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A REPORT

ON

A TURAM ELECTROMAGNETIC SURVEY

Hek Grid, Anvil Area, Yukon Territory

FOR

CYPRUS ANVIL MINING CORPORATION

Vancouver, British Columbia

BY

PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, British Columbia

DECEMBER 1975

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $ 7044.01

Resident Geologist or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

for Commissioner of Yukon Territory

09317

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INTRODUCTION

Between July 23rd and August 3rd, 1975, Peter E. Walcott & Associates Limited carried out a Turam electromagnetic survey over the Hek grid for Cyprus Anvil Mining Corporation.

The survey was carried out over N 30° E handcut lines that were turned off from a N 60° W baseline, and chained and picketed at 100 foot intervals.

Measurements of field strength and phase difference were made every 100 feet along the lines using an S.E. 71 electromagnetic unit operating at a frequency of 400 Hz. and using a coil separation of 100 feet.

The data are presented in profile form on Maps W-199-1 and 2 that accompany this report.

PROPERTY, LOCATION AND ACCESS

The property known as the Hek claims is situated in the Whitehorse Mining District of the Yukon Territory.

The claims are situated straddling Rose Creek some 6 miles west of the Anvil minesite.

Access was obtained by means of helicopter from the minesite.

PREVIOUS WORK

The writer does not know the nature and extent of all previous work done on the property but believes that it has been covered in part by helicopter borne magnetic and electromagnetic surveys, gravity surveying on its north part, and geological prospecting.

The grid however was subjected to geochemical and magnetic surveying, and geological mapping in the 1975 field season by the staff of Cyprus Anvil Mining Corporation.

PURPOSE

As the Vangorda, Champ, Firth etc. sulphide deposits are associated with graphitic horizons within underlying biotite muscovite phyllites, and as on the basis of present geological knowledge the same and/or similar suites of rocks was thought to underlie the property the purpose of the survey was to locate the presence of electromagnetic conductors, the causative sources of most of which could be attributable to the above mentioned graphitic horizons, and which could be screened on the basis of gravity, magnetic and geological investigations as to their association with economic sulphide mineralization.

GEOLOGY

The reader is referred to a report by G. Jilson of Cyprus Anvil Mining Corporation.

SURVEY SPECIFICATIONS

The basic principle of any electromagnetic survey is that when conductors are subjected to primary alternating fields secondary magnetic fields are induced in them. Measurements of these secondary fields give indications as to the size, shape and conductivity of conductors. In the absence of conductors no secondary fields are obtained.

The electromagnetic survey was carried out using an S.E. 71 electromagnetic unit. The primary field was set up by closed inductive loops laid on the ground. Two receiver coils connected by a light-weight shielded cable to a compensator amplifier are used to measure the distortions in the electromagnetic field. The quantities measured are:

1. the ratio of the field strengths at each coil and

2. the phase difference in the fields at the two coils.

Large rectangular loops of varying size (3200 to 4800' 2500 to 3000' deep) were used on the survey with the loops always on the assumed footwall side of the formations.

Readings were taken every 100 feet along the picket lines perpendicular to the long side of the loops with a 100 foot coil separation and using a frequency of 400 Hz.

In all some 31 miles of surveying were carried out on the property.

DISCUSSION OF RESULTS

The reader should study the data in conjunction with the geology, soil sampling and magnetic maps of Cyprus Anvil Mining Corporation.

The responses of the two most prominent rock types in the general area, namely biotite muscovite phyllite and amphibolites, seem to appear characteristically different on Turam surveys over areas of known geology within the Anvil Area.

The amphibolites and related rocks seem to be characterized by constant low field strength ratios and very small if any phase differences, whereas the phyllites seem to be characterized by irregular field strength ratios and phase differences with stronger readings indicating more graphitic horizons.

A comparison of the Turam results with the geological map, where rock unit classifications and contacts are somewhat vague, bear out these general observations and show all the E.M. conductors to occur within underlying phyllites and associated rock units.

No magnetic response is associated with any of the E.M. conductors as can be seen from a comparison with the magnetic map.

A fault, striking northerly along the creek in the south-western map corner, is suggested by the apparent offset of conductors A and D. A further check should be made with the geologic and topographic maps to substantiate its possible occurrence.

Conductor A, a complex conductor of generally moderate conductivity, strikes across the southern extremity of the grid apparently offset by the forementioned fault.

