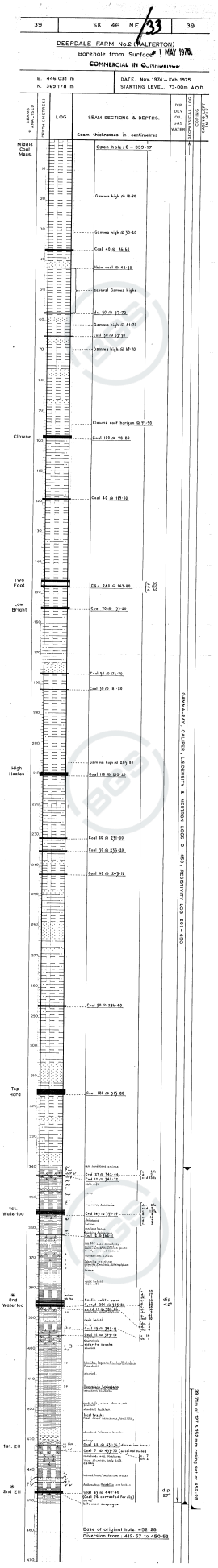
39
SK 46 NE /33
39
DEEPDALE FARM No.2 (WALTERTON)
Borehole from Surface
1 MAY 1970.
COMMERCIAL IN CONFIDENCE
E. 446 031 m
N. 369 178 m
DATE Nov. 1974 – Feb. 1975
STARTING LEVEL 73·00m A.O.D.
SEAM SECTIONS & DEPTHS.
Seam thicknesses in centimetres
Open hole: 0 – 339·17
Middle Coal Measures
Clowne
Two Foot
Low Bright
High Hazles
Top Hard
1st. Waterloo
2nd Waterloo
1st. Elf
2nd Elf
Base of original hole: 452·28
Diversion from 412·57 to 450·56
GAMMA-RAY, CALIPER, & NEUTRON LOGS 0 – 450; RESISTIVITY LOG 307 – 450

FORM P 70
SERIES 680

6-INCH MAP	B/H REGD. No.
(County, Sheet and Qtr.)	
SK 46 NE /33	39
(Nat. Grid, Sheet & Qtr.)	

Attach tracing from a map or sketch map if possible

SK46NE /33

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

Purpose To prove the Second Waterloo and Second Ell Seams for Arkwirght Colliery.

Exact Site National Grid Co-ordinates E 446 031 metres N 369 178 metres

Level at which ~~shaft~~ bore ~~drift~~ commenced relative to O.D. 73·00 m A.O.D.

Date of sinking or boring November 1974 - February 1975.

Sinker or borer Foraky Ltd., (W. McDonald)

Cores examined by J.H. Rippon & D.J. Green, N.C.B. Geologists. *Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
	Description of log down to 339·17 deduced from B.P.B. geophysical logs				
MIDDLE COAL MEASURES					
Mudstones	Gamma highs at 18·90 and 30·40	36	20		
				36	20
COAL		0	40		
				36	60
Mudstones	Siltstone bands	3	40		
				40	00
Sandstone	thin coal at base	2	30		
				42	30
Mudstone	several gamma highs	14	90		
				57	20
COAL	dirty	0	50		
				57	70
Mudstone		1	30		
				59	00
Sandstone		1	50		
				60	50
Mudstones	gamma high at 61·20	4	50		
				65	00
COAL		0	30		
				65	30

Form P 71

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE

6-INCH MAP	B/H
SK 46 NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				65	30
Sandstone		2	20		
				67	50
Mudstones	gamma high at 69·70	5	50		
				73	00
Siltstones		3	00		
				76	00
Sandstone	thin fine band in the middle	2	50		
				78	50
Mudstones		7	50		
				86	00
Sandstone		1	00		
				87	00
Mudstones	Clowne roof horizon at 93·90	10	80		
				97	80
CLOWNE	Coal	1	00		
				98	80
Siltstones	and mudstones	19	80		
				118	60
COAL		0	40		
				119	00
Mudstones		12	50		
				131	50
Siltstone	coarse	1	50		
				133	00
Mudstones		12	40		
				145	40
TWO FOOT (SOUGH)	Coal 60 dirt 120 Coal 60 240	2	40		
				147	80
Mudstones		6	70		
				154	50

