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A GEOPHYSICAL REPORT

ON

INDUCED POLARIZATION SURVEYING

Highland Valley Area, B.C.  
50° 22'N, 120° 52'W  
N.T.S. 92 I/7W

Claims surveyed: CVS 1,2,3 & 6  
Survey Dates: May 1st - 4th, 1992  
Owner: COPPER VALLEY SYNDICATE  
Operator: AUGUMO RESOURCES LTD.  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

BY

22,373

PART 2 OF 2

PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, British Columbia

June 1992

**A GEOPHYSICAL REPORT  
ON  
INDUCED POLARIZATION SURVEYING  
HIGHLAND VALLEY AREA, B.C.**

**SUMMARY:**

The CVS copper prospect is located in south central British Columbia, on the southeast side of the Guichon batholith, seven kilometers south of the Highmont Copper Mine. The property, comprised of eight 20 unit mineral claims and two, two post mineral claims, was staked to cover a strong copper anomaly discovered by regional geochemical sampling.

Between May 1st and 4th, 1992, Peter E. Walcott Associates carried out two pole-dipole traverses over the CVS property, for Aucumo Resources Ltd.

The traverses were undertaken to locate sulphide mineralization in areas where no previous coverage was undertaken and/or the results from previous work were not available to the present owners of the ground.

A weak chargeability anomaly was obtained on the more northerly of the traverses on strike with a previously defined zone of similarly weak response, located in an area of moderately high silt copper values, thus extending the zone by some 400 metres.

As a result of the above and the possibility that surface oxidation could extend to some depth in the area the writer recommends that additional I.P. surveying be carried out with a 150 metre dipole over the anomaly in an effort to see if it exhibits higher response at depth.

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## ACCOMPANYING MAPS - Scale 1:1250

## MAP POCKET

GEOCHEMICAL RESULTS & 1992 I.P. DATA

Figure 4

## INTRODUCTION.

Between May 1st and 4th, 1992, Peter E. Walcott & Associates Limited undertook two lines of induced polarization surveying (I.P.) on a property, located in the Highland Valley area of British Columbia, for Aucumo Resources Ltd.

The surveying was carried out over two lines, one trending N 33° E and the other N 65° W, established by the geophysical crew at the direction of Archean Engineering.

Measurements (first to fourth separation) of apparent chargeability (the I.P. response parameter) and resistivity were made every 100 metres along the lines using the pole-dipole method of surveying with a 75 metre dipole.

The I.P. data are presented in contour form on individual pseudo-sections bound in this report.

**PROPERTY, LOCATION & ACCESS.**

The property is located in the Kamloops Mining Division and consists of the following units:

<u>Claim Name</u>	<u>Units</u>	<u>Record No.</u>	<u>Anniversary</u>
CVS 1	20	219885	May 10th
CVS 2 - 4	20	219886 - 88	May 11th
CVS 5 - 6	20	219889 - 90	May 12th
CVS 7	20	308682	April 18th
CVS 8	20	308683	April 19th
CS 7 - 8	1	308684 - 85	April 19th

The claims are situated in the Highland Valley of British Columbia around and south of Chataway Lake and some seven kilometres southeast of the Highmont Copper Mine.

Access was obtained from the town of Merritt via Highway 8, the Pimanus-Tyner fire access road and the spur road to Chataway Lodge fishing camp.

**PREVIOUS WORK.**

Work has been carried out on the property and surrounding areas since 1887. In 1956 the Chataway Mining Syndicate staked the area of the present property and from then until the late 1970's carried out multiphase exploration in conjunction with a series of partners including geological mapping, stream and soil geochemical sampling, induced polarization surveys and diamond and percussion drilling with mixed results.

Since 1980 the area was held intermittently by a number of individuals who continued sporadic exploration along the lines mentioned above.

The results of the above work is partially documented in assessment reports filed by the various operators.

**GEOLOGY.**

The reader is referred to the forementioned reports and to a report by A. G. Troup, P.Eng., of Archean Engineering dated May 1992.

Basically the property is underlain by rocks of the Guichon Batholith complex, a somewhat concentric phased intrusive with increase in age, mafic content and decrease in grain size from the inner core to the outer margin.

Although mostly covered by glacial till the Chataway granodiorite, a member of the Highland Valley Phase, appears to be the dominant underlying rock type, in contact with younger Bethlehem and Bethsaida Phase rocks near the western boundary.

Mineralization on the property exists in a number of showings where malachite, bornite, chalcopyrite and chalcocite are observed in shears and/or altered rocks.

