

**CROWS NEST RESOURCES LIMITED**  
**SHELL CANADA RESOURCES LIMITED**

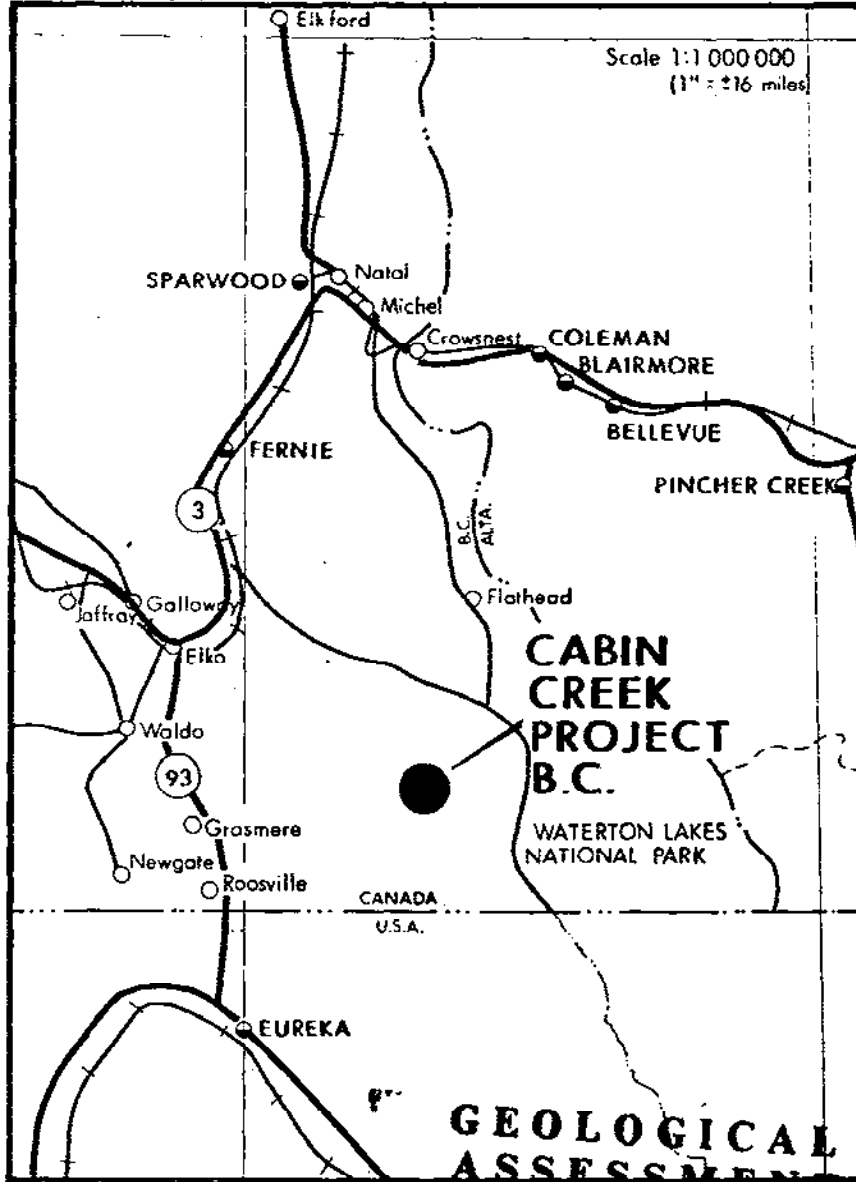
Report on Coal Licences

595 to 601 Inclusive

and  
4742

*K-SHELL-CABIN CR. T-1 (1) A*

**OPEN FILE**



**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**CABIN CREEK  
PROJECT**  
**00 379**  
**KOOTENAY DISTRICT B.C.**

CABIN CREEK  
COAL EXPLORATION, 1979

COAL LICENCES: GROUP 244: licences 595 - 601 INCLUSIVE  
and 4742 (8 Licences)

KOOTENAY LAND DISTRICT, SOUTHEAST BRITISH COLUMBIA

49° 08' NORTH LATITUDE

114° 43' WEST LATITUDE

NATIONAL TOPOGRAPHIC SERIES: FLATHEAD, B.C. 82-G-7

OWNER: SHELL CANADA RESOURCES LIMITED

OPERATOR: CROWS NEST RESOURCES LIMITED

CONSULTANT: DENNIS E. BELL, P. GEOL. (ALBERTA)

