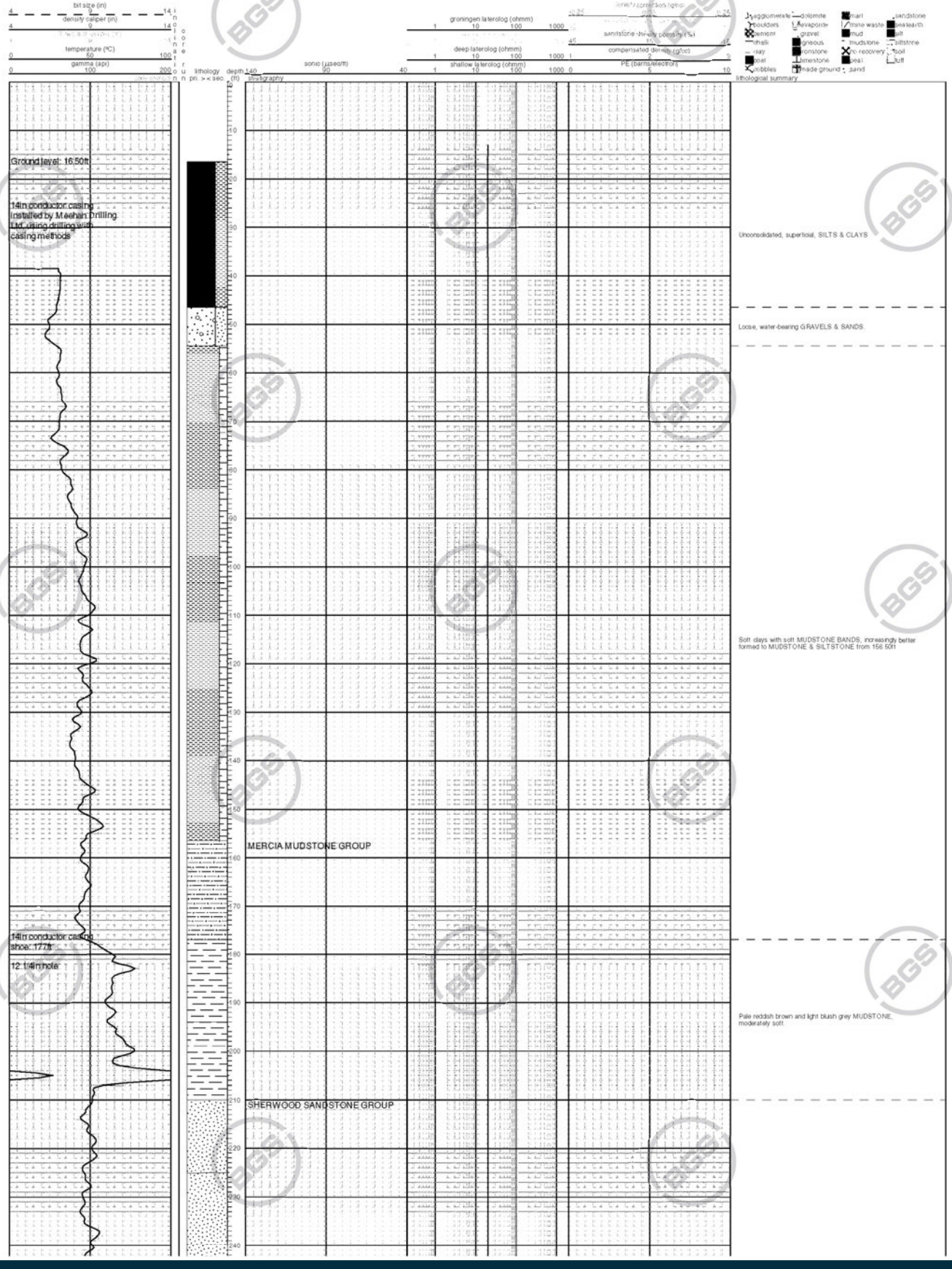
MELBOURNE 1 Composite Log
1:200

Well: Melbourne 1 (L46/01-3)
Well Type: Vertical
Operator: Composite Energy Ltd
Drilling Company: Geometric Drilling Ltd
Wireline Contractor: Weatherford

Location: East Midlands Coalfield, on-shore UK
Licence: PEDL176
Field: Althorpe
Well Location: 476308.00mE, 443085.00mN
31.00ft AMSL
Spud Date: 02/07/2009

Rig: HH102B
Datum: Rotary Table
Datum - Sea Level: 31.00ft
Datum - Ground Level: 16.50ft
Total Depth: 4863.00 ftBRT
Max Recorded Deviation: 2.00° at 4643.00ft

Composite energy Ltd



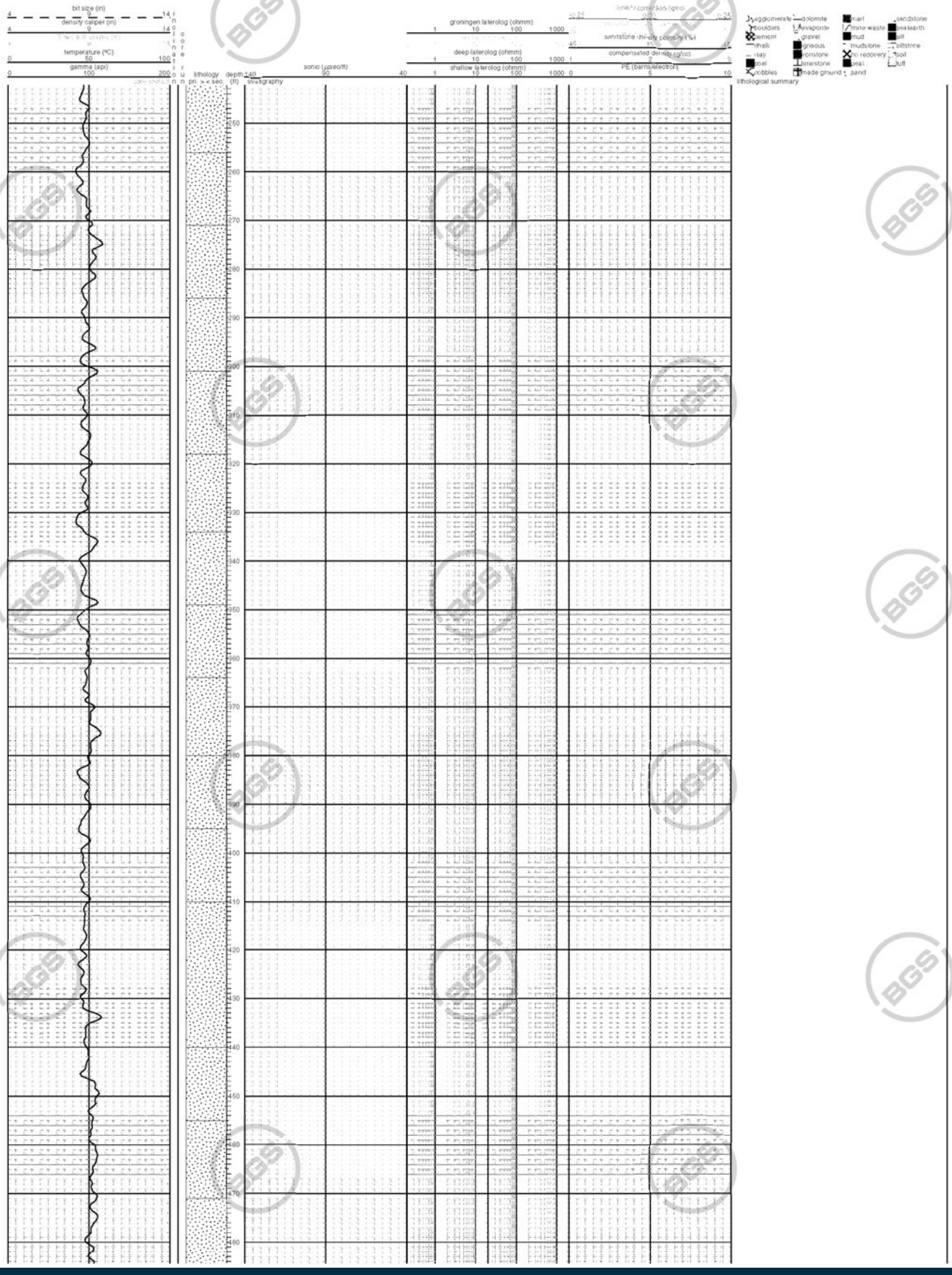
MELBOURNE 1 Composite Log
1:200

Well: Melbourne 1 (L46/01-3)
Well Type: Vertical
Operator: Composite Energy Ltd
Drilling Company: Geometric Drilling Ltd
Wireline Contractor: Weatherford

Location: East Midlands Coalfield, on-shore UK
Licence: PEDL176
Field: Althorpe
Well Location: 476308.00mE, 443085.00mN
31.00ft AMSL
Spud Date: 02/07/2009

Rig: HH102B
Datum: Rotary Table
Datum - Sea Level: 31.00ft
Datum - Ground Level: 16.50ft
Total Depth: 4863.00 ftBRT
Max Recorded Deviation: 2.00° at 4643.00ft

Composite energy Ltd



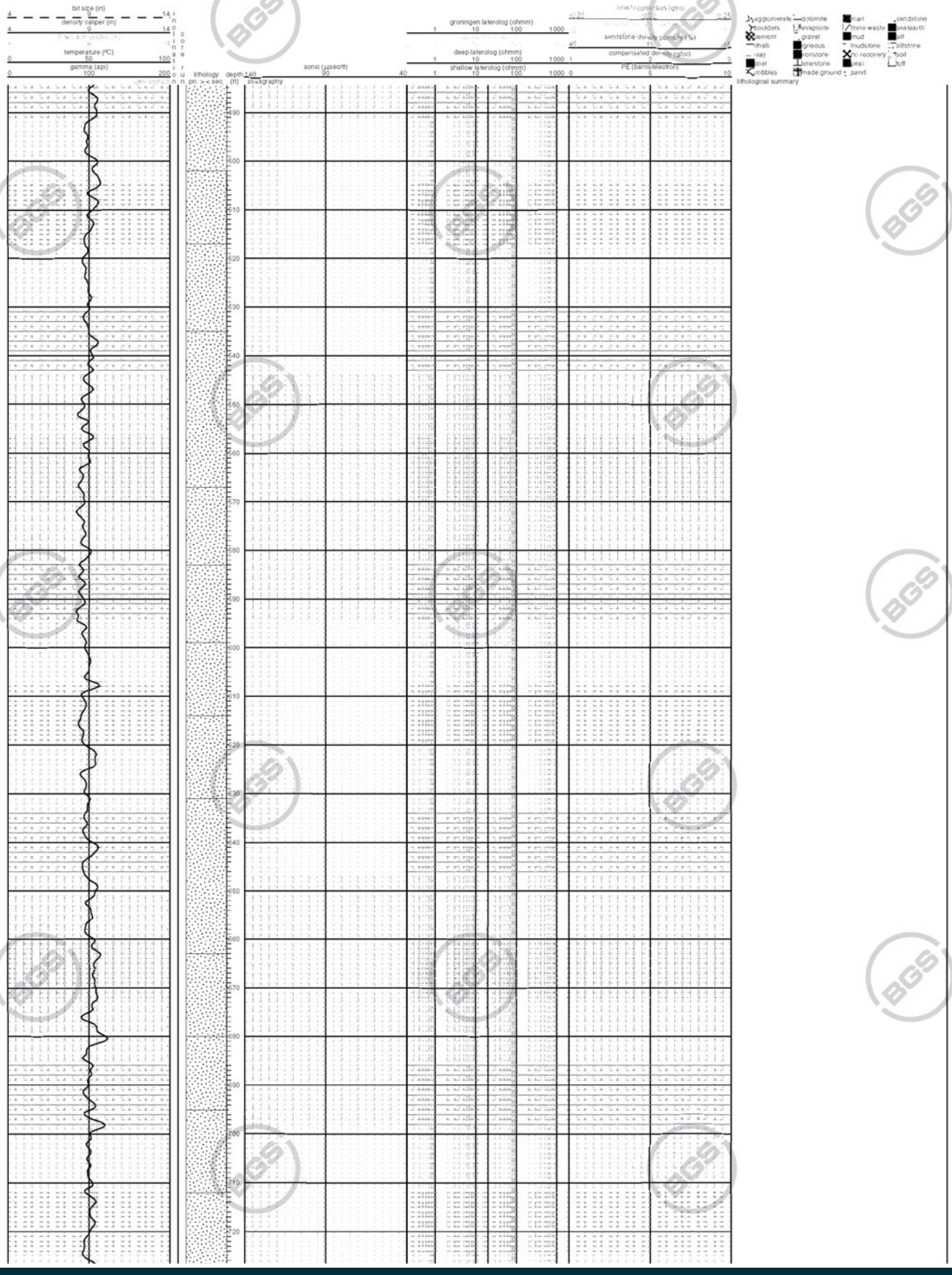
MELBOURNE 1 Composite Log
1:200

Well: Melbourne 1 (L46/01-3)
Well Type: Vertical
Operator: Composite Energy Ltd
Drilling Company: Geometric Drilling Ltd
Wireline Contractor: Weatherford

Location: East Midlands Coalfield, on-shore UK
Licence: PEDL176
Field: Althorpe
Well Location: 476308.00mE, 443085.00mN
31.00ft AMSL
Spud Date: 02/07/2009

Rig: HH102B
Datum: Rotary Table
Datum - Sea Level: 31.00ft
Datum - Ground Level: 16.50ft
Total Depth: 4863.00 ftBRT
Max Recorded Deviation: 2.00° at 4643.00ft

Composite energy Ltd



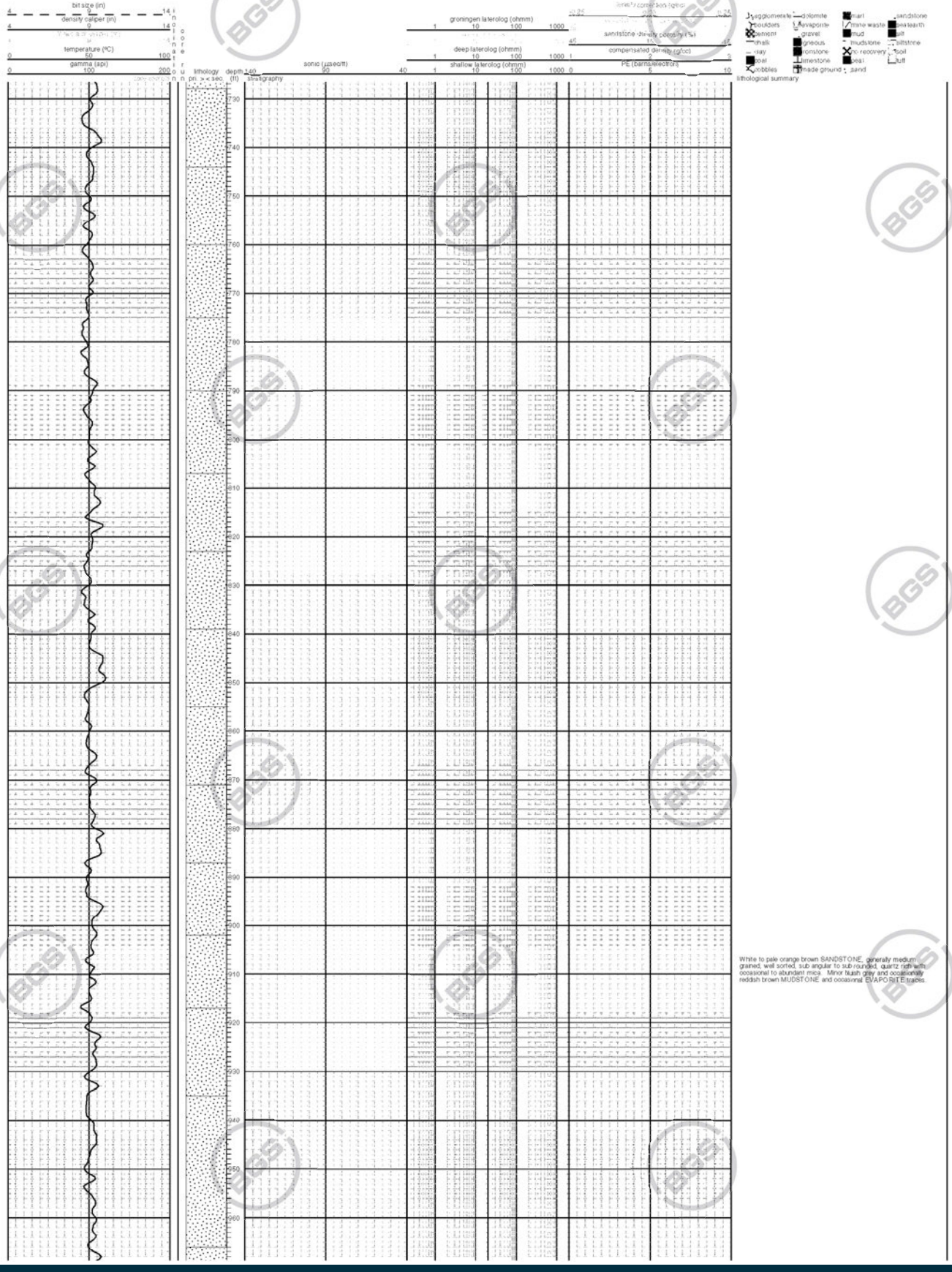
MELBOURNE 1 Composite Log
1:200

Well: Melbourne 1 (L46/01-3)
Well Type: Vertical
Operator: Composite Energy Ltd
Drilling Company: Geometric Drilling Ltd
Wireline Contractor: Weatherford

Location: East Midlands Coalfield, on-shore UK
Licence: PEDL176
Field: Althorpe
Well Location: 476308.00mE, 443085.00mN
31.00ft AMSL
Spud Date: 02/07/2009

Rig: HH102B
Datum: Rotary Table
Datum - Sea Level: 31.00ft
Datum - Ground Level: 16.50ft
Total Depth: 4863.00 ftBRT
Max Recorded Deviation: 2.00° at 4643.00ft

Composite energy Ltd



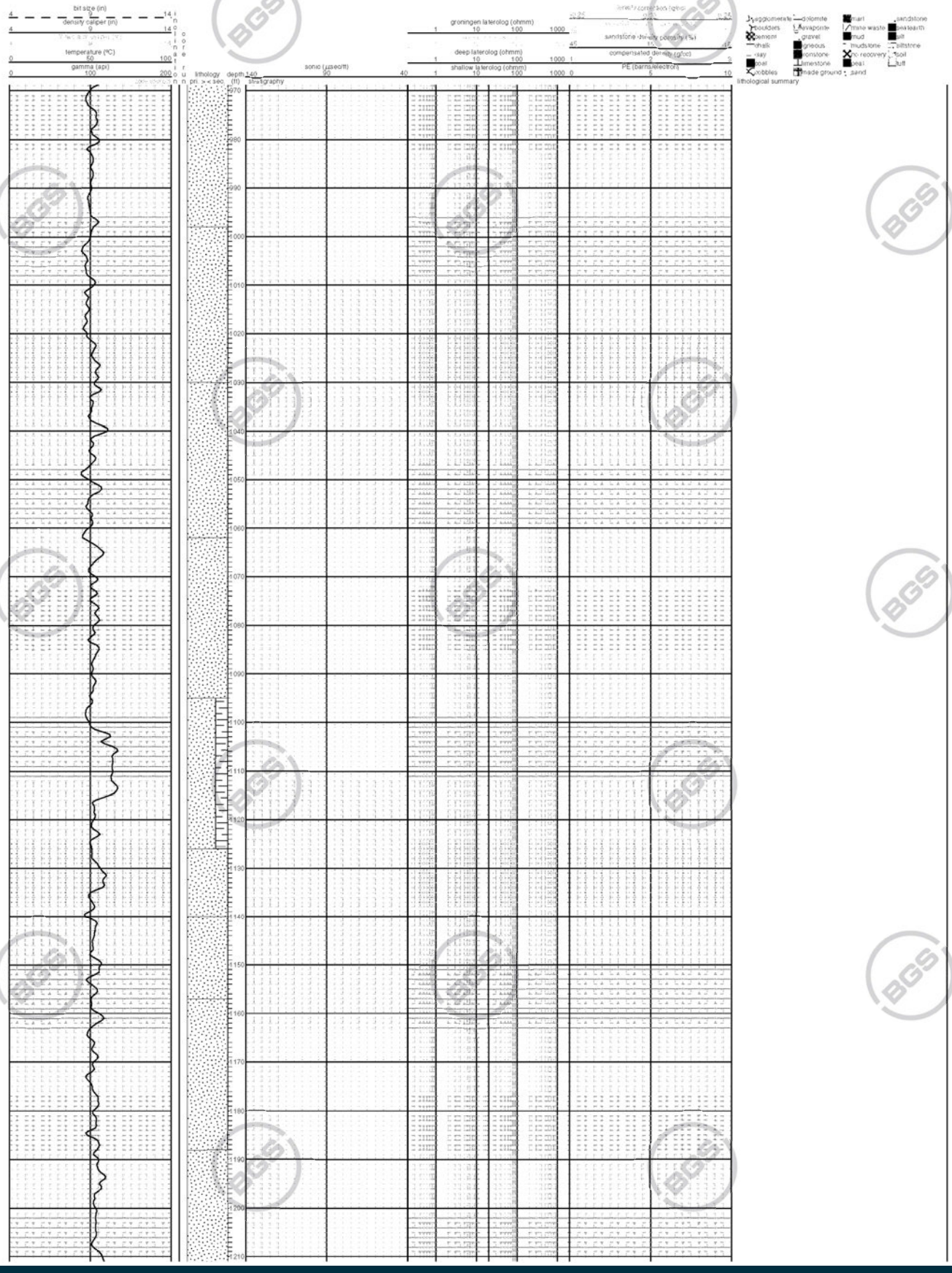
MELBOURNE 1 Composite Log
1:200

Well: Melbourne 1 (L46/01-3)
Well Type: Vertical
Operator: Composite Energy Ltd
Drilling Company: Geometric Drilling Ltd
Wireline Contractor: Weatherford

Location: East Midlands Coalfield, on-shore UK
Licence: PEDL176
Field: Althorpe
Well Location: 476308.00mE, 443085.00mN
31.00ft AMSL
Spud Date: 02/07/2009

Rig: HH102B
Datum: Rotary Table
Datum - Sea Level: 31.00ft
Datum - Ground Level: 16.50ft
Total Depth: 4863.00 ftBRT
Max Recorded Deviation: 2.00° at 4643.00ft

Composite energy Ltd



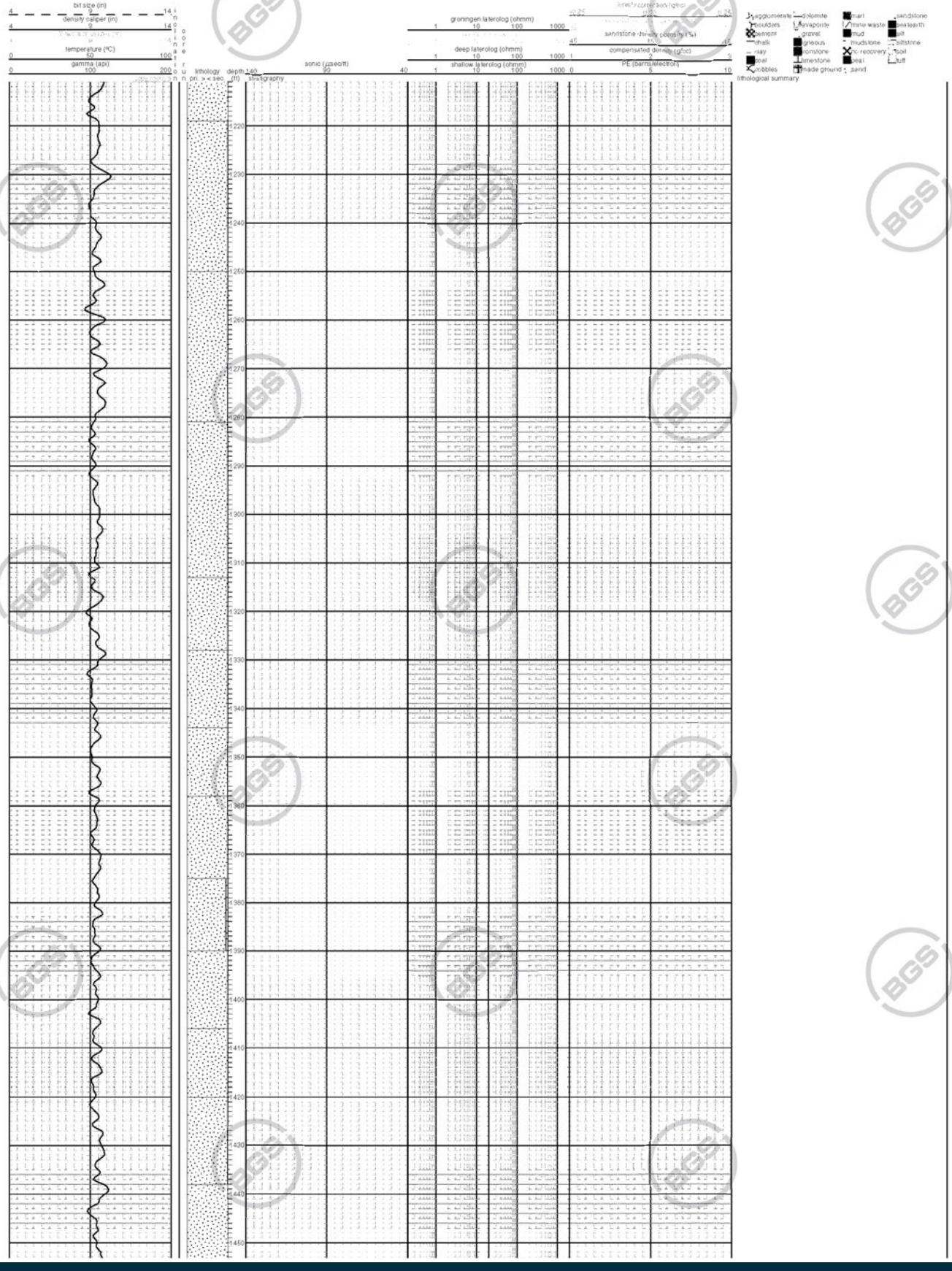
MELBOURNE 1 Composite Log
1:200

Well: Melbourne 1 (L46/01-3)
Well Type: Vertical
Operator: Composite Energy Ltd
Drilling Company: Geometric Drilling Ltd
Wireline Contractor: Weatherford

Location: East Midlands Coalfield, on-shore UK
Licence: PEDL176
Field: Althorpe
Well Location: 476308.00mE, 443085.00mN
31.00ft AMSL
Spud Date: 02/07/2009

Rig: HH102B
Datum: Rotary Table
Datum - Sea Level: 31.00ft
Datum - Ground Level: 16.50ft
Total Depth: 4863.00 ftBRT
Max Recorded Deviation: 2.00° at 4643.00ft

