K-SHELL LINE CREEK 79(1)A

"LINE CREEK COAL PROJECT"

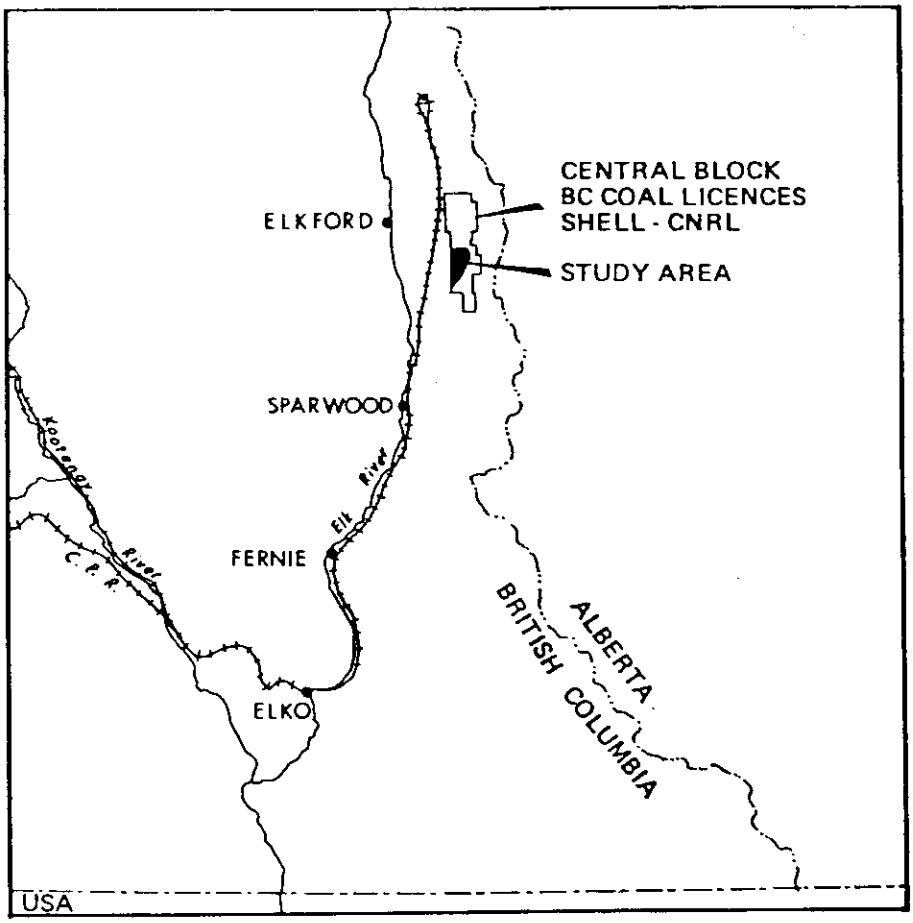
C.L. NOS. 277-281 INCL, 284, 285, 290, 293, 294, 297, 298, 301, 304, 1299.

M. D'ORSAY
T. HANNAH

Crows Nest Resources Limited

SHELL CENTRE, CALGARY, ALBERTA, CANADA

LINE CREEK COAL PROJECT



Report on Coal Licences 277 to 281 incl., 284, 285, 290, 293, 294, 297, 298, 301, 304, 1299, Kootenay Land District, British Columbia, For Work Done in Period June, 1979 to October, 1979 Inclusive.

Held By: Shell Canada Resources Limited.
Operated By: Crows Nest Resources Limited
Lat. 49° 57'N, Long. 114° 46'W
NTS 82 G 15

CONFIDENTIAL TILL

Authors: M. D'Orsay
T. Hannah

April 30, 1980

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* REFER TO: K- LINE CREEK 79(2)A
FOR ANALYSIS DATA, REFER TO CONFIDENTIAL COAL ANALYSIS FILE.

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SEE: K-SHELL-LINE CREEK 79(3)A

Analysis- SEE REAR OF THIS TEXT.

1.0 INTRODUCTION

1.1 Location

The Line Creek Ridge Project area is centered at latitude 49° 57'N and longitude 114° 46'W, 25 km northeast of Sparwood, British Columbia in the Upper Elk Coal Field. It is within 9.5 km of the Canadian Pacific Railroad line in the Elk Valley (Figure 1). The licences lie about midway between two major operating metallurgical coking coal properties, the Kaiser Resources Harmer Ridge 16 km to the south and the Fording River Coal's open pit operations to the north.