Form P 71
Series 650

6-INCH MAP	B/H
SK 46 NE	33

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				154	50
LOW BRIGHT	Coal	0	70		
				155	20
Mudstone		1	80		
				157	00
Siltstones	and mudstones	11	00		
				168	00
Siltstones	coarse, sandstone laminae	5	00		
				173	00
Sandstone	finer towards the base	3	20		
				176	20
COAL		0	50		
				176	70
Mudstones		4	80		
				181	50
COAL		0	30		
				181	80
Mudstones	siltstone bands, gamma high 205·80	27	30		
				209	10
HIGH HAZLES	Coal	1	10		
				210	20
Mudstone		2	30		
				212	50
Silstones	mainly, mudstone laminae	13	00		
				225	50
Mudstones		5	10		
				230	60
COAL		0	40		
				231	00
Siltstones	mudstone laminae	3	90		
				234	90
COAL		0	30		
				235	20
Siltstones	muddy at the base	2	80		
				238	00

LOGM P 71
Sy 115 680

6-INCH MAP	B/H
SK46NE	33

*Delete as appropriate

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				238	00
Sandstone		1	20		
				239	20
Mudstones		3	50		
				242	70
COAL		0	40		
				243	10
Mudstones		4	90		
				248	00
Sandstone		1	00		
				249	00
Siltstones	passing into mudstones	9	50		
				258	50
Sandstone		5	50		
				264	00
Siltstone	fining towards the base	3	00		
				267	00
Sandstone		1	50		
				268	50
Siltstones	and mudstones	17	40		
				285	90
COAL		0	50		
				286	40
Mudstones	and fine siltstones	18	60		
				305	00
Sandstone		6	50		
				311	50
Siltstones		2	50		
				314	00
TOP HARD	Coal	1	80		
				315	80
Mudstones	thin sandstone at 318·00	7	20		
				323	00
Sandstones	or coarse siltstone	2	00		
				325	00

FORM No. 71
SURVEY 680

6-INCH MAP	B/H
SK46NE	33

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				325	00
Mudstones	and siltstones	10	00		
				335	00
Sandstone		3	00		
				338	00
Siltstones		1	17		
				339	17
	CORING FROM 339·17				
Siltstone	medium laminated; faultlets at 339·40, rare sandstone laminae with micaceous carbonaceous planes from 339·50; Cochlichnus at 339·80	0	68		
	passage			339	85
Siltstone	fine laminated, vague burrows and tracks including Cochlichnus; rare sandstone laminae and plant debris below 340·55; plant debris becoming abundant in basal 0·10	1	09		
	sharp			340	94
Mudstone	silty, laminated; occasional ironstones up to 0·04 thick; rare Cochlichnus	0	80		
	passage			341	74
Mudstone	laminated; occasional small poorly preserved thick-shelled non-marine lamellibranchs; extensive horizontal listric surfaces in basal 0·05	0	17		
	sharp			341	91
Mudstone	highly carbonaceous, cleated, locally silty and less carbonaceous, occasional large coaly plants and Stigmaria	0	26		
	core attached			342	17

FORM P 71
Sheets 680

6-INCH MAP	B/H
SK 46 NE	33

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				342	17
COAL & DIRT	Coal clean bright 6½ attached Mudstone highly carbonaceous abundant coaly plant fragments 7 attached Bat 13½ complete solid core 27	0	27		
	core attached			342	44
Seat Earth	mudstone carbonaceous, listric, abundant planty debris and Stigmaria, not carbonaceous between 342·54 and 342·60	0	16		
	attached			342	60
BAT	complete solid core	0	12		
	attached			342	72
Seat Earth	mudstone, listric; carbonaceous; abundant coal streaks and plant remains including Lepidodendron, Stigmaria	0	58		
	sharp			343	30
Seat Earth	siltstone, fine grey; abundant ironstone nodules, abundant Stigmaria; ironstone band 0·02 to 0·04 thick at base	0	88		
	sharp lithological change			344	18
Sandstone,	ripple-bedding disturbed by roots and ironstone nodules; abundant micaceous carbonaceous planes	0	20		
				344	38
Siltstone	fine, laminated; abundant Cochlichnus and other tracks, occasional roots	0	42		
	passage			344	80
Siltstone,	medium common regular sandstone laminae	0	13		
				344	93
Siltstone,	fine with abundant irregular sandstone ripples; local tendency to ripple drift; minor scour structures; occasional larger sandstone lenses with erosional bases	0	83		
				345	76