Composite energy Ltd



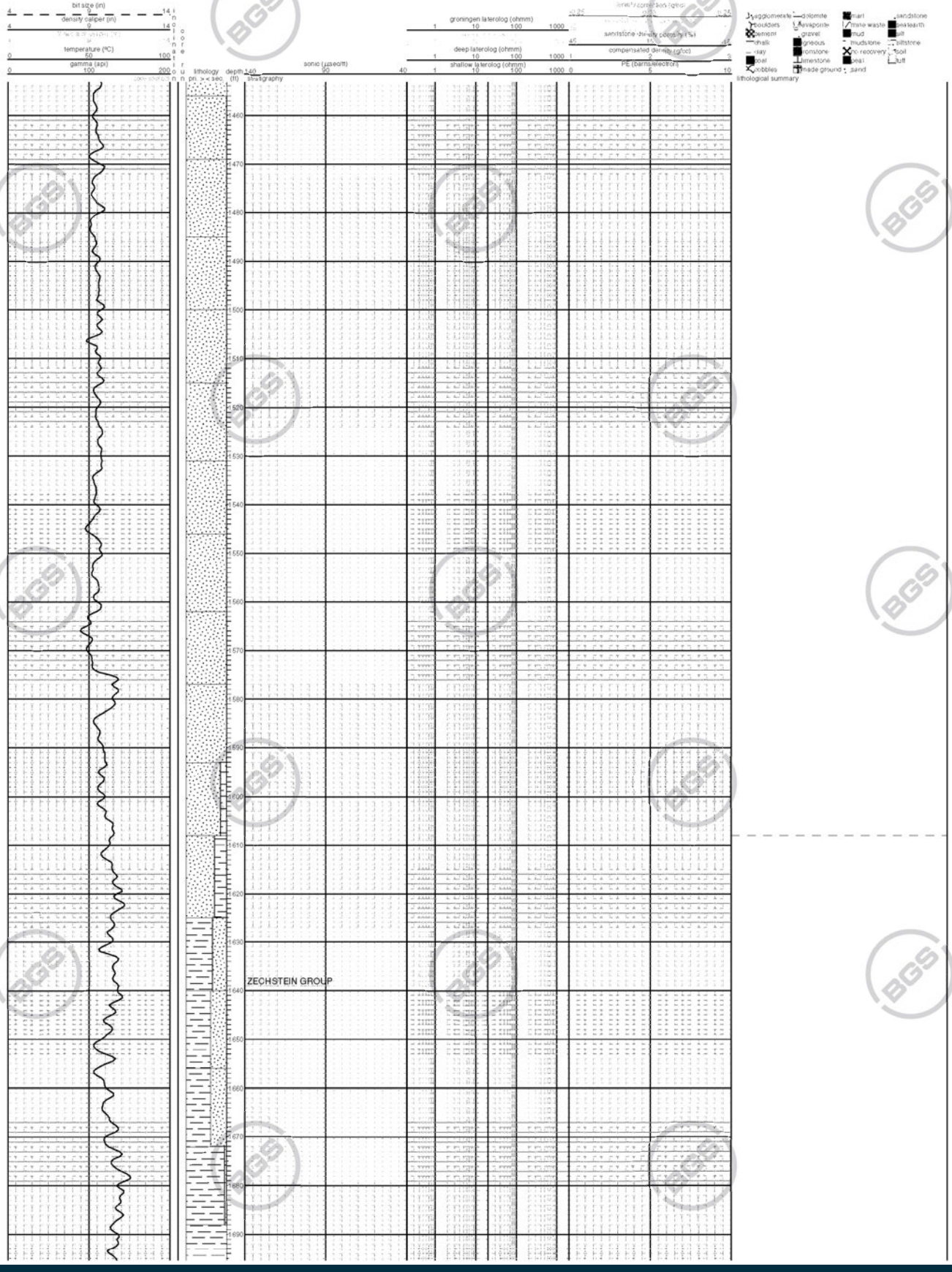
MELBOURNE 1 Composite Log
1:200

Well: Melbourne 1 (L46/01-3)
Well Type: Vertical
Operator: Composite Energy Ltd
Drilling Company: Geometric Drilling Ltd
Wireline Contractor: Weatherford

Location: East Midlands Coalfield, on-shore UK
Licence: PEDL176
Field: Althorpe
Well Location: 476308.00mE, 443085.00mN
31.00ft AMSL
Spud Date: 02/07/2009

Rig: HH102B
Datum: Rotary Table
Datum - Sea Level: 31.00ft
Datum - Ground Level: 16.50ft
Total Depth: 4863.00 ftBRT
Max Recorded Deviation: 2.00° at 4643.00ft

Composite energy Ltd



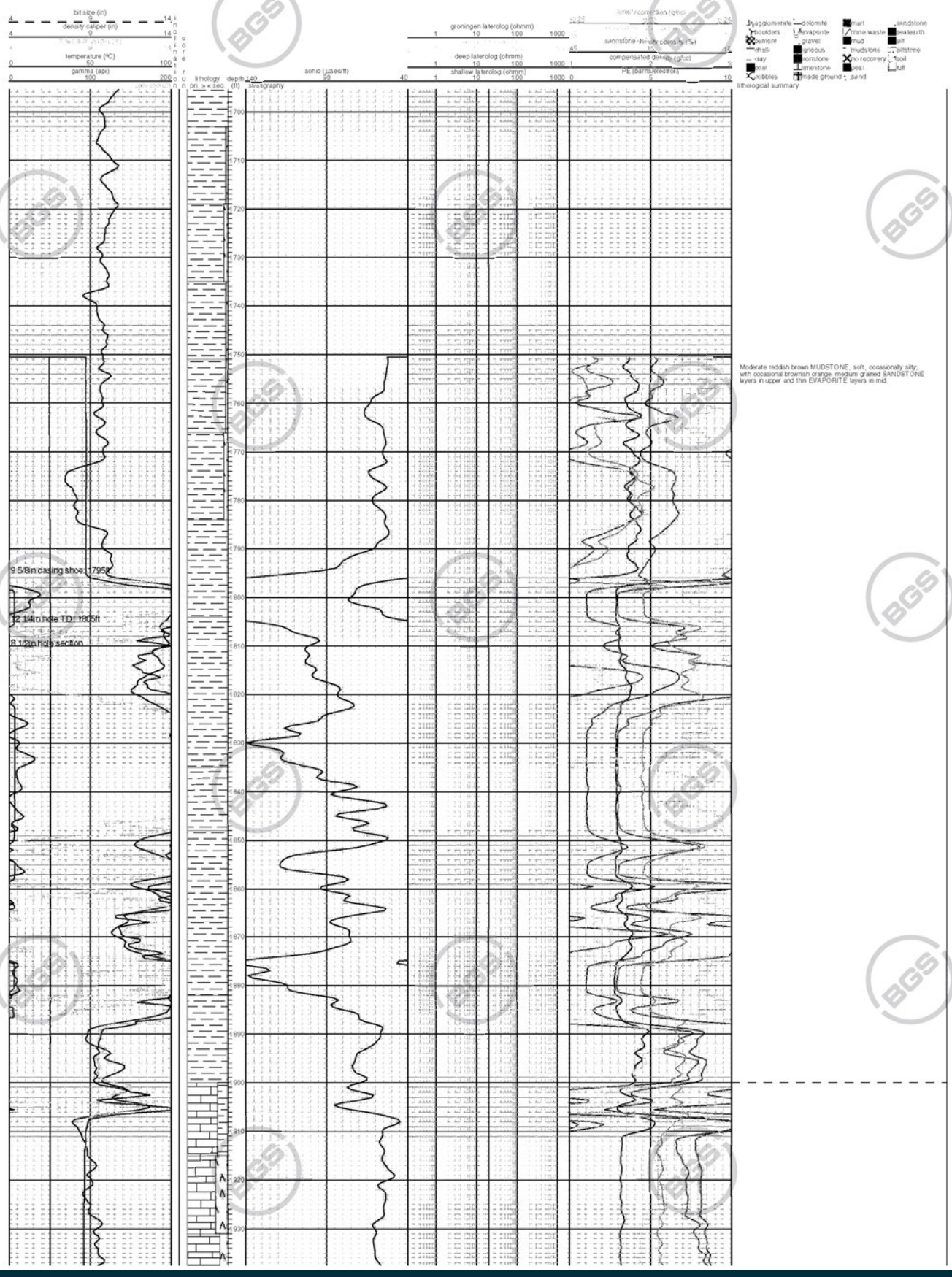
MELBOURNE 1 Composite Log
1:200

Well: Melbourne 1 (L46/01-3)
Well Type: Vertical
Operator: Composite Energy Ltd
Drilling Company: Geometric Drilling Ltd
Wireline Contractor: Weatherford

Location: East Midlands Coalfield, on-shore UK
Licence: PEDL176
Field: Althorpe
Well Location: 476308.00mE, 443085.00mN
31.00ft AMSL
Spud Date: 02/07/2009

Rig: HH102B
Datum: Rotary Table
Datum - Sea Level: 31.00ft
Datum - Ground Level: 16.50ft
Total Depth: 4863.00 ftBRT
Max Recorded Deviation: 2.00° at 4643.00ft

Composite energy Ltd



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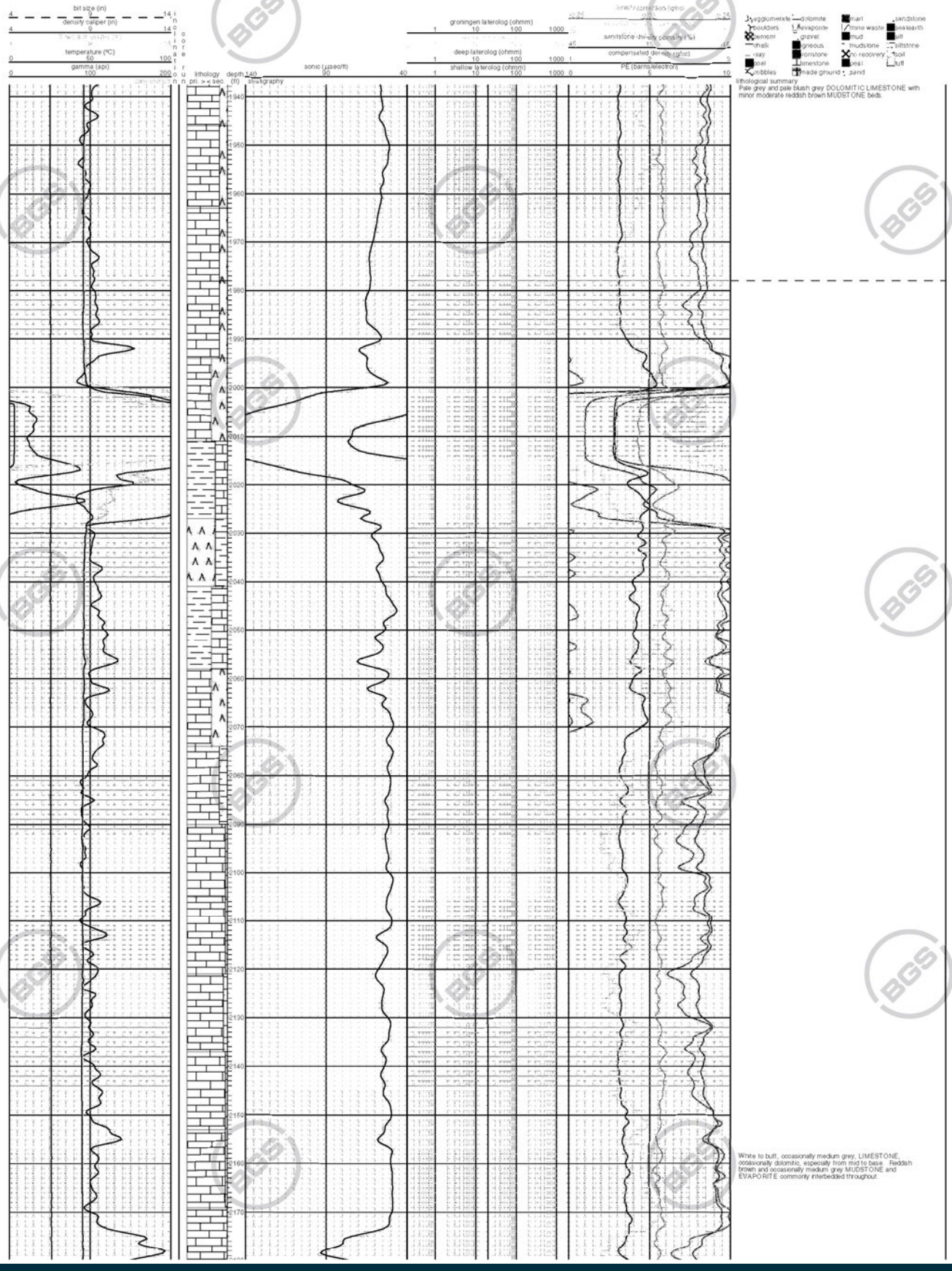

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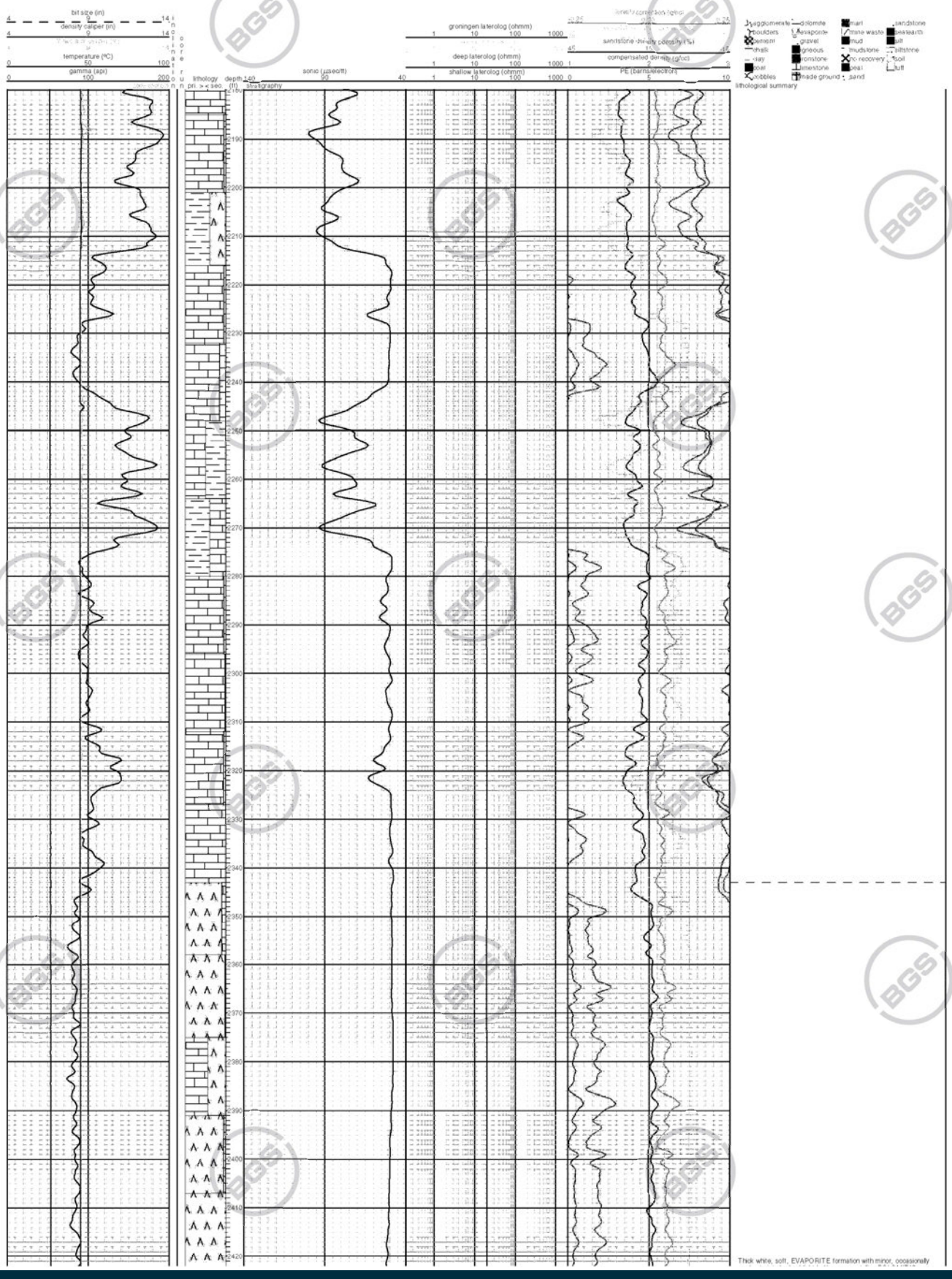

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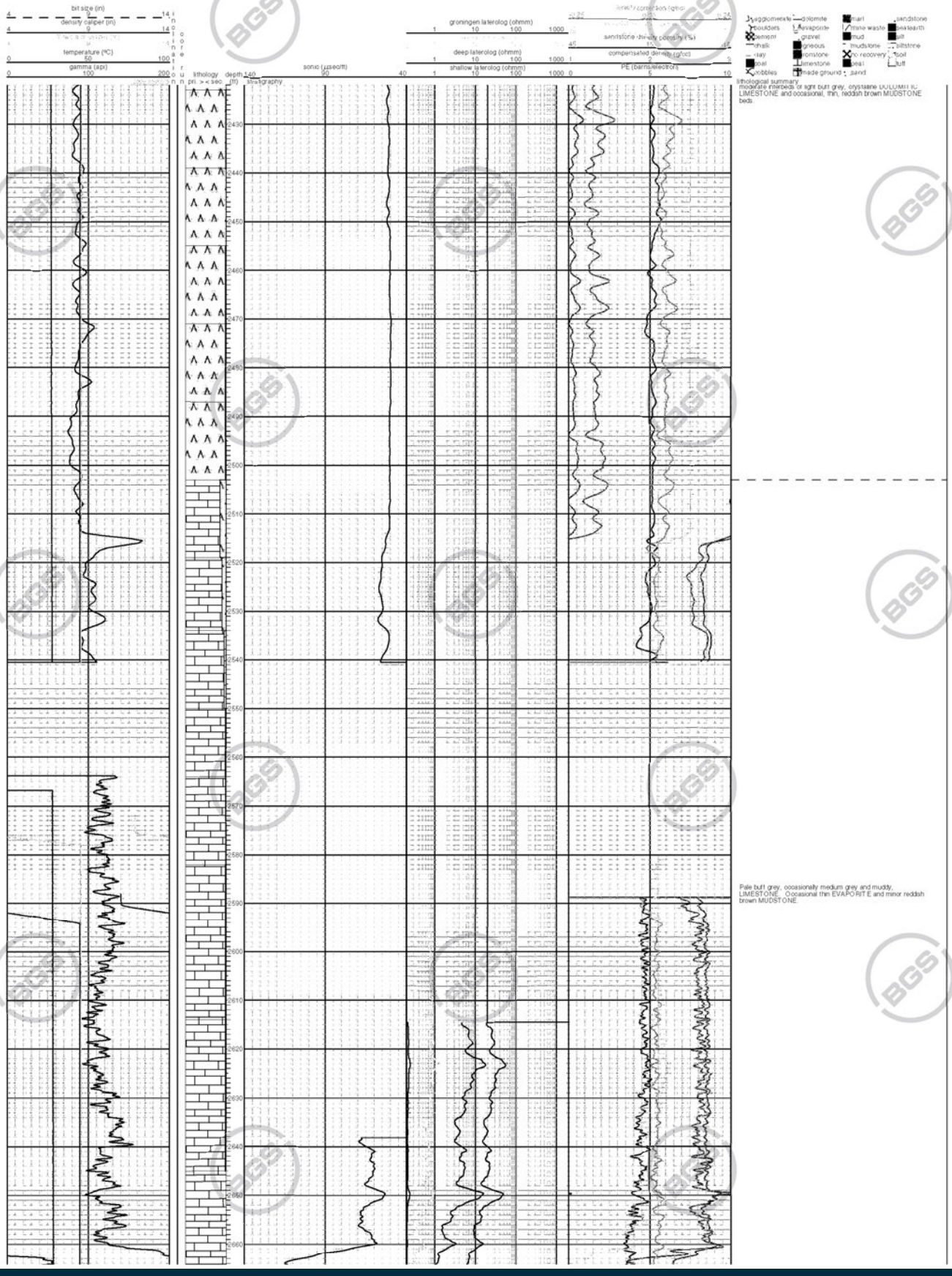

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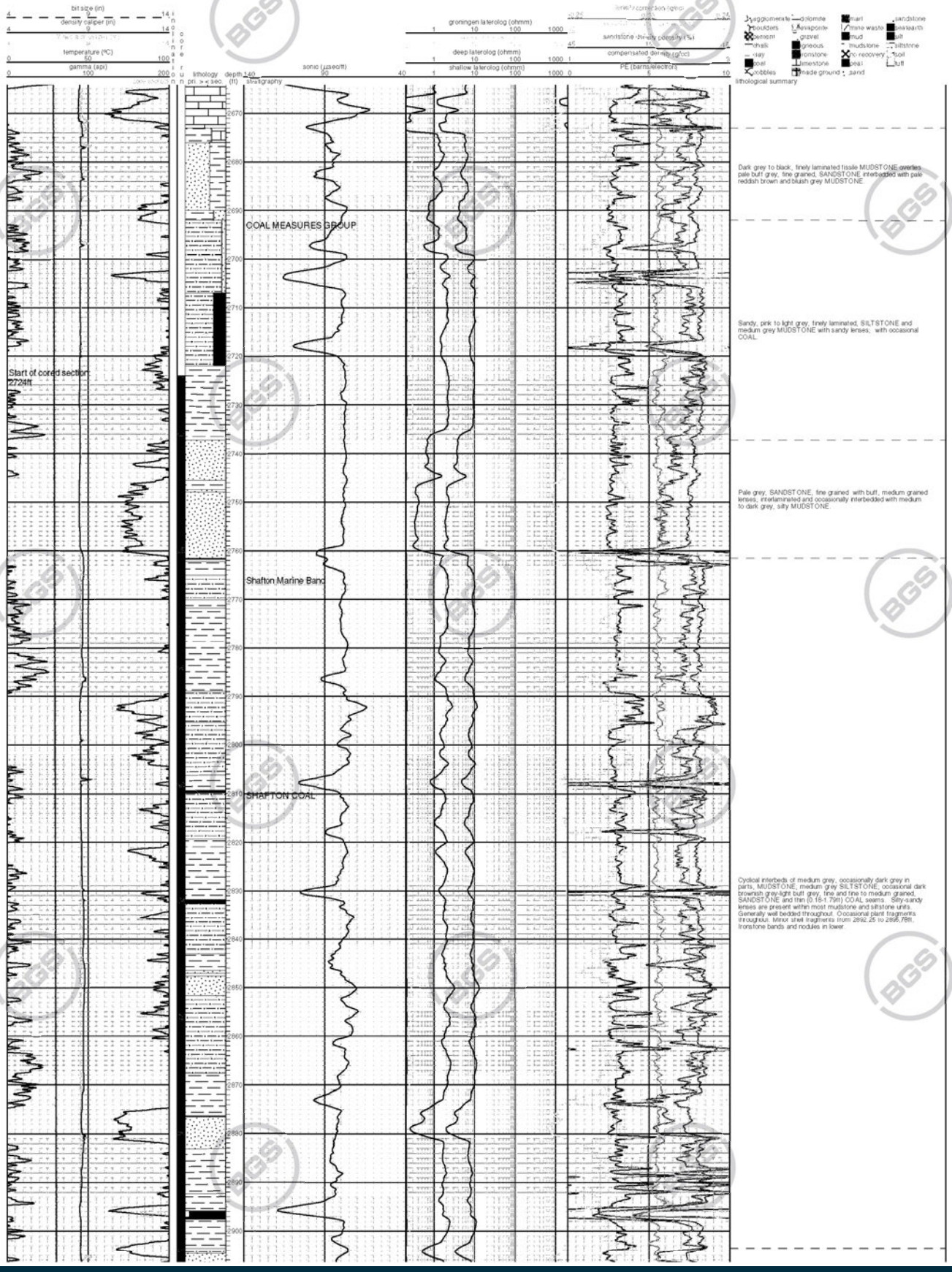

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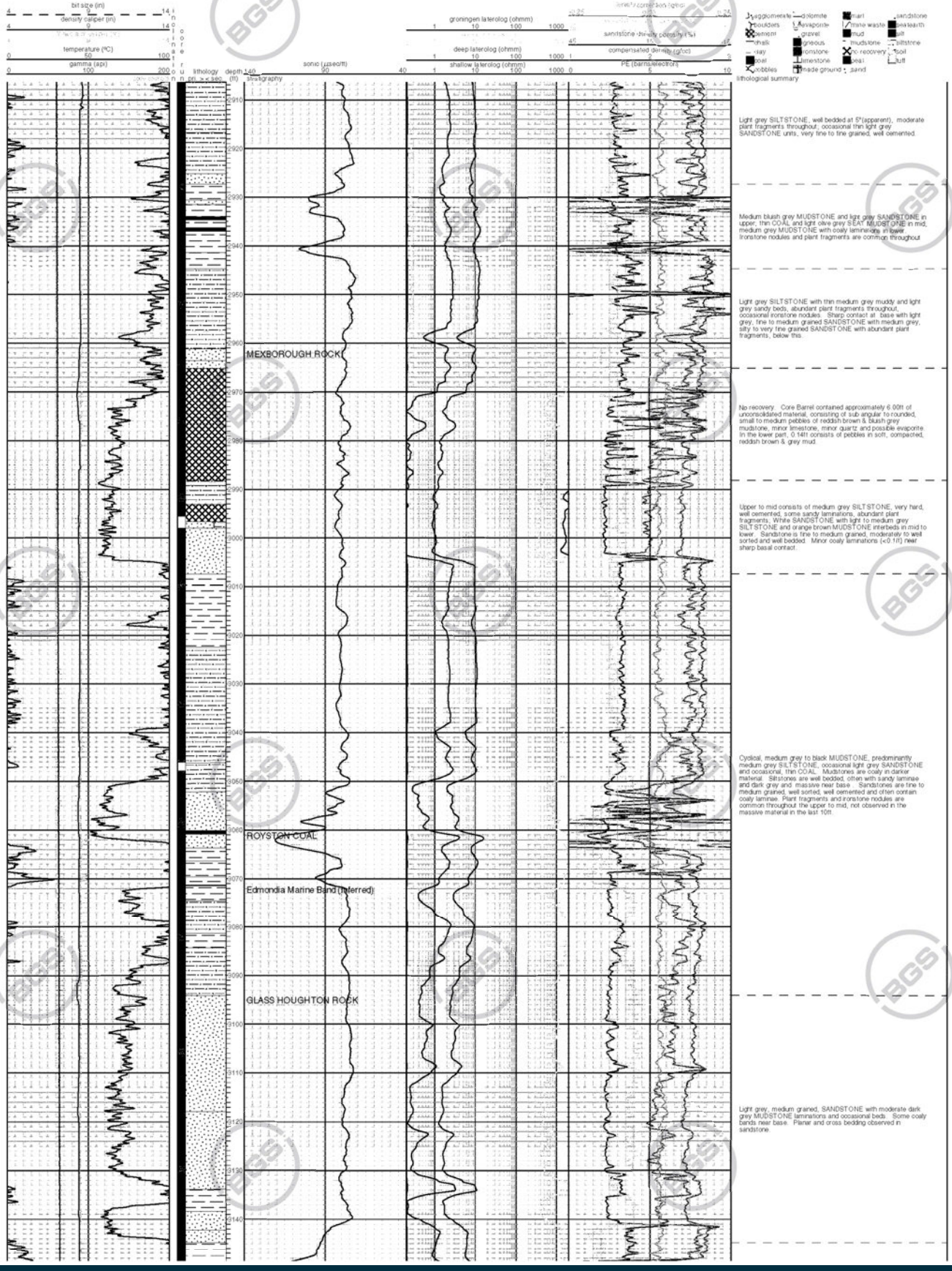

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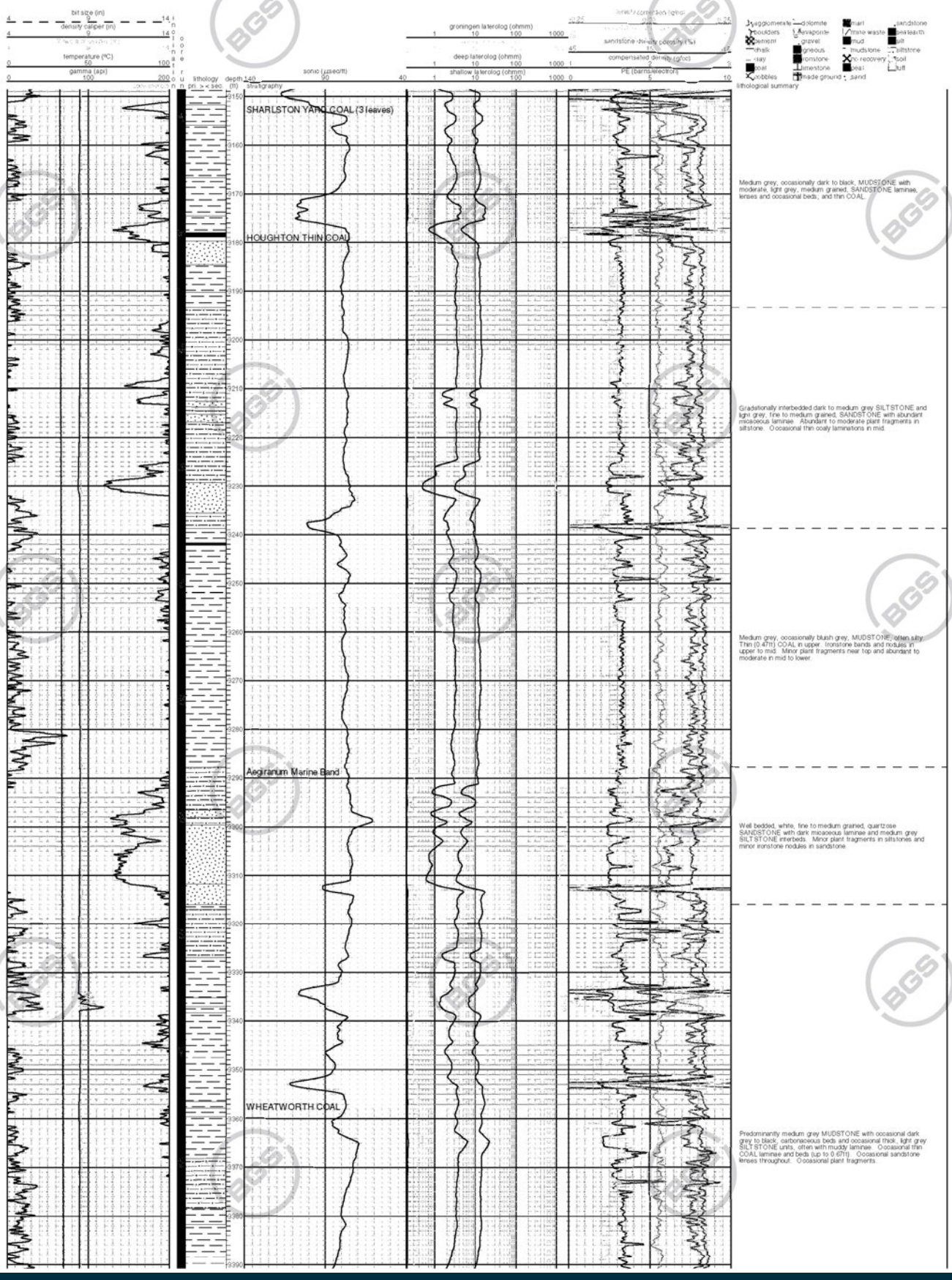

