

ARCHER, CATHRO

& ASSOCIATES (1981) LIMITED

CONSULTING GEOLOGICAL ENGINEERS

1016-510 WEST HASTINGS STREET
VANCOUVER, B. C. V6B 1L8

(604) 688-2568

SUMMARY REPORT
on the
DIVISION MOUNTAIN COAL PROSPECT
SOUTHERN YUKON
for
W4 JOINT VENTURE

092937

R.C. Carne, M.Sc.

April, 1990

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PREAMBLE

The Division Mountain coal prospect is located 25 km by bush road west of Braeburn, which is 85 km by paved highway north of Whitehorse and is on the main electrical transmission line to Faro.

Limited diamond drilling and bulldozer trenching during 1970-72 identified over thirty coal seams within a stratigraphic interval of 400 m and a strike length of 600 m. Host rocks are Jurassic Laberge Group continental and marine clastic sedimentary rocks. Glacial overburden cover is extensive but a similar sequence of coal-bearing stratigraphy occurs at the base of a cliff 5 km along strike to the northwest. In April 1990, W4 Joint Venture acquired the exclusive rights to further explore the Division Mountain region for coal through acquisition of two Coal Exploration Licenses enclosing an area of 68,460 acres (27,705 ha).

The thickest seam occurs near the base of the coal-bearing sequence. True widths intersected in two holes and three bulldozer trenches vary between 4.7 and 12.1 m. Widths of the hanging wall seams range between 0.2 and 2.5 m. The coal dips 60° west in the area of exploration but probably shallows to 35° along strike to the south.

The average analysis of fourteen 1.5 m samples taken from drill core is 0.48% sulphur, 47.1% fixed carbon, 31.3% ash, 2.0% residual moisture and 19.7% volatile matter with a calorific value of 9,400 BTU/lb. Samples from bulldozer trenches had an 11 to 24% ash content with a similar calorific value.

Exploration in the early 1970's was carried out to outline reserves of thermal coal suitable for power generation. The 1974 decision of the Federal government to proceed with construction of the Aishihik hydroelectric project resulted in termination of coal exploration at Division Mountain. Recent economic growth in the Yukon has strained the electrical capacity with

increased reliance on diesel generation. Thermal power generation has once again become an alternative. Three new major base metal mines are forecast to begin production within the next five years in the Yukon and northwest British Columbia. The low sulphur values of the Division Mountain coal make it ideal for use in concentrate drying as well.

The potential for extending open-pittable coal reserves at Division Mountain by shallow bulldozer trenching with follow up diamond drilling is excellent, especially to the south where dips flatten.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

A handwritten signature in black ink, appearing to read 'R.C. Carne', with a long horizontal flourish extending to the right.

R.C. Carne

/mc

LOCATION AND ACCESS

The Coal Exploration Licenses are located eighty kilometres northwest of Whitehorse and 275 km from tidewater at Skagway, Alaska (Figure 1). The small community of Braeburn on the Klondike Highway is 25 km northeast of the Division Mountain coal deposit by four-wheel drive road. The Whitehorse-Faro power line passes through Braeburn some 20 km from the deposit in a straight line.

HISTORY

In 1907, D.D. Cairnes of the Geological Survey of Canada mapped and sampled three coal seams which outcrop in a ravine 2 km north of Division Mountain. Another coal outcrop was also located by Cairnes at the base of Red Ridge 5 km to the northwest.

During the period 1970-72, Arjay Kirker Resources Ltd. carried out limited bulldozer trenching, sampling, test resistivity surveys and diamond drilling over the coal outcrops near Division Mountain. The property has not been explored since then.



136°00'

KLONDIKE HIGHWAY

WHITEHORSE - FARO
POWER LINE

61°30'

BRAEBURN LODGE

uKc

NATIVE
LAND
CLAIM

JL

JN

30

60

70

uKc

JKT

FOUR-WHEEL
DRIVE ROAD

JN

JKT

TO
WHITEHORSE
100 km

uKc

W4 JOINT VENTURE
COAL EXPLORATION
LICENCE

uKc

LITHOLOGIES

UPPER CRETACEOUS

uKc CARMACKS GP
andesite flows

UPPER JURASSIC and/or CRETACEOUS

JKT TANTALUS FM
conglomerate, sandstone

LOWER and MIDDLE JURASSIC

JL LABERGE GP
shale, greywacke, sandstone,
coal exposure (●)

