K- FORDING RIVER 83(4)A

328

CONFIDENTIAL

GEOLOGICAL BRANCH
ASSESSMENT REPORT

00 328

APPENDIX 3

DRILLHOLE SAMPLE ANALYSES

i) Proximate Analyses, Sulphur, F.S.I., and Calorific Value Determinations

fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
43.5	44.0		51776	0.5m		54.3			4			
51.0	51.5		51777			49.2			3½			
51.5	52.0		778			19.8			7			
52.0	52.5	comp	779			12.3			7			
52.5	53.0		780			45.0			1½			Ro ONLY
53.0	53.5		781			10.2			6½			
53.5	54.0		782			18.9			7			107
			5177-82		0.7	26.5	23.9	48.9	6	0.46		
67.7	68.2		51783			51.4			2½			
68.2	68.7	comp	784			2.4			6			Ro ONLY
68.7	69.0		785	0.3m		34.6			6½			1.10
			51783-85		0.5	37.2	21.2	41.1	5½	1.00		
72.0	72.5		51786	0.5m		55.3			2			
74.5	75.0		51787			66.4			1			
75.0	75.5		788			74.0			½			
111.5	112.0		51789			53.1			1			
112.0	112.5	comp	790			42.1			1			
112.5	113.0		791			41.3			1			
113.0	113.5		792			71.4			1			
			51789-92		0.2	52.5	14.9	32.4	1	0.34		
20.0	20.5		51765			[illegible]			0			
20.5	21		66			69.1			1			
21	21.5		51767			36.7			5½			
21.5	22	comp	68			15.7			6			Ro ONLY
22	23.0		69			42.6			5			
23.0	23.5		70			12.0			6½			
			51767-70		0.1	27.1	23.4	49.4	6	0.42		
34.7	35.2		51771			41.[illegible]			4½			
35.2	35.7	comp	72			12.3			5½			Ro ONLY
35.7	36.2		73			4.3			8			
36.2	36.7		74			[illegible]			6			
			51771-74		0.2	23.5	25.5	50.8	6½	0.63		
			51775-76		0.3	58.7	15.1	25.9	3	0.44		
43.0	43.5	comp	51775			2[illegible]			3			
43.5	44		51776			54.8			4			

AREA - SOUTH GREENHILLS

PAGE NO. 1 of 1

HOLE NO. RH - 1869

Fordings COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
2.5	3		51726			61.8			0			
12	12.5		51727			16.2			1			
12.5	13.0		51728			36.1			5½			
13.5	14	comp	51729			52.2			3½			Ro ONLY
14	14.5		51730			45.1			3			
			51728-30		0.7	42.8	20.4	36.1	4	0.86		
37.5	38	P/A	51731			25.6			6½			1.02 & 1.00 ave: 1.01
			51731		0.5	36.0	19.8	43.7	6	0.61		
54	54.5	comp	51732			5.6			7½			
54.5	55		51733			14.3			1			
55	55.5		51734			19.6			1			
			51732-33		1.1	11.9	31.6	55.4	7	0.80		
57	57.5		51735			81.1			0			
92.1	92.6		51736			11.3			6½			
92.6	93.1	comp	51737			9.3			7			
93.1	93.6		51738			19.6			6			Ro ONLY
93.6	94.1		51739			6.6			7½			
94.1	94.6		51740			4.1			7			1.06
94.6	95.1		51741			70.8			1			
95.1	95.6		51742			78.3			0			
95.6	96.2		51743			10.5			0			
			51736-40		0.9	10.1	27.5	61.5	7	0.46		
99.2	99.7		51744			20.3			7			
99.7	100.2	comp	51745			6.6			7½			
100.2	100.7		51746			16.6			6½			
100.7	101.2		51747			65.4			1			
101.2	101.7		51748			90.6			0			
101.7	102.3		51749			85.7			0			
102.3	102.8		51750			77.3			0			
			51744-46		1.0	14.2	27.0	57.8	7	0.60		

AREA - S. Grassbills

PAGE NO. 1 of 2

HOLE NO. RH - 1868

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
102.8	103.8		51751	0.5m		86.9			0			
105.0	105.5		51752			85.5			0			
105.5	106.0		53			70.2			1			
116.0	116.5		51754			9.6			7½			
116.5	117.0		55			8.3			6½			
117.0	117.5	compo	.56			11.4			7			
117.5	118.0		.57			10.7			6			RO ONLY
118.0	118.5		.58			7.9			7			
118.5	119.0		.59			11.4			5			
119.0	119.5		.60	0.5m		24.9			6½			1.15 - 1.19
119.5	120.1		61	0.6m		45.5			0			ave: 1.17
			51754-60		0.6	11.6	25.9	61.9	6	0.45		
145	145.5	comp	51762	0.5m		37.5			5			RO ONLY
145.5	146		.63	0.5m		48.9			4½			
			51762-63		0.1	44.2	18.4	37.3	5	0.50		

ROTARY DRILL HOLE SAMPLING RECORD

FORDING COAL LIMITED

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
			51826-28		0.3	32.4	19.3	48.0	3	0.76		
14.9	15.4		51826			34.8			1½			
15.4	15.9	F compo	51827			16.3			5			
15.9	16.4		51828			15.5			2½			
16.4	16.9		51829			68.5			½			
16.9	17.4		51830			51.3			1			
17.4	17.9		51831			21.5			6			
17.9	18.4		51832			21.4			6½			
18.4	18.9		51833			14.7			5½			
18.9	19.4	compo	51834			25.6			5			$\bar{R}_o$ ONLY
19.4	19.9	F	51835			19.6			4			
19.9	20.4		51836			16.4			6			1.22
20.4	20.9		51837			19.9			6			
20.9	21.4		51838			31.9			4			
21.4	21.9		51839			73.8			0			
21.9	22.4		51840			56.9			1			
22.4	23	P/A <	51841		0.3	28.5	22.2	49.0	4½	0.57		
			51831-38		0.5	21.5	21.5	56.5	5½	0.54		
23.5	24	F P/A <	51842			19.3			5½			
24	24.5		51843			55.2			0			
24.5	25		51844			46.5			1			
25	25.5		51845			48.2			1			
25.5	26		51846			56.4			0			
26	26.5		51847			56.8			0			
			51842		0.2	19.5	20.7	59.6	5½	0.50		

BHP COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
3.0	3.5		51793	0.5m		55.2			0			
3.5	4.0		794			55.6			0			
6.0	6.5		51795			23.5			0			
6.5	7.0		796			34.4			0			
						29.0			0			
9.8	10.3		51797			25.4			0			
10.3	10.8		798			6.4			½			
						15.9			½			

AREA - SOUTH GREEN HILLS

PAGE NO. 1 of 1

HOLE NO. RH- 1866

FORDING COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

8·2 8·8 51799 59·7

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
8·8	9·3	P/A <				34·2			5			
9·3	9·8		51801	0·5m		52·5			2			
9·8	10·3	U										
			51800		0·3	34·6	23·9	41·2	4½	0·76		
26·0	26·5		51804	0·5m		36·5			11½			
26·5	27·0	J1 comp	805			79·2			½			
27·0	27·5		806			13·9			3½			
27·5	28·0		807			76·7			1			
			51804-06		0·5	43·7	20·4	35·4	2½	0·53		
44·5	45·0		51808			29·6			6½			Ro ONLY
45·0	45·5	J comp	809			15·0			5½			
45·5	46·0		810			7·6			7½			
46·0	46·5		811			77·0			1			
			51808-10		0·9	17·5	29·3	52·3	6½	0·83		0·97
55·0	55·5	comp	51812			10·6			7½			
55·5	56·0		813			34·1			6			
			51812-13		0·5	22·6	26·7	50·2	6½	0·86		
70·3	70·8	P/A <	51814		0·8	10·0 9·7	29·3	59·9	6½ 6½	0·84		
70·8	71·3		815			63·8			1			
71·3	71·8		816			69·8			1			
71·8	72·3	comp	817			21·8			6½			Ro ONLY
72·3	72·8	L	818			18·7			7			
72·8	73·3		819			28·5			6½			
			51817-19		0·8	23·6	27·4	48·2	6½	0·82		0·99
79·0	79·5	comp	51820			13·1			7			
79·5	80·0		821			24·5			7			
80·0	80·5		822			53·3			2½			
			51820-21		0·9	19·3	24·4	55·4	7	0·86		
87·5	88·0	comp	51912			13·2			7			
88·0	88·5		913			44·1			5½			
			51912-13		0·7	29·0	26·3	44·0	6½	0·74		
119·0	119·5		51914			11·1			7			Ro ONLY 1·07
119·5	120·0	H comp	915			32·6			5			
120·6	121·1		916			10·7			6			
121·1	121·6		917			11·8			6			

AREA SOUTH GREENHILLS PAGE NO of HOLE NO DH- 1865

Fording COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
121.6	122.1	H comp	51918	0.5m		5.7			8			Re only
122.1	122.6		919			11.6			7½			
122.6	123.1		920			45.2			4½			
123.1	123.6		51914-20		1.1	19.0	27.2	52.7	6½	0.43		
138.0	138.5	G H comp	51922			10.0			7½			
138.5	139.0		923			24.0			6			
			51922-23		0.7	16.8	29.3	53.2	7	0.76		

AREA - SOUTH GREENHILLS PAGE NO. 1 HOLE NO. DH 1065

ROTARY DRILL HOLE SAMPLING RECORD

FORDING COAL LIMITED

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	D.T.U. (Actual / a.d.b.)	REMARKS
27.5	28.0	J17 P/A	51701	0.5m		31.4			5½			
28.0	28.5		702			64.4			1			
			51701		0.1	31.5	24.6	43.8	5½	0.62		
32.0	32.5		51703			61.5			3			
32.5	33.0		704			61.1			2			
47.5	48.0	J P/A	51705									
48.0	48.5		706			33.9			4			
			51706		0.2	44.2	19.1	36.5	4	0.56		
67.5	68.0		51707			14.0			7			
68.0	68.5		708			33.5			5			
68.5	69.0	T	709			53.5			2½			
69.0	69.5		710			50.7			2			RO 1.04
69.5	70.0	COMPO	711			21.5			7			ONLY
70.0	70.5		712			17.2			6½			
70.5	71.0		713			27.4			6½			
71.0	71.5		714			19.2			0			
			51707-13		0.2	33.6	22.6	43.6	5½	0.74		
82.0	82.5	Hint?	51715			12.7			7½			RO 1.04
82.5	83.0	COMPO	716			11.4			7			ONLY
			51715-16		0.5	12.6	31.8	55.1	7½	1.12		
84.0	84.5	Hint?	51717			15.6			7			RO 1.02
84.5	85.0	COMPO	718			50.6			2½			ONLY
85.0	85.5		719			33.5			4			
85.5	86.0		720			64.6			1			
			51717-19		0.4	34.0	23.1	42.5	5	1.57		
114.5	115.0		51721			8.2			7			
115.0	115.5		722			7.8			7½			
115.5	116.0		723			11.3			7½			
116.0	116.5		724			7.0			7			
116.5	117.0		725			21.1			5½			RO 1.11
CONT'D	NEXT	PAGE COMPO	etc									ONLY
		CONT'D										

AREA - SOUTH GREENHILLS

PAGE NO 1 of 3

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ROTARY DRILL HOLE SAMPLING RECORD

COAL LIMITED

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
27.5	28.0		51701	0.5m								
28.0	28.5		702									
32.0	32.5		51703									
32.5	33.0		704									
47.5	48.0		51705									
48.0	48.5		706									
67.5	68.0		51707									
68.0	68.5		708									
68.5	69.0		709									
69.0	69.5		710									
69.5	70.0		711									
70.0	70.5		712									
70.5	71.0		713									
71.0	71.5		714									
82.0	82.5		51715									
82.5	83.0		716									
84.0	84.5		51717									
84.5	85.0		718									
85.0	85.5		719									
85.5	86.0		720									
114.5	115.0		51721									
115.0	115.5		722									
115.5	116.0		723									
116.0	116.5		724									
116.5	117.0		51725									
117.0	117.5	COMPO	51926			5.4			1			
117.5	118.0		927			5.6			7			
118.0	118.5		928			13.7			5			
118.5	119.0	COMPO	929			9.7			7½			

YOU HAVE THESE.

PLEASE ADD THESE TO BOTTOM

THANK YOU

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
119.0	119.5	CONT'D.	51930	0.5m		11.7			7			
119.5	120.0	H	931			2.5			7			
120.0	120.6		932			12.8			7			
		51721-25	51926-32		0.8	15.3	26.1	57.5	6½	0.44		
142.3	142.8	GM COMPO	51933	0.5		13.1			6½			Ro 1.11
142.8	143.4		934	0.6		15.7			7			ONLY
			51933-34		1.2	14.6	28.2	56.0	7	0.66		

AREA - SOUTH GREENHILLS PAGE NO. 3 of 3 HOLE NO. RH- 1863

Fording COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
9.5	10.0		51951	0.5m		66.9			½			
10.0	10.5		952			31.3			1			
10.5	11.0	COMPO	953			25.2			4½			
11.0	11.5		954			28.7			6			
11.5	12.0		955			15.8			1½			
			51952-55		0.1	23.6	20.8	55.5	7	0.58		
31.5	32.0		51956			54.5			1			
32.0	32.5	COMPO	957			29.5			1			
32.5	33.0		958			31.1			3½			
			51957-58		0.3	30.6	18.0	51.1	2	0.36		
60.0	60.5		51962			25.1			1½			
60.5	61.0		963			18.6			3			
61.0	61.5	COMPO	964			17.4			7			
61.5	62.0		965			21.2			1½			
62.0	62.5		966			38.6			5½			
62.5	63.0		967			14.8			2			
63.0	63.5		968			75.3			½			
			51962-66		0.2	24.2	18.8	56.8	3	0.44		
66	66.5		51970			77.3			½			
66.5	67.0		971			55.4			1½			
67.0	67.5	NO COAL	972			76.4			½			
67.5	68.0		973			86.7			½			
68.0	68.5		974			82.5			0			
68.5	69.0		975			74.1			0			
71.5	72.0		51977			54.3			1			
72.0	72.5	pt D? P/A<	978			37.1			3½			
72.5	73.0		979			80.4			0			
73.0	73.5		980			76.8			½			
73.5	74.0		981			58.3			1			
			51978		0.9	36.6	16.9	45.6	3½	0.38		

AREA - SOUTH GREEN HILLS SAMPLES BY W.H.A. PAGE NO 1 of 2 HOLE NO RH-1862

Fordna COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM (m)	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
2	3		59026			15.6			0			
12	13		59027			21.0			6			
13	14	IGNORE COMPO	59028			15.6			3			
14	15		59029			15.4			2			
15	16	- 2 SMS IN	59030			24.4			5½			
33	34	ONE SAMPLE	59031			18.8			2½			
			59027-31		0.5	19.4	19.8	60.3	3½	0.55		

AREA - South Graffin SAMPLES BY CSR 750 PLAN No. 7 HOLE No. 1012

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
14.5	15.0		51591			11.9			7			
15.0	15.5		.92			6.4			7			
15.5	16		.93			7.2			7			
16	16.5	comp	.94			8.9			6½			Ro ONLY
16.5	17		.95			6.4			7½			
17.0	17.5		.96			6.3			7½			
17.5	18.0		.97			4.6			7½			
			51591-97		0.6	7.7	28.0	63.7	7	0.46		

AREA -

PAGE NO. 1 of 2

HOLE NO. DH- 1961

fording COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
40	40.5		51601			68.4			1			
40.5	41		51602			77.1			0			
41	41.5		51603			57.4			1			
41.5	42		51604			14.2			7			
42	42.5	compo	51605			12.3			6½			$\bar{R}_o$ ONLY
42.5	43		51606			21.4			6½			
			51604-606		0.7	16.5	26.9	55.9	7	0.69		1.09
60	60.5		51607			47.3			4			
60.5	61		51608			14.4			7			
61	61.5		51609			10.5			7			
61.5	62		51610			9.2			7			
62	62.5		51611			13.8			5½			
62.5	63		51612			13.5			7			
63	63.5		51613			8.7			5½			
63.5	64		51614			10.3			5½			
64	64.5		51615			7.2			6			$\bar{R}_o$ ONLY
64.5	65		51616			7.4			6			
65	65.5	compo	51617			9.1			6			
65.5	66		51618			8.2			6			1.13
66	66.5		51619			49.0			2			
66.5	67		51620			17.4			6½			
67	67.5		51621			65.9			1			
67.5	68		51622			49.7			2½			
68	68.5		51607-22		0.5	21.9	24.1	54.0	5½	0.53		
84	84.5		51623			78.6			0			
134.5	135		51624			16.7			7			
135	135.5		51625			8.3			6½			
135.5	136		51651			8.7			6½			
136	136.5		51652			8.6			7½			
136.5	137	compo	51653			9.6			7½			$\bar{R}_o$ ONLY
137	137.5		51654			7.5			7			
137.5	138		51655			11.3			7½			1.17
138	138.5		51656			22.4			4			
		51624-25;	51651-56		0.3	13.6	24.2	61.9	6½	0.54		

AREA - S. Greenhills

PAGE NO. 2 of 2

HOLE NO. RH- 1961

which hole?

missing page 1 of 3 for RH-1860

FORDING COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
		cont'd										
106	106.5		51583			9.0			7½			
106.5	107		51584			13.2			7			
107	107.5		51585			20.5			5½			
			51583-85		0.1	23.3	24.1	52.5	7	0.55		
136.5	137	F3 P/A	51586			31.7			6			
					0.1	32.1	21.3	46.5	6	0.60		
137.5	138	F2	51587			52.6			2			
13.0	13.5	G4	51588			6.8			7			
13.5	14.0	compo	89			27.2			5½			
14.0	14.5		90			48.9			5½			
			51588-90		0.2	27.1	24.1	48.6	6	0.62		

ROTARY DRILL HOLE SAMPLING RECORD

COAL LIMITED

FORDING RIVER OPERATIONS

FROM (m)	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
8.0	9.0	f1 RA <	55026			22.5			1½			
					0.6	23.0	20.1	56.3	1½	0.56		
38.0	39.0		55027			25.9			3			
39.0	40.0		55028			19.2			2½			
40.0	41.0	comp	55029			23.6			1½			Ro Ro ONLY
41	42	f2	55030			14.7			2			
42	43		55031			31.9			3			1.21
			55027-31		0.4	25.3	20.3	54.0	2½	0.40		
49	50	f3 P/A <	55032			24.1			2½			
					0.4	24.6	18.7	56.3	3	0.66		
78	79		55033			63.1			0			
79	80		55034			51.1			0			
80	81		55035			61.5			0			
81	82		55036			45.1			1½			
82	83		55037			42.5			½			
			55032-37			53.0			0.5			

AREA - South Greenhills

PAGE NO. 1 of 1

HOLE NO. RH-1859

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
13.5	14.0		59504	0.5m		—	no sample		—			
78.0	78.5		59505			19.3			1½			
78.5	79.0		.506			19.3			2			
79.0	79.5		.507			24.2			3			
79.5	80.0		.508			14.2			2½			
80.0	80.5		.509			8.1			6			
80.5	81.0		.510			22.7			1½			
81.0	81.5		.511			15.6			2			
81.5	82.0		.512			6.3			3½			
82.0	82.5		.513			12.7			2½			
82.5	83.0		.514			12.9			4			
83.0	83.5		.515			7.9			4½			
83.5	84.0	R4 compo	.516			16.5			3½			
84.0	84.5		.517			25.7			2½			
84.5	85.0		.518			39.5			3½			
85.0	85.5		.519			13.6			4			
85.5	86.0		.520			24.2			4			
86.0	86.5		.521			7.5			4½			
86.5	87.0		.522			11.6			3			
87.0	87.5		.523			16.6			4½			
87.5	88.0		.524			19.4			6½			
88.0	88.5		59525			13.3			4½			
88.5	89.0		59551			16.2			3½			
89.0	89.5		.552			28.5			3½			
89.5	90.0		.553			23.8			5½			
90.0	90.5		.554			87.9			0			
90.5	91.0		.555			26.9			3½			
91					0.4	20.6	18.4	60.6	3½	0.22		
93.0	93.5		59558			83.8			0			
93.5	94.0		.559			87.9			0			
					0.5	25.6	16.7	57.2	4½	0.44		
105.0	105.5	R3 compo	59560			27.5			4			
105.5	106.0		.561			23.0			5			
106.0	106.5		.562			70.9			½			
106.5	107.0	PIA	.563			31.0			4½			
				D.	0.3	31.5	15.0	53.2	4½	0.46		

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 1

HOLE NO. RH- 1983

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
						25.9			8			
15.0	15.5	P/A	56851	0.5m	0.4	25.7	19.7	54.0	3	0.48		
15.5	16.0		852			64.6			½			
16.0	16.5		853			37.6			1			
16.5	17.0		854			38.8			5½			
17.0	17.5		855			36.1			6½			
17.5	18.0		856			33.4			7			
18.0	18.5		857			71.7			1½			
18.5	19.0		858			70.9			1			
19.0	19.5		859			37.0			5½			
19.5	20.0	RT	860			31.2			3½			
20.0	20.5	Compo	861			24.7			2			
20.5	21.0		862			24.2			2½			
21.0	21.5		863			21.2			7½			
21.5	22.0		864			28.5			6½			
22.0	22.5		865			17.1			2			
22.5	23.0		866			13.8			3½			
23.0	23.5		867			14.6			2½			
23.5	24.0		868			15.0			7½			
24.0	24.5		869			58.2			16			
24.5	25.0		870			62.4			3			
					0.4	33.4	18.7	47.5	6	0.41		
					0.4	38.4	17.3	43.9	6	0.43		
32.0	32.5	RTL ? P/A	56873			38.0			6			
32.5	33.0		874			66.4			1			
58.6	59.1		56826			55.7			3½			
59.1	59.6		827			56.4			3			
59.6	60.5		828			59.2			1½			
60.5	61.0		829			69.3			1			
61.0	61.5		830			70.8			½			
61.5	62.0		831			79.3			0			
62.0	62.5		832			28.6			1			
62.5	63.0	compo	833			41.1			1			
63.0	63.5	RSH	834			25.4			7			
63.5	64.0		835			42.2			5½			
64.0	64.5		836			87.9			0			
					0.4	34.0	18.7	47.5	6	0.41		

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 2

HOLE NO. RH-1979

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
88.5	89.0		• 56837			51.7			3			
89.0	89.5		• 838			84.6			0			
90.5	91.0		• 56839			60.5			1½			
91.0	91.5		• 840			15.6			1½			
91.5	92.0		• 841			12.2			1½			
92.0	92.5		• 842			43.6			1			
92.5	93.0	RSL P/A <	• 843			27.4			3			
93.0	93.5				0.3	27.1	17.4	55.2	3	0.43		

AREA - KILMARNOCK CREEK

PAGE NO. 2 of 2

HOLE NO. RH-1979

FORDING COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
17.0	17.5	R3 COMPO	• 56779	0.5m		21.8			4			
17.5	18.0		• 780			22.4			5			
18.0	18.5		• 781			59.8			1			
18.5	19.0		• 782			47.2			2½			
			56779-80		0.2	22.0	19.2	58.6	4½	0.38		
26.0	26.5		• 56783			63.5			1			
26.5	27.0		• 784			24.9			6			
27.0	27.5		• 785			15.0			6½			
27.5	28.0	R2 COMPO	• 786			16.0			5½			
28.0	28.5		• 787			22.7			7½			
28.5	29.0		• 788			10.0			8			
			56784-788		0.6	18.1	21.6	59.7	7	0.47		
31.5	32.0		• 56789			29.7			6			
32.0	32.5	R1 COMPO	• 790			41.7			4			
32.5	330		• 791			44.9			4½			
33.0	33.5		• 792			64.2			1			
			56789-92		0.3	38.8	16.6	44.3	4½	0.37		
69.5	70.0		• 56798			67.9			1			
70.0	70.5		• 56793			71.2			1			
70.5	71.0	? COMPO	• 794			27.5			4			
71.0	71.5		• 795			48.4			2½			
71.5	72.0		• 796			72.9			1			
72.0	72.5		• 797			45.4			1½			
			56794-95		0.3	38.4	17.6	43.7	3	0.31		

AREA - KILMARNOCK VALLEY

PAGE NO. 1 of 1

HOLE NO. RH- 1978

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
				0.5m								
67.0	67.5	P/A	59367			13.7			3½			
67.5	68.0		.368			63.7			½			
68.0	68.5		.369			53.1			1			
68.5	69.0		.370			35.4			2			
69.0	69.5		.371			47.3			1			
69.5	70.0		.372			42.2			1			
70.0	70.5		.373			85.5			5			
70.5	71.0		.374			78.4			0			
			59367		0.7	14.2	19.7	65.4	3	0.27		
84.0	84.5		59375			—	no sample		—			
84.5	85.0		59417			48.8			1			
85.0	85.5		.418			75.1			1			
85.5	86.0		.419			72.3			1			
108.5	109.0		59420			19.9			4			
109.0	109.5		.421			18.6			6			
109.5	110.0		.422			31.4			1½			
110.0	110.5		.423			23.3			3½			
110.5	111.0		.424			32.9			1			
111.0	111.5	R7	59425			15.4			6½			
111.5	112.0		59388			21.2			3			
112.0	112.5		.389			14.4			1½			
112.5	113.0	comp	.390			30.1			1			Ro only
113.0	113.5		.391			31.3			5½			
113.5	114.0		.392			65.6			1			1.26
114.0	114.5		.393			24.8			1½			
114.5	115.0		.394			30.9			5			
115.0	115.5		.395			17.2			5			
115.5	116.0		.396			31.1			3½			
116.0	116.5		.397			43.5			4			
116.5	117.0		.398			19.9			2½			
117.0	117.5		.399			13.5			4½			
117.5	118.0		.400			22.8			1½			
118.0	118.5					28.4			1			
		59420-25;	59388-400		0.5	27.5	20.0	52.0	3	0.30		
120.5	121.0		56876			—	no sample		—			
121.0	121.5	comp	56877			23.3			3½			

AREA KILMARNOCK CREEK

PAGE NO. 1 of 2 HOLE NO. RH-1977

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
121.5	122.0	comp	56878	0.5m		26.1			3½			
122.0	122.5		879			25.3			2			
122.5	123.0		880			23.6			1½			
123.0	123.5	RJL	881			13.9			5½			
123.5	124.0		882			12.5			3			
124.0	124.5		883			31.5			1			
124.5	125.0		884			67.5			2			
			56877-82		0.7	21.0	22.5	55.8	3	0.33		
126.0	126.5		56885			65.7			1			
126.5	127.0		886			81.0			½			
127.0	127.5		887			37.9			1			
127.5	128.0		888			26.1			1			
128.0	128.5		889			30.2			1½			
128.5	129.0		890			11.1			7			
129.0	129.5	comp	891			21.5			3½			
129.5	130.0		892			44.1			3			
130.5	131.0		893			45.7			3½			
131.5	132.0		894			—	no sample		—			
132.0	132.5		895			51.4			4			
132.5	133.0		896			49.4			1			
133.0	133.5		897			—	no sample		—			
			56889-95		0.3	34.5	21.1	44.1	3½	0.31		
136.0	136.5		56898			9.3			6½			
136.5	137.0	comp	899			12.3			7			
137.0	137.5		900			33.3			4			
			56898-900		0.4	18.8	20.2	60.6	6	0.46		
138.0	138.5		56901			64.9			1½			
138.5	139.0	??	902			9.9			7			
138.5	139.0	?? comp	903			17.2			6½			
139.0	139.5		904			49.2			5½			
139.5	140.0		905			19.3			7			
			56902-05		0.4	24.4	21.3	53.9	6	0.52		