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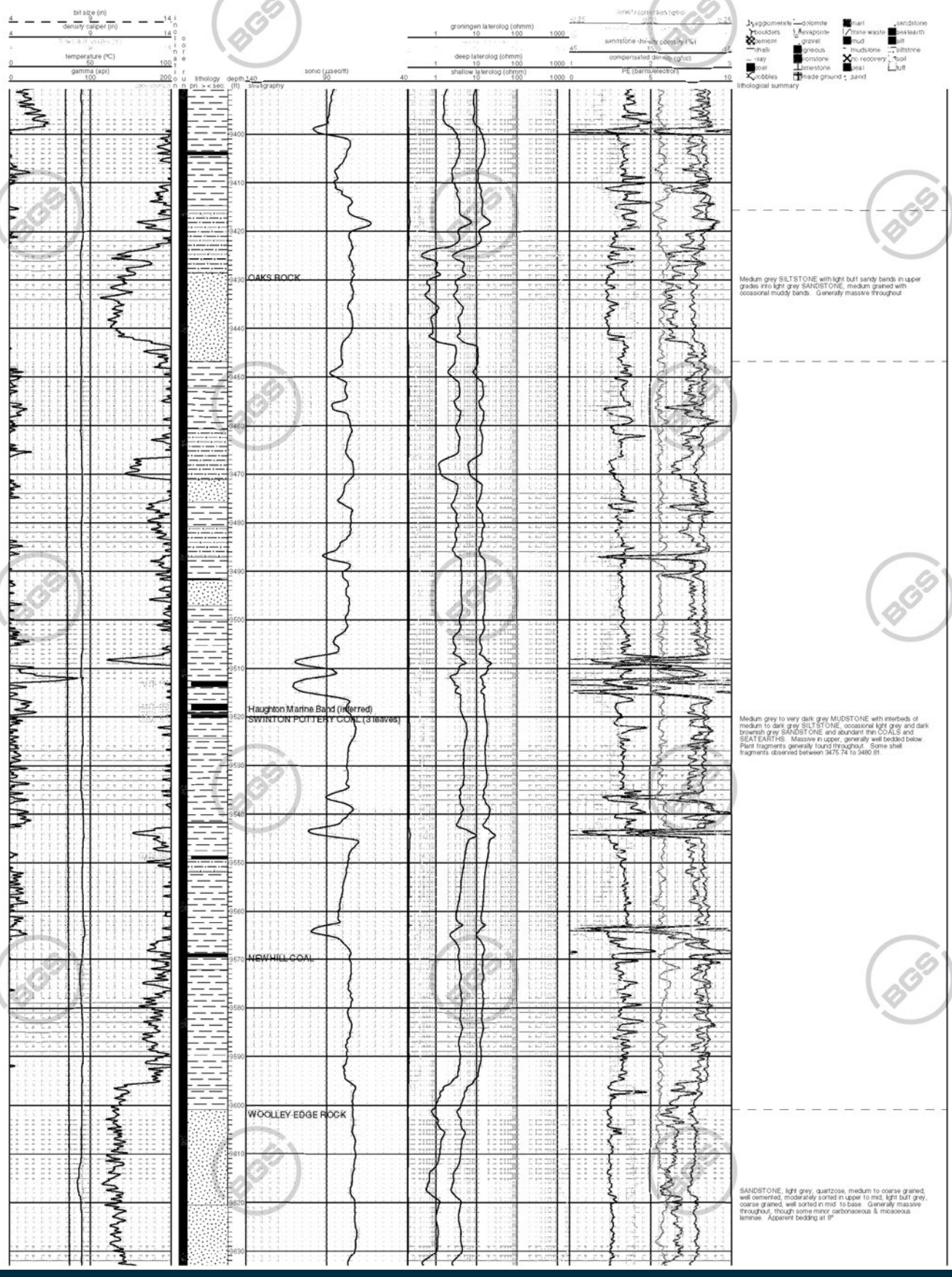

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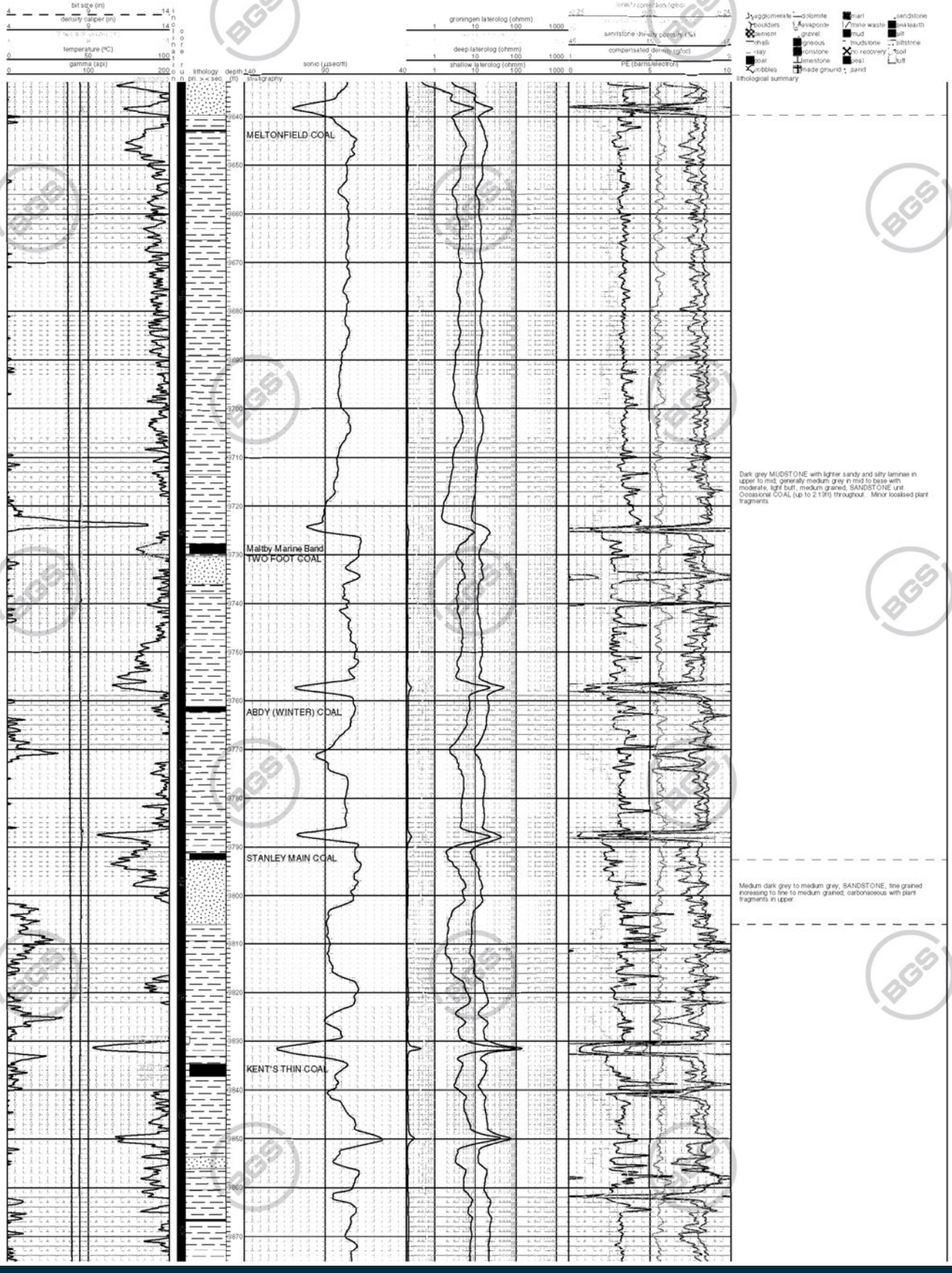

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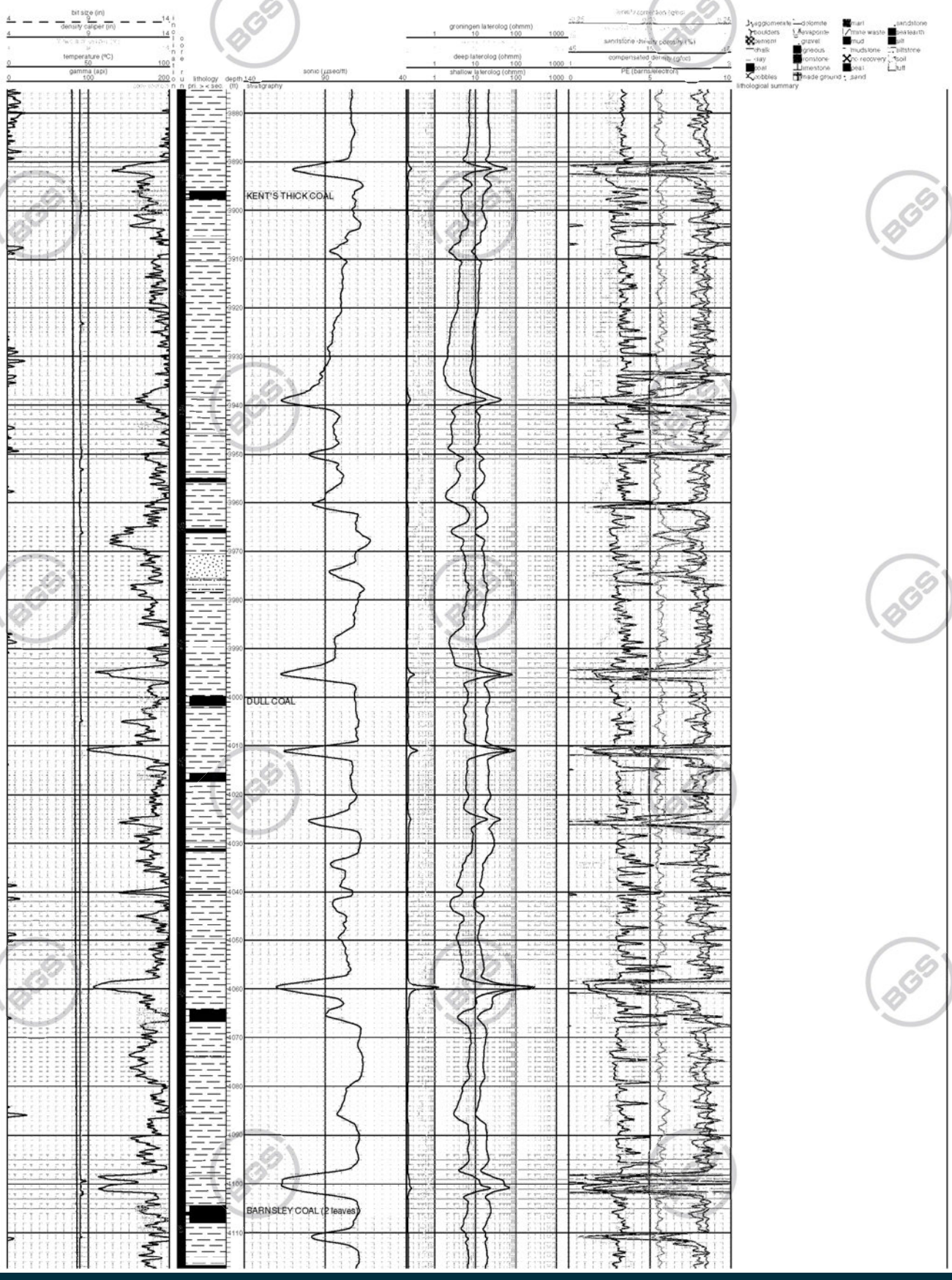

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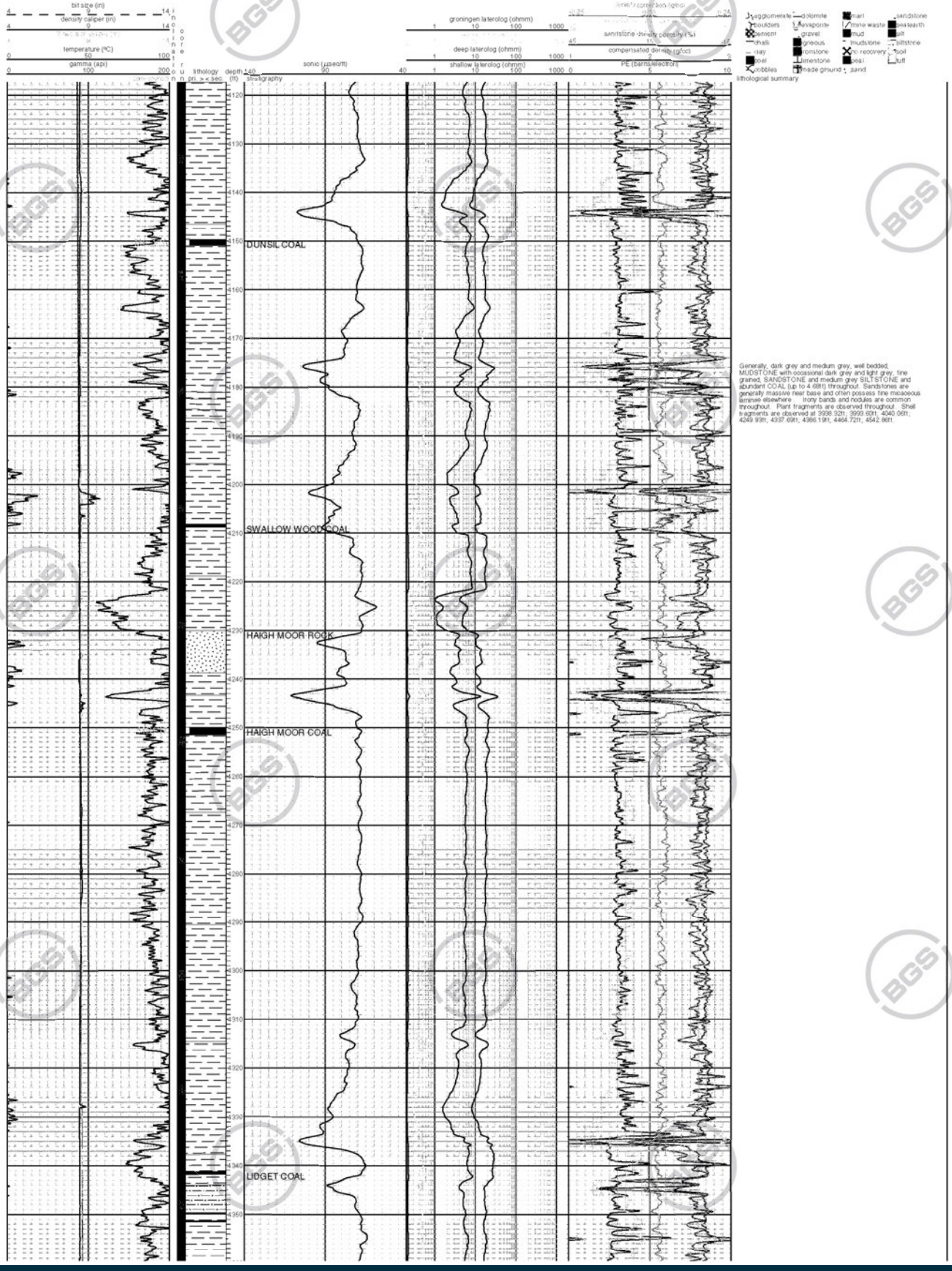

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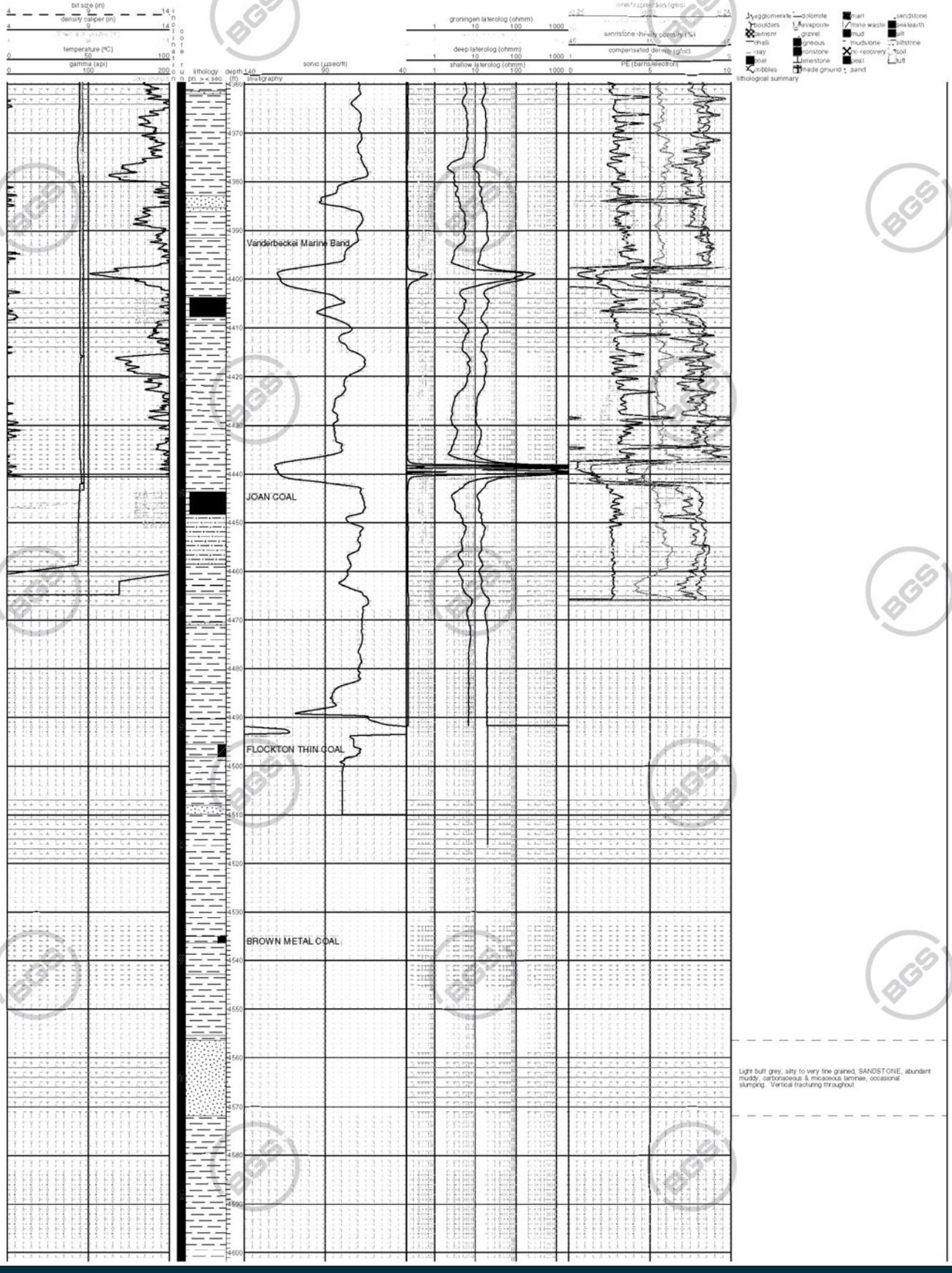

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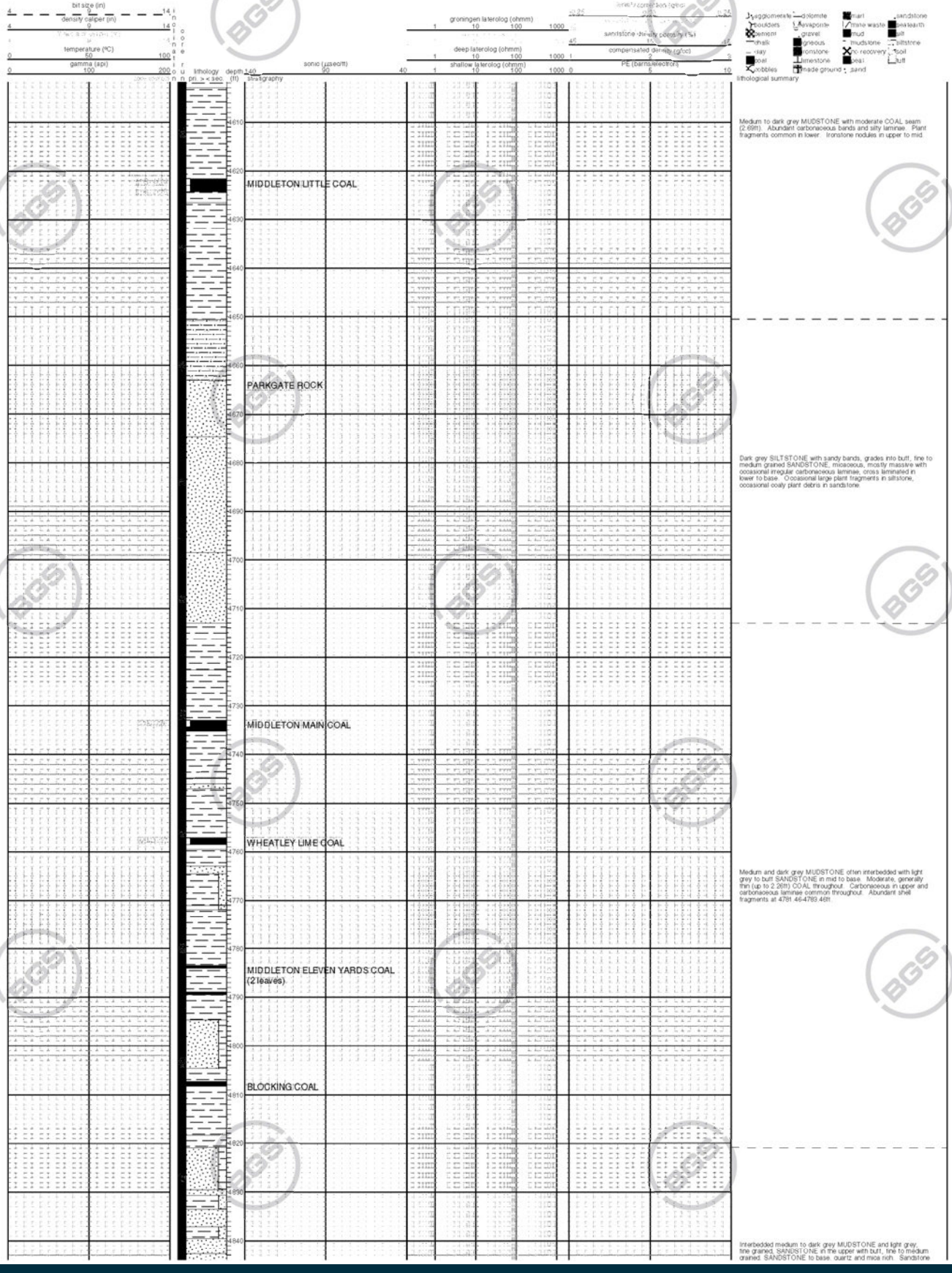

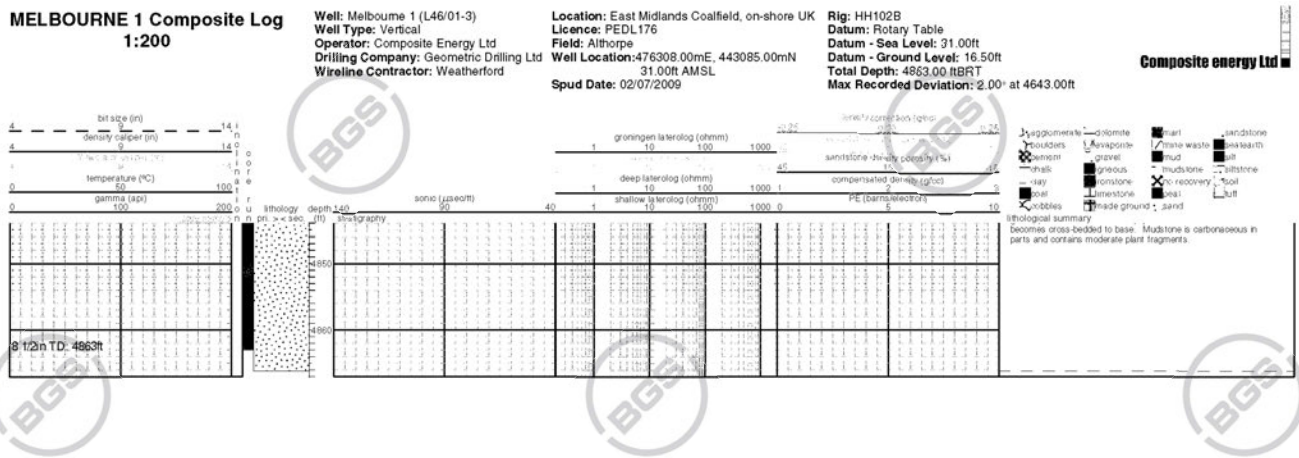
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Total Depth: 4863.00 ftBRT
Max Recorded Deviation: 2.00° at 4643.00ft
Composite energy Ltd
bit size (in)
density caliper (in)
temperature (°C)
gamma (api)
lithology
depth (ft)
stratigraphy
sonic (µsec/ft)
groningen laterolog (ohmm)
deep laterolog (ohmm)
shallow laterolog (ohmm)
sandstone density porosity (%)
compensated density (g/cc)
PE (barns/electron)
conglomerate
boulders
cement
chalk
clay
coal
cobbles
dolomite
evaporite
gravel
igneous
ironstone
limestone
made ground
marl
mine waste
mud
mudstone
no recovery
peat
sand
sandstone
seatearth
silt
siltstone
soil
tuff
lithological summary
becomes cross-bedded to base. Mudstone is carbonaceous in parts and contains moderate plant fragments.
8 1/2in TD: 4863ft

YORKSHIRE WATER AUTHORITY – Survey of Existing Boreholes

I.G.S. Ref. No ..... N.G.R. .SE.76504325....

Licence No 2/27/2K/109

OWNERS NAME D,M,&T. KEMP & SONS

ADDRESS .RYEDALE FARM, MELBOURNE....
.YOA ASS.....

App No 5837(1)

Authorised Abstraction
4.5 m³/h 990 g.p.h.
32 m³/d 7040 g.p.d.
10.9 tcma 2.4 m.g.a.

COM. & AGRIC.

STRATA DETAILS	Depth	Thickness
SHERWOOD SST		

Dia. .250 mm.....
Depth ..120 M.....
Lining .....
Well sinker .....
Date .....
R.W.L. .....
P.W.L. .NO DETAILS.....