JN dacite tuff and breccia

Figure 1

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**LOCATION PLAN
AND
REGIONAL GEOLOGY**

**DIVISION MOUNTAIN COAL
W4 JOINT VENTURE**

SCALE 1:250,000



SW

NE

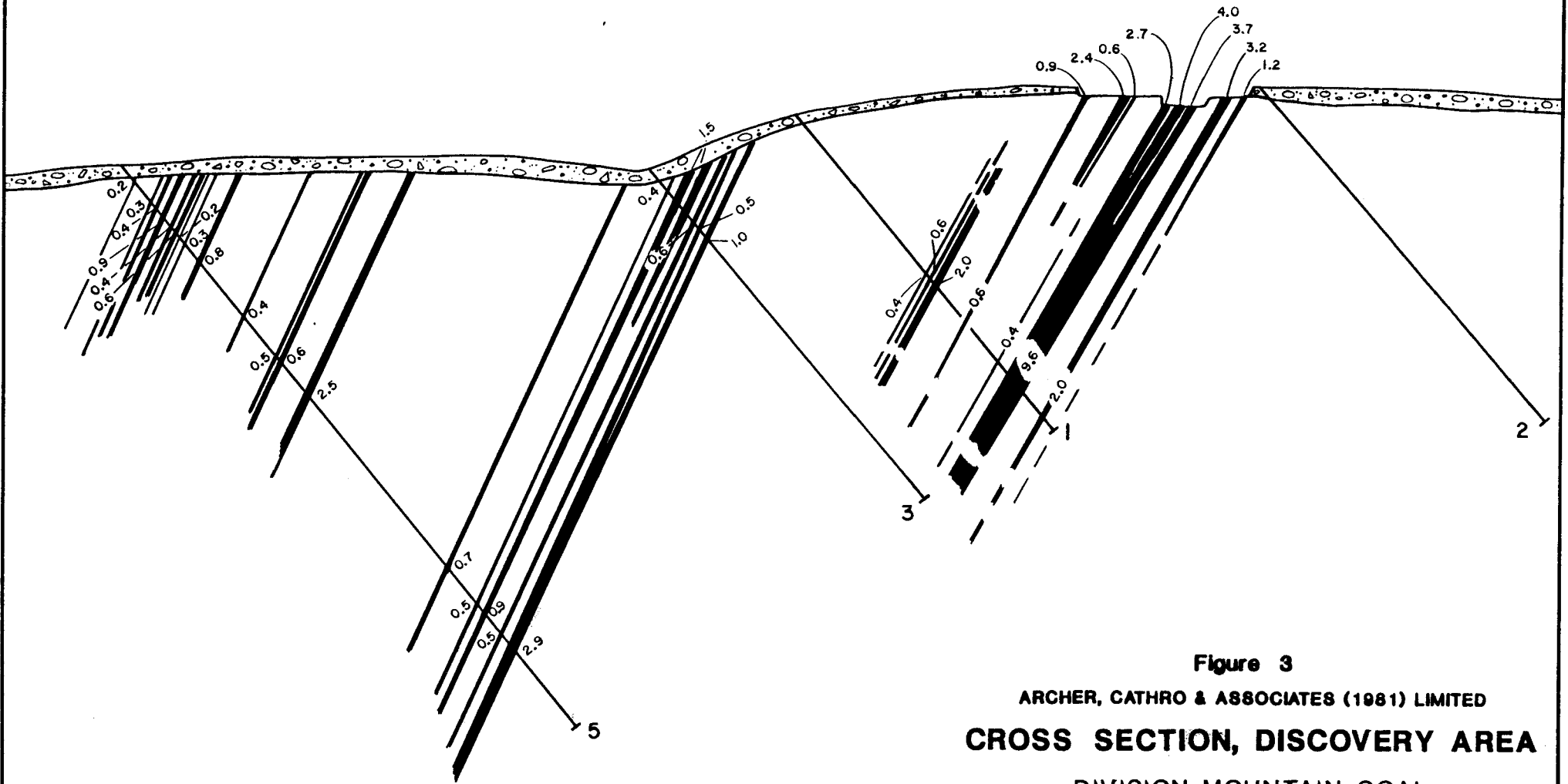


Figure 3

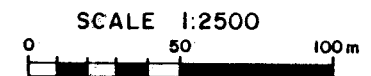
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CROSS SECTION, DISCOVERY AREA