**PURPOSE.**

The purpose of the survey was to (a) carry out sufficient work to satisfy assessment requirements on the property, (b) examine the I.P. response, if any, over the purported half of a million ton Chataway zone, and (c) to explore the area east of Twin Lakes, where lake bottom sampling had returned anomalous copper values, and where an increase in polarization was noted at the south ends of the lines of the late 1960's I.P. grid which terminated on the north side of Broom Creek canyon.



## SURVEY SPECIFICATIONS.

The induced polarization (I.P.) survey was conducted using a pulse type system, the principal components of which are manufactured by Hunttec Limited of Metropolitan Toronto, Ontario, and BRGM Instruments of Orleans, France.

The system consists basically of three units, a receiver (BRGM), a transmitter and a motor generator (Hunttec). The transmitter, which provided a maximum of 2.5kw d.c. to the ground, obtains its power from a 2.5 kw 400 c.p.s. three phase alternator driven by a gasoline engine. The cycling rate of the transmitter is 2 seconds "current-on" and 2 seconds "current-off" with the pulses reversing continuously in polarity. The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through the current electrodes  $C_1$  and  $C_2$ , the primary voltages (V) appearing between any two potential electrodes,  $P_1$  through  $P_7$ , during the "current-on" part of the cycle, and the apparent chargeability, ( $M_a$ ) presented as a direct readout in millivolts per volt using a 100 millisecond delay and a 1000 millisecond sample window by the receiver, a digital receiver controlled by a micro-processor - the sample window is actually the total of ten individual windows of 100 millisecond widths.

The apparent resistivity ( $\rho_a$ ) in ohm metres is proportional to the ratio of the primary voltage and the measured current, the proportionality factor depending on the geometry of the array used. The chargeability and resistivity are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inhomogeneous the calculated apparent chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

The survey was carried out using the "pole-dipole" method of surveying. In this method the current electrode,  $C_1$ , and the potential electrodes,  $P_1$  through  $P_7$ , are moved in unison along the survey lines at a spacing of "a" (the dipole) apart, while the second current electrode,  $C_2$ , is kept constant at "infinity". The distance, "na" between  $C_1$  and the nearest potential electrode generally controls the the depth to be explored by the particular separation, "n", traverse.

A 75 metre dipole was employed on this survey, and first to fourth separation measurements made at 75 metre intervals along the survey lines. In all some 3.9 kilometres of surveying were completed using this procedure.

## DISCUSSION OF RESULTS.

As the two lines surveyed were a considerable distance apart and in different orientations - as shown on Figure 4 a plan of the line locations and geochemical results - they are best discussed on an individual basis as follows.

Line 0 E. This line was run across Broom Creek canyon, where previous surveys had detected an increase in polarization on the north side, and along the east side of Twin Lakes.

The results, as can be seen from the pseudosection, confirmed the results of the previous survey with chargeabilities in the order of 6 and 7's straddling Broom Creek - 0 + 00 N - but failed to show a further increase to the south. In fact both the chargeability and resistivity decreased to the south at 6 + 75S suggesting a considerable increase in the thickness of overburden cover akin to those on the 1981 Cominco survey over Chataway Creek where drilling failed to encounter bedrock at depths of over 180 metres.

Line 0 N. This line was designed to check the response of the Chataway zone and to locate the possible extension of a weak but untested chargeability zone some 800 metres long by 400 wide indicated on the 1981 Cominco survey and previously on the 60's International Mogul Mines survey.

The results showed a zone of weak chargeability response to exist between 8 + 75W and 10 + 50W on strike with the previously mentioned Cominco anomaly, the location of which is shown in Figure 4.

The higher chargeability readings were obtained on the third and fourth separation as was the case with the Cominco survey - higher readings on a = 100 metre n = 3 - suggesting possible greater percentage sulphide content at depth.

No significant signature was observed to be associated with the Chataway zone around 13 + 50W.

**SUMMARY, CONCLUSIONS & RECOMMENDATIONS.**

Between May 1st and 4th, 1992, Peter E. Walcott & Associates Limited carried out two pole-dipole traverses over a property, located in the Highland Valley area of British Columbia, for Aucumo Resources Ltd.

The traverses were undertaken to fulfill assessment requirements and in an effort to locate sulphide mineralization in areas where no previous coverage was undertaken and/or the results from previous work were not available to the present holders of the ground.

