Dr.W.A.Bell, Director, Geological Survey Nov.12,1950

Report on coal occurrence in Granite Creek area, Yukon Terr.

The attached report deals with tertiary coal deposits on Granite Creek and tributaries, some 15 miles west of Burwash Landing, Yukon Territory.

The writer, before leaving for the Kluane Lake area, was contacted in Whitehorse by a local mining promoter, Mr.W.H.Adcock. On behalf of a syndicate, headed by Hon.George Black, former M.P. for Yukon, Mr.T.E.Duffy, and himself, Mr.Adcock asked for an investigation of a prpperty, leased by his syndicate, and said to contain very valuable coal deposits. Letters were shown from Mr.Jackson, Deputy Minister of Mines and Resources, to Air Vice Marshall K.M.Guthrie, Edmonton. According to these Dr.Hume would instruct the writer to investigate the property. Though no such instructions were recieved ~~it~~ from Dr.Hume, the area was visited during the course of the summer, and the coal was sampled. The report has now been completed. It is left to your discretion wether it should be forwarded to parties interested in the present form.

092051 [redacted]

J.E.Muller

Ottawa, Januari 19, 1951

Mr.Wm.Emery,
Dominion Mining Recorder
Whitehorse, Y.T.

Dear Mr.Emery:

I am forwarding to you the report I wrote on the coal deposit in the Granite Creek area, west of Burwash Landing. You are of course familiar with the history of the coal mining lease in this area. It would seem that the owners are still trying to interest your department in their project. Dr.Bostock and myself recently were down at a meeting in Gen.Young's office with Air Vice Marshall Guthrie who acted as spokesman for the syndicate.

I hope you are having a good wintermin Whitehorse and am looking forward to returning there when the days get longer again! With best regards

yours sincerely

092051 [redacted]

Ottawa, Januari 19, 1951

Mr.K.J.Christie,
Chief Mining Inspector,
Lands Division,
Dept.of Resources & Development,
370 Sparks Street, Ottawa.

Dear Mr.Christie:

With reference to the recent discussion on the Granite Creek coal deposit, near Burwash Landing, Yukon Territory, I am forwarding to you a copy of the report I wrote after visiting the area.

yours very truly

J.E.Muller

092051

[redacted]

61 17'N
139 02 3'W

Ottawa, Januari 19, 1951.

Mr.G.E.B.Sinclair,
Chief, Lands Division,
Department of Resources & Development,
370 Sparks, Ottawa.

Dear Mr.Sinclair:

With reference to the recent discussion on the Granite Creek coal deposit near Burwash Landing, Yukon Territory, I am forwarding to you two copies of the report I wrote after visiting the area last summer. I am also sending copies to Mr.Christie and to the Mining Recorder in Whitehorse, Mr.Emery.

yours very truly

J.E.Muller.

092051

[redacted]

Report on the coal deposits of the Granite Creek area,
near Burwash Landing, Y.T.

In the course of the geological survey of the Kluane Lake area, Yukon Territory, an investigation was made of a coal deposit in the vicinity of Granite Creek, about 15 miles west of Burwash Landing, on the Alaska Highway. The coal occurs on a property, leased by a Whitehorse syndicate, headed by Hon. George Black, P.C.K.C., Mr. T.E. Duffy, and Mr. H.W. Adcock. The results of these investigations, made in the first half of July 1950, are given in this report.

Continental deposits of probably early tertiary age occur at the bottom of a thick series of lavas and tuffs occurring in the Kluane Lake area and far beyond it in Alaska, Yukon, and British Columbia. These tertiary sedimentary and volcanic rocks occur in a belt, parallel to the Shakwak valley (the large valley, partly occupied by Kluane Lake), and at a distance of 5 - 10 miles to the southwest of it.

The sediments occur apparently in the valleys of an old- or pre-tertiary landsurface, underlain by heavily folded pre-tertiary sedimentary and volcanic rocks. This basal tertiary series of sediments consists of gravel, sand, shale and several seams of lignite or carbonaceous shale. They are in places well-cemented, but their major part is entirely unconsolidated. A casual observer might take many of these gravels for pleistocene deposits. A smooth shiny surface on the boulders and pebbles and a high percentage of quartz among them is their best distinction from these. The coal in these beds is a lignite, with a typical brown streak. Although in most places it is interbedded with much shale, it shows some good clean benches in a few exposures.

The area had been visited before by D.D. Cairnes of the Geological Survey[1], who reported on the lignite seams. Cairnes reported that at

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[1] Exploration in southwestern Yukon; Summ. Rept. Geol. Surv., Canada, 1914.

---

least 12 seams over 12 inches in thickness, containing an aggregate of at least 30 feet and probably nearly 50 feet of lignite of good quality occurred in one place, where a tributary of Granite Creek has cut a huge

amphitheatre in the tertiary sediments. When the writer visited this place he was unfortunately not aware of this statement, having been told by Mr. Adcock that the main coal deposits occurred on the opposite, south side of Granite Creek. However, one day was spent in the amphitheatre and several seams were seen, but none of very promising character. One seam, on the west bank of Amphitheatre Creek, about 500 feet upstream from the junction with Granite Creek, consisted of 4 feet of thin-bedded black shales, interbedded with hard layers of lignite to about one inch thick. The seam did not appear to be worth sampling. Similar seams were seen higher up in the amphitheatre. A few hundred feet below the steep and jagged wall of lavas and agglomerates, capping the sediments and forming the most prominent feature of the amphitheatre, 3 seams were seen. The middle one was described as follows:

Roof: Shale, grey, fissile, thin-bedded, soft, about 2 feet overlain by sand.

Shale, coaly, with streaks of coal.....	0'4"
Coal, fairly clean, bright and dull bands of about 1/8 inch.	0'5"
Shale, soft, black.....	0'1"
Coal, fairly clean, bright.....	0'7"
Coal, somewhat shaly, dull, with specks of pyrite.....	0'9"

Although only one part of the amphitheatre was traversed from bottom to top, it seems unlikely that any of the seams exposed here are of commercial value.

