

Re Secus Mtn 79(1)A

1979 Geological Report Volume I
CL 4201-4219 NTS 93-I-7, 8 (Peace River)
Secus Mtn. Coal property (Shell)
October, 1979
Georgia Hoffman, P. Geol. (Alberta)
for Crows Nest Resources Limited (operator)

OPEN FILE

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

00 630

PR - Secus MTN 29(1)A.

1979 Geological Report
on Field Work From August '78 to August '79
on Coal Licences 4201-4219 incl.

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

Secus Mountain Coal Property
Peace River Land District, N.E. B.C.

NTS. 93-1-7,8

OPEN FILE

October, 1979
Georgia Hoffman, P. Geol. (Alberta)
for Crows Nest Resources Limited

PROFESSIONAL VERIFICATION OF REPORT

1979 Geological Report
Secus Mountain Coal Property
Coal Licences 4201 to 4219 incl.
Peace River Land District, B.C.

Pacific Petroleum Limited, with whom our subject licences interlock, carried out field geological mapping in 1978 late summer on the licences above held by Shell Canada Resources Limited, operated by Crows Nest Resources Limited under a contract agreement with the latter companies. Miss Georgia Hoffman reviewed the documentation (enclosed) of this work completed in April, 1979 and carried out the 1979 field program on this property. She also prepared this report. Mr. Frank Martonhegyi supervised the activity of both programs under the general direction of the undersigned.

Georgia Hoffman graduated from the University of Pennsylvania in Philadelphia, Pennsylvania, U.S.A., with a Bachelor's degree in Geology. She is a member, as a Professional Geologist, of the Association of Professional Engineers, Geologists, and Geophysicists of Alberta. Her experience in Western Canadian coal exploration includes positions with:

- Dennison Mines Limited, Vancouver, B.C.
- Shell Canada Resources Limited, Calgary, Alberta
- Crows Nest Resources Limited, Calgary, Alberta

She is self-employed since August 1, 1979.

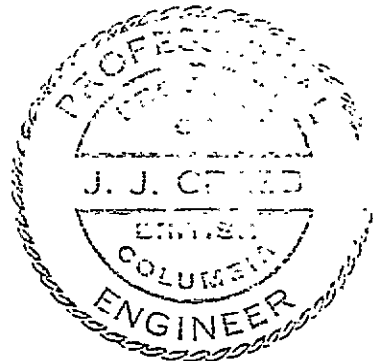
Frank Martonhegyi, M.E., graduated in Mining Geological Engineering from the University of the Heavy Industry, Hungary, in 1962; and received post-graduate training at the University of Saskatchewan, Saskatoon, in 1969-1971. His experience in Western Canadian coal exploration since 1971 includes positions 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, geo-technical 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 forementioned geologists to be well qualified to undertake responsibilities they were assigned for this project. I am satisfied that the attached report dated November 16, 1979 has been competently prepared and justly represents the information obtained from this project. However, the Anniversary Date of these licences was August 17, 1979, in the middle of the field activities. This report was designed to account for work done to this date only, although it includes references to later work as well. As a result of such circumstances, this report is of a preliminary nature. Its content should be viewed together with the account for the remainder of the 1979 activities including a complete compilation and evaluation of all geological information obtained to date.



A handwritten signature in black ink, appearing to be "J. J. C. F. E. D.", written in a cursive style.

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	4.1 Stratigraphy of the Lower Cretaceous Formations	7
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5	Conclusions	13

LIST OF ATTACHMENTS

No.	TITLE		
1 ✓	Location Map	1:4,000,000	3
2 ✓	Access Map	1:500,000	4
3	B.C. Coal Licences Tenure Standing	NO	5
4 ✓	Coal Land Disposition Map	1:50,000 in pocket following	17
5	Application to Extend Term of Licence (copy) (cost account)	NO	14
6	Table of Formations	NO	9
7 ✓	Regional Geological Map with Coal Land Overlay (index to aerial photographs)	1:50,000 in pocket following	17
8 ✓	Photogeology and Reconnaissance Field Geological Mapping Photograph No. 1	1:25,000 (approx.)	11
9 ✓	Photograph No. 2 as above	1:25,000 (approx.)	12
10-28 GEOLOGICAL MAPS		1:5000	
30-54 X SECTIONS (53 MISSING)		1:5000	

1 SUMMARY

The Secus Mountain property consists of 5,583 hectares of coal licences held by Crows Nest Resources Ltd. in the Foothills coal field of northeastern British Columbia. The licences lie approximately 150 km south of Dawson Creek, B.C. between the Narroway River and Red Deer Creek.

A program of geologic mapping and hand trenching of coal seams was undertaken during August of 1979. The field work was carried out by helicopter since there are no major roads or trails in the area at present.

Four major coal seams in the Gates Member of the Commotion Formation were trenched by hand and found to have an aggregate thickness of 9.4 metres. Three coal seams were trenched in the upper Minnes Group, but geologic mapping indicated that these seams may be discontinuous. Additional exploration by diamond drilling and other methods to prove the commercial viability of the property. Drilling on adjacent properties has established that the Gates Member coal seams are usually good quality metallurgical coal.

2 LOCATION, ACCESS AND TENURE.

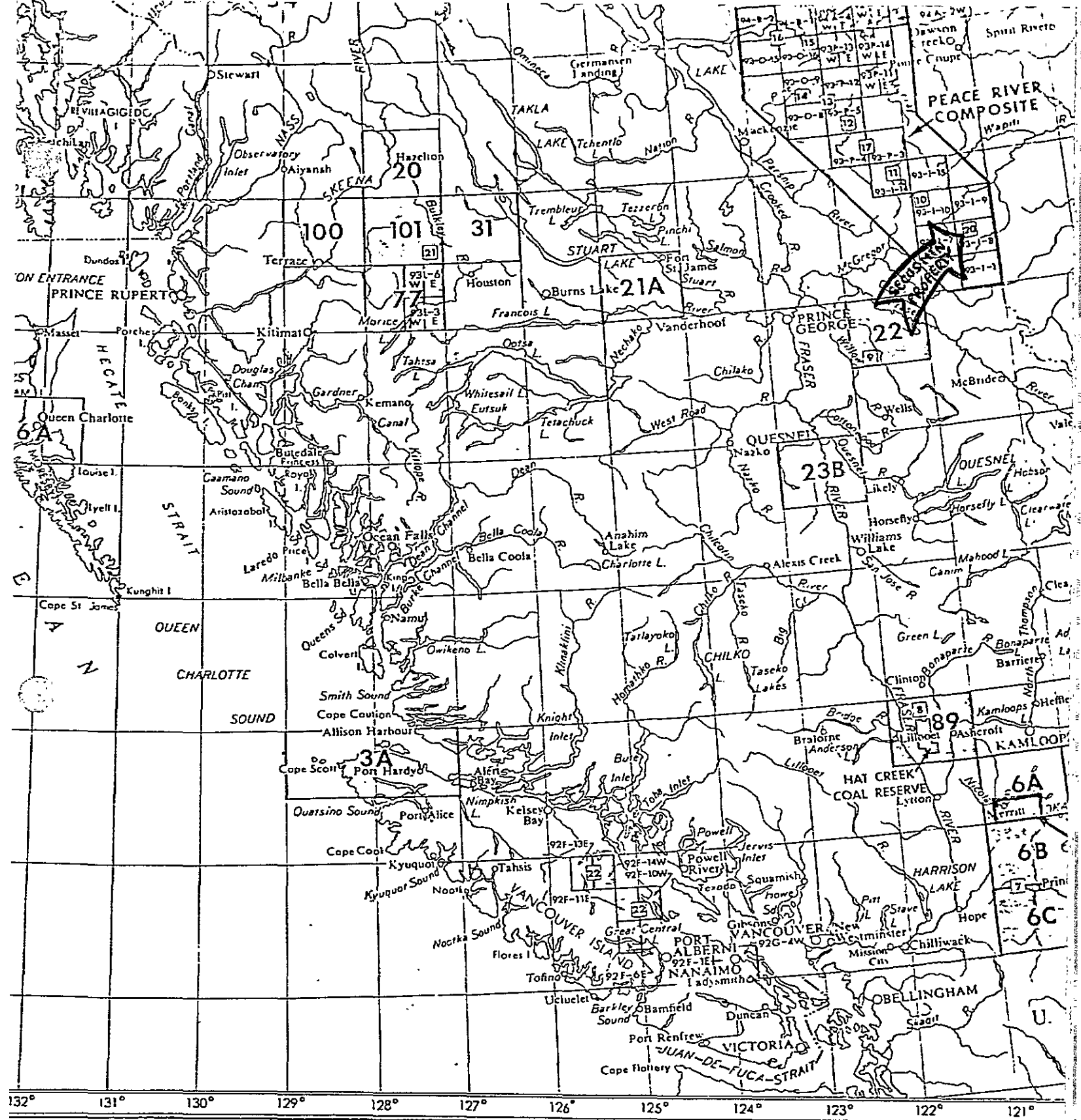
Shell Canada Resources Ltd. holds a now contiguous block of 25 B.C. Coal Licences covering 6,042 hectares, operated by its wholly owned subsidiary Crows Nest Resources Ltd. However, before the acquisition of six new licences on April 18, 1979, these holdings were in three blocks covering 4558 hectares in 19 licences granted on August 17, 1978. These subdivisions are referred to in this report only where statutory requirements are involved. Technically the property is handled as one unit often even including holdings of McIntyre-Canadian Superior-Petro Canada (formerly Pacific Petroleum, operator) with which the Shell-CNRL licences interlock. All pertinent land information is tabulated on Attachment 3: B.C. Coal Licences Tenure Standing and is shown on Attachment 4: Coal Land Disposition Map.