Form P 71
Series 680

6-INCH MAP	B/H
SK46NE	33

*Delete as appropriate

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				345	76
Siltstone	fine laminated, common tracks including Cochlichnus	0	67		
				346	43
Sandstone,	irregular ripples with discontinuous siltstone laminae, abundant small micaceous carbonaceous planes	0	33		
	sharp			346	76
Siltstone	fine laminated, common plant debris	0	20		
	sharp			346	96
Sandstone,	medium ripple bedded; occasional plant debris including Calamites; strongly erosional base	0	12		
				347	08
Siltstone,	fine common sandstone laminae and lenses; occasional small scour structures	0	42		
				347	50
Sandstone,	irregular ripples with discontinuous siltstone laminae and occasional small scour structures; coarser grain sandstone near the base	0	27		
	erosional base			347	77
Siltstone	fine frequent sandstone laminae and thin sandstone lenses; common thin ironstone bands; occasional sandstone layers up to 0·04 thick.	0	33		
				348	10
Mudstone,	silty near the top, laminated; common thin ironstone bands; wormy, rare thick-shelled non marine lamellibranchs, occasional Cochlichnus	1	08		
	sharp			349	18
Ironstone		0	03		
				349	21
Siltstone	fine with frequent large sandstone lenses and layers up to 0·06 thick, with erosional bases	0	19		
				349	40

FORM P 71

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

6-INCH MAP	O/A
SK 46 NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				349	40
Siltstone,	fine occasional sandstone laminae, abundant plant debris; rare sandstone layers up to 0·05 thick, with erosional bases	1	22		
	passage			350	62
Mudstone	silty, laminated; common Cochlichnus; occasional planty planes	0	80		
				351	42
Siltstone	fine with frequent sandstone laminae; abundant planty planes	0	09		
				351	51
Mudstone,	occasional thin ironstone bands; frequent thick-shelled non marine lamellibranchs including Anthracosia; very wormy	1	99		
				353	50
Mudstone,	slightly carbonaceous, occasional faultlets; wormy; frequent coaly streaks in the basal 0·05	0	24		
	core probably fitting			353	74
1ST WATERLOO					
	Coal, dirty, bright 2½) cylinders				
	Bat 2)				
	Coal, clean bright 5½)				
	Coal including very dirty coal 7 part core & fragments				
	Mudstone highly carbon- aceous, listric with abund-8) cylinders ant plants and coal streaks)				
	Coal clean mostly dull 14 cylinders				
	Coal clean bright 90				
	(Pyritic lenses at 354·58)				
	(Brown Seatearth parting at 354·85)				
	Coal bright, rare dirt) partings, pyritic) 10 cylinders				
	Seatearth Mudstone 3				
	Coal dirty bright, pyritic 3				
	145	1	45		
				355	19
Seat Earth	mudstone, silty in top 0.06 increasingly silty below; grey; abundant roots	0	17		
	passage			355	36

FORM P 71
SERIES 680

6-INCH MAP	B/H
SK 46 NE	33

*Delete as appropriate

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				355	36
Seat Earth	siltstone, mostly fine, grey, becoming muddy towards the base; many roots, frequent small ironstone nodules near the base, local faultlets	0	51		
				355	87
Siltstone	fine with abundant sandstone laminae and lenses, some with erosional bases; bedding slightly disturbed by roots	0	44		
	passage			356	31
Siltstone	fine common sandstone laminae and lenses, occasional minor structures; common roots; common micaceous carbonaceous planes	0	74		
				357	05
Mudstone,	very wormy with frequent thick-shelled non-marine lamellibranchs including Anthracosia; (core partly fragmented and possibly out of sequence).	0	23		
				357	28
	Rotation surface at the top.				
Siltstone	fine common sandstone laminae and lenses, some with erosional bases; rare roots	0	37		
				357	65
Siltstone	very coarse; obscure bedding; near vertical mineralised joints	0	10		
				357	75
Siltstone,	fine common sandstone lenses with some scour structures; occasional slurried layers with obscure bedding, "sheen" fracture surfaces and semi-oriented plant debris; little sandstone towards the base; Ironstone 0·04 at 358·80	1	07		
				358	82
Siltstone	fine laminated; rare sandstone laminae; frequent tiny burrows	0	45		
	passage			359	27
Mudstone	silty, laminated; occasional tracks and thin ironstones	0	93		
	passage			360	20