INSPECTION REPORT	WATER QUALITY	DATE OF INSPECTION:-
Present Owner:-	Date	Other Comments:-
Access (Yes or No)	pH	
½" Probe	Total hard	
3" Instruments	Temp.hard	
Landrover	Alk.	
Access Agreed	Ca	
	Mg	
	Na	
	K	Sketch Plan of Location
Water Level at time of insp.	HCO_3	
..... metres below	SO_4	
Date	Cl	
Datum above O.D.	NO_3	
R.W.L. above O.D.	Fe	
Date		

YORKSHIRE WATER AUTHORITY – Survey of Existing Boreholes

1

I.G.S. Ref. No ..... N.G.R. SE 774 419

Licence No 2/26/34/25

OWNERS NAME MELROSE PIGS LTD. (MELROSE FM. MELBOURNE)

ADDRESS OLD MILLS, SEATON ROSS
YORK

App No 284

Authorised Abstraction
1·5 m³/h 990 g.p.h.
23 m³/d 5060 g.p.d.
6·8 tcma 1·5 m.g.a.

Depth	Thickness	STRATA DETAILS
		SHERWOOD SST.

Dia. 140 mm
Depth 45.75 m
Lining .....
Well sinker .....
Date .....
R.W.L. .....
P.W.L. .....

INSPECTION REPORT	WATER QUALITY	DATE OF INSPECTION:-
Present Owner:-	Date	Other Comments:-
Access (Yes or No)	pH	
½" Probe	Total hard	
3" Instruments	Temp.hard	
Landrover	Alk.	
Access Agreed	Ca	
	Mg	
	Na	
	K	Sketch Plan of Locatio
Water Level at time of insp.	HCO_3	
..... metres below	SO_4	
Date	Cl	
Datum above O.D.	NO_3	
R.W.L. above O.D.	Fe	
Date		

WR38: Borehole record form

Borehole record form

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

Water Resources Act 1991 (as amended by the Water Act 2003)

A Site details

Borehole drilled for: PHILIP ANDERSON

Location: EAST COMMON FARM, MELBOURNE, YO42 4RF

NGR (ten digits): SE 77136 43530 Please attach site plan

Ground level (if known): 10m metres Above Ordnance Datum

Drilling company: M&D DRILLING CO. LTD.

Date drilling commenced: (DD/MM/YYYY) Completed: 20/04/2017 (DD/MM/YYYY)

B Construction details

Borehole datum (if not ground level): 0 metres (m). Please tick if this is above ☐ or below ☐ ground level.
(point from which all measurements of depth are taken, for example, flange, edge of chamber)

Borehole drilled diameter:
250 mm from 0 to 16m m/depth
150 mm from 16 to 80.5 m/depth
mm from to m/depth
mm from to m/depth

Casing material: STEEL diameter: 150 mm from: 0 to: 16m m/depth
and type (for example, if plain steel, plastic slotted). Please record permanent casing details, not temporary casing.

Casing material: STEEL diameter: mm from: to: m/depth
Casing material: PLASTIC - PLAIN + SLOTTED diameter: 100 mm from: 0 to: 80.50 m/depth
Casing material: diameter: mm from: to: m/depth

Grouting details: ANNULUS GROUTED

Water struck at 1. 65 m (depth below datum – mbd) 2. 73 m (mbd)
3. m (mbd) 4. m (mbd)

C Test pumping summary (Please supply full details on form WR39)

Test pumping datum (if different from borehole datum): 0 m. Please tick if this is above ☐ or below ☐ ground level.

Pump suction depth: 40 mbd

Water level (start of test): 6.50 mbd

Water level (end of test): 7.35 mbd

Type of test (for example, bailer, step, constant rate): CONSTANT RATE

Pumping rate: 4 m³/hour ☑ or litres/second ☐. Please tick as appropriate.
for: days, 48 hours, mins

Recovery to: 6.5 mbd in: days, hours, 12 mins
(from end of pumping)

Date(s) of measurements: Pump started 18/4/2017 (DD/MM/YYYY)
Pump stopped 20/4/2017 (DD/MM/YYYY)

Please supply chemical analysis if available. If you have included this please tick this box ☐

D Strata log

Geological classification (BGS only)	Description of strata	Thickness m	Depth (to base of strata) m
	Top Soil	0·4	0-0·4
	SAND	6·4	0·4-6·8
	CLAY	2·3	6·8-9·1
	SAND & GRAVEL	1·1	9·1-10·2
	CLAY	1·0	10·2-11·2
	MERCIA MUDSTONE	61·8	11·2-73
	SANDSTONE GREY	7·5	73-80·5
	(continue on separate page if necessary)		
	Other comments (for example, gas encountered, saline water intercepted)		

E Completing this form

How long did it take you to fill in this form? _____

For Official use only

Date received (DD/MM/YYYY)	File	Consent number	BGS reference number
Accession number	**Wellmaster number**	**SOBI number**	**NGR**
LIC NO	**Purpose**		**EA reference number**
Copy number	**Entered by**		

[redacted]

WR38: Borehole record form

Borehole record form

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

Water Resources Act 1991 (as amended by the Water Act 2003)

A Site details

Borehole drilled for [redacted]

Location ROSSMOOR PARK MELBOURNE YORK YO42 4RZ

NGR (ten digits) SE 73141 43667 Please attach site plan

Ground level (if known) – metres Above Ordnance Datum

Drilling company MUD DRILLING LTD

Date drilling commenced 12-8-2019 (DD/MM/YYYY) Completed 23-8-2019 (DD/MM/YYYY)

B Construction details

Borehole datum (if not ground level) GROUND LEVEL metres (m). Please tick if this is above ☐ or below ☐ ground level.
(point from which all measurements of depth are taken, for example, flange, edge of chamber)

Borehole drilled diameter

250	mm from	0	to	19.50 m/depth
150	mm from	19.50	to	41.60 m/depth
	mm from		to	m/depth
	mm from		to	m/depth

Casing material and type (for example, if plain steel, plastic slotted). Please record permanent casing details, not temporary casing.

Casing material STEEL	diameter	150	mm from	0	to 19.50 m/depth
Casing material PLASTIC - PLAIN	diameter	100	mm from	0	to 41.60 m/depth
Casing material SLOTTED	diameter		mm from		to m/depth

Grouting details ANNULUS GROUTED

Water struck at 1. NOT KNOWN m (depth below datum – mbd) 2. m (mbd)
3. m (mbd) 4. m (mbd)

C Test pumping summary (Please supply full details on form WR39)

Test pumping datum (if different from borehole datum) 0.3 m. Please tick if this is above ☐ or below ☐ ground level.

Pump suction depth 18 mbd

Water level (start of test) 2.00 mbd

Water level (end of test) 9.2 mbd

Type of test (for example, bailer, step, constant rate) CONSTANT

Pumping rate 9 m³/hour ☑ or litres/second ☐. Please tick as appropriate.

for 2 days, – hours, – mins

Recovery to 2.00 mbd in – days, 2 hours, 20 mins
(from end of pumping)

Date(s) of measurements Pump started 25/08/2019 (DD/MM/YYYY)
Pump stopped 27/08/2019 (DD/MM/YYYY)

Please supply chemical analysis if available. If you have included this please tick this box ☐

[redacted]

WR38: Borehole record form

D Strata log

Geological classification (BGS only)	Description of strata	Thickness m	Depth (to base of strata) m
	TOP SOIL	0-40	0-40
	CLAY	1-10	1-50
	SAND	3-00	4-50
	CLAY	10-30	14-80
	SANDSTONE, GREY	26-80	41-60
	(continue on separate page if necessary)		
	Other comments (for example, gas encountered, saline water intercepted)		

E Completing this form

How long did it take you to fill in this form? ____

For Official use only

Date received (DD/MM/YYYY)	File	Consent number	BGS reference number
Accession number	Wellmaster number	SOBI number	NGR
LIC NO	Purpose		EA reference number
Copy number	Entered by		

[redacted]

Borehole record form

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

Water Resources Act 1991 (as amended by the Water Act 2003)

A Site details

Borehole drilled for GRANGE FARM

Location FOGGATHORPE, SELBY YO8 [redacted]

NGR (ten digits) SE 75001 37905 Please attach site plan

Ground level (if known) / metres Above Ordnance Datum

Drilling company M & D DRILLING COMPANY LTD

Date drilling commenced 3-12-2020 (DD/MM/YYYY) Completed 11-12-2020 (DD/MM/YYYY)

B Construction details

Borehole datum (if not ground level) GROUND LEVEL metres (m). Please tick if this is above ☐ or below ☐ ground level.
(point from which all measurements of depth are taken, for example, flange, edge of chamber)

Borehole drilled diameter

250 mm from 0 to 19.70 m/depth
150 mm from 19.70 to 35.50 m/depth
mm from to m/depth
mm from to m/depth

Casing material diameter mm from to m/depth
and type (for example, if plain steel, plastic slotted). Please record permanent casing details, not temporary casing.

Casing material STEEL diameter 150 mm from 0 to 19.70 m/depth
Casing material PLASTIC - PLAIN diameter 100 mm from 0 to 35.50 m/depth
Casing material SLOTTED diameter mm from to m/depth
Grouting details ANNULUS GROUTED

Water struck at 1. 19.70 m (depth below datum – mbd) 2. m (mbd)
3. m (mbd) 4. m (mbd)

C Test pumping summary (Please supply full details on form WR39)

Test pumping datum (if different from borehole datum) 0.3 m. Please tick if this is above ☐ or below ☐ ground level.

Pump suction depth 18 mbd

Water level (start of test) 5.00 mbd

Water level (end of test) 5.81 mbd

Type of test (for example, bailer, step, constant rate) CONSTANT

Pumping rate 3 m³/hour ☑ or litres/second ☐. Please tick as appropriate.
for 3 days, / hours, - mins

Recovery to 5.0 mbd in - days, 2 hours, - mins
(from end of pumping)

Date(s) of measurements Pump started 15/12/20 (DD/MM/YYYY)
Pump stopped 18/12/20 (DD/MM/YYYY)

Please supply chemical analysis if available. If you have included this please tick this box ☐

D Strata log

Geological classification (BGS only)	Description of strata	Thickness m	Depth (to base of strata) m
	TOP SOIL	0-30	0-30
	CLAY	2-00	2-30
	SAND	2-70	5-00
	CLAY	9-50	14-50
	SANDSTONE, GREY THIN RED BANDS	21-00	35-50
	(continue on separate page if necessary)		
	Other comments (for example, gas encountered, saline water intercepted)		

E Completing this form

How long did it take you to fill in this form? ____

For Official use only

Date received (DD/MM/YYYY)	File	Consent number	BGS reference number
Accession number	Wellmaster number	SOBI number	NGR
LIC NO	Purpose		EA reference number
Copy number	Entered by		

CANDECCA RESOURCES LIMITED — SCURRY RAINBOW

(Relay) Gohl

SEATON ROSS No. 1
Coordinates S.E. 77,014 : 38,593
R.T.E. 30.9ft.
Drilling Commenced: 15·4·1973
Drilling Completed: 25·4·1973

Heavy Mud

Cement

Soft, slightly calcareous, mottled and speckled reddish brown and green marl.

Missing Samples

Mostly cement from surface casing in top 60 feet. Generally buff to orange, medium to coarse, fairly friable millet seed sandstone. Excellent porosity and permeability. Lower 100' slightly clayey sandstone with minor red and green marl interbeds.

As above with gn and red gyp marl containing wh and pink satinspar gypsum. Orange, buff-brown to reddish brown, fine to medium, friable, locally pebbly sandstone. Scattered black rounded chert grains. Patchy white gypsiferous clay cement. Numerous missing samples.

As above with intercalations of gypsiferous red and green marl. Orange to light red, medium, friable locally millet seed sandstone with rounded black chert grains and traces of mica. Excellent porosity and permeability. Local pebble beds. Lost circulation with several intervals of no returns.

Tighter sandstone, orange to reddish brown (mottled white), medium to coarse with white calcareous to gypsiferous clay matrix or cement. Friable streaks but much tighter than normal.

Maroon, red and spotted green, soft marl with stringers of white, micaceous, calcareous, silty, locally gypsiferous sandstones. Scattered oxidised chalcopyrite patches. Some friable streaks but generally tight.

1530
190
1340

Bright red to maroon, slightly calcareous marl with white gypsum inclusions. Minor interbeds of white to pink satinspar gypsum from 1650' - 1707'.

Anhydrite - gypsum, white to light pink, massive.

Soft, red saliferous and gypsiferous marl. Possible halite from 1751' - 1778'. Marl locally blocky and anhydritic towards base (massive anhydrite from 1790' - 1800') with sealed fractures infilled with gilsonite.

1 Anhydrite & buff cryptograined, vaguely pelleted sl calcareous dolomite. Tr p blind cellular vug porosity. Some carbonaceous inclusions. Ineffective. Buff to light grey very fine to medium, partially leached algal oolite to cellular calc dol. Minor gr & red marl intbds. Pyrbit & evidence live o stn. Some frac planes coated with pyrbit. Fr por and perm with flor. Effective reservoir. Calc. Dolomite, pale buff to lt cream, micr, sl earthy & chalky / tr of relict, phos ool mat. Tr p pin point vug & chalky por. Scat pyrbit. Ineffective. Chalky to micrograined, locally micro cellular calc. dolomite with relict dark grey, phosphatic ooliths. Ooliths locally leached giving rise to cellular patches containing traces of pyrobitumen and carbonaceous material. Streaks of fair porosity but essentially a high connate water section because of chalky to micrograined matrix.

3 Red mottled light grey, locally gypsiferous marl. Generally light cream, locally white, cryptocrystalline to micrograined, vaguely pelleted slightly calcareous dolomite. Traces poor blind leached vug porosity with some fluorescence. Minor traces of cellular oolite patches with gypsum or anhydrite vug infilling. Intercalations of red gypsiferous marl at 2010' 2040' and 2070'. Generally tight, pelleted mud facies with marl incursions.

2 Dolomitized, vuggy biostromal, organic lattice. Buff to light brown, locally oil stained with streaming cut, fine to medium, mosaic calcareous dolomite with generally excellent lined vug porosity. Locally fair to good intercrystalline porosity with pyrobitumen & fair fluorescence. Scattered patches of anhydrite. Traces relict oolite texture. Excellent reservoir.

Platy - cryptocrystalline, buff to light cream, anhydritic dolomite with scattered poor blind vug porosity. Some minor anhydrite interbeds. Ineffective. Buff, fine -medium subhedral calcareous dolomite (relict fine to medium oolite ghosts). Patches of platy, anhydritic cryptograined dolomite but generally good intercrystalline and fair lined vug porosity. Traces pyrobitumen and fair fluorescence.

Buff, platy, cryptocrystalline, locally anhydritic dolomite (10-15% veining & inclusions of anhydrite). Thin stringers of earthy to microcrystalline, cellular calcareous dolomite with patchy oil staining & pyrobitumen. Possibly a few feet poorly effective.

Dolomite as above with red gypsiferous marl intercalations.

Mainly buff to light brown, crypto-microcrystalline interlocking sl calcareous dolomite with 10-15% anhydrite veining and inclusions. No true bedded anhydrites. Hairline cracks & scattered poor pin point vug porosity infilled with pyrobitumen. Generally tight.

Calcareous dolomite to dolomitic limestone. Grey to light grey, slightly bituminous cryptograined, locally slightly chalky or earthy. Traces skeletal grains. Occasional blind vug porosity with numerous hairline cracks infilled with pyrobitumen or carbonaceous material. Essentially tight.

Black to dark grey; organic slightly pyritic, bituminous silty shale. Fine to coarse, locally pebbly, friable rounded and wind polished sand. Minor cemented areas. Fragments of red shale. Excellent porosity and permeability. Grey and maroon, locally silty and carbonaceous micaceous shales with minor coal smuts and seams. Traces silty micaceous clay sandstone.

Interbedded grey shales, coal seams, seat earths and lt. grey silty micaceous, slightly calcareous tight fine grained sandstone. Coal seams well developed.

Interbedded light grey, speckled and slightly coaly fine grained, slightly calcareous tight sandstone with white clay matrix, and grey locally maroon shale.

Interbedded grey to dark grey shale, (10% maroon) numerous coal seams, seat earths and minor light grey, locally white speckled micaceous, slightly calcareous silty sandstones.

Light grey to speckled white, locally coaly, generally fine to medium grained cemented sandstone. Calcareous clay matrix with some siliceous cement. Traces poor intergranular porosity. Ineffective. Minor interbeds of grey locally maroon shale.

Interbedded grey shales, coal seams, seat earths and minor stringers of white to lt. grey, micaceous, silty, slightly calcareous sandstones. Well developed coal seams from 3350' - 3360'.

EAST RIDING
OF YORKSHIRE COUNCIL

County Hall Beverley East Riding of Yorkshire HU17 9BA Telephone (01482) 393939
www.eastriding.gov.uk

Lisa Nicholson Director of Legal and Democratic Services

Gareth Jones
Sent by email only:-
gjones@rsk.co.uk

Your Ref:
Our Ref: EIR4290
Enquiries to: Amelia Snowden
Email: foi@eastriding.gov.uk
Tel Direct: (01482) 393789
Date: 19 December 2025

Dear Gareth

Environmental Information Regulations - Request for Information

On 28 November 2025 East Riding of Yorkshire Council received your request for information under the Environmental Information Regulations 2004. The Council's response is set out below.

Response:

The Environment Agency has requested that we contact East Riding Council to establish whether the location of the proposed project contains any unlicensed groundwater abstractions so that any potential impact to these can be considered as part of the Environmental Impact Assessment process. Potable water abstractions are the main concern.

Please see attached PDF document.

If you are dissatisfied with the above response or how your request has been handled you can ask for the Council to review this by contacting the Information Governance and Feedback Team by email on foi@eastriding.gov.uk or on the above telephone number within 6 weeks of this letter.

A senior manager will carry out the review and you will receive a response within 40 working days. It will provide a fair and thorough review of the decisions taken and where necessary how your request has been handled.

If you are not content with the outcome of the review you can apply to the Information Commissioner for a decision. Generally, the Commissioner cannot make a decision unless you have exhausted the Council's review procedure. The Information Commissioner can be contacted as follows:

Online: https://ico.org.uk/make-a-complaint/
Tel: 0303 123 1113

Yours sincerely

Amelia Snowden
Information Governance and Feedback Officer

Darren Stevens
Executive Director of Corporate Resources

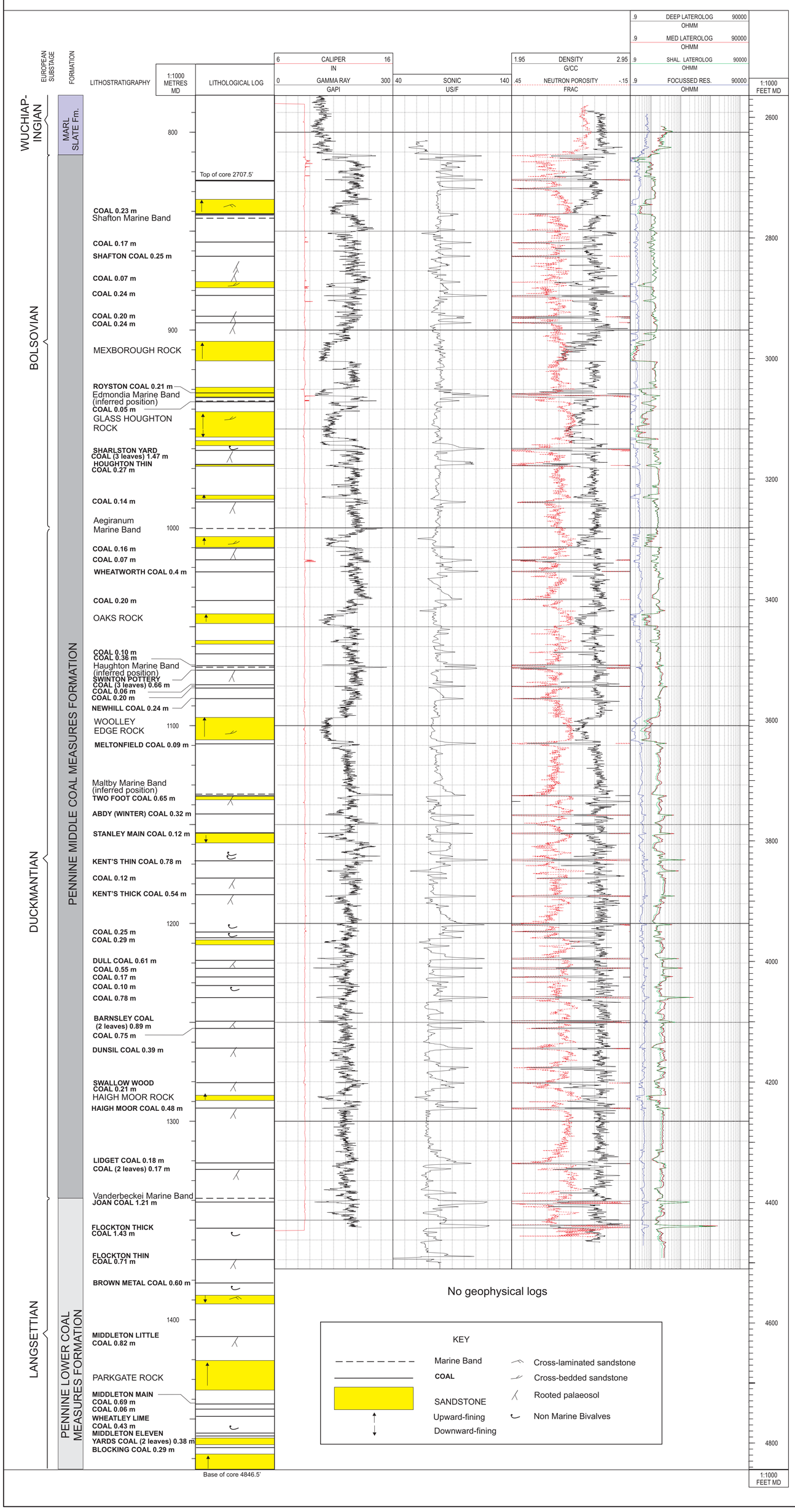
PETRIS

WELL TITLE: MELBOURNE 1

EASTING: 476315
NORTHING: 443088
GROUND LEVEL: 5.03
KB ELEVATION: 10.21
LOGS MEAS FROM: RT

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Compiled by Dr C N Waters, BA (Oxon), C Geol, FGS in March 2010



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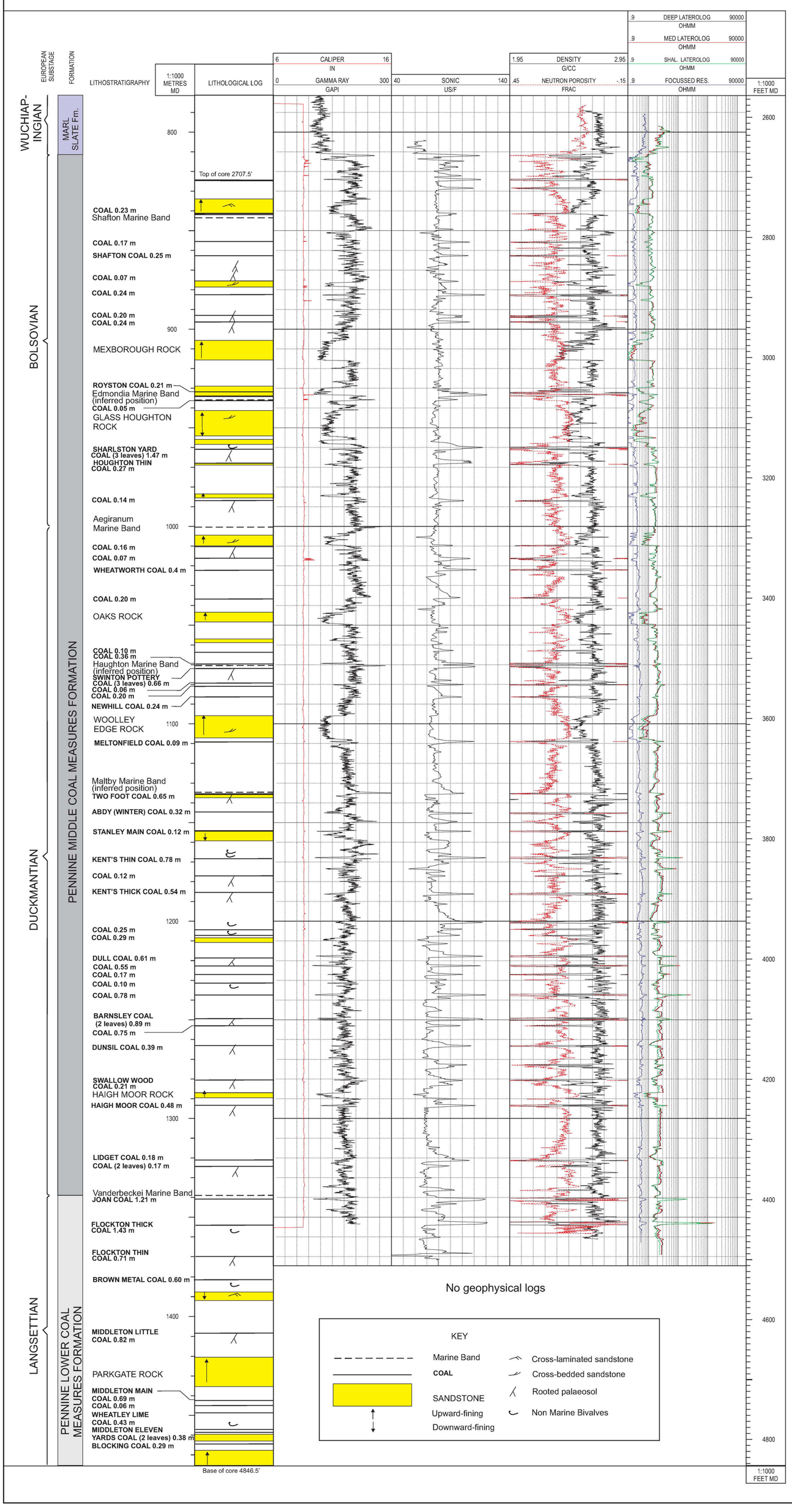

Melbourne 1 Core

Total Coal (ft): 58.18 Thickest Coal (ft): 4.68
Number of Coal Seams: 52.00
Total Coal Over 1ft Thick (ft): 39.95
Number of Coal Seams Over 1ft Thick: 18.00

Composite energy Ltd

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
1	11/07/09	18:04	2724	11/07/09	18:29	2748	11/07/09		24	23.87	99.46				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
1	2722	2737.22	Mudstone			Mdst: md gry with buff sst lenses, non-fractured.
1	2737.22	2745.45	Sandstone			Sst: pl gry, f gr, with buff md gr sst lenses. Muddy lams, non-fract.
1	2745.45	2747.4	Mudstone			Mdst: md-dk gry interbedded mdst/slst w/ sst lenses. Bedding @ 2deg. Siltier at base.
1	2747.4	2747.87	Sandstone			Sst: pl gry, f gr, with buff md gr sst lenses. Muddy lams, non-fract.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
2	11/07/09	20:23	2748	11/07/09	20:40	2772	11/07/09	21:38	24	23.95	99.79				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
2	2747.87	2761.51	Sandstone			Sst: pl gry, f gr, with buff md gr sst lenses. Muddy lams, non-fract. Bedding @ 5deg, muddy lams towards base
2	2761.57	2761.75	Coal			C: black, brittle, smeared pyrite on bedding planes, mod cleat.
2	2761.75	2762.23	Mudstone			Mdst: v dk gry, relatively low density, pyrite xtals on bedding planes, minor vis. Desorp.
2	2762.23	2765.04	Mudstone			Mdst: dk gry w/ sst lenses.
2	2765.04	2770.04	Siltstone			Slst: md gry, massive, fines towards base.
2	2770.04	2771.82	Mudstone			Mdst: md gry, silty, massive.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
3	11/07/09	22:23	2772	11/07/09	22:39	2796	11/07/09	23:48	24	23.49	97.88				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
3	2771.82	2788.98	Mudstone			Mdst: med gry, silty lams increasing from half way down. Bedding @ 3deg, minor 0.03' coaly band nr base.
3	2788.98	2795.31	Siltstone			Slst: lt gry, sandier towards base, non-fractured.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
4	12/07/09	0:12	2796	12/07/09	0:55	2820	12/07/09	1:58	24	24	100.00				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
4	2795.31	2806.2	Siltstone			Slst: md gry, w/ mudst lams and some sst lenses, bedded @ 4deg.
4	2806.2	2809.31	Mudstone			Mdst: md gry w/ silty lenses and plant frags.
4	2809.31	2809.86	Coal			C: black, muddy, no vis desorp.
4	2809.86	2819.31	Siltstone			Slst: md gry, w/ mudst lams (more freq towards base) and some sst lenses, bedded @ 2deg.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
5	12/07/09	2:21	2820	12/07/09	2:33	2844	12/07/09	3:34	24	23.7	98.75				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
5	2819.31	2831.77	Mudstone			Mdst: md gry, w/ 40% silty bands & lams, minor sst lenses. Bedding @ 0deg, no fracturing.
5	2831.77	2832.59	Coal			C: black, muddy bands, no vis desorp.
5	2832.59	2843.01	Siltstone			Slst: md gry, w/ sst lenses. Fines toward base. Rootlets beneath coal.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
6	12/07/09	4:10	2844	12/07/09	4:25	2868	12/07/09	5:37	24	24.32	101.33				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
6	2843.01	2846.47	Mudstone			Mdst: dk gry w/ sst lenses. Hard, no fracture.
6	2846.47	2847.02	Sandstone			Sst: dk brwn-gry w/ mdst bands. Hydrocarbon odour and slight oilyness on surface.
6	2847.02	2847.65	Mudstone			Mdst: dk gry, mod hard.
6	2847.65	2851.65	Sandstone			Sst: lt buff, f gr, massive.
6	2851.65	2867.63	Siltstone			Slst: med gry w/ occ mdst & sst bands. Bedding @ 2deg, no fract, occ plant frag in mdst bands.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
7	12/07/09	5:57	2868	12/07/09	6:12	2892	12/07/09	7:13	24	24.62	102.58				Light oily odour in Sst.

