4918

92G/10W 4918

92G/10W

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY OF THE MAMQUAM PROPERTY SQUAMISH AREA, VANCOUVER M.D., B.C.

FOR

NORANDA EXPLORATION CO. LTD. (N.P.L.)

Lori, S, See, Tulsa, Alco

BY

ROBERT A. BELL, Ph.D.

AND

DAVID K. FOUNTAIN, B. Eng.

NAME AND LOCATION OF PROPERTY:

MAMQUAM PROPERTY, SQUAMISH AREA, B.C.

VANCOUVER MINING DIVISION, B.C. 49°42'N - 122°56'W

DATE STARTED: NOVEMBER 1, 1973

DATE FINISHED: NOVEMBER 14, 1973

TABLE OF CONTENTS

McPHAR GEOPHYSICS

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY OF THE MAMQUAM PROPERTY SQUAMISH AREA, VANCOUVER MINING DIVISION, B.C. FOR NORANDA EXPLORATION COMPANY, LIMITED, (N.P.L.)

---

1. INTRODUCTION

At the request of R. Pemberton and R.C. Heim we have carried out a combined Induced Polarization and Resistivity survey of the Mamquam property in the Squamish area of British Columbia for Noranda Exploration Company Limited. The property is situated in the Vancouver Mining Division about 10 miles northeast of Squamish, at approximately 49°42'N latitude and 122°56'W longitude. Access to the property is by logging road from Squamish.

Field work was carried out during the first half of November, 1973 using a McPhar variable frequency IP unit operating at 0.3 and 5.0 Hz. The survey was conducted on a grid of NE-SW lines spaced 400 feet apart, although only alternate lines were covered at the north and south ends of the grid. All measurements were made using a dipole-dipole electrode configuration, with a separation of 200 feet and recording two dipole separations (n = 1,2).

According to information supplied by the Company, the property is underlain by a medium grained hornblende diorite, with the hornblende commonly chloritized. To the north of Martin Creek is a zone of trace chalcopyrite roughly 3000 feet long and up to 1000 feet wide, surrounded by a zone of disseminated pyrite. The mineralisation is associated with an altered phase of the intrusive, consisting of orthoclase-quartz enrichment in the chalcopyrite zone and propylitization in the pyrite zone. The purpose of the geophysical survey was to delimit the area of sulphide mineralization and to assist in formulating a better understanding of the local geology.

The survey was carried out on the following claims, held under option by Noranda Exploration Company, Limited, (N.P.L.).

LORI	7, 8, 9, 10
SEE	9, 10
TULSA	15, 16
S	8, 10
ALCO	1, 2, 3, 4, 25, 27, 29, 30, 31, 32

2. PRESENTATION OF RESULTS

The Induced Polarization and Resistivity results are shown on the following data plots in the manner described in the notes preceding this report.

Line	Electrode Intervals	Dwg. No.
6800N	200 feet	IP 6118-1
7600N	200 feet	IP 6118-2
8400N	200 feet	IP 6118-3
8800N	200 feet	IP 6118-4
9200N	200 feet	IP 6118-5
9600N	200 feet	IP 6118-6
10000N	200 feet	IP 6118-7
10400N	200 feet	IP 6118-8
10800N	200 feet	IP 6118-9
11200N	200 feet	IP 6118-10
11600N	200 feet	IP 6118-11
12400N	200 feet	IP 6118-12
13200N	200 feet	IP 6118-13

Also enclosed with this report is Dwg. I. P. P. 3608, a plan map of the Mamquam Grid at a scale of 1" = 400'. 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 200' electrode intervals the position of a narrow sulphide body can only be determined to lie between two stations 200' 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 source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

The relative location of claims and grid lines shown on Dwg. I.P.P. 3608 is based upon information supplied by Noranda Exploration Company, Limited, (N.P.L.).

3. DISCUSSION OF RESULTS

Line 6800N

The geophysical results from this traverse are fairly typical of the entire grid. The resistivity data shows a sharp contrast in the vicinity of station 115E with high resistivities to the west, presumably representing unaltered (and unmineralized) diorite, and moderately low resistivities to the east. The lower resistivity zone is largely co-extensive with a zone of weakly anomalous IP effects, both as to Frequency Effect and Metal Factor. Presumably this anomalous zone corresponds with the altered and mineralized phase of the diorite.

Although of low magnitude, the weak anomalies have been selected on the basis of above background IP response representing weak mineralization and lower apparent resistivities due to the alteration.

Line 7600N

These results are similar to those obtained on Line 6800N except that the main anomaly is stronger and more definite. The strongest and shallowest IP effects are centred at 116E and therefore this location should be considered for a drill test. Note that both the low resistivity zone and IP anomaly are open to the east and hence the data might be extended a few more dipoles in this direction if an IP crew were available in the area.

Line 8400N

The main zone is weaker and narrower here, extending from about 109E to 117E. There may be a second weak anomaly farther east but the data is incomplete.

Line 8800N

Here the main zone has again decreased in magnitude and width. Above background M. F. values were also measured at 102E - 104E.

Line 9200N

These results are similar to the preceding line.

Line 9600N, Line 10000N and Line 10400N

The main zone is broader and somewhat stronger on these three traverses and again is still open to the east.

Line 10800N

Here the anomaly is more definite, with fairly sharp edges at 112E and 120E.

Line 11200N

The main zone is somewhat weaker here.

Line 11600N

On this line anomalous IP effects were measured from about 104E to 118E, with a possible narrow gap at 109E. These results imply an abrupt widening of the low resistivity - weakly anomalous zone north of Line 11200N.

Line 12400N

This line is unusual in that it is entirely underlain by low resistivity rocks, although only the eastern half is anomalous.

Line 13200N

Here the main zone is about 800' wide, from 108E to 116E, with moderately low resistivities throughout the traverse.

4. SUMMARY AND RECOMMENDATIONS

Weakly to moderately anomalous IP effects were measured on every line of the Mamquam property. These anomalies comprise a zone roughly 1000' wide extending in a slightly arcuate manner from Line 6800N to Line 13200N , still open in both directions. The anomaly selection has been made on the basis of above background IP response associated with zones of lower apparent resistivity as would result from weak mineralization within altered rock. The low magnitude of the IP responses suggests relatively minor sulphide content but since chalcopyrite is known to be present, the IP zone may still be of economic interest.

The strongest and most definite responses are centred at 116E, Line 7600N and 115E, Line 10800N. Shallow drill tests would be warranted at these two locations especially if the available geological information suggests a high ratio of copper bearing sulphides to total sulphides.

McPHAR GEOPHYSICS COMPANY

Robert A. Bell,
Geologist

David K. Fountain, P. Eng.
Geophysicist

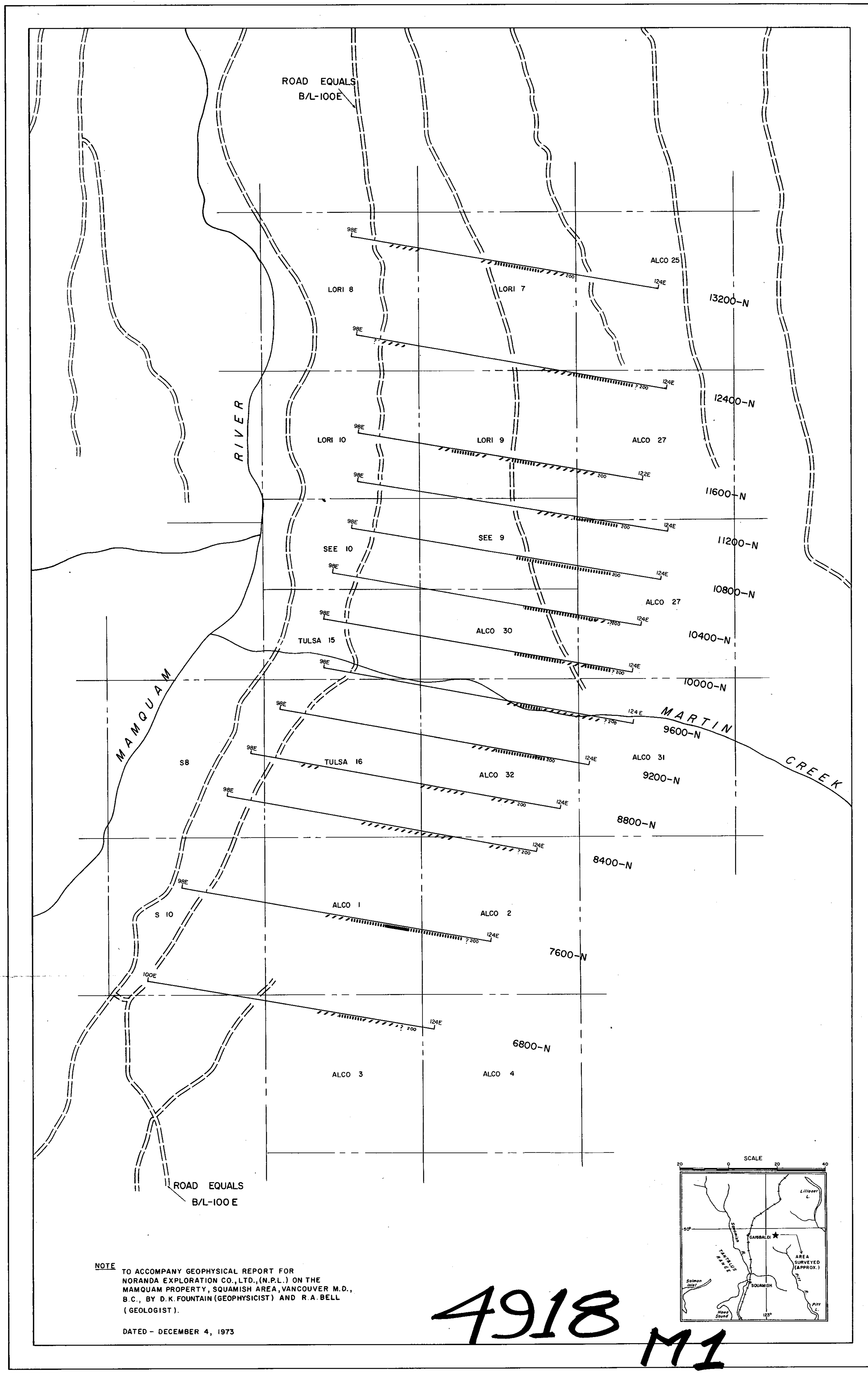
Dated: December 4, 1973

DWG. IPP - 3608

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

PLAN MAP



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

Numbers at the end of the anomalies indicate electrode interval

NORANDA EXPLORATION CO. LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D., B.C.