Vehicular access into the area is via an all-weather, gravel base road presently used by CNI logging operations in the area.

The Central Block Area consists of several explored units, the principal ones being Line Creek Ridge, Horseshoe Ridge, and Ewin Pass. This report covers primarily the southwestern portion, Line Creek Ridge, in which the major exploration effort has been concentrated.

Topographically, the Line Creek Ridge area is of rugged relief, with elevation differentials of up to 780 m from the narrow ridge crest to the valley floor. Average surface gradients range from 40% on the eastern side to 60% on the west flank of the ridge. One major drainage, Line Creek, drains the bulk of the reserve area from the east flank; a smaller stream receives drainage from the steep west slopes and flows into Line Creek, which, in turn, is tributary to the Fording River some 9.5 km west.

PC

1.2 Summary

The Line Creek Ridge coal property includes:

- o an open pit area on the south where exploration is completed and ready for mine development, and
- o a northern area with strip and underground potential which has been little explored.

The property is located in the Crows Nest Pass area of the Rocky Mountains in southeastern British Columbia about 1150 kilometres east of Vancouver and 25 kilometres northeast of Sparwood at approximately latitude 49° 57'N and longitude 114° 46'W. It is the most intensively studied portion of the Shell-CNRL Central Block licences where exploration has indicated several other areas which may be suitable for coal development, both surface and underground. The planned mine site is 9.5 kilometres from CNRL's proposed coal preparation plant and the nearest railway point (Canadian Pacific).

Exploration data indicates that the Kootenay Coal Bearing Member in this area is 529 metres thick and contains fourteen coal seams with a gross aggregate thickness of 68.8 metres. Thirteen seams have coal thicknesses greater than 2.0 metres.

The north-plunging Fording Syncline is the main structural element in the vicinity of Line Creek Ridge. The ridge is largely underlain by the Syncline's east limb, the dip and curvature of which is disturbed by thrust faults and small magnitude folds. At lower elevations, the eastern slope of Line Creek Ridge overlies the Syncline axis, the west-dipping east limb and the Fording Thrust Zone. Drag-

folding along this major thrust zone has resulted in local thickening of coal seams and inter-seam strata. Dips flatten out towards the synclinal axis both on the south and north end of Line Creek Ridge. Bedding dips on the Syncline limbs range from low on the east limb (8° - 25°W) to high in the west and northwestern portions of the west limb (60° E to slightly overturned W). Overburden and thick forests permit only sparse outcrop exposure in the eastern and northeastern portion of the project area; a network of exploration roads in the western and northwestern portions of the project area permit sufficient outcrop exposure to allow detailed geological mapping.

Mechanical exploration in 1979 was concentrated in the pit area and included bulk sampling of six adits and 990 metres of coal-cored rotary drilling in nine holes. The main purpose of this work was to obtain additional quality data for marketing and further delineation of the oxidized zone of the main seam.

Non-mechanical exploration in 1979, consisting of detailed geological mapping, was concentrated in the area north of the pit high-wall (Line Creek North). The main purpose of this work was to further define the stratigraphy and structure and to delineate additional potential thermal reserves.

1.2.1 Tenure

Group #266 includes 15 B.C. Coal Licences (number 277, 278, 279, 280, 281, 284, 285, 290, 293, 294, 297, 298, 301, 304 and 1299) which cover 3402 hectares (Enclosures 1, 2). These licences are held by Shell Canada Resources Limited and operated by Crows Nest Resources Limited. These licences were transferred in 1979 from Crows Nest Pass

Oil and Gas upon its aquisition by Shell Canada Resources Limited in 1978.

A summary of work done in these licences prior to 1979 by Crows Nest Industries Ltd. and Shell Canada Resources was filed with the B.C. Ministry of Energy, Mines and Petroleum Resources on April 30, 1979.