This property named after Secus Mtn. lies in the Peace River Coal Fields in the Foothills of the Rocky Mountains in northeastern British Columbia (Attachment 1: Location Map)

It is located to cover portions of Secus Mtn., Mount Nekik, Mount Belcourt and is bisected by Belcourt Creek. The Rocky Mountain Range lies along the southwest edge of the property.

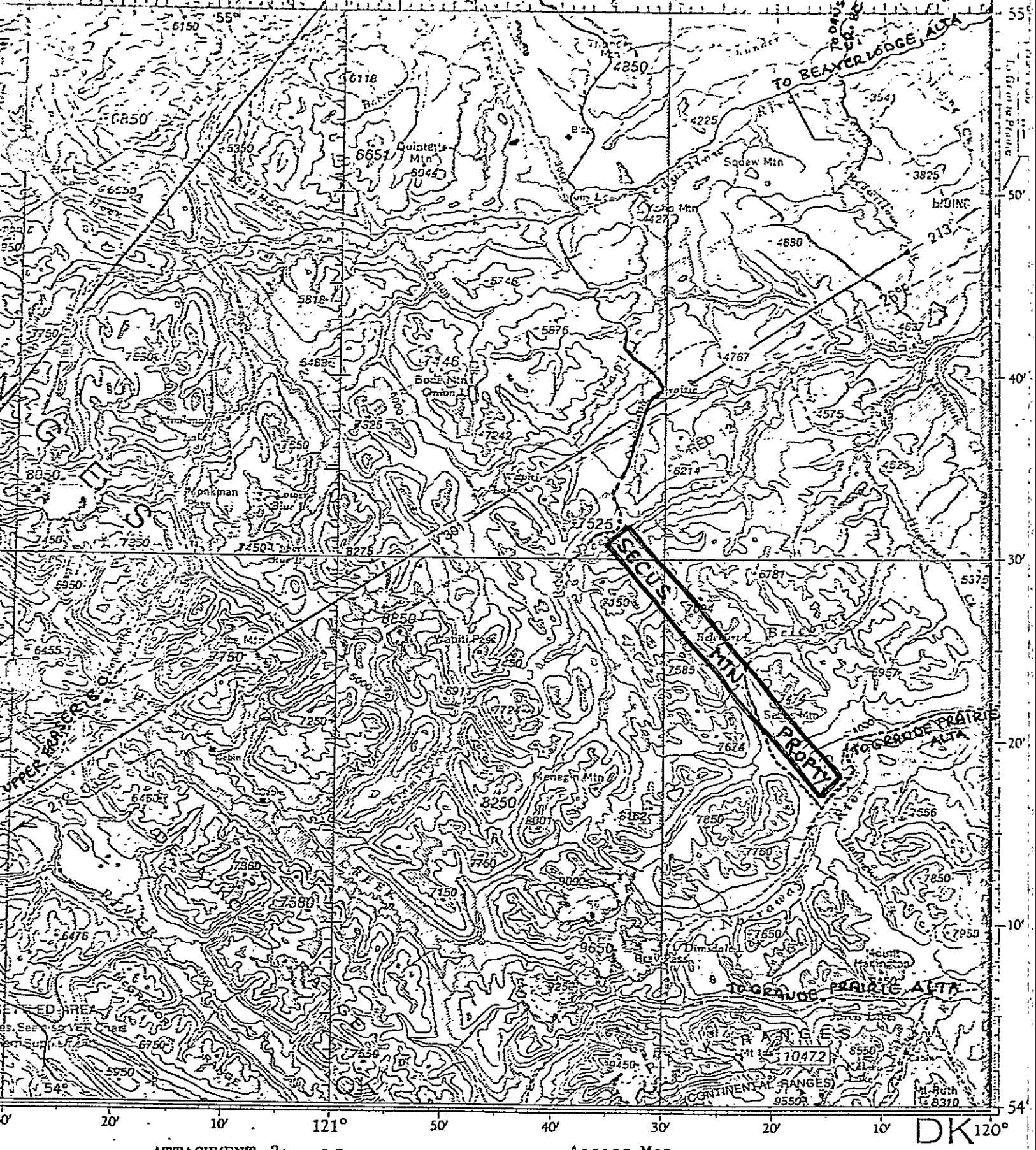
The relief of the property varies from 2,000 to 1,250 metres. The higher areas are characterized by alpine vegetation, those at lower elevations are covered by spruce forest.

The property is some 150 km south of Dawson Creek, B.C. between the Narraway River in the southeast and the Red Deer Creek in the northwest where at these two ends the property is accessible on good roads. The road reaching Belcourt Lake from the Narraway River is also in a reasonable condition. This nearby road is quasi parallel with the southern half of the property (Attachment 2: Access Map). There are no roads on the Shell-CNRL holdings although some cut-lines and seismic trails exist in the major creek valleys. Both the 1978 and the 1979 field work was carried out with helicopter support.