AREA - KILMARNOCK CREEK

PAGE NO. 2 of 2

HOLE NO. RH- 1977

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
14.5	15.0		• 51880	0.5m		14.5			6½			
15.0	15.5		• 51881			16.5			5			
15.5	16.0		• 882			15.5			6½			
16.0	16.5		• 883			17.2			3½			
16.5	17.0	RSL	• 884			46.8			1			
17.0	17.5	COMPO	• 885			12.7			1			
17.5	18.0		• 886			11.0			1			
18.0	18.5		• 887			30.0			2			
18.5	19.0		• 888			62.8			0			
19.0	19.5		• 889			26.0			3			
19.5	20.0		• 890			37.6			4½			
			51880-90		0.3	26.5	18.5	54.7	3	0.49		
		COMPO 1			0.6	24.1	18.1	57.2	3½	0.30		
95.5	96.0		• 51891			44.9			1½			
96.0	96.5		• 892			20.0			5			
96.5	97.0		• 893			20.8			1			
97.0	97.5		• 894			45.5			1			
97.5	98.0		• 895			16.7			2			
98.0	98.5		• 896			21.8			1½			
98.5	99.0	COMPO 2	• 897			18.4			1½			
99.0	99.5		• 898			10.8			5			
99.5	100.0		• 899			12.3			5			
100.0	100.5		• 51900			11.1			2½			
100.5	101.0		• 51851			7.7			1½			
101.0	101.5	RA COMPO 1	• 852			9.3			3			
101.5	102.0		• 853			48.1			1			
102.0	102.5		• 854			44.9			1			
102.5	103.0		• 855			33.1			4½			
103.0	103.5		• 856			24.8			5			
103.5	104.0		• 857			44.1			1			
104.0	104.5		• 858			55.8			1			
104.5	105.0		• 859			12.0			7			
105.0	105.5		• 860			10.3			7			
105.5	106.0	COMPO 3	• 861			19.9			5½			
106.0	106.5		• 862			16.9			5			
106.5	107.0		• 863			10.1			3			
107.0	107.5		• 864			15.5			5			
107.5	108.0		• 865			14.1			5			
108.0	108.5		• 866			18.6			3½			
108.5	109.0		• 867			15.8			6½			
			COMPO 2		0.5	19.5	18.1	61.9	2	0.36		
			COMPO 3		0.3	21.7	19.7	58.3	4½	0.36		

HOLE NO. RH- 1976

ROTARY DRILL HOLE SAMPLING RECORD

BHP COAL LIMITED

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
112.5	113.0		• 51868	0.5m		44.8			2½			
131.0	131.5	compo	• 51869			28.5			3½			
131.5	132.0	R3	• 870			34.5			3½			
132.0	132.5		• 871			68.8			1			
132.5	133.0		• 872			68.1			1			
133.0	133.5		• 873			41.5			5			
			51869-70		0.4	31.6	16.7	51.8	3½	0.54		
139.0	139.5		• 51875			26.3			6			
139.5	140.0	compo	• 59176			7.3			7½			
140.0	140.5	R2	• 177			9.7			7½			
140.5	141.0		• 178			41.1			1			
141.0	141.5		• 179			41.6			1			
			51875, 59176-177		0.5	13.9	21.8	63.9	7½	0.51		
146.5	147.0	R1 compo	• 59180			24.8			4½			
147.0	147.5		• 181			14.7			6½			
			59180-81		0.5	19.9	20.7	59.4	6	0.48		

HOLE NO. RH- 1976

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
36.5	37.0		• 59182	0.5m		45.3			1			
37.0	37.5		• 183			27.0			2½			
37.5	38.0		• 184			19.1			3			
38.0	38.5	R7u compo	• 185			31.0			3			
38.5	39.0		• 186			45.0			2½			
39.0	39.5		• 187			46.0			2			
39.5	40.0		• 188			44.1			3			
40.0	40.5		• 189			58.3			2½			
40.5	41.0		• 190			38.3			4			
41.0	41.5		• 191			73.4			½			
41.5	42.0		• 192			57.8			3½			
			59182-88		0.4	37.3	16.8	45.5	2½	0.45		
49.0	49.5	* 43.5 to 52.8 on log	• 59193			27.1			2			
49.5	50.0		• 194			25.3			4			
50.0	50.5		• 195			27.3			1½			
50.5	51.0		• 196			26.2			4			
51.0	51.5		• 197			44.7			2½			
51.5	52.0		• 198			12.3			7			
52.0	52.5		• 199			12.1			6½			
52.5	53.0	R7 compo	• 59200			35.0			2			
53.0	53.5		• 59153			25.6			2			
53.5	54.0		• 154			25.8			6½			
54.0	54.5		• 155			17.3			6½			PETROGRAPHY
54.5	55.0		• 157			48.9			3½			
55.0	55.5		• 158			31.1			1½			
55.5	56.0		• 159			26.0			5			Ro 1.24
56.0	56.5		• 160			14.5			5			
56.5	57.0		• 161			20.9			6½			
57.0	57.5		• 162			16.0			3½			
57.5	58.0		• 163			14.0			7½			
58.0	58.5		• 164			20.1			6			
		59193-200;	59153-164		0.4	25.4	20.3	53.9	5	0.32		
62.0	62.5	R7L compo	• 59165			49.3			5			
62.5	63.0		• 166			19.9			3½			
			59165-166		0.3	34.8	15.4	49.5	4	0.50		
128.0	128.5		• 59167			70.5			1			
128.5	129.0		• 168			71.3			1			
129.0	129.5		• 169			62.7			1			

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 2

HOLE NO. RH- 1975

COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
129.5	130.0		• 59170	0.5m		76.3			0			
130.0	130.5		• 171			76.1			0			
133.0	133.5		• 59172			80.4			0			
133.5	134.0		• 173			74.5			0			
134.0	134.5		• 174			75.8			0			
134.5	135.0		• 175			83.7			0			
174.5	175.0		• 59251			75.7			1			
175.0	175.5		• 252			83.7			0			
175.5	176.0		• 253			82.3			0			

AREA - KILMARNOCK CREEK

PAGE NO. 2 of 2

HOLE NO. RH-1975

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
10.5	11.0		• 59326	0.5m		61.0			1			
11.0	11.5		• 327			77.2			1			
11.5	12.0		• 328			54.9			2			
12.0	12.5		• 329			49.8			3½			
12.5	13.0		• 330			40.8			5			
13.0	13.5	R7	• 331			26.4			7			
13.5	14.0		• 332			18.0			5½			
14.0	14.5	compo	• 333			17.8			6½			
14.5	15.0		• 334			26.0			3½			
15.0	15.5		• 335			27.0			7			
15.5	16.0		• 336			14.8			6½			
16.0	16.5		• 337			18.7			3			
16.5	17.0		• 338			51.6			4½			
17.0	17.5		• 339			23.6			6			
17.5	18.0		• 340			81.2			5			
			59329-39		0.7	27.9	21.5	49.9	5½	0.39		
23.0	23.5	R7L compo	• 59394			13.4			6½			
23.5	24.0		• 395			22.9			6½			
			59344-45		0.6	18.6	23.4	57.4	6½	0.53		
37.0	37.5		• 59346			71.1			1			
48.0	48.5	???	• 59350			—	no	sample	—			
		R5u NB										
52.0	52.5		• 59349			56.7			1½			
52.5	53.0	???	• 350			—	no sample		—			
72.0	72.5		• 59376			66.2			1			
72.5	73.0		• 377			53.3			2			
77.0	77.5		• 59378			56.8			1			
77.5	78.0		• 379			48.2			2			
78.0	78.5	R5L compo	• 380			9.6			1			

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 2 HOLE NO. RH- 1974

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
78.5	79.0	compo RSL ↓	• 59381	0.5m		14.4			1			
79.0	79.5		• 382			47.3			1			
79.5	80.0		• 383			55.0			1			
			59380-81		0.7	12.3	18.7	68.3	1	0.56		
89.5	90.0		• 59384			51.5			1			

AREA: KILMARNOCK CREEK

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
64.5	65.0		• 59140	0.5m		60.1			2½			
65.0	65.5		• 141			13.1			6			
65.5	66.0		• 142			17.8			6½			
66.0	66.5		• 143			25.0			5½			
66.5	67.0		• 144			17.6			6½			
67.0	67.5		• 145			20.0			5			
67.5	68.0		• 146			18.4			6½			
68.0	68.5		• 147			17.0			7			
68.5	69.0	R7	• 148			10.4			7			
69.0	69.5	compo	• 149			20.0			4½			
69.5	70.0		• 59150			18.5			5			
70.0	70.5		• 59076			22.7			6½			
70.5	71.0		• 077			43.0			3			
71.0	71.5		• 078			35.8			6½			
71.5	72.0		• 079			25.2			3½			
72.0	72.5		• 080			24.8			4			
72.5	73.0		• 081			8.3			6½			
73.0	73.5		• 082			67.9			1			
73.5	74.0		• 083			78.4			½			
74.0	74.5		• 084			76.2			1			
74.5	75.0		• 085			26.1			1			
75.0	75.5	R7L compo	• 086			12.7			7			
75.5	76.0		• 087			24.6			7			
76.0	76.5		• 088			78.5			0			
76.5	77.0	— — P/A <	• 089		0.3	28.2 27.9	20.9	50.6	5 5	0.28		
		59141-150,	59076-81		0.4	21.7	21.9	56.0	5	0.39		
			59086-87		0.4	18.9	23.1	57.6	7	0.57		
85.0	85.5		• 59090			76.1			0			
85.5	86.0		• 091			66.6			1			
86.0	86.5		• 092			75.7			½			

AREA - KILMARNOCK CREEK

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HOLE NO. RH- 1973

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
36.0	36.5		• 59093	0.5m		20.6			5			
36.5	37.0		• 094			19.2			5			
37.0	37.5		• 095			27.0			2			
37.5	38.0		• 096			24.0			5			
38.0	38.5		• 097			16.7			6			PETROGRAPHY
38.5	39.0	COMPO	• 098			13.0			4½			
39.0	39.5	R9	• 099			28.5			3½			
39.5	40.0		• 100			29.1			2			
40.0	40.5		• 101			16.1			3			1275
40.5	41.0		• 102			24.1			1½			
41.0	41.5		• 103			22.3			2½			
41.5	42.0		• 104			49.7			1½			
42.0	42.5		• 105			56.9			2			
42.5	43.0	P/A.	• 106			33.8			6			
43.0	43.5		• 107			52.3			1			
			59093-103		0.6	22.2	21.1	56.1	4	0.39		
			59106		0.5	24.0	18.2	47.3	0	0.34		
55.0	55.5		• 59108			49.6			1			
55.5	56.0		• 109			61.4			1			
86.0	86.5		• 59110			19.6			4½			
86.5	87.0		• 111			10.0			5			
87.0	87.5		• 112			32.1			5			
87.5	88.0		• 113			17.1			6½			
88.0	88.5		• 114			36.4			4½			
88.5	89.0		• 115			43.5			5½			
89.0	89.5		• 116			49.2			3			
89.5	90.0	R7 COMPO	• 117			35.4			1½			
90.0	90.5		• 118			27.6			3½			PETROGRAPHY
90.5	91.0		• 119			23.9			1½			
91.0	91.5		• 120			24.4			2			
91.5	92.0		• 121			16.9			5			
92.0	92.5		• 122			21.9			7			1.205
92.5	93.0		• 123			24.9			2			
93.0	93.5		• 124			15.5			2½			
93.5	94.0		• 59125			18.0			1½			
94.0	94.5		• 59051			11.0			7			
94.5	95.0		• 052			57.0			2½			
		59110-25	59051		0.3	25.0	20.6	54.1	4	0.32		

AREA - KILMARNOCK CREEK

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HOLE NO. RH- 1972

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
97.5	98.0	R7L COMPO	59053	0.5m		24.6			4			
98.0	98.5		054			18.7			5½			
			59053-54		0.6	21.2	22.5	55.7	5	0.52		

AREA - KILMARNOCK CREEK

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HOLE NO. RH- 1972

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
6.5	7.0	compo	• 51935	0.5m		27.2			3			
7.0	7.5		• 936			23.5			5			
7.5	8.0		• 937			54.2			1			
8.0	8.5		• 938			45.7			1			
			51935-38		0.1	25.6	19.8	54.5	4	0.46		
12.5	13.0		• 51939			15.8			6½			
12.5	13.0	SAMPLED?	• 940			—			—			
13.0	13.5		• 941			16.0			6½			
13.5	14.0		• 942			33.9			3½			
14.0	14.5		• 943			25.6			4½			
14.5	15.0		• 944			14.4			6			
15.0	15.5		• 945			19.9			6			
15.5	16.0		• 946			13.0			6½			
16.0	16.5	compo	• 947			11.4			7			
16.5	17.0		• 948			10.7			7			
17.0	17.5		• 949			10.2			7½			PETROGRAPHY
17.5	18.0		• 51950			12.0			7			
18.0	18.5		• 59476			12.4			7			
18.5	19.0		• 477			23.7			5			Ro 1.295
19.0	19.5		• 478			38.1			2			
19.5	20.0		• 479			33.9			6½			
20.0	20.5		• 480			12.1			8			
20.5	21.0		• 481			27.7			6			
21.0	21.5		• 482			13.9			7			
		51939-50;	59476-82		0.2	19.0	22.5	58.3	6	0.51		
47.0	47.5		• 59483			23.3			6			
47.5	48.0	compo	• 484			27.1			6			$\bar{R}_o$ ONLY
48.0	48.5		• 485			26.7			7			
48.5	49.0		• 486			39.3			5½			
			59483-86		0.4	29.3	20.5	49.8	6	0.43		1.24
			59487-95		0.5	16.5	22.1	60.9	4	0.52		
61.0	61.5		• 59487			18.8			5½			
61.5	62.0	R9	• 488			26.6			4½			
62.0	62.5		• 489			10.3			6½			
62.5	63.0	compo	• 491			12.2			5½			$\bar{R}_o$ ONLY
63.0	63.5		• 492			19.5			3½			
63.5	64.0		• 493			15.3			6			1.27
64.0	64.5		• 494			18.5			5½			
64.0	64.5	?? INTERVAL?	• 495			12.7			4½			

AREA - KILMARNOCK CREEK

HOLE NO RH

fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
				0.5m								
116.6	117.1		• 59496			13.8			6			
117.1	117.6		• 497			15.7			4½			
117.6	118.1		• 498			10.6			6			
118.1	118.6		• 499			49.7			3			
118.6	119.1		• 500			17.0			5			
119.1	119.6		• 59451			26.4			4			
119.6	120.1		• 52			19.1			4½			
120.1	120.6		• 53			60.5			3			
120.6	121.1		• 54			29.5			7			
121.1	121.6		• 55			28.3			6			
121.6	122.1		• 56			16.6			5			
122.1	122.6	comp	• 57			23.9			2			
122.6	123.1		• 58			11.9			7½			
123.1	123.6		• 59			8.6			7½			
123.6	124.1		• 60			24.7			3			
124.1	124.6		• 61			9.9			5			
124.6	125.1		• 62			19.3			2			
125.1	125.6		• 63			11.9			6½			
125.6	126.1		• 64			20.4			6½			
		59451-64	59496-500		0.4	22.1	21.7	55.8	5	0.21		
132.3	132.8	comp	• 59465			12.1			5			
132.8	133.3		• 66			10.1			7			
133.3	133.8		• 67			63.5			1			
			59465-66		0.9	11.4	24.7	63.0	6½	0.52		

AREA - KILMARNOCK CREEK

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HOLE NO. RH-1971

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
18.0	18.5	P/A <	• 59270	0.5m		36.1			5½			
18.5	19.0		• 271			51.3			1			
19.0	19.5		• 272			63.5			1			
19.5	20.0		• 273			55.7			1			
			59270		0.5	36.0	18.8	44.7	6	0.59		
27.0	27.5		• 59274			—	no sample		—			
27.5	28.0		• 275			27.1			2			
28.0	28.5		• 59274			—	no sample		—			
28.5	29.0		• 59227			22.4			3			
29.0	29.5	RTu comp	• 228			24.0			5			
29.5	30.0		• 229			69.8			1			
30.0	30.5		• 230			62.6			1½			
30.5	31.0		• 231			35.0			5½			
31.0	31.5		• 232			57.3			4½			
31.5	32.0		• 233			70.8			1			
		59275;	59227-232		0.4	42.4	16.4	40.8	3	0.46		
40.0	40.5		• 59234			62.1			1			
40.5	41.0		• 235			59.1			1½			
41.0	41.5		• 236			58.8			1½			
41.5	42.0		• 237			46.7			1½			
42.0	42.5		• 238			13.4			5			
42.5	43.0		• 239			15.5			3			
43.0	43.5		• 240			23.1			1			
43.5	44.0		• 241			36.3			2½			
44.0	44.5		• 242			55.9			1			
44.5	45.0	RT comp	• 243			21.2			6½			
45.0	45.5		• 244			24.6			7			
45.5	46.0		• 245			42.1			1½			
46.0	46.5		• 246			51.6			1			
46.5	47.0		• 247			22.8			2½			
47.0	47.5		• 248			50.8			1			
47.5	48.0		• 249			46.3			1			
			59238-47		0.6	32.0	17.8	49.6	3	0.43		
54.5	55.0	RTu P/A <	• 59201			33.7			6½			
55.0	55.5		• 202			82.3			0			
55.5	56.0		• 203			70.3			0			
			59201		0.3	33.9	18.2	47.6	6½	0.52		

 HOLE NO. RH- 1970

ROTARY DRILL HOLE SAMPLING RECORD

CCAL LIMITED

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
83.0	83.5		• 59254	0.5m		60.4			2			
83.5	84.0		• 255			37.7			6½			
84.0	84.5		• 256			62.9			1			
84.5	85.0		• 257			32.6			3			
85.0	85.5		• 258			21.8			1½			
85.5	86.0		• 259			12.7			1			
86.0	86.5		• 260			11.4			1			
86.5	87.0		• 261			24.8			1			
87.0	87.5		• 262			—	no sample		—			
87.5	88.0	RO ? (coaly)	• 263			31.5			1			PETROGRAPHY
88.0	88.5		• 264			37.1			1½			
88.5	89.0		• 265			20.0			5½			
89.0	89.5		• 266			20.8			6			RO = 1.33
89.5	90.0		• 267			15.2			7			
90.0	90.5		• 268			25.1			5			
90.5	91.0		• 269			33.3			5½			
			59255-69		0.5	28.0	18.4	53.1	3½	0.40		

AREA - KILMARNOCK CREEK

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HOLE NO. RH- 1969

COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
43.0	43.5		• 51987	0.5m		16.4			5			
43.5	44.0		• 988			24.9			4½			
44.0	44.5		• 989			34.1			5½			
44.5	45.0		• 990			36.5			6½			
45.0	45.5		• 991			36.4			4			
45.5	46.0		• 992			38.2			4½			
46.0	46.5	R7 compo	• 993			22.2			3½			
46.5	47.0		• 994			18.9			4½			
47.0	47.5		• 995			21.3			5½			
47.5	48.0		• 996			22.0			6			
48.0	48.5		• 997			20.6			4½			
48.5	49.0		• 998			22.9			5½			
49.0	49.5		• 999			23.3			5			
49.5	50.0		• 52000			27.7			4½			
50.0	50.5		• 59294			61.9			1			
50.5	51.0		• 295			60.3			1			
			51987-2000		0.1	26.0	21.1	52.7	5	0.36		
54.0	54.5	R7L ~~compos~~	• 59296			30.4			6½			
54.5	55.0		• 298			31.8			6½			
			59296-98		0.1	30.9	19.8	49.2	7	0.47		

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 1

HOLE NO. RH- 1968

ROTARY DRILL HOLE SAMPLING RECORD

CCAL LIMITED

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
52.0	52.5	P/A <	• 59468	0.5m		31.9			5½			
52.5	53.0		• 469			40.7			1			
53.0	53.5		• 470			57.1			1½			
53.5	54.0		• 471			53.4			3½			
			59468		0.3	31.7	18.6	49.4	5½	0.44		
111.0	111.5		• 59472			11.1			5½			
111.5	112.0	RTL	• 473			16.0			6			
112.0	112.5	comp	• 474			42.2			3			
			59472-74		0.3	23.5	20.9	55.3	4½	0.39		
115.3	115.8		• 59475			21.9			3½			
115.8	116.3		• 59276			11.6			5			
116.3	116.8		• 277			12.2			4			
116.8	117.3		• 278			53.3			4½			
117.3	117.8		• 279			16.0			7			
117.8	118.3		• 280			61.7			2½			
118.3	118.8	RT comp	• 281			19.7			6			
118.8	119.3		• 282			23.3			6			
119.3	119.8		• 283			15.7			3½			
119.8	120.3		• 284			21.3			4			
120.3	120.8		• 285			16.2			6			
120.8	121.3		• 286	0.5m		26.1			1			
121.3	121.9		• 287	0.6m		14.9			2½			
121.9	122.4		• 288	0.5m		16.3			3			
122.4	122.9		• 289			19.1			6			
122.9	123.4		• 290			66.1			3½			
		59475;	59276-90		0.3	24.2	20.5	55.0	4½	0.40		
127.0	127.5		• 59291			26.9			5			
127.5	128.0	RTL comp	• 292			34.1			4½			
			59291-92		0.5	30.0	19.4	50.1	5	0.49		
130.0	130.5	P/A <	• 59293			24.7			6½			
					0.2	25.0	21.1	53.7	6½	0.57		

AREA - KILMARNOCK CREEK

PAGE NO 1 of 1

HOLE NO DH 1069

fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
134.0	134.5		.59353	0.5m		35.1			1½			
134.5	135.0		.354			45.1			1			
135.0	135.5		.355			29.0			1½			
135.5	136.0	comp	.356			31.3			6			
136.0	136.5	R5L	.357			51.5			4½			
136.5	137.0		.358			40.4			5			
			59355-58		0.2	37.9	18.6	43.3	5½	0.46		
138.5	139.0	P/A 5	.59359			39.8			5½			
					0.1	40.4	16.0	43.5	5	0.30		

PAGE NO. 1 of 1 HOLE NO. DH- 1965

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
11.0	11.5		• 59433	0.5m		75.8			½			
11.5	12.0		• 434			49.4			1½			
12.0	12.5		• 435			45.3			1			
12.5	13.0	RSL	• 436			31.3			1			
13.0	13.5	compo	• 437			12.9			1½			
13.5	14.0		• 438			17.7			4			
14.0	14.5		• 439			60.6			1			
14.5	15.0		• 440			50.4			2			
			59436-39		0.1	31.8	16.7	51.4	2	0.47		
87.5	88.0		• 59441			20.1			4½			
88.0	88.5		• 442			18.6			3			
88.5	89.0		• 443			5.7			2			
89.0	89.5		• 444			8.0			1½			
89.5	90.0		• 445			11.2			4			
90.0	90.5		• 446			10.5			4			
90.5	91.0		• 447			10.9			3			
91.0	91.5		• 448			11.8			1½			
91.5	92.0		• 449			9.5			3			
92.0	92.5		• 59450			10.2			2½			
92.5	93.0	RH compo	• 59401			17.8			4½			
93.0	93.5		• 402			10.3			4			
93.5	94.0		• 403			8.3			4½			PETROGRAPHY
94.0	94.5		• 404			13.0			4½			
94.5	95.0		• 405			15.4			2			
95.0	95.5		• 406			24.2			2			R_o = 1.31
95.5	96.0		• 407			8.0			6½			
96.0	96.5		• 408			11.4			4			
96.5	97.0		• 409			10.8			5			
97.0	97.5		• 410			10.9			4½			
97.5	98.0		• 411			9.7			5			
98.0	98.5		• 412			11.7			4½			
98.5	99.0		• 413			10.6			6½			
99.0	99.5		• 414			19.3			6			
99.5	100.0		• 415			51.1			½			
		59401-14;	59441-50		0.7	12.7	20.5	66.1	4	0.26		

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 1

HOLE NO. RH- 1064

ROTARY DRILL HOLE SAMPLING RECORD

FORDING COAL LIMITED

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
35.0	35.5		51678	0.5m		28.0			7			
35.5	36.0		• 679			18.9			7½			
36.0	36.5		• 680			21.5			6			
36.5	37.0		• 681			19.6			4			
37.0	37.5	R9 Compo	• 682			15.0			3			
37.5	38.0		• 683			20.7			3			
38.0	38.5		• 684			14.5			2½			
38.5	39.0		• 685			10.7			6			
39.0	39.5		• 686			17.8			4½			
39.5	40.0		• 687			44.0			5			
40.0	40.5		• 688			24.6			6½			
			51689-96		0.4	21.9	21.9	55.8	5	0.48		
		R7u	51682-83		0.4	29.9	18.1	52.6	4½	0.45		
89.0	89.5		51689			17.4			7			
89.5	90.0		• 690			26.3			2½			
90.0	90.5	R7u Compo	• 691			15.4			5			
90.5	91.0		• 692			20.8			6			
91.0	91.5		• 693			52.7			1½			
91.5	92.0		• 694			55.4			3			
92.0	92.5		• 695			40.4			3½			
92.5	93.0	R7	• 696			43.9			4½			
93.0	93.5		• 697			38.5			2			
93.5	94.0		• 698			25.0			4½			
94.0	94.5	Compo	• 699			20.8			2			
94.5	95.0		• 51700			31.2			1			
95.0	95.5		• 51626			12.7			3			
95.5	96.0		• 627			24.5			2			
96.0	96.5		• 628			16.4			2			
96.5	97.0		• 629			19.7			2½			
97.0	97.5		• 630			57.2			1			
		51634-[illegible]	51626-30		0.4	32.4	17.4	49.8	2½	0.35		
101.5	102.0	R7L P/A	• 51631			23.1			6			
					0.5	23.5	20.6	55.4	6	0.49		

AREA - KILMARNOCK

PAGE NO. 1 of 1 HOLE NO. RH- 1963

ROTARY DRILL HOLE SAMPLING RECORD

Fordings COAL LIMITED

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
50.0	50.5		• 51657	0.5m		24.9			3½			
50.5	51.0		• 51658			14.2			4			
51.0	51.5		• 659			12.4			3			
51.5	52.0	Compo	• 660			—	no sample		1			
52.0	52.5		• 661			13.2			2			
52.5	53.0	R9	• 662			14.9			5			
53.0	53.5		• 663			18.2			4			
53.5	54.0		• 664			15.0			4½			Ro only 1.30
54.0	54.5		• 665			8.5			7			
54.5	55.0		• 666			41.7			2			
			51651-66		0.2	18.5	20.5	60.8	4	0.29		
127.0	127.5		• 51676			33.5			2			
127.5	128.0	Compo	• 677			25.1			2			
			51676-677		0.4	30.0	18.4	51.2	2	0.24		

AREA - South Greenhills

PAGE NO. 1 of 1

HOLE NO. DH - 1042

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
40.5	41.0		• 59207	0.5m		26.5			2½			
41.0	41.5	compo	• 208			12.1			1			
41.5	42.0		• 209			9.5			1			
42.0	42.5	R5L	• 210			16.2			1			
42.5	43.0		• 211			45.8			1			
43.0	43.5		• 212			48.4			1½			
43.5	44.0		• 213			53.5			1			
44.0	44.5		• 214			64.6			1			
44.5	45.0		• 215			67.5			1			
			59207-210		0.3	19.0	68.5	62.2	1½	0.46		
108.5	109.0											
109.0	109.5	—	• 59127			16.5			3			
109.5	110.0		• 128			21.4			2			
110.0	110.5		• 129			27.3			1½			
110.5	111.0		• 130			22.8			1			
111.0	111.5	R4	• 131			19.1			2			
111.5	112.0		• 132			15.1			5			
112.0	112.5	compo	• 133			12.5			3½			PETROGRAPHY
112.5	113.0		• 134			11.9			2½			
113.0	113.5		• 135			11.1			3½			R_o: 1.375
113.5	114.0		• 136			13.5			6			
114.0	114.5		• 137			21.7			5			
114.5	115.0		• 138			22.7			4½			
			59127-138		0.6	18.3	14.8	61.5	3	0.35		
									1			
121.0	121.5		• 59139			55.7						

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 1

HOLE NO. RH-1960

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
74.0	74.5		59301	0.5m		17.1			2			
74.5	75.0		302			23.7			2½			
75.0	75.5		303			11.4			5			
75.5	76.0		304			7.7			4			
76.0	76.5		305			13.1			3			
76.5	77.0		306			11.9			4			
77.0	77.5		307			7.1			6			
77.5	78.0		308			13.9			2½			
78.0	78.5		309			13.3			3½			
78.5	79.0		310			11.7			5			
79.0	79.5	RH Compo	311			15.3			4			PETROGRAPHY
79.5	80.0		312			20.6			3½			
80.0	80.5		313			15.9			4			
80.5	81.0		314			14.7			3½			R_o: 1.375
81.0	81.5		315			13.1			5			
81.5	82.0		316			24.8			4			
82.0	82.5		317			11.2			3½			
82.5	83.0		318			27.4			3½			
83.0	83.5		319			14.0			2			
83.5	84.0		320			8.7			4			
84.0	84.5		321			7.9			4½			
84.5	85.0		322			14.6			2			
85.0	85.5		323			10.1			6½			
85.5	86.0		324			11.8			4			
86.0	86.5		59325			37.1			2½			
86.5	87.0		59426			26.4			4½			
		59426;	59301-25		0.3	16.3	20.2	63.2	3½	0.26		
89.0	89.5		59429			63.0			1			
89.5	90.0		430			82.3			0			
90.0	90.5		431			77.3			0			
90.5	91.0		432			84.2			0			

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 1

HOLE NO. RH- 1959

CIGAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
37.5	38.0	R9u COMPO	• 59055	0.5m		32.6			1½			
38.0	38.5		• 056			16.7			2½			
38.5	39.0		• 057			62.2			½			
			59053+56		0.3	25.0	20.8	53.9	2	0.51		
44.0	44.5	R9 COMPO 1 COMPO 2	• 59058			24.5			3			
44.5	45.0		• 059			26.7			1½			
45.0	45.5		• 060			20.8			2½			
45.5	46.0		• 061			11.2			6½			
46.0	46.5		• 062			18.3			4½			
46.5	47.0		• 063			21.3			1½			
47.0	47.5		• 064			11.6			5			
47.5	48.0		• 065			37.4			4½			
48.0	48.5		• 066			63.1			1			
48.5	49.0	COMPO 3	• 067			35.2			5			
49.0	49.5	R9L	• 068			44.9			2			
49.5	50.0		• 069			33.6			4			
50.0	50.5		• 070			60.4			1			
		TOTAL R9	COMPO 1		0.2	29.5	20.9	49.4	3½	0.44		
		R9	COMPO 2		0.3	21.7	22.5	55.5	3½	0.49		
63.5	64.0		• 59071			48.1			2			
		R9L	COMPO 3		0.5	37.5	18.6	43.4	4	0.40		

AREA - KILMARNOCK CREEK.