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
7	2867.63	2876.26	Mudstone			Mdst: med gry w/ mnr blk coaly lam nr base, some severe sub vert jt and bdg angle ranges from 0-25deg - incr to base.
7	2876.26	2876.5	Coal			C: blk mdy, vitreous
7	2876.5	2883.12	Sandstone			Sst: lt gry, f-m gr, wl srtd, wl bdd, drk mic lam, qtz rich, lt oily odour.
7	2883.12	2892.25	Mudstone			Mdst: lt olive gry - mod drk gry w/ buff Fe-st bands, wl bdd, hard, some slick surf and sub vert jt.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
8	12/07/09	7:55	2892	12/07/09	8:13	2916	12/07/09	9:30	24	24.47	101.96	MB 1/1	2895.78	2897.09	Photo no.: 4916
												MB 1/A	2897.09	2897.57	

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
8	2892.25	2895.78	Mudstone			Mdst: med gry w/ buff Fe-st bands, wl bdd, hard, some slick surf and sub vert jt, mnr foss shell frags.
8	2895.78	2897.57	Coal			C: blk , brittle, mdy, pyr lam, v mnr vis desorption.
8	2897.57	2903.54	Mudstone			Mdst: med olive gry, some buff Fe-st nodules & coaly lam, prog slty to base, rooty & foss plt frags. Grad cont w/ slst.
8	2903.54	2904.54	Siltstone			Slst: brn gry, abd foss plt frags, hard, wl cmtd. Sharp cont w/ sst.
8	2904.54	2906.39	Sandstone			Sst: lt gry, f gr, wl srtd, sub vert jt & slick surf.
8	2906.39	2916.72	Siltstone			Slst: lt gry, wl bdd @ 5 deg, mod foss plt frags, wl cmtd, wl bdd.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
9	12/07/09	9:54	2916	12/07/09	10:12	2940	12/07/09	11:30	24	24.61	102.54				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
9	2916.72	2925.14	Siltstone			Slst: lt gry w/ buff Fe-st nodules, wl bdd @ 5 deg, mod foss plt frags, wl cmtd, wl bdd.
9	2925.14	2927.36	Sandstone			Sst: lt gry, vf gr, wl srtd, wl cmtd, low porosity, bdg @ 15deg.
9	2927.36	2930.57	Mudstone			Mdst: med bl gry, wl cmtd, Fe-st nodules. Grades into sst.
9	2930.57	2931.5	Sandstone			Sst: lt gry w/ drk mic lam nr base, f-m gr, mod wl srtd.
9	2931.5	2934.03	Mudstone			Mdst: med bl gry, wl cmtd, Fe-st nodules.
9	2934.03	2934.69	Coal			C: blk, mdy, pyr, mod cleats, wl lam.
9	2934.69	2936.25	Mudstone			Mdst: lt olive gry, abd foss plt frags.
9	2936.25	2937.05	Coal			C: blk, mdy, pyr lam. 2 leaves w/ coaly mdst 0.14' thick separating.
9	2937.05	2941.33	Mudstone			Mdst: lt olive gry, abd foss plt frags, Fe-st nodules, some slick surf, bdg @ 0deg.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
10	12/07/09	11:55	2940	12/07/09	12:17	2964	12/07/09	13:38	24	23.83	99.29				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
10	2941.33	2944.73	Mudstone			Mdst: med gry , abd foss plt frags, Fe-st nodiles. 3 blk coaly bds nr base - 0.12', 0.23 & 0.52' thick - pyr lam, mnr vis desorption.
10	2944.73	2961.19	Siltstone			Slst: lt gry w/ med gry mdst & lt gry f gr sst beds, abd foss plt frags, wl cmtd, hard, Fe-st nodules. Sharp cont w/ sst - 5deg.
10	2961.19	2963.61	Sandstone			Sst: lt gry, qtz rich, f-m gr, wl srtd, wl cmtd, massive.
10	2963.61	2965.16	Sandstone			Sst: med gry, slty-vf gr, mod srtd, f horiz lam, abd foss plt frags & coarser gr size in some lam.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
11	12/07/09	14:24	2964	12/07/09	15:08	2988	12/07/09	15:58	24	1.13	4.71				Driller reported slow ROP. CB mostly filled w/ gravel.

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
11	2965.16	2988.17	No recovery			No recovery. CB contains mostly (c. 6') unconsolidated gravel, made up of small-med pebbles, sb ang- rdd of rdsh brn & blsh gry
11	2988.17	2989.16	Siltstone			Slst: med gry, v hard, wl cmtd, f lam w/ some slty lam, wl bdd, abd foss plt frags.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
12	12/07/09	17:39	2988	12/07/09	17:52	2995.5	12/07/09		7.5	3.95	52.67				Evidence of milling.

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
12	2989.16	2993.11	Siltstone			Slst: med gry w/thin, lt gry sst bed nr top, buff Fe-st nodules, hard, wl cmtd, wl bdd, abd foss plt frags. Last 1.34' show evidence of
12	2993.11	2996.66	No recovery			No recovery. Slight depth discrepancy due to clearing the hole.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
13	13/07/09	11:29	2998	13/07/09	11:48	3022	13/07/09	12:47	24	24.4	101.67				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
13	2998	3007.39	Sandstone			Sst: wh w/ mnr brown bands & mnr drk mic lam, f-m gr, mod-wl srtd, wl bdd, sub vert jt in places, mnr coal lams <0.1' thick nr base.
13	3007.39	3022.44	Mudstone			Mdst: med gry, wl cmtd, mod foss plt frags, slightly slty to base and slty lam. Bdg @0-5deg.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
14	13/07/09	13:20	3022	13/07/09	13:41	3046	13/07/09	14:41	24	23.76	99.00				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
14	3022.44	3046.2	Siltstone			Slst: med gry, wl cmtd, wl bdd, mnr foss plt frags, grades from mdy to fine sd from top to base, sndy lam nr base.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
16	13/07/09	16:35	3047.8	13/07/09	16:52	3070	13/07/09	18:02	22.2	23.44	105.59				Run 15 - cored 1.8ft before jamming off. No recovery, core catcher

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
16	3046.2	3052.18	Siltstone			Slst: med gry, w/ lt gry & med gry mdst lams, wl cmtd, wl bdd, prog sndy to base. Grades into sst.
16	3052.18	3060.12	Sandstone		Coal	Sst: lt gry w/ thin blk coal seams, slty @ top, f-m gr, wl srtd, qtz & mic rich, Fe-st nodules. Coal seams up to 0.18' thick.
16	3060.12	3060.82	Coal			C: blk, vitreous, pyr, mod formed cleats, mnr vis desorption
16	3060.82	3063.69	Sandstone		Coal	Sst: lt gry w/ thin blk coal seams, slty @ top, f-m gr, wl srtd, qtz & mic rich, Fe-st nodules. Coal seams up to 0.26' thick, blk, dull,
16	3063.69	3066.34	Mudstone			Mdst: blk, coaly w/ drk gry bed in centre, mnr vis desorption, pyr, sharp cont w/ mdst - slick surface, steep angle.
16	3066.34	3069.64	Mudstone			Mdst: drk olive gry, mnr Fe-st nodules, pyr on slick surfaces, mnr plt frags.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
17	13/07/09	19:47	3070	13/07/09	20:10	3094	13/07/09	21:22	24	24.44	101.83				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
17	3069.64	3071.26	Mudstone			Mdst: dk gry w/ sst lenses, mod hardness.
17	3071.26	3071.43	Coal			C: blk, brittle, no vis desorp.
17	3071.43	3074.54	Mudstone			Mdst: dk gry, mod hardness, silty bands w/ rootlets.
17	3074.54	3081.31	Siltstone			Slst: lt-md gry, occ mdst lam, rootlets common nr top.
17	3081.31	3084.33	Mudstone			Mdst: dk gry, mssv.
17	3084.33	3094.08	Siltstone			Slst: dk gry, mssv, hard, minor mdst lams.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
18	13/07/09	21:49	3094	13/07/09	22:07	3118	13/07/09	23:13	24	23.81	99.21				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
18	3094.08	3117.89	Sandstone			Sst: lt gry, md gr, well srtd, mod mdst lams, bedding between 0 and 12deg (xbedding).

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
19	13/07/09	23:41	3118	14/07/09	0:02	3142	14/07/09	1:12	24	24.29	101.21				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
19	3117.89	3133.86	Sandstone			Sst: lt gry, m gr, occ mdst lams, mssv, faint hydrocarbon odour.
19	3133.86	3138.36	Mudstone			Mdst: dk gry w/ sst bands, mod hardness.
19	3138.36	3142.18	Sandstone			Sst: lt gry, m gr, occ mdst lams, mssv.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
20	14/07/09	1:55	3142	14/07/09	2:14	3166	14/07/09	3:21	24	24.46	101.92				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
20	3142.18	3144.78	Sandstone			Sst: lt gry, m gr, occ mdst lams, coaly bands up to 1/8" thick toward base.
20	3144.78	3151.68	Mudstone			Mdst: dk gry w/ sst lenses, bedding @ 2deg.
20	3151.68	3155.93	Mudstone		Coal	Mdst w/ C: mdst a/a with 20% muddy coal bands up to 0.5' thick. V minor vis desorp in coal.
20	3155.93	3166.64	Mudstone			Mdst: md gry w/ sst bands and slst lams. Sst is lt gry up to 0.8' thick. Mod-hard, non-fract.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
21	14/07/09	3:48	3166	14/07/09	4:01	3190	14/07/09	5:04	24	23.63	98.46				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
21	3166.64	3174.54	Mudstone			Mdst: dk gry w/ slst lams and sst lenses. Bedding @ 1deg, no fract, mod hardness.
21	3174.54	3177.97	Mudstone			Mdst: blk w/ sst bands, coaly towards base, no vis desorp.
21	3177.97	3178.86	Coal			C: blk, vitreous, brittle, varying quality, better towards base, v minor vis desorp.
21	3178.86	3179.68	Mudstone			Mdst: blk w/ sst bands, coaly towards base, no vis desorp.
21	3179.68	3184.53	Sandstone			Sst: lt gry, m gr, mdst lams toward base, hard.
21	3184.53	3190.27	Mudstone			Mdst: md gry, sst laminae towards top, hard, massive towards base.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
22	14/07/09	5:37	3190	14/07/09	5:54	3214	14/07/09	6:56	24	24.25	101.04				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
22	3190.27	3193.37	Mudstone			Mdst: drk gry, massive, hard.
22	3193.37	3212.55	Siltstone			Slst: drk gry, massive, hard abd foss plt frags.
22	3212.55	3213.77	Sandstone			Sst: lt gry, m gr, mdy lams at top, massive towards base, bdg @ c. 0deg.
22	3213.77	3214.52	Siltstone			Slst: drk gry, mic, v hard.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
23	14/07/09	7:19	3214	14/07/09	7:38	3238	14/07/09	8:47	24	24.21	100.88				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
23	3214.52	3215.27	Siltstone			Slst: med gry, mod foss plt frags, thin lam, thin (0.02') coal at top. Grades into sst.
23	3215.27	3216.88	Sandstone			Sst: lt gry, f-m gr, wl srtd, drk slty mic lam. Grades into slst.
23	3216.88	3229.3	Siltstone			Slst: med gry, mod foss plt frags, thin lam - sndy & mdy. Grades into sst.
23	3229.3	3235.58	Sandstone			Sst: lt gry, f-m gr, wl srtd, drk slty mic lam. Grades into slst.
23	3235.58	3238.73	Siltstone			Slst: med gry, mod foss plt frags, thin lam - sndy & mdy. Grades into mdst nr base.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
24	14/07/09	9:18	3238	14/07/09	9:34	3262	14/07/09	10:48	24	24.16	100.67				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
24	3238.73	3241.66	Mudstone			Mdst: med gry, wl cmtd, wl bdd, some v mnr sub vert jt, mnr foss plt frags, Fe-st bands.
24	3241.66	3242.13	Coal			C: blk, mdy, vitreous, lam, poorly formed cleats. Mnr vis desorption.
24	3242.13	3262.89	Mudstone			Mdst: lt blsh gry, slty, often grading to slst in places, slick surfaces, Fe-st nodules.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
25	14/07/09	11:16	3262	14/07/09	11:35	3286	14/07/09	12:36	24	24.82	103.42				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
25	3262.89	3287.71	Mudstone			Mdst: med gry, slty, hard, wl cmtd, bdg @ 0-3deg - sometimes irregular, abd- mod plt frags top to base, mnr Fe-st nodules nr top, lt

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
26	14/07/09	13:05	3286	14/07/09	13:25	3310	14/07/09	14:31	24	24.05	100.21				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
26	3287.71	3296.48	Siltstone			Slst: med gry w/ wh-lt gry sndy lam, hard, wl bdd, mnr foss plt frags. Sst lam: f gr, wl srtd.
26	3296.48	3297.98	Sandstone			Sst: wh w/ drk mic lam, f-m gr, wl srtd, wl cmtd. Grade into slst.
26	3297.98	3299.59	Siltstone			Slst: med gry w/ wh-lt gry sndy lam, hard, wl bdd, mnr foss plt frags. Sst lam: f gr, wl srtd.
26	3299.59	3311.76	Sandstone			Sst: wh w/ drk mic lam, f-m gr, wl srtd, v hard, wl cmtd, wl bdd @0-15deg, gen qtz rich, mnr Fe-st nodules.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
27	14/07/09	15:38	3310	14/07/09	15:57	3334	14/07/09	17:02	24	23.42	97.58				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
27	3311.76	3315.97	Sandstone			Sst: wh w/ mod drk mic lam, m-f gr, wl srtd, qtz & mic rich, wll bdd c. 5deg. Sharp cont w/ mdst.
27	3315.97	3317.02	Mudstone			Mdst: drk gry/blk, coaly, lam, brittle, pyr, mod sub vert jt. Mnr vis desorption.
27	3317.02	3327.04	Siltstone			Slst: lt gry, w/ mnr drk carb lam nr top, often mdy, hard, wl cmtd, wl bdd @ 3deg, mod foss plt frags. Grades into mdst.
27	3327.04	3335.18	Mudstone			Mdst: med gry, f lam, wl bdd w/ lt gry slty lam/bds.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
28	14/07/09	17:32	3334	14/07/09	17:49	3358	14/07/09	19:13	24	24.39	101.63				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
28	3335.18	3337.06	Mudstone			Mdst: dk gry w/ sst lenses, no fract, mod hard.
28	3337.06	3338.28	Mudstone		Coal	Mdst: blk w/ 0.25' coal band, mod hard, coal is fractured, minor vis desorp.
28	3338.28	3356.48	Mudstone			Mdst: md gry w/ slst lams in upper half, minor sst lenses, non fract, mod hard.
28	3356.48	3357.8	Mudstone		Coal	Mdst: blk w/ coaly bands (blk, brittle), vis desorp.
28	3357.8	3359.57	Mudstone			Mdst: md gry, mod hard, plant frags, no fract.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
29	14/07/09	19:50	3358	14/07/09	20:04	3380	14/07/09	21:06	22	22.13	100.59				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
29	3359.57	3368.14	Mudstone			Mdst: dk gry mnr sst bands, mssv, non fract.
29	3368.14	3378.35	Siltstone			Slst: pl buff gry lam w/ mdst, bedding 3deg, hard, no fract, plant frags.
29	3378.35	3381.7	Mudstone			Mdst: md gry w/ slst lams & sst lenses. Bedding 2deg, mod hard, no fract.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
30	14/07/200	21:43	3380	14/07/09	21:56	3404	14/07/09	23:02	24	23.07	96.13				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
30	3381.7	3403.58	Mudstone			Mdst: md gry, mod hard, plant frags in top half, sst lenses common in bottom half, no fract.
30	3403.58	3404.25	Coal			C: black, brittle, vitreous, vis desorp.
30	3404.25	3404.77	Mudstone			Mdst: md gry, mod hard, plant frags, no fract.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
31	14/07/09	23:45	3404	15/07/09	0:06	3428	15/07/09	2:02	24	23.82	99.25				Did not catch on first attempt.

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
31	3404.77	3414.74	Mudstone			Mdst: md gry w/ sst bands, hard, no fract.
31	3414.74	3415.65	Mudstone			Mdst: v dk gry w/ lt buff silty bands, coaly, mnr vis desorp.
31	3415.65	3428.59	Siltstone			Slst: md gry w/ lt buff sst bands, mssv, hard, no fract.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
32	15/07/09	2:51	3428	15/07/09	3:12	3452	15/07/09	4:25	24	23.71	98.79				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
32	3428.59	3446.86	Sandstone			Sst: lt gry, m gr, occ mdst bands & lams, mssv.
32	3446.86	3452.3	Mudstone			Mdst: md gry, silty in places, mssv.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
33	15/07/09	4:55	3452	15/07/09	5:09	3475	15/07/09	6:15	23	23.44	101.91				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
33	3452.3	3460.7	Mudstone			Mdst: md gry grading darker downhole to coaly mdst for last 0.6'. No vis desorp.
33	3460.7	3471.1	Siltstone			Slst: md gry w/ occ mdst bands, mssv, hard, plant frags.
33	3471.1	3475.74	Sandstone			Sst: lt gry, m gr, mssv, v hard, mnr mica.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
34	15/07/09	6:42	3475	15/07/09	6:56	3499	15/07/09	8:22	24	24.27	101.13				dip = 1deg

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
34	3475.74	3480.81	Mudstone			Mdst: dk gry, v wl bdd, firm-hard, some plnt debris & shell frag w one complete shell seen, coaly len at base
34	3480.81	3487.16	Siltstone			Sltst: m gry-dk gry, sdy at top, some carb plnt debris, sdy len at base, grad base
34	3487.16	3491.46	Mudstone			Mdst: m dk gry, wl bdd, occ sid len
34	3491.46	3491.78	Coal	Mudstone		C: v dk gry, hard, brittle, mostly mddy w some brighter bands, some desorp
34	3491.78	3497.09	Sandstone			Sst: dk brnsh gry, mdy & carb at top, wl lam, firm, numerous carb lam w abd plnt debris & some roots
34	3497.09	3500.01	Mudstone			Mdst: dk gry-v drk gry, carb, plnt debris, wl bdd

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
35	15/07/09	8:56	3499	15/07/09	9:14	3523	15/07/09	10:28	24	24.42	101.75	MB-1/2	3512.62	3513.8	photo: 5046
35												MB-1/3	3517.32	3518.63	0.33ft of coaly mdst at base of sample. Photo: 5045
35												MB-1/4	3519.51	3520.17	0.18ft of coaly mdst at base of sample. Photo: 5044

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
35	3500.01	3512.62	Mudstone			Mdst: dk gry, wl bdd, firm - mod hrd, slty lam at top 2ft, common plnt frag, some poss shell debris, carb in places
35	3512.62	3513.8	Coal			C: blk, mostly bright, dull & mdy at base, good desorp, mod cleat develop. Sample MB-1/2
35	3513.8	3517.32	Mudstone			Mdst: dk gry, rooty & disturbed, sid len throughout, coaly at top, mod bdd
35	3517.32	3518.63	Coal			C: blk, bright, hard, mdy at base. Sample MB-1/3
35	3518.63	3519.13	Mudstone			Mdst: drk gry, plnt frag, mod bdd
35	3519.13	3519.34	Coal			C: blk, hard, mostly dull, some bright bands, some desorp. Sample MB-1/4
35	3519.34	3519.51	Mudstone			Mdst: drk gry, firm
35	3519.51	3520.17	Coal			C: blk, hard, mostly dull, some bright bands, good desorp, mdy at base
35	3520.17	3524.43	Mudstone			Mdst: gry, firm, rooty & disturbed, mod bdd, coaly plnt frag

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
36	15/07/09	11:00	3523	15/07/09	11:16	3547	15/07/09	12:30	24	24.16	100.67				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
36	3524.43	3541.61	Mudstone			Mdst: gry-dk gry, firm, wl bdd, occ plnt frag, 0.43ft sdy band at 0.95ft from base
36	3541.61	3541.81	Coal			C: blk, dull, hard, some desorp, poor-moderate cleat develop, some pyr
36	3541.81	3548.59	Mudstone			Mdst: dk gry - brnsh gry, mod-mod wl bdd, firm, plnt frag

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
37	15/07/09	13:11	3547	15/07/09	13:27	3571	15/07/09	14:45	24	23.6	98.33	MB-1/5	3548.59	3549.25	not photographed

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
37	3548.59	3549.25	Coal			C: blk, bright, brittle, visible desorption. Sample MB-1/5
37	3549.25	3551.95	Siltstone			Sltst: m gry, abd carb lam w many plnt frag, some sid nod
37	3551.95	3568.79	Mudstone			Mdst: dk gry, wl bdd, firm-hard, slty carb lam at top, plnt frags, sharp base
37	3568.79	3569.59	Coal			C: blk, mostly dull & mdy, sub vert fract, hard, v mdy in lower half, visible desorption in upper half
37	3569.59	3572.19	Mudstone			Mdst: m gry, firm, rotty w dist bdd, abd lrg plnt frags, carb at top 0.2ft

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
38	15/07/09	15:24	3571	15/07/09	15:41	3595	15/07/09	16:45	24	24.5	102.08				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
38	3572.19	3596.69	Mudstone			Mdst: dk gry, mod wl bdd, firm, common plnt frags, slty in places, occ sdy bands

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
39	15/07/09	17:13	3595	15/07/09	17:31	3619	15/07/09	18:45	24	23.81	99.21				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
39	3596.69	3600.85	Mudstone			Mdst: dk gry, mod wl bdd, firm, common plnt frags, sharp base
39	3600.85	3620.5	Sandstone			Sst: lt gry, m-c gr, mostly massive w some carb lam in top 6ft, qtz, wl cmntd, mod srtd, no shows

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
40	15/07/09	18:54	3619	15/07/09	19:15	3643	15/07/09	20:15	24	22.52	93.83				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
40	3620.5	3639.72	Sandstone			Sst: lt buff gry, c gr, mnr blk lams, bedding @ 8deg, mssv, hard, no fract.
40	3639.72	3642.72	Mudstone			Mdst: dk gry, mssv, hard.
40	3642.72	3643.02	Coal			C: blk, muddy, fissile, rel high density.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
41	15/07/09	21:02	3643	15/07/09	21:15	3665	15/07/09	22:19	22	22.39	101.77				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
41	3642.02	3665.41	Mudstone			Mdst: dk gry w/ lt buff silty lams, plant frags, bedded @ 0deg, mod hard.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
42	15/07/09	22:56	3665	15/07/09	23:14	3689	16/07/09	0:17	24	23.9	99.58				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
42	3665.41	3689.31	Mudstone			Mdst: dk gry w/ silty bands, bedding @ 0deg although occ up to 30deg xbeds.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
43	16/07/09	0:49	3689	16/07/09	1:08	3713	16/07/09	2:14	24	24.22	100.92				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
43	3689.31	3713.53	Mudstone			Mdst: dk gry, occ ssst lenses, mssv, mod-hard.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
44	16/07/09	2:41	3713	16/07/09	2:59	3737	16/07/09	4:04	24	24.45	101.88	MB-1/b	3727.7	3728.48	Bagged. Coaly mdst.
44												MB-1/6	3728.48	3729.83	Photo 5096. Coal.

