COMMONWEALTH OF AUSTRALIA.

MINISTRY OF NATIONAL DEVELOPMENT. BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS.

RECORDS. 195**3**/46.



MITCHELL'S FLAT AREA

DRILLING RESULTS

By T.H. Rodger

Bureau of Mineral Resources, Geology and Geophysics OPEN CUT COAL INVESTIGATIONS IN NEW SOUTH WALES CESSNOCK MUSWELLBROOK REGION

MITCHELL'S FLAT AREA.

DRILLING RESULTS
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RECORDS 195**3**/46

CONTENTS.

Text; Bore Logs; Map N14-109

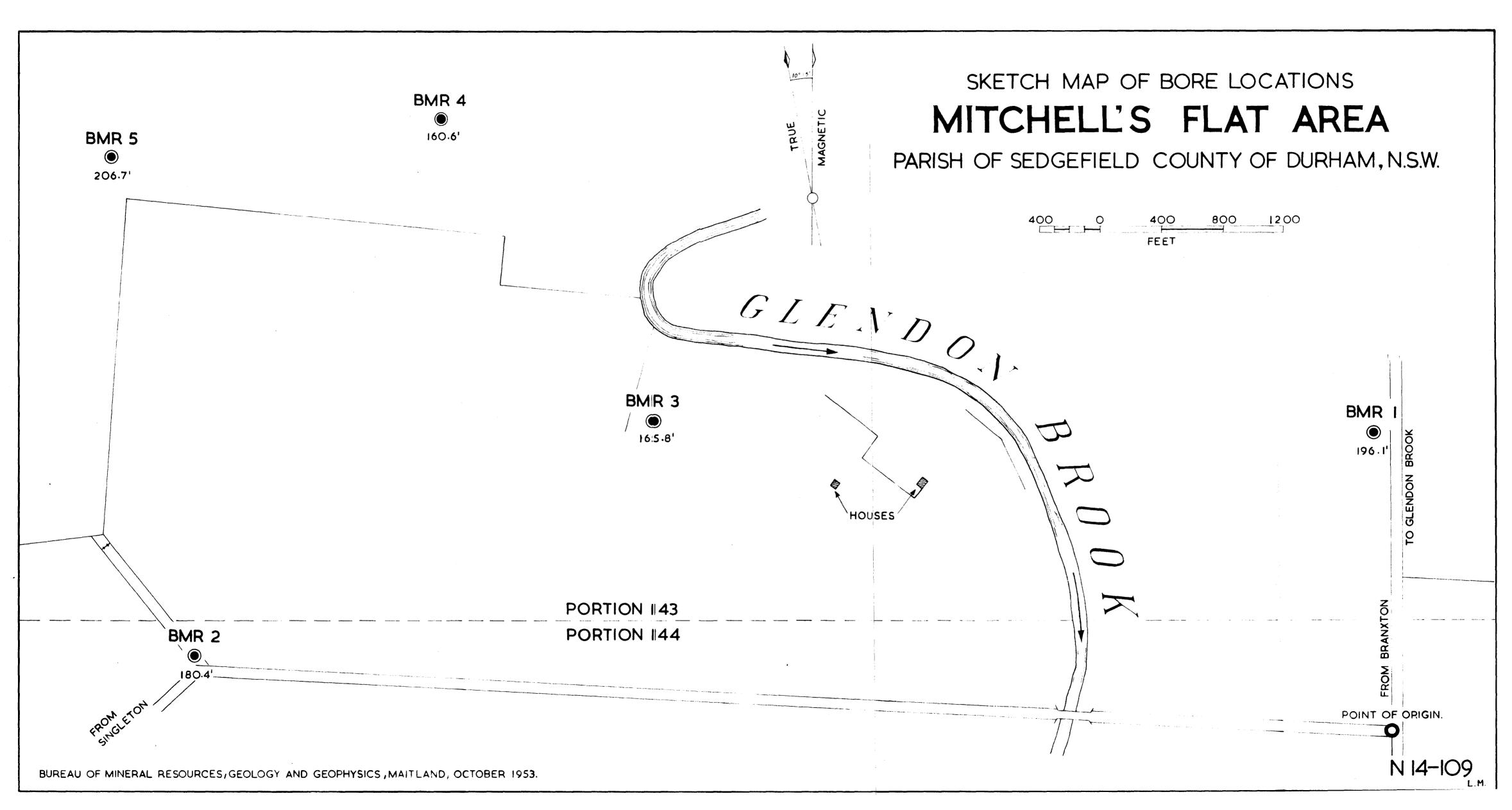
The area investigated, of approximately 16 square miles, is 10 miles east of Singleton in the Parishes of Sedgefield and Marwood, County of Durham and in the Parish of Belford, County of Northumberland.

