TESLIN EXPLORATION LTD.

1971

REPORT ON EXPLORATIONS FOR COAL

in the

CARMACKS AND NORDENSKIOLD AREAS

YUKON, TERRITORY

105-E-4
115-H-1

#10-12 61°15' - 61°30'N
135°45' - 136°15' W

#15-17 62°00' - 62°15'N
136°00' - 136°30'W

115-I-1

by: J.F.Hlavay, P.Eng.

This report has been examined; declared acceptable as Representation Work under Section 32 and Schedule B of the Canada Mining Regulations and valued in the amount of $ 23409.63

Chief, [illegible]

Date: Sept 21/72

CONTENTS

TESLIN EXPLORATION LTD.

REPORT ON COAL EXPLORATION - 1971

NORDENSKIOLD AREA - YUKON

INTRODUCTION:

Teslin Exploration Ltd. undertook to continue coal exploration work started in 1970 on Licenses #10, #11 and #12 situated about 50 miles North West of Whitehorse. An amount of $3,500.00 was budgeted to conduct further exploration of these areas in 1971. The purpose of the expenditure was:

1. To explore further for the coal outcrops reported by Cairnes (Memoir #235) on Red Ridge and Cub Mountain which were not discovered by us during our 1970 exploration program.
2. To test the Division Mountain outcrops by the use of Induced Polarization surveys to determine if this technique could be used successfully to locate other coal seams in the license areas.

On August 4th a D6 bulldozer was moved to Braeburn Lake to repair the tote road which had been built from Braeburn to the Division Mountain outcrops in 1970, but which was now impassable and needed repairs in several sections. This was done by the bulldozer as it moved to the permit areas.

LICENSE NO. 10:

The bulldozer reached the Division Mountain outcrops on August 6th and proceeded to clear two lines along which the Induced Polarization Surveys were to be conducted. Line No. 1 was cleared across the strike of the coal seam and extended from Seam A for a distance of 1000 feet to the North East. Line No. 2 was 800 feet long and cleared parallel to and approximately 1800 feet South East of Line No. 1. The location of these lines is shown on Drawing No. 1 attached. An Induced Polarization survey crew consisting of four men and equipment with a portable McPhar Frequency Unit took readings along both lines. However the results were not encouraging as they could not be used to delineate the coal seams even where they were known to exist in Trench No. 3. Since the operator could not explain why the coal seams were not indicated by the readings, it was decided to abandon further surveying. The results of the survey are plotted on the attached graph.

A sample of coal was obtained from Seam G in Trench No. 3 from near the ground surface. A report of the analysis of this sample is attached.

LICENSE NO. 11:

A reconnaissance was made on foot over the N. E. face of Red Ridge to search for the coal outcrop reported by Cairnes. This outcrop had been searched in 1970 without success, however, after obtaining and studying Cairnes original notes, it was determined that the outcrop was located somewhere to the South East of the position indicated on the map included in Memoir #235. A search of the suspected area was successful and the coal outcrop was found to be exposed in a gully near elevation 2250 feet and about 14,000 feet North West along strike from the Division Mountain outcrops, as indicated on the attached map of the Nordenskiold Coal Area. The outcrop is steeply dipping to the South West and the number and size of seams could not be determined by visual observation. Good samples of coal could not be obtained by hand, thus none were taken. The location is not suitable for trenching and sampling will have to be done by tunnelling or drilling. While searching for this outcrop R. J. Kirker took measurements of the strata exposed on the east face of Red Ridge and the results of this survey are shown on the attached profile.

LICENSE NO. 12:

A reconnaissance on foot was made on the South East slope of the Cub Mountain near the North East corner of the permit area to prospect for coal showings reported by Cairnes in gopher holes. Several holes were examined but there was no indication of coal in any of them. A check was also made in the Corduroy Mountain area but again signs of coal were not evident.

LINE No 1

Coal Seams

D E F G

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 East 10+00

ρa/2π

n=1 177 78 111 163 228 223 466 254 169 135 187 247 204 97 173 123
n=2 43 49 110 157 236 215 374 166 98 62 98 156 94 86 166 184
n=3 33 55 115 135 189 165 227 134 60 49 68 74 60 113 217 105
n=4 36 69 100 99 131 99 154 75 59 48 40 72 111 138 115 91

F.E. %

1.7 2.7 2.6 2.3 1.6 1.5 1.7 1.6 2.2 1.8 1.8 1.4 2.8 2.8 3.3 3.3
2.9 4.3 3.6 2.1 1.4 1.8 1.8 1.4 2.5 2.1 2.2 1.8 3.7 3.7 2.7 2.8
4.0 5.0 4.2 2.9 2.0 2.1 2.2 2.0 2.2 2.2 2.7 3.3 3.8 3.7 3.0 3.3
4.3 5.3 4.6 3.0 2.1 2.0 1.9 1.2 2.4 3.2 3.8 3.1 3.6 3.8 2.7 2.9

M.F.

10 25 23 14 7 7 4 6 13 13 10 6 14 30 19 27
67 90 33 13 6 9 5 8 26 34 22 12 39 43 16 16
121 91 37 21 11 13 10 15 37 45 40 45 63 33 14 51
119 77 43 30 16 20 12 16 41 74 95 48 32 28 24 32

LINE No. 2

8+00 West 7+00 6+00 5+00 4+00 3+00 2+00 1+00 0+00

ρa/2π

522 474 536 613 900 N.R. 1920 2400 642 380 626 915
560 590 930 1210 843 1580 2420 617 250 247 471
567 808 1310 883 722 1440 428 238 162 214
705 990 823 715 588 263 209 152 166

F.E. %

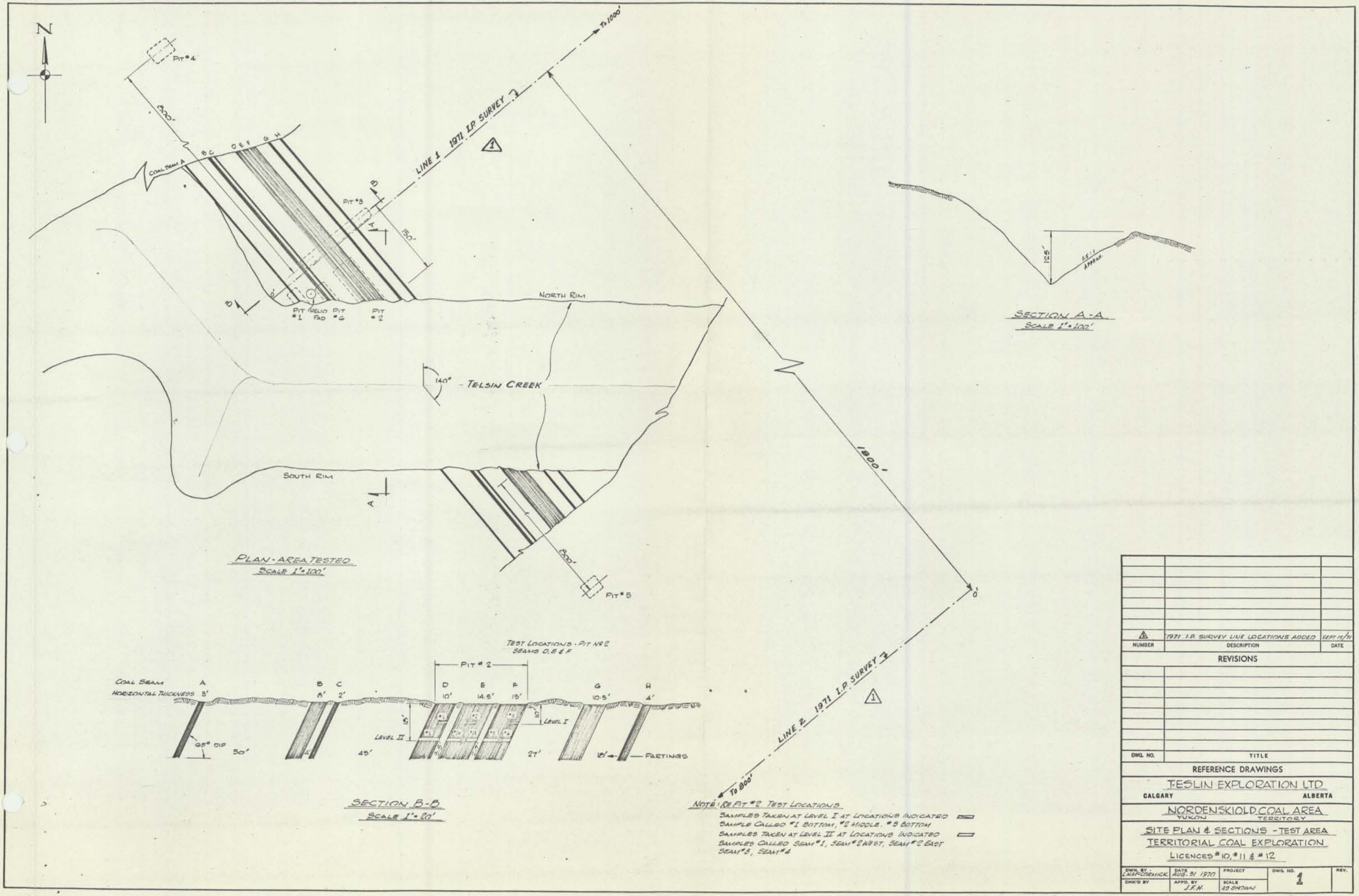
0.8 1.2 1.2 1.1 1.2 N.R. 2.0 2.0 1.3 1.1 0.8 1.4
1.8 1.8 1.7 2.0 1.6 2.2 1.6 1.7 1.7 1.2 0.8
1.3 1.7 1.8 1.9 2.1 2.1 1.4 2.3 1.7 1.6
2.1 2.4 1.9 2.0 1.8 1.6 2.3 1.8 1.8

