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TELKWA COAL PROJECT

Report on 1979 Diamond Drilling

Report to accompany:

Application to Extend Term of Licences -
Coal Licences Nos. 3709, 3710, 3875-3885 incl.
(Held by Bulkley Valley Coal Ltd.)

N.T.S. 93-L-11 (E $\frac{1}{2}$)

Lat.: 54°37'

Long.: 127°08'

Field Work Carried Out in Period
November 10 - November 21, 1979

By: T. J. Adamson
CYPRUS ANVIL MINING CORPORATION
February, 1980

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February, 1980

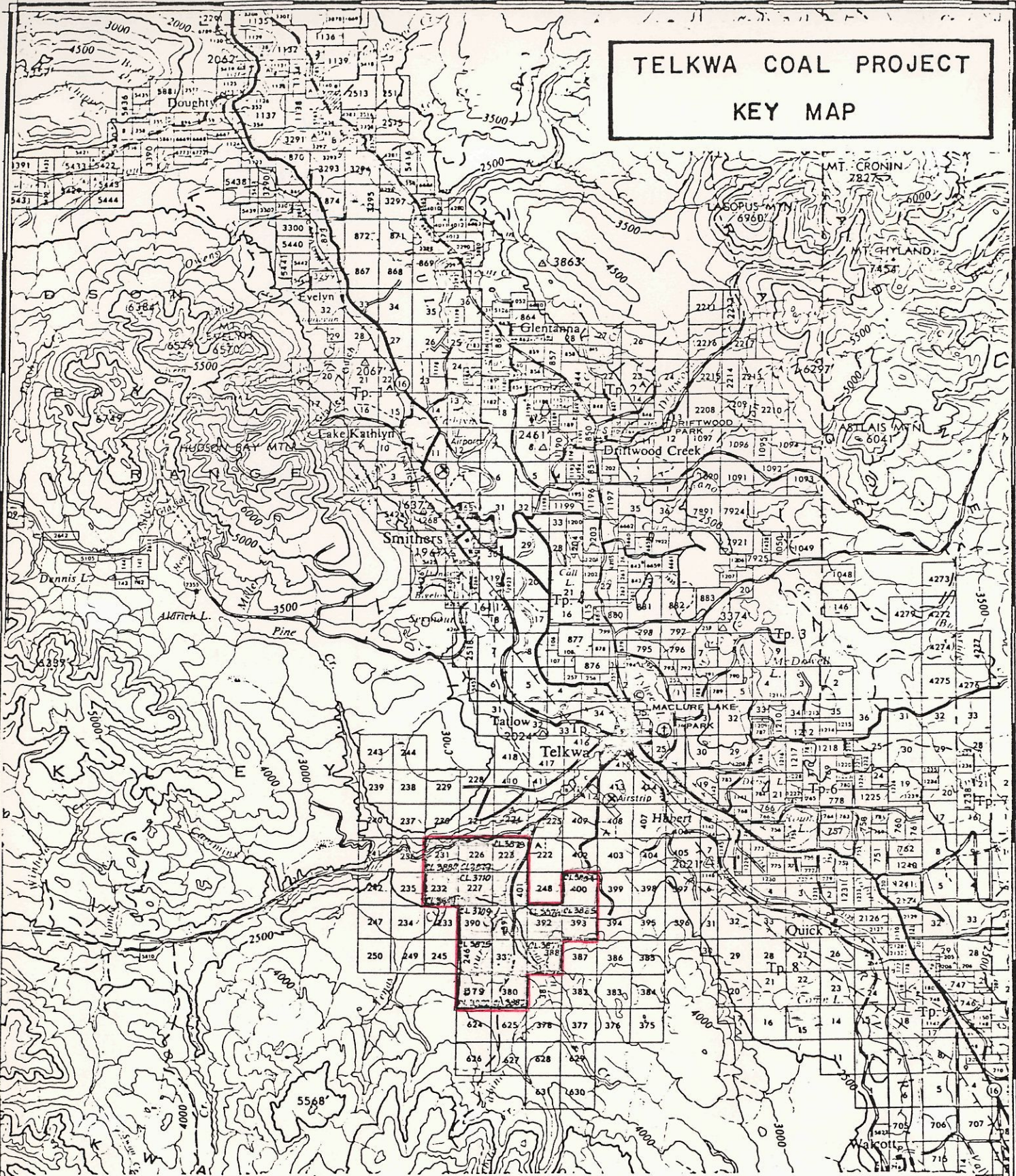
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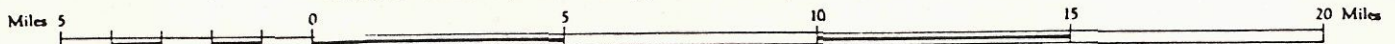
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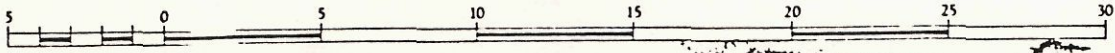
TELKWA COAL PROJECT KEY MAP