FIELD WORK: 15-OCT. to 17-OCT.-1979

SUBMISSION DATE: MAY 28, 1980

## TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Summary of Work Done	4
1.2	List of Licences on Which Work Was Performed	5
2.0	GEOLOGY	6
2.1	General Geology and Formational Terminology	6
2.2	1979 Detailed Geological Mapping	6
2.2.1	Objectives	6
2.2.2	1979 Geological Map	7
2.3	Coal Quality	8
3.0	ITEMIZED COST STATEMENT	17
4.0	BIBLIOGRAPHY	22
5.0	PROFESSIONAL VERIFICATION OF REPORT	23

## ILLUSTRATIONS

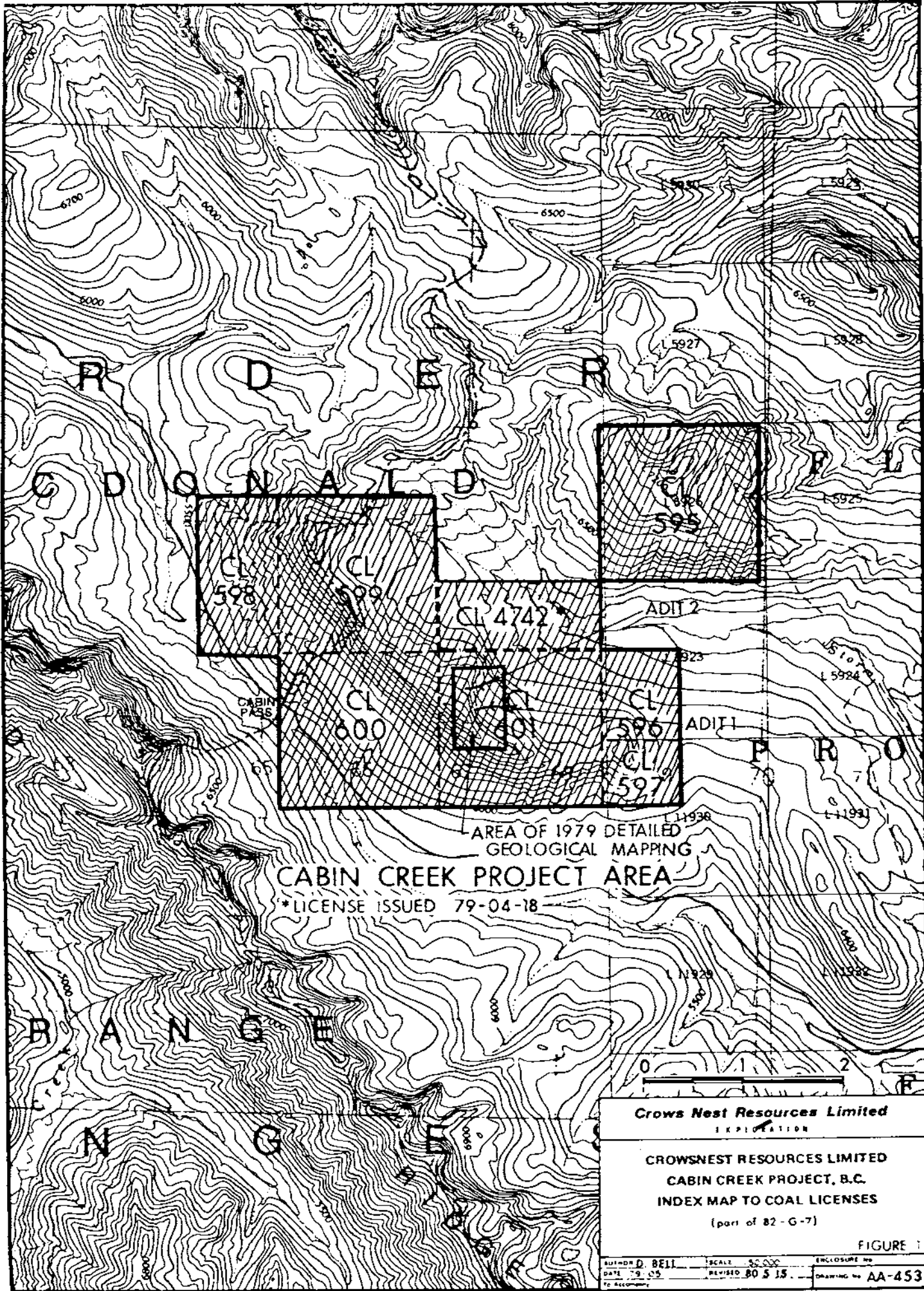
Figure 1	Index Map, Cabin Creek, 1:50,000	2
	1979 Geological Map	Enclosure