On the south side of Granite Creek tertiary sediments and coal are exposed mainly in two tributaries. Going up on Berry Creek, as it is named on the location map of claim No. 2944, steeply dipping beds of sandstone and conglomerate are observed in the lower part. Dips are first to the south (strike N 85 W; dip 70° south) and somewhat higher upstream to the north, indicating a tight syncline. In this syncline a few seams of coal, up to 1½ feet in thickness, are exposed, but they are heavily sheared and fractured. Upstream from here the dips become flatter. Somewhat more

than a half mile from Granite Creek a fault is indicated. Dips at the fault are about 35° to the north, but become flatter again and change into a southward dip. This is where the discovery seam of claim #2944 is located. The post that was thought to be the No. 1 post of the claim does not exactly correspond to the description of the lease, but as no other post was seen anywhere near it is probably the post referred to. It is a piece of sawn 2" x 4" lumber, pointed with an axe and driven into the gravel for a short distance. Apparently it was brought up for the special purpose of staking the claim as no trees are anywhere near. It was inscribed "Paul Birckel" but did not bear any other writing, such as it should have according to the description of the lease. The coal outcrop across the creek from this post was badly slumped and covered up and the seam was therefore sampled a short distance downstream, where another branch comes in from the left side. The section of this coal occurrence was described as follows:

Roof: Loose sand and gravel, pebbles well rounded and up to about 6 inches diameter.

Coal, well bedded and with occasional thin shale partitions. Cleats striking N 30 E and N 50 W. The cracks in the lower two feet are filled with ice (digging deeper did not seem to improve this and was very difficult.

Sample #1 of upper three feet..... 5'0"

Shale, brownish grey, chunky, fairly well bedded, with some layers of coaly shale..... 5'8"

Coal, seems to be more regular and cleaner than #1.

Cleat N 10 E and N 50 W, but variable. A few thin shale pertitions. No ice in this seam.

Sample #2 taken from full thickness..... 4'2"

Clay, soft, brown, with some grey shale at bottom..... 0'8"

Coal, interbedded with coaly shale and brown shale. Ice in lower part. Cleats due N and N 60 W.

Sample #3 taken from upper 2⅓ feet..... 3'0"

Clay, brown..... 0'8"

Coaly shale..... 0'9"

Clay, brown.

The analyses of the three samples taken were made by the Fuel Division of the Bureau of Mines, Ottawa, and the report hereon is given at the end of this account.

Before discussing the merits of this coal occurrence it may be mentioned that some coal occurs also on "Duffy Creek" as it is marked on the location map of claim 2944. This is another tributary of Granite Creek, east of "Berry Creek". There is only one seam that might be worth mentioning, outcropping less than half a mile upstream from the mouth of the creek. The section of this seam is described as follows:

Roof: Shale and sandstone.

Coal..... 3'8"

Shale, carbonaceous..... 4'9"

Coal..... 0'10"

Shale.....abt. 1'

Coal.....abt. 1'

Shale

The analyses of the coal on Berry Creek exhibit a remarkable difference with those of samples collected before from the same location. One of these was submitted by Mr. Adcock, Whitehorse in 1949 and analysed also by the Fuel Division of the Bureau of Mines. Three others were collected by Fred Manix & Co. Ltd., Calgary, Alberta and analysed by J.A. Kelso, Chemical Engineer, Edmonton. These latter have an ash percentage varying between 2.46 and 6.58, whereas the present samples contained 10.1 to 27.6 per cent ash, on the "as received" basis. The moisture of the present samples is also much higher.

The difference in ash percentage may be explained by difference in sampling. Probably the samples analysed before were "picked samples". Chunks of good coal were picked from the outcrop and used as sample. The new samples were taken by cutting a channel across the face of the coal, and thus shale partitions and shaly coal that might be present in the benches samples have entered into the composition of the total sample.

It is evident this will give a higher ash content, which is closer to that of run of mine coal that would be produced.

The difference in moisture is due to the fact that the present samples were stored in sealed containers and could not dry out during the months elapsing between sampling and analysis. It is possible that this figure is somewhat high, due to surface water in small cracks. Although the coal of the upper two benches is of fair quality there are several factors that may preclude successful mining operations in this area.

The roof of soft gravels will make it very difficult to do any underground mining, unless natural freezing in the wintertime would consolidate it sufficiently. Thus strip-mining would seem advisable, if the overburden is easily removable and the pitch of the seam not too steep. Exposures, however, were insufficient to establish with any certainty how much coal would be available for stripping. The relief of the terrain is considerable and the pitch of the seam (10 degrees or more) is higher than in most stripmines. It is therefore doubtful whether enough acreage is available for stripping.

It might also be mentioned that the fault that was observed about half a mile to the northeast of the coal outcrop will probably cut off this seam. Further north steep dips and general disturbances of the beds will prevent any strip mining.

The factor of climatic conditions should not be altogether disregarded either. The elevation is at roughly 5,500 feet and at the time of our visit, in the middle of July, the coal was still frozen. Thus only a short season will be available for stripmining. So far as is known to the writer stripping operations cannot be carried out in frozen ground. Lastly it may be mentioned that experience with the coal from Carmacks, Yukon, shows that coal mined from the permafrost zone disintegrates readily when thawed out and exposed to the air. It is almost certain that the same will happen with coal from the area under discussion, or even more so, as the latter coal is of younger age and lower rank.

January 19, 1951

09205 [redacted]

DESCRIPTION OF COAL MINING LEASE NO. 2944

All that rectangular shaped parcel of land containing two thousand, five hundred and sixty acres, more or less, situated in the Whitehorse mining district, Yukon Territory, in approximate north latitude 61°15'; approximate west longitude 139°20', situated on Granite Creek, a Tributary of Duke River which tributary enters said Duke River about six miles upstream from where the Alaska Highway crosses said Duke River, which said parcel lies between two parallel straight lines distant two thousand, six hundred and forty feet perpendicularly to the right and to the left respectively of a straight line described by the applicant as follows: Commencing at coal claim location post numbered one situated approximately one mile easterly of Granite Creek and approximately seven miles upstream from the confluence of Granite Creek and Duke River; thence on a magnetic bearing of north six degrees west a distance of twenty-one thousand, one hundred and twenty feet, more or less, to coal location post numbered two. Said location post numbered one is reported to be inscribed as follows: "Initial Post No. 1. Coal Mine Rights. Direction to Post No. 2 is N. 6 deg. W. Magnetic 21,120 feet (4 miles) and 2,640 feet lies to the right and 2,640 feet lies to the left on line between Post No. 1 and Post No. 2 October 26th., 1949 Paul Birckel". Said location post numbered two is reported to be inscribed as follows: "Post No. 2 Coal Mine Rights October 26th., 1949 Paul Birckel". All with reference to the Topographical Survey map of Yukon Territory dated 1936 of record in the Legal Surveys Division, Department of Mines and Resources, Ottawa.

