

REPORT ON

INDUCED POLARIZATION & GROUND MAGNETOMETER SURVEYS

"Y" CLAIM GROUP - COPPER MOUNTAIN AREA, - B. C.

for;

COIN CANYON MINES LTD.

by;

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

CLAIMS

<u>Claim Name</u>	<u>Record Number</u>	<u>Expiry Date</u>
"Y" 1 - 4	27703-27706	July 2, 1971
"Y" 5 - 8	29178-29181	Nov. 3, 1971
"Y" 9 - 40	27711-27742	July 2, 1971
"Y" 41 - 52	33317-33328	May 17, 1972

LOCATION

Approximately 15 miles south of Princeton, B.C., east of the Similkameen River.

Lat. 49°17'N - Long. 120°29'W.

92 H / 8 W

DATE: JULY 1971

BY -



3187

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1. Apparent Resistivity
2. " Chargeability
3. Mag. Survey

GEOPHYSICAL REPORT

"Y" GROUP - COIN CANYON MINES LTD.

INTRODUCTION

From June 14 to June 22, 1971, a reconnaissance Induced Polarization Survey, totalling 6.7 line miles, was executed by Atled Exploration Management Ltd. on behalf of Coin Canyon Mines Ltd. over the "Y" Claim Group near Princeton, B.C. The field crew of four men was under the direction of P. Nielsen, B.Sc. who also acted as operator of the I. P. instrument.

The main purpose of the Geophysical Surveys was to further explore existing anomalous copper geochemical values, to determine the eastern extent of a significant chargeability anomaly on the adjacent Kalco Valley property, and to assist in the geological mapping of the property.

Additional soil sampling was carried out just prior to the I. P. Survey, but results were not available at the time to determine further possible I. P. targets.

Three magnetometer traverses were also carried out over some areas of coincident copper geochemical and chargeability anomalies to assist in the interpretation of the I. P. results. A complete magnetometer survey was executed ten days later and all the magnetometer results are included within the magnetometer survey portion of this report. A total of 16.0 line miles was done.

Survey lines were in grid form with lines oriented N61°E, spaced 500 feet apart and with a station interval of 100 feet. I. P. readings were taken at 200-foot intervals, and magnetometer readings were taken at 100-foot intervals, over alternate lines in areas of interest. No detail I. P. was done at this time.

LOCATION AND ACCESS

The property is located at the headwaters of Wolfe Creek about three miles southeast of the old Copper Mountain Mine.

Access to the claim area is by means of Highway 3, a distance of 1/4 mile east from Princeton to the paved Copper Mountain

continued.....

LOCATION AND ACCESS (cont'd)

road. This runs southerly about ten miles to Lost Horse Gulch. From this point, a four-wheel drive road runs southerly for four miles on to the property.

CLAIMS

The property consists of 52 mineral claims, "Y" 1 to 52 inclusive, held under option agreement, between Coin Canyon Mines Ltd. and the prospectors, G. Burr and E. Mullin, of Princeton, British Columbia.

<u>Claim Name</u>	<u>Record Number</u>	<u>Expiry Date</u>
"Y" 1 - 4	27703-27706 incl.	July 2, 1971
"Y" 5 - 8	29178-29181 incl.	Nov. 3, 1971
"Y" 9 - 40	27711-27742 incl.	July 2, 1971
"Y" 41 - 52	33317-33328 incl.	May 17, 1972

GEOLOGY

(After J.H. Montgomery 1961, 1962 and 1963) The property appears to be underlain by Upper Triassic Nicola volcanic rocks and possibly intercalated sediments, primarily augite andesites and argillites respectively, in contact with the Copper Mountain intrusives, believed to be chiefly dioritic, with felsite dikes, faults and shear zones intruding the younger rocks. Outcrop exposure on the property is probably less than 5%, although angular float and considerable cat trenching through generally shallow glacial overburden by previous owners have greatly enhanced the geological knowledge of the property with visible amounts of sulphide, hematite and magnetite mineralization being observed at various places on the claim group.

HISTORY AND PREVIOUS WORK

The property has been investigated at various times by different individuals and companies. A reconnaissance geochemical

continued....

HISTORY AND PREVIOUS WORK (cont'd)

soil survey by Amax Exploration Inc. revealed a number of copper anomalies, some of which were investigated by trenching. However, to the writer's knowledge, neither geophysics nor drilling have ever been carried out on this ground to date.