PAGE NO. 1 of 1 HOLE NO. RH-1958

COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
84.5	85.0	2SEAM	59204	0.5m		71.1			1			
89.5	90.0	1 SEAM	59205			23.9			4½			
90.0	90.5		206			29.4			4½			
			59205-206		0.3	26.2	19.9	53.6	5	0.69		

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 1

HOLE NO. RH-1957

Fordina COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
16.5	17.0		• 51632	0.5m		54.2			1			
17.0	17.5		• 633			33.1			1			
17.5	18.0		• 634			56.4			1			
18.0	18.5		• 635			63.3			1			
18.5	19.0		• 636			50.7			1			
19.0	19.5		• 637			40.0			1			
19.5	20.0		• 638			34.3			1			
20.0	20.5		• 639			68.8			1			
20.5	21.0		• 640			59.8			1			
21.0	21.5	compo	• 641			33.7			1			
21.5	22.0	pt R7	• 642			22.9			5			
22.0	22.5		• 643			65.5			1			
22.5	23.0		644			43.4			2			
			51641-42		0.2	28.8	17.3	53.7	3½	0.48		
30.5	31.0	R7L	• 51645			50.6			1			
31.0	31.5		• 646			77.5			0			
78.5	79.0		• 51647			39.9			1			
79.0	79.5		• 648			45.7			1			
79.5	80.0	R5U Compo	• 649			33.4			1			
80.0	80.5		• 650			17.9			6½			
			51649-50		0.1	26.7	19.2	54.2	4	0.52		
104.0	104.5		• 51376			13.2			6½			
104.5	105.0	R5L	• 377			13.8			5½			
105.0	105.5		• 378			16.1			7			
106.0	106.5	NB AS IN DRILL BOOKS Compo	• 379			35.6			1½			PETROGRAPHY
106.0	106.5		• 380			10.9			1			
106.5	107.0		• 381			15.6			1			Ro 1.3%
107.	107.5		• 382			45.3			1			
107.5	108.0		• 383			43.1			1½			
			51376-81		0.3	17.8	17.9	64.0	3	0.48		
126.0	126.5		• 51384			41.3			1			
			51383-84		0.4	22.2	16.5	53.3	2	0.7		
175.0	175.5		• 51385			28.2			1			
175.5	176.0	R4U	• 386			24.0			6½			
176.0	176.5	CONT'D ↓	• 387			44.0			1			

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 2 HOLE NO. RH-1956

fording COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S.	B.T.U. (Actual / a.d.b.)	REMARKS
176.5	177.0	CONT'D	•51388	0.5m		32.4			1			
177.0	177.5		•51389			20.1			2			
1775	178.0		•390			18.7			2			
178.0	178.5		•391			18.4			2½			
178.5	179.0	R4u CONTD	•392			22.9			3			
179.0	179.5		•393			62.1			1			
179.5	180.0		•394			55.7			1			
180.0	180.5		•395			21.6			3			
180.5	181.0		•396			11.6			1½			
181.0	181.5		•397			27.4			2			
181.5	182.0		•398			13.3			3			
182.0	182.5		•399			55.7			1			
182.5	183.0		•51400			63.8			1			
183.0	183.5		•51351			61.2			1			
183.5	184.0		•352			49.4			1			
184.0	184.5		•353			18.5			4½			
184.5	185.0		•354			20.9			3			
185.0	185.5		•355			34.8			4½			
185.5	186.0		•356			20.1			6½			
186.0	186.5		•357			24.5			5			
186.5	187.0		•358			11.6			3			
187.0	187.5	R4L	•359			22.1			5			
187.5	188.0		•360			14.4			7			
188.0	188.5		•361			21.2			2			
188.5	189.0		•362			30.4			2½			
189.0	189.5		•363			13.3			2			
189.5	190.0		•364			15.8			2½			
190.0	190.5		•365			18.4			1½			
190.5	191.0		•366			14.1			2½			
191.0	191.5		•367			8.1			2½			
191.5	192.0		•368			8.8			4½			
192.0	192.5		•369			16.4			5½			
192.5	193.0		•370			28.8			5			
193.0	193.5		•371			45.4			2			
193.5	194.0		•372			22.6			4			
194.0	194.5		•373			15.9			5½			
194.5	195.0		•374			18.4			5			
195.0	195.5		•375			15.4			5			
etc			etc									
cont												
		CONT'D										

AREA - KILMARNOCK CREEK

PAGE NO. 2 of 3

HOLE NO. RH-1956

CONT'D FROM PREVIOUS TWO PAGES.

ROTARY DRILL HOLE SAMPLING RECORD

FORDING COAL LIMITED

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
195.5	196.0	CONT'D	• 51876	0.5m		14.4			5½			
196.0	196.5		• 877			23.5			5½			
196.5	197.0		• 878			33.2			5			
197.0	197.5		• 879			27.2			3½			
		51873-75,	51876-79		0.4	20.7	18.8	60.1	4½	0.78		

AREA - KILMARNOCK CREEK

PAGE NO 3 of 3

HOLE NO

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
18.5	19		56576			—	no sample		—			
19	19.5		56577			40.1			4½			
19.5	20	RSL comp	56578			30.2			4½			
			56577-78		0.3	36.0	21.5	42.2	4½	0.44		
85	85.5		56579			19.3			3½			
85.5	86		56580			17.7			3			
86	86.5		56581			8.8			3½			
86.5	87		56582			11.0			5			
87	87.5		56583			9.7			4½			
87.5	88		56584			11.7			5			
88	88.5		56585			10.5			5			
88.5	89		56586			10.1			3			
89	89.5		56587			15.5			2½			
89.5	90		56588			10.8			2½			
90	90.5		56589			10.4			5			
90.5	91		56590			11.5			4½			
91	91.5		56591			9.4			3½			
91.5	92		56592			12.7			4			
92	92.5	R4	56593			10.4			4½			
92.5	93	comp	56594			12.6			2½			
93	93.5		56595			9.5			4½			PETROGRAPHY
93.5	94		56596			11.7			5½			
94	94.5		56597			17.6			5½			
94.5	95		56598			19.2			4½			$\bar{R}_o$: 1.365
95	95.5		56599			8.0			3			
95.5	96		56600			11.2			6			
96	96.5		56701			7.5			6½			
96.5	97		56702			9.7			3½			
97	97.5		56703			8.9			½			
97.5	98		56704			14.4			5½			
98	98.5		56705			18.3			2			
98.5	99		56706			11.9			5			
99	99.5		56707			13.8			5½			
99.5	100		56708			15.5			5½			
100	100.5		56709			—	no sample		—			
100.5	101		56710			21.5			4½			
101.5	102		56711			31.8			2			
		56709-710	56709-711		0.5	17.6	19.2	60.7	4	0.33		
103	103.5		56712			57.3			1			

AREA - Kilmarnock Valley

PAGE NO. 1 of 2 HOLE NO. RH-1955

Fordna COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

RH1955

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
					0.5	23.0	17.8	58.7	5½	0.55		
118	118.5	R3 P/a	56713			22.8			5½			
118.5	119		56714			41.2			1			
160.5	161		56715			11.3			7			
161	161.5		56716			9.7			6½			
161	162		56717			12.0			7			
162	162.5		56718			14.8			7			
162.5	163	R2 comp	56719			19.3			3			
163	163.5		56720			12.9			5			
163.5	164		56721			10.3			5½			
164	164.5		56722			12.4			5½			
164.5	165		56723			7.4			4			
165	165.5		56724			6.3			7½			
			56715-24		0.2	12.0	20.4	67.4	6	0.47		
168.5	169		56725			19.4			6½			
169	169.5	R1 comp	56651			15.7			5			
169.5	170		56652			19.1			7			
		56725;	56651-52		0.5	18.3	19.2	62.0	6	0.45		

COAL LIMIT.

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIO..

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
16.5	17.0		59072	0.5m		42.0			1			
17.0	17.5		073			54.8			1			
17.5	18.0		074			50.7			2			
18.0	18.5		075			13.0			2			
		RUN BY CSR 750										

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 1

HOLE NO. RH- 1955

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
20	20.5		56653			37.5			1			
20.5	21	R5u	56654			16.9			½			Petrography
21	21.5	comp	56655			11.0			6			
21.5	22		56656			41.2			5			
			56654-56		0.2	23.4	19.6	56.8	3½	0.49		Ro 1.345
43	43.5	P/A	56657			13.5			7½			
43.5	44	R5L	56658			63.3			1			
			56657		0.2	13.6	22.5	63.7	7½	0.77		
46	46.5		56659			46.4			3			
46.5	47		56660			18.5			7½			
47	47.5	R5L comp	56661			54.6			2½			Petrography
47.5	48		56662			11.2			1			
48	48.5		56663			28.6			3			Ro 1.34
48.5	49		56664			74.4			1			
			56659-63		0.4	32.1	17.3	50.2	3½	0.49		
115	115.5		56665			25.6			1½			
115.5	116		56666			24.1			1½			
116	116.5		56667			18.0			2½			
116.5	117		56668			23.3			3			
117	117.5		56669			17.9			3½			
117.5	118		56670			32.5			1½			
118	118.5		56671			35.4			1½			
118.5	119		56672			19.9			4½			
119	119.5		56673			23.7			4			
119.5	120	R4	56674			13.3			3			
120	120.5	comp	56675			23.5			3½			
120.5	121		56601			21.3			4½			Petrography
121	121.5		56602			12.1			6½			
121.5	122		56603			10.2			5			
122	122.5		56604			12.5			4			Ro 1.375
122.5	123		56605			16.3			3			
123	123.5		56606			22.0			2			
123.5	124		56607			37.5			1			
124	124.5		56608			42.7			1			
124.5	125		56609			35.0			1			
125	125.5		56610			27.6			1½			
125.5	126		56611			19.3			1½			
126	126.5		56612			25.7			2			

AREA - Kilmarnock Valley

PAGE NO. 1 of 2

HOLE NO. RH- 1954

COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	D.T.U. (Actual / a.d.b.)	REMARKS
126.5	127		56613			22.7			3			
127	127.5	R4 comp	56614			19.3			3½			PETROGRAPHY
127.5	128		56615			23.2			4			
128	128.5		56616			23.3			3½			
128.5	129		56617			35.1			4½			
		56601-17;	56665-75		0.4	24.6	18.4	56.6	3	0.27		
144.5	145		56618			22.2			6			
145	145.5	R3	56619			26.9			5			
145.5	146		56620			15.1			6½			
			56618-20		0.6	25.0	15.2	59.2	5	0.48		

AREA Kilcoscan Valley

PAGE NO. 2 of 2 HOLE NO. RH-1954

Fording COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
6.7	10.8		·59564	0.5		—			—			
13.5	14.0		.59565			66.3			1			
14.0	14.5		·566			58.5			1½			
14.5	15.0	P/A <	·567			50.3			4			
15.0	15.5		·568			65.0			1½			
					.3	50.8	18.5	30.4	3½	2.34		
23.5	24.0		·59569			41.6			1½			
24.0	24.5		·570			23.1			5			
24.5	25.0		·571			71.5			0			
25.0	25.5		·572			25.0			2½			
25.5	26.0	9 SEAM comp	·573			23.7			2½			
26.0	26.5		·574			26.2			2½			
26.5	27.0		·59575			51.3			1			
27.0	27.5		·59526			29.3			3			
27.5	28.0		·527			19.4			3			
28.0	28.5		·528			26.7			6			
28.5	29.0		·529			67.3			1			
29.0	29.5		·530			67.7			1			
					.7	32.7	19.2	47.4	2	0.42		
46.5	47.0		·59531			50.7			1½			
47.0	47.5		·532			61.0			1			
47.5	48.0		·533			—	contam	inated	—			
48.0	48.5		·534			—	"		—			
79.5	80.0		·59535			21.3			1½			
80.0	80.5		·536			—	contam	inated	—			
80.5	81.0		·537			24.3			5			
81.0	81.5		·538			18.0			5½			
81.5	82.0		·539			59.7			3			
82.0	82.5	7 SEAM	·540			40.0			5½			
82.5	83.0		·541			38.2			5½			
83.0	83.5	comp	·542			35.2			6			
83.5	84.0		·543			57.6			1½			
84.0	84.5		·544			29.0			1½			
84.5	85.0		·545			23.9			5			
85.0	85.5		·546			30.5			5½			
85.5	86.0		·547			20.9			6			

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 2

HOLE NO. RH- 1953

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
86.0	86.5	7 seam (cont) comp	.59548			8.9			3			
86.5	87.0		.549			22.1			3			
87.0	87.5		.550									
					.5	31.2	19.3	49.0	4	0.33		

AREA - KILMARNOCK CREEK

PAGE NO. 2 of 2

HOLE NO. RH- 1953

Fording COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
81.0	81.5		·56847	0.5m		8.5			1½			
81.5	82.0		·848			16.0			2			
82.0	82.5		·849			18.4			6½			
82.5	83.0		·850			29.4			5½			
83.0	83.5		·56751			30.9			3			
83.5	84.0		·56752			47.1			1½			
84.0	84.5		·753			8.5			1½			
84.5	85.0		·754			8.6			4½			
85.0	85.5		·755			8.2			5			
85.5	86.0		·756			9.6			7			
86.0	86.5		·757			10.4			3½			
86.5	87.0	4 SEAM	·758			20.3			6½			
87.0	87.5		·759			8.0			6½			
87.5	88.0		·760			8.3			5½			
88.0	88.5		·761			11.9			5			
88.5	89.0		·762			5.6			6			
89.0	89.5	Compo	·763			4.9			4½			
89.5	90.0		·764			12.7			1½			
90.0	90.5		·765			15.2			2½			
90.5	91.0		·766			13.5			6½			
91.0	91.5		·767			15.2			6			PETROGRAPHY
91.5	92.0		·768			9.0			6½			
92.0	92.5		·769			19.1			6			Ro 1.345
92.5	93.0		·770			8.7			5½			
93.0	93.5		·771			8.1			6			
93.5	94.0		·772			16.4			5½			
94.0	94.5		·773			9.2			2½			
94.5	95.0		·774			25.0			1½			
95.0	95.5		·56775			14.6			3½			
95.5	96.0		·56776			11.3			6½			
96.0	96.5		·777			8.2			5			
96.5	97.0		·778			9.7			6½			
97.0	97.5		·779			11.6			1½			
97.5	98.0		·780			11.6			3½			
98.0	98.5		·781			BB.0			0			
98.5	99.0		·782			19.0			1½			
99.0	99.5		·783			16.9			3			
99.5	100.0		·784			11.5			3½			
100.0	100.5		·785			10.4			4			
100.5	101.0		·786			14.6			7			

AREA - KILMARNOCK CREEK

PAGE NO. 1 of 2

HOLE NO. RH- 1952

Fording COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
101.0	101.5		•56737			18.4			4			
101.5	102.0		• 738			7.0			4½			
102.0	102.5	Comp	• 739			7.4			3½			
102.5	103.0		• 740			13.1			6			
103.0	103.5	4 SEAM (Cont)	• 741			9.4			5			
103.5	104.0		• 742			12.6			4½			
104.0	104.5		• 743			18.4			6½			
104.5	105.0		• 744			19.0			4½			
105.0	105.5		• 745			22.3			1½			
105.5	106.0		• 746			52.9			2½			
106.0	106.5		• 747			69.4			1			
106.5	107.0		• 748			22.2			3½			
107.0	107.5		• 749			25.6			3½			
					.6	17.0	18.5	63.9	4	0.32		

AREA - KILMARNOCK - CREEK

PAGE NO. 2 of 2

HOLE NO. RH- 1952

Fording COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
50.5	51.0		56801	0.5m		57.2			1			
51.0	51.5		802			25.8			1			
51.5	52.0		803			34.8			3			
52.0	52.5	4 SEAM	804			14.5			6			
52.5	53.0	comp	805			15.1			6			
53.0	53.5		806			20.5			4½			
53.5	54.0		807			15.0			6			
					.4	21.3	20.1	58.2	5	0.26		
56.0	56.5	P/A	56808			24.3			6			
					.4	24.8	19.2	55.6	6	0.51		
59.5	60.0		56809			45.9			3			
60.0	60.5	P/A	810			26.8			5			
					.3	26.5	189	54.3	5	0.48		
82.5	83.0		56811			51.5			1			
83.0	83.5		812			80.0			0			
83.5	84.0		813			53.5			1			
110.5	111.0	2 SEAM comp	56814			23.2			6½			
111.0	111.5		815			18.1			6½			
111.5	112.0		816			63.5			½			
112.0	112.5		817			64.9			½			
			56814-15		.5	20.5	21.7	57.3	6	0.91		

AREA - KILMARNOCK VALLEY

PAGE NO. 1 of 1

HOLE NO. RH- 1951

Fording COAL LIMITED

ROTARY DRILL HOLE SAMPLING RECORD

FORDING RIVER OPERATIONS

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
69.0	69.5		56906	0.5m		80.9			0			
69.5	70.0		907			75.8			1			
72.0	72.5		56908			45.8			1½			
72.5	73.0		909			44.6			1½			
73.0	73.5		910			47.1			1			
73.5	74.0		911			54.7			1			
74.0	74.5		912			42.5			1½			
74.5	75.0	COMPO	913			27.8			5½			
75.0	75.5	R 5U	914			47.2			4			
			56913-14		0.3	37.1	17.7	44.9	4½	0.38		
98.5	99.0		56915			54.7			1			
99.0	99.5		916			20.7			6½			
99.5	100.0		917			20.9			4			
100.0	100.5		918			39.1			1			
100.5	101.0	R5L COMPO	919			26.5			2			
101.0	101.5		920			20.3			1½			
101.5	102.0		921			28.2			2½			
102.0	102.5		922			49.5			1			
102.5	103.0		923			39.7			2			
103.0	103.5		924			40.6			1			
103.5	104.0		925			37.7			1½			
103.0	103.5	rehydrant etc. NO SAMPLES	926									
103.5	104.0	rehydrant	927									
			56916-921		0.5	25.8	18.1	55.6	3	0.42		
117.5	118.0		56778			64.1			1			

AREA - KILMARNOCK VALLEY

PAGE NO. 1 of 1

HOLE NO. RH- 1950

Fording COAL LIMITED

FORDING RIVER OPERATIONS

ROTARY DRILL HOLE SAMPLING RECORD

FROM	TO	DESCRIPTION	SAMPLE NUMBER	WIDTH	I.M.	ASH	V.C.M.	F.C.	F.S.I.	S	B.T.U. (Actual / a.d.b.)	REMARKS
46.0	46.5		56936	0.5m		51.0			1			
46.5	47.0		.937			54.9			1			
48.0	48.5		56926			66.8			½			
48.5	49.0		.927			66.8			1			
49.0	49.5		.928			59.5			1			
49.5	50.0	R9	.929			53.4			1½			
50.0	50.5		.930			70.4			½			
50.5	51.0		.931			53.5			1			
51.0	51.5		.932			58.0			½			
51.5	52.0		.933			53.6			1			
52.5	53.0	R9L	56934			62.3			1			
53.0	53.5		.935			59.7			1			
60.0	60.5		56938			50.4			2			
60.5	61.0		.939			59.5			1			
77.5	78.0		.56940			66.5			1			
102.0	102.5		56941			49.1			1			
102.5	103.0	P/A	.942			34.0			3½			
			56941-42		0.3	33.7	18.9	47.1	3	0.44		

AREA - KILMARNOCK VALLEY

PAGE NO. 1 of 1

HOLE NO. RH-1949

ii) Petrographic Analyses

COAL ANALYSES DATA
HAS BEEN SEPERATED
FROM REPORT

PETROGRAPHIC EXAMINATION

The polished samples were examined using a Leitz Orthoplan Compact-model microscope-photometer, the control panel of which is interfaced to a Hewlett-Packard 85 microcomputer, an Epson MX-80 printer and a Hewlett-Packard 7225A plotter, for electronic computation, tabulation and draughting of results.

One hundred individual vitrinite 'A' grains were measured on each of two pellets for reflectance in the rank analysis. Standardization of photometer-readout was performed before the analysis and after every twenty-five readings. Maximum reflectance values were retained by the computer.

Five hundred grains were counted on each of the two pellets for the maceral analysis, at a traverse interval of 0.5 mm.

The maceral, semifusinite, deserves special mention because of its peculiar thermorheological behavior in western Canadian coking coals. In this report, the following approach was used to identify reactive semifusinite.

Preliminary results of some recent research done in this laboratory on coking coals from Quintette, Line Creek, and Fording Coal, suggest that semifusinites should be regarded as reactive if their random reflectance is less than the mean random reflectance of the associated vitrinite 'A', plus 0.33%. By using this threshold value, predicted levels of Inertinite macerals are closest to those considered to have been present in the above-described coking coals when they were carbonized in CANMET's Laboratory in Ottawa. And by using such a threshold value among similar coals, confidence in predicted rheological and coking parameters should be improved.

The reflectance of each semifusinite maceral encountered during the maceral analysis was measured, and depending upon the result, was assigned to either the inert or reactive category. In the Appendix, this method of assigning reactive semifusinite is described as that of PEARSON.

At the end of one hundred readings, maceral data were input to the computer; at the end of one thousand readings, the mean, standard deviation, variance and a correction for the mineral-matter content were electronically computed and printed.

ii) Coking Tests - Canmet Report

ANALYTICAL DATA IS
CONFIDENTIAL

Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada

CANMET
Canada Centre for Mineral and Energy Technology
Centre canadien de la technologie des minéraux et de l'énergie

MOVABLE-WALL COKE OVEN TESTS AND RELATED ANALYSES OF THREE COAL SAMPLES SUBMITTED BY FORDING COAL LIMITED

Project No. 03-3-1/3-14
Job No. 3446R

J.G. Jorgensen and T.A. Lloyd
Combustion and Carbonization Research Laboratory

MAY 1984

ENERGY RESEARCH PROGRAM
ENERGY RESEARCH LABORATORIES
DIVISION REPORT ERP/ERL 84- (CF)

C O N F I D E N T I A L
Declassification Date:
June 1985

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MOVABLE-WALL COKE OVEN TESTS AND RELATED ANALYSES OF THREE COAL SAMPLES SUBMITTED BY FORDING COAL LIMITED

Project No. 03-3-1/3-14
Job No. 3446R

by

J.G. Jorgensen* and T.A. Lloyd**

ABSTRACT

The evaluation of coals for Fording Coal Limited is a continuing divisional project in which periodic investigations are undertaken as requested by the company.

This report includes coke oven testing and related analyses on three clean coal samples identified as Adit 21 Seam 7, Adit 22 Seam 9 and Kilmarnock No. 4 Seam. The project was initiated by K. A. Komenac, P.Eng., Exploration Geologist, Fording Coal Limited, Elkford, British Columbia in a letter dated October 20, 1983. A copy of this letter is given in Appendix 1.

The coal samples identified as Adit 21 and Adit 22 were cleaned at Birtley Coal and Mineral Testing, Calgary and the Kilmarnock No. 4 Seam coal was prepared by Fording Coal Limited from composite drill core samples. All the samples were crushed, blended and carbonized in the Ottawa 310-mm width movable-wall coke oven. Representative samples were taken for chemical, physical, thermal rheological and petrographic analyses. The results of the testing program are tabulated in Tables 1 to 6.

---

*Petrographer and **Head, Coal Treatment and Coke Processes, Combustion and Carbonization Research Laboratory, Energy Research Laboratories, CANMET, Energy, Mines and Resources Canada, Ottawa, K1A 0G1.

Table 1 - Chemical analyses of component coals

Identification			
Laboratory number.....	2203-84	2204-84	2254-84
Description.....	7882-CM Seam 7 Adit 21	7885-CM Seam 9 Adit 22	Kilmarnock Seam 4
Classification			
Rank (ASTM).....	mvb	mvb	lvb
International system.....	433	433	421
Specific volatile index....	194	194	199
Carbon (dmmfb).....%	88.9	88.7	89.0
Proximate analysis (db)			
Ash.....%	9.0	8.9	7.5
Volatile matter.....%	22.0	22.3	19.5
Fixed carbon.....%	69.0	68.8	73.0
Gross calorific value (db)			
MJ/kg.....	32.79	32.84	33.31
Btu/per pound.....	14100	14120	14320
Ultimate analysis (db)			
Carbon.....%	80.0	80.0	81.6
Hydrogen.....%	4.4	4.4	4.3
Sulphur.....%	0.49	0.50	0.27
Nitrogen.....%	1.4	1.4	1.4
Ash.....%	9.0	8.9	7.5
Oxygen (by difference)....%	4.7	4.8	4.9
Ash analysis (db)			
SiO_2.....%	55.3	54.7	56.0
Al_2O_3.....%	30.2	28.9	30.6
Fe_2O_3.....%	3.7	5.5	4.1
TiO_2.....%	2.0	1.9	1.7
P_2O_5.....%	1.9	1.7	0.9
CaO.....%	2.4	2.4	2.6
MgO.....%	-	-	-
SO_3.....%	2.0	2.1	2.5
Na_2O.....%	0.1	0.1	0.2
K_2O.....%	0.7	0.7	0.3

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Fording COAL LIMITED
P.O. Box 100, Elkford, British Columbia V0B 1H0 / (604) 865-2271 / Telex 041-45162

October 20, 1983

CANMET Carbonization Laboratory
Bells Corners
Ottawa, Ontario

Attention: Mr. J. Jorgensen

Dear John,

Re: Clean Coal Samples from
Adit 21, 22 and Kilmarnock
#4 Seam

As discussed in our telephone conversation on October 18, 1983, we will be sending three (3) samples of clean coal (Adit 21, 22 and Kilmarnock #4 Seam) to your facility for 12" moveable wall oven tests. Each sample is to be treated separately.

On each sample we also require the following test work:

1. Classification
2. Proximate Analysis
3. Calorific Value
4. Ultimate Analysis
5. Ash Analysis
6. Grindability
7. Fusibility of Ash
8. Sole Heat Oven Test
9. Gieseler Plasticity
10. Dilatation
11. Free Swelling Index
12. Petrographic Analysis

An addition, please send representative samples of the three coals to David E. Pearson in Victoria.

2.....

We expect to ship the samples to Ottawa in early January 1984.

If you have any questions regarding these tests, please call me at 604-865-2271.

Yours Truly,

K.A. Komenac. P. Eng.
Exploration Geologist

KAK:sam

APPENDIX 5

Geotechnical Report - Golder Associates

Golder Associates
CONSULTING GEOTECHNICAL AND MINING ENGINEERS

LETTER REPORT
TO
FORDING COAL LTD.
RE
SUPPLEMENTARY GEOTECHNICAL INVESTIGATIONS

BROWNIE SPOIL

DISTRIBUTION:

5 copies - Fording Coal Ltd.
Elkford, British Columbia

3 copies - Golder Associates
Vancouver, British Columbia

October, 1983

812-1258

Golder Associates
CONSULTING GEOTECHNICAL AND MINING ENGINEERS

October 28th, 1983

Fording Coal Ltd.
P.O. Box 100
Elkford, B.C.
V0B 1H0

ATTENTION: Ms. E.G. Reipas

Re: Brownie Waste Dump
Supplementary Investigation

Dear Ms. Reipas:

This letter report presents the results of supplementary subsoil investigations carried out within the foundation area of the Brownie Spoil in September, 1983. The results of this work augment the stability assessment of the proposed Brownie Creek Waste Dump, as presented in our Report No. 812-1258, dated February, 1983.

1.0 SUMMARY OF PREVIOUS INVESTIGATIONS

On the west valley wall above Brownie Creek, prominent sandstone bedrock strata outcrop above about elevation 2150 m and dip in a westerly direction at inclinations ranging between 40 and 50 deg. From elevation 2150 m to Brownie Ridge, the inclination of the topographic slopes is generally in the range of 30 to 40 deg. This terrain is dissected by minor gullies which act as funnels for avalanche debris and the downslope migration of colluvium.

Below elevation 2150 m, the slopes gradually flatten to between 10 and 15 deg in the vicinity of Brownie Creek. The gullies which traverse the dump area form relatively shallow depressions in the overall topographic slopes above Brownie Creek, and appear to carry relatively small and intermittent surface runoff flows.

The general dump area was inspected by helicopter, and aerial photographs of the Brownie Creek Valley were examined. It was concluded that the conditions along Gully G are generally representative of the overall conditions within the foundation area of the dump.

In August, 1982, a field examination of the dump foundation area was made by Golder Associates. A traverse was made along Gully G, as identified on Figure 1, of the proposed dump area in order to identify general site conditions.

In October, 1982, a total of eight test pits were excavated manually over the central portion of the proposed waste dump area between Gullies C through G. The location of the 1982 test pits are shown on Figure 1.

Five test pits, numbers 82-6, 82-6A, 82-7, 82-7A and 82-8, were excavated at elevations varying between 2000 and 2050 m across the slopes between Gullies C and G. The test pits encountered between 0.2 and 0.6 m of colluvial soil, comprising silty sand and weathered bedrock fragments, overlying intact bedrock. Seepage was not observed in any of these test pits and the soils were in a dry to damp condition.

On the lower slopes, test pits 82-3, 82-4 and 82-5 penetrated to a maximum depth of about 1 m below ground surface, and were terminated in dense glacial till. The soils encountered were in a more moist condition than the soils in the test pits excavated at higher elevations.

Grain size analyses and shear strength tests were carried out on selected samples of soil recovered from the 1982 test pits. The results show that the soils sampled contained between 15 and 55 per cent of silt and clay size particles, and that effective angles of internal friction, ϕ', vary from 29 to 36 deg. The highest angle of internal friction was obtained for the sample with the lowest fine soil content. The lowest measured angle of internal friction, ϕ', of 29 deg was measured for a sandy silt soil obtained in test pit 82-5 on the lower slopes of the waste dump area between Gullies E and F.

The values of Ø' obtained from the 1982 investigation are typical of the range of values obtained previously for colluvial soils derived from Kootenay and Fernie Formation rocks in southeastern British Columbia. A value of 29 deg represents the lower bound of the expected range of values, and 36 deg is near the upper bound.

Golder Associates report of February, 1983, described the characteristics of waste dumps formed by end-dumping of mine waste rock onto slopes similar to those within the foundation area of the Brownie Dump. The stability of various proposed initial dumping configurations and their subsequent stages of development were analyzed.

For the purposes of assessing stability, the following simplifying assumptions were made:

- The average effective angle of internal friction, Ø', for waste rock is 37 deg with zero effective cohesion;
- The average effective angle of internal friction, Ø', for the foundation soils is 33 deg with zero effective cohesion;
- Segregation of the largest of the rock fragments occurs as the dumped waste rock rolls and slides down the face of the dump. These segregated coarse fragments form a drainage zone over the base of the dump, so that excess pore water pressures do not develop on the surface of contact between the base of the dump and its foundation.

Based on the results of the stability analyses and previous experience with other waste rock dumps on sloping foundations, it was concluded that the stability of the initial stages of the dump development would be marginal. The studies showed that stability of the waste dump would increase as the toe advances onto progressively flatter terrain which is generally present at the lower elevations within the foundation area of the dump.

2.0 SUPPLEMENTARY 1983 INVESTIGATION

2.1 Field Investigations

In September, 1983, a supplementary program of site inspection and test pit excavation was carried out. The objective of this work was to expand the data on subsurface soil conditions obtained in 1982, to cover all likely dump configurations, particularly over the lower flatter slopes where the thickness of in situ surficial soils is expected to be greater than encountered at higher elevations.

The 1983 field program included excavation of a total of 25 test pits using a backhoe. The locations of the pits are shown on Figure 1. The logs of the test pits, which ranged from 2 to 4 m in depth, are contained in Appendix A.

In general, between 0.1 and 0.2 m thickness of topsoil and forest litter mantles the ground surface. This surficial organic material is generally underlain by between about 0.5 and 1 m of compact brown sandy silty or silty sand with some angular gravel fragments and occasional boulders.

The test pits were generally terminated in the underlying more dense dark grey, predominantly sandy silt, glacial till soil which comprises a broad gradation of particle sizes with a trace of clay size material and varying proportions of angular gravel, cobbles and boulders.

At a limited number of locations, relatively localized deposits of soft organic soil were encountered. At test pit 83-16, 0.5 m of soft to firm organic silt and peat was found. However, the areal extent of these poor foundation soils appeared to be small and confined to localized zones, as evidenced by the extent of surface moisture and more open bush cover. In particular, the width of such areas mantled by a greater-than-normal thickness of organic soil is limited to about 20 m in the downslope direction.

Minor seepage into the test pits commonly occurred at depths ranging between 1 and 3 m, and caused minor sloughing of the vertical walls of the test pits. It was apparent that seepage emerged preferentially from the more pervious strata intersected by the test pits, and that the direction of flow is approximately parallel to the topographic slope.

Test pits 83-5, 83-9, 19 and 19-A were terminated in weathered siltstone or shale. Elsewhere along the road cuts connecting the test pit locations, occasional exposures of bedrock occur near ground surface. The intermediate cut slopes generally exposed compact to dense sandy silt soil similar to that found in most of the test pits. Seepage zones appeared to be confined to localized swales in the topography.

An inspection was made of the upper slopes of the dump area between Gullies A and C. Hand excavation of the surficial soils at intervals across these slopes revealed colluvial silty sand containing a high proportion of angular weathered rock fragments. Excavation below a depth of about 200 mm became difficult as the fraction of rock fragments increased and the material became more dense.

2.2 Laboratory Testing

Representative samples of soil recovered from the 1983 test pits were subjected to laboratory tests, including determination of natural moisture content, Atterberg limits, particle size distribution and shear strength characteristics.

The results of the laboratory testing are summarized on Figures 2, 3(a) and 3(b), and 4. The results of the Atterberg limit tests plotted in the region of low to medium plasticity on the chart shown on Figure 2. The test results generally fall within the range of values obtained for other colluvial soils derived from Kootenay and Fernie Formation rocks in the East Kootenay region of southeastern British Columbia.

Figures 3(a) and 3(b) show the particle size distributions obtained for selected samples recovered in the course of the 1982 and 1983 test pit investigations. The range of gradations obtained during both investigations are similar, and the curves conform to the general shape of gradation curves obtained for foundation soils in previous investigations for waste rock dump foundations at Fording Operations. The soils are composed of sandy silt or silty sand, with varying amounts of coarser, usually angular gravel-size fragments.

Figure 4 shows the results of shear strength tests on specimens prepared from soils recovered in the course of the 1982 and 1983 field investigations. With the exception of material from test pit 82-5, which was tested in triaxial compression, strength parameters were determined by direct shear testing. The test specimens were prepared by computing the No. 4 minus fraction of the soil at its natural water content. Normal stresses applied were within the range of normal stresses to be expected over the base of the dump.

The shear strength test results are plotted in conjunction with the results obtained during previous investigations of other dump foundation soils in the East Kootenay region of British Columbia. It can be seen that, as for the Atterberg limit data and particle size distributions, the results of the shear strength tests for the Brownie Spoil conform to the previously established range of test results.

On the basis of test data and the results of back-analysis of other dump failures, we conclude that a value of effective angle of internal friction, $\emptyset'$, equal to 33 deg with zero assumed effective cohesion, c', is an appropriate value for the foundation soils typically found on similar mountain slopes in the East Kootenays.

3.0 DISCUSSION

The results of the 1983 supplementary field and laboratory investigations confirm that foundation conditions over the proposed Brownie Creek waste dump area are suitable for development of the dumps, using the sequential development proposed in our report of February, 1983.

Several localized areas on the lower flatter slopes of the dump formation are mantled by about 0.5 m of weak organic material. These areas are small in relation to the overall proportions of the waste dump configuration, and small relative to the size of a potential failure mass on the dump face. The presence of these zones may result in increased deformation in the dump face. However, the rate of advance of the toe of the waste rock across the lower slopes will be sufficiently slow that the increased strains within the dump due to localized, weak surficial soil can be accommodated without causing major slump failures on the dump face.

Consignment of waste rock onto the slopes of the west valley wall of Brownie Creek commenced in the spring of 1983. A relatively small volume of material has been dumped onto the steep upper slopes between Gullies E and F. As expected, relatively high deformations have been experienced in the vicinity of the dump crests, and substantial slides have occurred into Gullies E and F during the spring thaw period. The slide debris tended to be channelled into the gullies, and came to rest at about elevation 1950 m on the relatively gentler slopes in the region of the proposed dump.

The results of the stability assessment presented in our report of February, 1983, indicated that such slides could occur as a result of dumping into the upper limits of Gullies E and F. We understand that crest deformations were monitored during the period of active dumping operations. The crest movement data provided ample indication of pending instability, so that men and equipment were removed from the area well head of the slide occurrence.

The results of the 1983 supplementary investigations confirm that the Brownie Creek waste dump can be developed over the slopes between Gullies A through G, using procedures discussed in our previous report of February, 1983, and as illustrated on Figure 1 of this letter report.

We understand that during the initial stages of development of the Brownie Creek pit, operational constraints may require continued dumping of waste rock onto the upper slopes between Gullies C and F, until access to the "B" Gully is developed. During this interval, occasional failures from the dump crest will be accepted. This is considered acceptable provided crest displacements are monitored closely to provide advance warning of impending instability.

Yours very truly,
GOLDER ASSOCIATES

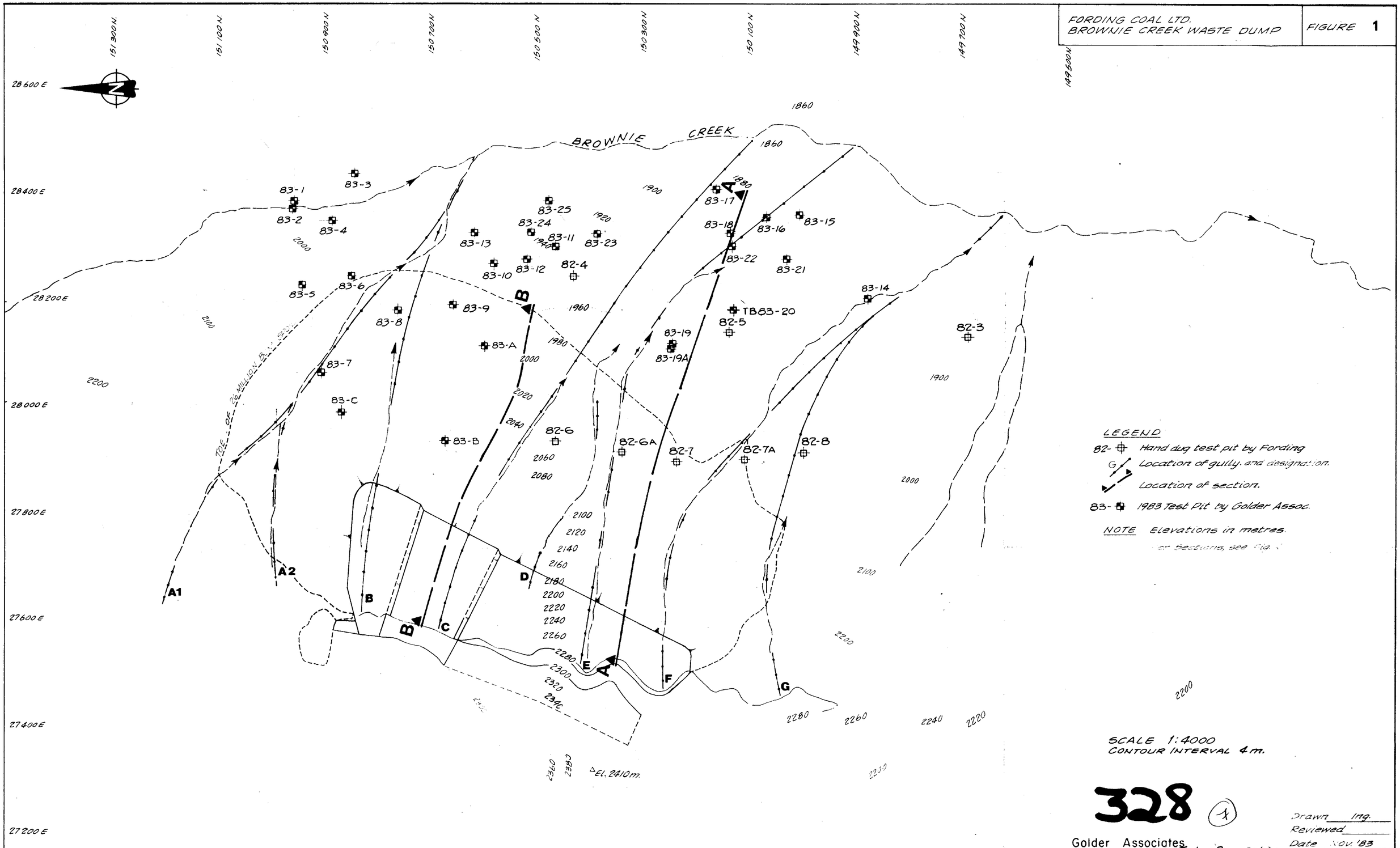
D.B. Campbell, P. Eng.

A.H. Kent, P. Eng.

DBC/AHK/sek
812-1258

FORDING COAL LTD.
BROWNIE CREEK WASTE DUMP

FIGURE 1



328 (1)

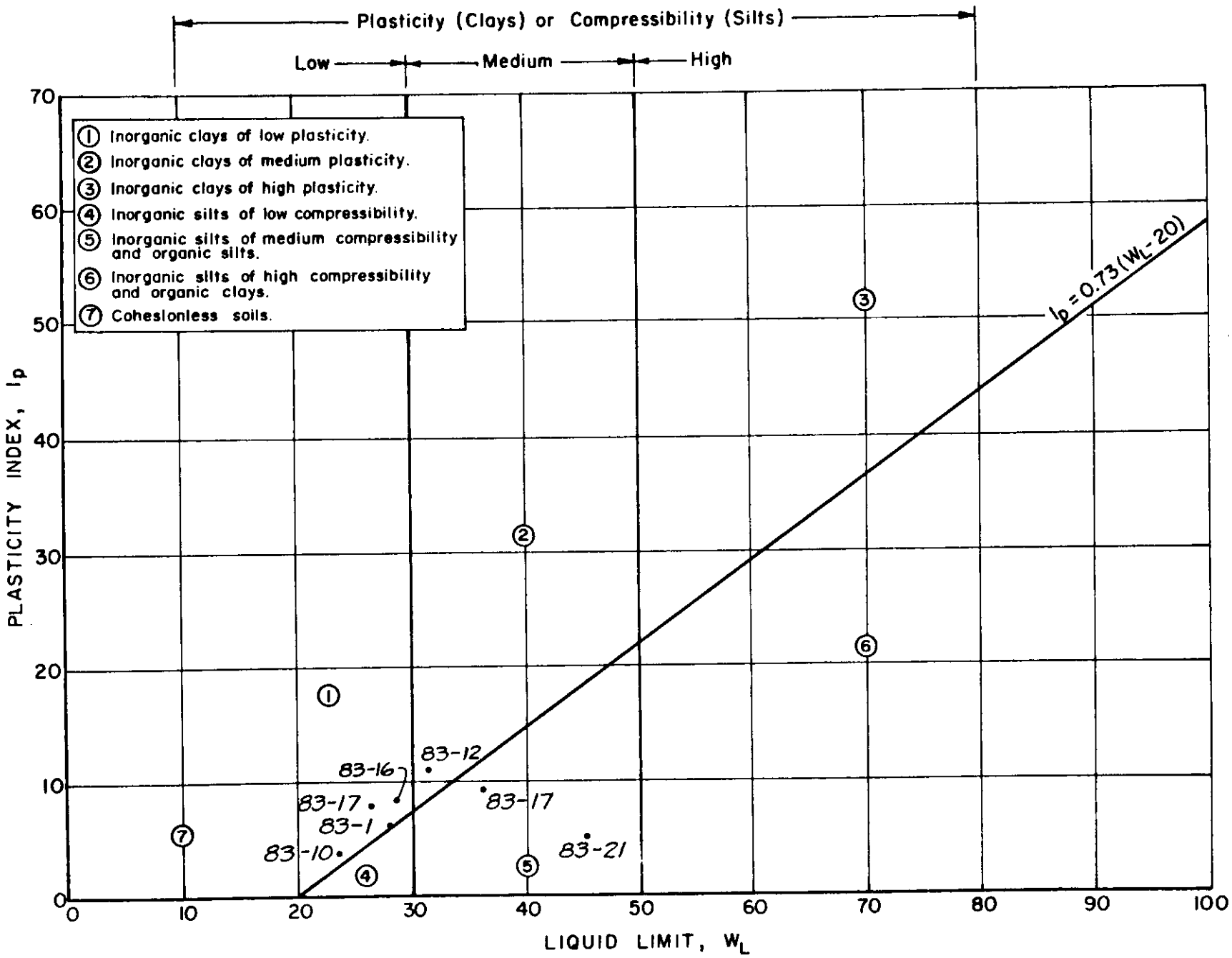
Golder Associates

K-Fording River 83(4)A.

Drawn Ing.
Reviewed
Date Nov. '83

#2-1258

Project No 832-1124 Drawn R.D. Reviewed AK Date Oct. '83



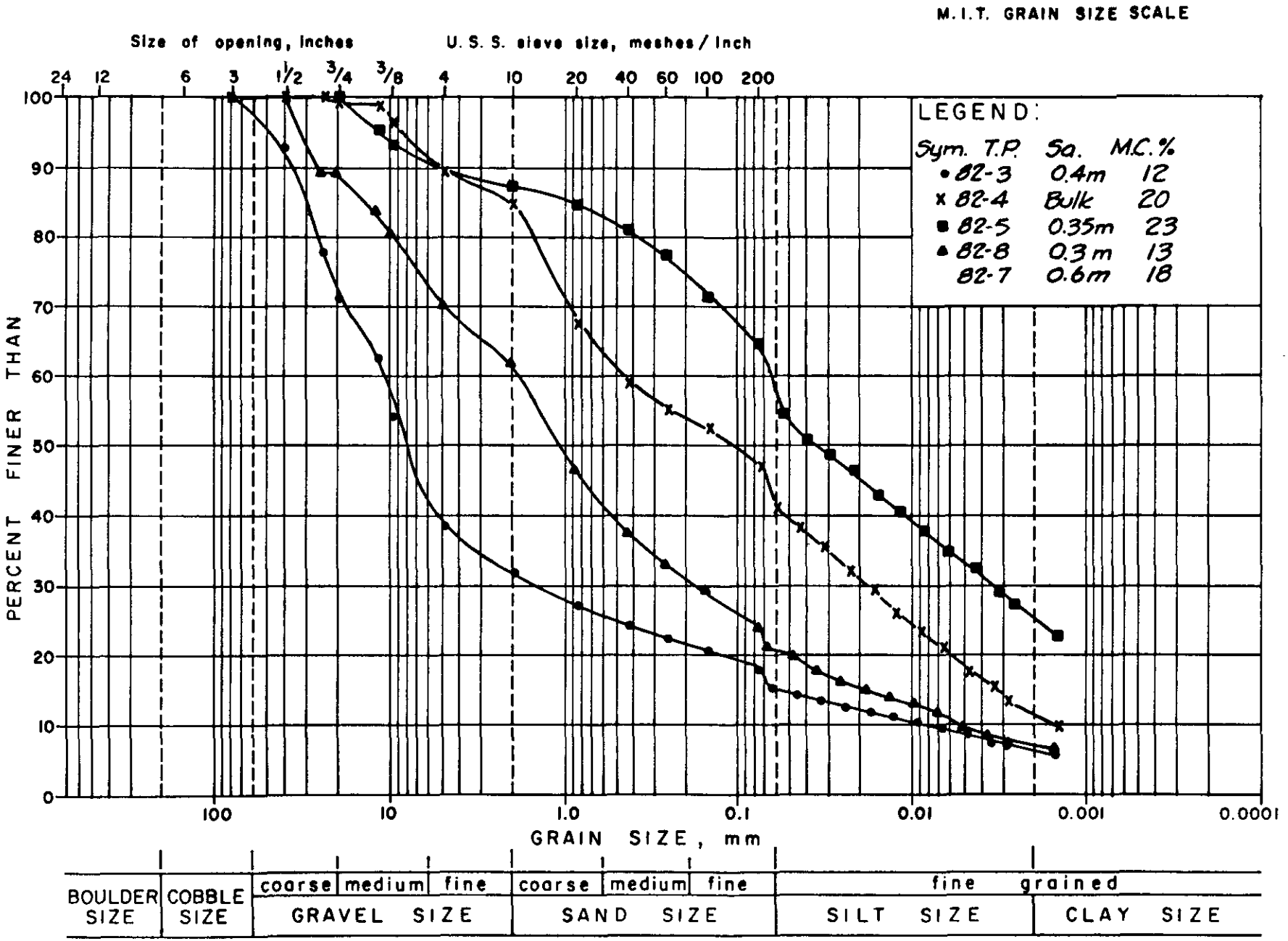
PLASTICITY CHART

BROWNIE CREEK WASTE DUMP

Figure 2

Golder Associates

PROJ NO. 832-1124 DRAWN RO REVIEWED AK DATE Oct. '83

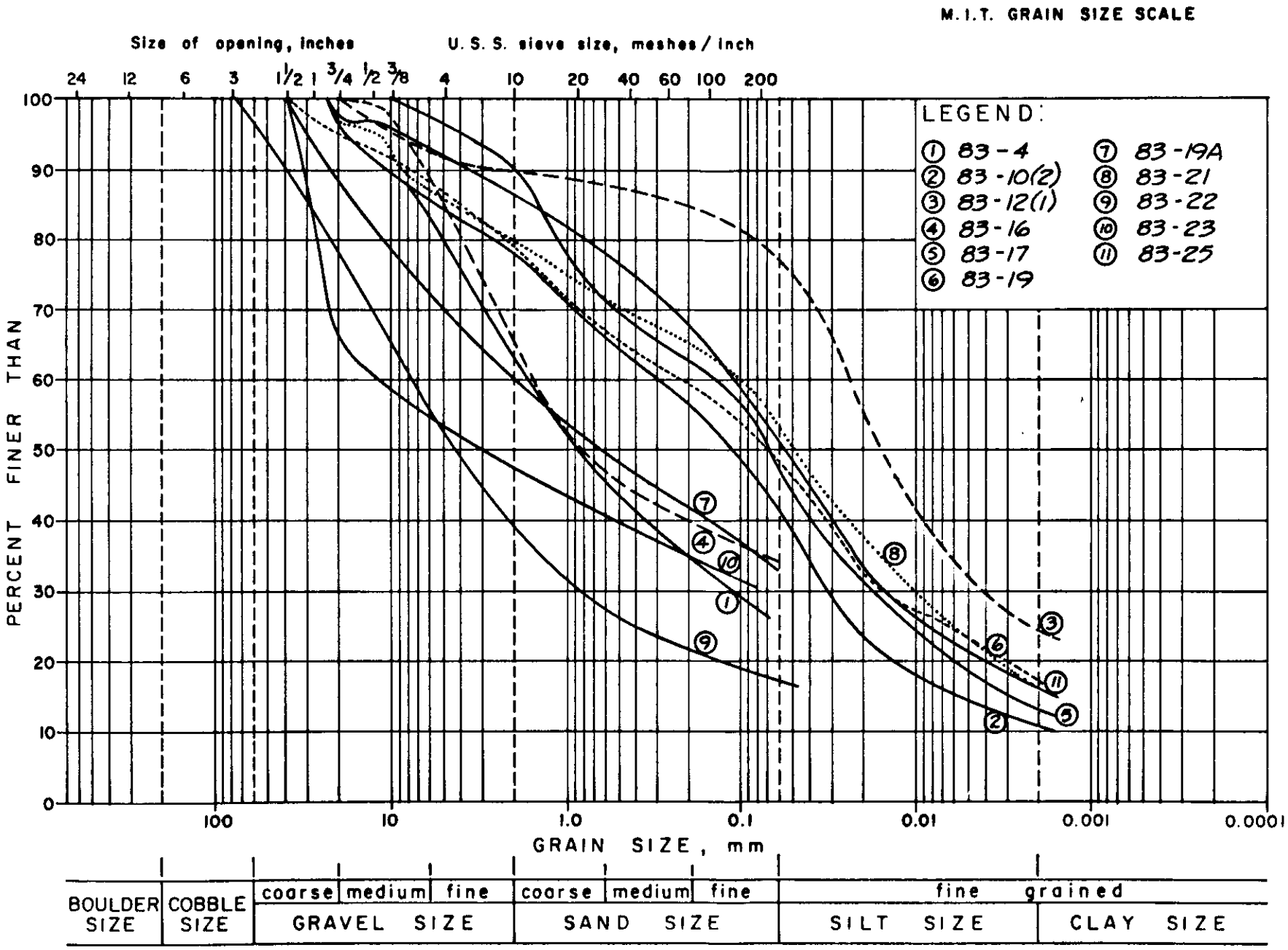


GRAIN SIZE DISTRIBUTION
BROWNIE CREEK SPOIL

Figure 3a

Golder Associates

PROJECT NO. 832-1124 DRAWN R.D REVIEWED AK DATE Oct. '83

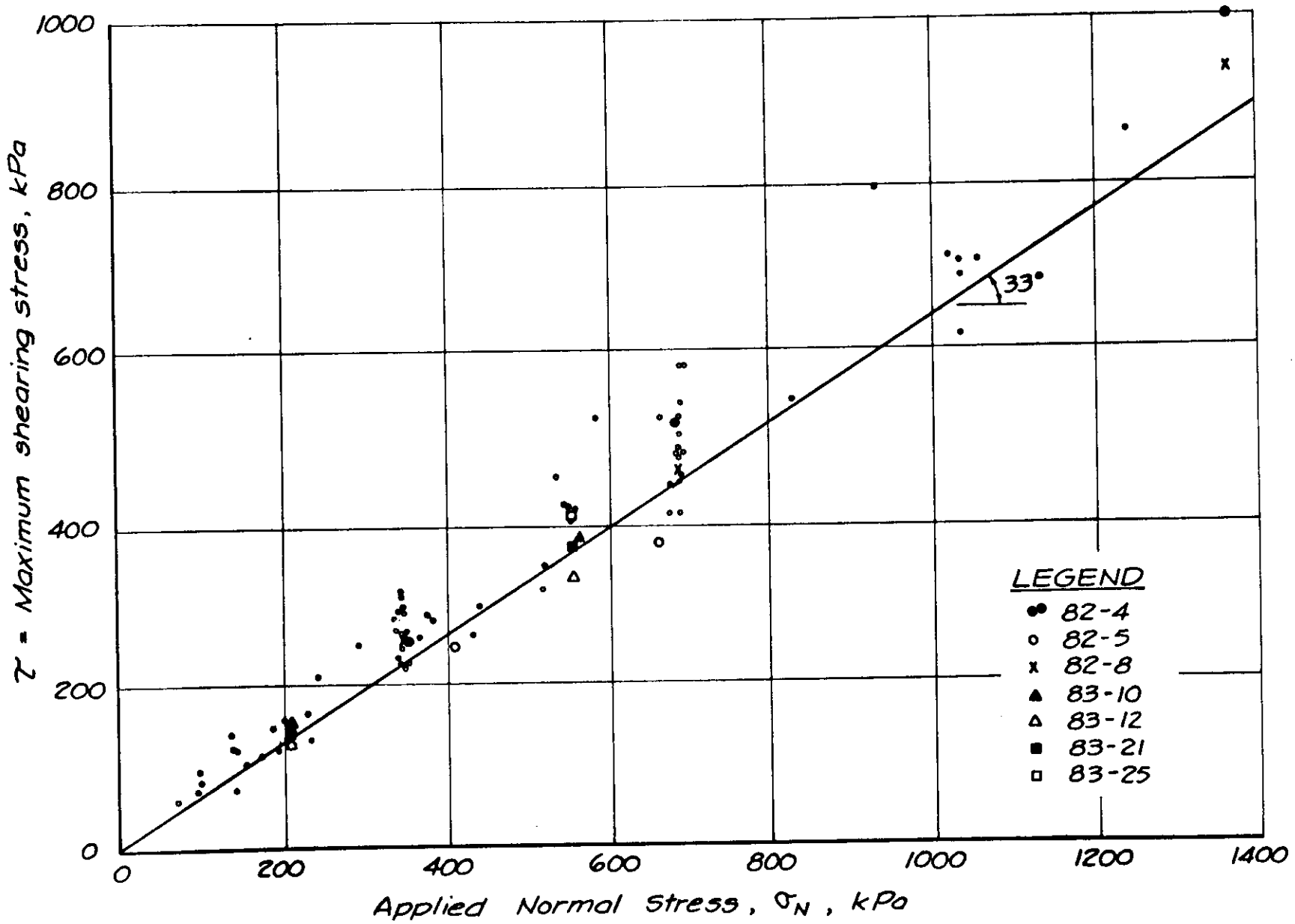


GRAIN SIZE DISTRIBUTION
BROWNIE CREEK WASTE DUMP

Figure 3b

Golder Associates

PROJ NO. 832-1124 DRAWN ..... REVIEWED AK DATE Oct. '83



LEGEND
• Results of tests on samples obtained elsewhere in the East Kootenay Mountains.