092051 [redacted]

(2)

130002

GEOLOGICAL SKETCH MAP OF GRANITE CREEK AREA, WEST OF BURWASH LANDING Y.T.

Base from Aereal Photographs.

SCALE 1 inch = 1 1/2 mile.

GRANITE CREEK

11383-176

11383-177

11383-178

11383-179

35° coal, 3'8" +0" 1'0"

65°

70°

65°

25°

35°

15°

18°

coal seam sampled.

BERRY CRK

Pointed Claim with "Paul Birckel"

DUFFY CRK

DUKE RIVER

LEGEND

- TERTIARY VOLCANIC ROCKS.
- TERTIARY SAND, GRAVEL, COAL.
- OLDER VOLCANIC ROCKS
- GRANITE OR RELATED INTRUSIVE ROCK.
- --- APPROXIMATE GEOLOGICAL BOUNDARY.
- — APPROXIMATE BOUNDARY OF COAL MINING LEASE NO. 2944

BITUMINOUS COAL
LOW ASH
7-209.

GEOLOGICAL SKETCH MAP OF GRANITE CREEK AREA, WEST OF BURWASH LANDING Y.T.

Base from Aerial Photographs.
SCALE 1 inch = 1 1/2 mile.

GRANITE CREEK

11383-176

11383-177

11383-178

11383-179

BERRY CRK.

DUFFY CRK.

DUKE RIVER

coal seam sampled

Pointed 2nd with "Paul Bircher"

coal, 3'5" 10" 1'0"

LEGEND

- TERTIARY VOLCANIC ROCKS.
- TERTIARY SAND, GRAVEL, COAL.
- OLDER VOLCANIC ROCKS
- GRANITE OR RELATED INTRUSIVE ROCK.
- --- APPROXIMATE GEOLOGICAL BOUNDARY.
- — APPROXIMATE BOUNDARY OF COAL MINING LEASE NO. 2944

RE KLUANE COAL.

INDEX.

DEPARTMENT OF MINES AND RESOURCES

C A N A D A

Division of Fuels — Report No.7483

Fuel Research Laboratories — Ottawa, May 5th,1949.

BUREAU OF MINES

REPORT OF ANALYSIS.

of

COAL, COKE OR OTHER SOLID FUEL

Coal sample submitted by H.W.Adcock, Whitehorse, Yukon Territory, as per his letter to Deputy Minister, Dept. of Mines and Resources, dated March 24th, also as per memo from H.S.Bostock,Geological Survey to J.H.H.Nicolls dated April 16th.

Laboratory No.	30,974
Sample Mark	
Moisture Condition	
Proximate Analysis :	
Moisture....%	10.7
Ash....%	3.2
Volatile Matter....%	39.4
Fixed Carbon (by difference)....%	46.7
Ultimate Analysis :	
Sulphur....%	0.4
Nitrogen....%	
Calorific Value :	
B.T.U. per lb. gross....	10,880
Caking Properties, (Judged by residue from volatile-matter determination)	Agglomerate
Softening Temperature of Ash °F	

Reported by J.H.H.Nicolls.

R.E.Gilmore
Chief of Division.

C O P Y .

UNIVERSITY OF ALBERTA

J.A.Kelso, M.Sc.,
Chemical Engineer.

Edmonton, Alberta.
August 11th, 1949.

REPORT OF ANALYSIS

SAMPLE OF — Coal
SUBMITTED BY — Fred Mannix & Co.Ltd., Calgary, Alberta.
LABORATORY NO. — 49-3295, 96.

F.M.C. Sample #35

Moisture	12.97
Volatile Matter	40.08
Fixed Carbon	44.49
Ash	2.46
Heating Value in B,T,U,'s per lb.	10,332
Fuel Ratio	1.10
Ash Softening Temp.Deg.F	2128
Specific Gravity	1,34
Sulphur %	.35
Coking Properties	non

Swelling Properties

Volatile 6000	33.85
Swelling Index	[redacted]

A.S.T.M.Classification Sub-bituminous B.

"James A.Kelso"
Director Industrial Laboratories

#35 Granite Creek Sample from Outcrop Prospcet #3

[redacted]

C O P Y.

UNIVERSITY OF ALBERTA.

J.A.Kelso, M.Sc.
Chemical Engineer.

Edmonton, Alberta.
August 11th, 1949.

REPORT OF ANALYSIS

SAMPLE OF — Coal
SUBMITTED BY — Fred Mannix & Co.Ltd., Calgary,Alberta.
LABORATORY NO. — 49-3295,96

F.M.C. Sample #36

Moisture	13.58
Volatile Matter	37.94
Fixed Carbon	41.90
Ash	6.58
Heating Value in B.T.U.'s per lb	9,602
Fuel Ratio	1.10
Ash Softening Temp.Deg.F	2354
Specific Gravity	1.36
Sulphur %	.17
Coking Properties	non

Swelling Properties

Volatile 600C	33.17
Swelling Index	-----

A.S.T.M.Classification Sub-bituminous B.

"James A.Kelso"
Director Industrial Laboratories

#36 Granite Creek Sample from Outcrop Prospect #2

C O P Y.

UNIVERSITY OF ALBERTA

J.A.Kelso, MSc.
Chemical Engineer.

Edmonton, Alberta.
August 11th, 1949.

REPORT OF ANALYSIS

SAMPLE OF — Coal
SUBMITTED BY — Fred Mannix & Co.Ltd., Calgary, Alberta.
LABORATORY NO. — 49-3297,98,99.

