4476

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE STEELE CREEK PROPERTY, PROJECT 1015 GERMANSEN LANDING AREA, OMINECA MINING DIVISION, B.C. FOR NORANDA EXPLORATION CO. LTD. (N.P.L.)

93N/14W, 94C/3W

STL, KIP

BY

DAVID K. FOUNTAIN, P.ENG.

NAME AND LOCATION OF PROPERTY

STEELE CREEK PROPERTY, PROJECT 1015, GERMANSEN LANDING AREA

OMINECA MINING DIVISION, B.C. 55°55'N, 125°20'N

DATE STARTED: SEPTEMBER 5, 1972

DATE FINISHED: SEPTEMBER 17, 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.

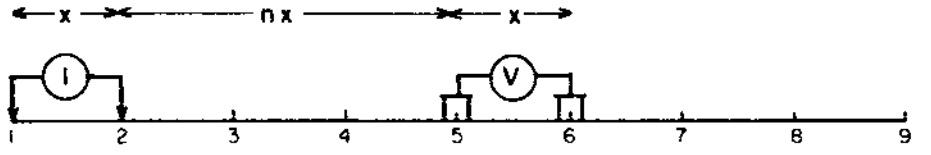
In some situations spurious noise, either man made or natural, will render it impossible to obtain a reading. The symbol "N" on the data plots indicates a station at which it is too noisey to record a reading. If a reading can be obtained, but for reasons of noise there is some doubt as to its accuracy,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

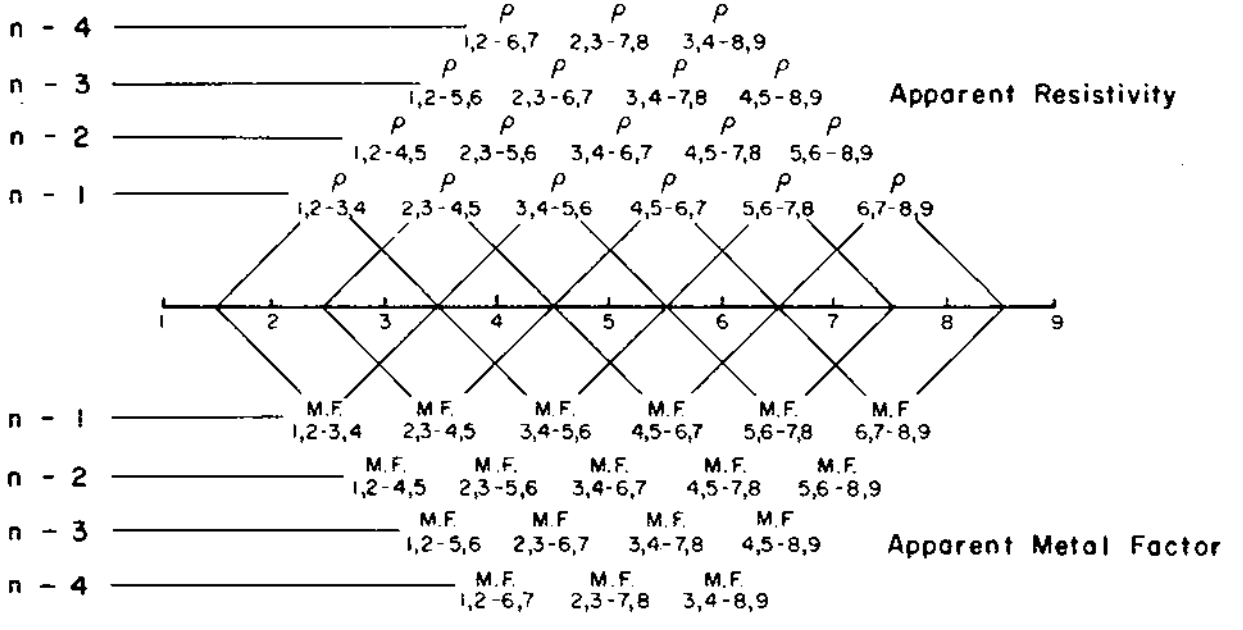
The symbol "NR" indicates that for some reason the operator did not attempt to record a reading although normal survey procedures would suggest that one was required. This may be due to inaccessible topography or other similar reasons. Any symbol other than those discussed above is unique to a particular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

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



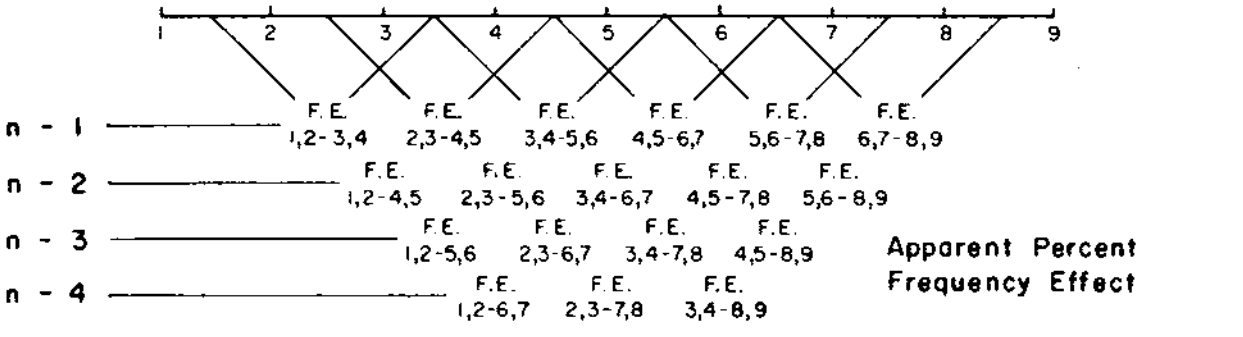
Stations on line

x = Electrode spread length
n = Electrode separation



Apparent Resistivity

Apparent Metal Factor



Apparent Percent Frequency Effect

Fig. A

McPHAR GEOPHYSICS LIMITED

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE STEELE CREEK PROPERTY, PROJECT 1015 GERMANSEN LANDING AREA, OMINECA MINING DIVISION, B. C. FOR NORANDA EXPLORATION COMPANY LIMITED (N.P.L.)

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1. INTRODUCTION

During September 1972, an Induced Polarization and Resistivity survey was carried out on the Steele Creek Property, Project 1015 of Noranda Exploration Company, Limited. The property is located approximately 30 miles north-northwest of Germansen Landing, in the Omineca Mining Division, B.C., between latitudes 55°55'N and 56°00'N and longitudes 125°20'W and 125°25'W.

Access to the area is by helicopter either from Smithers, Fort St. James or Germansen Landing. There is no access by road; however a good dirt road does exist from Germansen Landing north across the Osilinka River and west to near the confluence of this river and Haha Creek which passes within two miles of the northern boundary of the property.

The Steele Creek property is underlain by quartz-deficient border phases of the Hogan Batholith.

On the grid, a small plug of syenite extends from the centre of the map sheet to the northeast, while more basic monzonitic-dioritic rocks outcrop on the north, west and south sides of the property. The syenites are porphyritic and pegmatitic and appear to represent a late phase of the batholith, while the monzonites, diorites and mafic rich dykes are envisioned as temporally and compositionally related to the bulk of the Hogen intrusives.

Metasomatizing fluids, originating from the syenitic body have given rise to a highly irregular aureole of K-feldspathized monzonites. Two major jointing trends are apparently related to the syenite emplacement. It was noted that quartz-veining is locally abundant in the syenite porphyry but absent in the surrounding host rocks.

Copper mineralization occurs in quartz veins, syenites and K-feldspathized monzonites in minor amounts. The location of the copper mineralization 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 zones of economic sulphide mineralization on the Steele Creek property.

A McPhar variable frequency IP unit operating at 0.3 Hz and 5.0Hz was employed for the survey. The dipole-dipole electrode array was used, with 400' dipoles, and readings were taken at two separations, (n = 1 and 2).

The geophysical survey work discussed in this report was carried out on the following claims of the Steele Creek Property. The claims are understood to be owned or held under option by Noranda Exploration Company, Limited (No Personal Liability.).

STL 1 to 3 (inclusive)	STL 58
STL 5	STL 60
STL 17	STL 2 Fr
STL 18	STL 3 Fr
STL 50	STL 50 Fr to 55 Fr (inclusive)
STL 52	KIP 11 to 14 (inclusive)
STL 54	KIP 1 Fr
STL 56	KIP 4 Fr
	KIP 5 Fr

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.
17200N	400 feet	IP 6037-1
16400N	400 feet	IP 6037-2
15600N	400 feet	IP 6037-3
11600N	400 feet	IP 6037-4
10800N	400 feet	IP 6037-5
10000N	400 feet	IP 6037-6

Also enclosed with this report is Dwg. I.P.P. 4886, a plan map of the Steele Creek Property Grid at a scale of 1" equals 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 position 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

Six lines on the Steele Creek Property have been surveyed on a reconnaissance basis using 400' dipoles and reading only two dipole separations. The northern group of three lines is separated from the southern group of three by about 4000 feet.

Line 17200N

Possibly anomalous response extends for the full length of this line. More complete coverage reading four dipole separations (n = 1, 2, 3, 4) and extension of the effective coverage to east and west would be required to develop the anomaly patterns and evaluate their significance.

Line 16400N

The limited survey coverage on this line indicates weakly anomalous response from 102E to 116E.

Line 15600N

Again the limited survey coverage on this line has indicated weakly anomalous response extending from 94E to at least 108E. A narrow shallow source is suggested, centered between 100E and 104E, however, more complete coverage reading four dipole separations (n = 1, 2, 3, 4) and extension of the effective survey coverage to the east would be required to properly evaluate the significance of the response.

Line 11600N

To the south the results on Line 11600N outline a broad anomalous zone extending east of 64E to at least the end of the line. Higher magnitude response is indicated between 65E and 76E and from 85E to at least the end of the line. Detail surveying recording four dipole separations (n = 1, 2, 3, 4) in this area would serve to better evaluate the significance of the response.

Line 10800N

A broad zone of weakly anomalous IP response extends from 66E to at least the end of the line. Significantly stronger response occurs on the n = 2 reading, suggesting a deeper source centered under 84E. Detail surveying recording four dipole separations (n = 1, 2, 3, 4) would be required to properly evaluate the significance of this stronger response.

Line 10000N

As on the previous line, the results recorded on Line 10000N outline a broad anomalous IP zone extending east of 62E to the end of the line. Somewhat higher magnitude response occurs between 72E and 84E.

There is limited detailed information as to the geology of the two sections of the Steele Creek Property tested by the reconnaissance IP survey.

The survey results from the southern three lines have indicated weakly anomalous IP response on the eastern portion of the lines. More detailed geological information would be required to determine whether this represents a change in background response due to a change in rock type or weakly disseminated mineralization. More complete IP survey coverage reading four dipole separations (n = 1, 2, 3, 4) would be required to evaluate the deeper, stronger responses on Line 11600N and Line 10800N.

The three northern lines are of limited length. More complete survey coverage, reading four dipole separations (n = 1, 2, 3 and 4) and extension of the effective coverage to the east and west would be required to determine the significance of the weak anomalous responses on these lines.

4. SUMMARY AND CONCLUSIONS

Two groups of three lines have been surveyed on a reconnaissance basis. In the north, complex zones of weak to moderate anomalous IP response have been outlined. The southern lines have indicated a broad anomalous zone on the eastern portion of the lines surveyed.

More complete IP survey coverage as outlined and including both extension of coverage along the lines and reading four dipole separations (n = 1, 2, 3, 4) would be required to properly evaluate the significance of the weakly to moderately anomalous responses obtained.

Further work in the form of diamond drilling or trenching would only be warranted if the additional IP work produced favourable results and if there were supporting geological and/or geochemical information.

McPHAR GEOPHYSICS LIMITED

David K. Fountain, P. Eng.
Geophysicist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

Expiry Date: April 25, 1973

Dated: December 15, 1972

ASSESSMENT DETAILS

PROPERTY: Project 1015
Steele Creek Property

MINING DIVISION: Omineca

SPONSOR: Noranda Exploration Co. Ltd.

PROVINCE: British Columbia

LOCATION: Germansen Landing Area

TYPE OF SURVEY: Induced Polarization

OPERATING MAN DAYS:	16	DATE STARTED:	Sept. 5, 1972
EQUIVALENT 8 HR. MAN DAYS:	24	DATE FINISHED:	Sept. 17, 1972
CONSULTING MAN DAYS:	2	NUMBER OF STATIONS:	96
DRAUGHTING MAN DAYS:	3	NUMBER OF READINGS:	456
TOTAL MAN DAYS:	29	MILES OF LINE SURVEYED:	6.8

CONSULTANTS:

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

FIELD TECHNICIANS:

R. Mertens, 304 Holmes Avenue, Willowdale, Ont.
D. Coote, c/o 669 Valdes Drive, Brocklehurst, B.C.
Plus Extra Labourers:
J. Remillard, 288 Gildford St. St. James, Assinaboyn, Winnipeg, Manitoba.
R. Eing, 174 W. Seymour Street, Kamloops, B.C.
R. Pesklevits, c/o Ron Birk, 262 Cherry Street, Kamloops, B.C.

DRAUGHTSMEN:

G. Hines, 114 Hillsview Drive, Richmond Hill, Ontario.
R. Koenig, 508 Cosburn Avenue, Toronto 6, Ontario.
B. Boden, 58 Glencrest Blvd. Toronto 16, Ontario.

McPHAR GEOPHYSICS LIMITED

David K. Fountain, P. Engr.
Geophysicist.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

Dated: December 15, 1972

Expiry Date: April 25, 1973

STATEMENT OF COST

Noranda Exploration Co. Ltd. - IP Survey - Project 1015
Steele Creek Property, Germansen Landing Area
Omineca Mining Division, B.C.

Crew: R. Mertens & D. Coote

4 days	Operating		@ $240.00/day	$ 960.00
3½ days	Preparation	)		
2 days	Bad Weather	) 8 days	@ $100.00/day	800.00
2½ days	Standby	)		
				$1,760.00

Expenses (prorated on elapsed days - 12/58)

Air Fare	39.93	
Excess Baggage	9.08	
Taxis	2.66	
Vehicle Expense	1.42	
Meals & Accommodation	54.83	
Freight & Brokerage	86.04	
Supplies	5.10	
Telephone & Telegraph	9.94	
	209.00	
Plus 10%	20.90	
		229.90
Extra Labour	434.49 - (prorated as above)	
Plus 20%	86.90	
		521.39
		$2,511.29

McPHAR GEOPHYSICS LIMITED

David K. Fountain, B.Sc. Eng.
Geophysicist.

PROFESSIONAL ENGINEER
OF
D. K. FOUNTAIN
BRITISH COLUMBIA

Dated: December 15, 1972

Revised Date: April 25, 1973

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 15th day of December, 1972.

David K. Fountain

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

Expiry Date: April 25, 1973

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

TO WIT:

In the Matter of a statement of exploration expenses on 94 contiguous Mineral Claims in the Omineca Mining Division having Record No's. 91726 to 91741, 92290 to 92293, 100608 to 100617, 100623 to 100628, 100630, 100618 to 100621, 101467 to 101499, 114935 to 114952, 92302 to 92303 (Blue and Green of KIP and STL CLAIMS)

I, A.D. Pearse, (F.M.C. 109139 issued April 28th, 1972) of P.O. Box 2169, Smithers, B. C. agent for 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 cost of Geophysical Surveys on the above listed Mineral Claims between July 7, 1972 and July 7, 1973 were:

1. Line Preparation

   A. Line cutting contract
      P. Bland & F. Bland (August 29, 1972 to Sept. 6, 1972)
      47,000' @$25.00/1,000' = 1,175.00
      41,200' @$15.00/1,000' = 618.00
      1,793.00 — $1,793.00

   B. Field Costs
      (1) Room, board and supplies @$10.00/man day (18 man days) — 180.00
      (2) Transportation charter helicopter — 601.99

2. Geophysical Survey

   A. I.P. contract 6.8 line miles (from McPhar's statement) — 2,511.29

   B. Field Costs
      (1) Room, board and supplies @ $10.00/man day (16 man days) — 160.00
      (2) Transportation charter helicopter and Noranda contract helicopter — 708.00

$5,954.28

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 9th day of July, 1973, A.D.

A.D. Pearse

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

In the Matter of

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....

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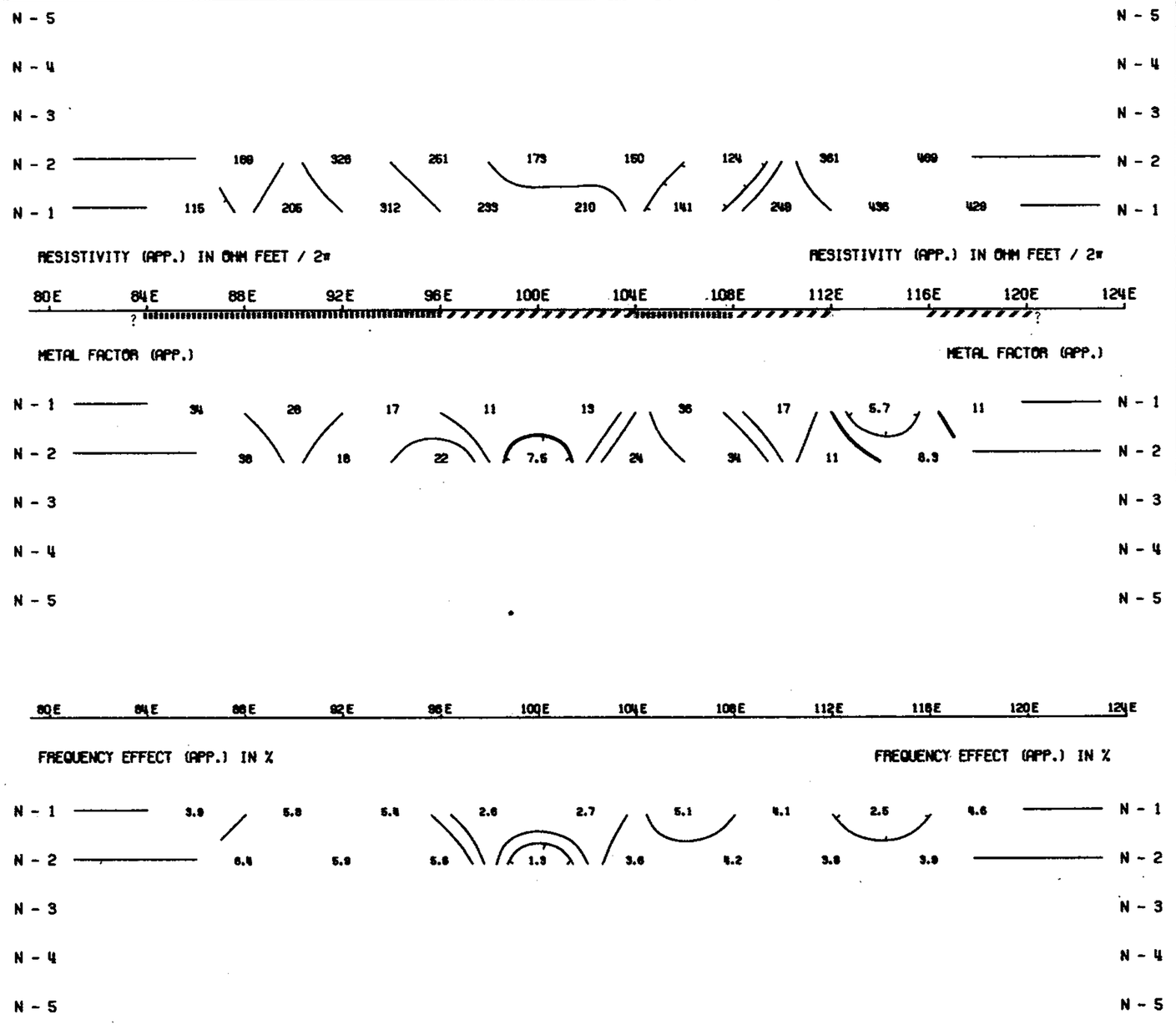
Statutory Declaration

(CANADA EVIDENCE ACT)

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO 4476 MAP



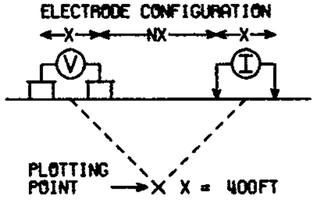
DWG. NO.- I.P.- 6037-I

NORANDA EXPLORATION COMPANY LIMITED

PROJECT 1015, STEELE CREEK PROPERTY,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 17200N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: SEP 1972

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

APPROVED:

DATE:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA

4476

Expiry Date: April 25, 1973

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

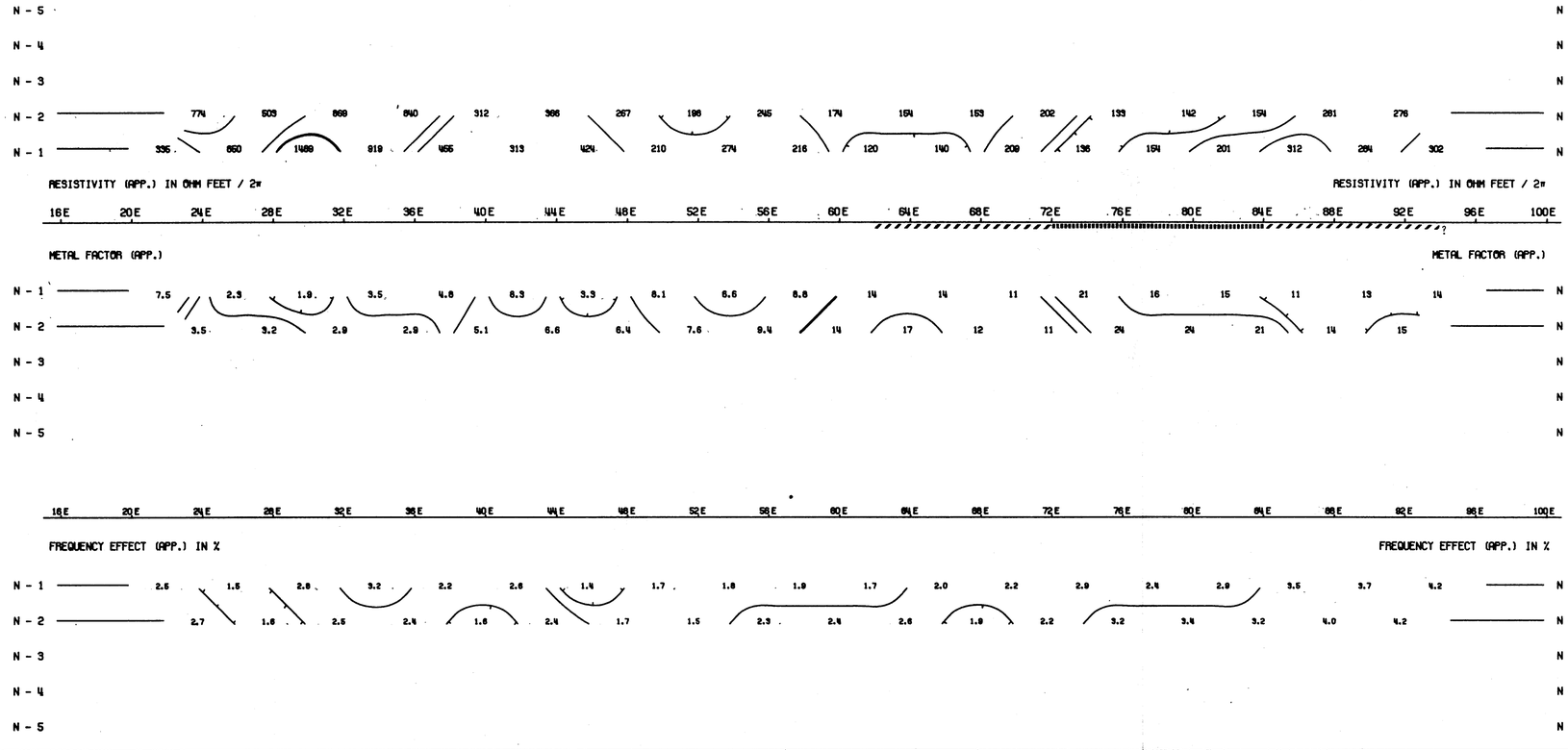
NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

/ cut to I.P. standards
/ blazed & flagged

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4476 MAP #2

REVISED	
PROJ. Nº 1015	
N.T.S. 93N/14W	
DWG. Nº	
STE-72-5	

CLAIMS with GRID
4476-M2
PROJECT: STEELE CR
SURVEYED BY: DATE: 1972
DRAWN BY: AP SCALE: 1" = 400'
NORANDA EXPLORATION CO. LTD.
OFFICE: SMITHERS



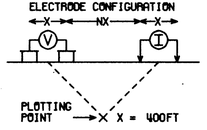
DWG. NO.- I.P.- 6037-6

NORANDA EXPLORATION COMPANY LIMITED

PROJECT 1015, STEELE CREEK PROPERTY,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 10000N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: SEP 1972

APPROVED:

DATE:

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

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA

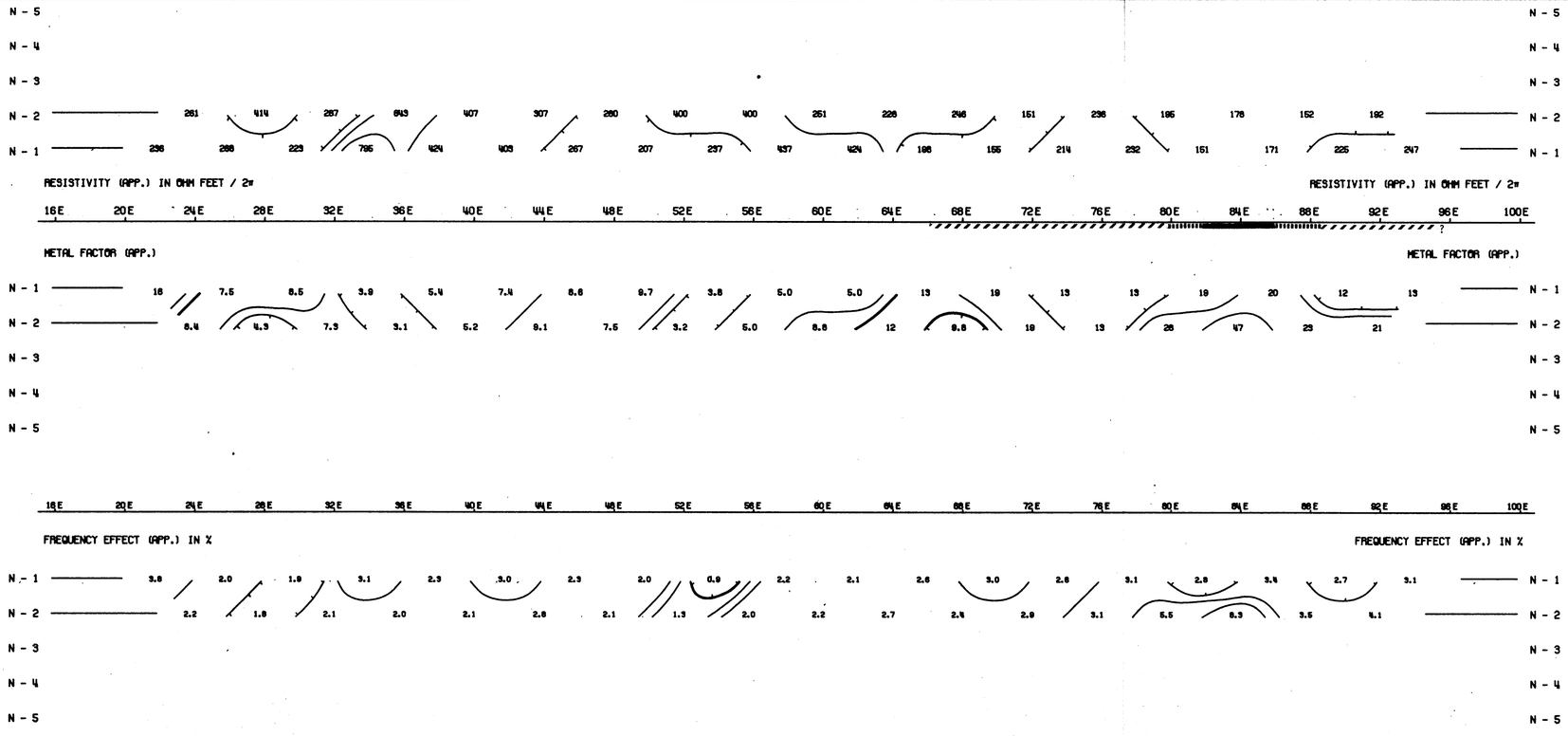
Plotting Date: April 26, 1973

4476

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



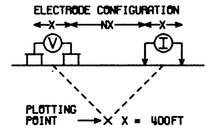
DWG. NO.- I.P.-6037-5

NORANDA EXPLORATION COMPANY LIMITED

PROJECT 1015, STEELE CREEK PROPERTY,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 10800N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: SEP 1972

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

APPROVED

DATE: October 12/72

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

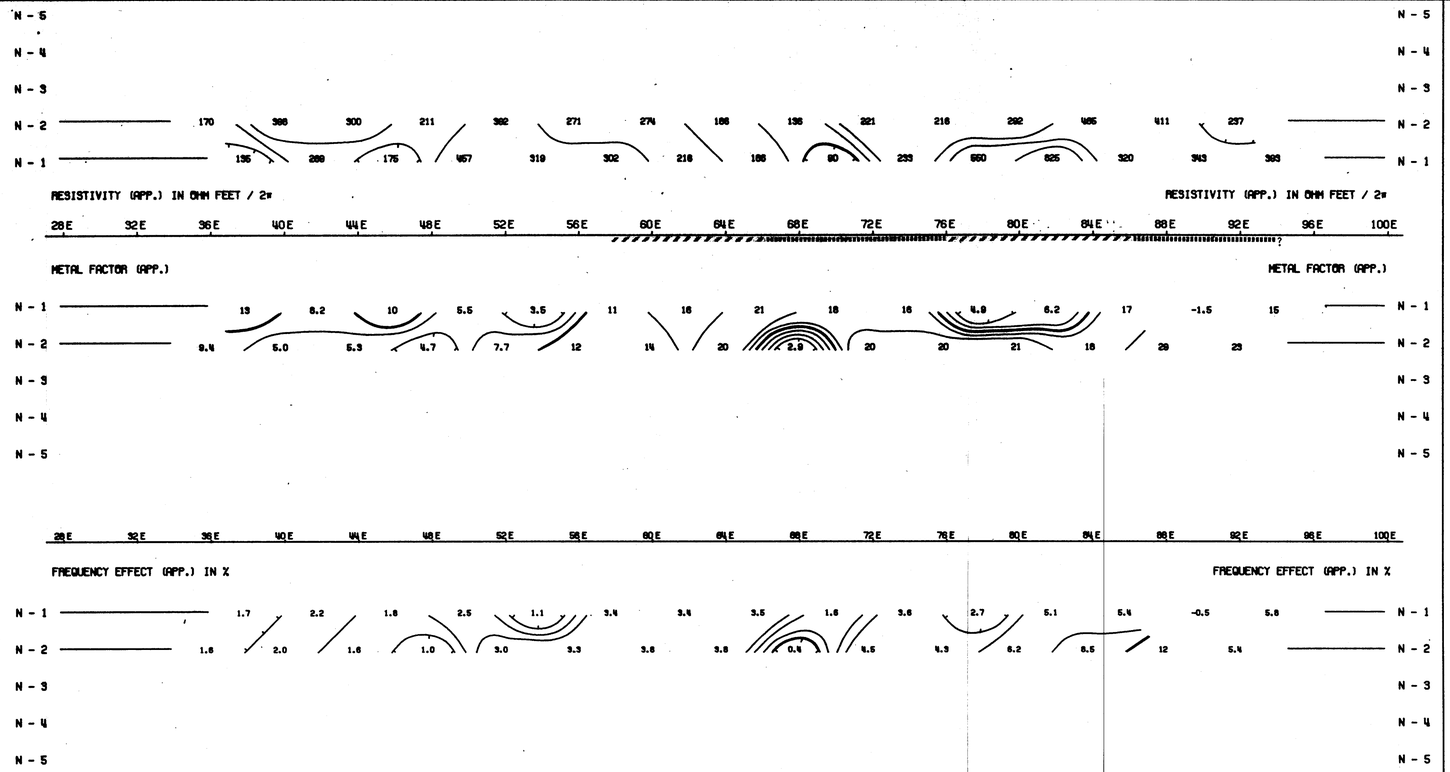
4476

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

Rev. Date: April 25, 1973



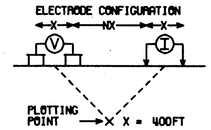
DWG. NO.- I.P.- 6037-4

NORANDA EXPLORATION COMPANY LIMITED

PROJECT 1015, STEELE CREEK PROPERTY,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 11600N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: Apr. 1972

APPROVED: D. K. FOUNTAIN

DATE: 5/NOV/72

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

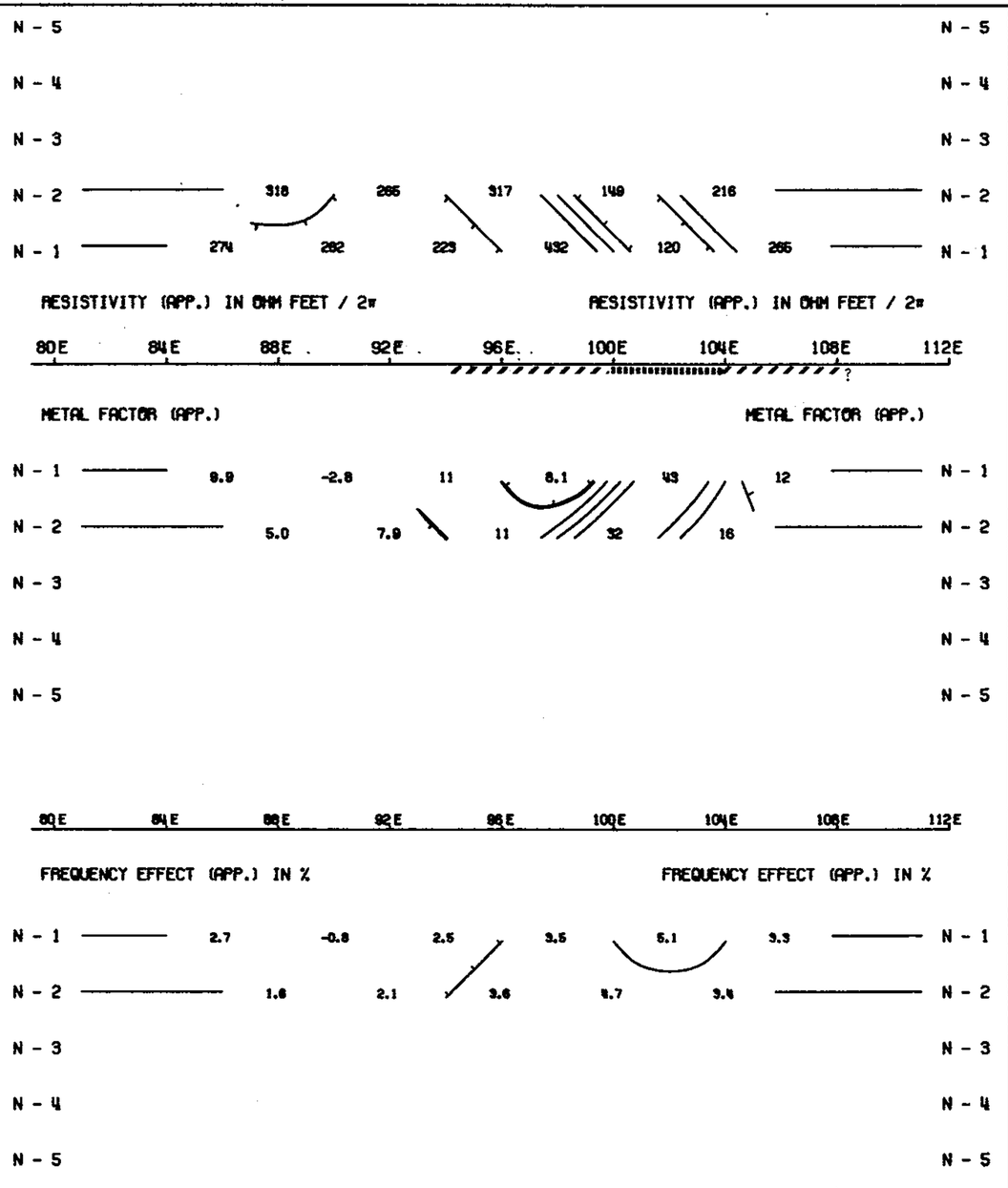
Expiry Date: April 25, 1973

4476

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



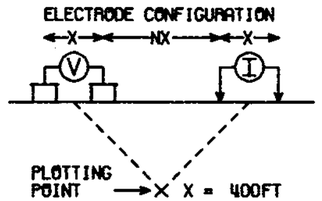
DWG. NO.- I.P.- 6037-3

NORANDA EXPLORATION COMPANY LIMITED

PROJECT 1015, STEELE CREEK PROPERTY,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 15600N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: SEP 1972

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

APPROVED: David K. Fountain
D. K. FOUNTAIN

DATE: Dec. 16/72

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA

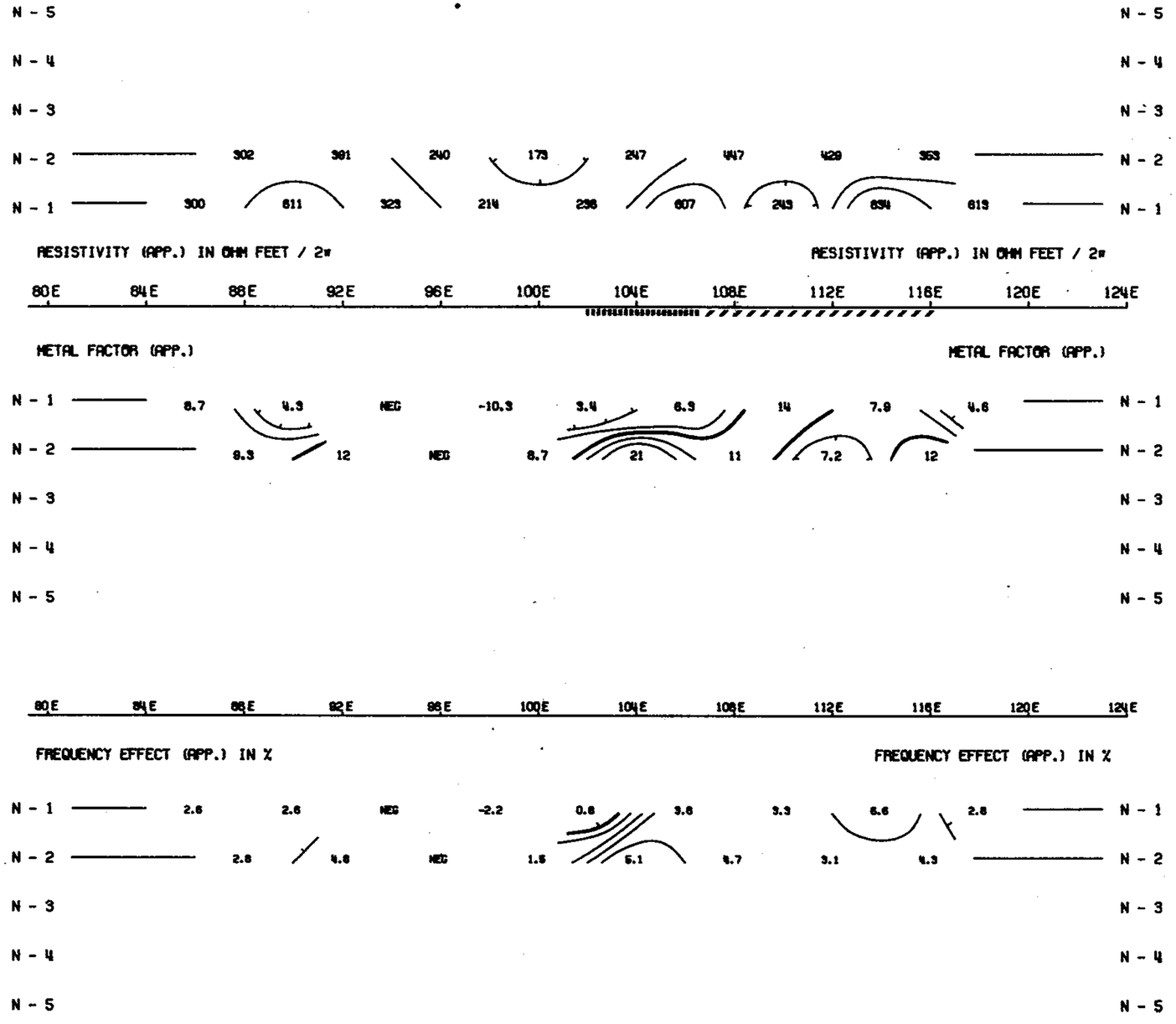
Expires Date: April 29, 1973

4476

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



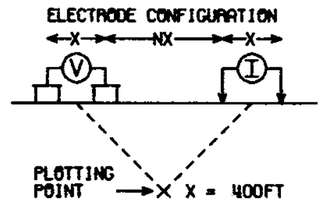
DWG. NO.- I.P.- 6037-2

NORANDA EXPLORATION COMPANY LIMITED

PROJECT 1015, STEELE CREEK PROPERTY,
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

LINE NO.- 16400N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: SEP 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 30, 1973

4476

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

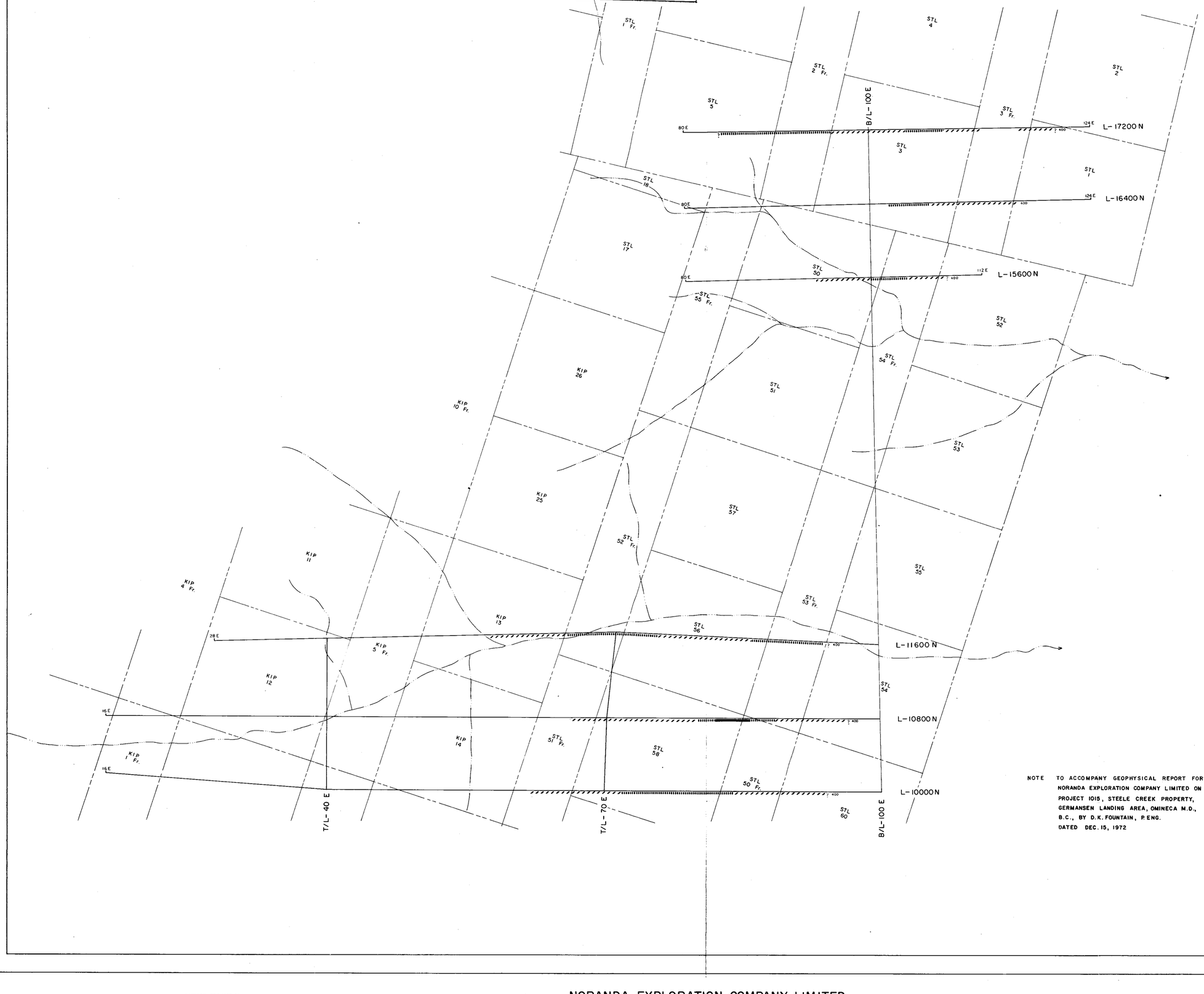
NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

DWG. IPP-4886

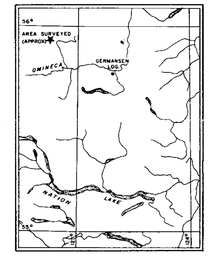
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

PLAN MAP



LOCATION MAP
ONE INCH TO TWENTY MILES



NOTE TO ACCOMPANY GEOPHYSICAL REPORT FOR NORANDA EXPLORATION COMPANY LIMITED ON PROJECT 1015, STEELE CREEK PROPERTY, GERMANSEN LANDING AREA, OMINECA M.D., B.C., BY D.K. FOUNTAIN, P.ENG. DATED DEC. 15, 1972

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————
PROBABLE ▮▮▮▮▮▮▮▮▮▮
POSSIBLE \ \ \ \ \ \

Number at the end of anomaly indicates spread used.

NORANDA EXPLORATION COMPANY LIMITED

PROJECT 1015, STEELE CREEK PROPERTY
GERMANSEN LANDING AREA, OMINECA M.D., B.C.

SCALE
ONE INCH EQUALS FOUR HUNDRED FEET

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN
DRAWING APPROVED FOR SUBMISSION
DEC. 15 '72

4476-M1

DWG. IPP-4886