This area is shown on New South Wales Geological Survey Plans as a basin of Upper Coal Measures, divided from the Carboniferous on the east by the Hunter Thrust Fault which is dipping at 20 to 30 degrees to the east, and from the Upper Marine Series on the west by another fault which also dips east at 76 degrees. The sediments within the basin have been tilted and in places have undergone subsidiary faulting. The outcrops of the Upper Coal Measures along West Brook dip to the east at angles from 70 to 85 degrees; 17 coal seams are exposed giving a total of 132 ft. of coal in 423 ft. of sediment. Directly to the north of "Glenbourne" coal is exposed in the bend of Glendon Brook. The dip of these outcrops varies from 15 to 20 degrees to the north-east and some faulting is visible. There are other outcrops of conglomerate and sandstone in the basin, particularly just to the north of the Hunter River, but little information can be gained from these.

Drilling was carried out by the Joint Coal Board and by private contractors in the area surrounding the coal outcrops in Glendon Brook prior to and during 1949. The positions and the graphic logs of these bores are shown in the Joint Coal Board Plan BC 16. Private investigators sunk one shaft (still open), and 6 bores in this area, all of which encountered coal. Coal was reported to be in seams up to 33 ft. thick in some of the Joint Coal Board bores and in one bore a total of 120 ft. of coal was logged between the surface and a depth of 208 ft.

The Bureau of Mineral Resources drilled 5 rotary cored bores, as shown on BMR Map N14/109, to 150 ft., 301 ft., 167 ft. 1 in., 202 ft. 8 in. and 131 ft. respectively. The thickest unbanded seam of coal in the 5 bores was 1 ft. 11½ in. The result of drilling was total absence of coal. This may be seen in the attached logs. The sediments were typical of the Upper Coal Measures and in BMR 1 were extremely contorted. It is possible that they were disturbed by the neighbouring Hunter Thrust Fault.

It is evident that the coal thickness encountered by the Joint Coal Board bores was due to either repetition of the beds by faulting, or the bores were drilled through single coal seams which were dipping very steeply. The prospects of finding coal within open cut limits are remote. Coal, unaffected by faults, may be present in the centre of the basin, but only at depths suitable for underground mining. The analyses from the Joint Coal Board bores, however, indicate that the coal is not of a sufficiently high quality to be worked economically by underground methods.