1.3 Summary of Work Done in 1979

The 1979 program included: (Figure 3)

- o nine rotary coal-cored drill holes on seven locations with 990 metres of total drilling. Two of the sites were re-drilled in an attempt to obtain better core recovery. A full suite of geophysical logs including gamma-ray, long-spaced density, bed-resolution density, neutron-neutron, resistivity and caliper was produced for each hole. The purpose of these holes was to further delineate the #8 seam oxidized zone.
- o six bulk samples; five from existing adits and one from a new adit. This work involved 160 metres of new drivage and cross-cuts. Four of the bulk samples were metallurgical coal and two were thermal coal.
- o detailed geological mapping on 1:2,000 scale maps of the area north of the proposed open pit (Line Creek North). Limited bedrock exposure in the eastern portion of the work area restricted the thoroughness of the mapping.

1.4 List of Licences on Which Work Was Done

Group #266

Geological Mapping	293, 294, 297
Surveys: Geodetic	293, 294, 297
Road Construction	293, 294, 297
Underground Work	294, 297
Drilling	294, 297
Logging, Sampling, and Testing	294, 297
Reclamation	293, 294, 297
Other Work, Geol. Report	293, 294, 297

2.0 GEOLOGY

2.1 Regional Stratigraphy

The Kootenay Formation of Upper Jurassic - Lower Cretaceous age is the coal-bearing sequence of south-eastern B.C. It is a thick sequence of clastic sediments representing delta progradation over marine shales, siltstones and sandstones of the Jurassic Fernie Formation.

Deposition was initiated by an epeirogenic uplift of the source area in early phases of the Columbian Orogeny in Late Jurassic time. The Kootenay section thickens from east to west; the source of sediments being southwest and the shoreline on the east and northeast. Its thickness within the Upper Elk Coal Field ranges up to 1100 m.

The Kootenay Fm. can be subdivided into three main units. A basal, cliff-forming "Moose Mountain Member" is composed predominently of sandstones with minor siltstones and shales. It is a prograding sequence of delta front sheet sands, barrier bars and tidal channel deposits.

The middle, "Coal-Bearing Member" is generally in sharp contact with the underlying Moose Mountain (sandstone-coal, or sandstone - bioturbated silty shale). It consists of alternating beds of sandstone, shale, siltstone and coal representing prograding delta plain environments. The Coal-bearing Member is 245 m - 860 m thick, including 6 m to 61 m of coal in the south contained within 2 to 8 seams, and up to 90 m of coal in 23 seams on the north.

The upper portion of the Kootenay Fm., the "Elk Member", consists of alternating sandstone, siltstone, shale and conglomerates

with minor lenticular coal beds. It represents progradation of the alluvial plain over the delta plain coal-forming environments.

The upper contact of the Kootenay is an erosional surface. It is overlain by the Cretaceous Blairmore Group, beginning with rejuvenated piedmont-plain deposits of the Cadomin Formation (Cadomin Conglomerate).

2.2 Regional Structure

The Coal-Bearing Kootenay Formation occurances in the front ranges of south-eastern B.C. are preserved in north-south trending synclines referred to as the Crowsnest Coalfields. High structural relief of Paleozoic rocks surrounding the Coalfields fades out in relatively incompetent rocks of the Fernie and Kootenay Formations. The structure within the synclines is complicated to varying degrees by thrust faults and their associated folds, and also by normal faults. This structural complexity increases towards the thinner, east side of the Coalfields where they have been thrust against underlying Paleozoics.

The Crowsnest Coalfields can be subdivided into three coal-bearing areas. From south to north they are the Flathead Coalfield, the Fernie Coalfield and the Upper Elk Coalfield. Since they are all part of the same depositional complex, the subdivision is based on erosional and structural boundaries.

2.2.1 Upper Elk Coalfield

The Upper Elk Coalfield is an elongate basin composed of two major synclines (Greenhills and Fording) separated by an anticline and the northern extension of the Erickson normal fault. The eastern,

Fording syncline, can be traced northward from Alexander Creek to the Kananaskis Lakes. On its south end, (Enclosure 4), it is symmetric with moderate to steep dips on both limbs. To the north it becomes more asymmetric with a west dipping axial plane, vertical strata on the west limb and moderately dipping strata on the east limb.

On the west side of the Erickson Fault, the Greenhills syncline has been downthrown approximately 900 m. It can be traced northerly up the Elk River valley from Fording Mountain to where it is cut off by the Elk River Thrust. The Greenhills syncline is slightly asymmetric with a west dipping axial plane.

Only erosional remnants of the Kootenay Formation are preserved in the southern portion of the Fording Syncline. A 10° north plunge on the syncline preserves an increasing thickness of Kootenay section to the north. Faulting and folding has caused some repetitions of the section and thickening of the coal seams.

