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2 parts

REPORT ON THE INDUCED POLARIZATION AND RESISTIVITY SURVEY ON THE JOY CLAIM GROUP SNOWDRIFT RIVER AREA

FOR 104 I/6 E 4/11 E

KENNCO EXPLORATIONS (WESTERN) LTD.

BY

PHILIP G. HALLOF, Ph.D.

NAME AND LOCATION OF PROPERTY:

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA

LIARD MINING DIVISION, B. C. 58°/129° S.E.

DATE STARTED - AUGUST 13, 1964

DATE COMPLETED - SEPTEMBER 6, 1964

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McPHAR GEOPHYSICS LIMITED

NOTES ON THE THEORY OF INDUCED POLARIZATION AND THE METHOD OF FIELD OPERATION

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 effectively stop all 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 "metal factor" or "M. F." are a measure of the amount of polarization present in the rock mass being surveyed. This parameter has been found to be very successful in mapping areas of sulphide mineralization, even those in which all other geophysical methods have been unsuccessful. The induced polarization measurement is more sensitive to sulphide content than other electrical measurements

because it is much more dependent upon the sulphide content. As the sulphide content of a rock is increased, the "metal factor" of the rock increases much more rapidly than the resistivity decreases.

Because of this increased sensitivity, it is possible to locate and outline zones of less than 10% sulphides that can't be located by E. M. Methods. The method has been successful in locating the disseminated "porphyry copper" type mineralization in the Southwestern United States.

Measurements and experiments also indicate that it should be possible to locate most massive sulphide bodies at a greater depth with induced polarization than with E. M.

Since there is no I. P. effect from any conductor unless it is metallic, the method is useful in checking E. M. anomalies that are suspected of being due to water filled shear zones or other ionic conductors. There is also no effect from conductive overburden, which frequently confuses E. M. results. It would appear from scale model experiments and calculations that the apparent metal factors measured over a mineralized zone are larger if the material overlying the zone is of low resistivity.

Apropos of this, it should be stated that the induced polarization measurements indicate the total amount of metallic constituents in the rock. Thus all of the metallic minerals in the rock, such as pyrite, as well as the ore minerals chalcopyrite, chalcocite, galena, etc. are responsible for the induced polarization effect. Some

oxides such as magnetite, pyrolusite, chromite, and some forms of hematite also conduct by electrons and are metallic. All of the metallic minerals in the rock will contribute to the induced polarization effect measured on the surface.

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 a distance (X) apart. The potentials are measured at two other points (X) feet apart, in line with the current electrodes. The distance between the nearest current and potential 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 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. The resistivity values are plotted above the line and the metal factor values below. 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. These 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, model and theoretical investigations. The position of the electrodes when anomalous values are measured must be used 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 100 feet to 1000 feet for (X). In each case, the decision as to the distance (X) and the values of (N) 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 1 below demonstrates the method used in plotting the results. Each value of the apparent resistivity and the apparent "Metal factor" 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.