FORM F 71
SERIES 680

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

6-INCH MAP	B.H
SK46NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				360	20
Mudstone	poorly laminated; occasional ironstones, occasional non-marine lamellibranchs including Naiadites and Anthracosia down to 361·20, shelly ironstone 0·07 at 361·27; wormy throughout	1	07		
				361	27
Mudstone	frequent ironstone bands; abundant non-marine lamellibranchs including Naiadites and Anthracosia, wormy, becoming carbonaceous below 361·84	0	72		
				361	99
WATERLOO MARKER	fragments of clean bright coal	0	12		
				362	11
Seat Earth	siltstone fine, muddy near the top; grey; abundant roots; occasional irregular sandstone masses and ironstone nodules below 362·80	1	29		
	passage			363	40
Seat Earth	siltstone fine and medium, occasional plant remains, including fern leaves and frequent roots	0	40		
				363	80
Seat Earth	mudstone silty; few roots; reworked texture; grey	0	36		
				364	16
Seat Earth	siltstone muddy becoming medium towards base; ironstone nodules, re-worked appearance	0	58		
				364	74
Sandstone	abscure bedding; several discontinuous siltstone laminae; bedding dipping at 30° approximate in various directions, slightly root disturbed. Prominent scour structure at 365·00	0	33		
				365	07
Siltstone,	mostly medium frequent irregular sandstone patched; reworked appearance; occasional ironstone nodules	1	37		
	irregular contact			366	44

Form P 71

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

6-INCH MAP	B/H
SK 46NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				366	44
Cank	silty, frequent roots, vertical mineralized joints	0	28		
	irregular contact			366	72
Siltstone	fine to coarse locally reworked appearance, occasional roots; sandstone layer with irregular ripple bedding from 376·51 to 367·61 with an erosional base occasional small ironstone nodules	1	38		
				368	10
Seat Earth	siltstone fine grey, with common distorted sandstone laminae, ironstone nodules, and roots; "fern" leaves in parts	0	72		
				368	82
Siltstone	medium, common roots, common inclined listric surfaces, poorly laminated, occasional small ironstone nodules; large inclined listric surfaces at 369·15; large ironstone nodules and bands up to 0·07 below 369·15	0	65		
				369	47
Siltstone	fine, laminated; common roots and other plant debris, occasional small ironstone nodules; occasional sandy laminae; rare thicker ironstone bands up to 0·06 rare small faultlets	1	17		
				370	64
Siltstone	fine, laminated; common plant fragments including Calamites; common ironstone nodules and thin bands	0	55		
				371	19
Siltstone	medium, unlaminated occasional ironstone nodules, local faultlets; common plant remains fusainous in parts, including strap plants, Calamites, Pinnularia, Sphenophyllus; occasional sandstone laminae below 372·00	1	24		
				372	43
Siltstone	medium, poorly laminated; very bioturbated	0	52		
				372	95

Form P 71
Series 660

6-INCH MAP	B H
SK 46NE	33

*Delete as appropriate

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				372	95
Siltstone	fine, unlaminated; common plant fragments including 'ferns'	0	40		
				373	35
Mudstone	unlaminated; common plant remains including 'ferns'; rare ironstone nodules	0	60		
				373	95
Siltstone	and sandstone; common irregular ripple bedding with small scour structures common sandstone load structures; bedding highly contorted below 375·04; vertical joints mineralized with calcite and galena	1	10		
				375	05
Sandstone	fine regular ripple bedding in parts, apparently structureless elsewhere	1	65		
	passage			376	70
Sandstone	mostly fine locally medium, ripple bedded with discontinuous siltstone laminae; more siltstone below 377·70	1	30		
	passage			378	00
Siltstone	medium with common sandstone laminae and lenses, local ripple drift, minor scour structures and minor erosional surfaces	0	81		
				378	81
Siltstone	fine with occasional sandstone fine laminae and lenses, occasional tracks and burrows; ironstone 0·07 at base	1	49		
	passage			380	30
Siltstone	fine laminated; becoming muddy towards the base	0	55		
	passage			380	85
Mudstone,	silty near the top, laminated, occasional ironstones up to 0·05 thick; common tracks including Cochlichnus; common shell- guilielmites and small thick-shelled non-marine lamellibranchs, becoming shaly towards base	2	15		
	passage			383	00

Form P 371
Series 680

6-INCH MAP	B/H
SK 46 NE	33

*Delete as appropriate

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				383	00
Mudstone	shaly; becoming carbonaceous downwards; occasional thin ironstone bands, one shelly, with kaolinite oothliths; rare non-marine lamellibranchs near the top, burrows in parts including Planolite cf. opthalmoides at 383·40; rare ostracods; subcanneloid from 383·62	0	71		
				383	71
	CORE BOXED 383·71 - 386·79				
Mudstone,	shaly, carbonaceous	0	07		
				383	78
	unattached				
SECOND WATERLOO	Coal, bright 12½ fragments				
	Coal, bright 7½				
	dirt 17				
	Coal, dirty 1				
	Coal, dull 5				
	Coal, bright 45				
	dirt 20 cylinders				
	Coal, bright 18				
	Coal, dull 2				
	Coal, bright 8				
	dirt 14				
	Coal, dirty 3				
	Coal, bright 41				
	Core lost 10				
	204	2	04		
	Recovery 90%, Dip less than 2°			385	82
Seat Earth,	mudstone slightly silty coal streaks in top 0·04 and bottom 0·24	0	68		
				386	50
Mudstone	interleaved with bright coal	0	02		
				386	52
COAL	dirty	0	05		
				386	57
Seat Earth	mudstone several Coal streaks	0	05		
	rotational face			386	62
COAL	dirty	0	04		
				386	66