2.3 Stratigraphy - Line Creek Ridge

- The 1979 drilling and adit data did not change the stratigraphy for open pit area as reported in the 1978 Line Creek Geology Report.
- The 1979 mapping data from Line Creek North indicates that the Kootenay Formation is up to 590 metres thick (Figure 5). The Coal-bearing Member is approximately 530 metres thick and contains fourteen coal seams numbered C, B, A, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10B, and 10A from top to bottom. The seams have a net aggregate thickness of 59.0 metres in 68.9 metres of gross aggregate coal section. Seam details are as follows:

C-Seam — Two coal seams separated by a shale parting. Thickness becomes more variable towards the north. Average thickness 2.8 m/3.1 m.

B-Seam — Two coal seams of equal thickness separated by a shale parting which thickens towards the northeast. Average thickness 2.7 m/5.0 m.

A-Seam — One coal seam of variable thickness. Average thickness is 2.0 m/2.0 m.

1-Seam — Two coal seams that are separated by a shale split. The coal seams are constant thickness, averaging 3.0 m/4.1 m.

2-Seam — One coal seam that develops several small splits towards the northeast. Otherwise it maintains a constant thickness of 2.7 m/2.7 m.

3-Seam — Four coal seams separated by thin shale splits. Seam thickens towards the east and south-southwest and develops numerous shale splits towards the west and north. Average thickness is 4.6 m/5.7 m.

4-Seam — Two coal seams separated by a shale parting which thickens towards the east-northeast. The lower seam becomes shaley and difficult to correlate towards west side of ridge. Average thickness 5.2 m/5.7 m.

5-Seam — One thin coal seam that appears to pinch out towards the north. Average thickness 9.9 m/0.9 m.

6-Seam — Two coal seams separated by a split. Lower seam has a thin shale split as a typifying signature. The seam thickens towards the southeast (structurally thickened?) and thins towards the north and northeast. Average thickness is 4.8 m/7.5 m.

7-Seam — Maintains a regular thickness of 6.0 m/7.7 m. Structural thinning occurs in the northeast.

8-Seam — This is the thickest seam, averaging 11.6m/12.8 m. Its stratigraphic and geophysical character remains consistent throughout the area. Variations in thickness are probably due to structural disturbance.

9-Seam — Two coal seams separated by shale split, the lower seam thins towards the north. On the west side of the property structural disturbance appears to have reduced seam outcrop thickness to less than 1 metre. Overall average thickness is 5.4 m/6.4 m.

10B-Seam Outcrops of this seam show that it thins towards the north, especially on the west side of the property. This may be a result of structural disturbance that is quite pronounced on the west side.

10A-Seam Maintains a regular thickness throughout Line Creek North. Its basal contact is a coaly sandstone. Average thickness is 2.8 m/2.8 m.

2.4 Structure - Line Creek Ridge

- Data from the 1979 pit area drilling program was used to update the #8 seam structure maps. No major changes in the structural picture were encountered (Figures 6 a-d).
- The 1979 Line Creek North mapping program indicates that the structure in this area is somewhat more complex than in the pit area (Figures 7, 8 a-c). On Line Creek Ridge the Fording Syncline trends north-south and plunges 12° to the north. In the Line Creek North area its axial plane dips approximately 86° East.
  - West of the syncline axis, correlation of outcrop data and drill hole data indicates a series of imbricate, east-dipping thrust faults. Drill hole data indicates that these thrust faults are largely restricted to the section above seam #7. This upper portion of the Coal-bearing Member contains less sandstone than the section below #7 seam, and would, therefore, be more subject to deformation during the mountain-building process.
  - On the west side of Line Creek North, strata from the Moose Mountain Member up to a point between seams #8 and #7 have been folded into a overturned syncline. The lower or east-dipping limb is continuous with the west

limb of the Fording Syncline. Bedding attitudes on the upper limb range from near-vertical east-dipping to overturned west-dipping.

- o The Fording Syncline axis is almost coincident with a major, north-south trending normal fault. More data is required to accurately determine the magnitude of this fault.
- o The east limb of the Fording Syncline is complicated by the west-dipping Fording Thrust Zone. This fault zone consists of an unknown number of thrust planes and their associated drag folds. Limited exposure on the east and northeast side of the project area prevents complete analysis of this complex structure.