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
44	3713.53	3727.7	Mudstone			Mdst: dk gry, silty bands, mod hard, no fract.
44	3727.7	3729.83	Coal		Mudstone	C: blk coaly mudst grading into coal for last 1'. Vis desorp throughout. Photo 5096, sampled MB-1/6 and MB-1/b.
44	3729.83	3730.37	Mudstone			Mdst: dk gry, mssv, mod hard.
44	3730.37	3736.11	Sandstone			Sst: lt buff, m gr, mssv, hard.
44	3736.11	3737.98	Mudstone			Mdst: md gry, mssv, mod hard.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
45	16/07/09	4:29	3737	16/07/09	4:46	3761	16/07/09	5:52	24	23.72	98.83				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
45	3737.98	3761.21	Mudstone			Mdst: md gry w/ lt gry sst bands up to 0.6', mnr plant frags.
45	3761.21	3761.64	Coal			C: blk, vitreous, brittle, vis desorp.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
46	16/07/09	6:18	3761	16/07/09	6:32	3785	16/07/09	7:45	24	23.8	99.17				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
46	3761.64	3762.27	Coal			C: blk, bright, clean, brittle, good cleat develop., vis desorp
46	3762.27	3785.44	Mudstone			Mdst: m lt gry, rooty at top, mod bdd passing down into dk gry mdst w carb/coaly bands showing minor desorp

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
47	16/07/09	8:00	3785	16/07/09	8:18	3809	16/07/09	9:30	24	24	100.00	MB-1/7	3791.24	3792.62	photo 5113

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
47	3785.44	3791.24	Mudstone			Mdst: dk gry, wl bdd, firm
47	3791.24	3792.62	Coal			C: blk, bright banded, brittle, good cleats, vis desorp, sample MB-1/7
47	3792.62	3806.07	Sandstone			Sst: m dk gry, f gr, carb with plnt frags, passing down into m gry, f-m gr, mod hrd, wide spaced bdd becoming thinner w depth, many
47	3806.07	3809.44	Mudstone			Mdst: v dk gry, wl bdd, firm-hard, carb, occ sid nod

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
48	16/07/09	9:55	3809	16/07/09	10:15	3833	16/07/09	11:15	24	23.6	98.33	MB-1/C1	3829.08	3830.39	mudstone sample

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
48	3809.44	3833.04	Mudstone			Mdst: v dk gry - grysh blk, wl bdd, firm, sid nod, occ slty patches, some vis desorp. Sample: MB-1/C1

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
49	16/07/09	11:42	3833	16/07/09	12:08	3857	16/07/09	13:12	24	24.9	103.75	MB-1/8	3834.66	3835.97	no photos
49												MB-1/9	3835.97	3837.22	no photos

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
49	3833.04	3834.66	Mudstone			Mdst: v dk gry - grysh blk, wl bdd, firm, sid nod, occ slty patches
49	3834.66	3837.22	Coal			C: blk, bright, good cleats, vis desorp
49	3837.22	3853.74	Mudstone			Mdst: v dk gry - grysh blk, wl bdd, firm, sid nod, coaly band 8ft from base, sdy bands near base, occ polished surfaces
49	3853.74	3856.14	Sandstone			Sst: dk gry, f gr, hard, wl cmntd, sub vert fract, some lrg coaly plnt frag, sharp base
49	3856.14	3857.94	Mudstone			Mdst: dk gry, firm, wl bdd, occ coaly lam

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
50	16/07/09	13:36	3857	16/07/09	13:53	3881	16/07/09	15:00	24	24.8	103.33				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
50	3857.94	3860.44	Mudstone			Mdst: dk gry, firm, wl bdd, some polished bdd plane surfaces
50	3860.44	3866.44	Mudstone			Mdst: m gry, wl bdd, occ plnt debris, darker in colour to base
50	3866.44	3866.85	Coal			C: blk, bright banded, some fusain, vis desorp
50	3866.85	3882.84	Mudstone			Mdst: v dk gry, firm, wl-v wl bdd, carb w many slty lam w abd plnt frag

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
51	16/07/09	15:20	3881	16/07/09	15:36	3905	16/07/09	16:35	24	23.02	95.92	MB-1/10	3895.95	3896.57	part of sample above Mdst band
51												MB-1/10	3896.77	3897.44	part of sample below Mdst band
51												MB-1/C	3897.44	3897.71	bagged sample

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
51	3882.84	3895.95	Mudstone			Mdst: v dk gry, wl bdd, firm, plnt frags
51	3895.95	3897.71	Coal			C: blk, mainly dull & fusainous w some bright vitreous bands, visible desorption. Blk, v carb & coaly, wl bdd Mdst band from 3896.57-
51	3897.71	3905.86	Mudstone			Mdst: m gry, mod bdd, firm, common plnt frags, rooty at top, carb/coaly in top 0.2ft

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
52	16/07/09	17:09	3905	16/07/09	17:25	3929	16/07/09	18:29	24	24.47	101.96				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
52	3905.86	3910.51	Mudstone			Mdst: m gry, mod bdd, firm, common plnt frags
52	3910.51	3930.33	Mudstone			Mdst: dk gry, hard, wl bdd, occ sid nod, carb in places

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
53	16/07/09	19:00	3929	16/07/09	19:18	3953	16/07/09	20:25	24	23.84	99.33	MB1/C2	39643.61	3944.89	Pictures 5145-5146

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
53	3930.33	3938.32	Mudstone			Mdst:m gy, hard, sl bdd, irony bands & nodules, plnt deb & foss.
53	3938.32	3945.77	Mudstone		Fossiliferous	Mdst: dk gy/blk, carb at top with abundant shells and occ irony band, occ plnt deb at base.
53	3945.77	3954.17	Mudstone			Mdst:m gy, hard, sl bdd, irony bands & nodules, plnt deb & foss.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
54	16/07/09	21:25	3953	16/07/09	21:48	3977	16/07/09	22:55	24	24.25	101.04				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
54	3954.17	3954.99	Mudstone			Mdst:m gy, hard, sl bdd, irony bands & nodules, plnt deb & foss.
54	3954.99	3955.82	Coal			C: Coal/Coaly Mdst, brightish, poor/mod cleats, vis dis, 0.2 mdst parting in the middle.
54	3955.82	3965.31	Mudstone			Mdst:m gy, hard, sl bdd, irony bands & nodules, plnt deb & foss.
54	3965.31	3966.26	Coal			C: Coal/Coaly Mdst, brightish, poor/mod cleats, vis dis, pyrite, 0.3 mdst parting in the middle.
54	3966.26	3970.51	Mudstone			Mdst: m-lt gy, occ lrony bands, abundant plnt frags w/ roots at the top.
54	3970.51	3975.61	Sandstone			Sst: lt gy, f gr, mod wl srtd, qtz, mica, slty lam at base.
54	3975.61	3978.42	Siltstone			Slst: lt-m gy, wl bdd, sndy and mddy bands and lam.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
55	16/07/09	23:28	3977	16/07/09	23:42	4001	17/07/09	0:45	24	23.76	99.00	MB1/11	3999.8	4001.11	Pictures 5157-5158
55												MB1/d	4001.11	4001.8	bagged sample

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
55	3978.42	3980.14	Mudstone			Mdst: dk gy/blk, carb at base, irony nod, pyrite band (0.3) 0.2 from base.
55	3980.14	3993.6	Mudstone			Mdst: m gy, wl bdd, sndy/slty/mica lam, irony bands & nod, carb & abundant plnt plnt frags at top.
55	3993.6	3999.8	Mudstone		Fossilierous	Mdst: dk gy/blk, wl bdd, abundant shells at top, occ irony bnds.
55	3999.8	4001.8	Coal			C: bright, pyrite, mod wl cleats, vis dis, brittle. Sample MB1/11.
55	4001.8	4002.18	Mudstone			Mdst: m gy, abundant roots and plant deb.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
56	17/07/09	1:15	4001	17/07/09	1:35	4025	17/07/09	2:30	24	24.42	101.75	MB1/12	4015.54	4016.85	Pictures 5163-5164
												MB1/e	4016.85	4017.35	bagged sample

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
56	4002.18	4015.54	Mudstone			Mdst: m gy, sndy/slty/mica bands and lam, occ sndy bands upto 0.5', irony nod, plnt frags.
56	4015.54	4017.35	Coal			C: bright, mod wl cleats, vis dis. Sample MB1/12.
56	4017.35	4026.6	Mudstone			Mdst: m gy, slty/sndy/mic lam, irony nod and lam, roots at top, abundant plnt frags, sndy at base.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
57	17/07/09	3:05	4025	17/07/09	3:19	4049	17/07/09	4:30	24	23.2	96.67				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
57	4026.6	4029.8	Mudstone			Mdst: m gy, irony nod & bands, carb lam, plnt frags.
57	4029.8	4031.07	Mudstone			Mdst: dk gy/blk, v carb, plnt frags, vis dis.
57	4031.07	4031.61	Coal			C: bright, soft, pyrite, mod cleat, vis dis.
57	4031.61	4039.83	Mudstone			Mdst: m gy, carb lam and roots at top, plnt deb, slty in parts.
57	4039.83	4040.06	Coal			C: dirty, poor/mod cleat, pyrite.
57	4040.06	4049.8	Mudstone			Mdst: m gy, shells in the top 0.55', v hard mdst w/ irreg calcite lam at 4.75' in for 0.75'.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
58	17/07/09	5:17	4049	17/07/09	5:31	4073	17/07/09	6:38	24	24.15	100.63	MB1/13	4064.22	4065.53	Pictures 5175-5176
58												MB1/14	4065.53	4066.84	

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
58	4049.8	4064.22	Mudstone			Mdst: m gy, occ irony bands, plnt frags.
58	4064.22	4066.78	Coal			C: bright, mod wl cleats, vis dis. Sample MB1/13 & MB1/14.
58	4066.78	4072.94	Mudstone			Mdst: m-dk gy, carb, roots and plnt deb, slty lam and slty at base.
58	4072.94	4073.95	Siltstone			Slst: m gy, sndy, plnt frags.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
59	17/07/09	7:10	4073	17/07/09	7:27	4097	17/07/09	8:45	24	24.37	101.54				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
59	4073.95	4085.47	Mudstone			Mdst: dk gry, mod hrd, many sst lam w x-lam
59	4085.47	4098.32	Mudstone			Mdst: dk gry, wl bdd, firm, few plnt frags, slty & hard in basal 5ft

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
60	17/07/09	9:06	4097	17/07/09	9:24	4121	17/07/09	10:25	24	24	100.00	MB-1/15	4104.39	4105.7	photos 5187, 5188, 5189, 5190
60												MB-1/f	4106.36	4107.13	bagged sample
60												MB-1/g	4107.13	4107.98	bagged sample

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
60	4098.32	4104.39	Mudstone			Mdst: m dk gry, hard, mostly wl bdd, some sid nod
60	4104.39	4107.98	Coal			C: blk, bright banded, vitreous, hard, brittle, minor pyr, vis desorp throughout, mdst parting: v dk gry, carb w coaly lam from 4105.7-
60	4107.98	4116.7	Mudstone			Mdst: m dk gry, firm-mod hrd, rooty & dist at top, coaly plnt frags, becomes btr bdd w depth, occ sid nod
60	4116.7	4117.45	Coal			C: blk, mostly dull, mdy & fusainous w some brighter bands, minor vis desorp
60	4117.45	4122.32	Mudstone			Mdst: m gry, firm, mod wl bdd, some lrg plnt frags

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
61	17/07/09	10:55	4121	17/07/09	11:16	4145	17/07/09	12:14	24	24.25	101.04				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
61	4122.32	4146.57	Mudstone			Mdst: dk gry, wl bdd, hrd, occ sid nod, some plnt frags; occ coaly & pyr, sndy band 5.5ft from base, more carb at base

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
62	17/07/09	12:50	4145	17/07/09	13:15	4169	17/07/09	14:15	24	23.46	97.75	MB-1/16	4149.68	4150.97	photo 5201

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
62	4146.57	4149.68	Mudstone			Mdst: dk gry, wl bdd, hrd, occ sid nod, some plnt frags
62	4149.68	4150.97	Coal			C: blk, bright banded, vitreous, hard, brittle, vis desorp
62	4150.97	4170.8	Mudstone			Mdst: dk gry, carb at top passing down into m gry w sdy lam & bands, hard, occ plnt frags

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
63	17/07/09	15:12	4169	17/07/09	15:31	4193	17/07/09	16:31	24	24.86	103.58				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
63	4170.8	4181.04	Mudstone			Mdst: m dk gry, firm, mod wl bdd, occ sid nod, few plnt frag
63	4181.04	4182.36	Mudstone			Mdst: blk, hard, v carb w occ coaly lam, minor desorp
63	4182.36	4184.56	Mudstone			Mdst: dk gry, hard, wl bdd
63	4184.56	4186.36	Mudstone			Mdst: blk, hard, v carb w occ coaly lam, minor desorp
63	4186.36	4195.66	Mudstone			Mdst: m gry, wl bdd, firm, sid nod

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
64	17/07/09	17:04	4193	17/07/09	17:25	4217	17/07/09	18:50	24	23.26	96.92				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
64	4195.66	4208.13	Mudstone			Mdst: dk gry, wl bdd, hard, sid nod, occ sdy lam
64	4208.13	4208.83	Coal			C: blk, bright banded, vis desorp
64	4208.83	4218.83	Mudstone			Mdst: dk gry - v dk gry, mod bdd, occ sid nod, some plnt frag, carb in places

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
65	17/07/09	19:18	4217	17/07/09	19:43	4241	17/07/09	20:55	24	24.46	101.92				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
65	4218.83	4230.01	Mudstone			Mdst: m-dk gy, carb/slty/mica lam, plnt frags, occ irony nod, sndy at base.
65	4230.01	4238.73	Sandstone			Sst: lt gy/buff, f gr, carb lam at top and base, fractured at 75°.
65	4238.73	4243.29	Mudstone			Mdst: m-dk gy-v dk gy at top, carb bands and lam at top, plnt frags, occ irony band.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
66	17/07/09	21:21	4241	17/07/09	21:34	4265	17/07/09	22:40	24	24	100.00	MB1/17	4249.96	4251.24	Photos 5224, 5225
												MB1/h	4251.24	4251.52	bagged sample

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
66	4243.29	4249.93	Mudstone			Mdst: m gy, mod wl bdd, irony nod & bands, occ foss, carb and shells at base.
66	4249.93	4251.52	Coal			C: bright, mod wl cleat, vis dis. Sample MB1/17 & MB1/h.
66	4251.52	4267.29	Mudstone			Mdst: m gy, mod wl bdd, roots at top, plnt frags, irony bands and nod.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
67	17/07/09	23:11	4265	17/07/09	23:28	4289	18/07/09	0:35	24	23.28	97.00				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
67	4267.29	4290.57	Mudstone			Mdst: m-dk gy, wl bdd, slty & carb lam, plnt frags, irony bands & nod.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
68	18/07/09	1:21	4289	18/07/09	1:43	4313	18/07/09	3:00	24	23.98	99.92				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
68	4290.57	4314.55	Mudstone			Mdst: m-dk gy, wl bdd, slty & carb lam, plnt frags, irony bands & nod.

	Start			Finish			On Surface			Core Recovered		Core Samples			
Run	Date	Time	Depth	Date	Time	Depth	Date	Time	Core Cut	Feet	%	No.	From	To	Comments
69	18/07/09	3:52	4313	18/07/09	4:10	4336	18/07/09	5:30	23	23.14	100.61				

	Depth (MDBRT)		Lithology			
Run	From	To	Primary	Secondary	Mineral Accessory	Description/Comments
69	4314.55	4337.69	Mudstone			Mdst: m-dk gy, wl bdd, slty lam, occ sndy bands, carb bands, plnt frags, irony bands & nod, carb and shells at base.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
70	18/07/09	6:04	4336	18/07/09	6:22	4360	18/07/09	7:32	24	24.3	101.25				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
70	4337.69	4341.19	Mudstone			Mdst: v dk gry, wl bdd, firm, few sid len, carb, coaly len in basal 0.5ft
70	4341.19	4341.79	Coal			C: blk, dull, crumbly, fusainous, vis desorp, mod cleat
70	4341.79	4344.01	Mudstone			Mdst: blk, firm, wl bdd, v carb, coaly, grad base
70	4344.01	4349.6	Siltstone			Sltst: dk gry & brnsh gry, firm-mod hrd, mod wl bdd, abd carb & occ coaly lam w abd plnt frag
70	4349.6	4349.92	Coal			C: blk, hrd, v mdy, dull, cannel like, some desorp
70	4349.92	4351.28	Mudstone			Mdst: m dk gry, v wl bdd
70	4351.28	4351.52	Coal			C: blk, britle, dull w bright bands, vitreous, vis desorp
70	4351.52	4361.37	Mudstone			Mdst: m gry-lt gry, mod bdd, rooty at top w many plnt frag; some lrg & occ coaly, slightly btr bdd w less plnt material w depth
70	4361.37	4361.99	Sandstone			Sst: gry, f gr, low organic content, wl srtd, hard, f lam - massive

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
71	18/07/09	8:05	4360	18/07/09	8:32	4384	18/07/09	9:52	24	23.5	97.92				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
71	4361.99	4382.89	Mudstone			Mdst: m gry, firm - mod hrd, mostly wl bdd, sdy bands, common plnt frags; occ pyr, few sid nod
71	4382.89	4385.24	Sandstone			Sst: lt-m gry, f gr, hard, massive, no shows

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
72	18/07/09	10:30	4384	18/07/09	10:46	4408	18/07/09	12:09	24	23.8	99.17	MB-1/18	4403.79	4405.14	photos 5256-5259
72												MB-1/19	4405.14	4406.45	
72												MB-1/20	4406.45	4407.76	

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
72	4385.24	4386.19	Sandstone			Sst: lt-m gry, f gr, hard, massive, sharp erosional base, no shows
72	4386.19	4391.55	Mudstone		Fossiliferous	Mdst: v dk gry, firm, wl bdd, shells, coaly band near base
72	4391.55	4403.79	Mudstone			Mdst: dk gry, mod hrd, many sst lam & bands in top 4ft, wl, bdd, lrg plnt frags,
72	4403.79	4407.76	Coal			C: blk, bright banded, vitreous, brittle, vis desorp throughout, muddy in basal 0.3ft. Samples: MB-1/18, MB-1/19, MB-1/20
72	4407.76	4409.04	Mudstone			Mdst: blk, firm, mod bdd, v carb w some coaly len, plnt debris, minor desorp

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
73	18/07/09	12:44	4408	18/07/09	13:08	4432	18/07/09	14:31	24	24.02	100.08				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
73	4409.04	4433.06	Mudstone			Mdst: dk gry, mod hrd, carb in places w occ coaly bands, common plnt frags, sdy bands from 12-17ft from top, blk & v carb in basal 5ft

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
74	18/07/09	15:49	4432	18/07/09	16:09	4456	18/07/09	17:26	24	25.42	105.92	MB-1/21	4443.64	4444.94	photos 5276 - 5279
74												MB-1/22	4444.94	4446.27	
74												MB-1/23	4446.27	4447.61	
74												MB-1/i	4447.61	4448.32	

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
74	4433.06	4443.64	Mudstone			Mdst: blk, firm - mod hrd, v carb, plnt frags, wl bdd
74	4443.64	4448.32	Coal			C: blk, hard, brittle, bright, vis desorp throughout. Samples MB-1/21, MB-1/22, MB-1/23, MB-1/i
74	4448.23	4458.62	Siltstone			Sltst: dk gry, hrd, carb & rooty at top 1ft, many sdy bands, occ carb/coaly lam, plnt frags, mdy in basal 0.4ft

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
75	18/07/09	18:01	4456	18/07/09	18:24	4480	18/07/09	19:35	24	24.51	102.13				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
75	4458.62	4464.72	Mudstone			Mdst: m gy, wl bdd, occ irny band & nod, sndy/mica lam, occ foss.
75	4464.72	4470.49	Mudstone			Mdst: dk gy, irny bands & nod, carb bands & lam, shells & plnt deb.
75	4470.49	4471.06	Sandstone			Sst: lt gy/buff, v f gr, slty, occ carb lam, plnt deb, sharp top contact.
	4471.06	4483.13	Mudstone			Mdst: m gy, sndy bands & lam, carb lam, occ irny nod, occ foss.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
76	18/07/09	20:14	4480	18/07/09	20:33	4504	18/07/09	22:00	24	23.11	96.29				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
76	4483.13	4490.38	Mudstone			Mdst: m gy, sndy bands & lam, carb lam, occ irny nod, occ foss.
76	4490.38	4495.58	Mudstone			Mdst: dk gy/blk, carb, coaly bands & lam, occ irny nod, shells.
76	4495.58	4498.15	Mudstone	Coal		Mdst: blk, coaly, coal bands up to 0.35', abundant plnt deb.
76	4498.15	4503.65	Mudstone			Mdst: m gy, roots & plnt deb, carb at top, occ irny band & nod, sndy & carb lam at base.
76	4503.65	4505.55	Mudstone			Mdst: dk gy/blk, carb, coaly bands & lam, abundant foss.
76	4505.55	4506.24	Mudstone			Mdst: m gy, roots & plnt deb.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	

77	18/07/09	22:41	4504	18/07/09	23:00	4528	19/07/09	0:20	24	24.91	103.79				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
77	4506.24	4507.99	Mudstone			Mdst: dk gy, slightly carb, occ slty bands, occ irny nod, abundant plnt frags.
77	4507.99	4509.84	Sandstone			Sst: lt gy/buff, v f gr, carb/mica lam.
77	4509.84	4531.15	Mudstone			Mdst: m-dk gy, sndy bands & lam w mica, irny bands, plnt frags, sndy at base.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
78	19/07/09	0:52	4528	19/07/09	1:08	4552	19/07/09	2:30	24	24.28	101.17				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
78	4531.15	4535.08	Mudstone			Mdst: m gy, sndy bands & lam, carb lam, occ irny nod, occ foss, carb at base w/ coaly bands and coal lam.
78	4535.08	4536.44	Mudstone	Coal		Mdst: coaly, w/coal bands upto 0.5ft, vis dis.
78	4536.44	4542.86	Mudstone			Mdst: m gy, sndy bands & lam, carb lam, occ irny nod, occ foss, sndy at base.
78	4542.86	4555.43	Mudstone			Mdst: m/dk gy, hard, irny bands & nod, shells in the first 6.5ft.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
79	19/07/09	2:58	4552	19/07/09	3:22	4576	19/07/09	4:45	24	24.03	100.13				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
79	4555.43	4556.43	Mudstone			Mdst: m gy, sndy bands & lam, carb lam.
79	4556.43	4571.82	Sandstone			Sst: lt gy/buff, v f gr, slty, hard & dense, mdst bands up 0.8ft thick w/sndy lam, mdst, carb & mica lam, vertical fractures, occ slumping,
79	4571.82	4579.46	Mudstone			Mdst: m gy, hard & dense, irony nod, v sndy at top.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
80	19/07/09	5:09	4576	19/07/09	5:30	4600	19/07/09	7:05	24	23.52	98.00				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
80	4579.46	4602.98	Mudstone			Mdst: dk gry, hard-v hard, v wl bdd, some sid nod, blk & carb w coaly len in basal 5.7ft

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
81	19/07/09	7:30	4600	19/07/09	7:51	4624	19/07/09	9:15	24	23.54	98.08	MB-1/24	4621.62	4622.965	photos 5134-5316
81												MB-1/25	4622.965	4624.31	

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
81	4602.98	4621.62	Mudstone			Mdst: dk gry, hard, v wl bdd, carb at top 0.15ft, many silty carb lam at 8.5-12.5ft from top, blk & v carb in basal 0.4ft
81	4621.62	4624.31	Coal			C: blk, bright banded, hard, vis desorp. Samples MB-1/24, MB-1/25
81	4624.31	4626.52	Mudstone			Mdst: dk gry-v dk gry, hard, mod wl bdd, slty & occ coaly lam

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
82	19/07/09	9:59	4624	19/07/09	10:21	4648	19/07/09	11:40	24	24.02	100.08				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
82	4626.52	4650.54	Mudstone			Mdst: dk gry, hard, mod bdd, common plnt frag; occ coaly, some listric surfaces, slty lam in basal 3.5ft

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
83	19/07/09	12:13	4648	19/07/09	12:27	4672	19/07/09	13:57	24	24.07	100.29				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
83	4650.54	4663.06	Siltstone			Sltst: dk gry, hard, l bdd, some lrg plnt frags, sdy bands, grad base
83	4663.06	4674.61	Sandstone			Sst: bu, f gr, hrd, mostly massive, sltst band at 2.75-3.85ft from top, poor vis porosity, some coaly plnt debris, micro micaceous, occ irr

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
84	19/07/09	14:28	4672	19/07/09	14:54	4696	19/07/09	16:15	24	23.82	99.25				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
84	4674.61	4698.43	Sandstone			Sst: bu, f-m gr w m gr bands, hrd, mostly massive, poor vis porosity, some coaly plnt debris, micaceous, minor speckled fluorescence,

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
85	19/07/09	16:43	4696	19/07/09	17:04	4720	19/07/09	18:29	24	24.15	100.63				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
85	4698.43	4713.03	Sandstone			Sst: bu, f-m gr w m gr bands, hrd, massive at top passing into x lam, poor vis porosity, some coaly plnt debris & len, micaceous, minor
85	4713.03	4722.58	Mudstone			Mdst: dk gry, hard, occ listric surfaces, carb, occ plnt frags

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
86	19/07/09	18:58	4720	19/07/09	19:14	4744	19/07/09	20:45	24	24.43	101.79	MB1/26	4732.96	4734.34	Photos 5343 & 5344.

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
86	4722.58	4732.96	Mudstone			Mdst: m gy, hard, irny bands, plnt frags, carb at base.
86	4732.96	4735.22	Coal			C: bright, mod wl cleat, vis dis, bottom 0.87ft muddy. Sample MB1/26.
86	4735.22	4744.77	Mudstone			Mdst: m-dk gy, carb/coaly bands, abundant plnt deb.
86	4744.77	4744.97	Coal			C: bright, broken.
86	4744.97	4746.02	Mudstone			Mdst: m gy, plnt deb, roots, carb lam.
86	4746.02	4747.01	Sandstone			Sst: lt gy, hard, carb & mica lam, plnt deb.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
87	19/07/09	21:19	4744	19/07/09	21:38	4768	19/07/09	23:15	24	23.97	99.88	MB1/27	4757.11	4758.46	Photos 5350 & 5351.

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
87	4747.01	4757.06	Mudstone			Mdst: m- dk gy, hard, wl bdd, occ irny band, occ foss, sndy bands and lam at top, carb at base.
87	4757.06	4758.46	Coal			C: bright, mod cleat, hard. Sample MB1/27.
87	4758.46	4759.46	Mudstone			Mdst: Coaly, w/coal bands & lam, plnt deb.
87	4759.46	4762.88	Mudstone			Mdst: m gy/brn, abundant plnt deb, roots at top, sndy at base.
87	4762.88	4764.49	Sandstone			Sst: lt gy/buff, f gr, qtz, carb/mica lam.
87	4764.49	4770.98	Mudstone	Sandstone		Mdst/Sst: interbedded mdst/sst, sst: a/a. Mdst: m-dk gy, carb in parts, plnt frags, average thickness 0.3ft.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
88	19/07/09	23:42	4768	19/07/09	23:59	4792	20/07/09	1:25	24	23.73	98.88				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
88	4770.98	4771.91	Mudstone	Sandstone		Mdst/Sst: interbedded mdst/sst, sst: a/a. Mdst: m-dk gy, carb in parts, plnt frags, average thickness 0.3ft.
88	4771.91	4783.46	Mudstone			Mdst: m-dk gy, hard, wl bdd, irny bands, shells, v shelly in the last 2ft.
88	4783.46	4784.07	Coal			C: bright, 0.25 mdst parting.
88	4784.07	4788.91	Mudstone			Mdst: m-dk gy, hard, plnt frags & roots, carb at top.
88	4788.91	4789.46	Coal			C: muddy.
88	4789.46	4794.71	Mudstone			Mdst: m gy, hard, plnt frags, sndy/carb lam & bands at base.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
89	20/07/09	1:47	4792	20/07/09	2:04	4815	20/07/09	3:40	23	23.55	102.39				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
89	4794.71	4804.63	Sandstone	Mudstone		Mdst/Sst: interbedded mdst/sst, sst: a/a. Mdst: m-dk gy, carb in parts, plnt frags, average thickness 0.3ft.
89	4804.63	4807.34	Mudstone			Mdst: m-dk gy, mica/sndy/carb lam.
89	4807.34	4808.28	Coal			C: bright, 0.4ft mdst parting in the middle.
89	4808.28	4818.26	Mudstone			Mdst: m gy, hard, plnts frags and roots at the top, carb bands & lam, sndy bands & lam at the base.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
90	20/07/09	4:09	4815	20/07/09	4:28	4839	20/07/09	6:05	24	24.38	101.58				

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
90	4818.26	4820.87	Mudstone			Mdst: m-dk gy, hard, occ foss, sndy at top and base.
90	4820.87	4829.44	Sandstone	Mudstone		Mdst/Sst: interbedded mdst/sst, sst: a/a. Mdst: m-dk gy, carb in parts, plnt frags, average thickness 0.3ft.
90	4829.44	4830.62	Sandstone			Sst: lt gy, f gr, qtz, mica, hard, carb/mica lam.
90	4830.62	4833.47	Mudstone	Sandstone		Mdst/Sst: interbedded mdst/sst, sst: a/a. Mdst: m-dk gy, carb in parts, plnt frags, average thickness 0.3ft.
90	4833.47	4837.07	Sandstone			Sst: lt gy, f-m gr, qtz, mica, hard, carb/mica lam.
90	4837.07	4839.52	Mudstone	Sandstone		Mdst/Sst: interbedded mdst/sst, sst: a/a. Mdst: m-dk gy, carb in parts, plnt frags, average thickness 0.3ft.
90	4839.52	4842.64	Sandstone			Sst: lt gy, f-m gr, qtz, mica, hard, carb/mica lam.

