GEOLOGICAL REPORT

ON THE

RUTH PROPERTY

OMINECA MINING DIVISION - N.T.S. 93N 12W

Lat. 55⁰37'N., Long. 125⁰50'W

CHRERY OPERATOR : MANAGIAN SCHOOK HIXPLESKATION LIED

August, 1980

REPORT BY: John J. Watkins Geologist.

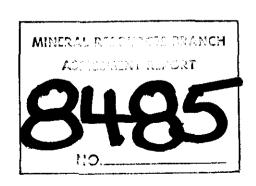


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INTRODUCTION

The Ruth Property was mapped geologically by Canadian Superior Exploration Limited personnel between July 22 and July 30, 1980. This work was done by geologists, John J. Watkins and Marilyn L. Atkinson.

The mapping program utilized a topographic map, scale 1:5000, prepared by McElhanney Surveying and Engineering made from existing 1:50,000 aerial photographs.

In the course of mapping 66 rock samples were collected and analysed geochemically by Acme Analytical Laboratories Limited.

This report describes the geology of the Ruth Property and discusses the results of the geochemical sampling.

LOCATION, ACCESS AND PHYSIOGRAPHY

The Ruth claim group is located 17 km. northeast of Takla Landing, 125 km. northeast of Smithers, in the Omineca Mining Division (N.T.S. 93N 12W) Figure I. Approximate geographical co-ordinates are: $55^{\circ}37$ 'N, $125^{\circ}50$ 'W.

Access to the property is best via helicopter from Smithers. A poorly maintained road, connecting Takla Landing with Germansen Landing, and thence Fort St. James, passes within 6 km. of the claim group.

Topography on the south half of the property is that of prominent cirque ridges emanating from the summit of Mt. Bodine (elevation 2047 m.). The major portion of the claim group is underlain by drift, and tree covered valleys lying east of Mt. Bodine and between Mt. Bodine and Diver Peak.