## 1.0 INTRODUCTION

The 1979 field work on Cabin Creek consisted of two days of aerial and foot reconnaissance and three days of detailed geological mapping by one mapping pair in mid-October (15 - 17). Continued traversing was planned, but snow arrived and ended the season.

This report presents a geological map of this work, and it also includes coal quality data from the adit analyses which were not available in time for submission with the 1978 report.

For geographic and physiographic position, access, property definition, economic assessment, etc., the reader is referred to the 1978 report, "Report on Exploration of the Cabin Creek Project" by J. Horachek, P. Eng. The index map (Fig. 1, following) shows the area of detailed mapping and the locations of the two adits from which samples were analyzed. The further page entitled "B.C. Coal Licences Tenure Standing, Cabin Creek Project" summarizes tenure.



AREA OF 1979 DETAILED  
GEOLOGICAL MAPPING  
**CABIN CREEK PROJECT AREA**

\*LICENSE ISSUED 79-04-18

**Crows Nest Resources Limited**  
EXPLORATION

**CROWSNEST RESOURCES LIMITED**  
**CABIN CREEK PROJECT, B.C.**  
**INDEX MAP TO COAL LICENSES**  
(part of 82-G-7)

FIGURE 1

AUTHOR: D. BELL	SCALE: 1:50,000	ENCLOSURE NO.
DATE: 79-05	REVISED: 80-5-15	DRAWING NO. AA-453
BY: [unclear]	BY: [unclear]	BY: [unclear]



### 1.1 Summary of Work Done

1,375 m of detailed chain-and-compass geological traverse were done; this is presented on the geological map (enclosure). No other work was performed, other than two days of aerial and foot reconnaissance, which confirmed the general geology as outlined by the 1978 report.

## 1.2 List of Licences on Which Work Was Performed

- (a) Aerial geological reconnaissance: all eight licences.
- (b) Foot geological reconnaissance: 596, 600, 601, 4742.
- (c) Detailed geological mapping: 601
- (d) Adit sample analyses: 601 (work done in 1978 but results not available at time of submission of 1978 report and so included in this 1979 report). → see 1978 report.



## 2.0 GEOLOGY

### 2.1 General Geology and Formational Terminology

The reader is referred to the 1978 report for general geology and formational terminology. A description of the coal seams is included in that report.

### 2.2 Detailed Geological Mapping

#### 2.2.1 Objectives

The 1978 report describes Cabin Creek as a 4 to 8 million tonne two-seam coal reserve, of small surface extent and simple geology, with little apparent structural complication. It recommended as further work "more accurate" seam subcrop delineation and more trenching to increase the number of locations at which precise seam thicknesses are known (the main reserve block is an erosional remnant and is completely surrounded by air; therefore the approach would be to trench at selected intervals around the edge of the reserve).

The seam descriptions and reserves in the 1978 report are derived from the information and samples from the two adits (one into each seam), and a few surviving incomplete trench descriptions from the four pre-1978 hand trenches.

The point of the 1978 recommendations is that, considering there is a relatively small, relatively isolated low-ratio reserve of simple geology with two well-detailed adits in hand, what is needed is a geological map and sections showing strikes, dips, the geological units, and the three-dimensional position of the seams, including actual elevations, on which to base pit feasibility, bench delineation, etc.

The 1979 detailed geological mapping (cut short by snow) was oriented to providing the data needed to draw this more detailed geological map and sections.

### 2.2.2 1979 Geological Map

The 1978 geological map was plotted on the old 1":200' topographic base, and the positions of the various sandstone units and coal seams were hand sketched as to location. There were no strikes or dips plotted.

For the 1979 topographic base this report uses the new 1:5,000 topographic sheets prepared by Crows Nest as part of their overall southeast British Columbia topographic coverage, blown up to 1:2,000.

