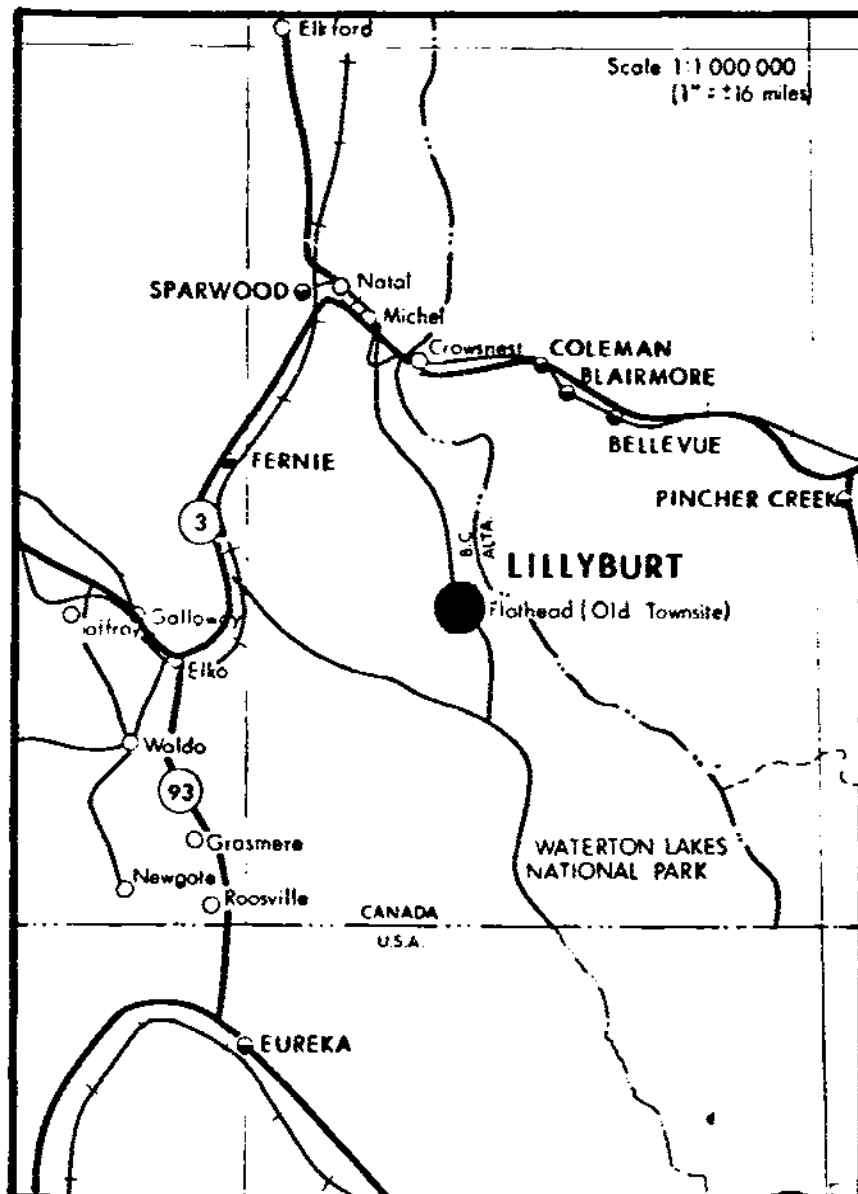


K-SHELL - LILLYBURT T3(0A)

LILLYBURT COAL PROSPECT
C.L. NOS. 4080-4085 W.C.
CONFIDENTIAL
Nov. 3, 1979 By W. M. D'Arcy

405
1 of 3

LILLYBURT COAL PROSPECT



Report on Coal Licenses 4080 to 4089 Inclusive
Kootenay Land District, British Columbia

Held by: Shell Canada Resources Limited
Operated by: Crows Nest Resources Limited

Lat. $114^{\circ}35'30''$ to $114^{\circ}41'30''$; Long. $49^{\circ}20'$ to $49^{\circ}23'30''$

November 3, 1979

GEOLOGICAL BRANCH
ASSESSMENT REPORT

Author:

A. Murray D'Orsay
Geologist
Crows Nest Resources Ltd.

00 405

AA-365

PROFESSIONAL VERIFICATION OF REPORT

Entitled: Lillyburt Coal Project
Kootenay Land District, B.C., 1979
B.C. Coal Licenses
No. 4080, 4081, 4082, 4083, 4084, 4085, 4086,
4087, 4088, 4089

Mr. Albert M. D'Orsay planned and carried out the 1979 geological field program on Lillyburt B.C. Coal Licenses held by Shell Canada Resources Ltd. and operated by Crows Nest Resources Ltd. He also prepared this report. Mr. Frank Martonhegyi supervised the activity of this program under the general direction of the undersigned.

Murray D'Orsay, B.Sc., graduated in Geology from Dalhousie University, in 1979. Prior to his graduation Mr. D'Orsay worked as a field assistant for a major coal mining company in British Columbia and for a government geological survey.

Frank Martonhegyi, M.E., graduated in Mining Geological Engineering from the University of the Heavy Industry, Hungary, in 1962; and received post-graduate training at the University of Saskatchewan, Saskatoon, in 1969-1971. His experience in Western Canadian coal exploration since 1971 includes positions with:

- CanPac Minerals Ltd., Calgary, Alberta
- Shell Canada Resources Ltd., Calgary, Alberta
- Crows Nest Resources Ltd., Calgary, Alberta

His prior experience includes underground coal mining geology, geotechnical engineering and geochemistry in Hungary, Austria and Canada.

He currently holds the position of Senior Staff Geologist for Crows Nest Resources Ltd. supervising coal exploration in British Columbia.

I consider both the aforementioned geologists to be well qualified to undertake responsibilities they were assigned on this project. I am satisfied that the attached report dated Nov. 3, 1979 has been competently prepared and justly represents the information obtained from this project.

J. J. Crabb, P. Eng.

ACKNOWLEDGEMENT

The assistance of Linda Anderson is very much appreciated in the compilation of this report. Many thanks are extend to Frank Martonhegyi for his constructive criticism of the text of the report.

In the field, assistance with geological mapping was received from Ms. H. Schwab and Mr. Robert MacDougall.

Lillyburt Coal Prospect
 Geological Report on Reconnaissance
 Field Work Performed in 1978-1979
 (Work in Period of June 14, 1979 to August 3, 1979)

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SUMMARY

The Lillyburt Coal Prospect Project, covering some 2459 hectares, encompasses coal licences 4080 to 4089 inclusive. These licences have been held by Shell Canada Resources Limited since 1978; Crows Nest Resources Limited, a Shell Canada Resources Limited subsidiary, is the operator of the licences; Crows Nest Resources Limited executed an exploration program during the summer of 1979. Three rotary holes were drilled, three coal seams were sampled. In addition, three backhoe trenches were excavated to expose coal outcrop.

Interpretation of the exploration data indicates that the coal bearing member of the Kootenay Formation is approximately 160 metres thick and contains ten coal seams. Two seams have thicknesses greater than 2.0 metres, 8 seams have thicknesses less than 2.0 metres.

The dip of the strata in the project area ranges from low in the south portion of the prospect (17° - 25°) to high in the northern portion of the prospect (60° - 75°). Alluvial debris and glacial overburden permits only sparse outcrop exposure; all but one of the measured coal outcrops are covered by overburden.

Outcrop sampling of the coal seams indicates that the seams are medium volatile bituminous coals; coal sample obtained by rotary drilling had not been analyzed at the time of the compilation of this

report, these analyses will be included in the report of the following term.

The total 1979 exploration expenditure as of August 4, 1979 was \$74,372.

Lillyburt Coal Prospect
Geological Report on
Field Work Done in 1978-1979

LOCATION
(Attachment No. 7)

NTS 82-G/7

The Lillyburt Coal Prospect is located in and near the Flathead River Valley in the Rocky Mountains, Southeastern British Columbia.

