

REPORT ON GEODETIC SURVEY

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

CORBIN

KOOTENAY LAND DISTRICT, B.C.

B.C. COAL LICENCES

NOS. 412, 413, 414

GROUP #6

HELD BY SHELL CANADA RESOURCES LIMITED

OPERATED BY CROWS NEST RESOURCES LIMITED

NTS 82G/7 & 10

LAT.  $49^{\circ} 45'$  N, LONG.  $114^{\circ} 40'$  W

30

BY

SHELL CANADA RESOURCES LIMITED - SURVEYING DEPARTMENT  
GENERAL SURVEY CONTRACTOR

NORTHWEST SURVEY CORPORATION (YUKON) LIMITED  
SUBCONTRACTOR ON PHOTOGRAMMETRIC MAPPING

1979-04-26

00387

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

LAND MAP AND TENURE STANDING SCALE 1:50 000

REPORTS ON GEODETIC SURVEY

SURVEY CONTROL FOR CROWS NEST RESOURCES LIMITED  
FERNIE - SPARWOOD, B.C.

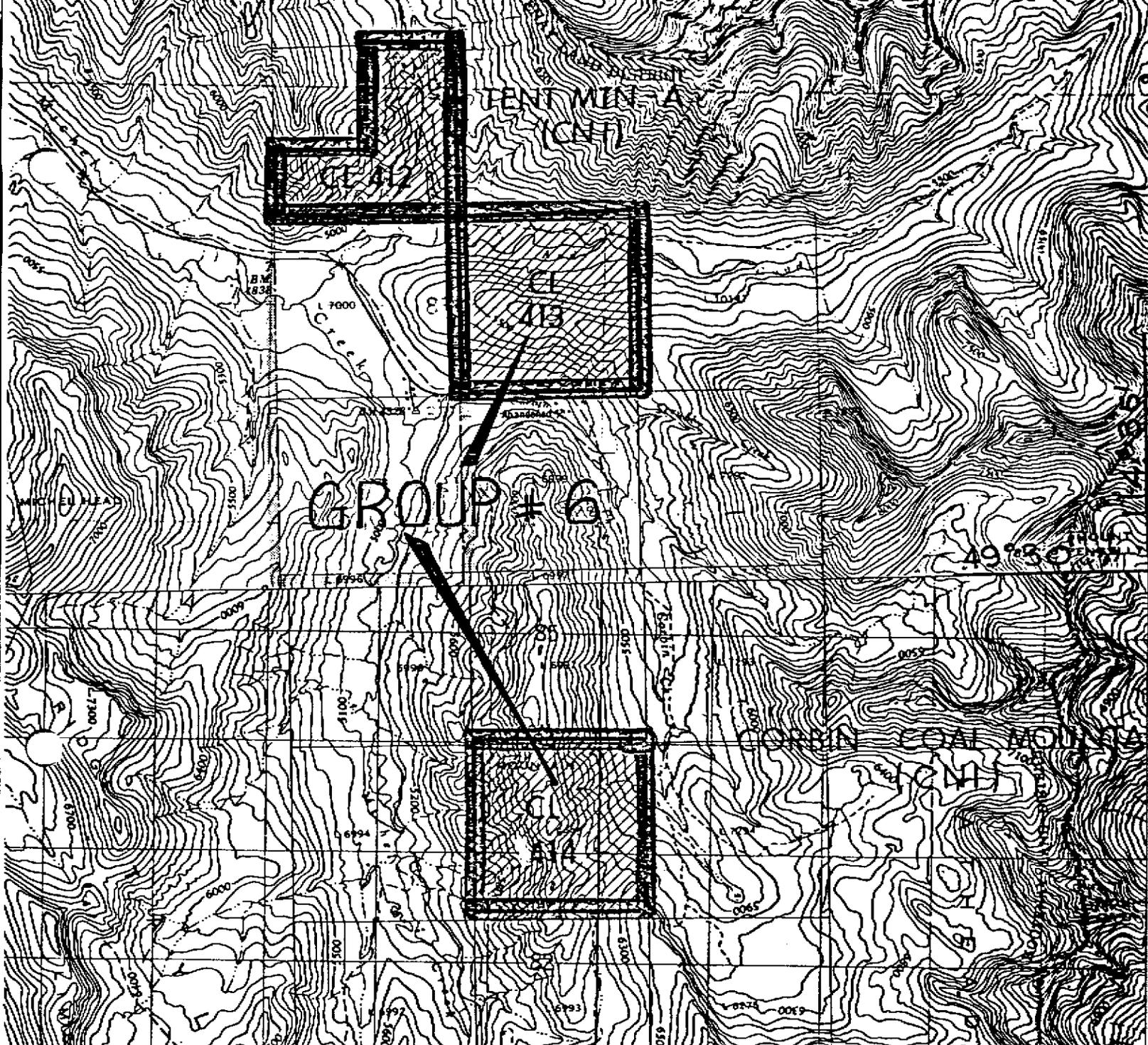
PHOTOGRAMMETRIC MAPPING PROJECT (1978)  
FERNIE - SPARWOOD AREA, S.E. B.C.