The basic approach of the author was to conduct careful chain and compass traverses, with corrections incorporated for elevation control using hand-held clinometer. As it was obvious that the approaching winter would cut short the work, the author decided to commence traversing from the two known survey points (the adit portals), and thence to branch out, using the topography to best advantage (the property is fairly rugged and outcrop of the resistant sandstones sandwiching the two coal seams is plentiful and easily followable). Further work in 1980 or beyond can thus be continued on an already-established base from the traverses that were completed.

By traversing and plotting carefully the Top, Middle, and Basal Sandstones (i.e. "longitudinal" traverses) and similarly plotting the recessive units (including the coal seams where trenched) where they are exposed across the ridges (i.e. "cross-sectional" traverses), and combining

8

the resulting elevations into thickness calculations for the units, a much more accurate seam subcrop delineation and reserve calculation may be prepared.

Further, when this mapping is completed, stereographic analysis may be done using the strikes and dips collected to determine average seam strike and dip, from which more accurate overburden ratios, pit outline, and bench orientation may be derived.

On the geological map the chained traverses are plotted, with tick marks indicating stations, and strikes and dips plotted where taken along these lines. Due to the lateness of the season, there was no attempt made to re-excavate the old caved trenches encountered; they were not so caved, however, that the tops and bottoms of the seams and the major partings could not easily be seen. The author places an accuracy of 10 m horizontally and 5 m vertically on information plotted along these lines.

### 2.3 Coal Quality

Results of the adit coal analyses were not available at the time of submission of the 1978 report. They are included here.

3.0 ITEMIZED COST STATEMENT

The following Application to Extend Term of Licence for Cabin Creek contains detailed cost figures.



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

**APPLICATION TO EXTEND TERM OF LICENCE**

1. I, BOLTON AGNEW agent for CROWS NEST RESOURCES LIMITED  
(Name) (Name)  
P.O. BOX 2699, Stn. 'M'  
(Address) (Address)  
CALGARY, ALBERTA T2P 2M7  
 Valid FMC No. 187621

hereby apply to the Minister to extend the term of Coal Licences No(s) 595 to 601 incl. and 4742  
 for a further period of one year.

2. I have performed, or caused to be performed, during the period April 19, 1979 to February 28, 1980, work to the value of at least \$ 19,134 on the location of coal licences as follows:

CATEGORY OF WORK

	Licence No(s)	Apportioned Cost
Geological mapping - - - -	<u>595 to 601 incl., 4742</u>	<u>8,445</u>
Surveys: Geophysical - - - -		
Geochemical - - - -		
Other - - - -		
Road construction - - - -		
Surface work - - - -		
Underground work - - - -		
Drilling - - - -		
Logging, sampling, and testing -	<u>601</u>	<u>7,278</u>
Reclamation - - - -	<u>601</u>	<u>1,774</u>
Other work (specify) - - - -	<u>595 to 601 incl. 4742</u>	<u>2,060</u>
Geol. Report		

3. I wish to apply \$ 19,134 of this value of work on Coal Licence(s)\* 594 to 601 incl. and 4742

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

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 Cabin Cr. Project  
 - Annual Reclamation Report, 1979  
 - Geological Report, 1979 being submitted under separate covers  
January 22, 1980  
(Date) (Signature and position)

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

(FORMS TO BE SUBMITTED IN DUPLICATE)

*Land Supervisor*

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 April 19, 1979 to January 31, 1980. Total costs are \$ 19,134, an average of \$ 13.41 per HECTARES

GEOLOGICAL MAPPING Yes  No  Cost \$ 8,445

	Area (Acres)	Scale	Time
Reconnaissance	1500	1:	2 man-days
Detail: Surface	400	1:2000	8 man-days
Underground			
Other (specify)			

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

OTHER SURVEYS Yes  No  Cost \$ \_\_\_\_\_  
Grid \_\_\_\_\_ Topographic \_\_\_\_\_ Other \_\_\_\_\_

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

SURFACE WORK Yes  No  Cost \$ \_\_\_\_\_

	Length	Licence Number(s)
Trenching		
Seam tracing		
Crosscutting		
Other		

UNDERGROUND WORK Yes  No  Cost \$ \_\_\_\_\_  
Test adits: Number \_\_\_\_\_ Average length \_\_\_\_\_ Total footage \_\_\_\_\_  
Other workings: Area \_\_\_\_\_ Total footage \_\_\_\_\_

