MAP NO.	**ASSESSMENT REPORT**	**DOCUMENT NO.:**	092045
	PROSPECTUS	**MINING DISTRICT:**	WHITEHORSE
	CONFIDENTIAL X	**TYPE OF WORK:**	PIT SURVEY
105 D 6, 11	**OPEN FILE**	I.S N. 134693	

REPORT FILED UNDER: Whitehorse Coal Corporation

DATE PERFORMED: September 22 - October 27, 1980 **DATE FILED:** September 28, 1981

LOCATION: **LAT.:** 60°30'30"W **AREA:** Mt. Granger

LONG.: 135°13'30"E **VALUE $:**

CLAIM NAME & NO.: COAL LEASES 2989-2991; COAL LICENCE 301

WORK DONE BY: D. Clark

WORK DONE FOR: Whitehorse Coal Corporation

DATE TO GOOD STANDING		REMARKS: #41 WHITEHORSE COAL

092045

Whitehorse Coal Corporation

Construction Summary

Sept/86

TERRA SCAN
TECHNICAL CONSULTANTS
CIVIL, MINING AND ENVIRONMENTAL ENGINEERING

1-1114 First Ave.
Whitehorse Yukon Y1A-1A3
Phone(403)667-4678

October 28, 1986

Mr. Paul Poggenburg, Manager
Whitehorse Coal Corporation
Box 5478
Whitehorse, Yukon
Y1A 5H4

Dear Sir:

Find enclosed herein a report which summarizes the construction entailed in the excavation of Pit No. 1 for coal exploration on your company's properties. Also enclosed are drawings as follows:

Sheet 1 of 4	Topographic plan showing contours, headwall, survey baselines and cross section lines.
Sheets 2 - 4 of 4	Cross section drawings showing pit cuts relative to profile by which volumes of excavation were determined.

I trust this meets or exceeds your requirements.

Yours truly,

W.D. Clark.

Des Clark.

WHITEHORSE COAL CORPORATION

CONSTRUCTION SUMMARY

Excavation for Exploration of Pit No. 1

INTRODUCTION

The site for this coal exploration within the Whitehorse Coal Corporation properties lies on a south facing slope approximately 13 kilometers southwest by road from Whitehorse Copper Mine at 60° 30' 30" N., 135° 13' 30" E.

On September 22, 1980 this firm was assigned the tasks of preliminary and final surveys, pit design and layout, excavation direction and supervision, drafting of related plans and cross sections for quantities and calculations of quantities for excavation contract payment(s).

SURVEYS

All surveys were carried out employing a Kern EDM mounted on a Kern K1-M theolodite. Surveys were by the radial method from a baseline.

The first survey for preliminary data was started on the 23 September, however, blowing snow and freezing rain terminated our efforts until weather and snow conditions on the access road permitted completion of the preliminary survey on the 28th September. It was originally felt that a preliminary and final survey for quantities would suffice for excavation control and final quantity calculation, however, experience on site soon indicated that constant

survey checks would be required.

Due to volumetric parameters, safety considerations for operators and machinery and slope characteristics (se "Construction") daily control and checks of the excavation were carried out. To minimize daily costs on this project the writer and the geologist, Mr. John Perry, worked jointly as a survey crew using the EDM equipment supplemented occasionally by chain and clinometer slope checks.

Final surveys were carried out between the 18th and 20th of October. Due to the pit bottom characteristics relative to the vertical orientation of the original baseline, site contact was impossible against the toe of the headwall. Accordingly, a second baseline was employed into the pit with a known intersect integral with baseline No. 1. The collected data was reduced and drawings and calculations for final quantities were completed in the late hours of 27 October.

CONSTRUCTION

A bulldozer (TD-25) and a 631-B scraper were employed for the excavation by the contractor, Melberg Verrico Contracting Ltd. The capacity of the scraper is 14 m^3 (struck) and 20 m^3 (heaped). Throughout the excavation operation cycle time ranged from 7 cycles/hr in the worst possible to 14 cycles/hr in the best possible case.

Between 30 September and 2 October the dozer and scraper were employed in the vicinity of the coal seam/slope interface in order that the machinery be gainfully employed while decisions were made related to the vertical and horizontal location of the headwall/wingwalls. The positioning of the

headwall was critical to the project in order that numerous requirements were satisfied. It was determined that a headwall repose of 60 degrees would be adequate considering the materials indicated in the drill holes and a requirement for slope integrity during the pit development and the duration of coal seam sampling through 2 years of freeze-thaw cycles. Mr. Perry's and my greatest initial concern was to position the top of the headwall in order to provide maximum safety for the operators and their machinery while attempting to minimize the overburden - coal volume ratio. During this time Mr. Perry and the writer were most concerned that certain variables and unknowns inherent in such work might radically change the related volumes. It was considered that radical folds or changes in dip on each axis of the coal seam would create horizontal and vertical differences in the headwall toe thus creating inconveniences and inefficiencies with the excavation equipment and considerable potential for volumetric changes. With the headwall set at 60 degrees any changes in slope would have to be made gradually and cautiously in order to maintain a safe working condition for the operators while trying to satisfy the other parameters forementioned.

The Pioneering work (initial slope cuts) started on or about the 2nd October with the dozer working up into the west wing wall. The inefficiency of working uphill into the cut was discovered early by the operator and it was decided by all that the machine should use existing access to gain entry to the headwall alignment from well above the intended cut. During he next 2 - 3 days the dozer made the major part of the pioneering cuts to the headwall in order to provide access for the scraper. As suspected, the equipment benched into the slope a few meters upslope of the marker layout. It was decided to bear with this situation until maneuver room on the cut was wide enough to manipulate the slope angle safely and efficiently.

On the evening of 4 October the machinery was firmly benched in along the headwall with enough width for minor movement transverse to the slope. On the morning of 5 October Mr. Perry and the writer carried out a slope survey and determined a change which would incorporate benching outwards with a minor change in slope angle. The cut was marked in the field with some relief as the most critical stage of the project was behind us at this point.

At this time (4 - 5 October) the dozer suffered a broken C frame which stopped operations for 1.5 days and was to plague the contractor once more during the project.

Excavation went exceedingly well with minor exceptions for the next few days. Changes in weather and excavated materials made travel in the waste area difficult for the scraper and on occasion the dozer was required to push through the wasting operation as well. Cycle times were getting better at this point as the scraper was building the haul access up with the waste materials.

Machinery success was so great during this period that the headwall slope steepened somewhat as resurveys indicated. Once again a bench of 2 meters was layed out to force excavation toward the slope face and maintain position for the volume criteria. Manipulation of the excavation at this point was much easier than prior experience due to an ever widening area through the slope cross section.

Excavation went very well and a point 1 meter above the indicated highest level of coal was reached by October 12 which also coincided with a second break in the dozer's C frame.

The writer's field responsibilities ended at this time, however, Mr. Perry took sole control of the operation in order to clean the overburden to the top of the coal seam.

It was interesting during a later field visit to observe how the coal seam actually folded in each direction coupled with dip in each axis as generally indicated by the drill hole extrapolation performed by J. Perry.

Mr. Perry and the excavating crew continued clean-up of the pit proper until on or about October 16th at which time they turned their attentions to exploration of the coal seam.

Exploration and excavation are ongoing as of this writing.

CONCLUSION

The survey data was reduced, plans drawn and volume calculations completed 27 October. The volumes calculated from the cross sections were attained by the average end area method and a volume of 15,297 cubic meters are indicated therein. A deep cut which is wedge shaped and runs obliquely uphill from the headwall was impossible to survey due to its vertical and horizontal location to the two baselines. From field measurement by other means and office calculation this cut represents a volume of 812 meters.

The total volume of this portion of the project is 16,109 cubic meters.

Government of Canada / Gouvernement du Canada

MEMORANDUM **NOTE DE SERVICE**

TO / À: Colin Macdonald
cc J A Morin

FROM / DE: A C Ogilvy

SECURITY - CLASSIFICATION - DE SÉCURITÉ	
OUR FILE/NOTRE RÉFÉRENCE	
YOUR FILE/VOTRE RÉFÉRENCE	
DATE	86.09.28

SUBJECT / OBJET: Whitehorse Coal Corp.
+ YTG – Yukon Energy Alternatives Program

I enclose a file which appears to be a 1986-03-20 memo from YTG's Energy Policy Analyst (Robert Gillam) to their Energy Advisory Ctte, with attachments.

Since the unknowns here seem to go well beyond a statement of reserves (tonnage + grade), I ask you, Colin, to coordinate a point of view on this topic, preferably with input from ~~the Geology~~ our Geology Division.

Have we given YTG any assistance on this matter?

— Cam.

This copy to J. Morin

092045

Government of Canada | Gouvernement du Canada

ACTION REQUEST / FICHE DE SERVICE

To — À	File No. — Dossier N°
Jim Morin	
	Date: Aug 28/86

From — De: Colin Heartwell

☐ Please call / Prière d'appeler	Tel. No. — N° de tél.	Ext. — Poste

☐ Returned your call / Vous a rappelé	☐ Will call again / Vous rappellera	☐ Wants to see you / Désire vous voir

Date	Time — Heure	Message received by / Message reçu par

☐ Action / Donner suite	☐ Approval / Approbation	☐ Note & return / Noter et retourner
☐ Comments / Commentaires	☐ Draft reply / Projet de réponse	☐ Note & forward / Noter et faire suivre
☐ As requested / Comme demandé	☐ Signature	■ Note & file / Noter et classer

For your information

CONDITIONS FOR GRANT

for a pre-feasability test program

1. Perform test mining operation to produce 2,000 tons or more of the cleanest coal possible for customer trials.

2. Retain a reputable coal engineering firm to take a large bulk sample (say 10 tons) of representative coal and perform upgrading tests using:

   (a) heavy media to examine the effect of media S.G. and coal feed size on yields and qualities,
   (b) flotation, and
   (c) any other procedure they deem applicable. Reputable coal engineering firms include Birtley Engineering of Calgary, Simon-Carves, etc.

(3) Based on the results of (2) have performed a professional market study to examine:

   (a) potential users,
   ~~(b)~~ quantities marketable at economically attainable grades [from (2)],
   (c) conversion costs from other fuels,
   (d) new installation costs compared to other fuels,
   (e) supply and operating cost comparison to oil, wood and power, (ash handling)
   (f) consumer packaging.

(4) Develop detailed operating plans including capital and operating budgets for:

   (a) open pit mining,
   (b) underground mining,
   (c) upgrading plant,
   (d) marketing, administration and other costs,
   (e) licensing and environmental control requirements,
   (f) staffing with experienced coal mining people.
   (g) *identify total revenue reqmts*

(5) Copies of reports outlining the results of customer trials, and upgrading tests, a copy of the market study, and copies of the detailed operating plans are to be sent to the energy and mines group.

Scenarios - Small - 10,000 tons per year.
- larger - i.e. supplying the majority of eligible (possible) consumers
@ each 20,000 tons/year
~ 200,000 tons/year

> 50,000 gal/day or discharging waste - H_2O license req'd.

092045

YUKON COAL USE STUDY

The Whitehorse Coal Corporation will hire a consultant to study the economics of burning coal for heating of buildings in the Yukon. The purpose of the study is to determine the advantages and disadvantages of using coal as well as to provide some specific examples of how coal use can be implemented.

The specific tasks to be included in the study include:

1.a) Survey the market to determine what equipment is available for burning coal. This is to include equipment capable of heating various sizes and types of buildings, i.e.

