2227

REPORT ON THE
INDUCED POLARIZATION
AND RESISTIVITY SURVEY
ON THE
KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA,
KAMLOOPS MINING DIVISION, BRITISH COLUMBIA
FOR
NORANDA EXPLORATION COMPANY, LIMITED

Deposit - add ref to MDI for KRAIN
50° 33½ → 35'
120°59' to 121°00½'

92 I /10W, 11E

BY

DAVID K. FOUNTAIN, P. Eng.

NAME AND LOCATION OF PROPERTY:

KRAIN OPTION PROPERTY, HIGHLAND VALLEY AREA

KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

50°N, 121°W, NE; 50°N, 120°W, NW

DATE STARTED - July 19, 1969

DATE FINISHED - September 19, 1969

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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.

The actual data plots included with the report are prepared utilizing an IBM 360/75 Computer and a Calcomp 770/763 Incremental Plotting System. The data values are calculated, plotted, and contoured according to a programme developed by McPhar Geophysics. Certain symbols have been incorporated into the programme to explain various situations in recording the data in the field.

The IP measurement is basically obtained by measuring the difference in potential or voltage (ΔV) obtained at two operating frequencies. The voltage is the product of the current through the ground and the apparent resistivity of the ground. Therefore in field situations where the current is very low due to poor electrode contact, or the apparent resistivity is very low, or a combination of the two effects; the value of (ΔV) the change in potential will be too small to be measurable. The symbol "TL" on the data plots indicates this situation.

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

In certain situations negative values of Apparent Frequency Effect are recorded. This may be due to the geologic environment or spurious electrical effects. The actual negative frequency effect value recorded is indicated on the data plot, however the symbol "NEG" is indicated for the corresponding value of Apparent Metal Factor. In contouring negative values the contour lines are indicated to the nearest positive value in the immediate vicinity of the negative value.

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

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

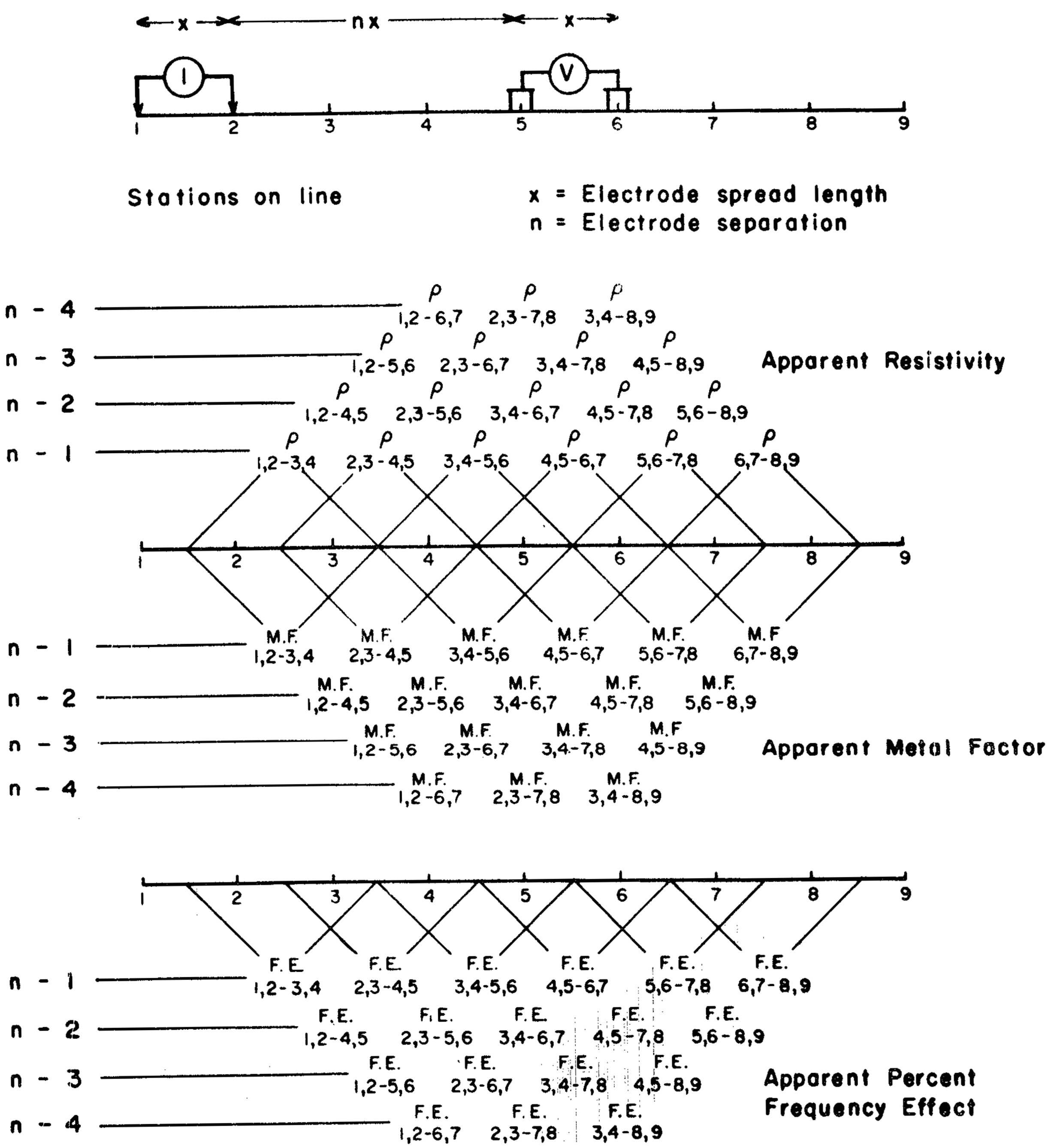

Fig. A

McPHAR GEOPHYSICS LIMITED

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE KRAIN OPTION PROPERTY HIGHLAND VALLEY AREA, KAMLOOPS MINING DIVISION, BRITISH COLUMBIA FOR NORANDA EXPLORATION COMPANY, LIMITED

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1. INTRODUCTION

During the period July 19, 1969 to August 15, 1969, September 1, 1969 to September 9, 1969, and September 13, 1969 to September 19, 1969, an induced polarization and resistivity survey was carried out on the Krain Option Property of Noranda Exploration Company, Limited in the Highland Valley Area, Kamloops Mining Division, British Columbia. The claim group is located approximately 15 miles southeast from the town of Ashcroft, B.C. and straddles the longitude 121°W so that it lies both in the northeast quadrant of the one degree quadrilateral whose southeast corner is 50°N latitude and 121°W longitude and in the northwest quadrant of the one degree quadrilateral whose southeast corner is 50°N latitude and 120°W longitude. Access to the claim group is via road from Ashcroft and the Highland Valley.

The geophysical survey work discussed in this report was carried out on the following claims of the Krain Option Property, all of which are located in the Kamloops Mining Division.

DW 1	23810
DW 2	23811
DW 3	23812
DW 4	23813
DW 5	23814
DW 6	23815
DW 1 FR	23840
Krain Copper MC	5298
Krain 1	14939
Krain 2	14940
Krain 3	14941
Krain 5	14943
Krain 8	14946
Krain 9	14947
Krain 10	14948
Krain 11	14949
Krain 12	14950
Krain 13	14951
Krain 14	14952
Krain 1 FR	20504
Krain 2 FR	20505
Krain 3 FR	20506
Krain 4 FR	20507
Krain 5 FR	20508
Krain 6 FR	20509

The claims are beneficially owned by Comet Krain Mining Corporation Ltd. (NPL) under option to North Pacific Mines Ltd. (NPL) and held by Estey Agencies Ltd. as trustees. The claims are further optioned by Krain and North Pacific Mines Ltd. (NPL) to Thermochem Industries Limited (name recently changed to Brameda Resources Limited).

The IP survey work was authorized and paid for by Noranda Exploration Company, Limited (NPL) which has a working agreement with Thermochem Industries Limited.