Existing lines believed to have been installed using the chain and compass method were used. The lines were well marked with fluorescent flagging and red paint on tree blazes. Stations were marked every 100 feet and the individual line directions are as shown on the contour maps accompanying this report. Line 105S and 110S were installed at the time of the survey, although only Line 105S was used for the I. P. portion of the investigations.

SURVEY SPECIFICATIONS

A. Induced Polarization Survey:

The Equipment: The Induced Polarization instrument was a 2.5 kw. unit manufactured by Sharpe Instruments Ltd. of Toronto, Ontario, incorporating the Newmont remote-triggering type receiver and a solid state Pulse-Transient control unit.

The following specifications apply:-

Type of Current: Direct current broken at periodic intervals with a pulse duration of two seconds with alternate pulses being of opposite polarity.

Pulse Repetition Rate: Two seconds "current on" and two seconds "current off".

Integrating Time : Area under decay curve (M_a) = 0.65 seconds, area over decay curve (L) = 1.30 seconds. (Delay time before integration = 0.45 seconds)

Maximum power available = 2.5 kw.

Maximum current available = 10 amps. D.C.

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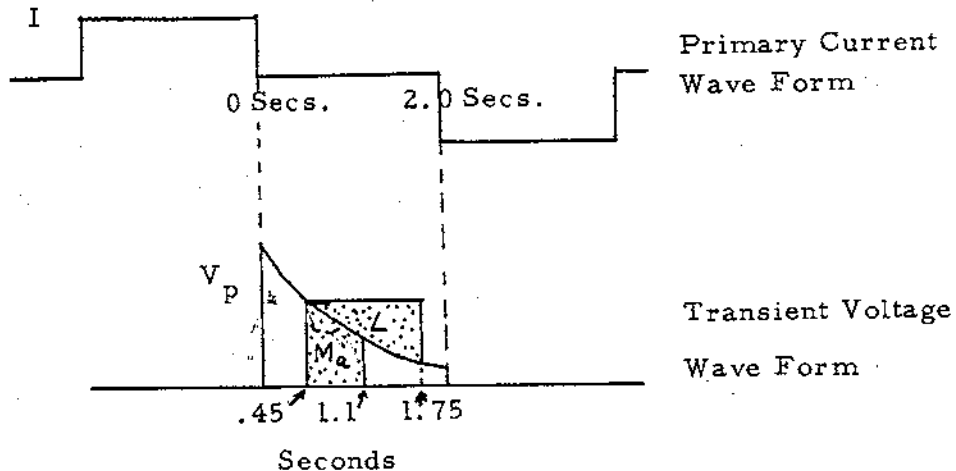
SURVEY SPECIFICATIONS (cont'd)

A. Induced Polarization Survey (cont'd)

Measurements taken in the field were:-

- 1) The primary voltage V_p between the measuring (potential) electrodes during "current on".
- 2) The current flowing through the current electrodes C_1 and C_2 .
- 3) The apparent chargeability M_a which is the integrating time of the area under the transient curve measured by the receiver.
- 4) The time integral of the area over the transient curve called L . The ratio of L/M_a can be of assistance in defining the shape of the transient curve and hence the interpretation of the chargeability response is enhanced.

Apparent resistivity ρ_a is calculated by dividing V_p by the applied current and multiplying by a factor appropriate to the geometry of the electrode array used and the Ohm-meter units desired.



Electrode Configuration: A 3-electrode array was used whereby the current electrode C_1 and two potential electrodes,

continued.....

SURVEY SPECIFICATIONS (cont'd)Electrode Configuration: (cont'd)

P₁ and P₂, were separated by a distance "a" from each other and moved in unison along the survey lines taking measurements at regular intervals. The second current electrode C₂ is fixed at "infinity" (∞) which is a minimum distance of b_a to the nearest station measured.

The entire survey was executed using an "a" spacing of 400 feet. The moving current electrode "C₁" was to the west of the measuring (potential) electrodes P₁ and P₂, with the station location being halfway between C₁ and the nearest (potential) electrode P₁. This system was used as a reconnaissance measure with particular thought being given to tying-in to the adjacent Kalco Valley survey.

