

**ARCHER, CATHRO**  
& ASSOCIATES (1981) LIMITED

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CONSULTING GEOLOGICAL ENGINEERS

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**REPORT OF GEOLOGICAL RECONNAISSANCE**  
**BROOKS COAL PROPERTY**  
**COAL EXPLORATION LICENSE CYW0070**  
**SOUTHERN YUKON TERRITORY**

Located on NTS Map Sheet 115H/08NW

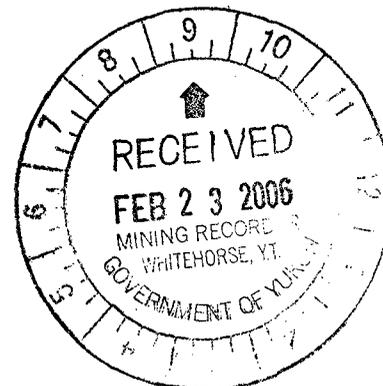
Whitehorse Mining District

For

**CASH MINERALS LTD.**

R. C. Carne, P. Geo.

November 2005



Costs associated with this report have been approved in the amount of \$ 4962.87 for assessment credit under Certificate of Work No. 6

[Signature]  
Mining Recorder  
Whitehorse Mining District

### **PROPERTY, LOCATION AND ACCESS**

The Brooks Coal property is located on the northwest quadrant of NTS Map Sheet 115H/08. Coal exploration rights are held through Coal Exploration License (CEL) CYW0070, issued on February 28, 2005 in the name of James Brooks (100%).

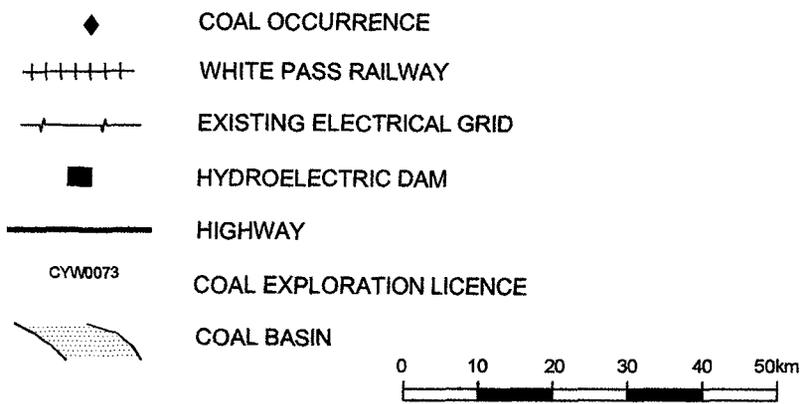
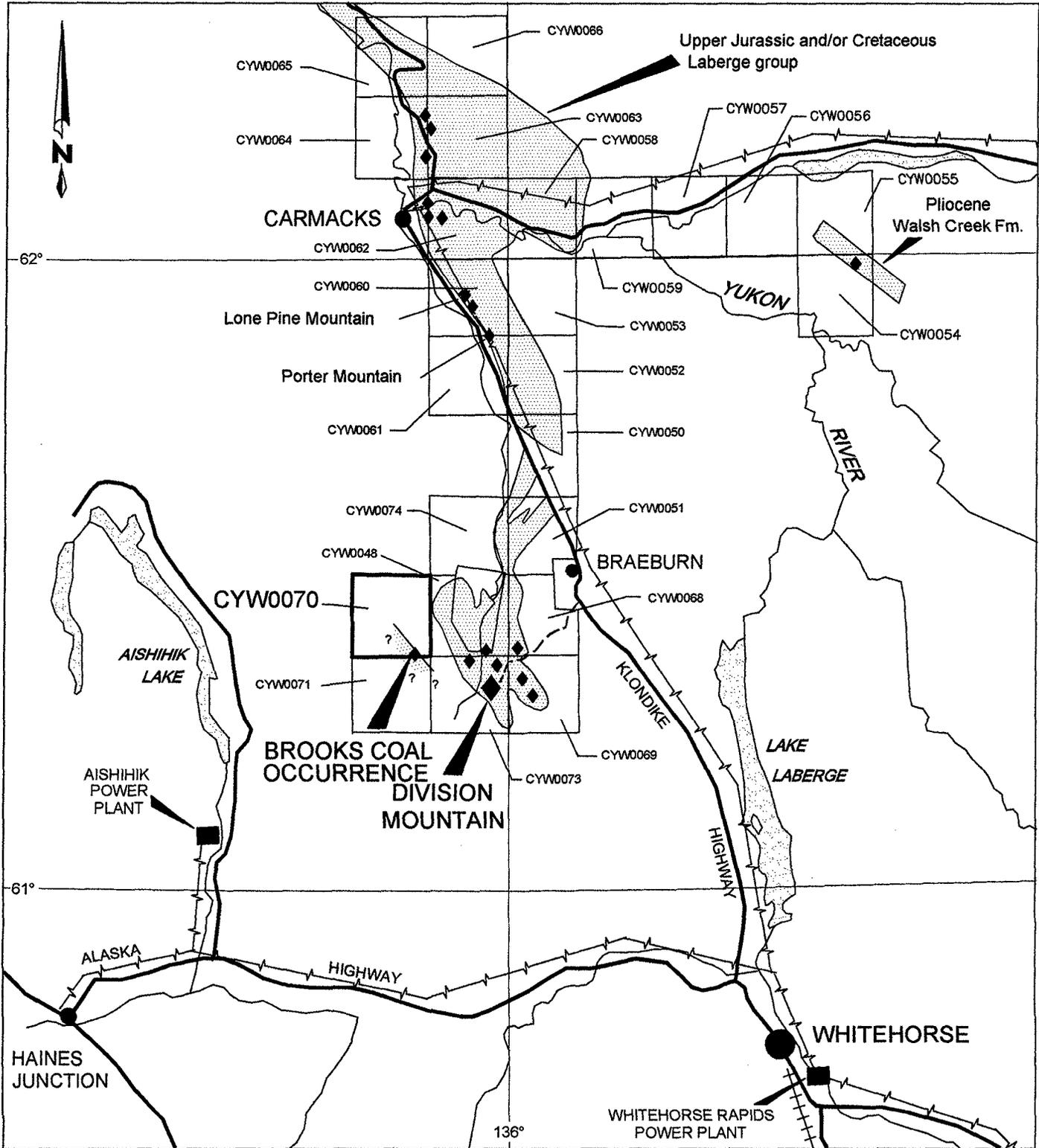
The current area of exploration interest is located along the shore of a small bay on the southwest side of a relatively large unnamed lake (informally called Brooks Lake in this report) that is located in the approximate centre of Map Sheet 115H/08. The small bay is located at 137° 22' 30" E longitude by 61° 22' 30" N latitude or UTM Zone 8 coordinates 431 000E by 6 805 300N (NAD 83 datum). This area is about 10 kilometres northwest of Coal Mining Leases that overlie the Division Mountain coal deposit of Cash Minerals Ltd..