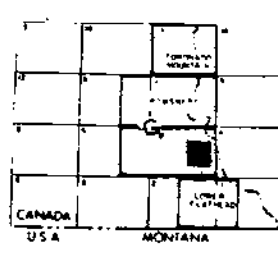
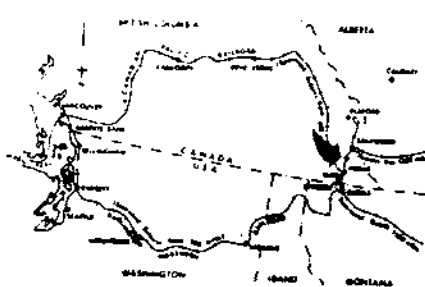
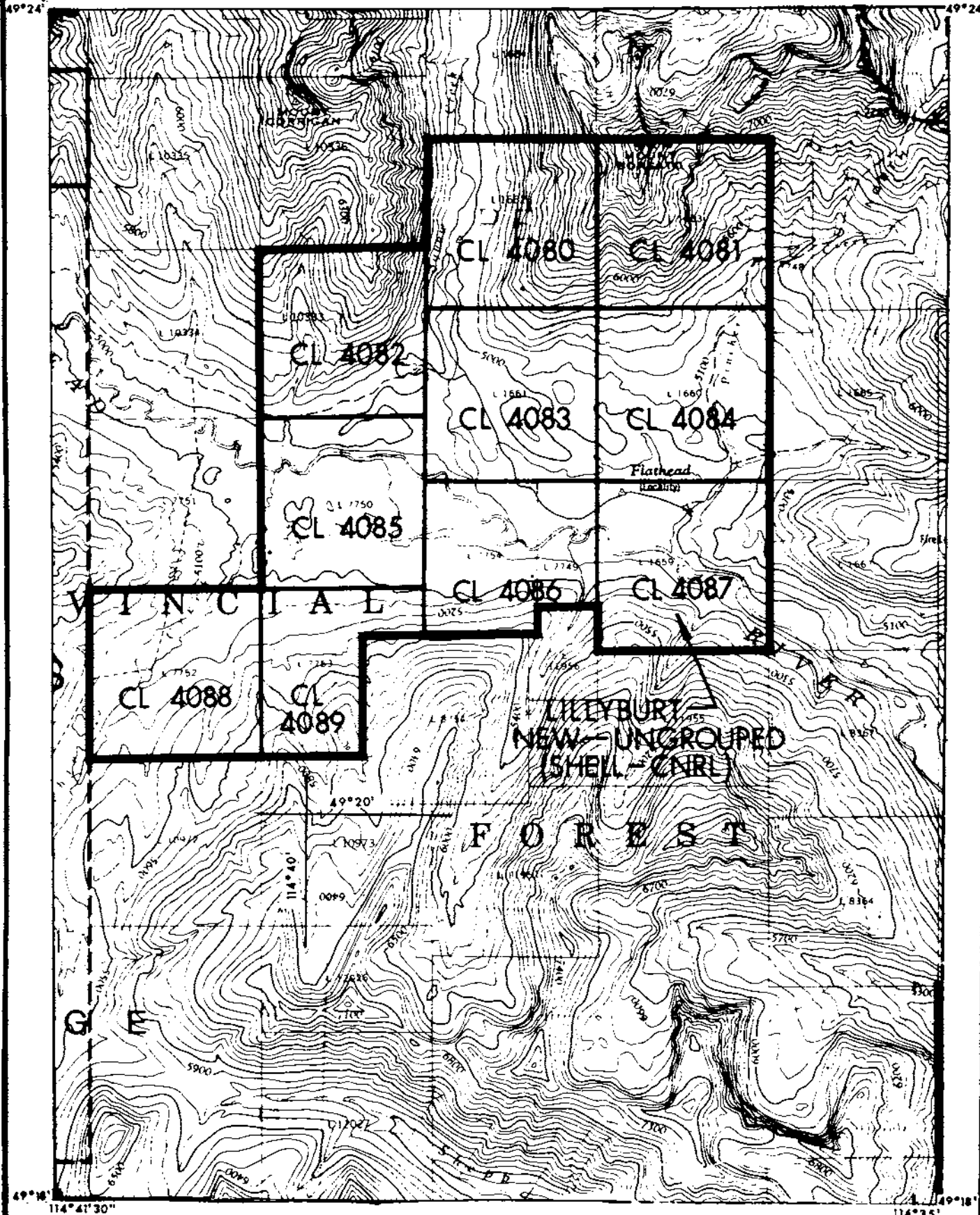
A number of small mines operated in the prospect area at the beginning of the 20th century. The community of Flathead used to be located on the area of the present licenses in the Upper Flathead River Valley.

TENURE
(Attachment No. 2)

The Lillyburt Coal Prospect consists of ten B.C. Coal Licences, encompassing 2,479 Hectares.

CL	Lot Number	Area (Ha)
4080	L1662	259
4081	L1663	259
4082	L10333	259
4083	L1661	259
4084	L1660	259

CL	Lot Number	Area (Ha)
4085	L7750	259
4086	L7749 & 7754	220
4087	L1659	259
4088	L7752	259
4089	L7753	187



Crows Nest Resources Limited	
EXPLORATION	
LILLYBURT PROJECT	
Index Map to Coal Licenses	
(Part of 82 G 7)	
AUTHOR M. D'ORSAY	SCALE 1:50000
DATE NOV. 1979	REVISED
ENCLOSURE NO.	DRAWING NO. AA-364

ACCESS

(refer to Attachment No. 7)

This prospect is 40 and 15 kilometres respectively from the nearest railway points at Morrissey Station and the Corbin Mine loop; the port of Vancouver is some 1150 kilometres away. At present the property is accessible from these railway points on forestry roads. Most of the property was logged in the past providing a dense network of roads on the property which were utilized for drilling and backhoe trenching.

WORK DONE

(Attachment No. 12)

In 1978 aerial photography and ground control survey were done on photogrammetric topographic maps which were constructed at a scale of 1:5000 with 5 metre contour intervals. A report of this work is attached in Appendix .

Reconnnaissance geological mapping was initiated in the summer of 1979. The relatively small number of bedrock outcrops limited the thoroughness of the mapping exercise.

Three backhoe trenches and six hand trenches were dug with a total length of 30 metres. Five hundred seventy-one metres of strata was drilled in three rotary drillholes. Drillhole LB-1 was drilled conventionally to a total depth of 201 metres; its azimuth was 160° and was drilled at angle of 30° from vertical. Drillholes LB-2 and LB-3 were drilled vertically with reverse circulation. Cuttings were logged and the coal intersections have been sent for analysis. Results were not available at the time of compilation of this report.

Sites of recent machinery work were surveyed conventionally.

The cost of the 1978-79 exploration program was \$74,372, up to August 4, 1979 (the first anniversary of the licences).

GEOLOGY

The prospect area is a northern outlier of the Flathead Coalfield surrounded by Paleozoic and older rocks.

STRATIGRAPHY (refer to Attachments 9, 10, 11)

Coal at Lillyburt occurs in the Upper Jurassic - Lower Cretaceous Coal Bearing Member of the Kootenay Formation.

No stratigraphic sections exposed on the property or obtained by drilling are complete enough to determine the true stratigraphic position of all the coal seams.

Shales of the Fernie Formation underlying Kootenay strata outcrop on the west end of the property on both sides of the Flathead River. The presence of the basal sandstone of the Kootenay Formation could not be established with certainty, however, sequences exposed in the bottom of the Flathead River may belong to this unit.

A gray, medium to coarse grain sandstone drilled near the base of LB-2 bear characteristics of this basal sandstone. The drillhole intersected 160 metres of, accordingly, Coal Bearing Member of the Kootenay Formation. Above the Coal Bearing Member, some 70 metres of coarse grain sandstone with coal stringers was intersected in this hole; this is believed to be of or equivalent to the Elk Member of the Kootenay Formation (although it is thinner than usual). The upper part of this

succession was intersected in LB-1; this thick unit is overlain by the Cadomin Formation. A regular stratigraphic sequence can be seen at the north end of the property (Stratigraphic Section I). This sequence extends from the Cadomin Formation to the upper part of the Coal Bearing Member of the Kootenay Formation.

STRUCTURE

Mesozoic rock occur in four structural blocks that vary in size from 0.5 to **2.5** square kilometres. These appear to be downfaulted blocks surrounded by Paleozoic and older rock. The four structural blocks are interpreted to be in normal fault contact to each other.

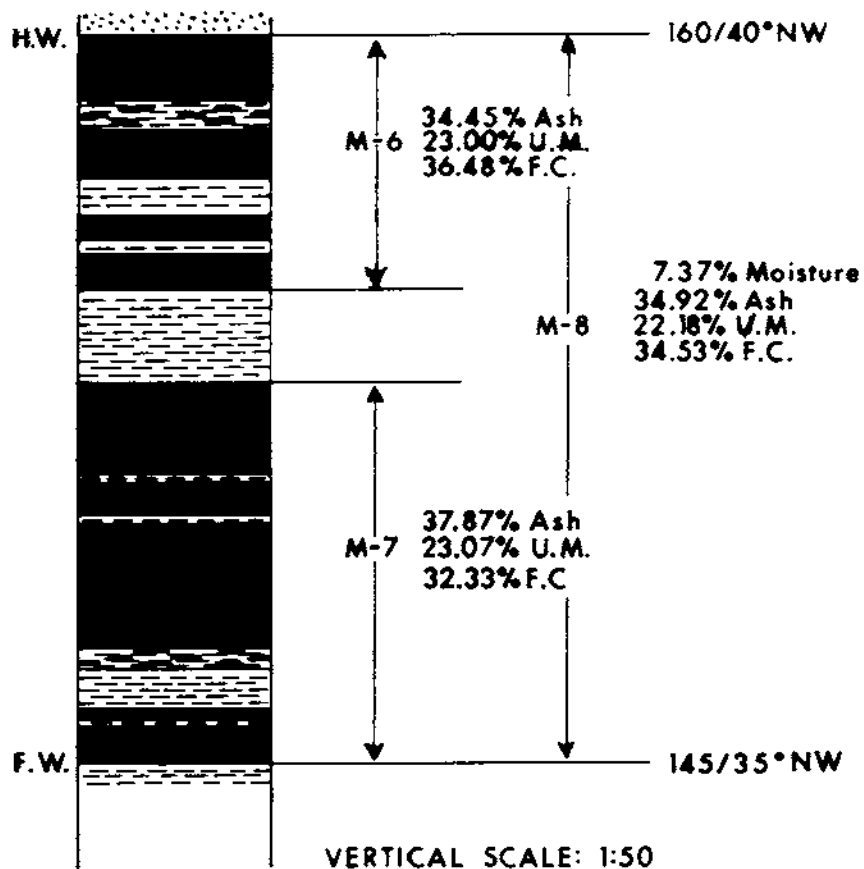
Within the major structural blocks folding seems to be the principal structural element. The largest block, which is near the centre-east portion of the property, is an asymmetrical syncline. The block on the north side of the property appears to be a syncline; the two blocks in the southwest portion of the property have not been exposed sufficiently or explored enough to permit any conclusion.

