

84-#64 - 11934

PHOENIX GEOPHYSICS LIMITED

**REPORT ON THE
INDUCED POLARIZATION AND RESISTIVITY SURVEY**

ON THE

**ALEXIS PROPERTY
CLINTON MINING DIVISION
BRITISH COLUMBIA**

FOR

HOMESTAKE MINERAL DEVELOPMENT COMPANY

Latitude 51° 22' N Longitude 124° 13' W

N.T.S. 92 N/8

Claims: Alexis 1 to 16, Sunshine 1 and 2, ALX 1 and 3

Owner: Imperial Metals Corp.

Operator: Homestake Mineral Development Company

By

Paul A. Cartwright, B.Sc.
Geophysicist

Dated

February 10, 1984

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,934

TABLE OF CONTENTS

PAGE

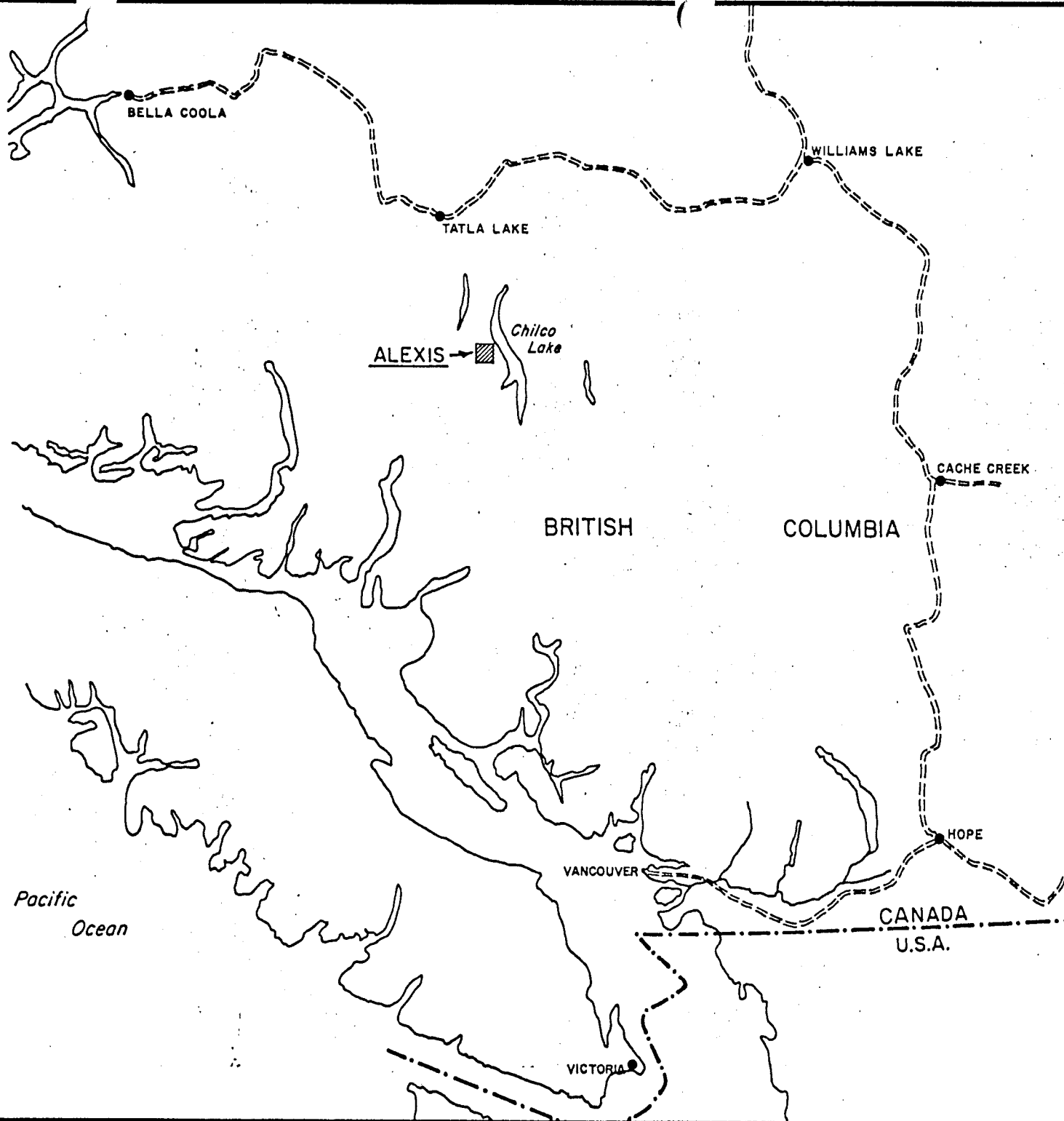
PART A REPORT

1. Introduction	1
2. Description of Claims	2
3. Presentation of Data	2
4. Discussion of Results	3
5. Summary and Recommendations	5
6. Assessment Details	6
7. Statement of Cost	7
8. Certificate-Paul A. Cartwright, B.Sc.	8
9. Certificate-David Daggett	9

PART B NOTES ON THEORY AND FIELD PROCEDURE (8 PAGES)

PART C Illustrations

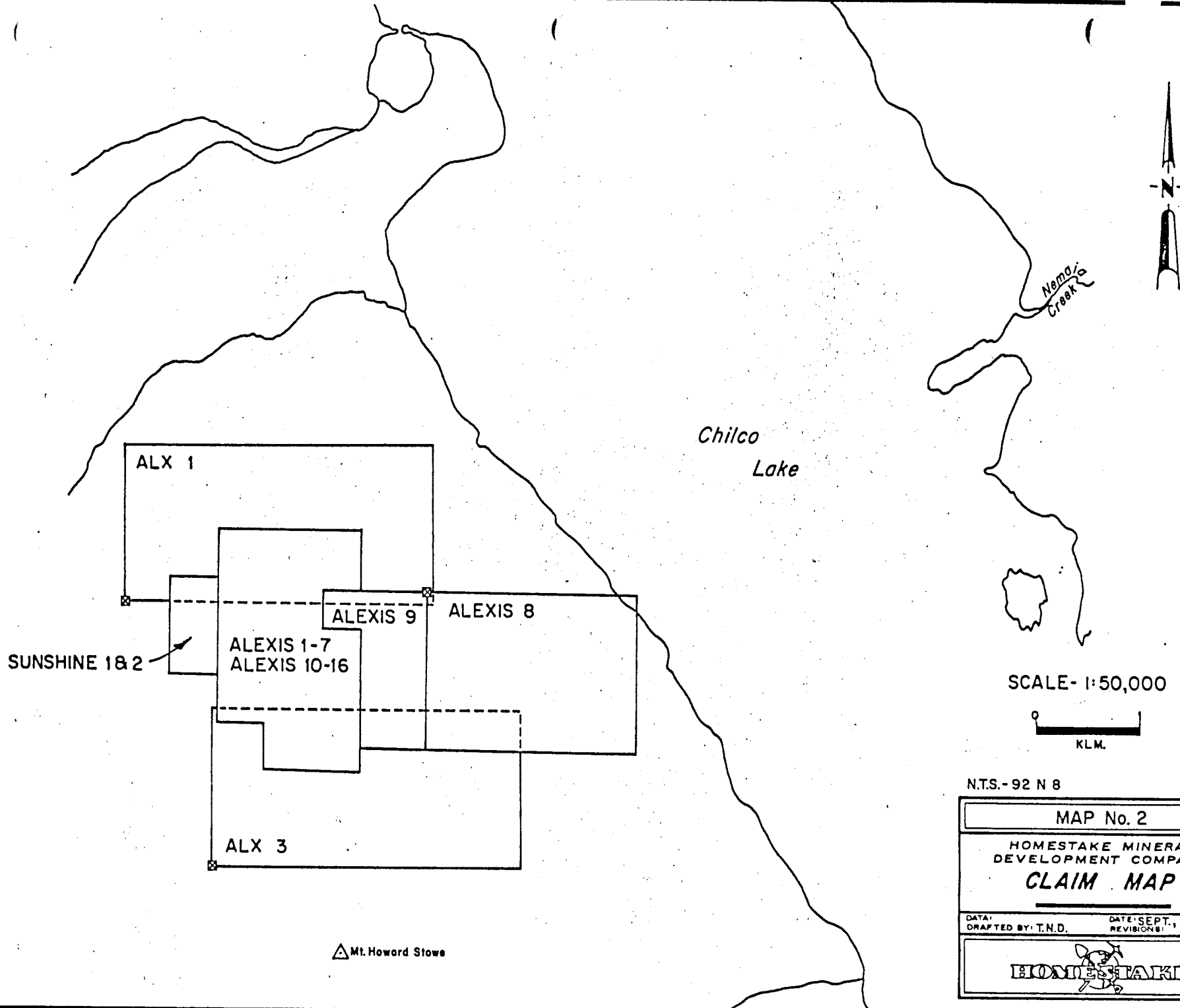
Plan Map (in pocket)	Dwg. No. I.P.P. - B - 2002
I.P. Data Plots	Dwg. Nos. I.P. - 5835 - 1 to -4
Location Map	Map No. 1
Claim Map	Map No. 2