Attachment I

Location Map
 Secus Mtn. Coal Prospects
 Peace River Land District, B.C.
 Scale: 1:4,000,000 NTS 93-I-7, 8
 November 16, 1979



ATTACHMENT 2

Access Map
 Secus Mtn. Coal Prospects
 Peace River Land District, B.C.
 Scale: 1:500,000 NTS 93-I-7, 8
 Crows Nest Resources Limited
 November 16, 1979

CROWS NEST RESOURCES LIMITED
EXPLORATION

B. C. COAL LICENCES
TENURE STANDING

BLOCK: TEMPORARY DESIGNATION SOUTH-CENTRAL-NORTH PROJECT: YEAR: 1979-80
GROUP: UNGROUPED SECUS MTH. DATE: NOV 5, 79

PROJECT			BLOCK			GROUP			LICENCE			ACD/ADM		RENTALS		REQUIREMENT WORK				BUDGET		EXP	POTL	COMMITMENTS, J. V.		REMARKS				
NAME	LICS. TOTAL NO.	AREA TOTAL AC/HA	NAME	LICS. TOTAL NO.	AREA TOTAL AC/HA	NO.	LICS. TOTAL NO.	AREA TOTAL AC/HA	YEAR	NO.	LEGAL DESCRIPTION	AREA TOTAL AC/HA	YEAR	FEES	ANNUAL RENT	% OF AREA	YR. 1	CURRENT YEAR	PRE-FULFILLMENT YEAR	ANNIVERSARY DATE	CURRENT YEAR AFE	% OF AREA	TOTAL B103	SHELL CLASS.	OTHER THAN B.C. COAL DESCRIPTION					
SECUS MTH	25	6042												78	250	30,210		33	162	67,605									TWO LAND MAP SHEETS	
			SECUS MTH SOUTH BLOCK	10	2343						NTS 33-1-B BLKS UNITS			78	100	11,715	17	18	2	22,288	67% OF AREA	19,706							WORK DONE SINCE LAST ANNIERSARY IS NOT INCLUDED	
											4201	49,30,59,60	303																	
											4202	41,31	152																	
											4203	61,62,71,72	302																	
											4204	63,64,73,74	302																	
											4205	65,66,75,76	302																	
											4206	67,68,77,78	302																	
											4207	85,95	151																	
											4208	88,98	151																	
											4209	89,90,99,100	302																	
											4215	NTS 33-1-B BLK UNIT 10	76																	
			SECUS MTH CENTRAL BLOCK	6	1360						NTS 31-8 BLK UNITS			78	60	6,800	10	10	2	17,000	69% OF AREA	11,729								
											4210	21,22,31,32	302																	
											4211	41,42,52	227																	
											4212	62,71,72	227																	
											4213	63,64	151																	
											4214	81,82,91,92	302																	
											4216	79,80	151																	
			SECUS MTH ADAM BLOCK	3	755						NTS 31-8 BLK L UNITS			78	30	3,775	6	6	2	9,438	67% OF AREA	8,224								
											4217	7,8,17,18	302																	
											4218	29,30,39,40	302																	
											4219	49,50	151																	
			SECUS MTH NEW LICENCES	6	1584						NTS 33-1-B BLK1 UNITS			78	60	7920	8	-	1	11,880										
											4743	41,42,51,52	301																	
											4744	61,62,71,72	301																	
											4745	82	76																	
											NTS 33-1-B BLK UNITS																			
											4746	1,2,11,12	302																	
											4747	65,66,75,76	302																	
											4748	85,86,95,96	302																	

GENERAL REMARKS: FILL NECESSARY LINES AND COLUMNS ONLY; COAL DEVELOPMENT POTENTIAL IS 'Y' (PRIME) UNLESS OTHERWISE STATED. LICENCES HELD BY SHELL CANADA RESOURCES LTD. - CNPI IS THE OPERATOR.

3 THE EXPLORATION PROGRAM 1978, 1979

During 1978 Petro-Canada Explorations Ltd. supplied aerial photographs, and 1:25,000 scale topographic and geologic maps and cross-sections of the Secus Mountain property. These maps and other data were prepared for Crows Nest Resources Limited as an extension of the exploration program being carried out by Petro-Canada on an adjacent property. A resource estimate was subsequently made by personnel from Crows Nest Resources who used estimates of seam thicknesses.

The 1979 exploration program for the Secus Mountain property included geologic mapping designed to confirm the 1978 Petro-Canada 1:25,000 scale geological map and to locate coal seam exposures. Coal seam outcrops observed on Coal Licences No. 4202 to 4219 inclusive were measured, and hand trenching was carried out as required.

The field work was carried out from Chetwynd, B.C. Helicopter support was contracted from Maple Leaf Helicopters Ltd.

The Secus Mountain property contains strata of Lower Cretaceous age, including Minnes Group to Shaftesbury and younger formations (Attachment 6). The Paleozoic marine sediments of the Rocky Mountain Ranges lie along the southwestern edge of the property.

Minnes Group The strata of the upper Minnes Group are the oldest Mesozoic sediments on the Secus Mountain property. The upper Minnes Group consists of nonmarine sandstones, siltstones, mudstones, and coal seams in this area, and the strata are fairly well exposed on Secus Mountain and Mount Nekik.

Three coal seams were trenched about 200 metres below the top of the Minnes Group on Coal Licence No 4216 at the north end of Secus Mountain. These seams ranged from 2 to 4 metres in thickness. This coal-bearing zone could not be located in the exposures on the south end of Secus Mountain and on Mount Nekik, however, and it appears that these seams may be discontinuous.

Cadomin Formation The Cadomin Formation overlies the Minnes Group and contains conglomerate beds and lenses of chert and quartzite pebbles in a sandstone matrix, interbedded with medium and coarse grained sandstone.

The oldest conglomerate units exposed on Secus Mountain and Mount Nekik consist of beds of smaller, matrix-supported clasts in a brown-weathering

"salt-and-pepper" sandstone matrix, interbedded with sandstone of a similar character. These units may belong to the Minnes Group rather than to the Cadomin Formation. The uppermost beds consist of coarse grained, clast-supported conglomerate with a lighter coloured quartzose sandstone matrix, commonly representative of the Cadomin Formation.

Gething Formation The Gething Formation and lower Ft. St. John Group strata are fairly well exposed along the west-facing ridge of Mount Belcourt. The Gething Formation is thin in this area and consists of nonmarine clastic sediments and coal seams. These strata were not examined in detail during the 1979 exploration program, and the coal seams were not trenched or measured.

Moosebar Formation The marine Moosebar Formation consists of recessive, dark gray mudstones and siltstones. These beds become more silty and sandy in the upper portion near the gradational contact with the Commotion Formation.

Commotion Formation, Gates Member The Gates Member of the Commotion is the most attractive coal-bearing horizon in the vicinity of the Secus Mountain property. Gates Member strata were examined near Mount Belcourt and hand trenching of coal seams was carried out in the area of Coal Licence No. 4219.

The Gates Member was found to be approximately 270 metres thick. The unit consists of sandstone, siltstone, mudstone, and major coal seams, with several massive beds of pebble conglomerate. Four coal seams with

thicknesses in excess of 1 metre were measured, being 2.5, 3.8, 2.1, and 1 metres respectively, from youngest to oldest. Drilling on all adjacent properties has established that The Gates Member coal seams are usually good quality metallurgical coal.

Commotion Formation, Hulcross Member The Hulcross Member consists of gray marine siltstones which sometimes contain beds of pelecypod fossils. This unit is quite thin in the Mount Belcourt area, and becomes increasingly thin and sandy towards the south.

Commotion Formation, Boulder Creek Member Exposures of the Boulder Creek Member may be seen along the west-facing slopes of the Mount Belcourt ridges, and across Belcourt Creek from Secus Mountain. The Boulder Creek Member consists of several beds of pebble conglomerate and quartzose sandstone in these areas, with minor amounts of siltstone and mudstone.

Shaftesbury Formation The Shaftesbury Formation consists of a thick sequence of dark gray marine mudstones, with siltstones and some sandstones in the upper portion. The lower shales are mapped as Hasler Formation in some areas, while the upper sediments are sometimes mapped as the Goodrich and Cruiser Formations, although no attempt to subdivide them in this fashion was made during the 1979 geological mapping program. Exposures of these strata, overlain by outcrops which may represent the Upper Cretaceous Dunvegan Formation, may be seen west of Mt. Belcourt adjacent to the Rocky Mountains.