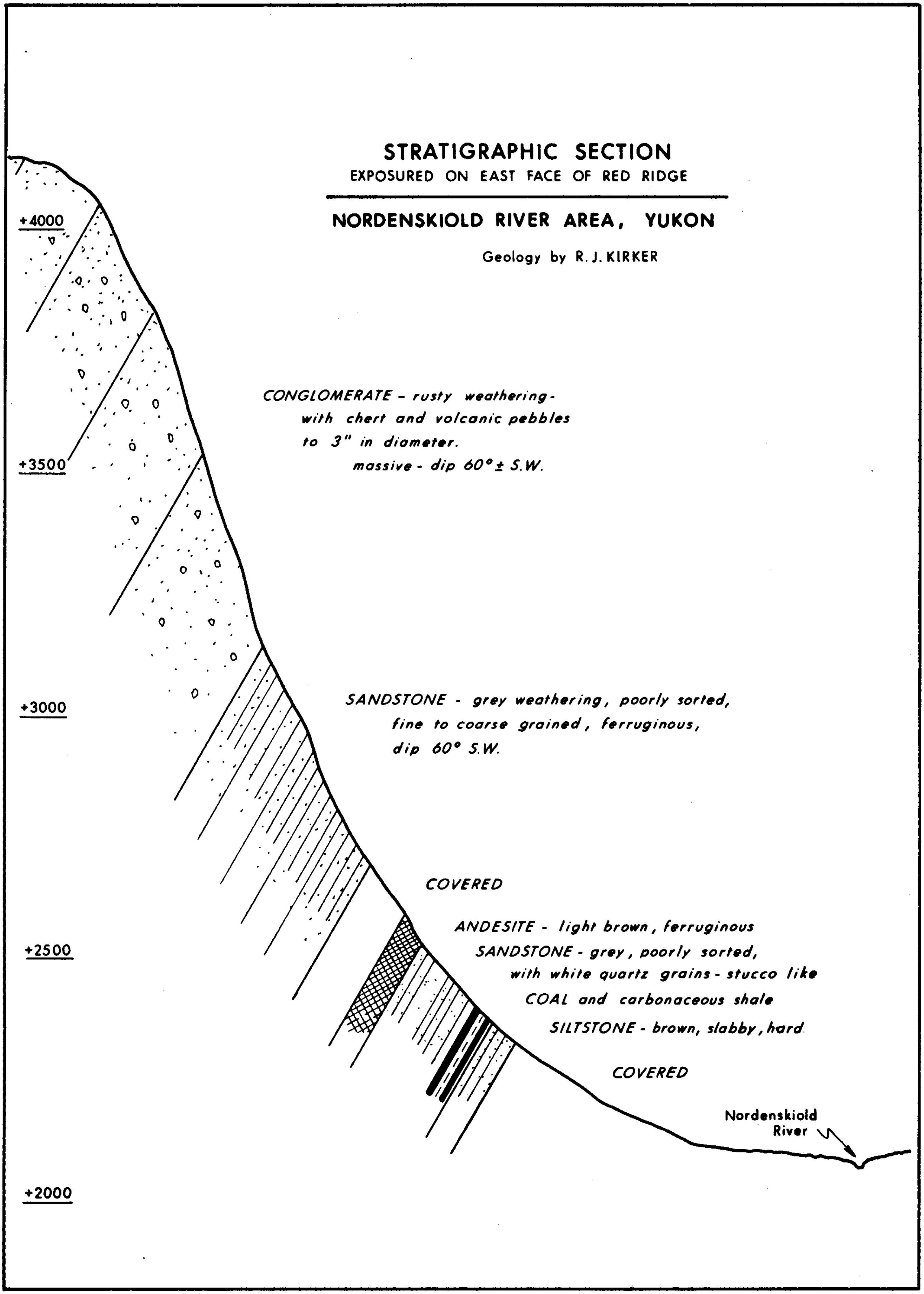
M.F.

2 3 2 2 1 N.R. 1 1 2 3 1 2
3 3 2 2 2 1 1 3 7 5 4
2 2 1 2 3 2 3 10 10 7
3 2 2 3 3 6 11 12 11

INDUCED POLARIZATION SURVEY
McPhar Frequency Unit
2.5 K.W. 0.3 CPS & 5.0 CPS
by: Peter E. Walcott & Assoc. Ltd.
Scale 1" = 200' August 1971

NORDENSKIOLD COAL AREA — YUKON
TESLIN EXPLORATION LTD.


N
PIT #4
800'
To 1000'
LINE 1 1971 I.P. SURVEY
COAL SEAM A
B C
D E F
G H
PIT #3
B
A
150'
0'
PIT #1
HELIO PAD
PIT #6
PIT #2
NORTH RIM
140°
TELSIN CREEK
SOUTH RIM
1800'
800'
PIT #5
PLAN - AREA TESTED
SCALE 1" = 100'
125'
1.5:1 APPROX.
SECTION A-A
SCALE 1" = 100'
TEST LOCATIONS - PIT No 2
SEAMS D, E & F
PIT # 2
COAL SEAM
HORIZONTAL THICKNESS
A 3'
B 8'
C 2'
D 10'
E 14.5'
F 15'
G 10.5'
H 4'
LEVEL I
LEVEL II
65° DIP
50'
45'
27'
18'
PARTINGS
SECTION B-B
SCALE 1" = 20'
LINE 2 1971 I.P. SURVEY
To 800'
NOTE: RE PIT #2 TEST LOCATIONS
SAMPLES TAKEN AT LEVEL I AT LOCATIONS INDICATED
SAMPLE CALLED #1 BOTTOM, #2 MIDDLE, #3 BOTTOM
SAMPLES TAKEN AT LEVEL II AT LOCATIONS INDICATED
SAMPLES CALLED SEAM #1, SEAM #2 WEST, SEAM #2 EAST
SEAM #3, SEAM #4
1 1971 I.P. SURVEY LINE LOCATIONS ADDED SEPT 15/71
NUMBER
DESCRIPTION
DATE
REVISIONS
DWG. NO.
TITLE
REFERENCE DRAWINGS
TESLIN EXPLORATION LTD
CALGARY
ALBERTA
NORDENSKIOLD COAL AREA
YUKON TERRITORY
SITE PLAN & SECTIONS - TEST AREA
TERRITORIAL COAL EXPLORATION
LICENCES #10, #11 & #12
DWN. BY L. McCORMICK
DATE AUG. 31 1970
PROJECT
DWG. NO. 1
REV.
CHK'D BY
APPD. BY J.F.H.
SCALE AS SHOWN


STRATIGRAPHIC SECTION
EXPOSURED ON EAST FACE OF RED RIDGE
NORDENSKIOLD RIVER AREA, YUKON
Geology by R. J. KIRKER
+4000
+3500
+3000
+2500
+2000
CONGLOMERATE - rusty weathering - with chert and volcanic pebbles to 3" in diameter. massive - dip 60° ± S.W.
SANDSTONE - grey weathering, poorly sorted, fine to coarse grained, ferruginous, dip 60° S.W.
COVERED
ANDESITE - light brown, ferruginous
SANDSTONE - grey, poorly sorted, with white quartz grains - stucco like
COAL and carbonaceous shale
SILTSTONE - brown, slabby, hard
COVERED
Nordenskiold River

To: TESLIN EXPLORATION LTD.
Suite 8 - 5840-4th St. S.E.
Calgary, Alberta.
Mr. J. Illavay

File No. 4578
Date September 16th 1971
Samples Coal

Certificate of ASSAY
LORING LABORATORIES LTD.

