

Gen. Van. Isl. - Ash River 7-7(1)H
ASH RIVER PROJECT

VANCOUVER ISLAND

HUBBAY COAL COMPANY

1979-08-01

OPEN FILE

(C.LICENCES DROPPED)

C.L. Nos. 4284-4303

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

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Hudbay Coal Company

A Division of Hudson's Bay Oil and Gas Company Limited

Telephone (403) 231-3711 - 700 Second Street S.W. - Calgary, Alberta, Canada T2P 0X5



1979-11-15

MINISTRY OF MINES
AND PETROLEUM RESOURCES

Rec'd NOV 27 1979

AFT		
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Energy, Mines and Petroleum Resources
Province of British Columbia
Attn. Mr. A. Matheson, Coal Inventory Group
VICTORIA, British Columbia
V8V 1X4

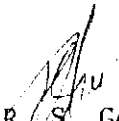
Dear Alex:

Thank you very much for your comments and help during my Victoria visit on November 8th.

As I mentioned, our firm is somewhat new to the British Columbia exploration scene and therefore has had its problems in following the regulatory processes for such basic exploration programs. However, please find enclosed a complete program report on our Port Alberni venture. If there are any problems with this, please do not hesitate to call.

We would appreciate the maximum period of confidentiality on this report if possible.

Sincerely,


R. S. Gee, P. Geol.
Director
Coal Exploration

RSG:ma
Encl.

TABLE OF CONTENTS

1.0	Summary	3
1.1	Recommendations	4
2.0	Location and Accessibility	5
3.0	Leases	6
4.0	Physiography	7
5.0	Geology	8
5.1	Regional Geology	
5.2	Structure	9
5.3	Stratigraphy	10
5.3.1	Comox Formation	10
5.3.2	Haslam Formation	11
5.3.3	Extension - Protection Formation	11
5.3.4	Karmutsen Formation	12
5.4	Coal Facies	13
6.0	Drilling Summary	14
6.1	Drillhole Summary Sheets	15
6.2	Daily Reports	16
7.0	Maps	56
	Structural Profiles	
	Geology Map	
	Drill Hole Accessibility Map	
	Microfiche of Geophysical Logs	57

LIST OF ILLUSTRATIONS

Figure I	General Location Map	HC 1902R
	Structure Profiles	
	A-A ¹	HC 2136S
	B-B ¹	HC 2137S

MAPS

Location and Accessibility	1:50,000	HC 1869 L40
Geology Map	1:20,000	HC 450(a)
Correlation Chart	1:500	HC 2374-L32

1.0 SUMMARY

The Ash River Project consisted of evaluating coal-bearing lands in the Ash River Valley on Vancouver Island. The Ash River lands were held under an option and sale agreement with Ramm Venture Corporation. The Ash River property consists of a series of twenty coal licences (CL 4284 to CL 4303) encompassing 5182 hectares.

The coal licences are located in the central part of Vancouver Island approximately 26 air kilometres northwest of Alberni, British Columbia in the general area of geographic coordinates 49° N and 125° 02 W. (See Accessibility and Lease Map).

During June and July 1979, 14 drillholes (1280 metres) were completed on the Ash River lease block. The drilling consisted of 13 drillholes to define structure and stratigraphy and one drillhole to core the coal. All the holes were geophysically logged using Gamma-Ray-Neutron, Density and Caliper. When drilling conditions permitted a Focus-beam log was also used. The original program was budgeted for \$150 000.00. However, results dictated that the program be terminated early. The total estimated cost to complete the program was \$120 000.00. The infield supervision and preliminary geological report draft was conducted and prepared by R. J. Talbot, P. Geol. of the TJT Holdings Limited, Calgary, Alberta.

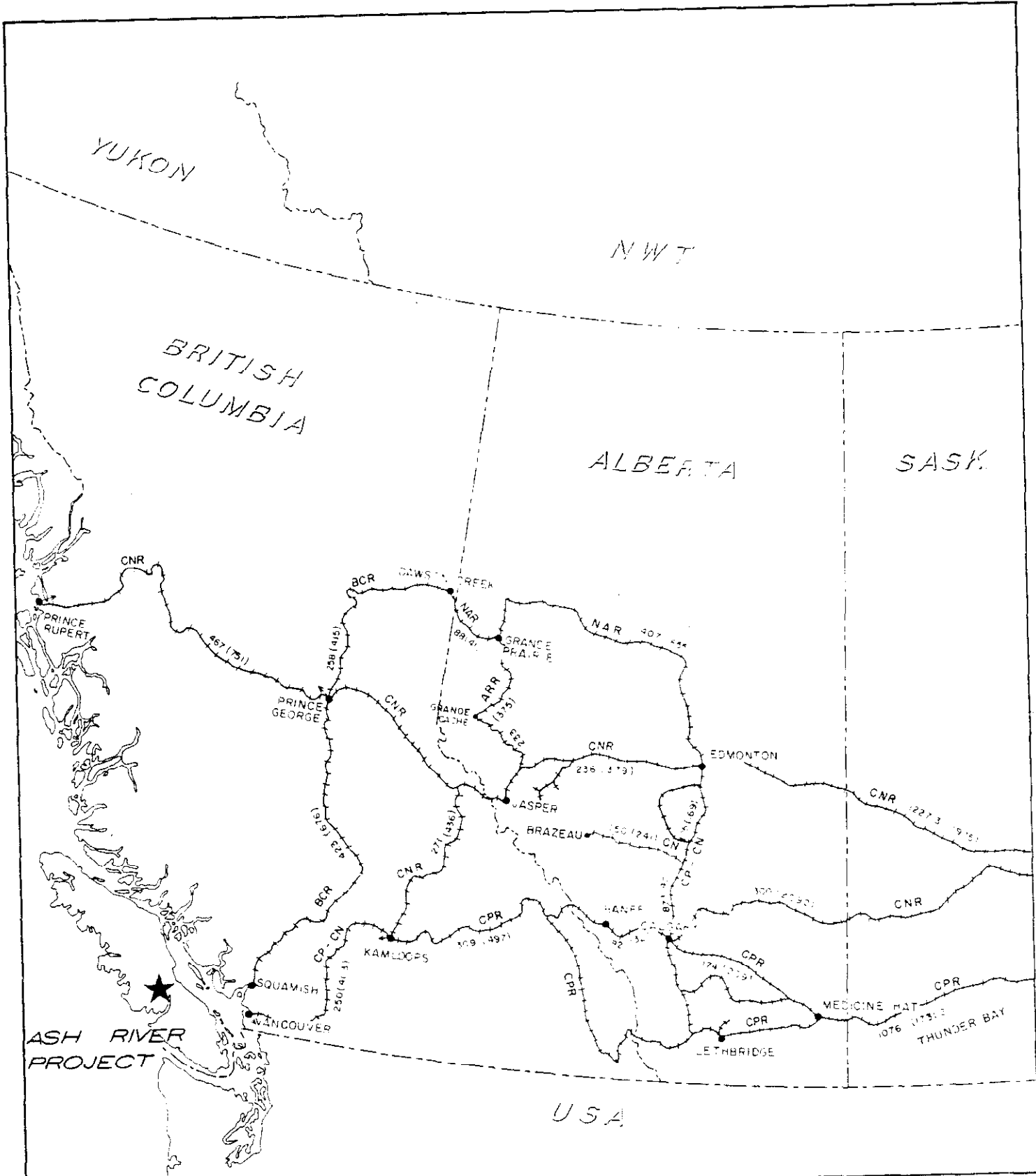
The coal licences of the Ash River project are thought to encompass the coal-bearing zones of the Extension-Protection and Comox Formations. The drilling and limited surface mapping conducted during the program indicated the presence of synclinal structure.

Compilation of the data indicates that there are four coal zones present throughout the property. However, responses on the geophysical logs and examination of the core showed that the coal zones were extremely poor quality, thin and very discontinuous and often shaling out.

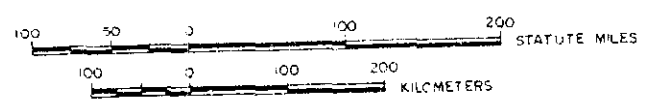
Due to the very poor nature of the coal, it was not feasible to estimate coal tonnages. There is no possibility of the seams being mineable in terms of continuity, thickness or coal quality.

1.1 RECOMMENDATION

Results of the drilling on the Ash River property have indicated that the coal is discontinuous, thin and extremely poor quality. It would be recommended that no further work be completed on the property and that all licences be dropped and the agreement with Ramm Venture Corporation be terminated.



ARR - ALBERTA RESOURCES RAILWAY (CNR OPERATOR)
 BCR - BRITISH COLUMBIA RAILWAY
 CNR - CANADIAN NATIONAL RAILWAY
 CPR - CANADIAN PACIFIC RAILWAY
 NAR - NORTHERN ALBERTA RAILWAY



Hudbay Coal Company A Division of Hudson's Bay Oil and Gas Company Limited <small>CALGARY ALBERTA</small>	
LOCATION MAP ASH RIVER PROJECT	
SCALE 1" = 12.5 miles APPR BY	DRAWN BY R.J. Talbot FILE # DATE 1978-08 HC 1902 R

2.0 LOCATION, ACCESSIBILITY AND LAND USE

The Ash River prospect is located in the central part of Vancouver Island approximately 26 km northwest of Alberni, British Columbia in the general area of geographic coordinates 49°27'N and 125°02'W.