TITLE PAGE, TABLE OF CONTENTS, COST ALLOCATIONS AND REFERENCE ONLY

LOCATION SURVEYS

CORBIN BLOCK - SPARWOOD AREA - S.E. B.C.

APPLICATION TO EXTEND TERM OF LICENCE (COST STATEMENT)  
B.C. COAL LICENCES 412 TO 414 INCL.  
GROUP #6



<u>B.C. COAL LICENCES</u> <u>NUMBERS</u>	<u>LEGAL DESCRIPTION</u>	<u>ISSUANCE</u> <u>YEAR</u>	<u>AREA</u> <u>Ha</u>	<u>AREA</u> <u>Ac</u>	<u>GROUP #6</u>
412	L 7002 (PART)	1975	194	480	Block: Corbin
413	L 7001	1975	259	640	Projects: Coal Mtn.
414	L 6995	1975	259	640	Tent Mtn.
TOTAL 3 licences	Group #6	1975	712	1,760	B.C. Land District: Kootenay
		\$	\$/Ha	\$/Ac	Licencee: Shell
Work Credit at February 1, 1978		79,200	111.23	45.00	Canada Resources Ltd.
1978 - 1979 work requirement		8,800	12.36	5.00	Operator: Crows Nest
1978 - 1979 work credited		17,600	24.72	10.00	Resources Limited
Work Credit at February 1, 1979		88,000	123.60	50.00	
1979-1980 Rental Paid					

NTS: 82G/7 & 10  
MAP SCALE: 1:50,000

REPORTS ON GEODETIC SURVEY

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

SURVEY CONTROL FOR CROWS NEST RESOURCES LIMITED

FERNIE - SPARWOOD, BRITISH COLUMBIA

PHOTOGRAMMETRIC MAPPING PROJECT (1978)

FERNIE - SPARWOOD AREA - S.E. BRITISH COLUMBIA

COVERING ALL COAL LAND IN S.E. BRITISH COLUMBIA

HELD BY SHELL CANADA RESOURCES LIMITED

OPERATED BY CROWS NEST RESOURCES LIMITED

MORRISSEY FREEHOLD

B.C. COAL LICENCES

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

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

KOOTENAY LAND DISTRICT, B.C.

NTS 82G AND 82J

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

BY

SHELL CANADA RESOURCES LIMITED - SURVEYING DEPARTMENT  
GENERAL SURVEY CONTRACTOR

NORTHWEST SURVEY CORPORATION (YUKON) LIMITED  
SUBCONTRACTOR ON PHOTOGRAMMETRIC MAPPING

1979-04-26

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

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

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

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

SCHEDULE B  
GENERAL SPECIFICATION FOR AERIAL PHOTOGRAPHY

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

COST STATEMENT  
AND ALLOCATIONS TO PROJECTS AND GROUPS OF LICENCES

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

GROUND CONTROL SURVEY AND PHOTOGRAMMETRIC MAPPING  
SOUTHEASTERN BRITISH COLUMBIA

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

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

= 39,556ha

\$3.77/acre

\*All B.C. Coal Licences except Morrissey Freehold

\$9.30/ha

1979-01-31

F. Martonhegyi  
Exploration

D. Poulson  
Surveying

H. Hofer  
Finance Analyst

J. J. Crabb  
Manager - Exploration

REFERENCE

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

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

TWO SETS WERE FILED WITH

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

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

CROWS NEST RESOURCES LIMITED

REPORT ON GEODETIC SURVEY

WORK DONE FROM JUNE 27, 1978 TO OCTOBER 31, 1978

LOCATION SURVEYS

CORBIN BLOCK - SPARWOOD AREA - S.E. B.C.