Minor structures do not seem to dominate the structural configuration within the four known structural blocks.

COAL GEOLOGY

Two thick coal seam (13.7 and 1.7 metres in a sequence of approximately 80 metres) were found in drillhole LB-2. Drillhole LB-2 intersected most of the Coal Bearing Member. On the north end of the property a seam was found that was stratigraphically higher than the 1.7 metre seam and the 13.7 metre seam. It is over 12.0 metres in outcrop and over 27 metres thick in drillhole LB-3; it has been thickened structurally. Seams equivalent to the thin ones in drillhole LB-2 also occurred thicker in outcrops elsewhere in the property.

Four coal outcrop stratigraphic sections are illustrated on pages 9 to 13; outcrop coal sample were taken and analysed to established the relative rank of the coal. Each section is labelled and its relative location is plotted on the geological map (Appendix, Attachment 6).

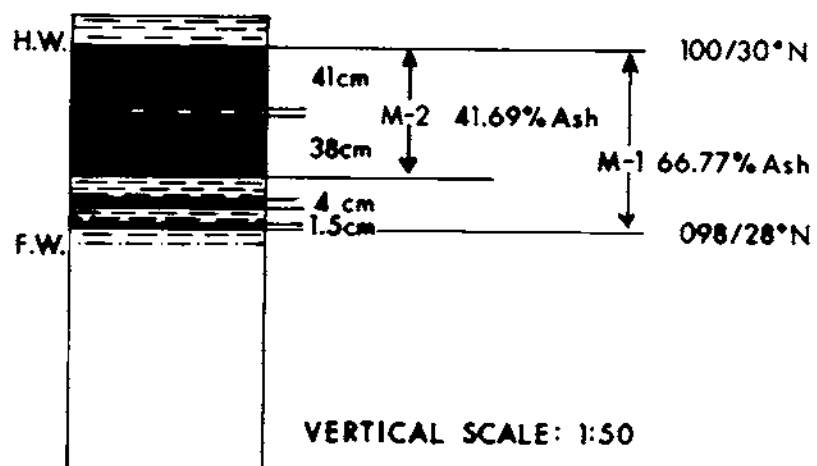


Crows Nest Resources Limited
EXPLORATION

LILLYBURT S.E. B.C.

HAND TRENCH 1
(TR-3)

AUTHOR: M. DORSAV	SCALE:	ENCLOSURE No.
DATE: NOV. 1979	REVISED:	DRAWING No. AA-368
To: Asst. Geol.		



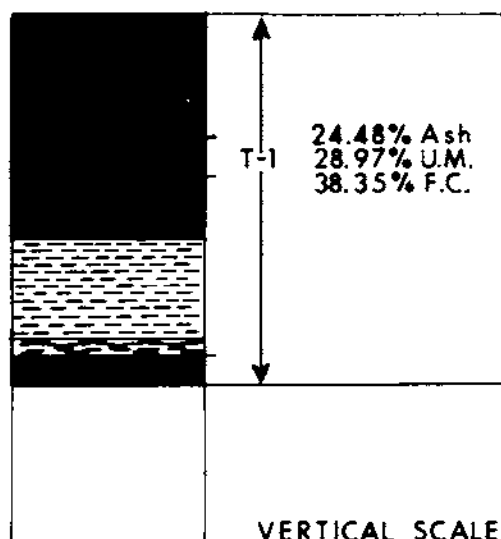
Crows Nest Resources Limited

EXPLORATION

LILLYBURT S.E. B.C.

HAND TRENCH 2
(TR-4)

AUTHOR M. D'ORSAY	SCALE	ENCLOSURE No.
DATE NOV. 1979	REVISED	DRAWING No. AA-369
To: Management		

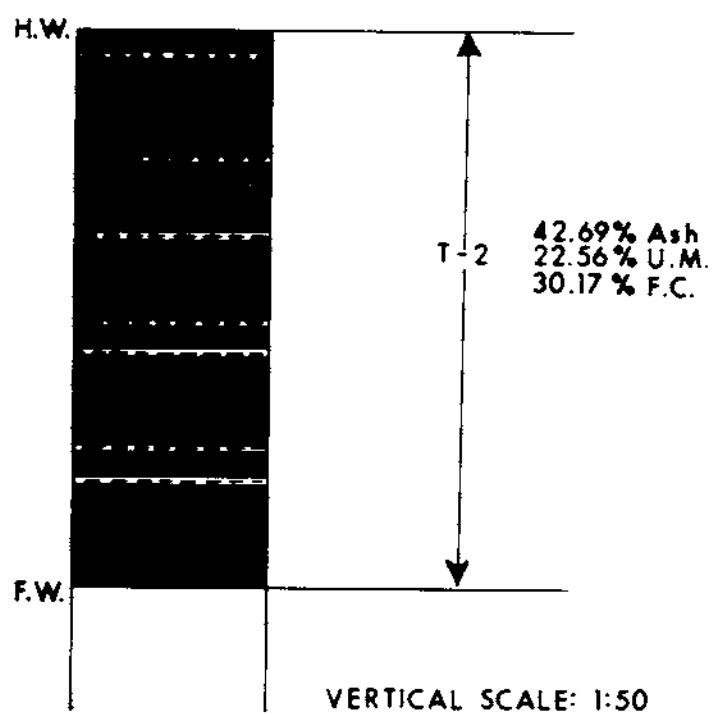


Crows Nest Resources Limited
EXPLORATION

LILLYBURT S.E. B.C.

MECHANICAL TRENCH 1
(Coal Seam 1)

AUTHOR: M. DORSEY	SCALE: _____	ENCLOSURE NO.
DATE: NOV. 1979	REVISED: _____	DRAWING NO. AA-366
By: _____		



Crews Nest Resources Limited
EXPLORATION

LILLYBURT S.E. B.C.

MECHANICAL TRENCH 2
(TR-2)

AUTHOR: M. D'ORSAY	SCALE: _____	ENCLOSURE No. _____
DATE: NOV. 1979	REVISED: _____	DRAWING No. AA-367
To: _____		

MINEABILITY

In the centre-east structural block (which is approximately 2.5 km²) an aggregate thickness of 20 metres of coal in 170 metres of drilled section was discovered. There are indications that the coal thickens towards the north. In the north end of the property a seam, which is at least 12.0 metres thick in outcrop, is structurally thickened to approximately 27 metres.

Further drilling is recommended to prove open pit mining potential of these two structural blocks and/or the possibility of underground mining of the 13.7 metre seam.

COAL QUALITY

Analyses of the rotary drill cuttings (reverse circulation - air flush) are not available at the time of compiling of this report. Analyses of limited numbers of outcrop samples indicate that coal at the Lillyburt prospect to be of medium volatile bituminous (ASTM) rank.

A supplement to this report will be submitted in the subsequent term of the licences dealing in more detail in coal quality and some of the work done since August 4, 1979.

PROJECT: YEAR: 76-78
LILLYBURT DATE: FEB 21/78

405

LDG:SA
HQ-190

REPORTS ON GEODETIC SURVEY

WORK DONE FROM JUNE 27, 1978 TO JANUARY 31, 1979

SURVEY CONTROL FOR CROWS NEST RESOURCES LIMITED

FERNIE - SPARWOOD, BRITISH COLUMBIA

PHOTOGRAMMETRIC MAPPING PROJECT (1978)

FERNIE - SPARWOOD AREA - S.E. BRITISH COLUMBIA

COVERING ALL COAL LAND IN S.E. BRITISH COLUMBIA

HELD BY SHELL CANADA RESOURCES LIMITED

OPERATED BY CROWS NEST RESOURCES LIMITED

MORRISSEY FREEHOLD

B.C. COAL LICENCES

264 TO 313 INCL., 365 TO 373 INCL., 408, 412 TO 414 INCL.

490 TO 495 INCL., 588 TO 601, 1299 - 1302 INCL., 4080 TO 4089 INCL., 4090, 4092

KOOTENAY LAND DISTRICT, B.C.

NTS 82G AND 82J

LAT. $49^{\circ} 05'$; TO $50^{\circ} 10'$ N, LONG. $114^{\circ} 30'$ TO $115^{\circ} 10'$ W

BY

SHELL CANADA RESOURCES LIMITED - SURVEYING DEPARTMENT
GENERAL SURVEY CONTRACTOR

NORTHWEST SURVEY CORPORATION (YUKON) LIMITED
SUBCONTRACTOR ON PHOTOGRAMMETRIC MAPPING

1979-04-26

405

T A B L E O F C O N T E N T

SURVEY CONTROL FOR CROWS NEST RESOURCES LIMITED
FERNIE - SPARWOOD AREA, B.C.; SCRL 1979

PHOTOGRAMMETRIC MAPPING PROJECT (1978)
FERNIE - SPARWOOD AREA, S.E. B.C.; SCRL 1979
INCLUDING ATTACHMENTS

SCHEDULE A
SCRL ON BEHALF OF CNRL
REQUEST FOR PROPOSALS FOR AERIAL PHOTOGRAPHY, AEROTRIANGULATION
AND TOPOGRAPHIC MAPPING IN THE CROWSNEST PASS - FERNIE AREAS
OF BRITISH COLUMBIA
INCLUDING ATTACHMENTS
FIVE 1:50 000 MAPS OUTLINING AREAS OF CONCERN

