

EWIN CREEK COAL LICENCES
(260-263; 2221)

Progress Report
February, 1981

K-Ewin Creek 80/11A

East Kootenay Land District
N.T.S. Sheet 82 J/2
Centering approx. 5,54750W, 759,350E (UTM)
Held and operated by B.C. Coal
For Work completed June 1980

CONFIDENTIAL

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

00 285

JOHN A. HURYN
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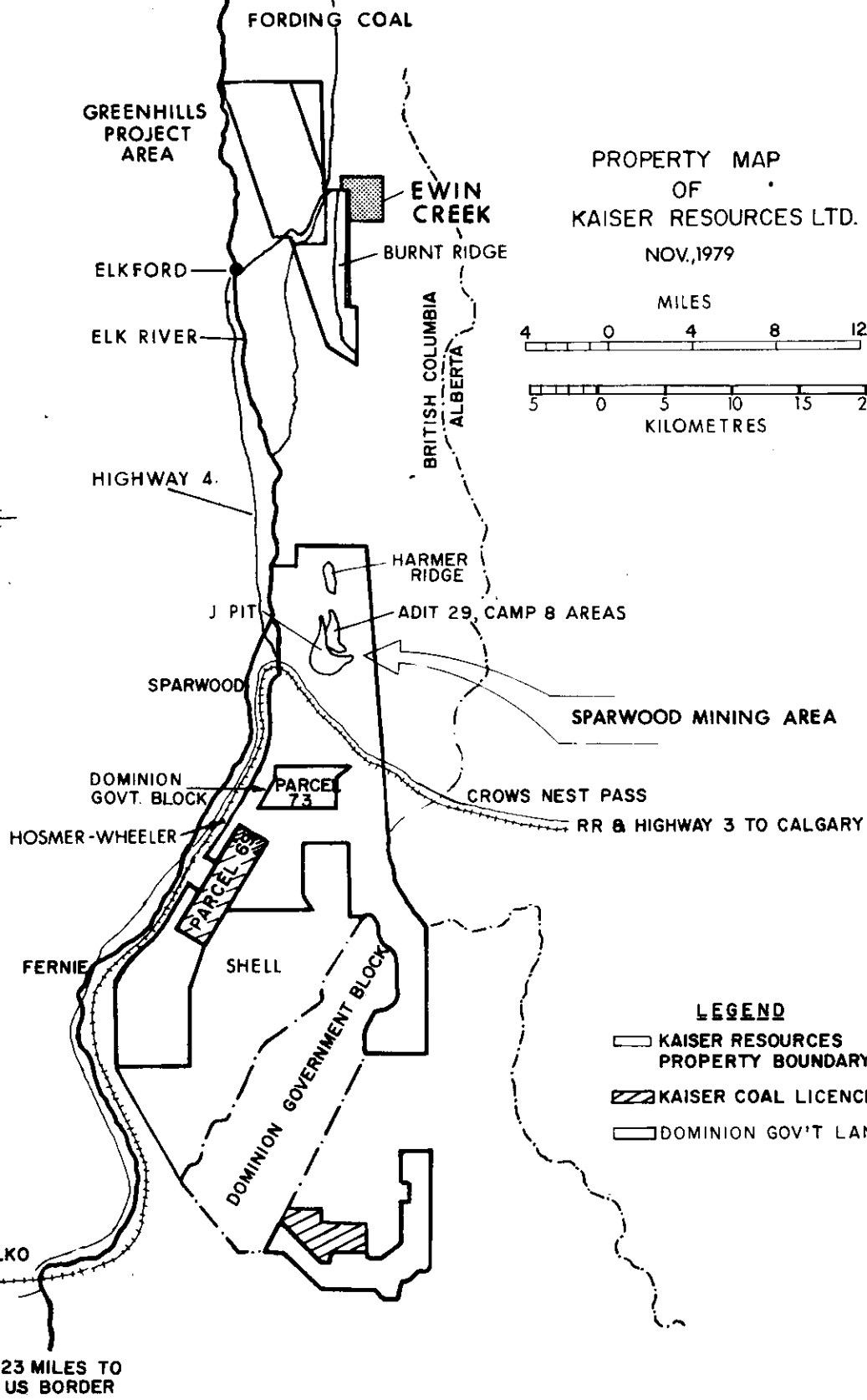
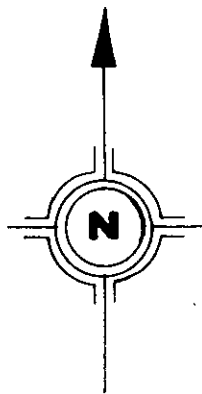
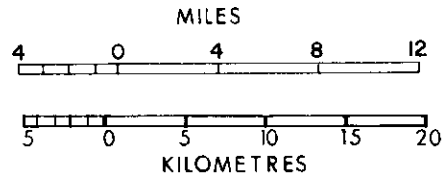
TABLE OF CONTENTS

	<u>Page</u>
LOCATION MAP 135-20-1	1
INTRODUCTION	
Location	2
Utilities	2
Access	2
Land Description & Ownership	2
GENERAL GEOLOGY	
Stratigraphy	3
Structure	3
EXPLORATION WORK	
Adits	4
COAL QUALITY	
#8 Seam	4
#10 Seam	4
Conclusions	5
APPENDIX I	
Lab Washability Data	6*
STATEMENT OF QUALIFICATIONS	19
STATEMENT OF COSTS	20
<u>POCKET</u>	
✓ Index Map Drawing No.	135-20-2
✓ Geology Map Drawing No.	135-10-2a
✓ Cross Section 5,547,200N No.	135-10-3a
✓ Cross Section 5,548,900N No.	135-10-3b
✓ Adit 28 Plan Drawing No.	135-19-1
✓ Adit 29 Plan Drawing No.	135-19-2

Refer to: Confidential Coal Analysis File K-Ewin Creek 80(4)A

PROPERTY MAP
OF
KAISER RESOURCES LTD.

NOV, 1979



- LEGEND**
- KAISER RESOURCES PROPERTY BOUNDARY
 - ▨ KAISER COAL LICENCES
 - DOMINION GOV'T LANDS

INTRODUCTION

Location:

The Ewin Creek licences (260-263, 2221) are located in the Fording River Valley and cover the lower portion of the Ewin Creek drainage. They center approximately 5,547,350N and 659,350E on N.T.S. sheet 82 J/2.

Utilities:

A Canadian Pacific spur line and natural gas pipeline run along the bottom of the Fording River Valley, on the western edge of the Ewin Creek licences, and terminate at the Fording Coal mine site 15 kilometres to the north.

The Kan-Elk transmission line runs through the Elk River Valley some 11 kilometres to the southwest. B.C. Tel maintains a telephone exchange at Elkford to service the Fording River mine.

Access:

The Ewin Creek licences can be reached via the Crows Nest Resources logging road which follows up the east side of the Fording River. Logging road access follows the Ewin Creek and Todhunter Creek valleys. Four-wheel drive access roads lead from the logging access to the adit locations.

