REPORT ON
A VERTICAL MAGNETIC SURVEY OVER
THE BETTY LOU AND LOU GROUPS OF
MINERAL CLAIMS, PROMONTORY HILL, MERRITT, B.C.
NOVEMBER 1960 - APRIL 1961

23 May 1961

A. Allan.

Canan Aerial Exploration Ltd. - Owner
Lat. 50°N. Long. 120°W.
STATEMENT FOR ACCEPTANCE OF THIS REPORT
FOR ASSESSMENT WORK

I, James Douglas Little, wish to state that the following report was carried out under my direction and supervision, as Assistant General Manager of Canadian Exploration Limited. I am a mining engineer registered in the Province of British Columbia and have supervised exploration work carried out by the above company for the past five years.

The field work covered by this report was carried out by a qualified and capable geologist and magnetometer operator, Mr. Andrew Allan, a senior geologist employed by Canadian Exploration Limited. His qualifications to carry out the detailed work are as follows:-

Mr. Allan graduated from the University of British Columbia in 1949 with a B. A. degree in geology. Since that time he has held responsible positions in the exploration departments of several mining companies, namely:- New Jersey Zinc Exploration Ltd., Transcontinental Resources Ltd., and Newmont Mining Corporation. Mr. Allan has conducted geophysical surveys since 1949 and has submitted reports for assessment purposes in the Yukon Territory, Saskatchewan, and Quebec.

I hereby certify that the above statements concerning my supervision of the geophysical work embodied in this report, my qualifications to fulfill the requirements of the Mineral Act, and the qualifications of Mr. Andrew Allan to perform the work are well and truly represented.

JDL:mg
Vancouver, B. C.
26 June 1961.

J. D. LITTLE,
Registered Mining Engineer.
CANEX AERIAL EXPLORATION LTD.

REPORT ON
A VERTICAL MAGNETIC SURVEY OVER
THE BETTY LOU AND LOU GROUPS OF
MINERAL CLAIMS, PROMONTORY HILL, MERRITT, B.C.
NOVEMBER 1960 - APRIL 1961

Mineral Claims: Lou M.Cs. 19-26 inclusive
Betty Lou M.Cs. 1-14 inclusive
Betty Lou Fr. M.Cs. 1-7 inclusive
Willy #4 Fr. M.C.

Location: 10 miles north-west of Merritt, B.C.
(Lat. 50°N, Long. 120°W), Nicola, M.D.

Geophysical Survey By:

Vancouver, B.C.
23 May 1961.

A. ALLAN,
Geologist.
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Page 1</th>
<th>INTRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SUMMARY</td>
</tr>
<tr>
<td></td>
<td>CONCLUSION</td>
</tr>
<tr>
<td></td>
<td>RECOMMENDATION</td>
</tr>
<tr>
<td>Page 2</td>
<td>CLAIMS</td>
</tr>
<tr>
<td></td>
<td>OWNERSHIP</td>
</tr>
<tr>
<td></td>
<td>LOCATION &amp; ACCESSIBILITY</td>
</tr>
<tr>
<td>Page 3</td>
<td>TOPOGRAPHY</td>
</tr>
<tr>
<td></td>
<td>GENERAL GEOLOGY</td>
</tr>
<tr>
<td></td>
<td>STRUCTURAL GEOLOGY</td>
</tr>
<tr>
<td></td>
<td>SURVEY CONTROL</td>
</tr>
<tr>
<td></td>
<td>INSTRUMENTATION</td>
</tr>
<tr>
<td></td>
<td>METHOD</td>
</tr>
<tr>
<td>Page 4</td>
<td>INTERPRETATION</td>
</tr>
<tr>
<td>Page 5</td>
<td>EXPENDITURES</td>
</tr>
</tbody>
</table>

Appendix - Cost Summary

Illustrations - Plate 1 Geological Plan 1"=400
Plate 2 Overlay - Magnetic Contour plan 1" = 400
Plate 3 Magnetometer Readings 1" = 400.
INTRODUCTION:

A vertical intensity magnetic survey was undertaken on the Betty Lou and Lou mineral claims during 1960 and 1961. The survey commenced in October, continued to November 1960, and was completed in April 1961. A Hilger and Watt vertical intensity variometer was used throughout the survey.