Data Presentation: All apparent resistivity and chargeability readings were plotted and contoured at a scale of 1" = 500 feet. An interpretation is shown on the chargeability contour map and the claim locations are illustrated on the resistivity map. A "dashed" line separates the results of this survey from those of a separate survey carried out by Newmont Mining Corp. of Can. Ltd. on the adjacent Kalco Valley property. Current direction of the latter survey was south.

Certain interesting lines or line segments are shown in profile form on a horizontal scale of 1" = 500 feet. The apparent chargeability (M_a) is plotted using a vertical scale of 1" = milliseconds, and the apparent resistivity (ρ_a) on a logarithmic scale in ohm. meters. The L/M_a ratios (where shown) are expressed in terms of greater or less than unity.

B. Magnetometer Survey

Magnetic results were corrected for diurnal variations and drift each night by the operator. The final gamma values were then plotted on a grid plan using a scale of 1" = 500 feet, and are contained in the map pocket of this report.

continued:

RESULTS AND INTERPRETATION

A. Induced Polarization Survey:

After initially planning on using a 500-foot line spacing, it was decided that every second line, i.e., 1000-foot spacing, would be surveyed in order that most of the interesting parts of the property might be immediately investigated. It was thought that further I.P. would be done pending these results at a later date.

Chargeability Contours:

Four main areas exhibiting chargeability responses of 15 milliseconds, or greater, have been completely or partially delineated.

Anomaly #1

The area showing the highest response is centered approximately on Line 70S, Station 12W. Peak values of 36 and 35 milliseconds on Line 65S and 38 and 33 milliseconds on Line 75S are not coincident with the higher copper geochemical results but the anomaly, as a whole, (i.e. greater than 20 milliseconds) does overlap a long, narrow northerly-trending copper anomaly which peaks to 135 ppm. Cu. at Line 70S, Station 2+50W, and to 190 ppm. Cu. at Line 80S, Station 7+50W.

This chargeability anomaly is about 2500 feet in diameter, giving an approximate aerial extent of 4.9×10^6 square feet. The eastern boundary is quite straight as though cut off by a fault, dike-like feature or sudden lithology change. The western flank of the anomaly correlates well with the chargeability results obtained by Newmont Mining Corporation on the Kalco Valley property. The 30 millisecond contour in the vicinity of the main road is conformable to the top of a rounded hill which reaches an elevation of about 5100 feet above sea level.

A pronounced line in the form of a gulley was observed trending northerly through coordinates Line 65S, Station 17+50W, and it is suggested that it is the surface expression of a fault, hence the bimodal peaks to this anomaly.

continued....

RESULTS AND INTERPRETATION (cont'd)

A. Induced Polarization Survey: (cont'd)

Anomaly #2 This feature, partially outlined by 15 millisecond contour, was not closed off due to uncertainties as to the eastern boundary of the property at the time, due to difficulties of accessibility, and due to low coincident copper geochemical values with the higher chargeability readings. Disseminated pyrite was observed in an andesitic outcrop on Line 65S, Station 20E. The general trend of the 15 millisecond contour would appear to strike northerly and could encompass the high copper values to the north and east.

Anomaly #3 Small in area extent and encompassing only three readings, this feature occurs on the eastern flank of a copper geochemical anomaly and, therefore, could be related to sulphide mineralization.

Anomaly #4 This anomaly only exists along the southernmost survey line and is, therefore, open to the south. It occurs slightly upslope from a single-value copper geochemical high of 150 ppm. and in an area of cat-trenching carried out by previous owners. Considerable amounts of highly-fractured, broken and bleached rock thought to be an andesite were observed in these trenches and road cuts. Argillic or tuffaceous rocks were observed outcropping in the area around Line 100S, Station 3W. The chargeability anomaly straddles a resistivity gradient varying from 500 to 1350 ohm. meters. Further information to the south would be required to interpret this one-line anomaly.

The area along the baseline between 25S and 55S yielded very low apparent chargeabilities in a region of greater than 60 ppm. Cu. geochemical values (highs of 146, 225 and 194 ppm.). No explanation is given other than the possibility that the copper anomaly might be the result of a change in the background level due to the presence of underlying Copper Mountain Intrusive Rocks mapped as diorites (J.H. Montgomery). Glacial cover appears to be very thin (i. e. less than 20 feet) in this area, the terrain

continued.....