It occurs in the younger amygdaloidal chloritic phyllites and is believed to be attributable to graphitic horizons within the same. It constitutes part of the same horizons that appear to stretch from the mine reservoir to the Hek grid.

Conductor B, a complex conductor of generally moderate conductivity, is open to the west and appears to be cut off by the fault on its eastern extremity.

Conductor C has a strike length of some 3200 feet and exhibits generally moderate conductivity.

Conductor D, a complex conductor of generally moderate conductivity, appears to die out both to the east and west, and is apparently offset by the fault in its centre.

DISCUSSION OF RESULTS cont'd

Conductor E of poor to moderate conductivity is a long conductor of some 6400 feet strike length and open to the east.

Several conductors exhibiting poor conductivity also occur particularly in the northern portion of the grid.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Between July 23rd and August 3rd, 1975, Peter E. Walcott & Associates Ltd. carried out a Turam E.M. survey over the Hek grid for Cyprus Anvil Mining Corporation.

This grid is located in the Anvil area of the Yukon Territory.

The survey, as expected, indicated a number of conductors most of which could be grouped into various conductive bands.

These generally complex conductors were thought to be attributable to graphitic horizons in the underlying phyllitic rocks.

As previously mentioned on numerous occasions the writer sees no reason to believe that one can differentiate between graphitic horizons and sulphide mineralization on the basis of Turam results with the amplitudes and relative ratios of the field strength and phase difference being dependent on the amount and complexity of the graphitic horizons as well as depth of burial, etc., and hence recommends that gravity profiling be carried out across and around some of the conductors in an effort to find out if any excess mass is associated with them.

Gravity profiling should be carried out on

(a) Line 80 W between 16 S and 48 S.

(b) Line 72 W between 16 S and 60 S.

(c) Line 64 W between 34 S and 60 S.

(d) Line 40 W between 16 S and 56 S.

(e) Line 16 W between 8 S and 40 S.

No gravity profiling is recommended across conductor A as it does not appear to have any economic considerations at this time.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

Peter E. Walcott, P.Eng.
Geophysicist

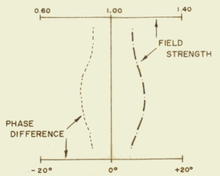
Vancouver, B.C.

December 1975

L.104-W L.96-W L.88-W L.80-W L.72-W L.64-W L.56-W L.48-W L.40-W L.32-W L.24-W L.16-W L.8-W L.0 L.8-E L.16-E

56-N 52-N 48-N 44-N 40-N 36-N 32-N 28-N 24-N 20-N 16-N 12-N 8-N 4-N -BASE-LINE- 4-S

SWAMP



LEGEND

CONDUCTOR AXIS —

GOOD CONDUCTOR —

MODERATE CONDUCTOR —

POOR CONDUCTOR —

CREEK —

TRAIL —

PROVINCE OF BRITISH COLUMBIA REGISTERED ENGINEER

CYPRUS ANVIL MINING CORP.

HEK GRID ; ANVIL AREA ; WHITEHORSE M.D., YUKON

TURAM ELECTROMAGNETIC SURVEY

PROFILES OF FIELD STRENGTH & PHASE DIFFERENCE
f =400 Hz

SCALE : 1" = 400 FEET

400 200 0 400 800 1200

MAP No. W-199-1
TO ACCOMPANY A REPORT BY
PETER E. WALCOTT, P. Eng , DATED - DEC. 1975

PETER E. WALCOTT & ASSOC. LTD.
JULY - AUGUST - 1975

L.88-W L.80-W L.72-W L.64-W L.56-W L.48-W L.40-W L.32-W L.24-W L.16-W L.8-W L.-0 L.8-E L.16-E

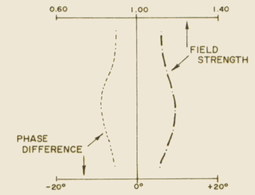
BASE-LINE

4-S 8-S 12-S 16-S 20-S 24-S 28-S 32-S 36-S 40-S 44-S 48-S 52-S 56-S 60-S 64-S 68-S 72-S 76-S

ROSE CREEK

B D D E C A

N R



LEGEND

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PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

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TURAM ELECTROMAGNETIC SURVEY

PROFILES OF FIELD STRENGTH & PHASE DIFFERENCE
f = 400 Hz

SCALE : 1" = 400 FEET

400 200 0 400 800 1200

MAP No. W-199-2
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