SCHEDULE B
GENERAL SPECIFICATION FOR AERIAL PHOTOGRAPHY

SOUTHEASTERN B.C.
INDEX MAP
AERIAL PHOTOGRAPHS, GROUND CONTROL SURVEY, PHOTOGRAMMETRIC MAPS
SCALE 1:100 000

COST STATEMENT
AND ALLOCATIONS TO PROJECTS AND GROUPS OF LICENCES

CROWS NEST RESOURCES LIMITED - EXPLORATION
SHELL CANADA RESOURCES LIMITED - SURVEYING

GROUND CONTROL SURVEY AND PHOTOGRAMMETRIC MAPPING
SOUTHEASTERN BRITISH COLUMBIA

DISTRIBUTION OF AFE Z4670: UNDIVIDED COSTS
TO PROJECTS AND GROUPS OF LICENCES
ON THE BASIS OF HOLDING ACREAGES

<u>*HOLDINGS/PROJECTS</u>	<u>AFE</u>	<u>ACREAGE</u>	<u>%</u>	<u>\$ COSTS</u>
NORTH BLOCK=GROUP "NA"	4853A	7,840	8.0	29,440
CENTRAL BLOCK NORTH	4851J	10,264	10.5	38,640
HORESESHOE RIDGE	4851E	6,532	6.7	24,656
LINE CREEK J.V.	4851D	1,854	1.9	6,992
(Central Block Total)		(18,650)	(19.4)	(71,392)
(Group "CA")		(6,088)	(6.2)	(22,816)
(Group "CB")		(8,082)	(8.6)	(31,648)
(Group "CS")		(4,480)	(4.6)	(16,928)
CROWN MOUNTAIN TOTAL	4851Z	6,317	6.5	23,920
(Group #31)		(3,117)	(3.2)	(11,776)
(Group #32)		(3,200)	(3.3)	(12,144)
CORBIN=GROUP #6	4851Q	1,760	1.8	6,629
(Coal Mountain)		(640)	(0.7)	(2,578)
(Tent Mountain)		(1,120)	(1.1)	(4,051)
MORRISSEY FREEHOLD	4851U	43,200	44.1	162,288
LODGEPOLE=GROUP #104	4851S	3,345	3.4	12,512
LILLYBURT	4851R	6,122	6.3	23,184
HARVEY CREEK TOTAL	4851T	7,307	7.5	27,600
(Group #105 Renewal)		2,992	(3.1)	11,408
(Remainder)		4,315	(4.4)	16,192
CABIN CREEK=Group #106	4851V	3,200	3.3	12,144
<u>TOTAL</u>	<u>Z4670</u>	<u>97,741</u>	<u>100.0</u>	<u>368,000</u>

= 39,556ha

*All B.C. Coal Licences except Morrissey Freehold

\$3.77/acre
\$9.30/ha

1979-01-31

F. Martonhegyi
Exploration

D. Poulson
Surveying

H. Hofer
Finance Analyst

J. J. Crabb
Manager - Exploration

REFERENCE

THESE REPORTS COVER IN ONE UNIT ALL B.C. COAL LICENCES IN SOUTH-
EASTERN BRITISH COLUMBIA

HELD BY SHELL CANADA RESOURCES LIMITED
OPERATED BY CROWS NEST RESOURCES LIMITED

TWO SETS WERE FILED WITH

ADMINISTRATOR FOR COAL
MINISTRY OF ENERGY, MINES & PETROLEUM RESOURCES
GOVERNMENT OF BRITISH COLUMBIA
VICTORIA, B.C.

ON APRIL 30, 1979, TO WHOM FURTHER COPIES WILL BE SUPPLIED AT
REQUEST.

CROWS NEST RESOURCES LIMITED



DEPARTMENT OF MINES AND PETROLEUM RESOURCES
Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, GLENN C. PRAUDFOOT agent for SHELL CANADA RESOURCES LIMITED
(Name) (Name)
400 FOURTH AVENUE S.W. 400 FOURTH AVENUE S.W.
(Address) (Address)
CALGARY, ALBERTA T2P 0J4 CALGARY, ALBERTA T2P 0J4
Valid FMC No. 171 929

hereby apply to the Minister to extend the term of Coal Licences No(s) 4080 TO 4089 INCLUSIVE
TEN LICENCES CALLED LILLYBURT (FORMERLY FLATHEAD CENTRE) COAL PROSPECT
for a further period of one year.

2. I have performed, or caused to be performed, during the period AUGUST 4, 1978 to
AUGUST 3, 1979, work to the value of at least \$ 74,372
on the location of coal licences as follows:

CATEGORY OF WORK

	Licence No(s).	Apportioned Cost
Geological mapping - - -	<u>4080 TO 4089 incl.</u>	<u>\$ 20,136</u>
Surveys: Geophysical - - -	-	-
Geochemical - - -	-	-
Other <u>Geodetic</u> - - -	<u>4080 TO 4089 incl.</u>	<u>\$ 26,174</u>
Road construction (<u>Upgrading</u>)	<u>4080, 4083, 4084</u>	<u>\$ 1,796</u>
Surface work - - -	<u>4081, 4085, 4080, 4083, 4084</u>	<u>\$ 7,229</u>
Underground work - - -	-	-
Drilling - - -	<u>4084</u>	<u>\$ 16,090</u>
Logging, sampling, and testing	<u>4081, 4085, 4080, 4083, 4084</u>	<u>\$ 2,947</u>
Reclamation - - -	-	-
Other work (specify) - - -	-	-

3. I wish to apply \$ 74,372 of this value of work on Coal Licence(s) 4080 TO 4089 incl.

N.A. 4. I wish to pay cash in lieu of work in the amount of \$ _____ on Coal Licence(s)
No(s) _____

N.A. 5. I wish to apply \$ _____ of this value of work to claim a refund of cash in lieu of work in
the amount of \$ _____ which was paid to extend the term of Coal Licence(s) No(s) _____
from _____
to _____, 19____ Mining Receipt No. _____
for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled
Report will be submitted in ninety days.

AUGUST 16, 1979
(Date)

[Signature]
(Signature and position)
LANDMAN

* Applications to group licences may be filed to apportion costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

FOR DEPARTMENTAL USE ONLY

Value of work reported \$ _____ Value of work applied on licences \$ _____
Value of work approved \$ _____ Value of credit remaining \$ _____

405

Air support details:

Aircraft Type
HELICOPTER 206 BOwner
KEATING HELICOPTERS LTD.Charter
\$ 7,385

Total transportation costs \$ 9,465

8. RECLAMATION WORK:

Will be done in the subsequent term of licences (Fall '79) \$ -

9. TRAVEL EXPENDITURES (operator's costs only):

Number of Personnel

two

Number of Trips

four

Amount

\$ 730

Total travel expenditures \$ 730

Total costs \$

(Secs. 28 and 29, B.C. Reg. 436/75)

OFF-PROPERTY COSTS: Period from 10, 19

Amount

(a) Logistics and field support \$

(b) Technical and feasibility studies

(c) Preparation of reports ^{photogeology,} the rest will be done in the subsequent term 456

(d) Supplies and services

(e) Mobilization and demobilization of equipment included in contract rates

(f) Travelling expenses

(Itemize)

Total \$ 456

Amount

Supporting Cost Statements Attached

Administration and overhead are included
in \$ 125.00/man-day.

Total supporting costs \$

SUMMARY

On-property costs \$ 73,916

Off-property costs \$ 456

Total costs \$ 74,372

Statement of costs verified by

August 16, 1979
(Date)W. J. Kamelke
(Signature and position)
Chief Accountant.

VALUATION OF WORK: COST STATEMENT
(Sec. 27, B.C. Reg. 436/75)

ON-PROPERTY COSTS: For period from August 4, 1978 to August 4, 1979

1. OPERATOR'S FEES, SALARIES, AND WAGES:

	Average Number of Employees	Average Rate	Average Number of Days	Amount
Professional and technical	2	125	37	\$ 9,250
Machine operators and support	-	-	-	-
Miners	-	-	-	-
Other	-	-	-	-
Administration and overhead are included in \$125/MAN-DAY				
Total operator's costs				\$ 9,250

2. CONTRACTORS AND CONSULTANTS:

Name	Service	Contract Amount
DENN BEOS CONSTRUCTION LTD.	BACKHOE, HAND TRENCHING, BULLDOZER	\$ 7,721
GARRETT & BAKEE DRILLING CO. LTD.	ROTARY DRILLING	\$ 14,110
BPB INSTRUMENTS (CANADA) LTD.	DOWNHOLE GEOPHYSICAL LOGGING	\$ 680
ARETECH CONSULTING (D. BELL)	GEOLOGICAL CONSULTING	\$ 525
SHILL CANADA RESOURCES LTD - SURVEYING	GEOLOGIC SURVEY	\$ 25,824
WELL SUBCONTRACTOR NORTHWEST SURVEY		

Total contractor and consultant costs \$ 48,860

3. EQUIPMENT AND INSTRUMENTS USED: Owned ☒ Rented ☐

Type	Rented From	Amount
GEOLOGICAL FIELD EQUIPMENT	N.A.	\$ 100
Total equipment and instrument rentals		\$ 100

4. FIELD CAMP COSTS:

	Amount
Food	
Accommodation	\$ 4,920
Fuel	\$ 1,565
Other	\$ 525
Total field camp costs \$ 7,010	

5. SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
COAL ANALYSES	CNRL LAB FERNIE, BC.	106
Totals, samplings, analysis, and testing		\$ 106

6. SUPPLIES AND MATERIALS COSTS:

	Amount
Process supplies	-
Operating and maintenance supplies	\$ 430
Office and technical supplies	
Other supplies and materials	
Total, supplies and materials	\$ 430

7. TRANSPORTATION COSTS (Ground transportation details):

Vehicles	Owner	Rental Rate	Amount
one truck	RENTRETE	\$1500/month	\$ 2080

Work performed. Yes ☒ No ☐

The program of operations detailed hereunder was carried out during the period from August 4, 1978, to August 3, 1979. Total costs are \$ 74,372, an average of \$ 12.15 per acre (\$ 30.00 per hectare).