A report on the survey is submitted herewith for your information and consideration.

SUMMARY.

A magnetic survey was conducted over the mineral claims between October 1960 and April 1961. Magnetic observations were made at 100' intervals along north-south lines spaced 200' apart.

With the exception of the intrusive diorite, the sedimentary and pyroclastic rocks underlying the claims exhibit low magnetic susceptibility. The diorite exhibited magnetic characteristics due to permanent magnetism and higher magnetic susceptibility. Spot highs due to segregations or concentrations of magnetite within the diorite were common.

At the conclusion of the survey the results were plotted and a magnetic contour overlay prepared. (Plate 2.)

No anomalies indicative of large magnetite concentrations were found.

CONCLUSION.

Scattered high magnetic readings in the northwest corner of the claim group are due to concentration of magnetite within the intrusive diorite.

One small anomalous area was found on the Betty Lou No. 5 Mineral Claim. This may reflect contained magnetite in andesite, or be due to other causes. The dimensions are too small to be of immediate interest.

The lack of magnetic anomalies on the Betty Lou and Lou mineral claims does not eliminate the chances of finding mineralized zones within the claim group.

The general geologic setting is favourable for mineral deposition, and it is considered essential that other geophysical methods be tried over the claims in an effort to provide targets for diamond drilling.

The lack of detailed geological information over the claim group is a serious detriment to interpretive analyses of the geophysical results.

RECOMMENDATION.

1. That the claim groups be mapped on a scale of 100' = 1 inch.

2. That an Induced Polarization survey be conducted over the Nicola group rocks; a line spacing of 400' and a spread of 800' on the electrodes seems preferable. The effective depth penetration of the 800' spread is in excess of 1000'.

3. Any anomalies found by the initial Induced Polarization survey should be defined on a closer spacing of lines and electrodes prior to drilling.
4. The main area of interest extends from the forestry lookout to the west boundary of the claims, and from the south claim boundary north to the intrusive contact.

CLAIMS.

The Betty Lou and Lou groups are comprised of 30 mineral claims and fractions, all held by location. The claim names, tag numbers, record numbers and due dates are as follows:

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OWNERSHIP.

The claims are all held in the name of Canex Aerial Exploration Ltd., 700 Burrard Building, Vancouver 5, B.C.

LOCATION & ACCESSIBILITY.

The Betty Lou and Lou mineral claims lie 10 miles northwest from Merritt, B.C., on Promontory Mountain. Access to the group is by paved road from Merritt for seven miles and thence over a good gravel road to the top of Promontory, about 5 miles.
TOPOGRAPHY.

The terrain is moderately rugged, Promontory Mountain is well rounded on top with steep slopes to the north, the south slopes are moderate. Elevation at the forestry observation post is 5866 feet.

The climate is semi-arid, hot and dry during the summer months and moderately cold during the winter.

GENERAL GEOLOGY.

The claims are underlain by rock formations of the Nicola Group; a series of sedimentary formations intercalated with minor pyroclastic sediments and volcanics.

Intrusive into the Nicola Group is the Guichon Batholith, a hornblende diorite. Dykes and small stocks of quartz feldspar porphyry occur on the claims.

The rock formations within the Nicola Group are identified as follows:- greywacke, andesitic tuff, agglomerate, limestone, argillite, andesite, and quartz eye tuff. This series has been subject to considerable metasomatic alteration, in some instances sufficient to alter the original character of the rock completely. The chief forms of alteration are, silification, chloritization and the development of skarn. Minor disseminated pyrite-pyrrhotite mineralization is widespread, locally a few specks of chalcopyrite were noted.

STRUCTURAL GEOLOGY.

The formations strike northeast with dips to the north and south; they appear to lie along the south limb of a northeasterly trending anticline. This structure is further complicated by drag folding and faulting. For the most part, the drag folds indicate a northeasterly plunge.

GEOPHYSICS

SURVEY CONTROL.

An east-west baseline was established across the claim groups. The baseline commenced at a triangulation station on the east side and tied into the government survey station on Promontory Mountain. North-south cross lines were cut across the claims on 200' line spacing. The cross lines were stationed every 100', horizontal distance.

INSTRUMENTATION.

A Hilger and Watt vertical intensity variometer was used to measure the vertical component of the magnetic field, instrument No. 99130. The scale constant of this instrument is 30 gammas per scale division. The survey required a two man crew for efficient operation in the field.

METHOD.

A series of readings were taken along the baseline stations and average
values calculated for each station. The operator checked into the base stations as frequently as possible to establish the diurnal correction. For the most part, the diurnal and temperature corrections were of no significance.

The corrected gamma values were plotted on the plan map and adjusted to the nearest even 50 gammas, to simplify contouring. The adjustment was necessary due to the very low magnetic relief over most of the area.

Over 2500 stations were occupied and magnetic observations taken at each station.

**INTERPRETATION.**

Interpretation of the magnetic data was based on actual gamma values, geology by C. W. Ball, April 1960, and by observation in the field during the course of the survey.

Outcrops of hornblende diorite in the vicinity of the higher readings contained up to 15% magnetite. The sharp localized nature of the anomalies indicate a source of magnetics at shallow depth. It is concluded that these are due to concentrations of magnetite, within or near the intrusive diorite contact.

The elongation of the magnetic contours in a northeast direction is a direct expression of differing magnetic susceptibilities in the underlying rock types. If the geology were mapped in more detail it would be possible to trace out individual beds by the use of the magnetic contours.

There appears to be a slight indication of north-south faulting, however, the magnetic expression along the faults is so slight as to be invalid without the background geological information.

With the exception of establishing the intrusive contact, the results of the survey were inconclusive.

Respectfully submitted

A. ALLAN, Geologist.

**Acknowledgement:**

The writer wishes to acknowledge information obtained from the following:-

EXPENDITURES

The following crew members were employed during the periods specified, as follows:

A. Allan
Geologist - Supervisor
Sept. 26 - Nov. 30, 1960  43 dys. @ $25.00/dy.  $1,075.00
Apr. 17 - 29, 1961    10 dys. @ $25.00/dy.  250.00

R. Freeze
Linecutting
Sept. 26 - Nov. 30, 1960  60 dys. @ $450.00/m.  900.00

A. Welch
Linecutting
Sept. 26 - Nov. 15, 1960  42 dys. @ $400.00/m.  560.00

W. Curr
Linecutting
Oct. 12 - Nov. 12, 1960  30 dys. @ $10.00/day  300.00

B. Backler
Engineer - survey control - magn. operator
Oct. 13 - Nov. 30, 1960  45 dys. @ $450.00/m.  900.00
Apr. 17 - Apr. 29, 1961  15 dys. @ $450.00/m.  900.00

F. Carter
Magnetometer operator
Apr. 17 - 29, 1961  15 dys. @ $400.00/m.  200.00

Compilation, Interpretation and Map preparation  300.00

Total Expenditure  $4,485.00

A. ALLAN, 
Geologist & Field Supervisor.

Additional expenditures (not included above)
Vehicle Operation  $650.00
Crew board & lodging
270 man dys. @ $4.00/dy.  1,080.00

Total $1,730.00

I, H. Allan, do make this solemn declaration conscientiously believing it to be true, and knowing that it is
of the same force and effect as if made under oath

declared before me as
Vancouver, B.C. on the 14th day of May 1961

Shirley Jennerottte, 
Sub-mining Recorder