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

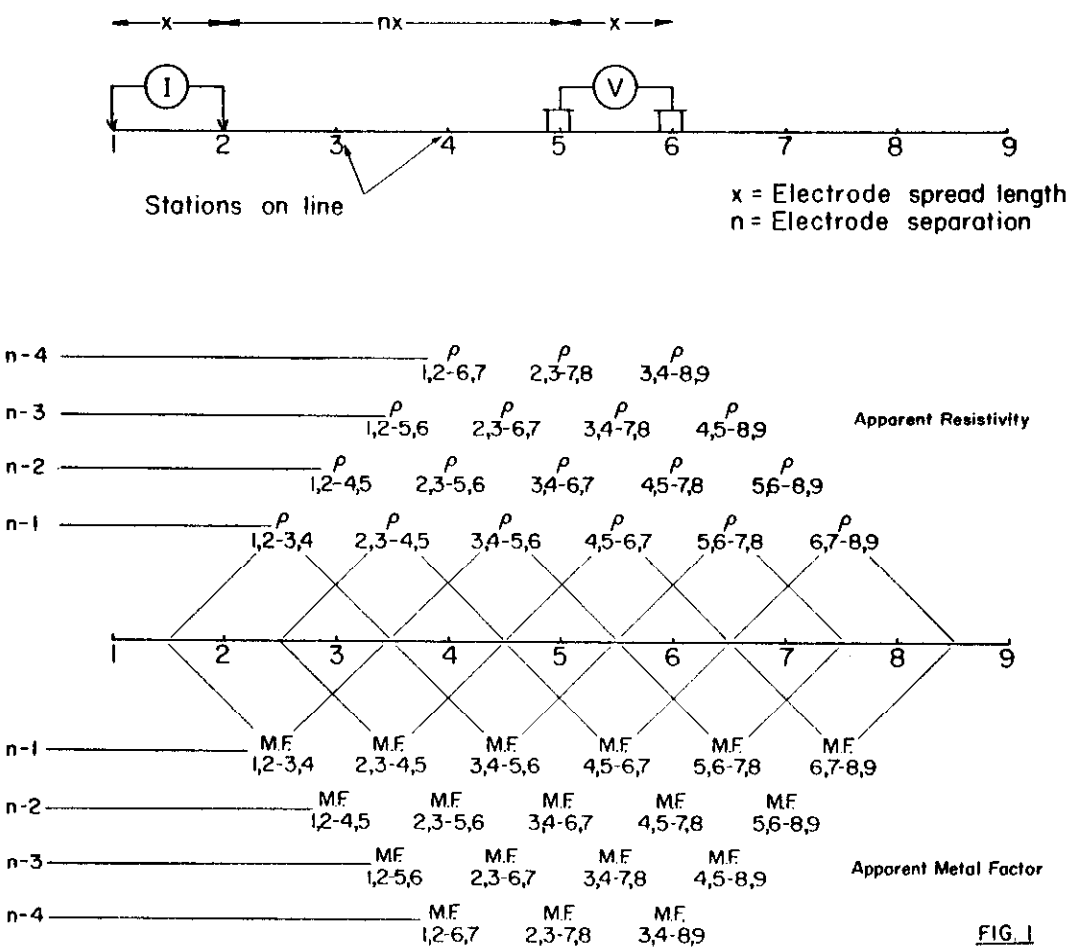

FIG. 1

McPHAR GEOPHYSICS LIMITED

REPORT ON THE

INDUCED POLARIZATION

AND RESISTIVITY SURVEY

ON THE JOY CLAIM GROUP

SNOWDRIFT RIVER AREA

FOR

KENNCO EXPLORATIONS (WESTERN) LTD.

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1. INTRODUCTION

At the request of Mr. H. W. Fleming, geophysicist for the Company, an induced polarization and resistivity survey has been carried out in the Joy Claim Group in the Snowdrift River Area of British Columbia for Kennco Exploration (Western) Ltd. The property is in the Liard Mining Division, in the southeast quadrant of the one degree quadrilateral whose southeast corner is at 51° N-129° W.

A reconnaissance geochemical survey has previously been carried out in the area by the staff of Kennco Explorations (Western) Ltd. This survey indicated several areas that were anomalously high in copper values. The induced polarization survey was planned in order to locate any zones of metallic mineralization that might be associated with the geochemical highs.

2. PRESENTATION OF RESULTS

The induced polarization and resistivity results are shown

on the following enclosed data plots. The results are plotted in the manner described in the notes preceding this report.

Line 48E	200 Foot Electrode Intervals	Dwg. I.P. 2185-1
Line 70E	200 Foot Electrode Intervals	Dwg. I.P. 2185-2
Line 80E	200 Foot Electrode Intervals	Dwg. I.P. 2185-3
Line 88E	200 Foot Electrode Intervals	Dwg. I.P. 2185-4
Line 92E	200 Foot Electrode Intervals	Dwg. I.P. 2185-5
Line 96E	200 Foot Electrode Intervals	Dwg. I.P. 2185-6
Line 104E	200 Foot Electrode Intervals	Dwg. I.P. 2185-7
Line 112E	200 Foot Electrode Intervals	Dwg. I.P. 2185-8
Line 120E	200 Foot Electrode Intervals	Dwg. I.P. 2185-9
Line 128E	200 Foot Electrode Intervals	Dwg. I.P. 2185-10
	100 Foot Electrode Intervals	Dwg. I.P. 2185-11
Line 136E	200 Foot Electrode Intervals	Dwg. I.P. 2185-12
Line 144E	200 Foot Electrode Intervals	Dwg. I.P. 2185-13

Also enclosed with this report is Dwg. Misc. 4103, a plan map of the Joy Claim Group. The definite and possible induced polarization anomalies are indicated by solid and broken bars respectively on this plan map as well as the data plots. These bars represent the surface projection of the anomalous zones as interpreted from the location of the transmitter and receiver electrodes when the anomalous values were measured.

Since the induced polarization measurement is essentially an averaging process, as are all potential methods, it is frequently difficult to exactly pinpoint the source of an anomaly. Certainly, no anomaly can be located with more accuracy than the spread length; i.e. when using

200 foot spreads 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 spreads must be used, with a corresponding increase in the uncertainties of location. Therefore, while the center of the indicated anomaly probably corresponds fairly well with source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

3. DISCUSSION OF RESULTS

The apparent resistivities measured in the area covered by the survey are moderately high. There are low magnitude, but definite I.P. anomalies on several of the lines, but even in the anomalous areas the resistivities are high.

Line 48E

This is the westernmost of the lines surveyed, and the resistivities measured were quite uniform. The I.P. effects measured were low. The effects increase slightly from 148N to 158N, but they are not large enough to be called anomalous.

Line 70E

The apparent resistivities increase appreciably at the northern end of this line. There is a weak, shallow I.P. anomaly indicated in the interval 132N to 136N. Since the source is shallow, it could be better located using shorter electrode intervals.