CORBIN COAL MOUNTAIN

KOOTENAY LAND DISTRICT, B.C.

B.C. COAL LICENCE 414

GROUP #6

HELD BY SHELL CANADA RESOURCES LIMITED

OPERATED BY CROWS NEST RESOURCES LIMITED

NTS 82G/7

LAT.  $49^{\circ} 29' W$ , LONG.  $114^{\circ} 40' W$

BY

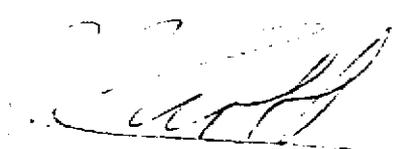
SHELL CANADA RESOURCES LTD. - SURVEYING DEPARTMENT  
GENERAL SURVEYING CONTRACTOR

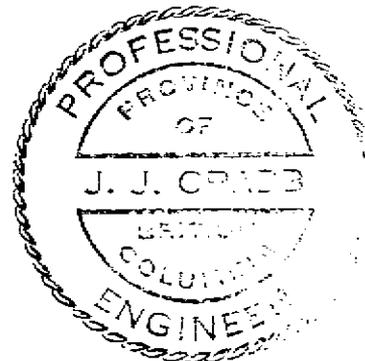
1979-04-24

Geodetic Location (drill holes) Survey for Crows Nest Resources Limited (CNRL - operator) was done on the Corbin, Coal Mountain Project, Kootenay Land District, Southeastern British Columbia, B.C. Coal Licence 414 held by Shell Canada Resources Limited (SCRL) from June 27, to October 31, 1978. This work was done under my direction by SCRL - Surveying Department, General Surveying Contractor for CNRL.

I verify that the Contractor is in the commercial surveying business, have full facilities, qualified staff and carried out the work professionally according to prevailing standards. The report given by SCRL Surveying Department is a true account of the work done.

April 30, 1979

  
J. J. Crabb, P. Eng.



## INTER-OFFICE CORRESPONDENCE

DATE APRIL 24, 1979

TO CROWS NEST RESOURCES LIMITED (C.N.R.L.)

FROM SHELL CANADA RESOURCES LIMITED - SURVEYING DEPARTMENT

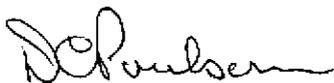
SUBJECT LOCATION SURVEYS  
CORBIN BLOCK - SPARWOOD AREA - S.E. BRITISH COLUMBIA

A total of 8 new drill locations and 3 locations previously surveyed by C.N.I. (Crows Nest Industries) were located in the Corbin Block between June 1978 and October 1978.

The survey was conducted by conventional ground traverse using theodolites and electronic distance measuring equipment. The datum was B.C. Topo. STA. "QUEST", which was subsequently tied by traverse into Doppler Satellite STA. 78-49 which was established as part of the ground control for the photogrammetric mapping project. Coordinates for Quest were held fixed to their published values and all calculations were done in the U.T.M. Grid system and distances and bearings were **corrected** for sea level and scale factor.

Accuracy of the Drill Location surveys were in the 1:5000 to 1:10000 range and the accuracy of the "QUEST" tie to STA. 78-49 by closed traverse was 1:120 000. The results of the surveys were presented to C.N.R.L. in tabular form for plotting and a copy is hereby attached.

The total cost of the work was \$29,900.



D. C. Poulson

DGP:cw

Attachments:

CORBIN DRILL HOLES  
 REFERENCED TO 117° WEST LONG.

U.T.M

<u>DRILL HOLE</u>	<u>NORTHINGS</u>	<u>EASTINGS</u>	<u>ELEVATION(m)</u>
6A	5483485.4	669297.2	2003.2
22	5483859.5	669446.2	2045.0
23	5483350.2	669493.5	2059.0
24	5483226.1	669498.4	2071.1
20A	5483945.5	669282.2	1999.3
21	5483937.9	669347.3	2040.2
5A	5483577.8	669400.3	2040.0
* 5	5483579.3	669392.6	2039.9
* 9	5483720.4	669449.9	2031.9
* 7	5483764.7	669369.1	2043.3
19	5483807.3	669255.4	2001.0

\* PREVIOUSLEY SURVEYED BY C.N.I.

"QUEST"(B.C.Topo)	5478304.93	666183.58	2444.50 (FIXED)
"SQUAW" "	5473620.36	669492.16	2365.25 (FOR AZIMUTH ORIGIN)
78-49(DOPPLER)	5464310.63	663906.27	1843.43
78-49(TRAVERSE)	5464318.30	663911.57	1845.26



GROUP #6

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

APPLICATION TO EXTEND TERM OF LICENCE

I, Gordon A. Schwartz (Name) agent for Shell Canada Resources Ltd. (Name)  
P. O. Box 100 (Address) P. O. Box 100 (Address)  
Calgary, Alberta T2P 2H5 (Address) Calgary, Alberta T2P 2H5 (Address)  
Valid FMC No. 171 929

hereby apply to the Minister to extend the term of Coal Licences No(s) 412, 413, 414  
1760 acres (713 hectares)  
for a further period of one year.

2. I have performed, or caused to be performed, during the period February 1, 1978 to  
January 30, 1979, work to the value of at least \$ 407,348  
on the location of coal licences as follows:

CATEGORY OF WORK

	Licence No(s).	Approved Cost
Geological mapping - - - -	<u>414</u>	<u>\$ 40,800</u>
Surveys: Geophysical - - - -	-	-
Geochemical - - - -	-	-
Other - Geodetic - - - -	<u>412, 413, 414</u>	<u>\$ 36,524</u>
Road construction - - - -	<u>414</u>	<u>\$ 49,467</u>
Surface work - - - -	-	-
Underground work - - - -	-	-
Drilling - - - -	<u>414</u>	<u>\$155,254</u>
Logging, sampling, and testing -	<u>414</u>	<u>\$ 98,620</u>
Reclamation - - - -	<u>414</u>	<u>\$ 2,183</u>
Other work (specify) - - - -	<u>414</u>	<u>\$ 74,500</u>

3. I wish to apply \$ 17,600 of this value of work on Coal Licence(s) 412, 413, 414

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 Geodetic ground  
control survey and photogrammetric mapping - Tent Mtn., Coal Mtn. coal project  
area, Kootenay Land District, B.C. Coal Project Progress Report - Exploration  
and Geological evaluation-Coal Mtn., Kootenay Land District, B.C.; both reports  
are in preparation and the required parts will be submitted in ninety days.  
1979-01-30  
(Date)

G.A. Schwartz  
(Signature and print name)  
LANDMAN

\* Application in group format may be filed in separate form on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATES)

FOR DEPARTMENTAL USE ONLY

Value of work reported \$ \_\_\_\_\_ Value of work applied on Licence(s) \_\_\_\_\_  
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 Feb. 1/78  
to Jan. 31, 1979 Total costs are \$ 407,348, an average  
of \$ 231.45 per acre. (\$571.32/ha.)

GEOLOGICAL MAPPING Yes  No  Cost \$ 40,800

Area (Acres)	Scale	Time
Reconnaissance		
Detail: Surface <u>230 (93 ha.)</u>	<u>1:12,000</u>	<u>168 Man-Days</u>
Underground		
Other (specify)		

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes  No  Cost \$ \_\_\_\_\_

Method \_\_\_\_\_ Line miles \_\_\_\_\_

OTHER SURVEYS Yes  No  Cost \$ 36,524

Grid \_\_\_\_\_ Geodetic ground control survey and  
Topographic photogrammetric mapping

ROAD CONSTRUCTION Yes  No  Cost \$ 49,467

Length: On Licences 106 km. Access (off licences) 20 km.

SURFACE WORK Yes  No  Cost \$ NIL

Length	License 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 \$ 355,254

Core: Diamond <input checked="" type="checkbox"/> Wireline <input type="checkbox"/>	Rotary: Conventional <input type="checkbox"/>	Reverse circulation <input type="checkbox"/>	Other _____
Make/Size	Number of Holes	Total Footage	
<u>RQ</u>	<u>9</u>	<u>3709 Metres</u>	

Contractor Tonto Drilling Ltd., Vancouver Where core stored CNRI Lab, Fernie, B.C.

LOGGING, SAMPLING, AND TESTING (check) Yes  No  Cost \$ 98,620

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) Geotechnical Cost \$ 24,500

REPORTS:

Reclamation work (Permit No. 54) Detail of work Road ditches & erosion prevention  
cross-trenching, seeding, fertilizing & harrowing roads (5 acres = 3 ha.) and  
drill sites (5 acres = 3 ha.) Cost \$ 2,183  
Report will be submitted by March 31/79

OPERATIONS:

Work was supervised by Georgia Hoffman Position 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 work is done, report to 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 February 1/78 to January 31, 1979

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

	Average Number of Employees	Average Hourly Rate	Average Number of Days	Amount
Professional and technical	4	125	314	\$ 57,000
Machine operators and support				
Miners				
Other				
Total operator's costs				\$ 57,000

**2. CONTRACTORS AND CONSULTANTS:**

Name	Service	Contract Amount
SCRL Survey Dept. (including Subcontractor Northwest Survey)	Geodetic Ground Control Survey	\$ 26,524
	Photogrammetric Mapping	
	Geodetic Location Survey	
Fonto Drilling	Diamond Drilling	\$ 123,304
Janfeson Geol. Consultants	Bulldozer, Backhoe Supervision	\$ 3,500
B&R Drilling	Drilling Supervision	\$ 3,500
ACN Consulting	Geological Consultant	\$ 3,000
Gallant Trucking	Water Supply (Truck)	\$ 13,200
Drain Brothers Construction	Bulldozer, Backhoe work	\$ 45,967
Total contractor and consultant costs		\$ 218,995

**N.A. 3. EQUIPMENT AND INSTRUMENTS USED:**

Owned:	Amount	
Rented:	Amount	
	NIL	
Total equipment and instrument rentals		\$ NIL

**4. FIELD CAMP COSTS:**

	Amount
Food \$16.00 x 400 days	6,400
Accommodation \$18.00 x 400 days	7,200
Fuel	4,300
Other Trailers, Power Plant Rentals, Communication	25,000 7,100
Total field camp costs	\$ 25,000

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

Service	Performed by	Amount
Geotechnical Analysis	Goldier Assoc.	24,500
Wireline Logging	BFB Industries	10,640
Analysis	CNI Lab	7,280
Totals, sampling, analysis, and testing		\$ 42,420

**6. SUPPLIES AND MATERIALS COSTS:**

	Amount
Process supplies	
Operating and maintenance supplies	
Office and technical supplies	
Other supplies and materials	14,400
Total, supplies and materials	\$ 14,400

**7. TRANSPORTATION COSTS (Ground transportation details):**

Vehicle	Owner	Annual Rate	Amount
two 4x4 trucks	Minchuk Rental	\$1200/Month-4 Months	9,600
Trucking	Kiki Trucking	\$25/hr.-244 hours	6,100

Air support details:

Aircraft Type	Owner	Charge
706 - B	Kenting	\$325/Hr. - 51 hours = \$19,150
Total transportation costs \$ 34,850		

8. RECLAMATION WORK:

Interior Reforestation Co. Ltd.	\$ 2,283
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9. TRAVEL EXPENDITURES (operator's costs only):

Number of Personnel	Number of Trips	Amount
Expenditures in addition to field/camp costs are included as overhead in the \$125 per man-day allocation		N/A
Total travel expenditures		\$ N/A
Total costs		\$ 394,848

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

OFF-PROPERTY COSTS: Period from February 1, 1978 to January 30, 1979 included as overhead in \$125

Description	Amount
(a) Logistics and field support per man-day	\$ N.A.
(b) Technical and feasibility studies	NIL
(c) Preparation of reports 100 man-days @ \$125/day	12,500
(d) Supplies and services included as overhead in \$125 per man-day	
(e) Mobilization and demobilization of equipment included in contract amounts	N.A.
(f) Travelling expenses (Traveller)	
Calgary - Property - Calgary travelling is included as overhead in the \$125 per man-day, no other travelling has been considered.	
Total \$ 12,500	

Supporting Cost Statements Attached

Description	Amount
all supporting cost is included in the \$125 per man-day	N.A.
Total supporting costs \$ N.A.	

SUMMARY

On-property costs	\$ 394,848
Off-property costs	\$ 12,500
Total costs	\$ 407,348

Statement of costs verified by Accounting Division, Finance & Administration, SCRI

1979-01-30

(Date)

*Helmut Hoff*  
 (Signature and position)  
 Analyst, Administration & Planning  
 CNRL