SAMPLE No.	Received H2O %	Inherent H2O %	Vol. Matter %	Ash %	Fixed Carbon %	S %	F.S.I.
Seam "G" # 12705	15.7	4.29	28.50	32.14	35.07	.41	N.A.

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

C L McIsaac

Licensed Assayer of British Columbia

R.G. HILKER
CONSULTING GEOLOGIST
WHITEHORSE YUKON TERRITORY

PROPERTY Teslin Exploration - Carmacks	Claim No. Coal Lease	Strike East	Lat.	Hole No. 2
Date Nov 17 19 71	Section No.	Dip - 60°	Dep.	Total Depth [illegible] ft
Logged By R.G. Hilker	Plan No.	Level Surface	Elev. 2600 ft (contour map)	Page No. 1

FOOTAGE From	FOOTAGE To	Rec	ROCK CLASSIFICATION EPID. DIOP. GARN. SERP. QTZ. SIL. ACTINO. TREMO. CHLO. CRYSTALLINE. SHEARING. VEINS. FRACTURING. FOLIATION. GRAIN SIZE. TEXTURE	MINERALIZATION TYPE	%	ASSAY DATA SAMPLE No.	WIDTH	RECOV.	%Cu	%Fe		
0	17		Overburden - no cuttings or recovery									
17	27	10	Conglomerate - medium to course or large size pebbles, quartz sand size grains & silicate cement, quartz pebbles & igneous material pebbles, rock a medium grey color with dark green - black & grey colored pebbles, core recovery is blocky with breakage around edges of larger pebbles. Core recovery 17-27' - 10 ft									
27	36.3	9	Sandstone - medium to course grained, soft, light buff-grey color. Mud-stone seam at 33' that is 0.5' thick.									
36.3	72.4	36	Siltstone/Mudstone Bands - Siltstone in parts banded dark grey in medium grey colored rock-core angle 70°-80°, soft, silt sized particles, argillaceous & minor carbonaceous Mudstone - soft, black color, carbonaceous argellaceous, broken and grinding in part: 1 ft bed at 36.3-37.3' ½ ft bed at 45'									

R.G. HILKER
CONSULTING GEOLOGIST
WHITEHORSE YUKON TERRITORY

PROPERTY ________ Date ________ 19 ________ Logged By ________

Claim No. ________ Section No. ________ Plan No. ________

Strike ________ Dip ________ Level ________

Lat. ________ Dep. ________ Elev. ________

Hole No. 2
Total Depth 310 ft
Page No. 2

FOOTAGE From	FOOTAGE To	Rec	ROCK CLASSIFICATION (Epid. Diop. Garn. Serp. Qtz/Sil. Actino. Tremo. Chlo. Crystalline. Shearing. Veins. Fracturing. Foliation. Grain Size. Texture)	MINERALIZATION Type	%	ASSAY DATA Sample No.	Width	Recov.	%Cu	%Fe	Moly	Au/Ag	In...
72.4	86	14	Mudstone - black color, argillaceous, carbonaceous, soft, broken& ground in parts from drilling. Siltstone at 77'-½ ft										
86	91.2	5	Sandstone - fine grained quartz with some silt size grains, medium uniform grey color, soft, fractures, thick bedded.										
91.2	98	7	Mudstone - black color, argillaceous, carbonaceous, broken. Polished black fracture faces that feel greasy & chloritic - slickenside faces at 92'. Very broken & soft. Some siltstone at 94'.										
98	103.5		Siltstone - banded, soft, fractures along bands, medium grey color, black colored bands - Core angle of bands 140°										
103.5	113	7.5	Shale - more hard rock than previous mudstone, competant, more continous core, black color, carbonaceous, argillaceous. In parts at 109' siltstone bands: silt sized quartz grains.										

[illegible]
CONSULTING GEOLOGIST
WHITEHORSE YUKON TERRITORY

PROPERTY	Claim No.	Strike	Lat.	Hol. No. 2
Date 19	Section No.	Dip	Dep.	Total Depth 31[illegible] ft
Logged By	Plan No.	Level	Elev.	Page No. 3

FOOTAGE From	FOOTAGE To	Rec	ROCK CLASSIFICATION EPID. DIOP. GARN. SERP. QTZ/SIL. ACTINO. TREMO. CHLO. CRYSTALLINE. SHEARING. VEINS. FRACTURING. FOLIATION. GRAIN SIZE. TEXTURE	MINERALIZATION TYPE	%	ASSAY DATA SAMPLE No.	WIDTH	RECOV.	%Cu	%Fe	MOLY	Au/Ag	[illegible]
113	128	15	Siltstone & in parts Shale Siltstone - argillaceous, quartz silt grains, block color, banded core angle 130°. In parts hard black colored shale beds. Interbedded rock, no sharpe dimension.										
128	141	11	Mudstone - soft, argillaceous, black color, carbonaceous. Friable at 138-138.5, polished slickensides										
141	145.3	4.[illegible]	Sandstone - medium to course grained quartz grains, banded core angles 130°, medium grey color										
145.3	149	5	Siltstone - banded, silt sized quartz grains, argillaceous. Minor shale bands of black carbonaceous material. Slickensides at 147' Core angle 140°										
149	151	2	Shale - hard, black color, argillaceous, carbonaceous										

R.G. HILKER
CONSULTING GEOLOGIST
WHITEHORSE YUKON TERRITORY

PROPERTY		Claim No.	Strike	Lat.	Hole No. 2
Date	19	Section No.	Dip	Dep.	Total Depth 310 ft
Logged By		Plan No.	Level	Elev.	Page No. 4

FOOTAGE From	FOOTAGE To	Rec	ROCK CLASSIFICATION (Epid. Diop. Garn. Serp. Qtz/Sil. Actino. Tremo. Chlo. Crystalline. Shearing. Veins. Fracturing. Foliation. Grain Size. Texture)	MINERALIZATION TYPE	%	ASSAY DATA Sample No.	Width	Recov.	% Cu	% Fe	Moly	Au/Ag	In…
151	154	3	Siltstone - banded, medium grey color, quartz grains & argillaceous Core angle 150°. Minor shale band at 153'										
154	172	16	Shale - in most parts broken and friable, short sections competant & hard, slickensides - highly polished at 155.4-156.5 & at 162' - nearly concoidal. Coal in appearance but argillaceous in compostion. Sandstone seam at 161.5'. Coaly rashings.										
172	174.8	2.8	Sandstone - fine grained, dark buff grey color, medium hard										
174.8	190.5	0.5	Shale - friable & broken, black color, argillaceous, carbonaceous polished slickensides throughout sandstone seam at 181.6-182.6' Very poor core recovery, ground core noted at 180.5'. Coaly rashings										

R.G. PILKER
CONSULTING GEOLOGIST
WHITEHORSE YUKON TERRITORY

PROPERTY	Claim No.	Strike	Lot.	Hole No. 2
Date 19	Section No.	Dip	Dep.	Total Depth 310 ft
Logged By	Plan No.	Level	Elev.	Page No. 5

