3879

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3879 MAP

REPORT ON THE 93N/14E
INDUCED POLARIZATION
AND RESISTIVITY SURVEY
ON THE
BOX CLAIMS, DISCOVERY PROPERTY
GERMANSEN LANDING AREA
OMINECA MINING DIVISION, B.C.
FOR
NORANDA EXPLORATION COMPANY, LIMITED

BY

DAVID K. FOUNTAIN, P.Eng.

NAME AND LOCATION OF PROPERTY:
BOX CLAIMS, DISCOVERY PROPERTY,
GERMANSEN LANDING AREA
OMINECA MINING DIVISION. B.C. 55°50' N - 125°50'W - SE
DATE STARTED: AUGUST 5, 1972
DATE FINISHED: AUGUST 24, 1972

TABLE OF CONTENTS

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

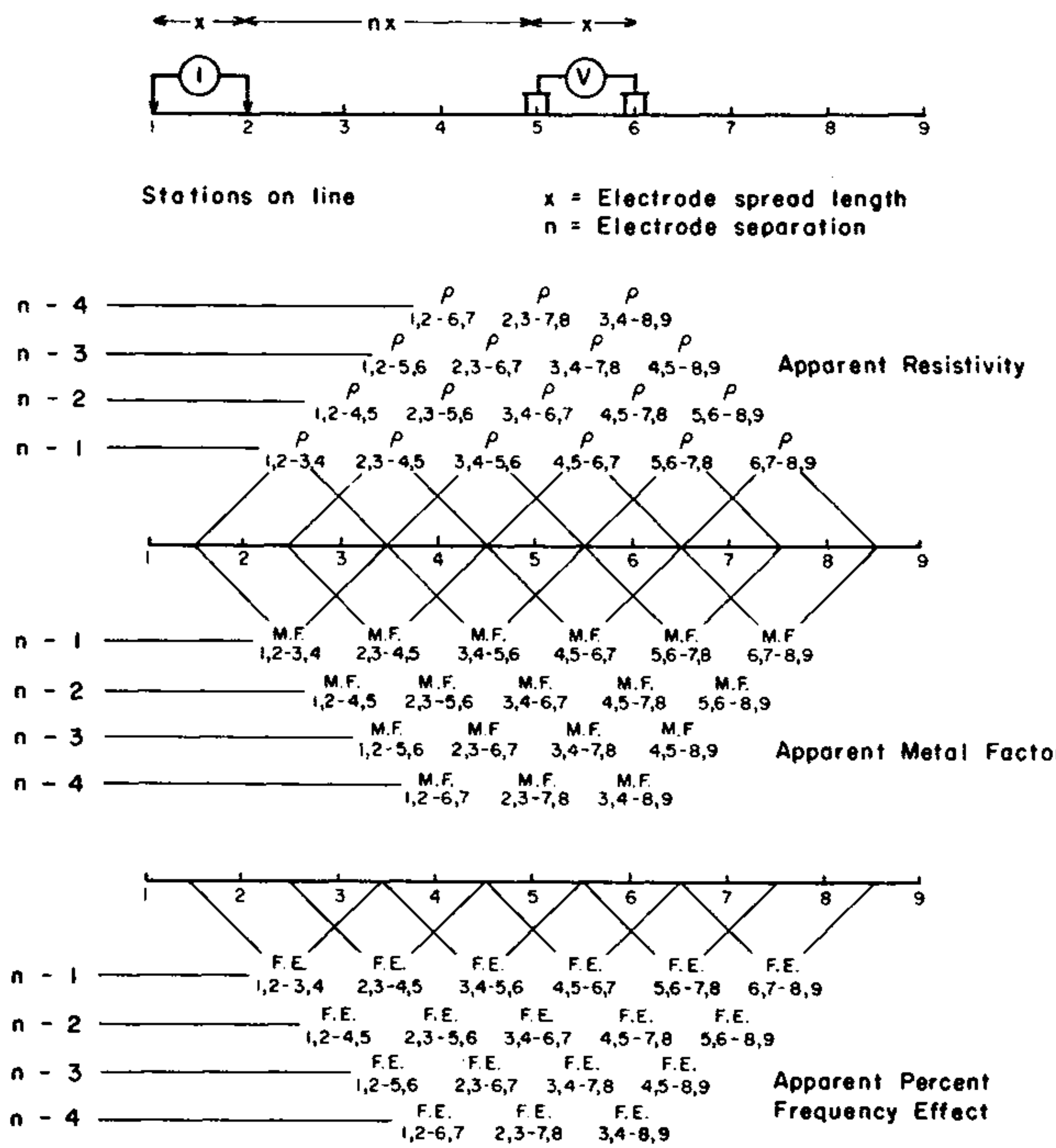

Fig. A

McPHAR GEOPHYSICS LIMITED

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE BOX CLAIMS, DISCOVERY PROPERTY GERMANSEN LANDING AREA OMINECA MINING DIVISION, B.C.

FOR

NORANDA EXPLORATION COMPANY, LIMITED

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1. INTRODUCTION

During August 1972, an Induced Polarization and Resistivity survey was carried out on the Box Claims, Discovery Property of Noranda Exploration Company, Limited in the Germansen Landing Area, Omineca Mining Division, British Columbia. The property is located approximately 21 miles west of Germansen Landing, B.C., on a tributary of Discovery Creek and at approximately 55°50' N latitude and 125°50' W longitude. Access to the property is by truck to mile 27 on the Germansen Landing - Aiken Lake road. Most of the claim group lies in a relatively flat and swampy valley bottom, which is the divide for a north-flowing tributary of Discovery Creek and an unnamed creek flowing southward into the Omineca River. Elevations on the property range from 3,400 feet to 4,000 feet above sea level.

The geophysical survey work discussed in this report was carried out on the following claims of the Discovery Property:

Claim	Record Number	Mining Division
Box #16	94104	Omineca
Box #17	94105	Omineca
Box #18	94106	Omineca
Box #19	94107	Omineca
Box #20	94108	Omineca
Box #29	94117	Omineca
Box #30	94118	Omineca
Box #31	94119	Omineca
Box #32	94120	Omineca
Box #33	94121	Omineca
Box #34	94122	Omineca
Box #43	111985	Omineca
Box #45	11987	Omineca
Box #7 Fr.	94137	Omineca
Box #8 Fr.	94138	Omineca
Box #13 Fr.	?	Omineca
Box #14 Fr.	?	Omineca
Box #19 Fr.	111989	Omineca

The claims are registered in the name of Noranda Exploration Company, Limited (No Personal Liability).

The Discovery property is mostly covered by unconsolidated glacial debris which is presumably underlain by Takla volcanic rocks. The surface is primarily muskeg and sandy ridges. No bedrock outcrops on the property, but granitic dikes cutting volcanic and sedimentary rocks are exposed to the east of the property.

