1777

PART 1

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

BY

DAVID K. FOUNTAIN, P. ENG.

NAME AND LOCATION OF PROPERTY:

WINNEY CREEK PROPERTY, MERRITT AREA, 50°N, 120°W, SW

DATE STARTED - OCTOBER 11, 1968

DATE FINISHED - OCTOBER 30, 1968

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.

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

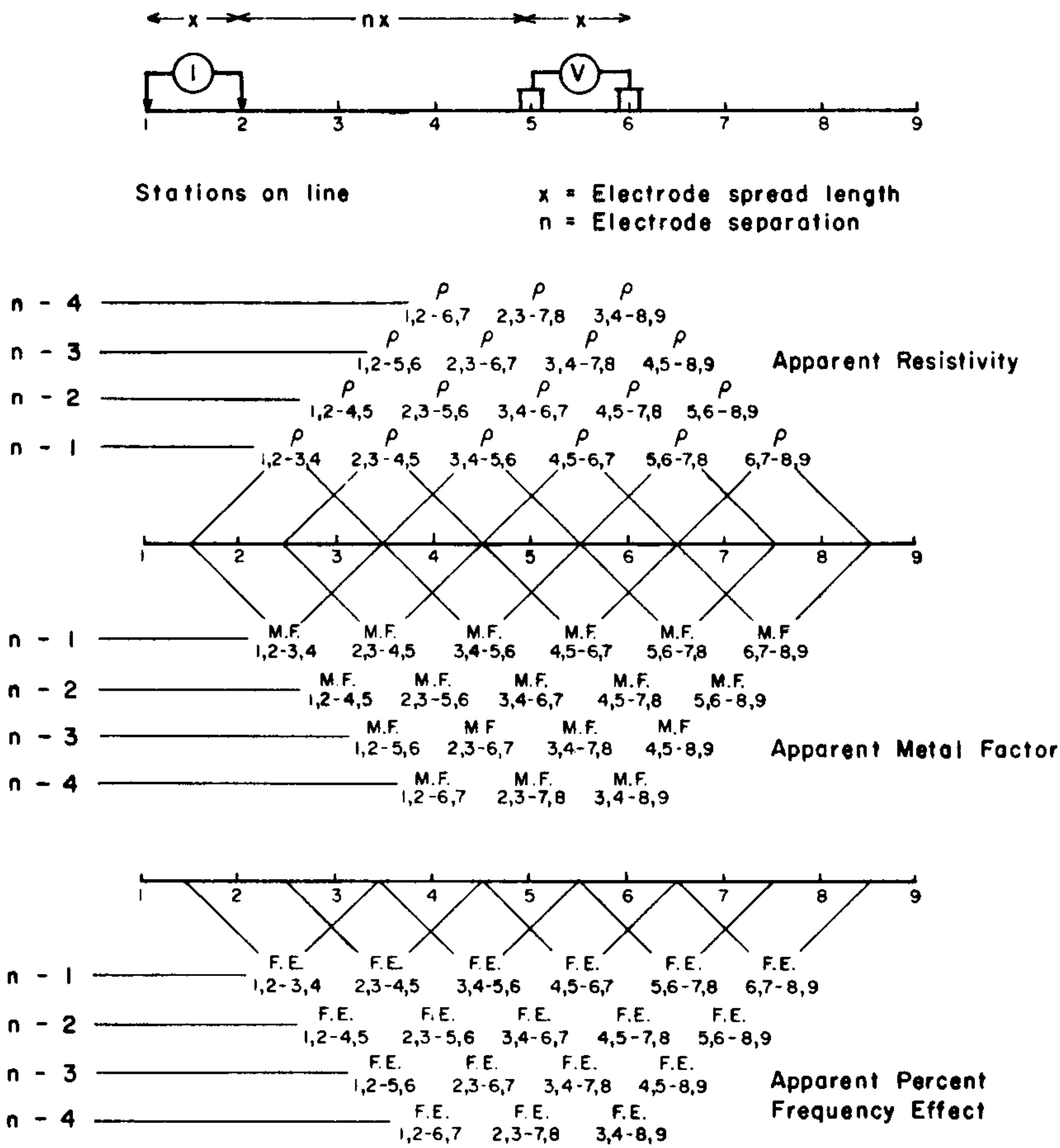


Fig. A

McPHAR GEOPHYSICS LIMITED

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

1. INTRODUCTION

Additional induced polarization and resistivity surveying 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.

A previous IP survey was carried out on the eastern portion of the property by McPhar Geophysics Limited during the period August 13, 1968 to August 31, 1968. The results of this survey are fully reported on in a report by David K. Fountain, P. Eng. dated October 7, 1968. Based upon the results of this previous survey additional claims were staked to the west and south of the previous property limits. The purpose of the IP survey described in this report was to locate any concentration of metallic mineralisation within these new areas as well as correlating them with anomalies indicated in the previous survey. The present survey in no way duplicates the work of the first survey, and contributes new information to the knowledge of the mineral potential of the area concerned.

The IP survey was carried out employing a McPhar variable frequency Induced Polarization unit and utilizing the dipole-dipole electrode configuration. Three dipole separations (n=1, 2, 3) were recorded and the frequencies employed with 0.31 cps and 5.0 cps. In the case of Line 8W five dipole separations (n=1, 2, 3, 4, 5) were recorded to test a specific area of interest. Both 400 foot and 200 foot dipoles were employed in the course of the survey.