FOOTAGE From	FOOTAGE To	Rec.	ROCK CLASSIFICATION (Epid. Diop. Garn. Serp. Qtz/Sil. Actino. Tremo. Chlo. Crystalline. Shearing. Veins. Fracturing. Foliation. Grain Size. Texture)	MINERALIZATION TYPE	%	ASSAY DATA Sample No.	Width	Recov.	%Cu	%Fe	Moly	Au/Ag	In.
190		0.3	Coal Seam - not possible to determine thickness (Core recovery between 182.6 & 190' is only 2'), quite possible the coal was completely ground out. Estimated coal seam to be 2-4 feet thick. Coal seam may be located 184.5 to 190.5	Sampled		190 ft							
190.5	192		Shale - black color, argillaceous										
192		0.3'	Coal Seam - Core angle at 125° of coal with shale wallrock. 0.3 ft of coal in corebox. (Core recovery between 192' and 194' is 1.3 ft). Possible width of seam is 1 ft	Sampled		192 ft							
192.3	195.6	3.3	Shale - black color, argillaceous, carbonaceous, polished black colored slickensides, fairly hard & good core recovery.										
195.6			Coal Seam - only 0.2 ft in thickness (Core recovery about right and no grinding evident) Coal shed	Sampled		195.6							

R.G. HILKER
CONSULTING GEOLOGIST
WHITEHORSE YUKON TERRITORY

PROPERTY	Claim No.	Strike	Lat.	Hole No. 2
Date 19	Section No.	Dip	Dep.	Total Depth 310 ft
Logged By	Plan No.	Level	Elev.	Page No. 6

FOOTAGE From	FOOTAGE To	Rec	ROCK CLASSIFICATION EPID. DIOP. GARN. SERP. QTZ/SIL. ACTINO. TREMO. CHLO. CRYSTALLINE. SHEARING. VEINS. FRACTURING. FOLIATION. GRAIN SIZE. TEXTURE	MINERALIZATION TYPE	%	ASSAY DATA Sample No.	Width	Recov.	%Cu	%Fe	Moly	Au/Ag
195.6	211.6	11.6	Shale - hard, competant black color, argillaceous, carbonaceous, in parts black polished slickensides Poor core recover, broken shale.									
211.6	212.7	1	Coal Seam - appears to be 1 ft thick with all core recovered	Sampled		211.6						
212.7	237	17	Shale - competant hard, argillaceous, broken in parts, good core recovery carbonaceous. In parts some minor silt									
237	239	2	Siltstone - banded, med. grey color with black colored bands.									
239	256.5	16	Shale - broken, in parts friable, black color, carbonaceous, argillaceous									
256.5	263	7	Sandstone/Siltstone - silt & sand sized grains quartz, in parts broken where siltstone is prevalent									

R.G. HILKER
CONSULTING GEOLOGIST
WHITEHORSE YUKON TERRITORY

PROPERTY	Claim No.	Strike	Lot.	Hole No. 2
Date 19	Section No.	Dip	Dep.	Total Depth 310 ft
Logged By	Plan No.	Level	Elev.	Page No. 7

FOOTAGE			ROCK CLASSIFICATION EPID. DIOP. GARN. SERP. QTZ/SIL. ACTINO. TREMO. CHLO. CRYSTALLINE. SHEARING. VEINS. FRACTURING. FOLIATION. GRAIN SIZE. TEXTURE	MINERALIZATION		ASSAY DATA							
From	To	Rec		TYPE	%	SAMPLE No.	WIDTH	RECO%.	%CU	%FE	MOLY	AU/AG	
263	310	46	Shale - black color, argillaceous, carbonaceous, in parts polished black colored slickensides, hard & heavy competant rock, good core recovery. Some siltstone at 287-289' & at 295-296'										
	310'		END OF HOLE										
			Note - From surface to last coal occurances 0-211.7 ft the mudstone & shale beds were fairly soft, below the last coal the beds were more competant with better core recovery										

TESLIN EXPLORATION LTD.

REPORT ON COAL EXPLORATION - 1971

CARMACKS AREA - YUKON

INTRODUCTION:

Teslin Exploration Ltd. undertook to explore for coal in License Areas #15, #16 and #17 which are located around the Village of Carmacks.

R. J. Kirker, P. Geol. was retained to propose an exploration program and he recommended the following:

1. Photo-geological study from available government air photos.
2. Surface geological study to verify photo interpretation and pick diamond drill hole sites.
3. Diamond drill holes to test the top 600 feet of the Laberge series and to determine lateral continuity of the 4.5 foot seam of the old Five Fingers mine.

This proposal was accepted and an amount of $23,000.00 was budgeted to carry out the program.

The photo-geological and geological study was undertaken by Mr. Kirker and his findings are detailed in the attached report. During his field trips, Mr. Kirker selected the location of diamond drill Hole #1 near the old Five Fingers mine and supervised the construction of the trail from the highway to that site. He also scouted the general area for proposed diamond drill Hole #2 located about three miles South East of Carmacks.

It was intended to start drilling Hole #1 on about July 29th. However difficulties arose with selection of a drill site as explained in Mr. Kirker's report, and the drill rig and bulldozer which was available then had to be released. Subsequently attempts to acquire the services of both a drill rig and bulldozer at the same time were consistently foiled until late in September, and as a result Hole #1 was not spudded until October 15th.

DIAMOND DRILL HOLE NO.1:

This drill hole site was located approximately 4000 feet south of the old Five Fingers Mine at elevation 1900 feet. Ground reconnaissance indicated that construction of an access trail due west from the Dawson Highway to the drill site, a distance of about 1½ miles, was not feasible due to steep hills and thus a longer but easier route was selected from a point on the highway south of Five Fingers Mountain, thence westerly and northerly on the west side of the mountain roughly along the 2200 foot contour. The distance from the highway to the site by this route is about 3½ miles. A D6 bulldozer started trail construction on September 30th and when this was completed on October 5th it assisted in moving the drill rig from the highway to the site.

During trail construction, sandstone bedrock was uncovered about 3000 feet south and 200 feet higher than the intended drill location but at the selected drill site there was no visible rock outcrops and therefore the hole had to be spudded in overburden. It was estimated that this overburden would be in the order of 30 to 40 feet thick. Contract for diamond drilling had been let to Artic Diamond Drilling Ltd. of Whitehorse who mobilized, moved in and set up a Longyear 38 drill between October 5th and 15th. Drilling began on October 15th with NQ size bit at an angle of -70 degrees east. As drilling progressed it developed that the overburden was much deeper than originally estimated, being 118 feet thick, and required continuous casing. It also developed that the sandstone formation encountered from 118 feet to 188 feet was badly fractured and squeezing, and it too required continuous casing. At 188 feet the casing could no longer be set and the hole was abandoned. A small amount of sandstone core was recovered from 118 feet to 188 feet but there was no indication of coal in the core.

DIAMOND DRILL HOLE NO. 2:

Following abandonment of Hole No.1 the drill was moved to Hole No. 2. It was located about 2.5 miles southeast of the old Tantulus mine in License Area #17. The location was prepared by a D7 bulldozer which had been moved to the site on October 25th. Access to the location was gained along an existing trail which originates at the highway about 2 miles south of Carmacks then curves northerly, easterly and southerly for a distance of two miles then by a newly constructed trail south easterly for a distance of about one mile. The terrain is steep and the drilling rig move-in was aided by the bulldozer.

It was intended to drill Hole No. 2 as close to the westerly edge of the Laberge outcrops (as mapped by Bostock)as possible. However detailed examination of the proposed area revealed no outcrops thus the location was selected about 2000 feet south westerly where rock outcrops were in evidence. This move was made to avoid a possible repetition of the difficulties encountered due to deep overburden in Hole No. 1.

Hole No. 2 was spudded November 1st at elevation 2600 feet and bedrock was encountered at a depth of 17 feet. The hole was drilled using an NQ bit at an angle of -60 degrees East. Casing was set in the overburden and drilling progressed without difficulty to total depth of 310 feet. A total of 262 feet of core was recovered and four coal seams were encountered as shown on the attached log prepared by R. G. Hilker, Consulting Geologist.

A portion of the core missing from 182 to 190 feet is believed to have been coal which was washed out during the drilling operation. It is believed also that this seam is probably 2 to 4 feet in thickness.

A sample of coal from between 182 to 190 feet was analyzed by Loring Laboratories Ltd. and the results of this analysis are attached. Location of the drill holes and trails are shown on the map accompanying the Geological report of R. J. Kirker.

To: TESLIN EXPLORATION LIMITED,
Box 8592, Station F
Calgary 13, Alberta
Attn: Mr. Joe Hlavay

File No. 4851
Date Dec. 6, 1971
Samples Coal

Certificate of
ASSAY
LORING LABORATORIES LTD.