Name and No. of Bore B. M. R. 1. | ITCHLLIS FEET,

	DIS	TRICT	Ce	ssnoc	ck COUNTY Durham PARISH	Sedge	efiel	đ 1	PORTION 1	LOCAT	ION		72540		
	Sur	veyed	by N.	Gorbi	now Survey Method Theod. Traverse	Ele	vation	1	96.1'	Ref	. Map		?.Map		
•	Log	oed by	, M.	Ā.Re	ynolds Cased 7'6"	Do	tum	· · · · · · · · · · · · · · · · · · ·	tandard	Pot	f. Repor	BME	R. Reco	rds 5	3 /46
	Sun	_{k b} Dr	ill,	Corp.	.(Aust.)Pty.Ltd. Type of Drill Mindrill El000	Dei	oth	150'		Dat	te Regn	n/Finisl	1/5	/52 2	L/5/52
-		nated		nated	2,5002		re	Coal	Min. Bands	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			XIMATE		
	De	oth Ins.	Thicl	iness Ins.	GEOLOGICAL DESCRIPTION OF STRATA	Meas	ured Ins.	Sample No.	Included Ft. Ins.	Excluded Ft. Ins.	H.M.	V.	F.C.	ASH	B. TH. U/LB
. –	-7	6	7	6	Sand with some shale lenses	Tt.			Ft. Ins.	rt. Ins.			¦ 		
	19	3½	ıi	9	Greywacke sandstone with shale and silt- stone bands	3	4 6 <u>1</u>								
	2 2	104	3	$6\frac{3}{4}$	Shale dark brown carbonaceous with one greywacke band 3"	3	$6\frac{3}{4}$								
	29	10	6	11 3	Greywacke conglomerate, grey with many vertical fractures and limonitic staining	3	2								
	31	10	2		Shale, black carbonaceous, some thin bright COAL bands, limonite stain	1	3			·					
	32	1		3	COAL dull and bright bdd. pyrite		1								
	32 32 37	10	4	9	Shale black carbonaceous Greywacke with bands of shale, claystone	3	1112			,	1				
		'	-		and siltstone interbedded-carbonaceous		2				1				
		3			pyritic-grey to dark grey		3								
	37	73		4	COAL, mainly bright-powdered due to fracturing		.4								. •
	37	81	,	1 3 3 4	Claystone, dark grey, carbonaceous		2								
	37 38 38 43			$\frac{3^{\frac{3}{4}}}{6}$	COAL, bright-powdery Shale, carbonacebus, dark grey		2 2 2 4 7							1 1 1 1	, etc.
	38	8	4	8	Greywacke, with binds shale and siltstone	4	7				ļ				
	47				grey to dark grey, medium-coarse greywacke										
				•	carbonaceous markings in all		1,								
	43	7		4 5	COAL, mainly bright pyritic Shale, dark grey, carbonaceous		4 3								
	144	2 1/2		2층	COAL. du? pyritic		2½ 6								
	52	$2\frac{1}{2}$ $11\frac{1}{2}$	8	9	Shale with bands greywacke and siltstone	6	6			∤ 					
	43445555555555555555555555555555555555	1	1	01/21/2 61/2	COAL, dull and brightbanded pyritiferous Shale, dark grey carbonaceous		5 10章								
	22	6½ . 5½	1	$\frac{O_{\overline{2}}}{11}$	COAL, mainly bright		7 2						1.		
	61	. 72	3	61/2	Shale, dark grey, carbonaceous with one	3	3 ² / ₂								
.•	61	2		2	band of grey wacke COAL, dull and bright banded		11/2								
•	OT	۷ ا		4	Onthis man banding	١,	- 2								

B. M. R. 1 MITCHELLS FLAT

Page Estimated Estimated Min. Bands PROXIMATE ANALYSIS Core Coal Min. Bands Depth Thickness GEOLOGICAL DESCRIPTION OF STRATA Measured Sample Included Excluded No. H.M. F.C. ASH B. TH. U/LB Ft. Ins. Ft. Ins. Ft. Ins. Biltstone gre/wacke and shale finely interbedded. 11 COAL, dull and bright banded 61/2 8 Shale dark grey carbonaceous with some 114 fine lenses of siltstone and greywacke $6\frac{1}{2}$ Conglomerate fine grained with lenses siltstone Shale dark grey carbonaceous with lenses greywacke 24 Greywacke fine to coardegrained with some 73 carbonaceous material and lenses of siltstone 82 $9\frac{3}{4}$ Claystone, dark grey with coal and sider-93 ite markings 102 Conglomerate, fine grained, rick in carbonaceous material 163 Claystone and shale, dark grey with lenses 1를 of fine grained greywacke COAL dull and bright banded 90 Shale, dark grey, lighly carbonaceous 11 34 COAL dull with bright bands and many thin shale bands. 94 95 96 96 10 Shale dark grey irregular banded 234 4 812 4 COAL dull and bright banded \$hale w. bands of greywacke and coal 42 COAL dull and bright with mineral deposition on fracture planes 73 Siltstone l.gy. grained with irregular 75 bedding. 10 COAL w. shale bands making up to 50% of 3 the core 101 02 Siltstone and shale, dark grey, carbon-03 aceous 0^{1}_{4} 101 13 COAL fractured, powdery 13 10 $9\frac{3}{4}$ Shale and greywacke bands, dark grey. finely banded. 102 114 15 COAL dull and bright pyrites 13 104 $6\frac{1}{2}$ Shale black, carbonaceous, with some bright very fine bands COAL

Page 3.

Name and No. of Bore B. M. R. L. MITCHELLS FLAT.

