1684

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE WINNEY CREEK PROPERTY OF NORANDA EXPLORATION COMPANY, LIMITED IN THE MERRITT AREA NICOLA M.D., BRITISH COLUMBIA

92 I 2

BY

DAVID K. FOUNTAIN, P.ENG.

NAME AND LOCATION OF PROPERTY:

WINNEY CREEK PROPERTY, MERRITT AREA

NICOLA MINING DIVISION, BRITISH COLUMBIA 50°N, 120°W, SE

DATE STARTED	AUGUST 13, 1968
DATE FINISHED	AUGUST 31, 1968

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McPHAR GEOPHYSICS LIMITED

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE WINNEY CREEK PROPERTY OF NORANDA EXPLORATION COMPANY, LIMITED IN THE MERRITT AREA NICOLA M.D., BRITISH COLUMBIA

1. INTRODUCTION

An induced polarization and resistivity survey was carried out on the Winney Creek Property of Noranda Exploration Company, Limited in the Merritt Area, Nicola Mining Division, British Columbia.

The Winney Creek Property is located approximately eight miles northwest of the town of Merritt and lies in the southwest quadrant of the one degree quadrilateral whose southeast corner is 50° north latitude and 120° west longitude. Access to the property is via a gravel road which runs north from provincial highway number eight approximately seven miles west of the town of Merritt.

Previous work in the immediate area of the property by Noranda Exploration Company, Limited has indicated the presence of anomalous geochemical values. The IP survey was carried out to locate any concentrations of metallic mineralization within the claim area which could prove to be of economic significance.

The IP survey was carried out employing a McPhar variable frequency Induced Polarization unit and utilizing the dipole-dipole electrode configuration. Three dipole separations were recorded and the frequencies employed were 0.31 cps and 5.0 cps. On Line 16E four dipole separations were recorded.

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 56W	400 foot spreads	Dwg. IP 5163-1
Line 48W	400 foot spreads	Dwg. IP 5163-2
Line 40W	400 foot spreads	Dwg. IP 5163-3
Line 32W	400 foot spreads	Dwg. IP 5163-4
Line 24W	400 foot spreads	Dwg. IP 5163-5
Line 16W	400 foot spreads	Dwg. IP 5163-6
Line 8W	400 foot spreads	Dwg. IP 5163-7
Line 0	400 foot spreads	Dwg. IP 5163-8
Line 8E	400 foot spreads	Dwg. IP 5163-9
Line 16E	400 foot spreads	Dwg. IP 5163-10
Line 24E	400 foot spreads	Dwg. IP 5163-11

Enclosed with this report is Dwg. I.P.P. 4439, a plan map of the claim area at a scale of 1" = 400'. The definite and possible induced polarization anomalies are indicated by solid and broken bars respectively on this plan map as well as 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 spread length; i. e. when using 400' spreads the position of a narrow sulphide body can only be determined to lie between two stations 400' apart. In order to locate sources at some depth, larger spreads 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.

3. DISCUSSION OF RESULTS

A total of eleven lines were surveyed with the IP method, being Line 56W through to and including Line 24E. In general throughout the area surveyed the apparent resistivity values are quite low. Background IP response is low and many of the variations in both apparent Metal Factor and apparent Frequency Effect values appear to be due mainly to variations in the resistivity.

Line 56W

A distinct anomaly is indicated between 48+00S and 52+00S. The anomaly pattern is incomplete to the south and the effective coverage should be extended to the south to properly delimit the anomaly. An increase in Metal Factor value is indicated at the north end of the line. Extension of the effective coverage to the north would determine the significance of this increase.

Line 48W

There are no distinct IP anomalies indicated on this line. Above background IP response is indicated between 4+00S and 14+00S. A weak increase in IP response between 44+00S and 50+00S may correlate with the anomaly at the south end of Line 56W.

Line 40W

A weak increase in IP response occurs at the south end of this line. However, due to lack of readings to the south the pattern is incomplete.

Line 32W

A possible shallow anomaly is indicated between 40+00S and 44+00S on this line. Surveying with IP employing short dipoles would be required to determine the significance of this weak anomaly. To the north of 36+00S on this line the IP response is uniformly very low. It is of interest to note that from about 30+00S to the north there occurs a decrease in apparent resistivity with larger dipole separation. The resistivity pattern would suggest a low resistivity layer surfacing at about 32+00S to 28+00S and dipping to the north where it underlies a more resistive cover.

Line 24W

There is no significantly anomalous IP response on this short line.

Line 16W

Above background Metal Factor values occur between 48+00S and 20+00S. However, they appear to reflect the lower apparent resistivity values. Again in the area from 24+00S to 12+00S the value of apparent resistivity decreases with increasing dipole separation suggesting an underlying low resistivity layer.

Line 8W

The results of the IP survey on this line indicate a deep (relative to dipole size) source between 44+00S to 34+00S. Although the values of anomalous Frequency Effect response are not high, the pattern is quite distinct. Our experience in similar low resistivity areas in the southwest United States suggests that the Frequency Effect response is depressed due to the low resistivity. Resurveying this portion of the line employing 500 foot dipoles and reading n = 1, 2, 3, 4, 5 would serve to confirm the presence of the anomaly as well as allowing a better evaluation of its significance. The anomaly pattern would indicate a depth of at least 200 feet to the top of the anomalous source. A similar weak increase in IP response is indicated centred beneath 28+00S.

Line 0

Increases in IP response are indicated on the second and third dipole separation between 52+00S and 40+00S, and between 34+00S and 24+00S. Depending upon the results of the detail employing 500 foot dipoles on Line 8W, similar detail may be warranted to check the anomalies on Line 0.

Line 8E

A possible deep source is indicated from 34+00S to at least 44+00S which would appear to correlate with the anomalies on Line 0 and Line 8W. Again depending upon the results of the detail work on these two lines it may be warranted to carry out similar detail surveying on Line 8E, as well as extending the effective IP coverage to the south.

Line 16E

An increase in IP response occurs at the southern end of the effective coverage on this line. Extension to the south would be required to determine the significance of this increase. Above background IP response is indicated between 16+00S and 12+00S.

Line 24E

Above background IP response on the second and third dipole separation is indicated centred between 76+00S and 72+00S, between 56+00S and 52+00S, and between 24+00S and 20+00S. In all cases detail surveying employing larger dipoles would be required to determine the significance of these anomalies.

4. SUMMARY AND CONCLUSIONS

The apparent resistivity values and background IP response throughout the area surveyed is generally quite low. Many of the variations in both apparent Metal Factor and apparent Frequency Effect values appear to be due mainly to variations in the resistivity.

A distinct IP anomaly is indicated at the southern extent of effective coverage on Line 56W. The effective coverage on this line should be extended to the south as well as additional lines surveyed to the west to properly delimit the anomaly. Deep anomalies are indicated on Line 8W, Line 0, and Line 8E which would require detail surveying employing larger dipoles in order to properly evaluate them.

The apparent resistivity data on several of the lines suggests the existence of a flat lying, with dip to the north, low resistivity layer which underlays higher resistivity cover on the northern portion of the grid.

Upon completion of the above recommended detail and additional surveying, the results of the IP survey should be evaluated in light of available geological and geochemical information and further work planned if warranted.

McPHAR GEOPHYSICS LIMITED

PROFESSIONAL
PROVINCE OF
D. K. FOUNTAIN
BRITISH COLUMBIA
ENGINEER

David K. Fountain
Geophysicist, P. Eng.

Expiry Date: April 25, 1969

Dated: October 7, 1968

ASSESSMENT DETAILS

PROPERTY: Winney Creek

MINING DIVISION: Nicola

SPONSOR: Noranda Exploration Company, Limited

PROVINCE: British Columbia

LOCATION: Merritt Area

TYPE OF SURVEY: Induced Polarization

OPERATING MAN DAYS:	50	DATE STARTED:	August 13, 1968
EQUIVALENT 8 HR. MAN DAYS:	75	DATE FINISHED:	August 31, 1968
CONSULTING MAN DAYS:	2	NUMBER OF STATIONS:	180
DRAUGHTING MAN DAYS:	7	NUMBER OF READINGS:	838
TOTAL MAN DAYS:	84	MILES OF LINE SURVEYED:	12.7

CONSULTANT:

David K. Fountain, 44 Highgate Road, Toronto 18, Ontario.

FIELD TECHNICIANS:

P. Makulowich, 44 Leahann Drive, Scarborough, Ontario.
J. Marsh, 118 Spencer Avenue, Toronto 3, Ontario.
Plus 3 helpers: Leo Ranger, 1475 Coldwater Avenue, Box 866, Merritt, B.C.
Wilfred Ovington, P.O. Box 64, Merritt, B.C.
Roy Kenneth Moen, 1499 Coldwater Avenue, Merritt, B.C.

DRAUGHTSMEN:

P. Coulson, R.R. #2, Pickering, Ontario.
B. Marr, 19 Kenewen Court, Toronto 16, Ontario.
N. Lade, 662 Emerson Court, Oshawa, Ontario.

McPHAR GEOPHYSICS LIMITED

David K. Fountain,
Geophysicist, P. Eng.

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

Expiry Date: April 25, 1969

Dated: October 7, 1968

SUMMARY OF COST

Noranda Exploration Company, Limited
Winney Creek Property, British Columbia

Crew

10 days	Operating		@ $220.00	$2,200.00
3 days	Travel	)		
1 day	Bad Weather	) 7 days	@ $ 85.00	595.00
3 days	Standby	)		

Expenses

Transportation - Air	240.00
Taxis	10.00
Rented Vehicles	249.24
Freight and Brokerage	51.46
Meals and Accommodation	381.22
Telephone and Telegraph	23.83
Supplies	16.02
Extra Labour $494.96 + 20%	593.95
	$4,360.72

McPHAR GEOPHYSICS LIMITED

David K. Fountain,
Geophysicist, P.Eng.

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

Expiry Date: April 25, 1969

Dated: October 7, 1968

CERTIFICATE

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

1. I am a geophysicist residing at 44 Highgate Road, Toronto 18, 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 Province of British Columbia and Ontario, and have been practising my profession for seven 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.

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

Dated at Toronto

This 7th day of October 1968.

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

Expiry Date: April 25, 1969

SUB - MINING RECORDER
RECEIVED
NOV 8 1968
M.R. # 249566 $ 252.00
VANCOUVER, B. C.

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
TO WIT:

In the Matter of a statement of Exploration Expenses on 48 contiguous Mineral Claims in the Nicola Mining Division having record numbers 4554-69, 4801-03, 5152, 5155, 6383-87, 9135, 9251, 24668-70, 26247-57, 35823-24, 35827-28, 37350-51, 37571-72, 37575

I, W.W. Young (F.M.C. 69905 issued May 13, 1968 at Vancouver) agent for Noranda Exploration Company, Limited (No Personal Liability) (F.M.C. 71082 issued May 27, 1968 at Vancouver)

both of 1050 Davie Street
Vancouver 5, B.C.

in the Province of British Columbia, do solemnly declare that the cost of a Geophysical Survey on the Winny Creek Property done between August 13 and August 31, 1968 was:

1.	Contract for Line Preparation (Contractor - R. Cressy) 9.45 miles @ $85.00 per line mile	803.25
2.	Contract for I.P. Survey (Contractor - McPhar Geophysics Limited)	4,360.72
		$ 5,163.97

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 City of Vancouver, in the Province of British Columbia, this 8th day of November, 1968, A.D.

W W Young

[signature]
A Commissioner for taking Affidavits for British Columbia or A Notary Public in and for the Province of British Columbia.
Sub-mining Recorder

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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.

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

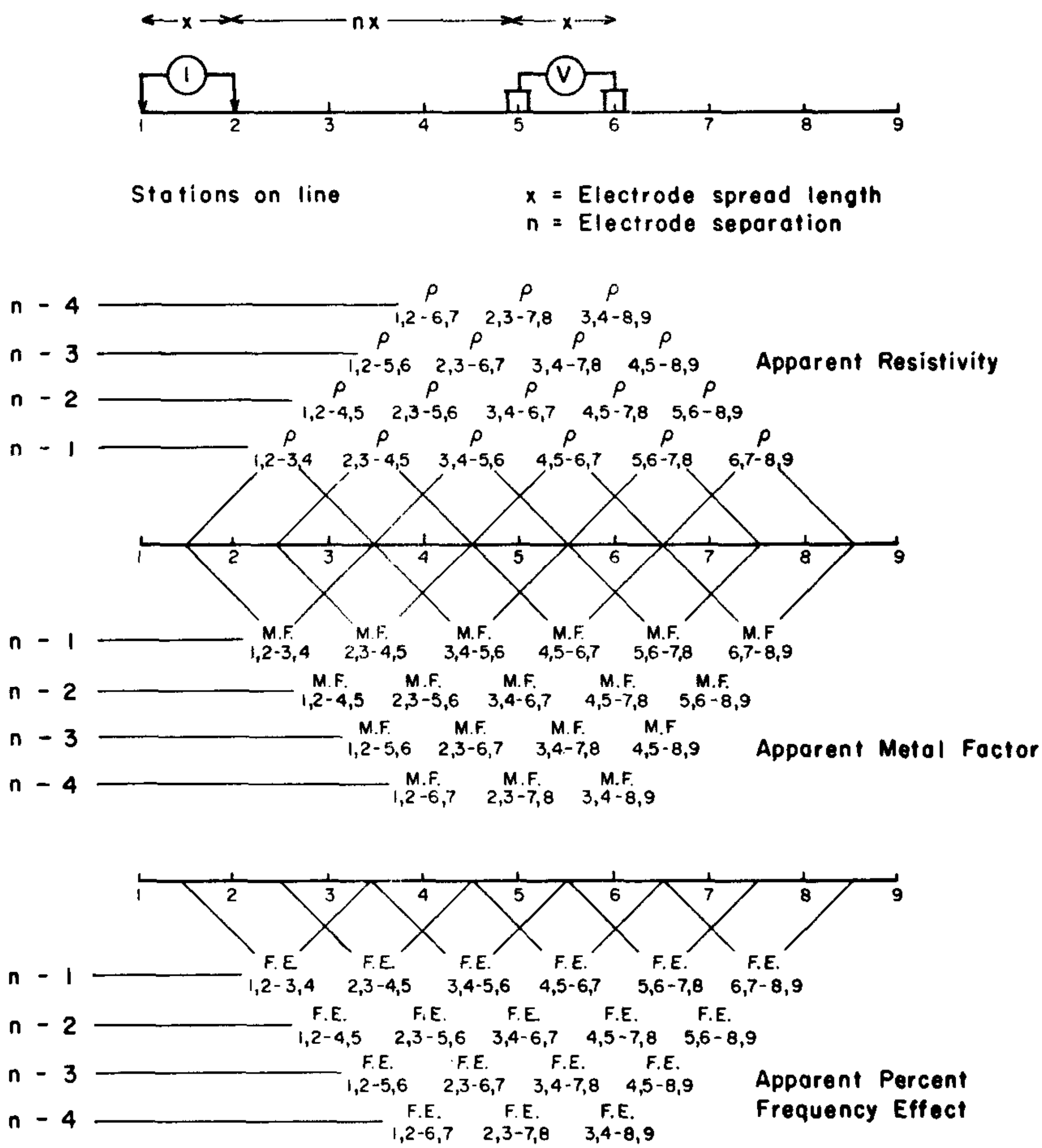

Fig. A

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INDUCED POLARIZATION AND RESISTIVITY SURVEY

PLAN MAP

SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

Number at the end of anomaly indicates spread used.

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY, MERRITT AREA, NICOLA M.D., B.C.

SCALE

ONE INCH EQUALS FOUR HUNDRED FEET

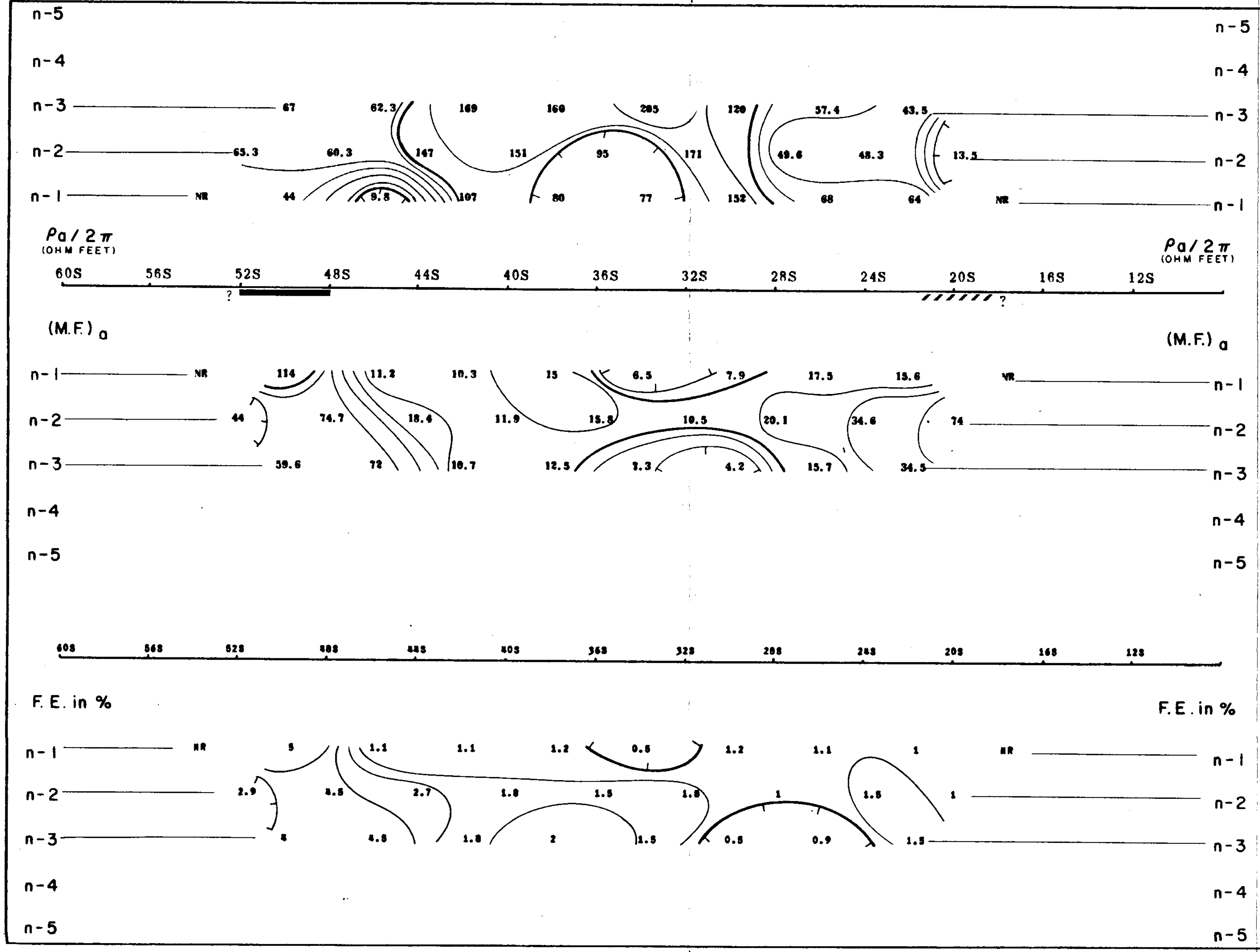
1684

(1)

DRAWN: P.C.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

DWG. IPP-4439



DWG. NO.- I.P.- 5163-1

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D. B.C.

LINE NO.- 56W

ELECTRODE CONFIGURATION

x nx x

PLOTTING POINT

X = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31 – 5.0 cps

DATE SURVEYED: AUG /68

APPROVED:

DATE: Sept. 12 / 68

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

1684

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INDUCED POLARIZATION AND RESISTIVITY SURVEY

(2)

DWG. NO. - I.P. - 5163 - 2

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D B.C.

LINE NO. - 48W

ELECTRODE CONFIGURATION

PLOTTING POINT

x = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES 0.31 - 5.0 cps

DATE SURVEYED AUG. /68

APPROVED

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

DATE Sept. 12/68

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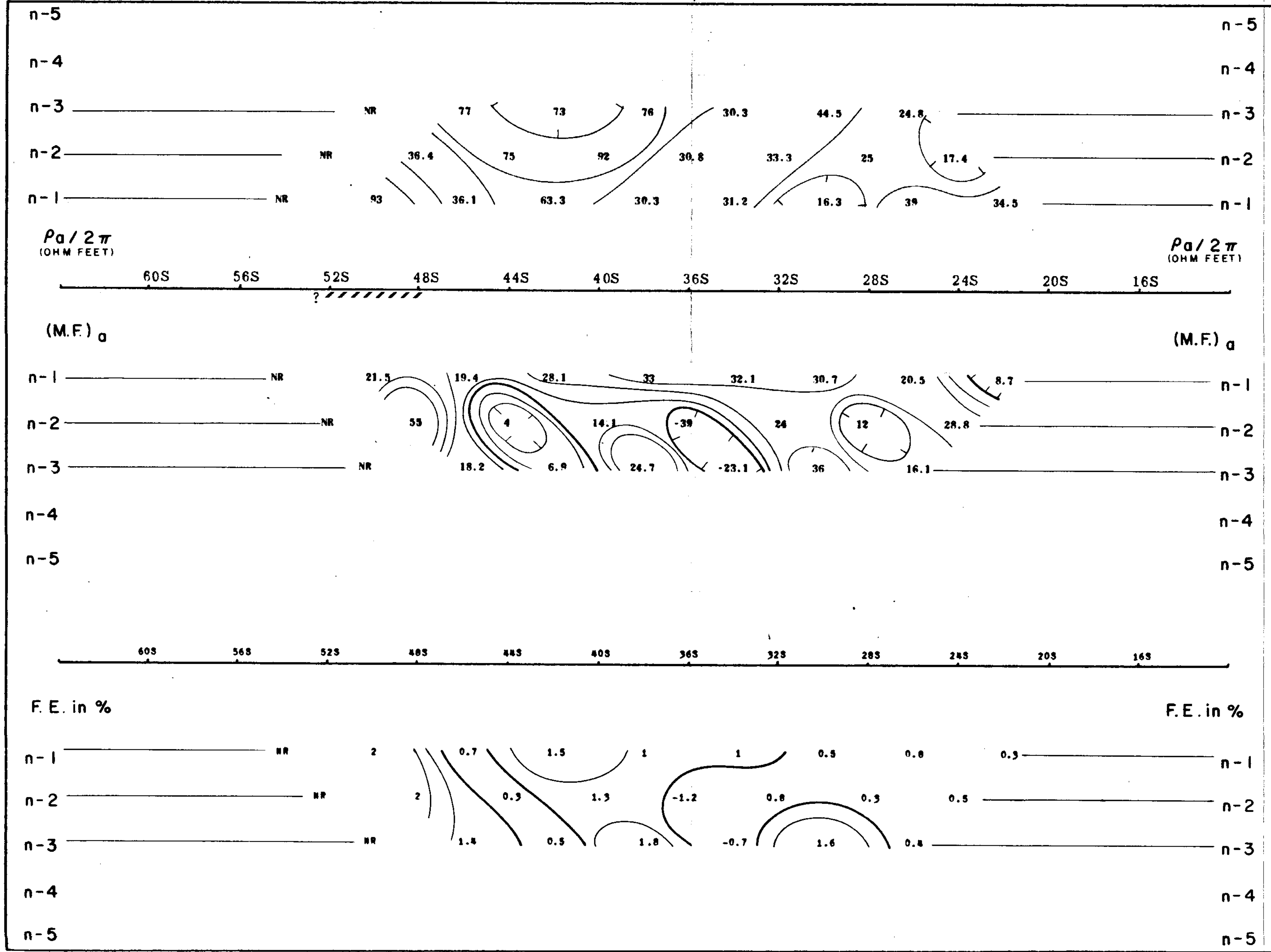
(3)

INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.- I.P.- 5163-3

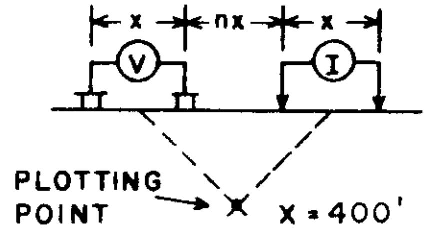
NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D. B.C.

LINE NO.- 40W

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 – 5.0 cps

DATE SURVEYED: AUG /68

APPROVED: [signature]

DATE: Sept. 12 / 68

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

1684

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INDUCED POLARIZATION AND RESISTIVITY SURVEY

DWG. NO.- I.P.-5163-4

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D. B.C.

LINE NO.- 32W

ELECTRODE CONFIGURATION

PLOTTING POINT

x = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES 0.31 - 5.0 cps

DATE SURVEYED AUG. /68

APPROVED

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

DATE Sept 12/68

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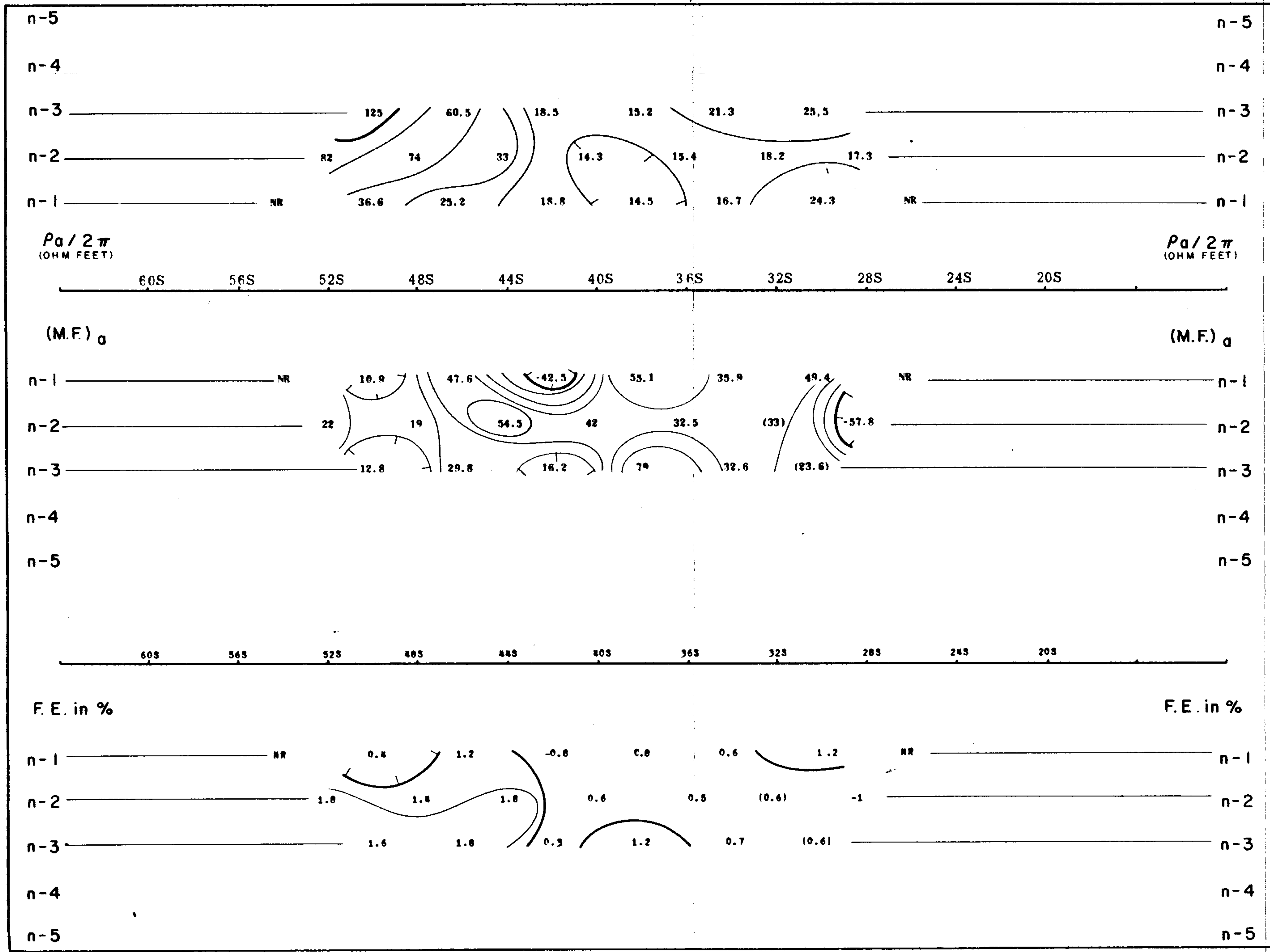
INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.- I.P.- 5163-5

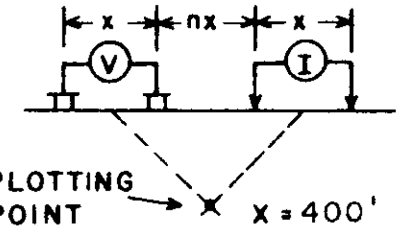
NORANDA EXPLORATION COMPANY LIMITED

WINNEY - CREEK PROPERTY

MERRITT AREA NICOLA M.D. B.C.

LINE NO.- 24W

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0·31 – 5·0 cps

DATE SURVEYED: AUG /68

APPROVED: David K. Fountain

DATE: Sept. 12 / 68

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1-1·5-2-3-5-7·5-10

1684

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INDUCED POLARIZATION AND RESISTIVITY SURVEY

6

DWG. NO.- I.P.- 5163-6

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D B.C.

LINE NO.- 16W

ELECTRODE CONFIGURATION

PLOTTING POINT x = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES 0.31 - 5.0 cps

DATE SURVEYED AUG. /68

APPROVED

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

DATE Sept. 12 /68

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INDUCED POLARIZATION AND RESISTIVITY SURVEY

7

DWG. NO. – I.P. – 5163–7

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D. B.C.

LINE NO. – 8W

ELECTRODE CONFIGURATION

PLOTTING POINT

x = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES 0.31 – 5.0 cps

DATE SURVEYED AUG. /68

APPROVED David K. Fountain

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

DATE Sept. 12/68

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McPHAR GEOPHYSICS (8)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DWG. NO.- I.P.- 5163-8

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D. B.C.

LINE NO.- 0

ELECTRODE CONFIGURATION

PLOTTING POINT

x = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES 0.31 – 5.0 cps

DATE SURVEYED AUG. /68

APPROVED David K. Fountain

DATE Sept. 12 /68

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

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9

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DWG. NO.-I.P.-5163-9

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D. B.C.

LINE NO.- 8E

ELECTRODE CONFIGURATION

PLOTTING POINT

x = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES 0.31 - 5.0 cps

DATE SURVEYED AUG. /68

APPROVED

DATE Sept. 12/68

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

1684

McPHAR

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DWG NO - I.P. - 5163-10

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D. B.C.

LINE NO. - 16E

ELECTRODE CONFIGURATION

PLOTTING POINT

x = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES 0.31 - 5.0 cps

DATE SURVEYED AUG. /68

APPROVED

DATE Sept. 12/68

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

1684

McPHAR

McPHAR GEOPHYSICS (11)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DWG. NO.-I.P-5163-11

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M.D B.C.

LINE NO.- 24E

ELECTRODE CONFIGURATION

PLOTTING POINT

x = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES 0.31 – 5.0 cps

DATE SURVEYED AUG. /68

APPROVED

DATE Sept 12 /68

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

1684

McPHAR

McPHAR GEOPHYSICS

(12)

INDUCED POLARIZATION AND RESISTIVITY SURVEY