There is no road access to the Brooks coal property. The Division Mountain area is served by a 30 kilometre dirt road that leaves the Klondike Highway near the Braeburn Lodge, approximately 90 kilometres north of Whitehorse. Terrain is relatively subdued between Division Mountain and the area of coal exposures on the Brooks property and equipment could be moved relatively readily overland to explore the property. One area of difficulty would involve the crossing of the Nordenskiöld River. An old bulldozer ford dating back to 1972 lies just west of the Division Mountain exploration camp. Erosion of the river banks has removed the approaches leaving one to two metre high steep banks. Despite water depths that are normally less than one metre, it would be difficult to ford the river with an excavator or bulldozer without causing significant disturbance to the riparian zone. A temporary bridge will probably be required for equipment mobilization. Access to the Brooks coal property in 2005 was by helicopter.

### **HISTORY AND PREVIOUS WORK**

There is no public record of previous exploration on the Brooks coal property. Jim Brooks (personal communication) states that he and his brother have periodically carried out prospecting for coal in the area over the past decade.

The Brooks Lake area lies a short distance from the Division Mountain coal deposit, which has been actively explored since 1992. Resources for the Division Mountain coal deposit were calculated in 1997 at 52.9 million tonnes of High Volatile Bituminous "B" coal. Calculated weighted averages for Division Mountain raw coal quality are 2.3% residual moisture, 27.9% ash content, 26.8% volatile matter, 43.7% fixed carbon, 0.44% sulphur with a calorific value of 5161 cal/g or 9216 Btu/lb. Results of washability tests suggests that a high quality export thermal coal product can readily be produced with 4.4% residual moisture, 12.2% ash, 27.6% volatile matter, 52.1% fixed carbon, 0.46% sulphur and a calorific value of 6170 cal/g or 11,018 Btu/lb.