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 8W	400 foot spreads	Dwg. IP 5236-1
Line 52W	200 foot spreads	Dwg. IP 5236-2
Line 56W	400 foot spreads	Dwg. IP 5236-3
Line 56W	200 foot spreads	Dwg. IP 5236-4

Line 60W	200 foot spreads	Dwg. IP 5236-5
Line 64W	400 foot spreads	Dwg. IP 5236-6
Line 64W	200 foot spreads	Dwg. IP 5236-7
Line 68W	200 foot spreads	Dwg. IP 5236-8
Line 72W	400 foot spreads	Dwg. IP 5236-9
Line 72W	200 foot spreads	Dwg. IP 5236-10
Line 76W	200 foot spreads	Dwg. IP 5236-11
Line 80W	400 foot spreads	Dwg. IP 5236-12
Line 80W	200 foot spreads	Dwg. IP 5236-13
Line 84W	200 foot spreads	Dwg. IP 5236-14
Line 88W	200 foot spreads	Dwg. IP 5236-15
Line 96W	200 foot spreads	Dwg. IP 5236-16
104W	200 foot spreads	Dwg. IP 5236-17

Enclosed with this report is Dwg. I. P. P. 4473, a plan map of the grid surveyed 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 200' spreads the position of a narrow sulphide body can only be determined to lie between two stations 200' 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

The IP survey has outlined two anomalous zones on the western portion of the property.

Line 8W

The results of the previous IP survey on this line had indicated a weak deep (relative to dipole size) source extending from 44+00S to 34+00S. Only three dipole separations (n=1, 2, 3) had been recorded. This portion of the line was resurveyed utilizing 400 foot dipoles and recording five dipole separations (n=1, 2, 3, 4, 5) to better evaluate the significance of the anomaly. The results of this resurveying has indicated a broad zone of above background IP response extending from 23+00S to 54+00S. The anomaly pattern is complex and irregular. This, coupled with the overall low values of apparent frequency effect recorded, would render the anomaly of secondary importance.

Line 52W

This line was surveyed employing 200 foot dipoles. A distinct narrow anomaly is indicated between 54+00S and 56+00S with probable extension to 60+00S.

Line 56W

The results from the previous IP survey on this line utilizing 400 foot dipoles had indicated the possibility of a weak anomaly coming in at the northern extent of the line. Extension of the effective survey coverage to the north has indicated above background IP response in the area of 28+00S but it cannot be considered a significant anomaly.

The previous IP surveying employing 400 foot dipoles had also indicated a shallow anomaly extending from 48+00S to at least 52+00S. Resurveying this section of the line employing 200 foot dipoles has indicated a distinct anomaly centred between 50+00S and 52+00S with probable extensions to 48+00S and 54+00S. The anomaly pattern would suggest a depth to the source of less than 100 feet between 50+00S and 52+00S.

Line 60W

A distinct anomaly is indicated between 50+00S and 54+00S with probable extension to 57+00S.

Line 64W

Initially this line was surveyed employing 400 foot dipoles. The results indicated a probable shallow anomaly between 48+00S and 56+00S.

A possible anomalous reading on the n=3 separation between 24+00S and 28+00S would suggest a source at depth or the response from a source lying off the line. Surveying of the southern portion of the line with 200 foot dipoles has confirmed a shallow (relative to dipole size) anomaly between 51+00S and 54+00S with probable extension at depth to 57+00S.

Line 68W

This line was surveyed only employing 200 foot dipoles. A distinct anomaly is indicated between 49+00S and 52+00S with probable extension to 47+00S and 57+00S.

Line 72W

This line was initially surveyed employing 400 foot dipoles. Anomalies were indicated between 48+00S and 54+00S and between 20+00S and 28+00S with probable extensions to 32+00S and 18+00S. An increase in IP response on the third separation suggests an anomaly coming in from 12+00S to at least 3+00S.

Detail surveying employing 200 foot dipoles has confirmed a narrow (relative to dipole size) anomaly centred at 52+00S. A broad anomalous area is indicated extending from 17+00S to 35+00S. The strongest IP response occurs between 19+00S and 25+00S. The anomaly pattern would suggest a depth to the source of less than 100 feet.

Line 76W

This line was surveyed only with 200 foot dipoles. A distinct anomaly is indicated, centred between 50+00S and 54+00S. A broad zone of anomalous IP response is indicated extending from 18+00S to 37+00S. The strongest IP response occurs between 20+00S and 26+00S.

Line 80W

Surveying of this line employing 500 foot dipoles indicated a probable shallow anomaly between 50+00S and 53+00S. A distinct shallow (relative to dipole size) anomaly is indicated between 28+00S and 22+00S with probable extensions to 36+00S and 18+00S.

Detail surveying employing 200 foot dipoles has confirmed a distinct anomaly between 56+00S and 51+00S. To the north distinct anomalies which may be interconnected are indicated as centred between 32+00S and 34+00S and extending from 27+00S to 20+00S.

Line 84W

This line was surveyed employing 200 foot dipoles only. A distinct anomaly is indicated between 54+00S and 56+00S. A broad anomaly is also indicated between 35+00S and 20+00S with the strongest response occurring between 20+00S and 24+00S and 30+00S and 34+00S.