SECUS MOUNTAIN PROPERTY
TABLE OF FORMATIONS

PERIOD	GROUP	FORMATION	MEMBER	LITHOLOGY	APPROXIMATE THICKNESS
CRETACEOUS	FORT ST. JOHN	Shaftesbury		Dark gray marine mudstone, with siltstone and sandstone in the upper portion.	
			Boulder Creek	Pebble conglomerate and quartzose sandstone	150 m
			Hulcross	Gray marine siltstone with peley-pod fossils.	40 m
		Commotion	Gates	Nonmarine sandstone, pebble conglomerate, siltstone, and mudstone, with major coal seams.	270 m
		Moosebar		Dark gray marine mudstone, becoming silty and sandy near top	70 m
LOWER	BULLHEAD	Gething		Nonmarine sandstone, siltstone, mudstone, pebble conglomerate, and coal seams	70 m
		Cadomin		Pebble conglomerate, chert and quartzite clasts with sandstone matrix, interbedded with sandstone.	70 m
		UNCONFORMITY ?			
	MINNES			Sandstone, siltstone, mudstone, and conglomeration, with coal seams in some areas.	>1,000 m

5 GEOLOGIC STRUCTURE

The geologic structure of the Secus Mountain Property is characterized by southwest dipping strata, including the coal-bearing Gates Member, which form dip slopes along the west-facing ridges of Mount Belcourt and Secus Mountain. These strata terminate against a major west dipping thrust fault which separates them from the paleozoic sediments located along the southwestern edge of the property.

In some areas, broad folds occur in the Lower Cretaceous strata between the dip slope and the Palaeozoic sediments, and a major repeat of the strata by a thrust fault northwest of the Mount Belcourt summit has been mapped.

6 CONCLUSION

The 1979 field mapping program clearly demonstrated the presence of coal-bearing Commotion Formation strata on the Secus Mountain property. Four coal seams which may have commercial significance were located and exposed by hand trenching. In addition, the mapping showed that structures suitable for mining by both surface and underground mining are present should the coal quality and coal seam thicknesses be found to be adequate. Significant amounts of exploration by diamond drilling and other means will be required to prove the commercial viability of the property.



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

APPLICATION TO EXTEND TERM OF LICENCE

1. I, GLENN C. PROUDFOOT 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

I hereby apply to the Minister to extend the term of Coal Licences No(s) 4215 AND 4201 TO 4209 INCL.
TEN LICENCES CALLED SECUS MTN. COAL PROSPECTS (SOUTH BLOCK)
for a further period of one year.

2. I have performed, or caused to be performed, during the period AUGUST 17, 1978 to
AUGUST 16, 1979, work to the value of at least \$ 37,279
on the location of coal licences as follows:

CATEGORY OF WORK

	Licence No(s).	Apportioned Cost
Geological mapping - - - -	<u>4215 AND 4201 TO 4209 INCL.</u>	<u>\$ 24,547</u>
Surveys: Geophysical - - - -	<u>-</u>	<u>-</u>
Geochemical - - - -	<u>-</u>	<u>-</u>
Other <u>Geodetic</u> - - - -	<u>4215 AND 4201 TO 4209 INCL.</u>	<u>\$ 11,126</u>
Road construction - - - -	<u>-</u>	<u>-</u>
Surface work - - - -	<u>-</u>	<u>-</u>
Underground work - - - -	<u>-</u>	<u>-</u>
Drilling - - - -	<u>-</u>	<u>-</u>
Logging, sampling, and testing - - - -	<u>-</u>	<u>-</u>
Reclamation - - - -	<u>-</u>	<u>-</u>
Other work (specify) <u>Report to date</u> <u>4215 AND 4201 TO 4209 INCL.</u>		<u>\$ 1,556</u>

3. I wish to apply \$ 37,279 of this value of work on Coal Licence(s) 4215 AND 4201 TO 4209 INCLUSIVE

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 \$

Work performed. Yes No

The program of operations detailed hereunder was carried out during the period from August 17, 1978
to AUGUST 16, 1979. Total costs are \$ 37,279, an average
of \$ 6.45 per acre (\$ 15.91 per hectare). 5,784 acres ~ 2,343 hectares

GEOLOGICAL MAPPING Yes No Cost \$ 24,597
Area (Acres) 6,000 ac ~ 2,500 ha Scale 1:25,000; 1:5,000 Time approx. 52 man-days
Reconnaissance _____
Detail: Surface _____
Underground _____
Other (specify) _____

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes No Cost \$ NIL
Method _____ Line miles _____

OTHER SURVEYS Yes No Cost \$ 11,126
Grid Photogrammetric Topographic _____ Other Ground control survey

ROAD CONSTRUCTION Yes No Cost \$ NIL
Length: On Licences _____ Access (off licences) _____

SURFACE WORK Yes No Cost \$ NIL
Length _____ Licence Number(s) _____
Trenching _____
Scam 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 \$ NIL
Hole Size _____ Number of Holes _____ Total Footage _____
Core: Diamond Wireline _____
Rotary: Conventional _____
Reverse circulation _____
Other _____
Contractor _____ Where core stored _____

LOGGING, SAMPLING, AND TESTING (check) Yes No Cost \$ NIL
Lithology: Drill samples Core samples Bulk samples
Logs: Gamma-Neutron Density Other
Testing: Prox. analysis FSI Washability
Carbonization Petrographic Plasticity Other

OTHER WORK (specify details) Geological Report Cost \$ 1,556 to date

REPORTS:
H.A. Reclamation work (Permit No. _____) Detail of work* Geological report will be prepared in the subsequent term in ninety days
Cost \$ 1,556 to date

OPERATIONS:
Work was supervised by I. MARTONHEGYI Position STAFF 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.

* If reclamation work see "re report five days" _____

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

ON-PROPERTY COSTS: For period from August 17, 1970 to August 16, 1979

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

	Average Number of Employees	Average Rate	Average Number of Days	Amount
Professional and technical	<u>2</u>	<u>125</u>	<u>23</u>	<u>4,412</u> 102 CWRL PACIFIC
Machine operators and support	-----	-----	-----	-----
Miners	-----	-----	-----	<u>2</u>
Other	-----	-----	-----	-----
Total operator's costs \$				<u>4,520</u>

2. CONTRACTORS AND CONSULTANTS:

Name	Service	Contract Amount
<u>P. DYSON CONSULTANTS & HOLDING LTD.</u>	<u>GEOLOGICAL CONSULTING</u>	<u>153</u> CWRL
<u>R.M. HARDY & ASSOC. LTD.</u>	<u>PROTOMOSAIC</u>	<u>146</u> CWRL
<u>R.M. HARDY & ASSOC. LTD.</u>	<u>PHOTOGRAMMETRIC MAPPING & GEODESIC CONTROL SURVEY THROUGH PACIFIC P.</u>	<u>10,980</u> PACIFIC
<u>PACIFIC PETROLEUMS LTD.</u>	<u>GENERAL CONTRACTOR FOR GEOL FIELD WORK</u>	<u>\$34,544</u>
<u>COMPONENTS OF TOTAL CONTRACT AMOUNT ENTERED ACCORDING TO THEIR NATURE</u>		
<u>TOTAL CONTRACT AMOUNT IS NOT ENTERED HERE</u>		
Total contractor and consultant costs \$		<u>11,279</u>

3. EQUIPMENT AND INSTRUMENTS USED: Owned..... Rented:

Type	Rented From	Amount
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
Total equipment and instrument rentals \$		<u>NIL</u>

4. FIELD CAMP COSTS:

	Amount	
Food	-----	
Accommodation	<u>3</u>	
Fuel	-----	
Other	-----	
Total field camp costs \$		<u>3,092</u> PACIFIC

5. SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
Totals, samplings, analysis, and testing \$		<u>NIL</u>

6. SUPPLIES AND MATERIALS COSTS:

	Amount	
Process supplies	-----	
Operating and maintenance supplies	-----	
Office and technical supplies	-----	
Other supplies and materials	-----	
Total, supplies and materials \$		<u>NIL</u>

7. TRANSPORTATION COSTS (Ground transportation details):

Vehicles	Owner	Rental Rate	Amount
-----	-----	-----	-----
-----	-----	-----	-----
<u>LEASED BY PACIFIC PETROLEUMS</u>			<u>5,255</u> PACIFIC

