This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $2913.22

D. B. Craig
Assistant Chief Geologist or
Resident Mining Engineer

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

Commissioner of Yukon Territory

060820

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE TRY CLAIMS, VANGORDA AREA WHITEHORSE MINING DIVISION YUKON TERRITORY FOR SPARTAN EXPLORATIONS LIMITED

BY

MARION A. GOUDIE, B.Sc.

AND

PHILIP G. HALLOF, Ph.D.

NAME AND LOCATION OF PROPERTY

TRY CLAIMS, VANGORDA AREA

WHITEHORSE MINING DIVISION, YUKON TERRITORY 62°N, 133°W - SE

DATE STARTED - AUGUST 23, 1971

DATE FINISHED - SEPTEMBER 7, 1971

TABLE OF CONTENTS

McPHAR GEOPHYSICS

NOTES ON THE THEORY, METHOD OF FIELD OPERATION, AND PRESENTATION OF DATA FOR THE INDUCED POLARIZATION METHOD

Induced Polarization as a geophysical measurement refers to the blocking action or polarization of metallic or electronic conductors in a medium of ionic solution conduction.

This electro-chemical phenomenon occurs wherever electrical current is passed through an area which contains metallic minerals such as base metal sulphides. Normally, when current is passed through the ground, as in resistivity measurements, all of the conduction takes place through ions present in the water content of the rock, or soil, i.e. by ionic conduction. This is because almost all minerals have a much higher specific resistivity than ground water. The group of minerals commonly described as "metallic", however, have specific resistivities much lower than ground waters. The induced polarization effect takes place at those interfaces where the mode of conduction changes from ionic in the solutions filling the interstices of the rock to electronic in the metallic minerals present

in the rock.

The blocking action or induced polarization mentioned above, which depends upon the chemical energies necessary to allow the ions to give up or receive electrons from the metallic surface, increases with the time that a d. c. current is allowed to flow through the rock; i. e. as ions pile up against the metallic interface the resistance to current flow increases. Eventually, there is enough polarization in the form of excess ions at the interfaces, to appreciably reduce the amount of current flow through the metallic particle. This polarization takes place at each of the infinite number of solution-metal interfaces in a mineralized rock.

When the d. c. voltage used to create this d. c. current flow is cut off, the Coulomb forces between the charged ions forming the polarization cause them to return to their normal position. This movement of charge creates a small current flow which can be measured on the surface of the ground as a decaying potential difference.

From an alternate viewpoint it can be seen that if the direction of the current through the system is reversed repeatedly before the polarization occurs, the effective resistivity of the system as a whole will change as the frequency of the switching is changed. This is a consequence of the fact that the amount of current flowing through each metallic interface depends upon the length of time that current has been passing through it in one direction.

The values of the per cent frequency effect or F. E. are a measurement of the polarization in the rock mass. However, since the measurement of the degree of polarization is related to the apparent resistivity of the rock mass it is found that the metal factor values or M. F. are the most useful values in determining the amount of polarization present in the rock mass. The MF values are obtained by normalizing the F. E. values for varying resistivities.

The induced polarization measurement is perhaps the most powerful geophysical method for the direct detection of metallic sulphide mineralization, even when this mineralization is of very low concentration. The lower limit of volume per cent sulphide necessary to produce a recognizable IP anomaly will vary with the geometry and geologic environment of the source, and the method of executing the survey. However, sulphide mineralization of less than one per cent by volume has been detected by the IP method under proper geological conditions.

The greatest application of the IP method has been in the search for disseminated metallic sulphides of less than 20% by volume. However, it has also been used successfully in the search for massive sulphides in situations where, due to source geometry, depth of source, or low resistivity of surface layer, the EM method can not be successfully applied. The ability to differentiate ionic conductors, such as water filled shear zones, makes the IP method a useful tool in checking EM

anomalies which are suspected of being due to these causes.

In normal field applications the IP method does not differentiate between the economically important metallic minerals such as chalcopyrite, chalcocite, molybdenite, galena, etc., and the other metallic minerals such as pyrite. The induced polarization effect is due to the total of all electronic conducting minerals in the rock mass. Other electronic conducting materials which can produce an IP response are magnetite, pyrolusite, graphite, and some forms of hematite.

In the field procedure, measurements on the surface are made in a way that allows the effects of lateral changes in the properties of the ground to be separated from the effects of vertical changes in the properties. Current is applied to the ground at two points in distance (X) apart. The potentials are measured at two other points (X) feet apart, in line with the current electrodes is an integer number (n) times the basic distance (X).

The measurements are made along a surveyed line, with a constant distance (nX) between the nearest current and potential electrodes. In most surveys, several traverses are made with various values of (n); i.e. (n) = 1, 2, 3, 4, etc. The kind of survey required (detailed or reconnaissance) decides the number of values of (n) used.

In plotting the results, the values of the apparent resistivity, apparent per cent frequency effect, and the apparent metal factor

measured for each set of electrode positions are plotted at the intersection of grid lines, one from the center point of the current electrodes and the other from the center point of the potential electrodes. (See Figure A.) The resistivity values are plotted above the line as a mirror image of the metal factor values below. On a second line, below the metal factor values, are plotted the values of the per cent frequency effect. In some cases the values of per cent frequency effect are plotted as superscripts of the metal factor value. In this second case the frequency effect values are not contoured. The lateral displacement of a given value is determined by the location along the survey line of the center point between the current and potential electrodes. The distance of the value from the line is determined by the distance (nX) between the current and potential electrodes when the measurement was made.

The separation between sender and receiver electrodes is only one factor which determines the depth to which the ground is being sampled in any particular measurement. The plots then, when contoured, are not section maps of the electrical properties of the ground under the survey line. The interpretation of the results from any given survey must be carried out using the combined experience gained from field results, model study results and theoretical investigations. The position of the electrodes when anomalous values are measured is important in the interpretation.

In the field procedure, the interval over which the potential differences are measured is the same as the interval over which the electrodes are moved after a series of potential readings has been made. One of the advantages of the induced polarization method is that the same equipment can be used for both detailed and reconnaissance surveys merely by changing the distance (X) over which the electrodes are moved each time. In the past, intervals have been used ranging from 25 feet to 2000 feet for (X). In each case, the decision as to the distance (X) and the values of (n) to be used is largely determined by the expected size of the mineral deposit being sought, the size of the expected anomaly and the speed with which it is desired to progress.

The diagram in Figure A demonstrates the method used in plotting the results. Each value of the apparent resistivity, apparent metal factor, and apparent per cent frequency effect is plotted and identified by the position of the four electrodes when the measurement was made. It can be seen that the values measured for the larger values of (n) are plotted farther from the line indicating that the thickness of the layer of the earth that is being tested is greater than for the smaller values of (n); i. e. the depth of the measurement is increased. When the F. E. values are plotted as superscripts to the MF values the third section of data values is not presented and the F. E. values are not contoured.

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

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

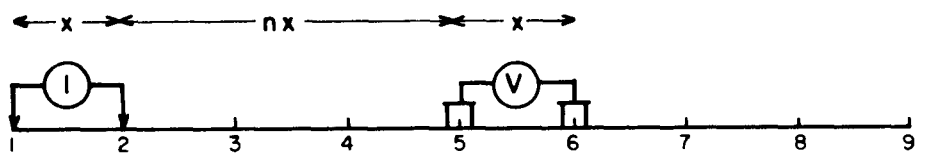
In some situations spurious noise, either man made or natural, will render it impossible to obtain a reading. The symbol "N" on the data plots indicates a station at which it is too noisey to record a reading. If a reading can be obtained, but for reasons of noise there is some doubt as to its accuracy,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

In certain situations negative values of Apparent Frequency Effect are recorded. This may be due to the geologic environment or spurious electrical effects. The actual negative frequency effect value recorded is indicated on the data plot, however the symbol "NEG" is

indicated for the corresponding value of Apparent Metal Factor. In contouring negative values the contour lines are indicated to the nearest positive value in the immediate vicinity of the negative value.

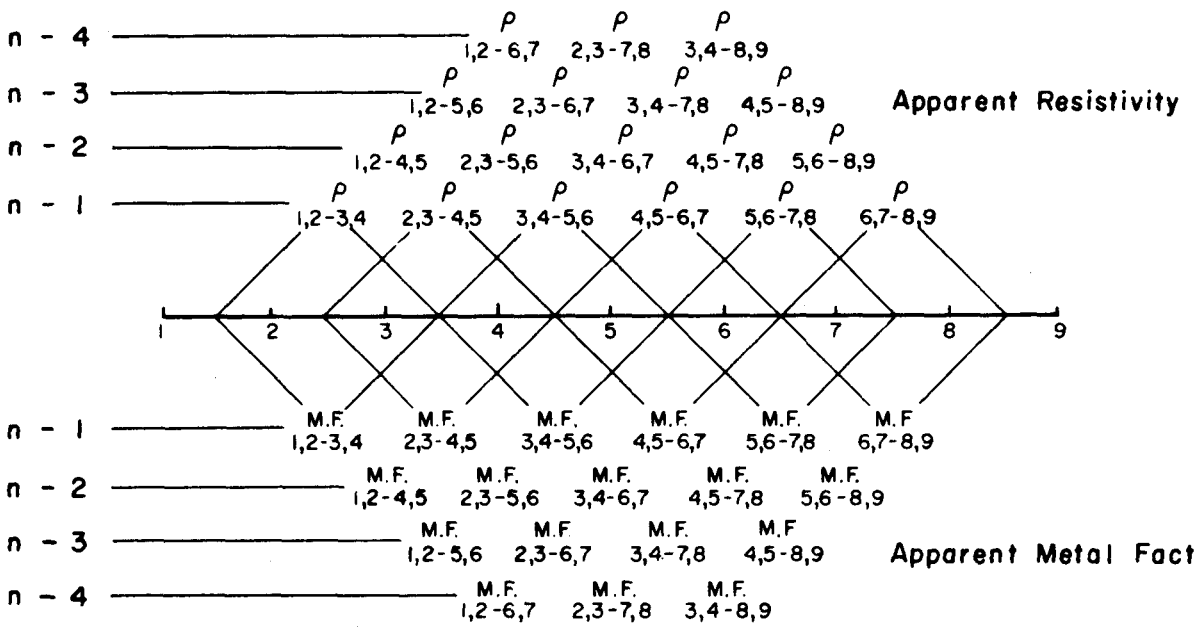
The symbol "NR" indicates that for some reason the operator did not attempt to record a reading although normal survey procedures would suggest that one was required. This may be due to inaccessible topography or other similar reasons. Any symbol other than those discussed above is unique to a particular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

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



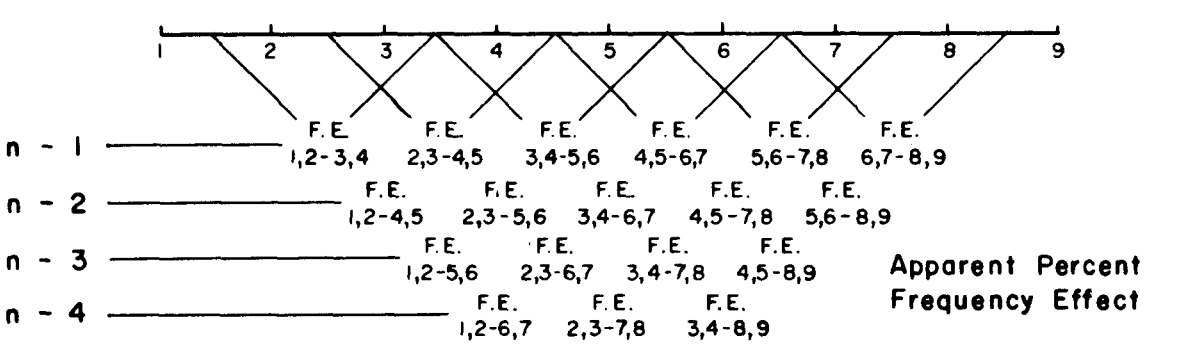
Stations on line

x = Electrode spread length
n = Electrode separation



Apparent Resistivity

Apparent Metal Factor



Apparent Percent Frequency Effect

Fig. A

McPHAR GEOPHYSICS LIMITED

REPORT ON THE
INDUCED POLARIZATION
AND RESISTIVITY SURVEY
ON THE
TRY CLAIMS, VANGORDA AREA
WHITEHORSE MINING DIVISION,
YUKON TERRITORY
FOR
SPARTAN EXPLORATIONS LIMITED

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1. INTRODUCTION

At the request of the client, an Induced Polarization and Resistivity survey has been completed on the Try Claims in the Vangorda area of the Whitehorse Mining Division, Yukon Territory, for Spartan Explorations Limited. The survey grid is situated in the southeast quadrant of the 1° quadrilateral whose southeast corner is at 62°N latitude and 133°W longitude.

The grid area is assumed to be largely drift covered. Outcropping rocks consist of volcanic tuffs and breccia flows, phyllite which is graphitic in part, biotite muscovite schist and granite intrusives. Lead-zinc ore which is being mined in the Vangorda area occurs in the graphitic rocks; the graphite obscures the electrical response from the metallic mineralization and it was found that the gravity method was the most successful exploration method in separating the graphite and metallic mineralization. The IP survey was carried out to locate any economic deposits of metallic

mineralization which might be present in the survey area. The work was completed in August and September, 1971, using a McPhar P660 high power variable frequency IP unit over the following claims:

Try - 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 61, 62, 63, 64, 65, 67, 69, 71, 73, 74, 75, 76.

These claims are assumed to be owned or held under option by Spartan Explorations Limited.

2. PRESENTATION OF RESULTS

The Induced Polarization and Resistivity results are shown on the following data plots in the manner described in the notes preceding this report.

Line	Electrode Intervals	Dwg.No.
1600W	300 feet	IP 5849-1
0	300 feet	IP 5849-2
800E	300 feet	IP 5849-3
1600E	300 feet	IP 5849-4
2400E	300 feet	IP 5849-5
3200E	300 feet	IP 5849-6
4000E	300 feet	IP 5849-7
5600E	300 feet	IP 5849-8
7200E	300 feet	IP 5849-9
8800E	300 feet	IP 5849-10
10400E	300 feet	IP 5849-11

Also enclosed with this report is Dwg. I.P.P. 4821, a plan map of the Try Claims Grid at a scale of 1" = 400'. The definite, probable and possible

Induced Polarization anomalies are indicated by bars, in the manner shown on the legend, on this plan map as well as on the data plots. These bars represent the surface projection of the anomalous zones as interpreted from the location of the transmitter and receiver electrodes when the anomalous values were measured.

Since the Induced Polarization measurement is essentially an averaging process, as are all potential methods, it is frequently difficult to exactly pinpoint the source of an anomaly. Certainly, no anomaly can be located with more accuracy than the electrode interval length; i.e. when using 300' electrode intervals the position of a narrow sulphide body can only be determined to lie between two stations 300' apart. In order to definitely locate, and fully evaluate, a narrow, shallow source it is necessary to use shorter electrode intervals. In order to locate sources at some depth, larger electrode intervals must be used, with a corresponding increase in the uncertainties of location. Therefore, while the centre of the indicated anomaly probably corresponds fairly well with source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

The geological information shown on Dwg. I.P.P. 4821 has been taken from maps made available by the staff of Spartan Explorations Limited.

3. DISCUSSION OF RESULTS

Most of the anomalies located by the IP survey have been correlated into three zones.

Zone 1

The two anomalies comprising Zone 1 were located at the northern end of Line 0 and Line 1600E. Both anomalies are incomplete to the north. The only outcrop noted near either of the two lines is blue-grey phyllite. The source of the anomalies is a very good conductor and the anomalous values are of high magnitude. The source of the anomalies could be massive sulphides or graphite, which is known to be associated with the phyllite. The top of the source lies at a depth of between 150' and 200' on Line 1600E and at a depth of less than 150' on Line 0.

Zone 2

The Zone 2 anomalies are located on Line 800E to Line 4000E, north of the base line. The only line on which the data is complete over the anomaly is Line 1600E. The probable to definite anomaly extends from 0+00 to 18+00N; the source is complex and variable in depth below surface. The eastern edge of the zone is in contact with the Zone 1 anomaly.

Zone 3

This zone is much larger than the other two zones, extending from Line 2400E to Line 10400E, where it is open-ended. The anomalies in the zone are, for the most part, very broad and the sources complex. The surveyed lines are widely spaced - 1600' apart - east of Line 4000E, but the correlation of the zone seems valid. Three representative lines are discussed below.

Line 3200E

The anomaly extends from 15S, where it is incomplete, to 6N.

From 6S to 15S, the magnitude of the anomaly is high and increasing with depth; the source is shallow. The anomaly may reflect massive sulphides or graphite. From 0 to 3S, the anomaly reflects a shallow, weak source and from 0 to 3N, the source is stronger, but deep.

Line 5600E

The complete line is anomalous, with data over the anomaly incomplete at both ends of the line. From 6S to 3N the anomaly is definite, reflecting a shallow source which increases in magnitude with depth. From 6S to the south and from 3N to the north, the anomaly is possible and may reflect disseminated mineralization. The anomaly begins to strengthen on n = 4 at the north end of the line.

Line 10400E

The anomaly extends from 18S to 9N. From 18S to 6S the magnitude of the anomaly is high and the source shallow. From 6S to 3N, the anomaly is possible and may reflect disseminated mineralization and from 3N to 9N, the anomaly, while definite, is of much lower magnitude than that at the south of the anomaly.

4. CONCLUSIONS AND RECOMMENDATIONS

The IP survey has located three anomalous zones in the survey grid. Outcropping rock is relatively sparse, but the major rock association appears to be phyllite and volcanics. The phyllite is known to have associated graphite bands and there is one outcrop of graphite at the creek on Line 5600E.

The source of the anomalies in Zone 1 and the definite anomalies in

Zone 3 south of the base line could be either massive sulphides or graphite. To better determine this, it is recommended that a gravity survey and a magnetic survey be carried out over these anomalies and far enough on either side of the anomalies to get background readings. Gravity surveys have been used successfully in the Vangorda area to distinguish between graphite and sulphides. The magnetic survey would pick up any magnetite or magnetic pyrrhotite associated with sulphides.

The Zone 2 anomalies and the remaining anomalies in Zone 3 should be detailed with shorter electrode intervals to better define the source, or sources, of the anomalies before attempting to select locations for testing.

McPHAR GEOPHYSICS LIMITED

Marion A. Goudie,
Geologist.

Philip G. Hallof,
Geophysicist.