Line 88W

A distinct anomaly is indicated centred at 56+00S with probable extension to 59+00S. To the north a broad anomaly extends from 28+00S to 21+00S. A complex anomaly pattern is indicated between 34+00S and 39+00S. This pattern may represent two sources centred between 34+00S and 36+00S and between 38+00S and 40+00S; or a single shallow source between 36+00S and 38+00S. Detail surveying employing 100 foot dipoles would be required to properly evaluate this anomaly.

Line 96W

A distinct anomaly is indicated centred between 60+00S and 62+00S. There are no significant anomalous responses indicated on the north part of the line.

Line 104W

A probable anomaly is indicated between 62+00S and 64+00S on this line.

4. SUMMARY AND CONCLUSIONS

The IP survey has outlined two distinct anomalous areas which warrant further investigation.

Zone A

This zone having dimensions approximately 2200 feet by 1200 feet lies to the north of Base Line 40S between Line 64W and Line 96W. For the most part the source of the anomaly should come within 100 feet of the surface. The broad anomaly patterns suggest areas of more concentrated metallic mineralization within the zone. Detail surveying employing 100 foot dipoles would assist in outlining these smaller areas. The anomaly patterns also suggest an area of higher response lying in the northern portion of the zone. This area would have dimensions of about 1500 feet by 600 feet.

Based upon the geological information available the area of Zone A appears to be underlain by rocks of the Nicola Group. Although outcrops are scarce, outcropping of Nicola Group, chloritized tuff and Nicola Group, argillite occur within Zone A.

Zone B

This long narrow zone lies to the south of Base Line 40S. It has an overall strike length of at least 5000 feet trending approximately east-west. The anomaly patterns suggest a narrow (relative to dipole size) source which comes to within at least 100 feet of the surface. Detail surveying employing 100 foot dipoles would assist in delimiting the anomaly source more accurately. The width of the source would appear for the most part to be about 200 feet. On some lines the anomaly pattern is complex suggesting a broader zone of disseminated mineralization surrounding the more concentrated core. The anomalies on the western portion of the zone, from Line 80W to the west, suggest a narrow distinct source of width less than 200 feet. On Line 80W and to the east the source would appear to be wider and more complex.

Due to the shape of Zone B, the possibility of it being due to cultural effects (buried metallic pipe lines, buried electric cables, or grounded metal fences) must be considered. Although no surface features of this type were noted by the field operator, the presence of buried sources should be further investigated.

Although no outcrops occur within the limits of Zone B, outcrops to the south and east would suggest that it is also underlain by rocks of the Nicola Group. Surface trenching and limited diamond drilling had been carried out to the south and east of the zone, but none of this work would have investigated the anomaly source. This work did however indicate the presence of copper mineralization within the general area.

In normal field applications the IP method does not differentiate between the economic minerals such as chalcopyrite and molybdenite and uneconomic metallic mineralization such as pyrite. Therefore a programme of further work in the form of diamond drilling or trenching would be required to evaluate the economic significance of the anomaly sources. Since the anomaly areas are large and zoning of mineralization is possible the entire zone should be tested. The actual location of diamond drill holes should be decided in light of the geological, geochemical and other geophysical information as well as drilling conditions in the area.

Based upon the available information, the following programme is recommended:

<u>Zone A</u>

<u>Line 76W</u>

Diamond drilling should be carried out to investigate the area between 26+00S and 24+00S; and between 22+00S and 20+00S to a vertical depth of at least 300 feet. The anomaly pattern suggest two narrow concentrated sources within an anomalous zone.

<u>Line 34W</u>

The area between 35+00S and 30+00S should be investigated to a vertical depth of at least 350 feet.

These holes will test the areas of strongest anomalous response in Zone A. In evaluating the results of these holes close attention should be paid to the relationship of economic and uneconomic mineralization as well as the mode of dispersion of any mineralization. The areas of strongest response may not necessarily represent the areas of concentrated economic mineralization.

Zone B

If there are no cultural effects which could explain this anomaly, then the following drilling is recommended:

Line 30W

The area between 55+00S and 52+00S should be investigated to a vertical depth of at least 300 feet. The IP data would suggest a continuation at depth to the south for this anomaly.

Line 60W

Diamond drilling should be carried out to investigate the area between 54+00S and 50+00S to a vertical depth of at least 300 feet. Again the anomaly pattern would suggest a continuation of the anomaly to the south at depth.

In evaluating the results of the drilling of Zone B consideration should be given to a possible formational source to the anomaly.

Further work in the form of diamond drilling or geophysical surveying will depend upon the results of the above recommended programme.

McPHAR GEOPHYSICS LIMITED

David K. Fountain, P. Eng.
Geophysicist.

Dated: December 31, 1968.

Expiry Date Apr 25 1969

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:	75	DATE STARTED: October 11/68
EQUIVALENT 8HR MAN DAYS:	112.5	DATE FINISHED: October 30/68
CONSULTING MAN DAYS:	2	NUMBER OF STATIONS: 351
DRAUGHTING MAN DAYS	10	NUMBER OF READINGS: 2538
TOTAL MAN DAYS:	124.5	MILES OF LINE SURVEYED: 15.5

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

FIELD TECHNICIANS:
T. Blackwell, 35 Duncan Woods Drive, Apt. 304, Weston, Ontario.
W. H. Ruttan, R. R. #2, Bracebridge, Ontario.
Helpers -
E. Morgan, Box 58, Princeton, B. C.
R. [illegible]llen, Box 475, Princeton, B. C.
R. Bernard, Box 427, Princeton, B. C.
A. Wagman, Box 834, Princeton, B. C.