Air support details:

Aircraft Type HELICOPTER 206 B Owner MAPLE LEAF HELICOPTERS LTD. Charter 612 CWRL

HELICOPTERS CHARTERED BY PACIFIC PETROLEUMS 9,308 PACIFIC

Total transportation costs \$ 15,175

8. RECLAMATION WORK:

\$ NIL

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

Number of Personnel 2 Number of Trips 2 Amount 204 CWRL

Total travel expenditures \$ 204

Total costs \$ 34,270

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

OFF-PROPERTY COSTS: Period from August 17, 1978 to August 16, 1979

- (a) Logistics and field support \$ —
- (b) Technical and feasibility studies Photogeological mapping 1,453 CWRL
- (c) Preparation of reports to date 574 CWRL
932 PACIFIC
- (d) Supplies and services —
- (e) Mobilization and demobilization of equipment —
- (f) Travelling expenses —
(itemize)

Total \$ 3,009

Supporting Cost Statements Attached

Total supporting costs \$ —

SUMMARY

On-property costs \$ 34,270
 Off-property costs \$ 3,009
 Total costs \$ 37,279

Statement of costs verified by

Aug 17/79
(Date)

[Signature]
(Signature and position)
Chief Accountant

241 675-5196
THE COST
THE TOT
P.C.S

✓ DONE ON
WORK DIT
FINED.

✓ CHECK OF LICENCES IS DERIVED BY ALLOCATING
SHELL'S THREE SECS MTN. LICENCE BLOCK ON THE
MOUNTAIN AND PACIFIC PETROLEUMS' C.S. LICENS

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

PROPERTY COSTS: For period from August 17, 1978 to August 17, 1979

TOTAL
SECUS MTN
LICENSES OF AUG 17
4,558 ha = 100%

SOUTH (4215, 4201-4209)
2343 ha = 51%

CENTRAL (4216, 4210-4214)
1360 ha = 30%

NORTH (4217-4219)
755 ha = 19%

OPERATOR'S FEES, SALARIES, AND WAGES:

	Average Number of Employees	Average Rate	Average Number of Days	CNRL Amount			
Professional and technical	2	125	35	8,863	4,418	2,599	1,046
Machine operators and support							
Others							
Total operator's costs				\$ 8,863	4,520	2,659	1,024

TRACTORS AND CONSULTANTS:

Name	Service	Contract Amount					
FIELD CONSULTANTS HOLDING LTD.	GEOLOGICAL CONSULTING	CNRL 300	153	90	57		
HARDY & ASSOC. LTD.	PROTONORM	CNRL 287	146	86	55		
HARDY & ASSOC. LTD.	PHOTOGRAMMETRIC MAPPING & RECORD CONTROL SURVEY THROUGH PACIFIC PETROLEUMS GENERAL CONTRACTOR FOR GEOLFIELD WORK	PACIFIC 21,529	10,980	6,459	4,090		
PACIFIC PETROLEUMS LTD.							
AMOUNTS OF THE TOTAL CONTRACT AMOUNT \$ 67,734 (\$134,514 C:20,720 C:12,370) ARE ENTERED ACCORDING TO THEIR NATURE, THE TOTAL CONTRACT AMOUNT IS NOT ENTERED HERE.							
Total contractor and consultant costs				\$ 22,116	11,279	6,635	4,202

EQUIPMENT AND INSTRUMENTS USED: Owned Rented

Type	Rented From	Amount
Total equipment and instrument rentals \$ NIL		

FIELD CAMP COSTS:

	Amount
Food	
Accommodation	
Medical	
Other	
Total field camp costs \$ PACIFIC 6,063 3,092 1,819 1,152	

SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
Totals, samplings, analysis, and testing \$ NIL		

SUPPLIES AND MATERIALS COSTS:

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

TRANSPORTATION COSTS (Ground transportation details):

Vehicles	Owner	Rental Rate	Amount
LEASED BY PACIFIC PETROLEUMS			
		PACIFIC	10,304 5,255 3,091 1,958



PACIFIC PETROLEUMS LTD.

P.O. BOX 6666
CALGARY, ALBERTA T2P 6T6

Shell Canada Resources,
400 - 4 Avenue S. W.,
CALGARY, Alberta

Attention: Mr. F. Martonhegyi

TYPE	AGE
4	

INVOICE NUMBER
12-94005-78

1-12-124-64560

DATE December 18, 1978

INVOICE

DESCRIPTION		
To invoice you for:		
Mapping services provided by Pacific staff in the area south of Red Deer Creek, as per the Pacific-Shell agreement. Reference is made to Pacific's letter of May 18, 1978.		
Charges detailed on the attached breakdown		\$ <u>67,734.66</u>

A. The cost accounts for the Pacific-Shell Agreement as per Pacific's letter dated May 18, 1978 are determined as follows:

- 1) Shell to pay 50% of all costs south of Red Deer Creek. The mapping south of Red Deer Creek is estimated to constitute 70% of the total mapping for 1978 on the Monkman Project.
- 2) Shell to pay 10% surcharge on mapping work to cover administrative costs. No administrative costs are to be assessed on photogrammetric services.

B. Costs are determined as follows:

1) a. Winter Survey 1977		
Helicopter	\$ 10,136.00	
Survey Control	<u>17,159.41</u>	
	\$ 27,295.41	
Charged to Shell at 10%		\$ 2,729.54
b. Spring Survey 1978		
Helicopter	\$ 10,087.05	
Mapping	23,609.81	
Survey	<u>3,901.46</u>	
	\$ 37,598.32	
Charge to Shell at 50%		<u>18,799.16</u>
Total survey charge to Shell		\$21,528.70

2) 1978 Mapping Program

Item	Total Mapping	South of Red Deer at 70%	Charge to Shell at 50%
Helicopter	50,000.00	35,000.00	17,500.00
Staff	22,500.00	15,750.00	7,875.00
Camp & Support Costs	15,750.00	11,025.00	5,512.50
Transport, Communication Materials & Vehicle	26,764.97	18,735.47	9,367.74
Report Preparation	5,000.00	3,500.00	1,750.00
10% Overhead			<u>4,200.52</u>

Total Mapping Costs Charged to Shell \$ 46,205.76

Total Invoice to Shell: \$ 67,734.66



DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, GLENN C. PROUDFOOT agent for SHELL CANADA RESOURCES LIMITED
(Name) 400 FOURTH AVENUE SW. (Name)
(Address) CALGARY, ALBERTA T2P 0J4 (Address)

Valid FMC No. 171 929

hereby apply to the Minister to extend the term of Coal Licences No(s) 4216 AND 4210 TO 4214 INCL. SIX LICENCES CALLED SECUS Mtn. COAL PROSPECTS (CENTRAL BLOCK) for a further period of one year. PEACE RIVER LAND DISTRICT

2. I have performed, or caused to be performed, during the period AUGUST 17, 1978 to AUGUST 16, 1979, work to the value of at least \$ 21,929 on the location of coal licences as follows:

CATEGORY OF WORK

Table with 3 columns: Category of Work, Licence No(s), and Apportioned Cost. Rows include Geological mapping, Surveys: Geophysical, Geochemical, Other - Geodetic, Road construction, Surface work, Underground work, Drilling, Logging, sampling, and testing, Reclamation, and Other work (specify).