SAMPLE No.	INH %H20	% V.M.	% ASH	% F.C.	% S	FSI
RAW COAL						
CORE 190'	.68	19.27	42.64	37.41	.78	7½

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

C L McIsaac

Licensed Assayer of British Columbia

GEOLOGICAL REPORT

COAL LICENCES

#15, #16 and #17

CARMACKS AREA

YUKON TERRITORY

by: R.J.Kirker, P.Geol.

November 1971

CARMACKS COAL PERMITS
YUKON TERRITORY

INTRODUCTION:

In April, 1971, the owners of territorial coal exploration licences #15, #16 and #17, located in the Carmacks area of the Yukon Territory, asked the writer to do a geological evaluation of their lands and propose an exploration program. A program consisting of photogeology, surface geology followed by a small amount of diamond drilling was proposed and subsequently performed. This report summarizes the results of the first two phases of the above program and a report by Mr. J. Hlavay, P. Eng., describes the diamond drilling phase.

GEOGRAPHY:

The licenses are located northwest, northeast, and southeast of the village of Carmacks which is located at 62° 05' north latitude and 136° 16' west longtitude. The licenses cover an area of approximately 132,000 acres and their positions are described on the National Topographic Grid System as the 115-I-1 (NE), 115-I-1 (NW) and 115-I-1 (SE).

The country consists of low rolling hills generally forested on their north sides and grassy on their south sides. The climate is semi-desert with an annual rainfall of about 10 inches. Access is quite good with the Klondike highway passing north-south through the area and the new Campbell highway dividing the easternmost permits. Access to the northwest is provided by the Mount Nansen mining road.

The Department of Northern Affairs has just completed the construction of a good airstrip a few miles east of the village and the White Pass and Yukon Railway have been investigating the possibility of extending their trackage to Carmacks.

GEOLOGY:

The area was first examined by G.M. Dawson of the Geological Survey in 1887 and he noted two coal occurrences along the Yukon River. D.D. Cairnes of the Survey spent two seasons (1907 - 1908) in the area and published his findings in 1910 as Memoir #5. (The writer was able to obtain Cairnes' original field notes and found them quite helpful in supplementing the memoir.)

The area was mapped by Dr. H.S. Bostock of the Survey in 1936 as part of the four mile to the inch mapping program. The latter report also contains a detailed (1 inch - 2 mile) map of the area covered by the subject permits.

From the writer's examination of the above reports, it was recommended that the area be mapped photo geologically using new air photography and the results ground checked. It was also recommended that the limited outcrop data be supplemented with some diamond drilling which could determine seam thickness and quality.

A diamond drill rig was available in the area prior to the completion of the preliminary studies and it was decided to locate a hole on the highway some ten miles north of Carmacks, based upon Bostock's mapping. The writer was sent up to pin point the location and determined that a fault existed between the mine at Five Fingers and the proposed site. The rig was released pending additional geological studies.

The writer, subsequently examined the outcrops in the vicinity of the Five Fingers Mine which is now preserved as a historical site. There are relatively good exposures of the strata overlying the seams that were mined in the period 1904 to 1908. The sequence from the top down was measured using a jacobs staff and the section is illustrated in figure 2.

Geology - Cont'd:

The superjacent strata here were quite unlike that overlying the coals of the Laberge series examined by the writer last year in the Nordenskiold area, 50 miles to the south (see Figure 1). The two areas occur along the west flank of the Whitehorse Trough which has been well studied by Dr. J.O. Wheeler of the Geological Survey. The evolution of this sedimentary depression has been described by Dr. P. Ziegler of Shell Oil and Figure 2 is from his work. It is probably not too surprising that the quality of coal and the lithology of the adjacent sediments is so variable when one compares the chaotic evolution of the Whitehorse Trough with the relatively quiescent deposition that characterized the Cretaceous coal measures of the southern Rockies.

Traverses were also made along the north and south sides of the Yukon River east of Carmacks. The new highway on the north side provides some good outcrops however, they are not continuous enough to establish any definite correlations. The Tantalus conglomerate, because of its resistive nature, is easily identified. However,the relative soft weathering arkosic sands and shales of the Laberge formation provide poor outcrop control. In addition the great thickness of the unit (9000$\pm$) and the lack of any good type-section seriously hampers exploration. Perhaps there are a number of diagnostic units within the formation from which detailed mapping might provide a composite section.

The traverse south of the river was hampered by heavy ground cover and no definite outcrops were observed.

On returning to Calgary, the air photos flown last summer by the Department of Northern Affairs, were obtained, and examined. It was decided that further exploration of the permits could best be done utilizing a diamond drill. Two locations were picked; one as close as possible to the old Five Fingers mine, and a second one southeast of Carmacks(see Figure 4).

Geology - Cont'd:

As both of the proposed locations were adjacent to old coal leases owned by the Anvil Mining Company, it was recommended that some sharing of costs and information should be investigated. The Anvil management were consulted, but no assistance was forthcoming so the proposed drilling program was commenced. The results of this phase of the exploration program is covered by the report of Mr. J. Hlavay.

The writer was asked to supervise the road construction to the drill-sites selected and a number of additional geological features were noted in the course of this phase.

Firstly, in building the road along the west side of Five Fingers Mountain, the road cut down through a series of thin coal seams and inter-bedded sandstones approximately one-half mile south of the first location. The strata were dipping east at approximately 20° and the strike was roughly north south. In addition, an outcrop some 20 feet high was found in the dense growth some 100 yards north of our road cut. This outcrop consisted of a coarse conglomerate with boulders up to four inches in diameter. Their lithology was varied and the conglomerate was interpreted as being Tantalus. If the mass is in place, then trenching should disclose the contact with the underlying Laberge formation and one could correlate the position of the Five Finger coal seams with the base of the conglomerate.

While scouting the second location, the writer utilized a helicopter to examine the high area southeast of Carmacks. No contacts or outcrops could be found in the area mapped as Laberge by Dr. Bostock. Foot traverses were made in the vicinity of the old pits excavated by Anvil Mining southeast of Carmacks. The coal seams here are immediately underlying the east dipping Tantalus conglomerate and are highly contorted. Thicknesses of up to 20 feet are well-exposed in deep trenches that show very little erosion although excavated a number of years ago.

Geology - Cont'd:

A surprising discovery was the almost unconsolidated nature of the sands underlying the coal seams. No other Cretaceous sediment in the writer's examination of these areas has been so friable and loosely compacted. This is the more surprising when one realizes the sands are only separated by some 20 feet of coal from the strongly compacted Tantalus conglomerate.

SUMMARY:

The coal exploration permits #15, #16 and #17 are in an area that is highly prospective for coal. The original coal discoveries, both of which are on these permits, were located in exposures along the Yukon River and the coal from the Five Fingers and original Tantalus mine produced a good coking coal. It is probable that the upper part of the Laberge formation contains numerous coal seams and they may possibly be as thick as those discovered last year in the Nordenskiold area to the south.

The area is experiencing a mining boom because of the discovery in 1971 of a number of copper ore bodies to the northwest. It is of interest that Dr. Cairnes was sent out from Ottawa in 1907 to obtain reliable information as to where metallurgical coking coal could be procured for a local smelter being considered for the newly discovered Whitehorse copper deposits.

The area has good access and the proposed extension and standard gauging of the White Pass and Yukon Railroad should allow the export of any coking coal surplus to the area's requirements.

The possibility of shipping coal to tidewater at Skagway via the new mode of a slurry pipeline enhances the coal marketing possibilities.

RECOMMENDATIONS:

It is recommended that additional diamond drilling be undertaken next summer. A hole should be located near the conglomerate outcrop found on the west side of Five Finger Mountain. A series of holes should be drilled east of the second location drilled in 1971.

Requests should be made to the pertinent authorities to trench suspected coal outcrops. It is obvious little or no erosional damage results in this climate because of the very low precipitation and the fact that the greater part of the area has recently been burned over results in very little additional damage to the ground cover.

All holes drilled should be left in such a condition that they may be subsequently logged with newer down-hole devices and/or deepened. In addition, measurements of the ground water level may be useful in later pit or mine design. The above techniques are being employed in British Columbia and it is strongly recommended for the Yukon Territories.