Estimated Depth	Estin Thiel		GEOLOGICAL DESCRIPTION OF STRATA		ore sured	Coal Sample	Min. Bands Included	Min. Bands Excluded		PRO	XIMATE	ANALY	SIS
Ft. Ins.	Ft.			Ft.	Ins.	No.	Ft. Ins.	Ft. Ins.	H.M.	v.	F.C.	ASH	B. TH. U/LB
104 13 106 102		5 11½	COAL dull and bright banded Shale with intercolated bands siltatone, greywacke and COAL.	1	$11\frac{\frac{1}{2}}{2}$								
108 3	1	41/2	Shale and COAL in up to 2 inch bands - very fractured and stained with limonity	1	11/2								
115 6	7	3	Shale dark grey, carbonaceous with inter- lensing bands of claystone and greywacke	7	3					ļ			
1 15 8		2	COAL, dull and bright banded with 1 band shale		2						Ç		
119 94	4 4	14		2	9 3 4								
125 0	5	3½	Greywacke intercolated with shale, siltstone and some very fine COAL bands, all highly contorted.	5	3½								
1.32 11	7	104	Shale, greywacke, and siltstone, all show- ing carbonace has markings and limonite	7	104								
133 0 138 1	5	1 ¹ / ₂	staining, and all contorted. COAL, with white mineral on joint planes Greywacke, siltstone and shale intermedded dark grey	4	1½ 9								
1.38 5 1		4	COAT, with calcite in bedding and vertical joint planes.		1								
140 6 140 8 150	9	1 <u>1</u> 24	Greywacke logy, fine to medium grained COAL dull and bright banded pyrites Greywacke, fine to medium grained contorted with carbonaceous material and	7	11½ 1½ 7								
			some thin bands dark grey shale. Hole completed.								9.6.	1953.	

B. M. R. 2 MITCHELLS FL AT.

From Pt. of Origin 284 30 / 7816 Sedge field Cessnock -144 Durham LOCATION DISTRICT ... COUNTY PARISH N. Gorbunow. B. M. R. Map N14/109 Theod. Traverse Survey Method ... Surveyed by Ref. Map Elevation ... M. A. Reynolds M. C. Konecki Standard BMR. Records 57/46 Datum Ref. Report Cased Logged by ... Date Begun/Finished 26/5/52-1.2/7/52 Drill Corp.(aust)Pty. 301° Mindrill E 1000 Ltd. Type of Drill Depth Sunk by Estimated Estimated Core Min. Bands Min. Bands Coal PROXIMATE ANALYSIS GEOLOGICAL DESCRIPTION OF STRATA Depth Thickness Measured Sample Included Excluded No. H.M. F.C. ASH B. TH. U/LB Ft. Ins. Ft. Ins. Ft. Ins. Ft. Ins. Ins. 15 15 Sandy clay with some weathered graywacke 11 Claystone light grey to brown with leaf 2 6 10 20 impressions and generally iron stained 26 Greywacke fine to coarse grained with lenses of siltstone and claystone fractured and contorted. 96 122 Greywacke conglomerate light grey medium Ц grained with disseminated carbonaceous material - matrix coarse grained greywacke to fine grained conglomerate (cobble of diam - $2\frac{1}{2}m$) 101 122 104 101 Siltstone, claystone, greywacke and shale finely interbedded. 51 COAL mostly bright, fusinitic bands and 124 pyrites. 127 Greywacke with shale and siltstone bands 3 dark grey with abundant plant remains. COAL bright with thin dull bands 127 127 Conglomerate dark grey, fine grained 04 Sandstone and siltstone interbedded dark grey with plant remains. Greywacke coarse grained Siltstone and shale interbedded with some very thin bright COAL bands - much plant detritus. $\frac{10}{6\frac{3}{4}}$ $1\frac{1}{4}$ COAL, bright, fractured. $8\frac{3}{4}$ Siltstone, shale and greywacke finely 134 142 14 interbedded, rich in plant remains and possible siderite in fractures. 142 COAL bright 144 Greywacke with some siltstone and very fine COAL bands/

Page 2.

Name and No. of Bore B. M. R. MITCHELLS FLAT.

Estimat Deptl		Estim Thick		GEOLOGICAL DESCRIPTION OF STRATA	Co Meas		Coal Sample	Min. Bands Included	Min. Ban Exclude			PROXI	MATE A	ANALYS	SIS
Ft.	1	Ft.	Ins.	design below it of billing	1	Ins.	No.	Ft. Ins.	Ft. I	TT	м. ¬	V. ¦ 1	r.c.	ASH	B. TH. U/LB
144 144 146 147	46711 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2	1 4½ 6	COAL bright and dull bands Siltstone carbonaceous COAL bright and dull bands Siltstone with bands of shale darkgrey carbonaceous COAL bands (lost)	. 2	1 2 1 41/2									•
147 149 1 54	9½ 2 4	1 5	42	Greywacke grey, coarse to very coarse grained. COAL and shale mostly lost Greywacke with bands siltstone and one of shale.	5	な 3½ 2									
154 168	5	13	7	COAL bright Greywacke with bands claystone, siltstone and sandstone. Plant detritus abendant.	12	1 13/4					7				
223	1 11½ 1¾ 7	48 2 4	10 <u>1</u> 2 <u>1</u> 5 <u>4</u>	Greywacke conglomerate (pebble) Greywacke light gray, finely grained COAL and SPLINT Greywacke, fine to coarse grained, light grey.	47 2 4	21/2 101/2 21/4 51/4									
301		77	5	Greywacke conglomerate (pebble) with white soft powdery material (Kaclin) filling occasionally spaces between pebbles.	64	1012									
		20		<u>Fole completed.</u>	To company to the com						9.6.	1953 .			

Name and No. of Bore B. M. R. 3 MITCHELLS FLAT

DIS	TRICT	Ces	snoc	k COUNTY Durham PARISH	Sedg	efield	· F	PORTION 14	13 L	OCAT:	ION 30:	$3^{\circ}\Omega\Omega^{\bullet}$	/521.0!	of Ori	_
Sur	veyed	by N.	Gorb	Survey Method Theod. Traverse	E l	evation	1 65.8	?		Rei	f. Map	B. M. R	Map	N14/10)\$
Log	ged by	м.	C. Ko	necke Cased 19'6"	Da	tum	Standa	rd		Rei	f. Repor	rt BMR	Reco	rds 52	
				(Aust.) Pty.Ltd. Mindrill E 1000	De	pth	167'1'			Da	te Begu	n/Finisl	hed26/	6/52-1	7/7/52
	nated pth	Estim Thick		GEOLOGICAL DESCRIPTION OF STRATA		ore	Coal Sample	Min. Bands Included		Bands uded		PRO	XIMATE	ANALY	SIS
Ft.	Ins.	Ft.	Ins.			Ins.	No.	Ft. Ins.	1	Ins.	H.M.	v .	F.C.	ASH	B. TH. U/LB
5 35	6	5 29	6	Sand, clay and gravel (alluvium) Conglomerate coarse grained pebbly-	20	4									
3 9	0 <u>1</u>	4	01	fractured with possible sandstone lenses. Shale, dark grey carbonaceous with lenses	2	8) 							
3 9	2 1		13	of greywacke. COAL bright w. 1 carbonaceous shale band in middle.		13/4									
39	5		23	Shale carbonaceous silty with bright bands COAL		$2\frac{3}{4}$:
39	<u> 9</u> 3		43	COAL bright and dull banded		43/4		,							
39 39 40	1]		11	Siltstone grey hand		14									
40	1]. 1343 24		1	COAL bright, cleated and fractured Shale carbonaceous with very bright bands COAL.		434 1432 24 1									
40	3 0 2 8 8 8		1	COAL bright and dull banded		1							,		}
行 行 行 70	0년 2 ^종		2 <u>1</u> 21	Shale carbonaceous with bands bright COAL COAL bright and dull (shaly) interbedded		61			j						
41	81/4		5 2 5 2	Shale carbonaceous slickensided with plant		1 6141 2512 512									
41	9 3		14	detritus pyrites COAL bright and dull (shaly) interbedded		11									
41 42 44 44 46 52	95000000000000000000000000000000000000		$7^{\frac{1}{2}}$	Shale as above		11/2 7/2 61/4									
43	04 23	1	7	COAL with bands of shaly coal, bright Clayshale brown to grey tuffaceous											
11/1	63/4	-	7	COAL bright and shaly in bottom \(\frac{1}{4}\)"		11									
46	6	1	114	Greywacke light grey fine grained	1	114									
46	7½	_	• 11	COAL bright	1.	11½ 1½ 8½			1						
52 55	4 0 1	5 2	8 <u>1</u> 81	Greywacke with one band siltstone Glaystone and shale carbonaceous, silty	4	8 ½ 2									
_		_	02	with stringers of COAL at various angles		-									
55 60	5½ 5½	_	5	COAL mostly bright	_	1									
60	りを	5		Greywacke light grey fine grained	5									,	

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Name and No. of Bore B. M. R. 3 MITCHELLS FLAT.

