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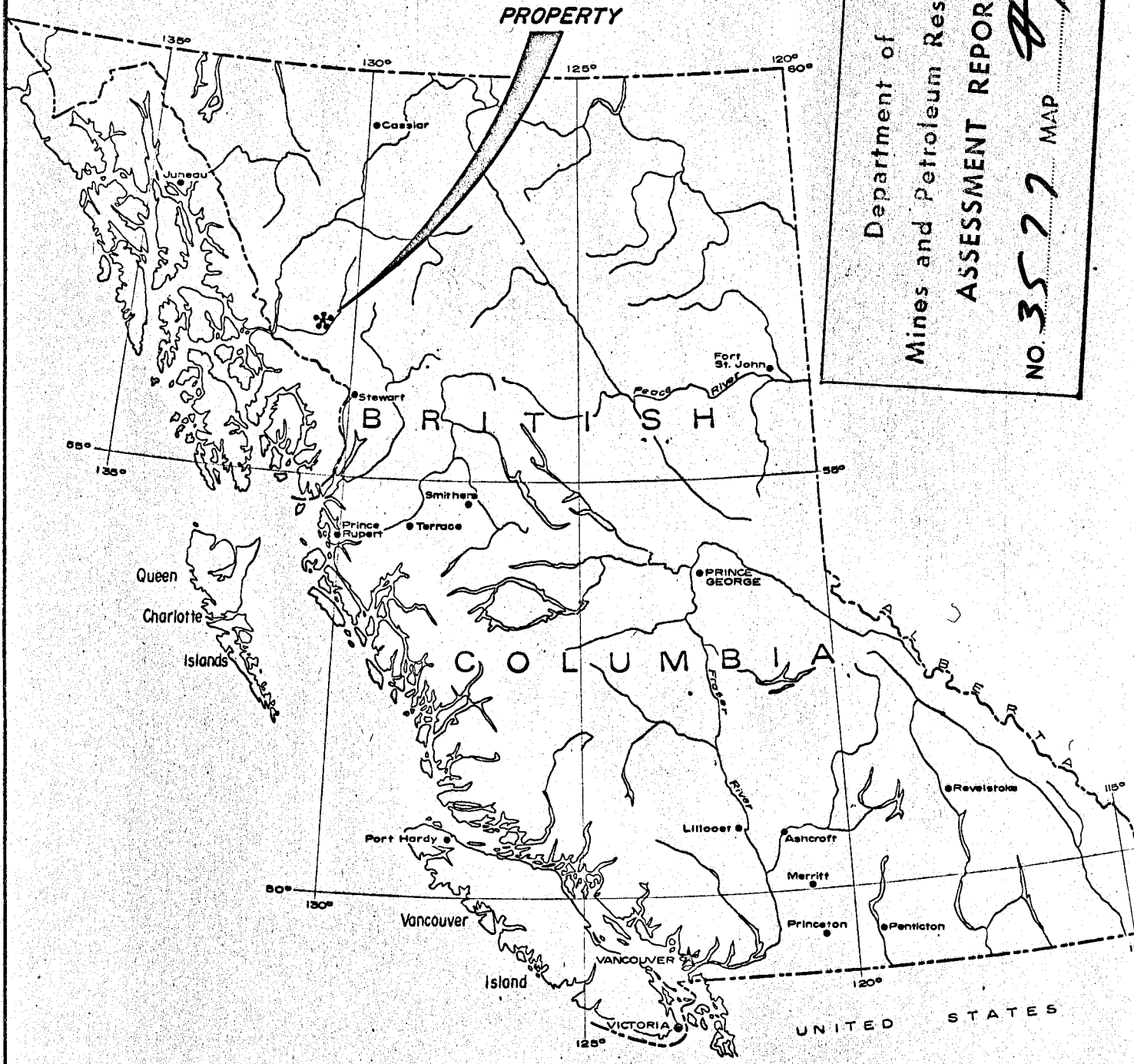
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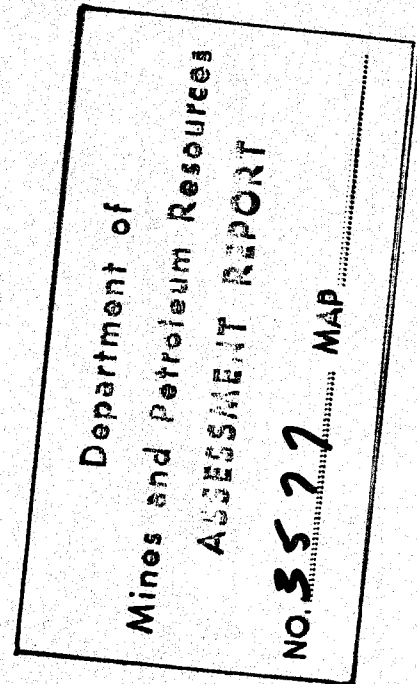
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 3577 MAP