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

6-INCH MAP	B/H
SK46NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				386	66
Seat Earth,	mudstone interleaved with bright coal	0	04		
				386	70
Seat Earth	siltstone fine	0	09		
				386	79
Seat Earth	sandstone, irregular ripple bedding with discontinuous siltstone laminae near the top; frequent roots	0	68		
	passage			387	47
Siltstone	medium near top, fine below, mostly unlaminated; abundant plant remains including Calamites and Sphenophyllus, rare ironstone bands	0	76		
				388	23
Siltstone	fine, rare sandstone laminae near top becoming more common below with mini-lenses, common larger sandstone lenses below 389·10 with small scour structures; layer of ripple bedded sandstone with discontinuous siltstone laminae from 389·20 to 389·45	1	35		
				389	58
Siltstone	fine with abundant papery sandstone fine laminae	0	34		
				389	92
Sandstone	locally ripple bedded; apparantly structureless elsewhere	0	49		
				390	41
Siltstone	fine, abundant worm tracks localised faultlets	1	22		
				391	63
Mudstone	poorly laminated, abundant worm tracks; abundant faultlets, occasional ironstone nodules, several large inclined listric surfaces at 392·30	0	99		
				392	62
Mudstone	carbonaceous, occasional ironstone bands, very wormy; common thin shelled non-marine lamellibranchs, becoming increasingly carbonaceous towards the base	0	36		
	attached			392	98

FORM B 71

6-INCH MAP	B/H
SK46NE	33

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				392	98
COAL	Coal bright, clean 14) Complete solid Coal and dirt 1) core 15 Core detached	0	15	393	13
Seat Earth	mudstone grey; abundant roots; abundant ironstone nodules; very listric	0	51	393	64
Seat Earth	siltstone fine, grey, abundant roots, common ironstone nodules	0	76	394	40
Siltstone	fine; abundant roots; poorly laminated, common ironstone nodules Core detached	0	63	395	03
COAL	Bright 11 broken cylinders	0	11	395	14
Seat Earth	mudstone silty; grey abundant roots; common; ironstone nodules, very listric	1	26	396	40
Seat Earth	mudstone, becoming silty below 396·74, ironstone nodules; abundant roots, Neuropteris leaves; grey	1	37	397	77
Seat Earth,	unlaminated; grey; abundant roots and ironstone nodules; common 'ferns', occasional faultlets high hade listric contact	0	70	398	47
Siltstone	fine to medium, slurried down to 98·70; abundant siderite specks, some vaguely elongate; common plant debris; planty, below 398·90 becoming siltstone coarse, slurried with common siderite specks	0	63	399	10
Siltstone	mostly fine, unlaminated except for sandstone laminae in the top 0·05; abundant 'ferns' and occasional Calamites and Pinnularia	0	72	399	82

Form GP 71

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

6-INCH MAP	B/H
SK46NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				399	82
Mudstone	slightly carbonaceous, abundant coal laminae, abundant "strap" plants and "fern" fronds	0	24		
				400	06
Siltstone	fine to medium, grey, unlaminated abundant plant material including "ferns" and Calamites, approximately 30° hade unmineralized, slightly polished breaks from 402·30? induced by mining , Stigmaria ficoides at 403·85, Alethopteris 403·85 rare vague sandstone laminae at 404·60 and at 406·00 occasional Pinnularia	7	74		
				407	80
Siltstone	medium, abundant vague sandstone laminae; slurried?	0	45		
	faultlets			408	25
Siltstone	fine, unlaminated, abundant faultlets abundant plants including Neuropteris and Cyclopteris and "strap" plants, approximately 40° hade unmineralised, polished breaks at 411·80 and locally below; ironstone 0·05 at 412·50	8	27		
				416	52
Siltstone	fine with common sandstone laminae and thin lenses, local ripple drift, minor scour structures below 417·00, local faultlets, local kinked bedding	0	85		
				417	37
Siltstone	fine with vague and irregular ironstone lenses; occasional layers of highly disturbed load-casted sandstone laminae local faultlets, local polished partings	0	63		
				418	00
Siltstone	fine, unlaminated, abundant faultlets	0	64		
				418	64
Siltstone	fine with common fine wispy sandstone laminae, common faultlets	0	24		
				418	88
Siltstone	fine, unlaminated; faultlets	0	32		
				419	20