The survey area is underlain mainly by intrusive rocks of the Guichon Creek Batholith with volcanic rocks overlying the intrusive rocks in the northwest and southeast portions of the property. Previous work on the claim area including geology, geochemistry, geophysics and diamond drilling has indicated a disseminated sulphide deposit of possible economic significance lying within the intrusive near the surface contact with the volcanics. The present IP survey was carried out as part of a re-evaluation of the economic potential of the property and in particular to attempt to locate any new concentrations of sulphide mineralization, and better define the known one.

The IP survey was carried out employing a McPhar variable frequency induced polarization unit utilizing the dipole-dipole electrode configuration and 200 foot dipoles. Detail surveying was carried out on Line 44N utilizing 400 foot dipoles. Three dipole separations (n = 1, 2, 3) were recorded and the frequencies employed were 0.31 Hz and 5.0 Hz.

2. PRESENTATION OF RESULTS

The induced polarization and resistivity results are shown on the data plots listed below and are summarized on the plan map in the manner described in the notes preceding this report.

Line 24S	200 foot electrode intervals	Dwg. IP 5392-1
Line 20S	200 foot electrode intervals	Dwg. IP 5392-2
Line 16S	200 foot electrode intervals	Dwg. IP 5392-3
Line 12S	200 foot electrode intervals	Dwg. IP 5392-4
Line 8S	200 foot electrode intervals	Dwg. IP 5392-5
Line 4S	200 foot electrode intervals	Dwg. IP 5392-6
Line 0	200 foot electrode intervals	Dwg. IP 5392-7
Line 4N	200 foot electrode intervals	Dwg. IP 5392-8
Line 8N	200 foot electrode intervals	Dwg. IP 5392-9
Line 12N	200 foot electrode intervals	Dwg. IP 5392-10
Line 16N	200 foot electrode intervals	Dwg. IP 5392-11
Line 20N	200 foot electrode intervals	Dwg. IP 5392-12
Line 24N	200 foot electrode intervals	Dwg. IP 5392-13
Line 28N	200 foot electrode intervals	Dwg. IP 5392-14
Line 32N	200 foot electrode intervals	Dwg. IP 5392-15
Line 36N	200 foot electrode intervals	Dwg. IP 5392-16
Line 40N	200 foot electrode intervals	Dwg. IP 5392-17
Line 44N	200 foot electrode intervals	Dwg. IP 5392-18
Line 44N	400 foot electrode intervals	Dwg. IP 5392-19
Line 48N	200 foot electrode intervals	Dwg. IP 5392-20
Line 52N	200 foot electrode intervals	Dwg. IP 5392-21
Line 56N	200 foot electrode intervals	Dwg. IP 5392-22
Line 60N	200 foot electrode intervals	Dwg. IP 5392-23

Line 64N	200 foot electrode intervals	Dwg. IP 5392-24
Line 68N	200 foot electrode intervals	Dwg. IP 5392-25
Line 72N	200 foot electrode intervals	Dwg. IP 5392-26
Line 76N	200 foot electrode intervals	Dwg. IP 5392-27
Line 80N	200 foot electrode intervals	Dwg. IP 5392-28
Line 84N	200 foot electrode intervals	Dwg. IP 5392-29
Line 88N	200 foot electrode intervals	Dwg. IP 5392-30

Enclosed with this report is Dwg. IPP 4565, a plan map of the area surveyed at a scale of one inch equals four hundred feet. 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 electrode interval; i. e. when using 200 foot electrode intervals the position of a narrow sulphide body can only be determined to lie between two stations 200 feet apart. 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 names 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

A total of twenty-nine east-west lines was surveyed with the IP method. The general survey area can be divided up, on the basis of the geophysical results, into two quite distinct portions. Within one area the background values of Apparent Resistivity are of the order of, or greater than, 200 ohm feet/2π while in the other area the values of Apparent Resistivity are much lower, generally of the order of, or less than, 100 ohm feet/2π . Experience in the Highland Valley area has indicated that the area of higher Apparent Resistivity values generally represents the intrusive rock which is the host rock of the economic metallic mineralization. On the other hand the areas of lower Apparent Resistivity are usually indicative of the volcanic rocks or perhaps areas of deep gravel overburden cover.

On the accompanying plan map (Dwg. IPP 4565) the approximate location of the contact between the higher resistivity area and the lower resistivity areas has been indicated. Available geologic information tends to confirm that the lower resistivities on the eastern portion of Line 24S through to and including Line 32N, and on the western portion of Line 32N through to and including Line 56N represents the volcanic rocks. The values of low Apparent Resistivity on the lines to the north of Line 56N may be due to the overlying volcanic rocks, deep gravel overburden cover or a combination of the two.

Since 200 foot dipoles and three dipole separations were used throughout the survey a depth of volcanic rock, or overburden cover of the order of 300 feet would tend to mask any anomalous response from the underlying intrusive.

Again based upon experience in the Highland Valley area and due to the differences in background resistivity, it has been found that values of Apparent Metal Factor will occur within areas of volcanic and overburden cover which are much higher than those normally obtained over known zones of economic mineralization within the intrusive. Therefore close attention must be paid to the values of Apparent Frequency Effect while evaluating the relative significance of the anomalous IP response.

<u>Line 24S</u>

A broad zone of above background Apparent Metal Factor is indicated between 11+00E and 18+00E. However, it occurs within an area of low resistivities and only moderate Apparent Frequency effects.

<u>Line 20S</u>

Correlating with the results on Line 24S a similar zone of above background Apparent Metal Factor values is indicated between 10+00E and 17+00E.

Line 16S

Weak, shallow responses occurring within the low resistivity environment are indicated between 12+00E and 15+00E and between 18+00E and 20+00E. A complex weak anomalous response within the higher resistivity environment is indicated from 0+00 to 4+00E.

Line 12S

Weakly anomalous IP response is indicated on the first dipole separation between 15+00E and 18+00E. The distinct resistivity low between 16+00E and 18+00E correlates with a stream bed. To the west within the higher resistivity environment weak, narrow, shallow anomalies are indicated between 2+00E and 4+00E and from 0+00 to at least 2+00W.

Line 8S

Correlating with the results on Line 12S, above background values of Apparent Metal Factor are indicated from 15+00E to 18+00E. However the resistivity low between 16+00E and 18+00E correlates with a stream bed. Weakly anomalous IP response is indicated from 0+00 to at least 2+00W. Effective survey coverage would have to be extended to the west to properly evaluate this response.

Line 4S

A broad zone of near-surface, above background values of Apparent Metal Factor occur between 11+00E and 17+00E. To the west.

within the higher resistivity environment, isolated anomalous values occur at 6+00E and between 0+00 and 2+00E.

Line 0

A distinct, shallow, resistivity low and correlating above background Apparent Metal Factor values is indicated between 18+00E and 20+00E which correlates with a swampy area. Within the higher resistivity environment a weak, narrow shallow anomaly is indicated between 8+00E and 10+00E.

Line 4N

Correlating with the results on Line 0 and a swampy area, a distinct resistivity low and correlating higher values of Apparent Metal Factor is indicated centred between 18+00E and 20+00E. Just to the west of the contact between the low resistivity and high resistivity environment a possible anomaly is indicated, centred at depth beneath 10+00E. The anomaly pattern would suggest a depth to the source of about 200 feet.

Line 8N

Above background values of Apparent Metal Factor are indicated between 16+00E and 19+00E within the low resistivity environment. However, lack of a significant increase in values of Apparent Frequency Effect suggests that they only reflect the lower resistivity. To the west of the contact a weak, shallow anomaly is indicated centred at 10+00E.

Line 12N

A narrow, possible anomaly, within the higher resistivity environment, is indicated centred between 2+00W and 4+00W. At the extreme eastern end of the line a broad zone of higher values of Apparent Metal Factor extends from 17+00E to at least 22+00E with a weaker response extending to 13+00E. However, there is no correlating significant increase in values of Apparent Frequency Effect. More detailed information would be required on the geology in this particular area to properly evaluate the significance of the IP response.