DRILLING Yes  No  Cost \$ \_\_\_\_\_

	Hole Size	Number of Holes	Total Footage
Core: Diamond <input type="checkbox"/> Wireline <input type="checkbox"/>			
Rotary: Conventional <input type="checkbox"/>			
Reverse circulation <input type="checkbox"/>			
Other			

Contractor \_\_\_\_\_ Where core stored \_\_\_\_\_

LOGGING, SAMPLING, AND TESTING (check) Yes  No  Cost \$ 7,278

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) \_\_\_\_\_ Cost \$ \_\_\_\_\_

REPORTS:

Reclamation work (Permit No. C-120) Detail of work\* clean-up, seeding and fertilizing last year adit sites \$1,774  
Geological Report 2,060  
Cost \$ 3,834

OPERATIONS: Dennis E. Bell P. Geol. (Alberta)  
Work was supervised by Frank Martonhegyi Position Senior 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 details of report identification.

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

ON-PROPERTY COSTS: For period from April 19 to October 31, 1979

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

	Average Number of Employees	Average Rate	Average Number of Days	Amount
Professional and technical	1	125	8.5	1,053
Machine operators and support				
Miners				
Other				
Total operator's costs \$				1,053

**2. CONTRACTORS AND CONSULTANTS:**

Name	Service	Contract Amount
Max Air	Geological Consulting	\$1000
Total contractor and consultant costs \$		\$1000

**3. EQUIPMENT AND INSTRUMENTS USED: Owned \_\_\_\_\_ Rented \_\_\_\_\_**

Type	Rented From	Amount
Total equipment and instrument rentals \$		

**4. FIELD CAMP COSTS:**

	Amount	
Food		
Accommodation	657	
Fuel		
Other		
Total field camp costs \$		657

**5. SAMPLING, ANALYSIS, AND TESTING:**

Service	Performed by	Amount
Proximate Analysis, Tests	Loring Laboratories	2,020
Bulk Sample Tests	Canadian Carbonization Research	4,578
Proximate Analysis, Tests	CNRI Lab - Fernie	680
Totals, samplings, analysis, and testing \$		7,278

**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
one four wheel drive truck	Rentrite	\$1000/m. 1/4 month	250





#### 4.0 BIBLIOGRAPHY

Horachek, J., 1978, "Report on Exploration of the Cabin Creek Project": Crows Nest Resources internal.

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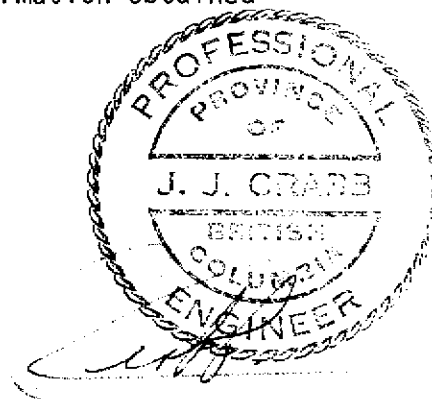
PROFESSIONAL VERIFICATION OF REPORT

Entitled: Cabin Creek Coal Exploration, 1979  
Kootenay Land District,  
Southeast British Columbia  
B.C. Coal Licences  
Nos. 595-601 Inclusive, and 4742

Mr. Dennis E. Bell carried out the 1979 geological field program on Cabin Creek, British Columbia coal licences held by Shell Canada Resources Ltd. and operated by Crows Nest Resources Limited.