•										 					
	imate Dep th			nated cness	GEOLOGICAL DESCRIPTION OF STRATA	Co Meas		Coal Sample	Min. Bands Included	Min. Bands Excluded		PRO	XIMATE	ANALY	SIS
	II		Ft.		GEORGE ENDING OF BITTAIN		Ins.	No.	Ft. Ins.	Ft. Ins.	H.M.	v.	F.C.	ASH	B. TH. U/LB
ϵ	50	6 <u>1</u> 1 <u>1</u>		1 7	COAL bright with dull bands Greywacke dark grey coarse grained with carbonaceous siltstone band.		7								
	5 1 56	2	4	10	COAL bright Siltstone grey with clayshale and grey- wecke band.	3	3 ¹ / ₂							·	
6	66 7 7 74	1½ 4½ 10	1	1½ 3	COAL mostly bright Siltstone we irregular carbonaceous bands COAL bright	1	1½ 3								
		0	<u>1</u> 6	5½ 2½	Greywacke light grey fine grained with siltstone bands.	4									
	74 79	4	5	4	CCAL bright Greywacke medium grained grey with bands siltstone and some carbonaceous material.	4	9								
S S	95 96	2	15 1	7½ 2		15 1	2								
11	.8	4	22	2	Greywacke conglomerate (pebble) with lenses of coarse grained greywacke.	s 21	11/2								
12		8	2	4 4		2	3 2								
12		1	1 4	i <u>‡</u>	——————————————————————————————————————	3	71/2								
12	4	7	½ 2 16	4	Greywacke light grey fine to coarse grained Greywacke conglomerate (pebble)	1 2 15	6 2								
34	Η.	9		9	Siderite (?) sandy brownish grey medium to coarse grained with rare pebbles of various rocks.		9								
15	50	3	5	6	Greywacke with some interlensing carbon- aceous siltstome bands.	3	6								
16	7	1	16	10		16	2								
					Hole completed.							2	.6.19	<u>53.</u>	
				Ì							1	1			1

Name and No. of Bore

B. M. R. 4 MITCHELLS FLAT.

Dig	TRICT	Cess	en oc	Durham COUNTY PARISH	S e Č	ુ;9fie	ld	ORTION	L43	ON	3130	01/73	40'	
	eyed	N. G	orbu	COUNTY PARISH Survey Method Ecki Cased Cased Cased Type of Drill CENTRAL COUNTY PARISH Theodolite Trave Mindrill E 1000	rse Ele	vation	160.	,61	Rof	Man			an Nl	
	rod he	M, C.	Kor	iecki 27	Do	tum	Stan					R. Rec	ords	5 3/ 46
	ged by	rill	Corp	o.(Aust.)Pty.Ltd. Mindrill E 1000	Da		202*8"	1	Tel	. Itepor	/T3!:-1	, 24/	7/52-	21/8/52
	c by			Type of Drill	Dej	ptn	~ .			e Begui	11/ F 1111S1	ieu		· · · · · · · · · · · · · · · · · · ·
Estim Dep	ated th	Estimat Thickne	ed	GEOLOGICAL DESCRIPTION OF STRATA	Co Meas	ured	Sampie	Min. Bands Included	Min. Bands Excluded			1	ANALY	***************************************
Ft.	Ins.	Ft. I	ns.		Ft.	Ins.	No.	Ft. Ins.	Ft. Ins.	H.M.	V .	F.C.	ASH	B. TH. U/LB
15		15		Sandy clay and gravels										
25		10		Sandstone with clayshale and grey weather- ed.		9월			s					
27	11/2	22	1#	Greywacke fine-coarse grained weathered	1	4								
	_			in part with carbonaceous bands,		•								
28	21/2	1	1	Conglomerate fine fractured with limonite staining.		7								
37	10	9	75	Shale dark carbonaceous and lenses of	4	83					·			
			٦	conglomerate.		1								
42	. 6	4	8	Greywacke dark grey, carbonaceous coarseo	2	11								
44	10	2),	fine grained with carbonaceous bands. Claystone dark grey carbonaceous with	1	6								
-1-4		-	7	band greywacke.	7									
56	7	11	9	Greywacke, medium-coarse grained carbon-	8	7‡								
58	9 1	2	2	aceous with bands of siltstone and shale COAL bright (possibly with carbonaceous		2					-	•		
٥	72	ے	22	shale bands).		2								•
59	42		7	Claystone light greenish grey, tuffaceous		7								
FO.	<u>1</u>		٠, ا	with band of shale.		_								
59 74	5 <u>1</u> 10 <u>1</u>	15	5	COAL bright Greywacke fine-crec-grained light grey	14	8								
,	02			with bands of shale and siltstone these										
				two dark grey carbonaceous with some		-								
99	113	25	ı	siderite in cracks and fractures. Siltstone dark grey-black carbonaceous	23	3						ļ		
22	2	ر ــ	-	with bands of fine-coarse grained greywack	_	اد			1					a de la companya de La companya de la co
				and one band conglomerate.			•	:						·
117	$3\frac{1}{2}$	17	4	Greywacke grey, fine-coarse grained with	17	0 1			-					
				lenses of conglomerate and carbonaceous siltstone dark grey.			•							
118	101	1	7	Siltstone dark grey	1	6								
				* *										