Previous work has consisted of geochemical stream sediment sampling, a geochemical soil survey and limited geological prospecting.

The Induced Polarization survey was carried out in order to outline zones of metallic mineralisation of possible economic significance which may occur on the property. A McPhar variable frequency IP unit was employed utilizing the dipole-dipole electrode configuration and 400 foot dipoles. Two dipole separations (n = 1,2,) were recorded and the frequencies employed were 0.31 Hz and 5.0 Hz.

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.
22800N	400 feet	IP 5998-1
22000N	400 feet	IP 5998-2
21200N	400 feet	IP 5998-3
20800N	400 feet	IP 5998-4
20400N	400 feet	IP 5998-5
20000N	400 feet	IP 5998-6
19600N	400 feet	IP 5998-7
19200N	400 feet	IP 5998-8

Also enclosed with this report is Dwg. I.P.P. 3549, a plan map of the grid surveyed 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 400' electrode intervals the position of a narrow sulphide body can only be determined to lie between two stations 400' 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 location of survey lines relative to claim boundaries, the name and relative positions of the claims and the geologic data indicated on the maps and discussed in the report. are based upon information supplied by Noranda Exploration Company, Limited.

3. DISCUSSION OF RESULTS

Eight lines were surveyed with the Induced Polarization method on a reconnaissance basis reading only two dipole separations (n = 1,2). The northern two lines are at 800 foot intervals while the southern lines are at 400 foot intervals. The background IP response is relatively high especially in the eastern and southern portions of the grid. Information on the underlying geology in these areas would be very important, since some rock types such as basic volcanics and some sedimentary formations exhibit high background IP response, due to finely disseminated electronic conducting mineralization (graphite, magnetite, and pyrite) of little or no economic significance.

Line 22800N

Possible anomalies are indicated from 226E to 232E, centred between 240E and 244E and from 266E to at least 270E. The western anomaly suggests a stronger deeper source centred at depth between 228E and 232E. The narrow, shallow anomaly centred at about 242E correlates with a stream bed and a distinct resistivity low. The resistivity low may have exaggerated the apparent Metal Factor response.

Line 22000N

On the western portion of the line weak anomalies are indicated at about 226E, 234E and 248E. To the east of 260E there is an increase in background IP response apparently extending beyone the eastern extent of the effective survey coverage.

Line 21200N

Correlating with the response on Line 22000N there is a general increase in IP response and apparent resistivity to the east of 272E.

Line 20800N

Again on this line there is an increase in background IP response to the east of 268E. A separate anomaly is indicated centred at about 262E.

Line 20400N

IP anomalies are indicated centred at about 270E and 278E, within an area of higher background response.

Line 20000N

Within an area of high background IP response extending from 254E to at least 284E, a distinct anomaly is indicated centred between 272E and 276E. This anomaly is characterized by a distinct shallow resistivity low which may represent semi-massive mineralization.

Line 19600N

The results on this line correlate very well with those on Line 20000N. The distinct shallow anomaly is centred between 272E and 276E.

Line 19200N

Higher background IP response occurs on this line from about 254E to 260E and from about 270E to at least 282E.

4. SUMMARY AND CONCLUSIONS

The IP survey results indicate relatively high background IP response in the eastern and southern portions of the grid. In favourable geologic environments IP anomalies of this magnitude can represent the response from disseminated sulphides of economic significance as is the case in the Highland Valley and Brenda areas. However, some rock types such as basic volcanics and some sedimentary formations exhibit high background IP response due to finely disseminated electronic conducting mineralization (graphite, magnetite, and pyrite) of little or no economic significance.

Further information on the underlying geology would be necessary to properly evaluate the significance of the IP anomalies indicated by the survey. If the geological and/or geochemical data proves favourable, then detail IP surveying recording four dipole separations (n = 1, 2, 3, 4) would be warranted to better delimit the anomaly patterns. Based upon the results of this work, a programme of diamond drilling could be laid out.

McPHAR GEOPHYSICS LIMITED

David K. Fountain

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

David K. Fountain, P. Eng.
Geophysicist

Expiry Date: April 25, 1973

Dated: October 6, 1972

ASSESSMENT DETAILS

PROPERTY: Discovery	MINING DIVISION: Omineca
SPONSOR: Noranda Exploration Company, Limited	PROVINCE: British Columbia
LOCATION: Germansen Landing Area	
TYPE OF SURVEY: Induced Polarization	
OPERATING MAN DAYS: 20	DATE STARTED: August 5, 1972
EQUIVALENT 8 HR. MAN DAYS: 30	DATE FINISHED: August 24, 1972
CONSULTING MAN DAYS: 2	NUMBER OF STATIONS: 109
DRAUGHTING MAN DAYS: 5	NUMBER OF READINGS: 504
TOTAL MAN DAYS: 37	MILES OF LINE SURVEYED: 7.65

CONSULTANT:

David K. Fountain, 62 Patina Drive, Willowdale 428, Ontario.

FIELD TECHNICIANS:
R. Mertens, 304 Holmes Avenue, Willowdale, Ontario.
D. Coote, 2275 Ottawa Avenue, West Vancouver, B.C.
Plus Extra Labour: Supplied by Client

DRAUGHTSMEN:
B. Boden, 58 Glencrest Blvd. Toronto 16, Ontario.
V. Young, 703 Cortez Avenue, Bay Ridges, Ontario.
R. Peer, 38 Torrens Avenue, Toronto 6, Ontario.

McPHAR GEOPHYSICS LIMITED

David K. Fountain
Geophysicist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN
Expiry Date: April 25, 1973

Dated: October 6, 1972

STATEMENT OF COST

Box Claims, Discovery Property
Germansen Landing Area
Omineca Mining Division, B. C.
Noranda Exploration Company, Limited

Crew (2 men) - R. Mertens - D. Coote

5 days Operating	@ $240.00/day	$1,200.00
1 day Travel) 2 days Preparation) 5 days 2 days Bad Weather)	@ $100.00/day	500.00

Expenses - prorated 5/20

Air Fare	51.58	
Meals and Accommodation	24.18	
Freight and Brokerage	52.82	
Supplies	3.58	
Telephone and Telegraph	2.09	
	134.25	
+ 10%	13.42	
		147.67
		$1,847.67

McPHAR GEOPHYSICS LIMITED

David K. Fountain, P.Eng.
Geophysicist

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

Expiry Date: April 25, 1973

Dated: October 6, 1972

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 428, 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 eleven 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 6th day of October 1972.