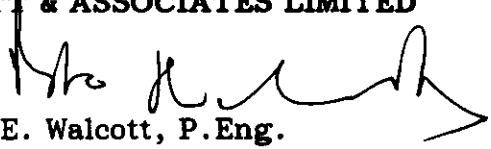
A weak chargeability anomaly was obtained on the more northerly of the traverses on strike with a previously defined zone of similarly weak response, located in an area of moderately high silt copper values, thus extending the zone by some 400 metres.

No significant chargeability signatures were obtained over the Chataway zone on the northernmost traverse, or on the Broom Creek - Twin Lake traverse.

As a result of the above and the possibility that surface oxidation could extend to some depth in the area the writer recommends that additional I.P. surveying be carried out with a 150 metre dipole over the anomaly in an effort to see if it exhibits higher response at depth. Should this be the case then other areas of weak polarization effects on strike to the north should be afforded the same treatment.

Respectfully submitted,

**PETER E. WALCOTT & ASSOCIATES LIMITED**

  
Peter E. Walcott, P.Eng.  
Geophysicist

**Vancouver, B.C.**

**June 1992**

**APPENDIX**

**COST OF SURVEY.**

Peter E. Walcott & Associates undertook the survey on a daily basis so that the total cost of services provided was \$8,688.00.

PERSONNEL EMPLOYED ON SURVEY

<u>Name</u>	<u>Occupation</u>	<u>Address</u>	<u>Dates</u>
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C. V3J 3T8	May 1- 4th, June 10, 1992
A. Walcott	Geophysical Operator	"	May 1 - 4 1992
R. Gonzalez	Assistant	"	"
D. Gonzalez	"	"	"
S. Edwards	"	"	"
J. Walcott	Typing	"	June 10, 1992

**CERTIFICATION.**

I, Peter E. Walcott, of the Municipality of Coquitlam, British Columbia, hereby certify that:

1. I am a graduate of the University of Toronto in 1962 with a B.A.Sc. in Engineering Physics, Geophysics Option.
2. I have been practising my profession for the last thirty years.
3. I am a member of the Association of Professional Engineers of British Columbia and Ontario.



Peter E. Walcott, P.Eng.

**Vancouver, B.C.**

**June 1992**

AUCUMO RESOURCES LTD.

CVS PROPERTY

KAMLOOPS MINING DIVISION, B.C.