3. I wish to apply \$ 21,929 of this value of work on Coal Licence(s)* 4210 TO 4214 INCLUSIVE

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 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 \$

Work performed. Yes No

The program of operations detailed hereunder was carried out during the period from August 17, 1978 to August 16, 1979. Total costs are \$ 21,929, an average of \$ 6.54 per acre (\$16.12 per hectare). 3,355 acres ~ 1,360 hectares

GEOLOGICAL MAPPING Yes No Cost \$ 14,468
Area (Acres) 3,500 ac ~ 1,400 ha Scale 1:25,000 ; 1:5,000 Time approx 24 man-days
Reconnaissance _____
Detail: Surface _____
Underground _____
Other (specify) _____

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes No Cost \$ NIL
Method _____ Line miles _____

OTHER SURVEYS Yes No Cost \$ 6,545
Grid _____ Topographic Photogrammetric mapping Other Ground control survey

ROAD CONSTRUCTION Yes No Cost \$ NIL
Length: On Licences _____ Access (off licences) _____

SURFACE WORK Yes No Cost \$ NIL
Length _____ Licence Number(s) _____
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 \$ NIL
Hole Size _____ Number of Holes _____ Total Footage _____
Core: Diamond Wireline _____
Rotary: Conventional _____
Reverse circulation _____
Other _____

Contractor _____ Where core stored _____

LOGGING, SAMPLING, AND TESTING (check) Yes No Cost \$ NIL
Lithology: Drill samples Core samples Bulk samples
Logs: Gamma-Neutron Density Other
Testing: Prox. analysis FSI Washability
Carbonization Petrographic Plasticity Other

OTHER WORK (specify details) preparation of Geol. Report to date Cost \$ 916 to date

REPORTS:
U.A. Reclamation work (Permit No. _____) Detail of work*
Geological Report will be prepared in the subsequent term in ninety days.
Cost \$ 916 to date

OPERATIONS:
Work was supervised by F. MARTONHEGYI Position STAFF 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.

If reclamation work is done, separate report give details of reclamation identification.

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

ON-PROPERTY COSTS: For period from August 17, 1978 to August 16, 1979

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

	Average Number of Employees	Average Rate	Average Number of Days	Amount
Professional and technical	2	125	11	2,599 ^{60 CNRL} PACIFIC
Machine operators and support				
Miners				
Other				
Total operator's costs \$				2,659

2. CONTRACTORS AND CONSULTANTS:

Name	Service	Contract Amount
P. DYSON CONSULTANTS & HOLDINGS LTD	GEOLOGICAL CONSULTING	90 ^{60 CNRL}
R.H. HARDY & ASSOC. LTD.	PHOTOCOATIC	86 ^{60 CNRL}
R.H. HARDY & ASSOC. LTD.	PHOTOGRAMMETRIC MAPPING AND GROUND CONTROL SURVEY THROUGH PACIFIC PETR.	6,459 ^{60 CNRL} PACIFIC
<p>(PACIFIC PETROLEUMS LTD. GENERAL CONTRACTOR FOR GEOL. FIELD WORK ESTIMATES OF TOTAL CONTRACT AMOUNT \$20,320 ARE ENTERED ACCORDING TO THEIR NATURE, THE TOTAL CONTRACT AMOUNT IS NOT ENTERED HERE.)</p>		
Total contractor and consultant costs \$		6,635

3. EQUIPMENT AND INSTRUMENTS USED: Owned ... Rented ...

Type	Rented From	Amount
Total equipment and instrument rentals \$		NIL

4. FIELD CAMP COSTS:

	Amount
Food	
Accommodation	
Fuel	
Other	
Total field camp costs \$	1,819 ^{60 CNRL} PACIFIC

5. SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
Totals, samplings, analysis, and testing \$		NIL

6. SUPPLIES AND MATERIALS COSTS:

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

7. TRANSPORTATION COSTS (Ground transportation details):

Vehicles	Owner	Rental Rate	Amount
LEASED BY PACIFIC PETROLEUMS			3,091 ^{60 CNRL} PACIFIC

7 1420H

Work performed. Yes No

The program of operations detailed hereunder was carried out during the period from August 17, 1978 to August 16, 1979. Total costs are \$ 21,929, an average of \$ 6.54 per acre (\$16.12 per hectare). 3355 acres ~ 1,360 hectares

GEOLOGICAL MAPPING Yes No Cost \$ 14,468
Reconnaissance 3,500 ac ~ 1,400 ha Area (Acres) Scale 1:25,000; 1:5,000 Time approx 24 man-days
Detail: Surface _____
Underground _____
Other (specify) _____

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes No Cost \$ NIL
Method _____ Line miles _____

OTHER SURVEYS Yes No Cost \$ 6,545
Grid _____ Topographic Photogrammetric mapping Other Ground control survey

ROAD CONSTRUCTION Yes No Cost \$ NIL
Length: On Licences _____ Access (off licences) _____

SURFACE WORK Yes No Cost \$ NIL
Length _____ Licence Number(s) _____
Trenching _____
Scam 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 \$ NIL
Hole Size _____ Number of Holes _____ Total Footage _____
Core: Diamond Wireline
Rotary: Conventional
Reverse circulation
Other _____
Contractor _____ Where core stored _____

LOGGING, SAMPLING, AND TESTING (check) Yes No Cost \$ NIL
Lithology: Drill samples Core samples Bulk samples
Logs: Gamma-Neutron Density Other
Testing: Prox. analysis FSI Washability
Carbonization Petrographic Plasticity Other

OTHER WORK (specify details) preparation of Geol. Report to date Cost \$ 916 to date

REPORTS:
B.A. Reclamation work (Permit No. _____) Detail of work* Geological Report will be prepared in the subsequent term in ninety days.
Cost \$ 916 to date

OPERATIONS:
Work was supervised by F. MARTONHEGYI Position STAFF 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.

For the work reported in separate report give details of report identification.

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

TOTAL
SECUS MTN
LICENCES OF AUG 17
4,558 ha. = 100%

SOUTH (4215, 4201-4209)
2343 ha. = 51%

CENTRAL (4216, 4210-4214)
1360 ha. = 30%

NORTH (4217-4219)
755 ha. = 19%

PROPERTY COSTS: For period from August 17, 1978 to August 17, 1979

OPERATOR'S FEES, SALARIES, AND WAGES:

	Average Number of Employees	Average Rate	Average Number of Days	CNRL Amount			
Professional and technical	2	125	35	8,263	4,418	2,599	1,246
Machine operators and support							
Others							
Other							
Total operator's costs				\$ 8,263	4,520	2,659	1,284

TRACTORS AND CONSULTANTS:

Name	Service	Contract Amount			
ISSON CONSULTANTS & HOLDING LTD.	GEOLOGICAL CONSULTING	CNRL 300	153	90	57
HARDY & ASSOC. LTD.	PHOTOMOSAIC	CNRL 287	146	86	55
HARDY & ASSOC. LTD.	PHOTOGRAMMETRIC MAPPER & GEOPHYSICAL SURVEY THROUGH PACIFIC PETROLEUMS	PACIFIC 21,529	10,940	6,459	4,090
PACIFIC PETROLEUMS LTD.	GENERAL CONTRACTOR FOR BOULFIELD				
PORTIONS OF THE TOTAL CONTRACT AMOUNT \$ 67,734 (\$134544 x 20,320 / 12,370) ARE ENTERED ACCORDING TO THEIR NATURE, THE TOTAL CONTRACT AMOUNT IS NOT ENTERED HERE.					
Total contractor and consultant costs		\$ 22,116	11,279	6,635	4,202

EQUIPMENT AND INSTRUMENTS USED: Owned _____ Rented _____

Type	Rented From	Amount
Total equipment and instrument rentals		\$ NIL

FIELD CAMP COSTS:

	Amount	
Food		
Accommodation		
Medical		
Other		
Total field camp costs		\$ PACIFIC 6,063 3,092 1,819 1,152

SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
Totals, samplings, analysis, and testing		\$ NIL

SUPPLIES AND MATERIALS COSTS:

	Amount	
Access supplies		
Operating and maintenance supplies		
Office and technical supplies		
Other supplies and materials		
Total, supplies and materials		\$ NIL

TRANSPORTATION COSTS (Ground transportation detail):