F.M.C.Sample #37

Moisture %	13.29
Volatile Matter %	32.66
Fixed Carbon %	48.95
Ash %	5.10
Heating Value in B.T.U.'s per lb.	10,277
Fuel Ratio	1.50
Ash Softening Temp. Deg.F	2432
Specific Gravity	1.37
Sulphur %	.19
Coking Properties	non

Swelling Properties

Volatile 6000%	28.26
Swelling Index	-----

A.S.T.M.Classification Sub-bituminous B.

"James A.Kelso"
Director Industrial Laboratories.

#37 Granite Creek Sample from Outcrop Prospect #1.

GEORGE BLACK, K.C.

Barrister, Solicitor, Notary Public

Offices at
Whitehorse
and
Dawson

Whitehorse, Yukon.

Nov.21,1949.

Mr.R.A.Gibson,
Director, Lands and Development Services,
Department of Mines and Resources,
O T T A W A.

Dear Mr.Gibson :

A group of us here at Whitehorse have acquired what seems to be an extensive deposit of good quality of bituminous coal, situate about 200 miles north of Whitehorse, 12 miles from Alaska Highway.

It is not a new find or discovery. Its existence has been known for years to old timers who mined in the locality and used the coal for fuel. Until the Alaska Highway was built marketing it was not practical.

I enclose a copy of its analysis, as sent to Mr. Adcock by Hugh Bostock. It has high heat qualities and makes little ash or waste.

It is so located that it can be mined by stripping. One of the exposed veins is 14 feet wide.

Some members of the group discussed it with Mannix with a view to having him undertake its development on a very reasonable royalty basis. (Mannix the contractor building road Minto to Mayo) which road I believe you inspected while in Yukon this summer.

Mannix had the showing examined by Blackstock, coal mining engineer, who reported it of good quality, outcroppings over a large area and that at least 50,000 tons could be economically mined by stripping. Mannix sent another engineer to examine and report on it. His opinion was that a great deal more than 50,000 tons could be mined by stripping.

It was reported about here that Mannix would have at his disposal from a Department of the Federal Government, a large sum of monay to finance the building of a road to the property and to develop it, but the latest report is that there is only available to Mannix $8,500. at Ottawa for the project, so Mannix now says he is not, for the present, interested in the property.

092051

[redacted]

The Yukon Council voted $5,000. for development of the coal and road building but, before the coal people were ready to use the money, it was spent for something else, all but $1,250. We are told that now $1,250.only and not the $5,000 as voted, is now available.

There is every indication that this community is facing a fuel famine this coming winter. The wood supply has been cut and used until now it can only be had at a great distance from the town and the price is now about prohibitive. Little fuel can be had at any price.

It was suggetsed to North West Highway System of the Canadian Army that if it put in a winter road it could have what coal it needs for this winter. That was acceptable, except that they would not mine the coal themselves without financial assistanse.

Will you kindly inform me whether the project has been considered by any Department of Government having to do with such matters, either in conference with Mannix or otherwise, and as to whether the report that $8,500, or any sum is available for development of the coal in question.

Practically all coal mined at Tantalus Bute, or Carmacks, with Government funds, has gone to Mayo town, the Connell mines in Mayo district and to Dawson City. No appreciable or sufficient quantity was brought to Whitehorse. It is reported to be of poor quality.

The coal I now write you of appears to be of much better quality than that mined by the Connell interests and can be more economically transported to Whitehorse.

Quite a number of people in Whitehorse have installed oil burners, the oil being imported from the United States. I am one of them.

Commissioner Gibben is expected here in the near future and I am looking forward to discussing the matter with him.

Yours very truly,

George Black.

GB/XB
enclrs.

C A N A D A

Office of
The Director

Department
of
Mines and Resources

Lands and
Development
Services Branch

Ottawa, December 8,1949.

George Black, Esq, K.C.,
Whitehorse, Yukon Territory.

Dear Mr.Black :

Thank you for your letter of November 21,1949, regarding the coal deposit 200 miles north of Whitehorse near the Alaska Highway, together with the fuel analysis report of the coal found there. The information you give is very interesting.

Extensive enquiries have been made in this Department, the Dominion Coal Board, and the Department of Reconstruction, as to whether the question of assistance in the developing of this source of coal has ever been raised. Insofar as can be ascertained, none of these organizations has received any application for Federal assistance, nor is there any record of any funds being made available to Mr.Mannix for construction of a road to, or development of, this coal deposit.

I assure you that we would appreciate being kept informed of progress in the development of this new coal deposit.

I trust that all is well with you and yours and that you may enjoy the Festive Season and prosper abundantly in the New Year.

Yours very truly,

R.A.Gibson

Director.

AIR MAIL.

Whitehorse,

Yukon Territory.

April 28th.1949.

The Secretary,
Board of Trade,
Drumheller,
Alberta.

Dear Sir :

I would greatly appreciate it if you could send me a copy of the "COAL AGE", or some other reliable publication relating to coal mining, and also let me know, if possible, the names of firms manufacturing coal cutting and mining equipment. I presume you will most likely have this data.

Also I would like to know approximately what it costs to mine coal in the Drumheller area, including power costs and type of power used. That is cost per ton and how made up.

If you will reply by air mail I shall be grateful. Any costs incurred I shall be glad to remit.

Yours very truly,

H.W.Adcock.

/a

DRUMHELLER AND DISTRICT BOARD OF TRADE

Drumheller, Alberta,
Canada

May 3rd.1949.

H.W.Adcock, Esq.,
WHITEHORSE,
Yukon Territory.

Dear Sir :

Acknowledging receipt of your favor of the 28th ult., I may say that I have referred your letter to Mr.C.C.Durham, Secretary Manager of the Drumheller Coal Operators Limited and Drumheller Coal Operators Association and asked him to send you the requested information.

You will be getting the correct information from Mr.Durham, who will write you direct.

Faithfully yours,

"John A.Mackay"

Secretary.

DRUMHELLER COAL OPERATORS ASSOCIATION

Drumheller - Alberta

C.G.Durham - Secretary

May 10th.1949.

H.W.Adcock, Esq.,
Whitehorse, Y.T.

Dear Sir :

Your letter of April 28th addressed to the Secretary of the Drumheller Board of Trade has been handed to me for reply. I am forwarding you, under separate cover, the May edition of "Coal Age". This is published by the McGraw-Hill Publishing Co. If you wish to subscribe to this magazine you should address your request to Mc-Graw-Hill Publishing Co., Limited, P.O.Box 183, Station B, Montreal, Quebec. The cost is $6.00 per annum and can be paid in Canadian funds.

Annotated below are the average costs of production in the Drumheller field. These figures were prepared by the Dominion Coal Board for the Calendar Year 1947 and are probably the most reliable obtainable.

OPERATING COSTS:	% of Costs	$
DIRECT COSTS :		
Labour	64.60	2.55
Workmen's Compensation	4.92	.19
Stores	9.88	.39
Power	2.35	.09
Royalty	2.54	.10
	84.29	3.32
INDIRECT COSTS :		
Insurance & Taxes (Income Tax excluded)	1.32	.05
Rents	.45	.02
	1.77	.07
GENERAL COSTS :		
Bond and General Interest	.26	.01
Administration and Miscellaneous	5.80	.23
Distribution	2.74	.11
	8.80	.35
RESERVES :		
Depreciation and Depletion	5.14	.20
TOTAL	100%	3.94

The type of power used in the Drumheller field is all electric energy purchased from the Canadian Utilities Limited.

There are no firms manufacturing Coal Cutting Machines or Coal Mining Equipment in Canada. However, you might contact the following :

Joy Sullivan of Canada, 902 - 9th Avenue West, Calgary, Alta.

Goodman Manufacturing Co., 1134 Premier Way, Calgary, Alta.

Gordon Russell Limited, 744 Hastings Street, West, Vancouver, B.C.

The latter firm represents British companies.

We trust this is the information you require.

Yours very truly,

C.G.Durham,

Secretary.

CGD :SB

cc ..John A.Mackay,
Secretary,
Drumheller and District Board of Trade,
DRUMHELLER - Alberta.

MEMORANDUM RE COAL.

Extracts taken from Report for the U.S.Government made by Donald C.Birch, Exploration Engineer, J.Gordon Turnbull and Sverdrup & Parcel, Consulting Engineers, and submitted in February, 1943. Cooperating in this work were Colonel Montgomery and Major Laurion, of the U.S.A.Engineers.

ECONOMICS OF WOOD VERSUS COAL.

(a) TRANSPORTATION.

1. One ton of coal is roughly equivalent in domestic heating to three cords of wood.

2. Two cords of wood can be loaded on a five ton truck (type mostly used).

3. Thus the transportation of coal by truck is eight times as efficient as that of wood.

(b) PERSONNEL EMPLOYED.

At the camps at Fort St.John and Dawson Creek, Major Hake found that "Ten trucks and fifty-six men supply and deliver about forty-five cords of wood per day". This is equivalent to fifteen tons of coal.

If forty-five men (subtracting ten as drivers and one foreman) supply the equivalent of fifteen tons of coal, the output is one third of a ton of coal per man.

Hence from a personnel employed status six times as many men are required to gather and saw wood as to mine the equivalent value in coal.

The fire hazard is much greater when burning wood than with coal.

YUKONPROSPECTS- AREAS FOR COAL.

1. Nordenskiold Valley - Lone Pine Mountain, south of Carmacks; 118 miles from Whitehorse by Dawson Road (old).
Within half mine of old road : Eighteen inch seam reported. Water 4.68%, Volatiles 15.59%, Fixed Carbon 72.26%, Ash 7.47%. A real anthracite ?.
Superficial covering reported as heavy and masking outcrops. Trenching followed by drilling ; Not very hopeful.

2. Braeburn-Kynocks area - South-west portion.

Extensive area of Tantalus coal-measures lying in the form of a large, broken, flat, undulating cake form the top and in places the main portions of a number of hills and ridges.

a. Outcrop, north-east of Red Ridge - seven miles of flatish road and three miles of mountain road to connect to Dawson trail.

b. Good exposure in a small creek on the north-east side of Division Mountain - four miles of flatish road to connect with Dawson trail. Seam here 7'8", one 4' and several 6 to 18 inches wide; first seam analyses : Water 12.02%, Volatiles 34.28%, Fixed Carbon 42.56%, Ash 11.14%. This is evidently a frozen slaked sample and compares by analogy to the Tantalus Butte where outcrop samples ran 12-16% water but laterat depth in the mine the water content decreased to from 4 to 6%. The fuel ration FC/VM is 1.2/ which compares with that of the Tantalus Bute 1.1., the ash being about the same.

Both areas represent about a seventy mile haul to Whitehorse and are too distant for river transportation. Very attractive for investigation after snow-melt.

3. Kluane Lake - north-west end. Apparently a fair coal basin, cut through and exposed in the Duke and other rivers in the steep mountainous country to the south-west.

The analysis of this coal average Water 10.5%, Volatiles 40% Fixed Carbon 40%, Ash 9.5%, Fuel ration FC/VM-1. Show it to be a true lignite. The high volatile content predicts danger of both gas in the mine and danger from mine fires.

No data on the geology of the area has been found but the beds are reported in places to be flat-lying and elsewhere to be folded up into strike ridges; and area suitable for stripping might be found.

This area seems to offer great promise of supplying many of the camps along the Alcan (Alaska) Highway and the possibility arises of empty south-bound trucks carrying a pay-load even to Whitehorse, a distance of about 185 miles.

Note :-Since the above report was made it has now been determined that this coal is not a true lignite, but Sub-bituminous with low ash content and low moisture (water). See Dr.Bostock's letter of May 9th.1949, and analyses by Geological Survey and University of Alberta in this brief.

Memorandum re Coal.

YUKON PROSPECTS - AREAS FOR COAL.

Area No.	Seam Width	Water	Volatile Combust	Ash	Fixed Carbon	Collector and Reference	Fuel Ratio FC/VM	B.T.U Val
1.	18 in.	4.68	15.59	7.47	72.26	Cairnes	ND	ND.
2.	18 in.	8.98	29.62	13.10	48.30	Cairnes	1.63	ND
	7 to 8 ft	12.02	34.28	11.14	42.56	Cairnes	1.24	ND
	These are surface frozen samples- at depth by analogy with other samples the water content would probably be about 5.5%. Reference :- Cairnes Memoir No.5 - 1910 Department of Mines.							
3.	#416	10.9	41.0	9.6	38.5	Research	.9	ND
	#417	10.2	42.0	9.1	38.7	Council of	.9	ND
	#418	11.2	40.9	5.4	42.5	Alberta	1.0	ND
	#419	9.8	42.5	1.6	44.7	"	1.0	ND

Area No.1 - Nordenskiold Valley - Porter Mountain
" " 2 - Braeburn-Kynocks
Division Mountain
" " 3 - Kluane Lake Head of Sheep Creek #416
" " Burwash Creek #417
" " Granite Creek #418
" " Granite Creek #419

Legend :- N.D. - Not determined
No widths of seams were given in No.3 (Samples #416-17-18-19)
See Pages 1 and 2 to co-relate above.- Memorandum re coal.
No data on geology of Kluane Lake deposits was included in report for U.S.Government.

COMPARISONS

OF

OTHER YUKON COAL

CARMACKS.(Tantalus Butte Mine)

ASH SOFTENING TEMP. Deg.F.....2,140 ASH 8% SULPHUR 3%

GRANITE GREEK.

#1.	ASH	SOFTENING	TEMP.	Deg.F.....	2,432	ASH	5.10%	SULPHUR	0.19%
#2.	"	"	"	"	2,354	"	6.58%	"	0.17%
#3.	"	"	"	"	2,128	"	2.46%	"	0.35%

17

AIR MAIL.

WHITEHORSE,

Yukon Territory.

May 13th.1949.

The Dean,
Alaska School of Mines,
COLLEGE,
Alaska.

Dear Sir :

I would greatly appreciate it if you could let me have by return air mail, the following information :-

1. Analysis of the coal mined in Alaska which, I understand is used by the Fairbanks Exploration Company in their power plants and/or dredges.

2. The size (approximate) and width of the seams where such coal is obtained, also whether it is surface mining, drift mining, or by shaft sinking method.

3. The distance such coal has to be shipped from mine to plant where same is used, and if by truck or railroad, also freight charges per ton.

4. Is the coal mining operation under U.S.Government or Alaskan management, or private company. If so, do the Government give any assistance by way of bonus or financial aid in any way.

5. The retail selling price of coal at Fairbanks and other cities and towns in Alaska.

6. The approximate cost per ton for mining the coal and what methods are used. Do they use coal cutter and latest type of mining machinery and/or conveyors.

While I know this is quite a lot of data to request I feel that your source of information would be most reliable and correct, and shall look forward to your reply with interest.

Thanking you in anticipation.

Yours very truly,

H.W.Adcock.

UNIVERSITY OF ALASKA

COLLEGE, ALASKA

Charles E.Bunnell, A.M., L.L.D., President

21 May 1949.

Mr.H.W.Adcock,
Box 409,
Whitehorse,
Yukon Territory, Canada.

Dear Mr.Adcock :

In reply to your letter dated May 13,1949, the following information is given :

1. The coal which the Fairbanks Exploration Company uses in their central power plant is obtained from the Healy River Coal Corporation, which has a mine in the District known as the Healy River Coal Fields. This district is located about 112 miles by railroad, in a south-westerly direction, from Fairbanks. The calorific value of the Healy River Coal is in the neighbourhood of nine to ten thousand B.T.U. The average proximate analysis of the coal as it comes from the mine is :

Moisture.....	21%
Volatile Matter.....	39%
Fixed Carbon.....	32%
Ash.....	7%
Sulphur.....	0.2%
	99.2%

2. The strata in this region has been divided into three members : lower, middle and upper. The lower member is composed of coal, shales, sandstones, and siltstones. The coal beds contained in this member are not uniform in thickness nor persistent in laterial extent. The base of this lower member is a conglomerate.

The middle member contains six coal beds which are continuous throughout most of the area. Between these coal beds are found , sandstones, clays, siltstones and minor coal beds. The major coal beds have been traced for a length of 12 miles. Some of these beds are over 20 feet in thickness. The beds in this general area are contained in a syncline, the northern beds of which strike about N.30 degrees to 65 degrees W. and dip 65 degrees to 85 degrees S., while the Southern beds strike N.65 degrees E. to East and dip 25 degrees to 45 degrees N.

The upper member of this series is composed of minor coal beds, siltstone, clay and sandstone.

The Healy River Coal Corporation mines their coal by both open pit methods (slackline scraper loading into trucks) and by underground room and pillar methods. Entry to the underground working is by a nearly horizontal "crosscut". Considerable timber is used in the underground method. There are several other mines in the immediate vicinity who mine the coal by open cut methods. In these cases, stripping of overburden by water or by "cat" is first done and then followed by blasting of coal, loading by power shovel, transportation by truck to the washing plant and final loading in railroad cars.

2. Coal from the underground mine is hauled by battery operated locomotives from mine workings to the washing plant. A branch railroad (3-4 miles long) connects the washing plant with the Alaska Railroad. Several of the open cut mines truck their coal 2-5 miles to washing plants which are located either on the Alaska Railroad lines or on short spur lines. The freight charge on the Alaska Railroad between Healy and Fairbanks is $3.00 per ton of coal with minimum shipments of 20 tons.

4. Coal mining at present, as far as is known, is conducted by private companies. A government coal mine, located about 60 miles north of Anchorage in the Matanuska coal fields, operated during the war but is not now producing coal. Several other coal mines received "help" during the war through government agency. The Federal Reconstruction Finence Corporation will make loans on coal mining under suitable conditions.

5. The retail selling price of coal at Fairbanks is $12.00 per ton at the coal bunkers. Cost of coal will vary greatly through -out the Territory. Thus "Stateside" coal at Juneau will probably cost two or three times as much as coal at Anchorage or Fairbanks.

6. I have no definite figures on the cost of mining coal under local conditions. A very rough estimate is about $5.00 to $6.00 per ton. At present coal cutters and conveyors have not been used. Most coal mined has been by previous conventional underground and open cut methods.

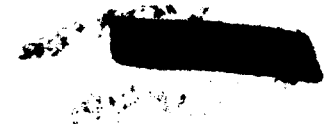
I hope the above information is of some value to you. If we can be of additional help, do not hesitate to let us know.

Yours very truly,

Earl H.Beistline"

Assistant Professor
Mining Engineering.

EHB/jeh



AIR MAIL.

P.O.Box 135,
WHITEHORSE,
Yukon Territory.
May 30th.1950.

Air Vice Marshal K.M.Guthrie,
10041 - 148th Street,
Edmonton,
Alberta.

Dear Ken :

Thank you for your letter of the 17th. instant, I delayed replying as we were waiting for the arrival in Whitehorse of the Commissioner from Dawson, Mr.J.E.Gibben. Mr Gibben arrived here on Friday last, and we had a conference with him at Mr.Black's house on Saturday afternoon. At this time the coal matter was fully discussed.

In brief, the outcome was as follows :-

1. That if the survey to be conducted by Dr,Mueller, of the Geological Survey, Ottawa, is favourable, that the Government will build a road to the property, provided we will undertake to mine the coal. Mr Gibben was of the opinion that the Government would have to spend about one hundred thousand dollars to build a suitable road to the property. This they are prepared to do in order to develop the coal.

2. It is reasonable to assume that financial assistance could be obtained from Ottawa to develop the mine if the report of the Geological Survey is favourable and also in that case the road construction is assured by the Yukon Territorial Government.

With reference to the granting of an extension of our agreement, I would ask you to bear with me until Mr Black returns from Mayo on Friday of this week. Adcock is here from Burwash and will cooperate in every way with us. I will write you again over the week end regarding the matter.

There is no question in my mind as to the quantity and quality of this deposit. Mr Gibben was very favourably impressed with what he heard of the property, and I feel sure he will do everything possible to assist us in every way.

With best regards,

Yours sincerely,

092051

[redacted]

January 12, 1950
Whitehorse, Y.T.
Box 135

Air Vice Marshal K.M. Guthrie,
11030 - 109th. Street
Edmonton, Alberta

Dear Mr. Guthrie :

Confirming our conversation in Edmonton of recent date, I would like to report as follows, -

I have discussed the matter fully with the principal associates of the coal property namely;

Hon. George Black, P.C.K.C. and Mr. H.W. Adcock, and they concur with the tentative arrangements which I have made with you as follows:-

That in consideration of your valuable services in obtaining the necessary financing of our coal property, you are to receive 30 per cent interest in same, and failure to do so does not obligate us to give you any interest in our coal property, however, we are prepared to assist you as follows:-

We will give you analyses of our coal which in my opinion, is the best and only known marketable coal deposit in the Yukon.

We will furnish you with information whereby a company in the Yukon obtained complete financial assistance from the Federal Government to develop their property on very favourable terms thereby setting a precedent for such assistance.

Mr. George Black, P.C.K.C. formerly M.P. for many years for Yukon will write to his personal friend Rt. Hon. C.D. Howe, also Hon. Colén Gibson K.C. (until last week Minister of Mines and Resources) and to Roy A. Gibson, Director of Mines and Resources to solicit their aid in developing our property, and any assistance they can afford you in obtaining necessary finances to develop this property.

We obtained the lease duly executed only last week so that the title to same is now in perfect shape.

I believe we can supply you with accurate information which will indicate that the formentioned financed coal property at Carmacks is a failure, and as coal is vitally needed in the Whitehorse area and the Yukon particularly from a National Defence point of view and to conserve Canadian dollars now being spent on American fuel oils that we think we will have very little difficulty if we all co-operate in obtaining the necessary Federal financial aid to develop our property.

We will go into complete and final details when you arrive at Whitehorse, and would appreciate it very much if you would please advise when we may expect you to arrive.

Mr. Black expressed that he will be pleased to meet you and renew his acquaintance with you.

Will you please convey my kindest regards to Mrs. Guthrie and your daughter.

Yours very truly 092051.

T.E. Duffy

[redacted]

10041 - 148th. Street
Edmonton, Alberta

2nd. May 1950

Dear Tom:

Just a line to say that I expect to be going east again, to Ottawa, on the evening of the 10th. of May. While there I intended seeing or at least telephoning Dr. Hume, Director General of Technical Surveys, in respect to the proposed survey this summer of the coal lease. But there is not much sense in my bothering him, or any one else, if my connection with the project is non-effective at the time the survey is to be carried out. That is why I would like to have something definite about the extension of agreement. There may be other men concerned with the future financing and developing of the project whom I'd meet at Ottawa.

I'll be at the Chateau Laurier from the 11th. to the 14th. inclusive.

If you see Mr. Adcock, tell him that I received his newspaper, with thanks, and expect to see some men this weekend in Calgary with whom I'll discuss the matter. I'll let him know the outcome of any discussions.

Am in the throes of trying to resurrect a large but run-down garden. After the winter lay off my back muscles ache.

With kindest personal regards to your good lady and self, and I hope that you are feeling better.

Yours sincerely

Ken.

T.E. Duffy
P.O. Box 135
Whitehorse, Y.T.

Granite Creek Coal Deposits

Lease Number 2944

Main Organisers

Herbert William Adcock
Thomas E. Duffy
George Black

Also in this company

C. Broadfoot
R.T. Raman ?
Ray ?
G.H. Bartlett
Willard J. Betchelder
S.P. McLean
V.G. Battes ?
Rob. Hinter ?
Eric A. Bright

Air Vice Marshal K.M. Guthrie, 10041 - 148th. Street, Edmonton, Alberta, seems to act as a "Five percenter" and is using his acquaintances with government people to try and get the government interested. He was supposed to get 30% if he succeeded before June 1st. 1950, but did not. He is now trying to postpone this date till December 1951. However, the associates do not seem to agree to this, unless he wants to pay the dues to the lease (2,560.00) due June 1950 (paid once before). A communication has been obtained from the Deputy Minister, C.W. Jackson by Air Vice Marshal Guthrie for a government survey of the deposit by Dr. J.T. Muller. Mr. Jackson states in this letter that Dr. Hume will instruct Dr. Muller to examine the Duke River coal deposits.

BUREAU OF MINES
DIVISION OF FUELS

CANADA
DEPARTMENT
OF
MINES AND RESOURCES
MINES AND GEOLOGY BRANCH

Report No. 7768

917

FUEL RESEARCH LABORATORIES

OTTAWA, November 3, 1950.

REPORT OF ANALYSIS

Sample of coal submitted by Geological Survey of Canada as per Memorandum addressed to Director, Mines Branch, dated October 13, 1950, from W.A. Bell, Director, designated as sample collected by J.E. Muller from exposures on a tributary of Granite Creek, a tributary of Duke River, located 15 miles west of Burwash Landing, Kluane Lake area, Yukon Territory.

Date Received	October 17, 1950	
Laboratory No.	32618	
Sample Mark	1 and 17	
Moisture Condition	As Rec'd	Dry
Proximate Analysis		
Moisture.....%	22.6	0.0
Ash.....%	10.1	13.0
Volatile Matter....%	35.9	46.4
Fixed Carbon.....% (by difference)	31.4	40.6
Ultimate Analysis		
Sulphur.....%	0.1	0.1
Calorific Value		
B.T.U. per lb. gross	8065	10415
Ash Fusibility		
Initial.....°F.		2120
Softening Temp....°F.		2240
Fluid Temp.....°F.		2270
Caking Properties (Residue at 950° C.)	Non-agglomerate	

B.T.U. Moist, Mineral Matter Free : 9416
Classification: Sub-bituminous C.

Reported by: E. Swartzman & R.J. Young

R.E. Gilmore,
Chief, Division of Fuels.

092051 [redacted]

FORM M.B. 7F—2528

BUREAU OF MINES
DIVISION OF FUELS

CANADA
DEPARTMENT
OF
MINES AND RESOURCES
MINES AND GEOLOGY BRANCH

Report No. 7769

FUEL RESEARCH LABORATORIES
OTTAWA, November 3, 1950.

REPORT OF ANALYSIS

Sample of coal submitted by Geological Survey of Canada as per Memorandum addressed to Director, Mines Branch, dated October 13, 1950, from W.A. Bell, Director, designated as sample collected by J.E. Muller from exposures on a tributary of Granite Creek, a tributary of Duke River, located 15 miles west of Burwash Landing, Kluane Lake area, Yukon Territory.

Date Received	October 17, 1950	
Laboratory No.	32619	
Sample Mark	2 and 14	
Moisture Condition	As Rec'd	Dry
Proximate Analysis		
Moisture.....%	22.3	0.0
Ash.....%	13.7	17.7
Volatile Matter....%	32.3	41.6
Fixed Carbon.....% (by difference)	31.7	40.7
Ultimate Analysis		
Sulphur.....%	Trace	Trace
Calorific Value		
B.T.U. per lb. gross	7485	9635
Ash Fusibility		
Initial.....°F.		2330
Softening Temp.....°F.		2430
Fluid Temp.....°F.		2490
Caking Properties (Residue at 950°C.)...	Non-agglomerate	

B.T.U. Moist, Mineral Matter Free : 9287
Classification : Sub-bituminous C.

Reported by: E. Swartzman & R.J. Young

R.E. Gilmore,
Chief, Division of Fuels.

092051

[redacted]

FORM M.B. 7F—2528

Report No. 7770

BUREAU OF MINES
DIVISION OF FUELS

CANADA
DEPARTMENT
OF
MINES AND RESOURCES
MINES AND GEOLOGY BRANCH

FUEL RESEARCH LABORATORIES

OTTAWA, November 3, 1950.

REPORT OF ANALYSIS

Sample of coal submitted by Geological Survey of Canada as per Memorandum addressed to Director, Mines Branch, dated October 13, 1950, from W.A. Bell, Director, designated as sample collected by J.E. Muller from exposures on a tributary of Granite Creek, a tributary of Duke River, located 15 miles west of Burwash Landing, Kluane Lake area, Yukon Territory.

Date Received: October 17, 1950.

Laboratory No.: 32620

Sample Mark: 3 and 4

Moisture Condition	As Rec'd	Dry
Proximate Analysis		
Moisture.....%	20.6	0.0
Ash.....%	27.6	34.7
Volatile Matter.....%	27.7	34.9
Fixed Carbon.....% (by difference)	24.1	30.4
Ultimate Analysis		
Sulphur.....%	Trace	Trace
Calorific Value		
B.T.U. per lb. gross	5750	7245
Ash Fusibility		
Initial.....°F.		2700
Softening Temp.....°F.		2750+
Fluid Temp.....°F.		2750+
Caking Properties (Residue at 950° C.)		Non-agglomerate

B.T.U. Moist, Mineral Matter Free : 9300
Classification : Sub-bituminous C.

Reported by: E. Swartzman & R.J. Young

R.E. Gilmore,
Chief, Division of Fuels.

092051

[redacted]

FORM M.B. 7F—2526

Lab. No. 2134-57

QUOTE FILE.....

MINES BRANCH
DIVISION OF FUELS

CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

FUEL RESEARCH LABORATORIES

OTTAWA, February 18th, 1957.

REPORT OF ANALYSIS

Sample of coal submitted by Dr. J. E. Muller, Geological Survey as per advice addressed to Chief, Division of Fuels dated February 5th, 1957. Sample designated as Tertiary Coal from Kluane Lake Area, Y. T.

Date Received	February 7th, 1957
Laboratory No.	2134-57
Sample Mark	Nil
Moisture Condition	As Rec'd
Proximate Analysis	
Moisture.....%	21.8
Ash.....%	7.8
Volatile Matter.....%	36.7
Fixed Carbon.....% (by Difference)	33.7

Reported by: W. J. Montgomery, Chemist.

A. Ignatieff,
Chief, Division of Fuels.

Distribution: (1) Dr. J. E. Muller,
Geological Survey,
Victoria Museum,
Ottawa, Ontario.....(2)

092051 [redacted]

FORM M.B. 7F—2528