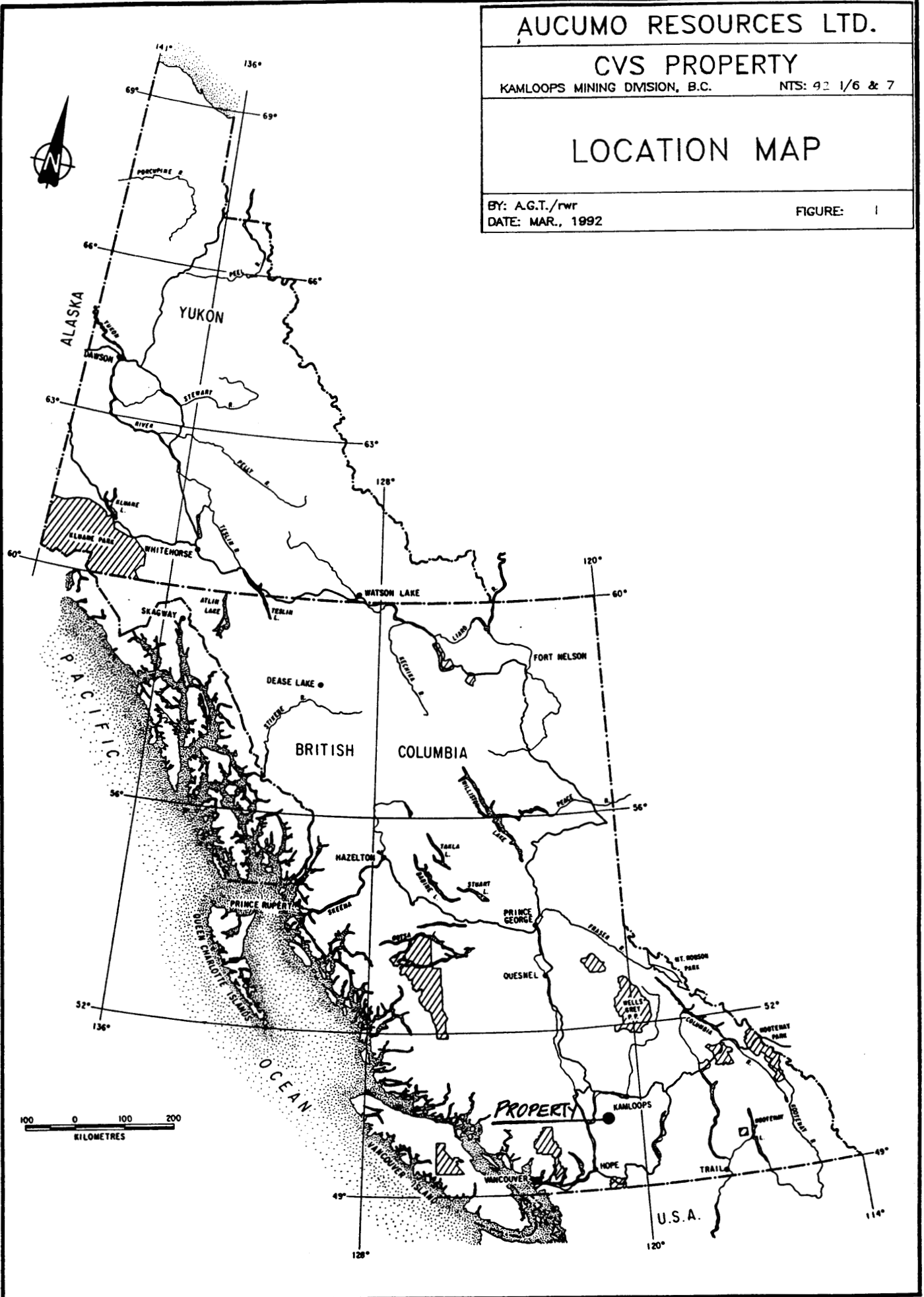
NTS: 42 1/6 & 7

LOCATION MAP

BY: A.G.T./rwr

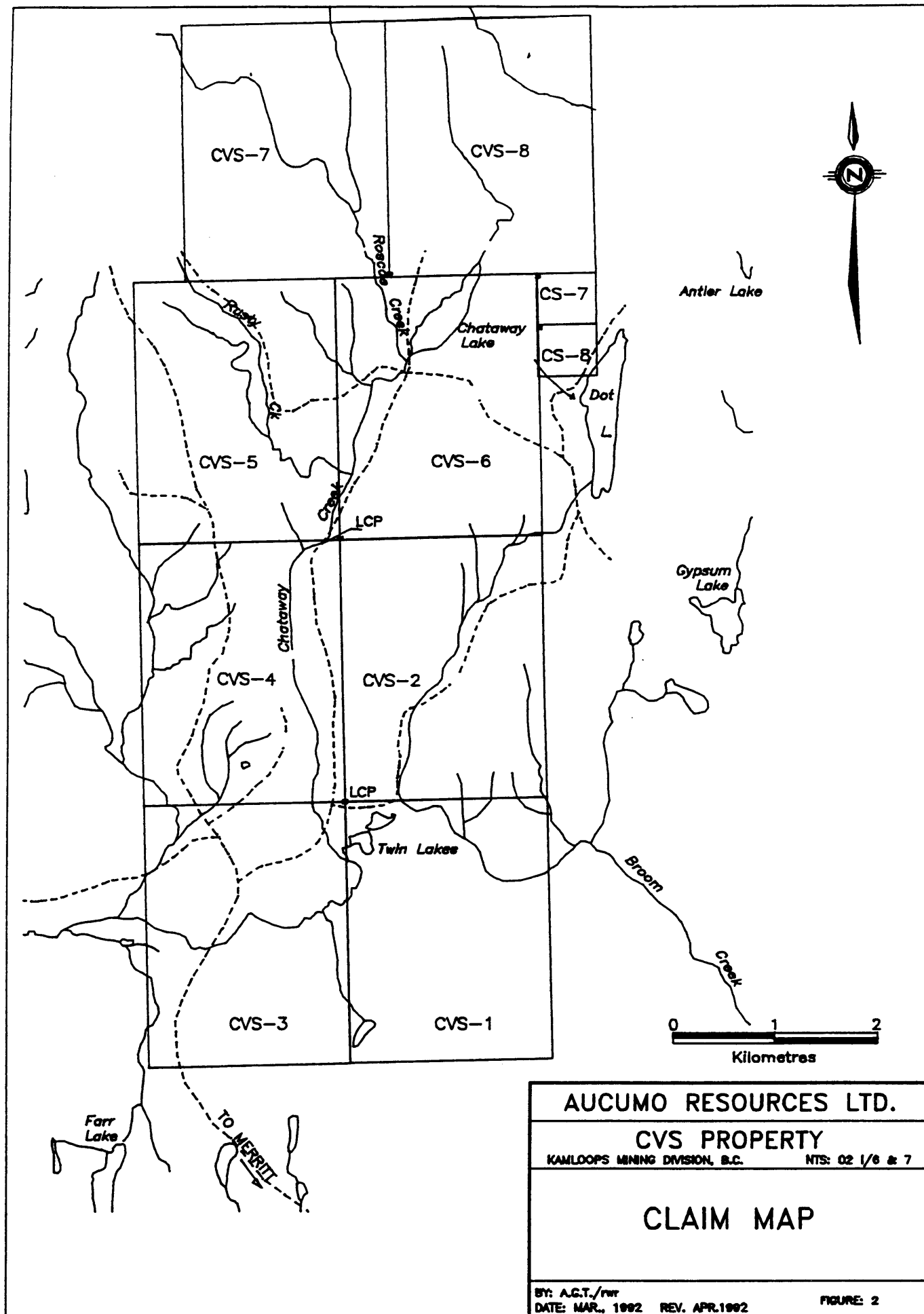
DATE: MAR., 1992

FIGURE: 1



100 0 100 200  
KILOMETRES



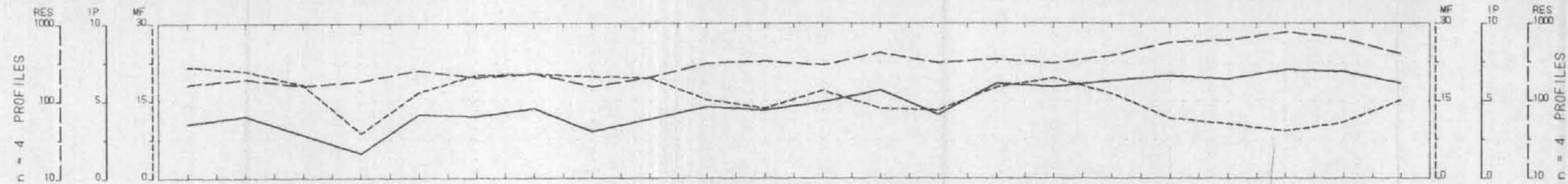