SCALE - 1:2,600,000 (approx.)



MAP No. 1	
HOMESTAKE MINERAL DEVELOPMENT COMPANY LOCATION MAP	
DATA: DRAFTED BY: T.N.D.	DATE: SEPT., 1983 REVISIONS:
HOMESTAKE	



N.T.S.- 92 N 8

MAP No. 2	
HOMESTAKE MINERAL DEVELOPMENT COMPANY	
CLAIM MAP	
DATA: DRAFTED BY: T.N.D.	DATE: SEPT., 1983 REVISIONS: 1
 HOMESTAKE	

PART A

1. INTRODUCTION

An Induced Polarization and Resistivity survey has been completed on the Alexis property, Clinton Mining Division, British Columbia, on behalf of Homestake Mineral Development Company, property operator for the owners, Imperial Metals Corp.

The property is located approximately 65 kilometers south-southeast of the community of Tatla Lake. The center of the geophysical grid is situated at an elevation of approximately 6,500 feet A.S.L., on the west side of Chilco Lake. Access is via helicopter from Tatla Lake. (Map 1)

The following geological summary of the project area has been provided by the staff of Homestake:

"The Alexis property is underlain by upper Cretaceous volcanic and sedimentary rocks of the Kingsvale Group. The regional strike is northwesterly, with steep dips, usually to the northeast. Northwest trending faults, subsidiary to the Tchaikazan Fault, cut through the claims area, and on one fault-bounded hill, the "knob", strata strike northeast and dip northwest.

Calcite alteration, both in the form of veins and pervasive, is widespread. Other forms of alteration, silica and clay minerals, are restricted to small areas a few meters square in the vicinity of the knob showing.

Visible mineralization occurs mainly on the knob showing (Map 4), where cinnabar occurs locally in rusty weathering calcite veins and copper carbonate minerals occur sporadically. Rocks with geochemically high mercury contents are scattered over an area of at least 0.7 km² (0.3 mi.²) Slight arsenic, antimony, copper and zinc enrichments are associated with the mercury on the knob showing. Gold has not been found except for a gold enrichment in a few soil samples.

The alteration and mineralization are probably fault controlled."

Objective of the present IP and Resistivity survey was to investigate the area immediately surrounding a view of calcite alteration, in order to outline anomalous concentrations of metallic mineralization, possibly associated with gold mineralization.

A Phoenix Model IPV-1 IP and Resistivity receiver unit was used in conjunction with a Phoenix Model IPT-1 IP and Resistivity transmitter powered by a 1.0 kw motor generator. IP effect is recorded directly as Percent Frequency Effect (P.F.E.) at operating frequencies of 4.0 Hz and 0.25 Hz. Apparent resistivity values are normalized in units of ohm-meters, while Metal Factor values are calculated according to the formula: $M.F. = (P.F.E. \times 1000) \div \text{Apparent Resistivity}$.

Dipole-dipole assay was utilized to make all of the measurements, with a basic inter-electrode distance of 25 meters. Four dipole separations were recorded in every case. Number of line kilometers surveyed during the present IP program was 2.05.

Field work was carried out during September, 1983, under the supervision of David Daggett, geophysical crew leader. His certificate of qualification is included with this report.

2. DESCRIPTION OF CLAIMS

The property consists of 70 claim units totalling approximately 1,600 hectares (Map 2).

Claim Name	Units	Record No.	Record Date
Alexis 1	1	884	October 6, 1980
Alexis 2	1	885	October 6, 1980
Alexis 3	1	886	October 6, 1980
Alexis 4	1	887	October 6, 1980
Alexis 5	1	888	October 6, 1980
Alexis 6	1	889	October 6, 1980
Alexis 7	1	890	October 6, 1980
Alexis 8	12	1032	June 15, 1981
Alexis 9	6	1033	June 15, 1981
Alexis 10	1	1034	June 15, 1981
Alexis 11	1	1035	June 15, 1981
Alexis 12	1	1036	June 15, 1981
Alexis 13	1	1037	June 15, 1981
Alexis 14	1	1038	June 15, 1981
Alexis 15	1	1039	June 15, 1981
Alexis 16	1	1040	June 15, 1981
Sunshine 1	1	1158	August 28, 1981
Sunshine 2	1	1159	August 28, 1981
ALX 1	18	1434	June 24, 1983
ALX 3	18	1435	June 24, 1983

The claims described are owned by Imperial Metals Corp., except for ALX 1 and ALX 3, which are held by Homestake Mineral Development Company.

3. PRESENTATION OF DATA

The Induced Polarization and Resistivity results are shown on the following data plots in the manner described in the notes attached to this report (Part B).

LINE	ELECTRODE INTERVALS	DWG. NO.
2 + 50N	25 meters	5835 - 1
2 + 00N	25 meters	5835 - 2
1 + 50N	25 meters	5835 - 3
1 + 00N	25 meters	5835 - 4

Also enclosed with this report is Dwg. No. I.P.P.-B-2002, a plan map of the Alexis Property Grid at a scale of 1:2500. The definite, probable and possible Induced Polarization anomalies are indicated by bars, in the manner shown on the legend, on this plan map as well as on the data plots. These bars represent the surface projection of the anomalous zones as interpreted from the location of the transmitter and receiver electrodes when the anomalous values were measured.

Since the Induced Polarization measurement is essentially an averaging process, as are all potential methods, it is frequently difficult to exactly pinpoint the source of an anomaly. Certainly, no anomaly can be located with more accuracy than the electrode interval length; i.e. when using 25 meter electrode intervals the position of a narrow sulphide body can only be determined to lie between two stations 25 meters apart. In order to definitely locate, and fully evaluate, a narrow, shallow source it is necessary to use shorter electrode intervals. In order to locate sources at some depth, larger electrode intervals must be used, with a corresponding increase in the uncertainties of location. Therefore, while the centre of the indicated anomaly probably corresponds fairly well with the source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

The topographic, geologic, claim and grid information shown on Dwg. No. I.P.P.-B-2002 has been taken from maps made available by the staff of Homestake Mineral Development Company.

4. DISCUSSION OF RESULTS

The Induced Polarization and Resistivity survey on the Alexis Property has detected three zones of weakly to moderately anomalous IP effects. None of these features appear to correlate directly with the mapped position of the vein of calcite alteration, which suggests that non-conductive, and therefore non-polarizing carbonate material only constitutes the vein.