Enclosures:

	Index map
Figure 1	Carmacks/Nordenskiold area (8 miles to 1 inch)
Figure 2	Outcrop section at Five Fingers Mine
Figure 3	Evolution of Whitehorse Trough
Figure 4	Geological map of licences #15, #16, and #17 (1.25 miles - 1 inch)

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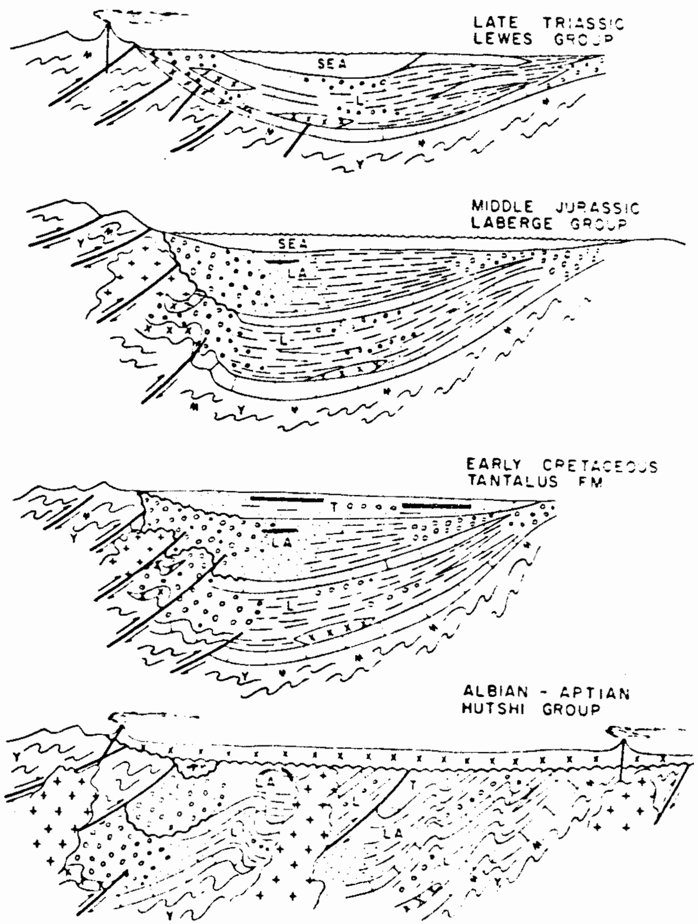
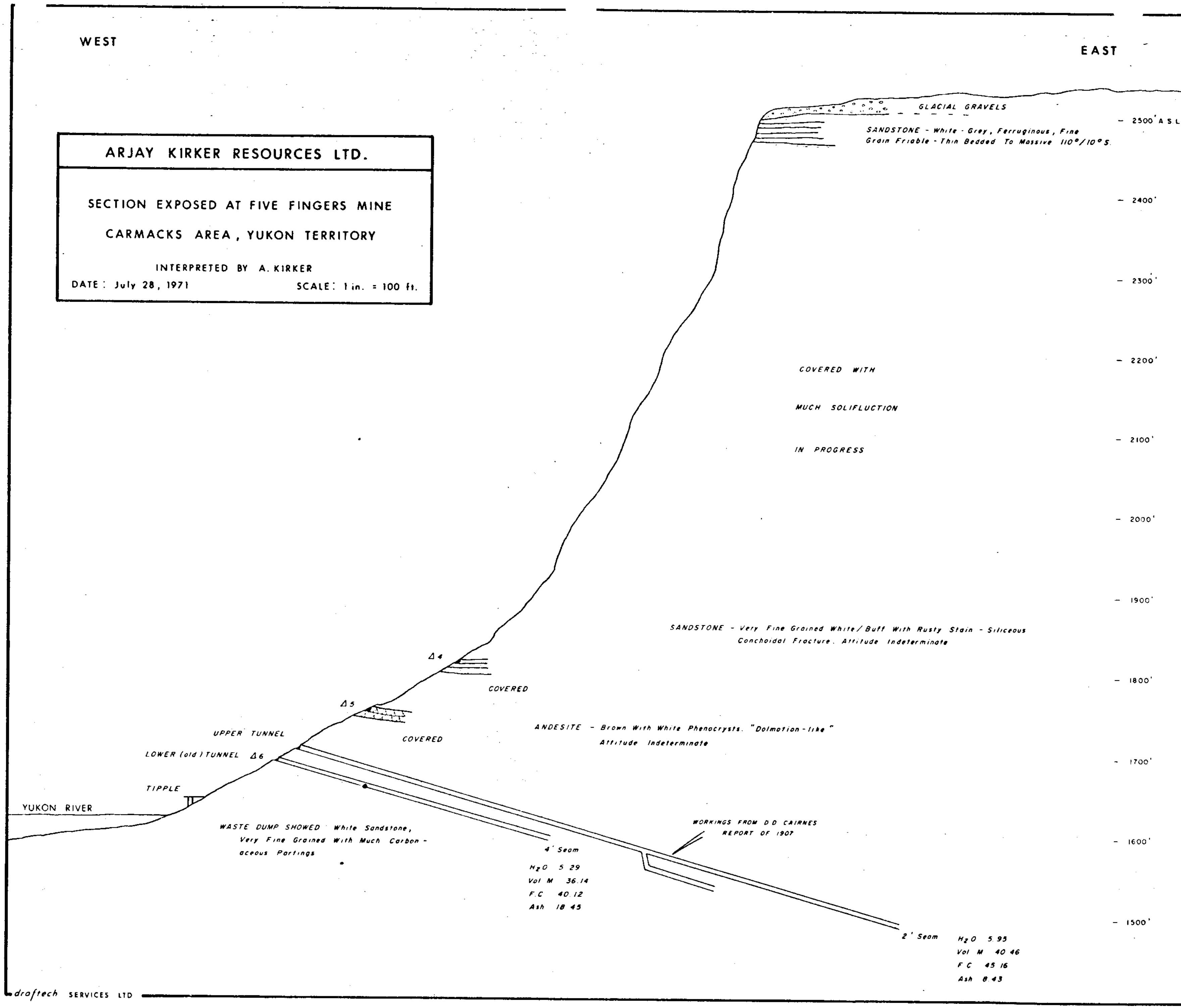
Cairnes, D.D.	-	Lewes and Nordenskiold Rivers Coal District G.S.C. Memoir #5, 1910
Wheeler, J.O.	-	Whitehorse Map Area G.S.C. Memoir #312, 1961
Ziegler, P.	-	Development of Sedimentary Basins in Western and Arctic Canada A.S.P.G. Guide Book, 1969

FORMATION	WEATHERING	LITHOLOGY	THICKNESS	AGE	
NO NAME (INCLUDES MILES CANYON BASALT)	FLOWS OUTWASH TUFF			RECENT & PLEISTOCENE	
ANGULAR UNCONFORMITY					
SKUKUM GRP (PYROCLASTICS AND FLOWS)	UP BASALTIC MID FELSIC LOW ANDESITIC		4000'+	TERIARY ? UPPER	CRETACEOUS
ANGULAR UNCONFORMITY GRANITIC INTRUSIONS					
HUTSHI GRP FLOWS, FLOW BRECCIAS, AGGLOMERATES & TUFFS	BASALTS ANDESITES RHYOLITES		3000'+	APTIAN ALBIAN	
MAJOR ANGULAR UNCONFORMITY - TRUNCATES ALL OLDER FORMATIONS GRANITIC INTRUSIONS					
TANTALUS FM	ESSENTIALLY CONTINENTAL		0-2500'	NEOCOMIAN	
LOCALLY DISCONFORMABLE					
LABERGE GRP	MARINE, IN PART TURBIDITES		0-9500'+	UPPER MIDDLE LOWER	JURASSIC
DISCONFORMABLE, LOCALLY ANGULAR - POSSIBLE GRANITE INTRUSIONS					
LEWES RIVER GRP CONGL GRAYWACKES SHALE TURBIDITES LIMESTONES - OPEN MARINE & REEFAL BASALT & ANDESITES			2400' 500' 2000' 3000' 0-10,000'	NORIAN KARNIAN	TRIASSIC

FORMATION	WEATHERING	LITHOLOGY	THICKNESS	AGE
TAKU GRP				PERMO-PENNSYLVANIAN
YUKON GRP	METAMORPHICS			PALEOZOIC & PRECAMBRIAN