SCALE

ONE INCH EQUALS FOUR HUNDRED FEET

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4918 MAP #1

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

APPROVED:

Expiry Date: April 30, 1974

DWG. IPP - 3608

ASSESSMENT DETAILS

PROPERTY: Mamquam

MINING DIVISION: Vancouver

SPONSOR: Noranda Exploration Co. Ltd. (N.P.L.)

PROVINCE: British Columbia

LOCATION: Squamish Area

TYPE OF SURVEY: Induced Polarization

OPERATING MAN DAYS:	36	DATE STARTED: November 1, 1973
EQUIVALENT 8 HR. MAN DAYS:	48	DATE FINISHED: November 14, 1973
CONSULTING MAN DAYS:	2	NUMBER OF STATIONS: 168
DRAUGHTING MAN DAYS:	5	NUMBER OF READINGS: 810
TOTAL MAN DAYS:	55	MILES OF LINE SURVEYED: 5.87

CONSULTANTS:

Robert A. Bell, 55 Roanoke Road, Don Mills, Ontario.
David K. Fountain, 62 Patina Drive, Willowdale, Ontario.

FIELD TECHNICIANS

J. MacNeil, 175 Cooper Street, Cambridge, Ontario.
R. Bing, 1078 Lamal Drive, Kamloops, B.C.
Plus Extra Labour:
E. Mitten, 1085 Queen's Ave. W. Vancouver, B.C.
A. Mytkowicz, 173 W.19th Avenue, Vancouver, B.C.

DRAUGHTSMEN:

R. Peer, 38 Torrens Ave. Toronto 6, Ontario.
M. Slaven, 23 Lascelles Blvd. Toronto, Ontario.
B. Boden, 103 Petworth Crescent, Agincourt, Ontario.

McPHAR GEOPHYSICS COMPANY

Robert A. Bell.

Robert A. Bell,
Geologist

Dated: December 4, 1973

STATEMENT OF COST

Noranda Exploration Company, Limited (N.P.L.)
Mamquam Property, Vancouver M.D., B.C.

Crew: J. MacNeil - R. Bing

Minimum charge - 6.5 miles	@ $670.00/mile	$4,355.00

Breakdown of above :

9 days Operating		@ $209.04/mile	$1,881.36
1½ days Travel)			
2 days Bad Weather)	5 days @	$100.00/day	500.00
1½ days Standby)			

Expenses

Truck rental	336.45	
Vehicle Expense	28.05	
Meals & Accommodation	641.04	
Supplies	3.15	
	1,008.69	
+ 10%	100.87	
		1,109.56
Extra Labour	720.00	
+ 20%	144.00	
		864.00
		$4,354.92

McPHAR GEOPHYSICS COMPANY

Robert A. Bell
Robert A. Bell,
Geologist

Dated: December 4, 1973

CERTIFICATE

I, Robert Alan Bell, of the City of Toronto, Province of Ontario, do hereby certify that:

1. I am a geologist residing at 55 Roanoke Road, Don Mills, Ontario.

2. I am a graduate of the University of Toronto in Physics and Geology with the degree of Bachelor of Arts (1949); and a graduate of the University of Wisconsin in Economic Geology with the degree of Ph. D. (1953).

3. I am a member of the Society of Economic Geologists and a fellow of the Geological Association of Canada.

4. I have been practising my profession for over fifteen 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 Noranda Exploration Company, Limited, (N.P.L.) 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 Toronto

This 4th day of December 1973

Robert A. Bell.

Robert A. Bell, Ph. D.

CERTIFICATE

I, David Kirkman Fountain, of the City of Toronto, Province of Ontario, do certify that:

1. I am a geophysicist residing at 62 Patina Drive, Willowdale, Ontario.

2. I am a graduate of the University of Toronto with a Bachelor of Applied Science Degree in Engineering Physics (Geophysics).

3. I am a member of the Society of Exploration Geophysicists, the European Association of Exploration Geophysicists and the Canadian Institute of Mining and Metallurgy.

4. I am a Registered Professional Engineer in the Provinces of British Columbia, Manitoba and Ontario, a Registered Professional Geophysicist in the Province of Alberta and a Registered Professional Geologist in the State of California, and have been practising my profession for twelve years.

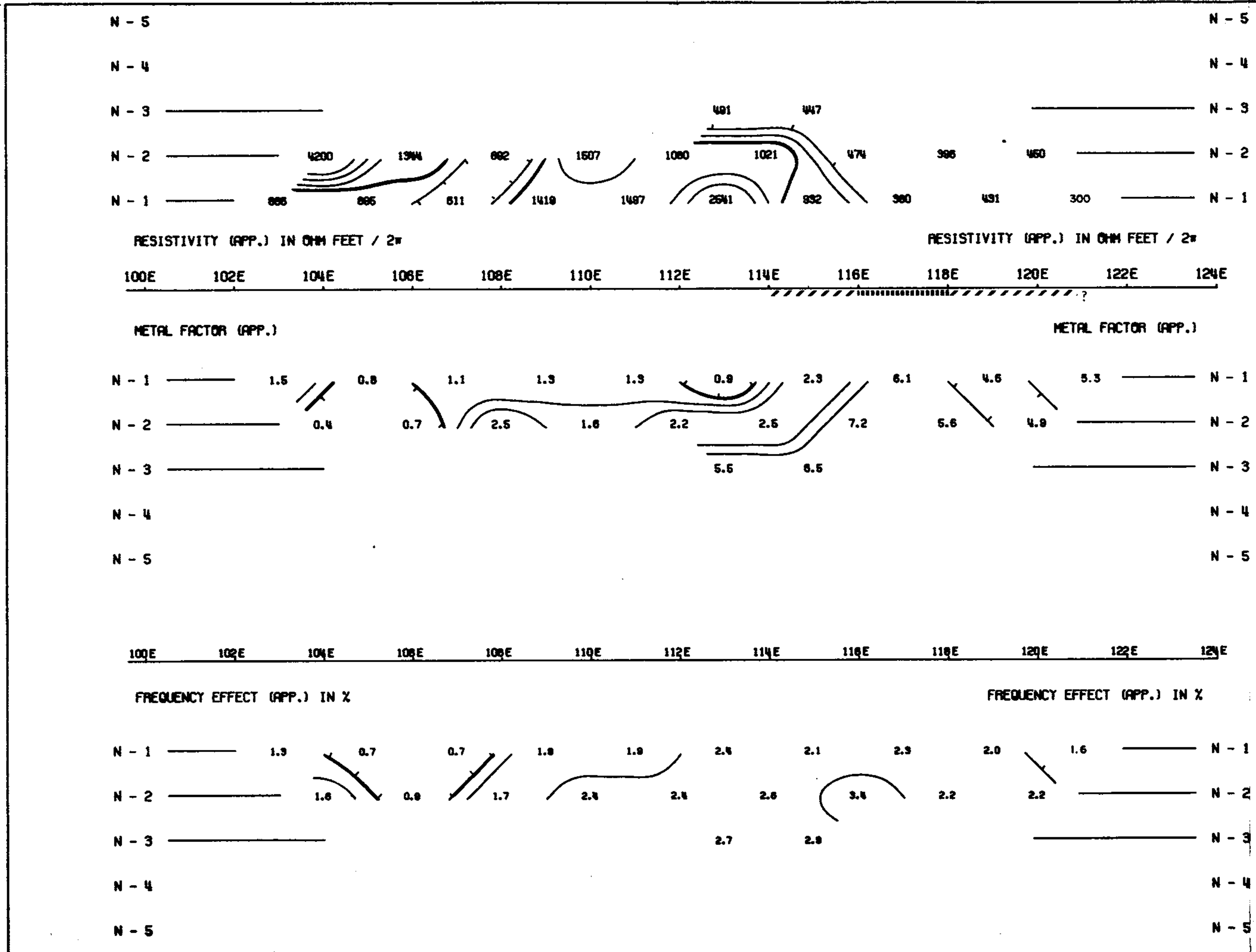
5. The statements made in this report are based on a study of published geological literature and unpublished private reports.

6. Permission is granted to use in whole or in part for assessment and qualification requirements but not for advertising purposes.

Dated at Toronto

This 4th day of December 1973

David Kirkman Fountain, B.A.Sc. P.Eng.



DWG. NO.- I.P.- 6118 - 1

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 6800N

ELECTRODE CONFIGURATION

X NX X

V I

PLOTTING POINT X = 200FT

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

APPROVED:

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

DATE:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

Expiry Date: April 25, 1974

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

McPHAR GEOPHYSICS

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. are the most useful values in 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 can not 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 other 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 the 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 above the line as a mirror image of the metal factor values below. On a second line, below the metal factor values, are plotted the values of the per cent frequency effect. In some cases the values of per cent frequency effect are plotted as superscripts of the metal factor value. In this second case the frequency effect values are not contoured. 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 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. When the F. E. values are plotted as superscripts to the MF values the third section of data values is not presented and the F. E. values are not contoured.