2.5 Quality - Line Creek Ridge

Analysis and testing of the 1979 samples is in progress at the time of this writing. When compiled, this data will be used to update coal Iso-FSI maps for seam #8 in an attempt to better define the zone of oxidation. This work will be reported at the next Anniversary of these coal licences.

DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, BOLTON AGNEW (Name) agent for CROWS NEST RESOURCES LIMITED (Name)

(Address) P.O. BOX 2699 Stn. "M" (Address)

CALGARY, ALBERTA

Valid FMC No. 187621

hereby apply to the Minister to extend the term of Coal Licences No(s). 277 to 281 incl., 284, 285, 290, 293, 294, 297, 298, 301, 304, 1299 for a further period of one year.

2. I have performed, or caused to be performed, during the period February 1, 1979 to January 31, 19 80, work to the value of at least $ 530,302 on the location of coal licences as follows:

CATEGORY OF WORK	Licence No(s).	Apportioned Cost
Geological mapping	293, 204, 297	45,457
Surveys: Geophysical		
Geochemical		
Other Geodetic	293, 294, 297	15,200
Road construction	293, 294, 297	69,772
Surface work		
Underground work	294, 297	257,248
Drilling	294, 297	98,002
Logging, sampling, and testing	294, 297	14,613
Reclamation	293, 294, 297	2,880
Other work (specify) Geol. Report	293, 294, 297	27,125

3. I wish to apply $ 530,302 of this value of work on Coal Licence(s)* 277 to 281, 284, 285, 290, 293, 294, 297, 298, 301, 304, 1299

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 LINE CREEK COAL PROJECT
   - Annual Reclamation Report, 1979
   - Geological Report, 1979 (will be submitted under separate cover in less than ninety days)

_____ (Date)

_____ (Signature and position)

Land Supervisor

* 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 [X] No [ ]

The program of operations detailed hereunder was carried out during the period from February 1, 1979 to August 31, 1980. Total costs are $530,302, an average of $155.87 per HECTARES

GEOLOGICAL MAPPING Yes [X] No [ ] Cost $45,457

	Area (Acres)	Scale	Time
Reconnaissance			
Detail: Surface	1853	1:2000	100 days
Underground	0.23	1:200, 1:40	40 days
Other (specify)			

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes [ ] No [X] Cost $

Method Line miles

OTHER SURVEYS Yes [X] No [ ] Cost $15,200

Grid Topographic Other

ROAD CONSTRUCTION Yes [X] No [ ] Cost $69,772

upgrading
Length: On Licences 3.59 miles Access (off licences)

SURFACE WORK Yes [ ] No [X] Cost $

	Length	Licence Number(s)
Trenching		
Seam tracing		
Crosscutting		
Other		

UNDERGROUND WORK Yes [X] No [ ] Cost $257,248

Test adits: Number 6 Average length 250 ft. Total footage 1531 ft.

Other workings: Area Total footage

DRILLING Yes [X] No [ ] Cost $98,007

	Hole Size	Number of Holes	Total Footage
Core: Diamond [ ] Wireline [ ]			
Rotary: Conventional [X] with core	5 1/8, 4 7/8	9	3245
Reverse circulation [ ]			
Other			

Contractor Garritty & Baker Where core stored Fernie, B.C.

LOGGING, SAMPLING, AND TESTING (check) Yes [X] No [ ] Cost $14,613

Lithology: Drill samples [X] Core samples [X] Bulk samples [ ]

Logs: Gamma-Neutron [X] Density [X] Other [X]

Testing: Prox. analysis [ ] FSI [ ] Washability [ ]

Carbonization [ ] Petrographic [ ] Plasticity [ ] Other [ ]

OTHER WORK (specify details) Cost $

REPORTS: erosion bars, seeding, fertilizing,

Reclamation work (Permit No. C-54) Detail of work* 1979 Reclamation Report to follow under separate cover. 1979 Geology Report to follow under separate cover in less than ninety days Cost $30,005

OPERATIONS:

Work was supervised by T. Hannah Position Sr. Geologist

Is this person a registered or licensed Professional Engineer in British Columbia? Yes [ ] No [X]

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 June 14, 1979 to November 1, 1979

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

	Average Number of Employees	Average Rate	Average Number of Days	Amount
Professional and technical	2	$125/day	130	32,500
Machine operators and support				
Miners				
Other				