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Name and No. of Bore B. M. R. 4 MITCHELLS FLAT.

-	Estima Depi		Estin Thick		GEOLOGICAL DESCRIPTION OF STRATA		ore sured	Coal Sample	Min. Bands Included	Min. Bands Excluded		PRO	OXIMATE	ANALY	SIS
_	Ft.		Ft.	Ins.		1	Ins.	No.	Ft. Ins.	Ft. Ins.	н.м.	v.	F.C.	ASH	B. TH. U/LB
	123	91/2	4	11	Greywacke grey, fine-coarse grained with lenses siltstone carbonaceous.	4	11								
	125	1	l	3 1	Siltstone carbonaceous with plant detritus	1	35								
	133	9	8	8	Greywacke dark, fine-coarse grained with	7	$3\frac{1}{2}$ $3\frac{1}{2}$								
					siltstone and claystone bands.										
	135	$7\frac{1}{2}$	1	$10\frac{1}{2}$	Siltstone, dark grey, with irregular bands	1	$10\frac{1}{2}$								
	71.O	0.1	~	-	and lenses of fine grained greywacke.	6	7								
	142	81/2	7	1	Greywacke coarse-very coarse grained with	6	7								
	143	11	1	21	bands dark grey carbonaceous siltstone. Siltstone carbonaceous with a thin band	ד	$2\frac{1}{2}$! .				
	±4J	4.4.	-1-	~2	clay ironstone.		-2				,				
	155	10	11	11	Greywacke madium-coarse grained with	11	8								
					irregular stringers of siltstone which	İ									
					are in places almost vertical.	_									
	158	12	2	32	Siltstone with bands of greywacke and	1	3			1	1 ,				
	760	7.01	1.		clay ironstone.	,,	9			and the second					
	162	101	[]t	9	Greywacke, 3. grained with lenses of siltstone.	4	9			4					
	165	7	2	21	Siltstone, shale, claystone, black carbone	2	$2\frac{1}{2}$								
	 0)	-	_	-2	aceous with abundant plant detritus.			,							
`	172	5	7	4	Greywacke grey, medium-coarse grained with	7	4				* *.				
					a lense of siltstone. The whole fractured									İ	
		_	_		and slickensided.		0			1.75					
	174 176	1	Ţ	8	Siltstone, dark grey, carbonaceous	2	8 6 1		1.57		-4-				
	187	1 72 82	1 2 11	. 1	Greywacke, conglonerate, fine fractured Greywacke, coarse, grey with bands of	10		1							
	701	2	<u> </u>	. 4	carbonaceous siltstone and plant detritus	1	2		3	25					
	187	10		14	COAL bright, with cleat, finely veined		11/2	·			A.50				
					with white material.		_		,		13,41				
	188	8		10	Greywacke, fine grained, dark grey, with		10								
	700	0 1		1	carbonaceous siltstone.		1								
	188 189	81		ρ ²	COAL bright Greywacke, coarse-fine grained, dark grey,		8 ¹ / ₂		,						
	±09	42		0	friable				·		 				
	191	6	2	1성		2	1 1/2				Ì				• .
	193	5 1	ī		Greywacke, medium-coarse grained with	1	1½ 3½			and the second	[
		-		-	irregular intercolations of dark grey		_				}				
					siltstone.				1.						
				1	•	}			i		1	1		Į.	