RESULTS AND INTERPRETATION (cont'd)

Anomaly #4 is sloping gently to the east and the Cu. anomaly is
(cont'd) believed to be residual.

Resistivity Contours:

The apparent resistivity contour map reveals a relief in values from 105 to 3680 ohm. meters. A prominent north-south grain is evident especially in the southern portion of the survey area.

Anomaly #1 The area outlined by the 250 ohm. meters contour is only partially coincident with the chargeability anomaly on its northern side. A much higher correlation exists on Newmont's Anomaly to the west where resistivities less than 250 ohm. meters coincide with chargeabilities up to 65 milliseconds.

Anomaly #1 occurs within a range of resistivity values between about 175 to 1000 ohm. meters with the largest portion lying within the 400-600 ohm. meter range.

Anomaly #2 A low, intermediate range of apparent resistivity values correlates well with the chargeability anomaly, in fact, within the eastern half of the grid, all chargeabilities greater than 15 milliseconds occur coincident with a range of resistivity values between 100 and 1200 ohm. meters.

Anomaly #3 A single value low resistivity of 105 ohm. meters coincides with a chargeability reading of 19 milliseconds. The 500 ohm. meter contour flexure suggests a local northwesterly trend, perhaps a fault with a small localized body of sulphide mineralization occurring at Line 95S, Station 24E. However, this feature appears to be cutting across a more macroscopic north-northeasterly trend including anomalies #2, 3 and 4, and the copper geochemical highs to the north-northeast, i.e., vicinity of Lines 25S to 45S inclusive, at Stations 39-42 east.

Anomaly #4 The chargeability anomaly straddles a resistivity gradient varying from 500 to 1350 ohm. meters.

continued....

RESULTS AND INTERPRETATION (cont'd)

Resistivity Contours: (cont'd)

Anomaly #4 (cont'd) Insufficient information prevents any further discussion of this anomaly.

B. Magnetometer Survey:

Due to observed north-south lineaments and elongated geochemical anomalies, a line spacing of 1000 feet and a station interval of 100 feet were used.

Results were plotted with no level correction being made (i.e., some values are negative). A range of values from -1075 gammas, in the vicinity of I. P. Anomaly #1 to +4300 gammas at Line 110S, Station 10W, were observed.

This survey was not tied in to the adjacent Kalco Valley property, although a correction constant could be applied to standardize the two surveys.

The magnetometer survey seems to delineate rock contacts, faults and, perhaps, dikes. A long, north-striking magnetic high feature parallels and lies to the east of the above-mentioned similarly-trending copper geochemical anomaly and is interpreted as the magnetic expression of a fault, contact or combination of these. Andesites are believed to lie to the west of this lineament.

CONCLUSIONS AND RECOMMENDATIONS

The reconnaissance Induced Polarization Survey executed over some of the "Y" claims has indicated that large areas are underlain by metallicly-conducting material and has determined the lateral extent of the I. P. anomaly on the Kalco Valley property to the west. The most interesting I. P. feature is Anomaly #1. The higher chargeability readings are likely caused by higher concentrations of disseminated pyrite and magnetite. Generally, the areas of low, apparent resistivity, are thought to be underlain by shales, argillites or the Copper Mountain diorite. The highly coincident high M_a , low ρ_a

continued.....

CONCLUSIONS AND RECOMMENDATIONS (cont'd)

anomaly on the Kalco Valley ground could be caused, at least in part, by shales or argillites. The lack of this low resistivity coincidence with the Anomaly #1 makes it a potentially more encouraging feature. There is virtually no outcrop in the vicinity of the center of Anomaly #1, but this area is thought to be underlain by andesites and/or diorites with intercalated tuffs of the Nicola group. This, in conjunction with the close proximity of the Copper Mountain intrusives, is deemed highly favourable for the deposition and concentration of sulphides.

Magnetometer and geochemical results indicate that the intermediate anomalous chargeability areas are most likely due to copper-bearing sulphides; for example, in the southeastern region of Anomaly #1. Considerable faulting and dike intrusion in the area is suggested and has complicated the interpretation.

It is recommended that further work be restricted to the Anomaly #1 area and in the region of high copper geochemical values at the eastern end of the property.

Anomaly #1 should be further investigated by Induced Polarization in the form of depth sounding and intermediate line profiling to determine depth extent, attitude and, if possible, an approximate percentage by volume sulphide content.