DIVISION MOUNTAIN COAL

W4 JOINT VENTURE

— 15 1972 diamond drill hole
 — 2.0 coal seam (thickness in metres)



GEOLOGY

Coal-bearing sandstone and shale of the Lower and Middle Jurassic Laberge Group are disconformably overlain by Upper Jurassic and/or Cretaceous Tantalus Formation pebble conglomerate and sandstone. Upper Cretaceous Carmacks Group hornblende greywacke and volcanic breccia unconformably overlie the folded sedimentary rocks as a thin, relatively flat-lying veneer. Andesite porphyry dykes and sills related to the Carmacks Group volcanic rocks intrude the coal measures.

Glacial till mantles much of the area, varying between 3 and 30 m thick in the area of 1970-72 exploration.

Regional geology of the Division Mountain area is shown on Figure 1 and detailed geology is shown on Figure 2. A cross section through the deposit is shown on Figure 3.

The 1972 drilling was carried out as a fence across a stratigraphic interval of 500 m with one step-out hole 600 m along strike to the northwest. Over thirty coal seams were intersected with the informally named Cairnes Seam having the most economic potential.

Coal-bearing rocks are interbedded sandstones and shales in roughly equal proportions. The 1 to 10 m thick sandstone intervals are moderately indurated, coarse-grained to gritty in texture and contain numerous carbonaceous shale and coal partings. Silty shale intervals are massive and relatively competent, ranging up to 60 m thick. Coal seams are dull black in colour and often contain narrow partings of carbonaceous shale.

COAL

In the discovery trench, the Cairnes Seam is 9.1 m thick and contains two narrow arenaceous shale bands. Hole 1 intersected the seam 140 m downdip of the trench at a depth of 120 m from surface where it has a true thickness of 9.6 m. In Hole 6, 460 m to the northwest of Hole 1, the seam is 4.7 m thick at a depth of 80 m from surface.

A footwall seam occurs 7.5 m stratigraphically below the Cairnes Seam. Based on two drill intersections, this seam appears to have a minimum true thickness of 2 m.

At least twenty-seven seams were intersected in drill holes above the Cairnes Seam. They vary between 20 cm and 2.5 m thick. Tentative correlation between drill holes suggests that most of the hanging wall seams are not as laterally continuous as the Cairnes and Footwall Seams.

COAL ANALYSES

Whole core samples of coal intersected in drill holes were collected in 1972 and submitted to Birtley Engineering (Canada) of Calgary, Alberta for analyses. Results of this work are tabulated on the following page. Trench samples of partly weathered coal were collected in 1971 and ranges of analyses are listed as well.

