DEPARTMENT OF MINES,
SOUTH AUSTRALIA.

REPT.BK.NO. 24-281.

D.M. 147/49

PROGRESS REPORT:

LEIGH CREEK COALFIELD.

EXPLORATION OF THE EASTERN MARGIN OF THE MAIN (CENTRAL OR TRELFORD) BASIN.

ASSOCIATED PLAN 50-5

The presence of sufficient coal at shallow depth for an open cut working on the Eastern margin of the Main Basin has now been established, and boring operations are being continued to prove additional reserves, as well as to delineate more accurately, for mining purposes, the probable limits of open-cut workings.

A total of 64 bores have now been completed and the accompanying plan shows the location of the bores, together with areas which have been considered for tonnage estimates. The proved coal reserves as at the 31st December, 1948, are tentatively estimated at 555,654 tons. Of this amount, 420,160 tons have been proved in the southern section, having there an overburden of 776,005 cubic yards. These estimates make no provision for batter as both the shallow and deep working limits have not yet been accurately defined. Tables I & II give details of the boring results, and the analyses of the coal intersected. A suite of sections has also been prepared showing the relation of the coal seam to the surface, the nature and thickness of the overburden, the dispositions of the intercalated shale bands, and the dislocation of the seam by faulting. A final report will be prepared on the completion of the drilling programme and therefore no attempt is made to indicate the average composition and other characteristics of the seam in this area, other than in the logs of the individual bores.

BORING RESULTS:

The majority of the bores are located in the Southern section where the presence of a fault with an up throw to the west has considerably increased the tonnage of coal to be won by open-cut methods. The presence of two small faults, again with upthrows to the west, has also been indicated, contributing to the increase in lateral extent of the possible open cut area. The faulting is clearly shown, for example on the cross sections along grid lines and K1Sth and K2Sth. Another featu

is the absence of well defined shale partings commonly developed in/is eastern area, particularly near the shallow margin of the coal as revealed by the more northerly bores.

In general the shale partings are lenticular in character, and Table II, studiedin conjunction with the cross-sections, shows how the main shale partings in the northern section occurs in the lower part of the coal series, and gradually thins to the sough and the eastern edge of the basin, whereas the main shale parting in the southern section is found in the upper part of the coal series but lenses out to the north and again towards the eastern edge of the basin.

ESTIMATES OF QUANTITIES OF COAL AND OVERBURDEN:

In order to make a tentative estimate of quantities of coal and overburden, the area has been divided in to four sections as shown on the accompanying plan. These estimates are set out in Table III and the following notes summarize the basis on which the calculations were made:

(1) Coal thicknesses used are the true coal thicknesses, excluding any small shale parting which may be present in either the upper or lower portions of the seam.

(2) For the purpose of the estimates, the weight of 1 cubic yard of coal is taken to be 1 ton.

(3) The loss of coal in mining has been allowed for by assuming that this loss is equivalent to a reduction in seam thickness of six inches on the top and bottom of both portions of the seam.

(4) The amount of coal lost so determined, excepting that portion due to the bottom six inches of the coal series, has been added to the overburden for calculation of the ratio of volume of overburden to volume of recoverable coal.

(5) In the estimation of coal reserves in Blocks 'A', 'B', 'C', and 'D', the tonnage was calculated by measurement of the area of each individual block multiplied by the average thickness of coal in each block.

(6) The estimateion of the volume of overburden was made by measuring the area between each consecutive pair of 'cover contours' or isopachytes of overburden (shown on the plan) and multiplying by the mean depth of the coal between these cover contours. To the total volume of overburden of each block was then added a figure representin

the shale parting calculated in a similar manner using the average thickness of the shale parting in each block.

(7) An estimate of the volume of overburden for Block 'A' (see plan) has not been made as insufficient drilling has been done to define likel workable limits.

(8) No allowances were made for batters in the calculation of overburde quantities which merely represent the quantities vertically overlying the coal reserves so far proven for mining purposes.

CONCLUSIONS:

During the forthcoming year it is anticipated that boring operation s will considerably increase the known shallow coal reserves in this afea and on presant indications, this should result in trebling the present estimated tonnage.

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GEOLOGIST.

EA:TJD
10/2/1949.