Scale 1:250,000 or approximately 1 Inch to 4 Miles



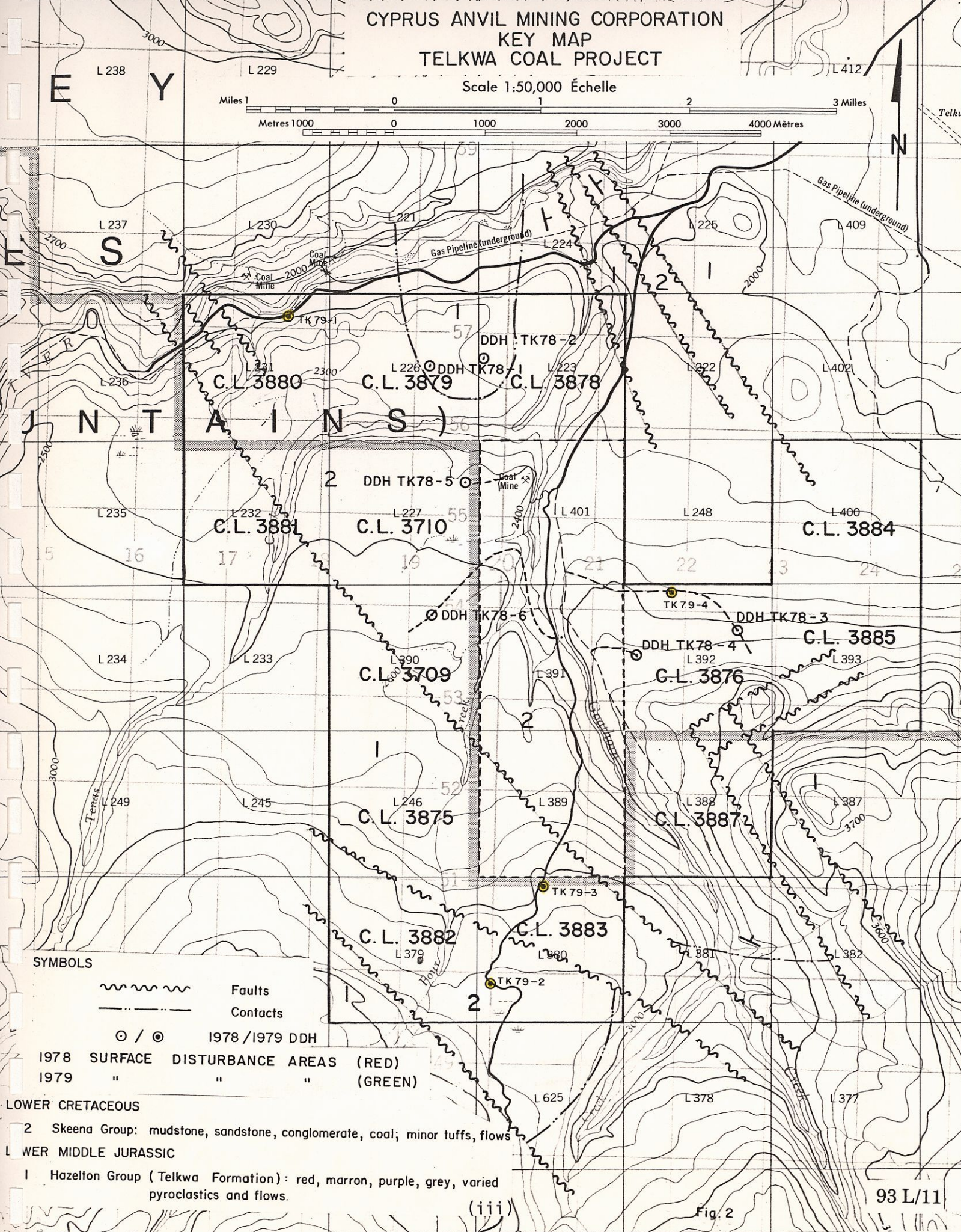
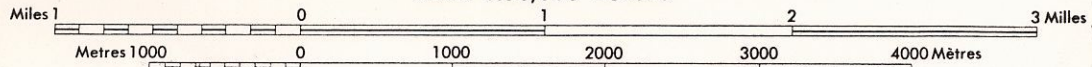
Scale of Kilometres



SHEET 93L

CYPRUS ANVIL MINING CORPORATION KEY MAP TELKWA COAL PROJECT

Scale 1:50,000 Échelle



- Faults
- Contacts
- 1978 / 1979 DDH

- 1978 SURFACE DISTURBANCE AREAS (RED)
- 1979 " " (GREEN)

LOWER CRETACEOUS

2 Skeena Group: mudstone, sandstone, conglomerate, coal; minor tuffs, flows

LOWER MIDDLE JURASSIC

1 Hazelton Group (Telkwa Formation): red, marron, purple, grey, varied pyroclastics and flows.

(iii)

Fig. 2

TELKWA COAL PROJECT

Report on 1979 Diamond Drilling

INTRODUCTION

During the 1978 summer field season, Cyprus Anvil Mining Corporation carried out a preliminary exploration program on a number of coal licences in the Telkwa, B.C. coal basin. Work carried out in 1978 included the following:

- preparation of topographic base maps and orthophotos from existing B.C. Government aerial photography;
- geological mapping;
- preliminary diamond drilling;
- analysis of coal samples from drill core and surface exposures.