GEOLOGICAL MAPPING Yes ☒ No ☐ Cost \$ 20,136

	Area (Acres)	Scale	Time
Reconnaissance	7,000 ac ~ 2,500 ha	1:10,000	66 MAN-DAYS
Detail: Surface			
Underground			
Other (specify)			

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes ☐ No ☒ Cost \$ NIL

Method _____ Line miles _____

OTHER SURVEYS Yes ☒ No ☐ Cost \$ 26,174

GEODETIC Grid _____ Topographic location _____ Other: photogrammetric mapping, ground control survey

ROAD CONSTRUCTION Yes ☒ No ☐ Cost \$ 1,796

UPGRADING Length: On Licences 2 km Access (off licences) _____

SURFACE WORK Yes ☒ No ☐ Cost \$ 7,229

	hand backhoe	6 trenches trench 10m. 20m.	4080, 4081, 4082, 4083, 4084, 4085, 4086, 4087, 4088
Trenching			
Seam tracing			
Crosscutting			
Other			

UNDERGROUND WORK Yes ☐ No ☒ Cost \$ NIL

Test adits: Number _____ Average length _____ Total footage _____
Other workings: Area _____ Total footage _____

DRILLING Yes ☒ No ☐ Cost \$ 16,000

	Core: Diamond <input type="checkbox"/> Wireline <input type="checkbox"/>	Rotary: Conventional <input type="checkbox"/>	Reverse circulation <input checked="" type="checkbox"/>	Other _____
Numbers of Holes			1	
Total Footage			201 m.	

Contractor: GERRITY & PAUL Drilling Co. Ltd. Where core stored: U. A.

LOGGING, SAMPLING, AND TESTING (check) Yes ☒ No ☐ Cost \$ 2,947

Lithology: Drill samples ☒ Core samples ☐ Bulk samples ☐
Logs: Gamma-Neutron ☒ Density ☒ Other ☒
Testing: Prox. analysis ☒ FSI ☒ Workability ☐
Carbonization ☐ Petrographic ☐ Plasticity ☐ Other ☒

OTHER WORK (specify details) _____ Cost \$ _____

REMARKS:

Reclamation work (Permit No. C-120) Detail of work:
Reclamation will be done in the subsequent term of licences (Fall '79)

Cost \$ _____

OPERATIONS:

Work was supervised by T. W. HANNAH Position Senior Geologist
Is this person a registered or licensed Professional Engineer in British Columbia? Yes ☐ No ☒

Note: Where the licensee intends to perform, during the extended term of his licence, work not set out in the plan of operations filed under section 15 (2) (c), a supplemental plan of operations is to be attached.

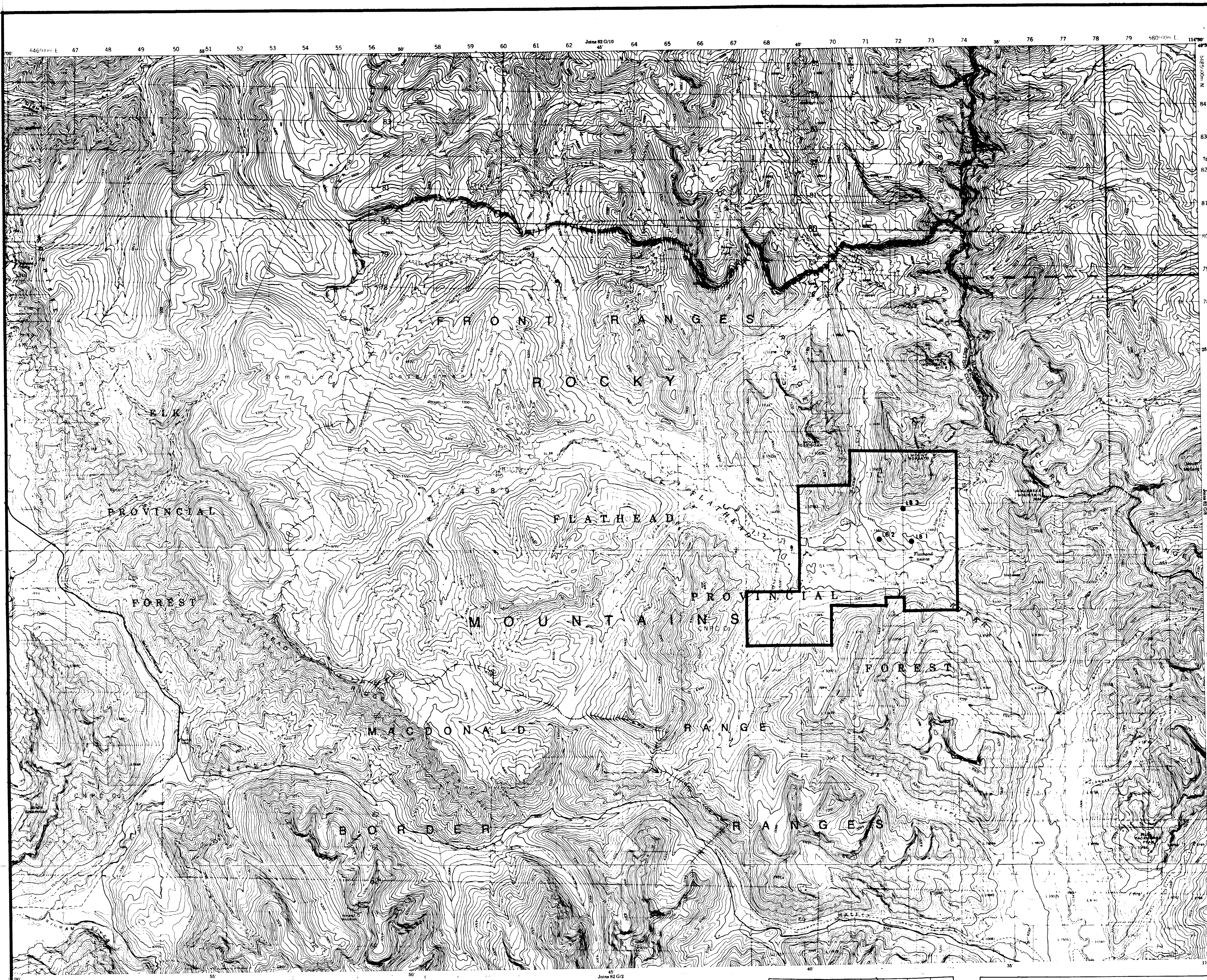
K-SHELL-WILLIBURT 79(2)A

NO TEXT
MAPS + X.S.

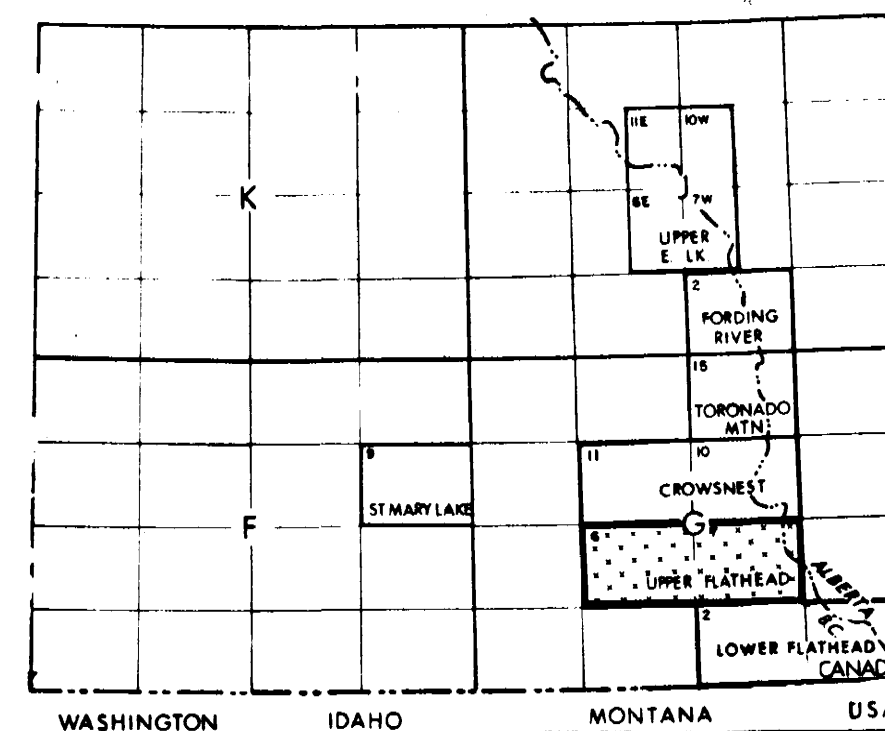
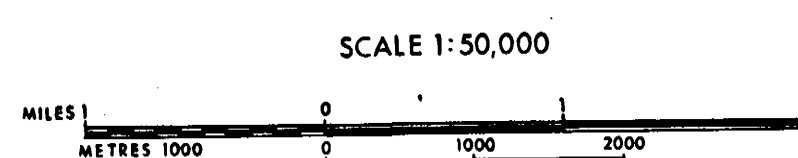