LEIGH CREEK COALFIELD

MAIN BASIN — EASTERN MARGINAL BORING

TABLE I

PROXIMATE ANALYSES OF BOREHOLE SAMPLES

Bore No.	Depth From		Depth To		Thickness		Weighted average moisture as mined	Weighted average proximate analysis (Standard 12% moisture)				Total Depth of Bore		Remarks
								Moisture	Volatile matter	Fixed Carbon	Ash			
	Ft.	ins	Ft.	ins.	Ft.	ins	%	%	%	%	%	Ft.	ins.	
K.2.D Sth.	27	0	37	6	10	6	33.84	12.00	29.96	38.09	19.95	88	0	
	37	6	46	6	9	0	19.46	12.00	13.43	13.10	61.47			
	46	6	79	6	33	0	34.68	12.00	27.54	41.28	19.18			
	79	6	81	6	2	0	15.59	12.00	8.82	5.57	73.61			
K.2.F Sth.	25	6	39	0	13	6	26.45	12.00	20.00	22.13	45.87	86	0	Coal band 25'6" - 33'9" (High ash content).
	39	0	78	6	39	6	35.22	12.00	27.50	42.10	18.40			
	78	6	79	0	0	6	17.06	12.00	8.67	6.43	72.90			
K.2.G. Sth.	46	6	54	3	7	9	39.30	12.00	31.47	38.27	18.26	113	0	
	54	3	67	6	13	3	25.11	12.00	17.37	19.71	50.92			Coal Band 55'9"-57'0" (High Ash Content)
	67	6	105	0	37	6	36.18	12.00	27.82	43.03	17.15			
K.2.H. Sth.	74	6	83	6	9	0	39.54	12.00	32.48	36.99	18.53	147	6	
	83	6	95	6	12	0	25.17	12.00	18.72	21.64	47.64			
	95	6	134	0	38	6	34.54	12.00	27.73	43.18	17.09			
	134	0	135	6	1	6	14.7	12.00	11.00	7.44	69.56			
K.s.I.Sth.	101	0	108	6	7	6	37.69	12.00	32.74	40.13	15.13	164	0	+ 118'6" - 120'6"
	108	6	120	0	11	6	24.46	12.00	19.15	22.63	45.92			Coal Band 111'0"-114'0" (High Ash Content)
	120	0	158	6	38	6	34.00	12.00	28.04	43.63	16.33			
K.1.B.C. Sth.	30	0	45	3	15	3	24.83	12.00	13.90	9.69	64.41	65	0	
	45	3	50	6	5	3	36.29	12.00	27.60	40.20	20.20			
	50	6	52	0	1	6	16.74	12.00	7.90	4.75	75.35			
K.1.C.D. Sth.	32	0	67	6	35	6	33.56	12.00	26.95	42.83	18.22	75	0	
	67	6	68	6	1	0	18.88	12.00	15.67	10.02	61.31			
K.1.C Sth.	22	0	25	3	3	3	34.13	12.00	16.39	7.20	64.41	74	0	
	27	3	28	6	3	3	24.88	12.00	12.30	7.53	68.17			
	31	6	62	0	30	6	35.10	12.00	26.46	40.90	20.64			