Line 16N

There are no significant anomalous IP responses indicated on this line.

Line 20N

Above background values of Apparent Metal Factor are indicated between 19+00E and 21+00E and from 23+00E to at least 25+00E.

Line 24N

There are no significant anomalous IP responses indicated on this line.

Line 28N

Shallow, low resistivity response with associated above background values of Apparent Metal Factor is indicated from 22+00E to at least 26+00E.

Line 32N

Correlating with the response on Line 28N values of low resistivity with associated above background values of Apparent Metal Factor are indicated from 23+00E to at least 27+00E. The lack of any significant Apparent Frequency Effect response suggests that the source may not be metallic mineralization.

Line 36N

There are no significantly anomalous IP responses indicated by the survey data on this line.

Line 40N

A distinct anomaly of moderate magnitude is indicated between 2+00W and 2+00E. The anomaly pattern would suggest that the shallowest portion occurs between 0+00 and 2+00E while the main portion of the source is located at greater depth between 2+00W and 0+00. This response would appear to represent the southern extent of the known Krain deposit.

Line 44N

Surveying of this line utilizing 200 foot dipoles has indicated a distinct anomaly from 2+00E to 3+00W with probable extension to 7+00W. The anomaly pattern would suggest a shallow source centred at 0+00 and a second deeper source centred beneath 6+00W. Resurveying with 400 foot dipoles confirms the interpretation of a shallow source centred at 0+00 and a second deeper source to the west.

Line 48N

Correlating with the results on Line 44N distinct anomalies are indicated between 2+00W and 2+00E and between 6+00W and 3+00W. The anomaly patterns suggest a deeper source to the west and a shallow source to the east as on the previous line.

A second weak, possible anomaly suggesting a source at depth is indicated between 14+00E and 16+00E. Above background values of Apparent Metal Factor associated with low resistivity values occur at the extreme eastern end of the line from 28+00E to at least 30+00E.

Line 52N

A distinct anomaly which would appear to indicate the northern limit of the mineralization associated with the Krain Deposit is indicated between 2+00W and 0+00 with probable extension to 2+00E and 4+00W.

Above background values of Apparent Metal Factor associated with low resistivity values are indicated at 10+00W, from 14+00W to 18+00W, and from 27+00E to at least 30+00E.

Line 56N

This line appears to almost parallel the contact between the low resistivity and high resistivity environments. A probable anomaly is indicated between 2+00W and 2+00E which could represent a weaker northern extension of the Krain mineralization.

Above background values of Apparent Metal Factor associated with lower resistivities are indicated from 27+00E to at least 29+00E and from 6+00W to at least 12+00W. In particular the distinct shallow low resistivity values and associated high value of Apparent Metal Factor between 8+00W and 6+00W correlates with a small lake or pond.

Line 60N

This line lies almost entirely within the low resistivity environment. Above background IP response is indicated from 20+00E to 23+00E, from 2+00W to 5+00E and from 9+00W to at least 13+00W.

Line 64N

Shallow, possible and probable anomalies are indicated between 5+00W and 0+00, at 14+00E and from 23+00E to 27+00E.

Line 68N

Broad zones of above background values of Apparent Metal Factor related to areas of low resistivity are indicated from 1+00W to 3+00E and from 11+00E to 17+00E. There is no corresponding significant increase in values of Apparent Frequency Effect.

Line 72N

Higher values of Apparent Metal Factor are indicated at 10+00E from 18+00E to at least 10+00E and from 5+00E to at least 3+00E.

Line 76N

A possible anomaly is indicated from 4+00E to 7+00E whose pattern would suggest a source at some depth. A second anomaly is indicated extending from 15+00E to at least 20+00E.

Line 80N

Correlating with the response on Line 76N a possible anomaly is indicated from 8+00E to at least 6+00E and from 15+00E to at least 22+00E.

Line 84N

Complex, possible and probable anomalies are indicated between 12+00E and 14+00E and between 16+00E and 19+00E.

Line 88N

Weak, shallow, possible anomalies are indicated centred between 8+00E and 10+00E, 12+00E and 14+00E, and 16+00E and 18+00E.

4. SUMMARY AND CONCLUSIONS

The results of the IP survey have outlined two areas of quite different resistivity background. Based upon experience in the area the higher resistivity area would appear to indicate the favourable intrusive rock while the lower resistivity values outline areas of the unfavourable volcanic rocks, or deep gravel overburden, or a combination of the two. Considering the dipole sizes and number of separations employed, about 300 feet of volcanic rock or overburden would tend to mask any IP response from mineralization within the underlying intrusive.

The most distinct IP anomalies are indicated over the known Krain Deposit. There are no other comparable anomalies located within the high resistivity environment although some narrow, weak responses are indicated particularly in the southern portion of the grid.

Within the low resistivity environment there are several areas of higher values of Apparent Metal Factor. However, most of these zones do not have associated significant values of Apparent Frequency Effect and appear to be due mainly to variations in the resistivity. In several cases there are however, some increase in Apparent Frequency Effect and/or the anomaly pattern would suggest a source at depth. These situations may warrant further investigation. In particular the following anomalies or zones would fall into this classification:

(a) Line 12N, 14+00E to 22+00E.

(b) The northern extension of the known Krain Deposit on Line 56N, 2+00W to 2+00E; and Line 60N, 2+00W to 3+00E.

(c) Line 64N, 4+00W to 2+00W.

(d) Line 76N, 4+00E to 7+00E.

(e) Line 80N, 16+00E to 22+00E.

In some of the above cases the effective survey coverage would have to be extended to the east or west in order to properly evaluate the anomaly.

MCPHAR GEOPHYSICS LIMITED

David K. Fountain, P. Eng.
Geophysicist.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

Expiry Date: April 25, 1970

Dated: November 28, 1969.

ASSESSMENT DETAILS

PROPERTY: Krain Option Property

MINING DIVISION: Kamloops

SPONSOR: Noranda Exploration Company, Limited

PROVINCE: British Columbia

LOCATION: Highland Valley Area

TYPE OF SURVEY: Induced Polarization

OPERATING MAN DAYS:	124	DATE STARTED:	July 19, 1969
EQUIVALENT 8HR. MAN DAYS:	186	DATE FINISHED:	September 19, 1969
CONSULTING MAN DAYS:	3	NUMBER OF STATIONS:	607
DRAUGHTING MAN DAYS:	10	NUMBER OF READINGS:	4365
TOTAL MAN DAYS:	199	MILES OF LINE SURVEYED:	22.5

CONSULTANT:
D.K. Fountain, 44 Highgate Road, Toronto 18, Ontario.

FIELD TECHNICIANS:
K. Drobot, c/o 20122 64th Avenue, Langley, B.C.
J. Anderson, Box 17, Site 13, R.R. #8, Edmonton, Alberta.

FIELD HELPERS:
E. Drobot, c/o General Delivery, Ashcroft, B.C.
F. Bara, c/o General Delivery, Ashcroft, B.C.
J. Beenan, 1120 Bentley Place, Kamloops, B.C.

DRAUGHTSMEN:
D. Holmes, 42 Langborne Place, Don Mills, Ontario.
B. Marr, 19 Kenewen Court, Toronto 16, Ontario.
J. Duffy, 7 Waddington Crescent, Willowdale, Ontario.

McPHAR GEOPHYSICS LIMITED

David K. Fountain

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

Expiry Date: April 25, 1970

Dated: November 28, 1969.

STATEMENT OF COST

Noranda Exploration Company, Limited
IP Survey - Highland Valley Area - Krain Option Property, B.C.