Run	Start			Finish			On Surface		Core Cut	Core Recovered		Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%	No.	From	To	
91	20/07/09	6:32	4839	20/07/09	6:52	4863	21/07/09		24	23.53	98.04				core retrieved conventially after inner core barrel being stuck in pipe

Run	Depth (MDBRT)		Lithology			Description/Comments
	From	To	Primary	Secondary	Mineral Accessory	
91	4842.64	4866.17	Sandstone			Sst: bu, f - m gr, hard, wl cmntd, low vis porosity, clayey, massive passing into x-bed in lower 3ft, mdst band w interbdd sst lam at 3.3-

Melbourne 1 Core Runs

Total Core Cut (ft): 2134.70
Total Core Recovered (ft): 2113.46
Total Core Recovered (%): 99.01

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Run	Start			Finish			On Surface		Core Cut	Core Recovered		Variation	Cum.	Core Samples			Comments
	Date	Time	Depth	Date	Time	Depth	Date	Time		Feet	%		No Rec.	No.	From	To	
1	11/07/09	18:04	2724	11/07/09	18:29	2748	11/07/09		24	23.87	99.46	-0.13	-0.13				
2	11/07/09	20:23	2748	11/07/09	20:40	2772	11/07/09	21:38	24	23.95	99.79	-0.05	-0.18				
3	11/07/09	22:23	2772	11/07/09	22:39	2796	11/07/09	23:48	24	23.49	97.88	-0.51	-0.69				
4	12/07/09	0:12	2796	12/07/09	0:55	2820	12/07/09	1:58	24	24	100.00	0.00	-0.69				
5	12/07/09	2:21	2820	12/07/09	2:33	2844	12/07/09	3:34	24	23.7	98.75	-0.30	-0.99				
6	12/07/09	4:10	2844	12/07/09	4:25	2868	12/07/09	5:37	24	24.32	101.33	0.32	-0.67				
7	12/07/09	5:57	2868	12/07/09	6:12	2892	12/07/09	7:13	24	24.62	102.58	0.62	-0.05				Light oily odour in Sst.
8	12/07/09	7:55	2892	12/07/09	8:13	2916	12/07/09	9:30	24	24.47	101.96	0.47	0.42	MB 1/1	2895.78	2897.09	Photo no.: 4916
9	12/07/09	9:54	2916	12/07/09	10:12	2940	12/07/09	11:30	24	24.61	102.54	0.61	1.03				
10	12/07/09	11:55	2940	12/07/09	12:17	2964	12/07/09	13:38	24	23.83	99.29	-0.17	0.86				
11	12/07/09	14:24	2964	12/07/09	15:08	2988	12/07/09	15:58	24	1.13	4.71	-22.87	-22.01				Driller reported slow ROP. CB mostly filled w/ gravel.
12	12/07/09	17:39	2988	12/07/09	17:52	2995.5	12/07/09		7.5	3.95	52.67	-3.55	-25.56				Evidence of milling.
13	13/07/09	11:29	2998	13/07/09	11:48	3022	13/07/09	12:47	24	24.4	101.67	0.40	-25.16				
14	13/07/09	13:20	3022	13/07/09	13:41	3046	13/07/09	14:41	24	23.76	99.00	-0.24	-25.40				
16	13/07/09	16:35	3047.8	13/07/09	16:52	3070	13/07/09	18:02	22.2	23.44	105.59	1.24	-24.16				Run 15 - cored 1.8ft before jamming off. No recovery, core catcher
17	13/07/09	19:47	3070	13/07/09	20:10	3094	13/07/09	21:22	24	24.44	101.83	0.44	-23.72				
18	13/07/09	21:49	3094	13/07/09	22:07	3118	13/07/09	23:13	24	23.81	99.21	-0.19	-23.91				
19	13/07/09	23:41	3118	14/07/09	0:02	3142	14/07/09	1:12	24	24.29	101.21	0.29	-23.62				
20	14/07/09	1:55	3142	14/07/09	2:14	3166	14/07/09	3:21	24	24.46	101.92	0.46	-23.16				
21	14/07/09	3:48	3166	14/07/09	4:01	3190	14/07/09	5:04	24	23.63	98.46	-0.37	-23.53				
22	14/07/09	5:37	3190	14/07/09	5:54	3214	14/07/09	6:56	24	24.25	101.04	0.25	-23.28				
23	14/07/09	7:19	3214	14/07/09	7:38	3238	14/07/09	8:47	24	24.21	100.88	0.21	-23.07				
24	14/07/09	9:18	3238	14/07/09	9:34	3262	14/07/09	10:48	24	24.16	100.67	0.16	-22.91				
25	14/07/09	11:16	3262	14/07/09	11:35	3286	14/07/09	12:36	24	24.82	103.42	0.82	-22.09				
26	14/07/09	13:05	3286	14/07/09	13:25	3310	14/07/09	14:31	24	24.05	100.21	0.05	-22.04				
27	14/07/09	15:38	3310	14/07/09	15:57	3334	14/07/09	17:02	24	23.42	97.58	-0.58	-22.62				
28	14/07/09	17:32	3334	14/07/09	17:49	3358	14/07/09	19:13	24	24.39	101.63	0.39	-22.23				
29	14/07/09	19:50	3358	14/07/09	20:04	3380	14/07/09	21:06	22	22.13	100.59	0.13	-22.10				
30	14/07/200	21:43	3380	14/07/09	21:56	3404	14/07/09	23:02	24	23.07	96.13	-0.93	-23.03				
31	14/07/09	23:45	3404	15/07/09	0:06	3428	15/07/09	2:02	24	23.82	99.25	-0.18	-23.21				Did not catch on first attempt.
32	15/07/09	2:51	3428	15/07/09	3:12	3452	15/07/09	4:25	24	23.71	98.79	-0.29	-23.50				
33	15/07/09	4:55	3452	15/07/09	5:09	3475	15/07/09	6:15	23	23.44	101.91	0.44	-23.06				
34	15/07/09	6:42	3475	15/07/09	6:56	3499	15/07/09	8:22	24	24.27	101.13	0.27	-22.79				dip = 1deg
35	15/07/09	8:56	3499	15/07/09	9:14	3523	15/07/09	10:28	24	24.42	101.75	0.42	-22.37	MB-1/2	3512.62	3513.8	photo: 5046
35														MB-1/3	3517.32	3518.63	0.33ft of coaly mdst at base of sample. Photo: 5045
35														MB-1/4	3519.51	3520.17	0.18ft of coaly mdst at base of sample. Photo: 5044

36	15/07/09	11:00	3523	15/07/09	11:16	3547	15/07/09	12:30	24	24.16	100.67	0.16	-22.21				
37	15/07/09	13:11	3547	15/07/09	13:27	3571	15/07/09	14:45	24	23.6	98.33	-0.40	-22.61	MB-1/5	3548.59	3549.25	not photographed
38	15/07/09	15:24	3571	15/07/09	15:41	3595	15/07/09	16:45	24	24.5	102.08	0.50	-22.11				
39	15/07/09	17:13	3595	15/07/09	17:31	3619	15/07/09	18:45	24	23.81	99.21	-0.19	-22.30				
40	15/07/09	18:54	3619	15/07/09	19:15	3643	15/07/09	20:15	24	22.52	93.83	-1.48	-23.78				
41	15/07/09	21:02	3643	15/07/09	21:15	3665	15/07/09	22:19	22	22.39	101.77	0.39	-23.39				
42	15/07/09	22:56	3665	15/07/09	23:14	3689	16/07/09	0:17	24	23.9	99.58	-0.10	-23.49				
43	16/07/09	0:49	3689	16/07/09	1:08	3713	16/07/09	2:14	24	24.22	100.92	0.22	-23.27				
44	16/07/09	2:41	3713	16/07/09	2:59	3737	16/07/09	4:04	24	24.45	101.88	0.45	-22.82	MB-1/b	3727.7	3728.48	Bagged. Coaly mdst.
44														MB-1/6	3728.48	3729.83	Photo 5096. Coal.
45	16/07/09	4:29	3737	16/07/09	4:46	3761	16/07/09	5:52	24	23.72	98.83	-0.28	-23.10				
46	16/07/09	6:18	3761	16/07/09	6:32	3785	16/07/09	7:45	24	23.8	99.17	-0.20	-23.30				
47	16/07/09	8:00	3785	16/07/09	8:18	3809	16/07/09	9:30	24	24	100.00	0.00	-23.30	MB-1/7	3791.24	3792.62	photo 5113
48	16/07/09	9:55	3809	16/07/09	10:15	3833	16/07/09	11:15	24	23.6	98.33	-0.40	-23.70	MB-1/C1	3829.08	3830.39	mudstone sample
49	16/07/09	11:42	3833	16/07/09	12:08	3857	16/07/09	13:12	24	24.9	103.75	0.90	-22.80	MB-1/8	3834.66	3835.97	no photos
49														MB-1/9	3835.97	3837.22	no photos
50	16/07/09	13:36	3857	16/07/09	13:53	3881	16/07/09	15:00	24	24.8	103.33	0.80	-22.00				
51	16/07/09	15:20	3881	16/07/09	15:36	3905	16/07/09	16:35	24	23.02	95.92	-0.98	-22.98	MB-1/10	3895.95	3896.57	part of sample above Mdst band
51														MB-1/10	3896.77	3897.44	part of sample below Mdst band
51														MB-1/C	3897.44	3897.71	bagged sample
52	16/07/09	17:09	3905	16/07/09	17:25	3929	16/07/09	18:29	24	24.47	101.96	0.47	-22.51				
53	16/07/09	19:00	3929	16/07/09	19:18	3953	16/07/09	20:25	24	23.84	99.33	-0.16	-22.67	MB1/C2	39643.61	3944.89	Pictures 5145-5146
54	16/07/09	21:25	3953	16/07/09	21:48	3977	16/07/09	22:55	24	24.25	101.04	0.25	-22.42				
55	16/07/09	23:28	3977	16/07/09	23:42	4001	17/07/09	0:45	24	23.76	99.00	-0.24	-22.66	MB1/11	3999.8	4001.11	Pictures 5157-5158
55														MB1/d	4001.11	4001.8	bagged sample
56	17/07/09	1:15	4001	17/07/09	1:35	4025	17/07/09	2:30	24	24.42	101.75	0.42	-22.24	MB1/12	4015.54	4016.85	Pictures 5163-5164
57	17/07/09	3:05	4025	17/07/09	3:19	4049	17/07/09	4:30	24	23.2	96.67	-0.80	-23.04				
58	17/07/09	5:17	4049	17/07/09	5:31	4073	17/07/09	6:38	24	24.15	100.63	0.15	-22.89	MB1/13	4064.22	4065.53	Pictures 5175-5176
58														MB1/14	4065.53	4066.84	
59	17/07/09	7:10	4073	17/07/09	7:27	4097	17/07/09	8:45	24	24.37	101.54	0.37	-22.52				
60	17/07/09	9:06	4097	17/07/09	9:24	4121	17/07/09	10:25	24	24	100.00	0.00	-22.52	MB-1/15	4104.39	4105.7	photos 5187, 5188, 5189, 5190
60														MB-1/f	4106.36	4107.13	bagged sample
60														MB-1/g	4107.13	4107.98	bagged sample
61	17/07/09	10:55	4121	17/07/09	11:16	4145	17/07/09	12:14	24	24.25	101.04	0.25	-22.27				
62	17/07/09	12:50	4145	17/07/09	13:15	4169	17/07/09	14:15	24	23.46	97.75	-0.54	-22.81	MB-1/16	4149.68	4150.97	photo 5201
63	17/07/09	15:12	4169	17/07/09	15:31	4193	17/07/09	16:31	24	24.86	103.58	0.86	-21.95				
64	17/07/09	17:04	4193	17/07/09	17:25	4217	17/07/09	18:50	24	23.26	96.92	-0.74	-22.69				
65	17/07/09	19:18	4217	17/07/09	19:43	4241	17/07/09	20:55	24	24.46	101.92	0.46	-22.23				
66	17/07/09	21:21	4241	17/07/09	21:34	4265	17/07/09	22:40	24	24	100.00	0.00	-22.23	MB1/17	4249.96	4251.24	Photos 5224, 5225
67	17/07/09	23:11	4265	17/07/09	23:28	4289	18/07/09	0:35	24	23.28	97.00	-0.72	-22.95				
68	18/07/09	1:21	4289	18/07/09	1:43	4313	18/07/09	3:00	24	23.98	99.92	-0.02	-22.97				
69	18/07/09	3:52	4313	18/07/09	4:10	4336	18/07/09	5:30	23	23.14	100.61	0.14	-22.83				
70	18/07/09	6:04	4336	18/07/09	6:22	4360	18/07/09	7:32	24	24.3	101.25	0.30	-22.53				

71	18/07/09	8:05	4360	18/07/09	8:32	4384	18/07/09	9:52	24	23.5	97.92	-0.50	-23.03				
72	18/07/09	10:30	4384	18/07/09	10:46	4408	18/07/09	12:09	24	23.8	99.17	-0.20	-23.23	MB-1/18	4403.79	4405.14	photos 5256-5259
72														MB-1/19	4405.14	4406.45	
72														MB-1/20	4406.45	4407.76	
73	18/07/09	12:44	4408	18/07/09	13:08	4432	18/07/09	14:31	24	24.02	100.08	0.02	-23.21				
74	18/07/09	15:49	4432	18/07/09	16:09	4456	18/07/09	17:26	24	25.42	105.92	1.42	-21.79	MB-1/21	4443.64	4444.94	photos 5276 - 5279
74														MB-1/22	4444.94	4446.27	
74														MB-1/23	4446.27	4447.61	
74														MB-1/i	4447.61	4448.32	
75	18/07/09	18:01	4456	18/07/09	18:24	4480	18/07/09	19:35	24	24.51	102.13	0.51	-21.28				
76	18/07/09	20:14	4480	18/07/09	20:33	4504	18/07/09	22:00	24	23.11	96.29	-0.89	-22.17				
77	18/07/09	22:41	4504	18/07/09	23:00	4528	19/07/09	0:20	24	24.91	103.79	0.91	-21.26				
78	19/07/09	0:52	4528	19/07/09	1:08	4552	19/07/09	2:30	24	24.28	101.17	0.28	-20.98				
79	19/07/09	2:58	4552	19/07/09	3:22	4576	19/07/09	4:45	24	24.03	100.13	0.03	-20.95				
80	19/07/09	5:09	4576	19/07/09	5:30	4600	19/07/09	7:05	24	23.52	98.00	-0.48	-21.43				
81	19/07/09	7:30	4600	19/07/09	7:51	4624	19/07/09	9:15	24	23.54	98.08	-0.46	-21.89	MB-1/24	4621.62	4622.965	photos 5134-5316
81														MB-1/25	4622.965	4624.31	
82	19/07/09	9:59	4624	19/07/09	10:21	4648	19/07/09	11:40	24	24.02	100.08	0.02	-21.87				
83	19/07/09	12:13	4648	19/07/09	12:27	4672	19/07/09	13:57	24	24.07	100.29	0.07	-21.80				
84	19/07/09	14:28	4672	19/07/09	14:54	4696	19/07/09	16:15	24	23.82	99.25	-0.18	-21.98				
85	19/07/09	16:43	4696	19/07/09	17:04	4720	19/07/09	18:29	24	24.15	100.63	0.15	-21.83				
86	19/07/09	18:58	4720	19/07/09	19:14	4744	19/07/09	20:45	24	24.43	101.79	0.43	-21.40	MB1/26	4732.96	4734.34	Photos 5343 & 5344.
87	19/07/09	21:19	4744	19/07/09	21:38	4768	19/07/09	23:15	24	23.97	99.88	-0.03	-21.43	MB1/27	4757.11	4758.46	Photos 5350 & 5351.
88	19/07/09	23:42	4768	19/07/09	23:59	4792	20/07/09	1:25	24	23.73	98.88	-0.27	-21.70				
89	20/07/09	1:47	4792	20/07/09	2:04	4815	20/07/09	3:40	23	23.55	102.39	0.55	-21.15				
90	20/07/09	4:09	4815	20/07/09	4:28	4839	20/07/09	6:05	24	24.38	101.58	0.38	-20.77				
91	20/07/09	6:32	4839	20/07/09	6:52	4863	21/07/09		24	23.53	98.04	-0.47	-21.24				core retrieved conventially after inner core barrel being stuck in

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Melbourne 1 Core Boxes

Core Box Number	Core Box Contents (Run Numbers)	Photo File No. (IMG_....)
1	1	4882 + 4883
2	1	4884 + 4885
3	1 + 2	4886 + 4887
4	2	4888 + 4889
5	2 + 3	4890 + 4891
6	3	4892 + 4893
7	3	4894 + 4895
8	3 + 4	4896 + 4897
9	4	4898 + 4899
10	4 + 5	4900 + 4901
11	5	4902 + 4903
12	5	4904 + 4905
13	6	4906 + 4907
14	6	4908 + 4909
15	6 + 7	4910 + 4911
16	7	4912 + 4913
17	7	4914 + 4915
18	7 + 8	4917 + 4918
19	8	4921 + 4922
20	8 + 9	4923 + 4924
21	9	4925 + 4926
22	9	4927 + 4928
23	9 + 10	4929 + 4930
24	10	4931 + 4932
25	10 + 11 + 12	4933 + 4934
26	12 + 13	4935 + 4936
27	13	4937 + 4938
28	13 + 14	4939 + 4940
29	14	4941 + 4942
30	14	4943 + 4944
31	14 + 16	4945 + 4946
32	16	4947 + 4948
33	16 + 17	4949 + 4950
34	17	4951 + 4952
35	17	4953 + 4954
36	17 + 18	4955 + 4956
37	18	4957 + 4958
38	18 + 19	4959 + 4960
39	19	4961 + 4962
40	19	4963 + 4964
41	19 + 20	4965 + 4966
42	20	4967 + 4968
43	20 + 21	4969 + 4970
44	21	4971 + 4972
45	21	4973 + 4974
46	22	4975 + 4976
47	22	4977 + 4978
48	22 + 23	4979 + 4980
49	23	4981 + 4982
50	23	4983 + 4984

Composite energy Ltd

Melbourne 1 Core Boxes

Core Box Number	Core Box Contents (Run Numbers)	Photo File No. (IMG_....)
51	24	4985 + 4986
52	24	4987 + 4988
53		
54		
55		4999 + 5000
56	26	5001 + 5002
57	26	5003 + 5004
58	26 + 27	5005 + 5006
59	27	5007 + 5008
60	27 + 28	5009 + 5010
61	28	5011 + 5012
62	28	5013 + 5014
63	28 + 29	5015 + 5016
64	29	5017 + 5018
65	29 + 30	5019 + 5020
66	30	5021 + 5022
67	30	5023 + 5024
68	31	5025 + 5026
69	31	5027 + 5028
70	31+32	5030 + 5031
71	32	5032 + 5033
72	32 + 33	5034 + 5035
73	33	5036 + 5037
74	33	5038 + 5039
75	33 + 34	5040 + 5041
76	34	5042 + 5043
77	34 + 35	5050 + 5051
78	35	5052 + 5053
79	35	5054 + 5055
80	35 + 36	5056 + 5057
81	36	5058 + 5059
82	36 + 37	5060 + 5061
83	37	5062 + 5063
84	37	5064 + 5065
85	37+38	5066 + 5067
86	38	5068 + 5069
87	38 + 39	5070 + 5071
88	39	5072 + 5073
89	39	5074 + 5075
90	39 + 40	5076 + 5077
91	40	5078 + 5079
92	40 + 41	5082 + 5083
93	41	5084 + 5085
94	41 + 42	5086 + 5087
95	42	5088 + 5089
96	42	5090 + 5091
97	42 + 43	5092 + 5093
98	43	5094 + 5095
99	43 + 44	5097 + 5098
100	44	5099 + 5100

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Melbourne 1 Core Boxes

Core Box Number	Core Box Contents (Run Numbers)	Photo File No. (IMG_....)
101	44	5101 + 5102
102	44 + 45	5103 +5104
103	45	5105 + 5106
104	45 + 46	5107 + 5108
105	46	5109 +5110
106	46	5111 + 5112
107	46 + 47	5114 + 5115
108	47	5116 + 5117
109	47 + 48	5118 + 5119
110	48	5120 + 5121
111	48	5122 + 5123
112	48 + 49	5124 + 5125
113	49	5126 + 5127
114	49 + 50	5128 + 5129
115	50	5130 + 5131
116	50	5132 + 5133
117	50 + 51	5135 + 5136
118	51	5137 + 5138
119	51 + 52	5139 + 5140
120	52	5141 + 5142
121	52	5143 + 5144
122	52 + 53	5147 + 5148
123	53	5149 + 5150
124	53 + 54	5151 + 5152
125	54	5153 + 5154
126	54	5155 + 5156
127	54 + 55	5159 + 5160
128	55	5161 + 5162
129	55 + 56	5165 + 5166
130	56	5167 + 5168
131	56	5169 + 5170
132	56 + 57	5171 + 5172
133	57	5173 + 5174
134	57 + 58	5177 + 5178
135	58	5179 + 5180
136	58	5181 + 5182
137	58 + 59	5183 + 5184
138	59	5185 + 5186
139	59 + 60	5191 + 5192
140	60	5193 + 5194
141	60	5195 + 5196
142	60 + 61	5197 + 5198
143	61	5199 + 5200
144	61 + 62	5202 + 5203
145	62	5204 + 5205
146	62	5206 + 5207
147	62 + 63	5208 + 5209
148	63	5210 + 5211
149	63 + 64	5214 + 5215
150	64	5216 + 5217

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Melbourne 1 Core Boxes

Core Box Number	Core Box Contents (Run Numbers)	Photo File No. (IMG_....)
151	64	5218 + 5219
152	64 + 65	5220 + 5221
153	65	5222 + 5223
154	65 + 66	5226 + 5227
155	66	5228 + 5229
156	66	5230 + 5231
157	66 + 67	5232 + 5233
158	67	5234 + 5235
159	67 + 68	5236 + 5237
160	68	5238 + 5239
161	68	5240 + 5241
162	68 + 69	5242 + 5243
163	69	5244 + 5245
164	69 + 70	5246 + 5247
165	70	5248 + 5249
166	70	5250 + 5251
167	71	5252 + 5253
168	71	5254 + 5255
169	71 + 72	5260 + 5261
170	72	5262 + 5263
171	72 + 73	5270 + 5271
172	73	5272 + 5273
173	73	5274 + 5275
174	73 + 74	5280 + 5281
175	74	5282 + 5283
176	74	5284 + 5285
177	75	5286 + 5287
178	75	5288 + 5289
179	75 + 76	5290 + 5291
180	76	5292 + 5293
181	76	5294 + 5295
182	77	5296 + 5297
183	77	5298 + 5299
184	77 + 78	5300 + 5301
185	78	5302 + 5303
186	78	5304 + 5305
187	78 + 79	5306 + 5307
188	79	5308 + 5309
189	79 + 80	5310 + 5311
190	80	5312 + 5313
191	80 + 81	5317 + 5318
192	81	5319 + 5320
193	81	5321 + 5322
194	81 + 82	5323 + 5324
195	82	5325 + 5326
196	82 + 83	5327 + 5328
197	83	5329 + 5330
198	83	5331 + 5332
199	83 + 84	5333 + 5334
200	84	5335 + 5336

Composite energy Ltd

Melbourne 1 Core Boxes

Core Box Number	Core Box Contents (Run Numbers)	Photo File No. (IMG_....)
201	84 + 85	5337 + 5338
202	85	5339 + 5340
203	85	5341 + 5342
204	85 + 86	5345 + 5346
205	86	5348 +5349
206	86 + 87	5352 + 5353
207	87	5354 + 5355
208	87	5356 + 5357
209	87 + 88	5358 + 5359
210	88	5360 + 5361
211	88 + 89	5362 + 5363
212	89	5364 + 5365
213	89	5366 + 5367
214	89 + 90	5368 + 5369
215	90	5370 + 5371
216	90 + 91	5372 + 5373
217	91	5374 + 5375
218	91	5376 + 5377
219	91	5379

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 475346,438318

This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

Miltary | **Industry** | **UXO find** | **Other**
Transport | **Docks** | **Luftwaffe targets**
Utilities | **Bombing decoy** | **Airfields**

How to use your Unexploded Bomb (UXB) risk map?

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a Site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

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If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 **email:** uxo@zetica.com **web:** www.zeticauxo.com

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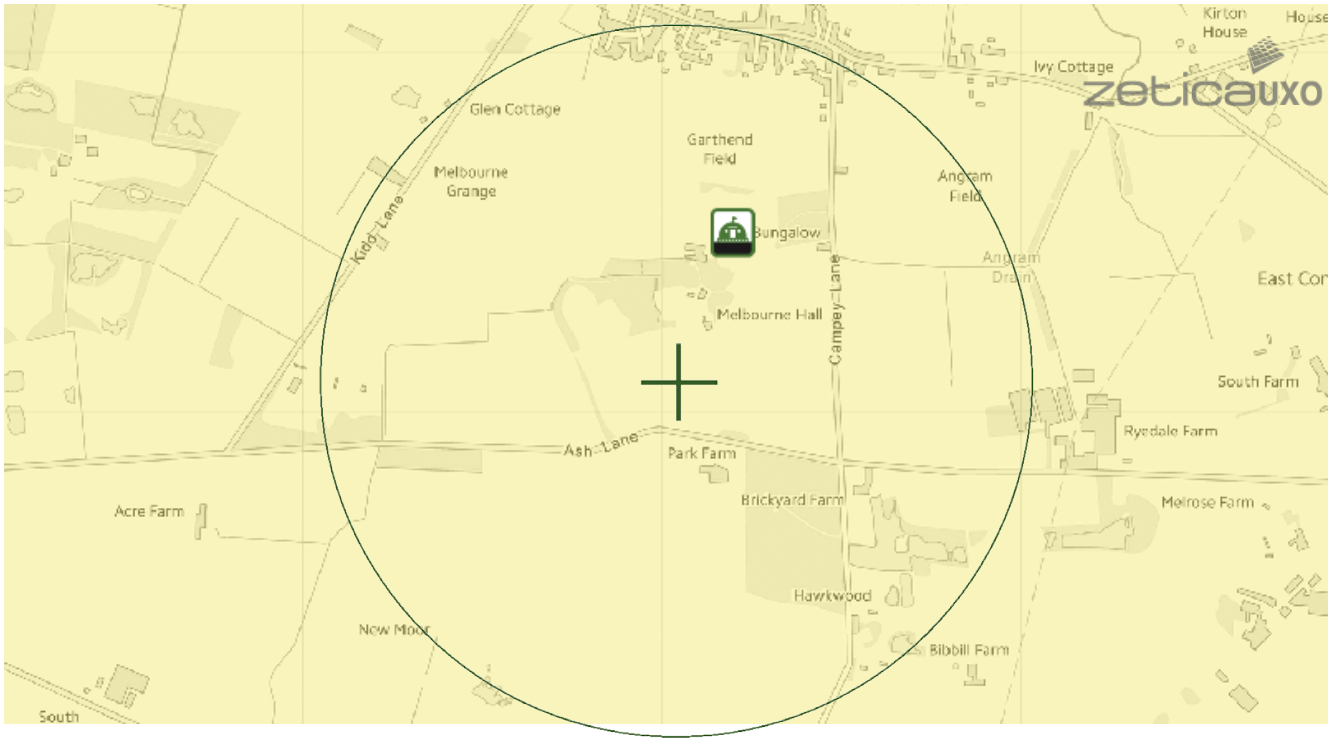
UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 475013,443135



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Transport | **Docks** | **Luftwaffe targets**

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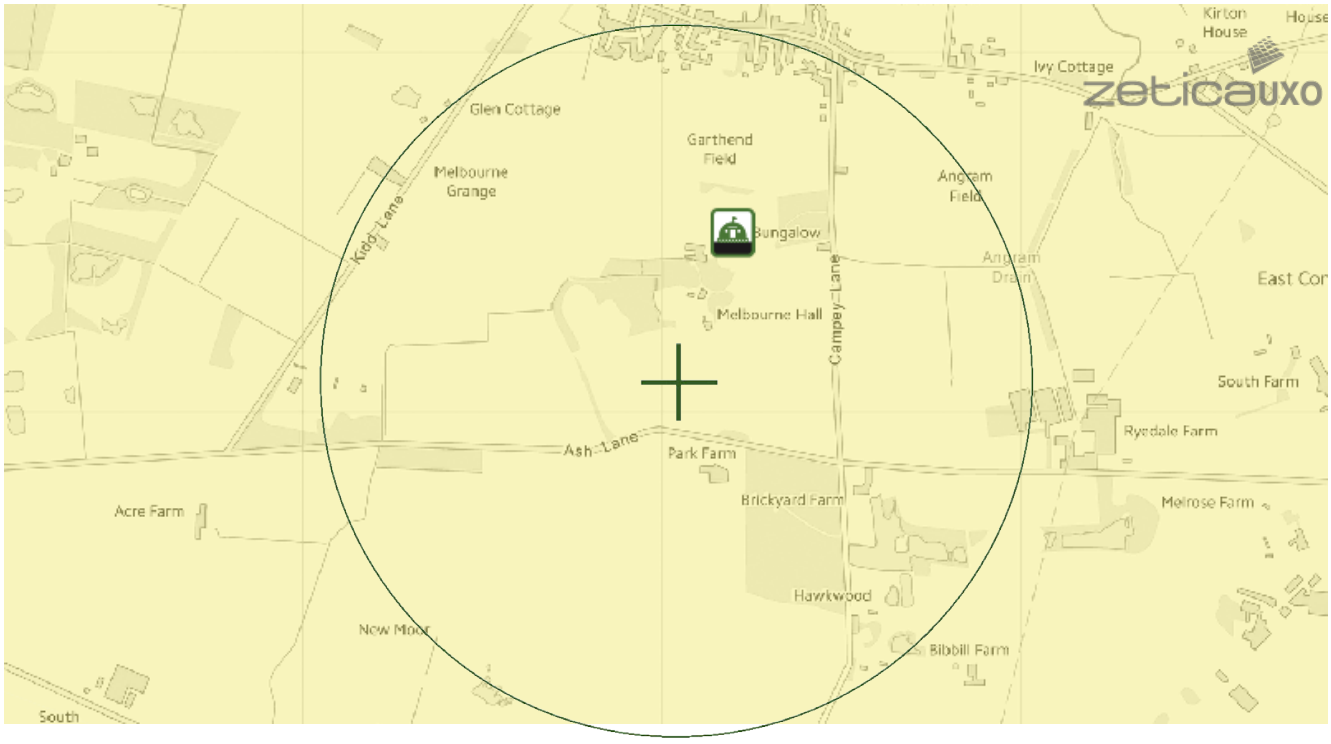

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DRILLING AND COMPLETION REPORT

Candecca Resources Limited

CANDECCA RESOURCES LIMITED - SCURRY-RAINBOW OIL (UK) LIMITED

SEATON ROSS NO. 1

SE 77014 : 38593

E.Yorks - England

Farries Engineering Ltd.
Petroleum Consultants,
435 Fifth Street, S.W.,
Calgary, Alberta T2P 1V5,
Canada.