MESOZOIC EVOLUTION OF WHITEHORSE TROUGH
MODIFIED AFTER J O WHEELER




WEST
EAST
ARJAY KIRKER RESOURCES LTD.
SECTION EXPOSED AT FIVE FINGERS MINE
CARMACKS AREA, YUKON TERRITORY
INTERPRETED BY A. KIRKER
DATE: July 28, 1971
SCALE: 1 in. = 100 ft.
GLACIAL GRAVELS
SANDSTONE - White - Grey, Ferruginous, Fine Grain Friable - Thin Bedded To Massive 110°/10° S.
2500' A.S.L.
2400'
2300'
2200'
2100'
2000'
1900'
1800'
1700'
1600'
1500'
COVERED WITH
MUCH SOLIFLUCTION
IN PROGRESS
SANDSTONE - Very Fine Grained White/Buff With Rusty Stain - Siliceous
Conchoidal Fracture. Attitude Indeterminate
Δ4
COVERED
Δ5
ANDESITE - Brown With White Phenocrysts. "Dolmotion-like"
Attitude Indeterminate
UPPER TUNNEL
COVERED
LOWER (old) TUNNEL Δ6
TIPPLE
YUKON RIVER
WASTE DUMP SHOWED White Sandstone, Very Fine Grained With Much Carbon-aceous Partings
WORKINGS FROM D.D. CAIRNES REPORT OF 1907
4' Seam
H2O 5.29
Vol M 36.14
F.C 40.12
Ash 18.45
2' Seam
H2O 5.95
Vol M 40.46
F.C 45.16
Ash 8.43
draftech SERVICES LTD

E. L. FITZGERALD CONSULTING GEOLOGIST LTD.
710 BAMLETT BUILDING, CALGARY 2, ALBERTA TELEPHONE (403) 264-5102

February 3, 1972

File: 5572

Teslin Exploration Limited
8 - 5840 4th Street, S.E.
Calgary, Alberta

Attention: Mr. R. J. Kirker

Dear Sir:

Re: Carmacks Coal Property, Y.T.

Enclosed please find a "Reconnaissance Photogeologic Map" of the area you requested me to examine. Also included are maps, air photographs and other materials used in the study. A few comments are summarized below:

1. The Labarge and Tantalus units are not very distinctive on the photographs and accordingly, the latter has been indicated only where reported by ground studies.

2. A number of prominent linears are expressed on the photographs; these could indicate the presence of faults.

3. Little true bedrock expression is apparent in most of the area and some of the bedding traces shown could be glacial striae.

4. If the volcanics at Five Finger Mountain are Tertiary (i.e., Carmacks), they are probably separated from Labarge strata at and near the Five Finger Mine, by faults; since they appear to plunge beneath Labarge strata. Volcanic rocks reported in this area are not too distinct on the photos from Labarge units - possibly the two interfinger and are of about the same age?

5. The structural style of Labarge and Tantalus strata in the area appears to be one of moderately tight folding with more intense folding in some places. Wave lengths of the folds are relatively short.

6. The present mapping could be upgraded considerably by the incorporation of more field data (attitudes, lithologic descriptions).

7. The apparent presence of numerous folds could be encouraging in the search for coal deposits since economic seams could outcrop several times on the flanks of the folds.

PROVISIONAL MAP

115 I/1 1:50,000

CANADA

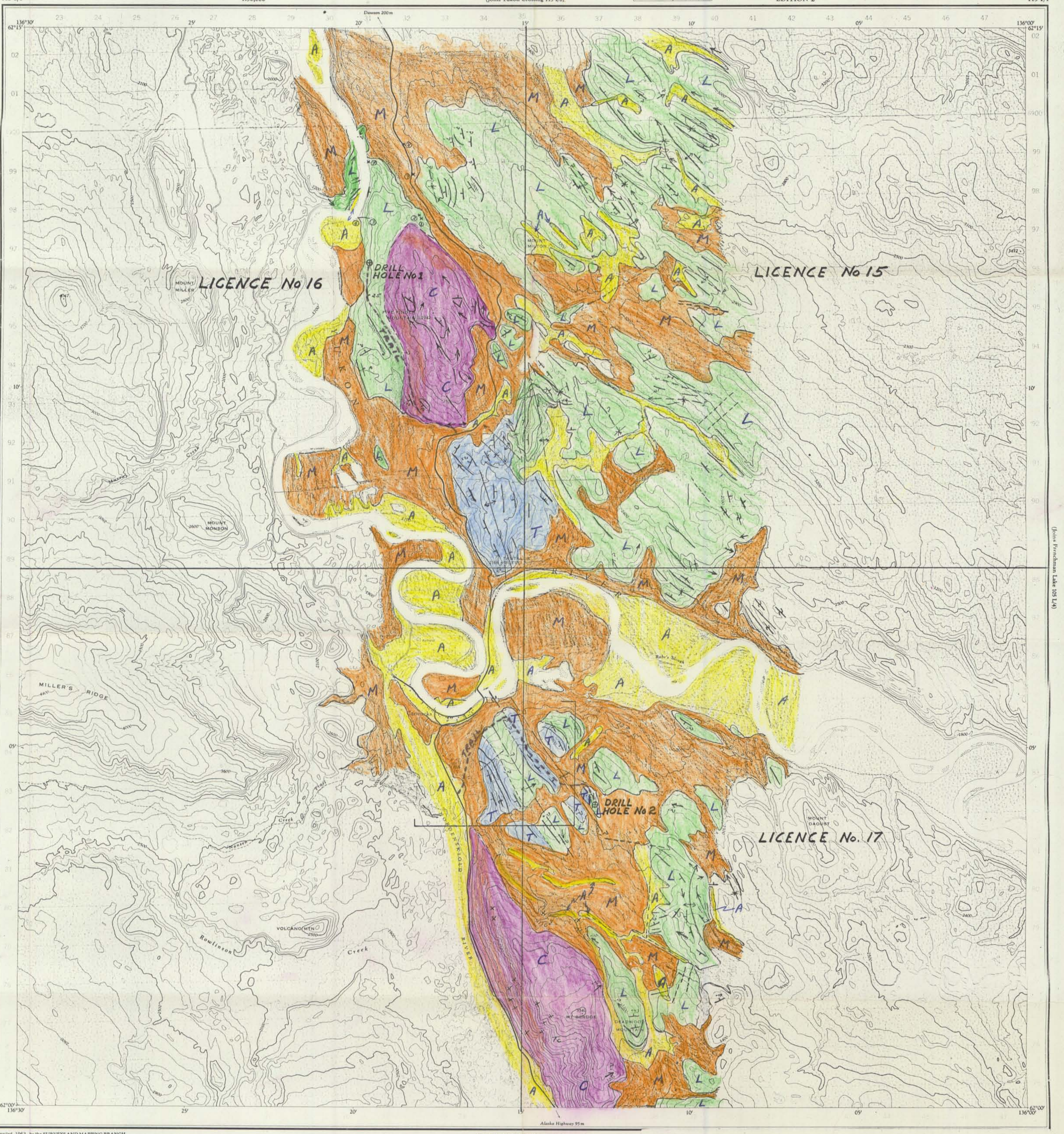
(Joins Yukon Crossing 115 I/8)

Refer to this map as: 115 I/1 EDITION 2 ASE SERIES A 722

EDITION 2

CARTE PROVISOIRE

115 I/1



Compiled, 1963, by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, from air photographs taken in 1947 and 1953. Printed 1965.

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

GRID ZONE DESIGNATION 8V

STREAM JUNCTION

363894

ONE THOUSAND METRE
UNIVERSAL TRANSVERSE MERCATOR GRID
ZONE 8

Roads	Routes	
all weather	toute saison	
dry weather	période sèche	
cart track	de terre	
trail or portage	sentier ou portage	
Railway, normal gauge, single track	Chemin de fer voie unique (écartement normal)	
Power transmission line	Ligne de transport d'énergie	
Mine or Open cut	Mine ou fosse à ciel ouvert	
Horizontal control point, with elevation	Point géodésique avec cote	454
Bench mark, with elevation	Repère de nivellement avec cote	BM 157

(Joins Mount Morrison 115 H/16)

CARMACKS
YUKON TERRITORY

SCALE 1:50,000 ÉCHELLE

Miles 1 0 1 2

Metres 1000 500 0 1000 2000 3000 4000 Mètres

Yards 1000 500 0 1000 2000 3000 4000 Verges

CONTOUR INTERVAL 100 FEET
Elevations in Feet above Mean Sea Level
North American Datum 1927
Transverse Mercator Projection

ÉQUIDISTANCE DES COURBES: 100 PIEDS
Élévations en pieds au-dessus du niveau moyen de la mer
Réseau géodésique nord-américain unifié (1927)
Projection transverse de Mercator

MAGNETIC DECLINATION 32°01' EAST AT CENTRE OF MAP 1963
Annual change (decreasing) 3'

DÉCLINAISON MAGNÉTIQUE AU CENTRE DE LA FEUILLE EN 1963: 32°01' EST
Variation annuelle (décroissante) 3'

Some names on this map are not yet official. Corrections or additions are invited by the Surveys and Mapping Branch.