Access to the prospect area is by a good all-weather logging road. The property can be reached by travelling from Alberni via Highway #4 west 8 km to the Sproat Lake Provincial Park turnoff. Access to the property is gained by continuing northwest along a paved secondary highway 8 km to Great Central Lake. From Great Central the southern end of the Ash River prospect is reached by travelling 16 km on gravel logging roads. Accessibility within the lease block occurs on well maintained logging roads that allow travel to all parts of the lease block.

The town of Alberni is the major logging and pulp mill center on Vancouver Island. It is linked to the east side of the Island by good highways and existing railways. The deep seaport facilities accommodate all shipping requirements for the west coal and central portions of Vancouver Island.

3.0 LEASES

Hudson's Bay Oil and Gas through an option and sale agreement with Ramm Venture Corporation of Vancouver obtained coal licence rights on coal licences (CL 4284 to CL 4303) representing a 5182 hectare parcel of land.

The lands are designated as the following blocks on NTS Sheet 92F6:

74, 85, 291, 396, 397,
474, 491, 492, 497, 536,
537, 604, 605, 637, 639,
700, 803, 1284

4.0 PHYSIOGRAPHY

The Ash River lease block is situated in the Ash River Valley on the western side of Vancouver Island. The lease block is flanked on the east and west sides by the mountains of the Beaufort Range.

Within the lease block the topography consists of gently rolling hills with slopes varying from 5 to 20°. The relief on the lease block is considered moderate ranging from 240 m to 490 m above sea level.

The forest cover on the lease block consists primarily of stands of firs and spruce with occasional intermixing of deciduous trees. The low lying areas (ie stream valleys) contain thick stands of alders. The undergrowth on the lease block is extremely thick and varied. The primary plant types appear to consist of ferns and various types of bushes.

The drainage in the area is to the southeast. There are two lakes, Elsie and Dickson, which receive most of the runoff from the mountains and streams. Water then flows out of these lakes southeastward towards Alberni by way of Ash River and Lanterman Creek to Great Central Lake.

5.0 GEOLOGY

5.1 REGIONAL GEOLOGY

Most of the Ash River project area is overlain by glacial and fluvioglacial deposits of clay, silts, gravels and till. Due to these deposits there are few outcrops except in the deeply incised river channels and along road cuts.

Within the project area and surrounding countryside the formations of interest are clastic continental rocks thought to be Tertiary in age. The sedimentary rocks are flanked on all sides by Karnutsen Volcanics thought to be Triassic in age. The general stratigraphy of the project area indicates that the sediments occur in the Naniamo Group and are as follows:

Extension - Protection

Haslam

Comox

The coal-bearing sequences occur in the Extension-Protection and Comox Formations. The Comox Formation is the lower part of a depositional cycle. The clastic material of the formation is quartz-feldspathic with numerous intercalations of carbonaceous shales and coal. The base of the Comox is marked by the Benson Member conglomerate. The Haslam Formation occurs as poorly bedded sandy shales and shaley sandstones with abundant fossils. The Extension-Protection Formation occurs as coarse clastic facies where conglomerate pebbly sandstone arkosic sandstones and coal seams are interbedded.

The structures of the project and surrounding areas are likely greatly influenced by the Beaufort Range which is the major geological influence in the area. The Beaufort Mountains flank the eastern side of the project area.

5.2 STRUCTURE

The Ash River project represents an area of clastic continental rocks flanked unconformably on all sides by volcanics.

Regional geologic mapping and drilling on the project indicates the presence of a synclinal structure (See Geology Map). The axis of the syncline trends to the northwest-southeast at approximately 320°. The available information indicates that the structure plunges to the southeast at 3° to 5°. In the southern part of the project area structure profile A-A¹ shows the syncline occurs as a broad synclinal structure. The western limb is dipping at 10° to 15°, while the eastern limb is slightly steeper dipping from 20° to 30°. The strike of the beds varies from 320° to 345°. In the northern end of the lease block the syncline has become tighter and more compressed. Structure profile B-B¹ coordinated with drilling and surface information indicates that the eastern limb of the syncline is now dipping from 37° to 55° to the west. The dips on the eastern limb have remained constant at 10° to 15° giving the syncline a monoclinal shape. The strikes in the northern end of the project area are variable ranging from 290° to 335°.

5.3 STRATIGRAPHY

The stratigraphic units of interest on the Ash River project area are those clastic continental rocks contained within the Nanaimo Group. The Nanaimo Group represents four transgressive cycles grading upward from non-marine coarse clastic to marine fine clastic sediments and a fifth cycle with only non-marine coarse clastics. The units of interest within the Nanaimo Group are the following:

Comox Formation
Haslam Formation
Extension - Protection Formation

The above formations represent the first depositional cycle and bottom part of the second depositional cycle.

5.3.1 COMOX FORMATION

This formation is the lower part of the first depositional cycle. The Comox Formation has a basal conglomerate called the Benson Member. The Benson-type facies are dark green and brown colored, poorly bedded fanglomerates and associated greywackes occurring in irregular lenticular masses of small areal extent and variable thickness. The components are unsorted subangular boulders, pebbles and grit, mainly of pre-Cretaceous volcanic material. The Comox-type facies, immediately above the Benson Member is a variant of the Extension-type facies (to be discussed later). The clastic material is quartzfeldspathic. It contains numerous intercalations of carbonaceous shale and coal. This facies contains the coal of the Nanaimo Group. There are a total of eight seams in the Comox of which three are of interest. The seam thicknesses are as follows:

Seam #1 0.76 - 2.10 m
Seam #2 1.06 - 1.20 m
Seam #4 0.90 - 2.10 m

The thickness of the formation in the Nanaimo Basin is 90 to 275 m. Seams 1 to 4 occur over a stratigraphic interval of 50.5 m.

5.3.2 HASLAM FORMATION

The Haslam Formation is the upper part of the first depositional cycle. The beds are poorly bedded sandy shales and shaley sandstones with abundant fossils indicating nearshore deposition. The thickness of the Haslam varies from 85 to 300 m.

5.3.3 EXTENSION - PROTECTION FORMATION

The formation is the basal part of the second depositional cycle. The Extension-type facies is the kind of coarse clastic facies where conglomerate, pebbly sandstone and arkosic sandstone are interbedded. The components are well-worn, well-sorted and consist mainly of resistant rock types like quartzites, black argillites and light green or grey chert. The sandstones are commonly cross-bedded and consist mainly of quartz, feldspar, biotite and hornblende. In the coal mining areas the Extension-Protection formation has been divided as follows:

Protection Formation	-	mainly sandstone
Douglas Seam	-	coal
Newcastle Formation	-	conglomerate, sandy shale
Newcastle Seam	-	coal
Cranberry Formation	-	mainly conglomerate
Wellington Seam	-	coal
East Wellington Seam	-	sandstone

The two seams considered mineable are the Wellington #1 Seam - 2.1 m and the Douglas Seam - 1.5 m.

Due to the fact that the formations cannot be distinguished outside the coal mining areas of Nanaimo and Comox, the members will be referred to as one formation, Extension-Protection. The maximum thickness of the Extension-Protection is reported to be 580 m.

5.3.4 KARMUTSEN FORMATION

The Karmutsen Formation consists of volcanics thought to be Triassic in age. The volcanics form an unconformity on all sides of the project area with the sedimentary rocks within the lease boundary.

5.4 COAL FACIES

In the 14 rotary drillholes completed and geophysically logged it was found that all three units in the Nanaimo Group were intersected. Available information indicates that the Extension-Protection and Comox Formations contain the coal-bearing sequence.

The Comox Formation is reported to have eight coal seams of variable thickness. Drilling indicates that the Comox does indeed have these coal seams. However, response on the geophysical logs show that the coals are extremely dirty with the coal in most cases representing less than 25% of the coaly interval. Correlations between logs indicate that the zones are very discontinuous and shale out throughout the property.

The information available for the Extension-Protection Formation indicates that there are three seams present:

1. Douglas Seam
2. Newcastle Seam
3. East Wellington Seam

The geophysical logs from the project indicate that the coal seams of the Extension-Protection are present. However, on the Ash River leases, the responses in the geophysical logs show that the seams are of extremely poor quality, with the coal representing only 20 to 35% of the coaly zone. Correlations of the logs indicate that the seams are very thin and discontinuous.

In general the seams present on the Ash River project are very dirty and discontinuous. There is no possibility of the coal quality being good enough to allow the coal interval to be mined economically. To confirm responses on the geophysical logs, coals of the Comox Formation were cored (ARR-7914C) with a VTM core barrel. Examination of the core showed that the coal only represented 20 - 25% of the entire coaly interval.

6.0 DRILLING SUMMARY

The Ash River project consisted of drilling the coal-bearing sequence of the Extension-Protection and the Comox Formations.

The program consisted of drilling 14 rotary boreholes to various depths (total metreage - 1280 m). The holes were completed using a 1976 Chicago Pneumatic T-650 supported with a 1979 International IHC pipe carrier. All holes were drilled with air using a down hole hammer. In all cases the overburden was cased with 15 cm casing. Casing was set by using a casing hammer.

All the boreholes were logged geophysically with Gamma-Ray-Neutron, Density and Caliper tools. Where drilling conditions allowed a Focus-beam log was run to supplement the above logs.