Vehicle	Owner	Rental Rate	Amount
LEASED BY PACIFIC PETROLEUMS			PACIFIC 10,304 5,255 3,091 1,958

support details:

Aircraft Type	Operator	Charter	TOTAL SECUS MTN LIC. OF AUG. 17 4558 ha 100%	SOUTH 425, 421-1809 2,343 ha 15%	CENTRAL 421, 420-2214 1,360 ha 10%	NORTH 4217-4219 755 ha 19%
HOPTER 206 B	MARLE LEAF HELICOPTERS LTD		CWEL 1,200	612	360	228
HOPTERS	CHARTERED BY PACIFIC PETROLEUMS		PACIFIC 18,250	9,308	5,475	3,467
Total transportation costs \$			29,754	15,175	8,926	5,653

CLAMATION WORK:

..... \$ NIL

TRAVEL EXPENDITURES (operator's costs only):

Number of Personnel	Number of Trips	Amount				
2	1	CWEL 400	204	120	76	
Total travel expenditures \$			400	204	120	76
Total costs \$			67,196	34,270	20,159	12,767

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

OFF-

PROPERTY COSTS: Period from Aug. 17, 1978 to Aug. 16

	Amount				
(a) Logistics and field support	\$				
(b) Technical and feasibility studies		CWEL 2,849	1,453	855	541
(c) Preparation of reports to date		CWEL 1,125	574	338	213
		PACIFIC 1,925	922	578	365
(d) Supplies and services					
(e) Mobilization and demobilization of equipment					
(f) Travelling expenses (itemize)					
Total \$		5,899	3,009	1,770	1,120

Supporting Cost Statements Attached

Supporting Cost Statements Attached	Amount			
.....				
.....				
.....				
.....				
.....				
.....				
.....				
.....				
.....				
Total supporting costs \$				

SUMMARY

On-property costs	\$	67,196	34,270	20,159	12,767
Off-property costs	\$	5,899	3,009	1,770	1,120
Total costs	\$	73,095	37,279	21,929	13,887

Statement of costs verified by.....



PACIFIC PETROLEUMS LTD.

P.O. BOX 6666
CALGARY, ALBERTA T2P 6T6

INVOICE NUMBER

12-94005-78

Shell Canada Resources,
400 - 4 Avenue S. W.,
CALGARY, Alberta

TYPE	AGE
4	

Attention: Mr. F. Martonhegyi

DATE December 18, 1978

INVOICE

DESCRIPTION		
To invoice you for:		
Mapping services provided by Pacific staff in the area south of Red Deer Creek, as per the Pacific-Shell agreement. Reference is made to Pacific's letter of May 18, 1978.		
Charges detailed on the attached breakdown		\$ 67,734.66

A. The cost accounts for the Pacific-Shell Agreement as per Pacific's letter dated May 18, 1978 are determined as follows:

- Shell to pay 50% of all costs south of Red Deer Creek. The mapping south of Red Deer Creek is estimated to constitute 70% of the total mapping for 1978 on the Monkman Project.
- Shell to pay 10% surcharge on mapping work to cover administrative costs. No administrative costs are to be assessed on photogrammetric services.

B. Costs are determined as follows:

1) a. Winter Survey 1977			
Helicopter	\$ 10,136.00		
Survey Control	<u>17,159.41</u>		
	\$ 27,295.41		
Charged to Shell at 10%		\$ 2,729.54	
b. Spring Survey 1978			
Helicopter	\$ 10,087.05		
Mapping	23,609.81		
Survey	<u>3,901.46</u>		
	\$ 37,598.32		
Charge to Shell at 50%		<u>18,799.16</u>	
Total survey charge to Shell		\$21,528.70	

2) 1978 Mapping Program

Item	Total Mapping	South of Red Deer at 70%	Charge to Shell at 50%
Helicopter	50,000.00	35,000.00	17,500.00
Staff	22,500.00	15,750.00	7,875.00
Camp & Support Costs	15,750.00	11,025.00	5,512.50
Transport, Communication Materials & Vehicle	26,764.97	18,735.47	9,367.74
Report Preparation	5,000.00	3,500.00	1,750.00
10% Overhead			<u>4,200.52</u>
Total Mapping Costs Charged to Shell			\$ 46,205.76

Total Invoice to Shell:

\$ 67,734.66



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

APPLICATION TO EXTEND TERM OF LICENCE

1. I, GLENN C. PROUDFOOT agent for SHELL CANADA RESOURCES LIMITED
(Name) (Name)
400 FOURTH AVENUE S.W.
(Address) (Address)
CALGARY, ALBERTA T2P 0J4

Valid FMC No. 171 929

I hereby apply to the Minister to extend the term of Coal Licences No(s) 4217 TO 4219 INCLUSIVE
THREE LICENCES CALLED SECUS MTN. COAL PROSPECTS (NORTH BLOCK)
for a further period of one year.

2. I have performed, or caused to be performed, during the period August 17, 1978 to
August 16, 1979, work to the value of at least \$ 13,887
on the location of coal licences as follows:

CATEGORY OF WORK

	Licence No(s).	Apportioned Cost
Geological mapping - - - -	<u>4217 TO 4219 INCL.</u>	<u>\$ 9,164</u>
Surveys: Geophysical - - - -	-	-
Geochemical - - - -	-	-
Other <u>Geodetic</u> - - - -	<u>4217 TO 4219 INCL.</u>	<u>\$ 4,145</u>
Road construction - - - -	-	-
Surface work - - - -	-	-
Underground work - - - -	-	-
Drilling - - - -	-	-
Logging, sampling, and testing - - - -	-	-
Reclamation - - - -	-	-
Other work (specify <u>Report to date</u>) - - - -	<u>3</u> <u>4217 TO 4219 INCL.</u>	<u>\$ 578</u>

3. I wish to apply \$ 13,887 of this value of work on Coal Licence(s)* 4217 TO 4219 INCLUSIVE

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)

Glenn C. Proudfoot
(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 \$ _____

Work performed. Yes No

The program of operations detailed hereunder was carried out during the period from August 17, 1978 to August 16, 1979. Total costs are \$ 13,887, an average of \$ 7.46 per acre (\$ 18.39 per hectare). 1,860 acres ~ 755 hectares

GEOLOGICAL MAPPING Yes No Cost \$ 9,164

Area (Acres) 2,800 ac ~ 800 ha Scale 1:25,000 ; 1:5,000 Time approx. 16 man-days
Reconnaissance
Detail: Surface
Underground
Other (specify)

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes No Cost \$ NIL

Method _____ Line miles _____

OTHER SURVEYS Yes No Cost \$ 4,145

GEODETIC Grid _____ Topographic Photogrammetric mapping _____ Other Ground control survey _____

ROAD CONSTRUCTION Yes No Cost \$ NIL

Length: On Licences _____ Access (off licences) _____

SURFACE WORK Yes No Cost \$ NIL

Length _____ Licence Number(s) _____
Trenching _____
Scam 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 \$ NIL

Hole Size _____ Number of Holes _____ Total Footage _____
Core: Diamond Wireline
Rotary: Conventional
Reverse circulation
Other _____

Contractor _____ Where core stored _____

LOGGING, SAMPLING, AND TESTING (check) Yes No Cost \$ NIL

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

OTHER WORK (specify details) preparation of Geol. Report to date .. Cost \$ 578

REPORTS:

N.A. Reclamation work (Permit No. _____) Detail of work* _____
Geological Report will be prepared in the subsequent term in ninety days.
Cost \$ 578

OPERATIONS:

Work was supervised by F. HARTONHEGYI Position STAFF 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.

* If reclamation work reported in separate report give detail of verification.