- houses
- apartment buildings
- hotels/motels
- office buildings
- larger buildings (i.e. hospitals, schools)

1.b) For the above equipment, the following information is to be determined:

- size range (energy output) available
- purchase price and installed costs

- pollutants emitted with different grades of coal under various modes of burning. A thorough literature search is to be conducted to obtain manufacturer's information as well as any published research material available on pollutant emissions. Pollutant emissions are to be compared to various Federal/Provincial standards that are available and to those from other commonly used fuels.
- expected lifetime of the equipment
- peak efficiencies and partial load efficiencies
- fuel and ash handling equipment needed
- flue gas cleaning equipment needed.

2. Study the economics of burning coal compared to other fuels (oil, wood, propane, electricity). This is to be done for the various sizes of buildings mentioned in 1.a) above. Operating costs and installation costs should be examined for various locations in the Yukon (Whitehorse, Dawson City, Watson Lake).

This economic analysis should be done on a life cycle cost basis and is to include the effects of:

- interest rates
- capital costs
- fuel costs
- fuel escalation rates
- operating (labour) costs
- labour escalation rates
- maintenance costs
- equipment life expectancy.

3. Examine the economics of converting some specific buildings to coal fired heating. Existing energy requirements should be examined, the proposed coal fired system should be described and life cycle costs should be compared between the existing system and the possible new system.

The buildings to be examined include:

- The Klondike Inn - Whitehorse
- The Watson Lake Hospital
- The Watson Lake School
- Melberg Verrico Building - Whitehorse
- Norcan Leasing Ltd. Building - Whitehorse

Yukon
Economic Development:
Mines & Small Business
Box 2703, Whitehorse, Yukon Y1A 2C6
(403) 667-5811 Telex 036-8-260

Our File:
Your File:

August 11, 1986

Paul Poggenburg, President
Whitehorse Coal Corporation
Box 5478
Whitehorse, Yukon
Y1A 5H4

re: Yukon Energy Alternatives Loan

Dear Paul:

This is in response to your letter of July 24 to Shakir Alwarid regarding your application for assistance in development work at the Whitehorse Coal property.

A primary objective of the energy loan program is to assist with the development of viable projects that can contribute to the lessening of the Yukon's dependence on oil. A producing coal mine would certainly fit with this criterion. However, the geological complexity of the property and other uncertainties surrounding the application raise further questions that must be answered before we can provide a definite response to your funding request.

The Energy Advisory Committee identified one problem to be addressed in establishing the viability of the property, should it be technically feasible to mine the coal: that of determining the market that the coal would supply. Without the identification of the market to be supplied, it is impossible to assess the viability of the mine, and even if the Yukon Government can be guaranteed the repayment of the loan through the delivery of the coal taken out in a bulk sample, a guarantee of repayment of the loan does not ensure the viability of the mine.

The second category of questions that must be addressed concerns the technical uncertainties of the property.

The coal seams in question were deposited in a high-energy environment in a "successor basin" in the middle of the

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Cordilleran Orogen. The result is that the coal seams are discontinuous, lenticular in shape, and contain numerous interbedded rock bands. On top of this the basin has been highly deformed by folding, faulting and igneous intrusion. What this boils down to is that these coal seams present the most adverse mining situation that could ever be expected. This factor, coupled with the small size of the basin, largely explains why these deposits have not been developed to date. However, this does not mean that they cannot be developed.

When attempting to explore and develop a coal property such as this one a major coal or mining company would generally follow a reasonably standard procedure:

a) Geological mapping of the entire area;
b) Trenching in selected areas to uncover coal seam outcrops;
c) Drilling at (say) 1,000-foot spacing in those areas most likely to be underlain by coal;
d) On the basis of the above information, selection of one or more areas with best potential for intense exploration with more trenching, drilling at (say) 200-foot spacings, and bulk sampling.

Whitehorse Coal Corporation has chosen to skip the first three steps, and has instead chosen to try and develop one small area where some coal has been found, in the hope that they can sell some coal and use the resulting cash-flow to help finance further exploration of the rest of the property. As a result, there is not a lot of useful information which can be used to assess the development potential of the property.

In conjunction with the coal experts at the Geological Survey of Canada, we have conducted an extensive technical review of the material that was presented to the Energy and Mines Branch in conjunction with this application. Our assessment is that the small size of the basin, coupled with its very complex geology, are indications that the potential for the large-scale development of this property (e.g. for export markets) is minimal. However, we believe that the potential for the development of a small-scale operation (perhaps 20,000 tons/year) to supply local markets is quite good. It should be remembered that similar deposits at Carmacks produced small annual tonnages (anywhere from a few hundred tons to 25,000 tons) for local consumption almost continuously from 1905 to 1981. However, to restate the point made earlier, this viability cannot be established without first determining the quantity and quality of coal available, and the price for which it must sell.

During the evaluation of any coal or mineral property the prime consideration is the level of confidence that can be placed in the information obtained. Normally tonnage figures would be determined for a number of reserve categories with different confidence limits, something like this:

Reserve Category	Confidence Limits
Measured (proven)	±10%
Indicated (probable)	±50%
Speculative (possible)	±100%

The amount and intensity of exploration information required to evaluate a given coal property depends largely upon the geology (but unfortunately geologists differ when it comes to determining just a how much confidence can be placed on a given set of data). For example, on the plains of Alberta or Saskatchewan where coal seams extend over large areas with relatively uniform thickness and quality and are structurally undisturbed, drill holes spaced at half-mile to one-mile intervals may be sufficient to establish "measured" reserves. In the foothills region of Alberta where coal seams still extend over large areas with relatively uniform thickness and quality but are structurally deformed, drill holes spaced at 500 to 1,000 foot intervals may be required to establish "measured" reserves. In the mountain areas of Alberta and B.C. where coal seams have been strongly deformed, and/or because of depositional characteristics are discontinuous and variable in thickness and quality, drill-hole spacings of 100 to 200 feet may be required to establish "measured" reserves.

The holes drilled by Whitehorse Coal Corporation are spaced approximately 200 feet apart, and therefore the tonnage estimate (20,000 tons) might be considered as "measured" reserves. However, in calculating these reserves the company's consultants have made three important assumptions:

a) That coal seams are continuous between drill holes;
b) That the seams have reasonably uniform dips throughout the area drilled; and
c) That the seams are reasonably uniform in thickness.

Unfortunately, the geology of this area appears to be much more complex than has been supposed, and there may well be unidentified faults and/or folds within the area of drilling which render one or more of these assumptions invalid. For example, at the Carmacks property great difficulty was experienced in correlating between drill holes only 200 feet apart, even between two holes drilled at different inclinations from the same site. Since the geology of this property is very poorly understood, the tonnage estimate given should be considered, as "indicated" reserves, and further work is required to move these reserves into the "measured" category. This could be accomplished either by further trenching and stripping, or further drilling, or a combination of the two. The stripping program proposed by the company would likely be satisfactory for this purpose.

Information on the quality of the coal comes from two sources - analytical results from surface samples and drill-hole cuttings, and geophysical drill logs. Most surface samples have yielded very high ash values (up to 60%), but the reliability of these analyses is doubtful because of the effects of oxidation. Analyses of the drill-hole cuttings should be somewhat more reliable, but problems both with the manner in which the samples were taken and with the manner in which they were analyzed limit their usefulness.

The geophysical logs identify the coal horizons. Normally, once the coal horizons have been identified a much more detailed log would be run over the coal seam itself, thereby allowing the definition of rock partings and providing a good indication of coal quality. Unfortunately, detailed logs were not run in this case, which renders the geophysical logs questionable as an indicator of coal quality.

The available information indicates that the coal seams in the area of interest consist of thinly interbanded coal and rock, in fact everything from reasonably clean coal through shaley coal and coaly shale to shale. Mining the full thickness of the seam would almost certainly result in a very poor product, with perhaps 40 to 50% ash. Any attempt to upgrade such a product by washing would almost certainly be uneconomic because of the low yields of clean coal obtained. While through selectively mining the cleaner coal bands and discarding the dirty coal and rock bands, the company hopes to do may produce an acceptable product (15 to 23% ash), there is no guarantee that this will be financially viable or even technically possible. Unfortunately the positions and thicknesses of individual bands are not known, and therefore the possibility of selective mining remains to be seen.

Unfortunately the proposal submitted has given the impression that the company has done all the exploration it intends to do, and that the next step is strip overburden and commence mining. Additional information submitted indicates that what the company actually wants to do is to strip a small area and remove a bulk sample. By doing this the company hopes to accomplish three things:

a) To confirm the geological interpretation of their consultants with respect to continuity and thickness of seams and bring the drill-indicated reserves to the "measured" category;
b) To determine whether or not the company can produce a reasonable product by selectively mining the cleaner coal bands;
c) To sell the coal so obtained, both to recover the cost of the program and also to demonstrate that they can produce an acceptable product, thereby increasing their ability to raise additional project capital for further exploration and development work.

There is validity in taking out a bulk sample to be used to identify the coal quality and to determine the feasibility of upgrading the coal through various cleaning methods. However, the company may well have underestimated stripping costs in its proposal; it appears that the assumption has been made that the overburden can be removed by ripping with a tractor. However, the information supplied indicates that the overburden consists in part of conglomerate bands which may well require drilling and blasting, thus raising costs considerably.

Uncertainties concerning geological interpretation, tonnage estimates, lack of good quality data and the cost estimate dictate that this is indeed a very high risk venture. The probability of the company's obtaining a quantity of good quality coal and selling it, thereby recovering the cost, cannot reliably be predicted.

It is our recommendation that the company resubmit a proposal to the Yukon Energy Alternatives Program, outlining a program to identify the feasibility of developing the property into a producing mine. Through this program, the company should develop an operating plan including capital and operating budgets for the extraction of a bulk sample of approximately five thousand tons of coal, through open pit and underground mining, in order determine the quality and quantity of coal available, the costs of mining it, the cleaning that will be necessary to meet the requirements of various target clients, the capital and operating costs involved in upgrading the coal through various methods, and consumer costs for conversion and equipment maintenance. The plan must also consider the environmental impacts and the licensing requirements for mining.

We have attached an outline of information that could be gained through a feasibility study, which may be of assistance to you in developing a terms of reference for your consultants. Please contact me if you wish to discuss your application in greater detail, or if you would like assistance in preparing this revised proposal.

Sincerely,

John Maissan, P.Eng.
Director
Energy and Mines

DWT

D.W. Thomson Consultants Ltd.
Consulting Engineers
Mechanical/Electrical/Civil/Energy
312 B Hanson St.
Whitehorse, Yukon
Y1A 1Y6
(403) 668-5525

Whitehorse, Yukon
Vancouver, B.C.
Victoria, B.C.
Kamloops, B.C.
Seattle Wash.

August 13, 1986

Whitehorse Coal Corporation,
P.O. Box 5478,
Whitehorse, Yukon
Y1A 5H4

Attention: Mr. Paul Poggenburg
President

Dear Sir:

Re: Coal Use Study
Our File # P8695

As requested, we present our proposal for conducting the Coal Use Study described in the attached terms of reference. We outline below our methodology, fees, qualification and experience.

METHODOLOGY

Upon award of the work, the market survey described in Step 1 will be initiated immediately. While information is being obtained from manufacturers, preliminary economic calculations required by Step 2 will begin. Simultaneously, the literature search on pollution will be performed. As cost estimates are refined, Step 2 will be completed. The application of the economic calculations to the existing buildings, described in Step 3 will occur toward the conclusion of the project.

You will be kept informed of the results of the work, generally throughout the study, but a formal review session could occur when the work is approximately 50% to 75% complete. The Yukon Government Department of Economic Development could be invited to participate in this review session.

The work will be primarily done in the Whitehorse office of D.W. Thomson Consultants, however senior staff in the Vancouver office will be available as resources to assist in the study.

The Yukon Department of Economic Development will be contacted to assist in determining economic analysis parameters for the study.

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Through our Vancouver office, we have access to the comprehensive library on pollution topics of the Federal Government Environmental Protection Service in West Vancouver, B.C. In addition we will make use of the library facilities at the University of British Columbia.

FEES

D.W. Thomson Consultants will undertake the Coal Use Study for a fixed fee of $21,000.00

We will invoice monthly based on the percentage of work completed. Support material for determining the percentage of work complete will be available if required.

QUALIFICATIONS AND EXPERIENCE

D.W. Thomson Consultants has extensive experience in energy analysis and economic analysis of building heating systems. The Vancouver office of D.W. Thomson has an Energy Department which specializes in these areas. Mr. Paul Marmion, P. Eng., head of this department will be a prime resource for the study.

Some recent examples of work in economic analysis of alternative building mechanical systems includes:

- Summerland Agricultural Research Centre
- Institute of Ocean Sciences, Patricia Bay, B.C.
- Surrey Hospital
- West Vancouver Fisheries Laboratory for Public Works, Canada
- Canadian Forces Base, Chilliwack, B.C.
- Pacific Forestry Research Centre - Vancouver Island
- Esquimalt Hospital
- Vancouver Island Regional Correctional Centre
- Vancouver Public Aquarium - Tropical River Gallery
- Kamloops Courthouse
- Douglas College, New Westminster, B.C.
- New Westminster Courthouse
- Surrey Taxation Centre

The Company also has experience in the use of solid fuels in buildings. The company has designed various types of incineration systems for the numerous hospitals it has been involved with. Several of the senior staff in the firm have experience in coal fired heating systems that were in use in the 1940's and 1950's.

.../3

More recently the company has been involved with the design of the Yukon Community College which incorporates a solid fuel fired heating system.

We trust that the above information is suitable for your purposes. If you have any questions, please contact us.

Yours truly,

Kenneth B. Shular, P. Eng.

KS:jk

WHITEHORSE
COAL
CORPORATION

BOX 5478, WHITEHORSE, YUKON Y1A 5H4 TELEPHONE: 668-2839

August 14, 1986

Mr. Shakir Alwarid, Deputy Minister
Department of Economic Development
Government of the Yukon
Box 2703
Whitehorse, Yukon Y1A 2C6

Dear Mr. Alwarid

Re: Coal Use Study

Please treat this letter as our application for a grant to have a coal use study conducted to show the feasibility of use of coal from our property for the purpose of space heating of buildings within the Yukon. From our discussions with you in May, we recall the possibility of 100% financing being available, which is important to us as our priority is to use all of our own capital at this time for the opening of a pit for the production of coal. This mining activity will help us to verify production costs and will give an initial indication of sales potential.

We have contacted D. W. Thomson Consultants Ltd. with a view to having them do a study of the market for our coal in the Yukon. The study would identify and analyze the equipment available for burning our coal, including operating requirements and environmental considerations; the study would also compare the economics of burning our coal to other available fuels. An analysis of some typical buildings would be undertaken to provide information as to costs and other factors affecting the making of conversions from other fuels to coal.

We believe the Government of Yukon is already aware of the qualifications of D. W. Thomson Consultants Ltd. to undertake a study such as that proposed. A copy of their proposal is attached. The specific buildings to be examined would be subject to the approval of the owners, of course, and would be selected on the basis of their being representative of different sizes and types of buildings in the Yukon. It is hoped to include a representative sampling of government buildings in the study.

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WHITEHORSE
COAL
CORPORATION

BOX 5478, WHITEHORSE, YUKON Y1A 5H4 TELEPHONE: 668-2839

Subject to approval of this application, the study would commence immediately on awarding of the work, and be complete within four months. Copies of all reports would be provided to the Government. The amount required for the study, according to the estimate of our contractor, is $21,000, and we are applying for financing of the entire amount.

If further information is required, please contact us as soon as possible.

Yours truly

Paul Poggenburg

Paul Poggenburg,
President

Yukon
Economic Development:
Mines & Small Business
Box 2703, Whitehorse, Yukon Y1A 2C6
(403) 667-5811 Telex 036-8-260

Our File:
Your File:

Whitehorse Coal Corporation

Various Note
August 14, 1986

Extracts from COAL-EX report (March 1984)

Coal-Ex March 1984

- "The coal is thinly interbanded with carbonaceous to coaly shale which makes precise definition of coal seams difficult."

- "The coal zones exhibit the effects of strong deformation, and structural poding of coal along major fold hinges in a possibility."

- "the best coal sections of any reasonable thickness (1.75 and 1.30 meters) have dry ash and heat contents of 40% and 7,700 BTU/lb respectively."

- "Preliminary washability tests suggest that cleaning this coal by water only or heavy media cyclones may be impractical."

- "It is concluded that this property warrants further exploration."

Extracts from Larry W. Carlyle report (November 1985)

- "The intrusions also suggest that complex folding and faulting may exist. The 1985 program did not gain any further information on these possibilities."

- "The Roke Oil Report indicates ... coal measures contain less ash from holes 2 to 6 and the cleaner coal bands may contain as little as 15% ash (Oct. 31, 1985)."

(I have found no facts to substantiate this claim - J. Maissan)

- "The written concludes that further exploration of the Whitehorse Coal property is definitely worthwhile."

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The drill logs indicate that the best 2' interval sampled was only 58.6% coal (upgraded at S.G. 1.8) and this had a 24.61% ash content.

Exploration Recommendations

Coal-Ex Consulting Ltd.

- "Despite the work performed to date, the property must still be considered at the grass-roots stage ...

  A comprehensive program which would enable a preliminary evaluation ... would cost in the order of $1.5 million."

Larry W. Carlyle

Proposed:

"1) Detailed surface geological mapping of the entire property.

2) Further trenching and drilling between the Main Showing and the Fish Creek Showing at a spacing of 200 feet."

Things the Company should do

1. Get funds to explore, develop and operate the property properly by going to a public offering of some sort or by selling an option on the property. (probably $2 - 3 million required).

2. Bid coal contract on a non linear scale based on ash and BTU content. (Higher ash and lower BTU coal is less valuable).

3. Make provision for drilling and blasting of conglomerate overburden

4. Make provision for an upgrading (washing) plant

5. Do all further exploration drilling with a large core drill or rotary drilling with detailed geophysical logs.

John Maissan
Director
Energy and Mines Branch

WHITEHORSE COAL CORPORATION

BOX 5478, WHITEHORSE, YUKON Y1A 5H4 TELEPHONE: 668-2839

August 19, 1986

Mr. John Maissan, Director
Energy and Mines
Department of Economic Development
Government of the Yukon
Box 2703
Whitehorse, Yukon Y1A 2C6

Dear Mr. Maisson

Re: Yukon Energy Alternatives Grant

This letter will confirm our agreement with the suggested conditions you propose with respect to a possible grant of $75,000 under the Yukon Energy Alternatives Program. We understand that, if the grant is approved, progress payments by the government will be made after we file proof of our expenditures, but there will be a 25% holdback pending your verification of fulfillment of all of the conditions. We will be providing:

The test excavation is our immediate priority, as the daylight required to work two shifts is decreasing with each passing day. Being able to work two shifts makes a big difference to the cost of the excavation. Also, the weather at the minesite is already deteriorating with the advancing season. With the arrangement of our interim financing and confirmation of the readiness of our contractor to proceed, commencement of this phase of the project now awaits only the announcement of the awarding of the grant. As we discussed, we expect the test excavation to cost $80,000 to $85,000.

The remaining conditions are contingent upon the successful completion of #1. The testing agency we have used most in the past, Commercial Testing and Engineering of Vancouver, only handles laboratory size samples. Birtley, however, will also do the required washability testing, both in the laboratory and in its "pilot plant". They will also supervise the taking of samples and provide us with an engineer's report recommending

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appropriate equipment to suit our requirements. The costs of such sampling and testing are estimated at $15,000 to $20,000, but with more detailed review we may be able to trim that a bit. For example, we might have the geologist who will be supervising the excavation operations also direct the sampling. We might also engage our own engineer to review the data provided by Birtley, rather than use their engineer.

You have our proposal for a coal use study to be performed. If you require further information, please let us know.

Your fourth condition depends upon the results of the first three, which we hope to have completed by the end of December. At that time we will be exploring all of the alternatives for producing and selling coal from the property, including open pit and underground mining. The costs of purchasing, installing and operating upgrading facilities will be investigated, as well as alternative means of organizing and financing the mine. A development timetable, including necessary governmental reviews, will be prepared.

Copies of all reports will be provided to the government as outlined in condition #5.

We anticipate our overall costs for complying with your conditions as being about $115,000 to $120,000. An application will be made under the Exploration Incentives Program for assistance with eligible expenses not covered by the YEAP Grant. Completion of the project should occur early in the new year.

Thank you very much for your kind assistance in this matter. If you require further information, please call.

Yours truly

Paul Poggenburg,
President

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Yukon
Economic Development
Mines & Small Business
Box 2703, Whitehorse, Yukon Y1A 2C6
(403) 667-5811 Telex 036-8-260

Our File:
Your File:

1986 08 28

To: Energy Advisory Committee

re: Whitehorse Coal Corporation

The attached package contains the application from Whitehorse Coal to the Yukon Energy Alternatives Program for a considerably changed program to develop their deposit. As you will remember, their first application was for a loan to commence mining the property, as the development of an indigenous energy resource. The first application was rejected on two major grounds: there were technical uncertainties as to the ability of the property to produce coal at a reasonable price, and the uncertainty that a market for that coal would exist.

We have been in discussions with the Corporation and they have attempted to answer our concerns with this second application. The program proposed involves an evaluation of the feasibility of opening a producing mine, and thus the Corporation is applying for assistance under the Energy Alternatives Program rather than the Loans Fund. They propose to:

1. Dig a test pit to uncover a bulk sample of coal of sufficient size to determine the coal quality and quantity in an area of the property, and to identify the difficulties that will be encountered in mining the coal, e.g. mining techniques required, complexity of the geology and difficulty in following the seams, etc;
2. Send a sample of approximately 10 tons out for sampling to determine the difficulty and costs associated with upgrading the coal as mined to a cleaner product with a reduced ash content;
3. Perform a study to determine the characteristics of the potential coal consumers: conversion costs of potential consumers, O&M costs of using coal, e.g. ash handling, potential market size, quality requirements, sensitivity of the market to price and quality variations, etc. The proposed marketing study is outlined in Whitehorse Coal's letter of August 14;

EXPO 86

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4. A detailed operating plan for the development of the mine, including capital and operating budgets for mining, both by open pit and underground, upgrading, marketing and administration, and licensing and environmental requirements, for both the small scale operation.

Please review the enclosed material for discussion at tomorrow's meeting. I apologize for the rush on this evaluation; the company is very anxious to begin work on the first phase of the work, i.e. obtaining a bulk sample, before the weather makes the operation difficult or impossible for this season. Thank you for your input.

Robert Collins
Energy Policy Analyst
Energy and Mines Branch

att.

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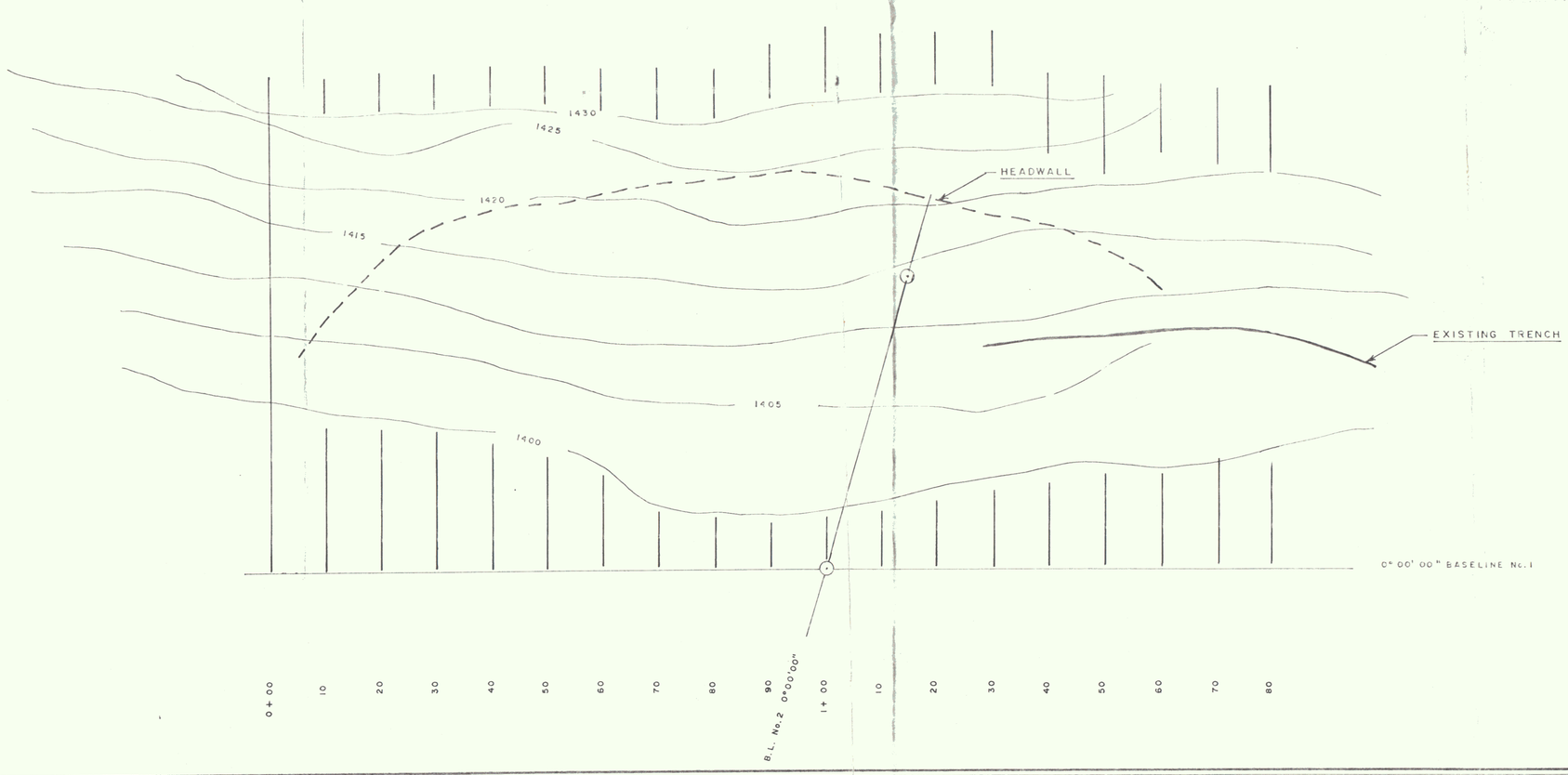


NOTES:

SEAL:

REVISIONS:

NO	DATE	BY	PROJECT

PROJECT:

WHITEHORSE COAL CORPORATION

PIT No. 1 EXCAVATION 092045

DRAWING TITLE:
TOPOGRAPHIC AND CROSS SECTIONS W/ CONTROL BASELINES

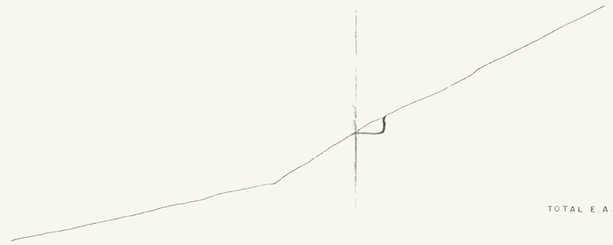
SCALE:	1:500
DATE:	OCT. 1986
DESIGNED BY:	D. CLARK
DRAWN BY:	F. RANKIN
CHECKED BY:	
PROJECT NO.:	

SHEET NUMBER 1 OF 4

1+20

1+50

1+30



1+60

1+40

1+70

BASELINE

1430
1420
1410
1400

0+00 05 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90

PIT No. I
EXCAVATION

WHITEHORSE COAL CORPORATION
BOX 5478, WHITEHORSE, YUKON Y1A 5H4
TELEPHONE 668-2535

092045

SCALE: 1:250
DATE: OCT. 1986
DESIGNED BY: D. CLARK

0+00

0+00

TOTAL E.A. = 3m²

BASELINE

BASELINE

0+10

0+10

TOTAL E.A. = 13.2m²

0+20

0+20

TOTAL E.A. = 36.0m²

0+00 05 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90

1430

1420

1410

1400

0+30

BASELINE

1430

1420

1410

1400

0+40

BASELINE

1430

1420

1410

1400

0+50

0+00 05 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90

TOTAL E.A. = 96.9m²

TOTAL E.A. = 138.28m²

TOTAL END AREA = 174.26m²

PIT No. 1
EXCAVATION

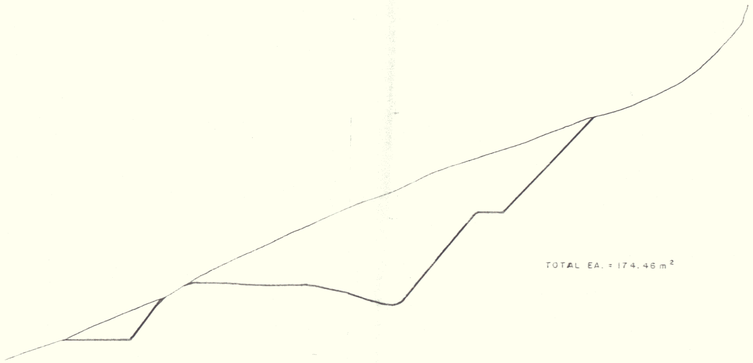
WHITEHORSE COAL CORPORATION
BOX 5478, WHITEHORSE, YUKON Y1A 5H4
TELEPHONE 668-2838

092045

SCALE: 1:250

DATE: OCT. 1986

DESIGNED BY: D.CLARK



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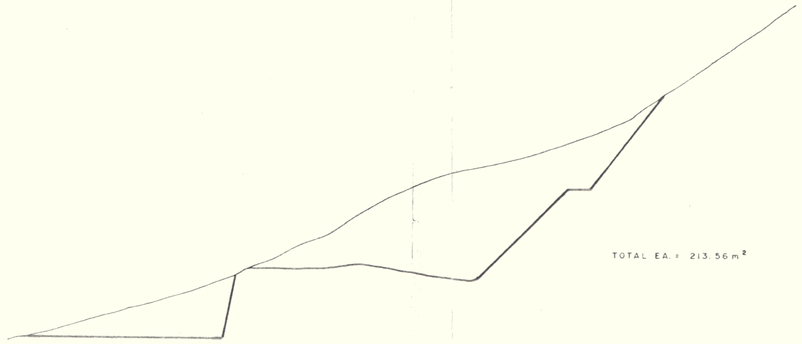

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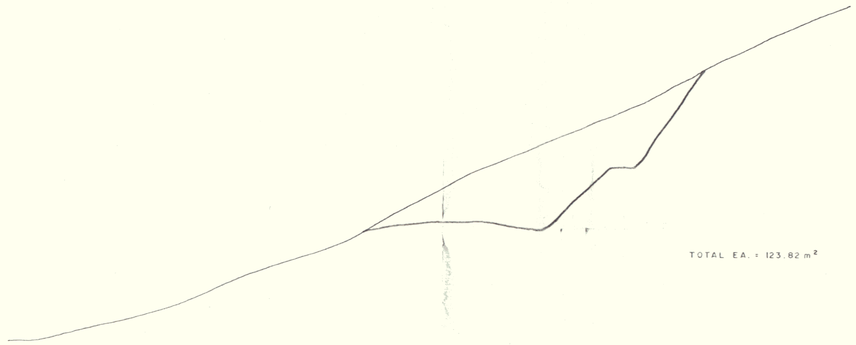

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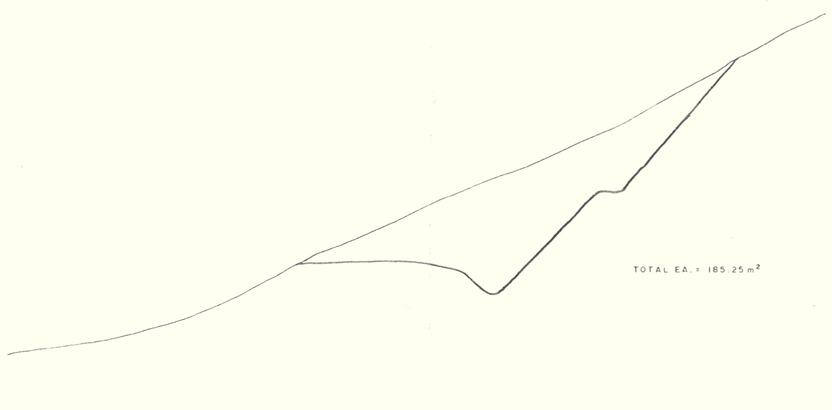

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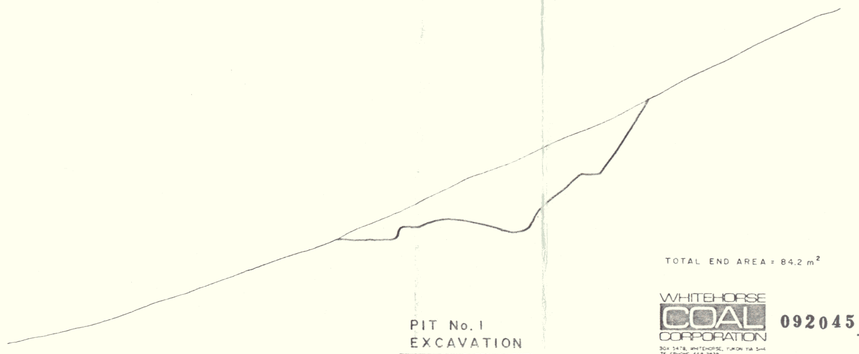

1+10

TOTAL END AREA = 84.2 m²

PIT No. 1
EXCAVATION

WHITEHORSE COAL CORPORATION
BOX 5478, WHITEHORSE, YUKON Y1A 5H4
TELEPHONE 668-2829

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SCALE: 1:250
DATE: OCT. 1986
DESIGNED BY: D. CLARK