Certains noms inscrits sur cette carte ne sont pas encore officiels. La Direction des levés et de la cartographie saurait gré au public de lui signaler corrections et additions.

CONVERSION SCALE FOR ELEVATIONS

Metres

Feet

TESLIN EXPLORATION LTD.

RECONNAISSANCE PHOTOGEOLOGY

QUATERNARY A ALLUVIUM

M TERRACE + MORAINAL DEPOSITS

TERTIARY C CARMACKS VOLCANICS

CRETACEOUS T TANTALUS FM.

L LABARGE GP.

BEDDING ATTITUDE (normal, unreliable, vertical, contorted, apparent)

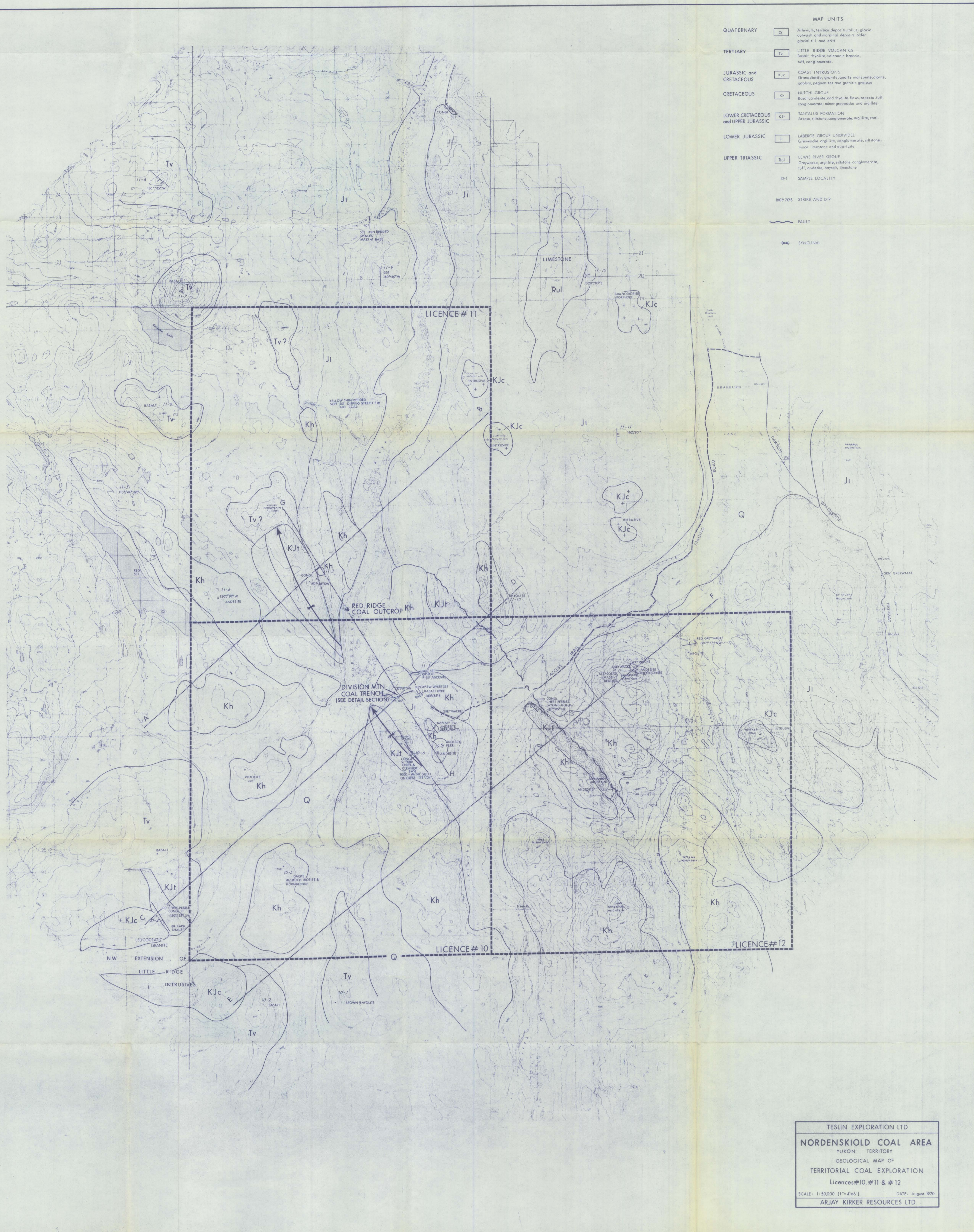
ANTICLINE, SYNCLINE

BEDDING TRACE

LINEAR

POSSIBLE FAULT

CARMACKS
YUKON TERRITORY
CARMACKS AREA
NORDENSKIOLD AREA
#16
#15
#17
#11
#12
#10
Fort Selkirk
Minto
Pelly Crossing
Yukon Crossing
DAWSON
RANGE
LAKE
LABERGE



MAP UNITS
QUATERNARY
Q
Alluvium, terrace deposits, tallus: glacial outwash and morainal deposits: older glacial till and drift
TERTIARY
Tv
LITTLE RIDGE VOLCANICS
Basalt, rhyolite, volcannic breccia, tuff, conglomerate.
JURASSIC and CRETACEOUS
KJc
COAST INTRUSIONS
Granodiorite, granite, quartz monzonite, diorite, gabbro, pegmatites and granitic gneisses
CRETACEOUS
Kh
HUTCHI GROUP
Basalt, andesite, and rhyolite flows, breccia, tuff, conglomerate minor greywacke and argillite,
LOWER CRETACEOUS and UPPER JURASSIC
KJt
TANTALUS FORMATION
Arkose, siltstone, conglomerate, argillite, coal.
LOWER JURASSIC
Jl
LABERGE GROUP UNDIVIDED
Greywacke, argillite, conglomerate, siltstone: minor limestone and quartzite
UPPER TRIASSIC
Rul
LEWIS RIVER GROUP
Greywacke, argillite, siltstone, conglomerate, tuff, andesite, baysalt, limestone
10-1 SAMPLE LOCALITY
180°/70°S STRIKE AND DIP
FAULT
SYNCLINAL
LICENCE # 11
LICENCE # 10
LICENCE # 12
LIMESTONE
RED RIDGE COAL OUTCROP
DIVISION MTN COAL TRENCH (SEE DETAIL SECTION)
NW EXTENSION OF LITTLE RIDGE INTRUSIVES
LEUCOCRATIC GRANITE
ACCESS TRAIL
STAGING ROAD
TESLIN EXPLORATION LTD
NORDENSKIOLD COAL AREA
YUKON TERRITORY
GEOLOGICAL MAP OF
TERRITORIAL COAL EXPLORATION
Licences #10, #11 & #12
SCALE: 1:50,000 (1" = 4166')
DATE: August 1970
ARJAY KIRKER RESOURCES LTD

TO WHITEHORSE
92 miles

RECONNAISSANCE PHOTOGEOLOGY

QUATERNARY	ALLUVIUM		BEDDING ATTITUDE (normal, unreliable, vertical, contorted, apparent)
	TERRACE + MORAINAL DEPOSITS		ANTICLINE, SYNCLINE
TERTIARY	CARMACKS VOLCANICS		BEDDING TRACE
CRETACEOUS	TANTALUS F.M.		LINEAR
	LABARGE GP.		POSSIBLE FAULT

TESLIN EXPLORATION LTD.

CARMACKS

YUKON TERRITORY

COAL LICENCES No. 15, 16, 17

SCALE 1:50,000

0 1 2 Miles