Crew

31 days Operating		@ $220.00/day	6,820.00
5-3/4 days Bad Weather) 3 days Travel)	8-3/4 days	@ $ 85.00/day	743.75

Expenses - Crew

Transportation - Air	68.45	
Taxis	14.38	
Freight and Brokerage	128.91	
Meals and Accommodation	98.62	
Telephone and Telegraph	33.82	
Supplies	44.20	
Vehicle Expenses	237.29	
Rented Vehicles	319.38	
Mileage Allowance	6.33	
Miscellaneous	105.57	1,056.95
Extra Labour	1,614.01	
+ 20%	32.28	1,646.29
		$10,266.99

McPHAR GEOPHYSICS LIMITED

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

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

Expiry Date: April 25, 1970

Dated: November 28, 1969.

Declared before me at the City of Vancouver, in the Province of British Columbia, this 9 day of January 1969, A.D.

N W Young

Joan Bunce

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 Geophysicits and the Canadian Institue of Mining and Metallurgy.

4. I am a registered Professional Engineer in the Provinces of British Columbia and Ontario, and have been practising my profession for eight 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 28th day of November, 1969.

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

PROFESSIONAL ENGINEER
PROVINCE
D. K. FOUNTAIN
BRITISH COLUMBIA

Expiry Date: April 25, 1970

INSERT

LARGE

FORMAT

31 MAPS

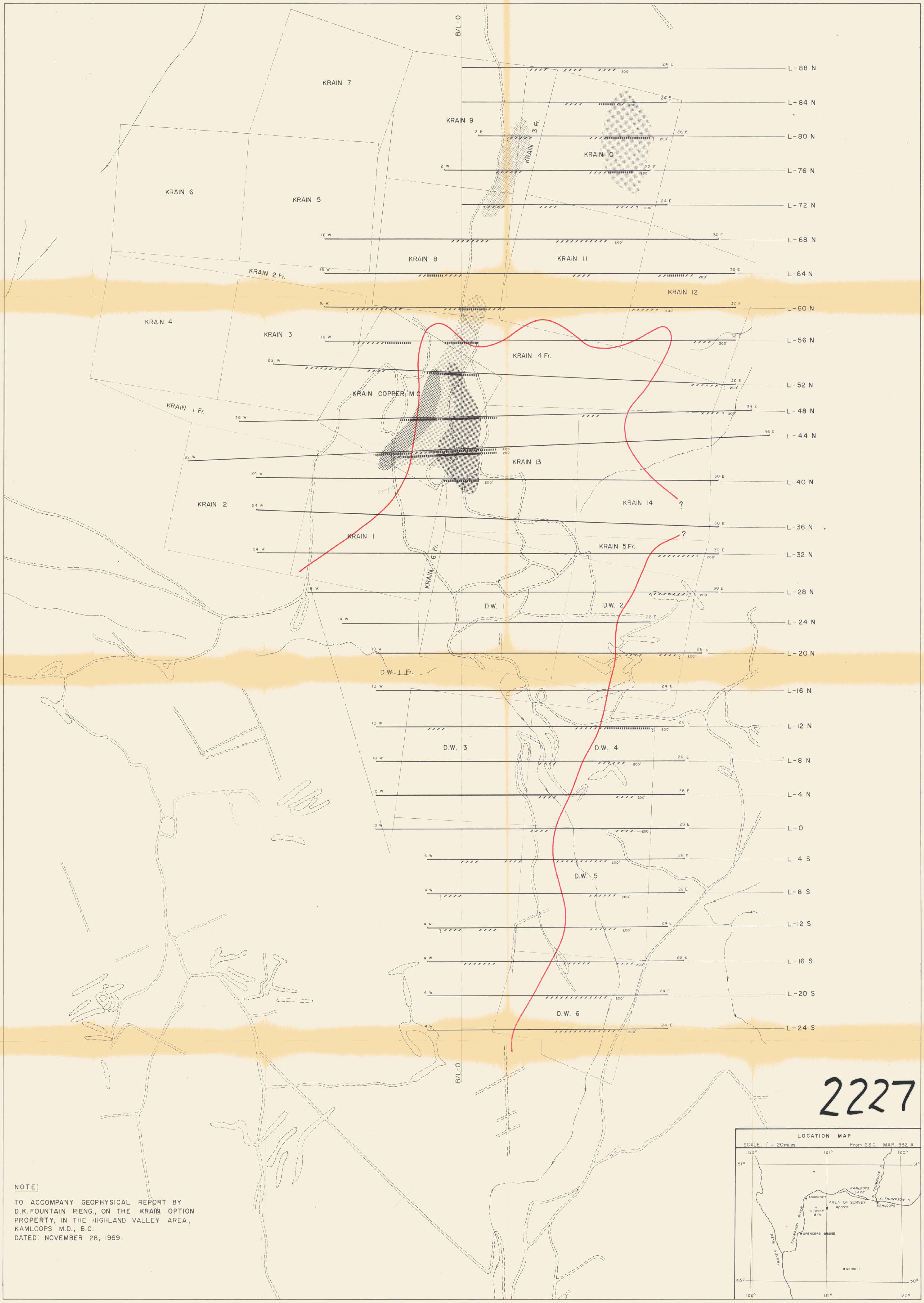
2227

DWG. IPP 4565

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

PLAN MAP



NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY, HIGHLAND VALLEY AREA

KAMLOOPS M.D., B.C.

SCALE

ONE INCH EQUALS FOUR HUNDRED FEET

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

Number at the end of anomaly indicates spread used

APPROXIMATE CONTACT BETWEEN LOW RESISTIVITY AND HIGH RESISTIVITY AREAS.

DRAWN
DATE: NOVEMBER 1969
APPROVED

DWG. IPP 4565

2227

DWG. NO.- I.P.-5392-1

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 24S

ELECTRODE CONFIGURATION

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: AUG 1969

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

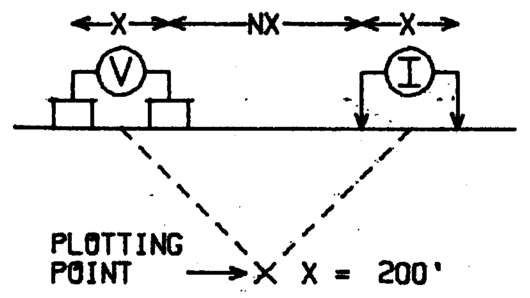
DWG. NO.- I.P.-5392-2

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 20S

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: AUG 1969

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227 DWG. NO.- I.P.-5392-3

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 16S

ELECTRODE CONFIGURATION

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: AUG 1969

APPROVED:

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

DATE:

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-4

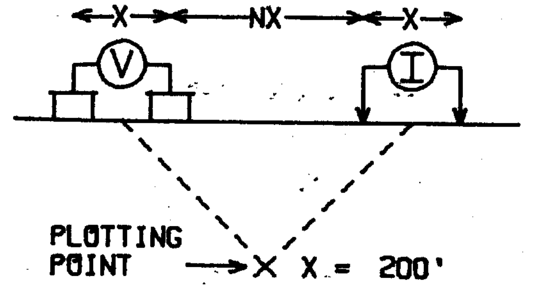
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 12S

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-5

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 8S

ELECTRODE CONFIGURATION

PLOTTING POINT → X X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES
DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

APPROVED

DATE:

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

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227 DWG. NO.- I.P.-5392-6

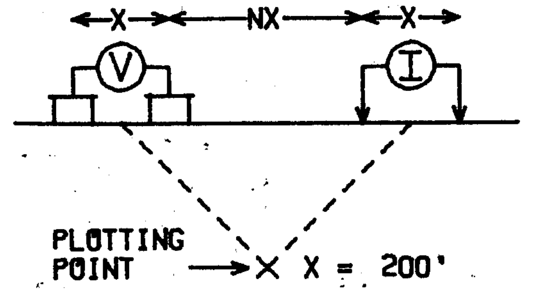
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 4S

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: AUG 1969

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2727

DWG. NO.- I.P.-5392-7

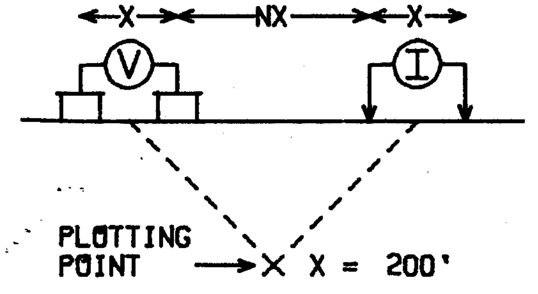
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 0