The actual data plots included with the report are prepared utilizing an IBM 360/75 Computer and a Calcomp 770/763 Incremental Plotting System. The data values are calculated, plotted, and contoured according to a programme developed by McPhar Geophysics. Certain symbols have been incorporated into the programme to explain various situations in recording the data in the field.

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 noisey 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.

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

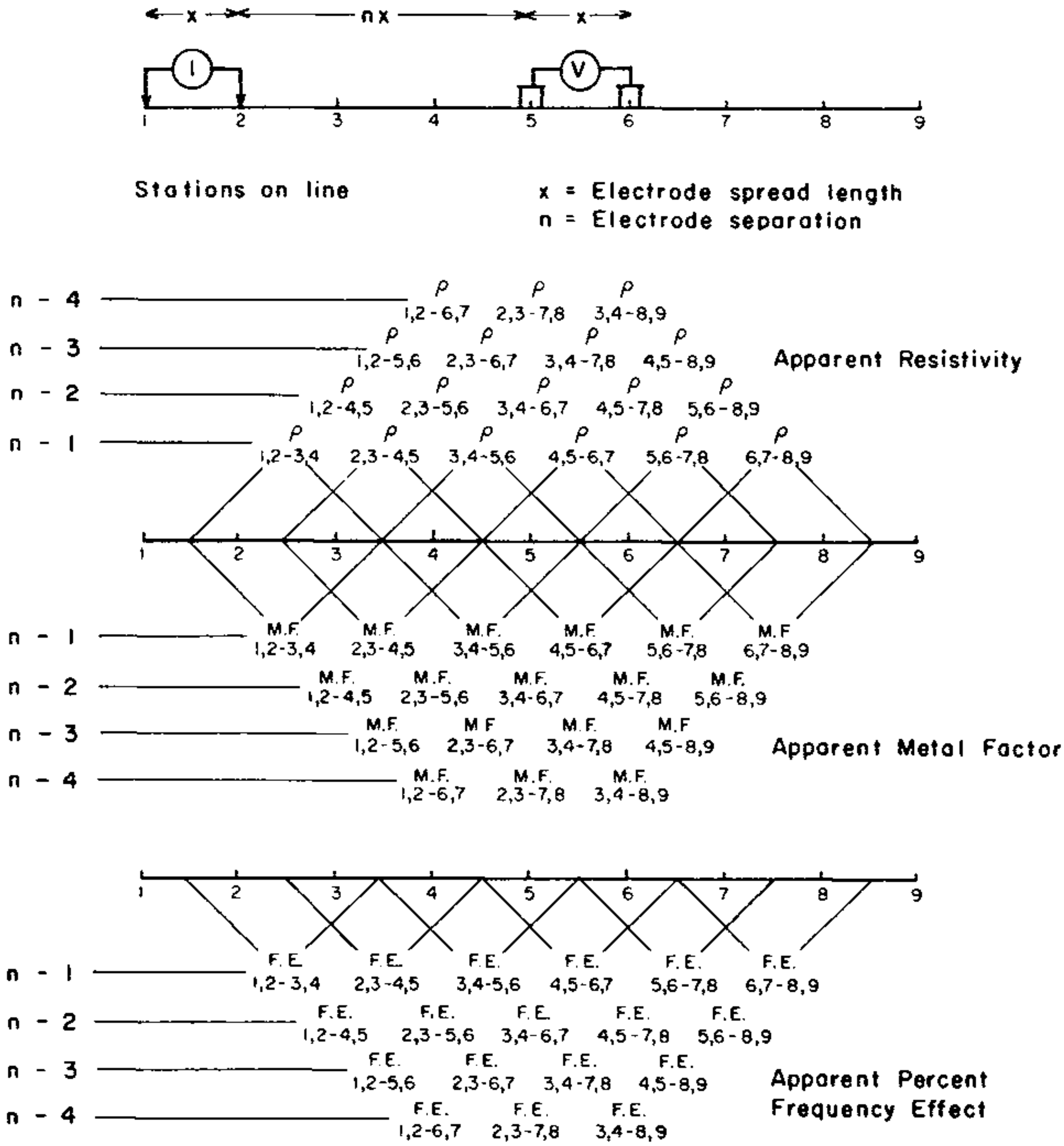
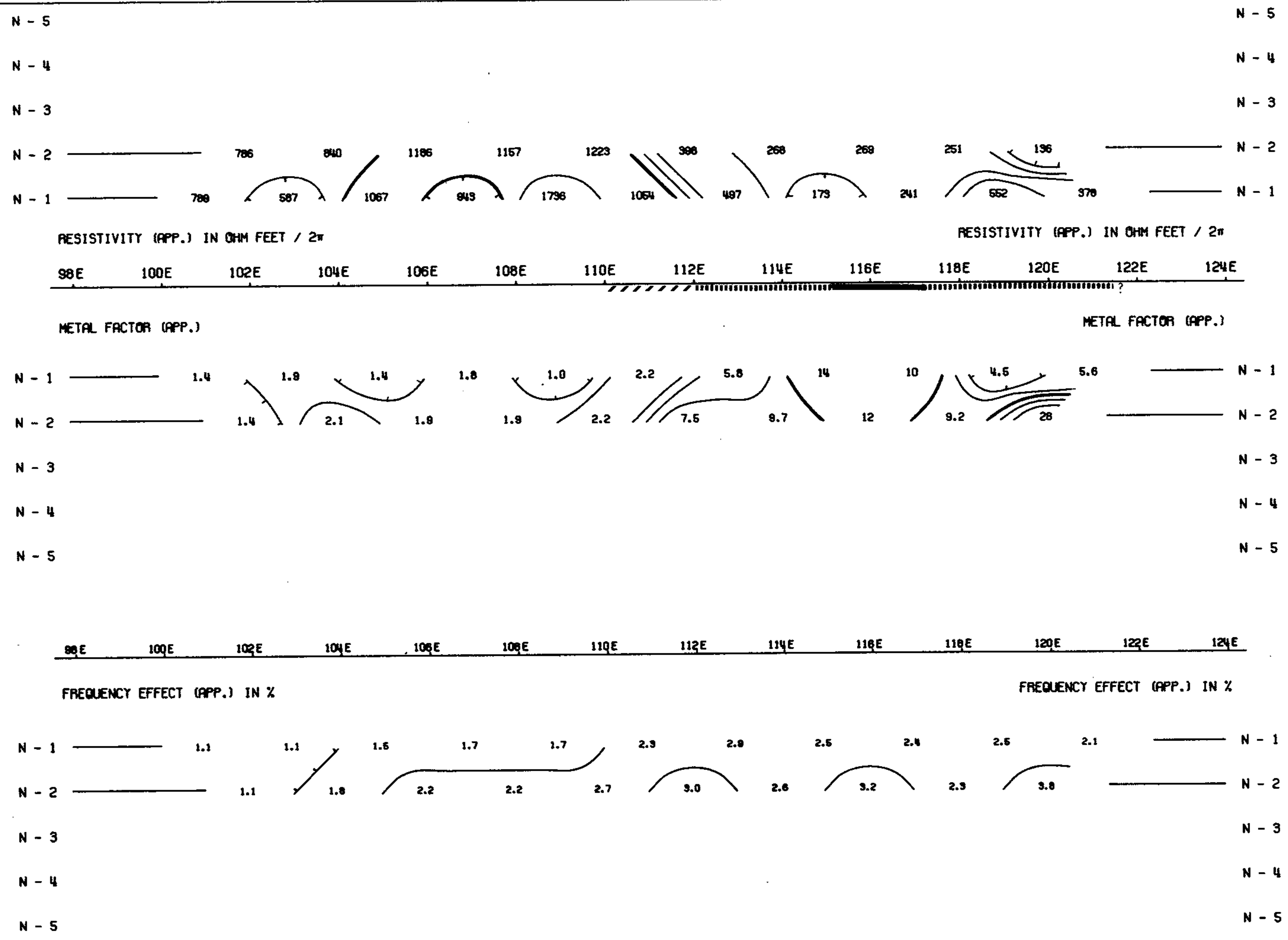


Fig. A

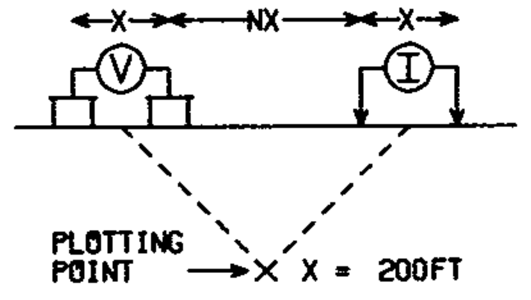


DWG. NO.- I.P.- 6118-2

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 7600N



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ▬▬▬
PROBABLE ||||||||||
POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