BROWNIE CREEK WASTE DUMP
SHEAR STRENGTH TEST DATA

Figure 4

Golder Associates

APPENDIX A

1983 Test Pit Records

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-1	0.0 to 0.05	TOPSOIL.	
	0.05 to 0.4	Compact to dense, brown silty SAND, some gravel, occasional cobbles (angular), damp.	
	0.4 to 2.5	Dense to very dense dark grey silty SAND, GRAVEL, occasional cobbles, boulders (angular), damp/moist.	1.5 NMC = 18%
	2.5	End of Test Pit.	
83-2	0.0 to 0.1	TOPSOIL.	
	0.1 to 0.6	Compact, brown fine sandy SILT, some gravel, occasional angular rock fragments, damp, some root material.	
	0.6 to 1.1	Firm dark grey sandy SILT, some gravel, moist.	0.8 NMC = 29%
	1.1 to 2.8	As above - compact/dense 20% boulders.	2.8 NMC = 22%
	2.0 to 2.8	Occasional seams fine gravel.	
	2.8	End of Test Pit.	
83-3	0.0 to 0.2	TOPSOIL.	
	0.2 to 0.7	Compact, light brown, silty fine SAND, some gravel (angular), occasional cobbles, damp.	
	0.7 to 1.6	Compact, dark grey sandy SILT, some gravel, cobbles, boulders, moist, increasing boulders with depth.	
	1.6	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-4	0.0 to 2.0	Soft/firm organic SILT roots, decaying wood, moderate seepage at 0.6 m.	
	2.0 to 3.0	Compact dark grey sandy SILT, trace clay, some fine angular gravel, moist/wet, becomes more sandy with depth.	3.0 NMC = 25%
	3.0	End of Test Pit.	
83-5	0.0 to 0.05	TOPSOIL.	
	0.05 to 0.6	Compact/dense silty fine SAND, occasional fine gravel, occasional root material, damp.	
	0.6 to 1.0	Dense grey brown sandy SILT, some angular gravel, moist.	1.0 NMC = 30%
	1.0 to 2.0	Dense, grey-green, mottled brown, streaked dark blue, silty SAND, moist to wet, zones of moderate seepage.	1.5 NMC = 21%
	2.0 to 3.0	Weathered SILTSTONE, minor seepage, fractures 5 to 20 cm. Joints have thin silt infill.	
	3.0	End of Test Pit.	
83-6	0.05 to 0.1	TOPSOIL.	
	0.1 to 0.3	Compact/dense, light brown silty SAND, occasional fine gravel, angular cobbles, damp.	
	0.3 to 2.0	Very dense, dark grey sandy SILT, some gravel, occasional cobbles, boulders, damp/moist (TILL).	1.2 NMC = 10%
	2.0	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-7	0.05 to 0.1	TOPSOIL.	
	0.1 to 2.4	Compact/dense, dark grey, sandy SILT, some gravel, cobbles, boulders, damp, less silt with increasing depth. No seepage.	1.5 NMC = 17%
	2.4	End of Test Pit.	
83-8	0.05 to 0.1	TOPSOIL.	
	0.1 to 0.5	Loose/compact, dark brown silty SAND, some gravel (angular), occasional cobbles, damp.	
	0.5 to 1.0	Compact sandy SILT, some gravel, occasional cobbles (angular).	
	1.0 to 1.5	Dense silty medium gravel (angular).	1.0 NMC = 25%
	1.5 to 1.9	Dense sandy SILT, some gravel, occasional cobbles, boulders, moist.	
	1.9 to 2.3	Compact/dense interlayered silty SAND and gravel with sandy SILT. Moderate seepage at 2.3 m depth. Some slumping up to 1 m above seepage.	
	2.3	End of Test Pit.	
83-9	0.05 to 0.1	TOPSOIL.	
	0.1 to 0.3	Compact/dense, brown sandy SILT, some gravel and cobble size angular rock fragments, damp.	
	0.3 to 2.3	Weathered SILTSTONE, steeply dipping, thinley bedded (t to 20 mm), strike 340°, dip 70° to NE. No seepage. Thin clayey silt infill.	
	2.3	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-10	0.1 to 0.2	Peat.	
	0.2 to 0.3	Compact, grey-brown sandy SILT with bands of organic material, moist.	
	0.3 to 0.4	More gravel present.	
	0.4 to 0.5	Compact, dark grey silty fine SAND, moist.	
	0.5 to 0.6	Compact light grey sandy SILT, some angular gravel, moist.	
	0.6 to 0.65	Lens of organic matter.	
	0.65 to 0.8	Compact orange clayey SILT, moist/damp.	
	0.8 to 2.5	Compact/dense light grey sandy SILT, some clay, gravel, occasional cobbles, boulders, moist/wet. Minor seepage at 1.4 m.	1.2 NMC = 25%
	2.5 to 3.3	More boulders - harder to excavate.	
	3.3 to 4.0	Compact, light grey silty SAND and sandy SILT, moist/wet.	3.5 - 4.0 NMC = 19%
	4.0	End of Test Pit.	
83-11	0.0 to 0.1	TOPSOIL.	
	0.1 to 0.3	Compact, brown, sandy SILT, damp.	
	0.3 to 2.7	Dense to very dense, dark grey sandy SILT and silty SAND, trace to some clay, some gravel (angular), occasional cobbles, boulders, damp to moist (TILL).	1.5 NMC = 17%
	2.7	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-12	0.0 to 0.1	TOPSOIL.	
	0.1 to 0.3	Loose to compact, brown sandy SILT, dry to damp.	
	0.3 to 2.4	Dense to very dense, dark grey, clayey SILT, some sand and gravel, occasional cobbles, some boulders, moist (TILL).	1.5 NMC = 23%
	2.4	End of Test Pit.	
83-13	0.0 to 0.2	TOPSOIL.	
	0.2 to 0.6	Compact, brown silty fine SAND, some gravel (angular), occasional cobbles, damp.	
	0.6 to 3.5	Compact to dense, grey silty SAND, GRAVEL (angular), occasional cobbles, boulders, moist (TILL). Minor seepage between 1.7 and 2.3 m. Becomes very dense below 2.5 m.	1.6 NMC = 18%
	3.5	End of Test Pit.	
83-14	0.0 to 0.2	TOPSOIL.	
	0.2 to 1.4	Compact to dense, dark brown, sandy SILT and fine GRAVEL (angular), some cobbles, boulders, occasional fragments of wood, damp.	
	1.4 to 1.6	Firm to stiff, orange-grey sandy SILT, moist. Layer is not continuous across test pit.	1.4 - 1.6 NMC = 29%
	1.6 to 3.6	Dense, dark grey, silty SAND, GRAVEL, some cobbles, boulders, moist. Minor seepage at 3.6 m.	
	3.6	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-15	0.0 to 0.1	TOPSOIL.	
	0.1 to 0.4	Compact, grey sandy SILT, some gravel, occasional cobbles, boulders. Some root materials, damp.	
	0.4 to 0.6	Compact, orange-grey sandy SILT, occasional gravel, cobbles, boulders, damp.	
	0.6 to 3.5	Dense to very dense, grey sandy SILT, some gravel, cobbles, boulders, moist (TILL).	1.3 NMC = 18%
	2.0 to 2.4	Minor seepage. Some sliver failure in sidewalls above seepage zone.	
	3.5	End of Test Pit.	
83-16	0.0 to 0.5	Soft to firm, black organic SILT and PEAT, wet. Moderate seepage.	
	0.5 to 0.7	Firm, grey-brown silty fine SAND, wet.	
	0.7 to 1.9	Compact to dense, grey-brown sandy SILT and GRAVEL, occasional cobbles and boulders, moist/wet.	1.2 NMC = 24%
	1.9 to 2.9	Compact to dense, grey sandy SILT, trace to some clay, occasional cobbles, boulders, moist/wet. Minor seepage at 2.9 m.	2.6 - 2.9 NMC - 17%
	2.9	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-17	0.0 to 0.2	TOPSOIL.	
	0.2 to 0.9	Compact/dense grey silty SAND, GRAVEL, occasional cobbles, boulders, some root material, damp.	
	0.9 to 1.2	Lense of firm, grey, silty SAND, trace clay, damp/moist.	1.0 NMC = 22%
	1.2 to 2.2	Dense, grey, silty SAND and fine GRAVEL (angular), some cobbles, boulders, damp.	
	2.2 to 2.7	Compact/dense, grey-brown, sandy SILT, moist. Some fragments of decaying vegetation.	2.4 NMC = 57%
	2.7 to 3.6	Dense, grey, sandy SILT, some gravel, occasional cobbles, boulders, moist (TILL).	3.4 - 3.6 NMC = 25%
	3.6	End of Test Pit.	
83-18	0.0 to 0.2	TOPSOIL.	
	0.2 to 0.8	Compact, grey, sandy SILT, GRAVEL, COBBLES, some boulders, dry/damp.	
	0.8 to 3.6	Compact/dense, grey sandy SILT, some gravel, occasional cobbles and boulders, moist/wet (TILL). Occasional bands (0.1 m thick) of compact brown with red, black streaks sandy SILT.	3.4 NMC = 21%
	3.6	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-19	0.0 to 0.3	PEAT.	
	0.3 to 1.1	Soft/firm, light grey sandy SILT, some clay, fine gravel (angular), occasional cobbles, wet. Moderate seepage. Occasional root material.	0.5 NMC = 21%
	1.1 to 1.8	Compact/dense, grey clayey SILT, with dark grey angular SHALE fragments, moist.	1.2 NMC = 20%
	1.8	SHALE, strike 150°, dip 90°. Minor seepage.	
		End of Test Pit.	
83-19A	0.0 to 0.2	TOPSOIL.	
	0.2 to 0.4	Compact, orange-brown, sandy SILT, some gravel, occasional cobbles, boulders, damp.	
	0.4 to 0.9	Dense to very dense, dark grey sandy SILT, GRAVEL (angular), some cobbles, boulders, damp to moist.	0.7 NMC = 13%
	0.9 to 2.4	SHALE, strike 340°, dip 60° to the south. Minor seepage.	
	2.4	End of Test Pit.	
83-20	0.0 to 0.2	TOPSOIL.	
	0.2 to 0.4	Compact/dense, brown sandy SILT, occasional gravel, cobbles, boulders, damp.	
	0.4 to 2.2	Dense to very dense, grey sandy SILT, trace clay, some gravel, cobbles, occasional boulders, moist (TILL).	0.9 NMC = 21%
	2.2	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-21	0.0 to 0.2	TOPSOIL.	
	0.2 to 0.6	Compact to dense, orange-brown, sandy SILT, some clay, gravel, occasional cobbles, boulders, damp.	0.4 NMC = 20%
	0.6 to 2.0	Very dense, dark grey sandy SILT, some gravel, occasional cobbles, boulders, moist (TILL).	
	2.0	End of Test Pit.	
83-22	0.0 to 0.1	TOPSOIL.	
	0.1 to 0.4	Compact to dense, orange-brown, sandy GRAVEL, some silt, occasional cobbles, dry to damp.	0.4 NMC = 14%
	0.4 to 1.5	Dense to very dense, grey sandy SILT, some gravel, cobbles, occasional boulders, damp.	
	1.5 to 2.4	Very dense, dark grey, sandy SILT, trace clay, some gravel (angular), some cobbles, occasional boulders, moist (TILL).	
	2.4	End of Test Pit.	
83-23	0.0 to 0.2	TOPSOIL.	
	0.2 to 0.6	Compact to dense, sandy SILT, some gravel, occasional cobbles, boulders, damp.	
	0.6 to 1.3	Compact to dense, dark brown, sandy SILT, GRAVEL, cobbles, moist.	1.1 NMC = 15%
	1.3 to 2.5	Very dense, dark grey sandy SILT, some gravel, cobbles, occasional boulders, moist (TILL).	
	2.5	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-24	0.0 to 0.1	TOPSOIL.	
	0.1 to 0.4	Compact to dense, brown sandy SILT, some gravel, occasional cobbles, boulders, damp.	
	0.4 to 2.8	Very dense, dark grey sandy SILT, some gravel, cobbles boulders, damp to moist (TILL). Minor seepage at 2.8 m.	
	2.8	End of Test Pit.	
83-25	0.0 to 0.3	TOPSOIL.	
	0.3 to 0.6	Compact, brown, sandy SILT, occasional gravel, cobbles, moist.	
	0.6 to 2.5	Compact, grey, sandy SILT, trace of clay, some gravel, occasional cobbles, boulders, moist/wet. Minor seepage at 1.0 m. Becomes dense below 1.5 m.	0.8 NMC = 22% 2.0 NMC = 16%
	2.5	End of Test Pit.	

1983 TEST PIT RECORDS

TEST PIT NUMBER	DEPTH (m)	SOIL DESCRIPTION	SAMPLE DEPTH (m)
83-24	0.0 to 0.1	TOPSOIL.	
	0.1 to 0.4	Compact to dense, brown sandy SILT, some gravel, occasional cobbles, boulders, damp.	
	0.4 to 2.8	Very dense, dark grey sandy SILT, some gravel, cobbles boulders, damp to moist (TILL). Minor seepage at 2.8 m.	
	2.8	End of Test Pit.	
83-25	0.0 to 0.3	TOPSOIL.	
	0.3 to 0.6	Compact, brown, sandy SILT, occasional gravel, cobbles, moist.	
	0.6 to 2.5	Compact, grey, sandy SILT, trace of clay, some gravel, occasional cobbles, boulders, moist/wet. Minor seepage at 1.0 m. Becomes dense below 1.5 m.	0.8 NMC = 22% 2.0 NMC = 16%
	2.5	End of Test Pit.	

K-FORDING RIVER 83A

CONFIDENTIAL
PETROGRAPHIC, COKING,
AND BULK WASHABILITY
DATA

328

CONFIDENTIAL

Fording Coal Limited
Sample FCL #691
Pellet #1

RH #1859 38.24

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.27
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	4.41
VARIANCE	0.0031
STANDARD DEVIATION	0.0560
SKEWNESS	-0.5696
KURTOSIS	2.6626

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	1.10	3	3.00
4	1.15	9	9.00
5	1.20	19	19.00
6	1.25	31	31.00
7	1.30	32	32.00
8	1.35	6	6.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V11	12.00
V12	50.00
V13	38.00

Fording Coal Limited
Sample FCL #692
Pellet #1

RIT # 1861
414 - 43.2m.

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.09
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.28
VARIANCE	0.0022
STANDARD DEVIATION	0.0465
SKEWNESS	1.0289
KURTOSIS	4.5381

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.95	2	2.00
3	1.00	14	14.00
4	1.05	45	45.00
5	1.10	32	32.00
6	1.15	4	4.00
7	1.20	2	2.00
8	1.25	1	1.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	2.00
V10	59.00
V11	36.00
V12	3.00

Fording Coal Limited
Sample FCL #693
Pellet #1

Rlt # 1861

614 - 673

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.13
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	4.59
VARIANCE	0.0027
STANDARD DEVIATION	0.0519
SKEWNESS	-0.0692
KURTOSIS	3.1933

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.95	1	1.00
3	1.00	4	4.00
4	1.05	22	22.00
5	1.10	34	34.00
6	1.15	26	26.00
7	1.20	11	11.00
8	1.25	2	2.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	1.00
V10	26.00
V11	60.00
V12	13.00

Fording Coal Limited
Sample FCL #694
Pellet #1

RH #1861

134.8 - 138.5 m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.17
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.05
VARIANCE	0.0022
STANDARD DEVIATION	0.0474
SKEWNESS	-0.2017
KURTOSIS	2.7837

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	1.00	1	1.00
4	1.05	5	5.00
5	1.10	27	27.00
6	1.15	33	33.00
7	1.20	29	29.00
8	1.25	5	5.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V10	6.00
V11	60.00
V12	34.00

Fording Coal Limited
Sample FCL #695
Pellet #1

RH #1860
208-231m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.05
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	5.20
VARIANCE	0.0030
STANDARD DEVIATION	0.0545
SKEWNESS	0.2346
KURTOSIS	3.0132

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	0.90	2	2.00
4	0.95	16	16.00
5	1.00	29	29.00
6	1.05	37	37.00
7	1.10	11	11.00
8	1.15	5	5.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	18.00
V10	66.00
V11	16.00

Fording Coal Limited
Sample FCL #696
Pellet #1

RH #1860

490 - 519 m.

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.07
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	4.82
VARIANCE	0.0027
STANDARD DEVIATION	0.0515
SKEWNESS	0.2550
KURTOSIS	3.1801

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.95	8	8.00
3	1.00	29	29.00
4	1.05	33	33.00
5	1.10	26	26.00
6	1.15	2	2.00
7	1.20	2	2.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	8.00
V10	62.00
V11	28.00
V12	2.00

Fording Coal Limited
Sample FCL #697
Pellet #1

RH 1860

711 - 730m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.08
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	3.97
VARIANCE	0.0018
STANDARD DEVIATION	0.0429
SKEWNESS	0.0839
KURTOSIS	2.6642

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.95	2	2.00
3	1.00	17	17.00
4	1.05	48	48.00
5	1.10	25	25.00
6	1.15	8	8.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	2.00
V10	65.00
V11	33.00

Fording Coal Limited
Sample FCL #698
Pellet #1

RH #1860

3.6 - 91.7 m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.13
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	3.93
VARIANCE	0.0020
STANDARD DEVIATION	0.0442
SKEWNESS	0.1400
KURTOSIS	2.4151

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	1.00	1	1.00
4	1.05	26	26.00
5	1.10	37	37.00
6	1.15	31	31.00
7	1.20	4	4.00
8	1.25	1	1.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V10	27.00
V11	68.00
V12	5.00

SUMMARY OF PETROGRAPHIC ANALYSIS

Copy

M1480
#720 RH 1954
5% Sulphur 0.26%

4 SEAM

	Pellet #1	Average	Pellet #2
...%			
...%			
...%			
V-11....%			
V-12.....%	9	11	13
V-13.....%	54	53.5	53
V-14.....%	36	34	32
V-15.....%	1	1.5	2
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	33.5
Reactive Semifusinite Measured.(P).....%	10.8
Exinite.....%	0.0
Total Reactives.....%	44.3

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	37.4
Macrinite.....%	0.9
Fusinite.....%	1.9
Inertodetrinite.....%	1.6
Mineral-Matter.....%	13.9
Total Inerts.....%	55.7

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.38	1.375	1.37
Calculated Balance Index.....		5.34	
Calculated Strength Index....		5.27	
Calculated Stability Index...		25	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) <4

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1498 RH 1959 Seam 4
Description..... FCL #730
Ash 12.8% Sulphur 0.27%

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%			
V-12.....%	7	8	9
V-13.....%	64	55.5	47
V-14.....%	29	36.5	44
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	38.4
Reactive Semifusinite Measured.(P).....%	12.8
Exinite.....%	0.0
Total Reactives.....%	51.2

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	36.5
Macrinite.....%	0.9
Fusinite.....%	2.3
Inertodetrinite.....%	2.1
Mineral-Matter.....%	7.0
Total Inerts.....%	48.8

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.37	1.375	1.38
Calculated Balance Index.....		4.07	
Calculated Strength Index....		5.54	
Calculated Stability Index...		40	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 4

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1497 RH 1955 SEAM 4
Description..... FCL #729
Ash 13.5% Sulphur 0.24%

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%		0.5	1
V-12.....%	11	10	9
V-13.....%	60	64.5	69
V-14.....%	29	25	21
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	41.6
Reactive Semifusinite Measured.(P).....%	10.1
Exinite.....%	0.0
Total Reactives.....%	51.7

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	37.0
Macrinite.....%	0.4
Fusinite.....%	1.9
Inertodetrinite.....%	1.6
Mineral-Matter.....%	7.4
Total Inerts.....%	48.3

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.37	1.365	1.36
Calculated Balance Index.....		3.85	
Calculated Strength Index....		5.42	
Calculated Stability Index...		41	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 4

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1496 RH 1952
Description..... FCL #728 4 SEAM
Ash 13.7% Sulphur 0.26%

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%	1	1	1
V-12.....%	22	21.5	21
V-13.....%	54	58.5	63
V-14.....%	23	19	15
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	46.8
Reactive Semifusinite Measured.(P).....%	12.2
Exinite.....%	0.0
Total Reactives.....%	59.0

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	29.0
Macrinite.....%	1.1
Fusinite.....%	1.4
Inertodetrinite.....%	2.0
Mineral-Matter.....%	7.5
Total Inerts.....%	41.0

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.35	1.345	1.34
Calculated Balance Index.....		2.73	
Calculated Strength Index....		5.48	
Calculated Stability Index...		51.5	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 6

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1499 4 RH SEAM 1964
Description..... FCL #731
Ash 10.7% Sulphur 0.23%

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%	3	4.5	6
V-12.....%	28	35	42
V-13.....%	61	52.5	44
V-14.....%	8	8	8
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	45.9
Reactive Semifusinite Measured.(P).....%	12.6
Exinite.....%	0.0
Total Reactives.....%	58.5

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	31.9
Macrinite.....%	0.5
Fusinite.....%	1.0
Inertodetrinite.....%	2.3
Mineral-Matter.....%	5.8
Total Inerts.....%	41.5

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.32	1.31	1.30
Calculated Balance Index.....		2.60	
Calculated Strength Index....		5.16	
Calculated Stability Index...		49.5	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 6

Fording Coal Limited
Sample FCL #699
Pellet #1

RH #1860

1040 -107.1 m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.09
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.51
VARIANCE	0.0024
STANDARD DEVIATION	0.0491
SKEWNESS	-0.1276
KURTOSIS	2.5932

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.95	2	2.00
3	1.00	18	18.00
4	1.05	34	34.00
5	1.10	32	32.00
6	1.15	13	13.00
7	1.20	1	1.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	2.00
V10	52.00
V11	45.00
V12	1.00

Fording Coal Limited
Sample FCL #700
Pellet #1

RH #1863

664-699m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.04
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.21
VARIANCE	0.0019
STANDARD DEVIATION	0.0438
SKEWNESS	0.1518
KURTOSIS	4.0479

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	0.90	2	2.00
4	0.95	12	12.00
5	1.00	42	42.00
6	1.05	37	37.00
7	1.10	6	6.00
8	1.15	1	1.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	14.00
V10	79.00
V11	7.00

Fording Coal Limited
Sample FCL #701
Pellet #1

RH #1863

81.5 - 83.3m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.04
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.07
VARIANCE	0.0018
STANDARD DEVIATION	0.0422
SKEWNESS	0.0495
KURTOSIS	2.5869

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	0.90	2	2.00
4	0.95	13	13.00
5	1.00	43	43.00
6	1.05	30	30.00
7	1.10	12	12.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	15.00
V10	73.00
V11	12.00

Fording Coal Limited
Sample FCL #702
Pellet #1

RH #1863

84.1-85.1m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.02
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.01
VARIANCE	0.0017
STANDARD DEVIATION	0.0410
SKEWNESS	0.1796
KURTOSIS	3.8581

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	0.90	4	4.00
4	0.95	21	21.00
5	1.00	44	44.00
6	1.05	29	29.00
7	1.10	1	1.00
8	1.15	1	1.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	25.00
V10	73.00
V11	2.00

Fording Coal Limited
Sample FCL #703
Pellet #1

RH 1863

113.5 - 119.6 m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.11
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	3.78
VARIANCE	0.0018
STANDARD DEVIATION	0.0420
SKEWNESS	-0.2191
KURTOSIS	2.8557

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	1.00	8	8.00
4	1.05	29	29.00
5	1.10	44	44.00
6	1.15	18	18.00
7	1.20	1	1.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V10	37.00
V11	62.00
V12	1.00

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1495 RH 1863 Sam Gu
Description..... FCL #704
Ash 12.3% Sulphur 0.73%

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%		0.5	1
V-10.....%	29	34.5	40
V-11.....%	68	62	56
V-12.....%	3	3	3
V-13.....%			
V-14.....%			
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	75.8
Reactive Semifusinite Measured.(P).....%	7.5
Exinite.....%	3.6
Total Reactives.....%	86.9

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	5.4
Macrinite.....%	0.0
Fusinite.....%	0.7
Inertodetrinite.....%	0.2
Mineral-Matter.....%	6.8
Total Inerts.....%	13.1

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.12	1.11	1.10
Calculated Balance Index.....		0.39	
Calculated Strength Index....		4.08	
Calculated Stability Index...		49	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 8+

Fording Coal Limited
Sample FCL #705
Pellet #1

RH 1868

10.5 -15 2m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.00
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.15
VARIANCE	0.0017
STANDARD DEVIATION	0.0416
SKEWNESS	-0.2420
KURTOSIS	2.8391

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.85	2	2.00
3	0.90	7	7.00
4	0.95	33	33.00
5	1.00	43	43.00
6	1.05	15	15.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 8	2.00
V 9	40.00
V10	58.00

Fording Coal Limited
Sample FCL #706
Pellet #1

RH # 1868

91-3-943

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.06
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	3.85
VARIANCE	0.0017
STANDARD DEVIATION	0.0407
SKEWNESS	0.1497
KURTOSIS	2.7540

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.95	7	7.00
3	1.00	32	32.00
4	1.05	44	44.00
5	1.10	15	15.00
6	1.15	2	2.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	7.00
V10	76.00
V11	17.00

Fording Coal Limited
Sample FCL #707
Pellet #1

RH #1869
49.5 - 52.6 m.