Land Description and Ownership:

During February of 1968, Kaiser Resources Ltd. acquired the coal rights on 43,725 hectares of coal-bearing lands from Crowsnest Industries Ltd. The Ewin Creek licences (260-263, 2221) were part of the acquisition and cover 980 hectares of which approximately 62% or 608 hectares are coal-bearing. During February of 1981, Kaiser Resources Ltd. became B.C. Coal, a member of the B.C. Resources Group.

GENERAL GEOLOGY

The surface geology map, cross-sections and recent drawings for the Ewin Creek licences are contained in the pocket.

Stratigraphy: - The Ewin Creek licences are largely made up of the Jurassic and Cretaceous beds of the Fernie and Kootenay Formations. The Kootenay Formation is divided into three members: The Moose Mountain member, the coal-bearing member and the Elk member (Jansa, 1972).

The Moose Mountain member is the lowest in the Kootenay Formation and occurs as a cliff-forming sandstone on Imperial Ridge. At this location the sandstone is approximately 20 metres thick, the lower contact grading into the Passage Beds and the Fernie Shale. The upper contact is sharp into mudstone and coal.

The coal-bearing Member is in excess of 500 metres thick in the Ewin Creek area and consists of interbedded sandstone, siltstone, mudstone and coal. The coal seams range in thickness from 1 metre to 10 metres. Eighteen seams are mapped in the Ewin Creek area, eleven of which have adits.

The Elk member occurs on Todhunter Ridge and on the south side of Ewin Creek (Banner Mountain). It consists of interbedded shales and sandstones. The thickness of the Elk Member was not measured.

Structure:- The Ewin Creek licences lie on the east limb of the Fording River Syncline. The beds strike approximately north-south and dip approximately 40 degrees to the west. No major faults were mapped in the Ewin Creek area, although, a fault has been proposed through the Todhunter Creek valley because the coal seams cannot be correlated well across this drainage.

EXPLORATION WORK

Adits

During March to early June, 1980 two adit sites were constructed and adits were driven into #8 and #10 Seams on Banner Mountain. Existing access to the adit sites had to be upgraded.

Adit #28 in #10 Seam was cross-cut at 32.5 metres with a cross-cut length of 8.4 metres. Adit #29 in #8 Seam was cross-cut at 32.3 metres with a cross-cut length of 8.3 metres. Both adits were bulk sampled and the samples taken to the B.C. Coal Laboratory for proximate, washability and petrographic analyses. The lab data are contained in Appendix I.

COAL QUALITY

#8 Seam

In Adit #29 the true thickness of #8 Seam is 5.30 metres including two thin mudstone splits near the top and bottom of the seam. The footwall is carbonaceous mudstone and the hanging wall is mudstone.

Eight (8) seam is a medium volatile bituminous (Mvb) coal with a clean ash of 5.7%, a volatile matter on a dry, ash-free basis (V.M.d.a.f.) of 29.0% and a yield of 83.3% when cleaned at 1.50 S.G.. The FSI for the clean coal is $7\frac{1}{2}$. The maximum mean reflectance ($R\bar{o}$) in oil is 1.13.

#10 Seam

In adit #28 the true thickness of #10 Seam is 5.12 metres including occasional carbonaceous mudstone splits. The footwall is carbonaceous mudstone and the hanging wall is sandstone.

Ten (10) seam is a high volatile A bituminous (Hvab) coal with a clean ash of 6.9%, a V.M.(d.a.f.) of 32.8% and a yield of 65.5% when cleaned at 1.50 S.G.. The FSI for the clean coal is $7\frac{1}{2}$. The $R\bar{o}$ is 1.00.

Conclusions

The samples taken from the two adits in Ewin Creek indicate medium to high volatile bituminous coals by the ASTM classification. The coking properties of both seams indicate good quality metallurgical coals which are suitable for blending purposes.

With increased exploration in the licences, more metallurgical coal could be found and more knowledge of coal quality could be obtained. A diamond drillhole program in the licences will help map out structural trends and give further information on coal quality. Adits in the lower seams would also give good information on their coking characteristics.

APPENDIX I

EXPLORATION PROGRAM 1979
 ADIT #28 EWIN CREEK
 10 Seam
 Thickness 5.30m
 Sampled 80/0792
 x-cut at 25

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PROXIMATE ANALYSIS (DRY BASIS)

	<u>RAW</u>	<u>CLEAN</u>
% of 1/4" x 0		65.5
ASH %	27.9	6.9
V.M. %	27.8	30.5
F.C. %	44.3	62.6
F.S.I.	6½	7½
% TOTAL SULF.	0.42	0.44
% P ₂ O ₅	---	----
GROSS CAL. VALUE BTUs/LB. (db)	10,708	13,827

Giesler Plasticity *

Start.....	°C	386
Fusion Temp.....	°C	416
Max. Fluid Temp.....	°C	450
Final Fluid Temp.....	°C	479
Solidification Temp.....	°C	487
Melting Range.....	°C	63
Max. Fluidity.....	dd/m	1617.5

Dilatation (Ruhr)

Ti - Soft. Temp.....	°C	361
Tii - Max. Cont. Temp....	°C	432
Tiii - Max. Dil. Temp....	°C	475
Contraction.....	%	26
Dilatation.....	%	+97

#1103

Vitrinoid Types

Type	Percent
8	2.7
9	30.4
10	31.7
11	2.7

Petrographic Data

Petrographic Composition

Reactive Components	Volume %
Total Vitrinoid	67.5
Reactive Semi-Fusinoid (1/2)	9.7
Exinoid & Resinoid	5.1
Total Reactives	82.3

Inert Components

Inert Semi-Fusinoids (1/2)	9.7
Micrinoids	2.5
Fusinoids	1.0
Mineral Matter	4.5
Total Inerts	17.7

Max. Mean Reflectance of Vitrinoids Ro: 1.00

Balance Index 0.50 Strength Index 3.61

Predicted Coke Stability Index 42.8

* -60 Mesh Sample

EXPLORATION PROGRAM
ADIT CHANNEL SAMPLE

TABLE 11

SEAM NO. 10 ADIT NO. 28
 Sampled 80/05/23 x-cut at 32.5m Thickness 5.30 m
 RAW COAL BROKEN TO -4" AND REDUCED TO 1000 LBS. FOR SCREENING.

CUMULATIVE

SIZE	WT. %	ASH %	WT. %	ASH %
-4" + 1/4"	62.5	32.8	62.5	32.8
-1/4" + 28M	30.5	21.8	93.0	29.2
-28M + 60M	4.6	14.7	97.6	28.5
-60M + 0	2.4	15.6	100.0	28.1

ATTRITION TEST

One Thousand pounds of 4" x 0" coal tumbled in A.S.T.M. coke tumbler for 30 minutes in batches of 50 lbs. or 786 revolutions per batch. Total coal was mixed and screened. Results are shown below.

CUMULATIVE

SIZE	WT. %	ASH %	WT. %	ASH %
-4" + 1/4"	34.2	43.2	34.2	43.2
-1/4" + 28M	41.8	22.9	76.0	32.0
-28M + 60M	11.5	14.4	87.5	29.7
-60M + 0	12.5	11.8	100.0	27.5

Washability tests as shown in Table 111 were run on the coal from the Attrition Test.

ADIT #28 EWIN CREEK

TABLE IV

Washability Data - 60 M x 0

Seam #10 Sampled 80/05/23
 x-cut @ 32.5 m Thickness 5.30 m

Size & Size Wt. %	TIME (SEC.)	Wt. %	Ash %	Cumulative Float	
				Wt. %	Ash %
60Mx 0	30	77.6	7.4	77.6	7.4
	60	15.4	13.7	93.0	8.4
	90	2.6	26.1	95.6	8.4
	TAILINGS	4.4	69.9	100.0	11.6

Size & Size Wt. %	SPEC. GRAVITY	Wt. %	Ash %	Cumulative Float	
				Wt. %	Ash %
60Mx0 12.5	F1.30	58.3	2.0	58.3	2.0
	1.40	18.6	5.9	76.9	2.9
	1.50	8.4	12.4	85.3	3.9
	1.60	2.5	25.4	87.8	4.5
	1.70	1.8	36.8	89.6	5.1
	S1.70	10.4	69.1	100.0	11.8

EXPLORATION PROGRAM 1979

ADIT CHANNEL SAMPLE

TABLE V

SEAM NO. 10 ADIT NO. 28 EWING CREEK
 Sampled 80/05/23 x-cut @ 32.5m Thickness 5.30 m
 YIELD VS ASH

BASIS: GRAVITY SEPARATION OF -4" x 60M FRACTION AND FROTH FLOTATION OF -60M x 0 FRACTION.

-4" x 60M 87.5				60M x 0 12.5		COMPOSITE	
SPECIFIC GRAVITY	CUM. WT. %	YIELD WT. x .875	ASH %	YIELD 95.6x.125	ASH %	YIELD	ASH %
		a		b		a & b	
1.30	27.7	24.238	3.2	11.950	8.9	36.1	5.1
1.35	44.2	38.675	4.2	11.950	8.9	50.6	5.3
1.40	51.8	45.325	5.3	11.950	8.9	57.3	6.0
1.45	57.1	49.962	6.4	11.950	8.9	61.9	6.9
1.50	50.4	52.850	7.4	11.950	8.9	64.8	7.7
1.55	62.5	54.688	8.2	11.950	8.9	66.6	8.3
1.60	64.6	56.525	9.2	11.950	8.9	68.5	9.1
1.70	67.1	58.713	10.4	11.950	8.9	70.7	10.1
1.80	68.5	59.938	11.1	11.950	8.9	71.9	10.7
TOTAL	100.0	87.5	29.8	12.5	11.6	100.0	27.5

EXPLORATION RAM 1979
ADIT CHANNEL SAMPLE

TABLE 111

EWING CREEK WASHABILITY STUDY OF 10 Seam sampled 80/05/23 Thick 5.30m & cut at 32.5m

SIZE & WT.	SP GP	WT %	ASH %	VM %	FSI	SUL %	CUM WT %	CUM ASH %	CUM VM %	CUM SUL %	±.10 SP GR	Z
-4 + 1/4												
32.4	FLT.	1.30	11.8	3.4	32.2	7	.47	11.8	3.4	32.2	.47	5.9
		1.35	11.9	6.3	28.7	6½	.47	23.7	4.9	30.4	.47	17.8
		1.40	6.6	12.4	27.1	5	.43	30.3	6.5	29.7	.46	59.0
		1.45	6.8	16.6	25.1	3½	.41	37.1	8.4	28.9	.45	38.3
		1.50	3.4	22.0	23.0	2½	.44	40.5	9.5	28.3	.45	29.0
		1.55	1.8	30.1	22.5	2	.44	42.3	10.3	28.1	.45	41.4
		1.60	2.1	35.7	21.9	2	.43	44.4	11.5	27.8	.44	14.0
		1.70	2.9	41.3	21.1	1½	.41	47.3	13.3	27.4	.44	8.6
		1.80	1.3	44.5	19.2	1½	.41	48.6	14.2	27.2	.44	47.9
	SK.	1.80	51.4	70.6	18.2	NC	.30	100.0	43.2	22.4	.37	74.3
-1/4+ 28M												
41.8		1.30	31.8	3.6	32.3	7½	.48	31.8	3.6	32.3	.48	15.9
		1.35	22.4	5.8	32.0	7	.44	54.2	4.5	32.1	.46	43.0
		1.40	8.7	10.7	28.1	5	.46	62.9	5.3	31.6	.46	48.8
		1.45	4.4	18.2	27.0	4½	.42	67.3	6.2	31.3	.46	23.5
		1.50	3.1	25.0	23.5	3½	.45	70.4	7.0	30.9	.45	15.3
		1.55	2.4	32.3	23.4	2½	.46	72.8	6.8	30.7	.45	71.6
		1.60	2.2	36.4	22.1	2½	.36	75.0	8.7	30.4	.45	9.0
		1.70	2.5	38.9	21.5	2	.36	77.5	9.6	30.1	.45	5.2
		1.80	1.6	45.0	20.1	2	.37	79.1	10.3	29.9	.45	78.3
		1.80	20.9	70.3	19.0	NC	.20	100.0	22.9	27.6	.39	89.5
-28M + 60M												
11.5		1.30	60.0	1.5	33.5	1½	.50	60.0	1.5	33.5	.50	30.0
		1.35	8.7	6.2	31.9	5	.59	68.7	2.1	33.3	.49	64.3
		1.40	6.2	10.0	29.7	3	.43	74.9	2.8	33.0	.49	26.5
		1.45	4.2	16.4	26.4	1½	.48	79.1	3.5	32.7	.49	18.4
		1.50	4.2	26.9	25.2	1½	.45	83.3	4.6	32.2	.49	13.2
		1.55	2.0	36.6	24.3	1½	.45	85.3	5.4	32.0	.48	84.3
		1.60	1.2	41.4	20.7	1	.39	86.5	5.9	31.9	.48	4.8
		1.70	1.0	45.5	19.9	1	.39	87.5	6.3	31.7	.48	1.7
		1.80	.5	50.1	0.0	1	.40	88.0	6.6	31.6	.49	87.7
		1.80	12.0	71.3	14.4	NC	.56	100.0	14.3	29.5	.49	94.0

EXPLORATION RAM 1979
ADIT CHANNEL SAMPLE

TABLE 111 (cont'd)

EWING CREEK WASHABILITY STUDY OF 10 Seam SAMPLED 8/05/23 Thick. 5.30m x-cut at 32.5m

SIZE & WT.	SP	GP	WT %	ASH %	VM %	FSI	SUL %	CUM WT %	CUM ASH %	CUM VM %	CUM SUL %	±.10 SP GR	Z
-4 + 28M													
76.0	1.30		22.8	3.5	32.2		.47	22.8	3.5	32.2	.47		11.4
	1.35		17.6	5.9	31.0		.44	40.4	4.6	31.7	.46		31.6
	1.40		7.7	11.3	27.7		.44	48.2	5.6	31.0	.46	52.2	44.3
	1.45		5.4	17.3	25.9		.41	53.7	6.8	30.5	.45	28.4	50.9
	1.50		3.2	23.5	23.2		.44	56.9	7.8	30.1	.45	19.9	55.3
	1.55		2.1	31.4	23.0		.45	59.0	8.6	29.8	.45		58.0
	1.60		2.1	36.0	22.0		.39	61.2	9.6	29.6	.45	10.6	60.1
	1.70		2.6	40.0	21.3		.38	63.9	10.9	29.2	.45	6.3	62.5
	1.80		1.4	44.8	19.7		.38	65.3	11.6	29.0	.45		64.6
	1.80		34.6	70.5	18.4		.26	100.0	32.0	25.3	.38		82.6
-4 + 60M													
	1.30		27.6	2.9	32.6		.48	27.6	2.9	32.6	.48		13.8
87.5	1.35		1.6	5.9	31.0		.45	44.1	4.0	32.0	.47		35.9
	1.40		7.5	11.2	27.9		.44	51.7	5.1	31.4	.46	47.9	47.9
	1.45		5.3	17.2	25.9		.42	57.0	6.2	30.9	.46	26.8	54.4
	1.50		3.3	24.1	23.5		.44	60.4	7.2	30.5	.46	18.7	58.7
	1.55		2.1	32.1	23.2		.45	62.5	8.0	30.2	.46		61.4
	1.60		2.0	36.5	21.9		.39	64.5	8.9	30.0	.46	9.7	63.5
	1.70		2.4	40.3	21.2		.38	67.0	10.1	29.6	.45	5.6	65.7
	1.80		1.3	45.0	18.7		.38	68.3	10.8	29.4	.45		67.6
	1.80		31.6	70.5	18.2		.28	100.0	29.7	25.8	.40		84.1
-60M + 0													
	1.30		58.3	2.0	33.8	7½	.64	58.3	2.0	33.8	.64		29.2
12.5	1.40		18.6	5.9	32.0	6	.48	67.9	2.9	33.4	.60	38.1	67.6
	1.50		8.4	12.4	29.1	2	.44	85.3	3.9	32.9	.59	12.2	81.1
	1.60		2.5	25.4	25.3	2	.48	87.8	4.5	32.7	.58	4.8	86.6
	1.70		1.8	36.8	23.0	1	.48	89.6	5.1	32.5	.58		88.7
	1.70		10.4	69.1	19.8	NC	.81	100.0	11.8	31.2	.60		94.8

*

EXPLORATION PROGRAM 19
ADIT 29 EWIN CREEK

SEAM #8
THICKNESS 5.30 metres
SAMPLED 80-04-23; x-cut @ 32.3 metres

PROXIMATE ANALYSIS (DRY BASIS)

	RAW	CLEAN
% of 1/4" x 0		83.3
ASH %	17.5	5.7
V.H. %	24.8	27.3
F.C. %	57.7	67.0
F.S.I.	7	7½
% TOTAL SULF.	0.55	0.61
% P ₂ O ₅	---	---
GROSS CAL. VALUE BTUs/LB. (db)	12,346	13,099

Giesler Plasticity

Start.....	°C	396
Fusion Temp.....	°C	415
Max. Fluid Temp.....	°C	456
Final Fluid Temp.....	°C	481
Solidification Temp.....	°C	489
Melting Range.....	°C	74
Max. Fluidity.....	dd/m	334.7

Dilatation (Ruhr)

Ti - Soft. Temp.....	°C	386
Tii - Max. Cont. Temp.....	°C	439
Tiii - Max. Dil. Temp.....	°C	477
Contraction.....	%	23
Dilatation.....	%	+115

#1093

Petrographic Data

Vitrinoid Types		Petrographic Composition	
Type	Percent	Reactive Components	Volume %
10	27.3	Total Vitrinoid	75.8
11	37.9	Reactive Semi-Fusinoid (1/2)	7.9
12	10.6	Exinoid & Resinoid	1.4
		Total Reactives	85.1
		Inert Components	
		Inert Semi-Fusinoids (1/2)	7.9
		Micrinoids	2.5
		Fusinoids	1.2
		Mineral Matter	3.3
		Total Inerts	14.9
Max. Mean Reflectance of Vitrinoids R ₀ : 1.13			
Balance Index 0.46		Strength Index 4.16	
Predicted Coke Stability Index 52.3			

EXPLORATION PROGRAM
ADIT CHANNEL SAMPLE

TABLE 11

SEAM NO. 8 ADIT NO. 29 EWIN CREEK
 SAMPLED 80-04-23; Thickness 5.30 metres; x-cut @ 32.3 metres

RAW COAL BROKEN TO -4" AND REDUCED TO 1000 LBS. FOR SCREENING.

CUMULATIVE

SIZE	WT. %	ASH %	WT. %	ASH %
-4" + 1/4"	45.1	22.3	45.1	22.3
-1/4" + 28M	41.3	15.2	86.4	18.9
-20M + 60M	8.0	9.2	94.4	18.1
-60M + 0	5.6	9.9	100.0	17.6

ATTRITION TEST

One Thousand pounds of 4" x 0" coal tumbled in A.S.T.M. coke tumbler for 30 minutes in batches of 50 lbs. or 786 revolutions per batch. Total coal was mixed and screened. Results are shown below.

CUMULATIVE

SIZE	WT. %	ASH %	WT. %	ASH %
-4" + 1/4"	14.9	36.3	14.9	36.3
-1/4" + 28M	52.3	15.1	67.2	19.8
-28M + 60M	16.3	9.2	83.5	17.7
-60M + 0	16.5	8.0	100.0	16.1

Washability tests as shown in Table 111 were run on the coal from the Attrition Test.

EXPLORATION JAN 79
ADIT CUMBLE SAMPLE

TABLE 111

Adit 29 EWIN CREEK WASHABILITY STUDY OF 8 SEAM SAMPLED 8/2/04/23 x-cut at 32.3m Thick 5.80m

SIZE & WT.	SP GP	WT %	ASH %	VM %	FSI	SUL %	CUH WT %	CUH ASH %	CUH VM %	CUH SUL %	±10 SP GR	Z
-4 +1/4 14.9	F.T.	1.30	17.5	3.9	26.6	8	0.47	17.5	3.9	26.6	0.47	8.8
		1.35	17.8	7.1	23.8	5½	0.42	35.3	5.5	25.2	0.44	26.5
		1.40	5.8	12.3	23.5	4	0.46	41.1	6.5	24.9	0.45	49.2
		1.45	5.4	18.5	21.5	3	0.44	46.5	7.9	24.5	0.45	25.6
		1.50	3.8	25.8	19.9	3	0.39	50.3	9.2	24.2	0.44	27.0
		1.55	2.1	28.7	19.0	2½	0.46	52.4	10.0	24.0	0.44	---
		1.60	6.7	36.6	18.7	2½	0.51	59.1	13.0	23.4	0.45	21.6
		1.70	5.6	40.1	18.3	2½	0.59	64.7	15.4	22.9	0.46	11.4
		1.80	2.0	41.8	17.4	1	0.85	66.7	16.2	22.8	0.47	65.8
	SK.	1.80	33.3	76.5	9.9	NC	0.31	100.0	36.3	19.5	0.42	83.4
-1/4 + 28M 52.3		1.30	49.1	2.6	29.3	8½	0.50	49.1	2.6	29.3	0.50	24.6
		1.35	23.0	7.5	26.2	7	0.47	72.1	4.2	28.3	0.49	60.7
		1.40	6.3	14.1	23.2	6	0.48	78.4	5.0	27.9	0.49	39.3
		1.45	3.5	20.5	22.7	4	0.49	81.9	5.6	27.7	0.49	14.6
		1.50	1.9	25.0	20.7	3½	0.49	83.8	6.1	27.5	0.49	8.8
		1.55	1.2	30.0	21.5	3	0.51	85.0	6.4	27.4	0.49	---
		1.60	1.2	36.2	18.9	2½	0.51	86.2	6.8	27.3	0.49	4.3
		1.70	1.4	43.6	17.9	2	0.49	87.6	7.4	27.2	0.49	2.5
		1.80	0.8	47.1	15.5	1½	0.48	88.4	7.8	27.1	0.49	88.0
		1.80	11.6	71.0	12.2	1	0.24	100.0	15.1	25.3	0.46	94.3
-28M + 60M 16.3		1.30	69.7	2.3	29.0	8	0.51	69.7	2.3	29.0	0.51	34.9
		1.35	11.2	7.0	26.9	7½	0.51	80.9	3.0	28.7	0.51	75.3
		1.40	5.7	13.4	23.4	5½	0.53	86.6	3.6	28.4	0.51	22.0
		1.45	2.2	19.6	23.7	2	0.58	88.8	4.0	28.2	0.51	11.3
		1.50	1.7	25.4	23.2	2	0.68	90.5	4.4	28.1	0.52	6.2
		1.55	1.1	30.9	21.3	2	0.65	91.6	4.8	28.1	0.52	---
		1.60	0.9	35.0	19.6	1½	0.61	92.5	5.0	28.0	0.52	3.4
		1.70	1.2	39.9	19.2	1½	0.94	93.7	5.5	27.9	0.52	2.2
		1.80	0.9	47.5	17.8	1	0.58	94.6	5.9	27.8	0.52	94.2
		1.80	5.4	69.3	12.9	NC	0.44	100.0	9.3	27.0	0.52	97.3

EXPLORATION RAM 79
ADIT CHANNEL SAMPLE

TABLE 111 (cont'd)

ADIT 29 EWIN CREEK WASHABILITY STUDY OF 8 SEAM SAMPLED 80/04/23 x-CUT at 32.3m THICK 5.30m

SIZE & WT.	SP GP	WT %	ASH %	VM %	FSI	SUL %	CUM WT %	CUM ASH %	CUM VM %	CUM SUL %	SP GP	Z
-4 + 28M 67.2	1.30	42.1	2.7	29.1		0.50	42.1	2.7	29.1	0.50		21.1
	1.35	21.8	7.4	25.8		0.46	63.9	4.3	27.9	0.48		53.1
	1.40	6.2	13.7	23.3		0.48	70.1	5.2	27.5	0.48	41.0	67.1
	1.45	3.9	19.9	22.3		0.47	74.1	5.9	27.2	0.48	16.6	72.1
	1.50	2.3	25.3	20.4		0.45	76.4	6.5	27.0	0.48	12.1	75.3
	1.55	1.4	29.6	20.7		0.49	77.8	6.9	26.9	0.48	----	77.1
	1.60	2.4	36.4	18.8		0.51	80.2	7.8	26.7	0.48	7.3	79.0
	1.70	2.3	41.7	18.1		0.54	82.5	8.8	26.4	0.49	4.1	81.4
	1.80	1.1	44.9	16.3		0.63	83.6	9.2	26.3	0.49		83.1
	1.80	16.4	73.5	11.2		0.27	100.0	19.8	23.8	0.45		91.8
-4 + 60M 83.5	1.30	47.5	2.6	29.0		0.50	47.5	2.6	29.0	0.50		23.8
	1.35	19.8	7.4	25.9		0.47	67.3	4.0	28.1	0.49		57.4
	1.40	6.1	13.7	23.3		0.49	73.3	4.8	27.7	0.49	36.9	70.3
	1.45	3.6	19.9	22.5		0.49	76.9	5.5	27.5	0.49	15.4	75.2
	1.50	2.2	25.3	20.8		0.49	79.1	6.1	27.3	0.49	10.9	78.1
	1.55	1.3	29.8	20.8		0.52	80.5	6.5	27.2	0.49	----	79.9
	1.60	2.1	36.3	18.8		0.52	82.6	7.2	27.0	0.49	6.5	81.6
	1.70	2.1	41.5	18.2		0.59	84.7	8.1	26.7	0.49	3.6	83.7
	1.80	1.0	45.3	16.5		0.62	85.7	8.5	26.6	0.50		85.3
	1.80	14.2	73.2	11.3		0.28	100.0	17.7	24.4	0.47		92.9
-60M + 0 16.5	1.30	65.9	1.8	29.4	8	0.91	65.9	1.8	29.4	0.91		33.0
	1.40	18.3	6.3	27.0	7	0.64	84.2	2.8	28.9	0.85	26.0	66.8
	1.50	6.2	14.3	22.7	4½	0.63	90.4	3.6	28.5	0.84	8.9	87.3
	1.60	2.2	24.2	19.2	2	0.53	92.6	4.1	28.2	0.83	4.1	91.5
	1.70	1.7	32.0	17.1	1	0.56	94.3	4.6	28.0	0.82		93.5
	1.70	5.7	64.5	14.3	1	1.17	100.0	8.0	27.3	0.84		97.1

ADIT 29 EWIN CREEK
 8 SEAM; THICKNESS 5.30 metres; SAMPLED 80-04-23
 x-cut @ 32.3 metres

TABLE IV

Washability Data - 60 M x 0

Size & Size Wt. %	TIME (SEC)	Wt. %	Ash %	Cumulative Float	
				Wt. %	Ash %
60M x 0	30	81.9	7.0	81.9	7.0
	60	12.3	10.4	94.2	7.4
	90	3.1	11.8	97.3	7.6
	TAILINGS	2.7	53.2	100.0	8.8

EXPLORATION PROGRAM

ADIT CHANNEL SAMPLE

SAMPLED 80-04-23
 Thickness 5.30 metres
 x-cut @ 32.3 metres

TABLE V

SEAM NO. 8 ADIT NO. 29 EWING CREEK

YIELD VS ASH

BASIS: GRAVITY SEPARATION OF -4" x 60M FRACTION AND FROTH FLOTATION OF -60M x 0 FRACTION.

SPECIFIC GRAVITY	-4" x 60M 83.5			60M x 0 16.5		COMPOSITE	
	CUM. WT. %	YIELD WT. x .835	ASH %	YIELD 97.3 x .165	ASH %	YIELD	ASH %
		a		b		a & b	
1.30	47.5	39.663	2.6	16.055	7.6	55.7	4.0
1.35	67.3	56.196	4.0	16.055	7.6	72.3	4.8
1.40	73.3	61.206	4.8	16.055	7.6	77.3	5.4
1.45	76.9	64.212	5.5	16.055	7.6	80.3	5.9
1.50	79.1	66.049	6.1	16.055	7.6	82.1	6.4
1.55	80.5	67.218	6.5	16.055	7.6	83.3	6.7
1.60	82.6	68.971	7.2	16.055	7.6	85.0	7.3
1.70	84.7	70.725	8.1	16.055	7.6	86.8	8.0
1.80	85.7	71.560	8.5	16.055	7.6	87.6	8.3
TOTAL	100.0	83.5	17.7	16.5	8.8	100.0	16.2

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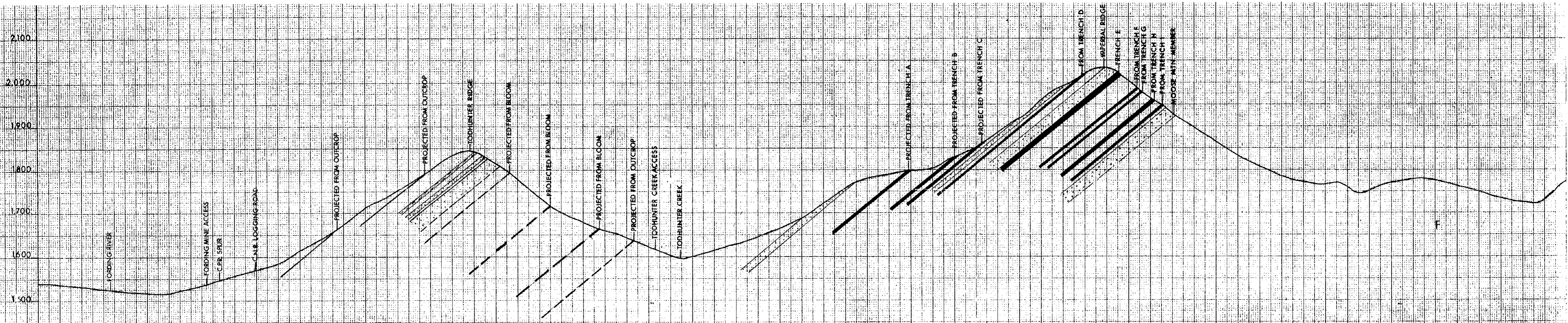
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




STATEMENT OF QUALIFICATIONS

J.A. HURYN

B.Sc., Geology, University of Calgary,
Calgary, Alberta 1979

Practical: 3 summers coal mapping experience as a
student and 2 years in coal mapping, structural
interpretations and reserve estimations with
Kaiser Resources Ltd.



- LEGEND
-  SANDSTONE
 -  SILTSTONE MUDSTONE
 -  COAL
 -  BLOOM PROJECTIONS
 -  FERNIE FORMATION

**KAISER
RESOURCES**

EWIN CREEK LICENCES

SECTION 5,548,900 N.

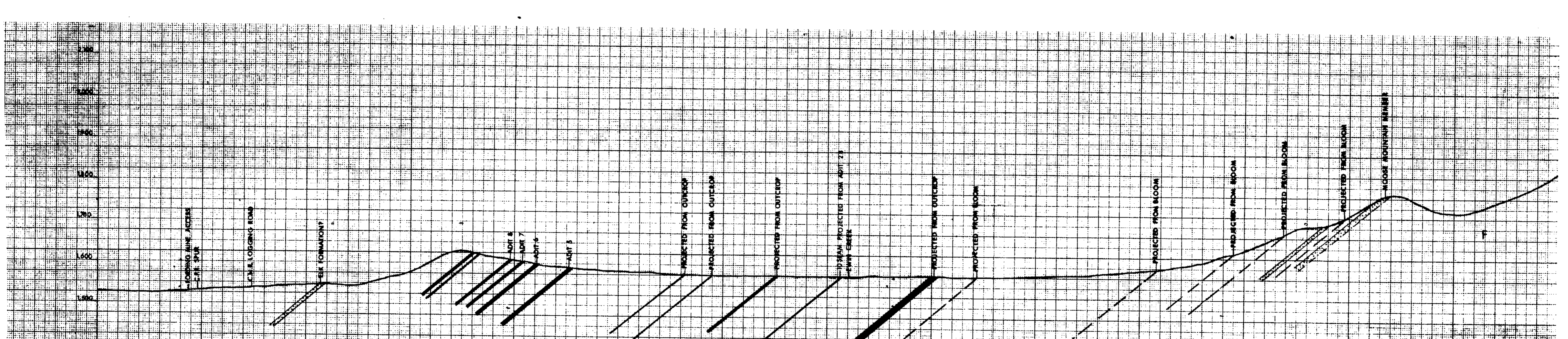
DATE: J.A.H.
BY: J.A.H.
REV: 457
APP: 987

K. Ewin Creek 80(a)R. 4(1)*
FEB., 1980






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VERTICAL SCALE 1:5,000

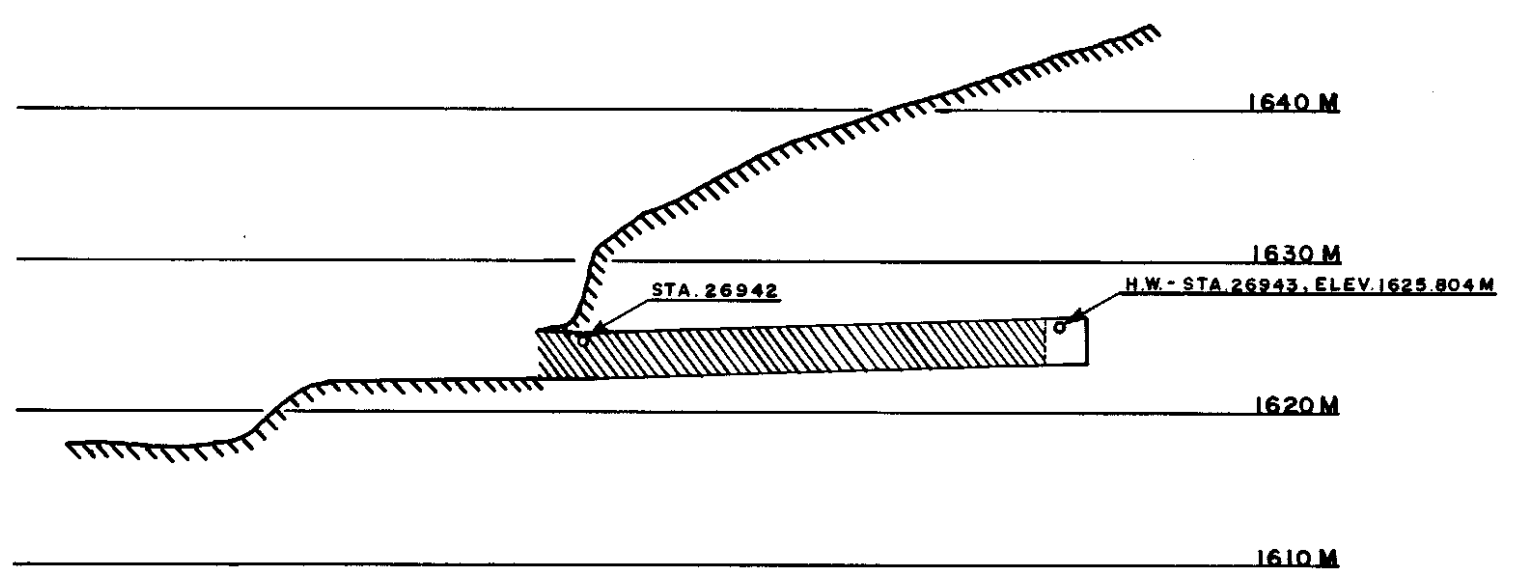
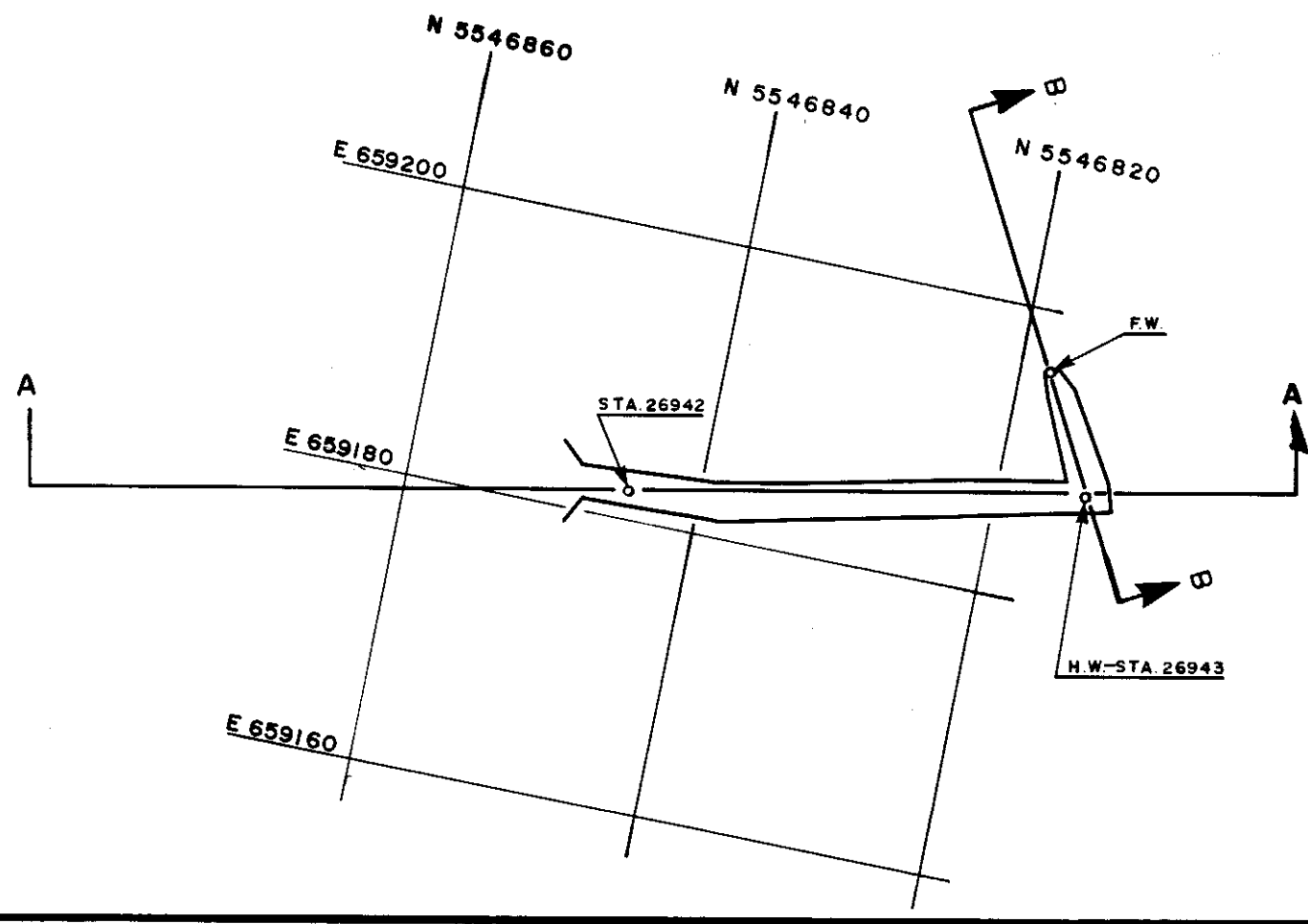
135-10-3a



285

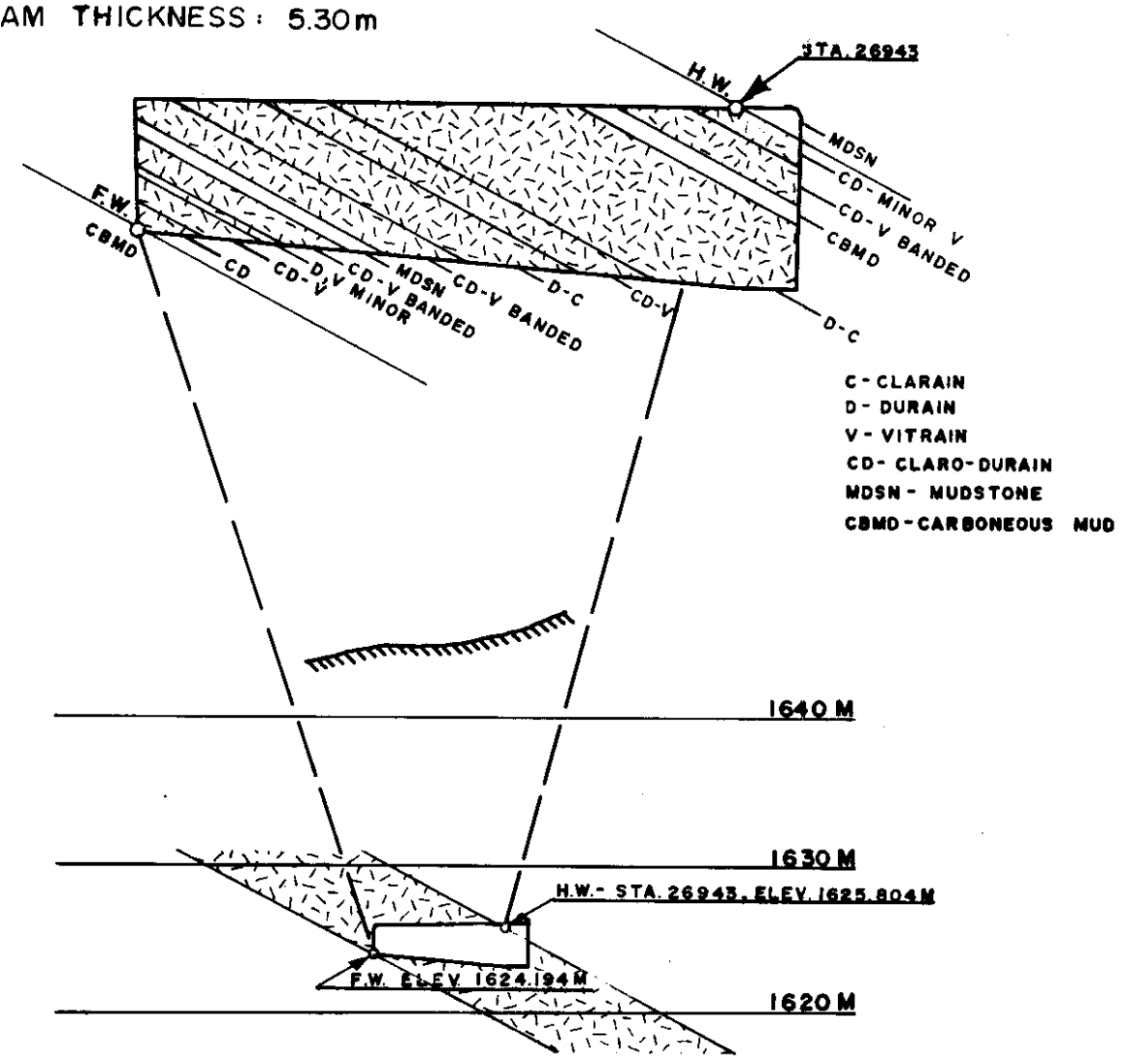
- LEGEND
-  SANDSTONE
 -  SILTSTONE-MUDSTONE
 -  COAL
 -  BLOOM PROJECTIONS
 -  FERNE FORMATION