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

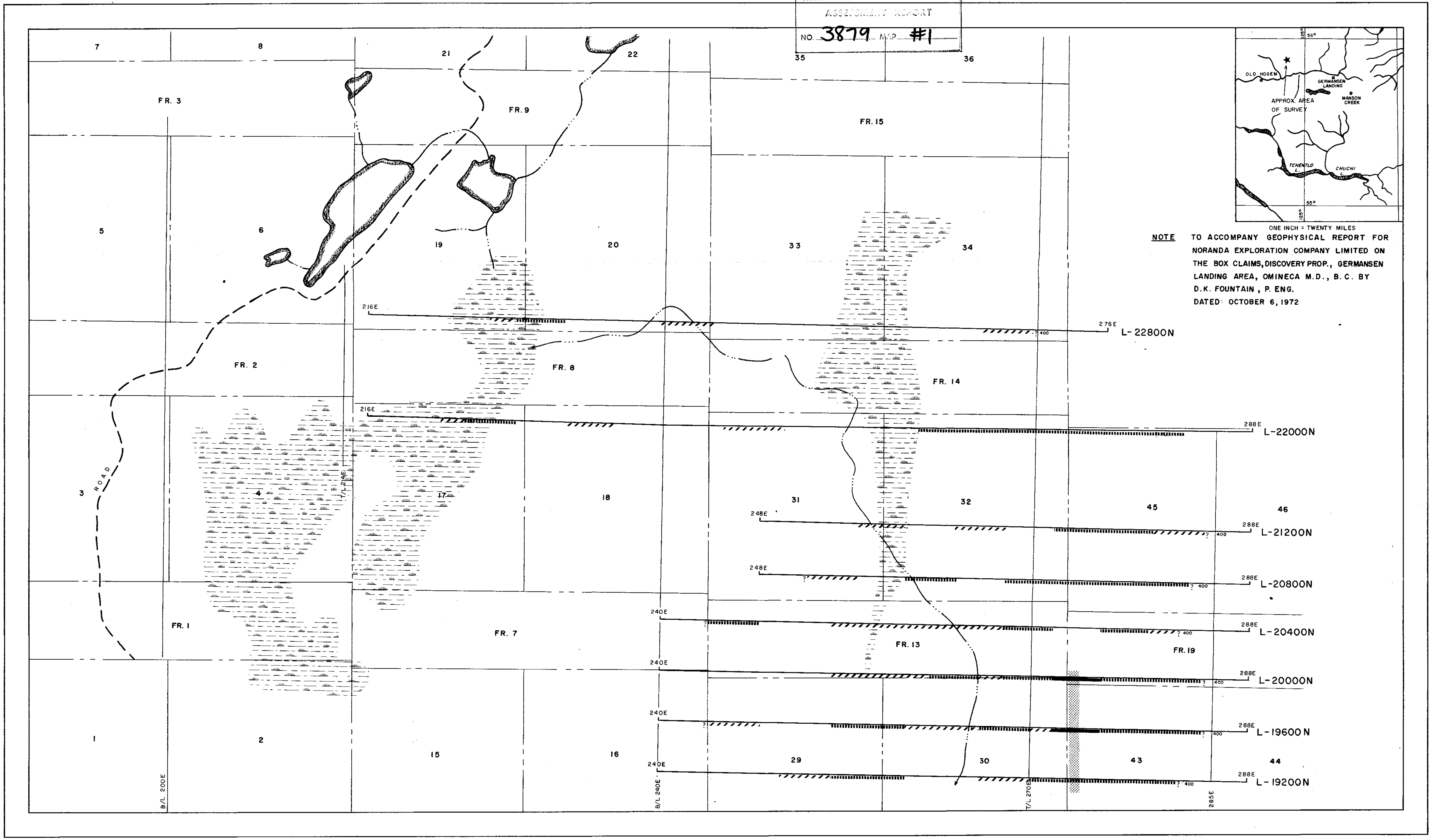
Expiry Date: April 25, 19

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

PLAN MAP

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3879 MAP #1



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

Number at the end of anomaly indicates spread used.

NORANDA EXPLORATION COMPANY LIMITED

BOX CLAIMS, DISCOVERY PROPERTY – GERMANSEN LANDING AREA,

OMINECA M.D. – B.C.