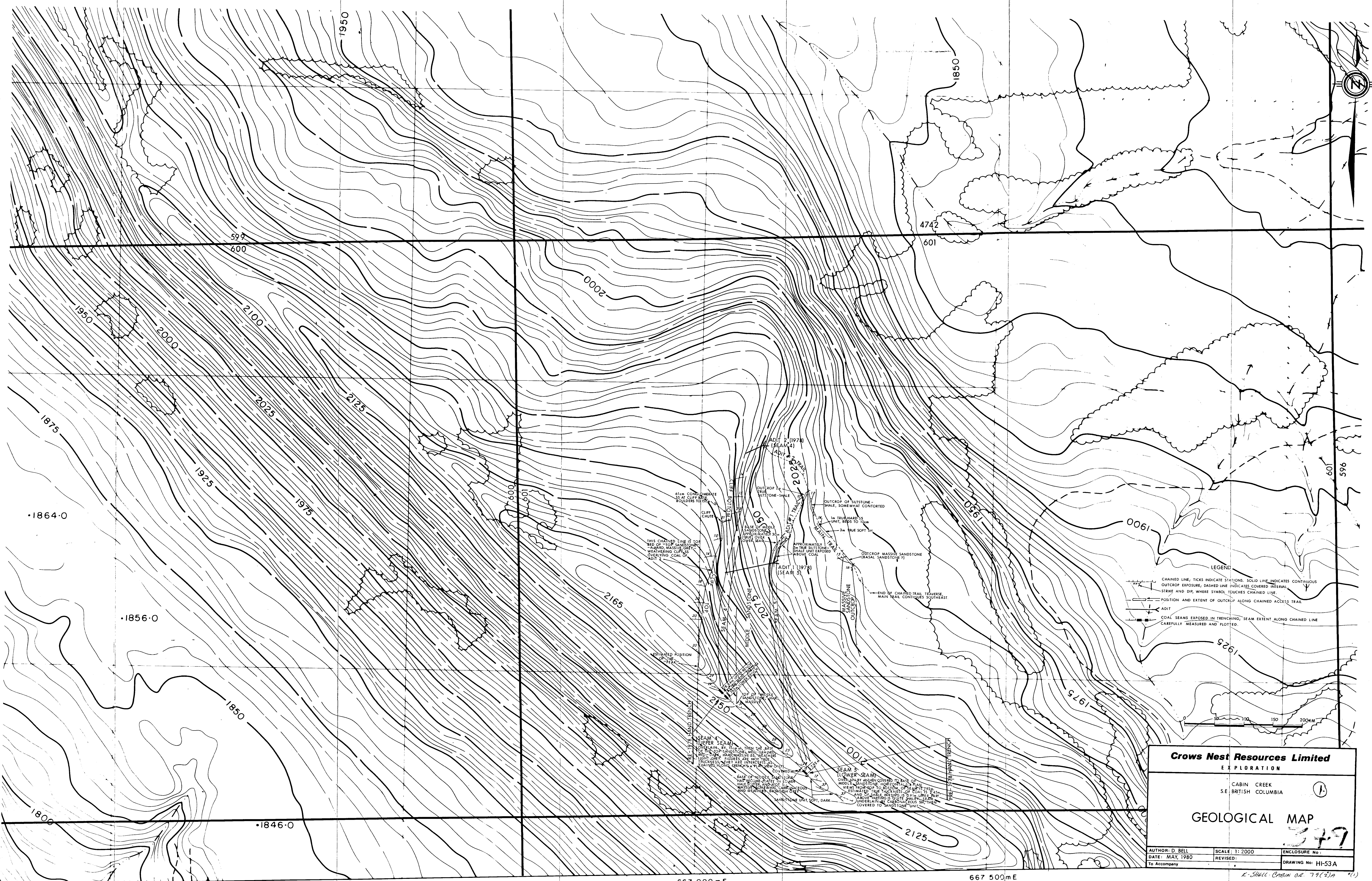
Dennis Bell, B.S.c., graduated in Geology from Dalhousie University in 1965. Since 1968 he has specialized in basic field mapping, structural interpretation, and exploration equipment supervision in the coking coal belt of British Columbia and Alberta. He has worked on projects similar to Cabin Creek for such major coal companies as Manalta Coal Ltd., Luscar Ltd., Petrocan, and Fording Coal Ltd. Mr. Bell is registered as a Professional Geologist in the Association of Professional Engineers, Geologists, and Geophysicists of Alberta.

I consider the aforementioned Geologist to be well qualified to undertake responsibilities he was assigned for this project. I am satisfied that the attached report dated May 28, 1980 has been competently prepared and justly represents the information obtained from this project.



J. J. Crabb, P.Eng.

May 28, 1980



**Crows Nest Resources Limited**  
 EXPLORATION

CABIN CREEK  
 S.E. BRITISH COLUMBIA

**GEOLOGICAL MAP**  
 579

AUTHOR: D. BELL	SCALE: 1:2000	ENCLOSURE No:
DATE: MAY, 1980	REVISED:	DRAWING No: HI-53A
To Accompany:		

*K. Shell (Crown) Oct. 79 (5) 11*