DRAUGHTSMEN:
V. Young, 703 Cortez Avenue, Bay Ridges, Ontario.
N. Lade, 662 Emerson Court, Oshawa, Ontario.
B. Marr, 19 Kenewen Court, Toronto 16, Ontario.
P. Coulson, 77 Peter Street, Markham, Ontario.

McPHAR GEOPHYSICS LIMITED,

David K. Fountain

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

Dated: December 31, 1968.

Declared before me at the *City*

of *Vancouver*, in the

Province of British Columbia, this *5*

day of *February 1967* A.D.

N W Young

[illegible signature]

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia,
Sub-mining Recorder

STATEMENT OF COST

Noranda Exploration Company, Limited
Winney Creek - B. C.

Crew:

15 days Operating	@ $220.00/day	3,300.00
1 day Travel	@ $85.00/day	85.00

Expenses - Crew:

Meals & Accommodation	$1,064.00	
Telephone & Telegraph	2.00	
Supplies	23.06	1,089.06
Extra Labour	$1,148.50 + 20%	1,378.20
		$5,852.26

McPHAR GEOPHYSICS LIMITED,

David K. Fountain, P. Eng.
Geophysicist.

Dated: December 31, 1968.

April 25, 1969

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 13, 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. 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 31st day of December, 1968.

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

DWG. NO.- I.P.- 5236-1

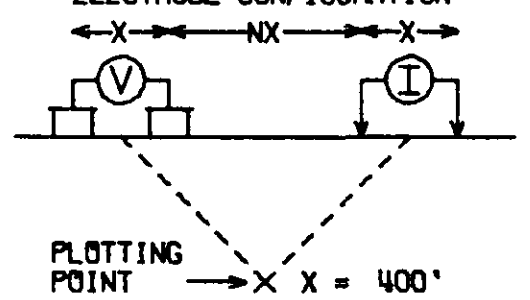
NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 8W

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: 1968

APPROVED

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

DATE:

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

Expiry Date: April 25, 1969

1777

McPHAR GEOPHYSICS

(1)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.-5236-2

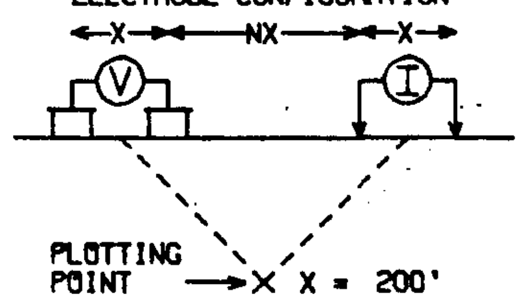
NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 52W