SCALE

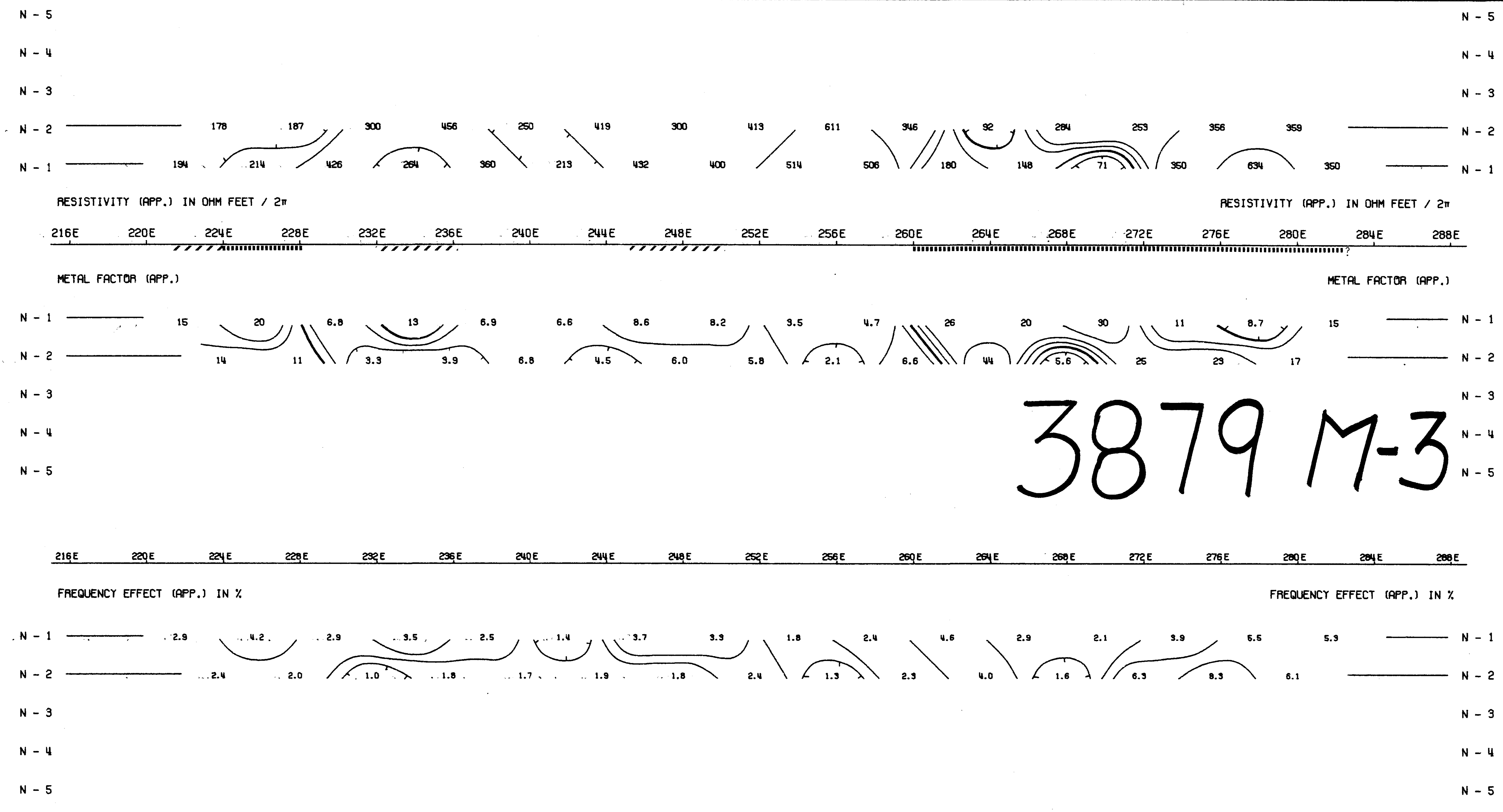
One inch = 400 feet

3879 M-1

IP ANOMALY TREND

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

DWG. IPP – 3549



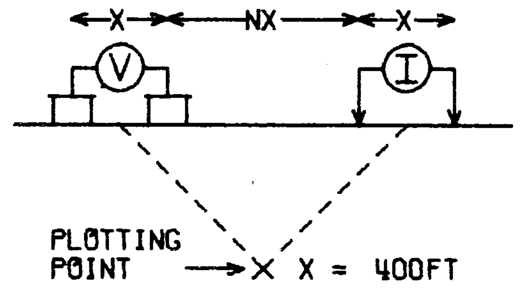
DWG. NO.- I.P.-5998-2

NORANDA EXPLORATION COMPANY LIMITED

DISCOVERY PROPERTY, BOX CLAIMS,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 22000N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1972

APPROVED:

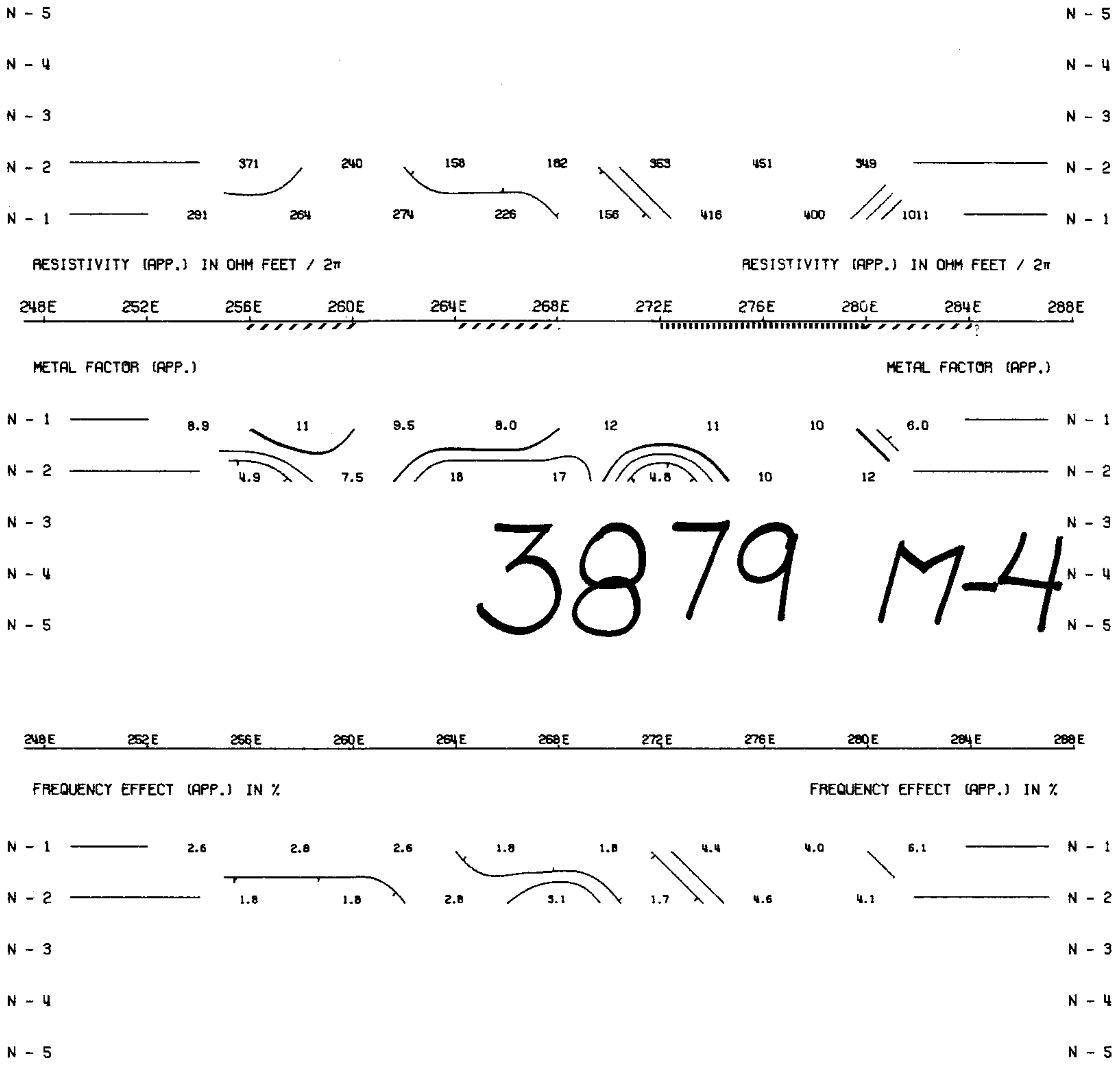
NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

DATE:

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



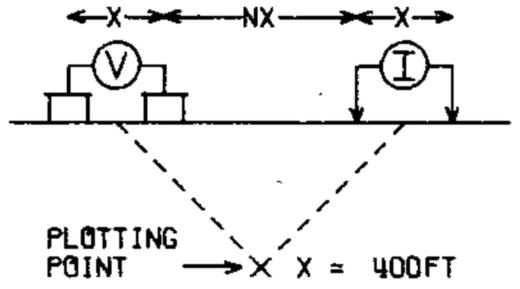
DWG. NO.- I.P.- 5998-3

NORANDA EXPLORATION COMPANY LIMITED

DISCOVERY PROPERTY, BOX CLAIMS,
GERMANSEN LANDING AREA; OMINECA M.D., B.C.