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

APPROVED:

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

DATE:

Expiry Date: April 25, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-8

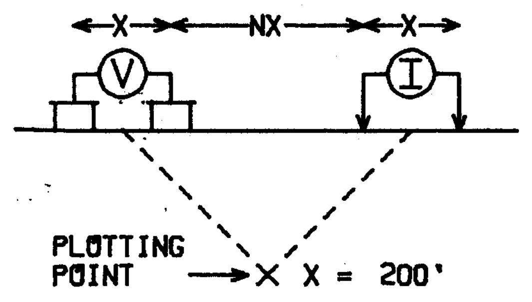
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 4N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

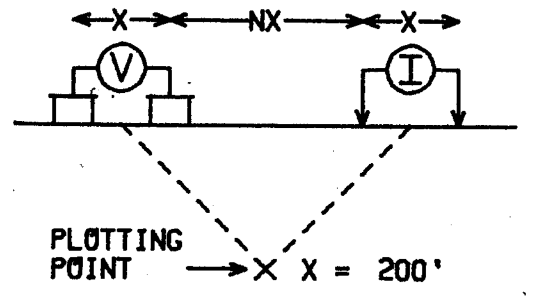
2727 DWG. NO.- I.P.-5392-9

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 8N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES
DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

APPROVED

DATE

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-10

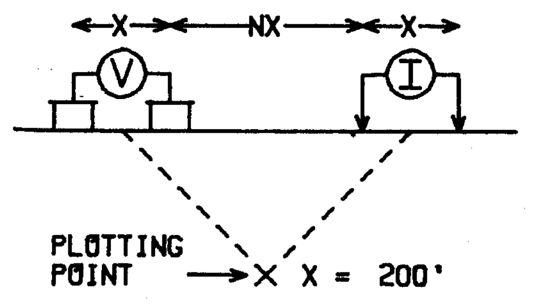
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 12N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-11

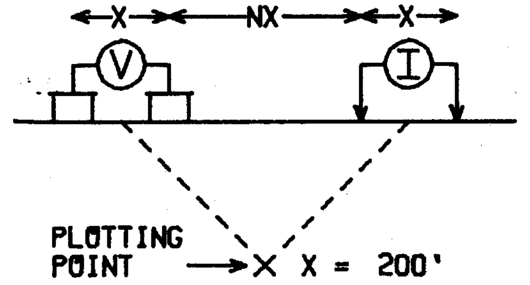
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 16N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

APPROVED

DATE

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

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227 DWG. NO.- I.P.-5392-12

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 20N

ELECTRODE CONFIGURATION

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES
DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

APPROVED

DATE:

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, D. K. FOUNTAIN
Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-13

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 24N

ELECTRODE CONFIGURATION

X — NX — X

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-14

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 28N

ELECTRODE CONFIGURATION

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

APPROVED:

DATE:

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. K. FOUNTAIN

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-15

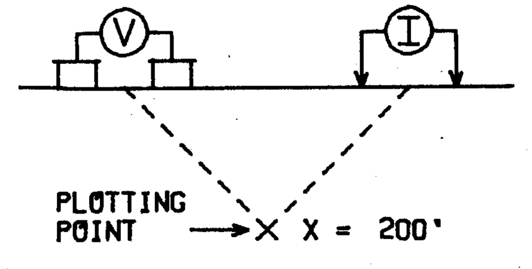
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 32N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

APPROVED: David K. Fountain

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

DATE: Nov. 28/69

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

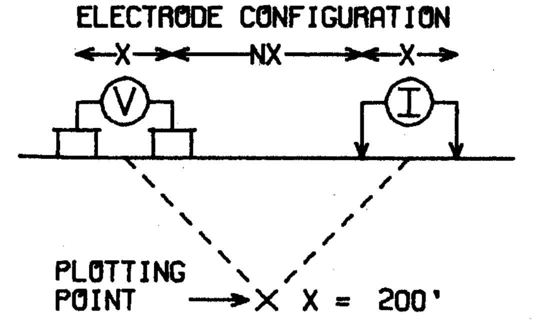
DWG. NO.- I.P.-5392-16

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 36N



SURFACE PROJECTION OF ANOMALOUS ZONES

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

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

APPROVED: David K. Fountain

DATE: Nov 28/69

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

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

Expiry Date: April 25, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

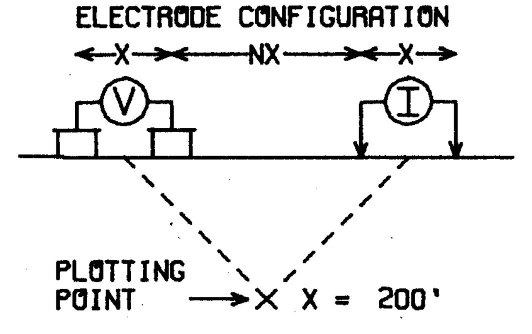
DWG. NO.- I.P.-5392-17

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 40N



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

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

APPROVED: David K. Fountain

D. K. FOUNTAIN

DATE: March 28/69

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

Expiry Date: April 25, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-18

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 44N

ELECTRODE CONFIGURATION

—X— —NX— —X—

PLOTTING POINT

X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: AUG 1969

APPROVED

DATE

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227 DWG. NO.- I.P.-5392-19

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 44N

ELECTRODE CONFIGURATION

PLOTTING POINT X = 400'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: JUL 1969

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-20

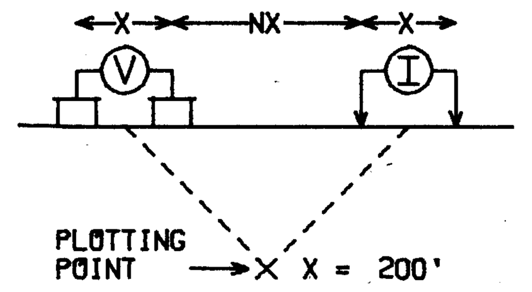
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

LINE NO.- 48N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: AUG 1969

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

APPROVED: D. K. FOUNTAIN

DATE: Nov. 28/69

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

Expiry Date: April 25, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-21

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA
KAMLOOPS M.D., B.C.

LINE NO.- 52N

ELECTRODE CONFIGURATION

X — NX — X

PLOTTING POINT — X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

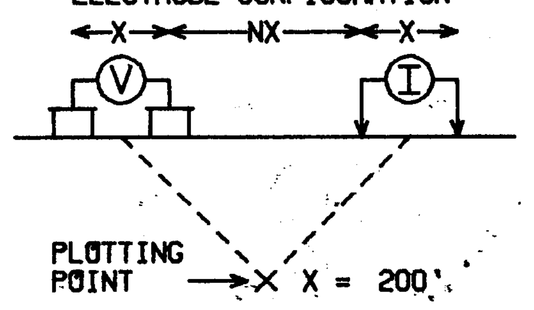
DWG. NO.- I.P.-5392-22

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY.
HIGHLAND VALLEY AREA
KAMLOOPS M.D., B.C.

LINE NO.- 56N

ELECTRODE CONFIGURATION



SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

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, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-23

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY

HIGHLAND VALLEY AREA

KAMLOOPS M.D., B.C.

LINE NO.- 60N

ELECTRODE CONFIGURATION

PLOTTING POINT

X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

APPROVED:

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

DATE:

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2227

DWG. NO.- I.P.-5392-24

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA
KAMLOOPS M.D., B.C.

LINE NO.- 64N

ELECTRODE CONFIGURATION

PLOTTING POINT X = 200'

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

APPROVED

DATE:

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

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

2727

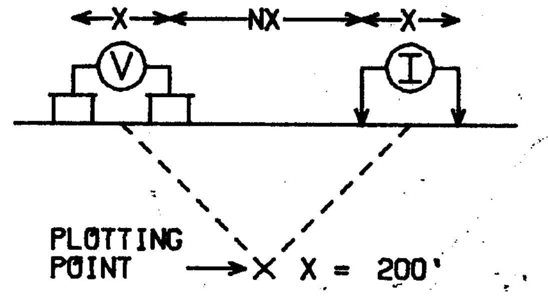
DWG. NO.- I.P.-5392-25

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA
KAMLOOPS M.D., B.C.

LINE NO.- 68N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

APPROVED

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

DATE:

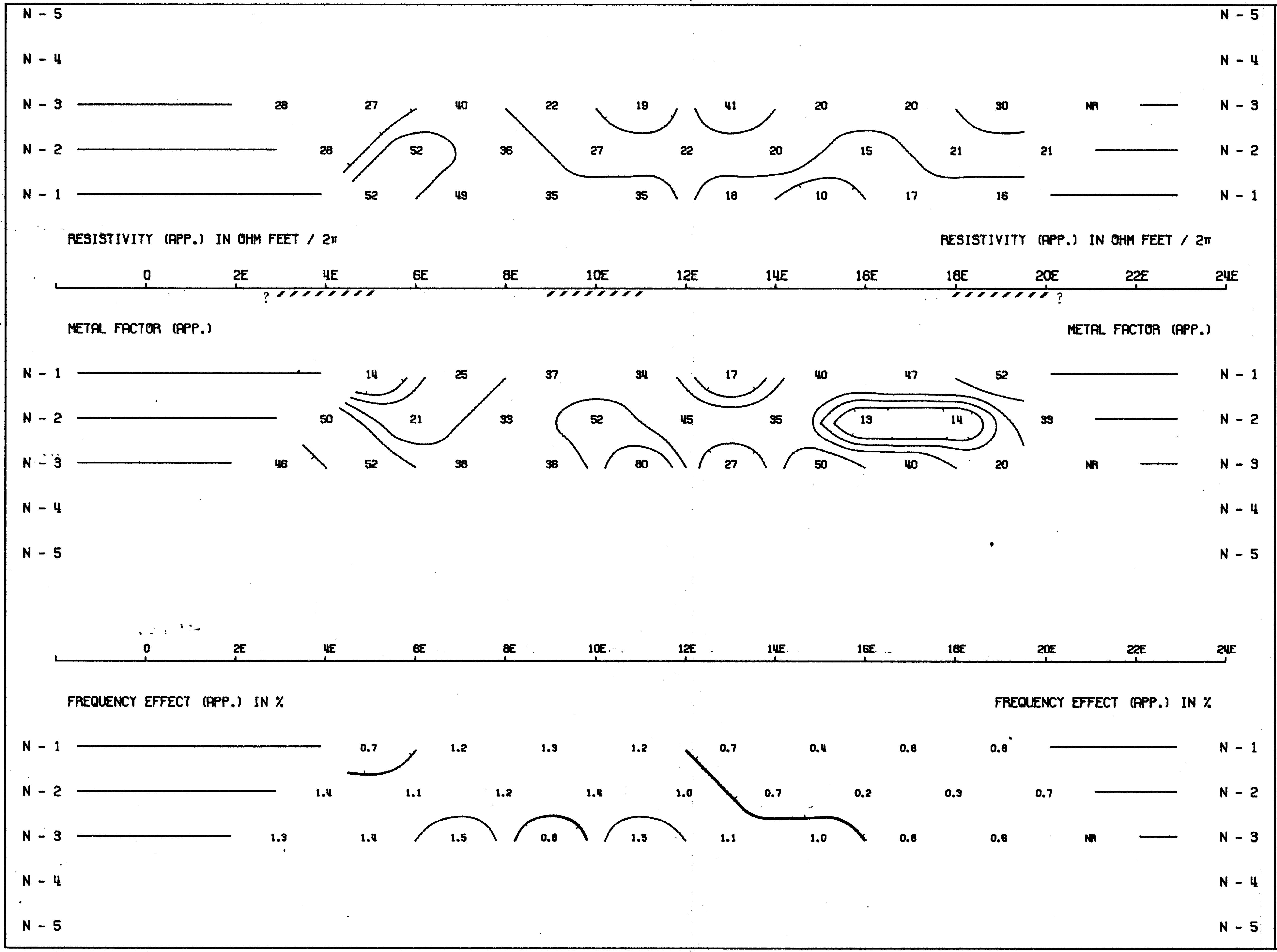
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. K. FOUNTAIN

Expiry Date: April 25, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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



2227

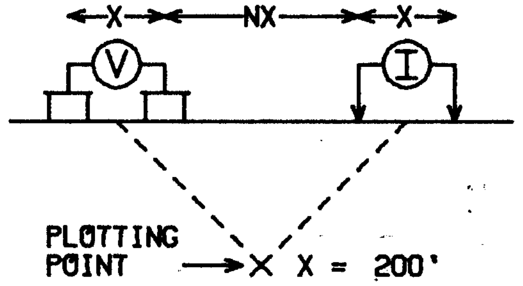
DWG. NO.- I.P.-5392-26

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA
KAMLOOPS M.D., B.C.

LINE NO.- 72N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

APPROVED:

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

DATE:

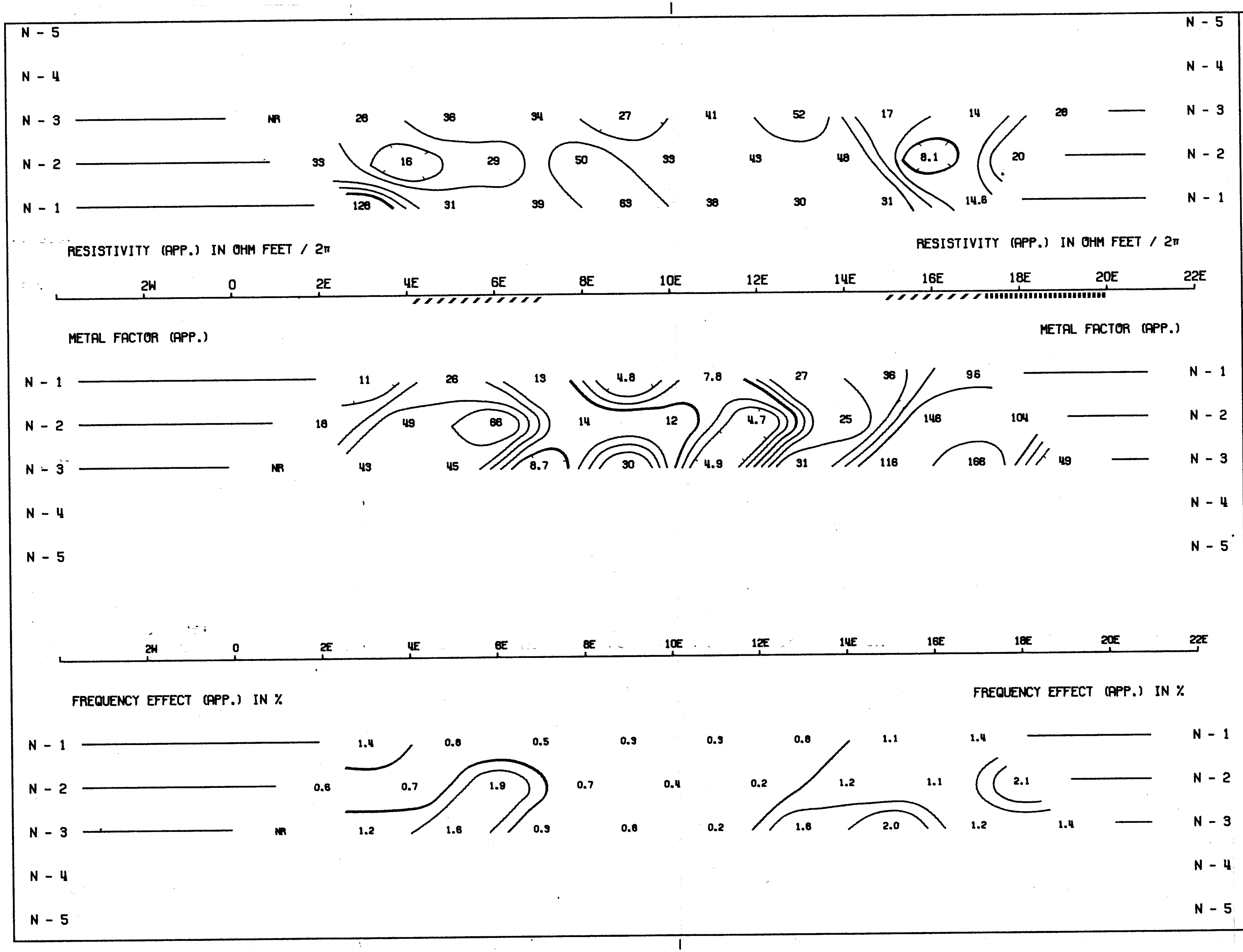
Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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