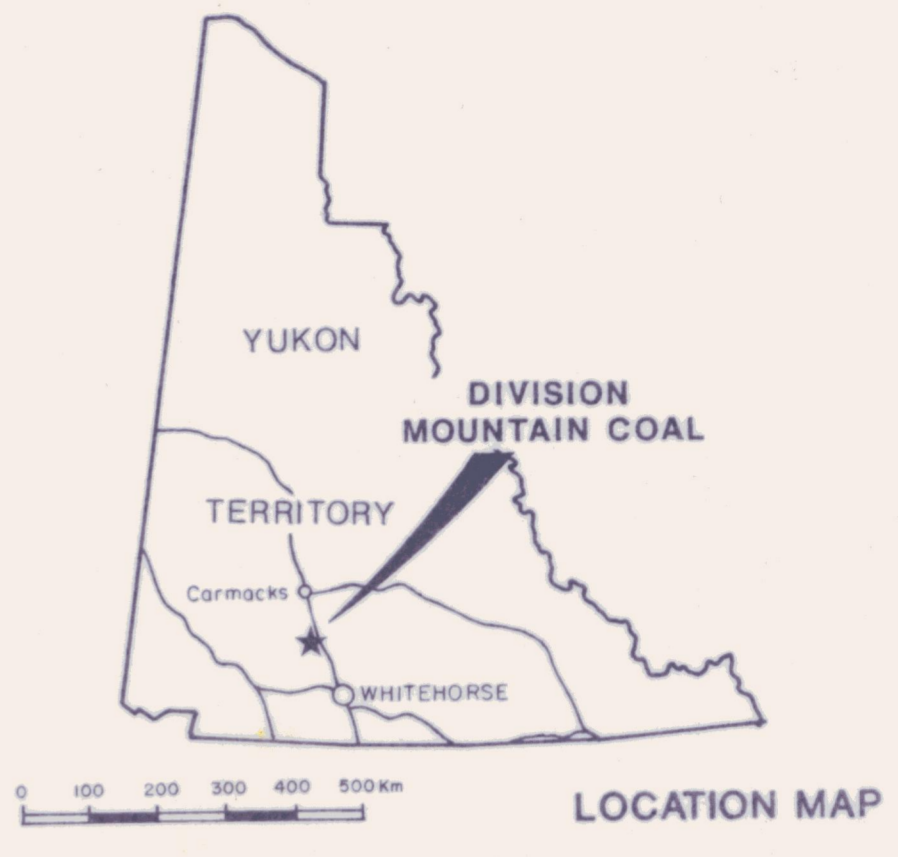
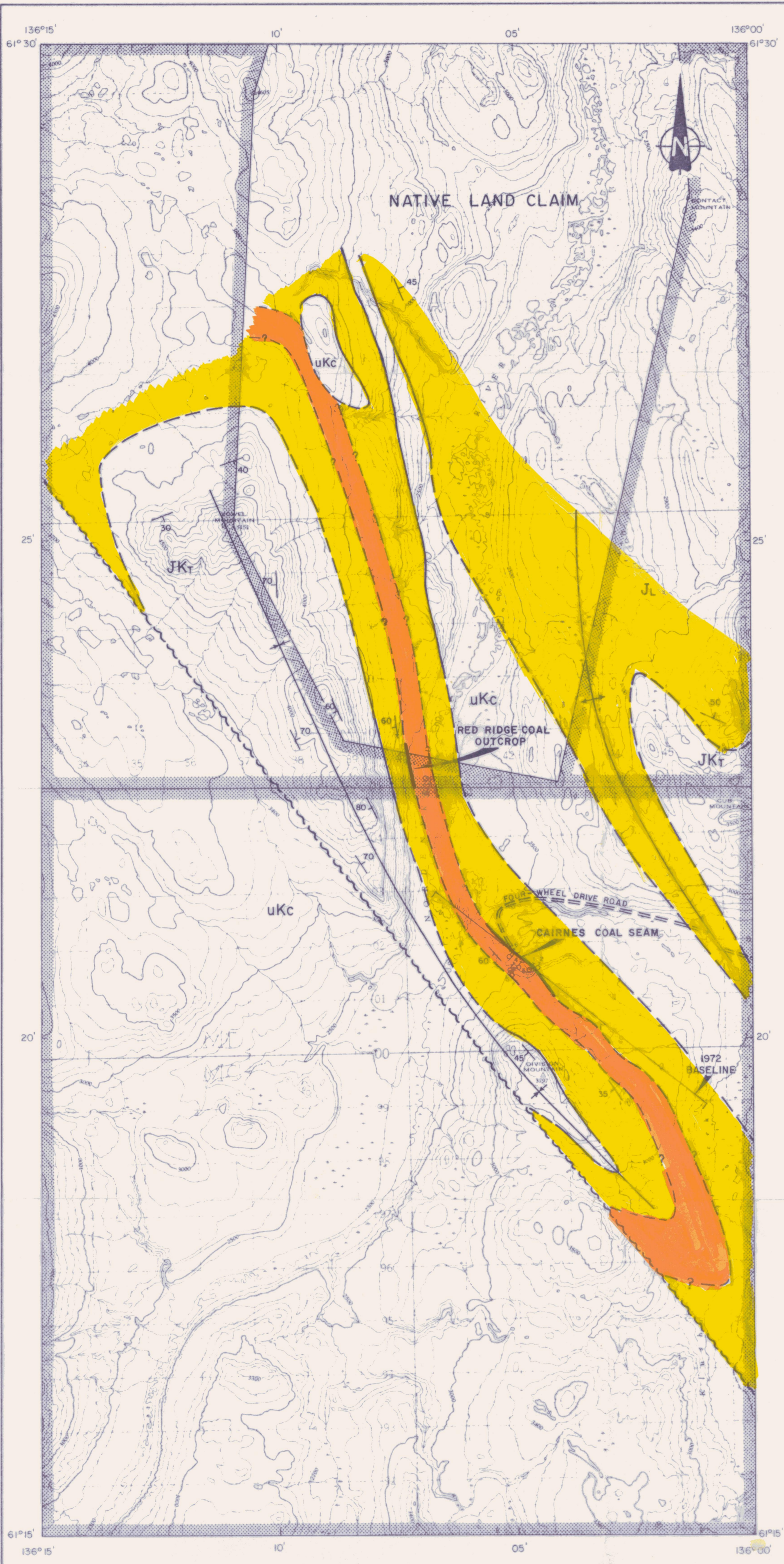
TABLE 1
RESULTS OF COAL ANALYSES
Analyses by Birtley Engineering (Canada) Ltd. - Calgary, Alberta