COSEKA RESOURCES LTD.
PROPERTY LOCATION MAP

GEOPHYSICAL REPORT
OF THE
GROUND MAGNETOMETER SURVEY
ON THE
RUN MINERAL CLAIMS
HOT PUNCH MINERAL CLAIMS
TIA MARIA MINERAL CLAIMS
OWNED BY
COSEKA RESOURCES LIMITED
AND
NORTHERN VALLEY MINES LTD.



FOR

PHELPS DODGE CORP. OF CANADA LTD.

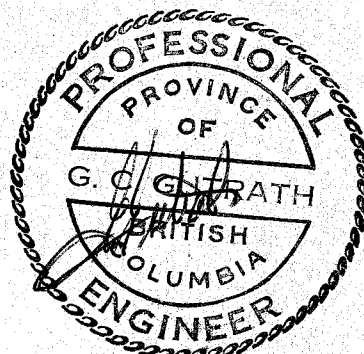
Long. 130° 54' W
Lat. 57° 18' N
N.T.S. 104G

LIARD MINING DIVISION

BRITISH COLUMBIA

BY

G. GUTRATH - P.ENG
&
P. NIELSEN - GEOPHYSICIST



ATLED EXPLORATION MANAGEMENT LTD.

VANCOUVER, B. C.

FEBRUARY 1, 1972

RUN GROUP GROUND MAGNETOMETER SURVEY

INTRODUCTION

During the period from September 18, 1971 to October 11, 1971 a ground magnetometer survey was carried out by Atled Exploration Management Ltd. on the Run mineral claims owned by Coseka Resources Limited under option to Phelps Dodge Corp. of Canada Ltd.

The purpose of the survey was to assist in the geological mapping over covered areas and to delineate possible zones of magnetite (or lack of it) which might be related to copper sulphides of economic significance.

A total of 21 line-miles were surveyed. The survey area consisted of slope-chained and picketed lines with a station interval of 100 feet. The lines were spaced 400-feet apart. Because of rough terrain, swamps, etc., three baselines were required for proper control.

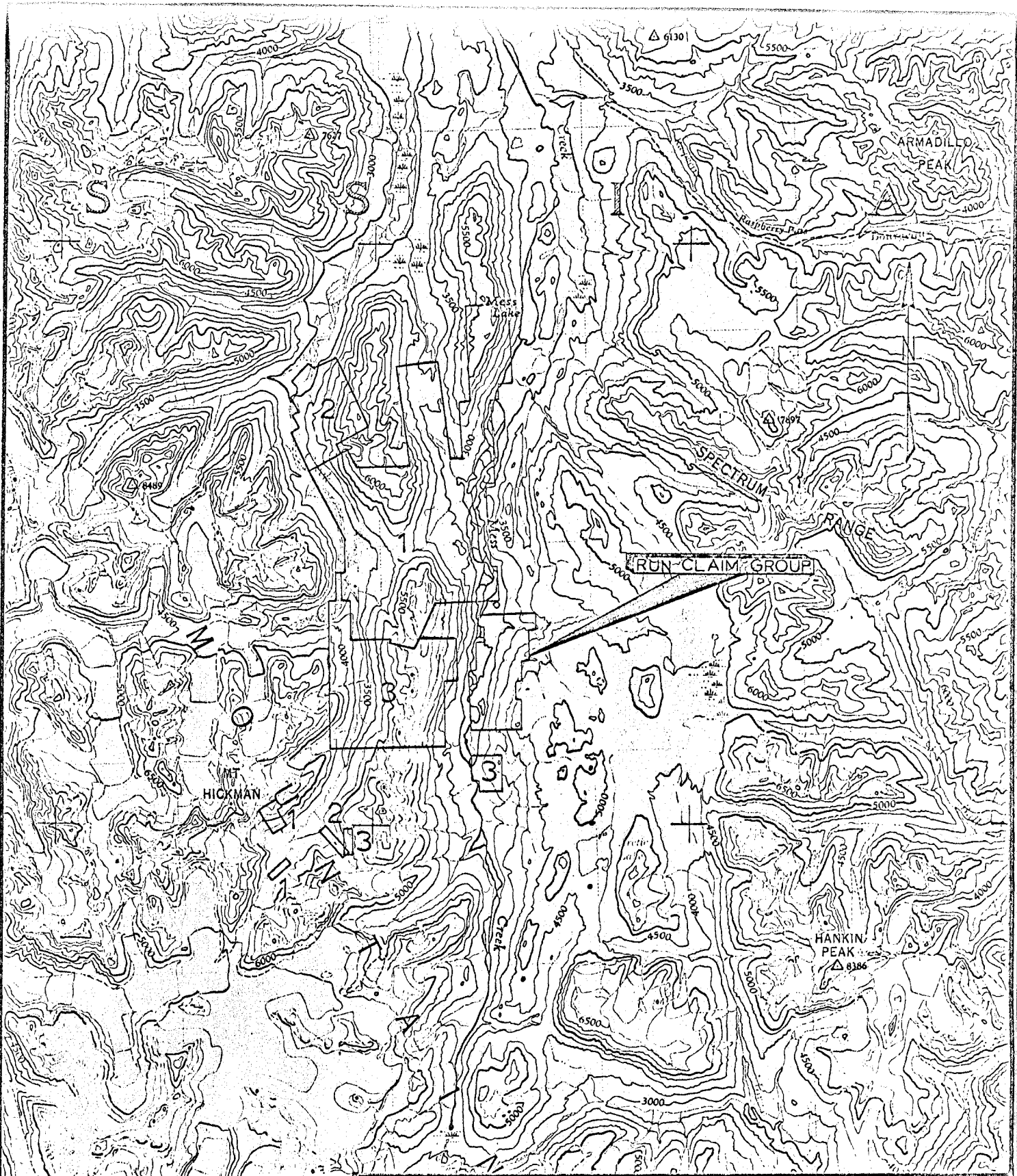
SURVEY METHOD

The magnetometer survey was executed using a vertical force fluxgate magnetometer which is hand held and levelled using a bubble-level on the face of the instrument.

The instrument was held by the aid of a harness to maintain constant height above ground and distance from the body. Readings were taken facing one direction using the most sensitive scale possible.

Due primarily to rough terrain and possible excessive loop times, a base-station recorder was used to facilitate the corrections for diurnal (daily) variations in the earth's natural magnetic field and to monitor possible magnetic storms, temperature drift and instrument drift.

A nearby base-station was read at the beginning and end of each day's surveying for the day-to-day correlation.



COSEKA RESOURCES LTD.

CLAIM LOCATION MAP

SCALE: 1" = 4 miles

- 1 Liard Copper
- 2 Columbia River Mines Ltd.
- 3 Northern Valley Mines Ltd.

INSTRUMENTATION

A Sharpe MF-1 Model Fluxgate magnetometer was used on the survey lines. This instrument measures vertical force variations of the earth's natural magnetic field, displayed in gammas, on a meter with five ranges for a total of $\pm 100,000$ gammas. The MF-1 is very light and fully portable, has excellent temperature stability, has negligible orientation error and is of rugged construction.

A Rustrak Recorder was used as the base-station recorder. It is battery operated and produces an analog graphical trace with a full scale deflection of 1000 gammas. A time scale is given along the zero axis of the graph paper. A M700-PcPhar Fluxgate magnetometer was used with the recorder.

DATA COMPILATION AND PRESENTATION

The readings and the time of readings of the observation stations were recorded in a paper-bound field book and transferred to a planimetric map after the necessary base-station recorder corrections were made.

The values were then contoured on the same map at various contour intervals in gammas and at a scale of 1" = 200 feet.

DISCUSSION AND INTERPRETATION OF RESULTS

The magnetometer readings varied from a "low" of -1596 gammas at Line 20S Stn. 29E to a "high" of +11,498 gammas at Line 48N Stn. 27E resulting in a total magnetic relief of 13,094 gammas over the grid area.

There is a pronounced north-south trend to the magnetic texture and generally there are two distinct magnetic levels present. Firstly is a "low" (ie. less than 0 gammas) roughly south of and bordering B.L. 0 + 00 in the Porphyry (Loon) Lake area and to the northwest.

DISCUSSION AND INTERPRETATION OF RESULTS (con't)

Background of the remaining survey area is about 100-300 gammas with many high amplitude low and high, "bullseyes" elongated trends, and flexures occurring throughout.