2227

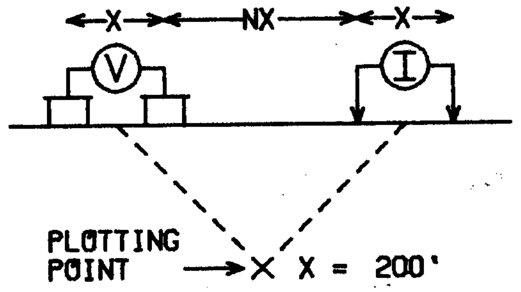
DWG. NO.- I.P.-5392-27

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA
KAMLOOPS M.D., B.C.

LINE NO.- 76N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

APPROVED:

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

DATE:

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

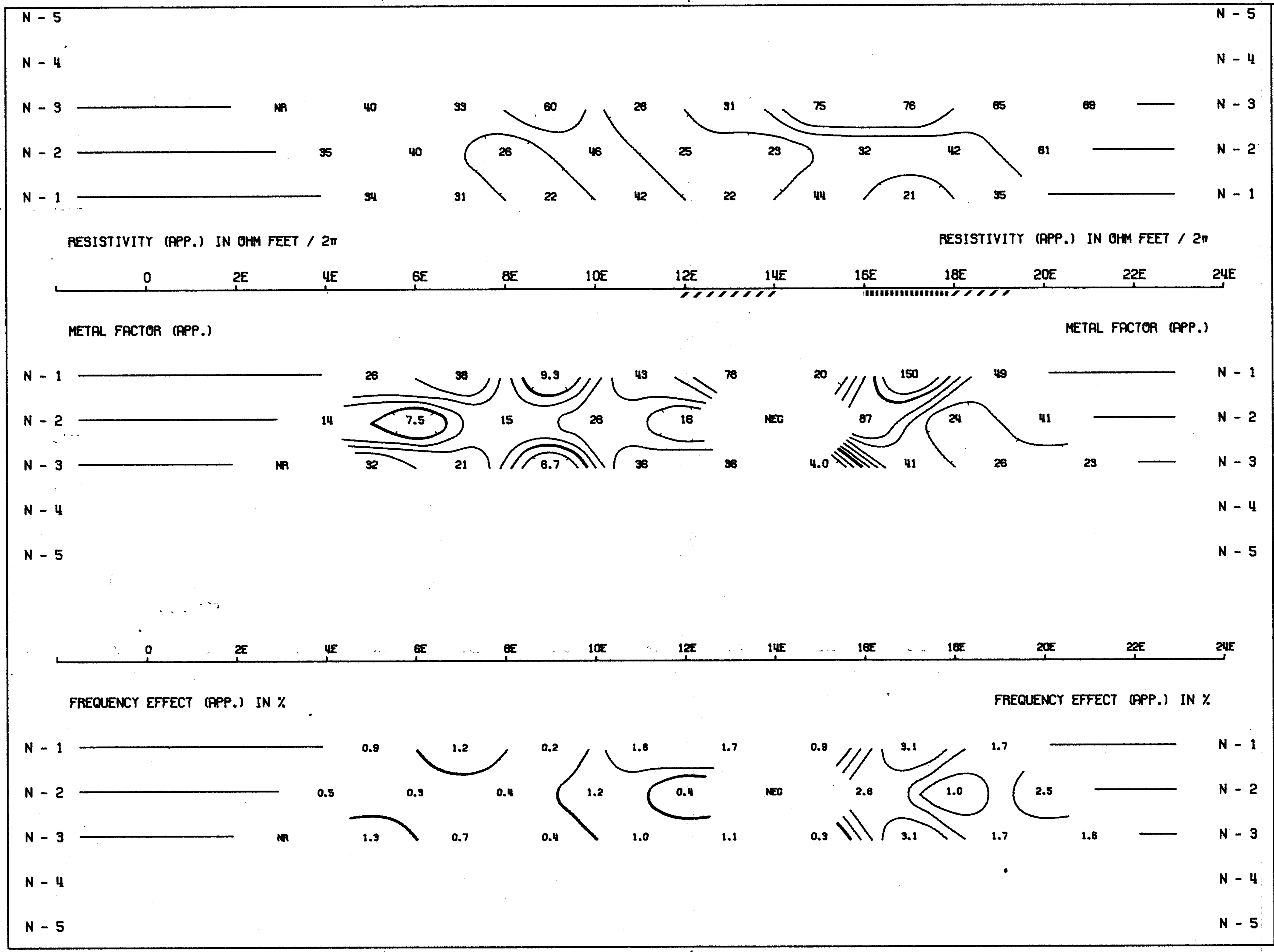
2227

DWG. NO.- I.P.-5392-29

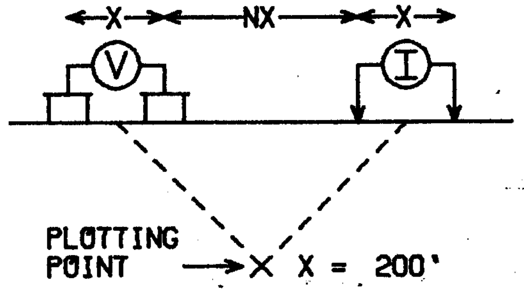
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA
KAMLOOPS M.D., B.C.