Each of the anomalous IP zones is shown on plan map Dwg. No. IPP-B-2002, and is discussed below.

i) IP Zone A

This weakly anomalous feature is interpreted in the data from Line 1+50N and Line 1+00N, roughly centered on stations 1+50W. The zone is undefined to the south at present.

In general, the source of Zone A is probably minor amounts of disseminated metallic sulphides, as indicated by the fact that the weakly anomalous IP values (P.F.E.'s) are accompanied, for the most part, by background level apparent resistivity readings. The considerably higher than normal IP effects evident in the data from Line 1+00N, in the interval between station 1+50W and station 1+25W may be unreliable, due to the fact that all of the high magnitude values are measured using one potential dipole only.

Depth to the source of Zone A is probably less than 25 meters sub-surface.

ii) IP Zone B

IP Zone B is outlined striking in a roughly north-south direction across all four grid lines, immediately west of the calcite vein. Magnitudes of the individual anomalies which make up the trend, are somewhat greater than the magnitudes of those responses that constitute Zone A and Zone C.

Disseminated sulphide mineralization is the most probable cause of the anomalous IP effects, as somewhat higher than background apparent resistivity results are generally coincident with the areas of interesting IP response.

The source of the zone is indicated to be less than 25 meters sub-surface.

iii) IP Zone C

Weakly anomalous IP readings form Zone C. This feature is interpreted to lie immediately east of the calcite alteration vein on the most northerly three lines evaluated by the present IP and Resistivity survey.

Background level apparent resistivity measurements correlate with the position of IP Zone C on Line 2+50N and Line 1+50N. However, a narrow zone of low resistivity is evident coincident with the zone on Line 2+00N, between station 0+25E and station 0+50E. The cause of this low resistivity feature is most likely an ionic conductor such as a fault. If metallic mineralization were the cause, one would expect a more definite IP response. As was the case of the other zones, depth to the source of IP Zone C is indicated to be less than 25 meters below the surface.

iv) Other Anomalies

Two separate, weakly anomalous IP responses are interpreted in the data from the western end of Line 2+50N. The source of the more easterly of the two anomalies is probably very narrow and shallow, as indicated by the fact that the anomaly consists of a single $n=1$ reading only. Depth to the second, more westerly anomaly is also less than 25 meters, but the width is considerable; i.e., at least 50 meters.

5. SUMMARY AND RECOMMENDATIONS

The Induced Polarization and Resistivity survey of the Alexis Property grid had outlined three zones of weakly to moderately anomalous IP effects, as well as two isolated IP anomalies on the western end of Line 2+50N.

All of the anomalous IP features are most likely caused by small amounts of disseminated metallic sulphides, with Zone B outlining the highest relative concentrations.

No anomalous IP effects or consistent resistivity signatures are noted coincident with the known carbonate mineralization.

Initially, one drill hole is recommended to test for gold values associated with the source of IP Zone B, the most anomalous of the three zones outlined. Actual location of the hole collar should be decided after taking into consideration the local topography. Perhaps a single hole could be spotted so as to first test the vein, if desired, before passing into the area of the IP Zone B.

Any other additional work should await results from the first drill hole.

PHOENIX GEOPHYSICS LIMITED

Paul A. Cartwright
Paul A. Cartwright, B.Sc.
Geophysicist

DATED: February 10, 1984

ASSESSMENT DETAILS

PROPERTY: Alexis
SPONSOR: Homestake Mining Development Company
LOCATION: 65 km SSE: Tatla Lake, B.C.
MINING DIVISION: Clinton
PROVINCE: British Columbia
DATE STARTED: September 14, 1983
TYPE OF SURVEY: Induced Polarization and Resistivity
DATE FINISHED: September 28, 1983
OPERATING MAN DAYS: 18
NUMBER OF STATIONS: 86
EQUIVALENT 8 HR. MAN DAYS: 27
NUMBER OF READINGS: 536
CONSULTING MAN DAYS: 4
KILOMETERS OF LINE SURVEYED: 2.05
DRAFTING MAN DAYS: 4
TOTAL MAN DAYS: 35

CONSULTANTS:

Paul A. Cartwright, 4238 W. 11th Avenue, Vancouver, B.C.

FIELD TECHNICIANS:

D. Daggett, 35 Falcon Crescent, Chelmsford, Ontario
 S. Henshall, 9 Roscoe Street, Trenton, Ontario
 M. Gravel, #202, 330 East 7th Avenue, Vancouver, B.C.

DRAUGHTSMEN:

R. Wakaluk, 7886 Vivian Drive, Vancouver, B.C.

PHOENIX GEOPHYSICS LIMITED

Paul A. Cartwright

Paul A. Cartwright, B.Sc.
 Geophysicist

DATED: February 10, 1984

STATEMENT OF COST

Homestake Mineral Development Co.
 Alexis Property, Chilco Lake, B.C.
 Induced Polarization and Resistivity Survey

Crew: D. Daggett, S. Henshall, M. Gravel

Period: September 14, 1983 to September 19, 1983

2 Operating Days @ 950.00 per day	\$ 1,900.00
3 Bad Weather Days @ 600.00 per day	1,800.00
3/4 Travel Day to alternate area @ 600.00 per day	450.00

Period: September 14, 1983 to September 19, 1983

3/4 Travel Day from alternate area @ 600 per day	450.00
4 Operating Days @ 950.00 per day	3,800.00
Mobilization-demobilization	1,950.00

\$10,350.00

=====

PHOENIX GEOPHYSICS LIMITED

Paul A. Cartwright

Paul A. Cartwright, B.Sc.
 Geophysicist

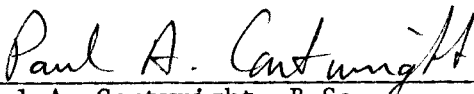
DATED: February 10, 1984

CERTIFICATE

I, Paul A. Cartwright, of the City of Vancouver, Province of British Columbia, do hereby certify that:

1. I am a geophysicist residing at 4238 W. 11th Avenue, Vancouver, British Columbia.
2. I am a graduate of the University of British Columbia, B.C. with a B.Sc. Degree.
3. I am a member of the Society of Exploration Geophysicists and the European Association of Exploration Geophysicists.
4. I have been practising my profession for 13 years.
5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly, in the property or securities of Homestake Mineral Development Company, Imperial Metals Corp. or any affiliate.
6. The statements made in this report are based on a study of published geological literature and unpublished private reports.
7. Permission is granted to use in whole or in part for assessment and qualification requirements but not for advertising purposes.

DATED AT VANCOUVER, B.C. this 10th day of February, 1984.


Paul A. Cartwright, B.Sc.

CERTIFICATE

I, David Daggett, of the City of Chelmsford, Province of Ontario, do hereby certify that:

1. I am a geophysical crew leader residing at 35 Falcon Crescent, Chelmsford, Ontario.
2. I am a graduate of Cambrian College in Geological Technology.
3. I have been practising my vocation about five years.
4. I am presently employed as a geophysical crew leader by Phoenix Geophysics Ltd. of 200 Yorkland Blvd., Willowdale, Ontario.

DATED AT VANCOUVER, B.C.
this 10th day of February, 1984.

David Daggett
David Daggett *pe*
PAC

PART B

PHOENIX GEOPHYSICS LIMITED

NOTES ON THE THEORY, METHOD OF FIELD OPERATION AND PRESENTATION OF DATA FOR THE INDUCED POLARIZATION METHOD

Induced Polarization as a geophysical measurement refers to the blocking action or polarization of metallic or electronic conductors in a medium of ionic solution conduction.

This electro-chemical phenomenon occurs wherever electrical current is passed through an area which contains metallic minerals such as base metal sulphides. Normally, when current is passed through the ground, as in resistivity measurements, all of the conduction takes place through ions present in the water content of the rock, or soil, i.e., by ionic conduction. This is because almost all minerals have a much higher specific resistivity than ground water. The group of minerals commonly described as "metallic", however, have specific resistivities much lower than ground waters. The induced polarization effect takes place at those interfaces where the mode of conduction changes from ionic in the solutions filling the interstices of the rock to electronic in the metallic minerals present in the rock.

The blocking action or induced polarization mentioned above, which depends upon the chemical energies necessary to allow the ions to give up or receive electrons from the metallic

surface, increases with the time that a d.c. current is allowed to flow through the rock; i.e., as ions pile up against the metallic interface the resistance to current flow increases. Eventually, there is enough polarization in the form of excess ions at the interfaces, to appreciably reduce the amount of current flow through the metallic particle. This polarization takes place at each of the infinite number of solution-metal interfaces in a mineralized rock.

When the d.c. voltage used to create this d.c. current flow is cut off, the Coulomb forces between the charged ions forming the polarization cause them to return to their normal position. This movement of charge creates a small current flow which can be measured on the surface of the ground as a decaying potential difference.

From an alternate viewpoint it can be seen that if the direction of the current through the system is reversed repeatedly before the polarization occurs, the effective resistivity of the system as a whole will change as the frequency of the switching is changed. This is a consequence of the fact that the amount of current flowing through each metallic interface depends upon the length of time that current has been passing through it in one direction.

The values of the per cent frequency effect or F.E. are a measurement of the polarization in the rock mass. However, since the measurement of the degree of polarization is related to the apparent resistivity of the rock mass, it is found that the metal factor values or M.F. can be useful values

determining the amount of polarization present in the rock mass. The MF values are obtained by normalizing the F.E. values for varying resistivities.

The Induced Polarization measurement is perhaps the most powerful geophysical method for the direct detection of metallic sulphide mineralization, even when this mineralization is of very low concentration. The lower limit of volume per cent sulphide necessary to produce a recognizable IP anomaly will vary with the geometry and geologic environment of the source, and the method of executing the survey. However, sulphide mineralization of less than one per cent by volume has been detected by the IP method under proper geological conditions.

The greatest application of the IP method has been in the search for disseminated metallic sulphides of less than 20% by volume. However, it has also been used successfully in the search for massive sulphides in situations where, due to source geometry, depth of source, or low resistivity of surface layer, the EM method cannot be successfully applied. The ability to differentiate ionic conductors, such as water-filled shear zones, makes the IP method a useful tool in checking EM anomalies which are suspected of being due to these causes.

In normal field applications the IP method does not differentiate between the economically important metallic minerals such as chalcopyrite, chalcocite, molybdenite, galena, etc., and the other metallic minerals such as pyrite. The Induced Polarization effect is due to the total of all electronic conducting minerals in the rock mass. Other electronic conducting

materials which can produce an IP response are magnetite, pyrolusite, graphite, and some forms of hematite.

In the field procedure, measurements on the surface are made in a way that allows the effects of lateral changes in the properties of the ground to be separated from the effects of vertical changes in the properties. Current is applied to the ground at two points in distance (X) apart. The potentials are measured at two points (X) feet apart, in line with the current electrodes is an integer number (n) times the basic distance (X).

The measurements are made along a surveyed line, with a constant distance (nX) between the nearest current and potential electrodes. In most surveys, several traverses are made with various values of (n); i.e., (n) = 1, 2, 3, 4, etc. The kind of survey required (detailed or reconnaissance) decides the number of values of (n) used.

In plotting the results, the values of apparent resistivity, apparent per cent frequency effect, and the apparent metal factor measured for each set of electrode positions are plotted at the intersection of grid lines, one from the center point of the current electrodes and the other from the center point of the potential electrodes. (See Figure A) The resistivity values are plotted at the top of the data profile, above the metal factor values. On a third line, below the metal factor values, are plotted the values of the percent frequency effect. The lateral displacement of a given value is determined by the location along the survey line of the center

point between the current and potential electrodes. The distance of the value from the line is determined by the distance (nX) between the current and potential electrodes when the measurement was made.

The separation between sender and receiver electrodes is only one factor which determines the depth to which the ground is being sampled in any particular measurement. The plots then, when contoured, are not section maps of the electrical properties of the ground under the survey line. The interpretation of the results from any given survey must be carried out using the combined experience gained from field results, model study results and the theoretical investigations. The position of the electrodes when anomalous values are measured is important in the interpretation.

In the field procedure, the interval over which the potential differences are measured is the same as the interval over which the electrodes are moved after a series of potential readings has been made. One of the advantages of the Induced Polarization method is that the same equipment can be used for both detailed and reconnaissance surveys merely by changing the distance (X) over which the electrodes are moved each time. In the past, intervals have been used ranging from 25 feet to 2000 feet for (X). In each case, the decision as to the distance (X) and the values of (n) to be used is largely determined by the expected size of the mineral deposit being sought, the size of the expected anomaly and the speed with which it is desired to progress.

The diagram in Figure A demonstrates the method used in plotting the results. Each value of the apparent resistivity, apparent metal factor, and apparent per cent frequency effect is plotted and identified by the position of the four electrodes when the measurement was made. It can be seen that the values measured for the larger values of (n) are plotted farther from the line indicating that the thickness of the layer of the earth that is being tested is greater than for the smaller values of (n); i.e., the depth of the measurement is increased.

The IP measurement is basically obtained by measuring the difference in potential or voltage (ΔV) obtained at two operating frequencies. The voltage is the product of the current through the ground and the apparent resistivity of the ground. Therefore, in field situations where the current is very low due to poor electrode contact, or the apparent resistivity is very low, or a combination of the two effects; the value of (ΔV) the change in potential will be too small to be measurable. The symbol "TL" on the data plots indicates this situation.

In some situations spurious noise, either man-made or natural, will render it impossible to obtain a reading. The symbol "N" on the data plots indicates a station at which it is too noisy to record a reading. If a reading can be obtained, but for reasons of noise there is some doubt as to its accuracy, the reading is bracketed in the data plot ().

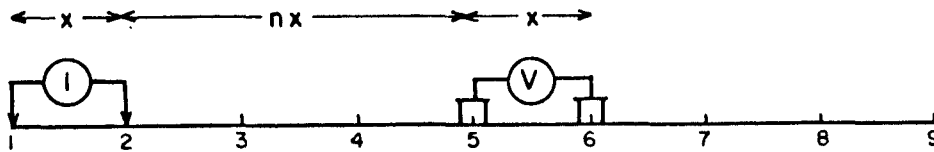
In certain situations negative values of Apparent Frequency Effect are recorded. This may be due to the geologic

environment or spurious electrical effects. The actual negative frequency effect value recorded is indicated on the data plot; however, the symbol "NEG" is indicated for the corresponding value of Apparent Metal Factor. In contouring negative values the contour lines are indicated to the nearest positive value in the immediate vicinity of the negative value.

The symbol "NR" indicates that for some reason the operator did not attempt to record a reading, although normal survey procedures would suggest that one was required. This may be due to inaccessible topography or other similar reasons. Any symbol other than those discussed above is unique to a particular situation and is described within the body of the report.

PHOENIX GEOPHYSICS LIMITED

METHOD USED IN PLOTTING DIPOLE-DIPOLE INDUCED POLARIZATION AND RESISTIVITY RESULTS



Stations on line

x = Electrode spread length
 n = Electrode separation

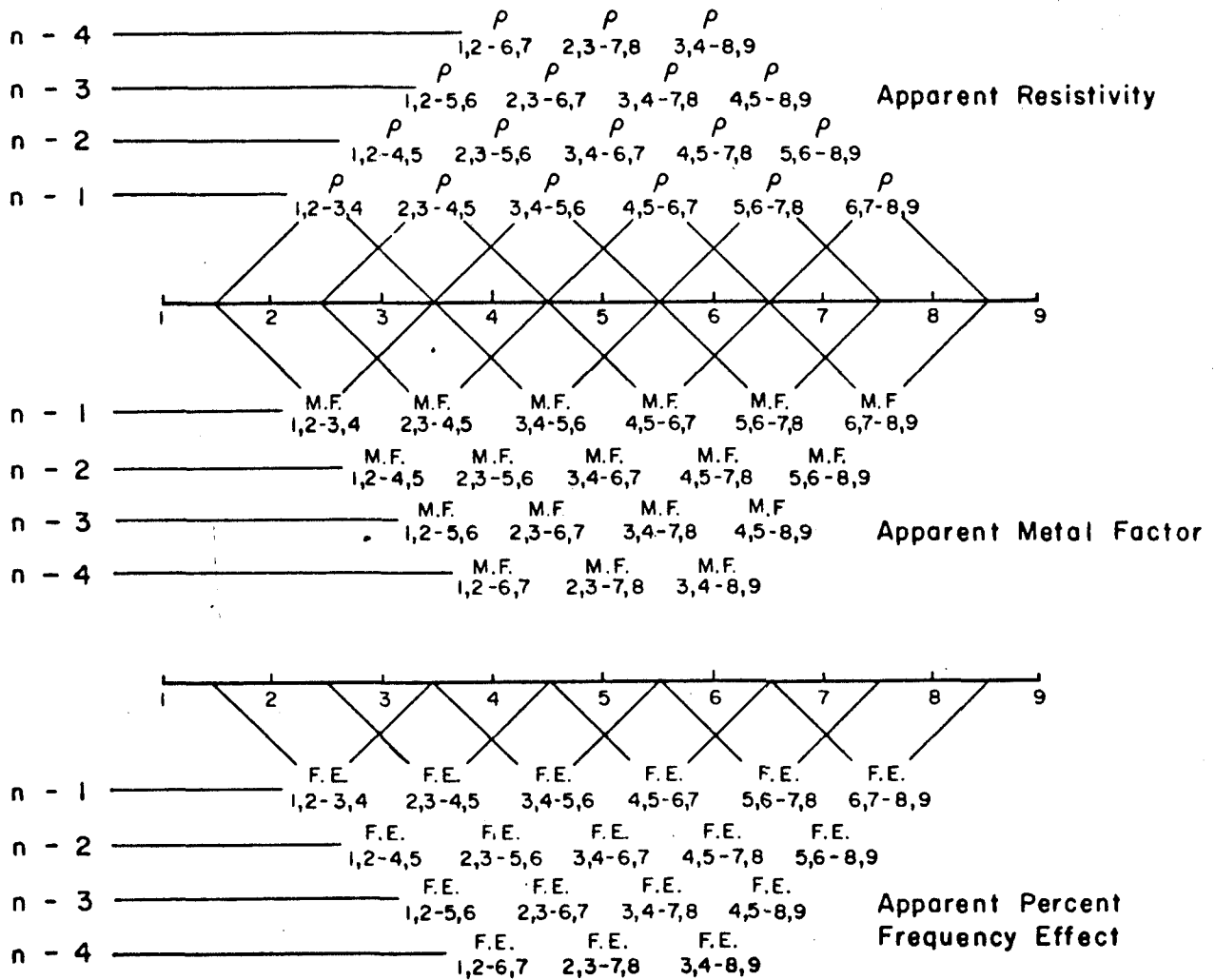


Fig. A

HOMESTAKE CHILCO LK LINE 2+50N		X=25M RHO (OHM-M)																	
DIPOLE NUMBER	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
COORDINATE	275W	225W	175W	125W	75W	25W	25E	75E	125E	175E									
INTERPRETATION																			
N=1	417	420	388	581	360	584	677	885	461	543	683	543	699	689	686	373	245	209	
N=2	548	479	417	550	522	875	707	413	629	1343	516	463	651	597	510	233	375	469	
N=3	607	514	388	692	662	928	328	541	1351	1128	518	416	699	453	422	377	772		
N=4	651	443	454	782	665	418	444	1069	962	1165	449	460	559	420	633	767			
N=5																			
N=6																			

HOMESTAKE MIN. DEV. CO.

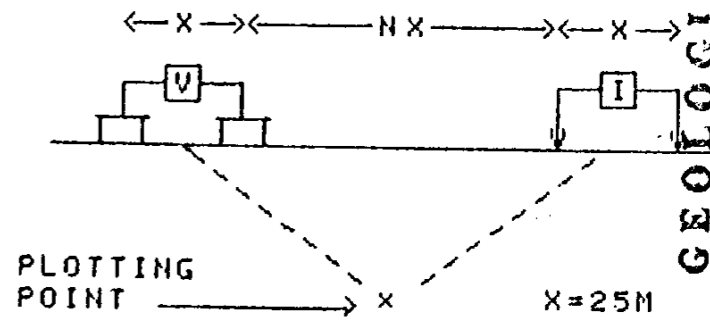
ALEXIS PROPERTY
CLINTON M.D.; B.C.

LINE NO. -2+50N

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,934

HOMESTAKE CHILCO LK LINE 2+50N		X=25M PFE																	
DIPOLE NUMBER	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
COORDINATE	275W	225W	175W	125W	75W	25W	25E	75E	125E	175E									
INTERPRETATION																			
N=1	1.3	1.7	1.6	1.5	1.3	1.1	1.3	1.7	1.4	1.6	1.3	.8	1.4	1.7	1.6	1.3	.8	.7	
N=2	2	1.6	1.6	1.5	1.3	1.3	1.1	1.1	1.4	2.3	1.6	1.1	1.1	1.7	1.5	.9	.8	1.1	
N=3	2.1	1.8	1.2	1.7	1.2	1.4	1.2	1.2	1.8	1.6	1.2	1.6	1.4	1.4	1.3	1.2	1.6		
N=4	2.4	1.4	1.6	1.3	.8	1.7	1.1	1.9	2.2	1.9	1.3	1.6	1.2	1.5	1.4	1.5			
N=5																			
N=6																			



SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE
PROBABLE
POSSIBLE

HOMESTAKE CHILCO LK LINE 2+50N		X=25M METAL FACTOR																	
DIPOLE NUMBER	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
COORDINATE	275W	225W	175W	125W	75W	25W	25E	75E	125E	175E									
INTERPRETATION																			
N=1	3.1	4	4.1	2.6	3.6	1.9	1.9	1.9	3	2.9	1.9	1.5	2	2.5	2.3	3.5	3.3	3.3	
N=2	3.6	3.3	3.3	2.7	2.5	1.5	1.6	2.7	2.2	1.7	3.1	2.4	1.7	2.8	2.9	3.9	2.1	2.3	
N=3	3.5	3.5	3.1	2.5	1.8	1.5	3.7	2.2	1.3	1.4	2.3	3.8	2	3.1	3.1	3.2	2.1		
N=4	3.7	3.2	3.5	1.7	1.2	4.1	2.5	1.8	2.3	1.6	2.9	3.5	2.1	3.6	2.2	2.0			
N=5																			
N=6																			

FREQUENCY (HERTZ)
4.0; 0.25

DATE SURVEYED: SEPT 1983
APPROVED

NOTE- CONTOURS
AT LOGARITHMIC
INTERVALS. 1, -1.5
-2, -3, -5, -7.5, -10

PAC
DATE FEB 10/89

PHOENIX GEOPHYSICS LTD.