**AUCUMO RESOURCES LTD.**  
**CVS PROPERTY**  
 KAMLOOPS MINING DIVISION, B.C.      NTS: 02 1/8 & 7

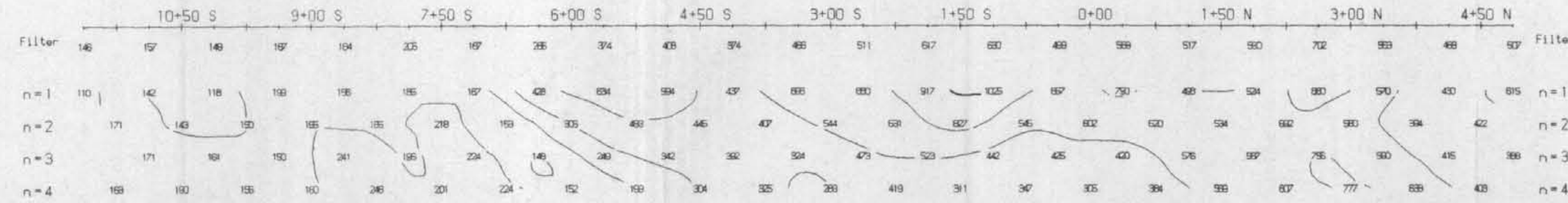
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**CLAIM MAP**