LINE NO.- 21200N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1972

APPROVED:

DATE:

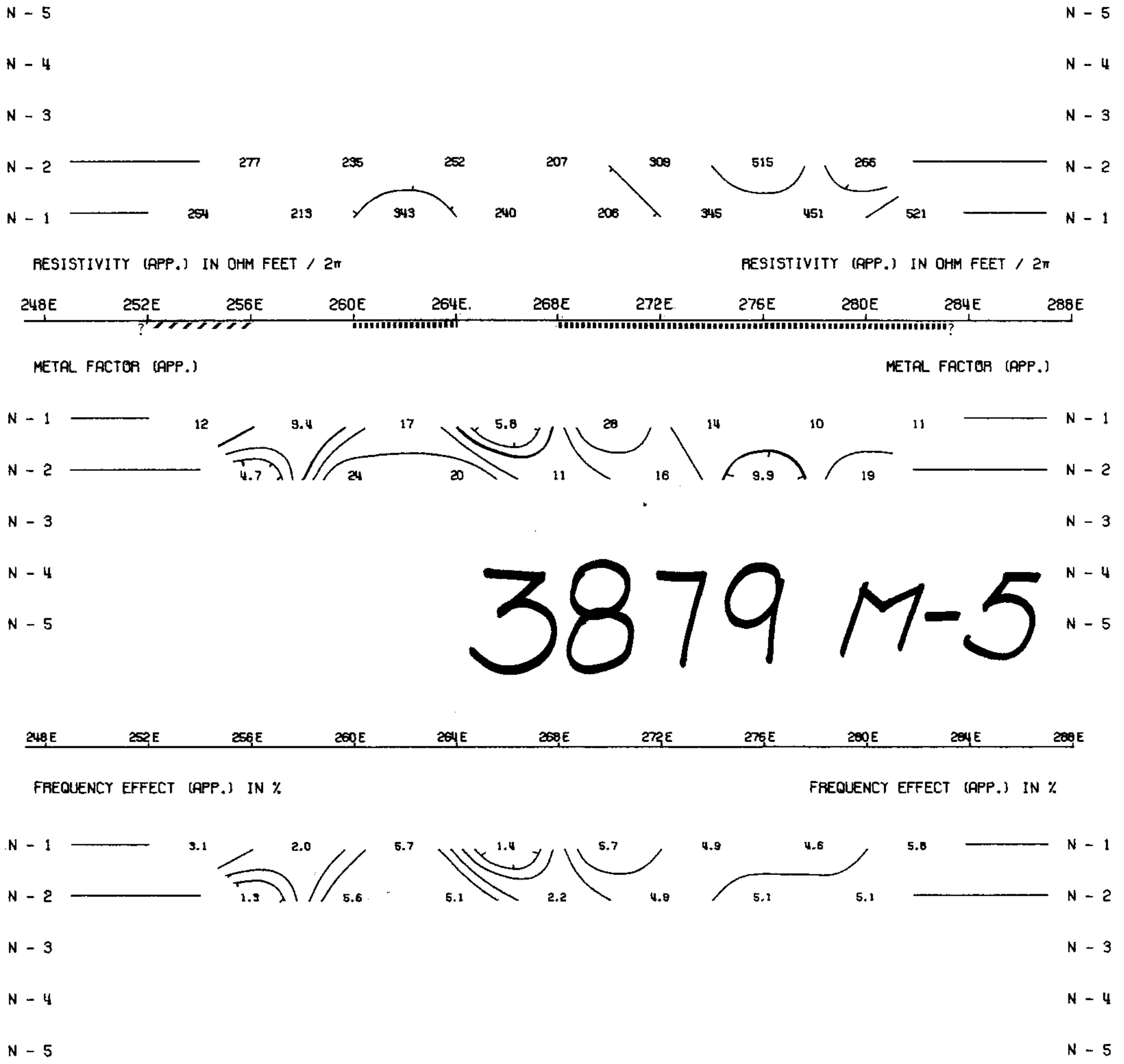
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION



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NORANDA EXPLORATION COMPANY LIMITED

DISCOVERY PROPERTY, BOX CLAIMS,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 20800N