INDUCED POLARIZATION
AND RESISTIVITY SURVEY

HOMESTAKE CHILCO LK LINE 2+00N		X=25M RHO (OHM-M)																		
DIPOLE NUMBER		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
COORDINATE		275W	225W	175W	125W	75W	25W	25E	75E	125E	175E									
N=1		391	500	647	303	500	487	402	432	416	650	645	713	598	254	438	348	233	404	
N=2		674	395	811	550	391	497	382	677	579	543	638	733	647	229	504	469	313	463	492
N=3		607	545	704	599	392	375	614	740	731	519	726	699	243	512	605	457	532	534	
N=4		726	475	758	523	418	475	643	900	756	633	713	233	546	621	623	767	602		
N=5																				
N=6																				

HOMESTAKE MIN. DEV. CO.

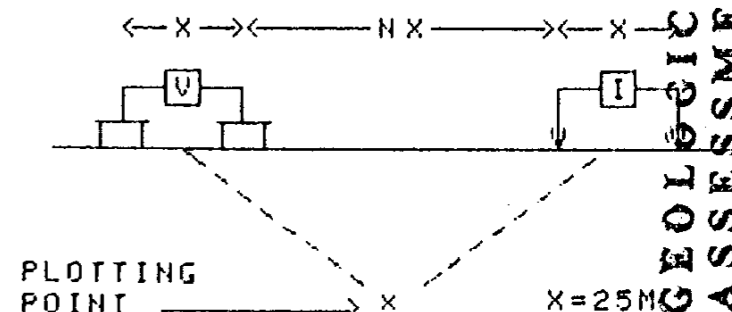
ALEXIS PROPERTY
CLINTON M. D. B. C.

LINE NO. -2+00N

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,934

HOMESTAKE CHILCO LK LINE 2+00N		X=25M PFE																	
DIPOLE NUMBER		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
COORDINATE		275W	225W	175W	125W	75W	25W	25E	75E	125E	175E								
N=1		1.4	1	1.3	1.1	1.1	1.2	.8	.8	1	1.2	1.1	1.9	1.3	1.4	1.3	1.2	.6	1
N=2		.9	1.2	1.3	.8	1.3	1.2	.8	1.1	1.2	1.2	1.1	2.2	1.5	.5	2	.8	1	.9
N=3		1.2	1.5	1.1	1	1.1	1.1	1.1	1.2	1.3	1.1	1.9	1.1	.4	1.1	1.8	1.1	1.3	1.1
N=4		1.5	1.4	1.4	1.1	1	1.1	1.1	1.7	1.2	2.4	1.6	.5	1.2	1.3	1.7	1.1	1.2	
N=5																			
N=6																			



SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE
PROBABLE
POSSIBLE

HOMESTAKE CHILCO LK LINE 2+00N		X=25M METAL FACTOR																	
DIPOLE NUMBER		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
COORDINATE		275W	225W	175W	125W	75W	25W	25E	75E	125E	175E								
N=1		3.6	2	2	3.6	2.2	2.5	2	1.9	2.4	1.8	1.7	2.7	2.2	5.5	3	3.4	2.6	2.5
N=2		1.3	3	1.6	1.5	3.3	2.4	2.1	1.6	2.1	2.2	1.7	3	2.3	2.2	4	1.7	3.2	1.9
N=3		2	2.8	1.6	1.7	2.8	2.9	1.8	1.6	1.7	2.1	2.6	1.6	1.6	2.1	3	2.4	2.4	2.1
N=4		2.1	2.9	1.8	2.1	2.4	2.3	1.7	1.9	1.6	3.8	2.2	2.1	2.2	2.1	2.7	1.4	2	
N=5																			
N=6																			

FREQUENCY (HERTZ)
4.0; 0.25

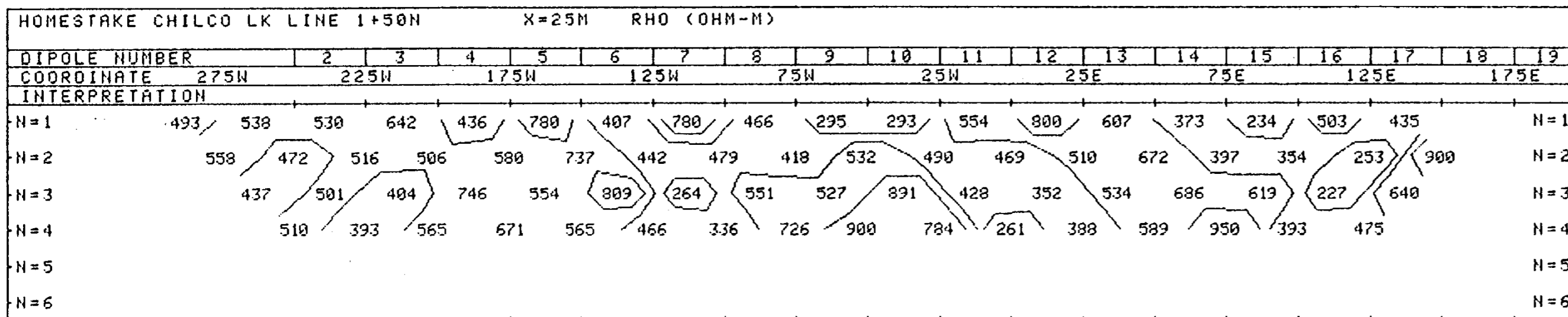
DATE SURVEYED: SEPT 1983
APPROVED

NOTE - CONTOURS
AT LOGARITHMIC
INTERVALS: 1, -1.5
-2, -3, -5, -7.5, -10

PAC
DATE FEB 10/84

PHOENIX GEOPHYSICS LTD.

INDUCED POLARIZATION
AND RESISTIVITY SURVEY



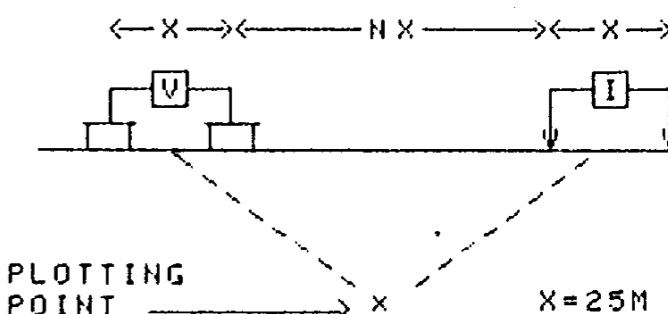
HOMESTAKE MIN. DEV. CO.

ALEXIS PROPERTY
CLINTON M.O., B.C.