Page 3.

Name and No. of Bore B. M. R. 4 MITCHEILS FLAT.

rage	,	······	CECLOCICAL DESCRIPTION OF STRATA			anie anu N	,					D.D.C.			
Estimated Depth	Thic	nat ed kness	GEOLOGICAL DESCRIPTION OF STRATA		ore sured	Coal Sample	Min. B Includ		Min. I Exclu	ıded	77.35		,	ANALY	
Ft. Ins.	Ft.	Ins.		Ft.	Ins.	No.	Ft.	Ins.	Ft.	Ins.	H.M.	v.	F.C.	ASH	B. TH. U/LB
196 11	3	6	Siltstone dark grey, carbonaceous with	3	6										
·			stringers of COAL, claystone and greywacke some tuffaceous material.												
197 2	1	3	COAT, bright with thin bands of carbonageous		3		•					,			
		- 1	ciltatone and fine veins of white material.		114										
198 2		TIŻ	Siltstone, dark grey carbonaceous with plan- remains.		_										
200 3	2	1	Greywacke medium to coarse grained, grey wi an 8" lense of carbonaceous siltstone in the	th 2 e	1										
			middle		4						j				
20 3 8	2	5	Carbonaceous siltstone, dark grey, with planteritus.	.10	4						}				
															•
			Hole completed.												
						•									•
												9.6.	1953.		
			·												
														•	
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			·												

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Name and No. of Bore B. M. R. 5 MITCHELLS FLAT.

Survey	ed k	b у _М (forbi	COUNTY Durham PARISH	Ele	vation	206.71			Ref	. Map	В. М.	R. Ma	p N14	/109
Logged	by.	M	C. Ko	necki Cased 17 ft.	Dat	tum	Standa	ırd		Ref	. Repor	tBME	Reco	rds 5	3 /46
Sunk b	y D	rill	Cor	p. (Aust.) Pty.Ltd ype of Drill Mindrill E. 1000	Der	oth	131			Dat	e Begui	n/Finisl	ned 28/	7/52-	23/8/52
Estimate Depth	đ	Estim Thick		GEOLOGICAL DESCRIPTION OF STRATA	Co Meas		Coal Sample	Min. Bands Included	Min. Ba			PRC	XIMATE	ANALY	SIS
Ft. In	s.	Ft.	- 1		i	Ins.	No.	Ft. Ins.	Ft.	- 1	H.M.	v.	F.C.	ASH	B. TH. U/LB
5 7 32	6	5 2 25	6	Soil, with some weathered greywacke Shale greeny-grey, tuffaceous Conglomerate, fine grained, in places nearer coarse greywacke.	9	3 7 8						•.		i indicator	
36 41	7=	3 5	6 7 _호		4	4						'		*	
49	2	7	6 <u>1</u>	Greywacke conglemerate with bands carbon- aceous siltstone.	6	10									
49 72	4 3	22	2 11	COAL Greywacke, fine-coarse grained, greenish- grey with some very fine lenses of carb- onaceous claystone and clay ironstone	21	11		·							
74 76	2 LO	2	11 8 <u>1</u>	Clayshale ? (soft washed away) Greywacke, fine-coarse grained with bands siltstone carbonaceous.	2	81									
77	LO	1	0	Siltstone dark grey with some thin bands COAL.	l	0			:						
83	5	5	7	Greywacke, fine-medium grained with some bands siltstone.	4	1					:	<u>.</u>			
91 :	102	8	5	Siltstone carbonaceous, dark grey, with lenses greywache and one 2" band calcite.	2	11				-					
102	9	10	10½	Greywacke medium-very coarse grained, irregularly interbedded with fine siltstone	8	10									
114 131	9 1	12 16	0 <u>1</u> 31 22	Siltstone with lenses fine greywacke Greywacke, grey, medium-coarse grained with some thin bands siltstone and claystone.	12	0 10 2	<u>:</u>				, .				
			-												