Of the 14 drillholes, 13 were exploration holes used to define structure and stratigraphy. One hole was a core hole in which the coal bearing sequence was cored using a VTM core barrel. The drilling is summarized on the following drillhole summary sheets and drillers logs.

The total estimated cost to complete the Ash River drilling program is \$115,000.00. The cost can be distributed as follows:

Consulting	\$ 15 000.00
Expenses	4 000.00
Geophysical logging	19 190.00
Communications	2 500.00
Support Vehicle	3 300.00
Drilling	56 976.00
Miscellaneous (drafting, equipment etc.)	14 000.00
	<hr/>
Total Cost	\$114 966.00
Approximately	\$115 000.00

TS-615

Hudbay Coal Company
DRILL HOLE SUMMARY SHEET

(1) Field Office, (2) Head Office

Project ASH RIVER Year 1979

Page 1 of 2

Hole Number	Incl. Azimuth (0-90) (10-90)	Coordinates		Collar Elevation	Total Depth	Electric Log		Depth	Overburden Depth	Water Table Depth	No.	Seam Data		Elevations	Rig	Fluid	Comments
		North South	East West			Ref. Depth	Date					Depth	Log				
ARR-7901	X	548035N	4895E	307.9	29.9	X	X	79/06/16	28.9	X	5.1	-			X	X	
ARR-7902	X	548060N	5025E	542.9	147.3	X	X	79/06/17	145.0	X	7.0	28.7			X	X	logged through pipe
ARR-7903	X	548207N	4892E	365.8	111.0	X	X	79/06/21	110.0	X	5.1	7.8			X	X	
ARR-7904	X	548413N	4737E	426.8	71.3	X	X	79/06/22	70.5	X	6.1	8.5			X	X	
ARR-7905	X	548435N	4838E	612.3	148.2	X	X	79/06/23	148.0	X	3.0	93.3			X	X	
ARR-7906	X	548300N	4868E	464.9	157.0	X	X	79/06/25	136.5	X	5.1	28.3			X	X	
ARR-7907	X	547922N	5022E	532.3	25.9	X	X	79/06/26	25.0	X	19.9	7.0			X	X	hole abandoned
ARR-7908	X	547912N	5022E	532.3	62.5	X	X	79/06/29	62.0	X	19.9	60.0			X	X	
ARR-7909	X	547309N	5438E	429.9	146.3	X	X	79/07/02	146.3	X	6.5	58.2			X	X	
ARR-7910	X	547700N	5235E	320.1	153.6	X	X	79/07/05	153.0	X	16.4	20.1			X	X	
ARR-7911	X	547695N	5143E	317.1	51.2	X	X	79/07/07	50.5	X	36.5	47.3			X	X	
ARR-7912	X	547328N	5474E	149.4	143.4	X	X	79/07-09	143.0	X	21.5	19.3			X	X	
ARR-7913	X	548035N	4896E	307.9	17.2	X	X	79/07/10	16.0	X	4.9	--			X	X	
ARR-7914	X	548031N	4897E	307.9	15.2	X	X	79/07-10	14.6	X	4.9	--			X	X	Core hole VTM barrel

Hudbay Coal Company

ROTARY (Reverse Circulation) DRILL HOLE LOG

COAL FIELD Ash River HOLE NUMBER ARR-7902
 COMPANY Ken's Drilling LOCATION Vancouver Island
 DATE 1979-06-17 SURVEYED LOCATION 548060N 5025N
 LOGGING COMPANY Roke Oil ELEVATION 1125 ft (343 m)
 LOGS RUN GR-Res., N, Density, Caliper ANGLE / BEARING Vertical
 DEVIATION (TEST) _____ WATER HORIZON 94.1 ft (28.7 m)
 COMMENTS Hole caved at 180 ft (55 m). Hole making 80 to 100 gallons per minute.
Could not be logged open hole pass 180 ft - kept caving. Drillers log.

FROM	TO	LOG	REMARKS
0 m	3.9 m	Overburden (Gravels and Boulders)	
3.9	4.3	Clay and Tills	
4.3	7.3	Sandy Clay	
7.3	7.6	Coaly Shale	
7.6	35.4	Shale	
35.4	35.7	Soft Coal	
35.7	54.8	Shale	
54.8	70.1	Soft Shale	
70.1	73.8	Sandstone	
73.8	78.0	Shale	
78.0	86.8	Sandstone	
86.8	95.7	Shale (Water flowing at approximately 80 - 100 GPM)	
95.7	130.8	Sandstone	
130.8	139.0	Shaley Saltstone	
139.0	140.2	Shale	
140.2	143.9	Sandstone	
143.9	145.7	Shale	
145.7	146.9	Sandstone	
		T.D. 482.0	

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering

Hubbay Coal Company
ROTARY (Reverse Circulation) DRILL HOLE LOG

COAL FIELD <u>Ash River</u>	HOLE NUMBER <u>ARR-7904</u>
COMPANY <u>Ken's Drilling</u>	LOCATION <u>Vancouver Island</u>
DATE <u>1979-06-22</u>	SURVEYED LOCATION <u>548413N 4737E</u>
LOGGING COMPANY <u>Roke Oil</u>	ELEVATION <u>1400 ft (427.0 m)</u>
LOGS RUN <u>GR-N, Density, Caliper, FBL</u>	ANGLE / BEARING <u>Vertical</u>
DEVIATION (TEST) _____	WATER HORIZON <u>8.5 m</u>
COMMENTS <u>Set 76.5 ft of casing. Hole in good condition. Water at</u> <u>34 ft (35 GPM). Drillers Log.</u>	

FROM	TO	LOG	REMARKS
0 m	22.6 m	Overburden (Clay and Gravel)	
22.6	27.4	Sandstone	
27.4	30.2	Coal	
30.2	31.1	Shale	
31.1	32.0	Sandstone	
32.0	32.3	Coal	
32.3	33.5	Sandstone	
33.5	41.5	Shale	
41.5	42.1	Sandstone	
42.1	42.4	Coal	
42.4	43.3	Sandstone	
43.3	58.8	Interbedded Shales and Sandstones	
58.8	66.5	White Sandstone (100 to 150 GPM)	
66.5	71.3	Volcanics	
		T.D. 71.3 m	

(1) Field Office (2) Head Office Geology (3) Head Office Engineering

Hudbay Coal Company
ROTARY (Reverse Circulation) DRILL HOLE LOG

COAL FIELD Ash River HOLE NUMBER ARR-7905
 COMPANY Ken's Drilling LOCATION Vancouver Island
 DATE 1979-06-23 SURVEYED LOCATION 548435N 4838E
 LOGGING COMPANY Roke Oil Enterprises ELEVATION 2010 ft (612.8 m)
 LOGS RUN GR-N, Density, Caliper, FBL ANGLE/BEARING Vertical
 DEVIATION (TEST) _____ WATER HORIZON 93.8 m
 COMMENTS 13.5 ft of casing. Hole in good condition. Drillers Log.
Hole making water at 112.5 m (2 - 3 GPM).

FROM	TO	LOG	REMARKS
0 m	.3 m	Overburden	
.3	8.2	Sandstone	
8.2	19.8	Shaley Sandstone	
19.8	20.4	Sandstone	
20.4	21.0	Shaley Sandstone	
21.0	36.3	Sandstone	
36.3	37.2	Shaley Sandstone (Water 2 - 3 GPM)	
37.2	38.4	Sandstone	
38.4	58.2	Sandstone and Shale	
58.2	58.5	Sandstone	
58.5	58.8	Shale	
58.8	63.7	Sandstone	
63.7	67.4	Shale and Sandstone	
67.4	93.6	Sandstone	
93.6	102.1	Shale	
102.1	105.5	Sandstone	
105.5	108.5	Coal	
108.5	109.1	Shale	
109.1	110.4	Sandstone	
110.4	110.6	Shale	
110.6	117.4	Sandstone	
117.4	124.7	Shale	
124.7	131.7	Sandstone (10 - 15 GPM)	
131.7	133.8	Shale and Coal	

ROTARY (Reverse Circulation) DRILL HOLE LOG

Page 1 of 1

COAL FIELD	Ash River	HOLE NUMBER	ARR-7906
COMPANY	Ken's Drilling	LOCATION	Vancouver Island
DATE	1979-06-25	SURVEYED LOCATION	548300N 4868E
LOGGING COMPANY	Roke Oil Enterprises	ELEVATION	1525 ft (464.9 m)
LOGS RUN	GR-N, Density, Caliper, FBL	ANGLE / BEARING	Vertical
DEVIATION (TEST)		WATER HORIZON	28.3 m
COMMENTS	Casing to 20 ft. Water hit at 45 ft (2 - 3 GPM). Drillers Log.		