APPROVED: David K. Fountain

DATE: Dec. 4 73

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

Expiry Date: April 25, 1974

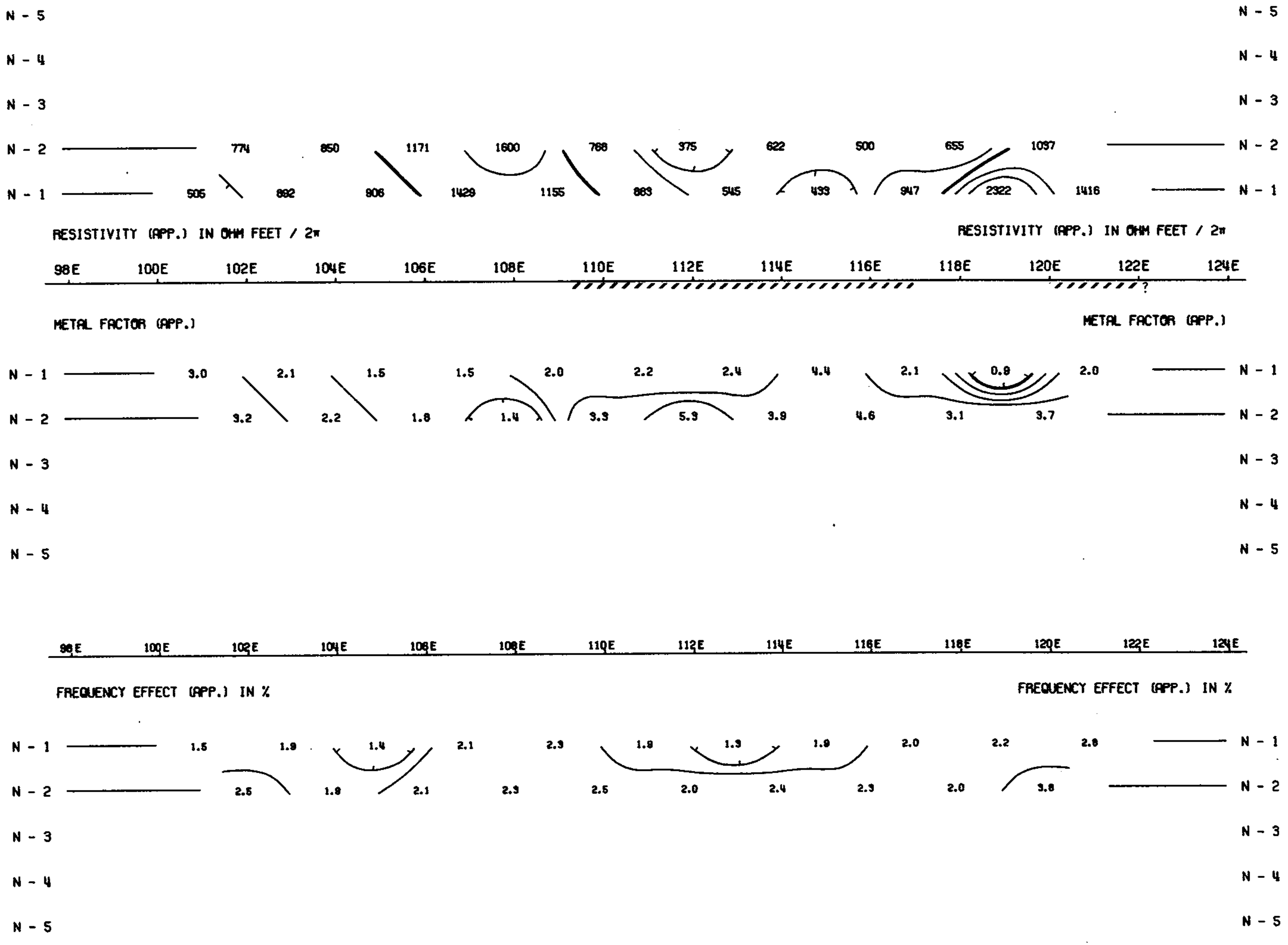
NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

4918

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION



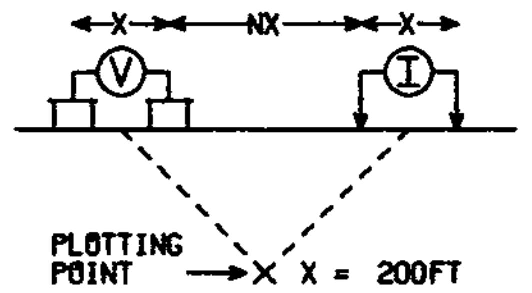
DWG. NO.- I.P.- 6118-3

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 8400N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ▬▬▬
PROBABLE ııııııııııı
POSSIBLE /////

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

APPROVED:

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

DATE: Dec 20/73

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

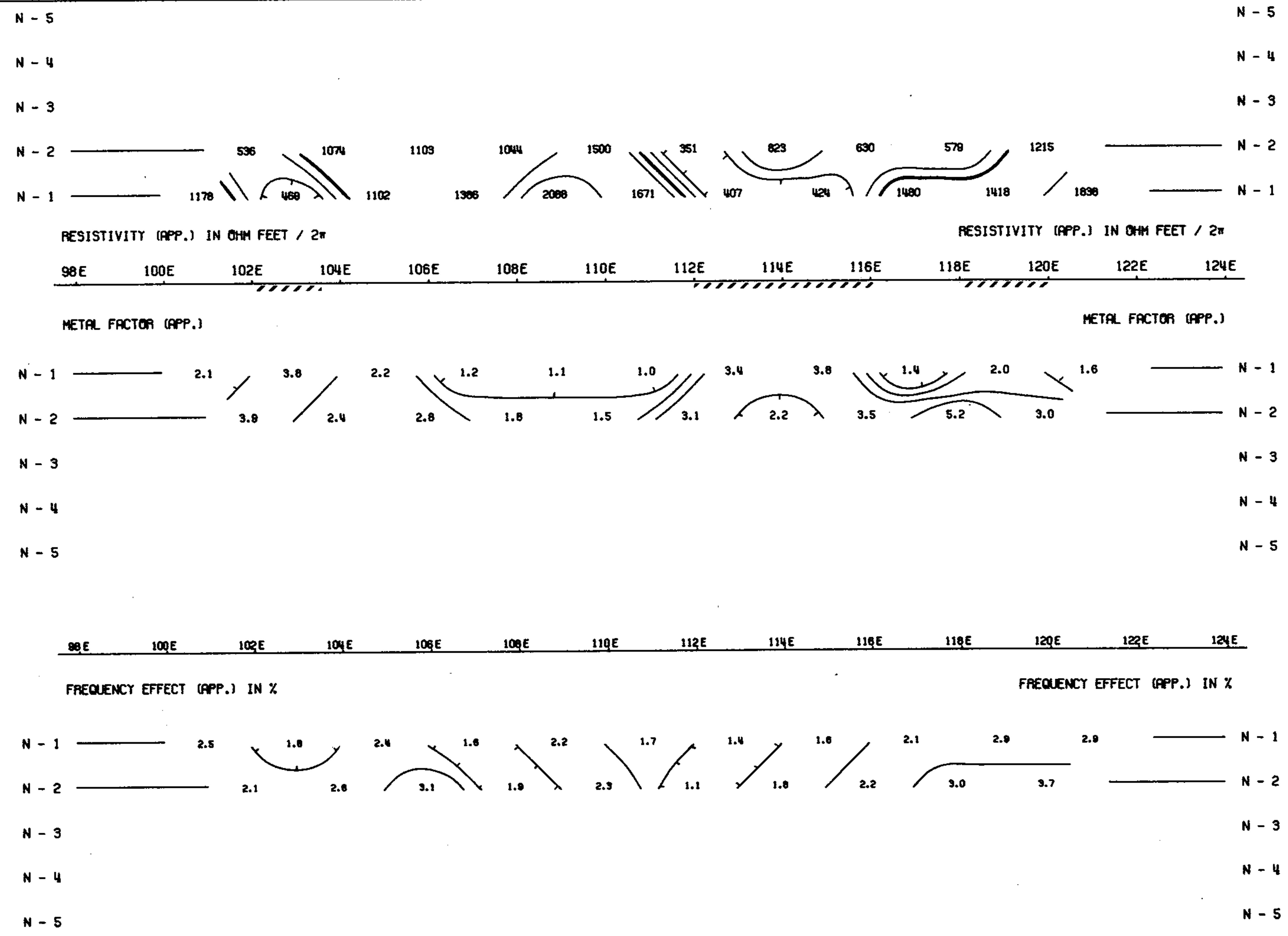
Expiry Date: April 25, 1974

4918

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



DWG. NO.- I.P.-6118-4

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 8800N

ELECTRODE CONFIGURATION

PLOTTING POINT X = 200FT

SURFACE PROJECTION OF ANOMALOUS ZONES
DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

APPROVED:

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

DATE:

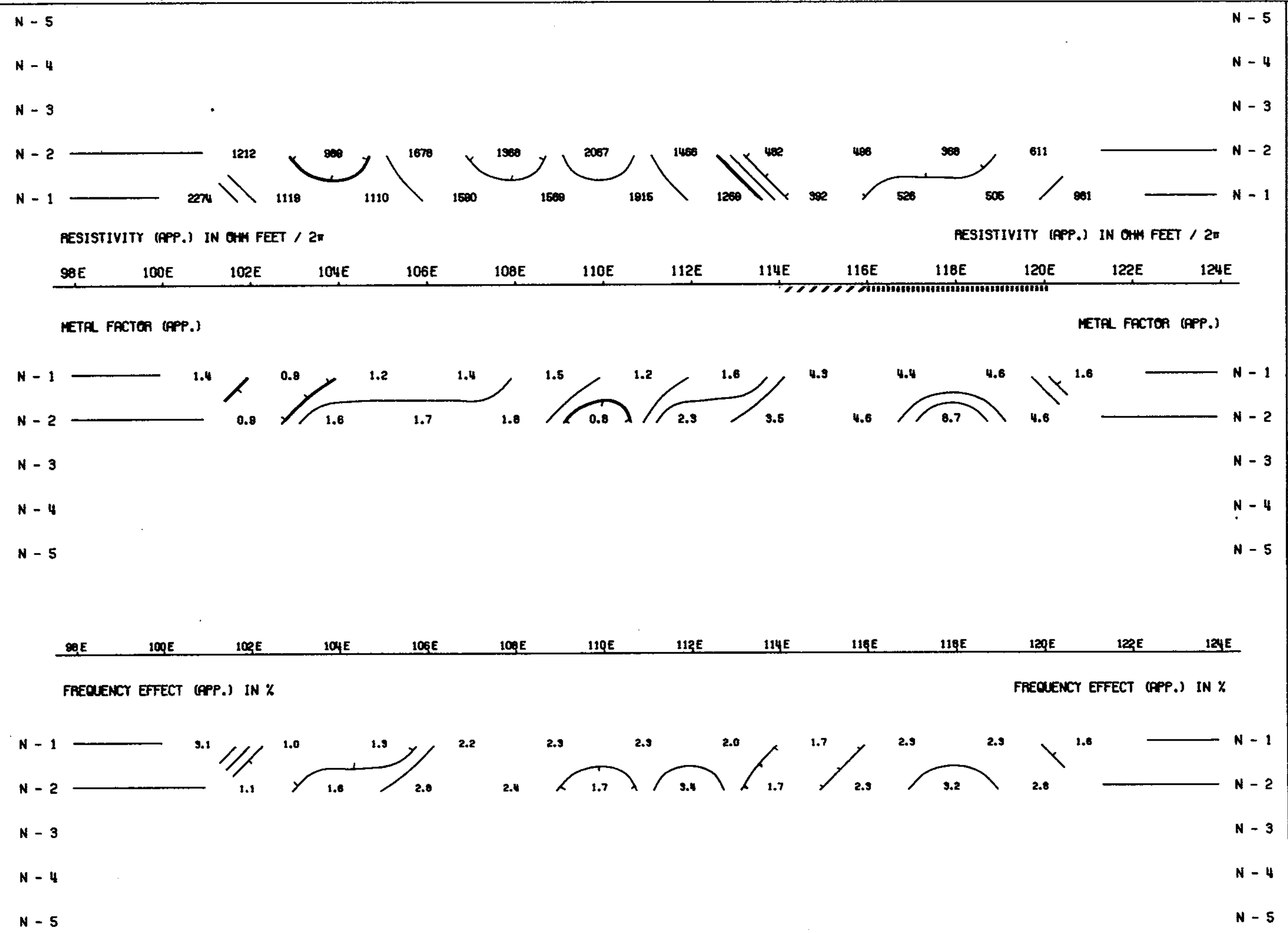
PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

4918

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION



DWG. NO.- I.P.- 6118 - 5

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 9200N

ELECTRODE CONFIGURATION

PLOTTING POINT → X   X = 200FT

SURFACE PROJECTION OF ANOMALOUS ZONES
DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

APPROVED:

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

DATE:

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

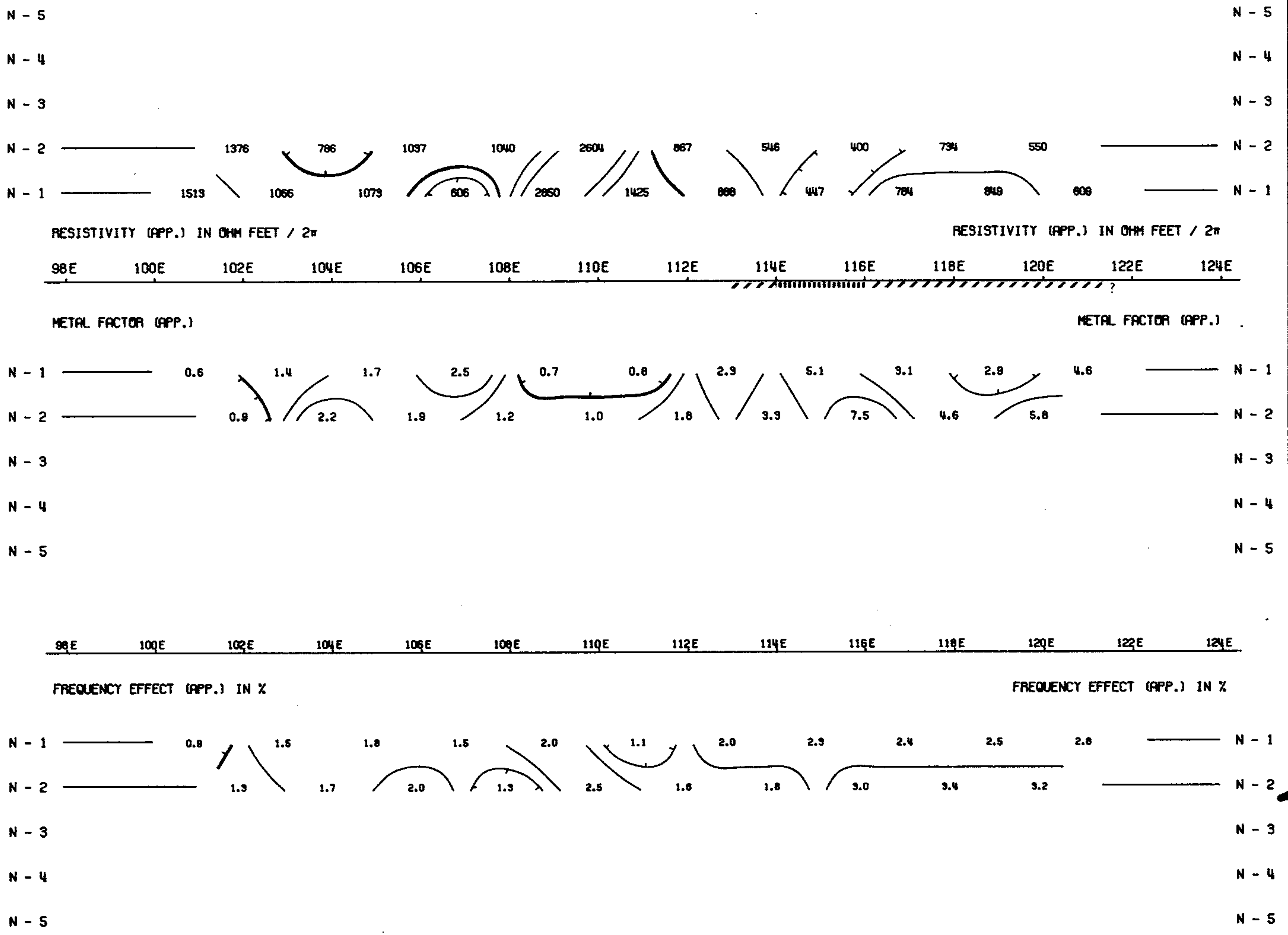
Expiry Date: April 25, 1974

4918

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



DWG. NO.- I.P.- 6118-6

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 9600N

ELECTRODE CONFIGURATION
X — NX — X
PLOTTING POINT → X X = 200FT

SURFACE PROJECTION OF ANOMALOUS ZONES
DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

APPROVED: [signature]

DATE:

PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN — ENGINEER
Expiry Date: April 25, 1974

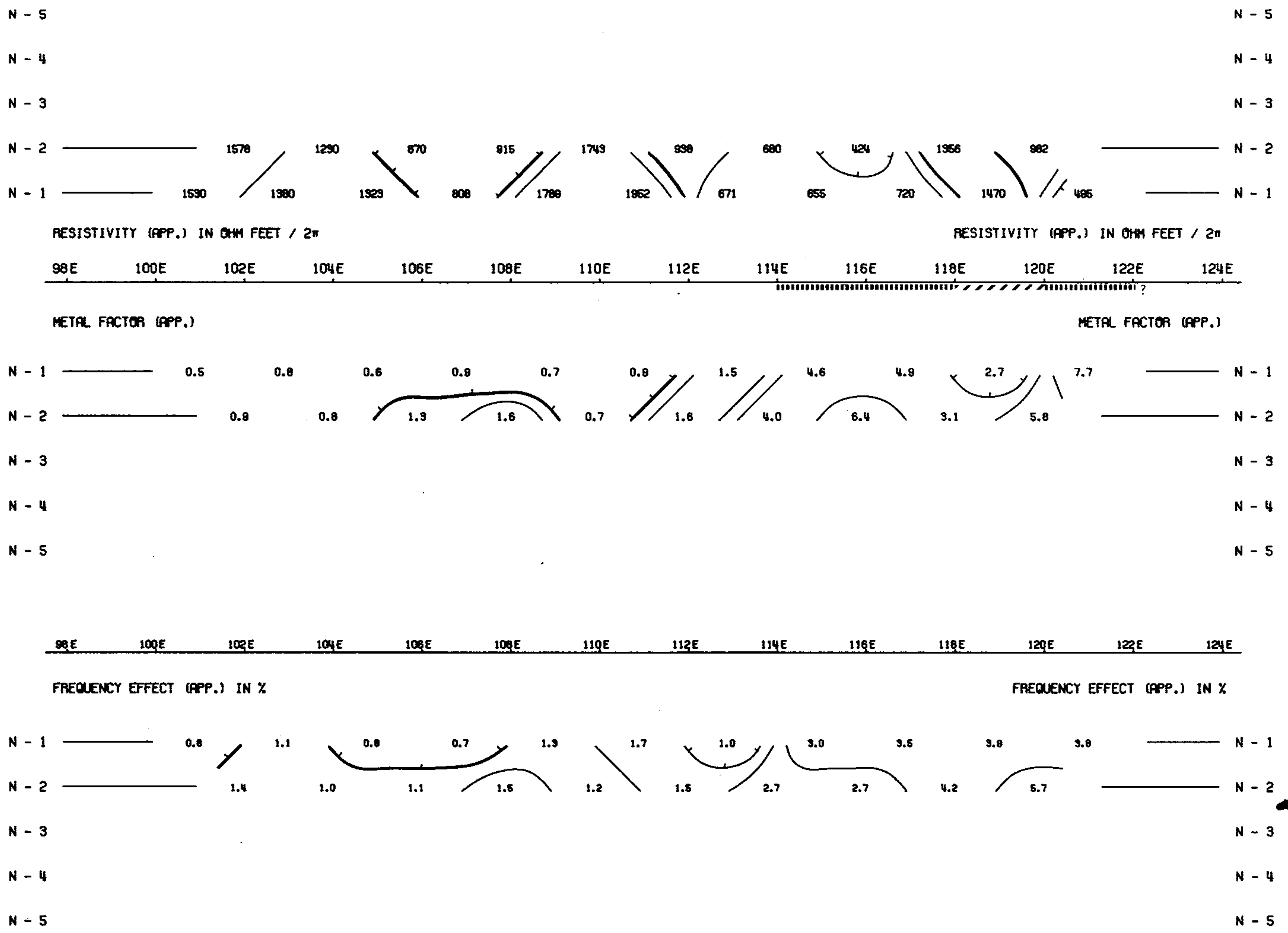
NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