The eastern area should be tested with I. P. by using the jeep branch road to Line 25S, Station 4E, as access.

No immediate plans for drilling are made pending results on the neighbouring property and further geochemical geological and geophysical information on the "Y" claims.

Respectfully submitted,

P. Nielsen
 P. Nielsen
 Geophysicist
 PROFESSIONAL
 OF
 PROVINCE
 OF
 BRITISH COLUMBIA
 C. C. G. P. Eng.
 Geologist
 ENGINEER

APPENDIX NUMBER ONE

Statement of Qualifications:

I, Philip P. Nielsen, do hereby certify that I graduated with a Bachelor of Science degree in Geophysics from the University of British Columbia in May 1969.

I have been actively and responsibly involved in mineral exploration throughout Western Canada and Alaska for the past six years. Prior to this period, I was an electronics technician in the R.C.A.F., where I worked on anti-submarine oriented geophysical equipment for five years.

I am presently a member of the C.I.M., S.E.G. and B.C. Mining Geophysicist Society.


Philip P. Nielsen, B.Sc.

May 20, 1971
Vancouver, British Columbia

APPENDIX II
- PERSONNEL

Supervisor G.C. Gutrath, P.Eng.

Party Chief - I.P. Operator P.P. Nielsen, Geophysicist.

I.P. Crewmen L. Phillips
W. Culbert
K. Lerner

Magnetometer Operator L. Phillips



MAGNETIC DECLINATION 23°E



M-1

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ASSESSMENT REPORT
NO 3187 MAP 41

LEGEND
● AREAS OF LOW APPARENT RESISTIVITY
--- JEEP ROAD

TO ACCOMPANY REPORT BY:
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ATLED EXPLORATION MANAGEMENT LTD., VANCOUVER, B.C.

NOTE: Contour interval = 125, 250, 500, 1000 and 2000 ohm-meters
a = 400 feet

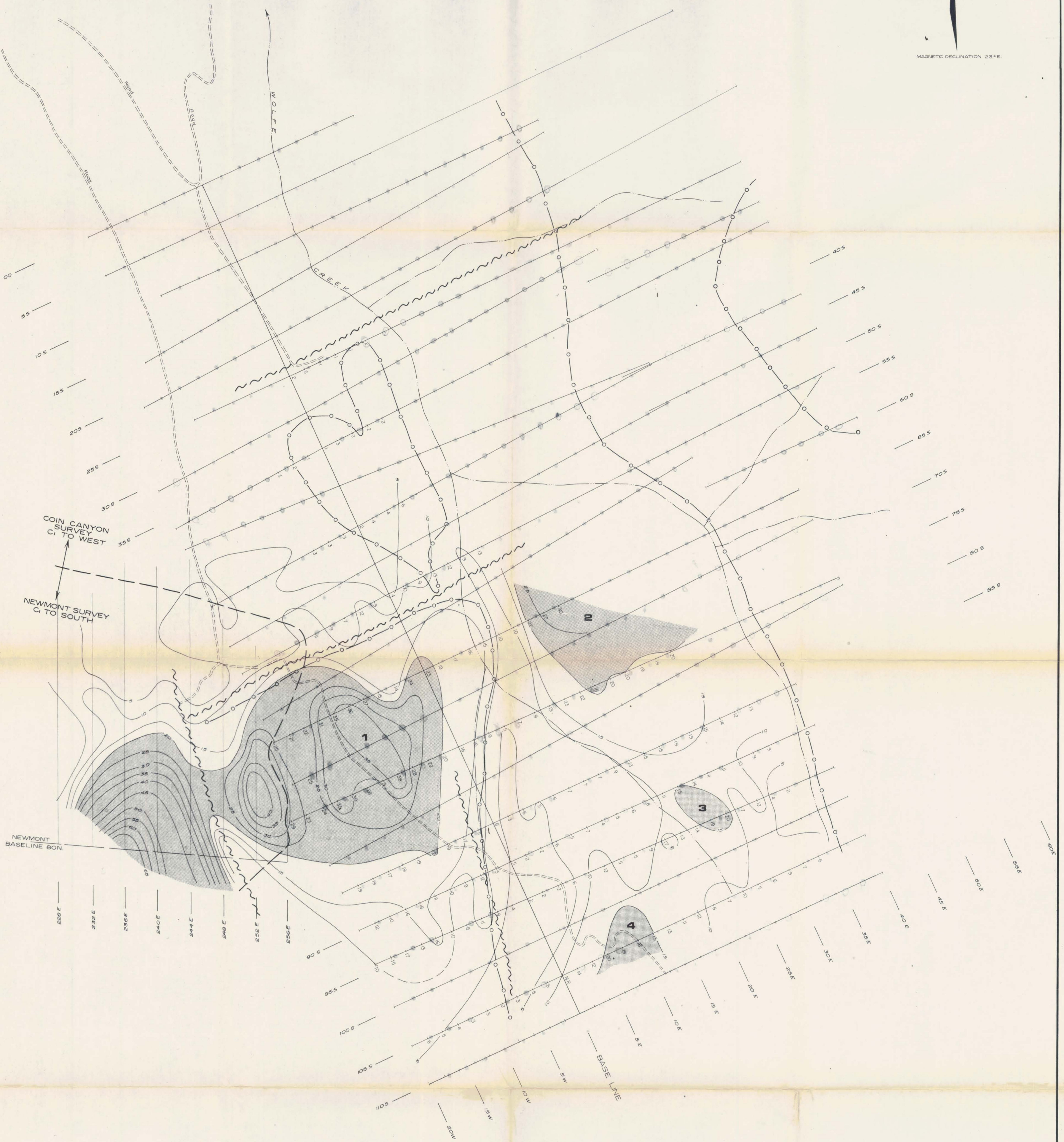
SCALE
FEET 500 250 0 500 1000 1500 2000 FEET