**FIGURE 1**

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**DIVISION MOUNTAIN AREA**  
**EXPLORATION LICENCES**

DATE: 10/11/2005  
 DRAWN BY: RCC

## **2005 EXPLORATION**

Exploration in 2005 on CEL CYW0070 consisted of a one day property examination by Cash Minerals Ltd. on June 26, 2005. The work was carried out by Archer, Cathro & Associates (1981) Limited geologist R. C. Carne, P. Geo., assisted by R. Phillips and accompanied by James Brooks and Lee Brooks. Helicopter support was provided by Heli Dynamics Ltd. from their Whitehorse airport base.

## **GEOMORPHOLOGY**

The Brooks Lake area is characterized by relatively low rolling hills and broad river valleys. Elevations locally range from 1020 m along the shores of Brooks Lake to 1435 m on the top of a ridge that borders the southwest edge of the area of exploration interest. Most of the area is mantled by glacial till and outwash that, in the Division Mountain area, can range up to 60 m thick. Permafrost is discontinuous and generally limited to poorly drained northerly facing slopes. Natural bedrock exposure is typically less than 5%, especially within the generally recessive coal measures.

## **REGIONAL GEOLOGY**

The Brooks Lake area lies within Whitehorse Trough, a northwest trending, fore-arc basin comprised of Mesozoic volcanic and sedimentary rocks. Bounded by the Omineca Crystalline Belt to the east and the Coast Plutonic Complex to the west, the Whitehorse Trough constitutes the northern end of the Intermontane Belt of the Canadian Cordillera.

During Late Triassic time an island arc assemblage consisting of a 7,000 m thick succession of Lewes River Group aphyric to augite-phyric basaltic andesite flows, breccias and tuff, conglomerate, wacke, limestone and shale was deposited within Whitehorse Trough. Succeeding Jurassic to Cretaceous basin-fill stratigraphy is more complex due to disconformities and hiatus in sedimentation and to diachronous or interfingering relationships in the shallow water and nearshore facies. In general, two sequences are present: Lower to Upper Jurassic conglomerate and sandstone turbidites of the marine to deltaic Laberge Group; and, Upper Jurassic to Cretaceous conglomerate, sandstone, mudstone and coal of the largely alluvial Tantalus Formation.

Coal at Division Mountain is found within the uppermost part of the Laberge Group and, in particular, within the lower member of the Tanglefoot Formation. The following descriptions of stratigraphic units at Division Mountain are taken, in part, from Yukon Geological Survey Open File 2001-3.

Based on lithostratigraphic differences in the Division Mountain area, the Tanglefoot Formation is divisible into two mappable units, here named the lower and upper members. The lower member (J<sub>1</sub>) is dominated by recessive, friable light grey to yellowish grey siltstone, sandstone,

grit and conglomerate. Fine grained lithologies of the lower member, consisting of laminated siltstone, alternate with coarser and thicker grey sandstone beds. A distinctive feature of this unit is its rusty orange weathering aspect. The Tanglefoot Formation upper member (J<sub>tu</sub>) consists of well indurated, resistant sandstone and pebbly grit or conglomerate with intercalated siltstone, carbonaceous shale and coal. Coal occurs throughout the sequence although at Division Mountain, the thickest seams are located near the base of the Tanglefoot Formation upper member.

The Tantalus Formation (JK<sub>T</sub>) lies above the Laberge Group with uncertain contact relationship. In the Division Mountain area, the Tantalus Formation is divisible into two mappable units. The lower unit is a recessive weathering, matrix-supported chert pebble conglomerate that contains discontinuous coal seams and lenses. Due to its recessive nature, the lower member has only been documented in trenches and drill holes on the east and west flanks of Division Mountain. The upper member is a thick bedded, very resistant unit of reddish brown weathering conglomerate that forms distinctive ridge tops at Division Mountain and nearby Corduroy Mountain and Red Ridge.

At Division Mountain, the coal measures are intruded by stocks, dykes and sills of green feldspar and hornblende porphyry andesite thought to be related to the Upper Cretaceous Carmacks Group volcanic rocks.