4918

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION



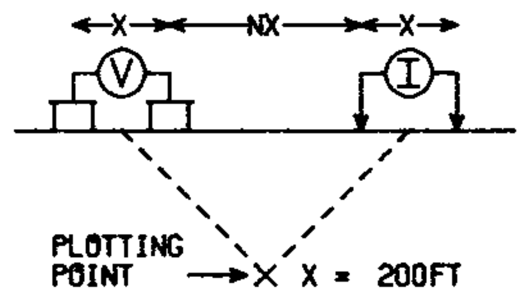
DWG. NO.- I.P.-6118-7

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 10000N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

APPROVED: [signature]

DATE: DEC 10 73

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

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

Expiry Date: April 25, 1974

4918

McPHAR GEOPHYSICS

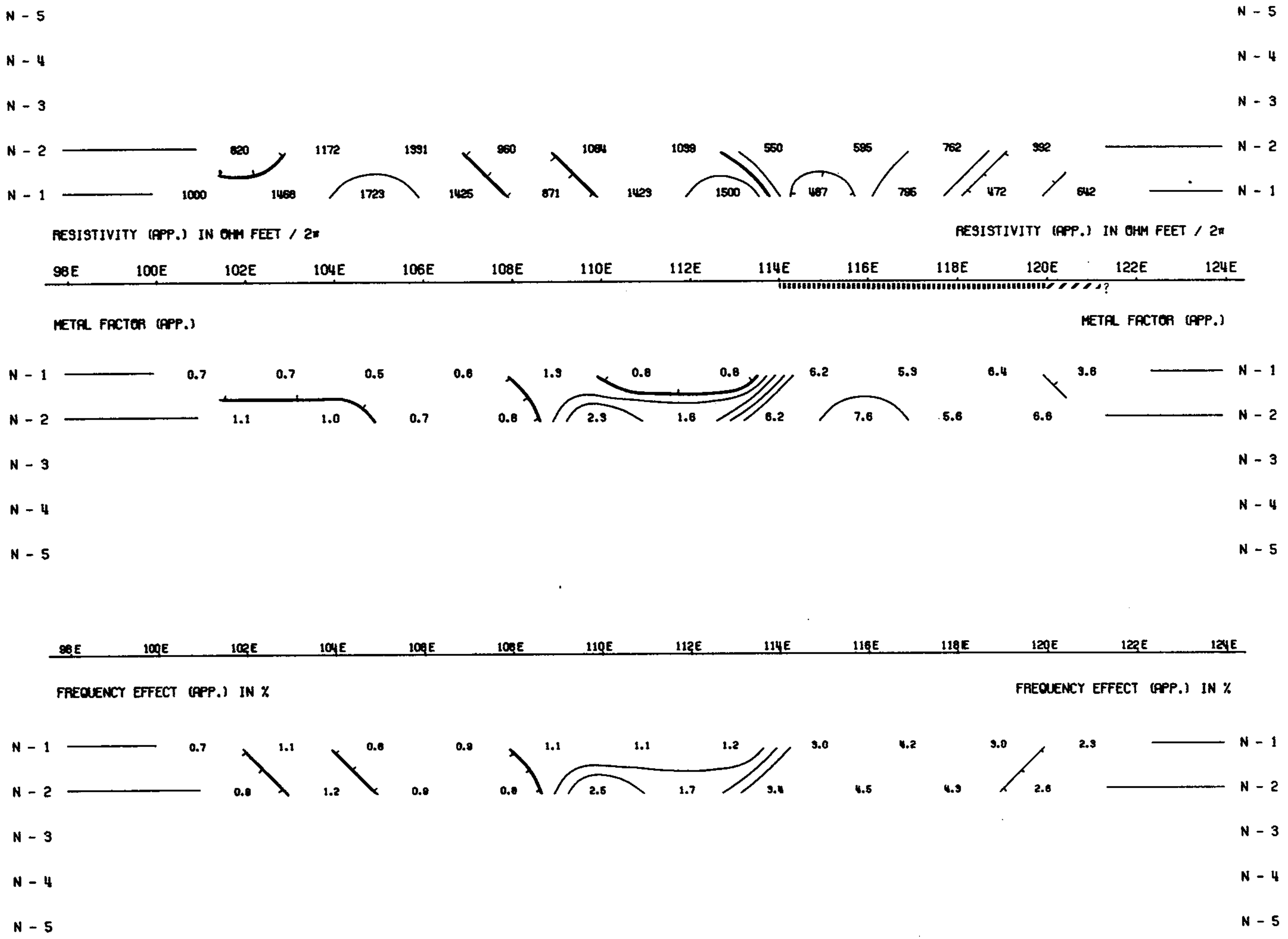
INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

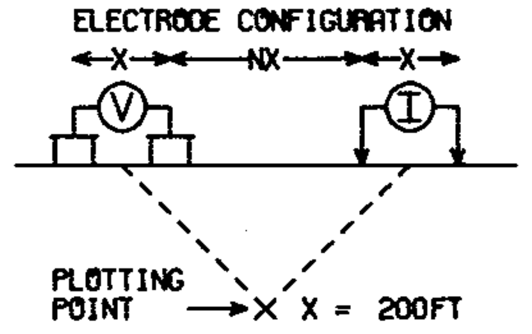
DWG. NO.- I.P.- 6118 - 8

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA



LINE NO.- 10400N



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

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

APPROVED: [signature]

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, D. K. FOUNTAIN

DATE: [handwritten]

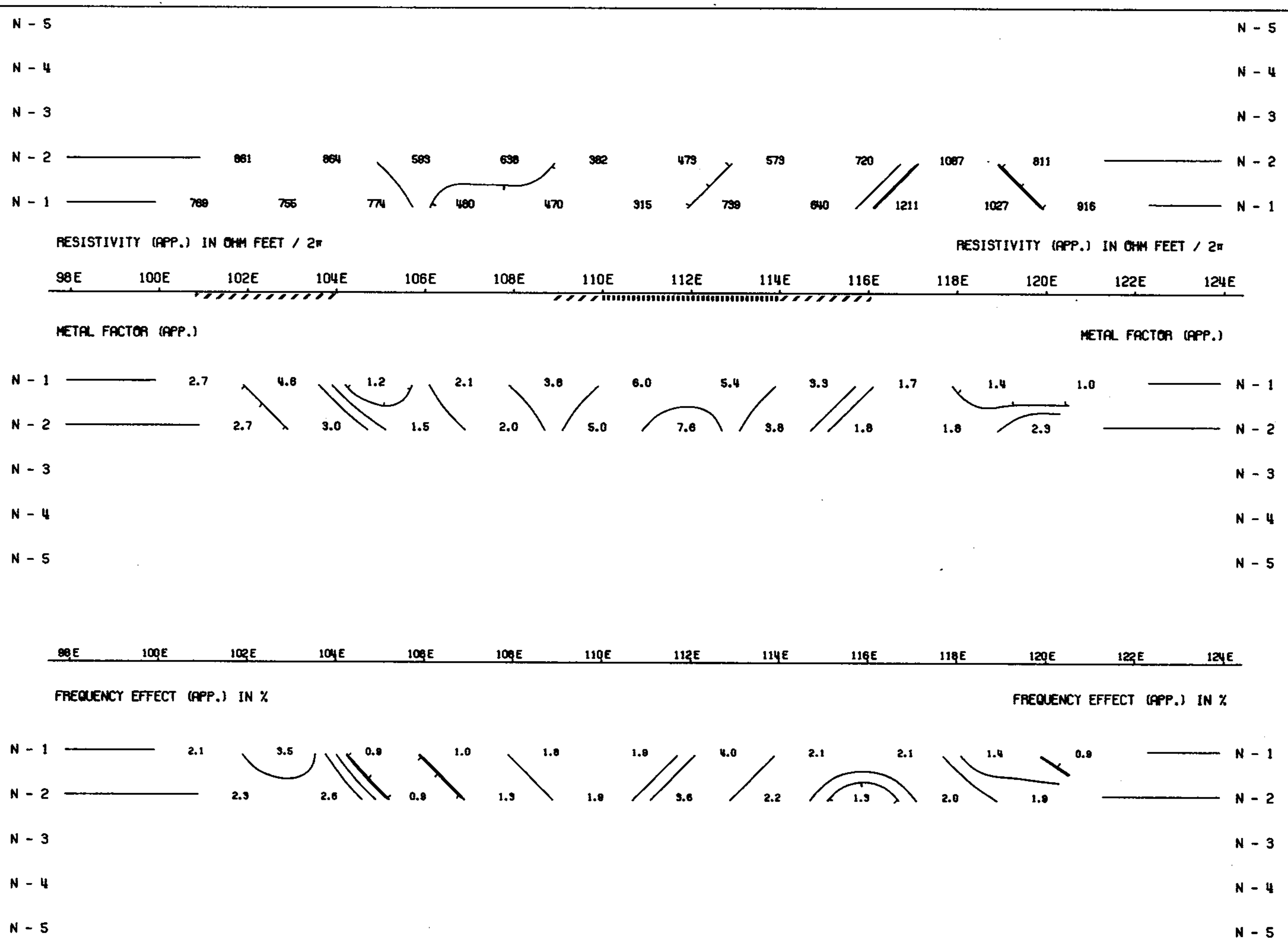
Expiry Date: April 25, 1974

4918

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



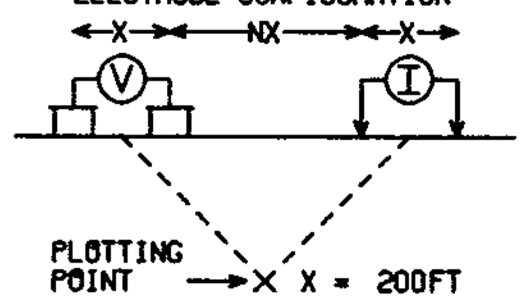
DWG. NO.- I.P.- 6118 - 13

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 13200N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