ELECTRODE CONFIGURATION

←X→←NX→←X→

PLOTTING POINT → X X = 400FT

SURFACE PROJECTION OF ANOMALOUS ZONES

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

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1972

APPROVED: David K. Fountain

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

DATE: Oct 7/72

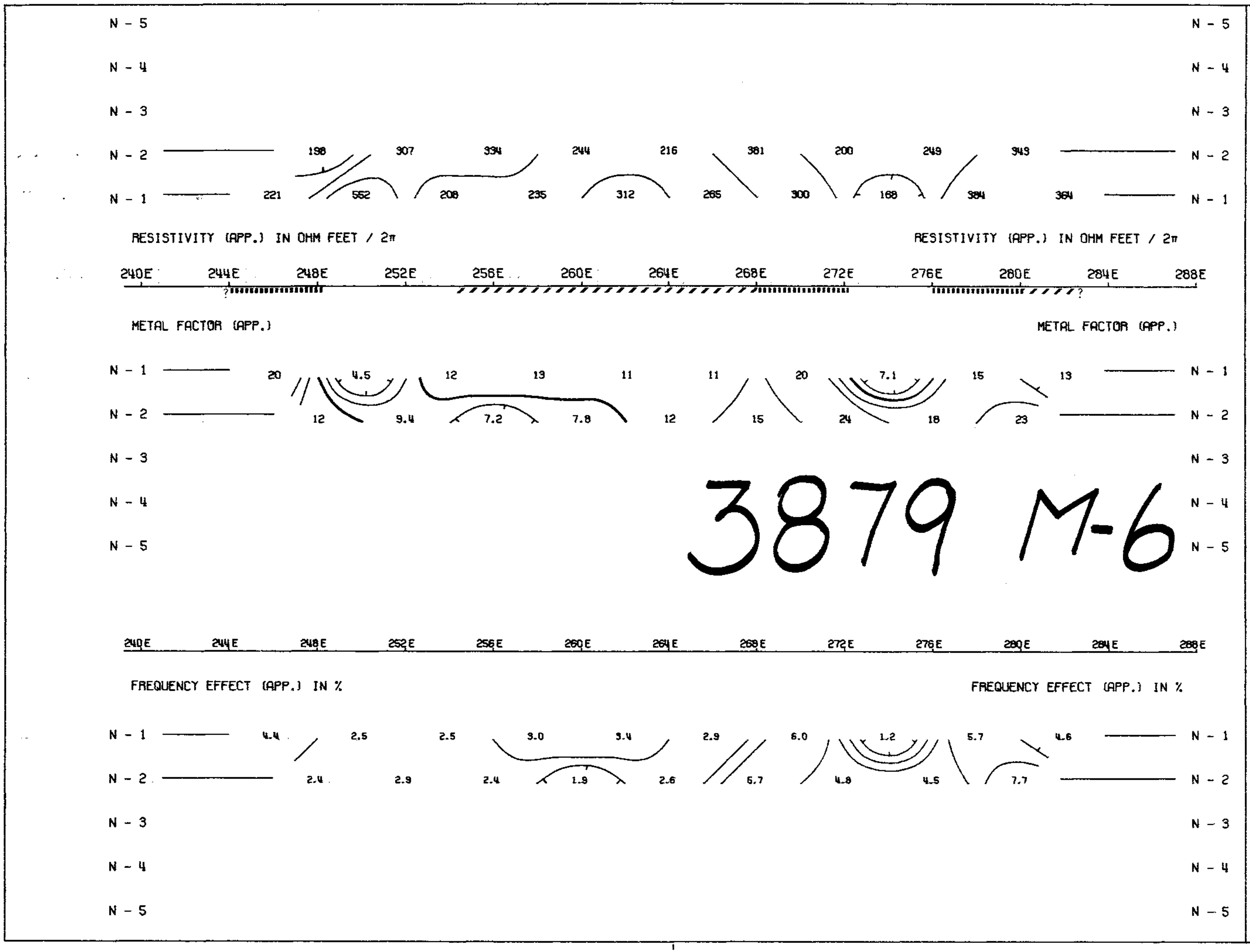
Expiry Date: April 25, 1973

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



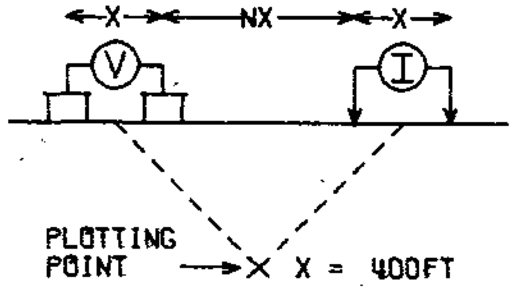
DWG. NO.- I.P.- 5998-5

NORANDA EXPLORATION COMPANY LIMITED

DISCOVERY PROPERTY, BOX CLAIMS,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 20400N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1972

APPROVED:

DATE:

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

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA

Expiry Date: April 25, 1973

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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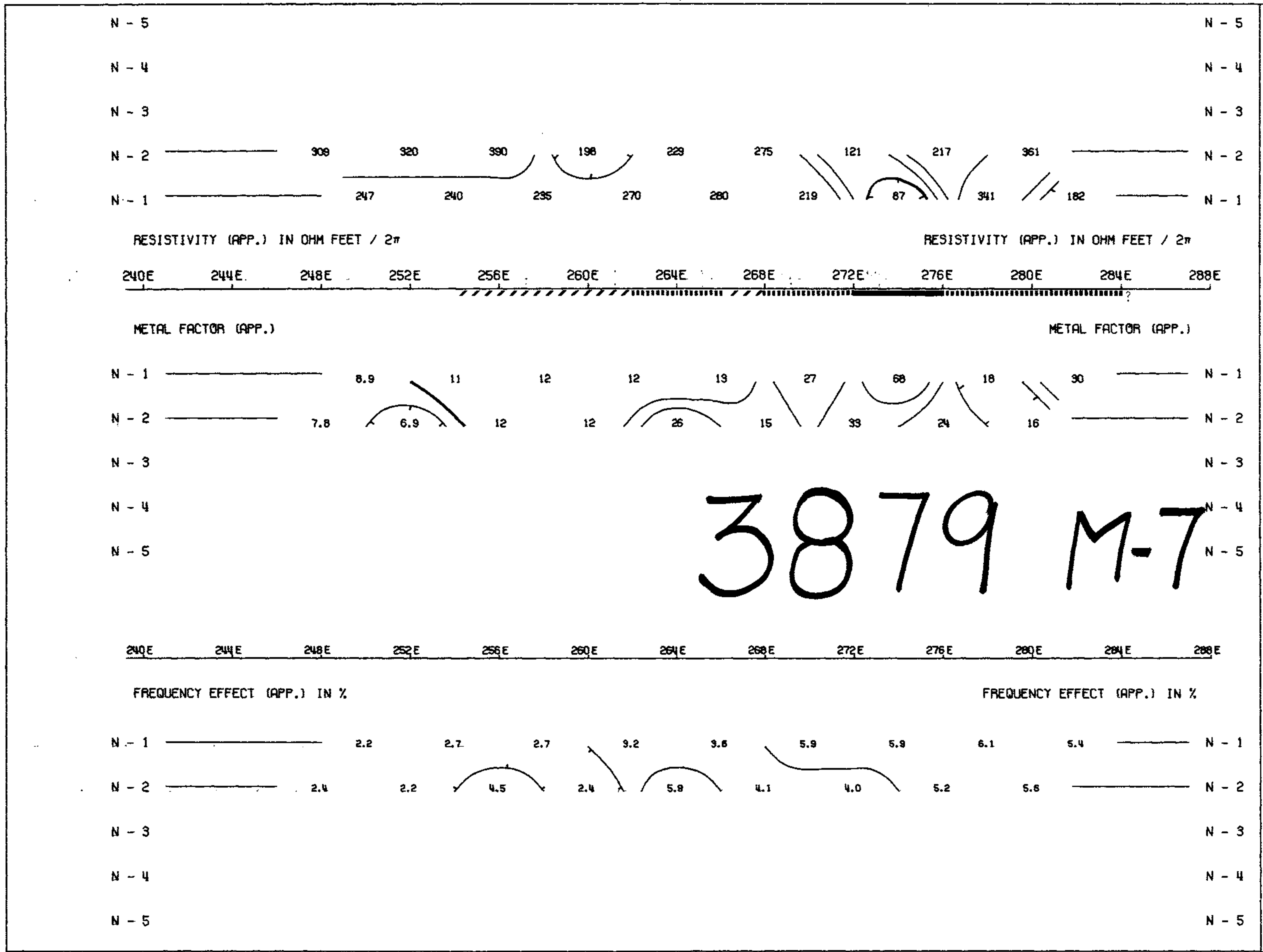


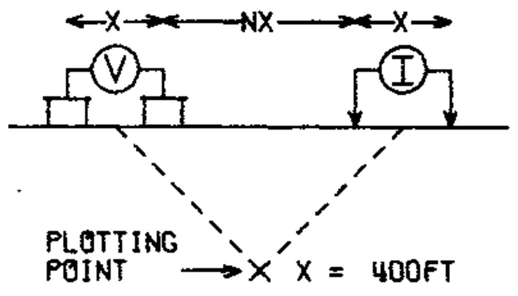
DWG. NO.- I.P.- 5998 - 6

NORANDA EXPLORATION COMPANY LIMITED

DISCOVERY PROPERTY, BOX CLAIMS,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 20000N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1972

APPROVED:

DATE

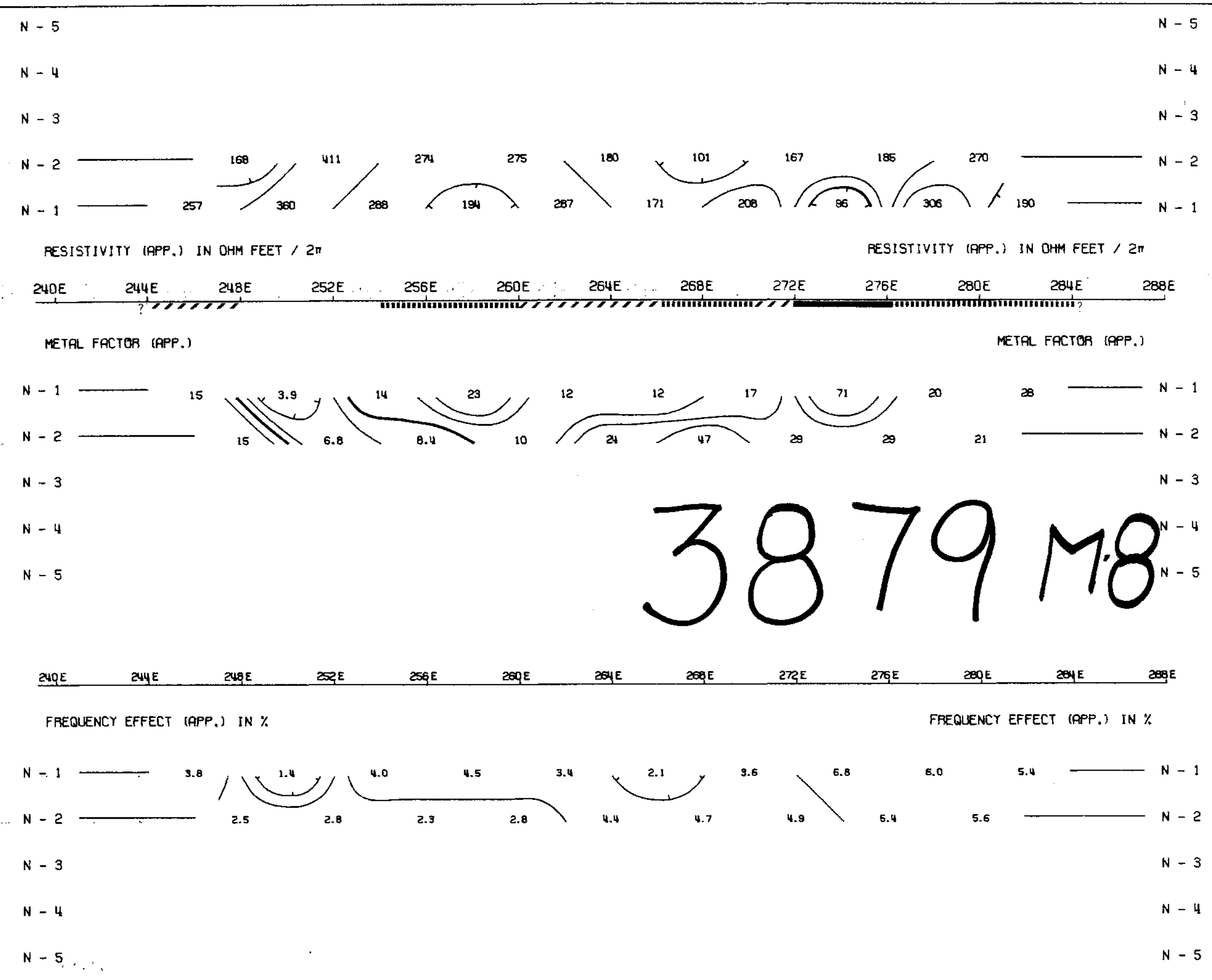
PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, D. K. FOUNTAIN

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



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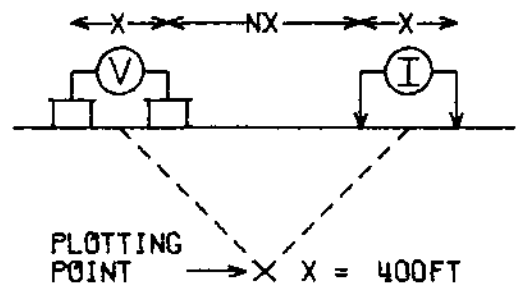
NORANDA EXPLORATION COMPANY LIMITED

DISCOVERY PROPERTY, BOX CLAIMS,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 19600N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1972

APPROVED:

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

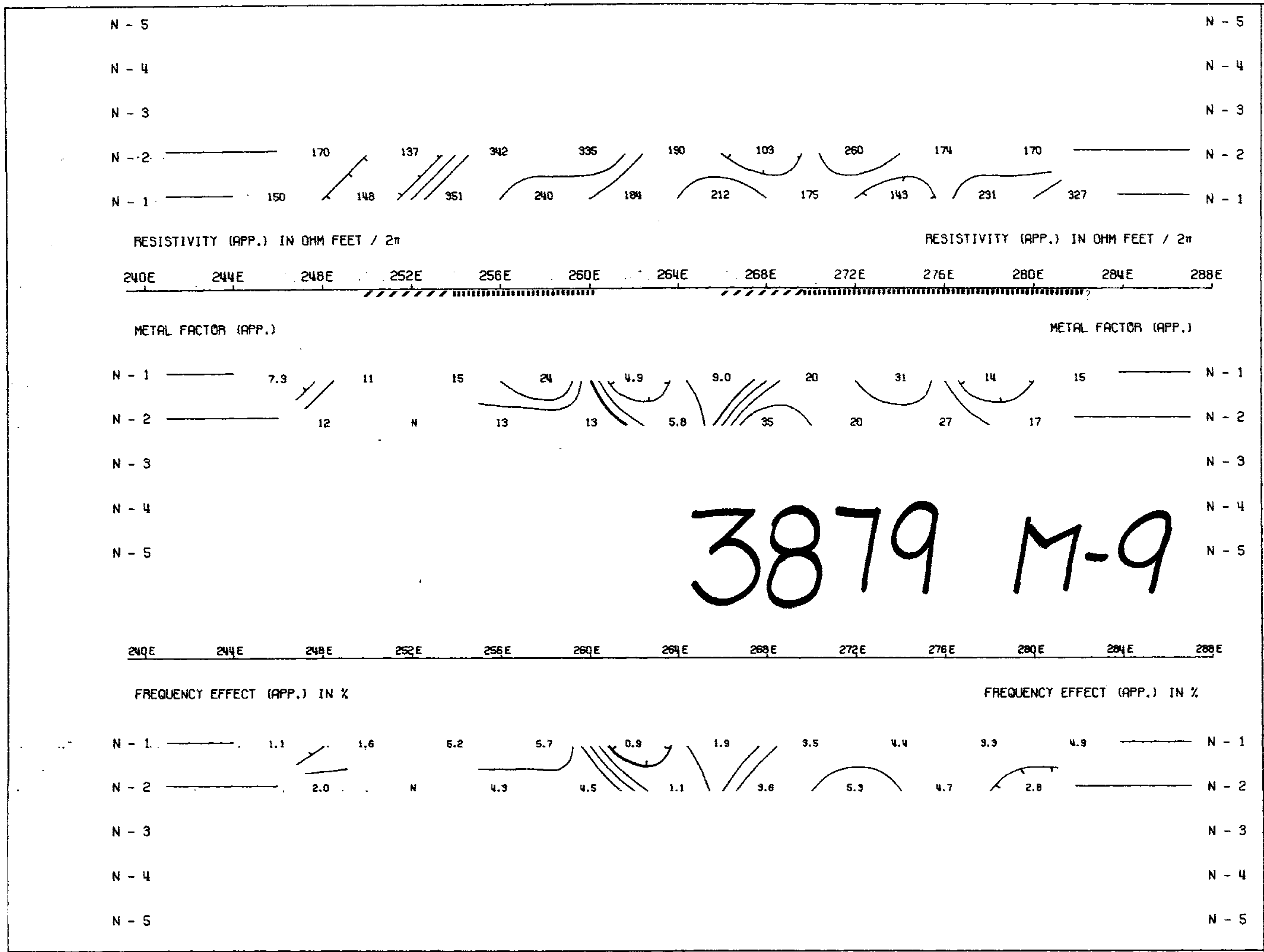
DATE:

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



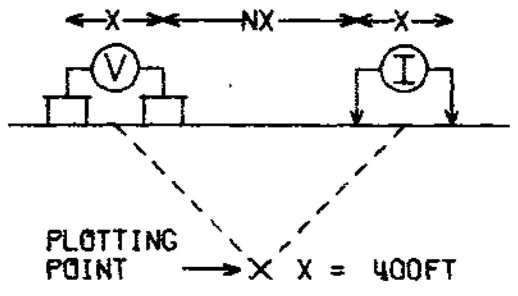
DWG. NO.- I.P.-5998-8

NORANDA EXPLORATION COMPANY LIMITED

DISCOVERY PROPERTY, BOX CLAIMS,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 19200N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1972

APPROVED

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

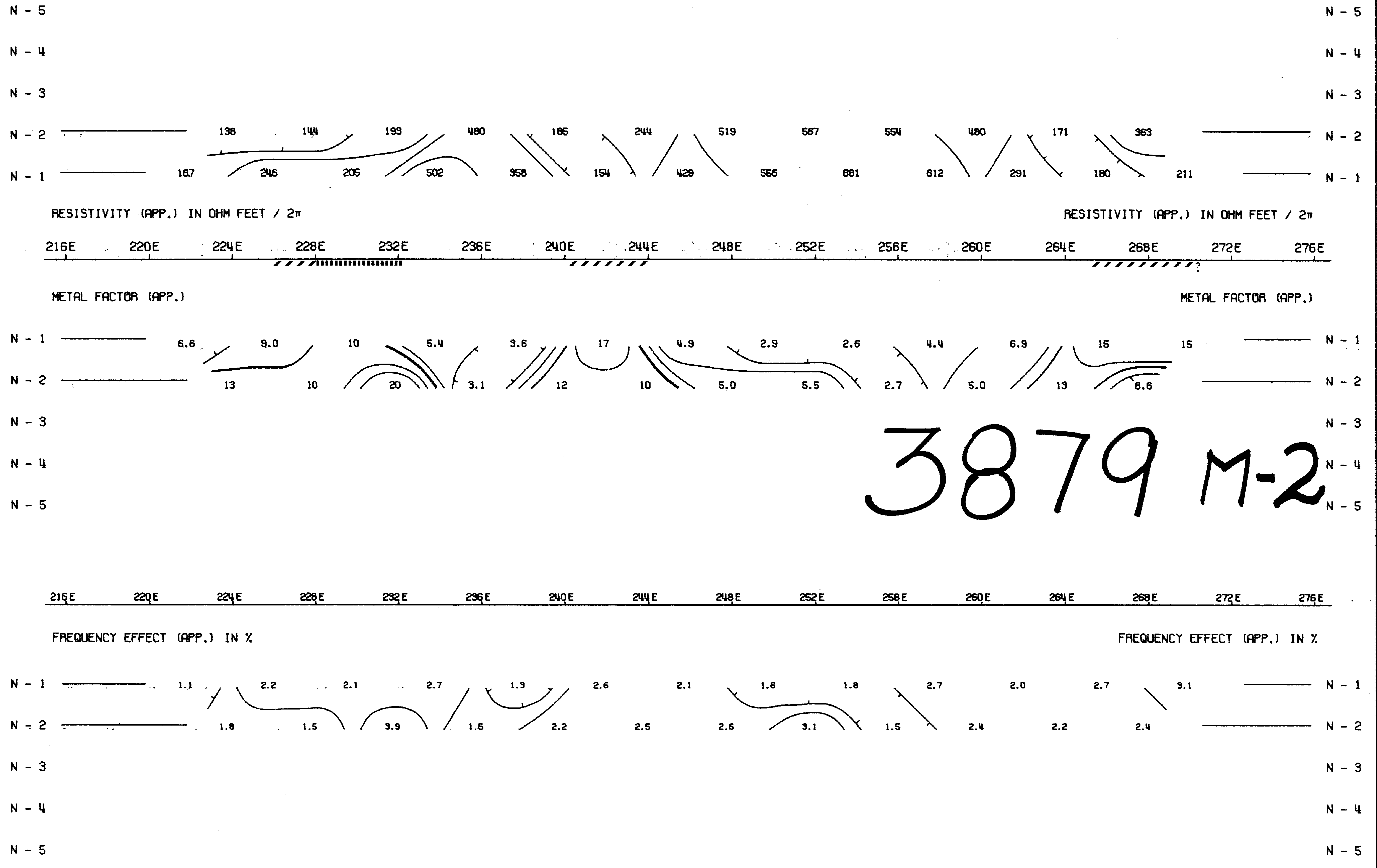
DATE:

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



DWG. NO.- I.P.-5998-1

NORANDA EXPLORATION COMPANY LIMITED

DISCOVERY PROPERTY, BOX CLAIMS,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 22800N

ELECTRODE CONFIGURATION

PLOTTING POINT → X = 400FT

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1972

APPROVED:

DATE:

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

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION