



Frontispiece The Betty Glacier, near Stewart, British Columbia

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ASSESSMENT REPORT

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Mineralogy and Petrology of
the Betty Claims, Skeena M.D.,
Stewart, British Columbia

- a preliminary study

By

John Cox, B.Sc., M.Sc., P. Geol.

Reverted Crown Grant Lots 3447, 3448, 3451

Betty #1, #2, #5

Owner/Operator: John Cox

Lat. 56° , ~~12.7~~ 12.7'

Long. $129^{\circ} 59'$

NTS: 104A/4W

Skeena Mining Division

March 4, 1986

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INTRODUCTION

- (i) The Betty claims are located in northern British Columbia approximately 32 km north of Stewart (figure 1) at an approximate elevation of 3900' with access by 13 km of rough trail from the Big Missouri Mine or by helicopter.
- (ii) Betty #1, #2, and #5 are reverted crown grants lots 3447, 3448 and 3451 respectively. Rich silver values of up to 400 oz/ton were reported from the original workings of the American Mining and milling Co. during the 1920's. More recent assays confirmed the silver potential with grab sample values of up to 59 oz/ton with minor associated gold (0.08 oz/ton). Mineral lease # 297 was issued to J.T. Johnson, H.A. Townsley and J.A. Tregilges of Vancouver in October of 1971. John Cox, the current owner/operator considers that the claims have considerable precious metal potential.
- (iii) The proposed geological mapping could not be carried out last summer due to adverse snow conditions during June 1985. However grab samples were obtained which give an indication of the mineralisation on the claims (figure 2). Sample #1-85 was collected from an open cut approximately 1.5m x 1m in size which exposed a mineralised quartz vein of approximately 0.5m thickness cutting through an argillaceous host rock.
- Sample #2-85 was collected from the entrance to a small adit which extends approximately 4m into the stream valley-

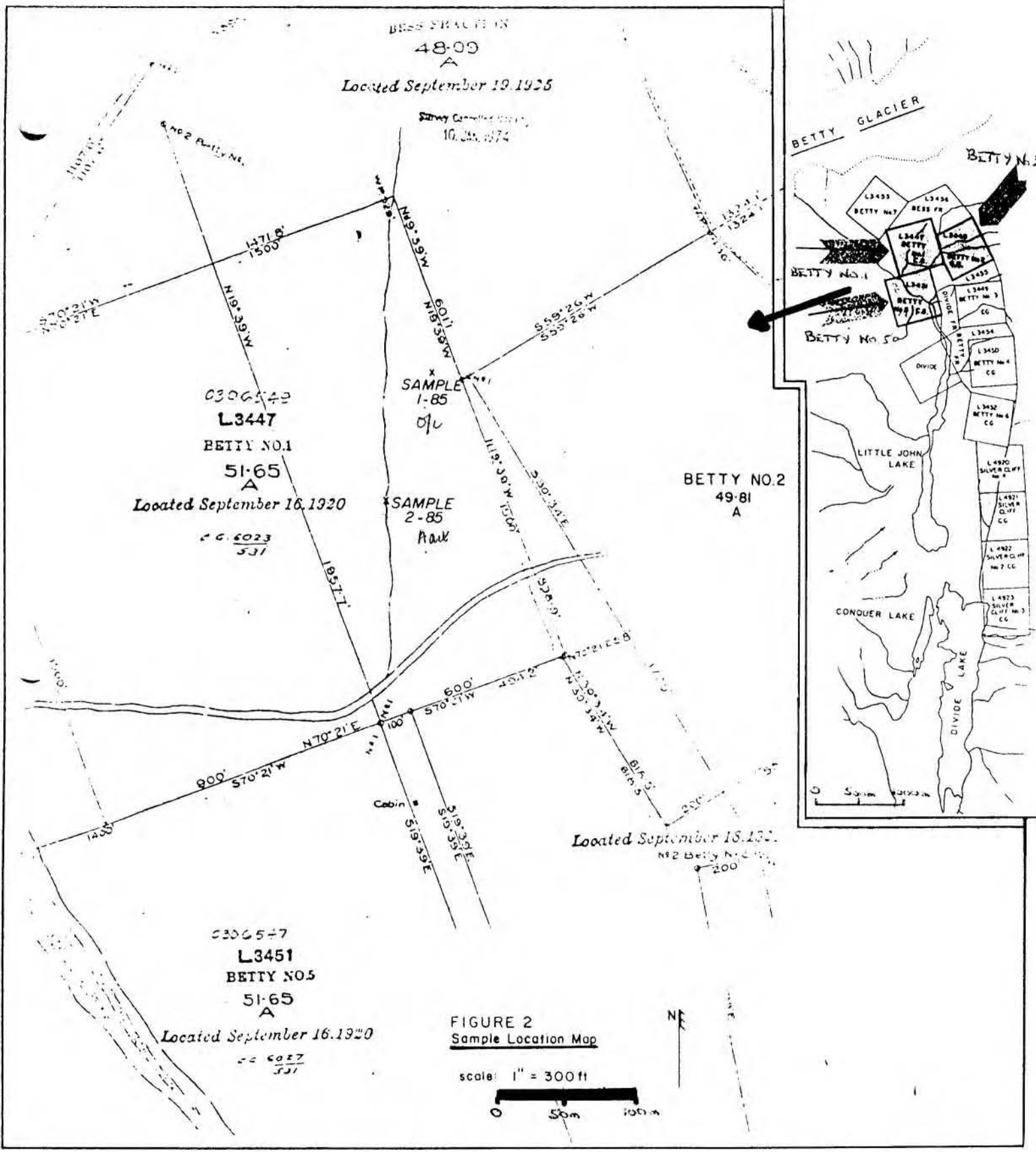
side 200m north of the ruined cabin.

The petrology and mineralogy of the samples were determined using reflected and transmitted light microscopy techniques. Nuclear activation analysis was performed on sample #1-85.

- (iv) The geology of the region has been mapped by Alldrick (1983) and his map (figure 3) shows the location of the Betty Claims within the silts and shales of the Bowser Group approximately one kilometer north of the Divide Lake Fault.



Figure 1 General location of the Betty Claims



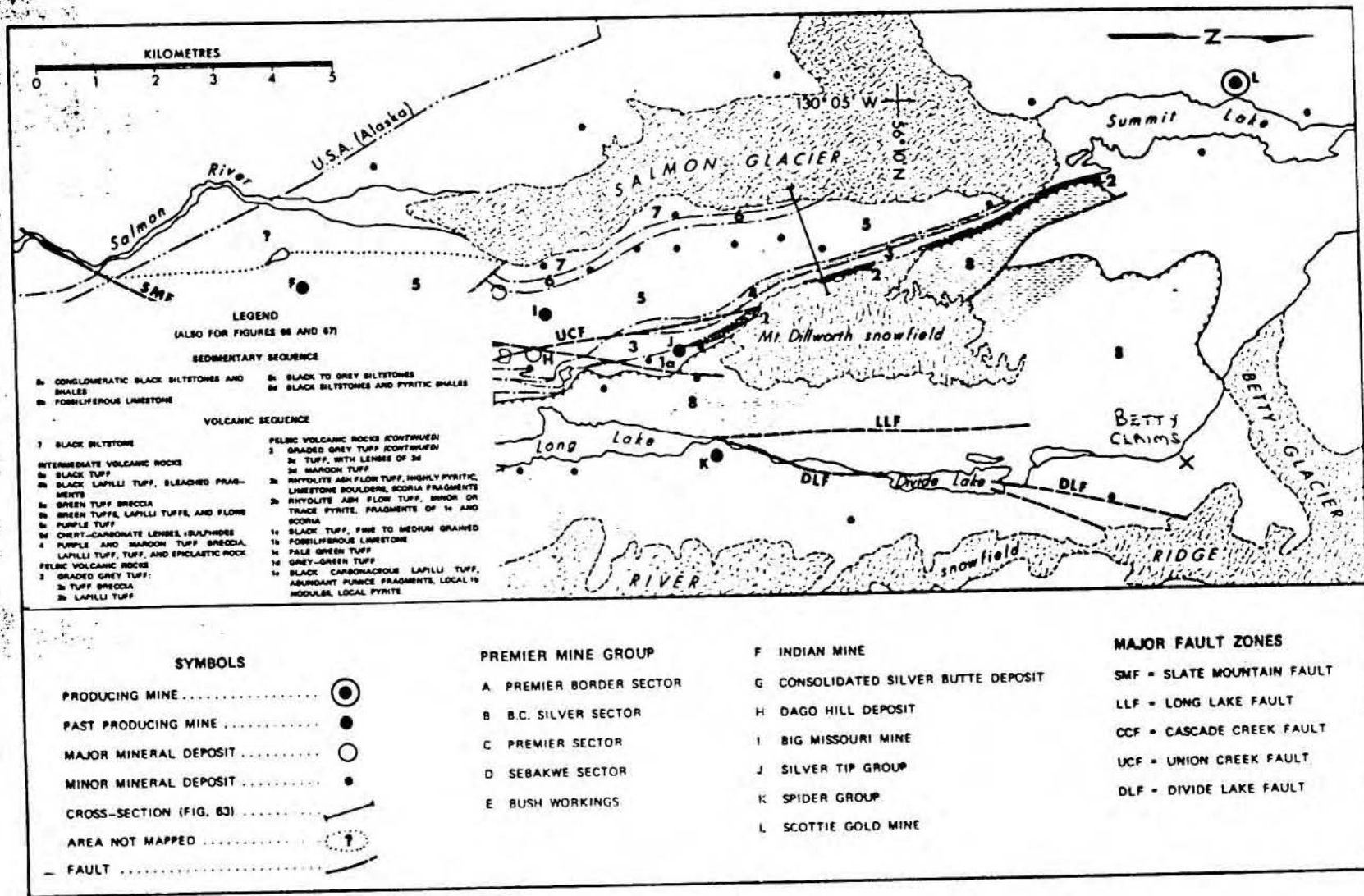


Figure 3 Geology and mineral deposits of the central Salmon River Valley.

(Taken from Alldrick, D.J. -(1983) B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1982. Paper 1983 - 1, p. 188.)

DETAILED TECHNICAL DATA AND INTERPRETATION

The purpose of this study was to determine the mineralogy and chemistry of the mineralisation on the Betty Claims. Sample #1-85 was collected from the open cut (Figure 2) and sample #2-85 from the entrance to the adit (Figure 2). The samples were collected as examples of the mineralisation occurring in veins on the claims.

Mineralogy

Thin sections were prepared by cementing thin slices of rock to a glass slide using canada balsam. The slice was then ground down to a thickness of 30 microns using carborundum grit, this standard thickness is estimated using the interference colors of known minerals (for example quartz) in the section. Finally a cover slip was cemented on top of the slice of rock.

A polished section of sample #1-85 was prepared in the following manner: the sample, size approximately 2 cm x 2 cm x 1 cm, was mounted in a block of cold setting resin; the surface of the sample was ground flat using carborundum grit and water on a glass surface; the sample was then polished using diamond grit and an oil lubricant on a hard paper lap. This procedure produces a flat, relief-free, scratch-free polished surface.

Sample #1-85 is shown in hand specimen in plate 1.

Thin section #1-85

A fine-medium granular aggregation of

60% opaque minerals (described below in polished section)

40% quartz - Colourless, low relief, low birefringence, uniaxial positive

Polished Section #1-85

A fine-medium granular aggregation of the following minerals:

40% sphalerite: grey color, isotropic

40% naumannite: white color, anisotropic

Naumannite is a rare silver mineral with the chemical formula $Ag_2 Se$. It occurs typically in massive granular or platy forms. In hand specimen it has a black color which tarnishes to a purplish iridescent appearance.

15% chalcopyrite: yellow color, weakly anisotropic (grey-brown)

5% pyrite: weakly anisotropic (green-brown)

Sample #2-85 is shown in hand specimen in plate 2.

Thin Section #2-85

The thin section showed a coarse granular aggregation of quartz and opaque minerals. The opaques could be identified in hand specimen as sphalerite, chalcopyrite and pyrite.



Plate 1 Hand Speciman #1-85

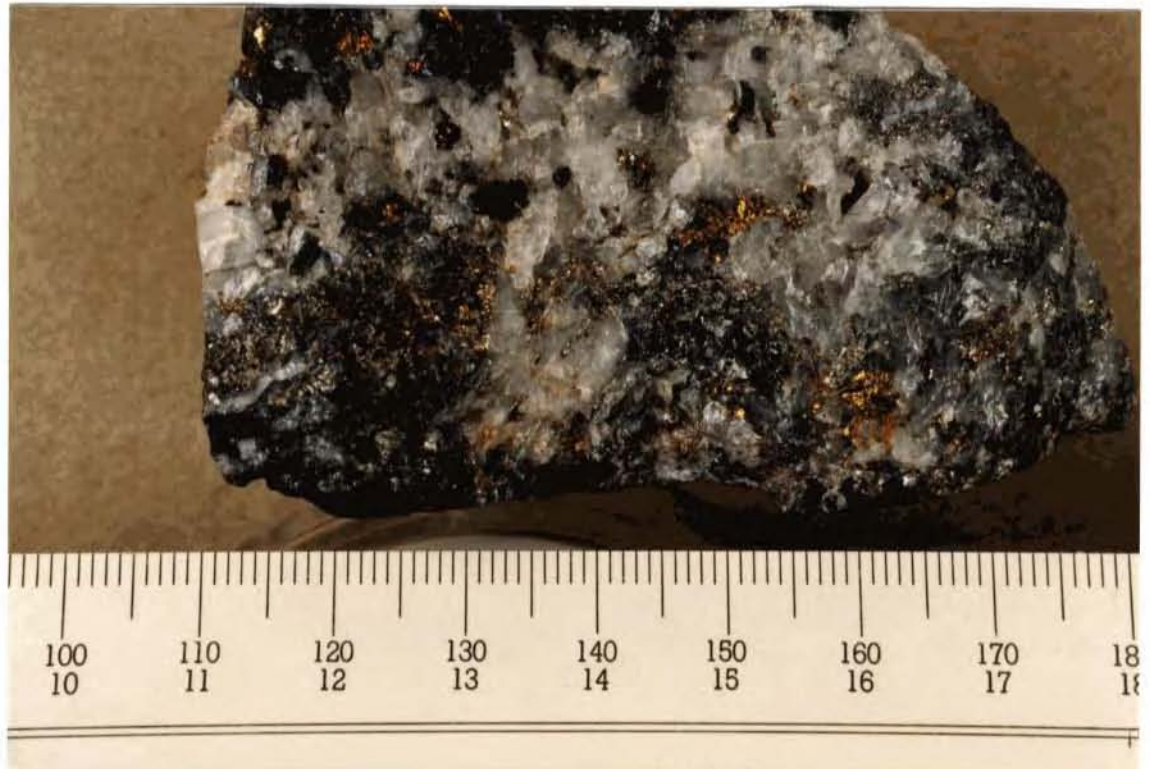


Plate 2 Hand Speciman #2-85

Chemistry

Instrumental neutron activation analysis (INAA) was carried out on sample #1-85 at the University of Alberta.

Technique

Approximately 120 mg of the sample was weighed and transferred to a plastic irradiation vial. This was fed into the nuclear reactor via the pneumatic tube and bombarded with neutrons at a rate of $1 \times 10^{12} \text{ Ncm}^{-2}\text{s}^{-1}$. The induced radioactivity was measured using a Ge [Li] detector.

Results

Zinc, copper and silver are shown in weight percentage. Gold, manganese and indium in parts per million.

Zn 64.5 \pm 1.3%
Cu 0.54 \pm 0.05%
Ag 0.32 \pm 0.03%
Au 6 \pm 1 ppm
Mn 8 \pm 1 ppm
In 0.31 \pm .04 ppm

INTERPRETATION

The occurrence of naumannite (Ag_2Se) in conjunction with sphalerite, chalcopyrite and pyrite in quartz hosted hydrothermal veins cutting host volcanic and associated sedimentary rocks is remarkably similar to the ore mineralogy of the Republic region, Washington, which is one of the leading silver producing districts of the U.S.A. The presence of indium in the INAA results are the first reported indications of this metal on the claims. It is probably substituting for zinc in the sphalerite. The precious metal potential of the area is shown by the mineralogy and chemistry of the described samples. High zinc values will also contribute to the economics.

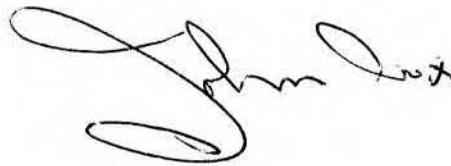
The continuity of the veins across the claims and the total tonnage of ore minerals remains to be established. Previous geophysical surveys in the region have had limited success due to intense faulting and fracturing of the rocks. A drilling program will therefore be necessary to determine the economic viability of the claims.

(e) Itemized Cost Statement

Field labour costs	4 days @ \$200/day	\$ 800.00
Report preparation	2 days @ \$200/day	400.00
Accomodation/transportation		471.00
Photography		24.00
Sample preparation		55.00
INAA analysis		50.00
		<hr/>
		\$1,800.00

(f) Author's Qualifications

The author holds B.Sc. and M.Sc. degrees in geology from the Universities of Durham and Alberta respectively. His masters thesis was based on the lead-zinc-silver mining district of Slocan, B.C. He currently is registered as a professional geologist in Alberta #40656.

A handwritten signature in black ink, appearing to read "John East". The signature is written in a cursive style with large, sweeping loops.