K.1.E. Sth.	49	6	61	6	12	0	37.72	12.00	28.51	35.38	24.11	108	0	
	61	6	67	0	5	6	23.99	12.00	16.67	17.00	54.33			
	67	0	101	6	34	6	37.32	12.00	27.63	42.87	17.50			Coal band 102'3"-103'6" (High Ash Content)
	101	6	104	6	3	0	28.87	12.00	18.70	22.56	46.65			
K.1.G Sth.	49	0	62	0	3	0	44.84	12.00	32.56	40.82	14.62	115	0	
	52	0	63	0	1	0	30.17	12.00	23.61	21.22	43.17			
	53	0	57	6	4	6	43.83	12.00	31.42	42.25	14.33			
	57	6	68	0	10	6	27.34	12.00	18.72	21.75	47.53			Coal band 65'0"-68'0" (High Ash Content)
	68	0	108	3	40	3	36.02	12.00	26.98	42.84	18.18			
	108	3	109	6	1	3	17.65	12.00	9.38	7.27	71.35			
K.1.H. Sth.	77	0	83	0	6	0	39.70	12.00	32.84	36.38	18.78	141	6	
	83	0	95	0	12	0	25.17	12.00	17.04	19.36	51.60			Coal Band 87'0"-90'0" (High Ash Content)
	95	0	136	6	41	6	36.75	12.00	26.87	43.27	17.86			
K.1.1 Sth.	101	9	110	6	8	9	39.68	12.00	32.66	40.40	14.94	167	0	
	110	6	122	6	12	0	27.79	12.00	21.20	25.78	41.02			Coal Band 112'6"-118'6" 119'6"-122'6"
	122	6	160	6	38	0	35.40	12.00	28.24	43.47	16.29			
	160	6	161	3	0	9	15.85	12.00	9.92	6.71	71.37			High Ash Content
K.1.B.			----------				----------NO COAL----------					92	0	
K.1.I	105	0	114	0	9	0	40.67	12.00	32.11	41.68	14.21	172	0	
	114	0	122	6	8	6	24.06	12.00	17.65	20.15	50.20			Coal Band 117'6"-121' (High Ash Content)
	124	0	165	6	41	6	34.99	12.00	26.91	43.47	17.72			
	165	6	166	0	0	6	15.43	12.00	11.49	6.98	69.53			
K.2.C	31	0	32	6	1	6	33.27	12.00	24.03	24.57	39.40	73	9	
	32	6	48	9	16	3	34.86	12.00	27.19	42.38	18.43			
	48	9	50	6	1	9	20.95	12.00	13.59	14.04	60.37			
	50	6	69	0	18	6	33.92	12.00	25.17	39.28	23.55			
K.2.D	30	6	62	6	32	0	33.87	12.00	28.12	40.46	19.42	85	0	
	62	6	64	0	1	6	25.93	12.00	22.35	29.78	35.87			
	64	0	81	9	17	9	33.83	12.00	26.77	41.67	19.56			
K.2.E	53	6	61	0	7	6	38.65	12.00	31.42	35.79	20.79	110	0	
	61	0	67	0	6	0	30.32	12.00	22.82	29.49	35.69			Coal Band 64'0"-65'6"
	67	0	104	6	37	6	36.36	12.00	27.29	42.08	18.63			

TABLE I (Continued)

Bore No.	Depth From	Depth To	Thickness	Weighted average moisture as mined.	Weighted average proximate analysis (Standard 12% moisture)				Total Depth of Core	Remarks
					Moisture	Volatile matter	Fixed Carbon	Ash		
	Ft. Ins.	Ft. Ins.	Ft. Ins.	%	%	%	%	%	Ft. Ins.	
K.2.F.	80 0	86 0	6 0	39.13	12.00	33.05	40.62	14.33	137 6	
	86 0	94 6	8 6	27.60	12.00	21.63	27.55	38.82		Coal Bands 86'0"-87'6"
	94 6	132 3	37 9	34.78	12.00	27.53	42.80	17.67		91'6"-94'6"
										(High Ash Content)
K.2.G.	55 6	64 0	8 6	41.47	12.00	32.11	38.13	17.76	119 0	
	64 0	75 6	11 6	21.03	12.00	14.26	15.00	58.74		
	75 6	113 6	38 0	37.94	12.00	27.21	42.37	18.42		
	113 9	114 6	0 9	21.03	12.00	5.65	6.54	75.81		
K.2.H.	84 0	94 3	10 3	37.24	12.00	29.91	38.01	20.08	147 6	
	94 3	103 0	8 9	23.86	12.00	16.81	18.25	52.94		
	103 0	143 6	40 6	36.12	12.00	26.73	42.58	18.69		
	143 6	146 0	2 6	20.74	12.00	11.44	11.26	65.30		
K.2.I.	112 3	120 6	8 3	35.84	12.00	33.25	37.13	17.62	176 0	
	122 3	127 6	5 3	26.86	12.00	22.20	27.25	38.55		High Ash content coal.
	130 6	170 9	40 3	32.45	12.00	28.19	43.10	16.71		
K.3.C.	29 6	39 0	9 6	37.39	12.00	28.04	37.47	22.49	82 6	
	39 0	40 6	1 6	19.83	12.00	12.60	10.15	65.25		
	40 6	47 6	7 0	32.23	12.00	25.30	40.70	22.00		
	47 6	60 6	13 0	20.91	12.00	13.57	15.41	59.02		
	60 6	62 0	1 6	32.32	12.00	26.82	39.81	21.37		
K.3.G.	82 6	123 0	40 6	35.66	12.00	27.09	42.18	18.73	127 6	
	123 0	124 0	1 0	19.01	12.00	11.88	9.56	66.56		
K.3.H.	91 6	100 3	8 9	40.20	12.00	32.44	37.14	18.42	158 0	
	100 3	103 6	3 3	28.04	12.00	19.49	22.33	46.18		
	106 0	112 0	6 0	24.57	12.00	16.32	19.09	52.59		
	112 0	151 0	39 0	36.39	12.00	26.87	43.11	18.02		
	151 0	153 0	2 0	21.33	12.00	11.22	11.79	64.99		
K.4.C.	———	———	———	NO COAL	———	———	———	———	80 0	
K.4.D.	41 9	80 6	38 9	32.19	12.00	26.54	37.98	23.48	102 0	
	80 6	98 0	17 6	22.94	12.00	17.13	22.39	48.48		Coal Bands 82'3"-83'3"
										88'0"-89'6"
										93'9"-96'6"
K.4.G.	111 6	135 6	24 0	34.59	12.00	28.73	41.60	17.67	150 0	
	135 6	137 0	1 6	17.79	12.00	13.81	7.61	66.58		
K.4.H.	103 3	111 0	7 9	36.98	12.00	32.30	39.82	15.88	167 0	
	111 0	122 0	11 0	22.07	12.00	15.31	15.55	57.14		
	122 0	161 3	39 3	35.83	12.00	27.61	42.31	18.08		
K.5.F.	94 0	100 0	6 0	34.57	12.00	31.42	35.05	21.53	155 0	
	100 0	112 6	12 6	20.90	12.00	14.51	16.26	57.23		
	112 6	130 6	18 0	35.59	12.00	27.35	44.43	16.22		
	130 6	131 6	1 0	24.94	12.00	18.33	21.95	47.72		
	131 6	149 6	18 0	32.34	12.00	24.96	38.09	24.95		
K.6.F.	102 9	109 9	7 0	39.90	12.00	31.47	36.55	19.98	141 0	
	109 9	110 6	0 9	24.62	12.00	15.99	16.63	55.38		
	110 6	116 3	5 9	34.50	12.00	26.02	42.12	19.86		
	116 3	117 0	0 9	21.27	12.00	15.40	17.83	54.77		
	117 0	127 0	10 0	33.27	12.00	25.55	40.90	21.55		
	127 0	131 0	4 0	24.16	12.00	17.58	23.13	47.29		
	131 0	137 6	6 6	36.45	12.00	26.36	37.98	23.66		
K.7.F.	58 6	60 0	1 6	18.54	12.00	19.57	14.98	53.45	122 0	
	60 0	66 0	6 0	33.96	12.00	33.06	37.12	17.82		
	66 0	76 6	10 6	20.64	12.00	14.05	15.23	58.72		
	76 6	92 9	16 3	32.96	12.00	27.48	43.50	17.02		
	92 9	94 6	1 9	17.57	12.00	13.53	11.17	63.30		
	94 6	104 9	10 3	30.38	12.00	25.05	38.90	24.05		
	104 9	108 9	4 0	18.55	12.00	13.16	14.16	60.68		
	112 9	117 0	4 3	33.82	12.00	27.56	39.55	20.89		
	117 0	118 0	1 0	20.02	12.00	13.75	12.74	61.51		

LEIGH CREEK COALFIELD

MAIN BASIN — EASTERN MARGINAL BORING

TABLE II

Bore No.	Depth of Coal.	Thickness of Coal Seam	Shale parting	Coal Seam	Shale parting	Coal Seam	Total Thickness of Coal Seams	Total Thickness of Main Shale Parting.
	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.
K.20.F	59 6	32 6			4 9	9 0	41 6	4 9
K.20.E	34 6	21 6			9 0	10 0	34 6	9 0
K.18.G.	85 6	32 6			9 6	10 6	43 0	9 6
K.18.F	54 9	32 9			6 0	9 3	42 0	6 0
K.18.E	34 9	22 9			4 6	8 9	31 6	4 6
K.17.F	56 0	33 6			3 0	13 0	46 6	3 0
K.17E	35 6	21 0			5 3	8 3	29 3	5 3
K.16.F	59 6	32 6			3 6	14 9	47 3	3 6
K.16.E	34 0	23 3			3 6	11 9	35 0	3 6
K.14.F	61 9	32 3			2 3	15 6	47 9	2 3
K.14.E	35 0	1 6	0 9	23 3	2 6	10 0	34 9	3 3
K.13.F	62 0	1 6	1 0	29 6	2 6	9 0	40 0	3 6
K.12.F	59 6	1 0	1 0	31 3	2 9	9 3	41 6	3 9
K.12.E	33 6	1 0	1 9	23 6	2 9	9 0	33 6	4 6
K.11.E	30 6	3 9	0 9	21 0	4 3	8 9	33 6	5 0
K.10.F	59 0	5 6	3 3	23 9	4 3	5 9	35 0	7 6
K.10.E	35 6	0 9	1 9	17 9	5 3	8 3	26 9	7 0
K.8.F	59 0	8 0	9 0	19 0	3 0	9 0	36 0	12 0
K.7.F.	60 0	6 0	10 6	16 3	1 9	10 3	32 6	12 3
K.7.E	75 6	6 6	12 6	15 0	2 3	4 3	25 9	14 9
K.5.F	94 0	6 0	12 6	18 0	1 0	18 0	42 0	13 6
K.4.H	103 3	7 9	11 0			39 3	47 0	11 0
K.3.H	91 6	8 9	11 9			39 0	47 9	11 9
K.3.F.	84 0	6 6	7 6			40 6	47 0	7 6
K.2.I	112 3	8 3	10 0			40 3	48 6	10 0
K.2.H	84 0	10 3	8 9			40 6	50 9	8 9
K.2.G	55 6	8 6	11 6			38 0	46 6	11 6
K.2.F	80 0	6 0	8 6			37 9	43 9	8 6
K.2.E	53 6	7 6	6 0			37 6	45 0	6 0
K.1.I.	105 0	9 0	8 6			41 6	50 6	8 6
K.1.G.	48 6	6 6	12 6			38 6	45 0	12 6
K.1.F.	76 0	3 6	6 0			36 0	39 6	6 0
K.1.D.	27 9	9 9	4 6			33 0	42 9	4 6
K.1.I. Sth	101 9	8 9	12 0			38 0	46 9	12 0
K.1.H. Sth	77 0	6 0	12 0			41 6	47 6	12 0
K.1.G. Sth	49 0	7 6	10 6			43 0	50 6	10 6
K.1.E. Sth	49 6	12 0	5 6			34 6	46 6	5 6
K.1.D. Sth.	26 3	13 3	3 0			33 9	47 0	3 0
K.2.I. Sth.	101 0	7 6	11 6			38 6	46 0	11 6
K.2.H. Sth	74 6	9 0	12 0			38 6	47 6	12 0
K.2.G. Sth	46 6	7 9	13 3			37 6	45 3	13 3
K.2.D. Sth	27 0	10 6	9 0			33 0	43 6	9 0

LEIGH CREEK COALFIELD

MAIN BASIN — EASTERN MARGINAL BORING

TABLE III

ESTIMATION OF QUANTITIES OF COAL AND OVERBURDEN

SECTION 'A'

Area sq.ft.	AVERAGE THICKNESS: Upper coal seam	Shale parting	Lower Coal Seam	VOLUME (CUBIC FEET): Upper Coal Seam	Shale Parting	Lower Coal Seam	Tonnage of coal Upper and Lower Seams combined
100,000	26'7"	4'1"	10'0"	2,658,333	408,333	1,000,000	Proved 135,494 Recoverable 128,086

SECTIONS 'B', 'C' AND 'D'

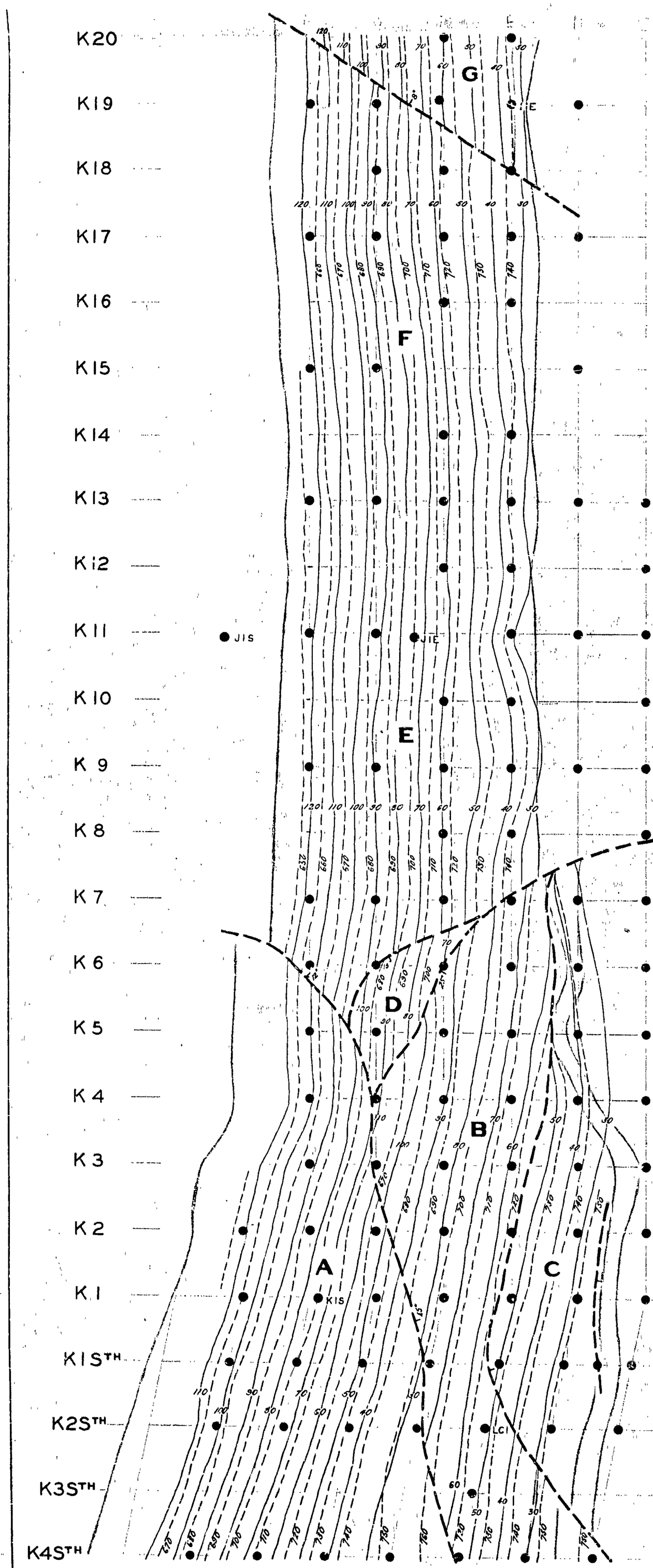
Section	Area (sq.ft.)	average Thickness of overburden	average Thickness of shale parting	Average Thickness of coal (Upper and Lower Seams combined)	VOLUME (Cubic Feet): Overburden	Coal (proved)	Shale Parting	Overburden + Shale Parting	Overburden and shale Partings Cu. Yds.
'B'	19,600 20,800 14,200 54,600	35' 45'	3'2"	44'11"	936,000 686,000 781,000 2,403,000	2,452,450	172,000	2,575,900	95,404
'C'	6,100 14,900 25,700 22,600 17,600 5,600 5,100 1,200 98,800	55' 65' 75' 85' 95' 105' 115' 122½'	10'1"	38'2"	335,500 968,500 1,927,500 1,921,000 1,672,000 588,000 586,500 147,000 8,146,000	3,770,866	996,233	9,142,233	338,601
'D'	3,500 6,200 8,500 11,300 13,500 14,700 17,200 18,000 15,100 108,000	25' 35' 45' 55' 65' 75' 85' 95' 105'	11'0"	47'5"	87,500 217,000 382,500 621,500 877,500 1,102,500 1,462,000 1,710,000 1,585,500 8,406,000	5,121,000	1,188,000	9,234,000	342,000
TOTALS						11,344,316		20,952,133	776,005

Tonnages - Proved Coal $\frac{11,344,316}{27}$ = 420,160 Tons

Recoverable Coal $\frac{11,344,316 \text{ less } 522,800}{27} = \frac{10,821,516}{27}$ = 400,797 Tons

Ratios Overburden: Proved Coal. $\frac{20,952,133}{11,344,316}$ = 1.85 : 1

Overburden: Recoverable Coal $\frac{21,344,233}{10,821,516}$ = 1.97 : 1



N

LEGEND

Overburden isopachytes (in feet) ——— 60

Contours of roof of coal seam (in feet) ——— 740

Suggested outside working limit ———

" inside " " ———

Major faults ———

Bores ———

B. Anderson
Geologist

Yards. K4ST, K1, K1, P, M1

PEG	E	N
K20E	65 5566·8 yds.	1,223263·1 yds.
K1E	65 5841·3 "	1,223858·1 "
K4STE	65 6085·6 "	1,224229·4 "

S. A. G. DEPT. OF MINES.

LEIGH CREEK COAL FIELD

MAIN BASIN

K SERIES — EASTERN MARGINAL BORING

Approved	Redrawn from E. Anderson's original N° 0-50-5	SCALE 100 feet to 1 inch
Director of Mines.	Drawn M.B.V. Traced Checked B. S. G.	Passed Chief Draughtsman
		50 - 5
		DATE 12-1-50 Cc

Boring plan	49·248
Level plan	49·247
Associated Drawings	Drg. No.

No.	Authority	Date	Amendment	Reg. No. 2353.	D.M.