4289

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE LOLJUH PROPERTY SMITHERS AREA OMINECA MINING DIVISION, B.C. FOR NORANDA EXPLORATION CO., LTD. (N.P.L.)

93L/6E

BY

PETER K. SMITH, B.Sc.

AND

DAVID K. FOUNTAIN, P. ENG.

NAME AND LOCATION OF PROPERTY

ROCK CLAIMS, LOLJUH PROPERTY

SMITHERS AREA

OMINECA MINING DIVISION, B. C. 54° 20'N, 127° 15'W

DATE STARTED: OCTOBER 10, 1972

DATE FINISHED: OCTOBER 16, 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.

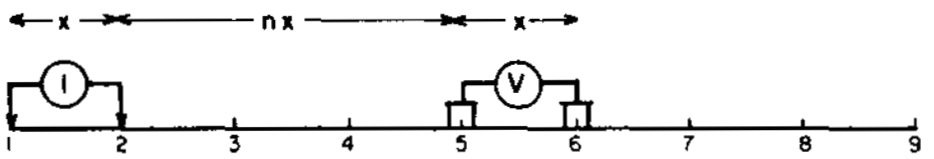
In some situations spurious noise, either man made or natural, will render it impossible to obtain a reading. The symbol "N" on the data plots indicates a station at which it is too noisey to record a reading. If a reading can be obtained, but for reasons of noise there is some doubt as to its accuracy,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

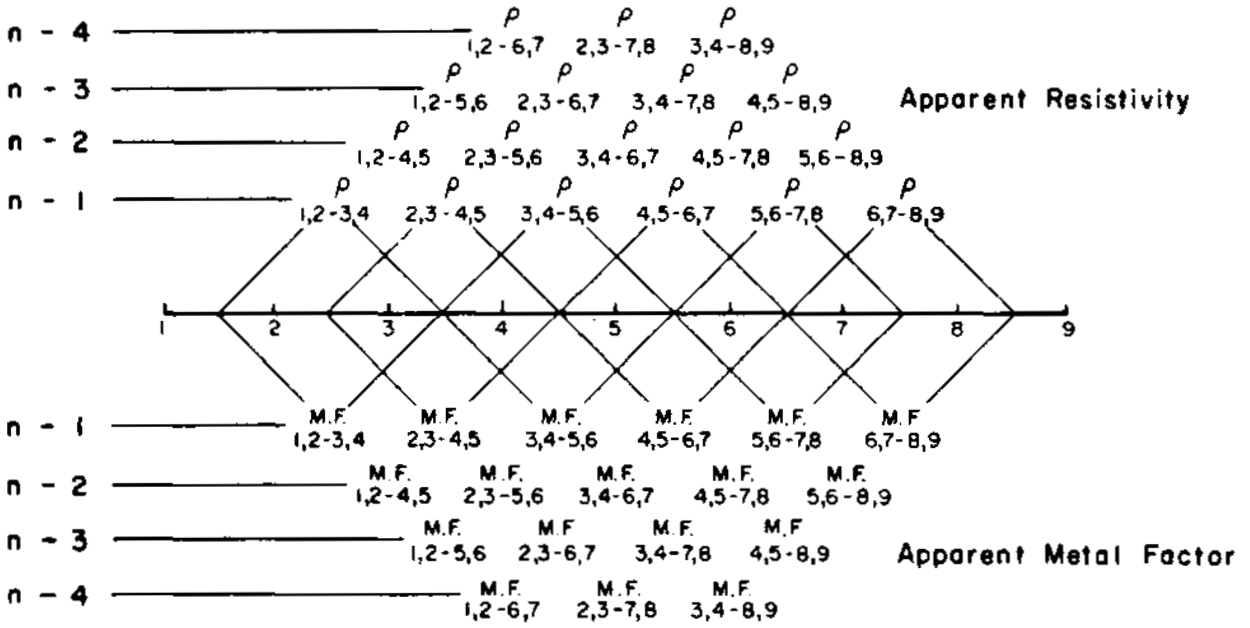
The symbol "NR" indicates that for some reason the operator did not attempt to record a reading although normal survey procedures would suggest that one was required. This may be due to inaccessible topography or other similar reasons. Any symbol other than those discussed above is unique to a particular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

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



Stations on line

x = Electrode spread length
n = Electrode separation



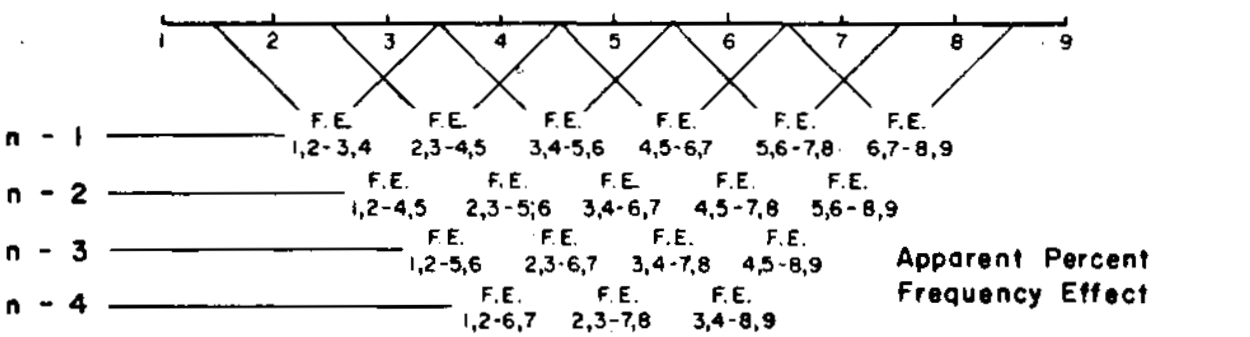


Fig. A

McPHAR GEOPHYSICS LIMITED

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE LOLJUH PROPERTY SMITHERS AREA OMINECA MINING DIVISION, B.C. FOR NORANDA EXPLORATION COMPANY LIMITED (N.P.L.)

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1. INTRODUCTION

During October 1972, an Induced Polarization and Resistivity survey was carried out on the Loljuh Property of Noranda Exploration Company Limited, in the Smithers area, Omineca Mining Division, British Columbia. The property is located approximately 28 miles south of Smithers near the head waters of Loljuh Creek at 54°25' north latitude and 127°10' west longitude.

Access to the property is by helicopter from Smithers, B.C.

Exploration work has been carried out intermittently on the property since 1967. This work includes line cutting, a soil-geochemical survey, magnetometer surveying, EM surveying and completion of seven diamond drill holes. During the 1971 and 1972 field season, geological and rock geochemical surveys were conducted. Control for this work was provided by an earlier established chain and compass grid, topographic mapping by Lockwood Survey Corporation from B. C. Government air photographs, and the air photographs themselves.

The main claim area is located on a bench-like structure at an elevation of 4,000' and is bounded to the south-east by the valley of Loljuh Creek and to the north by a peak of 5,600'. The area is well forested, but there are many swamps, and drainage is poor. Depth of overburden near the drill-sites averages eleven feet but may increase to the south-east. Rock exposure is mainly confined to alpine ridges.

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

Claim	Record Date	Record Number	Owner
Rock #107-114 (inclusive)	June 29, 1972	50414-50421	Noranda Mines Ltd.
Rock #134-#135	August 1, 1972	51999-52000	Noranda Mines Ltd.
Rock #1Fr	July 18, 1972	-----	Noranda Exploration Company, Limited

The claim group is underlain by andesitic and dacitic tuffs, flows and greywackes of Middle Lower Jurassic age belonging to the Hazelton Group. These rocks have been intruded within the claim group by a monzonite stock of possible Upper Cretaceous or Early Tertiary age, and by small bodies of quartz diorite and feldspar porphyry. Associated with the intrusions is a magnetite halo occurring in the volcanic rocks bordering the igneous contact, and a discontinuous zone of pyritization in the rocks on both sides of the contact. Copper mineralization is associated with the pyrite, but occurs also, though to a lesser extent, in the intrusive rocks.

The location of the mapped geologic units, described above, relative to the IP grid has not been indicated in the data supplied by the client.

The Induced Polarization and Resistivity survey was conducted in an attempt to outline the extent of the sulphide mineralization on the grid. A McPhar variable frequency IP unit operating at 0.3Hz and 5.0Hz was employed for the survey. The dipole-dipole electrode array was used, with 400' dipoles, and readings were taken at two dipole separations, (n = 1 and 2).

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.
10800N	400'	IP 6046-1
10000N	400'	IP 6046-2
9600N	400'	IP 6046-3
9200N	400'	IP 6046-4
8800N	400'	IP 6046-5
8400N	400'	IP 6046-6
7600N	400'	IP 6046-7

Also enclosed with this report is Dwg. I.P.P. 3569, a plan map of the Loljuh Property 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 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 claim boundary information shown on Dwg. I.P.P. 3569 has been taken from maps made available by the staff of Noranda Exploration Company, Limited.

3. DISCUSSION OF RESULTS

Seven lines were surveyed with the Induced Polarization method on a reconnaissance basis reading only two dipole separations (n = 1 and 2). The recorded IP response on the Loljuh property, especially in the central and north west, as well as the southeast corner of the grid, is relatively strong. Detailed information on the mapped location of the intrusive stock and surrounding pyrite and magnetite zones of mineralization would be needed to interpret the results of this survey properly. It is probable that the strongest IP anomalies represent the pyritic halo mentioned previously. Since copper mineralization is reported associated with the pyrite in the volcanics as well as with the intrusive rock, both moderate and strong IP responses may be significant.

Line 10800N

Two distinct anomalous zones were outlined at the eastern and western ends of the surveyed portion of Line 10800N. Both IP zones exhibit near-surface source characteristics, relative to the electrode interval.

Line 10000N

The above anomalous zones were also outlined on Line 10000N. The zones are broader in this region.

Line 9600N

The entire surveyed portion of Line 9600N is considered anomalous. Strongest responses were recorded between 88E and 104E and east of 116E to the end of the line. The high IP responses, on either side of the weaker anomaly between 104E and 116E may represent the pyritic halo reported surrounding the monzonite intrusive.

Line 9200N

Most of the surveyed portion of Line 9200N is anomalous. The results suggest wide spread sulphide mineralization in this area.

Line 8800N

Comments similar to those made on the previous line would apply.

Line 8400N

Two zones of stronger anomalous IP response have been outlined between 92E and 96E and between 100E and 108E on Line 8400N. Anomalous response extends from 84E to at least 112E.

Line 7600N

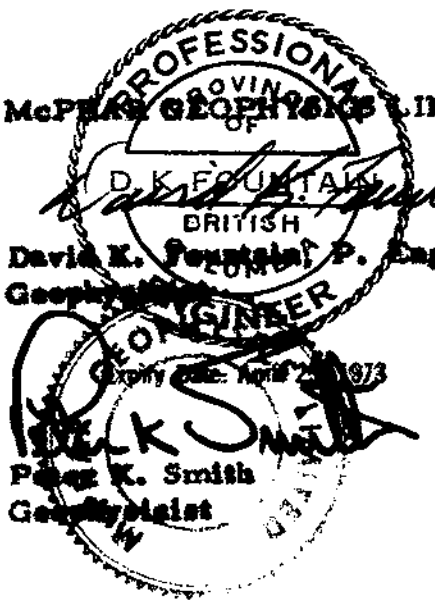
A weaker, but distinct, zone of anomalous response was outlined east of station 100E.

Although detailed information on the location of mapped geologic units is not available, the results from the Induced Polarization survey suggest that the pyritic halo is associated with high IP responses in the central and south east portion of the grid.

4. SUMMARY AND CONCLUSIONS

Two zones of strong IP response were outlined on the Loljuh Property. These zones may correlate with a zone of pyrite mineralization surrounding the monzonite intrusive and may indicate the extent of this sulphide mineralization; however, detailed geologic information was not made available by the client.

The results should be reviewed, in light of the known geology, including diamond drill hole results and other geophysical data. Recommendations for further diamond drilling could then be made.



McPHAR GEOPHYSICS LIMITED

David K. Fountain, P. Eng.
Geophysicist

Peter K. Smith
Geophysicist

Dated: January 10, 1973.

ASSESSMENT DETAILS

PROPERTY: Loljuh Property

MINING DIVISION: Omineca

SPONSOR: Noranda Exploration, Company, Limited

PROVINCE: British Columbia

LOCATION: Smithers Area

TYPE OF SURVEY: Electromagnetic
Induced Polarization

OPERATING MAN DAYS:	14	DATE STARTED:	October 10, 1972
EQUIVALENT 8 HR. MAN DAYS:	21	DATE FINISHED:	October 16, 1972
CONSULTING MAN DAYS:	2	NUMBER OF STATIONS:	84
DRAUGHTING MAN DAYS:	5	NUMBER OF READINGS:	348
TOTAL MAN DAYS:	28	MILES OF LINE SURVEYED:	5.8

CONSULTANTS:

David K. Fountain, 62 Patina Drive, Willowdale 428, Ontario.
Peter K. Smith, 650 Parliament Street, Apt. 2212, Toronto, Ontario.

FIELD TECHNICIANS:

R. Mertens, 304 Holmes Avenue, Willowdale, Ontario.
J. Wowchuck, 4238 Winifred Street, Burnaby, B.C.
Plus 2 helpers:
J. Remillard, 288 Gildford St., St. James, Assinaboya, Winnipeg, Manitoba.
Randy Big, 174 W. Seymour St., Kamloops, B.C.
R. Peskieuits, c/o Ron Birk, 252 Cherry St., Kamloops, B.C.

DRAUGHTSMEN:

G. Hines, 114 Hillsview Drive, Richmond Hill, Ontario.
B. Boden, 58 Glenerst Blvd., Toronto 16, Ontario.
K. Koenig, 502 Cosburn Avenue, Toronto 6, Ontario.

McPHAR GEOPHYSICS LIMITED

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

David K. Fountain, P.E. Eng.
Geophysicist

Dated: January 10, 1973.

Expiry Date: April 25, 1973

STATEMENT OF COST

Loijuh Property
Smithers Area

Crew:- R. Mertens - J. Wowchuck

3 1/2 days Operating		@ $240.00/day	840.00
1 day Travel	)		
2 days Preparation	) 3 days	@ $100.00/day	300.00

Expenses - (prorated on elapsed days @ 6 1/2/58)

Air fare	21.62	
Excess baggage	4.84	
Taxi	1.45	
Vehicle expense	.76	
Meals and accommodation	29.71	
Freight and Brokerage	46.60	
Supplies	2.79	
Telephone & Telegraph	5.39	
	113.16	
Plus 10%	11.32	124.48

Extra labour - (prorated as above)

	235.34	
Plus 20%	47.06	282.40
		1,546.88

McPHAR GEOPHYSICS LIMITED

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

David K. Fountain, P. Eng.
Geophysicist

Expiry Date: April 25, 1973

Dated: January 10, 1973

CERTIFICATE

I, David K. 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 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 10th day of January, 1973.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

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

Expiry Date: April 25, 1973

CERTIFICATE

I, Peter K. Smith, of the City of Toronto, in the Province of Ontario, hereby certify:

1. That I am a geologist/geophysicist with a business address at 139 Bond Avenue, Don Mills, Ontario.

2. I am a graduate of the University of British Columbia with a B.Sc. Degree in Honours Geology and Geophysics (1970).

3. I am a member of the Society of Exploration Geophysicists.

4. I have been practising my profession for 2 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 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 10th day of January, 1973.

Peter K. Smith, B. Sc.

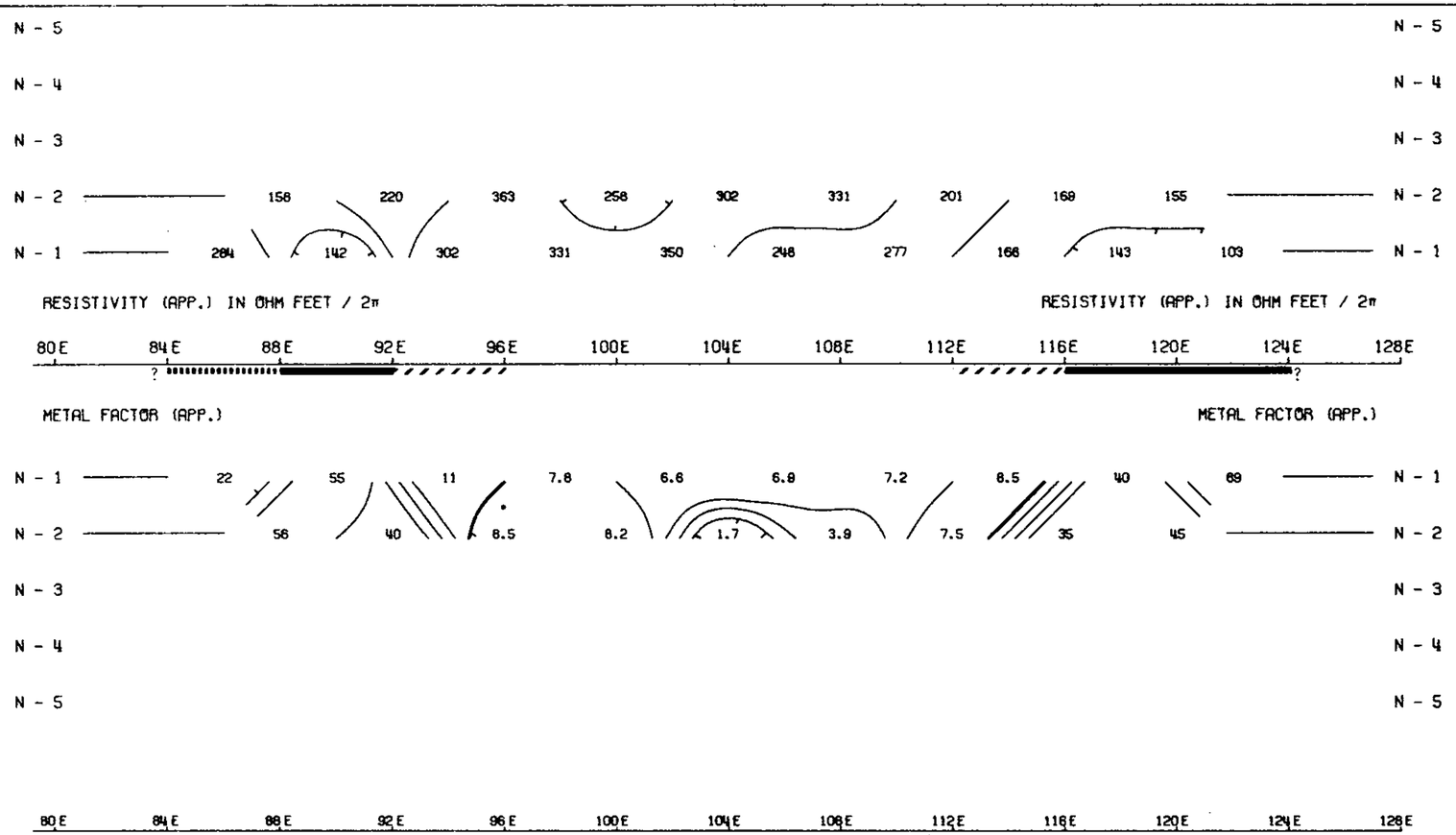
4289

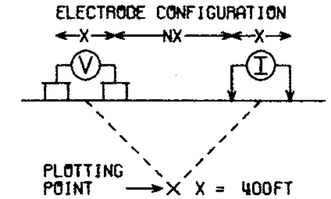
DWG. NO.- I.P.-6046-1

NORANDA EXPLORATION COMPANY LIMITED.

LOLJUH PROPERTY, SMITHERS AREA,
OMINECA M.D., B.C.

LINE NO.- 10800N





SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ▬▬▬

PROBABLE ▪▪▪▪▪▪▪▪▪▪▪▪

POSSIBLE ////////

FREQUENCIES: 0.31-5.0 HZ

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

DATE SURVEYED: OCT 1972

APPROVED: David K. Fountain

DATE: Jan 11/73

PROFESSIONAL ENGINEER BRITISH COLUMBIA

Expiry Date: April 30, 1973

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

TO WIT:

In the Matter of a statement of exploration expenses on 11 contiguous mineral claims in the Omineca Mining Division, having record numbers 50414 to 50421; 51999; 52000; 112278 ROCK Claims

I, John E. Harrison, (FM.C. 109121 issued April 28th, 1972) of P.O. Box 2169, Smithers, B. C. agent for Noranda Mines Limited (F.M.C 109101 issued April 28th, 1972) and Noranda Exploration Company, Limited (No Personal Liability) (F.M.C. 109102 issued April 28th, 1972) of 1050 Davie Street, Vancouver 5, B. C.

of

in the Province of British Columbia, do solemnly declare that the costs of line preparation and an induced polarization survey were:

1. Line Preparation

- contract (P. Bland & F. Bland)	$ 965.00	
- field costs October 5 - October 16, 1972 - 24 man days @ $10.00/man day	240.00	1,205.00

2. Induced Polarization Survey

- McPhar statement	1,546.88	
- field costs October 11 - October 16, 1972 - 24 man days @ $10.00/ man day	240.00	1,786.88

3. Transportation

- Okanagan Helicopters (Bell 206 B) - October 5 & October 11, 1972	645.00	
- Alpine Helicopters (S-55T) - October 16, 1972	754.00	1,399.00

4. Supervision

- G. E. Dirom 2 days @ $75.00/day	150.00
	$4,540.88

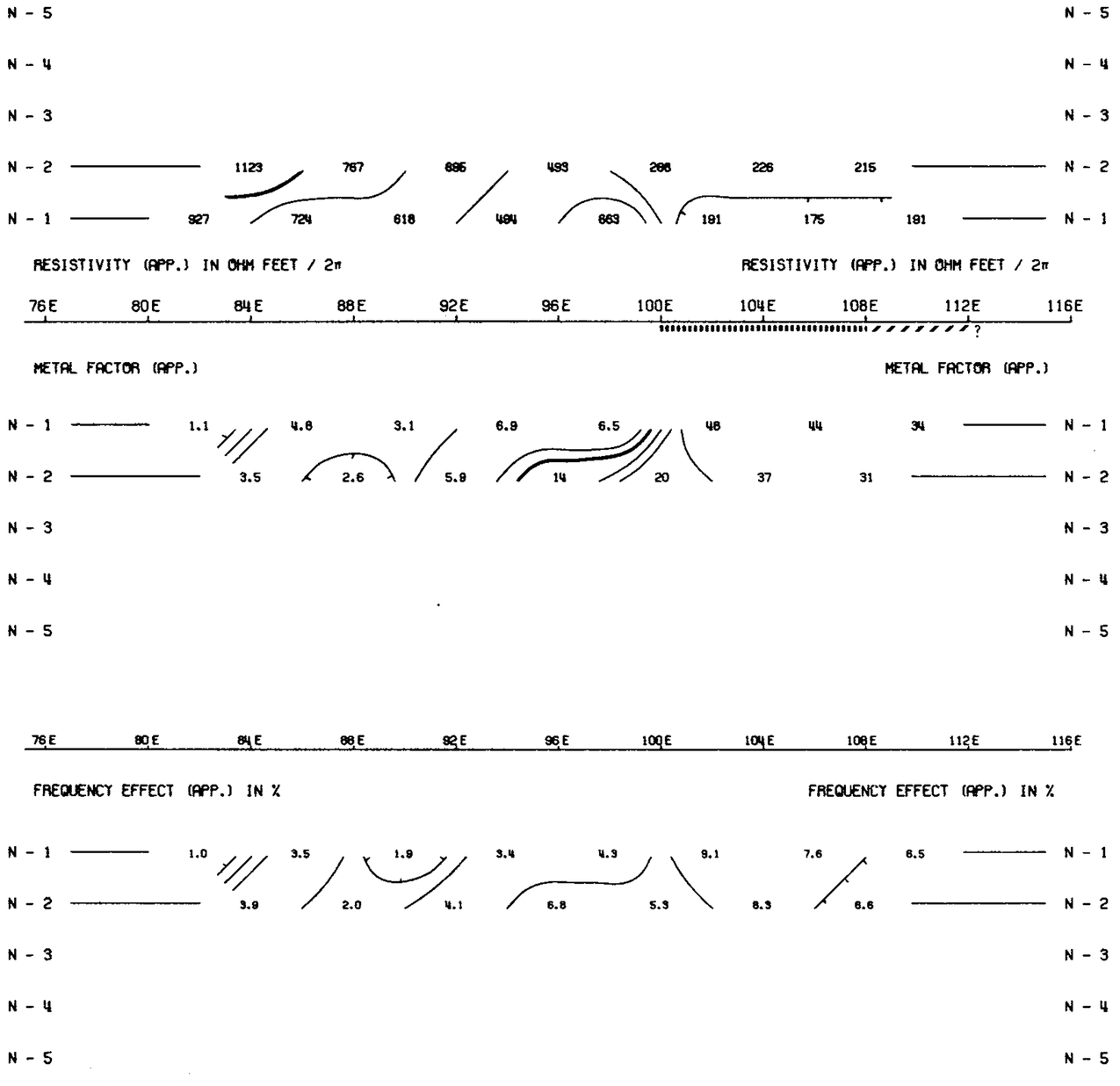
Of this amount $2,200.00 is claimed for assessment credit.

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the Town of Smithers, in the Province of British Columbia, this 24th day of May, 1973, A.D.

John Harrison

A Commissioner for taking Affidavits for British Columbia or
A Notary Public in and for the Province of British Columbia.



4289 DWG. NO.- I.P.-6046-7

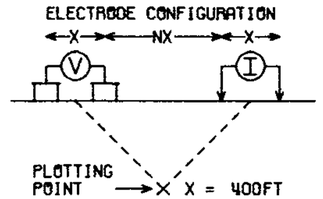
NORANDA EXPLORATION COMPANY LIMITED.

LOLJUH PROPERTY, SMITHERS AREA.

OMINECA M.D., B.C.

LINE NO.- 7600N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————

PROBABLE ....

POSSIBLE //////

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: OCT 1972

APPROVED:

DATE: 10/1/73

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

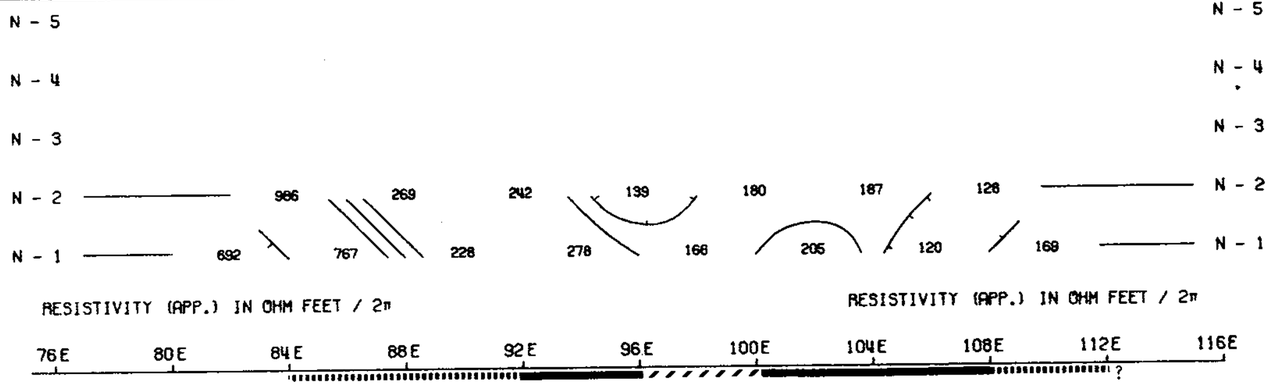
NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

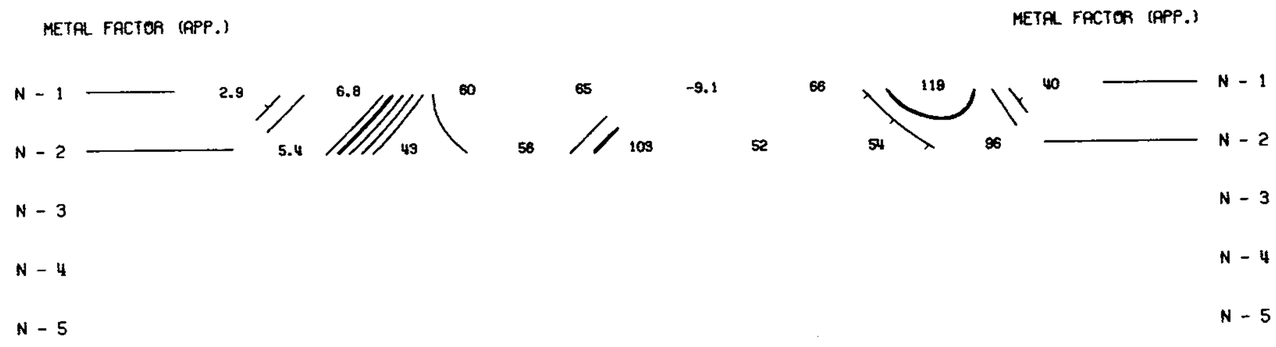
4289 DWG. NO.- I.P.-6046-6

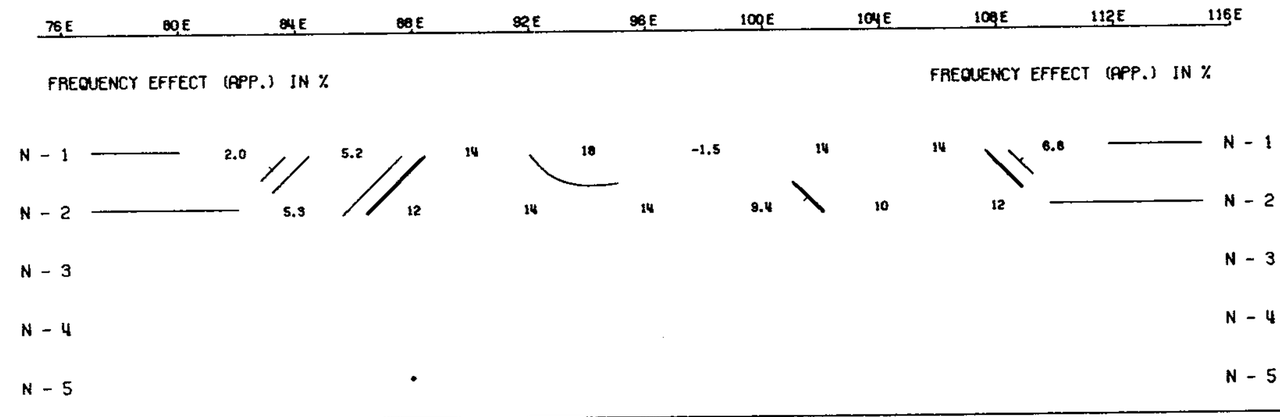
NORANDA EXPLORATION COMPANY LIMITED.

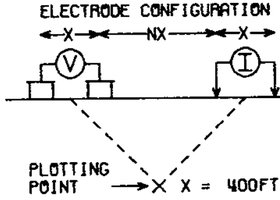
LOLJUH PROPERTY, SMITHERS AREA,
OMINECA M.D., B.C.

LINE NO.- 8400N









SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE ▬▬▬
PROBABLE ▪▪▪▪▪▪▪▪▪▪▪▪
POSSIBLE ////////

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: OCT 1972

APPROVED: David B. Fountain

DATE: OCT 1973

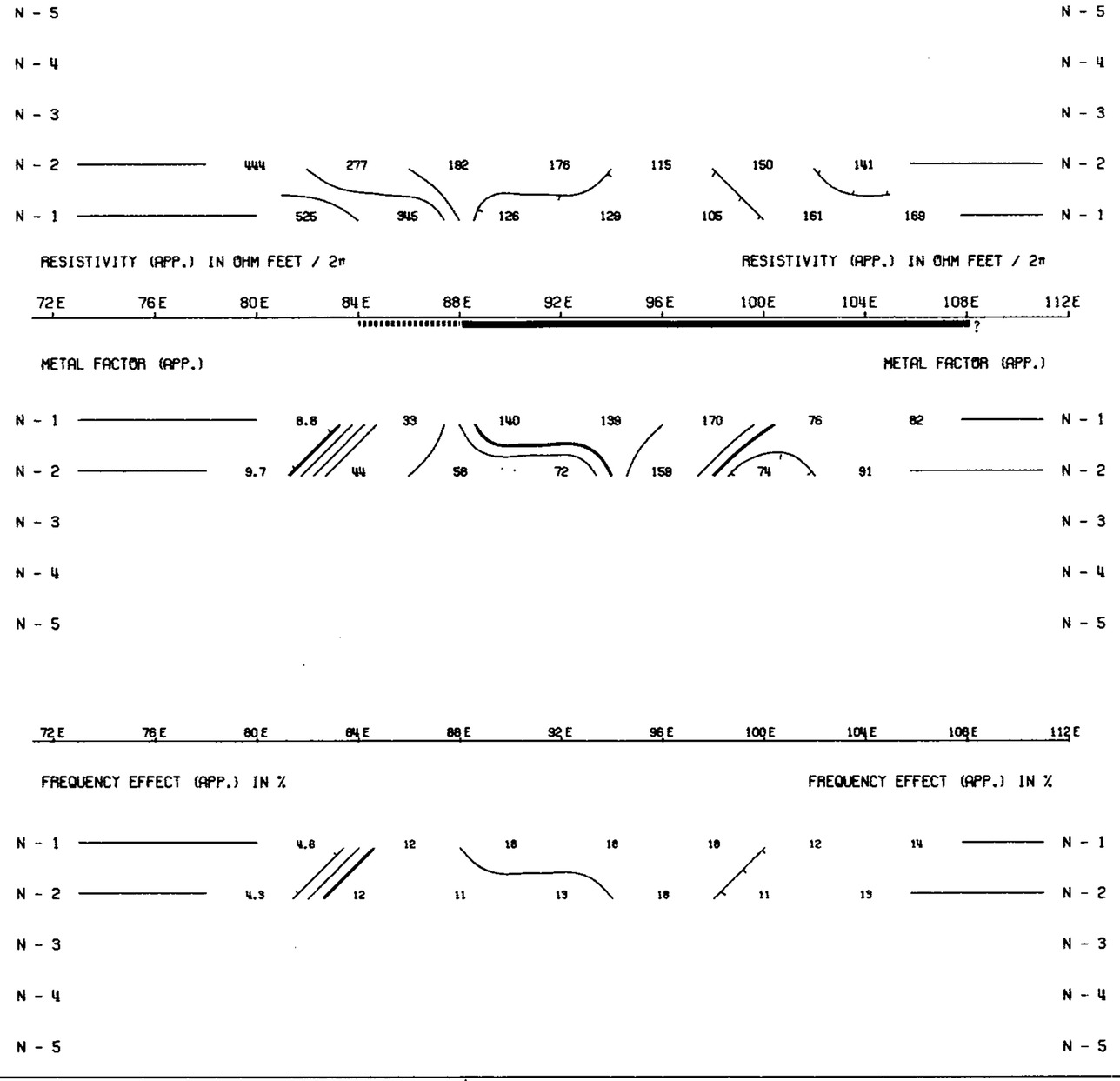
NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



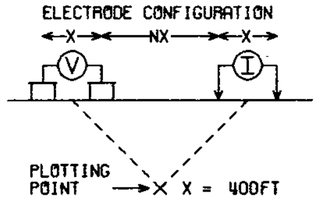
4289 DWG. NO.- I.P.-6046-5

NORANDA EXPLORATION COMPANY LIMITED.

LOLJUH PROPERTY, SMITHERS AREA,
OMINECA M.D., B.C.

LINE NO.- 8800N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: OCT 1972

APPROVED:

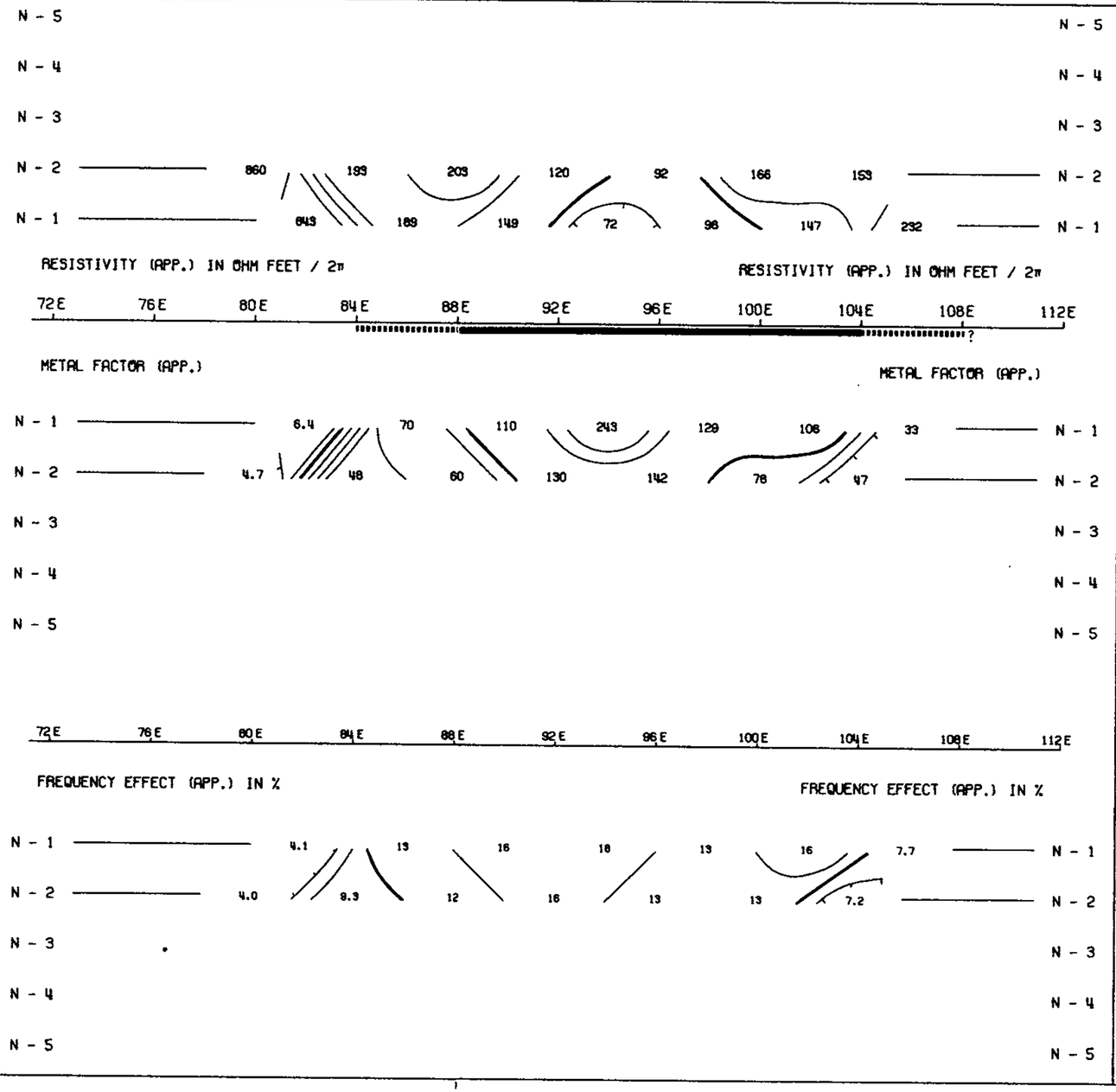
DATE: 10 Feb/73

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



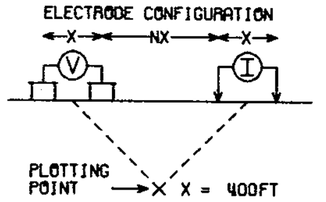
4289 DWG. NO.- I.P.-6046-4

NORANDA EXPLORATION COMPANY LIMITED.

LOLJUH PROPERTY, SMITHERS AREA,
OMINECA M.D., B.C.

LINE NO.- 9200N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: OCT 1972

APPROVED:

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

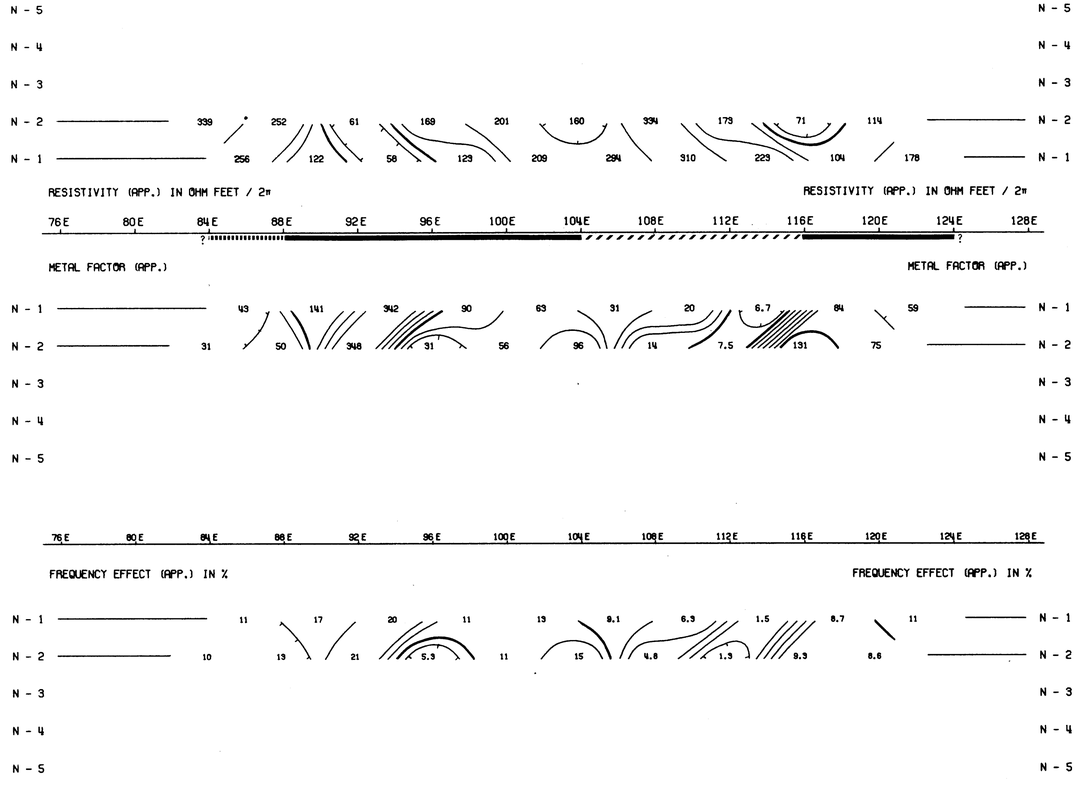
DATE: 10/73

BRITISH COLUMBIA ENGINEER

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



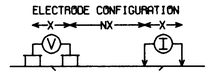
4289 DWG. NO.- I.P.-6046-3

NORANDA EXPLORATION COMPANY LIMITED.

LOLJUH PROPERTY, SMITHERS AREA,
OMINECA M.D., B.C.

LINE NO.- 9600N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

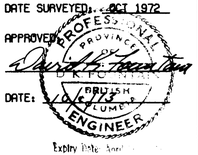
FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: OCT 1972

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

APPROVED:

DATE:



McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

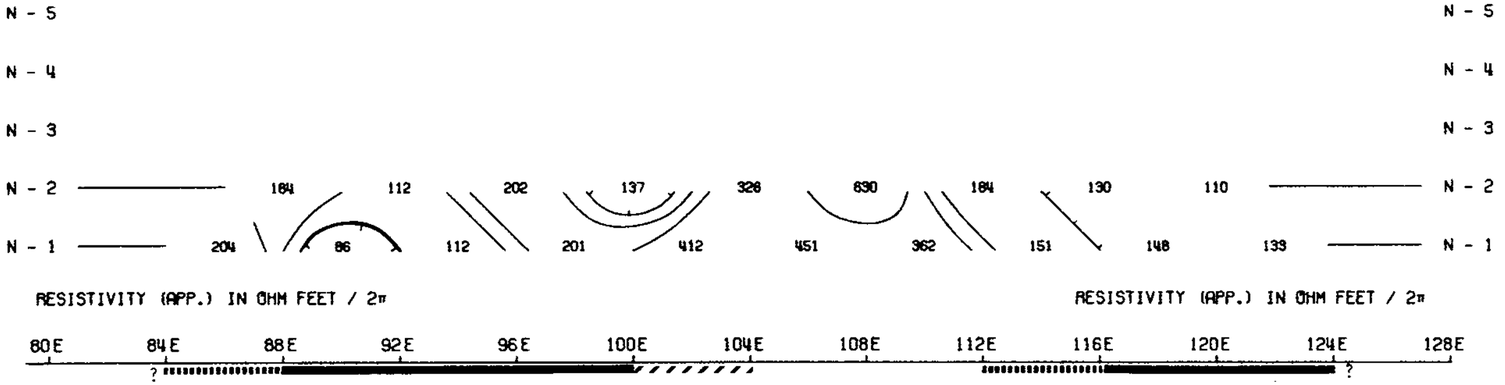
4289

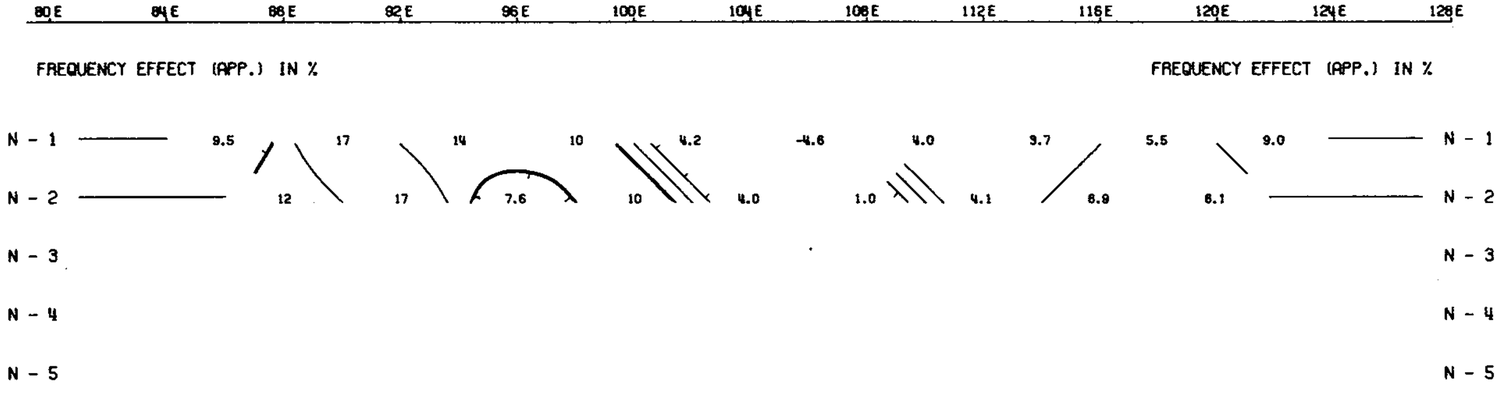
DWG. NO.- I.P.-6046-2

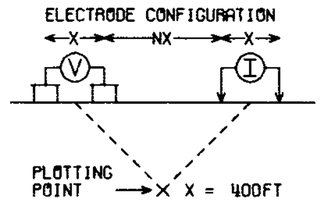
NORANDA EXPLORATION COMPANY LIMITED.

LOLJUH PROPERTY, SMITHERS AREA,
OMINECA M.D., B.C.

LINE NO.- 10000N







SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: OCT 1972

APPROVED:

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

DATE: 5/6/73

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

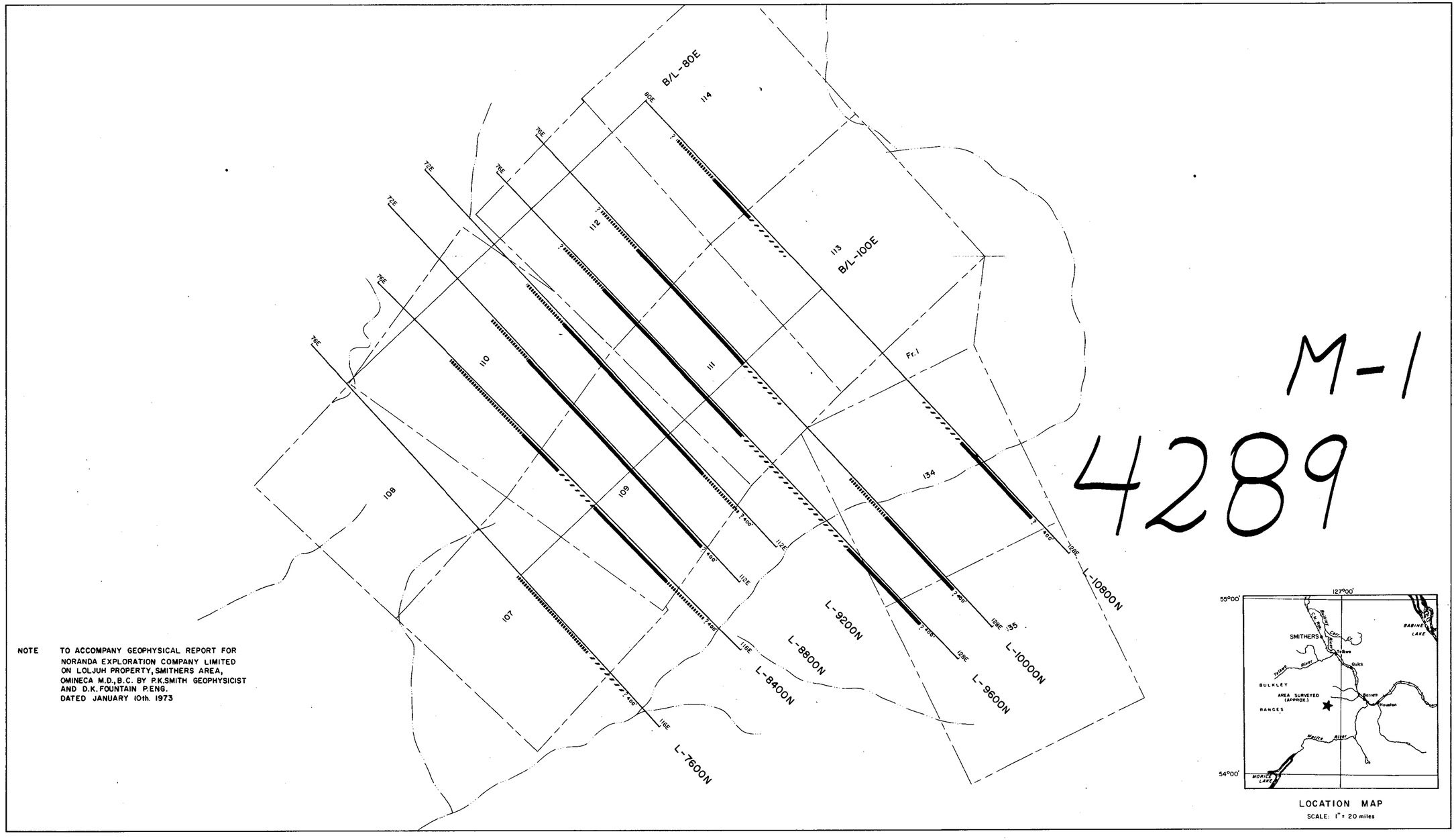
NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

DWG.I.PP. 3569

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

PLAN MAP



M-1

4289

NOTE TO ACCOMPANY GEOPHYSICAL REPORT FOR NORANDA EXPLORATION COMPANY LIMITED ON LOLJUH PROPERTY, SMITHERS AREA, OMINECA M.D., B.C. BY P.K.SMITH GEOPHYSICIST AND D.K. FOUNTAIN P.ENG. DATED JANUARY 10th. 1973

LOCATION MAP

SCALE: 1" = 20 miles

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

Number at the end of anomaly indicates spread used.

NORANDA EXPLORATION COMPANY LIMITED

LOLJUH PROPERTY, SMITHERS AREA

OMINECA M.D. – B.C.

SCALE

One inch = 400 feet

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4289 MAP #1

DRAWN
DATE
APPROVED

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

Expiry Date: April 25, 1973

DWG.I.PP. 3569