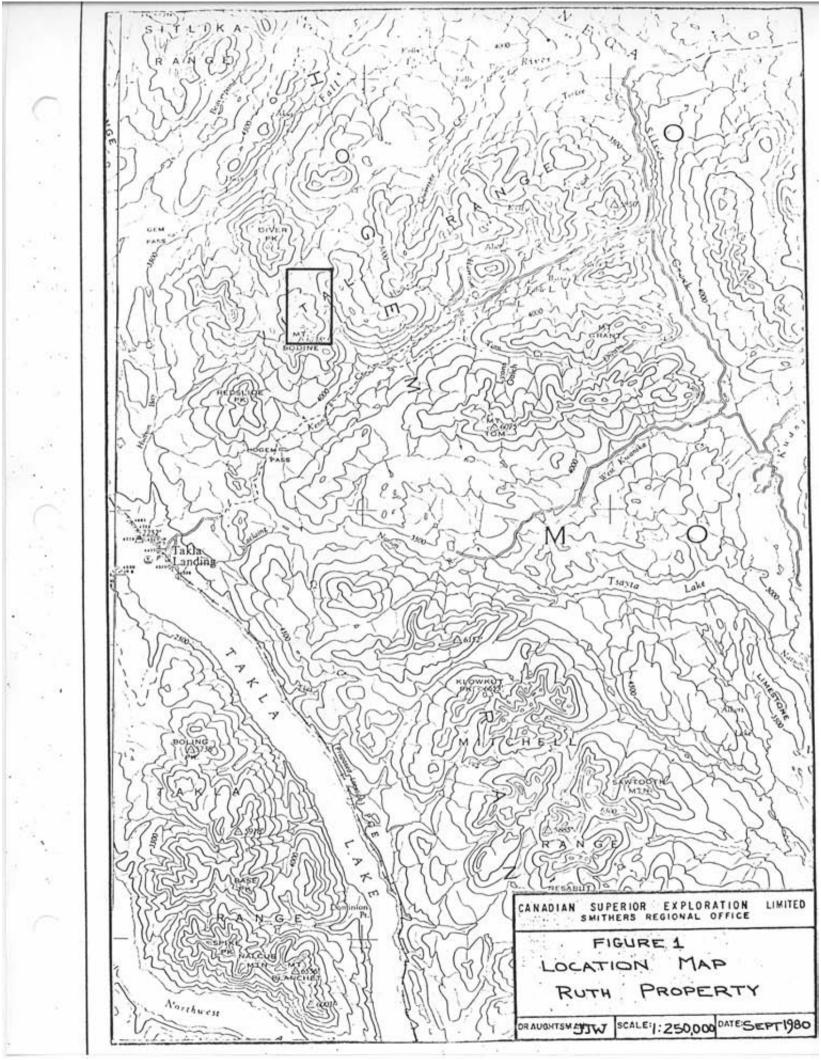
PROPERTY STATUS

The Ruth I to 4 claims situated in the Omineca Mining Division comprise a block of 54 units, (Figure 2) wholly owned by McIntyre Mines Ltd. The claims were recorded on September 13, 1976. The record numbers are 422-425 inclusive.

EXPLORATION HISTORY

The area lying to the east of Takla Lake has received relatively little exploration activity.

In 1974 Kennco Exploration (Canada) Ltd. recognized the potential for volcanogenic mineralization based on the discovery of anomalous Cu and Zn in stream silts from creeks draining felsic volcanic rocks making up the slopes of Mt. Bodine. Follow-up JEM and geologic surveys were discouraging and Kennco allowed the claims to lapse.



McIntyre Mines Ltd. staked the Ruth 1 to 4 claims in 1975. A regional airborne EM survey and geological mapping resulted in the discovery of the Eureka and Crystal showings.

Canadian Superior Exploration Ltd. acquired the property in 1979 under an option agreement with McIntyre.