PROFESSIONAL ENGINEER
BRITISH COLUMBIA
ENGINEER

Expiry Date: February 28, 1972

Dated: October 27, 1971

ASSESSMENT DETAILS

PROPERTY: Try Claims

MINING DIVISION: Whitehorse

SPONSOR: Spartan Explorations Limited

PROVINCE: Yukon Territory

LOCATION: Vangorda Area

TYPE OF SURVEY: Induced Polarization

OPERATING MAN DAYS:	36	DATE STARTED: August 23, 1971
EQUIVALENT 8 HR. MAN DAYS:	54	DATE FINISHED: September 7, 1971
CONSULTING MAN DAYS:	3	NUMBER OF STATIONS: 155
DRAUGHTING MAN DAYS:	4	NUMBER OF READINGS: 918
TOTAL MAN DAYS:	61	MILES OF LINE SURVEYED: 8.2

CONSULTANTS:

Marion A. Goudie, 739 Military Trail, West Hill, Ontario.
Philip G. Hallof, 11 Barnwood Court, Don Mills, Ontario.

FIELD TECHNICIANS:

K. Drobot, 31-249 Kitchener Crescent, Kamloops, B.C.
J. Wowchuk, 4238 Winnifred Street, Burnaby, B.C.
2 Extra Helpers Supplied by Client.

DRAUGHTSMEN:

B. Marr, 19 Kenewen Court, Toronto 16, Ontario.
N. Lade, 299 Jasper Avenue, Oshawa, Ontario.
F. Hurst, 230 Woburn Avenue, Toronto 12, Ontario.

McPHAR GEOPHYSICS LIMITED

Marion A. Goudie

Marion A. Goudie,
Geologist.

Dated: October 27, 1971

*

INTERIM STATEMENT OF COST

Spartan Explorations Limited - Try Claims, Vangorda Area
Whitehorse Mining Division, Yukon Territory

Crew: 2 men K. Drobot & J. Wowchuk

9 days	Operating	@ $265.00/day	$2,385.00
1½ days	Travel)		
1½ days	Preparation) 4 days	@ $100.00/day	400.00
1 day	Bad Weather)		
3 days	Standby		N.C.
			$2,785.00

Expenses - prorated

Taxi	2.91	
Vehicle Expense	8.28	
Freight and Brokerage	5.10	
Meals and Accommodation	89.23	
Telephone and Telegraph	9.07	
Supplies	1.97	
	116.56	
Plus 10%	11.66	
	128.22	128.22
		$2,913.22

* Note: This statement reflects at least 90% of the total cost; there may be a few minor charges not yet received by us and hence not included in the foregoing.

McPHAR GEOPHYSICS LIMITED

Marion A. Goudie

Marion A. Goudie,
Geologist.

Dated: October 27, 1971

CERTIFICATE

I, Marion A. Goudie, of the City of Toronto, Province of Ontario, do hereby certify that:

1. I am a Geologist residing at 739 Military Trail, West Hill, Ontario.

2. I am a graduate of the University of Western Ontario with a B.Sc. Degree (1950) in Honours Geology.

3. I am a member of the Geological Society of America.

4. I have been practising my profession for 20 years.

5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly, in the property or securities of Spartan Explorations Limited or any affiliate.

6. The statements made in this report are based on a study of published geological literature and unpublished private reports.

7. Permission is granted to use in whole or in part for assessment and qualification requirements but not for advertising purposes.

Dated at Toronto

This 27th day of October 1971

Marion A. Goudie

Marion A. Goudie, B.Sc.

CERTIFICATE

I, Philip George Hallof, of the City of Toronto, Province of Ontario, do hereby certify that:

1. I am a geophysicist residing at 11 Barnwood Court, Don Mills, Ontario.

2. I am a graduate of the Massachusetts Institute of Technology with a B.Sc. Degree (1952) in Geology and Geophysics and a Ph.D. Degree (1957) in Geophysics.

3. I am a member of the Society of Exploration Geophysicists and the European Association of the Exploration Geophysicists.

4. I am a Professional Geophysicist, registered in the Province of Ontario, the Province of British Columbia and the State of Arizona.

5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly, in the property or securities of Spartan Explorations Limited or any affiliate.

6. The statements made in this report are based on a study of published geological literature and unpublished private reports.

7. Permission is granted to use in whole or in part for assessment and qualification requirements but not for advertising purposes.

Dated at Toronto

This 27th day of October 1971

PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

Philip G. Hallof, Ph.D.

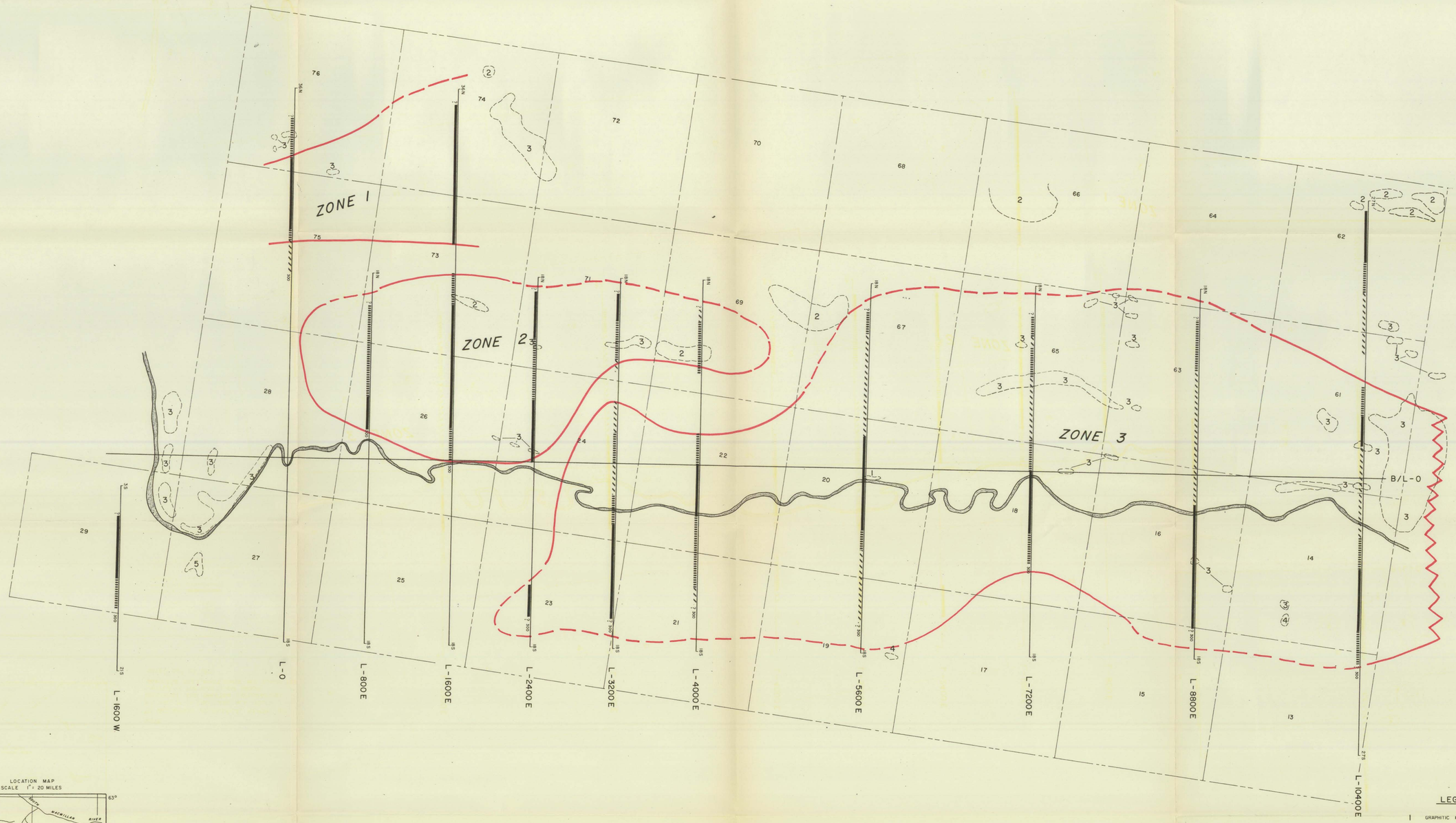
Expiry Date: February 28, 1972

DWG. IPP-4821

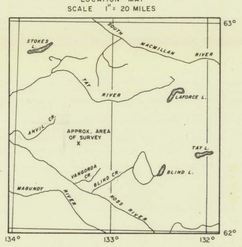
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

PLAN MAP



LOCATION MAP
SCALE 1" = 20 MILES



NOTE:

TO ACCOMPANY GEOPHYSICAL REPORT BY P.G. HALLOF (P. ENG.) AND M.A. GOUDIE, GEOLOGIST, FOR SPARTAN EXPLORATIONS, LIMITED, ON THE MAG CLAIM GROUP, VANGORDA AREA, WHITEHORSE M.D. YUKON TERR.

DATED: OCT. 27. 1971

LEGEND

1 GRAPHITIC PHYLLITE
2 VOLCANICS (TUFF, BRECCIA FLOWS)
3 BLUE GRAY PHYLLITE
4 GRANITE (INTRUSIVE)
5 BIOTITE, MUSCOVITE SCHIST
GEOLOGIC CONTACT
ANOMALOUS IP ZONE

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

Number at the end of anomaly indicates electrode interval

SPARTAN EXPLORATIONS LTD.

TRY CLAIMS, VANGORDA AREA
(WHITEHORSE M.D.)
YUKON TERRITORY

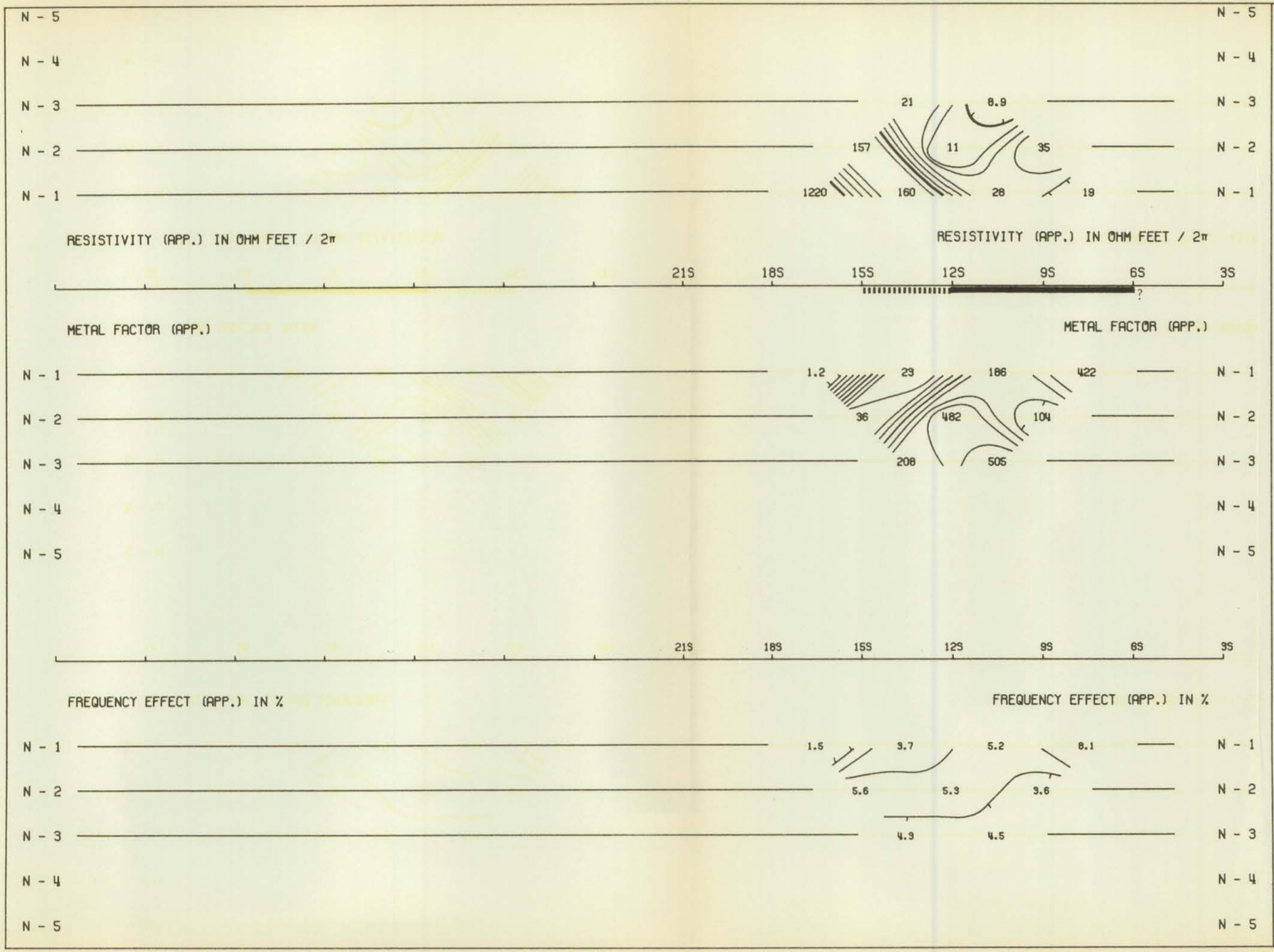
SCALE

ONE INCH EQUALS FOUR HUNDRED FEET

DRAWN: B.L.M.
DATE:
APPROVED:

McPHAR GEOPHYSICS LTD. 270 CALGARY

DWG. IPP-4821



DWG. NO.- I.P.- 5849 -1

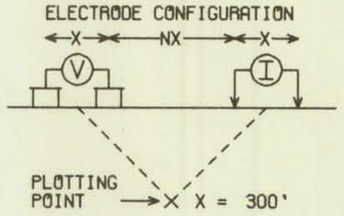
SPARTAN EXPLORATIONS LTD.

TRY CLAIMS, VANGORDA AREA

YUKON TERRITORY

LINE NO.- 1600W

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

DATE: Oct 1/71

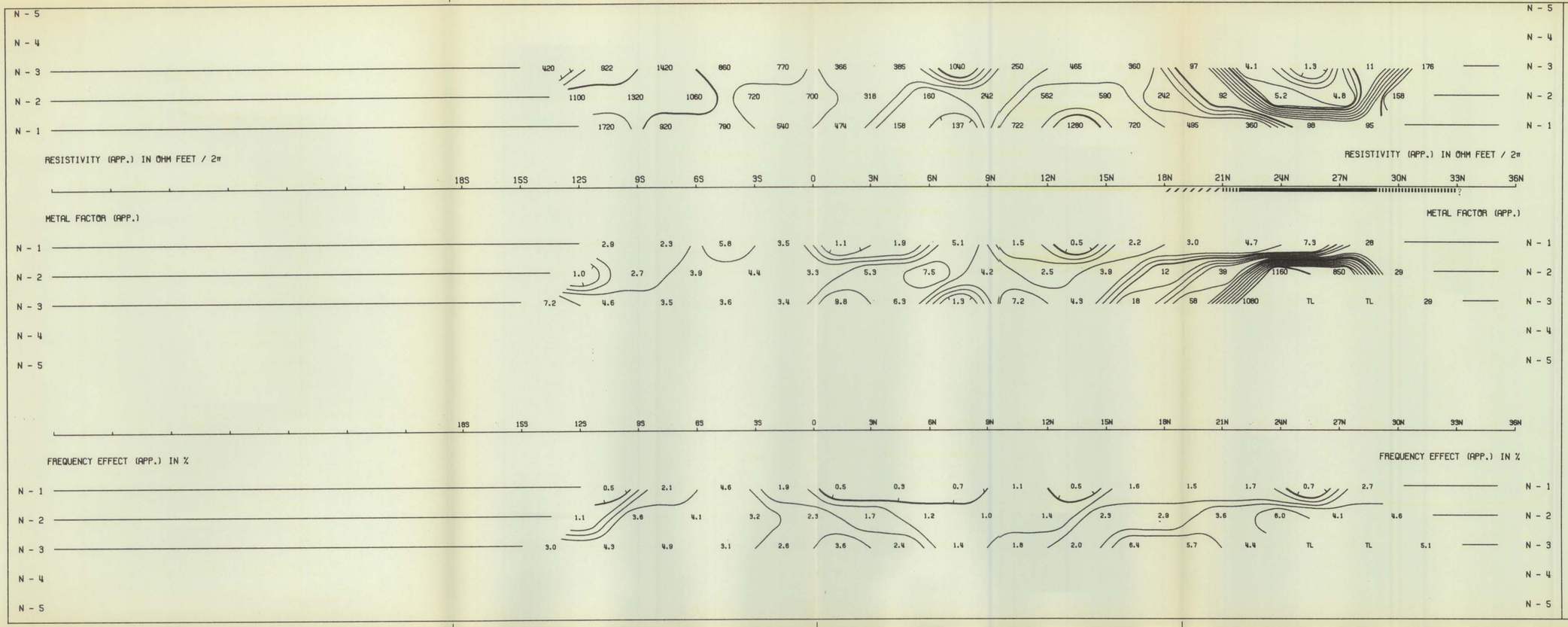
McPHAR GEOPHYSICS LIMITED

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 360/65 COMPUTER AND A CALCOMP PLOTTER



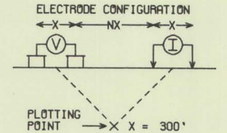
DWG. NO.- I.P.- 5849-2

SPARTAN EXPLORATIONS LTD.

TAY CLAIMS, VANGORDA AREA
YUKON TERRITORY

LINE NO.- 0

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

DATE: 27 Oct 71

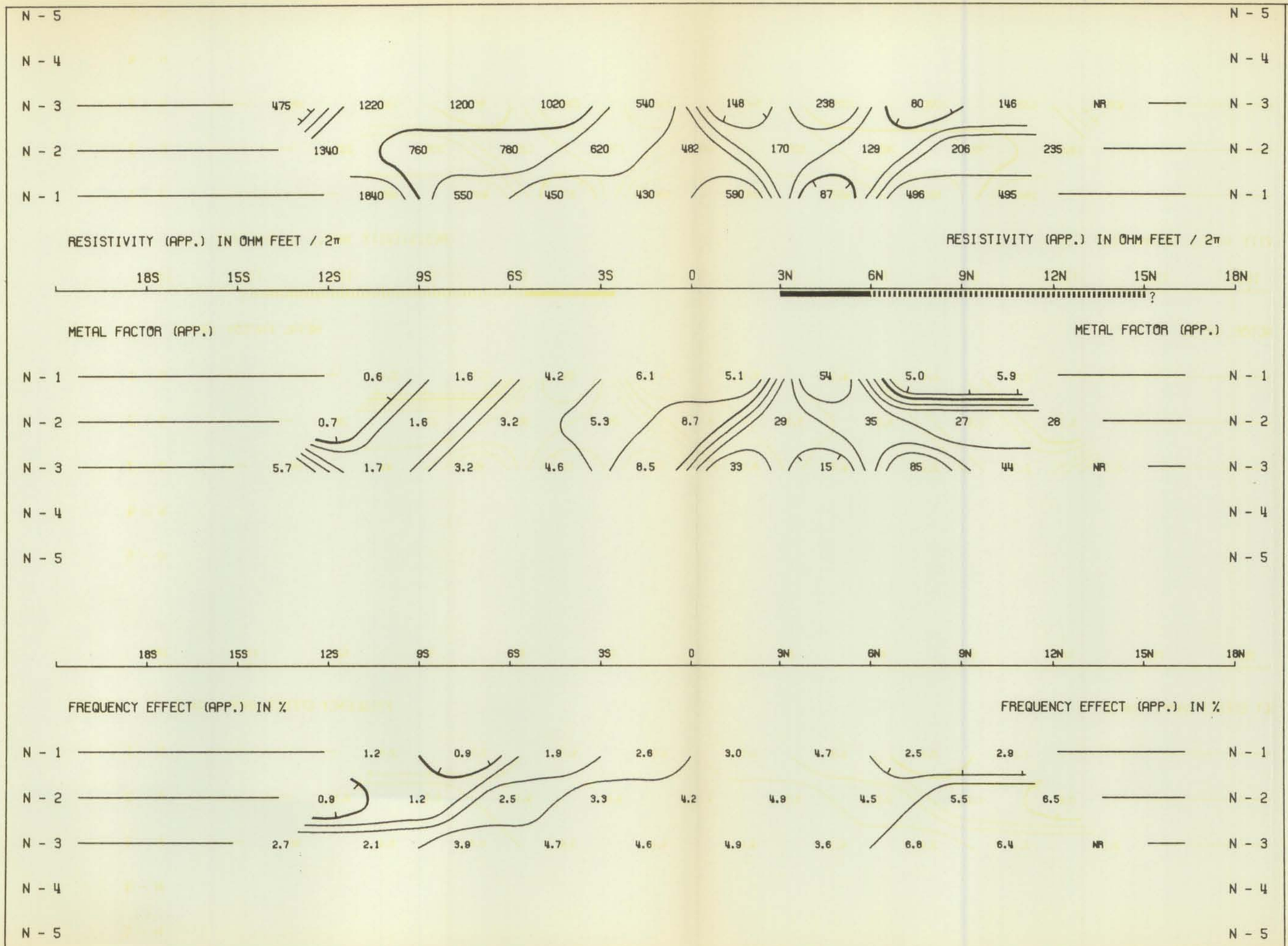
McPHAR GEOPHYSICS LIMITED

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 360/65 COMPUTER AND A CALCOMP PLOTTER



DWG. NO.- I.P.- 5849-3

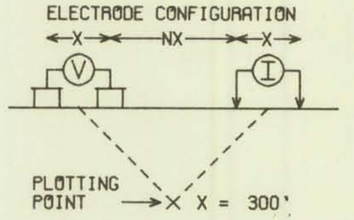
SPARTAN EXPLORATIONS LTD.

TRY CLAIMS, VANGORDA AREA

YUKON TERRITORY

LINE NO.- 800E

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————

PROBABLE ▪▪▪▪▪▪▪▪▪▪▪▪▪

POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

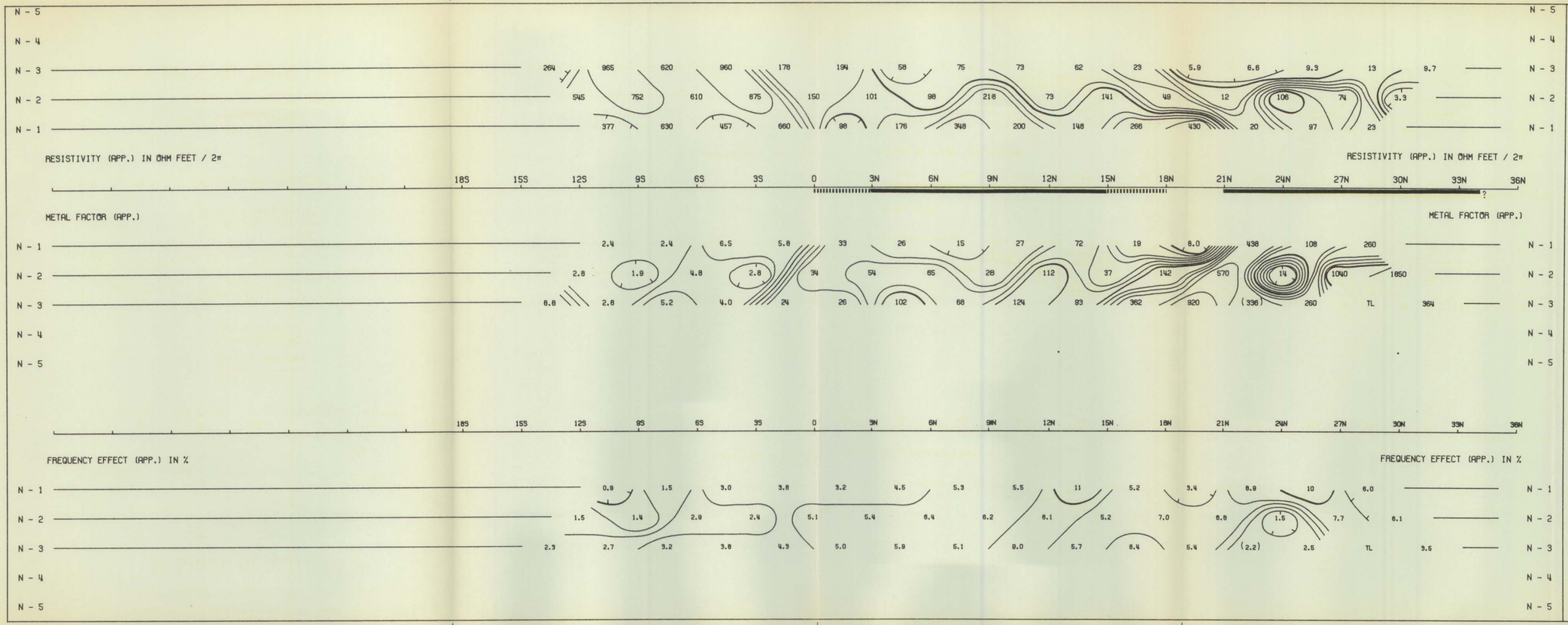
DATE: 7 Oct

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 360/65 COMPUTER AND A CALCOMP PLOTTER



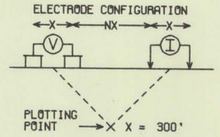
DWG. NO.- I.P.- 5849-4

SPARTAN EXPLORATIONS LTD.

TAY CLAIMS, VANGORDA AREA
YUKON TERRITORY

LINE NO.- 1600E

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

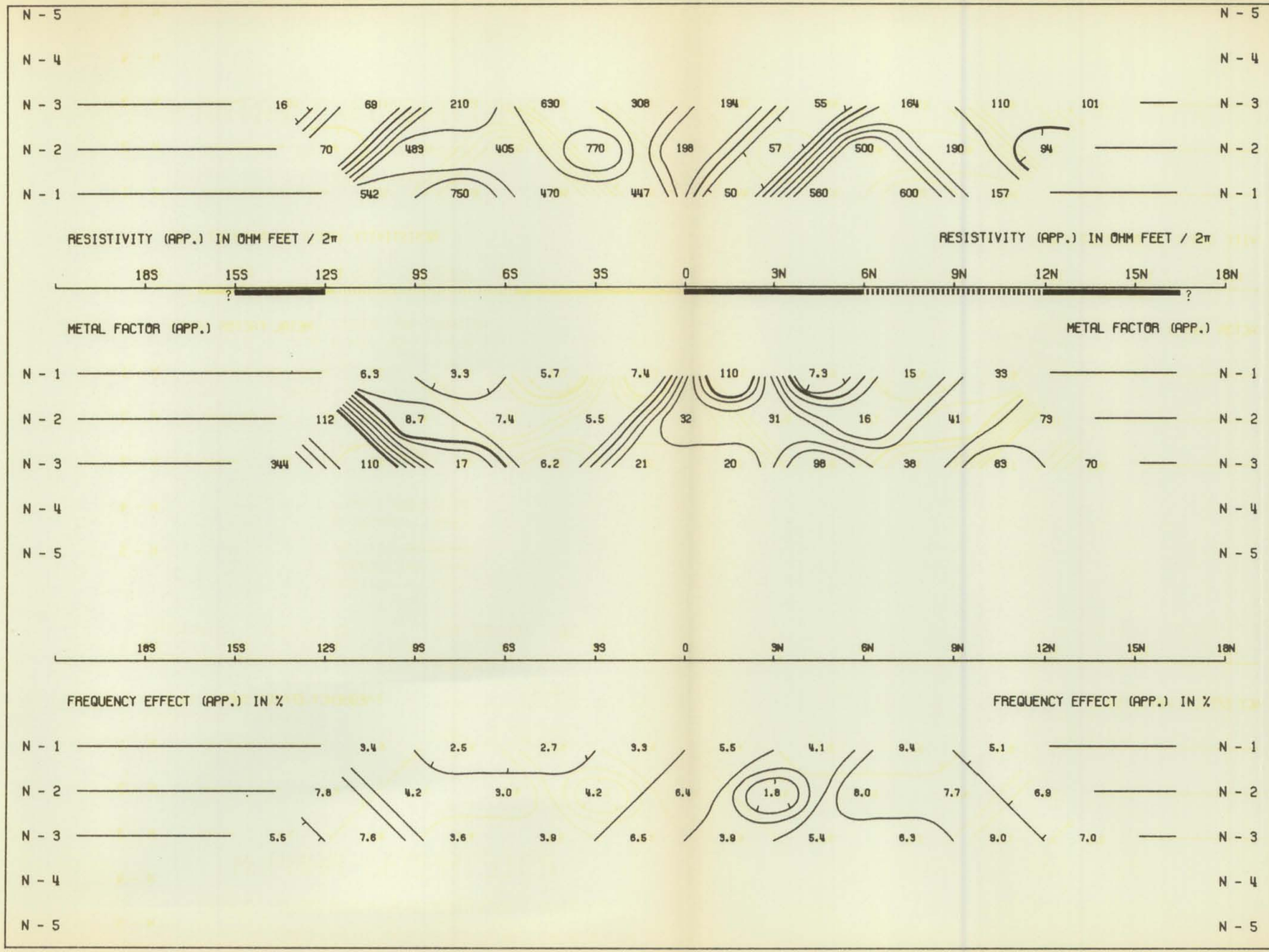
DATE: 27 Oct 71

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 360/65 COMPUTER AND A CALCOMP PLOTTER



DWG. NO.- I.P.- 5849-5

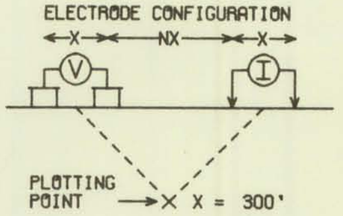
SPARTAN EXPLORATIONS LTD.