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

APPROVED:

DATE:

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

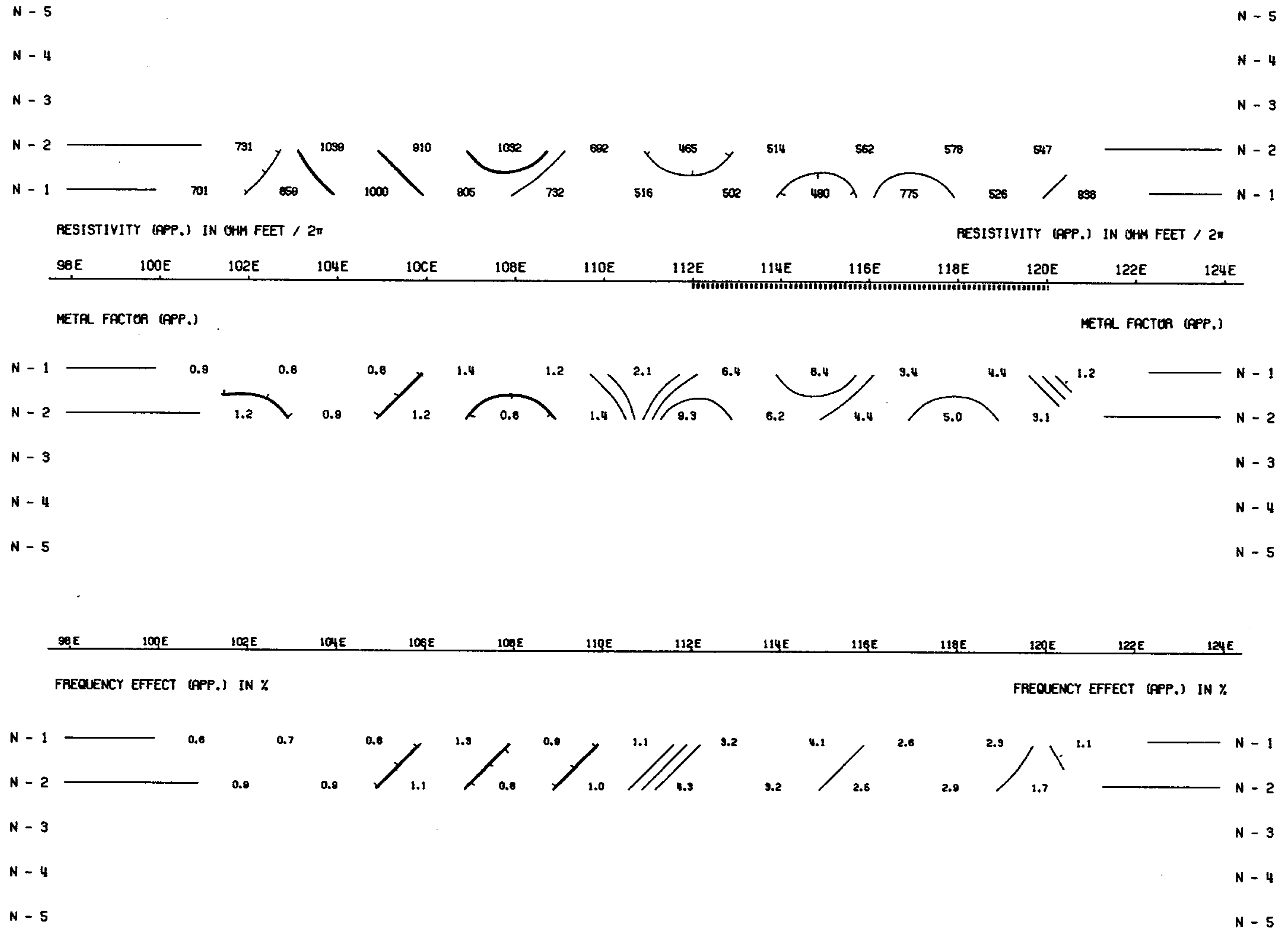
Expiry Date: April 25, 1974

4918

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



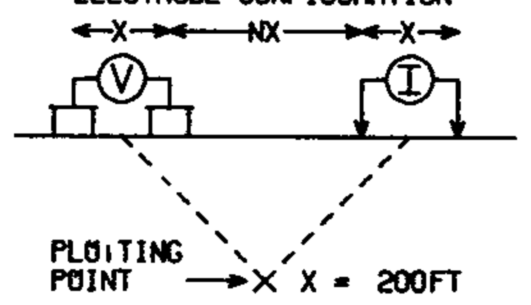
DWG. NO.- I.P.- 6118 - 9

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 10800N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

APPROVED:

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

DATE:

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

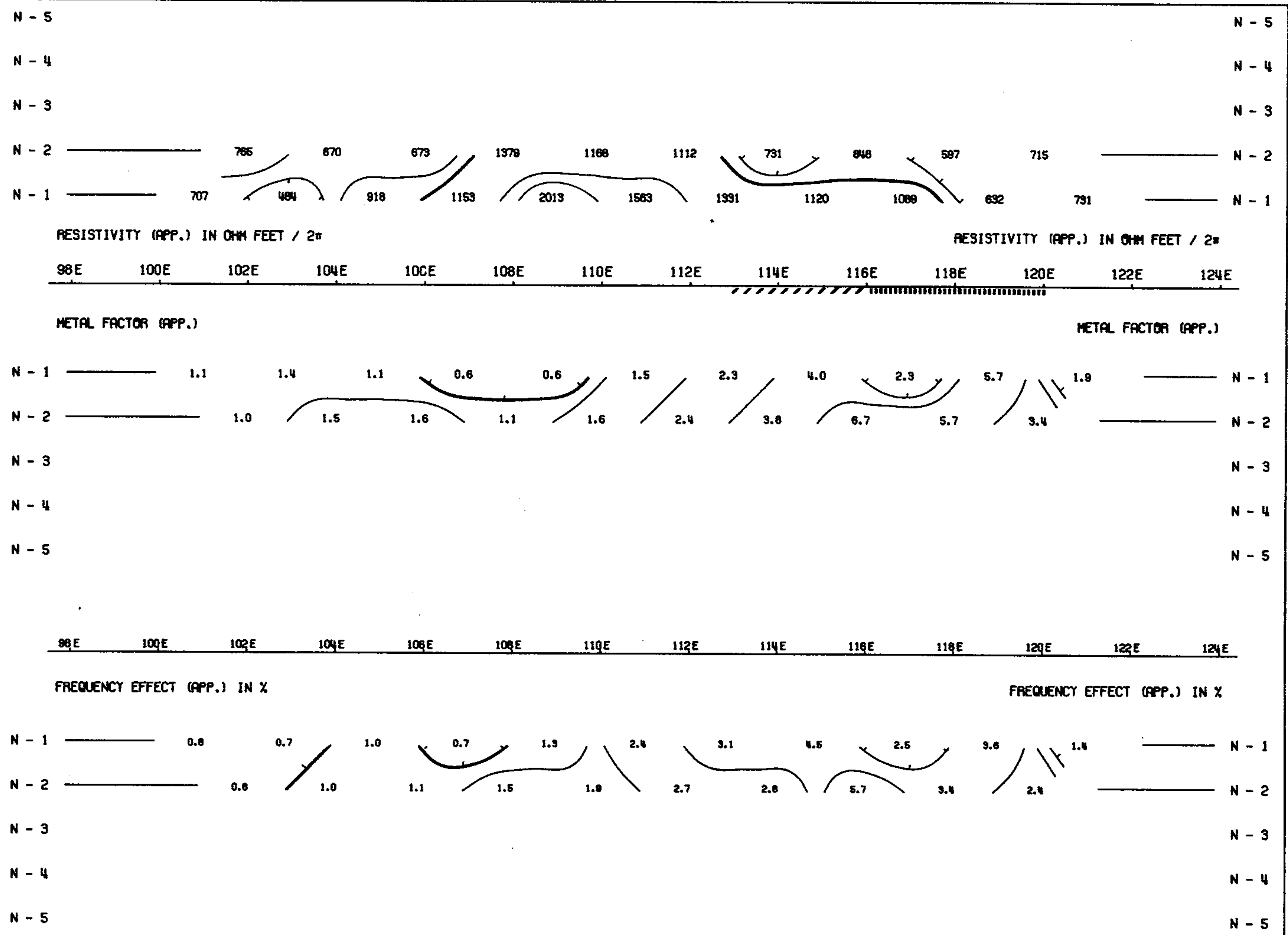
Expiry Date: April 25, 197[illegible]

4918

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



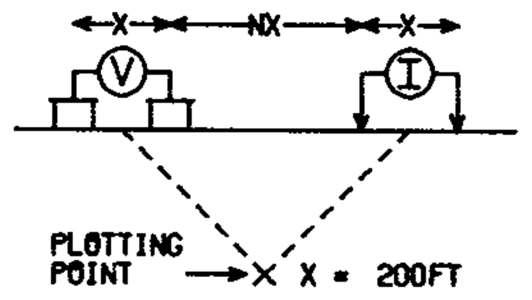
DWG. NO.- I.P.- 6118-10

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 11200N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