Total operator's costs $ 32,500

2. CONTRACTORS AND CONSULTANTS:

Name	Service	Contract Amount
Drain Bros. Construction	Earth work (bulldozers, etc.)	56,700
Garritty & Baker Drilling	Rotary Drilling (open hole & core)	53,620
Target Tunnelling	Adit Mining	193,204
BPB Instruments	Downhole Geophysical Logging	1,112 -
Gallant Trucking	Water Hauling	3,175 -
Jamieson Consultants	Supervising Machinery Work	8,573 -
SAL Enterprises	Supervising Bulldozer work	2,340 -
B & R Drilling	Supervising Drilling	1,605 -
SCRL Surveying Dept. including its subcontractor Midwest Survey	Geodetic Location Survey	15,200

Total Contractors & Consultants $ 335,529

4. FIELD CAMP COSTS:

		Amount
Food		
Accommodation		54,054
Fuel		15,622
Other	Communication	3,761

Total field camp costs $ 73,437

5. SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
Proximate Analyses & Tests	Loring Laboratories	467
Proximate Analyses & Tests	CNRL Lab - Fernie	3,680

Totals, samplings, analysis, and testing $ 4,147

6. SUPPLIES AND MATERIALS COSTS:

	Amount
Process supplies	
Operating and maintenance supplies	3,027
Office and technical supplies	2,753
Other supplies and materials — Camp supplies	3,769

Total, supplies and materials $ 9,549

7. TRANSPORTATION COSTS (Ground transportation details):

Vehicles	Owner	Rental Rate	Amount
2 4-wheel drive trucks	Rent-Rite	$1500/month all inclusive	15,301
Trucks	KIKI Trucking		2,110

Air support details:

Aircraft Type	Owner	Charter
Helicopter 206 B	Kenting	20,683

Total transportation costs $ 38,094

8. RECLAMATION WORK:

Interior Reforestation $ 2,880

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

Number of Personnel	Number of Trips	Amount
2	6	6,186

Total travel expenditures $ 6,186

Total costs $ 502,322

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

OFF-PROPERTY COSTS: Period from February 1, 1979 to January 31, 19 80

		Amount
(a) Logistics and field support		$
(b) Technical and feasibility studies	Photogeology	855
(c) Preparation of reports	217 man days @ $125/day all inclusive	27,125
(d) Supplies and services		
(e) Mobilization and demobilization of equipment		
(f) Travelling expenses (Itemize)		

Supporting Cost Statements Attached

Total $ 27,980 (Amount)

Total supporting costs $

SUMMARY

On-property costs $ 502,322

Off-property costs $ 27,980

Total costs $ 530,302

Statement of costs verified by W. S. Kowalski

Jan 29/80 (Date)

W.S. Kowalski (Signature and position)

Chief Accountant

2M-675-8196

4.0 BIBLIOGRAPHY

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CNI Toronado Mountain Project - 1971 - Vol. I

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D.W. Gibson - Sedimentary Facies in the Jura - Cretaceous Kootenay Formation, Crows Nest Pass Area, Southwestern Alberta and Southeastern British Columbia - Bull. C.S.P.G. Vol. 25, No. 4, pp. 767 - 791.

L. Jansa - Depositional History of Coal-Bearing Upper Jurassic - Lower Cretaceous Kootenay Formation, Southern Rocky Mountains, Canada - G.S.A. Bull. Vol. 83, pp. 3199 - 3222.

T. W. Hannah - Line Creek Ridge Geology Report, 1978 Exploration and Summary of Previous Work, C.N.R.L., 1978

5.0 PROFESSIONAL VERIFICATION OF REPORT

Entitled: Line Creek Coal Project
Kootenay Land District, B.C., 1979
B.C. Coal Licences
Nos. 277, 278, 279, 280, 281, 284, 285, 290,
293, 294, 297, 298, 301, 304, 1299

Mr. Albert M. D'Orsay and Ted. W. Hannah planned and carried out the 1979 geological field program on Line Creek B.C. Coal Licences held by Shell Canada Resources Ltd. and operated by Crows Nest Resources Ltd. They also prepared this report. Mr. Frank Martonhegyi supervised activity of this program under 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.