Form P 71
Series 680

6-INCH MAP	B/H
SK 46 NE	33

*Delete as appropriate

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				419	20
Siltstone	fine with abundant sandstone fine laminae and lenses, larger sandstone lenses with erosional bases; abundant faultlets, mineralization of some larger faultlets, local kinked bedding	2	00		
				421	20
Siltstone	fine to medium, laminated; common faultlets occasional sandstone fine laminae towards the base, occasional tracks	1	07		
				422	27
Siltstone	fine, common sandstone lenses to 422·41 with minor scour structures common sandstone laminae below 422·41 local kinked bedding, faultlets throughout	0	61		
				422	88
Siltstone	fine, unlaminated, abundant faultlets, occasional plant fragments including Calamites, Neuropteris, sandstone fine laminae and lenses highly disturbed by faultlets from 425·66 to 425·78, ironstone 0·03 at base	3	62		
				426	50
Sandstone	mostly small scale irregular cross bedding to 426·70; possible dune set bedding below, local ironstone clasts conglomerate; abundant coaly planes from 427·25; bedding obscure below 428·20:- melange of coal and ironstone, highly contorted in sandstone	4	05		
	erosional at base			430	55
Mudstone	silty, highly carbonaceous; mussles, shelly ironstone bands; gaultlets; vague tracks	0	59		
				431	14
Mudstone.	highly carbonaceous, shaly; faultlets; abundant non-marine lamellibranchs from 431·33, shelly ironstone bands locally	0	31		
	core detached			431	45
COAL	bright with many dirt partings; core fragmented, largest thickness recorded 0·04; see diversion log at 431·36	(0	04)		
				(431	49)

Form P 71

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

6-INCH MAP	B/H
SK 46NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				431	49
Seat Earth	mudstone grey, abundant roots, ironstone nodules, listric	0	46		
				431	95
Seat Earth	mudstone carbonaceous, highly listric; abundant ironstone nodules especially near top, occasional roots	0	52		
				432	47
Seat Earth	mudstone, highly listric, abundant roots	0	50		
				432	97
Mudstone	listric; ironstone bands; common roots, rare poorly preserved non-marine lamellibranchs	0	49		
				433	46
Mudstone	highly carbonaceous, faultlets; sub canneloid	0	15		
	detached			433	61
COAL	Coal bright with many dirt partings - core largely fragmented 3 Coal clean bright 4 cylinders Cannel clean 2 cylinders 9	0	09		
	rotation surface			433	70
Seat Earth	mudstone, grey; iron rich near top; abundant roots; carbonaceous from 433·88 to 433·94, listric, ironstone bands up to 0·08 thick.	0	52		
				434	22
Seat Earth	mudstone, silty, laminated; local thin ironstone streaks	0	19		
				434	41
Seat Earth	with common sandstone fine lenses and layers up to 0·04 thick, some with erosional bases local sandstone load structures, common roots and ironstone nodules, irregular ironstone in basal 0·05	0	94		
				435	35
Siltstone	fine with abundant sandstone fine laminae and lenses, local sandstone layers up to 0·10 thick, local slurries and contorted bedding; minor erosional surfaces local tendancy towards ripple drift; occasional roots	1	09		
	passage			436	44

Form P 71

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

6-INCH MAP	B/H
SK 46 NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				436	44
Sandstone	fine with abundant discontinuous siltstone fine laminae common minor scours, occasional possible gas-heave structures, frequent roots	0	71		
				437	15
Sandstone	very canky with frequent discontinuous siltstone laminae, common roots	0	45		
				437	60
Siltstone	fine, abundant sandstone lenses; sandstone rippled with discontinuous siltstone laminae from 437·87 to 438·20, occasional 30° hade unmineralized breaks, rare roots towards the top of bed	1	18		
	passage			438	78
Siltstone	fine with frequent non-erosive sandstone lenses, several subvertical mineralised joints and faultlets with throws up to 1·00	0	69		
				439	47
Mudstone,	silty at top, local non-marine lamellibranchs and wormy tracks, common polished 45° hade breaks and local inclined bedding, core locally very listric and broken, core extremely weak listric and broken from 441·50 to base	2	71		
				442	18
FAULT	Seat Earth sandstone on both sides of presumed fault zone, separated by approximately 0·38 (vertical) of fault gouge up to 20° hade slickensided breaks separate the sandstone and fault gouge The fault gouge is completely listric mudstone with rare coal streaks and rare stigmarian nodules	0	38		
				442	56
Seat Earth	sandstone with occasional discontinuous siltstone laminae, common roots near top	0	44		
				443	00
Sandstone	with occasional siltstone laminae; bedding dips at 45° approximately, common slips mineralized with calcite and pyrites	0	27		
				443	27

Form BG 71
Series 680

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

6-INCH MAP	B/H
SK46NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				443	27
Siltstone	fine with abundant sandstone laminae beds dip 45° approximately	0	53		
				443	80
?Fault Gouge	highly fractured silty mudstone and laminated silt/sandstone contained between approximately 45° hade breaks	0	25		
				444	05
Siltstone	fine becoming muddy downwards; abundant inclined listric surfaces	0	45		
				444	50
Mudstone	abundant non-marine lamellibranchs including Anthracosia and Naiadites core broken throughout and locally listric	0	50		
				445	00
Mudstone	very listric, weak condition abundant non-marine lamellibranchs	0	63		
				445	63
Ironstone		0	05		
				445	68
Mudstone,	listric more so in the bottom 0·15	0	25		
				445	93
Mudstone,	silty	0	12		
				446	05
Mudstone,	listric	0	27		
	detached			446	32
SECOND ELL					
	Coal, bright 31 fragments				
	Coal, bright 27 cylinders				
	Coal 13 fragments				
	71 Ø	0	71		
	Ø See diversion log for true seam thickness			447	03
	Section faulted and disturbed				
Mudstone		0	29		
				447	32
Seat Earth	mudstone silty towards the top, abundant roots including Stigmaria, core often broken and listric, minor bitumen seepages	0	74		
				448	06

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SERIES 680

6-INCH MAP	B/H
SK46 NE	33

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				448	06
Seat Earth	siltstone grey, fine; abundant roots, numerous listric surfaces, occasional ironstone bands, common inclined joints mineralized with calcite	0	74		
				448	80
Seat Earth	mudstone, numerous inclined listric surfaces	0	26		
				449	06
Siltstone	with sandstone laminae; common 45° hade inclined listric surfaces, beds dipping 45° approximately, sandstone band 0·20 at 45·00 cross bedding within sandstone cores seen to 450·70	1	64		
				450	70
	not recovered	1	58		
				452	28
	Base of original hole				

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SERIES 680

6-INCH MAP	B/H
SK 46NE	33

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
	DIVERSION FROM 412·57				
	Cores seen from			422	80
Siltstone	fine, laminated, with sandstone fine laminae and lenses; local ripple bedding	1	01		
				423	81
Mudstone	silty, locally siltstone fine, faultlets, 45° hade unmineralized breaks, "fern" frond loccally	1	63		
	passage			425	44
Siltstone	coarse at top fine with sandstone fine laminae from 426·20 to 426·50, abundant penecontemporaneous faultlets 25° hade unmineralized breaks; occasional plant remains including "ferns"	1	61		
	sharp			427	05
Sandstone	abundand small, somewhat irregular, micaceous carbonaceous planes;? dune sized units; ironstone-clast conglomerate in parts, 428·08 to 428·48, brownish sandstone with sub-vertical mineralized breaks with calcites and abundant specks of bitumen	1	73		
				428	78
Sandstone,	ironstone-clast conglomerate in top 0·10 highly distorted bedding below; abundant coaly debris below 429·02 to 429·18 melange of coal, ironstone and other fragments in sandstone, exhibiting crude slumping structures, from 429·18 to 429·82:				
	40° hade unmineralized breaks	1	12		
	very erosional scoured base			429	90
Mudstone	carbonaceous, iron-rich; ? large clast;				
	0·08 to 0·03 thick	0	03		
				429	93
Sandstone	with crowded coaly plant fragments	0	33		
	rotation surface-sharp			430	26
Mudstone	usually carbonaceous, sometimes silty, abundant non-marine lamellibranchs near top, occasional coaly plants, common siderite-filled non-marine lamellibranchs in the basal 0·10, fish remains in basal				
	0·05	0	88		
	core detached			431	14