COIN CANYON MINES LTD.
'Y' CLAIM GROUP
COPPER MOUNTAIN AREA
SIMILKAMEEN MD, BC.
APPARENT RESISTIVITY



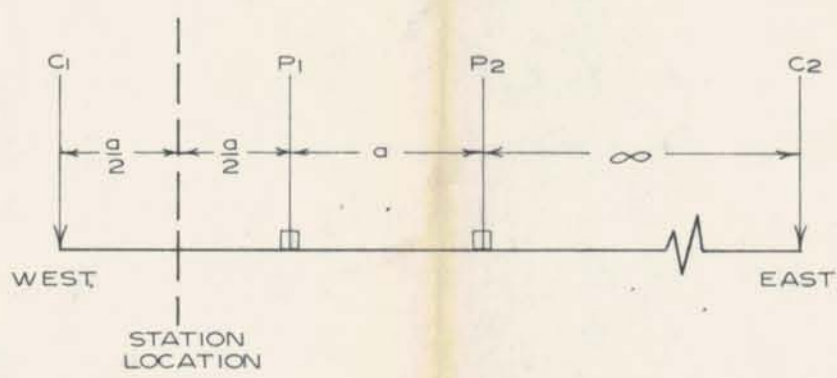


MAGNETIC DECLINATION 23°E.



LEGEND

- 1 ANOMALOUS HIGH CHARGEABILITY
- JEEP ROAD
- INTERPRETED FAULT
- INTERPRETED CONTACT



3-ELECTRODE ARRAY

NOTE: Contour interval = 5 milliseconds
a = 400 feet

Department of
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ASSESSMENT REPORT
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COIN CANYON MINES LTD.

'Y' CLAIM GROUP
COPPER MOUNTAIN AREA
SIMILKAMEEN MD., B.C.
I. P. SURVEY
APPARENT CHARGEABILITY

SCALE



TO ACCOMPANY REPORT BY:
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MAGNETIC DECLINATION 23° E.



NEWMONT
BASELINE BON

226E
232E
236E
240E
244E
248E
252E
256E

LEGEND
● HIGH MAGNETIC SUSCEPTIBILITY AREAS
○ LOW MAGNETIC SUSCEPTIBILITY AREAS

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NOTE: Contour Interval
= 1000 * To = 1000 * + 100 GAMMAS
ABOVE +1000 * = 1000 GAMMAS

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3187 MAP #3

COIN CANYON MINES LTD.

'Y' CLAIM GROUP
COPPER MOUNTAIN AREA
SIMILKAMEEN MD., B.C.

GROUND MAGNETOMETER SURVEY
CONTOURS & VALUES
SCALE

FEET 500 250 0 500 1000 1500 2000 FEET