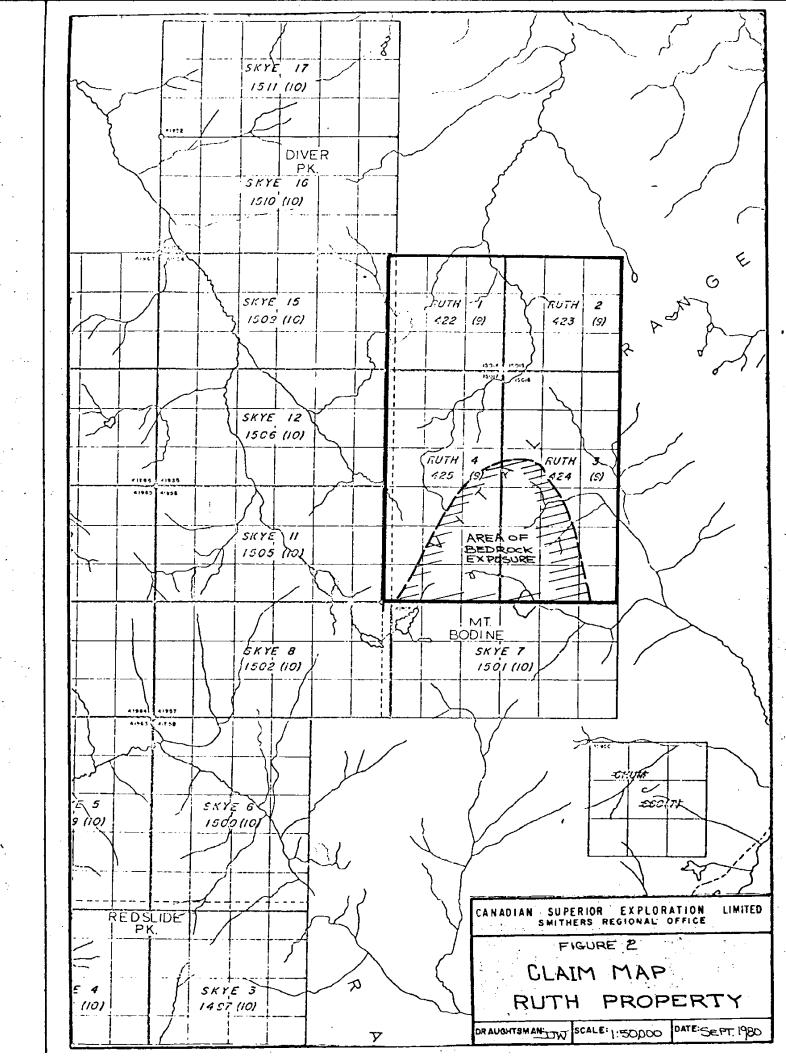
REGIONAL GEOLOGY

The Ruth property lies along the northwest margin of the Stuart Lake Belt of Upper Paleozoic Cache Creek rocks (Figure 2). The prospect is underlain predominantly by Sitlika assemblage rocks of Upper Triassic or Jurassic age, and seperated from the Cache Creek Group rocks by an east-dipping fault zone, up to 5 km. wide, consisting of a melange of serpentinite and greenstone (Paterson, 1974). The west boundary of the Sitlika assemblage is bounded by the Takla Fault.

The Sitlika assemblage, as described by Paterson, 1974, consists of three defineable units: (1) an argillite forming a narrow belt approximately 3 km. wide east of the Takla Fault, (ii) a volcanic unit composed of metamorphosed pyroclastic and flow rocks, and (iii) a greywacke unit along the eastern margin of the Sitlika assemblage which is in contact with the zone of melange seperating the Sitlika assemblage from the rocks of the Cache Creek Group.

PROPERTY GEOLOGY (Figure 3)

The portion of the Ruth property mapped geologically is underlain predominantly by the volcanic unit of the Sitlika assemblage (Figure 2). The eastern edge of the property, lying in the valley of Bodine Creek, is underlain by rocks of the greywacke unit which is in contact with the melange seperating the Sitlika assemblage rocks from the Cache Creek Group.



(i) Stratigraphy

The Ruth Claims are underlain by the following sequence of supracrustal rocks in presumed stratigraphic order:

Sitlika (3. Mafic Unit (Unit 2, Fig. 3)
Assemblage (2. Felsic Unit (Unit 1, Fig. 3)
1. Sediments (Unit 3, Fig. 3)

Mapping indicates that the Felsic Unit is overlain stratigraphically by the Mafic Unit. The nature of the lower contact of the Felsic Unit is not clear from the work to date. It is possible that the latter is a faulted junction.

1. Sediments (Unit 3, Figure 3)

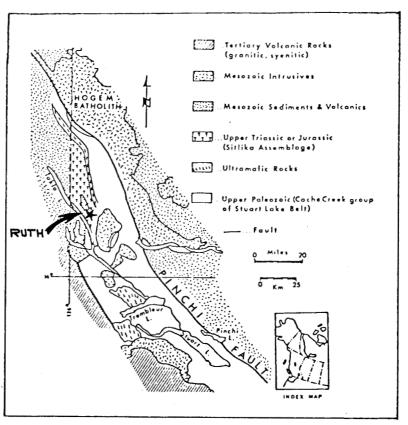
The eastern edge of the property is underlain by a weakly graphitic argillite unit, apparently in contact with the felsic volcanic rocks to the west and the melange to the east.

The sedimentary unit is poorly exposed, occurring as rare outcrops along streams draining the lower slopes of Mt. Bodine. As a consequence, the nature of the contact between the argillites and the felsic portion of the Sitlika Assemblage is uncertain.

2. Felsic Unit (Unit 1, Figure 3)

The property is underlain predominantly by felsic volcanic rocks, massive flows and volcanoclastics. Primary features in the felsic volcanoclastics have been totally to partly masked by a penetrative foliation that is not evident in the massive felsic units.

The felsic volcanic rocks are light grey to light greenish grey, and are mapped as either rhyolite or dacite depending on whether the rock is quartz porphyritic or not. Dacite flows, intercalated with rhyolite flows, predominate in the southern portion of the area mapped. Rhyolite predominates to the north and persists in the higher stratigraphic levels.



From: Paterson, 1974

CANADIAN SUPERIOR EXPLORATION LIMITED SMITHERS REGIONAL OFFICE

FIGURE 3.

REGIONAL GEOLOGY

OR AUGHTSMAN SCALE: 1= 40 miles DATE: SEFT 1980

The east contact of the felsic volcanic rocks is characterized by an accummulation of hetrolithic volcanoclastic rocks which decreases in width from approximately 200m., along the south boundary area of the property, to less than 50 m. where exposed 2000 m. to the north. The unit is made up of subrounded to subangular fragments, 1 to 2 cm., mainly of felsic and subordinately of mafic composition. There is a northward gradation from breccias to tuffs accompanied by an increase in the amount of sorting of fragments, suggesting a southerly source area.

3. Mafic Unit (Unit 2, Figure 3)

The western portion of the property, including the summit of Mt. Bodine and it's north-northwest trending spur, is underlain by basalt flows and bedded volcanoclastic rocks with intercalated argillites. The mafic volcanic rocks strike 160° and dip westerly at 20° to 30° . The penetrative fabric (characteristic of the lower or easternmost felsic volcanic rocks) is lacking in the basalts.

The massive mafic volcanic flow rocks are fine grained, equigranular to feldspar porphyritic. They are dark green and locally finely amygdaloidal.

The volcanoclastics consist of discontinuous sections of chloritic hyaloclastite and locally thick accumulations of matrix poor fragmentals consisting of subangular to subrounded, 1 to 3 cm. dark green and creamy grey clasts that are crudely sorted.

(ii) Structure

The Sitlika assemblage rocks, underlying the Ruth property, display a fairly consistent 150° to 160° strike with dips moderately (20° to 30°) to the west. The 150° to 160° strike is accentuated by a steep, west dipping, penetrative foliation which has masked primary features in clastic units. However, massive flows and dikes have escaped the effects of the deformation. Lineations in the volcanics, defined by rodded mafic pseudomorphs and elongated felsic fragments, display a northerly plunge ranging from 30° to 50° .

MINERALIZED SHOWINGS

Two mineralized showings have been located on the property occurring within the felsic volcanic unit (Figure 3).

1. Eureka Showing

The Eureka showing is exposed along a north-facing wall of a ravine occupied by a creek draining the east slope of Mt. Bodine. The showing consists of siliceous 'boudins', measuring approximately 0.7 m. by 0.3 m., mineralized with disseminated chalcopyrite. A channel sample across one mineralized boudin returned 1.3% Cu (Sample #430). The boudins, which are enclosed in a gouge-like matrix of sheared rhyolite, are oriented with their long axis paralleling the regional foliation. The showing occurs in close proximity to an interpreted northeast trending fault (Figure 3), and is positioned close to the felsic volcanic-sediment contact within a zone of disseminated pyrite. The zone of disseminated pyrite has been traced for a distance of 2000 m. parallel to the argillite contact.

2. Crystal Showing

The Crystal showing is located 500 m. west of the Eureka showing. The showing consists of a 2 to 5 cm. wide band of laminated pyrite and chert positioned at the contact between chloritic volcanoclastics and massive rhyolite

The banded sulphide consists of barren pyrite (Sample #445). However, the chloritic zone lying at the contact with, and stratigraphically below, the banded sulphide is probably an altered rhyolite, indicating that the hydrothermal activity responsible for chloritization of the rhyolite was also responsible for the deposition of the banded sulphides. A syngenetic origin for banded pyrite is therefore preferred.

BEDROCK GEOCHEMISTRY

Sixty-six bedrock samples were collected in the course of geologic mapping. Their locations are shown on Figure 4, and the geochemical assay results are given in Appendix I of this report.

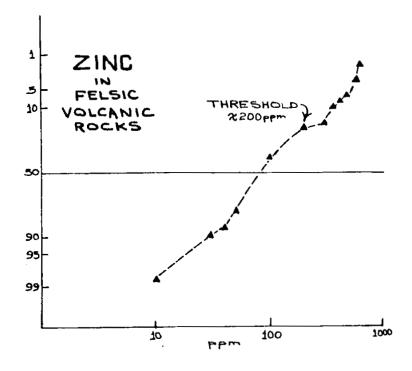
All the samples were geochemically assayed for Cu, Zn, Pb, Au and Ag; 23 of the samples were geochemically assayed for Sn; and 12 were analysed for SiO_2 , K_2O , Na_2O and MgO.

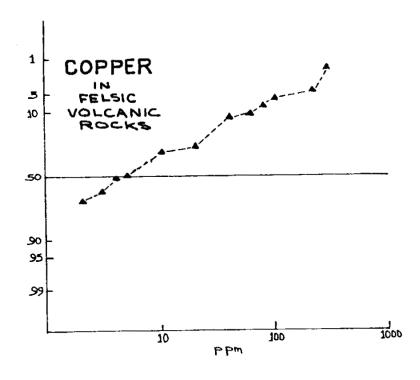
In order to utilize the geochemical results it is necessary to determine which samples are anomalous and their spatial distribution. A method described by Lepeltier (1969) is used here. The geochemical results are grouped into a suitable number of class intervals, cumulated and plotted on probability graph paper. A perfectly lognormal distribution would plot as a straight line. In the case of a bimodal distribution, the cumulative frequency line would show a distinct break. If the line flattens an excess of high values is present. The inflection point represents the threshold value.

The distribution of zinc is clearly bimodally distributed in the felsic rocks on the Ruth property (Figure 5). The inflection point, representing the threshold value, is approximately 200 ppm. Samples reading this value are considered anomalous. The areal distribution of samples containing zinc values in excess of the threshold value fall within a well defined zone close to and paralleling the sedimentary rock contact along the southeastern portion of the claims.

Copper is not bimodally distributed, as evidenced by the lack of an obvious break in cumulative frequency line (Figure 5). A slight inflection point occurs at approximately 10 ppm. Values above 10 ppm Cu lie within a broad zone paralleling the sedimentary contact. Copper values exceeding 100 ppm define a small zone centered on the Eureka showing.

Lead, silver, gold and tin geochemical assay results display no obvious anomalous concentrations.





CANADIAN SUPERIOR EXPLORATION LIMITED SMITHERS REGIONAL OFFICE

FIGURE 5
LOG-PROBABILITY PLOT
Zn and Cu
FELSIC VOLCANIC ROCKS

OR AUGHTSMAN JAN SCALE:

DATE: SEPT 1980

Twelve samples collected in the area of the Crystal showing were analysed for SiO_2 , $\mathrm{K}_2\mathrm{O}$, $\mathrm{Na}_2\mathrm{O}$ and MgO with the aim of characterizing chemically the effects of metasomatic alteration associated with the showing. No obvious patterns exist, perhaps due to the small number of samples collected and their limited aerial distribution. Samples mapped as dacite, containing no quartz phenocrysts, with SiO_2 contents similar to samples mapped as rhyolite are of interest. This may result from the hydrothermal addition of SiO_2 , a characteristic of geothermal systems.

CONCLUSIONS

- 1. The Ruth Property is underlain predominantly by a sequence of volcanic rocks including basalt and rhyolite.
- 2. One showing on the property, the Crystal Showing is probably syngenetic in origin.
- 3. An anomalous concentration of zinc, and possibly copper, occurs concentrated in the felsic volcanic rocks in close proximity to a sedimentary unit presumed to be older than the volcanic rocks.
- 4. A potential for economic concentration of volcanogenic base metals may exist within the felsic volcanic rocks close to the presumed lower sedimentary unit.

REFERENCE

- Paterson, I.A., 1974: Geology of Cache Creek Group and Mesozoic rocks at the north end of the Stuart Lake Belt, central British Columbia; in Report of Activities, November 1973 to March, 1974, Geol. Surv. Can., Paper 74-1, Pt.B, p. 31-42
- Lepeltier, C., 1969: A simplified statistical treatment of geochemical data by graphical representation, Econ. Geol., Vol. 64, p. 538-550.
- Crosbie, R.O., 1977, Report on Airborne Geophysical surveys, Ruth Mineral Claims, Takla Lake area, B.C. Private report for McIntyre Mines.

APPENDIX I

GEOCHEMICAL ASSAY RESULTS



To:Canadian Superior Exploration Ltd., P.O. Box 10104, Pacific Centre, 18th Floor, 701 W. Georgia St., Vancouver, B.C. Y7Y 1C6

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6 phone:253 - 3158

	80-743
File No.	

GEOCHEMICAL ASSAY CERTIFICATE

Type of Samples Rocks_ Disposition___

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DETERMINATION:	DEAN TOYE, B.Sc.
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To: Canadian Superior Exploration Ltd., P.O. Box 10104, Pacific Centre, 701 W. Georgia St., Vancouver, B.C.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B. C. V6A 1R6 phone: 253 - 3158

	File No.	80-	-743
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Assaying & Trace Analysis

CHIEF CHEMIST CERTIFIED B.C. ASSAYER

852 E. Hastings St., Vancouver, B. C. V6A 1R6 phone: 253 - 3158

File No. 80743A

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ACME ANALYTICAL LABORATORIES ETD. Assaying & Trace Analysis

To: Canadian Superior Exploration Ltd.,

852 E. Hastings St., Vancouver, B. C. V6A 1R6

phone: 253 - 3158

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File No. ... Type of Samples Rocks

GEOCHEMICAL ASSAY CERTIFICATE

P.O. Box 10104, Pacific Centre,

18th Floor, 701 W. Georgia St.,

Vancouver, B.C.

V7Y 1C6

Disposition__

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DEAN TOYE, B.Sc. CHIEF CHEMIST CERTIFIED B.C. ASSAYER

APPENDIX II

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Roy V. Beavon, of Richmond, in the Province of British Columbia, do hereby certify:

That I am a practising Geologist employed by Canadian Superior Exploration Limited, with offices at 1800-701 West Gerogia Street, Vancouver, British Columbia.

That John J. Watkins, the writer of this report is known to me to be a reliable and compitant individual.

I further certiy:

- 1. That he is a graduate of Queens University (1972) with a BSc. degree in Geology, and has completed 2 years toward a MSc. degree in Geology at Queens University.
- 2. He is a Fellow in the Geological Assocation of Canada.
- 3. He has been practising his profession for 8 years.
- 4. This report is based on information obtained by the writer during the geologic mapping of the property.

Roy V. Beavon BSc., Ph D.

Geologist

Project Supervisor, Ruth Project

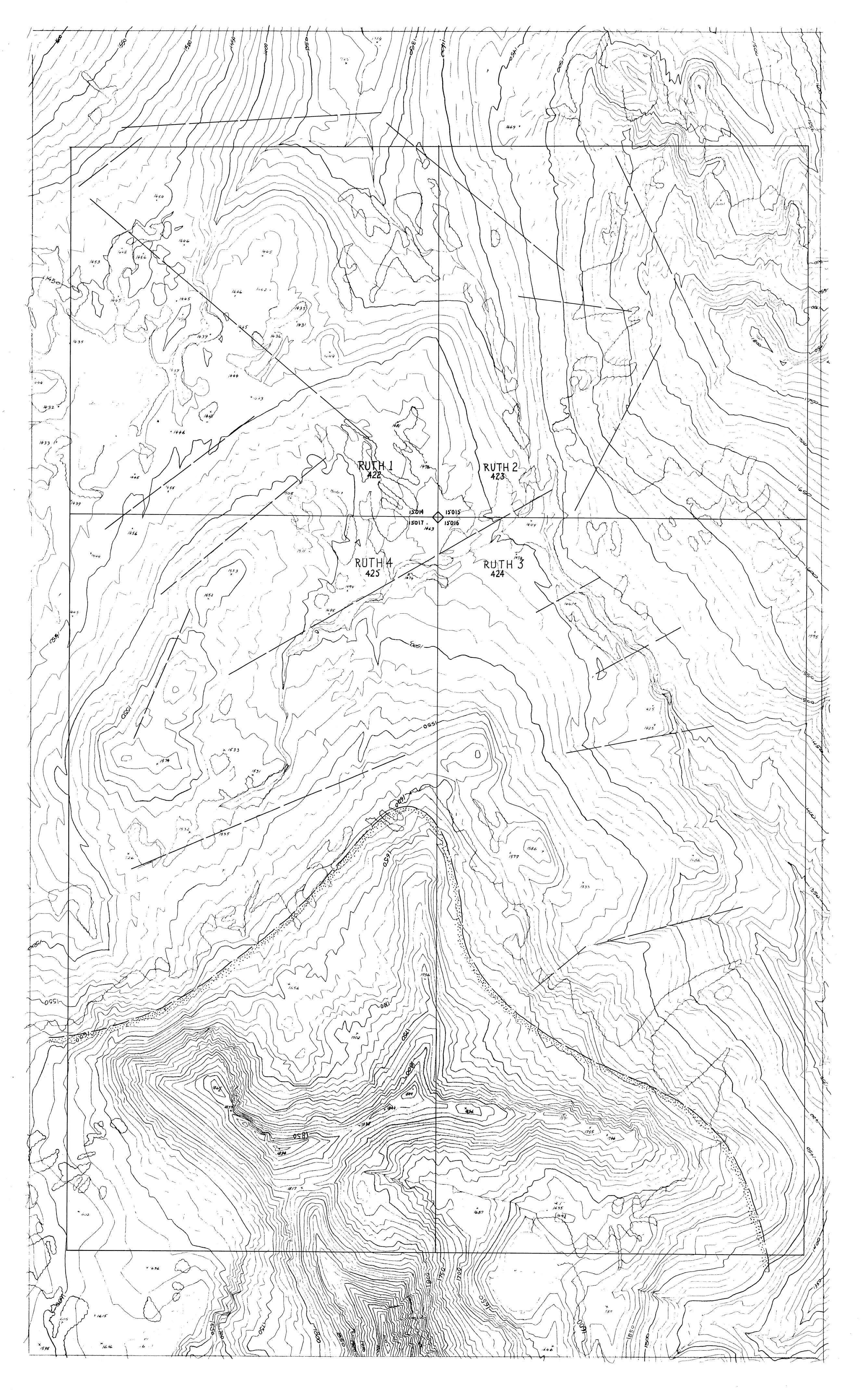
August, 1980

APPENDIX III

COST STATEMENT

COST STATEMENT

(1)	1) Labour:		
		latkins and M. Atkinson, geologists lys @ \$175.00/day	\$ 1,575.00
		Beavon, project supervisor y @ \$240.00/day	240.00
(2)		s and Disbursements: transportation: Helicopter (Bell 206B) 4 days @ \$800.00/day	3,200.00
		aircraft (round trip - VancSmithers-Vanc.)	185.00
	(b)	topographic map: map preparation and production by McElhanney Surveying Ltd. including reproduction costs	1,783.00
	(c)	assays: 66 geochemical analyses @ \$.50 per sample	99.00
	(d)	camp costs for 2 man camp 9 days @ \$20.00 per man day	360.00
	(e)	copying, photo interpretation by Watkins and Atkinson.	
		8 days @ \$175.00/day	1,400.00
(3)	Withdrawal from Canadian Superior Exploration Ltd. PAC account:		1,958.00
			\$ 10,800.00





MINERAL RESOURCES BRANCH

GEOLOGIC TRAVERSE

AREA OF BEDROCK EXPOSURE SEE DETAILED GEOLOGIC MAP

Scale and elevation datum based on limited ground control resulting in good relative, but uncertain absolute map accuracy.

Compiled from aerial photography at an approximate scale of 1 50 000 flown in 1978

CANADIAN SUPERIOR EXPLORATION LTD.

MT. BODINE