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Series 680

6-INCH MAP	B/H
SK 46NE	33

*Delete as appropriate

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				431	14
1ST ELL (Top leaf)	Coal bright with many dirt partings; becoming slightly cleaner towards the base - cylinder detached	0	22	431	36
Seat Earth	mudstone, grey; abundant roots; common ironstone nodules below 432·00 slightly carbonaceous from 432·01 to 432·35	1	44	432	80
Mudstone,	common listric surfaces, occasional ironstone nodules, common guilielmites wormy in parts, occasional Gyrochorte, ironstone in basal 0·05	0	95	433	75
Mudstone	with abundant listric surfaces	0	15	433	90
Mudstone	canneloid, occasional coal streaks	0	15	434	05
Seat Earth	mudstone silty, laminated, occasional roots, ironstone bands 434·51 to 434·61 with occasional ironstone nodules below	0	87	434	92
Siltstone	fine with sandstone fine lenses and laminae, occasional roots and small ironstone nodules, occasional small? burrows; several sandfilled? burrows up to 0·05 deep and 0·02 across in the top 0·16; slumped and slightly kinked bedding below 435·34 to 435·60 sandstone layer 0·10 thick at 435·86 sandstone load structures 435·90 to 435·96 tendency towards "train" drift at 436·00 occasional minor scour structures	2	06	436	98
Sandstone	ripple bedded with discontinuous siltstone laminae, canky 437·23 - 437·48 locally passing into fine siltstone with sandstone lenses, local erosional surfaces, several sub-vertical mineralized fractures some with throws up to 0·005	1	21	438	19

FORM 71
SUP 680

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

6-INCH MAP	B/H
SK 46 NE	33

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				438	19
Siltstone	fine with many non-erosional sandstone ripples several sub-vertical mineralized joints, little sand below 438·61	0	91		
				439	10
Siltstone	fine with occasional sandstone laminae bedding dipping at 35°; Fault from 439·42 to 439·52 hading at 35°, up to 0·02 of fault gouge rare non-marine lamellibranchs from 439·70	0	80		
				439	90
Mudstone;	common non-marine lamellibranchs wormy in parts, occasional thin ironstone bands core fragmented below 441·00	1	40		
				441	30
	N.B. The sequence below 441·00 is faulted and highly disturbed with poor core recovery down to 448·30				
Fault Gouge	Highly listric mudstone with occasional ironstone and coherent mudstone inclusions	0	52		
				441	82
Seat Earth	45° hade unslickensided surface at top sandstone; bedding disturbed by abundant roots; occasional discontinuous siltstone laminae, dip 25°	0	28		
				442	10
Siltstone	fine with abundant sandstone laminae and lenses; occasional roots, dip 30° sandstone content increases towards base	0	57		
	faulted contact; 35° hade			442	67
Fault Gouge	mudstone highly listric, with siltstone and sandstone inclusions locally, core completely fragmented	1	23		
				443	90
Siltstone	fine with ironstone; core very fractured and poorly recovered	0	55		
				444	45
Mudstone	completely listric with occasional ironstone nodules; very poorly recovered	1	17		
				445	62

Form B 271

6-INCH MAP	B/H
SK 46 NE	33

*Delete as appropriate

Section of DEEPDALE FARM (PALTERTON) No. 2 SURFACE BOREHOLE.

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m or ft*	THICKNESS cm or in*	DEPTH m or ft*	DEPTH cm or in*
				445	62
Mudstone	shaly with abundant non-marine lamellibranchs core disturbed, very listric and poorly recovered	0	18		
				445	80
	CORE BOXED 445·80 - 448·30				
Mudstone,	non-marine lamellibranchs	0	13		
				445	93
Siltstone,	non-marine lamellibranchs; ironstone lenses	0	22		
				446	15
Mudstone	dark, shaly, non-marine lamellibranchs; ironstone nodules, listric	0	24		
				446	39
Mudstone,	listric	0	24		
	detached			446	63
SECOND ELL	Coal, bright 53) Coal, banded 12) cylinders, fragmented Coal, bright 18) in parts 83	0	83		
	Recovery 100%, dip 27° (fault zone)			447	46
	N.B. thickness corrected for dip = 74 See note on casing left in hole, at the end of the log.				
Seat Earth	mudstone, silty few coal streaks	0	84		
				448	30
Siltstone	fine with abundant sandstone laminae, dip 40° - 60°; occasional minor faults with associated crumpling and kinking; fault plane from 449·90 to 450·10 with up to 0·02 of fault gouge	2	22		
				450	52
	End of diversion.				
	N.B. On completion of the drilling, the whole diversion string had to be left in the hole, i.e. 39·71 metres of 5 inch and 6 inch casing, with the base at 452·28				