LINE NO. -1+50N

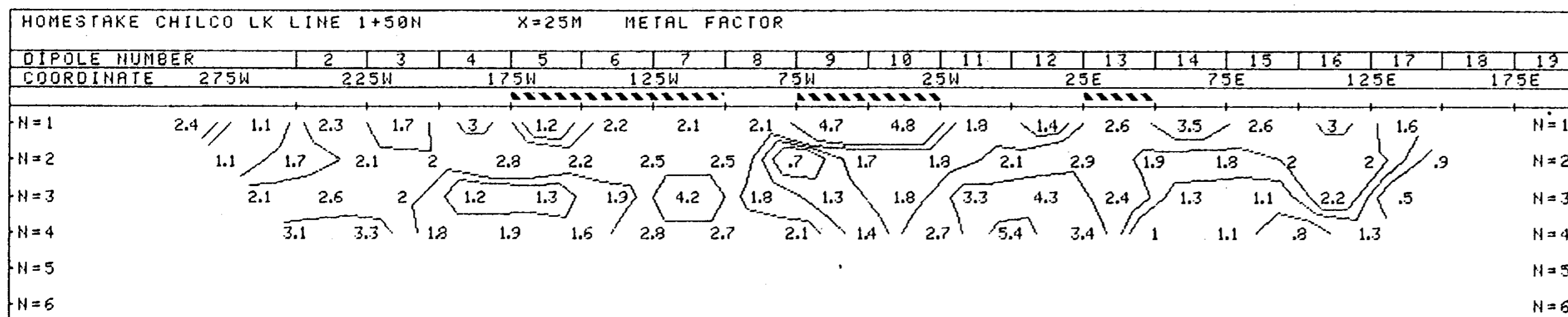
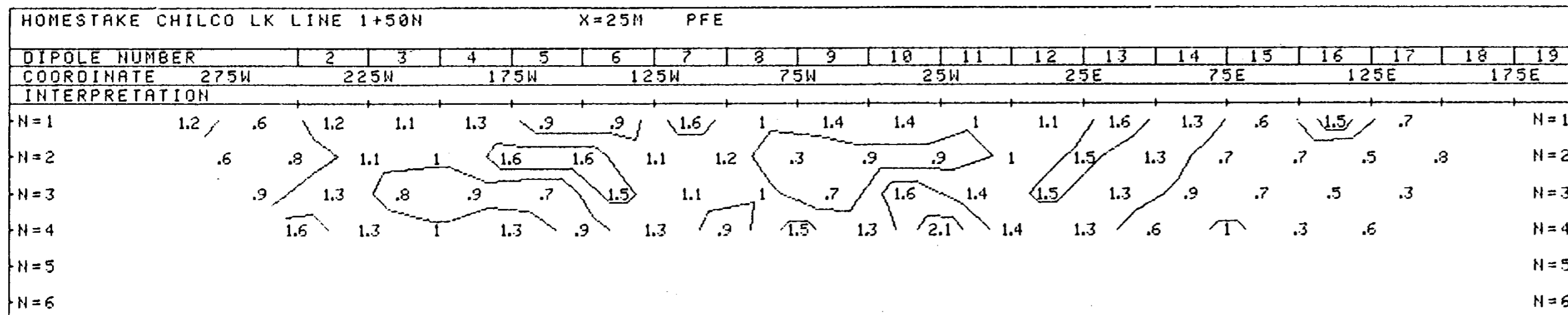
GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,934



SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE
 PROBABLE
 POSSIBLE



FREQUENCY (HERTZ)
4.0; 0.25

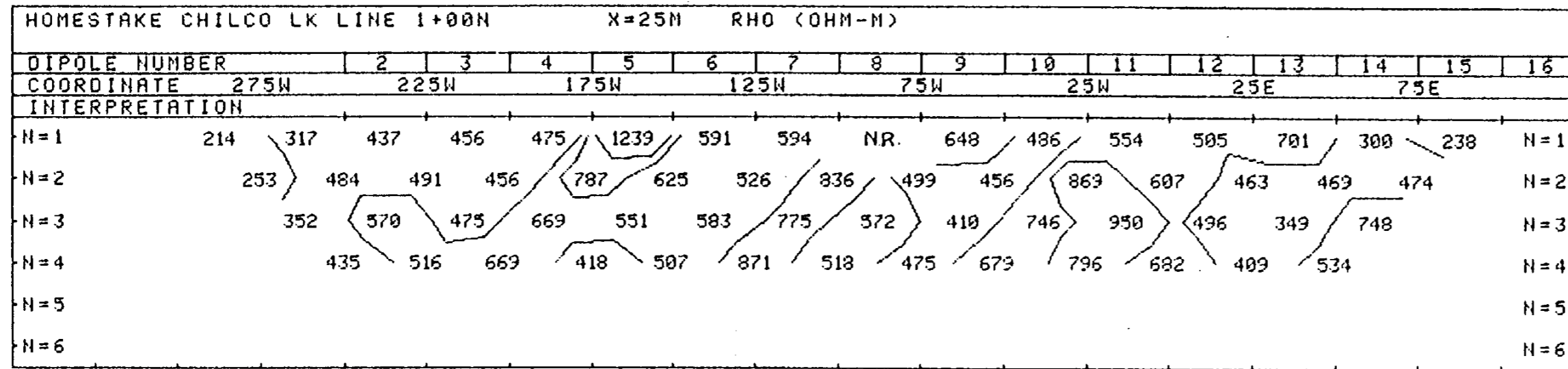
DATE SURVEYED: SEPT 1983
APPROVED

NOTE - CONTOURS
AT LOGARITHMIC
INTERVALS: 1, -1.5
-2, -3, -5, -7.5, -10

PAC
DATE FEB 10/84

PHOENIX GEOPHYSICS LTD.

INDUCED POLARIZATION
AND RESISTIVITY SURVEY



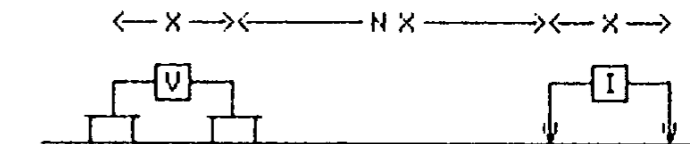
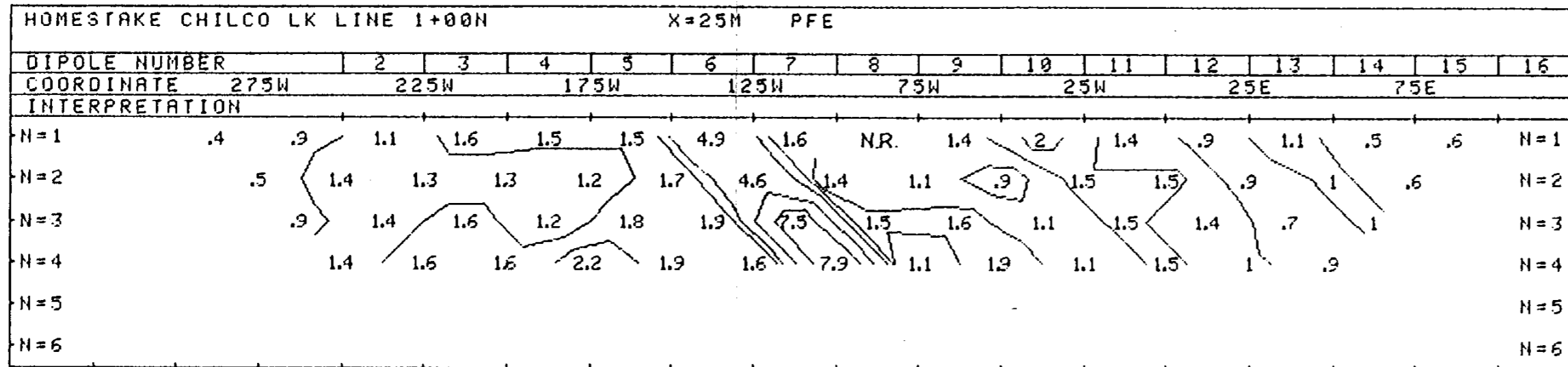
HOMESTAKE MIN. DEV. CO.

ALEXIS PROPERTY
CLINTON M. D. B. C.

LINE NO. -1+00N

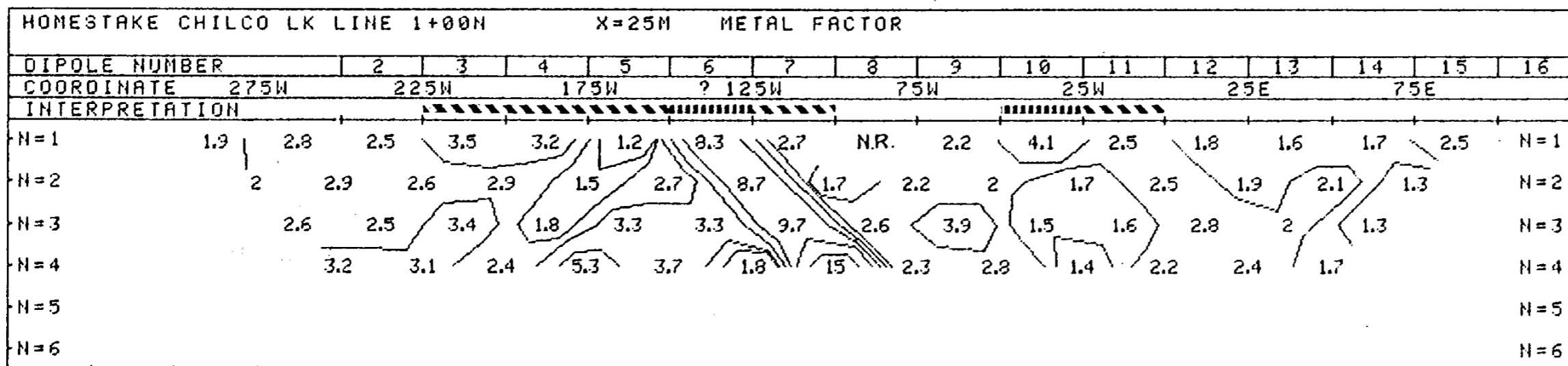
GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,934



PLOTTING POINT → X X=25M
SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE
PROBABLE
POSSIBLE



FREQUENCY (HERTZ)
4.0; 0.25

DATE SURVEYED: SEPT 1983
APPROVED

NOTE - CONTOURS
AT LOGARITHMIC
INTERVALS: 1, -1.5
-2, -3, -5, -7.5, -10

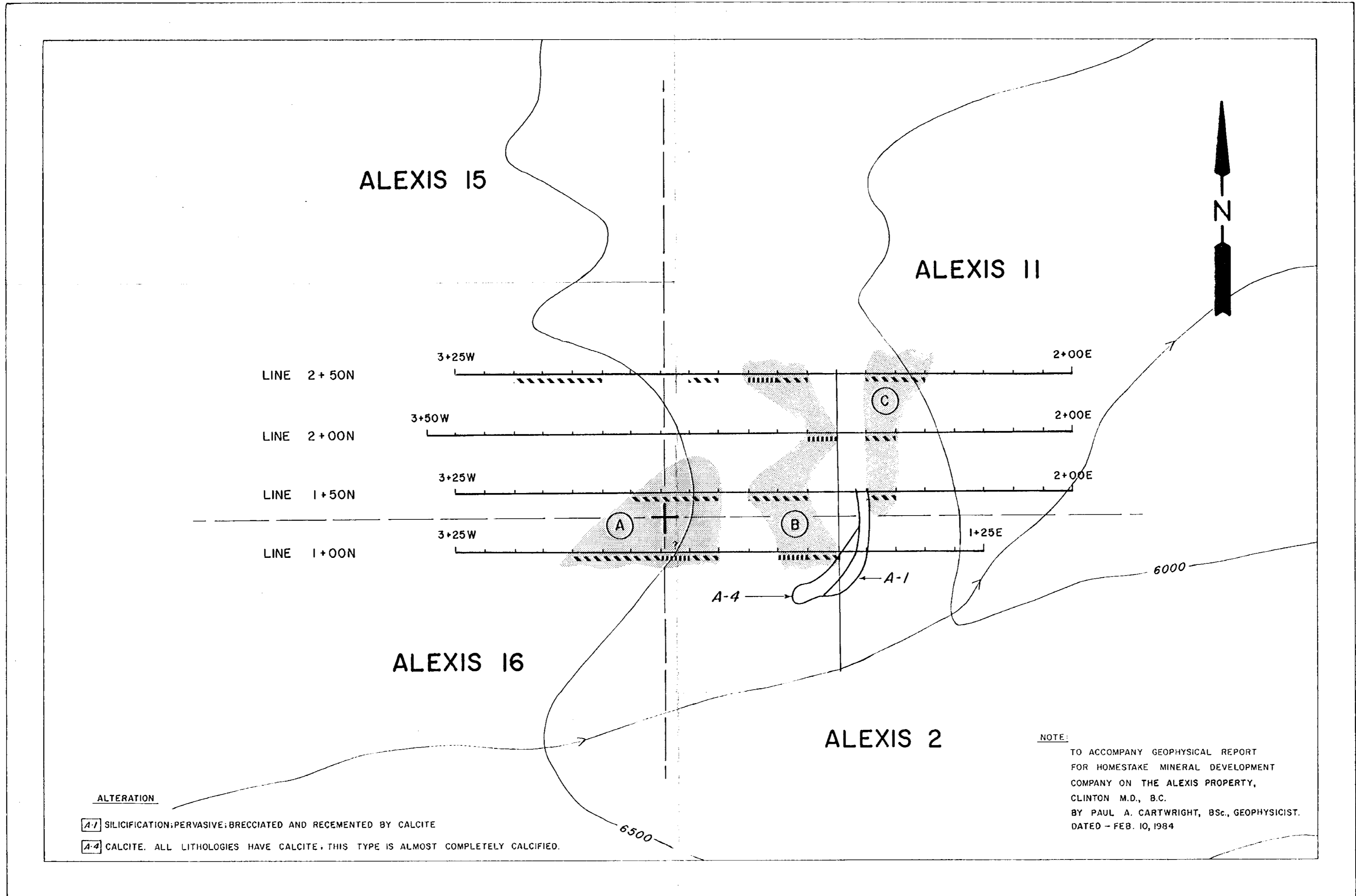
PAC
DATE FEB 10/84

PHOENIX GEOPHYSICS LTD.

INDUCED POLARIZATION
AND RESISTIVITY SURVEY

DWG. NO. -

PHOENIX GEOPHYSICS LIMITED
INDUCED POLARIZATION AND RESISTIVITY SURVEY
PLAN MAP



ALTERATION

A-1 SILICIFICATION; PERVASIVE; BRECCIATED AND RECEMENTED BY CALCITE

A-4 CALCITE. ALL LITHOLOGIES HAVE CALCITE, THIS TYPE IS ALMOST COMPLETELY CALCIFIED.

NOTE:
TO ACCOMPANY GEOPHYSICAL REPORT
FOR HOMESTAKE MINERAL DEVELOPMENT
COMPANY ON THE ALEXIS PROPERTY,
CLINTON M.D., B.C.
BY PAUL A. CARTWRIGHT, B.Sc., GEOPHYSICIST.
DATED - FEB. 10, 1984

SURFACE PROJECTION
OF ANOMALOUS ZONE

DEFINITE —————

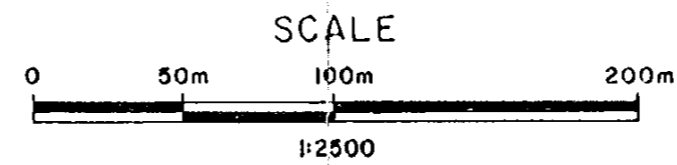
PROBABLE

POSSIBLE - - - - -

DIPOLE - DIPOLE ARRAY
x = 25m

HOMESTAKE MINERAL DEVELOPMENT COMPANY CLINTON BRANCH
ASSESSMENT REPORT

ALEXIS PROPERTY
CLINTON MINING DIVISION, BRITISH COLUMBIA



OUTLINE OF
ANOMALOUS I.P. ZONE

11,934

DRAWN: R.G.W.
DATE: FEB. 10, 1984
APPROVED: PAC
DATE: FEB. 10/84