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.07
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.25
VARIANCE	0.0020
STANDARD DEVIATION	0.0453
SKEWNESS	0.1931
KURTOSIS	3.0185

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.95	5	5.00
3	1.00	27	27.00
4	1.05	43	43.00
5	1.10	20	20.00
6	1.15	5	5.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	5.00
V10	70.00
V11	25.00

Fording Coal Limited
Sample FCL #708
Pellet #1

RH #1869

65.9 - 67.5 m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.10
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	3.87
VARIANCE	0.0018
STANDARD DEVIATION	0.0427
SKEWNESS	0.0972
KURTOSIS	2.5352

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	1.00	9	9.00
4	1.05	28	28.00
5	1.10	46	46.00
6	1.15	16	16.00
7	1.20	1	1.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V10	37.00
V11	62.00
V12	1.00

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1469
Description..... FCL #709 RH #1956
Ash 18.0% Sulphur 0.48%
5L

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%		1	2
V-12.....%	19	14	9
V-13.....%	48	56.5	65
V-14.....%	32	28	24
V-15.....%	1	0.5	
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	39.9
Reactive Semifusinite Measured.(P).....%	11.4
Exinite.....%	0.0
Total Reactives.....%	51.3

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	35.1
Macrinite.....%	0.4
Fusinite.....%	1.8
Inertodetrinite.....%	1.5
Mineral-Matter.....%	9.9
Total Inerts.....%	48.7

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.36	1.36	1.36
Calculated Balance Index.....		3.90	
Calculated Strength Index....		5.40	
Calculated Stability Index...		40	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 4

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1470 R+ #1972
Description..... FCL #710
Ash 21.1% Sulphur 0.42%

Seam

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%	5	4.5	4
V-12.....%	53	61.5	70
V-13.....%	40	33	26
V-14.....%	2	1	
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	53.4
Reactive Semifusinite Measured.(P).....%	15.0
Exinite.....%	0.6
Total Reactives.....%	69.0

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	16.0
Macrinite.....%	0.9
Fusinite.....%	1.4
Inertodetrinite.....%	1.2
Mineral-Matter.....%	11.5
Total Inerts.....%	31.0

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.28	1.275	1.27
Calculated Balance Index.....		1.53	
Calculated Strength Index....		5.06	
Calculated Stability Index...		59	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 5

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1471
Description..... FCL #711 RH #1972
Ash 24.5% Sulphur 0.38%
Seam 7

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%	1	0.5	
V-10.....%	2	1.5	1
V-11.....%	30	35.5	41
V-12.....%	65	61	57
V-13.....%	2	1.5	1
V-14.....%			
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	49.1
Reactive Semifusinite Measured.(P).....%	8.5
Exinite.....%	0.3
Total Reactives.....%	57.9

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	23.8
Macrinite.....%	0.6
Fusinite.....%	2.8
Inertodetrinite.....%	1.6
Mineral-Matter.....%	13.3
Total Inerts.....%	42.1

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.21	1.205	1.20
Calculated Balance Index.....		2.18	
Calculated Strength Index....		4.31	
Calculated Stability Index...		44	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 5

Fording Coal Limited
Sample FCL #712
Pellet #1

RH #1868
1154 to 1192 m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.15
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	6.49
VARIANCE	0.0055
STANDARD DEVIATION	0.0744
SKEWNESS	0.2903
KURTOSIS	2.4449

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	1.00	11	11.00
4	1.05	16	16.00
5	1.10	26	26.00
6	1.15	21	21.00
7	1.20	16	16.00
8	1.25	7	7.00
9	1.30	3	3.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V10	27.00
V11	47.00
V12	23.00
V13	3.00

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1473
Description..... FCL #713 RH #1975
Ash 25.5% Sulphur 0.39%
Seam 7

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%	8	11.5	15
V-12.....%	84	79.5	75
V-13.....%	8	9	10
V-14.....%			
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	50.7	
Reactive Semifusinite Measured.(P).....%	7.6	
Exinite.....%	0.0	
Total Reactives.....%	58.3	

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	23.6	
Macrinite.....%		0.5
Fusinite.....%	1.6	
Inertodetrinite.....%	2.1	
Mineral-Matter.....%	13.9	
Total Inerts.....%	41.7	

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.24	1.24	1.24
Calculated Balance Index.....		2.28	
Calculated Strength Index....		4.49	
Calculated Stability Index...		45	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 5

ordinating Coal Limited
Sample FCL #714
Pellet #1

RH #1865

43.5 to 45.5m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	0.97
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.73
VARIANCE	0.0021
STANDARD DEVIATION	0.0458
SKEWNESS	-0.2244
KURTOSIS	2.7885

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.85	6	6.00
3	0.90	17	17.00
4	0.95	46	46.00
5	1.00	28	28.00
6	1.05	3	3.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 8	6.00
V 9	63.00
V10	31.00

Fording Coal Limited
Sample FCL #715
Pellet #1

RH #1865

690 - 72.5 m.

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	0.99
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.15
VARIANCE	0.0017
STANDARD DEVIATION	0.0413
SKEWNESS	-0.1094
KURTOSIS	2.7792

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.85	1	1.00
3	0.90	9	9.00
4	0.95	40	40.00
5	1.00	39	39.00
6	1.05	10	10.00
7	1.10	1	1.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 8	1.00
V 9	49.00
V10	49.00
V11	1.00

Fording Coal Limited
Sample FCL #716
Pellet #1

RH #1865

117.4 to 122.9m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.07
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.14
VARIANCE	0.0020
STANDARD DEVIATION	0.0442
SKEWNESS	-0.1127
KURTOSIS	2.8433

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	0.95	5	5.00
3	1.00	25	25.00
4	1.05	42	42.00
5	1.10	24	24.00
6	1.15	4	4.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	5.00
V10	67.00
V11	28.00

Fording Coal Limited
Sample FCL #717
Pellet #1

RH #1867

16.8 - 23.1 m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.22
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	3.03
VARIANCE	0.0014
STANDARD DEVIATION	0.0370
SKEWNESS	0.0567
KURTOSIS	2.8846

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	1.10	2	2.00
4	1.15	23	23.00
5	1.20	48	48.00
6	1.25	24	24.00
7	1.30	3	3.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V11	25.00
V12	72.00
V13	3.00

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1478
Description..... FCL #718 RH #1954
Ash 23.0% Sulphur 0.58%
Seam 5,

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%			
V-12.....%	23	18.5	14
V-13.....%	65	68.5	72
V-14.....%	12	13	14
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	50.5
Reactive Semifusinite Measured.(P).....%	11.5
Exinite.....%	0.0
Total Reactives.....%	62.0

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	14.0
Macrinite.....%	0.3
Fusinite.....%	2.2
Inertodetrinite.....%	2.0
Oxidized Coal.....%	6.9
Mineral-Matter.....%	12.6
Total Inerts.....%	38.0

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.34	1.345	1.35
Calculated Balance Index.....		2.41	
Calculated Strength Index....		5.56	
Calculated Stability Index...		54	

PREDICTED FREE SWELLING INDEX

(Based on measured Inerts) 6.5

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1479 RH 4954
Description..... FCL #719
Ash 24.8% Sulphur 0.50%
Seam 5_L

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%			
V-12.....%	25	22.5	20
V-13.....%	56	58	60
V-14.....%	19	19.5	20
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	44.2
Reactive Semifusinite Measured.(P).....%	11.6
Exinite.....%	0.0
Total Reactives.....%	55.8

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	25.2
Macrinite.....%	0.9
Fusinite.....%	1.7
Inertodetrinite.....%	2.9
Mineral-Matter.....%	13.5
Total Inerts.....%	44.2

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.34	1.34	1.34
Calculated Balance Index.....		3.13	
Calculated Strength Index....		5.39	
Calculated Stability Index...		49.5	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 5

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1481 RH #1960
Description..... FCL #721
Ash 17.8% Sulphur 0.37%
Seam 4

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%	1	0.5	
V-12.....%	7	5.5	4
V-13.....%	53	56	59
V-14.....%	39	37.5	36
V-15.....%		0.5	1
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	45.2
Reactive Semifusinite Measured.(P).....%	9.3
Exinite.....%	0.0
Total Reactives.....%	54.5

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	29.7
Macrinite.....%	1.2
Fusinite.....%	1.9
Inertodetrinite.....%	4.0
Mineral-Matter.....%	9.7
Total Inerts.....%	45.5

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.37	1.375	1.38
Calculated Balance Index.....		3.60	
Calculated Strength Index....		5.70	
Calculated Stability Index...		46	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 5

Fording Coal Limited
Sample FCL #722
Pellet #1

RH #1962

Seam 9

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.30
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	5.05
VARIANCE	0.0043
STANDARD DEVIATION	0.0657
SKEWNESS	-0.3205
KURTOSIS	2.7543

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	1.10	2	2.00
4	1.15	5	5.00
5	1.20	14	14.00
6	1.25	23	23.00
7	1.30	31	31.00
8	1.35	17	17.00
9	1.40	8	8.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V11	7.00
V12	37.00
V13	48.00
V14	8.00

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1483
Description..... FCL #723
Ash 29.1% Sulphur 0.47%

RH #1969

Seam 9

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%		0.5	1
V-12.....%	27	27	27
V-13.....%	55	56.5	58
V-14.....%	18	16	14
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	44.4
Reactive Semifusinite Measured.(P).....%	9.5
Exinite.....%	0.0
Total Reactives.....%	53.9

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	26.1
Macrinite.....%	0.6
Fusinite.....%	1.3
Inertodetrinite.....%	2.3
Mineral-Matter.....%	15.8
Total Inerts.....%	46.1

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.33	1.33	1.33
Calculated Balance Index.....		3.31	
Calculated Strength Index....		5.24	
Calculated Stability Index...		44	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 5

SUMMARY OF PETROGRAPHIC ANALYSIS

IDENTIFICATION

Laboratory Number..... M1484 RH #1971
Description..... FCL #724
Ash 17.3% Sulphur 0.48%
11.7 to 20.5 m

DISTRIBUTION OF VITRINITE TYPES

	Pellet #1	Average	Pellet #2
V-8.....%			
V-9.....%			
V-10.....%			
V-11.....%	3	4	5
V-12.....%	47	47.5	48
V-13.....%	47	46	45
V-14.....%	3	2.5	2
V-15.....%			
V-16.....%			

REACTIVE COMPONENTS

Vitrinite.....%	54.9
Reactive Semifusinite Measured.(P).....%	7.0
Exinite.....%	0.0
Total Reactives.....%	61.9

INERT COMPONENTS

Inert Semifusinite Measured.(P).....%	24.2
Macrinite.....%	0.6
Fusinite.....%	1.4
Inertodetrinite.....%	2.4
Mineral-Matter.....%	9.5
Total Inerts.....%	38.1

PETROGRAPHIC INDICES

Mean Reflectance.....%	1.30	1.295	1.29
Calculated Balance Index.....		2.17	
Calculated Strength Index....		5.08	
Calculated Stability Index...		52.5	

PREDICTED FREE SWELLING INDEX
(Based on measured Inerts) 6.5

Fording Coal Limited
Sample FCL #725
Pellet #1

RH 1971

44.7 - 52.0 m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.24
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	4.50
VARIANCE	0.0031
STANDARD DEVIATION	0.0559
SKEWNESS	0.3666
KURTOSIS	3.2097

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	1.10	3	3.00
4	1.15	16	16.00
5	1.20	34	34.00
6	1.25	30	30.00
7	1.30	14	14.00
8	1.35	1	1.00
9	1.40	2	2.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V11	19.00
V12	64.00
V13	15.00
V14	2.00

Fording Coal Limited
Sample FCL #726
Pellet #1

RH 1971

Seam 9

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.27
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	4.18
VARIANCE	0.0028
STANDARD DEVIATION	0.0533
SKEWNESS	0.0071
KURTOSIS	2.0874

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	1.15	7	7.00
3	1.20	28	28.00
4	1.25	25	25.00
5	1.30	31	31.00
6	1.35	9	9.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V11	7.00
V12	53.00
V13	40.00

Fording Coal Limited
Sample FCL #727
Pellet #1

RH # 1977

Seam 7

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.26
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	4.66
VARIANCE	0.0034
STANDARD DEVIATION	0.0586
SKEWNESS	-0.1900
KURTOSIS	2.6794

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
2	1.05	1	1.00
3	1.10	2	2.00
4	1.15	12	12.00
5	1.20	28	28.00
6	1.25	29	29.00
7	1.30	22	22.00
8	1.35	6	6.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V10	1.00
V11	14.00
V12	57.00
V13	28.00

Fording Coal Limited
Sample #732
Pellet #1

RH # 1868 - 145 to 146 m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.06
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	4.85
VARIANCE	0.0026
STANDARD DEVIATION	0.0514
SKEWNESS	-0.0901
KURTOSIS	2.5841

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	0.90	1	1.00
4	0.95	9	9.00
5	1.00	31	31.00
6	1.05	32	32.00
7	1.10	24	24.00
8	1.15	3	3.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	10.00
V10	63.00
V11	27.00

Fording Coal Limited
Sample #733
Pellet #1

RH #1869 - 21 to 23.5 m.

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.05
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	4.57
VARIANCE	0.0023
STANDARD DEVIATION	0.0482
SKEWNESS	-0.1263
KURTOSIS	2.7084

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	0.90	2	2.00
4	0.95	12	12.00
5	1.00	29	29.00
6	1.05	41	41.00
7	1.10	12	12.00
8	1.15	4	4.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	14.00
V10	70.00
V11	16.00

Lording Coal Limited
Sample #734
Pellet #1

RH #1869 - 34.7 to 36.7m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.00
STANDARD ERROR OF THE MEAN	0.00
COEFFICIENT OF VARIATION .....%	3.88
VARIANCE	0.0015
STANDARD DEVIATION	0.0387
SKEWNESS	0.4812
KURTOSIS	3.1008

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	0.90	6	6.00
4	0.95	49	49.00
5	1.00	34	34.00
6	1.05	10	10.00
7	1.10	1	1.00

VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	55.00
V10	44.00
V11	1.00

Fording Coal Limited
Sample #735
Pellet #1

RH #1861 - 14.5 to 18.0m

BASIC STATISTICS

NUMBER OF OBSERVATIONS	100
MEAN MAXIMUM REFLECTANCE	
OF VITRINITE .....%	1.08
STANDARD ERROR OF THE MEAN	0.01
COEFFICIENT OF VARIATION .....%	5.96
VARIANCE	0.0041
STANDARD DEVIATION	0.0644
SKEWNESS	0.3778
KURTOSIS	3.5367

CELL STATISTICS

CELL NUMBER	LOWER LIMIT	NUMBER OF OBSERVATIONS	FREQUENCY (%)
3	0.90	1	1.00
4	0.95	6	6.00
5	1.00	25	25.00
6	1.05	34	34.00
7	1.10	17	17.00
8	1.15	14	14.00
9	1.20	2	2.00
11	1.30	1	1.00

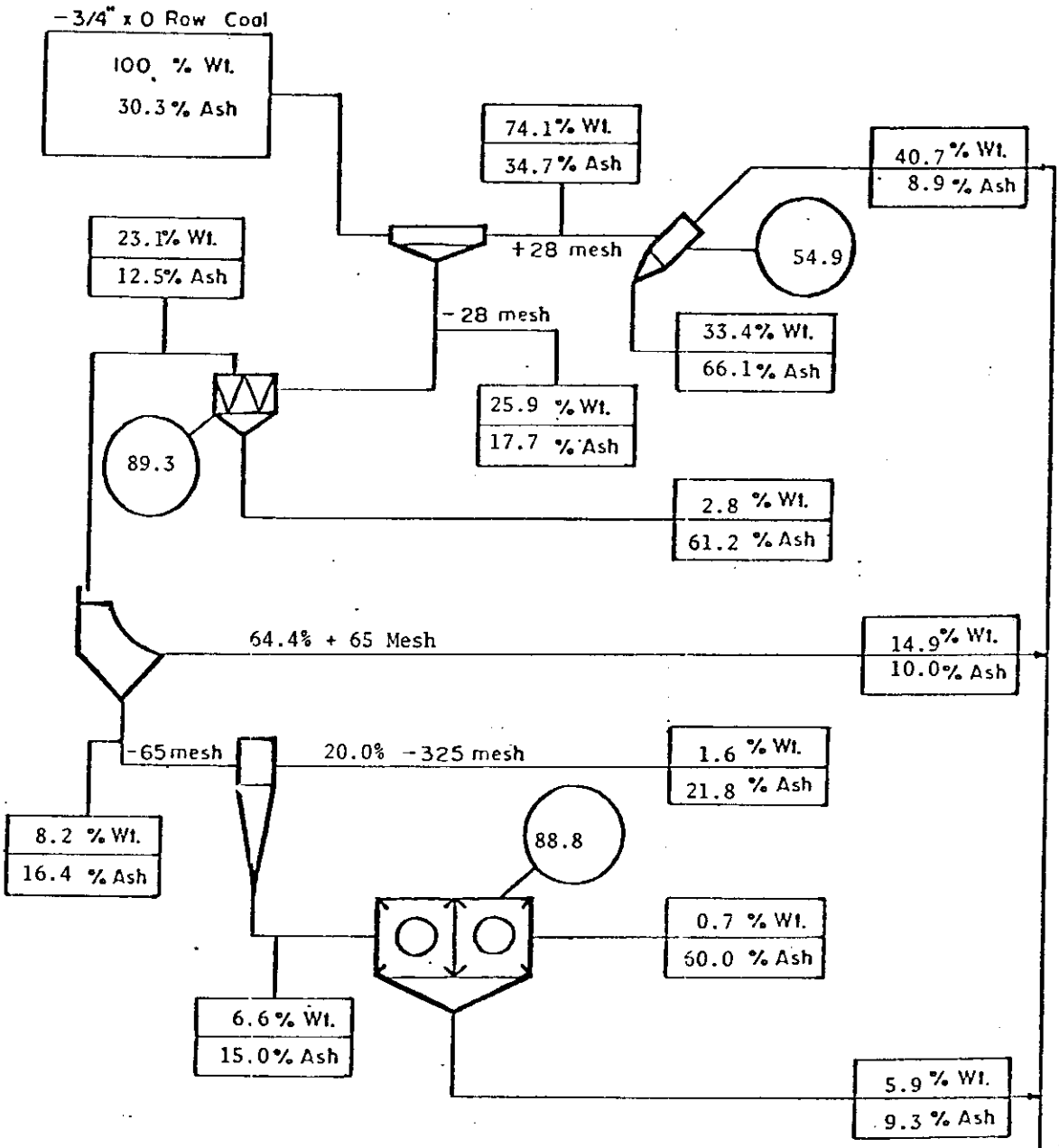
VITRINITE TYPE DISTRIBUTION

VITRINITE TYPE	FREQUENCY (%)
V 9	7.00
V10	59.00
V11	31.00
V12	2.00
V13	1.00

APPENDIX 4

BULK SAMPLE ANALYSES

i) Bulk Washability Tests - Birtley Report



BIRTLEY COAL & MINERALS TESTING

Title PLANT BALANCE FLOW SHEET FORDING COAL LIMITED ADIT 21 / SEAM 7 Bulk Sample LAB NO: 7882	Date DECEMBER 1983 Drawn

SUMMARY - BULK WASHING DATA *

Bulk Sample Adit 21 / Seam 7 Lab.No. 7882

Date Received November 21, 1983 Date Washed November 21, 1983

a) RAW COAL

Delivered Weight 3.891 MT Washed Weight 3.266 MT

ADM% 4.1 ASH% 30.3 FSI 4½

b) HEAVY MEDIA CIRCUIT: 3/4" x 28 Mesh = 74.1 % by weight

S.G. of Medium 1.35 Calculated Yield = 54.9 %

SAMPLE	ASH%	F.S.I.
FEED	34.7	3
CLEAN COAL	8.9	7½
REJECT	66.1	1

c) WATER-ONLY CYCLONE CIRCUIT: 28M x 0 = 25.9 % by weight

V.F.C. #1 = 3 cm #2 5 cm Calculated Yield = 89.3 %

SAMPLE	ASH%	F.S.I.
FEED	17.7	8
OVERFLOW	12.5	8
UNDERFLOW	61.2	1
S.B.O.	10.0	8½
S.B.U.	16.4	7½

d) FROTH FLOTATION CIRCUIT: 65M x 0 = 8.2 % by weight

4:1 = Kerosene: M.I.B.C. Calculated Yield = 88.8 %

SAMPLE	ASH%	F.S.I.
T.C.O.	21.8	1
FEED (T.C.U.)	15.0	7½
CONCENTRATE	9.3	8½
TAILINGS	60.0	0

e) FILTER CAKE: S.B.O. + CONCENTRATE = 9.7 ASH% 8½ FSI

* All weights and analysis are on an Air Dried Basis unless otherwise indicated.

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WESTERN STEEL INDUSTRIES LTD

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 21 / Seam 7 Lab.No. 7882

f) CLEAN COAL: H.M.C.C. + FILTER CAKE Calculated Yield 61.5 %

ADM	PROXIMATE				S%	CAL/GM	FSI	HGI	S.G.
	RM%	ASH%	VM%	FC%					
9.7	0.4	9.0	22.4	68.2	0.56	7781	8	85	1.34

DILATATION TEST				
ST(°C)	MDT(°C)	MC%	MD%	G
398	476	22	19	0.994

GIESELER FLUIDITY TEST		
	DDPM	TEMP(°C)
START	1	444
MAXIMUM	62	474
FINAL	0	506
	RANGE	62

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WESTERN STATES CORPORATION

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 21 / Seam 7 Lab.No. 7882

CLEAN COAL INVENTORY

DATE	SHIPPED		IN STOCK	
	BBLS	M.T.	BBLS	M.T.
November 25, 1983	---	---	11	1.798
December 22, 1983	3	0.490	8	1.308

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 21 / Seam 7 Lab.No. 7882

HEAVY MEDIUM CIRCUIT

CYCLONE: 14" DSM operating @ 52 KPa

MAGNETITE MEDIUM maintained @ 1.35 S.G.

1.	FEED (3/4" x 28 Mesh)	2.420	M.T.	34.7	ASH%	3	FSI
2.	CLEAN COAL	1.269	M.T.	8.9	ASH%	7½	FSI
3.	REJECT	1.151	M.T.	66.1	ASH%	1	FSI

4. YIELD CLEAN COAL (Weighted) $= \frac{1.269}{2.420} =$ 52.4 %

5. YIELD CLEAN COAL (Calculated) $= \frac{66.1 - 34.7}{66.1 - 8.9} =$ 54.9 %

Birtley Coal
& Minerals Testing

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 21 / Seam 7 Lab.No. 7882

WATER - ONLY CYCLONE CIRCUIT

Primary Cyclone: 6" DSM operating @ 138 KPa

Vortex Finder Clearance set @ 3 cm

Secondary Cyclone: 4" DSM operating @ 35 KPa

Vortex Finder Clearance set @ 5 cm

Sieve Bend: 65 Mesh

1.	Feed (28 Mesh x 0)	17.7	ASH%	8	F.S.I.
2.	Primary Cyclone Overflow	12.5	ASH%	8	F.S.I.
3.	Secondary Cyclone Underflow	61.2	ASH%	1	F.S.I.
4.	Sieve Bend Overflow (S.B.O.)	10.0	ASH%	8½	F.S.I.
5.	Sieve Bend Underflow (S.B.U.)	16.4	ASH%	7½	F.S.I.

6. Yield (W.O. Cyclone) $= \frac{61.2 - 17.7}{61.2 - 12.5} =$ 89.3 %

7. Wt% 28M x 65M in Primary Cyclone Overflow = 64.4 %

8. Estimated Yield of 28M x 65M (S.B.O., as % of 28M x 0 Feed) = 57.5 %

Birtley Coal
& Minerals Testing

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 21 / Seam 7 Lab.No. 7882

FROTH FLOTATION CIRCUIT

Flotation Cell: two (2) Birtley-Humboldt Multi-Wobble impellers in series.

Reagent: 4:1 = Kerosene: M.I.B.C.

Thickening Cyclone: 20° - 8" cyclone Hayl-Patterson

1.	Thickening Cyclone Overflow (T.C.O. -325M)	21.8	ASH%	1	FSI
2.	Flotation Feed (Thickening Cyclone Underflow)	15.0	ASH%	7½	FSI
3.	Concentrate	9.3	ASH%	8½	FSI
4.	Tailings	60.0	ASH%	0	FSI

5. Yield Concentrate = $\frac{60.0 - 15.0}{60.0 - 9.3}$ = 88.8 %

Birtley Coal
& Minerals Testing

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 21 SEAM 7 BULK SAMPLE (BIN #8207)
RAW COAL CRUSHED TO -3/4"
LAB NO: 7880
DATE: JANUARY 12, 1984

HEAD RAW ANALYSIS

ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV CAL/GM	HGI	FSI	BASIS
4.10	0.30	30.30	19.60	49.80	0.47	5675	83	4-1/2	adb
	4.39	29.06	18.80	47.76	0.45	5442			arb
		30.39	19.66	49.95	0.47	5692			db

APPARENT S.G. ON 3/4" X 0 RAW COAL = 1.50

SIZE AND RAW ANALYSIS, air dried basis

SIZE FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
3/4" X 28M	80.20	33.40	3-1/2	80.20	33.40
28M X 100M	13.40	18.20	8	93.60	31.22
100M X 0	6.40	16.70	7-1/2	100.00	30.29

FLOAT-SINK ANALYSIS, air dried basis: 3/4" X 28M

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	16.40	2.40	9	16.40	2.40
1.30 - 1.35	18.50	6.40	5	34.90	4.52
1.35 - 1.40	8.90	11.40	2-1/2	43.80	5.92
1.40 - 1.45	8.80	17.40	1-1/2	52.60	7.84
1.45 - 1.50	3.30	22.60	1	55.90	8.71
1.50 - 1.60	6.80	28.20	1	62.70	10.82
1.60 - 1.70	3.90	37.20	1	66.60	12.37
1.70 - 1.80	3.10	46.30	1	69.70	13.88
1.80 - 1.90	2.20	54.30	1	71.90	15.11
1.90 - SINK	28.10	82.10	0	100.00	33.94

Birtley Coal
& Minerals Testing

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 21 SEAM 7 BULK SAMPLE (BIN #8207)
RAW COAL CRUSHED TO -3/4"
LAB NO: 7880
DATE: JANUARY 12, 1984

FLOAT-SINK ANALYSIS, air dried basis: 28M X 100M

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	26.60	1.90	9	26.60	1.90
1.30 - 1.35	24.80	6.40	8-1/2	51.40	4.07
1.35 - 1.40	9.50	10.30	8	60.90	5.04
1.40 - 1.45	9.40	12.50	6	70.30	6.04
1.45 - 1.50	7.00	20.60	2-1/2	77.30	7.36
1.50 - 1.60	5.60	27.60	1	82.90	8.73
1.60 - 1.70	2.40	34.90	1	85.30	9.46
1.70 - 1.80	1.70	45.00	1	87.00	10.16
1.80 - 1.90	1.60	54.30	1	88.60	10.95
1.90 - SINK	11.40	76.20	0	100.00	18.39

FROTH FLOTATION TEST: 100M X 0

PRODUCT	WT%	ASH%	F.S.I.	CUMULATIVE WT%	CUMULATIVE ASH%
STAGE 1	75.90	8.40	8-1/2	75.90	8.40
STAGE 2	9.40	18.70	5	85.30	9.54
TAILINGS	14.70	57.70	1/2	100.00	16.62

PARAMETERS = 10% PULP DENSITY
= 60 SECOND CONDITIONING WITH 0.48LB/TONNE KEROSENE:MIBC
= STAGE I - 1ST MINUTE FROTH
= STAGE II- 2ND MINUTE FROTH

Birtley Coal
& Minerals Testing

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 21 SEAM 7 BULK SAMPLE (BIN #8207)
RAW COAL CRUSHED TO -4"
LAB NO: 7880/7881
DATE: JANUARY 12, 1984

LAB NO: 7880 - BEFORE ATTRITION

SIZE AND RAW ANALYSIS, air dried basis

SIZE FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
4" X 3/8"	42.40	42.60	1-1/2	42.40	42.60
3/8" X 28M	42.80	24.30	5-1/2	85.20	33.41
28M X 100M	10.30	15.70	8-1/2	95.50	31.50
100M X 0	4.50	15.20	8	100.00	30.76

WT% + 4" = 2.4 — CRUSHED TO PASS 4"

LAB NO: 7881 - AFTER ATTRITION*

SIZE AND RAW ANALYSIS, air dried basis

SIZE FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
+ 3/8"	30.50	47.10	1-1/2	30.50	47.10
3/8" X 28M	48.60	26.90	4	79.10	34.69
28M X 100M	13.30	16.40	7-1/2	92.40	32.06
100M X 0	7.60	17.40	6-1/2	100.00	30.94

* ATTRITION TEST BY AUSTRALIAN TUMBLER METHOD —
8 X 50KG BATCHES OF 4" X 0 RAW COAL EACH
TUMBLED @20 RPM FOR 250 SECONDS WITH
18 - 2 IN. STEEL CUBES & 150 L H20.