TABLE OF CONTENTS

WELL SUMMARY

WELL NAME:	CANDECCA - Scurry-Rainbow Seaton Ross No. 1
LOCATION:	SE 77014 : 38593
EVALUATIONS:	Ground 18.2' AOD Rotary Table 30.9' AOD Rotary Table to KB 1.3'
TOTAL DEPTH:	3400'
OPERATOR:	Candecca Resources Limited
CONTRACTOR:	Kenting Petrolia Drilling Ltd. Rig No. 12 Toolpush : Gerald Smyth
SUPERVISION:	Farries Engineering Ltd. Engineer: R. B. Macpherson
SPUD DATE:	07.00 hrs April 15, 1973
CASING:	Surface - 6 joints (241.15') 9-5/8", 43.5 lbs N80 Landed at 233' KB Intermediate - 40 joints (1594.03') 7", 23 lbs/ft J55 Landed at 1583' KB
HOLE SIZE:	0 - 233' - 12-1/4" 233' - 1583' - 8-1/2" 1584 - 3400' - 6-1/4"
LOGS:	Schlumberger
	DILL 3320' - 1575'
	BHC-Sonic-GRC 3329' - 1575'(sonic) 3329' - 50'(gamma)
	CN FDL 3323' - 1575'

Coal Board

	Gamma - Neutron	3320' - 2570'
	Focused Electric	3320' - 2570'
CORES:	None	
TESTS:	DST No. 1	1821' - 1846'
	DST No. 2	2095' - 2120'
	DST No. 3	1910' - 2050'
RIG RELEASED:	0500 hrs April 25, 1973.	
STATUS	Dry and abandoned.	

DAILY CHRONOLOGICAL SUMMARY

Date	Day	Depth	Operation
Apr15/73	1	49	Drilling. Spud 0700 hrs. Apr15/73.
Apr16/73	2	415	Drilling. Ran 9-5/8" casing. Cemented casing with 150 sks cement Good returns. Headed up. Pressure tested to 500 psi. Drilled out.
Apr17/73	3	1450	Tripping - lost circulation in Bunter. Mixing Kwik-seal.
Apr18/73	4	1583	Preparing to drill out. Ran 40 joints 7" casing. Cemented casing. Good returns. Headed up.
Apr19/73	5	1968	Drilling - Ran DST No. 1 from 1821' to 1846'
Apr20/73	6	2295	Drilling - Ran DST No. 2 from 2095' to 2120'
Apr21/73	7	2570	Drilling
Apr22/73	8	3005	Drilling - Bridge at 2713' on trip 40' Fill.
Apr23/73	9	3400	Tripping out to log. Bridges at 3246' and 3339' on 15 std dummy trip. Four std dummy trip okay.
Apr24/73	10	3400	W.O.C.- Schlumberger and Coal Board logged. Unable to run below 3330'. Ran in with open ended pipe. No bridges. Ran plug No. 1 from 3400' to 2700' with 145 sks cement. Ran plug No. 2 from 2700 to 2050' with 145 sks cement. Plug down at 0345 hrs.
Apr25/73	11	3400	TORT Felt plug No. 2 at 2050' at 12 noon Ran DST No. 3 from 1910' to 2050'. Ran plug No. 3 from 2050' to 1350' with 250 sacks cement plus 2% $CaCl_2$. Plug down at 2000hrs Felt plug No. 3 at 1210' at 0030hrs Rig released at 05.00 Apr.25/73.

BIT RECORD

NO.	TYPE	SER.NO.	SIZE	DEPTH OUT	FEET DRLD	HRS	CUM HRS	WT	RPM	PUMP PRESS	NOZ	COND
1A	OSC-3	Rerun	12-1/4	233	233	6-1/4	-	4	160	200	-	-
1	X3A	84366	8-1/2	1450	1217	14	14	30/12	120/60	250	11-11-10	5-1-1
2	X16	26609	8-1/2	1583	133	4-3/4	18-3/4	30	80	250	11-11-10	6-2-1
3	M4N	387090	6-1/4	1846	263	7	25-3/4	20	100	500	10-10-10	2-6-1
4	M4N	387092	6-1/4	2120	274	13-1/2	39-1/4	20	100	500	10-10-10	4-7-1
5	M4N	386996	6-1/4	2374	254	12-1/4	51-1/2	20	100	650	10-10-10	4-8-1
6	M4L	385429	6-1/4	2587	213	16-1/2	68	20	100	1000	11-11-10	3-8-1
7	M4L	385226	6-1/4	2940	353	16-1/4	84-1/4	20	80	1000	11-11-10	5-8-1
8	M4N	386993	6-1/4	3260	320	12-1/4	96-1/2	20	90	900	9- 9- 9	4-8-1
9	M4N	386994	6-1/4	3400	140	5-1/4	101-3/4	20	90	900	9- 9- 9	Rerun

SURVEY RECORD

Depth	Deviation
110	1
233	1-1/4
350	1
478	3/4
1029	2-1/4
1300	2-1/2
1400	2-1/4
1583	2
1846	2
2120	1
2374	3/4
3360	2
3400	2

MUD RECORD

DATE	DEPTH	WT	VIS	W.L.	PH	Additives (sacks)
pr.15/73	49		spud mud			Gel 20 Caustic 1
16	415	8.6	33	-	11	Kcl - 20 Kwikseal 2 Caustic 2 $CaCl_2$ 2
17	1450	8.8	28	14	11	Kcl - 20 Kwikseal 78 Mica 22 Hulls 12 Fibreseal 12 Drilling Detergent 10 Diesel 1200 gal.
18	1583	8.8	33	-	11	Gel - 24 KcL 50 Mica 43 Caustic 3 SS100 3 FLR 100 8 DF Vis 2 Diesel 300 gal.
19	1968	9.0	38	12	11	Gel 25 FLR 100 1
20	2295	9.1	41	8.4	10.4	Gel 15 Kcl 9 SS100 2 FLR 100 4 DF Vis 1
21	2570	9.3	44	8.2	10	Gel 16 Kcl 16 SS100 1 FLR100 4 Caustic 2
22	3005	9.2	46	8.2	11	Gel 16 Kcl 8 SS100 2 FLR100 6
23	3400	9.3	61	4.6	12	Gel 46 SS100 2 FLR100 2 Caustic 2 DFVis 2
24	3400					
25		Rig Released				

DRILL STEM TEST SUMMARY

Drill Stem Test No. 1 - Misrun — April 18 1973

Interval 1821 - 1846

PreFlow 3 Initial Shut in 30 Flow period 60 Final Shut in 60

Good initial puff. Weak air blow throughout test.

Pipe recovery 30 ft mud

IHP	875 psig	FHP	853 psig
ISI	688 "	FSI	633 "
IF	56 "	FF	56 "

Bottom hole temperature - 94°F

Drill Stem Test No. 2 — April 19 1973

Interval 2095 - 2120

PreFlow 2 Initial Shut in 30 Flow period 60 Final Shut in 60

Good initial puff. Strong air blow decreasing at end of test.

Pipe recovery - 2000 ft salt water

IHP	1024 psig	FHP	997 psig
ISI	929 "	FSI	942 "
IF	465 "	FF	929 "

Bottom hole temperature

Drill Stem Test No. 3 — April 24 1973

Interval 1910 - 2050

PreFlow 2 Initial Shut in 30 Flow period 120 Final Shut in 0

Good initial puff. Weak air blow throughout test.

Pipe recovery 90' mud

IHP	891 psig	FHP	891 psig
ISI	?	FSI	?
IF	0 "	FF	0 "

CASING REPORTS

Surface Casing

Ran 6 joints (241.15') 9-5/8" 43.5 lbs/ft N 80 Range 3 LT & C 8 RT casing.
Landed at 233' K.B.

Cemented with 150 sacks Class A cement plus 2% $CaCl_2$. Good returns.
Plug down 1715 hrs. April 15 1973.

Intermediate Casing

Ran 40 joints (1594.03) 7" 23 lbs/ft J55 Range 3 LT & C casing
Landed at 1583
Equipped with Baker Guide Shoe and Float Collar.
Centralizers on shoe joint, 3rd, 5th, 9th and 11th joints.

Cemented casing with 112 sacks Class A plus 8% gel and 90 sacks neat cement.
Good returns.
Plug down at 2140 hrs. April 17 1973.

CASING TALLY

Size - 9-5/8" O.D. Weight - 43 lbs/ft Grade - N80 Thread - 8 Rd LT&C

20.80	
40.02	
37.78	
40.18	
40.78	
41.17	
41.22	
261.95	
20.80	joint No. 1 left out
241.15	

No Float Equipment

CASING TALLY

Size - 7" Weight - 23 lbs/ft Grade - J 55 Thread - 8Rd

20.42	40.02	40.52	37.58	43.47	40.36
44.15	42.68	40.72	32.95	41.28	42.15
43.86	43.12	42.11	38.02	40.05	
34.53	41.11	41.76	42.37	39.53	
40.14	37.73	37.21	43.47	39.19	
41.57	43.00	43.40	40.64	41.25	
41.55	41.18	42.88	41.52	39.57	
44.05	39.00	39.13	41.93	34.88	
38.23	42.58	38.25	43.77	37.50	
43.89	34.48	37.35	38.45	39.38	
392.39	404.90	403.33	400.70	396.10	82.51

Total joints on lease - 52 Tally 2079.93

Delivered to lease from Goole - 51 Tally 2035.78

Delivered to lease from Pocklington - 1 Tally 44.15

Joints returned to Goole - No. 39, 41, 42, 43, 44, 45, 46, 47, 49, 50, 51, 52

No. of joints run in well - 40

Tally of 40 joints -	1592.43
Float Collar -	1.60
	1594.03
Less cut-off	20.40
	1573.63
Distance from KB to CF	11.40
	1585.03
Less makeup	2.00
Pipe landed	1583.03

LOG SUMMARY

April 23 1973 — Logged by Schlumberger Inland Services Ltd. and the National Coal Board.

Run No. 1 — Borehole Compensated Sonic Gamma Ray Caliper
Logged interval 3329' - 1575' (Sonic)
3329' - 50' (Gamma)

Run No. 2 — Dual Induction - Laterolog
Logged interval 3320' - 1575'

Run No. 3 — Compensated Neutron - Formation Density
Logged interval 3325' - 1575'

Run No. 4 — National Coal Board
Gamma Neutron - Over Coal Measures

Run No. 5 — National Coal Board
Focused electric 3320' - 2570'

PLUGGING SUMMARY

April 24 1973

Plug No. 1 3400 - 2700

Ran 145 sacks Class A cement. Plug down 0245 hrs.

Plug No. 2 2700 - 2050

Ran 145 sacks Class A cement. Plug down at 0345 hrs
Felt plug at 2050' at 1200 hrs.

Plug No. 3 2050 - 1350

Ran 250 sacks cement plus 2% $CaCl_2$. Plug down at 2000 hrs.
Felt plug at 1210' at 0030 hrs April 25/72

Department of Trade and Industry
(Petroleum Division),
Thames House South Millbank London SW1P 4QJ

Telegrams Advantage London SW1P 4QJ
Telephone 01-222 7000 ext 1571

R.E.Ford, Esq.,
Candecca Resources Limited,
Glen House,
Stag Place,
LONDON, S.W. 1.

Your reference

Our reference PET 145/175/22

Date 11 April 1973

Dear Sir,

PETROLEUM (PRODUCTION) REGULATIONS 1966

With reference to Mr. Acres' letter of 5th March 1973, as amended by your letter of 6th April 1973, I can inform you that the Secretary of State gives his consent under the provisions of model clause 13 of Schedule 3 of the above-mentioned Regulations incorporated in Production Licence No. PL 163 to the drilling of well "SEATON ROSS No.1" at the location of which the grid reference is SE 77003857.

This well is classified as an exploration well.

Will you please let me know immediately the starting date of drilling operations is known.

Yours faithfully,

B. SUTCLIFFE

c.c. Mr. J.B. Acres

BP PETROLEUM DEVELOPMENT LIMITED
EAKRING

TELEPHONE:
BILSTHORPE 201
TELEGRAMS:
BEEPEE—KNEESALL

Postal Address:
P.O. Box 1
Southwell, Notts NG25 0NZ

OUR REFERENCE SRS/A.1/382

26th April, 1973.

R. E. Ford Esq.,
Candecca Resources Limited,
Glen House,
Stag Place,
London S.W.1.

Dear Bob,

Seaton Ross No. 1 Borehole
Licence Area PL. 163

The Rotary Table and Ground elevations have been measured and the well centre surveyed in at Seaton Ross No. 1. The results are as follows:-

National Grid Reference:	SE 77014 38593
Longitude:	00° 49' 46.5" W.
Latitude:	53° 50' 15.5" N.
Rotary Table Elevation:	30.9 feet Above Ordnance Datum
Ground Level Elevation adjacent to well cellar:	18.2 feet Above Ordnance Datum

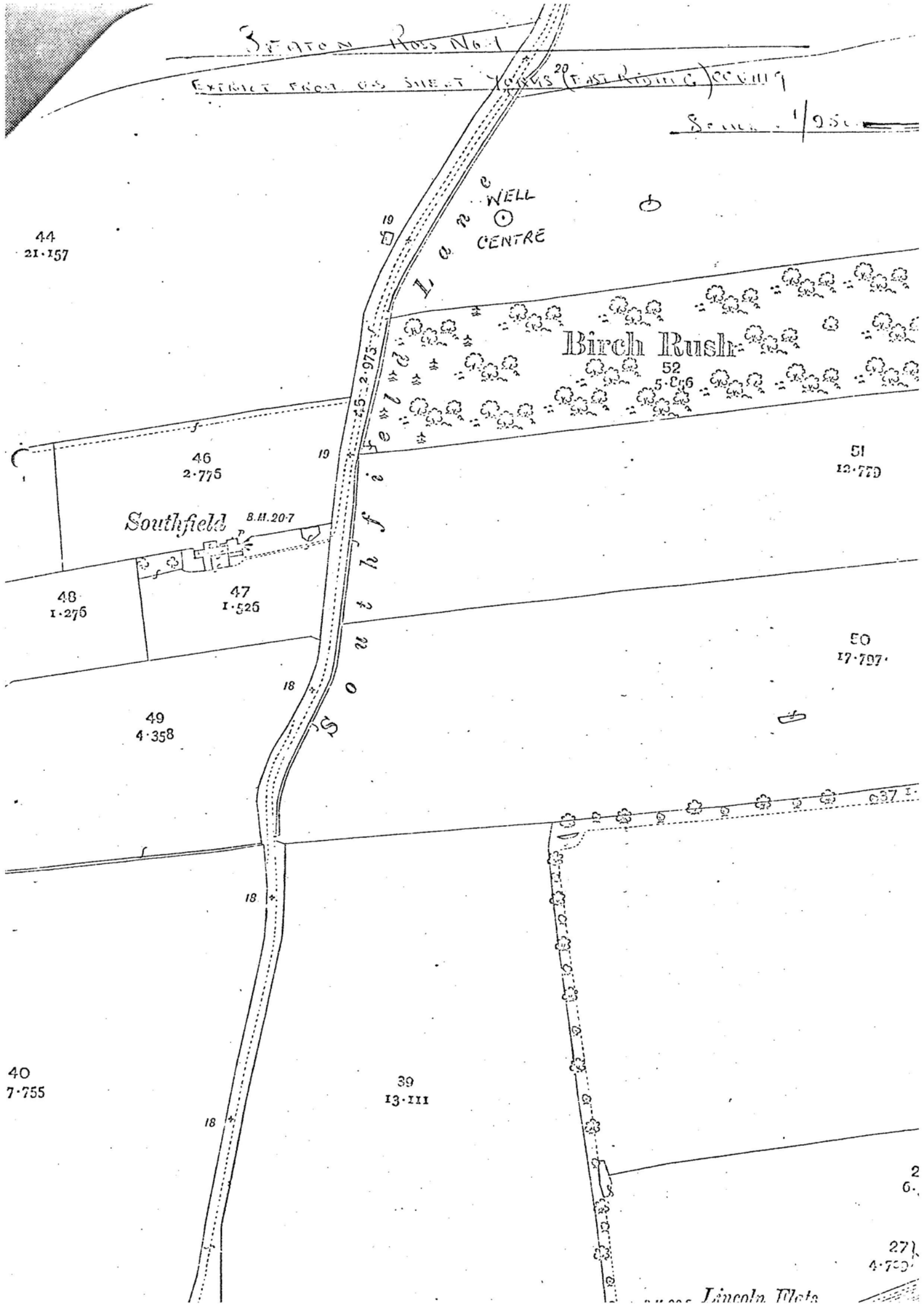
I enclose two copies of Site Plan No. 750 and two copies of an extract from the 1/2500 plan showing the position of the well-centre.

Yours sincerely,

John Acres.

J. B. Acres.

Encl.
FRJC/DVL.

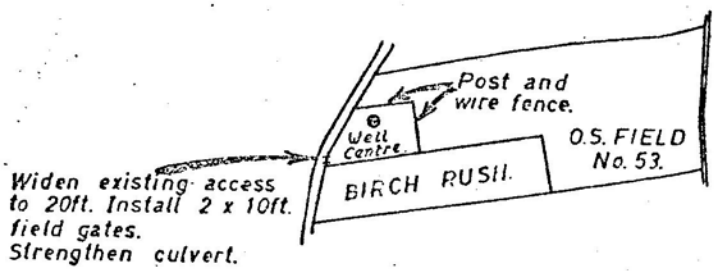

Seaton Hos No 1
Extract from O.S. Sheet Lincs 20 (East Riding) County
Scale 1/25
Lane
WELL
CENTRE
Birch Rush
52
5·876
Lane
Southfield
B.M. 20·7
Southfield
44
21·157
46
2·775
47
1·525
48
1·275
49
4·358
50
17·797
51
12·779
40
7·755
39
13·111
27
4·759
Lincoln Plate
19
18
20

AREA : SEATON ROSS.	SITE PLAN FOR WELL No. 1	LICENCE AREA: PL.163.	SITE AREA: APPROX 2 ACRES.	O.S. SHEET No.: SE 73 NE.

N

OWNER/OCCUPIER.

Messrs W. S. & D. FROST,
ALLBERRIES FARM,
FOGGATHORPE,
SELBY,
YORKS.



26th April, 1973.

Mr. R. Miller,
Petroleum Division,
Department of Trade and Industry,
Thames House South,
Millbank,
London, S.W.1.

Dear Mr. Miller,

Re: CANDECCA/SCURRY-RAINBOW
Seaton Ross No.1
SE 77014 38593
T.D. 3400 ft

The above-mentioned well was drilled to total depth and evaluations of horizons down to and including the Pennsylvanian Coal Measures were made. No commercial shows of hydro-carbons were encountered in the Well.

We therefore request permission to abandon the Well by means of the following program:

(i)	Plug No. 1	3400 - 2700 145 sacks neat cement
(ii)	Plug No. 2	2700 - 2050 145 sacks neat cement felt at 2050
(iii)	Plug No. 3	2050 - 1210 145 sacks neat cement plus 2% calcium chloride felt at 1210 cut off 6 ft below ground and welded ½-inch plate on top of 7-inch and 9-5/8-inch casing
(iv)	Rig released 05.00 hrs	- 25th April, 1973

cont/...

(v) Restoration of site will be started as soon as possible after receipt of farmer's consent.

We trust this program meets with your approval. In respect of items (i) to (iv), these were carried out by Dowell Schlumberger and Kenting Petrolia Drilling Limited, under the direct supervision of our Site Engineer, Mr. Robert Macpherson.

Yours sincerely,

Robert E. Ford

REF/jc
E

GEOLOGY

CANDECCA RESOURCES - SCURRY RAINBOW OIL (U.K.) LTD.

SEATON ROSS #1

Location: SE77000; N38600 Yorks, England

Rotary Table Elevation: 30.9'

Well Spudded In Surface Keuper Marl

Formations:

Triassic Keuper Marl	-Surface	Lower Platform	-2245'
Basal Keuper Radioactive Marls	- 170'	Marl Marker	-2272'
Bunter Sandstone	- 190'	Dolomite with Anhydrite	-2290'
Upper Permian Marls	-1527'	Lower Magnesian Lst	-2380'
Gypsiferous Marls	-1650'	Kupferschiefer Shale	-2536'
Anhydrite Marker	-1707-1723'	Basal Permian Sand	-2540'
Salt Member	-1751-1778'	Coal Measures	-2566'
Upper Magnesian Limestone	-1810'	Coal Seams At- 2574', 2584', 2596', 2626', 2635', 2710', 2731', 2743', 2788', 2880', 2900', 2954', 3020', 3050', 3060', 3066', 3104', 3234', 3284', 3322', 3350'-60'.	
Oolite	-1817-1832'		
Middle Marl	-1942'		
Middle Magnesian Limestone	-1946'		
Main Biostromal Porosity	-2096'		
		TOTAL DEPTH - 3400'	

Sample Description:

0 - 190'- Soft, slightly calcareous, mottled and speckled reddish brown and green marl.

190 - 220'- Missing Samples

220 - 600'- Mostly cement from surface casing in top 60 feet. Generally buff to orange, medium to coarse, fairly friable millet seed sandstone. Excellent porosity and permeability. Lower 100' slightly clayey sandstone with minor red & green marl interbeds.

600 - 610'- As above with green and red gypsiferous marl containing white and pink satinspar gypsum.

610 - 890'- Orange, buff-brown to reddish brown, fine to medium, friable, locally pebbly sandstone. Scattered black rounded chert grains. Patchy white gypsiferous clay cement. Numerous missing samples.

890 - 900'- As above with intercalations of gypsiferous red and green marl.

900 - 1380'- Orange to light red, medium, friable locally millet seed sandstone with rounded black chert grains and traces of mica. Excellent porosity and permeability. Local pebble beds. Lost circulation with several intervals of no returns.

1380 - 1528'- Tighter sandstone, orange to reddish brown (mottled white), medium to coarse with white calcareous to gypsiferous clay matrix or cement. Friable streaks but much tighter than normal.

1528 - 1617'- Maroon, red and spotted green, soft marl with stringers of white, micaceous, calcareous, silty, locally gypsiferous sandstones. Scattered oxidised chalcopyrite patches. Some friable streaks but generally tight.

1617 - 1707'- Bright red to maroon, slightly calcareous marl with white gypsum inclusions. Minor interbeds of white to pink satinspar gypsum from 1650' - 1707'.

1707 - 1723'- Anhydrite - gypsum, white to light pink, massive.

1723 - 1810'- Soft, red saliferous and gypsiferous marl. Possible halite from 1751' - 1778'. Marl locally blocky and anhydritic towards base (massive anhydrite from 1790' - 1800') with sealed fractures infilled with gilsonite.

1810 - 1817'- Anhydrite & buff cryptograined, vaguely pelleted slightly calcareous dolomite. Traces poor blind cellular vug porosity. Some carbonaceous inclusions. Ineffective.

1817 - 1832'- Buff to light grey very fine to medium, partially leached algal oolite to cellular calcareous dolomite. Minor grey & red marl interbeds. Pyrobitumen & evidence of live oil staining. Some fracture planes coated with pyrobitumen. Fair porosity and permeability with fluorescence. Effective reservoir.

1832 - 1859'- Calc. Dolomite, pale buff to light cream, micrograined, slightly earthy & chalky with traces of relict, phosphatic oolitic material. Traces poor pin point vug & chalky porosity. Scattered pyrobitumen. Ineffective.

1859 - 1942'- Chalky to micrograined, locally micro cellular calc. dolomite with relict dark grey, phosphatic ooliths. Ooliths locally leached giving rise to cellular patches containing traces of pyrobitumen and carbonaceous material. Streaks of fair porosity but essentially a high connate water section because of chalky to micrograined matrix.

1942 - 1946'- Red mottled light grey, locally gypsiferous marl.

1946 - 2094'- Generally light cream, locally white, cryptocrystalline to micrograined, vaguely pelleted slightly calcareous dolomite. Traces poor blind leached vug porosity with some fluorescence. Minor traces of cellular oolitic patches with gypsum or anhydrite vug infilling. Intercalations of red gypsiferous marl at 2010', 2040' and 2070'. Generally tight, pelleted mud facies with marl incursions.

2094 - 2164'- Dolomitized, vuggy biostromal, organic lattice. Buff to light brown, locally oil stained with streaming cut, fine to medium, mosaic calcareous dolomite with generally excellent lined vug porosity. Locally fair to good intercrystalline porosity with pyrobitumen & fair fluorescence. Scattered patches of anhydrite. Traces relict oolite texture. Excellent reservoir.

2164 - 2184'- Platy - cryptocrystalline, buff to light cream, anhydritic dolomite with scattered poor blind vug porosity. Some minor anhydrite interbeds. Ineffective.

2184 - 2245'- Buff, fine to medium subhedral calcareous dolomite (relict fine to medium oolite ghosts). Patches of platy, anhydritic cryptograined dolomite but generally good intercrystalline and fair lined vug porosity. Traces pyrobitumen and fair fluorescence.

2245 - 2272'- Buff, platy, cryptocrystalline, locally anhydritic dolomite (10-15% veining & inclusions of anhydrite). Thin stringers of earthy to microcrystalline, cellular calcareous dolomite with patchy oil staining and pyrobitumen. Possibly a few feet poorly effective.

2272 - 2290'- Dolomite as above with red gypsiferous marl intercalations.

2290 - 2380'- Mainly buff to light brown, crypto-microcrystalline interlocking sl. calcareous dolomite with 10-15% anhydrite veining and inclusions. No true bedded anhydrites. Hairline cracks & scattered poor pin point vug porosity infilled with pyrobitumen. Generally tight.

2380 - 2536'- Calcareous dolomite to dolomitic limestone. Grey to light grey, slightly bituminous cryptograined, locally slightly chalky or earthy. Traces skeletal grains. Occasional blind vug porosity with numerous hairline cracks infilled with pyrobitumen or carbonaceous material. Essentially tight.

2536 - 2540'- Black to dark grey, organic slightly pyritic, bituminous silty shale.

2540 - 2566'- Fine to coarse, locally pebbly, friable rounded and wind polished sand. Minor cemented areas. Fragments of red shale. Excellent porosity and permeability.

2566 - 2620'- Grey and maroon, locally silty and carbonaceous micaceous shales with minor coal smuts and seams. Traces silty micaceous clay sandstone.

2620 - 2820'- Interbedded grey shales, coal seams, seat earths and lt. grey silty micaceous, slightly calcareous tight fine grained sandstone. Coal seams well developed.

2820 - 2864'- Interbedded light grey, speckled and slightly coaly fine grained, slightly calcareous tight sandstone with white clay matrix, and grey locally maroon shale.

2864 - 3156'- Interbedded grey to dark grey shale, (10% maroon) numerous coal seams, seat earths and minor light grey, locally white speckled micaceous, slightly calcareous silty sandstones.

3156 - 3222'- Light grey to speckled white, locally coaly, generally fine to medium grained cemented sandstone. Calcareous clay matrix with some siliceous cement. Traces poor intergranular porosity. Ineffective. Minor interbeds of grey locally maroon shale.

3222 - 3400'- Interbedded grey shales, coal seams, seat earths and minor stringers of white to lt. grey, micaceous, silty, slightly calcareous sandstones. Well developed coal seams from 3350' - 3360'.

DOWELL Schlumberger

FORMATION TESTING REPORT
WELL AND JOB DATA

Operation N° GYS
Station GREAT YARMOUTH
SIR N° _____
Date APRIL 19, 1973

COMPANY CANDECCA RESOURCES Ltd **Field** _____
Well No. SEATON ROSS - I **Location** _____ **Elevation** _____
Type test _____ **Test No** 2
Total depth 2120 Ft **Test interval, from** 2095 **to** 2120 Ft
Main hole size _____ **Casing size** _____ **Liner size** _____
down to _____ **Casing weight** _____ **Liner weight** _____
Rat hole size _____ **Casing shoe depth** _____ **Liner top depth** _____
All depths measured from _____ **Cement plug top** _____ **Cement plug top** _____

PERFORATIONS _____

FORMATION - System _____ **Estimated porosity** _____
Geologic level _____ **Estimated permeability** _____
Lithology _____ **Estimated productive interval** _____

MUD, Type _____ **Wt.** _____ **Viscosity** _____ **W.L.** _____ **Chloride PPM** _____

CUSHION, Type _____ **Length** _____ **Weight** _____

TIMES

1st flow,	from			on		to			on										
1st shut-in,	from			on		to			on										
2nd flow,	from			on		to			on										
2nd shut-in,	from			on		to			on										
3rd flow,	from			on		to			on		Reverse circulation			on		to			on
3rd shut-in,	from			on		to			on		Final equalization			on					

TOOL SEQUENCE - Tool	Type	O.D.	Remarks
		.....	Bottom choke size

WELL N° SEATON ROSS I
TEST N° 2

M. R.

FORM 29-6