TRY CLAIMS, VANGORDA AREA

YUKON TERRITORY

LINE NO.- 2400E

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————

PROBABLE ▪▪▪▪▪▪▪▪▪▪▪▪

POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

DATE: 29 Oct

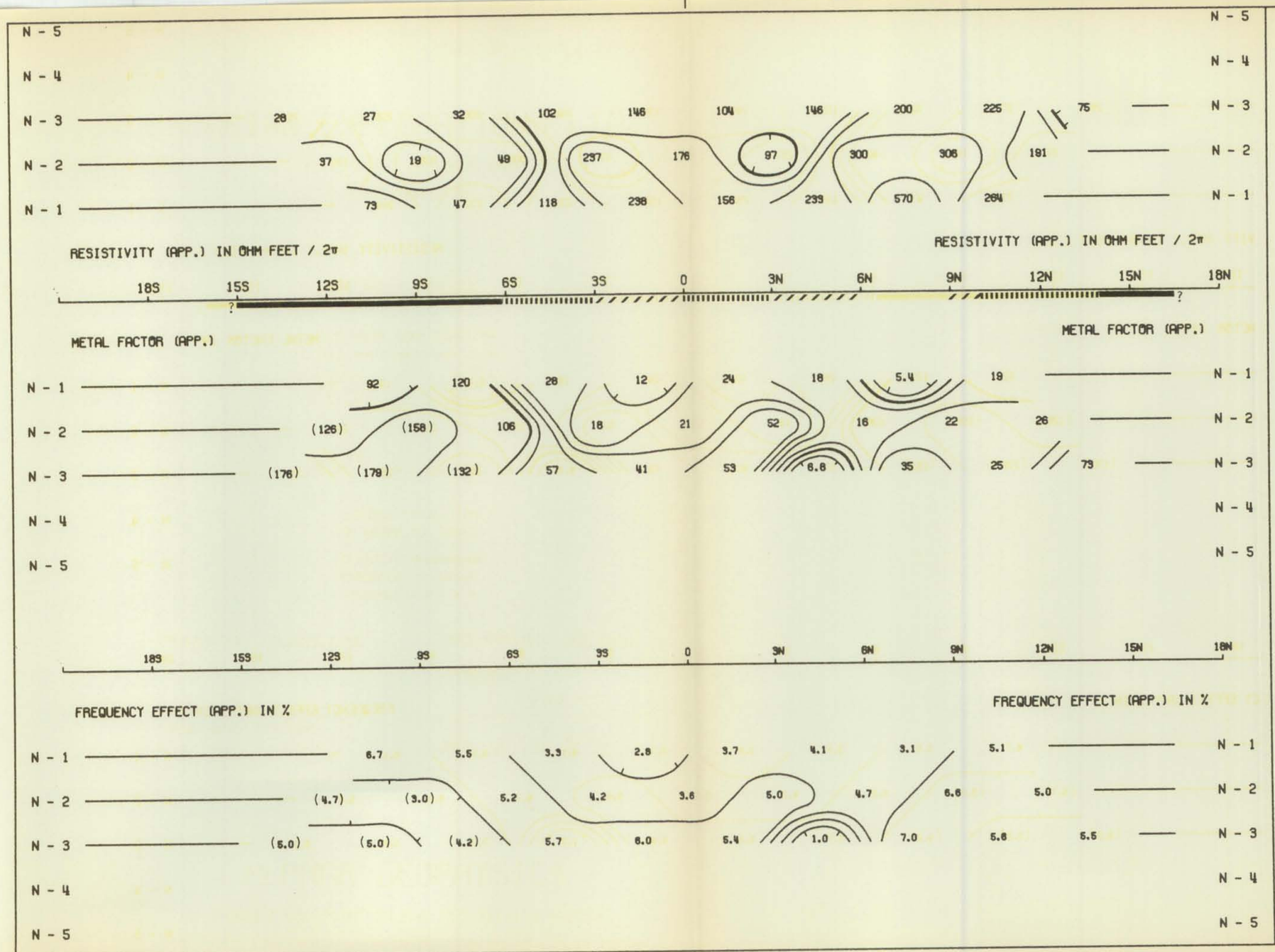
McPHAR GEOPHYSICS LIMITED

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 360/65 COMPUTER AND A CALCOMP PLOTTER



DWG. NO.- I.P.- 5849-6

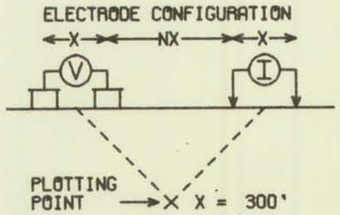
SPARTAN EXPLORATIONS LTD.

TRY CLAIMS, VANGORDA AREA

YUKON TERRITORY

LINE NO.- 3200E

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————

PROBABLE ··········

POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

DATE: 27 Oct

McPHAR GEOPHYSICS LIMITED

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

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

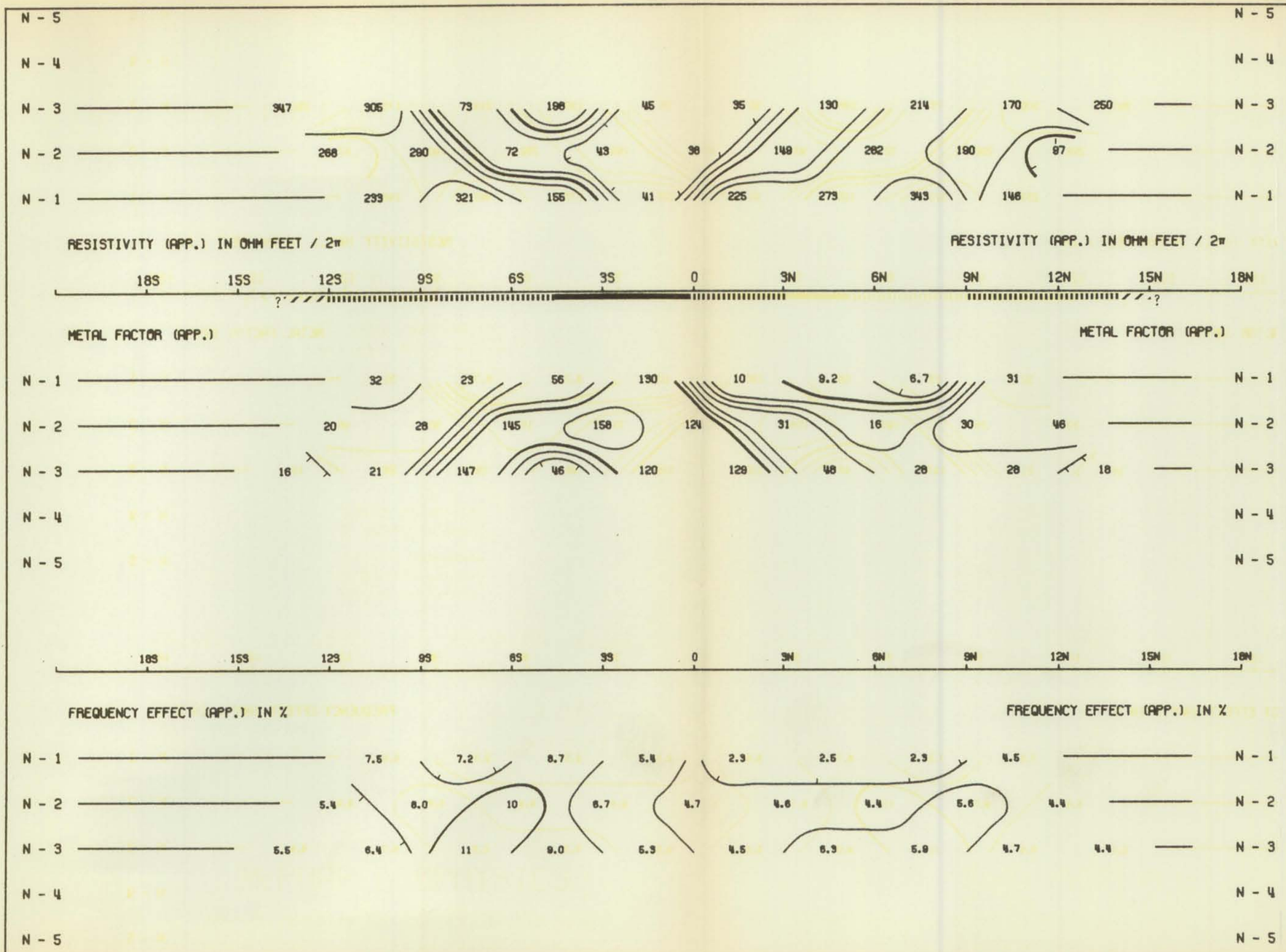
NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/65 COMPUTER AND A CALCOMP PLOTTER

DWG. NO.- I.P.- 5849-7

SPARTAN EXPLORATIONS LTD.

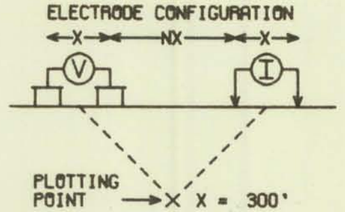
TRY CLAIMS, VANGORDA AREA

YUKON TERRITORY



LINE NO.- 4000E

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————

PROBABLE ....

POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

DATE: 27 Oct 71

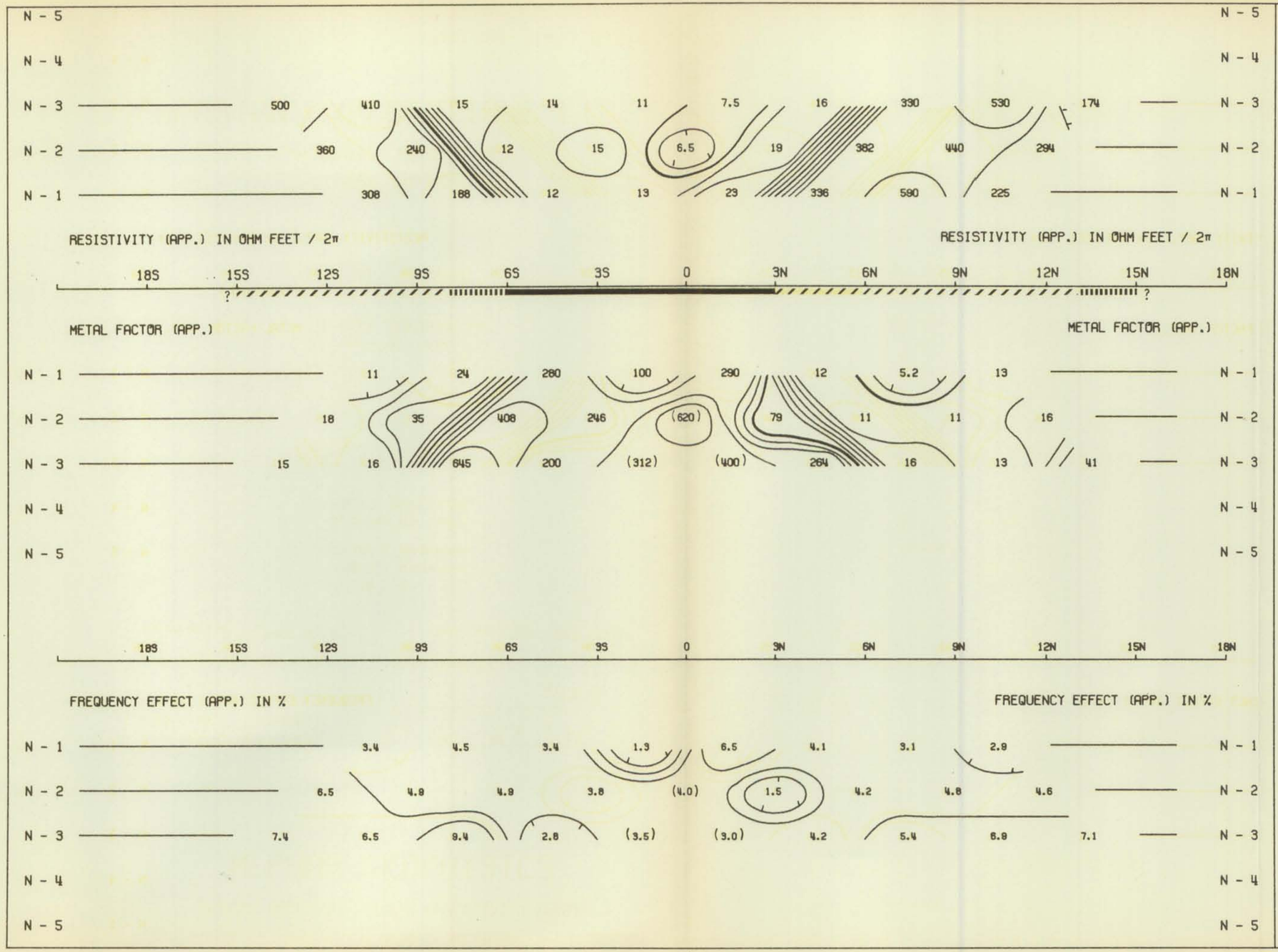
McPHAR GEOPHYSICS LIMITED

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 360/65 COMPUTER AND A CALCOMP PLOTTER



DWG. NO.- I.P.- 5849-8

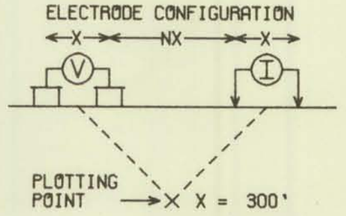
SPARTAN EXPLORATIONS LTD.

TRY CLAIMS, VANGORDA AREA

YUKON TERRITORY

LINE NO.- 5600E

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ▬▬▬

PROBABLE ▪▪▪▪▪▪▪▪▪▪▪▪

POSSIBLE ////////

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

DATE: 27 Oct 71

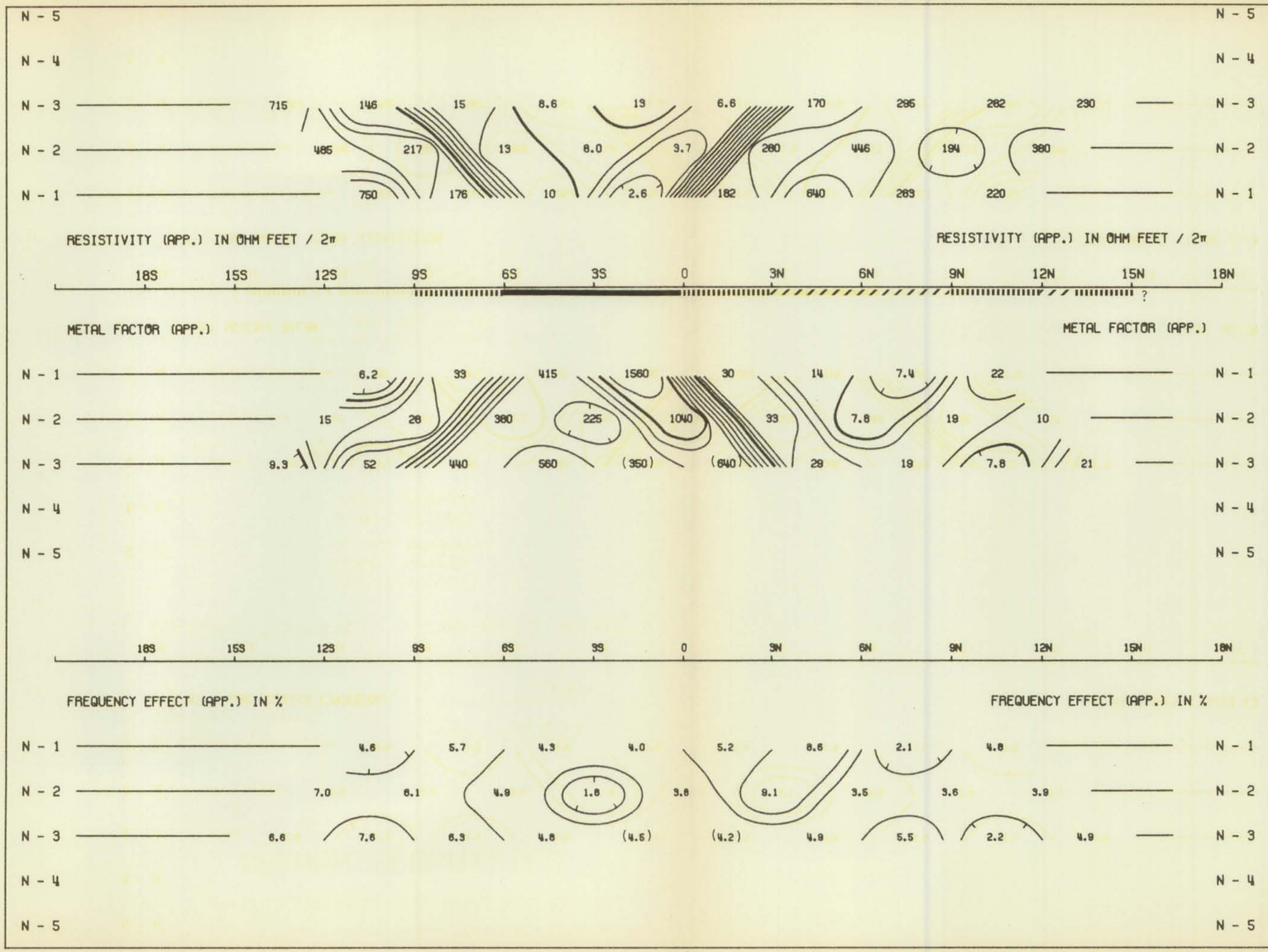
McPHAR GEOPHYSICS LIMITED

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 360/65 COMPUTER AND A CALCOMP PLOTTER



DWG. NO.- I.P.- 5849-9

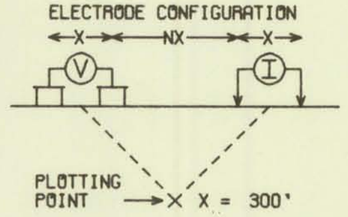
SPARTAN EXPLORATIONS LTD.

TRY CLAIMS, VANGORDA AREA

YUKON TERRITORY

LINE NO.- 7200E

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————

PROBABLE ··········

POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

DATE:

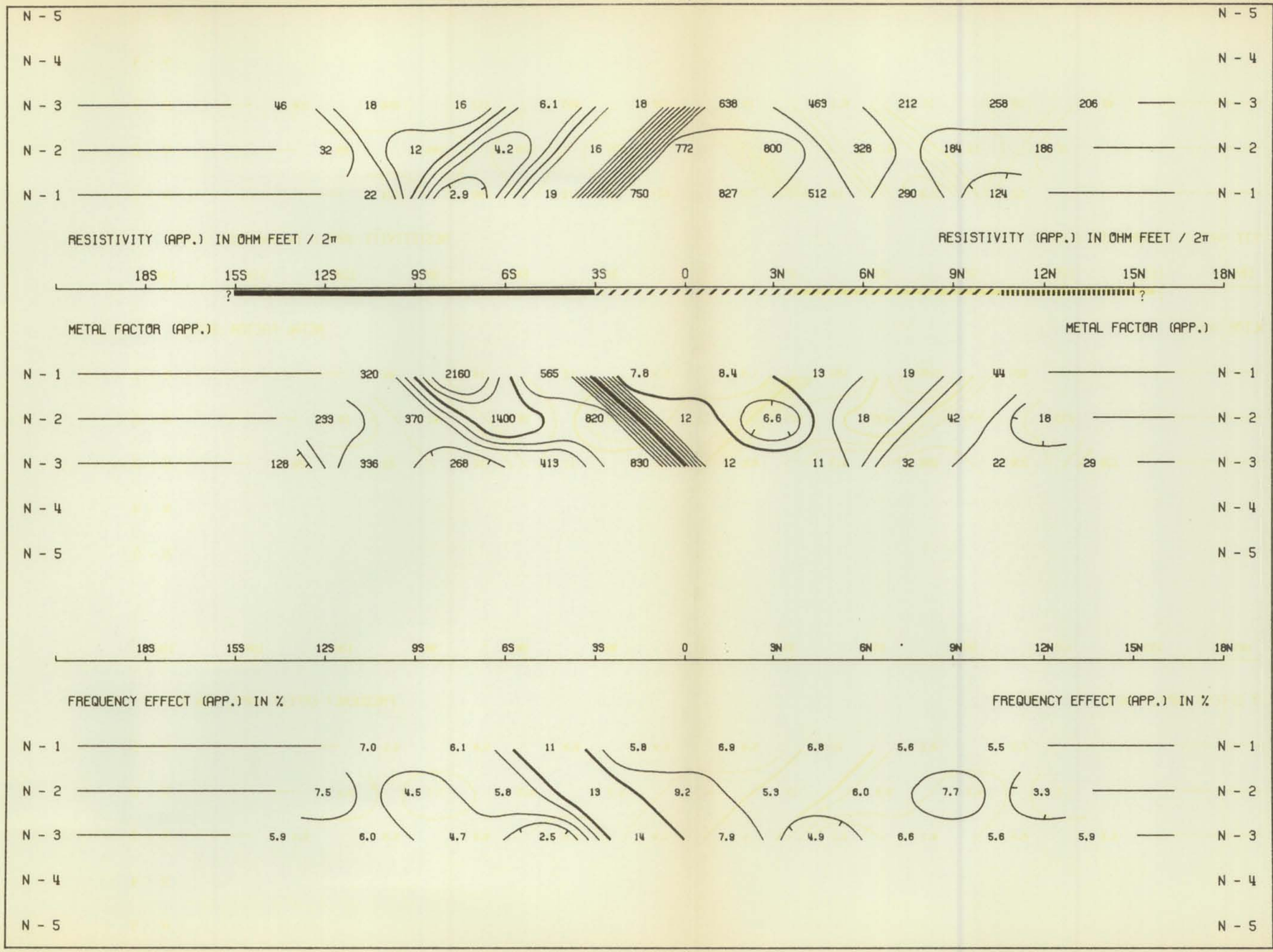
McPHAR GEOPHYSICS LIMITED

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 360/65 COMPUTER AND A CALCOMP PLOTTER



DWG. NO.- I.P.- 5849-10

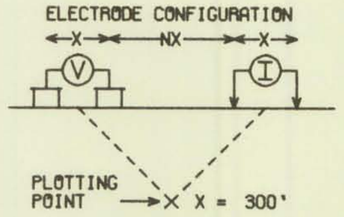
SPARTAN EXPLORATIONS LTD.

TRY CLAIMS, VANGORDA AREA

YUKON TERRITORY

LINE NO.- 8800E

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————

PROBABLE ||||||||||||||

POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPROVED:

DATE: 21 Oct 71

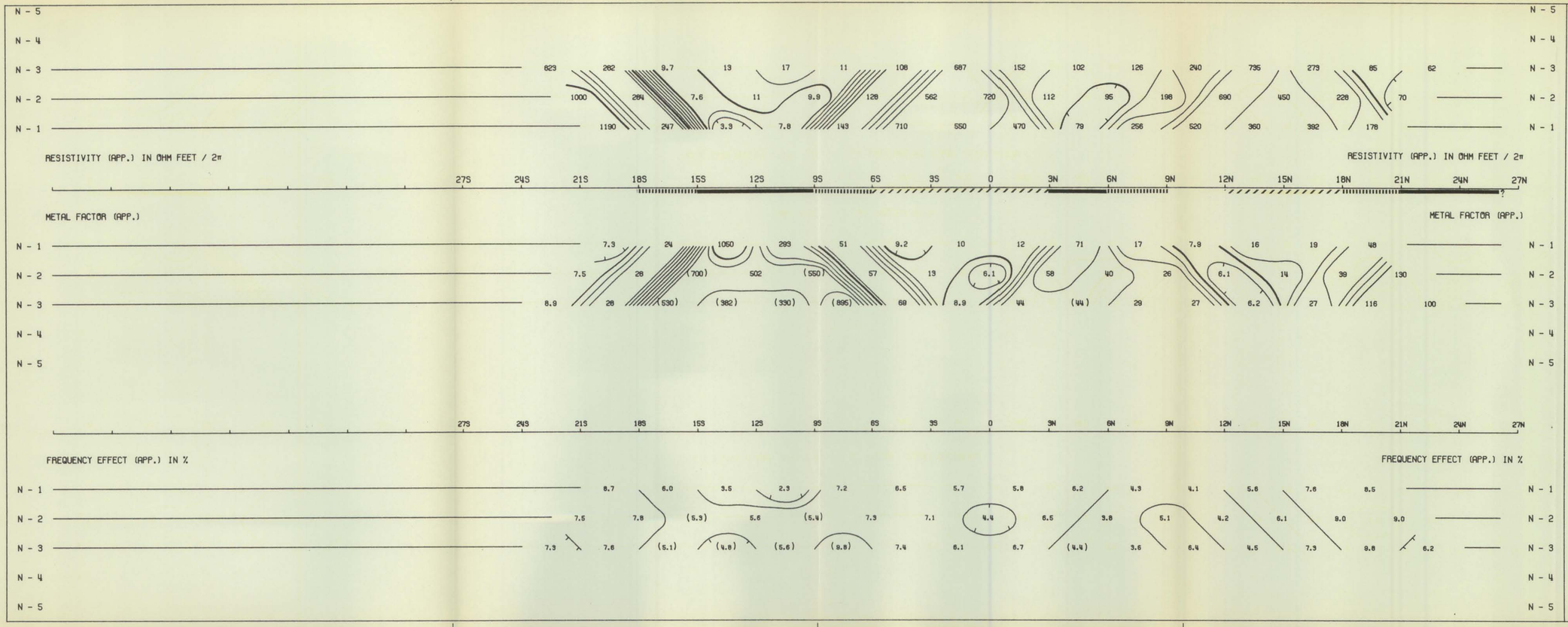
NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

McPHAR GEOPHYSICS LIMITED

McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED WITH AN IBM 360/65 COMPUTER AND A CALCOMP PLOTTER



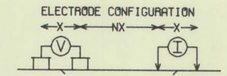
DWG. NØ.- I.P.- 5849-11

SPARTAN EXPLØRATIØNS LTD.

TAY CLAIMS, VANGØRDA AREA
YUKØN TERRITØRY

LINE NØ.- 10400E

ELECTRØDE CØNFIGURATIØN



SURFACE PRØJECTIØN ØF ANØMALØUS ZØNES

DEFINITE
PRØBABLE
PØSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1971

APPRØVED:

DATE: 27 Oct

NØTE: CØNTØURS AT LØGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

McPHAR GEØPHYSICS

INDUCED PØLARIZATIØN AND RESISTIVITY SURVEY

NØTE: THIS PLØT WAS PRØDUCED WITH AN IBM 360/65 CØMPUTER AND A CALCØMP PLØTTER