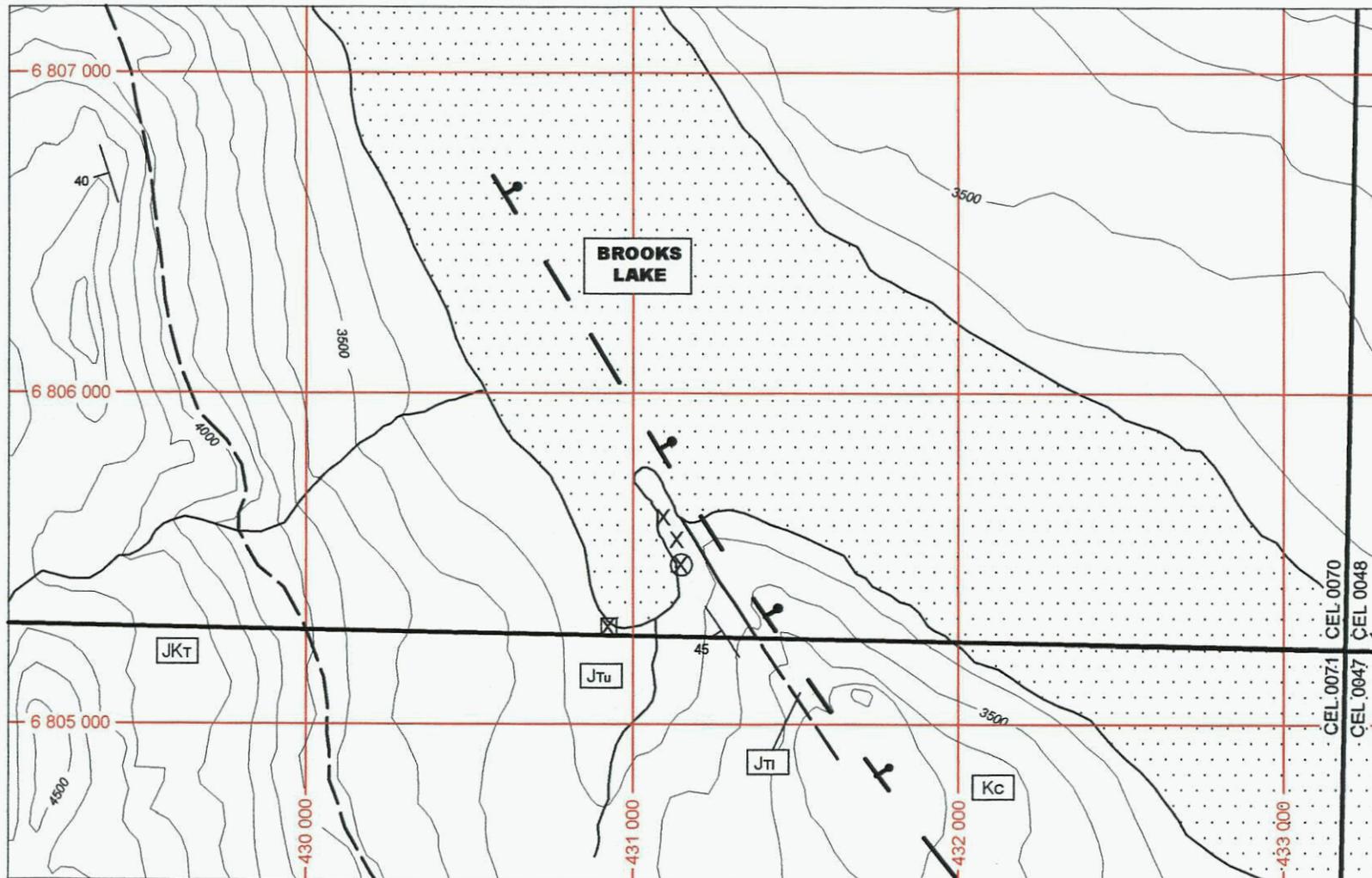
### PROPERTY GEOLOGY

The Yukon Geological Survey website geology compilation shows a fault dividing CEL CYW0070 on an approximately diagonal line from the northwest corner to the southeast corner. Northeast of this fault, the property is underlain by Carmacks Group volcanic rocks. Southeast of this fault the property is shown to be underlain by Eocene Sloko Group sedimentary and volcanic rocks. The fault trace underlies Brooks Lake, just northeast of the area of the 2005 geological investigation. The 2005 mapping shows that, at least locally, the Sloko Group rocks have been misidentified.

Prospecting, geological mapping and hand pitting was carried out on June 26, 2005 in the vicinity of an historical coal occurrence reported by James Brooks, the owner of CEL CYW0070. Although relief in the area of investigation is subdued, relatively abundant outcrop is present along the spine of a small peninsula that juts out into Brooks Lake. Outcrop is also present along the beach around the peninsula.