Birtley Coal
& Minerals Testing

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 21 SEAM 7 BULK SAMPLE (BIN #8207)
RAW COAL CRUSHED TO -4"
LAB NO: 7881 - AFTER ATTRITION
DATE: JANUARY 12, 1984

FLOAT-SINK ANALYSIS, air dried basis: + 3/8"

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	3.40	3.30	8-1/2	3.40	3.30
1.30 - 1.35	14.00	6.30	3	17.40	5.71
1.35 - 1.40	9.10	10.70	2	26.50	7.43
1.40 - 1.45	7.10	16.40	1-1/2	33.60	9.32
1.45 - 1.50	5.00	21.60	1-1/2	38.60	10.91
1.50 - 1.60	7.70	28.20	1	46.30	13.79
1.60 - 1.70	3.30	36.00	1	49.60	15.27
1.70 - 1.80	3.80	43.80	1	53.40	17.30
1.80 - 1.90	2.50	54.20	1	55.90	18.95
1.90 - SINK	44.10	84.90	0	100.00	48.03

FLOAT-SINK ANALYSIS, air dried basis: 3/8" X 28M

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	21.50	2.00	9	21.50	2.00
1.30 - 1.35	20.40	6.40	5	41.90	4.14
1.35 - 1.40	9.10	11.40	2	51.00	5.44
1.40 - 1.45	8.50	18.70	2	59.50	7.33
1.45 - 1.50	5.30	22.90	2	64.80	8.61
1.50 - 1.60	5.90	29.70	1-1/2	70.70	10.37
1.60 - 1.70	3.90	37.10	1-1/2	74.60	11.76
1.70 - 1.80	2.60	45.00	1	77.20	12.88
1.80 - 1.90	2.50	52.10	1	79.70	14.11
1.90 - SINK	20.30	79.60	0	100.00	27.41

Birtley Coal
& Minerals Testing
A DIVISION OF GREATWESTERN ELECTRONICS LTD.

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 21 SEAM 7 BULK SAMPLE (BIN #8207)
RAW COAL CRUSHED TO -4"
LAB NO: 7881 - AFTER ATTRITION
DATE: JANUARY 12, 1984

FLOAT-SINK ANALYSIS, air dried basis: 28M X 100M

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	23.90	1.70	9	23.90	1.70
1.30 - 1.35	23.30	3.70	9	47.20	2.69
1.35 - 1.40	13.80	7.70	7	61.00	3.82
1.40 - 1.45	8.70	9.60	4	69.70	4.54
1.45 - 1.50	8.90	11.90	3	78.60	5.38
1.50 - 1.60	5.50	20.50	1-1/2	84.10	6.36
1.60 - 1.70	2.50	35.80	1	86.60	7.21
1.70 - 1.80	1.80	46.60	1	88.40	8.02
1.80 - 1.90	1.10	53.00	1	89.50	8.57
1.90 - SINK	10.50	76.60	0	100.00	15.71

FROTH FLOTATION TEST: air dried basis: 100M X 0

PRODUCT	WT%	ASH%	F.S.I.	CUMULATIVE WT%	CUMULATIVE ASH%
STAGE 1	52.50	8.30	7	52.50	8.30
STAGE 2	8.20	16.80	4-1/2	60.70	9.45
TAILINGS	39.30	29.70	3-1/2	100.00	17.41

PARAMETERS — 6S FOR LAB NO. 7880.

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 21/SEAM 7 BULK SAMPLE
LAB NO: 7882
DATE: JANUARY 11, 1984

I. WASHABILITY DATA - HEAVY MEDIUM CYCLONE PRODUCTS for E.P.M.

S.G. FRACTION	PERCENT WEIGHT CLEAN COAL	PERCENT WEIGHT REJECT	PERCENT OF FEED CLEAN COAL	PERCENT OF FEED REJECT	CALCULATED FEED	MEAN S.G.	PARTITION COEFFICIENT
- 1.30	26.10	0.10	14.33	0.05	14.38	—	0.35
1.30 - 1.40	53.70	0.20	29.48	0.09	29.57	1.35	0.30
1.40 - 1.50	16.60	5.00	9.11	2.26	11.37	1.45	19.88
1.50 - 1.60	2.10	11.10	1.15	5.01	6.16	1.55	81.33
1.60 - 1.70	0.50	7.50	0.28	3.38	3.66	1.65	92.35
1.70 - 1.80	0.30	5.80	0.17	2.61	2.78	1.75	93.88
1.80 - 1.90	0.10	4.80	0.06	2.16	2.22	1.85	97.30
1.90 - 2.00	0.10	5.50	0.05	2.48	2.53	1.95	98.02
+ 2.00	0.50	60.00	0.27	27.06	27.33	—	99.01

II. WASHABILITY DATA - WATER-ONLY CYCLONE PRODUCTS for E.P.M.

S.G. FRACTION	PERCENT WEIGHT OVERFLOW	PERCENT WEIGHT UNDERFLOW	PERCENT OF FEED OVERFLOW	PERCENT OF FEED UNDERFLOW	CALCULATED FEED	MEAN S.G.	PARTITION COEFFICIENT
- 1.30	20.40	0.20	18.22	0.02	18.24	—	0.11
1.30 - 1.40	40.50	2.50	36.17	0.27	36.44	1.35	0.74
1.40 - 1.50	18.40	9.40	16.43	1.00	17.43	1.45	5.74
1.50 - 1.60	8.00	7.00	7.14	0.75	7.89	1.55	9.51
1.60 - 1.70	3.00	5.00	3.39	0.53	3.92	1.65	13.52
1.70 - 1.80	2.30	5.80	2.05	0.62	2.67	1.75	23.22
1.80 - 1.90	1.80	5.10	1.61	0.55	2.16	1.85	25.46
1.90 - 2.00	1.60	6.50	1.43	0.70	2.13	1.95	32.86
+ 2.00	3.20	58.50	2.86	6.26	9.12	—	68.64

Birtley Coal
& Minerals Testing
A DIVISION OF GREATWESTERN INDUSTRIES LTD

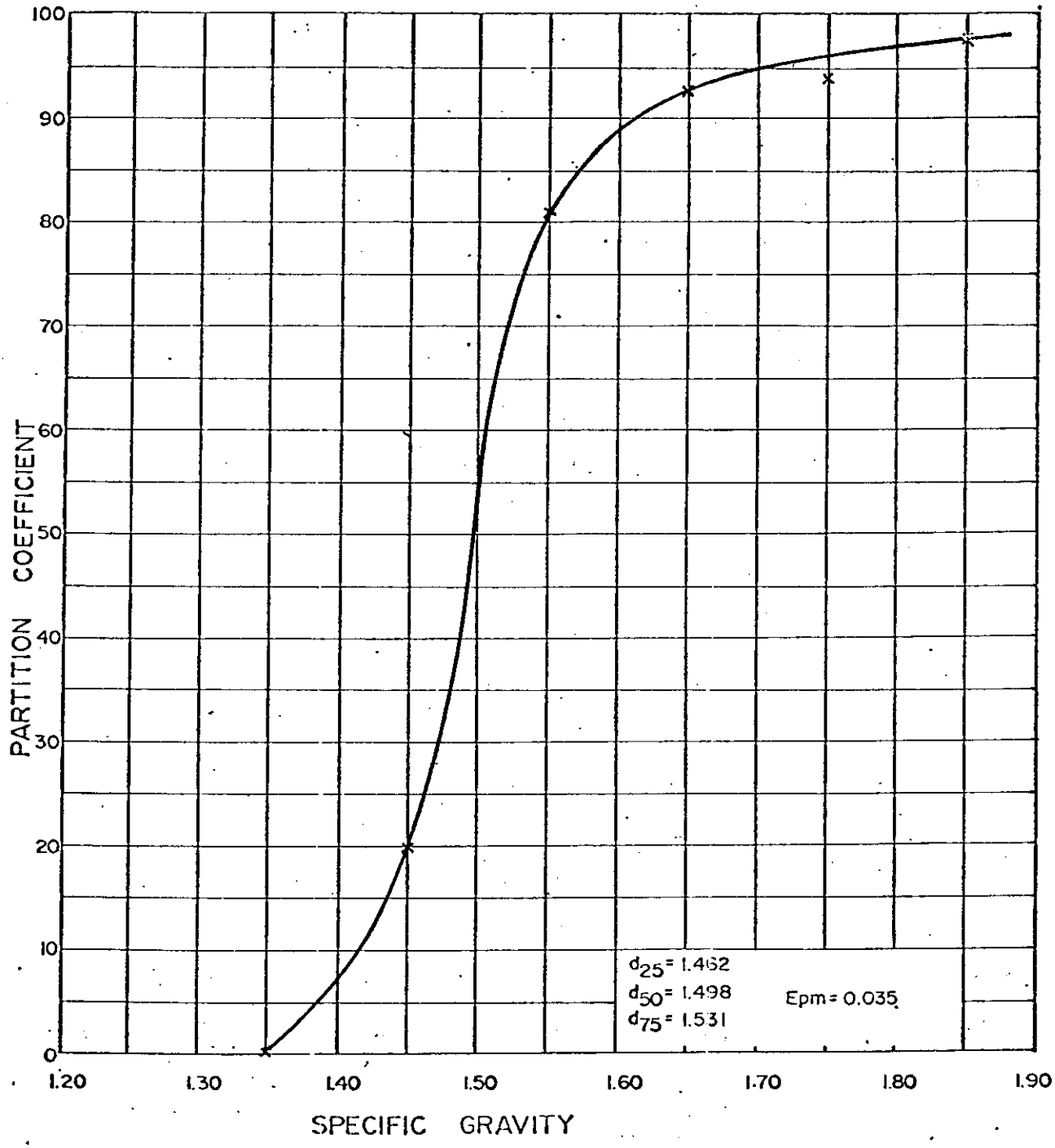
CLIENT: FORDING COAL LIMITED

SAMPLE: *DSM Cyclone Products*- ADIT 21/SEAM 7

LAB NO. 7882

DATE: NOV. 83

PARTITION CURVE



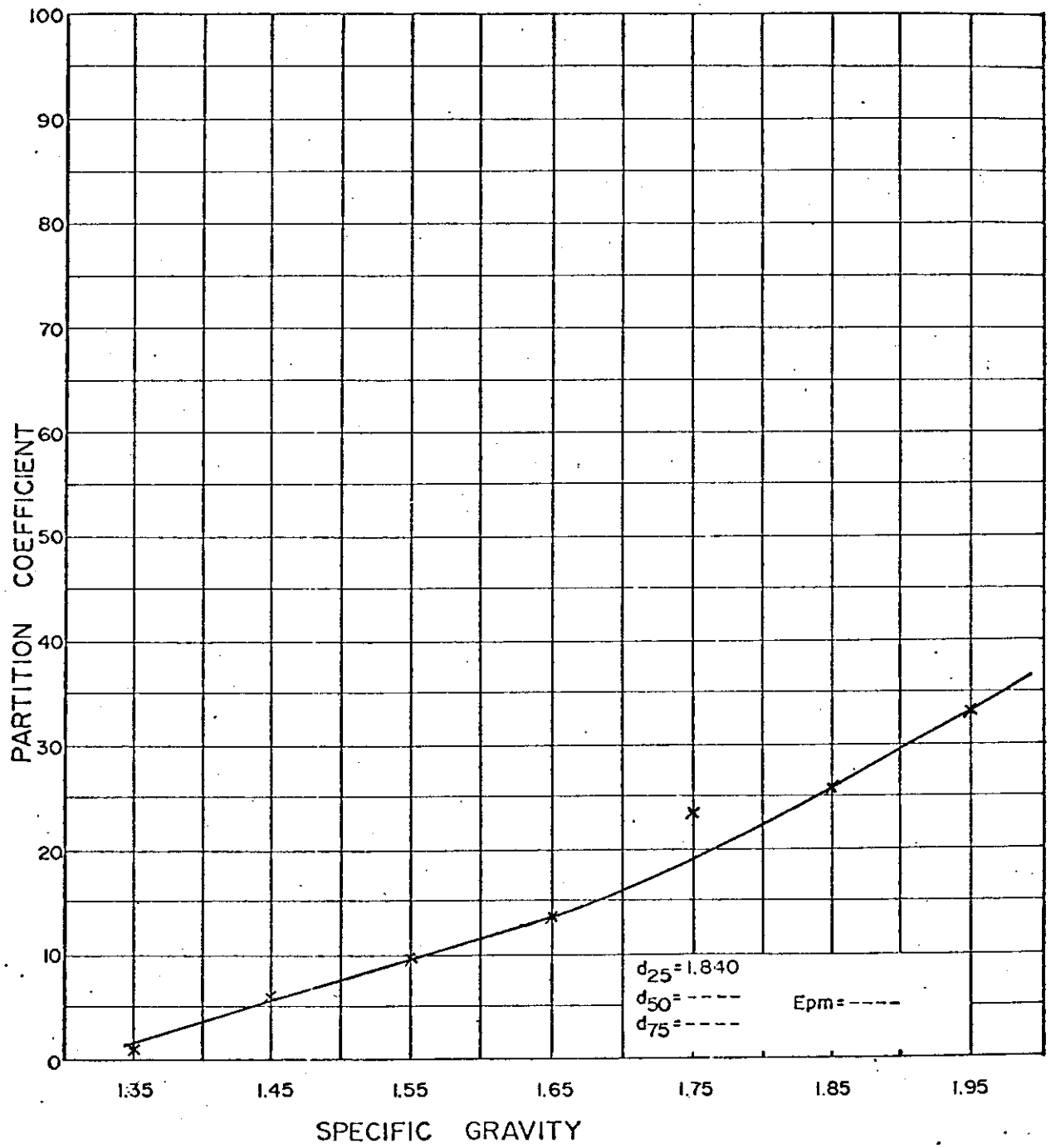
CLIENT: FORDING COAL LIMITED

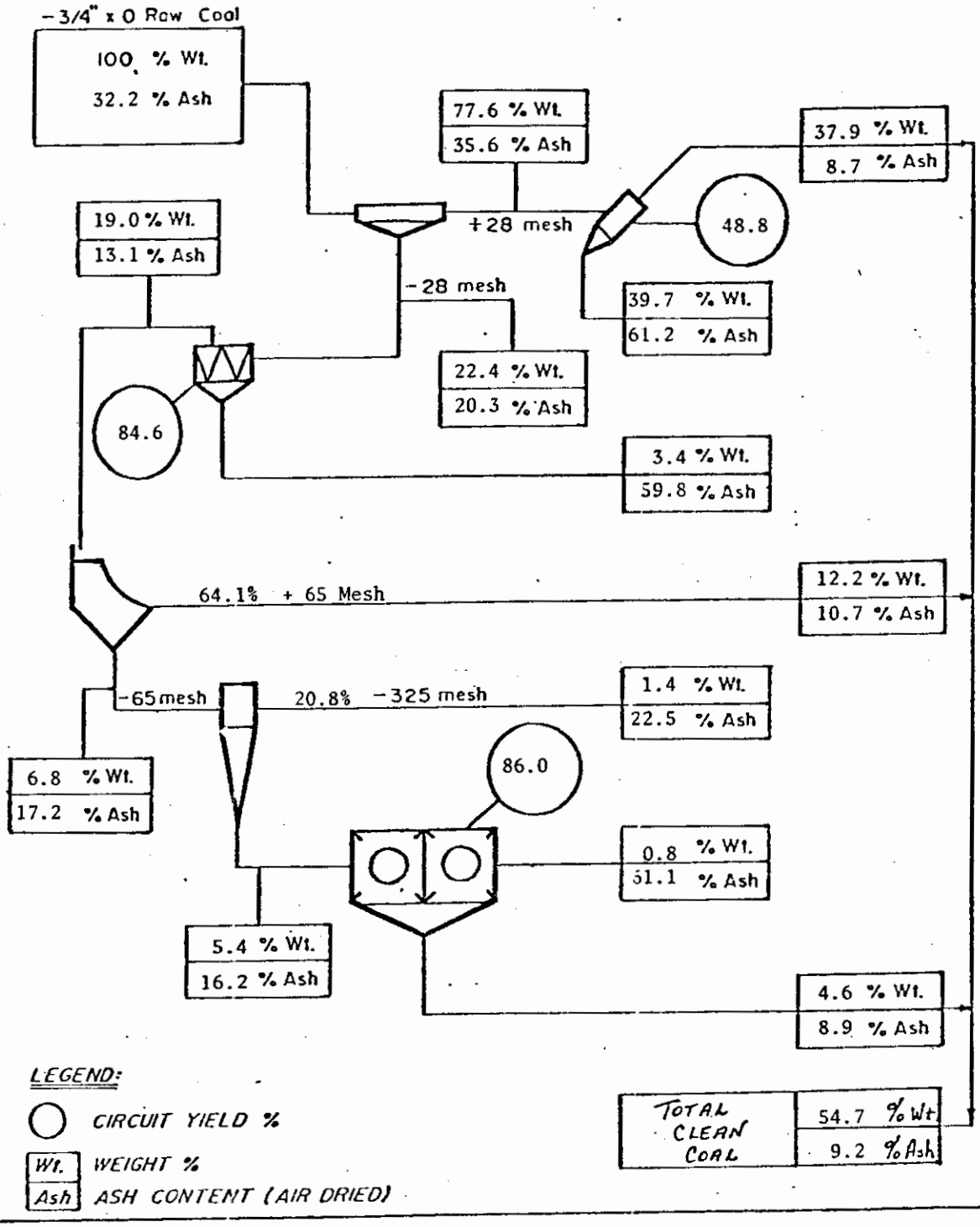
SAMPLE: *W.O. Cyclone Products* - ADIT 21 / SEAM 7

LAB NO. 7882

DATE: NOV. 83

PARTITION CURVE





BIRTLEY COAL & MINERALS TESTING

Title PLANT BALANCE FLOW SHEET FORDING COAL LIMITED ADIT 22/SEAM 9 Bulk Sample LAB NO: 7885	Date DECEMBER 1983 Drawn

SUMMARY - BULK WASHING DATA *

Bulk Sample ADIT 22/ SEAM 9 Lab.No. 7885

Date Received November 21, 1983 Date Washed November 28, 1983

a) RAW COAL

Delivered Weight 3.414 MT Washed Weight 2.532 MT

ADM% 5.0 ASH% 32.2 FSI 4

b) HEAVY MEDIA CIRCUIT: 3/4" x 28 Mesh = 77.6 % by weight

S.G. of Medium 1.30 Calculated Yield = 48.8 %

SAMPLE	ASH%	F.S.I.
FEED	35.6	3½
CLEAN COAL	8.7	7
REJECT	61.2	1

c) WATER-ONLY CYCLONE CIRCUIT: 28M x 0 = 22.4 % by weight

V.F.C. #1 = 2.5 cm #2 5.0 cm Calculated Yield = 84.6 %

SAMPLE	ASH%	F.S.I.
FEED	20.3	8
OVERFLOW	13.1	8
UNDERFLOW	59.8	1
S.B.O.	10.7	8
S.B.U.	17.2	7

d) FROTH FLOTATION CIRCUIT: 65M x 0 = 6.8 % by weight

4:1 = Kerosene: M.I.B.C. Calculated Yield = 86.0 %

SAMPLE	ASH%	F.S.I.
T.C.O.	22.5	1
FEED (T.C.U.)	16.2	7½
CONCENTRATE	8.9	8½
TAILINGS	61.1	1

e) FILTER CAKE: S.B.O. + CONCENTRATE = 9.9 ASH% 8 FSI

* All weights and analysis are on an Air Dried Basis unless otherwise indicated.

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 22/ Seam 9 Lab.No. 7885

f) CLEAN COAL: H.M.C.C. + FILTER CAKE Calculated Yield 54.7 %

ADM	PROXIMATE				S%	CAL/GM	FSI	HGI	S.G.
	RM%	ASH%	VM%	FC%					
8.1	0.7	9.0	22.8	67.8	0.54	7789	7½	86	1.33

DILATATION TEST				
ST(°C)	MDT(°C)	MC%	MD%	G
389	464	24	28	1.007

GIESELER FLUIDITY TEST		
	DDPM	TEMP(°C)
START	1	436
MAXIMUM	69	472
FINAL	0	504
	RANGE	68

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WESTERN INDUSTRIES LTD

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 22 / Seam 9 Lab.No. 7885

CLEAN COAL INVENTORY

DATE	SHIPPED		IN STOCK	
	BBLS	M.T.	BBLS	M.T.
November 29, 1983	--	--	9	1.392
December 22, 1983	3	0.464	6	0.928

Birtley Coal
& Minerals Testing
A DIVISION OF GREATWESTERN ELECTRONICS LTD.

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 22 / Seam 9 Lab.No. 7885

HEAVY MEDIUM CIRCUIT

CYCLONE: 14" DSM operating @ 52 KPa

MAGNETITE MEDIUM maintained @ 1.30 S.G.

1.	FEED (3/4" x 28 Mesh)	1.965	M.T.	35.6	ASH%	3½	FSI
2.	CLEAN COAL	0.967	M.T.	8.7	ASH%	7	FSI
3.	REJECT	0.998	M.T.	61.2	ASH%	1	FSI

4. YIELD CLEAN COAL (Weighted) $= \frac{0.967}{1.965} =$ 49.2 %

5. YIELD CLEAN COAL (Calculated) $= \frac{61.2 - 35.6}{61.2 - 8.7} =$ 48.8 %

Birtley Coal
& Minerals Testing

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 22 / Seam 9 Lab.No. 7885

WATER - ONLY CYCLONE CIRCUIT

Primary Cyclone: 6" DSM operating @ 138 KPa

Vortex Finder Clearance set @ 2.5 cm

Secondary Cyclone: 4" DSM operating @ 35 KPa

Vortex Finder Clearance set @ 5.0 cm

Sieve Bend: 65 Mesh

1.	Feed (28 Mesh x 0)	20.3	ASH%	8	F.S.I.
2.	Primary Cyclone Overflow	13.1	ASH%	8	F.S.I.
3.	Secondary Cyclone Underflow	59.8	ASH%	1	F.S.I.
4.	Sieve Bend Overflow (S.B.O.)	10.7	ASH%	8	F.S.I.
5.	Sieve Bend Underflow (S.B.U.)	17.2	ASH%	7	F.S.I.

6. Yield (W.O. Cyclone) $= \frac{59.8 - 20.3}{59.8 - 13.1} =$ 84.6 %

7. Wt% 28M x 65M in Primary Cyclone Overflow = 64.1 %

8. Estimated Yield of 28M x 65M (S.B.O., as % of 28M x 0 Feed) = 54.2 %

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

SUMMARY - BULK WASHING DATA (Cont.)

Bulk Sample Adit 22 / Seam 9 Lab.No. 7885

FROTH FLOTATION CIRCUIT

Flotation Cell: two (2) Birtley-Humboldt Multi-Wobble impellers in series.

Reagent: 4:1 = Kerosene: M.I.B.C.

Thickening Cyclone: 20° - 8" cyclone Hayl-Patterson

1.	Thickening Cyclone Overflow (T.C.O. -325M)	22.5	ASH%	1	FSI
2.	Flotation Feed (Thickening Cyclone Underflow)	16.2	ASH%	7½	FSI
3.	Concentrate	8.9	ASH%	8½	FSI
4.	Tailings	61.1	ASH%	1	FSI

5. Yield Concentrate = $\frac{61.1 - 16.2}{61.1 - 8.9}$ = 86.0 %

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WESTERN STEEL INDUSTRIES LTD

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 22 SEAM 9 BULK SAMPLE (BIN #8202)
RAW COAL CRUSHED TO -3/4"
LAB NO: 7883
DATE: JANUARY 12, 1984

HEAD RAW ANALYSIS

ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV CAL/GM	HGI	FSI	BASIS
5.00	0.30	32.20	18.60	48.90	0.44	5685	78	4	adb
	5.29	30.59	17.67	46.46	0.42	5401			arb
		32.30	18.66	49.05	0.44	5702			db

APPARENT S.G. ON 3/4" X 0 = 1.56

SIZE AND RAW ANALYSIS, air dried basis

SIZE FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
3/4" X 28M	81.00	34.80	3-1/2	81.00	34.80
28M X 100M	12.40	17.80	8	93.40	32.54
100M X 0	6.60	16.60	7-1/2	100.00	31.49

FLOAT-SINK ANALYSIS, air dried basis: 3/4" X 28M

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	14.90	1.80	9	14.90	1.80
1.30 - 1.35	18.40	6.00	6-1/2	33.30	4.12
1.35 - 1.40	10.30	10.90	2-1/2	43.60	5.72
1.40 - 1.45	6.50	16.30	1-1/2	50.10	7.09
1.45 - 1.50	4.60	21.50	1-1/2	54.70	8.31
1.50 - 1.60	7.20	27.60	1	61.90	10.55
1.60 - 1.70	4.30	36.90	1	66.20	12.26
1.70 - 1.80	3.50	45.70	1	69.70	13.94
1.80 - 1.90	2.10	54.80	1	71.80	15.14
1.90 - SINK	28.20	82.80	0	100.00	34.22

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WESTERN STEEL INDUSTRIES LTD

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 22 SEAM 9 BULK SAMPLE (BIN #8202)
RAW COAL CRUSHED TO -3/4"
LAB NO: 7883
DATE: JANUARY 12, 1984

FLOAT-SINK ANALYSIS, air dried basis: 28M X 100M

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	24.80	2.60	9	24.80	2.60
1.30 - 1.35	26.40	6.00	8-1/2	51.20	4.35
1.35 - 1.40	16.60	11.30	8	67.80	6.05
1.40 - 1.45	5.70	14.30	6	73.50	6.69
1.45 - 1.50	5.50	20.50	1	79.00	7.65
1.50 - 1.60	3.40	26.70	1	82.40	8.44
1.60 - 1.70	2.50	36.00	1	84.90	9.25
1.70 - 1.80	2.20	45.90	1	87.10	10.18
1.80 - 1.90	1.70	54.70	1	88.80	11.03
1.90 - SINK	11.20	76.80	0	100.00	18.40

FROTH FLOTATION TEST: 100M X 0

PRODUCT	WT%	ASH%	F.S.I.	CUMULATIVE WT%	CUMULATIVE ASH%
STAGE 1	76.70	8.30	8-1/2	76.70	8.30
STAGE 2	9.40	18.50	6	86.10	9.41
TAILINGS	13.90	58.90	1	100.00	16.29

PARAMETERS = 10% PULP DENSITY
= 60 SECOND CONDITIONING WITH 0.48LB/TONNE KEROSENE:MIBC
= STAGE I - 1ST MINUTE FROTH

= STAGE II- 2ND MINUTE FROTH

Birtley Coal
& Minerals Testing

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 22 SEAM 9 BULK SAMPLE (BIN #8202)
RAW COAL CRUSHED TO -4"
LAB NO: 7883/7884
DATE: JANUARY 12, 1984

LAB NO: 7883 -BEFORE ATTRITION

SIZE AND RAW ANALYSIS, air dried basis

SIZE FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
4" X 3/8"	38.70	41.30	1-1/2	38.70	41.30
3/8" X 28M	44.70	28.80	5-1/2	83.40	34.60
28M X 100M	11.50	16.30	8	94.90	32.38
100M X 0	5.10	15.70	8	100.00	31.53

WT% + 4" = 0.9 - CRUSHED TO PASS 4".

LAB NO: 7884 - AFTER ATTRITION*

SIZE AND RAW ANALYSIS, air dried basis

SIZE FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
+ 3/8"	28.80	46.60	1	28.80	46.60
3/8" X 28M	50.30	29.30	4	79.10	35.60
28M X 100M	13.00	16.10	7-1/2	92.10	32.85
100M X 0	7.90	18.00	5-1/2	100.00	31.67

* ATTRITION TEST BY AUSTRALIAN TUMBLER METHOD.
8 X 50 KG. BATCHES OF 4" X 0 RAW COAL EACH

TUMBLED @ 20 RPM FOR 200 SECONDS WITH 18 - 2 IN. STEEL CUBES & 150 L H2O.