The results of the 1978 program have been previously fully described in a report titled "Telkwa Coal Project - Report on 1978 Field Work", by T. J. Adamson, December, 1978.

The results of the 1978 work program were somewhat inconclusive because of a general lack of outcrop, areas of very deep overburden cover, and an indicated high density of faulting.

During November, 1979, to further define the economic potential of the project area, four additional diamond drill holes were drilled. No other field work was carried out in 1979.

LOCATION AND ACCESS

The Telkwa coal project is located in west-central British Columbia, about 20 km south of the town of Smithers and 9 km

south-southwest of the town of Telkwa. The project area is within N.T.S. map sheet 93-L-11 (E $\frac{1}{2}$). The property lies south of the Telkwa River, and to the east and west of Goathorn Creek. There is good gravel road access to the property from Telkwa. Both Telkwa and Smithers are on main highway and C.N. Rail routes connecting the port of Prince Rupert, about 370 km to the west, and Prince George to the east.

LAND STATUS

All previous and current mining operations are within three Crown-granted lots (Lots 389, 391, 401) held by Bulkley Valley Collieries Ltd., on which Bulkley Valley Coal Ltd. is now mining under an operating agreement with Bulkley Valley Collieries Ltd.

Bulkley Valley Coal Ltd. holds directly 13 contiguous Coal Licences surrounding the above Crown-granted lots. These licences are tabulated below:

<u>Coal Licence No.</u>	<u>Date Issued</u>	<u>Area (hectares)</u>
3709	September 19, 1977	259
3710	September 19, 1977	259
3875	June 23, 1978	259
3876	June 23, 1978	259
3877	June 23, 1978	259
3878	June 23, 1978	259
3879	June 23, 1978	259
3880	June 23, 1978	259
3881	June 23, 1978	259
3882	June 23, 1978	259
3883	June 23, 1978	259
3884	June 23, 1978	259
3885	June 23, 1978	259

By an option agreement made as of the 19th day of April, 1978

between Bulkley Valley Coal Ltd. and Cyprus Anvil Mining Corporation, Cyprus Anvil may acquire the above coal licences, with a royalty interest to be retained by Bulkley Valley Coal Ltd. With the consent of the Minister, in accordance with Section 9 of the Coal Act, this agreement has been recorded as an endorsement on each licence document.

Field work was carried out under Surface Work Permit No. C-123, issued pursuant to Section 8 of the Coal Mines Regulation Act.

DIAMOND DRILLING

Four diamond drill holes, totalling 310.0 metres, were drilled in the period November 12 to November 19, 1979. The drilling was carried out by J. T. Thomas Diamond Drilling Ltd., of Smithers B.C. All drill holes recovered NQ size core, using a conventional core barrel.

Drill holes are numbered TK-79-01 through TK-79-04 and are plotted on the geology map (Map No. 1, 1:10,000). Graphic drill hole logs are plotted on Map No. 2. Written lithologic logs for each hole are included in Appendix II.

Drill core is stored in covered core boxes in a core shed on Lot 401.

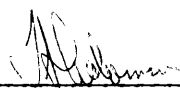
Drill hole data is tabulated below:

<u>Hole No.</u>	<u>Bearing</u>	<u>Dip</u>	<u>Commenced</u>	<u>Completed</u>	<u>Ultimate Depth</u>
TK-79-01	-	-90 ⁰	Nov. 13/79	Nov. 15/79	108.2 m
TK-79-02	-	-90 ⁰	Nov. 15/79	Nov. 16/79	52.4
TK-79-03	-	-90 ⁰	Nov. 16/79	Nov. 17/79	50.3
TK-79-04	-	-90 ⁰	Nov. 17/79	Nov. 19/79	<u>99.1</u>
					310.0 m

No significant coal seams were intersected in the 1979 diamond drill holes. All holes intersected rocks stratigraphically lower than the main coal bearing unit in this area.

All 1979 drill sites were sited along the margins of existing accessible roads. No new roads were constructed or cleared. No commercial timber was destroyed in the course of drill site clearing.

Respectfully submitted,



T. J. Adamson
Geologist

Cyprus Anvil Mining Corporation

330, 355 Burrard Street Telex 04508594
Vancouver, British Columbia
V6C 2G8
Telephone (604) 687-2586

APPENDIX I

Statement of Qualifications

(As required by Coal Act Regulations,
Sec. 6 (2))

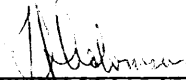
I, Thomas J. Adamson, geologist, with business address at 330 - 355 Burrard Street, Vancouver, British Columbia, and residential address at 3842 West 23rd Avenue, Vancouver, British Columbia, hereby state that:

1. I graduated from the University of British Columbia in 1967 with a B.Sc., majoring in geology.

2. From 1967 to the present, I have been actively engaged as a geologist on mineral and coal exploration programs in British Columbia, Alberta, and the Yukon Territory.

3. From 1972 to the present, I have been employed by Cyprus Anvil Mining Corporation, of Vancouver, British Columbia.

4. I personally participated in and supervised all 1979 field work on the Telkwa Coal Project and have compiled and interpreted all data resulting from this work.



T. J. Adamson

February, 1980

CYPRUS ANVIL

APPENDIX II

DIAMOND DRILL LOG

Hole No. TK-79-01

Page 1 of 2

Telkwa Project (Coal Licence No. 3880)

Bearing: -
Dip: -90°
Commenced: November 13, 1979
Completed: November 14, 1979
Ultimate Depth: 355' (108.2 m)
Collar Elevation: 593 m

INTERVAL		CORE REC.	UNIT	DESCRIPTION
Feet	Metres			
0 - 225	0.0 - 68.6		OB	Overburden. Triconed and cased.
225 - 226	68.6 - 68.9	95%+ +	2a +	Conglomerate. Mainly cherty and felsitic pelitites, minor siliceous m.s., pelitites in a very fine-grained, light grey, muddy s.s. matrix.
226 - 237	68.9 - 72.2			Poorly sorted, light to medium grey, fine-grained s.s., some slightly conglomeratic; abundant detrital biotite; C.A. approximately 90°.
237 - 241	72.2 - 73.5			Very fine-grained, grey and red tuffaceous rock, some fragmented; flat conformable contacts above and below, but very irregular convoluted grey-red contacts within interval.
241 - 250	73.5 - 76.2			Light grey, coarse to fine-grained conglomerate. Cherty m.s., chert and fragmented volcanic pebbles and cobbles; 248-249 - fragmental, pyritic red bed.
250 - 257	76.2 - 76.5			Conglomeratic, fragmental, pyritic red bed.
257 - 300	76.5 - 91.4			Coarse conglomerate. Cobbles of siliceous m.s., chert, grey, fine-grained fragmental and porphyritic volcanics and an increasing percentage of red fragmental volcanics with depth; matrix of medium-grained s.s. to pebbly s.s. C.A. approximately 90°.

DIAMOND DRILL LOG

Hole No. TK-79-01

Page 2 of 2

<u>INTERVAL</u>		<u>CORE REC.</u>	<u>UNIT</u>	<u>DESCRIPTION</u>
<u>Feet</u>	<u>Metres</u>			
300 - 355	91.4 - 108.2	95%+	1	Red-maroon, fine-grained volcanics; massive to slightly fragmental to slightly porphyritic.

END OF HOLE 108.2 m.

DIAMOND DRILL LOG

Hole No. TK-79-02

Page 1 of 1

Telkwa Project (Coal Licence No. 3883)

Bearing: -
Dip: -90°
Commenced: November 15, 1979
Completed: November 16, 1979
Ultimate Depth: 172' (52.4 m)
Collar Elevation: 991 m

<u>INTERVAL</u>		<u>CORE REC.</u>	<u>UNIT</u>	<u>DESCRIPTION</u>
<u>Feet</u>	<u>Metres</u>			
0 - 91	0.0 - 27.7		OB	Overburden.
91 - 94	27.7 - 28.7	95%+ ↓	1 ↓	Fine-grained, red-maroon, porphyritic volcanic. Scattered feldspar laths in a fine-grained massive matrix.
94 - 113	28.7 - 34.4			Interbedded (2-3') red and medium grey, fine-grained, porphyritic volcanics. Some very fractured, sheared, and brecciated.
113 - 140	34.4 - 42.7			Very fine-grained, massive red-maroon volcanic, some slightly porphyritic.
140 - 172	42.7 - 52.4			Dark grey to reddish, porphyritic, amygdaloidal andesite; all very fractured with thin carbonate fracture fillings.

END OF HOLE 52.4 m

DIAMOND DRILL HOLE

Hole No. TK-79-03

Page 1 of 1

Telkwa Project (Coal Licence No. 3883)

Bearing: -
Dip: -90°
Commenced: November 16, 1979
Completed: November 17, 1979
Ultimate Depth: 165' (50.3 m)
Collar Elevation: 926 m

INTERVAL		CORE REC.	UNIT	DESCRIPTION
Feet	Metres			
0 - 90	0.0 - 27.4		OB	Overburden.
90 - 96	27.4 - 29.3	95%+	1	Light grey, fine-grained, felsitic feldspar porphyry.
96 - 122	29.3 - 37.2	†	†	Fine-grained, red-maroon, slightly porphyritic volcanic, white feldspar phenocrysts; fractured with irregular thin quartz veinlets throughout; C.A. of contacts approximately 90°.
122 - 124	37.2 - 37.8			Light grey, very fine-grained felsite.
124 - 151	37.8 - 46.0			Very fine-grained, slightly porphyritic, red-maroon andesite; scattered thin grey felsite horizons; C.A. 90°.
151 - 153	46.0 - 46.6			Light grey felsite. Irregular darker grey to red lenses and "splotches"?
153 - 165	46.6 - 50.3			Very fine-grained, red-maroon, massive to slightly porphyritic andesite.

END OF HOLE 50.3 m

DIAMOND DRILL LOG

Hole No. TK-79-04

Page 1 of 2

Telkwa Project (Coal Licence No. 3876)

Bearing: -
Dip: -90°
Commenced: November 17, 1979
Completed: November 18, 1979
Ultimate Depth: 325' (99.1 m)
Collar Elevation: 787 m

INTERVAL		CORE REC.	UNIT	DESCRIPTION
Feet	Metres			
0 - 130	0.0 - 39.6		0B	Overburden.
130 - 173	39.6 - 52.7	95%+ ‡	2a ‡	Medium grey, massive m.s. or s.s.; very homogeneous, quite sheared, irregular breaking; scattered small irregular pyrite nodules; bedding very indistinct; C.A. 70° - 80°.
173 - 184	52.7 - 56.1			Very fine-grained s.s. to gritty m.s., very fine-grained, disseminated pyrite and pyrite nodules; thin small organic fragments throughout; some sections very sheared; "soft" indistinct bedding; C.A. approximately 80°.
184 - 192	56.1 - 58.5			Massive medium grey m.s.
192 - 202	58.5 - 61.6			Interbedded, very fine-grained muddy s.s. to gritty m.s. C.A. approximately 70°.
202 - 211	61.6 - 64.3			Massive medium grey m.s.
211 - 220	64.3 - 67.1			Gritty m.s.; gradational contacts above and below; C.A. 65°.
220 - 252	67.1 - 76.8			Thinly interbedded, massive m.s., gritty m.s., and very fine-grained muddy matrix s.s.

DIAMOND DRILL LOG

Hole No. TK-79-04

Page 2 of 2

INTERVAL		CORE REC.	UNIT	DESCRIPTION
Feet	Metres			
252 - 259	76.8 - 78.9	95%+	2a	Medium grey massive m.s.
259 - 266	78.9 - 81.1	+	+	Fine to medium-grained, medium grey s.s., thin m.s. beds throughout, thin "wispy" organic fragments throughout, C.A. 70°.
266 - 269	81.1 - 82.0			Thinly interbedded, dark grey m.s. and medium grey, very fine-grained s.s.
269 - 288	82.0 - 87.8			Massive, medium grey m.s.; a few thin beds grading to gritty m.s. and fine-grained s.s.
288 - 317	87.8 - 96.6			Fine-grained to very fine-grained, medium grey, slightly "salt and pepper" textured s.s.; wispy organic fragments throughout; C.A. approximately 80°.
317 - 325	96.6 - 99.1			Gritty m.s., indistinctly laminated, C.A. approximately 85°.

END OF HOLE 99.1 m

APPENDIX III

TELKWA COAL PROJECT
1979 Diamond Drilling
Itemized Cost Statement

Diamond Drilling, total cost: \$30,411.00
(310 m @ \$98.10/m)

Cost Breakdown

Salaries and Wages	\$ 3,163.00	
Drill Contract Costs	25,691.00	
Food and Accommodation	467.00	
Supplies and Material	239.00	
Transportation Costs	531.00	
Travel Costs	320.00	
	<u> </u>	\$30,411.00

On-Property Costs	\$28,797.50	
Off-Property Costs	<u>1,613.50</u>	<u>\$30,411.00</u>

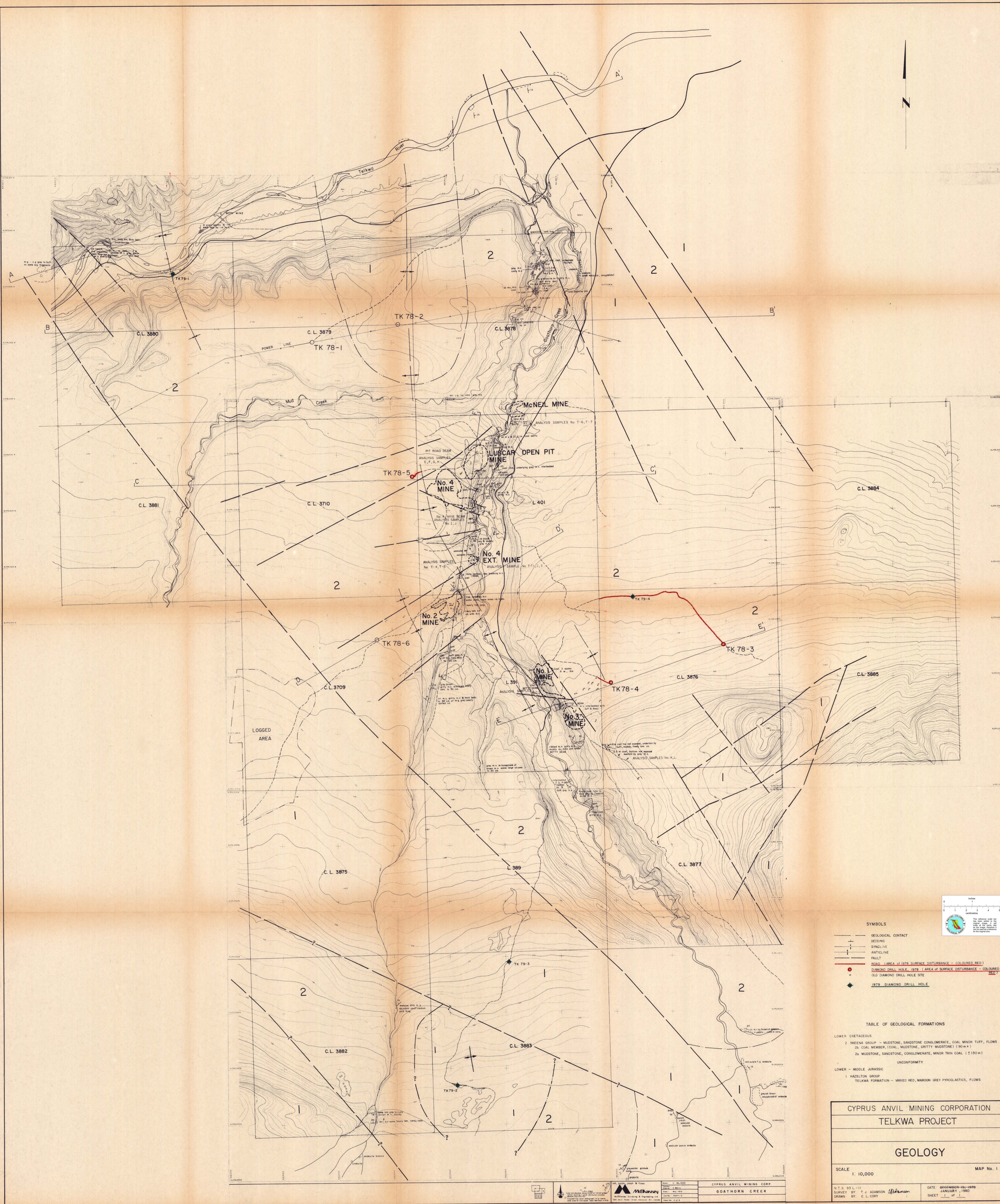
Feb 22/80

(Date)

T. J. Adamson

T. J. Adamson, Geologist
CYPRUS ANVIL MINING CORPORATION

CYPRUS ANVIL



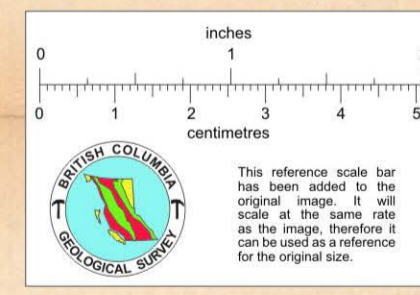
SYMBOLS

	GEOLOGICAL CONTACT
	SYNCLINE
	ANTICLINE
	FAULT
	ROAD (AREA OF SURFACE DISTURBANCE - COLOURED RED)
	DIAMOND DRILL HOLE, 1978 (AREA OF SURFACE DISTURBANCE - COLOURED RED)
	OLD DIAMOND DRILL HOLE SITE
	1979 DIAMOND DRILL HOLE

TABLE OF GEOLOGICAL FORMATIONS

LOWER CRETACEOUS	2 SKEENA GROUP - MUDSTONE, SANDSTONE CONGLOMERATE, COAL MINOR TUFF, FLOWS
	2b COAL MEMBER (COAL, MUDSTONE, GRITTY MUDSTONE) (90 m ±)
	2a MUDSTONE, SANDSTONE, CONGLOMERATE, MINOR THIN COAL (± 130 m)
UNCONFORMITY	
LOWER - MIDDLE JURASSIC	1 HAZELTON GROUP
	TELKWA FORMATION - VARIED RED, MAROON GREY PYROCLASTICS, FLOWS

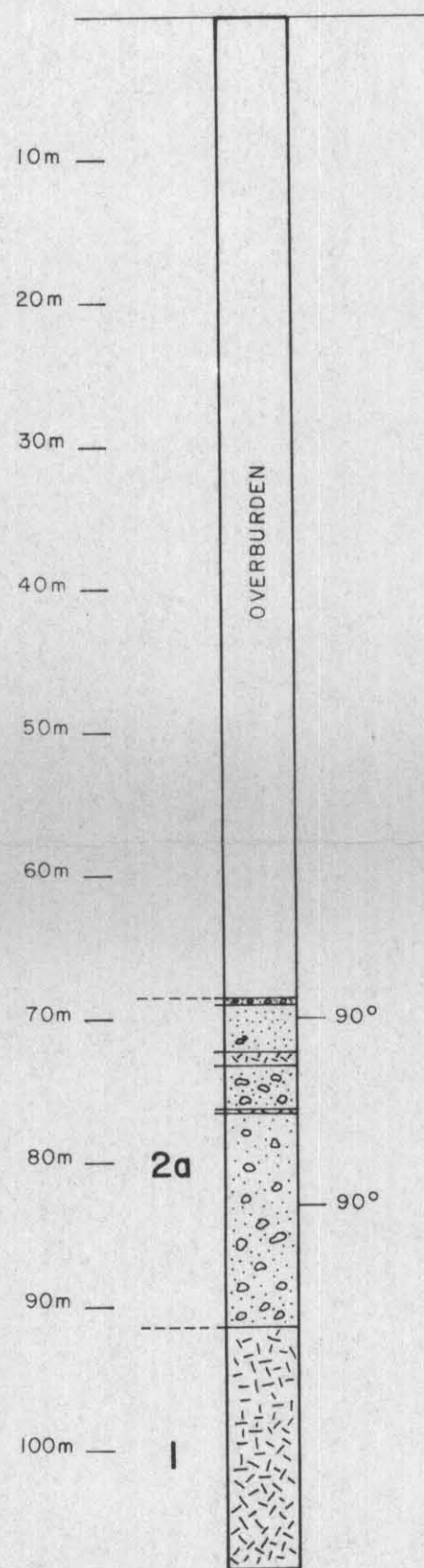
CYPRUS ANVIL MINING CORPORATION	
TELKWA PROJECT	
GEOLOGY	
SCALE 1" = 10,000	MAP No. 1
N.T.S. 93 L-11 SURVEY BY T.J. ADAMSON DRAWN BY C.L. CORY	DATE: DECEMBER-19-1979 JANUARY, 1980 SHEET 1 of 1



CIPRI
 CYPRUS ANVIL MINING CORPORATION
 GOATHORN CREEK

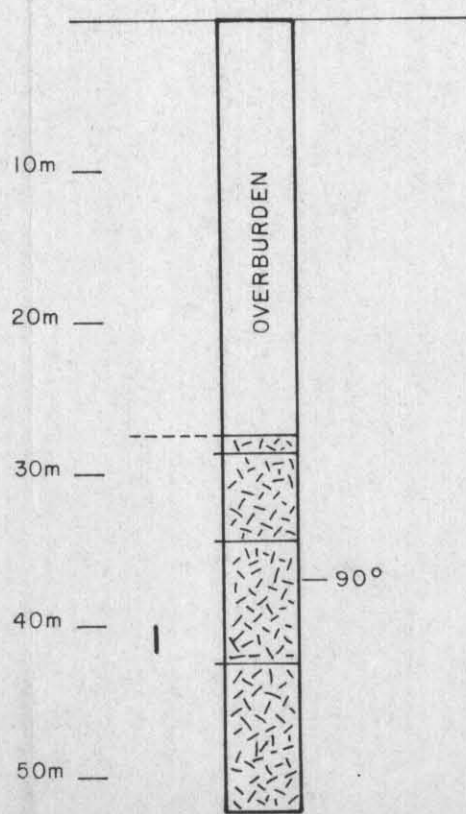
COAL LICENCE No. 3880
 DIP : -90°
 COMMENCED : NOVEMBER 13, 1979
 COMPLETED : NOVEMBER 14, 1979
 ULTIMATE DEPTH : 108.2m
 COLLAR ELEVATION : 593 m

TK 79-1



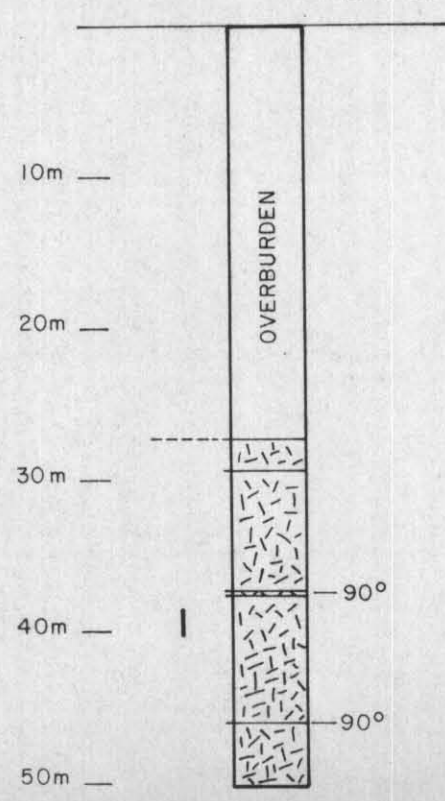
COAL LICENCE No. 3883
 DIP : -90°
 COMMENCED : NOVEMBER 15, 1979
 COMPLETED : NOVEMBER 16, 1979
 ULTIMATE DEPTH : 52.4m
 COLLAR ELEVATION : 991 m

TK 79-2



COAL LICENCE No. 3883
 DIP : -90°
 COMMENCED : NOVEMBER 16, 1979
 COMPLETED : NOVEMBER 17, 1979
 ULTIMATE DEPTH : 50.3m
 COLLAR ELEVATION : 926 m

TK 79-3



COAL LICENCE No. 3876
 DIP : -90°
 COMMENCED : NOVEMBER 17, 1979
 COMPLETED : NOVEMBER 18, 1979
 ULTIMATE DEPTH : 99.1m
 COLLAR ELEVATION : 787 m

TK 79-4

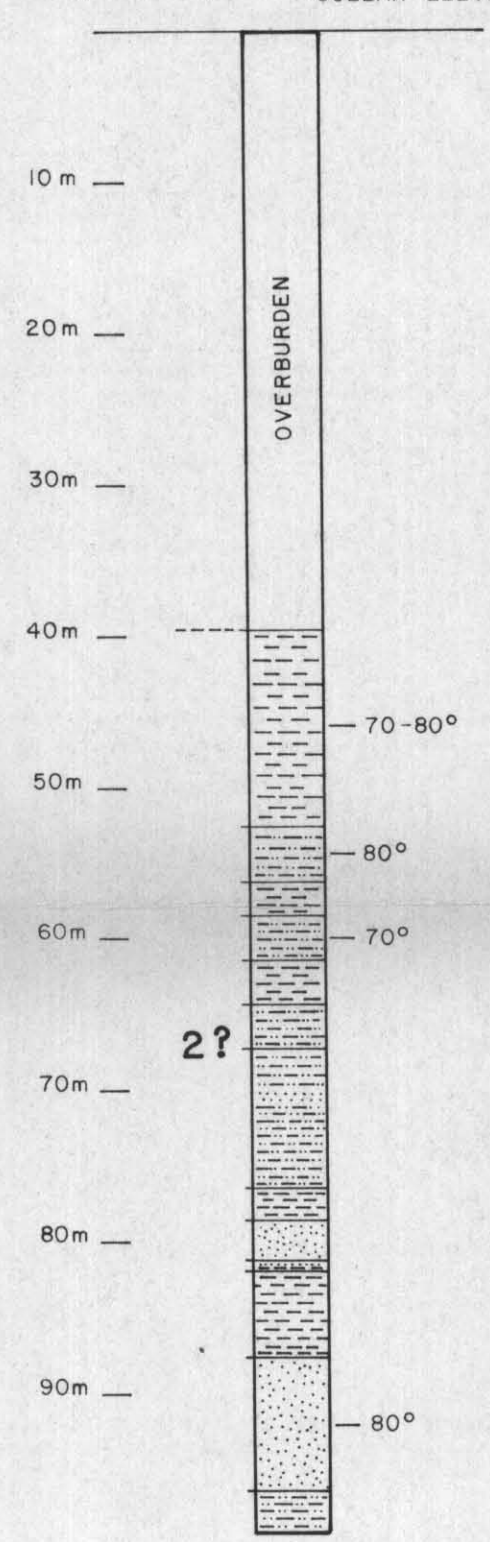
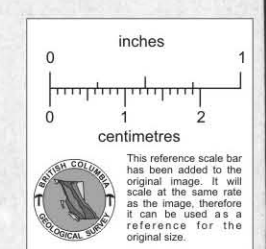


TABLE OF GEOLOGICAL FORMATIONS

- LOWER CRETACEOUS
- 2 SKEENA GROUP - MUDSTONE, SANDSTONE CONGLOMERATE, COAL MINOR TUFF, FLOWS
 - 2b COAL MEMBER, (COAL, MUDSTONE, GRITTY MUDSTONE) (90 m +)
 - 2a MUDSTONE, SANDSTONE, CONGLOMERATE, MINOR THIN COAL (± 130 m)
- UNCONFORMITY
- LOWER - MIDDLE JURASSIC
- 1 HAZELTON GROUP
 - TELKWA FORMATION - VARIED RED, MAROON GREY PYROCLASTICS, FLOWS

LITHOLOGY LEGEND

- O,B OVERBURDEN
- MUDSTONE, SHALE
- COALY MUDSTONE
- COAL
- GRITTY MUDSTONE TO MUDDY SANDSTONE
- SANDSTONE
- CONGLOMERATE
- MISC. VOLCANICS.



CYPRUS ANVIL MINING CORPORATION

TELKWA PROJECT

Graphic Geological Diamond Drill Hole Log
 DDH TK 79 - 1, 2, 3 & 4

0 10 20 30 40 50 METRES

N.T.S. 93-L-11 SCALE: 1:500
 SURVEY BY: T.J.A. DATE: FEB. 20, 1980
 DRAWN BY: r.w.r. MAP 2