405

3 of 3

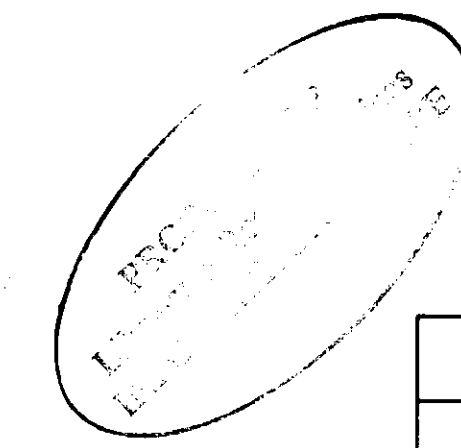
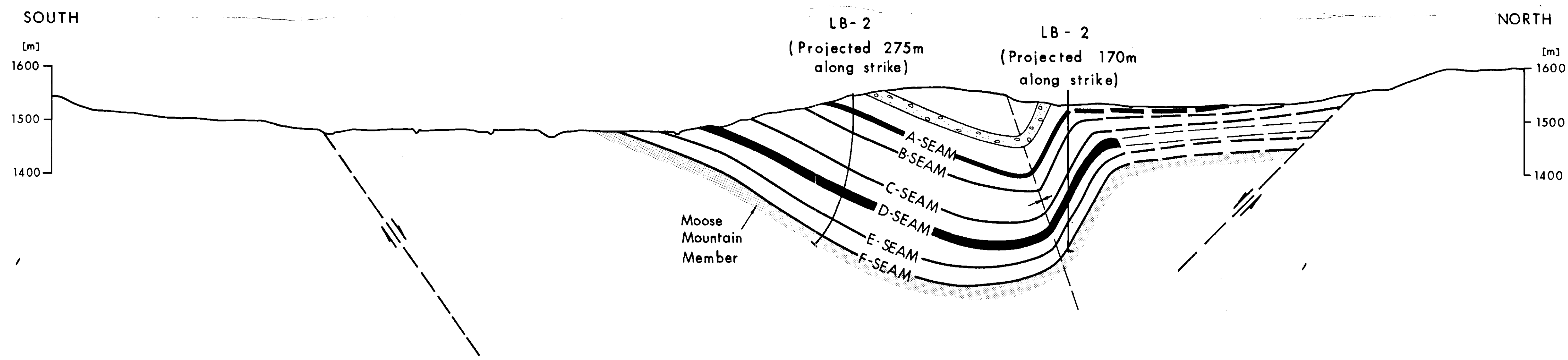


DRILL HOLES ROTARY	NORTHING	EASTING	ELEVATION
LB 1	5470580.18	672602.57	1509.60
LB 2	5470595.61	671655.86	1552.14
LB 3	5471589.00	672359.80	1661.24



SHELL CANADA RESOURCES LIMITED COAL DEVELOPMENT	
LILLYBURT KOOTENAY LAND DISTRICT SOUTHEASTERN B.C.	
1979 DRILL HOLE PROGRAM	
R-SHELL-LILLYBURT 79(2)A	
AUTHOR: M. D'ORSAY	NTS 82 G/7 & G/8
DATE: NOV. 1979	SCALE: 1:50,000
REVISOR:	DRAWING No.: HA-37A
To Accompany	ENCLOSURE No.:

405
3/3
405



DOC. NO. 29005

Crows Nest Resources Limited	
EXPLORATION	
LILLYBURT B.C.	
CROSS SECTION 1	
AUTHOR M. D'ORSAY	SCALE AS NOTED
DATE FEB. 1980	REVISION
ENCLOSURE No. 48	DRAWING No. HA-37F

③ 405 3/3

SOUTH

[m]

1800
1700
1600
1500
1400
1300
1200

LB-2
(Projected 915 m
along strike)

Moose
Mountain
Member

A-SEAM
B-SEAM
C-SEAM
D-SEAM
E-SEAM
F-SEAM

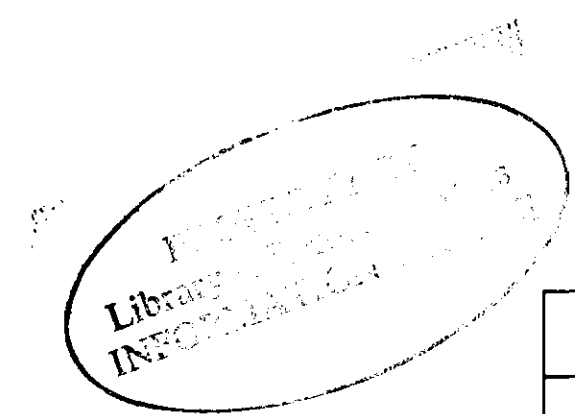
FAULT BLOCK
"A"

FAULT BLOCK
"B"

NORTH

[m]

1800
1700
1600
1500
1400
1300
1200

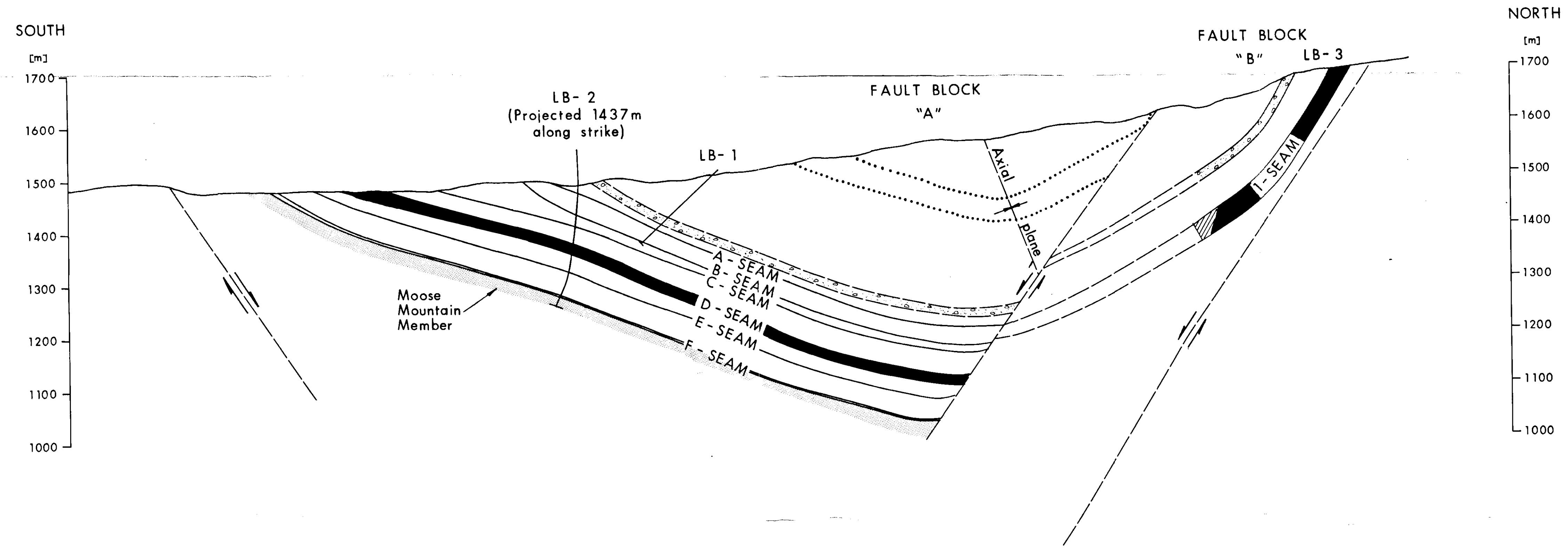


DOC. NO. 70005

Crows Nest Resources Limited	
EXPLORATION	
LILLYBURT B.C.	
CROSS SECTION 2	
AUTHOR: M. D'ORSAY	SCALE: AS NOTED
DATE: FEB, 1980	REVISION: 68
DRAWING NO: HA-37G	

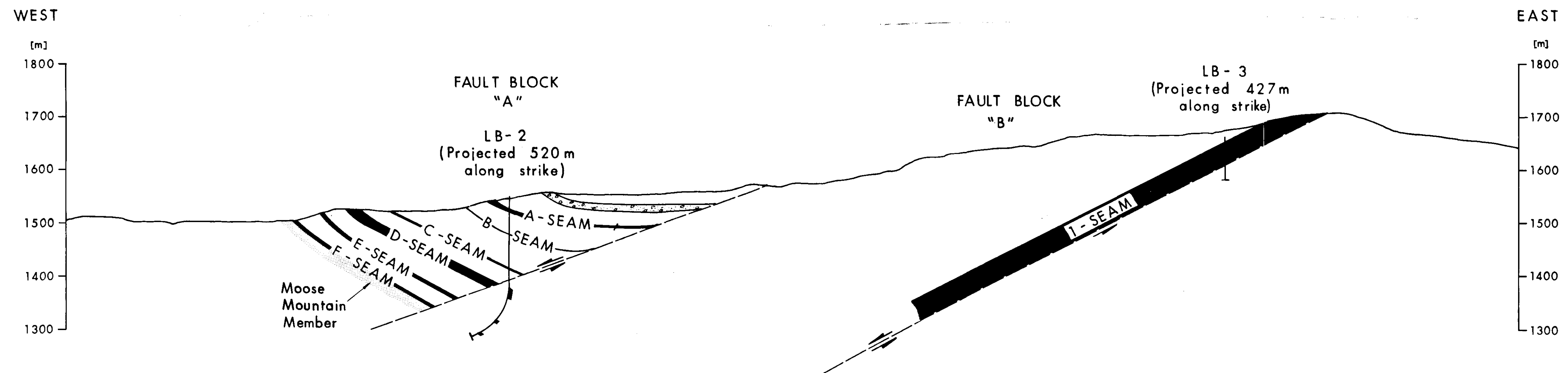
④ 405 3/3

INFORMATION
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Crows Nest Resources Limited EXPLORATION LILLYBURT B.C.	
CROSS SECTION 3	
AUTHOR: M. DORSAV DATE: FEB. 1980 To: Accompany	SCALE: AS NOTED REVISION: DRAWING NO: HA-37H

⑤ 405 3/3



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INFORMATION

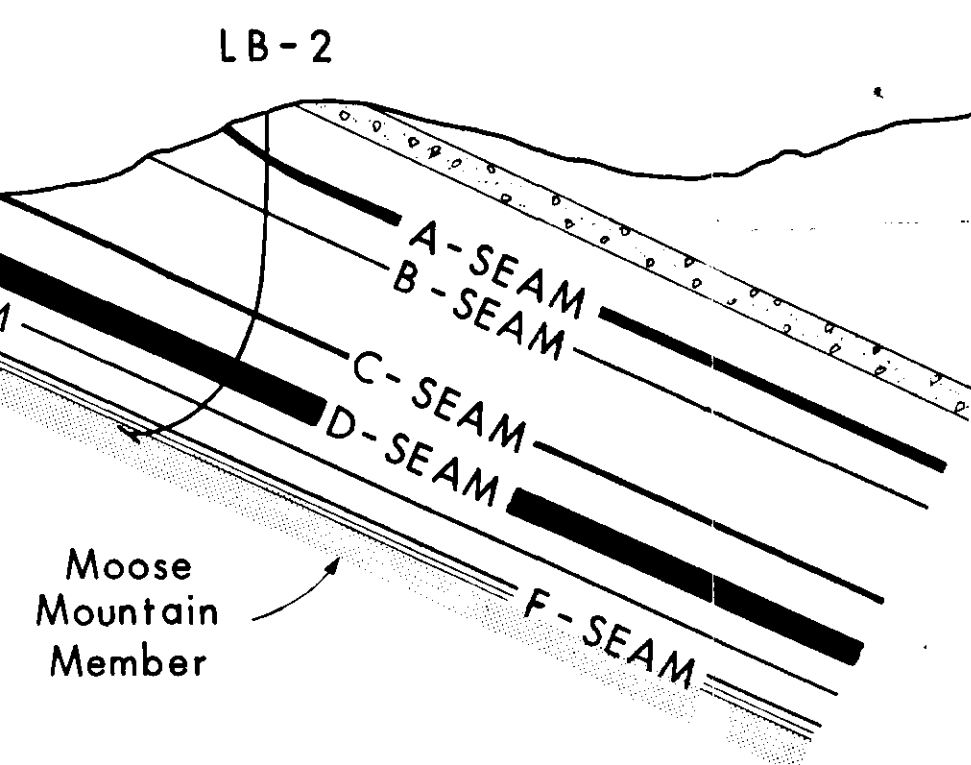
DOC. NO. 70005

Crows Nest Resources Limited	
EXPLORATION	
LILLYBURT B.C.	
CROSS SECTION A	
AUTHOR: M. D'ORSAY	SCALE: AS NOTED
DATE: FEB. 1980	ENCLOSURE No. 68
TO: Accompany	DRAWING No. HA-371

⑥ 405 3/3

WEST

[m]
1700
1600
1500
1400
1300
1200
1100
1000



EAST

[m]
1700
1600
1500
1400
1300
1200
1100
1000

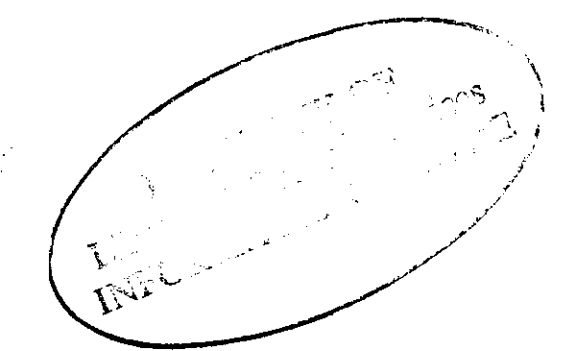
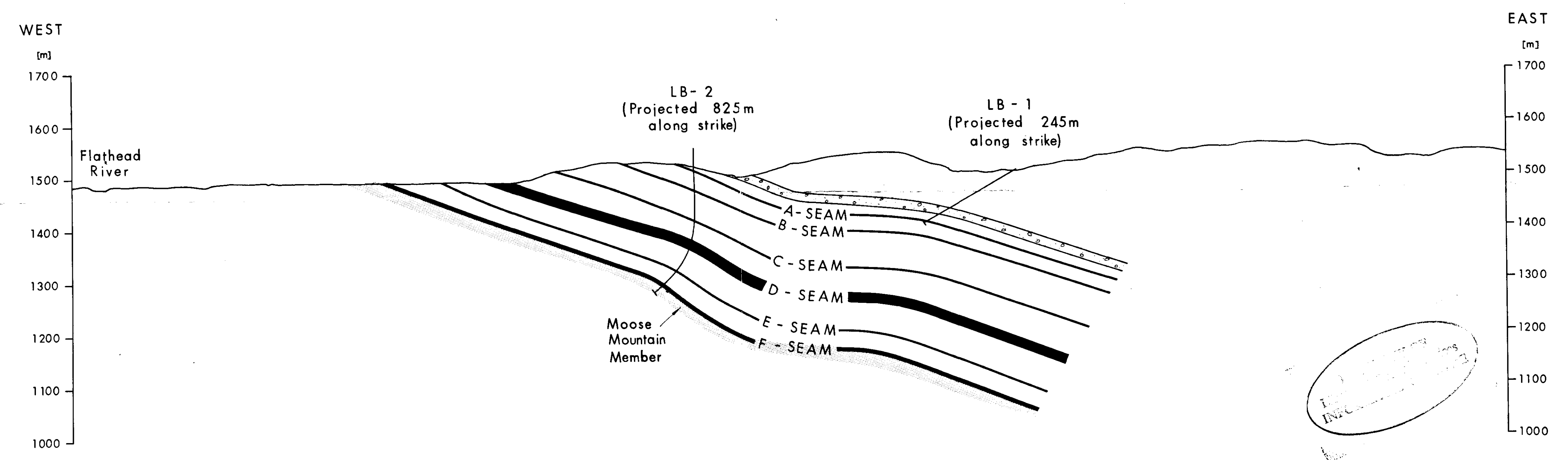
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EXPLORATION	
LILLYBURT B.C.	
CROSS SECTION B	
AUTHOR M. D'ORSAY	SCALE AS NOTED
DATE FEB. 1980	REVISION
ENCLOSURE NO. 64	DRAWING NO. HA-37J

⑦ 405 3/3

DOCS 70005



Crows Nest Resources Limited	
ENGINEERING	
LILLYBURT B.C.	
CROSS SECTION C	
AUTHOR M. D'ORSAY DATE FEB. 1980	SCALE AS NOTED ENCLOSURE NO. 68 DRAWING NO. HA-37K

⑧ 405 3/3

9 405 405 3/3 K-SHELL - LILLYBURT 79(2)A

STRATIGRAPHIC SECTION

DESIGNATION: LB-1

PART 1 OF 1

PROJECT: LILLYBURT

AUTHOR: M.D'Orsay/H.Schwab

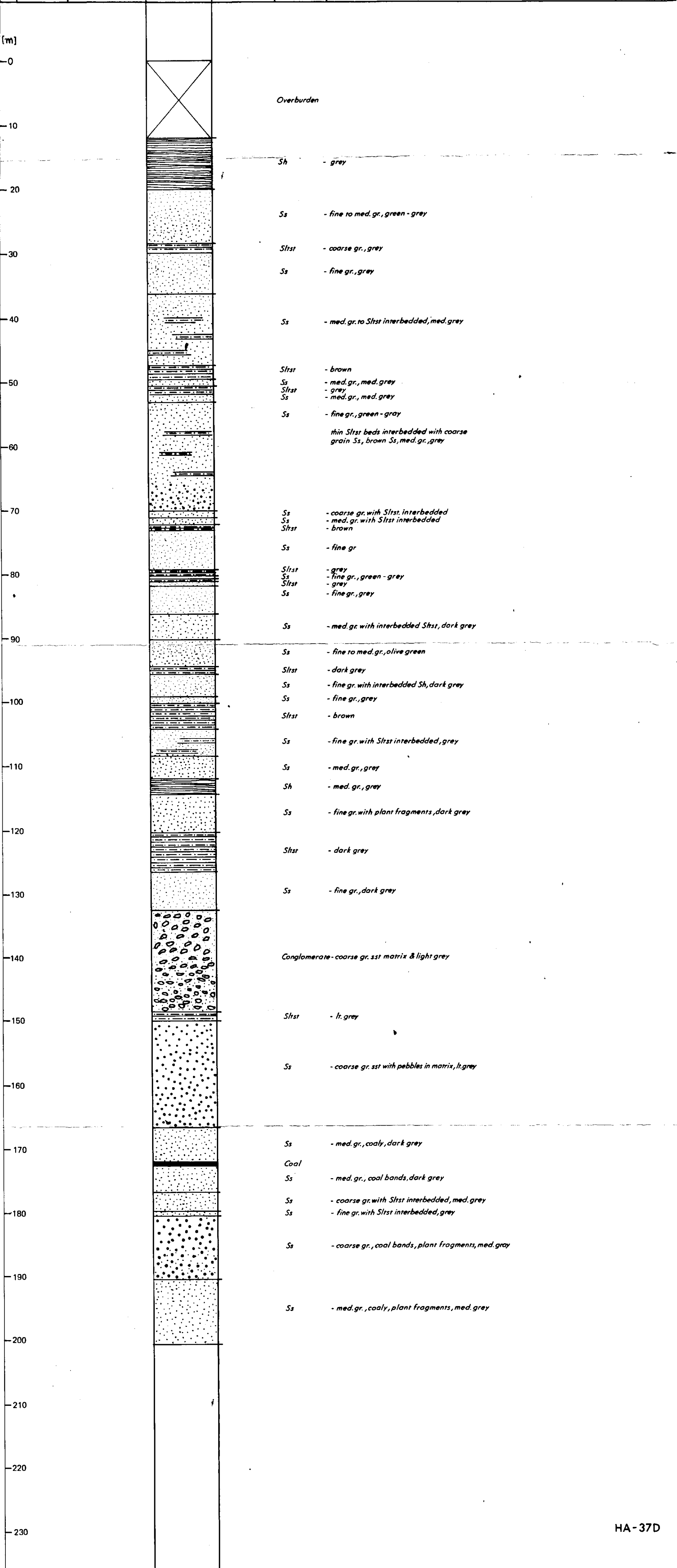
DATE: 1979

AREA: S.E. BRITISH COLUMBIA

SOURCE OF DATA: ROTARY DRILL CHIP DESCRIPTIONS

LOCATION: SOUTH RIDGE

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION		SAMPLE
					MAIN	AMPLIFIED	



(10) 405 405 3/3

K-SHELL - LILLYBURT 79 (2) A

STRATIGRAPHIC SECTION

DESIGNATION:	STRATIGRAPHIC SECTION 1	PART 1 OF 1
PROJECT: LILLYBURT	AUTHOR: M. D'ORSAY	DATE: 1979
AREA: SOUTHEASTERN B.C.	SOURCE OF DATA: ROAD OUTCROP	
LOCATION: MOUNT BORSATO		

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION		SAMPLE
					MAIN	AMPLIFIED	
[m]							
0						Conglomerate - coarse grain sst matrix, well rounded to sub-angular pebbles 0.001 to 0.04 m diameter, laminated and cross bedded Ss layers interbedded with conglomerate layers, unit weathers white at top, white-yellow at base.	
10				0.65/40°E	Ss	- coaly, coarse grain, cross-beds present	
					Ss	- coarse grain, salt and pepper texture, predominantly massive with small crossbeds presents	
20				0.75/65°E	Sstst	- coaly, concretions, weathers yellow-brown	
					Ss	- med. to coarse gr., laminated	
30					Overburden		
					Sh	- coaly, plant fragments, med. grey color on weathered surface	
					Coal	- med. grey colour on weathered surface	
					Sstst	- med. gr., med. grey, colour on weathered surface, cross beds present, develops coaly zone towards bottom of unit	
40					Ss	- coaly, light grey on weathered surface	
				0.70/65°E	Sstst	- coaly, coarse gr., lt. brown colour, fine gr. at top of unit grades to coarse at base of unit, coal stringers develop towards base of unit, laminated beds and cross bedding present, weathers an light brown colour, fresh surface is dark grey	
50				0.68/62°E	Ss	- lt. to med. brown colour on weathered surface, med. gr. weathers lt. brown colour, laminated beds and cross bedding present	
				0.64/66°E	Sstst	- dark grey colour on weathered surface	
					Ss	- fine gr., weathered surface is lt. brown colour, fresh surface is dark grey colour	
60				0.73/72°E	Shale Sstst	- coaly, weathers lt. brown colour, fresh surface is med. to dark grey colour.	
				0.83/63°E	Coal	- med. grey colour on weathered surface	
					Sh	- dark grey colour on weathered surface, lt. brown colour on weathered surface, dark grey colour on fresh surface	
				0.84/70°E	Sstst	- fine gr., lt. brown colour on weathered surface, med. grey colour on fresh surface	
70					Sh	- coaly, dark grey colour on weathered	
					Sstst	- yellow brown colour on weathered surface, light grey colour on fresh surface	
				0.64/58°E	Sh	- med. grey colour on weathered surface, plant fragments present	
80					Coal	- 1.88 % Moisture 28.92 % Ash 19.84 % V.M. 49.36 % F.C. } at outcrop surface	F-1
90					Sh	- coaly, medium grey colour on weathered surface	
100							
110							
120							
130							
140							

405 8/3 (11) 405 8/3

STRATIGRAPHIC SECTION

DESIGNATION:

LB-2

PART 1

OF 1

PROJECT: LILLYBURT

AUTHOR: M.D'Orsay/R. Macdougall

DATE: 1979

AREA: S.E. BRITISH COLUMBIA

SOURCE OF DATA:

REVERSE CIRCULATION-DRILL CHIP DESCRIPTION

LOCATION: SOUTH RIDGE

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION		SAMPLE
					MAIN	AMPLIFIED	
[m]							
0						Casing	
10					Ss	- med. grey, med. grain	
20					Ss	- med. grey, coarse grain with coarse grain siltstone beds trace coal, fines upwards	
					Ss	- med. grey, grades from coarse to fine grain	
					Sltst	- med. grey, ranges from fine to med. grain	
					Sh	- carbonaceous with coaly bands, thin beds of siltstone	
					Coal	- coaly bands	
					Sh	- fine to med. grain, dark grey with carbonaceous mudstone bands, trace coal	
					Sltst	- coaly bands	
					Coal		
40					Ss	- fine grain sst, med to dark grey, thin siltstone beds	
50						sandstone, med. grey, coarse grain sandstone, fine grain	
60						thin siltstone beds plant fragments	
70						- sst v. coarse gr.	
					Coal		
					Sltst	- siltstone, coarse grain	
					Sltst	- fine to med. grain, sandstone bands	
90					Ss	- fine to med. grain, with occasional coarse grained bed, med. grey	
100						- sandstone: fine	
110						- sandstone: coarse	
						- sandstone: fine	
120						- sandstone: coarse	
						- sandstone: fine	
130						- sandstone: very coarse	
						- coal partings	
140					Sh	- dark grey, hard, bright, c(d), with shale stringers	
					Coal	- fine	
150					Ss	- med. to dark grey, fine to med. grain	
						- coarse	
						- fine	
160						- med.	
					Sltst	- med. grey, med. grain, occasional sandy bands	
170					Interbedded	- med. grey, med. grain	
					Sltst		
					Ss		
					Sltst	- fine grain, med. grey	
180							
					Coal	- bright, (hard), minor shale beds	
190							
200					Sh	- coaly, dark grey	
					Sltst	- light brown, sandy bands, coaly	
210					Ss	- fine grained, light brown	
					Sltst	- med. grained, sandy bands, trace coal	
220					Ss	- fine grain, med. grey, silty bands, trace coal	
					Sltst	- fine grain, sandy bands	
					Coal		
230					Ss	- fine grain, med. grey, trace coal	
					Sltst	- fine grain, light to med. grey, brown, trace coal near bottom	
240					Coal	- shale; dark grey	
					Coal	- siltstone to shale interbeds; med. grey, fine grain	
250					Ss	- fine grain, light grey to brown, trace coal at bottom	
260							
					Sltst	- med. brown to med. grey; coaly	
270						- sandy bands, coaly	
						- siltstone, fine grain, med. grey	
					Coal	- siltstone, fine grain, med. grey	
280							
					Ss	- med. grain, med. grey to light brown	
290							
						T.D. at 291.1 m	
300							
310							
320							
330							
340							

CL 4080

CL 4082

CL 4083

CL 4085

CL 4086

CL 4088

CL 4089

LEGEND:

TRENCH		NORTHING	EASTING	ELEVATION	DRILL HOLES	NORTHING	EASTING
No. 1	LBT 1 START	5 470 074.80	673 471.07	1514.67	ROTARY		
	LBT 1 END	5 470 041.06	673 457.28	1508.43	LB No. 1	5 470 580.18	672 602.57
No. 2	TR 2 START	5 470 372.56	671 818.52	1532.21	LB No. 2	5 470 585.61	671 665.88
	TR 2 END	5 470 342.80	671 832.63	1538.26	LB No. 3	5 471 588.00	672 359.80
No. 3	TR 3 START	5 470 399.80	671 611.53	1498.88			
		5 470 386.93	671 606.22	1493.01			
No. 4	TR 4 TOP	5 470 686.46	670 213.25	1524.6			

CL 4080

CL 4081

CL 4083

CL 4084

CL 4086

CL 4087

ING	ELEVATION	DRILL HOLES	NORTHING	EASTING	ELEVATION
		ROTARY			
71.07	1514.67	LB No. ①	5 470 580.18	672 602.57	1508.80
57.28	1508.43	LB No. ②	5 470 595.01	671 685.86	1552.14
16.52	1532.21	LB No. ③	5 471 589.00	672 359.80	1661.24
12.63	1538.28				
11.53	1488.88				
36.22	1493.01				
13.25	1524.6				

12 405

K-SHELA - LILLYBURT 79(2)A

Crows Nest Resources Limited	
EXPLORATION	
LILLYBURT PROJECT SOUTHEASTERN B.C.	
GEOLOGICAL MAP	
AUTHOR: M. D'ORSAY	SCALE: 1:5000
DATE: NOV. 1979	REVISED
ENCLOSURE No.	DRAWING No. HA-37B

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