FROM	TO	LOG	REMARKS
0 m	2.7 m	Overburden	
2.7	5.8	Sandstone	
5.8	19.2	Interbedded Shale and Sandstone	
19.2	20.4	Shale	
20.4	22.6	Sandstone	
22.6	26.8	Shale	
26.8	29.9	Sandstone	
29.9	34.8	Shale	
34.8	37.2	Sandstone	
37.2	42.4	Shale	
42.4	57.0	Sandstone (at 85.9 m - 10 - 15 GPM)	
57.0	123.5	Interbedded Shale and Sandstone	
123.5	134.7	Conglomerate	
134.7	140.2	Sandstone	
140.2	142.7	Sandstone and Conglomerate	
142.7	150.0	Sandstone	
150.0	157.0	Volcanics	
		T.D. 157.0 m	

Hubbay Coal Company
ROTARY (Reverse Circulation) DRILL HOLE LOG

COAL FIELD <u>Ash River</u>	HOLE NUMBER <u>ARR-7910</u>
COMPANY <u>Ken's Drilling</u>	LOCATION <u>Vancouver Island</u>
DATE <u>1979-07-01</u>	SURVEYED LOCATION <u>547700N 5235E</u>
LOGGING COMPANY <u>Roke Oil Enterprises</u>	ELEVATION <u>1050 ft (320.1 m)</u>
LOGS RUN <u>GR-N, Density, Caliper</u>	ANGLE / BEARING <u>Vertical</u>
DEVIATION-(TEST) _____	WATER HORIZON <u>20.3 m</u>
COMMENTS <u>Hole in good condition. Hole making 10 GPM.</u>	

FROM	TO	LOG	REMARKS
0 m	17.9 m	Overburden (Till and Gravel)	
17.9	40.5	Shale	
40.5	41.2	Sandstone	
41.2	44.8	Shale	
44.8	71.3	Sandstone	
71.3	77.7	Shale	
77.7	80.8	Sandstone	
80.8	82.9	Shale	
82.9	107.3	Sandstone	
107.3	108.2	Conglomerate	
108.2	111.3	Sandstone	
111.3	121.9	Sandstone (Water at 10 GPM)	
121.9	125.6	Siltstone	
125.6	126.5	Sandstone	
126.5	127.7	Shale	
127.7	132.9	Shaley Sandstone	
132.9	133.8	Conglomerate	
133.8	134.8	Sandstone and Shale	
134.8	135.1	Conglomerate	
135.1	143.3	Shale	
143.3	144.2	Shale and Sandstone	
144.2	153.9	Sandstone	
		T.D. 153.9 m	

ROTARY (Reverse Circulation) DRILL HOLE LOG

Page 1 of 1

COAL FIELD Ash River HOLE NUMBER ARR-7912
 COMPANY Ken's Drilling LOCATION Vancouver Island
 DATE 1979-07-06 SURVEYED LOCATION 547328N 5474E
 LOGGING COMPANY Roke Oil Enterprises ELEVATION 149.4 m (490 ft)
 LOGS RUN GR-N, Density, Caliper ANGLE / BEARING Vertical
 DEVIATION (TEST) _____ WATER HORIZON 19.3 m
 COMMENTS Hole in good condition. Hole making water (5 GPM) at 38.7 m
(127 ft). Drillers log. Set 22.9 m (75 ft) of casing.

FROM	TO	LOG	REMARKS
0 m	22.9 m	Overburden (Clays & Gravels)	
22.9	41.2	Shaley Sandstone	
41.2	41.8	Sandstone	
41.8	42.4	Shaley Sandstone	
42.4	43.3	Sandstone	
43.3	54.3	Green Sandstone (53.4 - hole making 50 to 100 GPM)	
54.3	55.8	Grey Sandstone	
55.8	124.1	Sandstone	
124.1	127.7	Shaley Coal	
127.7	128.7	Sandstone	
128.7	138.4	Shale	
138.4	139.9	Sandstone	
139.9	140.8	Shale	
140.8	142.1	Shaley Sandstone	
142.1	143.5	Sandstone	
143.5	146.3	Conglomerate	
		T.D. 146.3 m	

Hudbay Coal Company

DAILY REPORT - ROTARY RIGS

- 31

DATE: 79-06-15 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7901	0	95	2.0				
TOTAL FEET	95		2.0				2.0

DELAY HOURS 20 ft. casing

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY						
CHARGEABLE HOURS	1.0	2.0		1.0				3.0		7.0	0					
NON-CHARGEABLE HOURS	1.0	1.0			1.0					3.0	0					
AUXILIARY EQUIPMENT (SPECIFY) 75 feet at 7.50/ft.										HRS.						
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 6.0 hrs at 135.00/hr										7.0 HRS.						
IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0 hr OFF JOB @ 40.00/hr										HRS.						
MISCELLANEOUS: TIME PERSONNEL										HRS.						
REPAIRS (SPECIFY - TYPE, UNITS, TIME)					PICKUP		WATER UNIT			RIG			TOTAL REPAIR HRS.			
					OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME		TRACKS-WHEELS	ENGINE	OTHER
TOTAL HOURS: 12.0																
DRILL BITS			FUEL	1	2	3	MATERIALS				PARTS					
MAKE			GALS				BRAN				UNIT					
TYPE			OIL				MUD				MAKE					
SIZE			TRANS-DIFF				GEL				SIZE					
SERIAL NO.			HYDRAULIC				CASING (FT.) 20 ft				SERIAL NO.					
FOOTAGE			MISC.				STEM				REASON					

(1) Field Office (2) Head Office Geology (3) Head Office Engineering (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-16 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____

LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____

FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7902	24	242	4.0				
TOTAL FEET	218		4.0				4.0

DELAY HOURS 24 ft casing

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0			4.5						5	5
NON-CHARGEABLE HOURS	1.0									1	0

AUXILIARY EQUIPMENT (SPECIFY) 218 ft at 7.50/ft HRS.

TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 4.5 hrs at 135.00/hr 4.5 HRS.

IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0 hrs OFF JOB HRS.

MISCELLANEOUS: TIME PERSONNEL @ 40.00/hr HRS.

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP				WATER UNIT				RIG				TOTAL REPAIR HRS.					
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS	ENGINE	OTHER	KELLY		DRILL PUMP	TRACK-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE
Repair hydraulics																		3.5
TOTAL HOURS: 14.0																		

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT 1 drive shoe		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.) 24.0 ft			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-17 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE _____ YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7902	242	402	7.0				
TOTAL FEET	160		7.0				7.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER SERVICE	TOTAL DELAY						
CHARGEABLE HOURS	1.0							1.0		2	0					
NON-CHARGEABLE HOURS	1.0				2.5				.5	4	0					
AUXILIARY EQUIPMENT (SPECIFY) <u>160 ft at 7.50/ft</u>											HRS.					
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) <u>1.0 hrs at 135.00/hr</u>										2.0	HRS.					
IDLE TIME (SPECIFY) <u>WEATHER</u> <u>PERSONNEL 1.0 hrs OFF JOB</u>											HRS.					
MISCELLANEOUS: TIME PERSONNEL <u>@ 40.00/hr</u>											HRS.					
REPAIRS (SPECIFY - TYPE, UNITS, TIME)				PICKUP		WATER UNIT		RIG			TOTAL REPAIR HRS.					
				OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF			BODY FRAME	TRACES-WHEELS	ENGINE	OTHER
										TOTAL HOURS:	13.0					

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL fom - 2.5 gals.			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.)			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-18 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7902	402	483	8.0				
TOTAL FEET	81		8.0				8.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY						
CHARGEABLE HOURS	1.0					2.0		3.0		6	0					
NON-CHARGEABLE HOURS	1.0				1.5					2	5					
AUXILIARY EQUIPMENT (SPECIFY) 81 ft at 7.50/ft										HRS.						
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 5.0 hrs at 135.00/hr										6.0 HRS.						
IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0 hrs OFF JOB @ 40.00/hr										HRS.						
MISCELLANEOUS: TIME PERSONNEL										HRS.						
REPAIRS (SPECIFY - TYPE, UNITS, TIME)				PICKUP			WATER UNIT			RIG			TOTAL REPAIR HRS.			
				OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS		ENGINE	OTHER	KELLY
										TOTAL HOURS: 16.5						

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS	
MAKE			GALS				BRAN			UNIT	
TYPE			OIL				MUD			MAKE	
SIZE			TRANS-DIFF				GEL foam - 5 gals			SIZE	
SERIAL NO.			HYDRAULIC				CASING (FT.)			SERIAL NO.	
FOOTAGE			MISC.				STEM			REASON	

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 1979-06-19 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7903	0	265	6.0				
TOTAL FEET	265		6.0				6.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY						
CHARGEABLE HOURS	1.0	1.5		1.5						4	0					
NON-CHARGEABLE HOURS	1.0	1.0								2	0					
AUXILIARY EQUIPMENT (SPECIFY) 265 ft at 7.50/ft										HRS.						
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 3.0 hrs at 135.00/hr										4.0 HRS.						
IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0 hrs OFF JOB										HRS.						
MISCELLANEOUS: TIME PERSONNEL @ 40.00/hr										HRS.						
REPAIRS (SPECIFY - TYPE, UNITS, TIME)					PICKUP		WATER UNIT			RIG			TOTAL REPAIR HRS.			
					OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME		TRACKS-WHEELS	ENGINE	OTHER
TOTAL HOURS: 12.0																
DRILL BITS			FUEL	1	2	3	MATERIALS				PARTS					
MAKE			GALS				BRAN				UNIT					
TYPE			OIL				MUD				MAKE					
SIZE			TRANS-DIFF				GEL				SIZE					
SERIAL NO.			HYDRAULIC				CASING (FT.) 13.0				SERIAL NO.					
FOOTAGE			MISC.				STEM				REASON					

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering, (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-20 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7903	265	365	4.0				
TOTAL FEET	100		4.0				4.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0	2.0		.5				1.0		4	5
NON-CHARGEABLE HOURS	1.0	1.0			2.0					4	0

AUXILIARY EQUIPMENT (SPECIFY) 100 ft at 7.50/ft HRS.

TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 3.5 hrs at 135.00/hr 4.5 HRS.

IDLE TIME (SPECIFY) WEATHER _____ PERSONNEL 1.0 hrs OFF JOB HRS.

MISCELLANEOUS TIME PERSONNEL @ 40.00/hr HRS.

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP				WATER UNIT				RIG				TOTAL REPAIR HRS.					
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS	ENGINE	OTHER	KELLY		DRILL PUMP	TRACK-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE
TOTAL HOURS: 12.5																		

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.)			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-21 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7904	74	85	.5				
TOTAL FEET	14.0		.5				.5

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	Travel to tow OTHER to pick up Casing	TOTAL DELAY
CHARGEABLE HOURS	1.0			5.5						6.5
NON-CHARGEABLE HOURS	1.0				1.0				3.5	5.5

AUXILIARY EQUIPMENT (SPECIFY)	11 ft at 7.50/ft									HRS.	
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY)	5.5 hrs at 135.00/hr									6.5 HRS.	
IDLE TIME (SPECIFY)	WEATHER		PERSONNEL 1.0 hrs OFF JOB								HRS.
MISCELLANEOUS: TIME PERSONNEL	@ 40.00/hr									HRS.	

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP				WATER UNIT				RIG				TOTAL REPAIR HRS.					
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS	ENGINE	OTHER	KELLY		DRILL PUMP	TRACK-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE
																	TOTAL HOURS: 12.5	

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT	Drive Shoe	
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.) 76.5			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-22 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7904	85	234	6.5				
TOTAL FEET	149		6.5				6.5

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY						
CHARGEABLE HOURS	1.0							1.0		2	0					
NON-CHARGEABLE HOURS	1.0				4.0					5	0					
AUXILIARY EQUIPMENT (SPECIFY) <u>149 ft at 7.50/ft</u>										HRS.						
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) <u>1.0 hrs at 135/hr</u>										2.0 HRS.						
IDLE TIME (SPECIFY) <u>WEATHER</u> <u>PERSONNEL 1.0 hrs @ 40.00/hr</u> <u>OFF JOB</u>										HRS.						
MISCELLANEOUS: TIME PERSONNEL										HRS.						
REPAIRS (SPECIFY - TYPE, UNITS, TIME)				PICKUP			WATER UNIT			RIG			TOTAL REPAIR HRS.			
				OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS		ENGINE	OTHER	KELLY
										TOTAL HOURS: 13.5						

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.)			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-23 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7905	13	345	6.0				
TOTAL FEET	332		6.0				6.0

DELAY HOURS 13 ft casing

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0	2.0		1.0						4	0
NON-CHARGEABLE HOURS	1.0	1.0								2	0

AUXILIARY EQUIPMENT (SPECIFY)	332 ft at 7.50/hr										HRS.	
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY)	3.0 hrs at 135.00/hr										4.0	HRS.
IDLE TIME (SPECIFY)	WEATHER		PERSONNEL 1.0 hrs OFF JOB									HRS.
											@ 40.00/hr	HRS.
MISCELLANEOUS: TIME PERSONNEL											HRS.	

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP				WATER UNIT				RIG				TOTAL REPAIR HRS.					
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS	ENGINE	OTHER	KELLY		DRILL PUMP	TRACK-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE
																	TOTAL HOURS: 12.0	

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.) 13.0 ft			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering, (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-24 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7905	345	486	5.0				
TOTAL FEET	141		5.0				5.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER Start up	TOTAL DELAY						
CHARGEABLE HOURS	1.0							1.5		2	5					
NON-CHARGEABLE HOURS	1.0	1.0			2.0				1.0	5	0					
AUXILIARY EQUIPMENT (SPECIFY) 141 ft at 7.50/ft										HRS.						
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 1.5 hrs at 135.00/hr										HRS.						
IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0-hrs OFF JOB										HRS.						
MISCELLANEOUS: TIME PERSONNEL @ 40.00/hr										HRS.						
REPAIRS (SPECIFY - TYPE, UNITS, TIME)					PICKUP		WATER UNIT			RIG			TOTAL REPAIR HRS.			
					OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME		TRACES-WHEELS	ENGINE	OTHER
TOTAL HOURS: 12.5																
DRILL BITS			FUEL	1	2	3	MATERIALS					PARTS				
MAKE			GALS				BRAN					UNIT				
TYPE			OIL				MUD					MAKE				
SIZE			TRANS-DIFF				XCEL 10 gals foam					SIZE				
SERIAL NO.			HYDRAULIC				CASING (FT.)					SERIAL NO.				
FOOTAGE			MISC.				STEM					REASON				

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering, (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-25 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____

LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____

FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7906	20	405	9.0				
TOTAL FEET	385		9.0				9.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY						
CHARGEABLE HOURS	1.0			2.0						3	0					
NON-CHARGEABLE HOURS	1.0									1	0					
AUXILIARY EQUIPMENT (SPECIFY) <u>385 ft at 7.50/ft</u>										HRS.						
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) <u>2.0 hrs at 135.00/hr</u>										14.0 HRS.						
IDLE TIME (SPECIFY) <u>WEATHER</u> <u>PERSONNEL 1.0 hrs OFF JOB @ 40.00/hr</u>										HRS.						
MISCELLANEOUS: TIME PERSONNEL										HRS.						
REPAIRS (SPECIFY - TYPE, UNITS, TIME)					PICKUP		WATER UNIT			RIG			TOTAL REPAIR HRS.			
					OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME		TRACKS-WHEELS	ENGINE	OTHER
										TOTAL HOURS: 14.0						

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.) <u>20 ft</u>			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-26 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7906	405	515	4.0				
TOTAL FEET	110		4.0				4.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0			1.5				2.0		4	5
NON-CHARGEABLE HOURS	1.0	1.0			1.5					3	5

AUXILIARY EQUIPMENT (SPECIFY) 110 ft at 7.50/ft HRS.

TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 3.5 hrs at 135.00/hr HRS.

IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0 hrs OFF JOB HRS.

MISCELLANEOUS: TIME PERSONNEL @ 40.00/hr HRS.

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP					WATER UNIT					RIG					TOTAL REPAIR HRS.		
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS	ENGINE	OTHER	KELLY	DRILL PUMP	TRACK-WHEELS	BODY FRAME		TRANS-DIFF	ENGINE
TOTAL HOURS: 12.0																		

DRILL BITS				FUEL	1	2	3	MATERIALS				PARTS			
MAKE				GALS				BRAN				UNIT			
TYPE				OIL				MUD				MAKE			
SIZE				TRANS-DIFF				GEL				SIZE			
SERIAL NO.				HYDRAULIC				CASING (FT.)				SERIAL NO.			
FOOTAGE				MISC.				STEM				REASON			

(1) Field Office. (2) Head Office Geology. (3) Head Office Engineering. (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-27 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7907	65	85	.5				
TOTAL FEET	20		.5				.5

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	Pick up OTHER Pipe	TOTAL DELAY						
CHARGEABLE HOURS	1.0			5.5						6	5					
NON-CHARGEABLE HOURS	1.0				1.0				1.5	3	5					
AUXILIARY EQUIPMENT (SPECIFY)									20 ft at 7.50/ft		7 0 HRS.					
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY)									5.5 hrs at 135.00/hr		HRS.					
IDLE TIME (SPECIFY)			WEATHER			PERSONNEL 1.0 hrs OFF JOB				HRS.						
MISCELLANEOUS: TIME PERSONNEL									@ 40.00/hr		HRS.					
REPAIRS (SPECIFY - TYPE, UNITS, TIME)				PICKUP		WATER UNIT		RIG			TOTAL REPAIR HRS.					
				OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF		BODY FRAME	TRACES-WHEELS	ENGINE	OTHER	KELLY
										TOTAL HOURS: 10.5						

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.)	65.0		SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering, (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-28 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7908	68	205	2.5				
TOTAL FEET	137		2.5				2.5

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY						
CHARGEABLE HOURS	1.0			6.0				.5		7	5					
NON-CHARGEABLE HOURS	1.0	1.0			1.5					3	5					
AUXILIARY EQUIPMENT (SPECIFY)										137 ft at 7.50/ft		HRS.				
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY)										6.5 hrs at 135.00/hr		7.5 HRS.				
IDLE TIME (SPECIFY)										PERSONNEL 1.0 hrs OFF JOB @ 40.00/hr		HRS.				
MISCELLANEOUS: TIME PERSONNEL												HRS.				
REPAIRS (SPECIFY - TYPE, UNITS, TIME)					PICKUP			WATER UNIT			RIG			TOTAL REPAIR HRS.		
					OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS		ENGINE	OTHER
													TOTAL HOURS: 13.5			

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT Drive shoe		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.) 68.0			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-29 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7909							
TOTAL FEET							

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0	5.0								6	0
NON-CHARGEABLE HOURS	1.0	1.0								2	0

AUXILIARY EQUIPMENT (SPECIFY) _____ HRS.
 TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 5.0 hrs at 135.00/hr **6.0 HRS.**
 IDLE TIME (SPECIFY) WEATHER _____ PERSONNEL 1.0 hrs OFF JOB HRS.
 MISCELLANEOUS: TIME PERSONNEL @ 40.00/hr HRS.

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP				WATER UNIT				RIG				TOTAL REPAIR HRS.					
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACES-WHEELS	ENGINE	OTHER	KELLY		DRILL PUMP	TRACK-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.)			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

(1) Field Office. (2) Head Office Geology. (3) Head Office Engineering. (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-06-30 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7909	22	320	6.5				
TOTAL FEET	298		6.5				6.5

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0			3.5						4	5
NON-CHARGEABLE HOURS	1.0									1	0

AUXILIARY EQUIPMENT (SPECIFY) 298 ft at 7.50/ft HRS.

TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 3.5 hrs at 135.00/hr 4.5 HRS.

IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0 hrs OFF JOB HRS.

MISCELLANEOUS: TIME PERSONNEL @ 40.00/hr HRS.

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP					WATER UNIT					RIG					TOTAL REPAIR HRS.		
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACES-WHEELS	ENGINE	OTHER	KELLY	DRILL PUMP	TRACK-WHEELS	BODY FRAME		TRANS-DIFF	ENGINE
TOTAL HOURS: 12.0																		

DRILL BITS				FUEL	1	2	3	MATERIALS				PARTS			
MAKE				GALS				BRAN				UNIT 1 drive shoe			
TYPE				OIL				MUD				MAKE			
SIZE				TRANS-DIFF				GEL				SIZE			
SERIAL NO.				HYDRAULIC				CASING (FT.) 25				SERIAL NO.			
FOOTAGE				MISC.				STEM				REASON			

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering, (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-07-01 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7909	320	485	6.0				
TOTAL FEET	165		6.0				6.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0	1.0						1.0		3	0
NON-CHARGEABLE HOURS	1.0	1.0			2.0					4	0

AUXILIARY EQUIPMENT (SPECIFY)	165 ft at 7.50/ft										HRS.	
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY)	2.0 hrs at 135.00/hr										3.0 HRS.	
IDLE TIME (SPECIFY)	WEATHER		PERSONNEL 1.0 hrs OFF JOB									HRS.
MISCELLANEOUS: TIME PERSONNEL	@ 40.00/hr										HRS.	

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP					WATER UNIT					RIG					TOTAL REPAIR HRS.		
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS	ENGINE	OTHER	KELLY	DRILL PUMP	TRACK-WHEELS	BODY FRAME		TRANS-DIFF	ENGINE
																		TOTAL HOURS: 13.0

DRILL BITS				FUEL	1	2	3	MATERIALS				PARTS			
MAKE				GALS				BRAN				UNIT			
TYPE				OIL				MUD				MAKE			
SIZE				TRANS-DIFF				GEL 5 gals foam				SIZE			
SERIAL NO.				HYDRAULIC				CASING (FT.)				SERIAL NO.			
FOOTAGE				MISC.				STEM				REASON			

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering, (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-07-03 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE _____ YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7910	90	365	8.5				
TOTAL FEET	275		8.5				8.5

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0									1	0
NON-CHARGEABLE HOURS	1.0				1.5					2	5

AUXILIARY EQUIPMENT (SPECIFY) 275 ft at 7.50/ft HRS.

TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 1 hr at 40.00/hr 1.0 HRS.

IDLE TIME (SPECIFY) WEATHER PERSONNEL OFF JOB HRS.

MISCELLANEOUS: TIME PERSONNEL HRS.

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP			WATER UNIT			RIG				TOTAL REPAIR HRS.							
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS	ENGINE		OTHER	KELLY	DRILL PUMP	TRACK-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE
Mounting Injector Pump																		1.0
TOTAL HOURS: 13.0																		

DRILL BITS				FUEL	1	2	3	MATERIALS				PARTS			
MAKE				GALS				BRAN				UNIT			
TYPE				OIL				MUD				MAKE			
SIZE				TRANS-DIFF				GEL foam - 2 gals				SIZE			
SERIAL NO.				HYDRAULIC				CASING (FT.)				SERIAL NO.			
FOOTAGE				MISC.				STEM				REASON			

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-07-04 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING _____ CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7910	365	505	5.0				
ARR-7911	0	12	.5				
TOTAL FEET	140		5.5				5.5

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0							1.5		2	5
NON-CHARGEABLE HOURS	1.0	1.0			1.5					4	0

AUXILIARY EQUIPMENT (SPECIFY) 140 ft at 7.50/ft HRS.

TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 1.5 at 135.00/hr 2.5 HRS.

IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0 hrs OFF JOB HRS.
@ 40.00/hr

MISCELLANEOUS: TIME PERSONNEL HRS.

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP				WATER UNIT				RIG				TOTAL REPAIR HRS.					
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACES-WHEELS	ENGINE	OTHER	KELLY		DRILL PUMP	TRACK-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE
TOTAL HOURS: 11.5																		

DRILL BITS			FUEL	1	2	3	MATERIALS				PARTS	
MAKE			GALS				BRAN				UNIT	
TYPE			OIL				MUD				MAKE	
SIZE			TRANS-DIFF				GEL foam - 2 gals				SIZE	
SERIAL NO.			HYDRAULIC				CASING (FT.)				SERIAL NO.	
FOOTAGE			MISC.				STEM				REASON	

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-07-05 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7911	120	130	1.0				
TOTAL FEET	10		1.0				1.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY						
CHARGEABLE HOURS	1.0			9.5						10	5					
NON-CHARGEABLE HOURS	1.0				.5					1	5					
AUXILIARY EQUIPMENT (SPECIFY)										10 ft at 7.50/ft		HRS.				
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY)							9.5 hrs at 135.00/hr			10.5		HRS.				
IDLE TIME (SPECIFY)			WEATHER		PERSONNEL 1.0 hrs OFF JOB							HRS.				
										@ 40.00/hr		HRS.				
MISCELLANEOUS: TIME PERSONNEL												HRS.				
REPAIRS (SPECIFY - TYPE, UNITS, TIME)					PICKUP		WATER UNIT			RIG			TOTAL REPAIR HRS.			
					OTHER	TRACKS--WHEELS	BODY FRAME	TRANS--DIFF	ENGINE	OTHER	TRANS--DIFF	BODY FRAME		TRACES--WHEELS	ENGINE	OTHER
												TOTAL HOURS: 13.0				

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS	
MAKE			GALS				BRAN			UNIT	Drive shoe
TYPE			OIL				MUD			MAKE	
SIZE			TRANS--DIFF				GEL			SIZE	
SERIAL NO.			HYDRAULIC				CASING (FT.)	123.0		SERIAL NO.	
FOOTAGE			MISC.				STEM			REASON	

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-07-06 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE _____ YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7911	130	168	2.0				
TOTAL FEET	38		2.0				2.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0	1.0		6.0						8	0
NON-CHARGEABLE HOURS	1.0	1.0			1.0					3	0

AUXILIARY EQUIPMENT (SPECIFY) 38 ft at 7.50/ft HRS.

TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 7.0 hrs at 135.00/hr 8.0 HRS.

IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0 hrs OFF JOB HRS.

MISCELLANEOUS: TIME PERSONNEL @ 40.00/hr HRS.

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP					WATER UNIT				RIG				TOTAL REPAIR HRS.			
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACES-WHEELS	ENGINE	OTHER	KELLY	DRILL PUMP		TRACK-WHEELS	BODY FRAME	TRANS-DIFF
Repair hammer																	1.0
TOTAL HOURS: 14.0																	

DRILL BITS				FUEL	1	2	3	MATERIALS				PARTS			
MAKE				GALS				BRAN				UNIT			
TYPE				OIL				MUD				MAKE			
SIZE				TRANS-DIFF				GEL 5 gals foam				SIZE			
SERIAL NO.				HYDRAULIC				CASING (FT.)				SERIAL NO.			
FOOTAGE				MISC.				STEM				REASON			

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-07-07 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7912	68	320	10.5				
TOTAL FEET	252		10.5				10.5

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY	
CHARGEABLE HOURS	1.0					2.0				3	0
NON-CHARGEABLE HOURS	1.0				1.5					2	5

AUXILIARY EQUIPMENT (SPECIFY) 252 ft at 7.50/ft HRS.

TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 2.0 hrs at 135.00/hr 3.0 HRS.

IDLE TIME (SPECIFY) WEATHER PERSONNEL 1.0 hrs OFF JOB HRS.

MISCELLANEOUS: TIME PERSONNEL @ 40.00/hr HRS.

REPAIRS (SPECIFY - TYPE, UNITS, TIME)	PICKUP				WATER UNIT				RIG				TOTAL REPAIR HRS.					
	OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME	TRACKS-WHEELS	ENGINE	OTHER	KELLY		DRILL PUMP	TRACK-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE
TOTAL HOURS: 16																		

DRILL BITS				FUEL	1	2	3	MATERIALS				PARTS			
MAKE				GALS				BRAN				UNIT Drive shoe			
TYPE				OIL				MUD				MAKE			
SIZE				TRANS-DIFF				GEL 5 gals foam				SIZE			
SERIAL NO.				HYDRAULIC				CASING (FT.) 75 ft				SERIAL NO.			
FOOTAGE				MISC.				STEM				REASON			

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering, (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-07-08 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE CPN YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING _____ PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7912	320	480	8.0				
TOTAL FEET	160		8.0				8.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY						
CHARGEABLE HOURS	1.0	1.5						2.0		4	5					
NON-CHARGEABLE HOURS	1.0	1.0			1.5					3	5					
AUXILIARY EQUIPMENT (SPECIFY)									160 ft at 7.50/ft		HRS.					
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY)									3.5 hrs at 135.00/hr		4.5 HRS.					
IDLE TIME (SPECIFY)			WEATHER			PERSONNEL			1.0 hrs OFF JOB		HRS.					
MISCELLANEOUS: TIME PERSONNEL									@ 40.00/hr		HRS.					
REPAIRS (SPECIFY - TYPE, UNITS, TIME)					PICKUP		WATER UNIT			RIG			TOTAL REPAIR HRS.			
					OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME		TRACES-WHEELS	ENGINE	OTHER
											TOTAL HOURS: 16.0					
DRILL BITS			FUEL	1	2	3	MATERIALS				PARTS					
MAKE			GALS				BRAN				UNIT					
TYPE			OIL				MUD				MAKE					
SIZE			TRANS-DIFF				GEL				SIZE					
SERIAL NO.			HYDRAULIC				CASING (FT.)				SERIAL NO.					
FOOTAGE			MISC.				STEM				REASON					

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering, (4) Contractor

Hudbay Coal Company DAILY REPORT - ROTARY RIGS

DATE: 79-08-09 DRILLER Jim Ross DRILL COMPANY Ken's Drilling DRILL NO. _____
 LOCATION Ash River HELPER Dale Smith DRILL TYPE _____ YEAR MODEL _____ WATER TRUCK NO. _____
 FLUID TYPE DRILLING Air CORING Air PICKUP NO. _____

HOLE NO.	DRILLING FEET		HOURS	CORING FEET		HOURS	TOTAL HOURS DRILLING
	FROM	TO		FROM	TO		
ARR-7913	12	55	1.0	36.0	39.5	1.0	
ARR-7914	13	36	.5				
	39.5	50	.5				
TOTAL FEET	76.5		2.0	3.5		1.0	3.0

DELAY HOURS

CLASS	TRAVEL	MOVING SETUP	WATER	CASING	TRIPPING	REAMING	MUDDING	LOGGING	OTHER	TOTAL DELAY						
CHARGEABLE HOURS	1.0			3.0						4	0					
NON-CHARGEABLE HOURS	1.0				1.0					2	0					
AUXILIARY EQUIPMENT (SPECIFY) 76.5 ft at 7.50/ft										HRS.						
TOTAL CONTRACT HOURS CHARGEABLE (CONTRACT RIGS ONLY) 1.0 hrs coring at 35.00/hr										5.0 HRS.						
IDLE TIME (SPECIFY) WEATHER PERSONNEL 3.0 hrs OFF JOB @ 135.00/hr										HRS.						
MISCELLANEOUS: TIME PERSONNEL 1.0 hrs at 40.00/hr										HRS.						
REPAIRS (SPECIFY - TYPE, UNITS, TIME)					PICKUP		WATER UNIT			RIG			TOTAL REPAIR HRS.			
					OTHER	TRACKS-WHEELS	BODY FRAME	TRANS-DIFF	ENGINE	OTHER	TRANS-DIFF	BODY FRAME		TRACES-WHEELS	ENGINE	OTHER
												TOTAL HOURS: 9.0				

DRILL BITS			FUEL	1	2	3	MATERIALS			PARTS		
MAKE			GALS				BRAN			UNIT		
TYPE			OIL				MUD			MAKE		
SIZE			TRANS-DIFF				GEL			SIZE		
SERIAL NO.			HYDRAULIC				CASING (FT.) 35.0			SERIAL NO.		
FOOTAGE			MISC.				STEM			REASON		

(1) Field Office, (2) Head Office Geology, (3) Head Office Engineering, (4) Contractor

7.0 MAPS

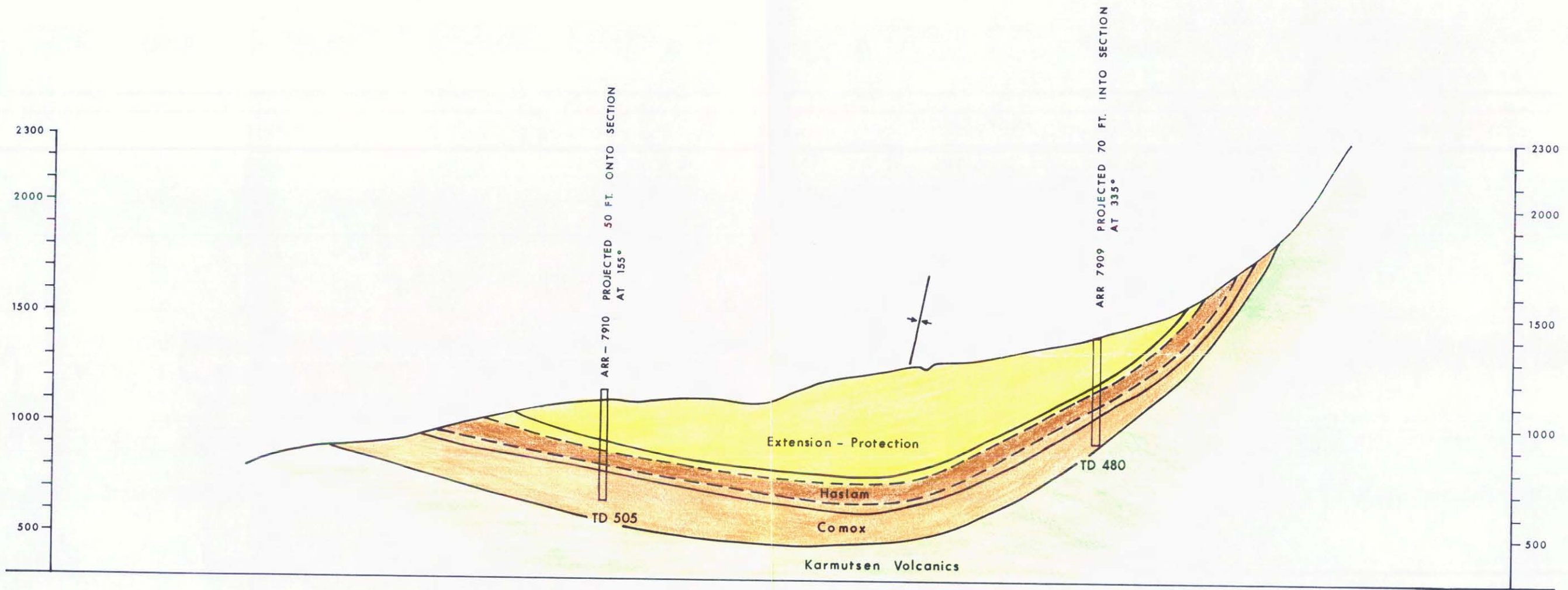
Structural Profiles	A-A ¹	HC 2136S
	B-B ¹	HC 2137S
Location and Accessibility	1:50,000	HC 1869-L40
Geology Map	1:20,000	HC 450 (a)
Correlation Chart	1:500	HC 2374-L32
Geophysical Logs Microfiche		
	- Gamma Neutron Series	AAR 7901-14C
	- Density Series	AAR 7902-12

Completed full scale Gamma-Neutron and Gamma Density Logs 1:100

AAR 7901	Gamma Ray Sidewall Densilog	HC 2348-L47
AAR 7902	Gamma Ray Neutron Log	HC 2349-L47
AAR 7903	Gamma Ray Neutron Log	HC 2350-L47
AAR 7904	Gamma Ray Neutron Log	HC 2351-L47
AAR 7905	Gamma Ray Neutron Log	HC 2352-L47
AAR 7906	Gamma Ray Neutron Log	HC 2353-L47
AAR 7907	Hole Abandoned	
AAR 7908	Gamma Ray Neutron Log	HC 2354-L47
AAR 7909	Gamma Ray Neutron Log	HC 2355-L47
AAR 7910	Gamma Ray Neutron Log	HC 2356-L47
AAR 7911	Gamma Ray Neutron Log	HC 2357-L47
AAR 7912	Gamma Ray Neutron Log	HC 2358-L47
AAR 7913	Gamma Ray Sidewall Densilog	HC 2359-L47
AAR 7914C	Gamma Ray Sidewall Densilog	HC 2360-L47

COMPLETED FULL SCALE SIDEWALL DENSILOGS 1:100 Scale

A.R.R. -7902	HC2338 L45
A.R.R. -7903	HC2339 L45
A.R.R. -7904	HC2347 L45
A.R.R. -7905	HC2340 L45
A.R.R. -7906	HC2341 L45
A.R.R. -7908	HC2346 L45
A.R.R. -7909	HC2344 L45
A.R.R. -7910	HC2342 L45
A.R.R. -7911	HC2345 L45
A.R.R. -7912	HC2343 L45



LEGEND

- EXTENSION - PROTECTION FORMATION
- HASLAM FORMATION
- COMOX FORMATION
- KARMUTSEN VOLCANICS
- PROJECTED FORMATION CONTACT
- MARKER HORIZON
- SYNCLINE

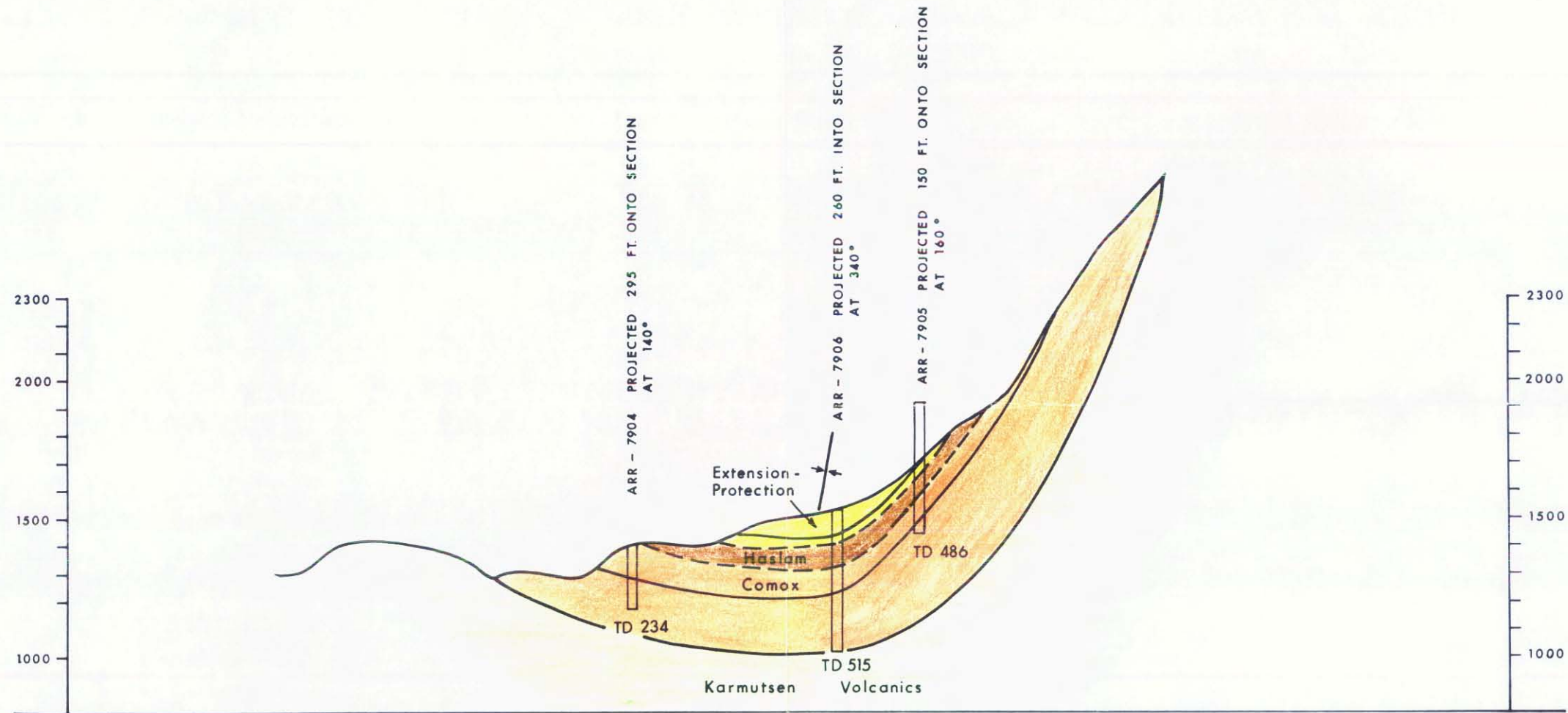
GEN - VAN. ISL. - ASH RIVER 79(1)A

Hudbay Coal Company
 A Division of Hudson's Bay Oil and Gas Company Limited
 CALGARY ALBERTA

ASH RIVER PROJECT
STRUCTURE PROFILE
A - A'

SCALE 1: 20,000 | DWN BY R. J. TALBOT | DATE July 24/79
 APPR BY | FILE # | HC 2136 S

40



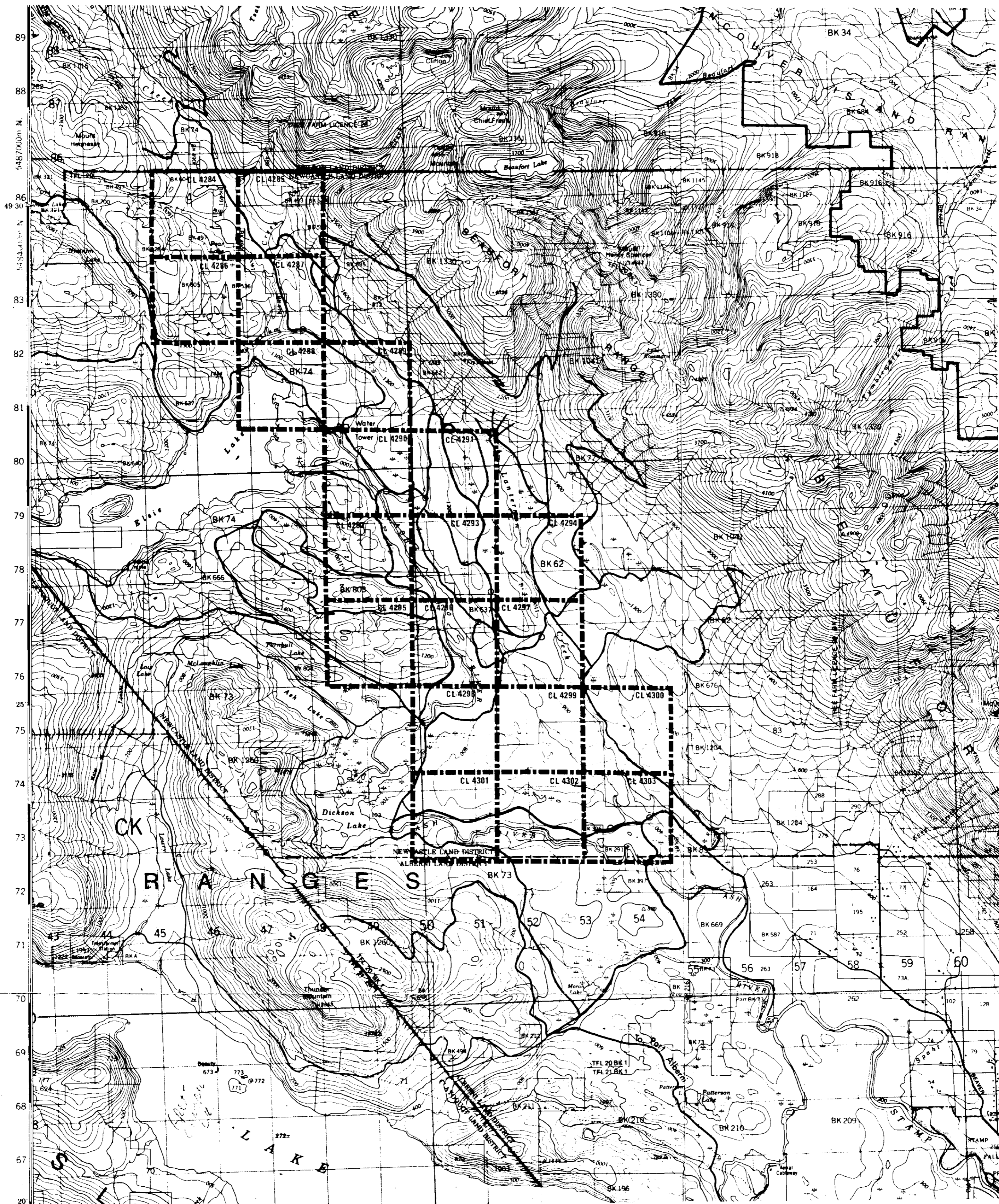
LEGEND

- EXTENSION - PROTECTION FORMATION
- HASLAM FORMATION
- COMOX FORMATION
- KARMUTSEN VOLCANICS
- PROJECTED FORMATION CONTACT
- MARKER HORIZON
- SYNCLINE




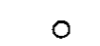
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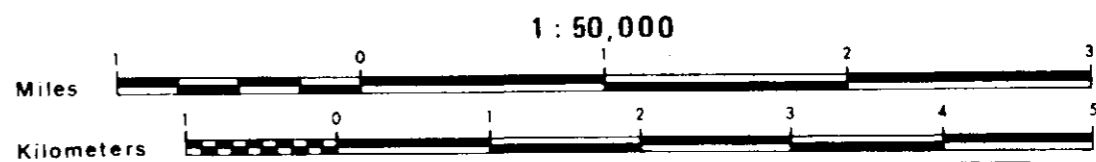
GREEN-VAN. ISL. - ASH RIVER 79(1)A.

Hudbay Coal Company		
A Division of Hudson's Bay Oil and Gas Company Limited		
CALGARY	ALBERTA	
ASH RIVER PROJECT		
STRUCTURE PROFILE		
B - B'		
SCALE 1: 20,000	DRAWN BY R.J. TALBOT	DATE July 24/79
APPR BY	FILE #	HC 2137 S



LEGEND

-  WELDWOOD FREEHOLD
(QUINSAM COAL COMPANY - LUSCAR / WELDWOOD)
-  RAMM VENTURE CORPORATION
-  ALL WEATHER ACCESS
-  PROPOSED DRILL HOLE



Hudbay Coal Company		
A Division of Hudson's Bay Oil and Gas Company Limited		
CALGARY	ALBERTA	
ASH RIVER PROJECT		
ACCESSIBILITY & LEASES & DRILLHOLE LOCATIONS		
SCALE: 1:50,000	OWN BY: R.J. Talbot	DATE: 1978-08
APPR BY:	FILE No.	HC 1869 L40

40 (M2) GRN-VAN. ISL.-ASH RIVER 79 (1)A.