Identification of rock units and contacts from the magnetics is hampered by near surface, high susceptibility, dike-like structures; by the possibility of rock units dipping sub-parallel to terrain slope, terrain effects; possible lack of susceptibility contrast across adjacent rock types, and thick overburden to the west.

However, by correlating the magnetics with other existing data including geology, geochemistry, air-photo, and the topographic map, a meaningful interpretation is possible.

Magnetic Lineaments

A number of lineaments have been interpreted from the ground magnetic contour map and are illustrated as faults.

The most persistent of these is a linear trending from L12S Stn. 0 + 00 to the northeast corner of the survey grid. The northeasterly portion of this feature is probably the contact between the andesitic volcanics to the east and the more acidic rocks to the west. This contact continues to the south and off the map area.

A northeast and northwest set of fractures is postulated with the generally elongated alteration zones and rock units striking north-south.

A long narrow band of andesitic volcanics appears to lie along the main baseline area north of Loon Lake and possibly along the eastern shore as well. The interpreted zones of alteration have complicated the magnetic picture considerably. This trough of volcanics could be magnetically masked or distorted by adjacent, more highly magnetic altered rocks and by terrain effects.

Other Features

Three "bullseye" type magnetic anomalies occur adjacent to and along the northeasterly lineament mentioned above and are thought to represent possible local contact metamorphic environments. One other such feature occurs at 22 + 00S, 29 + 00E.

An additional handicap in interpretation is the lack of magnetic contrast between the volcanic and postulated acidic (intrusive) rocks. Petrographic analysis of rocks on the grid suggests that almost all observed outcroppings are andesitic or altered andesitic rocks. Therefore, it is conceivable that the texture of the map is representative of different degrees of alteration and changes in percentage magnetite content throughout a volcanic sequence which varies in thickness and is covered by glacial overburden in some places but outcrops in others.

CONCLUSIONS AND RECOMMENDATIONS

The results of the ground magnetometer survey have indicated a northeast and northwest striking fracture set (faults) and delineated what is conceived to be areas of varying stages of altered and andesitic volcanics.

An unaltered volcanic rock-type occurs along the eastern edge of the survey grid. The contact is fairly well defined.

Three main zones of andesitic alteration are thought to be the chief targets for further investigation.

The interpreted contact metamorphic zones should be further explored for massive sulphides and magnetite by drilling and/or trenching.

(5)

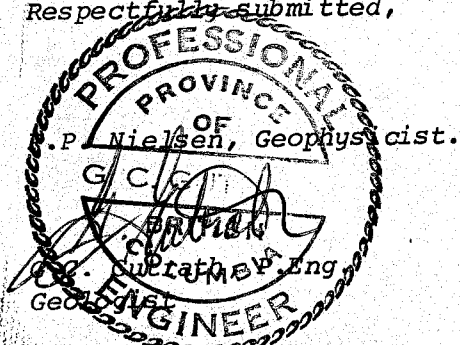
CONCLUSIONS AND RECOMMENDATIONS (con't)

It is recommended that the three large alteration zones outlined should be further investigated by induced polarization, trenching and drilling. Recent improvements in I.P. instrumentation provides for the analysis of decay curve shape resulting in the ability of the interpreter to differentiate between the chargeability effects due to sulphides and those due to magnetite.

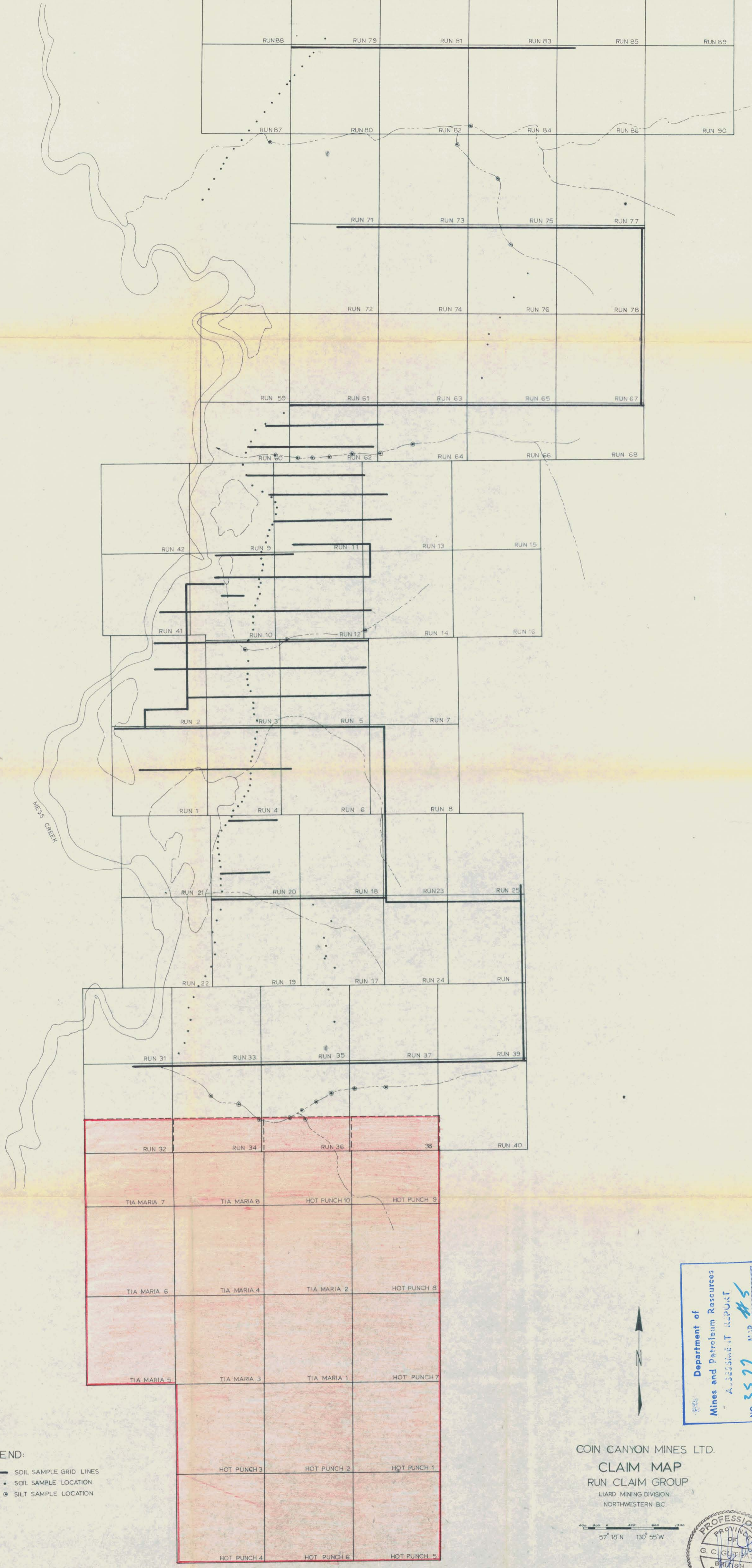
Data enhancement in the form of a terrain correction and second vertical derivative of the regional and residual fields should be considered. The resultant magnetics picture should then be re-interpreted and correlated with all other data available.

The terrain correction procedure would consist of digitizing the topographic map at the same scale as the ground magnetic map and then using a cross-correlation technique incorporating a large, third-generation computer.

Respectfully submitted,



ATLED EXPLORATION MANAGEMENT LTD.



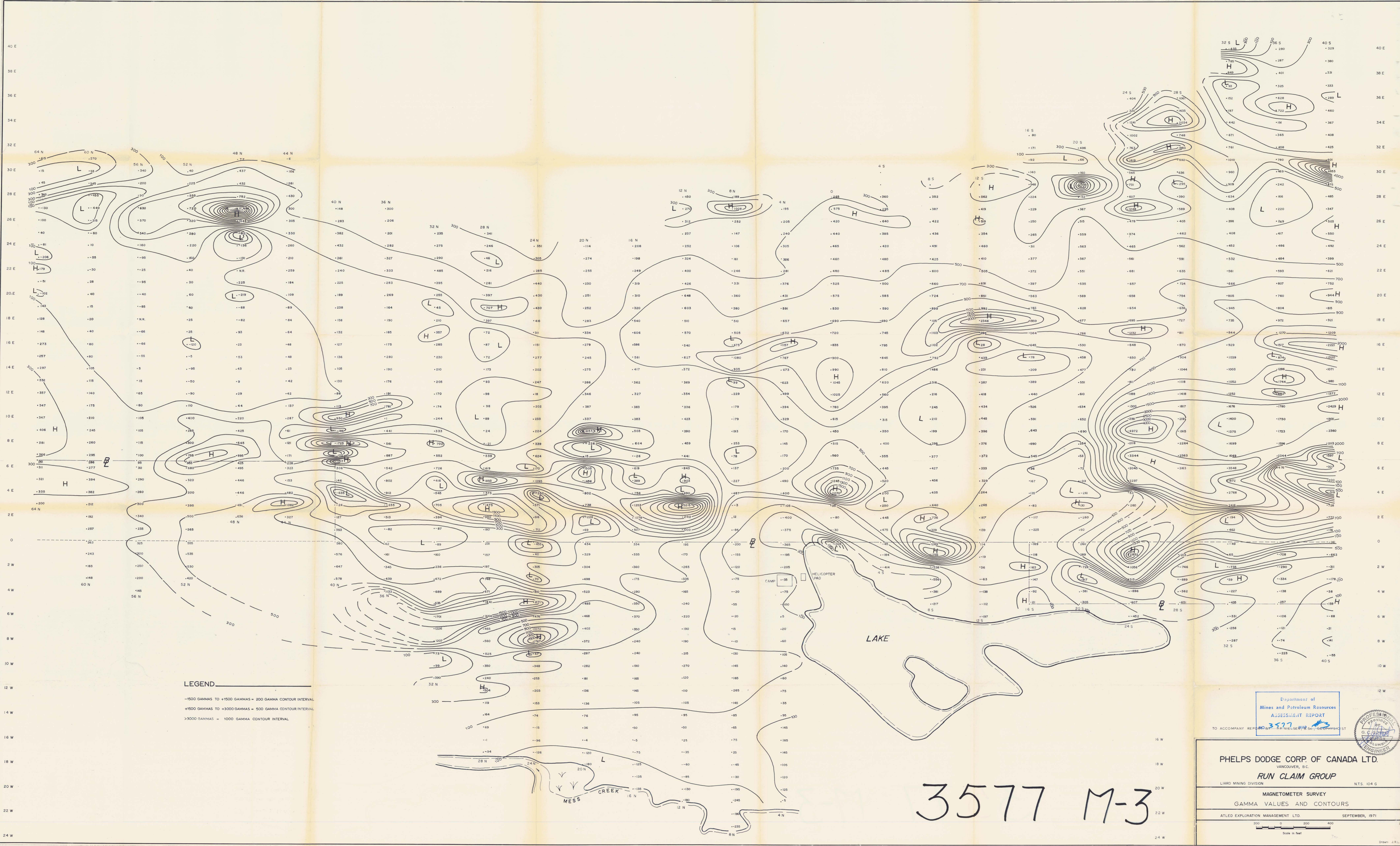
LEGEND:
 — SOIL SAMPLE GRID LINES
 • SOIL SAMPLE LOCATION
 ⊙ SILT SAMPLE LOCATION

COIN CANYON MINES LTD.
 CLAIM MAP
 RUN CLAIM GROUP
 LIARD MINING DIVISION
 NORTHWESTERN BC.

57° 16' N 130° 55' W

Department of
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LEGEND

-1500 GAMMAS TO +1500 GAMMAS = 200 GAMMA CONTOUR INTERVAL

+1500 GAMMAS TO +3000 GAMMAS = 500 GAMMA CONTOUR INTERVAL

>3000 GAMMAS = 1000 GAMMA CONTOUR INTERVAL

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

TO ACCOMPANY REPORT NO. 3577 M-3

PHELPS DODGE CORP. OF CANADA LTD.
VANCOUVER, B.C.

RUN CLAIM GROUP

LIARD MINING DIVISION N.T.S. 104 G

MAGNETOMETER SURVEY
GAMMA VALUES AND CONTOURS

ATLIED EXPLORATION MANAGEMENT LTD. SEPTEMBER, 1971

Scale in feet

Drawn J.R.L.

3577 M-3



- LEGEND**
- 1 — VOLCANICS (MAINLY ANDESITES)
 - 2 — INTERMEDIATE ROCKS
 - 3 — ALTERATION ZONE
 - 4 — CONTACT METAMORPHIC ZONE
 - 5 — ACIDIC ROCKS
-
- - - CONTACT
 - ~ ~ ~ FAULT
 - · - · DIKE

PROFESSIONAL
 GEOPHYSICIST
 BRITISH COLUMBIA
 REPORT BY P. NIELSEN, B.Sc., GEOPHYSICIST

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 3577 MAP #4

PHELPS DODGE CORP. OF CANADA LTD.
 VANCOUVER, B.C.

RUN CLAIM GROUP
 LIARD MINING DIVISION

MAGNETOMETER SURVEY
 INTERPRETATION

ATLIED EXPLORATION MANAGEMENT LTD. SEPTEMBER, 1971

Scale 1" = 100'