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

D. K. FOUNTAIN

DATE: Dec. 31/1968

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

Expiry Date: April 25, 1969

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

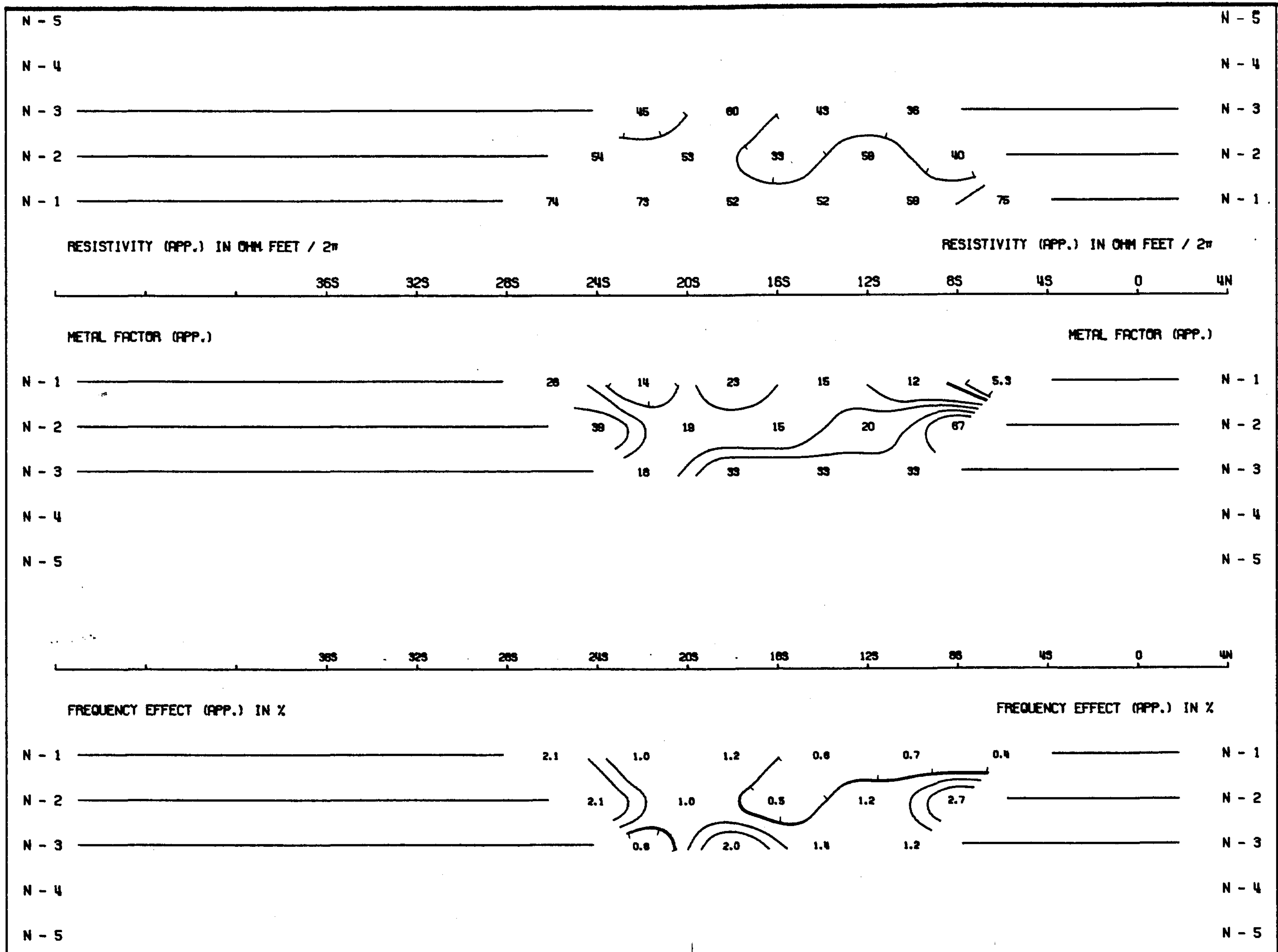
1777

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

(2)

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER



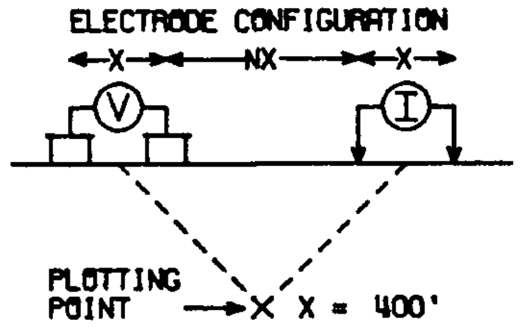
DWG. NO.- I.P.-5236-3

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 56W



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

D. K. FOUNTAIN

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA

Expiry Date: April 25, 1969

DATE:

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

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McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

(3)

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.-5236-4

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 56W

ELECTRODE CONFIGURATION

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

DATE:

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

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

Expiry Date: April 25, 1969

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McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

(4)

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

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NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 60W

ELECTRODE CONFIGURATION

X — NX — X

V I

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

DATE:

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

Expiry Date: April 25, 1969

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

1727

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

(5)

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.-5236-6

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 64W

ELECTRODE CONFIGURATION

PLOTTING POINT X = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED

DATE:

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

Expiry Date: April 25, 1969

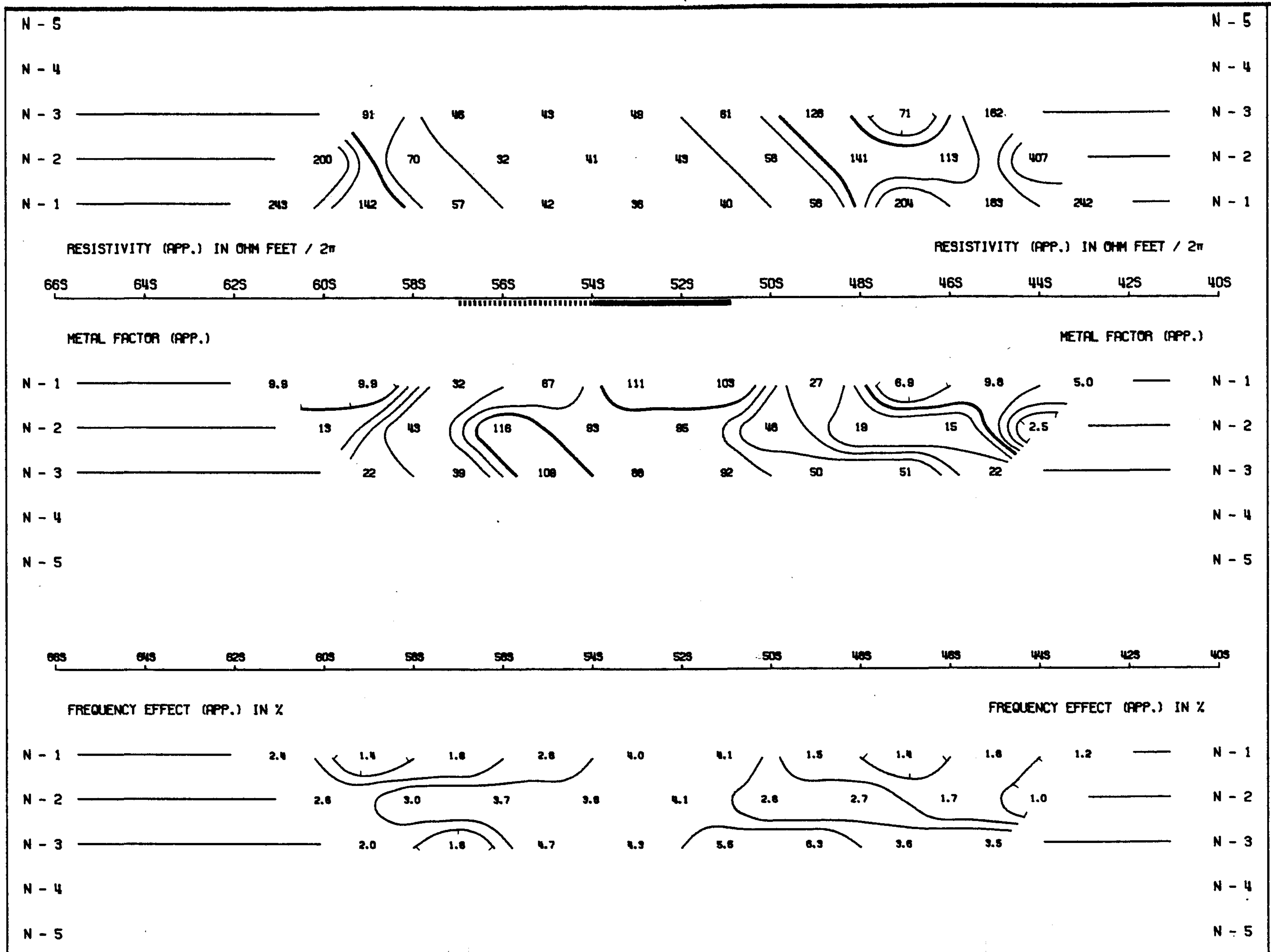
1777

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

(6)

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER



DWG. NO.- I.P.-5236-7

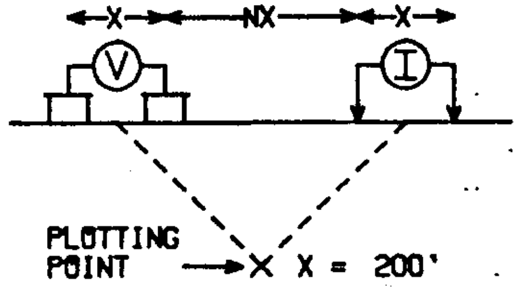
NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 64W

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

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

DATE:

Expiry Date: April 25, 1969

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

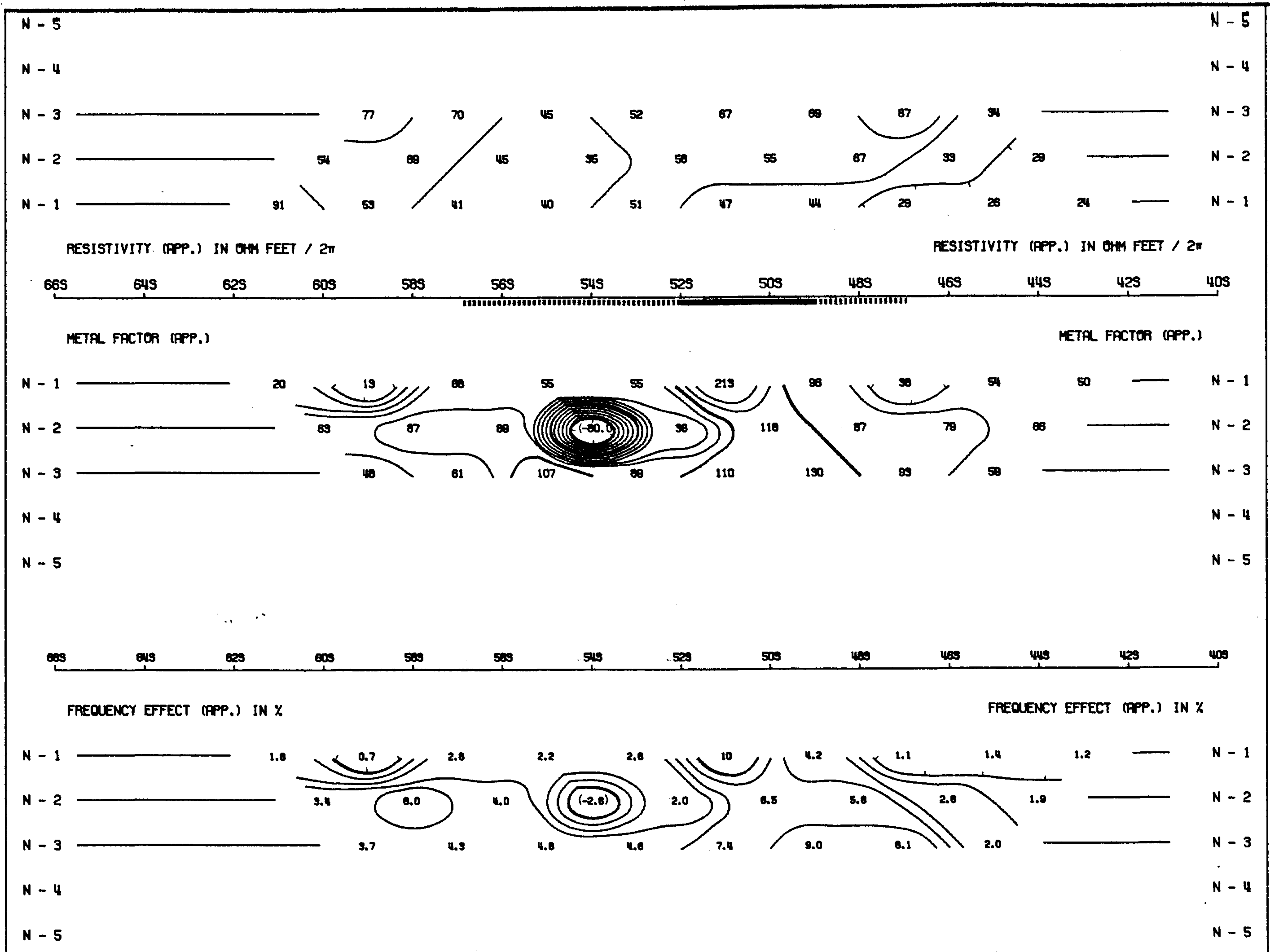
1777

McPHAR GEOPHYSICS

(7)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER



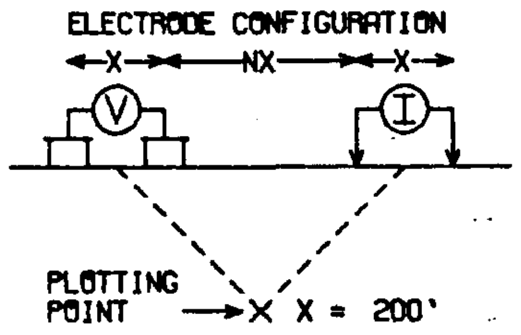
DWG. NO.- I.P.-5236-8

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 68W



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED

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

DATE:

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

Expiry Date: April 25, 1969

1777

McPHAR GEOPHYSICS

(8)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.-5236-9

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 72W

ELECTRODE CONFIGURATION

PLOTTING POINT

X = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

DATE:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

Expiry Date: April 25, 1969

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

1777

McPHAR GEOPHYSICS

(9)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.-5236-10

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 72W

ELECTRODE CONFIGURATION

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

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

DATE:

Expiry Date: April 25, 1969

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

1777

McPHAR GEOPHYSICS

(10)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.- 5236-11

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 76W

ELECTRODE CONFIGURATION

X — NX — X

PLOTTING POINT → X X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

DATE:

Expiry Date: April 25, 1969

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

1777

McPHAR GEOPHYSICS

(11)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.-5236-12

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 60W

ELECTRODE CONFIGURATION

PLOTTING POINT X = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED: [signature]

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

DATE: December 3?/1968

Expiry Date: April 25, 1969

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

1772

McPHAR GEOPHYSICS (12)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.- 5236-13

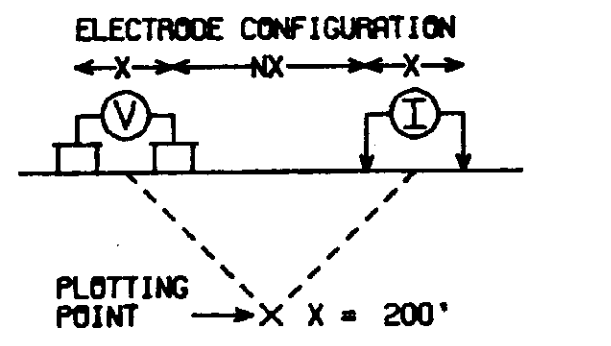
NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 80W

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

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

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED: D. K. Fountain

DATE: Dec. 31, 1968

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

Expiry Date: April 25, 1969

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

1777

McPHAR GEOPHYSICS (13)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

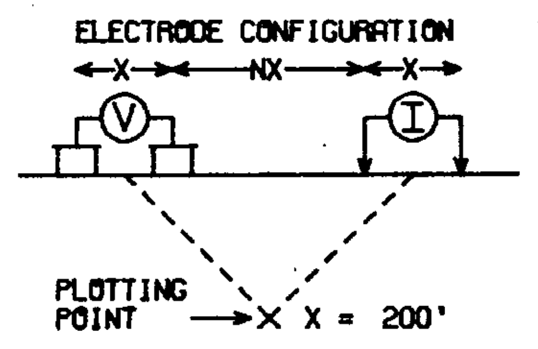
DWG. NO.- I.P.-5236-14

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 84W



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

D. K. FOUNTAIN

DATE: Dec 31/1968

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

Expiry Date: April 25, 1969

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

1777

McPHAR GEOPHYSICS (14)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.- 5236-15

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 88W

ELECTRODE CONFIGURATION

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

DATE:

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

Expiry Date: April 25, 1969

1777

McPHAR GEOPHYSICS (15)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.-5236-16

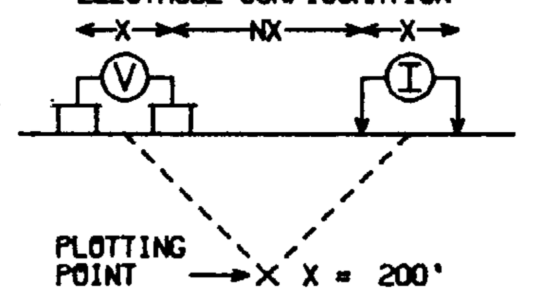
NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 96W