Ted W. Hannah, B.Sc., graduated in Geology from University of New Brunswick in 1973. Since 1974, Mr. Hannah has worked on a variety of coal properties for Shell Canada Resources Ltd. and Crows Nest Resources Ltd. in Alberta and British Columbia.

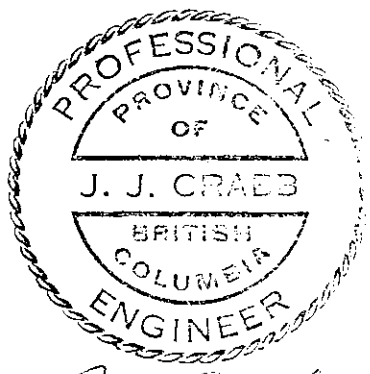
Frank Martonhegyi, M.E., graduated in Mining Geological Engineering from the University of the Heavy Industry, Hungary, in 1962; and received post-graduate training at the University of Saskatchewan, Saskatoon, in 1969-1971. His experience in Western Canadian coal exploration since 1971 includes positions 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 the aforementioned geologists to be well qualified to undertake responsibilities they were assigned on this project. I am satisfied that the attached report dated April 30, 1980 has been competently prepared and justly represents the information obtained from this project.



J. J. Crabb, P.Eng.

April 30, 1980

CROWS NEST RESOURCES LIMITED EXPLORATION

B. C. COAL LICENCES TENURE STANDING

BLOCK: *CENTRAL BLOCK* PROJECT: *LINE CREEK* YEAR: *1979-80*

GROUP: *# 266* DATE: *JAN.31'80*

KOOTENAY LAND DISTRICT

PROJECT NAME	PROJECT LICS. TOTAL NO.	PROJECT AREA TOTAL HECTARES	BLOCK NAME	BLOCK LIC. TOTAL NO.	BLOCK AREA TOTAL HECTARES	GROUP NO.	GROUP LICS. TOTAL NO.	GROUP AREA TOTAL HECTARES YEAR	LICENCE NO.	LEGAL DESCRIPTION	AREA TOTAL HECT.	ACQUISIT'N YEAR	FEES $10^3	RENTALS ANNUAL $	RENTALS TOTAL TO DATE $10^3	REQUIREMENT WORK EXPIRED $10^3	CURRENT YEAR LICS	CURRENT YEAR $	CREDIT YEAR	CREDIT $	ANNIVERSARY DATE	BUDGET CURRENT YEAR AFE	BUDGET $10^3	EXP TOTAL $10^3	POTL SHELL CLASS	COMMITMENTS, J. V. OTHER THAN B.C. GOV'T DESCRIPTION	REMARKS
LINE CREEK	15	3402	CENTRAL BLOCK	36	7554	266	15	3402 80				74 75	265.15	17,010	67.9	1,101.7 / 360.2	58	642,010	10	378,090 / 170,100	JAN.31	403/A,B(84) 495/D(79)	485	237,295	Y		TWO LAND MAP SHEETS
									277	LOT 6748	259	75				1461.9	5			548,190							WORK REQMT FULFILLED
									278	LOT 6749	259	75					5										TO JAN.31'89 UNDER COAL
									279	LOT 6750	259	75					5										ACT '74 & TO JAN.31'90
									280	LOT 6751	259	75					5										UNDER COAL ACT '78
									281	W1/2 6752	130	75					5										
									284	LOT 6755	259	75					5										
									285	LOT 6756	259	75					5										
									290	LOT 6761	211	75					5										
									293	LOT 6766	259	75					5										
									294	LOT 6767	259	75					5										
									297	LOT 6771	259	75					5										
									298	LOT 6772	259	75					5										
									301	LOT 6776	259	75					5										
									304	LOT 6783	82	75					5										
									1299	W1/2 6782	130	74					6										
															WORK DONE	PRIOR TO '78	1978		1979								
						266		3,402 ha / 3,402 ha							$	1323.8	975,737		530,302								

GENERAL REMARKS: FILL NECESSARY LINES AND COLUMNS ONLY; SHELL'S DEVELOPMENT POTENTIAL CLASSIFICATION IS "Y" (PRIME) UNLESS OTHERWISE STATED. SHELL CANADA RESOURCES LIMITED IS THE HOLDER, CROWS NEST RESOURCES LIMITED IS THE OPERATOR OF ALL LICENCES UNLESS OTHERWISE STATED. THIS TABULATION SHOWS CROWN COAL LICENCES ONLY. FREEHOLD LANDS ARE TABULATED SEPARATELY. IF SUMMARY OF EXPENDITURES SINCE THE LAST ANNIVERSARY IS AVAILABLE, IT IS ENTERED IN BRACKETS ( ) UNDER REQUIREMENT WORK-CURRENT YEAR AND IS INCLUDED IN THE TOTAL EXPENDITURES, OTHERWISE THE WORK REQUIREMENT IS SHOWN IN THIS COLUMN, WHICH IS NOT INCLUDED IN THE TOTAL EXPENDITURES. SHELL CNRL EXPENDITURES ARE ENTERED ACCORDING TO ACCOUNTING AND TIME SHEETS ($125 PER MAN-DAY). THE ACQUISITION COST OF CNI'S COAL HOLDINGS IS ENTERED ACCORDING TO SHELL'S COAL PREMIUM ALLOCATION. CNI'S $800,000 INITIAL ACQUISITION COST OF CROWN MTN., CENTRAL BLOCK (EXCEPT CL.1299-1302 INC.) AND NORTH BLOCK LICENCES IS DISTRIBUTED ON AREA BASIS: $62.51 PER HECTARE. OTHER CNRUG/CNI EXPENDITURES PRIOR TO FEBRUARY 21,1979 (FIRA APPROVAL OF CNI'S TAKEOVER BY SHELL) ARE INCLUDED AS REPORTED TO THE B.C. GOVERNMENT. IF LICENCES WERE RE-ISSUED THE ORIGINAL ACQUISITION YEAR IS SHOWN IN BRACKETS ( )

ENCLOSURE 2

C00198
PA-229

INTER-OFFICE CORRESPONDENCE

Date DECEMBER 18, 1979

To CROWSNEST RESOURCES LIMITED (CNRL)

From SHELTECH CANADA

Subject LOCATION SURVEY
LINE CREEK - SPARWOOD AREA
S.E. BRITISH COLUMBIA 4951D

All surveying done in this area was orignated from control stations 103 & 104 on Horseshoe Ridge. Station 'Sheep" was also a major position and it also was established using stations 103 and 104.

Nine new drill holes, five old drill holes, six drilled adits and 5 old adits as well as many outcrops were surveyed in this area.

Conventional survey methods using a 6" theodolite and electronic distance measuring equipment were used to obtain coordinates and elevations for all points. Calculations were done using the U.T.M. system with all distances and bearing converted to plane (reference meridian was 117°W) and results reported to CNRL in tabular as well as plan form.

The survey cost attributed to the Line Creek Prospect was $15200.

D.C. Poulsom Sr. Surveyor

D.C. Poulsom

DCPlw

LINE CREEK

Drill Holes	N	E	Elev.
201	5534253.2	659307.7	2057.48
202	5533972.0	659416.7	2014.52
203A	5534317.0	660285.5	1679.24
203B	5534314.0	660291.1	1679.24
204	5533331.0	660039.7	1842.28
205	5533426.8	659744.4	1929.38
206	5533497.1	660150.9	1745.20
207B	5533885.5	660238.0	1666.32
207C	5533895.1	660236.2	1666.83
*207D	5533940.4	660201.0	1680.53
*207E	5533947.1	660201.1	1680.47
*207F	5533939.0	660351.6	1667.58
*207G	5533924.0	660359.8	1659.20
*207H	5533987.6	660355.3	1664.50

* old holes

Adits			
4	5533156.1	660108.9	1749.62
4 (face)	5533169.1	659963.6	1759.01
5	5533091.7	660096.8	1750.86
5 (face	5533100.9	660029.8	1750.87
7	5533555.8	660293.9	1669.99
7 (face)	5533566.2	660267.4	1671.94
12	5533263.8	660292.2	1666.53
12 (face)	5533287.9	660170.8	1675.77
15	5534189.4	659854.2	1789.08
15 (face)	5534218.1	659832.5	1789.69
18	5533847.5	660304.5	1613.14
18 (face)	5533864.5	660260.9	1612.26
*6	5533061.2	660093.9	1749.53
*9	5533458.7	659581.4	1915.14
*10	5533501.9	659538.8	1913.15
*16	5533942.8	659983.8	1740.28
*17	5535469.4	659228.9	1983.04

* old adits