APPROVED:

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

DATE:

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

Expiry Date: April 25, 1974

4918

McPHAR GEOPHYSICS

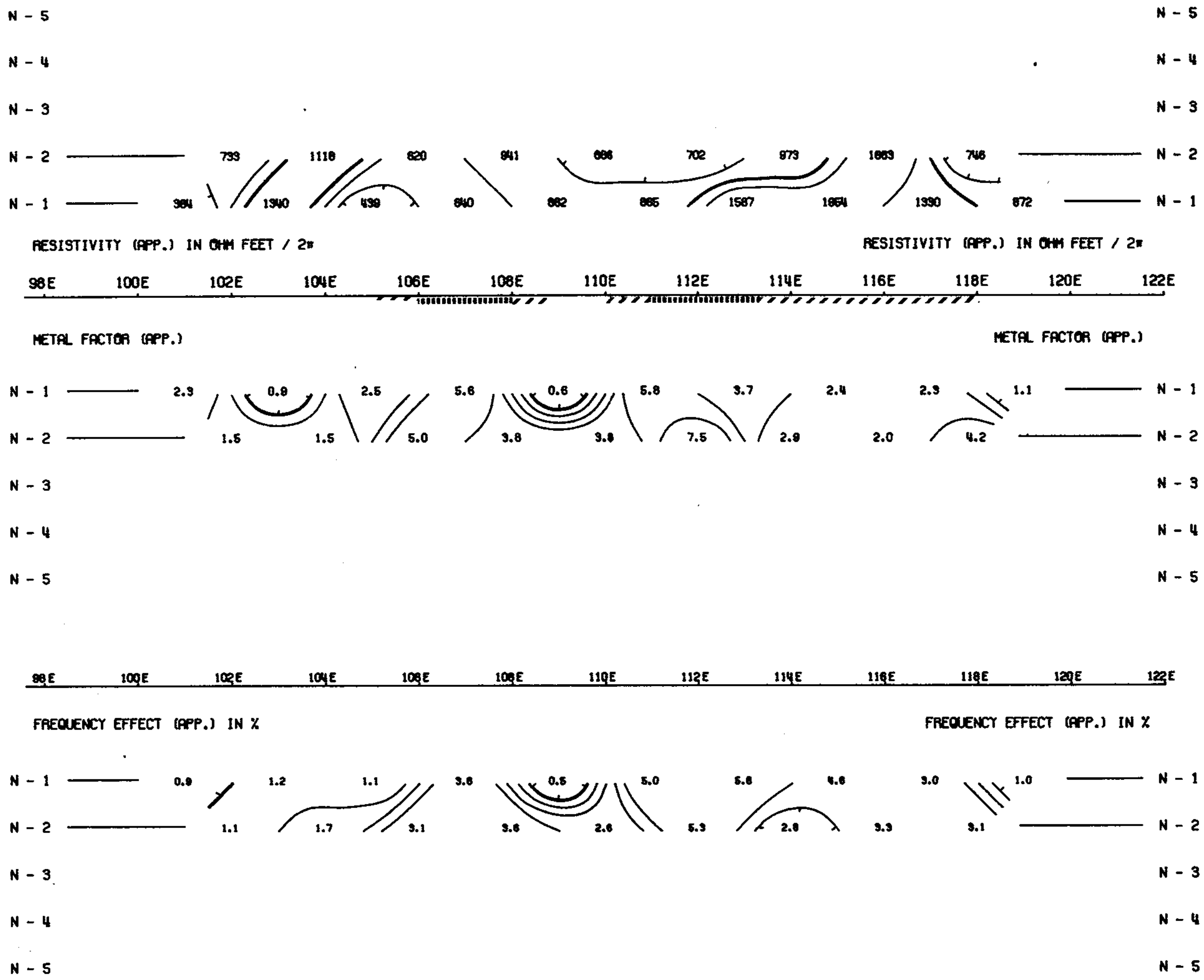
INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

DWG. NO.- I.P.- 6118-11

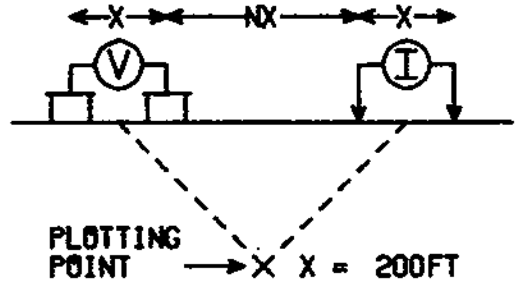
NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA



LINE NO.- 11600N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ▬▬▬
PROBABLE ||||||||||||
POSSIBLE /////

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

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

APPROVED:

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, D. K. FOUNTAIN

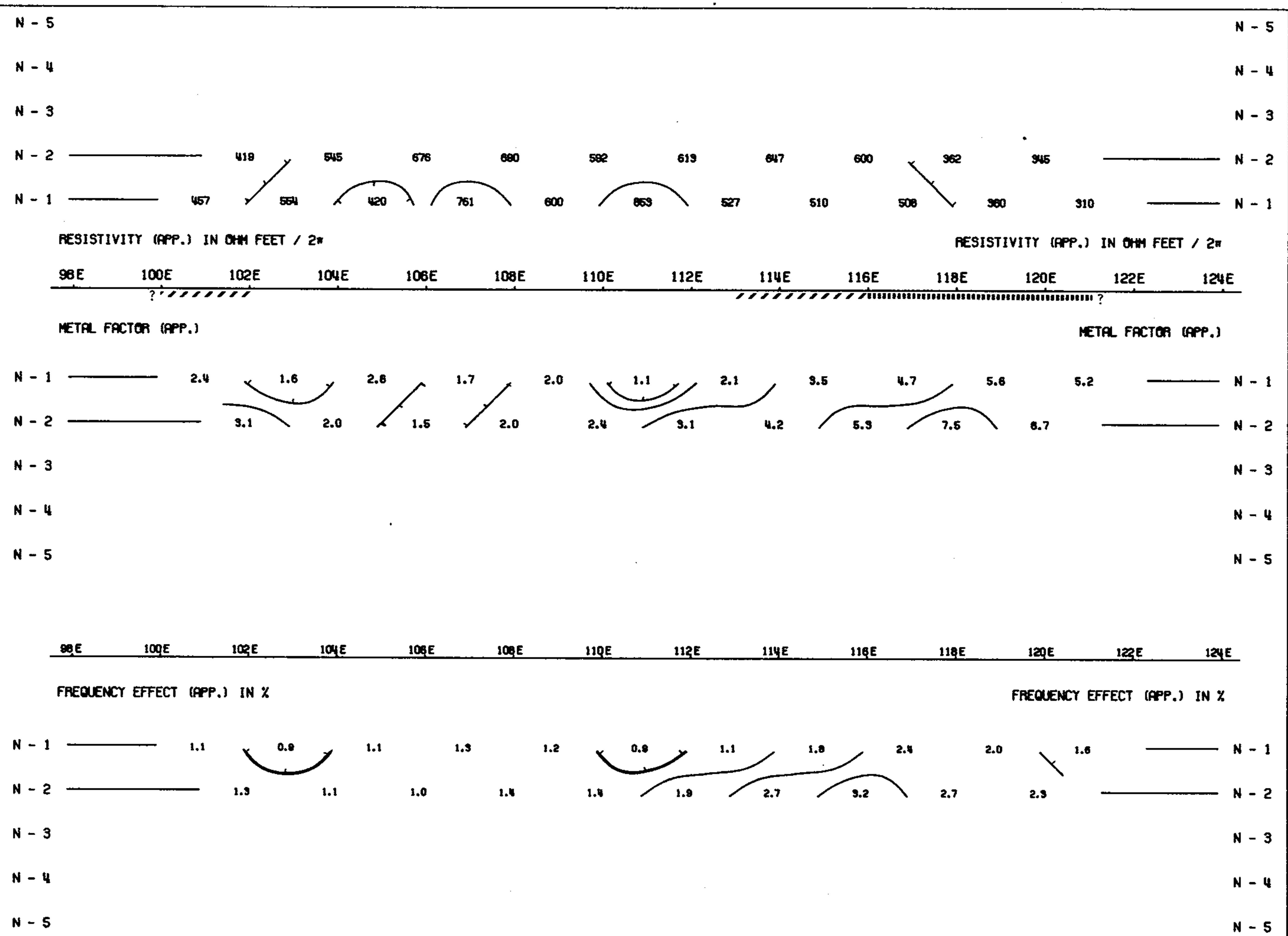
DATE:

Expiry Date: April 25, 1974

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



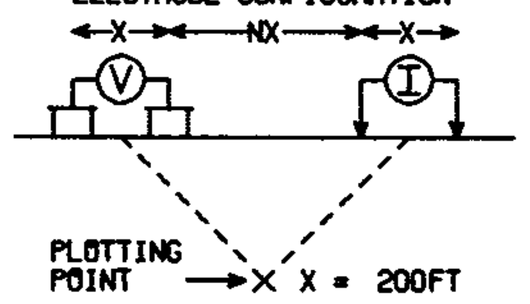
DWG. NO.- I.P.- 6118 - 12

NORANDA EXPLORATION CO., LTD. (N.P.L.)

MAMQUAM PROPERTY, SQUAMISH AREA, VANCOUVER M.D.
BRITISH COLUMBIA

LINE NO.- 12400N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: NOV 1973

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

APPROVED: D. K. Fountain

DATE: Dec 10 73

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

Expiry Date: April 25, 1974

4918

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION