



SK 46 NE/56

Section of: Markham No. 22 Underground Borehole

Purpose: Coal Exploration

Nat. Grid, Sheet & Qtr. B/H REG. NO.

Exact Site: E446644 N469168

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Level at which bore commenced relative to
O.D. -437.4m.
in the Clay Cross Soft seam

Date of Boring: Sept. - Dec. 1983

Sinker or Borer: N.C.B.

Cores examined by D. J. Green

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH	
		m	cm	m	cm
	Top of hole			82	50
Mudstone		6	70	75	80
<u>COAL</u>		0	80	75	00
Mudstone		3	00	72	00
Sandstone and Mudstone		3	00	69	00
Mudstone and Sandstone		3	00	66	00
Mudstone		3	85	62	15
	(Driller's record 62.15 - 82.50)				
Mudstone	laminated, 0.05 septarian ironstone band at the base; locally common worm tracks; locally common non-marine lamellibranchs	0	75	61	40
<u>SEATEARTH</u> Siltstone	fine; carbonaceous; unlaminated, occasional roots	0	17	61	23
Siltstone	fine and sandstone fine 50:50; irregularly interlaminated; common roots	0	27	60	96

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			60	96
Sandstone	fine with common irregular siltstone fine laminae 70:30 locally 80:20; locally ripple bedded; common roots including <u>Stigmaria</u> in top 0.60	1	76	59 20
Siltstone	fine with occasional sandstone fine laminae 95:5; common micaceous carbonaceous planes	0	35	58 85
Mudstone	silty; laminated; common thin ironstone bands; locally common worm tracks; common and locally abundant non-marine lamellibranchs including <u>Anthracosia</u> and <u>Naiadites</u>	1	40	57 45
Mudstone	carbonaceous; shaly; occasional plant remains; locally common non-marine lamellibranchs including <u>Naiadites</u>	0	93	56 52
Mudstone	dark; laminated; occasional non-marine lamellibranchs including <u>Naiadites</u>	0	45	56 07
	detached			
CORE LOST		0	12	55 95
<u>SECOND ELL</u> <u>COAL</u>	mainly bright, fragments; 0.45 recovered			
	Driller records	(0	84)	55 11
CORE LOST		0	03	55 08
SEATEARTH	detached			
Mudstone	silty, grey, unlaminated; common irregular polished surfaces, common roots	0	18	54 90
Siltstone	fine, dark, unlaminated; occasional ironstone nodules; common roots	0	43	54 47
Mudstone	silty; dark; unlaminated; common roots	0	11	54 36
Mudstone	silty; grey becoming dark in top 0.08; occasional large ironstone nodules; common roots	0	40	53 96
Siltstone	fine to medium with occasional diffuse sandstone fine laminae and micro-lenses 80:20; locally ripple bedded with ripple sets; minor erosional surfaces; rare roots	0	71	53 25
Siltstone	fine to medium; laminated	0	15	53 10

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				53	10
Mudstone	silty with occasional minor siltstone fine passages, rare ironstone bands; occasional worm tracks	2	35		
				50	75
Siltstone	fine, locally muddy; laminated	0	36		
				50	39
Siltstone	fine with rare sandstone fine laminae and lenses 95:5	0	10		
				50	29
Mudstone	laminated; occasional vague worm tracks	0	24		
				50	05
Mudstone	silty; dark; laminated; occasional 30 degree-hade unmineralised joints; rare poorly preserved non-marine lamellibranchs; rare roots	0	52		
				49	53
Mudstone	dark; unlaminated; common irregular polished surfaces, occasional roots	0	26		
				49	27
Mudstone	silty; dark; slightly carbonaceous; occasional irregular polished surfaces; occasional irregular coaly laminae	0	02		
				49	25
Siltstone	fine; locally muddy, dark; poorly laminated	0	05		
	sharp			49	20
Siltstone	fine and sandstone fine 50:50 irregularly interlaminated and interlayered; locally vaguely ripple bedded; common root nodules, common roots	0	46		
				48	74
Sandstone	fine with occasional siltstone fine laminae 95:5; occasional discontinuous micaceous carbonaceous planes; locally vaguely ripple bedded; sub-vertical calcite - filled joint between 47.60 and 47.90	1	14		
				47	60
Sandstone	fine with occasional siltstone fine laminae 80:20; common iron-rich layers; common micaceous carbonaceous planes; locally ripple bedded with well-developed ripple sets; large load and pouch structures between 47.00 and 47.46; sub-vertical calcite-mineralised joints in basal 0.30	2	02		
				45	58
Siltstone	medium with occasional sandstone fine laminae 95:5; strong; 0.04 ironstone at the base	0	52		
				45	06
Siltstone	fine, muddy, dark, laminated; rare wispy thin sandstone fine laminae and un-connected lenses; locally common sand-filled burrows	0	91		
	sharp			44	15

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			44	15
Siltstone	medium with rare diffuse sandstone fine laminae; load and pouch structures in basal 0.08; small sandstone load structures throughout	0	48	
	sharp		43	67
Siltstone	fine, muddy; laminated	1	17	
	passage		42	50
Mudstone	slightly silty; laminated; occasional ironstone bands; occasional worm tracks on some bedding planes	0	90	
	passage		41	60
Mudstone	silty; laminated; occasional thin ironstone bands; rare non-marine lamellibranchs including <u>Naiadites</u> ; rare shell slip marks	1	84	
			39	76
Siltstone	fine; dark; poorly laminated; abundant non-marine lamellibranchs with mineralised shells	0	14	
			39	62
Siltstone	fine; unlaminated; iron-rich	0	16	
			39	46
Mudstone	silty; laminated; common non-marine lamellibranchs becoming less common towards the top	2	01	
			37	45
<u>CLAY CROSS</u>				
<u>MARINE</u>				
<u>BAND</u>				
Mudstone	slightly silty; laminated, fissile; rare non-marine lamellibranch fragments, occasional ostracods; common <u>Lingula</u> between 35.65 and 35.90	1	85	
	passage		35	60
Mudstone	laminated; slightly carbonaceous in the basal 0.10; <u>Lingula</u> at 34.95 and 35.80	2	94	
			32	66
Mudstone	highly carbonaceous, shaly, abundant ostracods; common fish remains; occasional detached <u>Spirorbis</u>	0	10	
			35	56
Mudstone	laminated	0	01	
	detached		32	55
<u>JOAN</u>				
<u>COAL</u>				
	and DIRT (cylinder)	0	04	
	detached, fitting		32	51

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			32	51
SEATEARTH				
Sandstone	fine to medium with occasional irregular micaceous carbonaceous planes; common roots	0 09	32	42
Siltstone	fine and sandstone fine 50:50; irregularly interlaminated and interlayered; common micaceous carbonaceous planes; common roots	0 32	32	10
Sandstone	fine with rare irregular siltstone fine laminae; occasional micaceous carbonaceous planes; occasional roots	0 13	31	97
Siltstone	fine with common irregular sandstone fine laminae 80:20; common micaceous carbonaceous planes; rare roots	0 61	31	36
Mudstone	silty; laminated	0 34	31	02
	sharp			
Sandstone	fine with rare siltstone fine laminae; common micaceous carbonaceous planes; vaguely ripple bedded throughout	0 21	30	81
	sharp			
Mudstone	silty; laminated	0 51	30	30
	passage			
Mudstone	locally slightly silty; laminated; rare shell slip marks; locally common worm tracks; rare plant fragments	1 08	29	22
Mudstone	dark, slightly carbonaceous; locally common ostracods	0 12	29	10
Siltstone	medium with occasional sandstone fine laminae 70:30; locally vaguely ripple bedded; sandstone load and pouch structures between 28.60 and 28.80	0 88	28	22
Siltstone	medium; unlaminated; strong; occasional roots	0 10	28	12
Siltstone	fine, locally muddy; laminated, becoming poorly laminated towards the top; rare plant remains including Calamites; occasional roots	0 46	27	66
Sandstone	fine; common micaceous carbonaceous planes; locally ripple bedded	0 28	27	38
	sharp			
Siltstone	fine with common sandstone fine laminae 70:30, becoming 90:10 near the top; common micaceous carbonaceous planes; common comminuted plant debris	0 63	26	75

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				26	75
Siltstone	fine, locally muddy, laminated; locally common plant fragments near the base	0	35	26	40
Mudstone	silty, laminated, locally abundant comminuted plant debris	0	10	26	30
Mudstone	silty, laminated; common worm tracks and burrows; occasional non-marine lamellibranchs near the base and between 26:20 and 26:30; occasional shell slip marks	1	65	24	65
Mudstone	slightly silty; laminated; rare coalified plant remains; abundant non-marine lamellibranchs with mineralised shells sharp	0	26	24	39
Mudstone	silty; highly carbonaceous; unlaminated; iron-rich sharp	0	11	24	28
<u>SEATEARTH</u> Mudstone	silty; dark; unlaminated; abundant roots including <u>Stigmaria</u> sharp	0	06	24	22
Sandstone	fine with common irregular siltstone fine laminae 60:40; common discontinuous micaceous carbonaceous planes; occasional roots	0	27	23	95
Sandstone	medium with common discontinuous micaceous carbonaceous planes; occasional roots	0	53	23	42
Siltstone	fine to medium with occasional sandstone fine laminae and ripple-marked lenses 95:5; rare roots sharp	0	49	22	93
Sandstone	fine with rare siltstone fine laminae near the top; common micaceous carbonaceous planes; sub-vertical calcite-mineralised joints throughout; locally vaguely ripple bedded	0	68	22	25
Sandstone	fine to medium with occasional siltstone fine laminae, 90:10, common micaceous carbonaceous planes; locally vaguely ripple bedded	0	67	21	58
Siltstone	fine with rare wispy sandstone fine laminae	1	46	20	12
Siltstone	fine with occasional sandstone fine laminae and lenses, 95:5	0	15	19	97

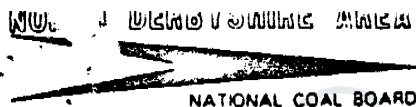


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			19	97
Mudstone	silty, laminated; occasional thin ironstone bands; common worm tracks and burrows	1	92	18 05
Mudstone	silty, laminated; common non-marine lamellibranchs; common shell slip marks	0	33	17 72
Mudstone	silty, dark; laminated; common non-marine lamellibranchs, common ostracods detached	0	24	17 48
<u>COAL</u>	dirty 0.08 broken cylinders and fragments detached	0	08	17 40
SEATEARTH				
Siltstone	fine, grey; unlaminated, common roots	0	42	16 98
Mudstone	grey; unlaminated; occasional irregular polished surfaces; common roots	0	66	16 32
CORE LOST		0	42	15 90
Mudstone	laminated; locally slightly carbonaceous; occasional thin ironstone bands; occasional shell slip marks	1	20	14 70
CORE LOST		1	50	13 20
Mudstone	laminated; occasional shelly ironstone bands; core highly fragmented	0	45	12 75
Mudstone	laminated; occasional thin ironstone bands	0	50	12 25
Mudstone	carbonaceous; laminated; abundant non-marine lamellibranchs with mineralised shells	0	25	12 00
Mudstone	laminated; common thin ironstone bands; core highly fragmented; locally common worm tracks; rare non-marine lamellibranch fragments	1	40	10 60
CORE LOST		2	60	8 00
	Start of coring 8.00m above origin in Clay Cross Soft seam			
N.B.	BOREHOLE NOT SEALED			

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SURVEY DEPARTMENT

BOREHOLE DATA AND HISTORY

BOREHOLE NAME: L 99^S UP-BORE (MARKHAM N°22)
Approximate Location: 2½ KM SOUTH OF MARKHAM COLLIERY
National Grid Reference: E 446644 N 369168.2
6 inch sheet: 46 NE
Level of Origin: -437.41 metres
Date of Drilling: Commenced 14-9-83
Finished 9-12-83
Contractor's Name: N.C.B.
Name of Boremaster: J. MOTTRAM

Depth (m) (±)	Diameter of Core (in)	Diameter of Hole (in)
00-3	1—	126 mm
3-82.50	48 mm	76 mm

Drilling Difficulties: THE HOLE CAVED BADLY THROUGHOUT AND
WAS AT A STANDSTILL. EVENTUALLY AT A DISTANCE OF 82.50m DRILLING
WAS AT A STANDSTILL. SOME 20m SHORT OF 2ND WATERLOG
THEN THE 1 YEAR STRIKE INTERVENED DURING WHICH TIME A FIRE
MAIN BURST ON THE DISTRICT AND FLOODED SEVERAL GATES TO
Method of Sealing Off Borehole: THE WATER WAS PUMPED AWAY ONLY TO
ENABLE THE DRILLING EQUIPMENT TO BE RETRIEVED
THEN THE DISTRICT WOULD BE SEALED OFF
HENCE THE ABANDONMENT OF THE HOLE

HOLE WAS NOT SEALED

Purpose fulfilled by Borehole:

PROVED ONLY THE 1ST 2ND & 3RD SEAMS

Official Responsible for above Report:

R. T. Wells

For

Area Chief Surveyor & Minerals Manager