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ———
PROBABLE ||||||||||
POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

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

APPROVED: [signature]

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

DATE: 1968

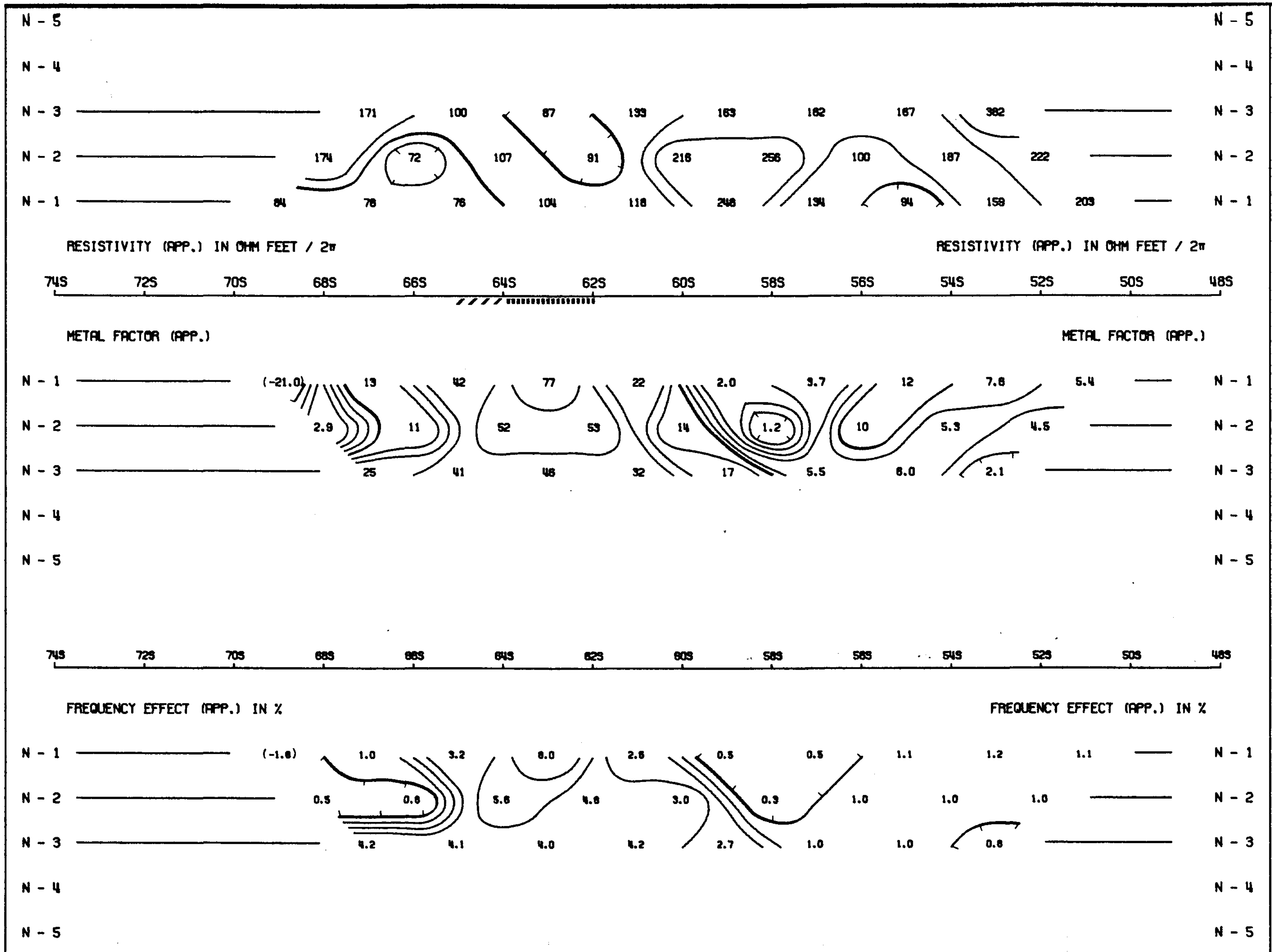
Expiry Date: April 25, 1969

1772

McPHAR GEOPHYSICS (16)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER



DWG. NO.- I.P.-5236-17

NORANDA EXPLORATION COMPANY LIMITED

WINNEY CREEK PROPERTY

MERRITT AREA NICOLA M. D., B. C.

LINE NO.- 104W

ELECTRODE CONFIGURATION

←X→←NX→←X→

PLOTTING POINT →X X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: OCT 1968

APPROVED:

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

DATE:

PROFESSIONAL ENGINEER BRITISH COLUMBIA

177

McPHAR GEOPHYSICS (17)

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/75 COMPUTER AND A CALCOMP PLOTTER

DWG. IPP-4473

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

PLAN MAP

-NOTE-
TO ACCOMPANY GEOPHYSICAL REPORT BY D.K. FOUNTAIN ON THE WINNEY CREEK PROPERTY, MERRITT AREA, NICOLA M.D., B.C.
DATED: DECEMBER 31, 1968

N

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

NOTE

ANOMALOUS I.P. ZONE

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 1777 MAP 1

DRAWN: P.C.
DATE: NOV. 1968

PROFESSIONAL ENGINEER
D.K. FOUNTAIN
BRITISH COLUMBIA

18

DWG. IPP-4473