KAISER RESOURCES		SPARWOOD B. C.
EWIN CREEK LICENCES		
SECTION 5,547200 N.		
		<i>K. Ewin Creek So(2*)A * (1)</i>
DESIGNED J.A.H.	DATE FEB., 1980	
DRAWN J.A.H.	HORIZONTAL SCALE 1:5,000	
CHECKED	VERTICAL SCALE 1:5,000	
APPROVED	135-10-3b	



SECTION A-A

SCALE: 1:100
SEAM THICKNESS: 5.30m



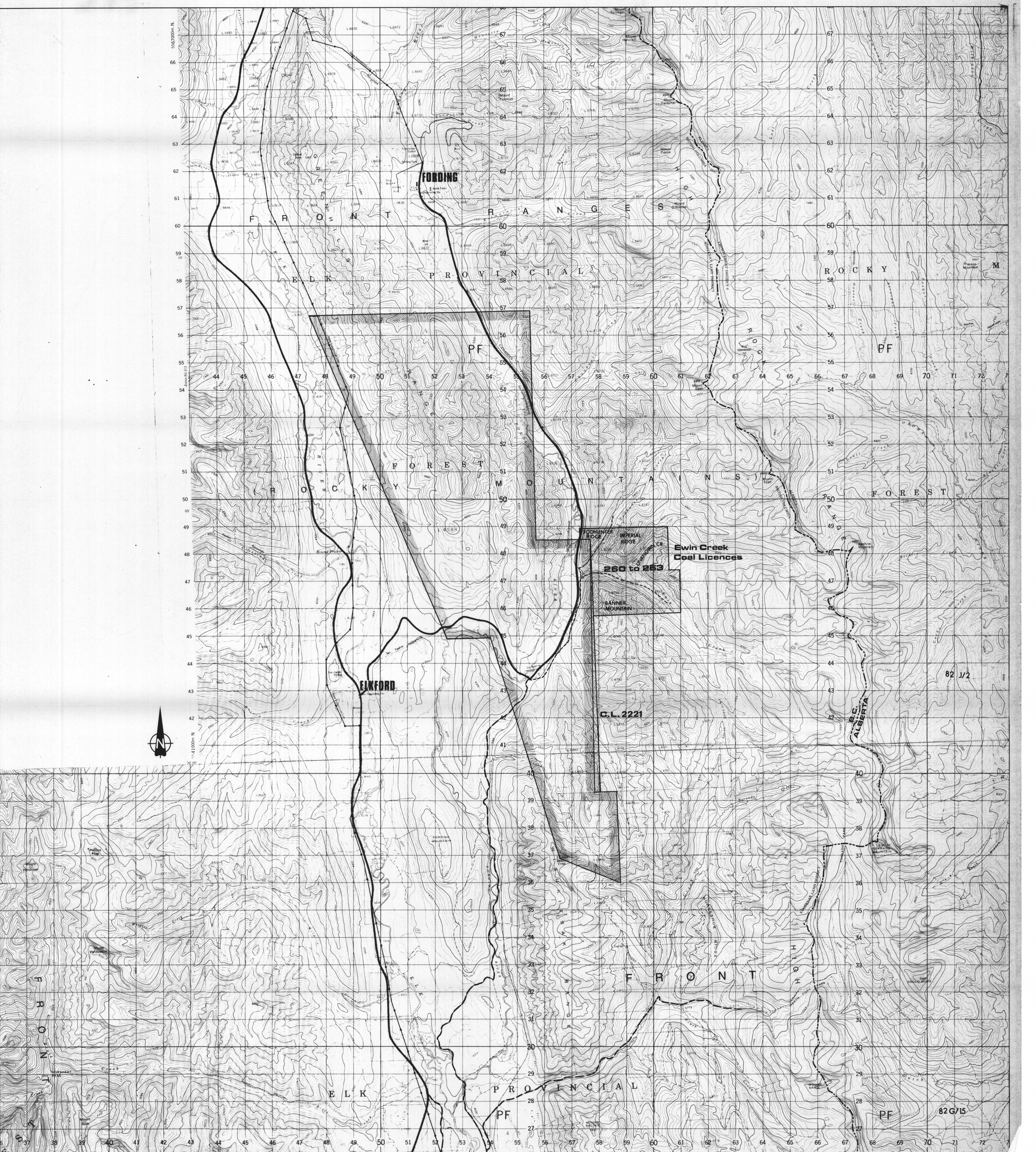
SECTION B-B

ADIT # 29
UPPER ELK VALLEY
EWIN CREEK

ON UTM CO'ORDS

DRAWN: P.A.T.
DATE: FEB. 9, 1981
SCALE: 1: 500

285



285

Scale 1:50,000
 1cm = 500m
 1in = 0.80mi (approx)

KAISER RESOURCES SPARWOOD B.C.

**EWIN CREEK LICENCES
 (CL 260-263, 2221)
 INDEX MAP**

DESIGNED J.A.H.	DATE FEB, 1981
DRAWN R.J.T.	SCALE 1:50,000
CHECKED	135-20-2
APPROVED	