LINE NO.- 84N



ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

APPROVED

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

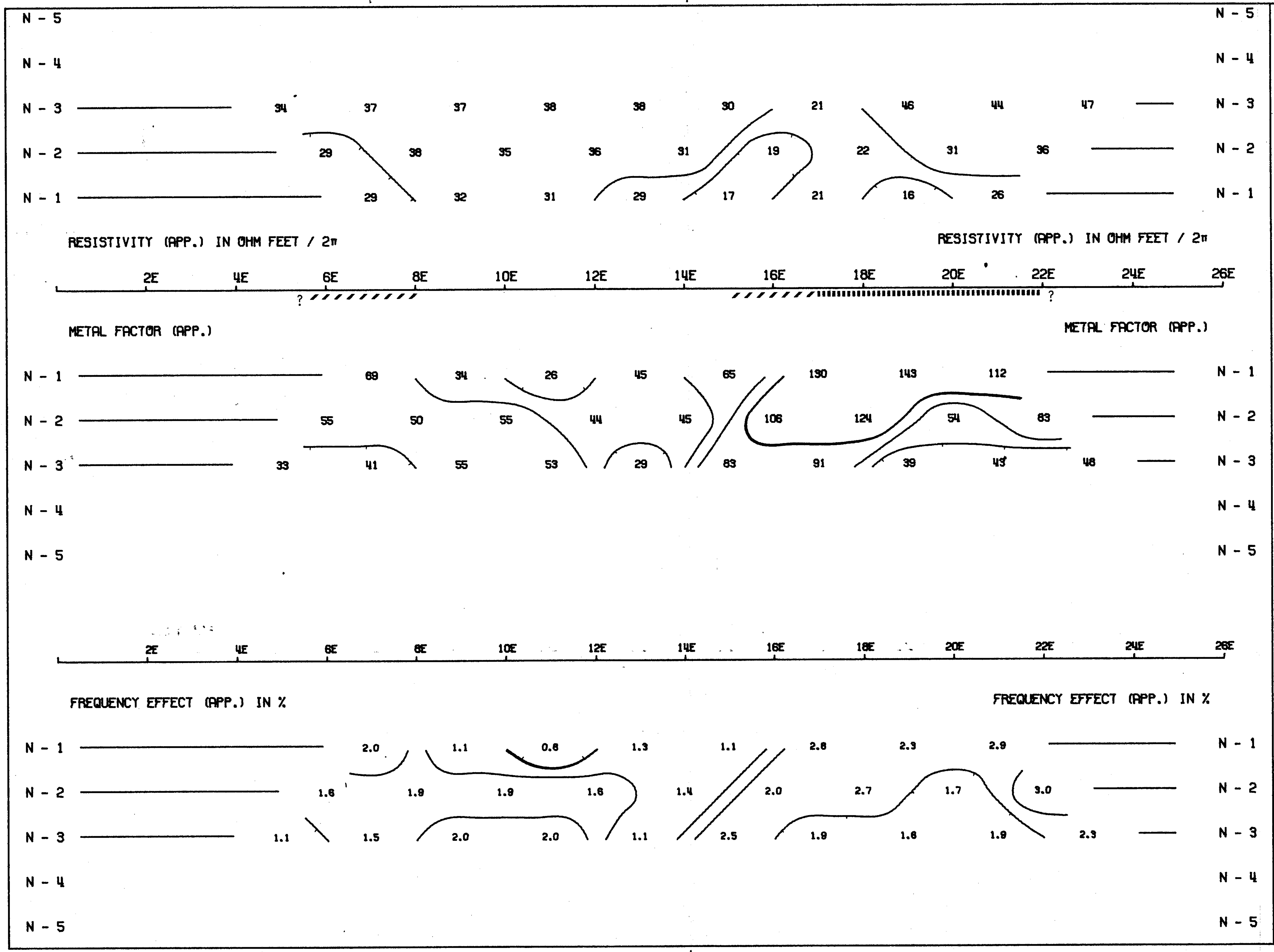
DATE

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN
Expiry Date: April 25, 1970

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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



2227

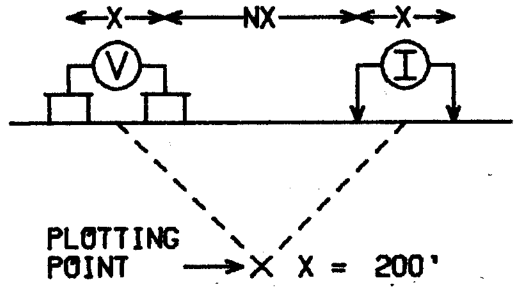
DWG. NO.- I.P.-5392-28

NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA
KAMLOOPS M.D., B.C.

LINE NO.- 80N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

APPROVED:

DATE:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. K. FOUNTAIN

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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

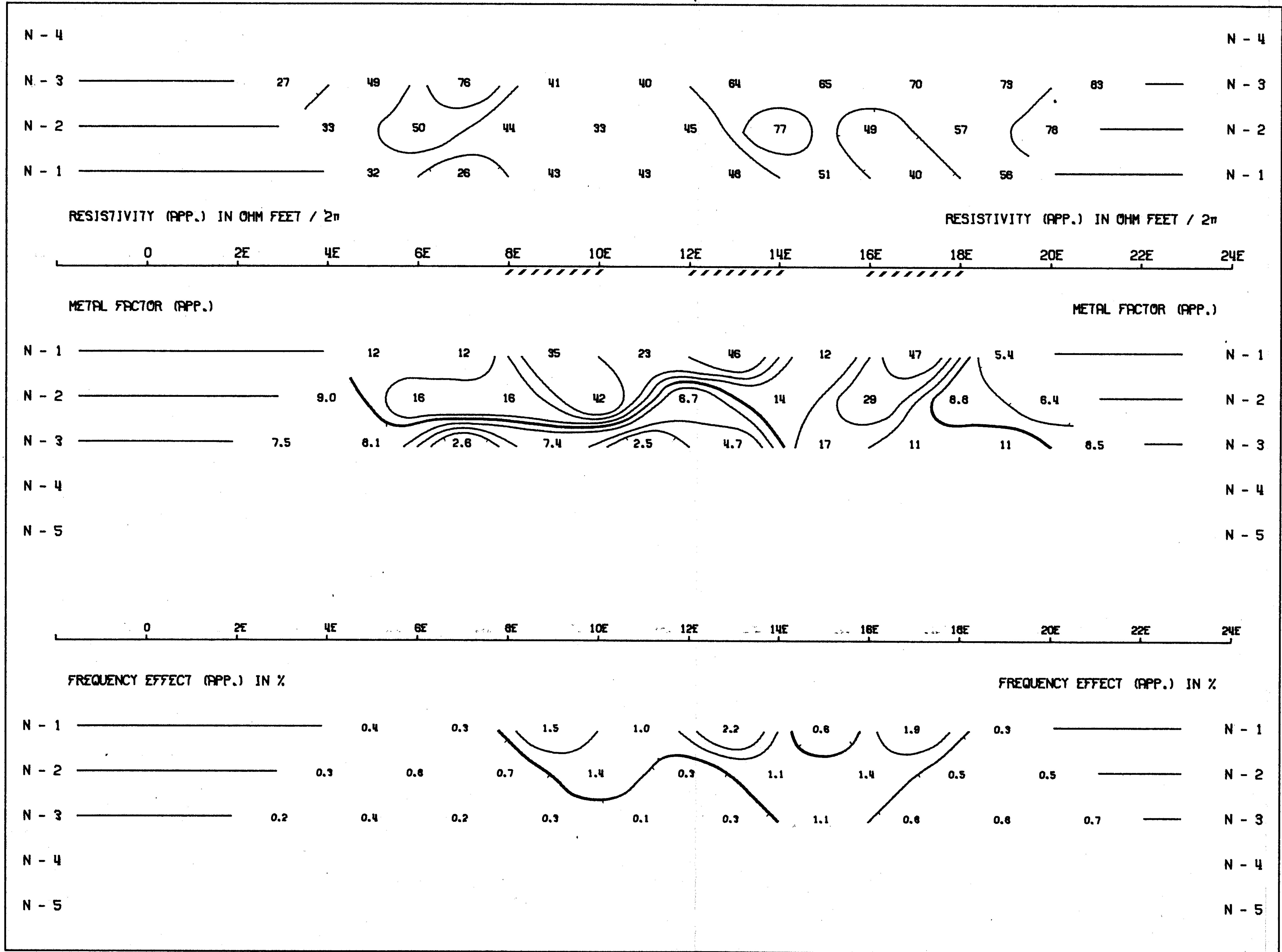
2227

DWG. NO.- I.P.-5392-30

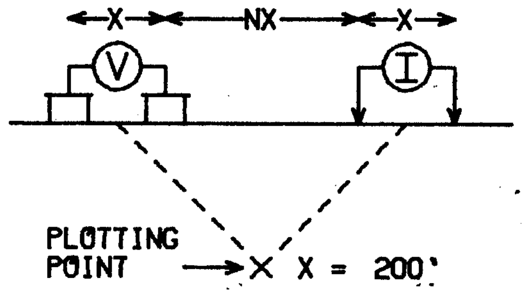
NORANDA EXPLORATION COMPANY LIMITED

KRAIN OPTION PROPERTY
HIGHLAND VALLEY AREA
KAMLOOPS M.D., B.C.

LINE NO.- 88N



ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 CPS

DATE SURVEYED: SEPT '69

APPROVED:

DATE:

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

Expiry Date: April 25, 1970

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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