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

ON-PROPERTY COSTS: For period from August 17, 1972 to August 16, 1979

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

	Average Number of Employees	Average Rate	Average Number of Days	Amount
Professional and technical	2	125	7	1,684
Machine operators and support				
Miners				
Other				
Total operator's costs				\$ 1,684

2. CONTRACTORS AND CONSULTANTS:

Name	Service	Contract Amount
P. DYSON CONSULTANTS & HOLDINGS LTD.	GEOLOGICAL CONSULTING	57 CWRL
R.M. HARDY & ASSOC. LTD.	PHOTOMOSAIC	55 CWRL
R.M. HARDY & ASSOC. LTD.	PHOTOGRAMMETRIC TRAPPING & GEOSUB CONTROL SURVEY THROUGH PACIFIC P.	4,090 PACIFIC
(PACIFIC PETROLEUMS LTD. GENERAL CONTRACTOR FOR GEOL. FIELDWORK COMPONENTS OF TOTAL CONTRACT AMOUNT \$12,870 ARE ENTERED ACCORDING TO THEIR NATURE, THE TOTAL CONTRACT AMOUNT IS NOT ENTERED HERE.)		
Total contractor and consultant costs		\$ 4,202

3. EQUIPMENT AND INSTRUMENTS USED: Owned _____ Rented _____

Type	Rented From	Amount
Total equipment and instrument rentals		\$ NIL

4. FIELD CAMP COSTS:

	Amount	
Food		
Accommodation		
Fuel		
Other		
Total field camp costs		\$ 1,152 PACIFIC

5. SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
Totals, samplings, analysis, and testing		\$ NIL

6. SUPPLIES AND MATERIALS COSTS:

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

7. TRANSPORTATION COSTS (Ground transportation details):

Vehicles	Owner	Rental Rate	Amount
LEASED BY PACIFIC PETROLEUMS			1,958 PACIFIC

Air support details:

Aircraft Type Helicopter 206B Owner MAPLE LEAF HELICOPTERS LTD. Charter 228 CNRL

HELICOPTERS CHARTERED BY PACIFIC PETROLEUMS 3,467 PACIFIC
Total transportation costs \$ 5,653

8. RECLAMATION WORK:

\$ NIL

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

Number of Personnel 2 Number of Trips 2 Amount 76 CNRL
Total travel expenditures \$ 76
Total costs \$ 12,767

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

OFF-PROPERTY COSTS: Period from August 17, 1978 to August 16, 1979

- (a) Logistics and field support \$
(b) Technical and feasibility studies PHOTOGEOLOGICAL MAPPING 541 CNRL
(c) Preparation of reports to date 213 CNRL 365 PACIFIC
(d) Supplies and services
(e) Mobilization and demobilization of equipment
(f) Travelling expenses (itemize)

Total \$ 1,120

Supporting Cost Statements Attached

Total supporting costs \$

SUMMARY

On-property costs \$ 12,767
Off-property costs \$ 1,120
Total costs \$ 13,887

Statement of costs verified by

Aug 17/79 (Date)

WPKennel Chief Accountant (Signature and position)

21473-R10K THE COST OF WORK DONE ON THE BASIS OF LICENCES IS DERIVED BY ALLOCATING THE TOTAL COST OF WORK DONE ON SITE TO THESE SECS H10 LICENCE BLOCKS ON THE BASIS OF AREA IN "ALCULATI" IN 3 PACIFIC PETROLEUMS COST STATEMENT

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

TOTAL
SECUS MTN
LICENSES OF AUG 17
4,558 ha ± 100%

SOUTH (4215, 4201-4209)
2343 ha ± 51%

CENTRAL (4210, 4210-4214)
1360 ha ± 30%

NORTH (4217-4219)
755 ha ± 19%

PROPERTY COSTS: For period from August 17, 1978 to August 17, 1979

OPERATOR'S FEES, SALARIES, AND WAGES:

	Average Number of Employees	Average Rate	Average Number of Days	CNRL Amount	PACIFIC	SOUTH	CENTRAL	NORTH
Professional and technical	2	125	35	8,663	4,418	60	2,599	1,046
Machine operators and support								
Instructors								
Other								
Total operator's costs				\$ 8,663	4,520	2,659	1,046	

CONTRACTORS AND CONSULTANTS:

Name	Service	Contract Amount	CNRL	PACIFIC	SOUTH	CENTRAL	NORTH	
Dyson Consultants & Holding Ltd.	GEOLOGICAL CONSULTING	300	153	90	57			
M. Hardy & Assoc. Ltd.	PHOTOGRAMMETRIC	287	146	86	55			
M. Hardy & Assoc. Ltd.	PHOTOGRAMMETRIC MAPPING & GEOL. CONTROL SURVEY THROUGH PACIFIC PETROLEUMS	21,529	10,920	6,459	4,090			
PACIFIC PETROLEUMS LTD.	GENERAL CONTRACTOR FOR GEOL. FIELD WORK							
COMPOUNTS OF THE TOTAL CONTRACT AMOUNT \$ 67,734 (S: 34,544, C: 20,120, N: 12,170) ARE ENTERED ACCORDING TO THEIR NATURE, THE TOTAL CONTRACT AMOUNT IS NOT ENTERED HERE.								
Total contractor and consultant costs				\$ 22,116	11,279	6,635	4,202	

EQUIPMENT AND INSTRUMENTS USED: Owned _____ Rented _____

Type	Rented From	Amount
Total equipment and instrument rentals		\$ NIL

FIELD CAMP COSTS:

	Amount	
Food		
Accommodation		
Fuel		
Other		
Total field camp costs		\$ PACIFIC 6,063 3,092 1,819 1,152

SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
Totals, samplings, analysis, and testing		\$ NIL

SUPPLIES AND MATERIALS COSTS:

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

TRANSPORTATION COSTS (Ground transportation details):

Vehicles	Owner	Rental Rate	Amount



PACIFIC PETROLEUMS LTD.

P.O. BOX 6656
CALGARY, ALBERTA T2P 6T6

Shell Canada Resources,
400 - 4 Avenue S. W.,
CALGARY, Alberta

Attention: Mr. F. Martonhegyi

TYPE	PAGE
4	

INVOICE NUMBER
12-94005-78
1-12-124-64560

DATE December 18, 1978

INVOICE

DESCRIPTION	
To invoice you for:	
Mapping services provided by Pacific staff in the area south of Red Deer Creek, as per the Pacific-Shell agreement. Reference is made to Pacific's letter of May 18, 1978.	
Charges detailed on the attached breakdown	\$ 67,734.66

A. The cost accounts for the Pacific-Shell Agreement as per Pacific's letter dated May 18, 1978 are determined as follows:

- 1) Shell to pay 50% of all costs south of Red Deer Creek. The mapping south of Red Deer Creek is estimated to constitute 70% of the total mapping for 1978 on the Monkman Project.
- 2) Shell to pay 10% surcharge on mapping work to cover administrative costs. No administrative costs are to be assessed on photogrammetric services.

B. Costs are determined as follows:

1) a. Winter Survey, 1977		
Helicopter	\$ 10,136.00	
Survey Control	<u>17,159.41</u>	
	\$ 27,295.41	
Charged to Shell at 10%		\$ 2,729.54
b. Spring Survey 1978		
Helicopter	\$ 10,087.05	
Mapping	23,609.81	
Survey	<u>3,901.46</u>	
	\$ 37,598.32	
Charge to Shell at 50%		<u>18,799.16</u>
Total survey charge to Shell		\$21,528.70

2) 1978 Mapping Program

Item	Total Mapping	South of Red Deer at 70%	Charge to Shell at 50%
Helicopter	50,000.00	35,000.00	17,500.00
Staff	22,500.00	15,750.00	7,875.00
Camp & Support Costs	15,750.00	11,025.00	5,512.50
Transport, Communication Materials & Vehicle	26,764.97	18,735.47	9,367.74
Report Preparation	5,000.00	3,500.00	1,750.00
10% Overhead			<u>4,200.52</u>

Total Mapping Costs Charged to Shell

\$ 46,205.76

Total Invoice to Shell:

\$ 67,734.66