DRILL CORE SAMPLES

Hole No.	Sample Interval in feet	% Ash	Residual	% Moisture Air Dry	% Volatile Matter	% Fixed Carbon	% Sulphur	BTU/lb Dry Basis	Average	A.S.T.M. Rank Classification	Seam
1	314.0-317.3	29.6	1.2	0.9	21.6	47.6	0.30	9,902		bituminous-med.vol.B	?
	342.5-349.0	22.9	1.3	4.9	16.7	59.1	0.46	9,096		bituminous-low vol.B	HW2
	505.0-510.0	26.7	2.2	N.A.	24.8	46.3	0.42	10,036			
	510.0-515.0	18.6	2.2	N.A.	24.9	54.3	0.42	11,517			
	515.0-520.5	22.3	2.3	N.A.	18.2	57.2	0.62	11,045	9,671	bituminous-med.vol.B	Cairnes
	520.5-525.7	51.4	2.5	N.A.	12.6	33.5	0.42	6,025		(varies through seam)	
	525.7-530.7	31.1	2.0	N.A.	14.2	52.7	0.74	9,665			
	530.7-535.7	31.6	2.3	N.A.	10.8	55.3	0.68	9,739			
	578.0-582.0	21.4	1.5	0.6	26.3	50.8	0.29	11,035	10,356	bituminous-high vol.B	
	582.0-586.0	26.9	1.7	N.A.	30.4	41.0	0.74	9,677			
4	32.0- 35.0	41.3	0.6	0.1	14.1	44.0	0.56	7,445		bituminous-low vol.B	HW12
6	190.0-193.5	33.6	2.0	0.3	20.7	43.7	0.57	8,708		bituminous-med.vol.B	HW2?
	265.0-268.5	27.2	7.1	0.3	15.0	50.7	0.40	9,672		bituminous-low vol.B	?
	299.5-302.0	36.9	1.3	0.1	16.6	45.2	0.51	8,449		bituminous med.vol.B	Cairnes (upper)
	317.0-322.0	27.6	2.1	0.1	25.5	44.8	0.48	9,786			
	322.0-327.0	31.1	1.2	0.1	17.8	49.9	0.40	9,651	9,189	bituminous med.vol.B	Cairnes (lower)
	327.0-332.0	35.0	1.3	nil	20.5	43.2	0.37	8,791			
	332.0-337.0	35.0	2.3	nil	23.2	39.5	0.38	8,527			
	367.0-371.0	34.6	2.3	0.6	22.7	40.4	0.48	8,454	7,451	bituminous high vol.B & C	FW
371.0-375.5	45.8	1.9	0.1	22.2	30.1	0.36	6,559		(varies through seam)		

TRENCH SAMPLES

Bulk sampling	11 to 24	---	14 to 20	32 to 42	37 to 47	0.13 to 0.49	8,007 to 9,654	---	---	---	Cairnes
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SYMBOLS

- attitude of sedimentary rocks
- geological contact (known, assumed)
- fault
- syncline
- anticline
- limits of coal exploration licence

LITHOLOGIES

- UPPER CRETACEOUS**
 - CARMACKS GP**
andesite flows
- UPPER JURASSIC AND/OR CRETACEOUS**
 - TANTALUS FM**
conglomerate, sandstone
- LOWER AND MIDDLE JURASSIC**
 - LABERGE GP**
shale, greywacke, sandstone
 - coal-bearing stratigraphy

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Figure 2

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GEOLOGY
DIVISION MOUNTAIN COAL
W4 JOINT VENTURE

SCALE 1:50,000