Birtley Coal
& Minerals Testing

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 22 SEAM 9 BULK SAMPLE (BIN #8202)
RAW COAL CRUSHED TO -4"
LAB NO: 7884 -AFTER ATTRITION
DATE: JANUARY 12, 1984

FLOAT-SINK ANALYSIS, air dried basis: + 3/8"

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	2.50	2.70	9	2.50	2.70
1.30 - 1.35	15.60	5.70	4-1/2	18.10	5.29
1.35 - 1.40	10.00	10.20	2	28.10	7.03
1.40 - 1.45	6.80	16.00	2	34.90	8.78
1.45 - 1.50	5.40	21.00	1-1/2	40.30	10.42
1.50 - 1.60	8.60	28.20	1	48.90	13.55
1.60 - 1.70	3.80	37.60	1	52.70	15.28
1.70 - 1.80	3.40	46.30	1	56.10	17.16
1.80 - 1.90	2.70	54.20	1	58.80	18.86
1.90 - SINK	41.20	84.90	0	100.00	46.07

FLOAT-SINK ANALYSIS, air dried basis: 3/8" X 28M

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	20.50	1.90	9	20.50	1.90
1.30 - 1.35	18.20	6.70	6	38.70	4.16
1.35 - 1.40	10.20	10.60	2-1/2	48.90	5.50
1.40 - 1.45	7.80	16.60	2	56.70	7.03
1.45 - 1.50	4.80	19.20	2	61.50	7.98
1.50 - 1.60	6.70	27.40	1-1/2	68.20	9.89
1.60 - 1.70	4.50	36.70	1-1/2	72.70	11.55
1.70 - 1.80	2.40	45.60	1	75.10	12.63
1.80 - 1.90	2.80	52.90	1	77.90	14.08
1.90 - SINK	22.10	79.30	0	100.00	28.49

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 22 SEAM 9 BULK SAMPLE (BIN #8202)
RAW COAL CRUSHED TO -4"
LAB NO: 7884 -AFTER ATTRITION
DATE: JANUARY 12, 1984

FLOAT-SINK ANALYSIS, air dried basis: 28M X 100M

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
FLOAT - 1.30	21.60	1.20	9	21.60	1.20
1.30 - 1.35	27.90	4.20	8	49.50	2.89
1.35 - 1.40	18.70	6.60	8	68.20	3.91
1.40 - 1.45	5.20	11.40	3	73.40	4.44
1.45 - 1.50	5.60	13.10	2-1/2	79.00	5.05
1.50 - 1.60	4.60	23.50	1	83.60	6.07
1.60 - 1.70	[illegible]	35.30	1	86.30	6.98
1.70 - 1.80	[illegible]	44.90	1	88.50	7.92
1.80 - 1.90	1.40	53.10	1	89.90	8.63
1.90 - SINK	10.10	75.80	0	100.00	15.41

FROTH FLOTATION TEST, air dried basis: 100M X 0

PRODUCT	WT%	ASH%	F.S.I.	CUMULATIVE WT%	CUMULATIVE ASH%
STAGE 1	56.40	9.10	7	56.40	9.10
STAGE 2	10.20	13.90	5-1/2	66.60	9.84
TAILINGS	33.40	33.40	2-1/2	100.00	17.71

PARAMETERS - AS FOR LAB NO. 7883.

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WESTERN ELECTRONICS LTD.

CLIENT: FORDING COAL LIMITED
PROJECT: ADIT 22/SEAM 9 BULK SAMPLE
LAB NO: 7885
DATE: JANUARY 11, 1984

I. WASHABILITY DATA - HEAVY MEDIUM CYCLONE PRODUCTS for E.P.M.

S.G. FRACTION	PERCENT WEIGHT CLEAN COAL	PERCENT WEIGHT REJECT	PERCENT OF FEED CLEAN COAL	PERCENT OF FEED REJECT	CALCULATED FEED	MEAN S.G.	PARTITION COEFFICIENT
- 1.30	34.00	1.00	16.59	0.51	17.10	—	2.98
1.30 - 1.40	28.70	2.40	14.00	1.23	15.23	1.35	8.08
1.40 - 1.50	18.90	9.20	9.22	4.71	13.93	1.45	33.81
1.50 - 1.60	16.00	11.20	7.81	5.73	13.54	1.55	42.32
1.60 - 1.70	1.80	7.80	0.88	3.99	4.87	1.65	81.93
1.70 - 1.80	0.30	7.30	0.15	3.74	3.89	1.75	96.14
1.80 - 1.90	0.10	4.90	0.05	2.51	2.56	1.85	98.05
1.90 - 2.00	0.10	4.70	0.05	2.41	2.46	1.95	97.97
+ 2.00	0.10	51.50	0.05	26.37	26.42	—	99.81

II. WASHABILITY DATA - WATER-ONLY CYCLONE PRODUCTS for E.P.M.

S.G. FRACTION	PERCENT WEIGHT OVERFLOW	PERCENT WEIGHT UNDERFLOW	PERCENT OF FEED OVERFLOW	PERCENT OF FEED UNDERFLOW	CALCULATED FEED	MEAN S.G.	PARTITION COEFFICIENT
- 1.30	33.30	3.50	28.17	0.54	28.71	—	1.88
1.30 - 1.40	24.50	5.10	20.73	0.79	21.52	1.35	3.67
1.40 - 1.50	23.70	4.80	20.05	0.74	20.79	1.45	3.56
1.50 - 1.60	7.00	4.90	5.92	0.75	6.67	1.55	11.24
1.60 - 1.70	3.70	5.60	3.13	0.86	3.99	1.65	21.55
1.70 - 1.80	1.80	5.10	1.52	0.79	2.31	1.75	34.20
1.80 - 1.90	1.40	5.70	1.19	0.88	2.07	1.85	42.51
1.90 - 2.00	1.10	7.30	0.93	1.12	2.05	1.95	54.63
+ 2.00	3.50	58.00	2.96	8.93	11.89	—	75.11

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

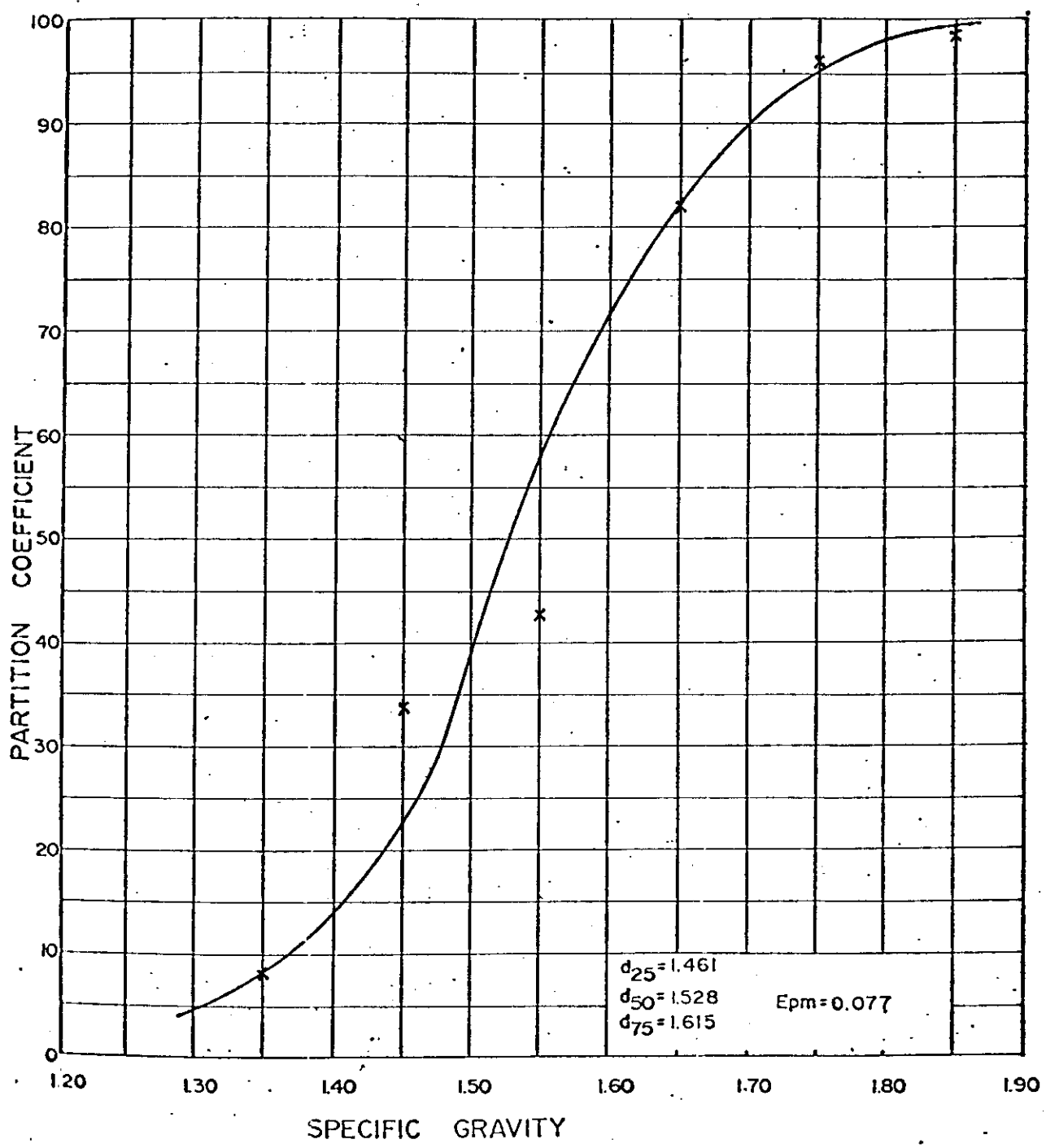
CLIENT: FORDING COAL LIMITED

SAMPLE: *DSM Cyclone Products*- ADIT 22 / SEAM 9

LAB NO. 7885

DATE: NOV. 83

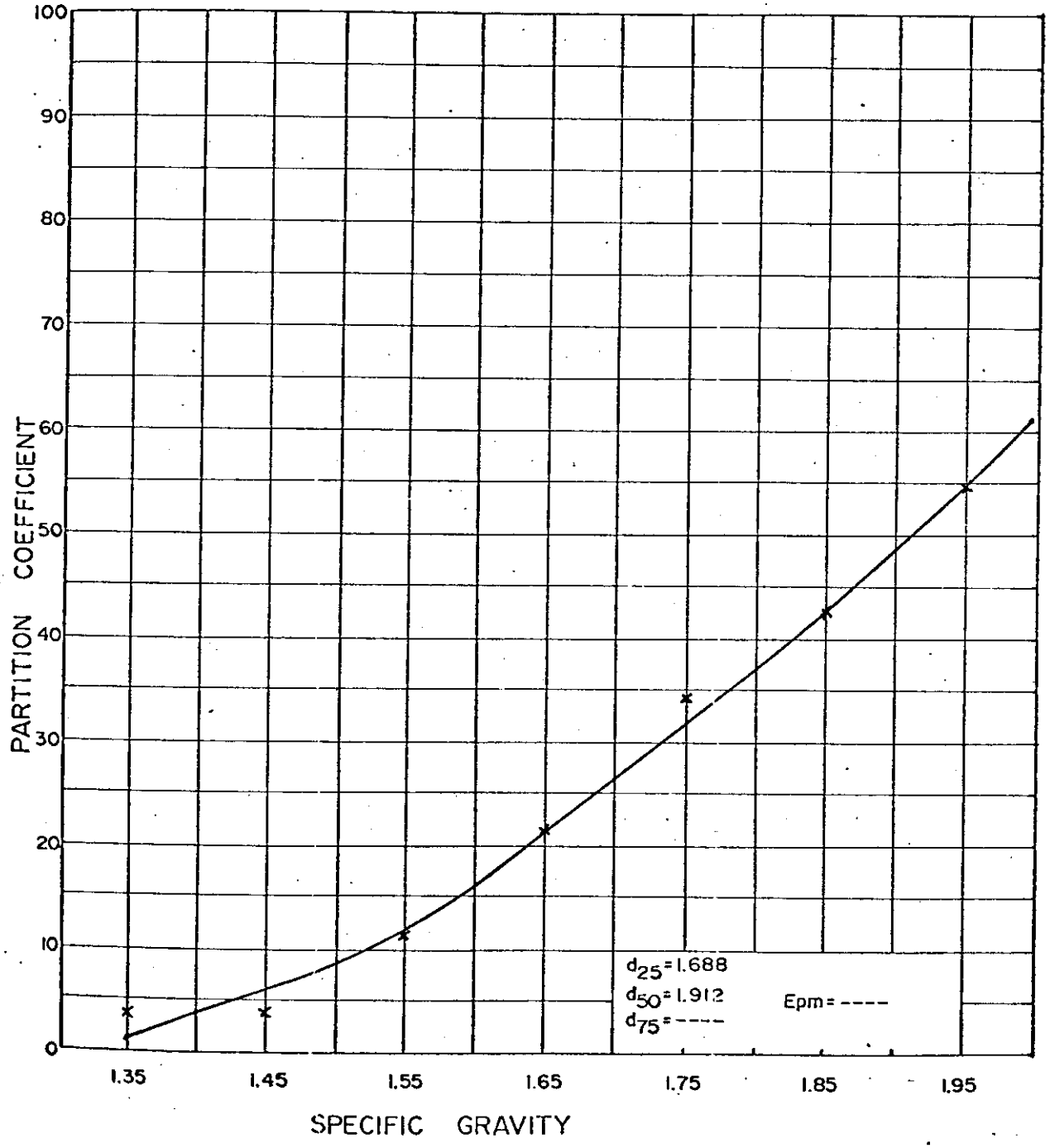
PARTITION CURVE



CLIENT: FORDING COAL LIMITED
SAMPLE: *W.O. Cyclone Products* - ADIT 22 / SEAM 9

LAB NO. 7885
DATE: NOV. 83

PARTITION CURVE



4 SEAM BULK SAMPLE * REVISED *

	%WT	Σ%WT	RM	Ash	VM	FSI	S		
+28	80.0	80.0	.5	12.80	18.7	3½	.27		
28x65	12.5	92.5	.5	9.46	20.2	6	.28		
-65	7.5	100.0	.5	9.75	20.2	5½	.28		
calc.			.5	12.15	19.0	4	.27		
Actual.			.5	13.13	19.4	3½	.25		
+28 SINK/FLOT									
	%WT		RM	Ash	VM	FSI	S		
1.60F	86.2		.5	6.83	20.4	3	.44		
1.60S	13.8			68.28		0			
calc.				15.3		2½			
-28+65 SINK/FLOT									
	%WT		RM	Ash	VM	FSI	S		
1.60F	93.7		.8	5.87	21.2	5	.56		
1.60S	6.3			53.98		1			
calc.				8.90		5			
-65 FLOTATION									
	%WT		RM	Ash	VM	FSI	S		
CONC	87.2		.2	7.24	20.6	5	.30		
TS	12.8			28.20		1½			
calc.				9.92		4½			
CLEAN COAL		%WT	RM	Ash	VM	FSI	S		
+28		79.1	.5	6.83	20.4	3	.44		
-28+65		13.4	.8	5.87	21.2	5	.56		
-65		7.5	.2	7.24	20.6	5	.30		
calc.			.5	6.73	20.5	3½	.45		
actual.			.8	7.14	20.3	3½	.42	8168	bd

4 Seam Bulk Sample

	wt	%WT		YIELD
+28	366,528	80.0		69.0
28x65	57284	12.5		11.7
-65	34535	7.5		6.5
	458347			87.2
+28				
1.60F	299196	86.2		
S	47882	13.8		
28x65				
1.60F	54549	93.7		
S	3665	6.3		
-65				
CONC	28837	87.2		
TS	4236	12.8		

Table 2 - Physical tests and fusibility of ash of component coals

Identification			
Laboratory number.....	2203-84	2204-84	2254-84
Description.....	Seam 7 Adit 21	Seam 9 Adit 22	Kilmarnock Seam 4
Coal Pulverization			
Sieve analysis			
Passing / Retained On			
6.3 mm / 6.3 mm %	0.1	0.2	0.1
3.35 mm / 3.35 mm %	10.1	12.7	8.1
1.70 mm / 1.70 mm %	17.7	17.7	14.7
850 µm / 859 µm %	20.1	18.9	17.1
..... / .....%	52.0	50.5	60.0
Total passing / 3.35 mm %	89.8	87.1	91.8
Grindability			
Hardgrove index	87	87	94
Fusibility of ash			
Initial deformation temp .....°C	1482+	1482	1443
Softening temp. spherical.....°C	1482+	1482+	1482+
Softening temp. hemispherical...°C	1482+	1482+	1482+
Fluid temp .....°C	1482+	1482+	1482+

Table 3 - Thermal rheological properties of component coals

Identification			
Laboratory number.....	2203-84	2204-84	2254-84
Description.....	Seam 7 Adit 21	Seam 9 Adit 22	Kilmarnock Seam 4
Linear Expansion			
833 kg/m^3 at 2% moisture.....%	-9.3	-8.2	-20.5
Gieseler plasticity			
Start.....°C	438	439	-
Fusion temp .....°C	452	453	-
Max fluid temp .....°C	469	467	468
Final fluid temp .....°C	482	487	-
Solidification temp .....°C	493	492	492
Melting range .....°C	49	48	-
Max fluidity.....dd/m	20.4	20.0	0.7
Torque .....g.in.	40	40	40
Dilatation			
Ti - Softening temp .....°C	408	404	436
Tii - Max contraction temp...°C	461	458	490
Tiii - Max dilatation temp....°C	482	482	-
Contraction.....%	26	27	16
Dilatation .....%	3	8	nil
Free swelling index			
F.S.I.	7-1/2	7-1/2	3-1/2

Table 4 - Petrographic ılysis of component coals

Identification			
Laboratory number.....	2203-84	2204-84	2254-84
Description.....	Seam 7 Adit 21	Seam 9 Adit 22	Kilmarnock Seam 4
Distribution of vitrinite types			
V-6.....%			
V-7.....%			
V-8.....%			
V-9.....%			
V-10.....%	0.5	1.3	
V-11.....%	4.6	4.0	
V-12.....%	21.5	30.8	4.1
V-13.....%	20.6	17.2	23.1
V-14.....%	3.0		11.9
V-15.....%			0.1
V-16.....%			
V-17.....%			
V-18.....%			
Reactive components			
Total vitrinite.....%	50.3	53.4	39.1
Reactive semi-fusinite (1/2)...%	17.9	16.5	22.6
Exinite.....%	0.0	0.3	0.0
Total.....%	68.2	70.2	61.7
Inert components			
Inert semi-fusinite (1/2).....%	17.9	16.5	22.6
Micrinite.....%	3.2	2.6	3.4
Fusinite.....%	5.7	5.7	8.1
Mineral matter.....%	5.0	5.0	4.2
Total.....%	31.8	29.8	38.3
Petrographic indices			
Mean reflectance.....%	1.29	1.26	1.37
Balance index.....	2.12	1.82	3.51
Strength index.....	5.22	5.03	5.81
Stability index.....	53.7	55.3	48.4

Table 5 - Carbonization conditions

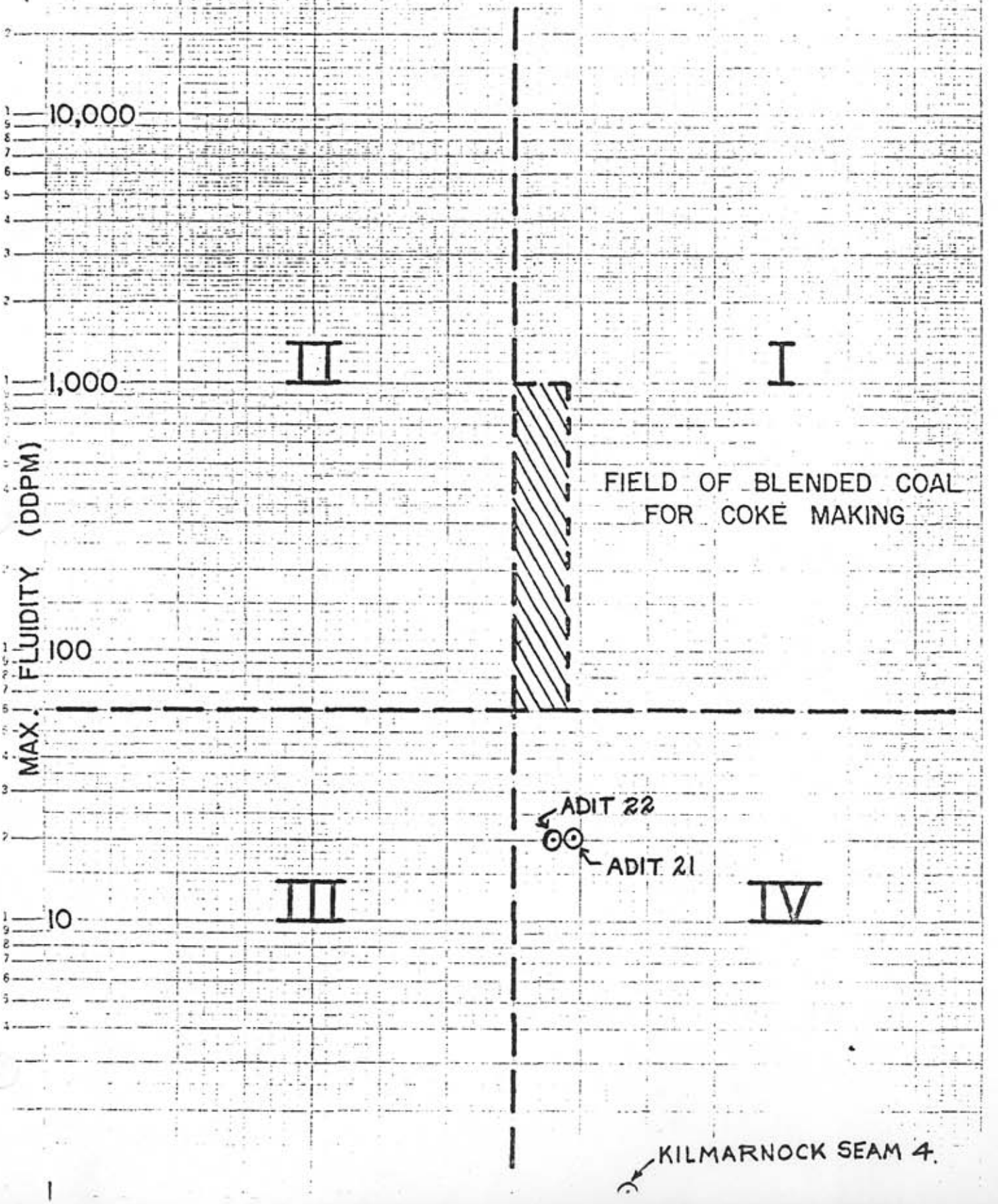
Test identification number	1064	1065	1073
Date of test	17/01/84	18/01/84	07/02/84
Coke oven identification.....	12-71	12-71	12-71
Description.....	Adit 22 Seam 9	Adit 21 Seam 7	Kilmarnock Seam
Charge Properties			
Proximate analysis (db) Ash.....%	8.9	9.0	7.5
Volatile matter ....%	22.3	22.0	19.5
Fixed carbon.....%	68.8	69.0	73.0
Moisture in charge .....%	3.1	3.2	2.8
Minus 3.35 mm .....%	87.1	89.8	91.8
Other			
.....			
Carbonization conditions			
Net weight of charge (wet).....kg	277.5	276.5	277.5
ASTM cone bulk density (wet).....kg/m^3	778.6	778.6	775.4
Calc. charge dry bulk density in oven... kg/m^3	817.0	812.2	818.6
Carbonization Results			
Gross coking time (at Push).....h:min	9:45	9:35	12:47
Final centre temp.....°C	1045	1045	1005
Time to 900°C centre temp..... h:min	8:25	8:13	11:47
Time to 950°C centre temp..... h:min	8:43	8:33	12:09
Time to 1000°C centre temp..... h:min	9:06	8:56	12:39
Maximum wall pressure.....kPa	5.31	4.34	2.55
Coke yield actual .....%	77.9	77.5	69.7

Table 6 - Coke properties

Test identification number.....	1064	1065	1073
Screen analysis of coke (cum. % retained on)			
100 mm sieve.....%	1.1	0.8	0.0
75 mm sieve.....%	6.2	7.5	3.6
50 mm sieve.....%	43.7	44.6	24.5
37.5 mm sieve.....%	76.9	77.1	36.0
25.0 mm sieve.....%	94.1	94.2	44.0
19.0 mm sieve.....%	95.9	96.1	45.0
12.5 mm sieve.....%	96.8	97.0	45.8
Total -12.5 mm (breeze).....%	3.2	3.0	54.2
Mean coke size.....mm	50.5	51.1	27.9
Coke chemical analysis			
Proximate analysis (db)			
Ash.....%	11.3	11.2	9.1
Volatile matter.....%	1.4	1.1	0.7
Fixed carbon.....%	87.3	87.7	90.2
Sulphur (db).....%	0.46	0.45	0.25
Coke apparent specific gravity.....	0.896	0.965	1.025
ASTM coke tumbler test			
Stability factor (cum. % + 25.0 mm).	57.4	55.9	26.7
Hardness factor (cum. % + 6.3 mm).	69.7	69.0	44.6
JIS coke tumbler test (cum. % retained on)			
30 revs: 50 mm sieve.....%	15.5	15.5	*
25 mm sieve.....%	88.2	88.0	
15 mm sieve.....%	94.1	94.5	
150 revs: 50 mm sieve.....%	6.4	4.1	
25 mm sieve.....%	73.4	71.1	
15 mm sieve.....%	79.0	84.2	

*Insufficient Sample

Figure 2. RELATIONSHIP BETWEEN MAX. FLUIDITY AND MEAN REFLECTANCE.



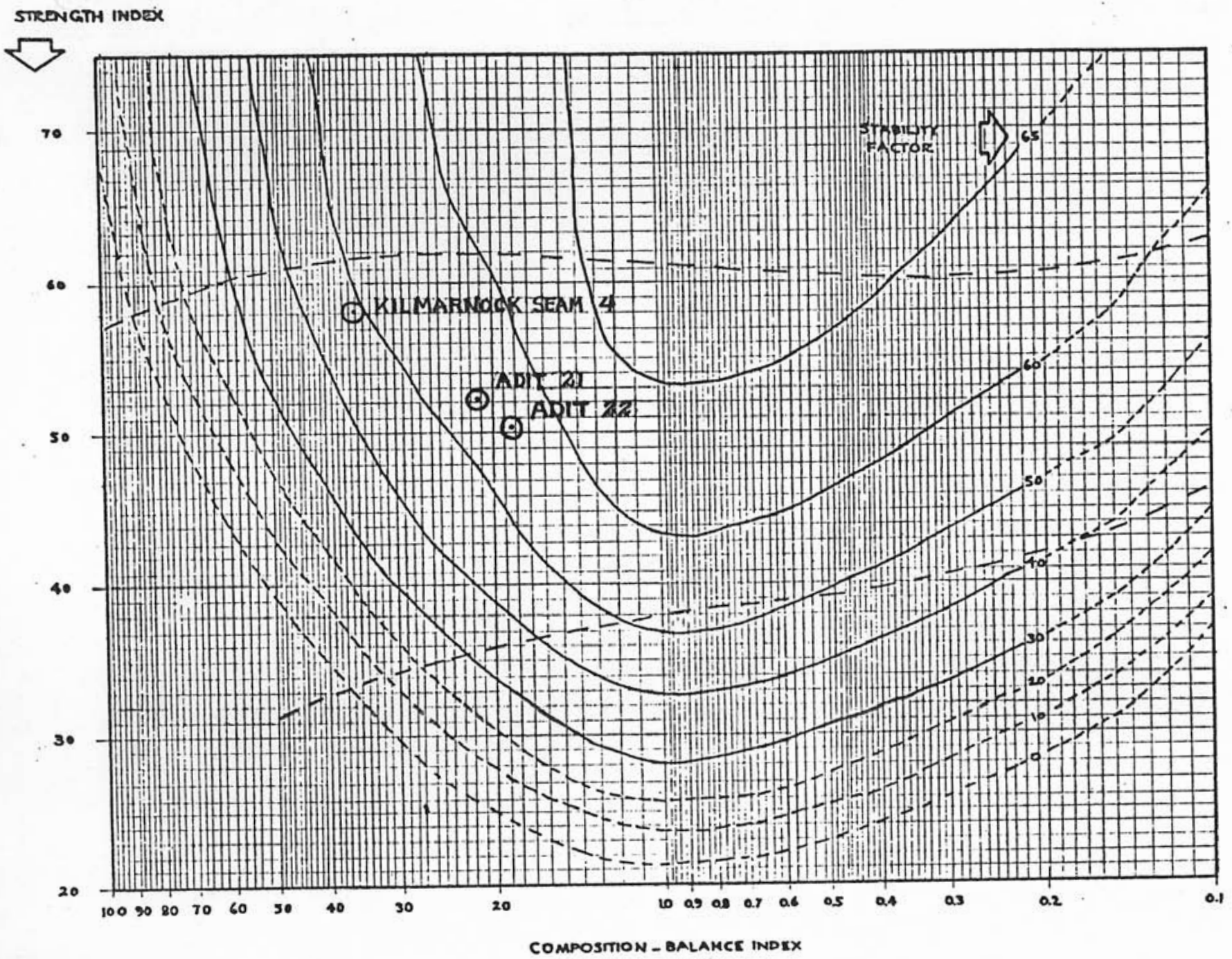


Fig. 1 - Plot of the stability factors of the component coals from petrographic data