BY: A.C.T./rwr  
 DATE: MAR., 1992      REV. APR.1992      **FIGURE 2**

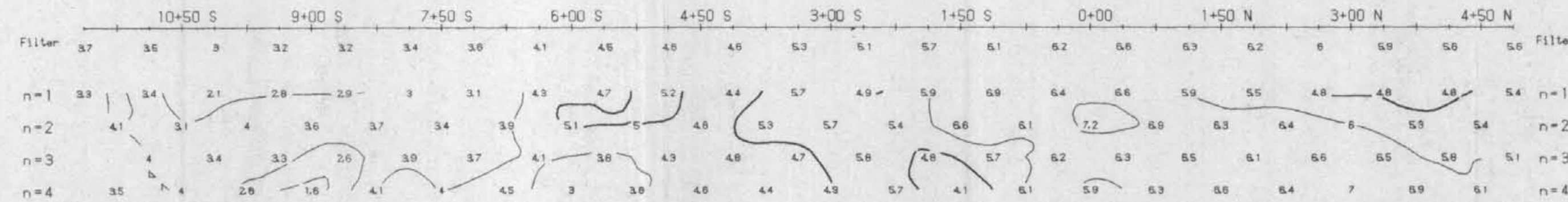


RESISTIVITY  
ohm-m

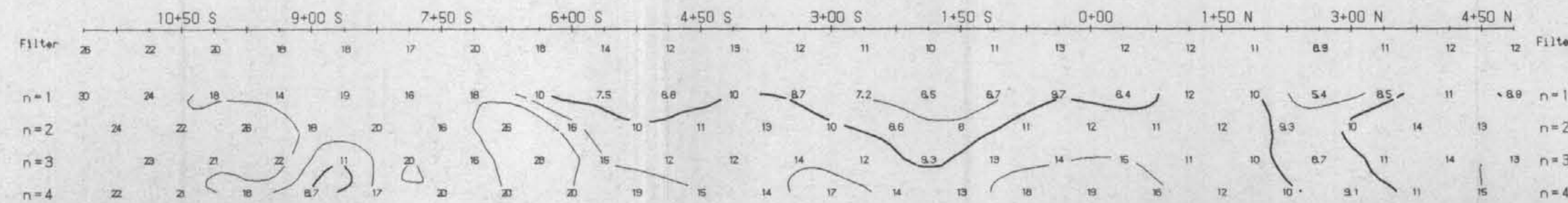


INTERPRETATION

CHARGEABILITY  
mV/V

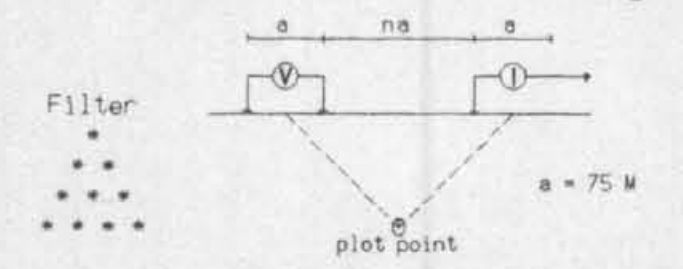


METAL FACTOR  
ip/res \* 1000



Line 0 E

Dipole-Pole Array

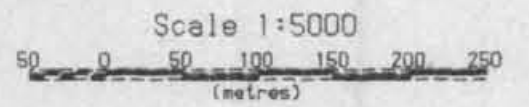


Instrument: Huntex 2.5 kw. Tx., BRGM IP6 Rx.  
Frequency: 0.125 Hz.  
Operators: P.E.W., A.W.

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10, ...

INTERPRETATION

Well defined, strong increase in polarization with or without marked decrease in resistivity.  
Fairly well defined moderate increase in polarization.  
Fairly well defined weak increase in polarization.  
Resistivity feature.



AUCUMO RESOURCES LTD.

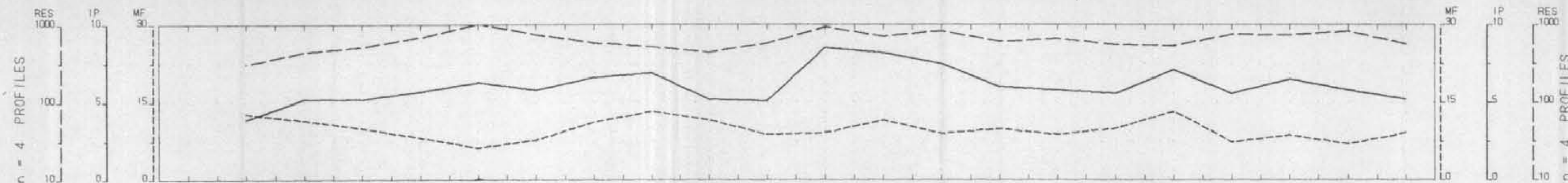
INDUCED POLARIZATION SURVEY  
CVS CLAIMS, KAMLOOPS MINING DIVISION  
HIGHLAND VALLEY, BRITISH COLUMBIA

Date: MAY, 1992 N.T.S.: 92 1/7N  
Interpretation: P.E.W.

PETER E. WALCOTT & ASSOC. LTD.

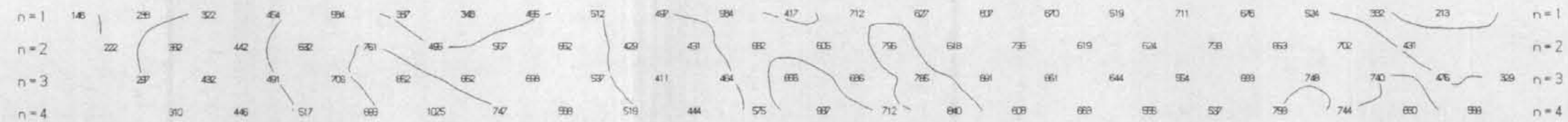
A.R. 22373 (2 of 2)





RESISTIVITY  
ohm-m

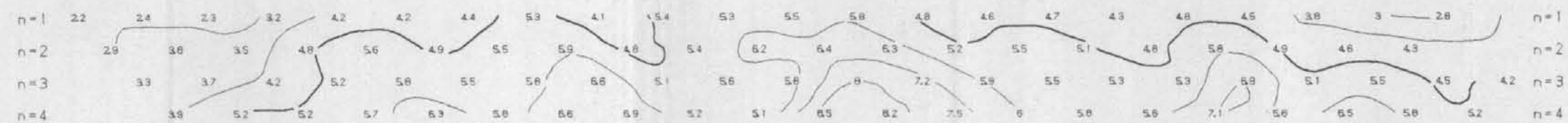
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INTERPRETATION

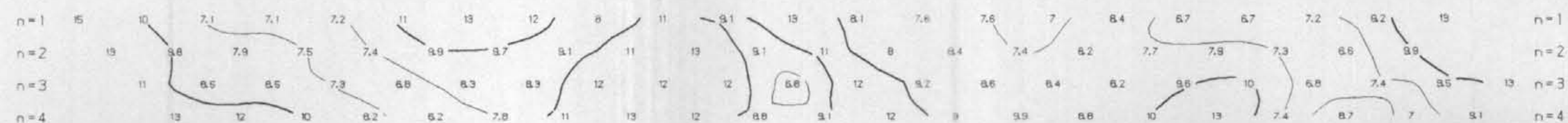
CHARGEABILITY  
mV/V

Filter 27 33 35 42 5 5.2 5.4 5.8 5.4 5.6 5.8 6.3 6.6 8.3 5.8 5.4 5.2 5.5 5.5 5.1 4.6 4.3 4.8 Filter

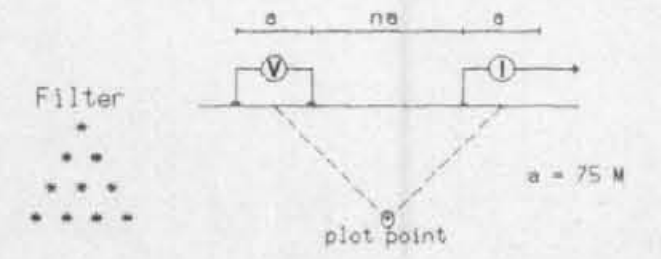


METAL FACTOR  
ip/res \* 1000

Filter 14 11 9.1 8.4 7.8 8.7 9.7 10 10 12 10 11 9 8.9 8.5 8.1 8.9 8.4 8.2 7.8 8.3 10 9.8 Filter



### Line 0 N Dipole-Pole Array



Instrument: Huntec 2.5 kw. Tx., BRGM IP6 Rx.  
Frequency: 0.125 Hz.  
Operators: P.E.W., A.W.

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10, ...

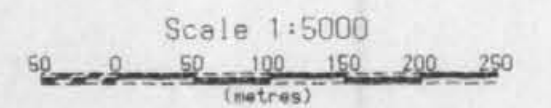
#### INTERPRETATION

Well defined, strong increase in polarization with or without marked decrease in resistivity.

Fairly well defined moderate increase in polarization.

----- Fairly well defined weak increase in polarization.

Resistivity feature.



AUCUMO RESOURCES LTD.

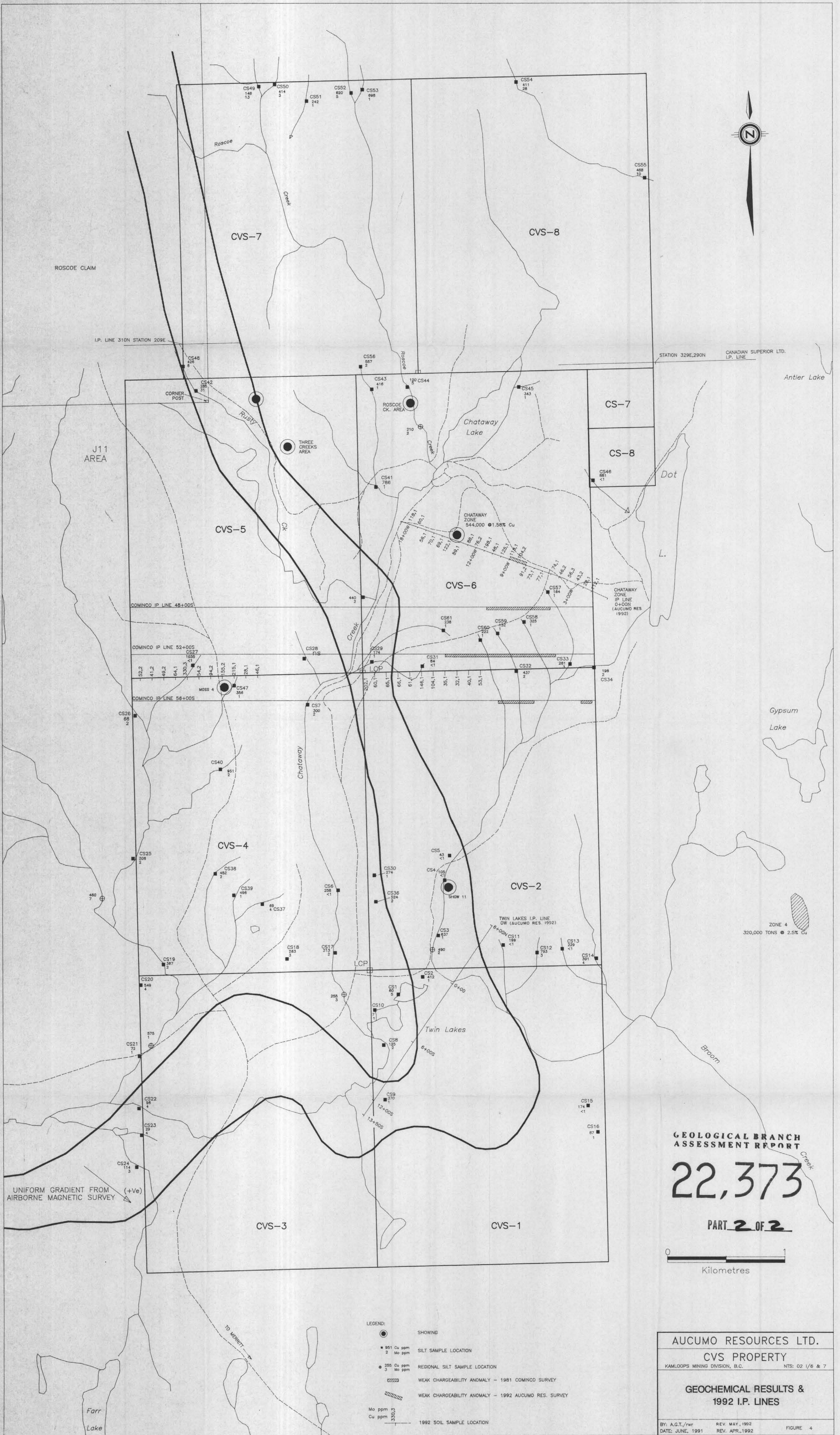
INDUCED POLARIZATION SURVEY  
CVS CLAIMS, KAMLOOPS MINING DIVISION  
HIGHLAND VALLEY, BRITISH COLUMBIA

Date: MAY, 1992 N.T.S.: 92 1/7W  
Interpretation: P.E.W.

PETER E. WALCOTT & ASSOC. LTD.

A.R. 22373 (2 of 2)





**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**22,373**

**PART 2 OF 2**



- LEGEND:**
- SHOWING
  - 951 Cu ppm  
2 Mo ppm SILT SAMPLE LOCATION
  - 255 Cu ppm  
3 Mo ppm REGIONAL SILT SAMPLE LOCATION
  - ▨ WEAK CHARGEABILITY ANOMALY - 1981 COMINCO SURVEY
  - ▨ WEAK CHARGEABILITY ANOMALY - 1992 AUCUMO RES. SURVEY
  - Mo ppm  
Cu ppm 330.3 1992 SOIL SAMPLE LOCATION

**AUCUMO RESOURCES LTD.**  
**CVS PROPERTY**  
 KAMLOOPS MINING DIVISION, B.C. NTS: 02 1/6 & 7

**GEOCHEMICAL RESULTS &  
1992 I.P. LINES**

BY: A.G.T./rwr REV. MAY, 1992  
 DATE: JUNE, 1991 REV. APR., 1992

FIGURE 4