The lower member of the Tanglefoot Formation (J<sub>rl</sub>) outcrops just east of the peninsula spine. The northwesterly trending succession of brownish red, recessive gritty siltstones and sandstone dips moderately (about 50°) to the southwest. This is overlain with apparent conformity by grey weathering sandstone and grit that is assigned to the upper member of the Tanglefoot Formation (J<sub>tu</sub>). A sub-outcropping coal seam is present along the beach, about 30 m stratigraphically above the contact with the lower member. The seam was partially excavated and the true width appears to be about 1.5 m. Coal quality appears to be as good or better than, Division Mountain

NAD 83  
UTM Zone 8



### LITHOLOGIES

#### UPPER CRETACEOUS?

**Kc** CARMACKS GROUP: andesite, basalt and monzodiorite flows, dykes, stocks and sills.

#### UPPER JURASSIC to LOWER CRETACEOUS

**JKt** TANTALUS FORMATION: thick bedded chert pebble conglomerate and sandstone.

#### LOWER to UPPER JURASSIC

**JTu** TANGLEFOOT FORMATION (Upper Member): medium to thin bedded sandstone, grit and pebbly conglomerate. Interbedded siltstone, carbonaceous shale and coal seams.

**JTI** TANGLEFOOT FORMATION (Lower Member): rusty weathering sandstone, and siltstone; minor conglomerate.

### SYMBOLS

- Bedding attitude
- Coal float occurrence
- Bedrock coal occurrence
- Brooks coal sample (approximate location)
- Normal fault
- Stratigraphic contact (defined, approximate)

### CASH MINERALS LTD.

Figure 2  
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

## GEOLOGY

### BROOKS COAL PROPERTY

0 200 400 600 800 1000 m

Drawn By: RCC

Project: Division Mtn.

File: DivCoal05/Brooks/

Date: November 10, 2005

coal although the exposed seam was too weathered and contaminated with glacial till to be sampled for analysis. Abundant coal bloom and float is scattered across the hillside to the north of and apparently stratigraphically below the coal seam exposure and these appear to be related to relatively thin seams or lenses. The northwest end of the peninsula is underlain by a body of resistant, well indurated massive chert pebble conglomerate. This appears to be a channel fill deposit, which has locally cut out the coal bearing sequence.

A concerted attempt was made to relocate a coal occurrence discovered some ten years or more ago by Jim Brooks at the southwest end of the small bay. No coal or any other bedrock exposure was found. Mr. Brooks was not certain of the specific location and it is possible that the actual coal exposure lies further to the northwest, along the lakeshore. A sample of this coal, represented to have been previously collected by Mr. Brooks, was provided to the author and it was forwarded for analysis to the SGS Canada Inc., Mineral Services Division laboratory in Delta B.C.

Results of Proximate Analysis are as follows:

<i>Proximate Analysis</i>	<i>As Received Basis</i>	<i>Dry Basis</i>	<i>Air Dried Basis</i>
<b>% Moisture</b>	4.15	xxxxxx	0.99
<b>% Ash</b>	2.79	2.91	2.82
<b>% Volatile Matter</b>	36.85	38.45	37.22
<b>% Fixed Carbon</b>	<u>56.21</u>	<u>58.64</u>	<u>58.97</u>
	100.00	100.00	100.00
<b>% Sulphur</b>	0.23	0.24	0.24
<i>Calorific Value</i>			
<b>Btu/lb</b>	12 995	13 558	13 964
<b>Kcal/Kg (Gross)</b>	7219	7532	7292

The ASTM rank of this coal is High Volatile B Bituminous. The coal quality is excellent, meeting or exceeding minimum standards for export thermal coal into the Pacific Rim market.

### SUMMARY AND RECOMMENDATIONS

The results of initial geological investigation on CEL CYW0070 have confirmed that existing government mapping is incorrect. In the area of the current mapping, coal bearing stratigraphy has been identified. Furthermore, the stratigraphic similarities with the Division Mountain sequence are strong enough to imply that a continuation of the Division Mountain Tanglefoot Formation coal measures is present in the Brooks Lake area. Based on the results of Proximate Analysis of a single sample, the coal quality appears to be excellent. For these reasons, the area should be systematically evaluated for its coal potential. Prospecting and geological mapping are the first steps to refine the target and to narrow the focus to areas of favourable structural settings. In the Division Mountain area, excavator trenching has proven to be the best method for determining targets for drilling.

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, P. Geo.

**STATEMENT OF EXPENDITURES**Archer Cathro Labour

R. Carne

1 field day @ \$800/day plus GST \$856.00

12 hours office (including report preparation) @ \$90/hour plus GST 1155.60

R. Phillips (field assistant)

1 day @ \$240/day plus GST 256.80

Room and Board

2 mandays @ \$90/day plus GST 192.60

Helicopter (Heli Dynamics Ltd.)

1.9 hours @ \$975/hour (plus fuel and GST) 2260.30

Coal Quality Analysis (SGS Canada Inc.)One sample proximate analysis (including GST) 241.57

\$4962.87