Line 80E

There are weak I.P. effects on this line also, but the patterns are not definite. The results suggest small, irregular zones of disseminated mineralization.

Line 88E

There are weak, irregular I.P. anomalies on this line also. However, at 110N to 112N there is a narrow source indicated to contain more concentrated mineralization. Measurements with shorter electrode intervals would be necessary to fully evaluate the importance of the anomaly.

Line 92E

A short portion of this line was surveyed to check the anomaly located to the west. The results are very similar to those on Line 88E, indicating a narrow, shallow anomaly at 110N to 112N.

Line 96E

The anomalous zone is somewhat broader on this line. The pattern suggests less concentrated mineralization with more concentrated sources at depth at 106N to 108N and shallow at 112N to 114N. This shallow anomaly appears to correlate with those to the west, and could be better evaluated using shorter intervals.

Line 104E

On this line, there are three separate localities where the results suggest narrow zones of weak mineralization.

Line 112E

There are two weak anomalies on this line. The shallow source at 106N could be checked with shorter electrode intervals.

Line 120E

The I.P. anomaly on this line is more definite. There is a relatively broad anomaly that was located for n=1. The apparent effects measured increase at depth to the north.

Line 128E

On this line, the moderate magnitude I.P. effects appear to extend to the surface. However, when the detailed measurements were made with 100 foot spreads, only a narrow weaker anomaly was measured. The I.P. effects increase with separation, suggesting that the amount of mineralization increases with depth.

Line 136E

The 200 foot spread results on this line are much the same as on Line 128E. The pattern is more definite on this line, and less width is indicated.

Line 144E

The I.P. anomaly is much weaker on this line.

4. CONCLUSIONS AND RECOMMENDATIONS

The reconnaissance I.P. survey on the Joy Claim Group indicates that there is metallic mineralization present in the area. If

the anomalies are located so that their source could also be the source of the geochemical high, they could be of importance. The anomalies do not suggest large volumes of massive mineralization, but the sources could contain narrow zones of fairly concentrated mineralization.

Many of the more definite anomalies indicate a shallow source, and could be detailed using shorter electrode intervals. However, detail was done on Line 128E, and the source appears to be too deep to be completely detected. If the I.P. anomalies correlate with the geochemical source areas, they could be considered for drilling at this time. The most definite anomalies are on Line 92E and Line 136E, and these would be good places to drill. If the mineralization intersected is of economic interest, further I.P. work would be required to better outline the anomalies.

McPHAR GEOPHYSICS LIMITED

Philip G. Hallof,
Geophysicist.

Dated: October 8, 1964

ASSESSMENT DETAILS

PROPERTY: Joy Claim Group

MINING DIVISION: Liard

SPONSOR: Kennco Explorations (Western) Ltd.

PROVINCE: B. C.

LOCATION: Snowdrift River Area

TYPE OF SURVEY: Induced Polarization

OPERATING MAN DAYS:	47.5	DATE STARTED:	August 13, 1964
EQUIVALENT 8 HR. MAN DAYS:	71 1/4	DATE FINISHED:	September 6, 1964
CONSULTING MAN DAYS:	2	NUMBER OF STATIONS:	214
DRAUGHTING MAN DAYS:	5	NUMBER OF READINGS:	1492
TOTAL MAN DAYS:	78 1/4	MILES OF LINE SURVEYED:	7.36

CONSULTANTS:
Philip G. Hallof, 5 Minorca Place, Don Mills, Ontario.

FIELD TECHNICIANS:
R. Auge, Box 343, Espanola, Ontario.
J. Parker, Box 340, Choiceland, Saskatchewan.
3 helpers - supplied by client.

DRAUGHTSMEN:
F. R. Peer, 38 Torrens Ave., Toronto, Ontario.
S. Woods, 1222 York Mills Road, Apt. 401, Don Mills, Ontario.
E. Helkio, 17 Annaree Street, Scarborough, Ontario.

McPHAR GEOPHYSICS LIMITED

Philip G. Hallof,
Geophysicist.

October 7, 1964

SUMMARY OF COST

Joy Claim Group

Crew

9 1/2 days Operating		@ $170.00/day	$1,615.00
1 1/2 days Bad Weather)			
15 1/2 days Standby	) 17	@ $ 50.00	850.00
1/2 days Breakdown			N.C.

Expenses

2 days Travel @$50.00	$100.00	
Airfare	145.33	
Excess Baggage	4.50	
Meals and Accommodation	93.63	
Telephone & Telegraph	13.86	
Supplies	51.32	
Taxi, etc.	12.66	
Freight	76.33	
Miscellaneous	5.33	502.96
		$2,967.96

McPHAR GEOPHYSICS LIMITED

Philip G. Hallof,
Geophysicist.

Dated: October 8, 1964

CERTIFICATE

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

1. I am a geophysicist residing at 5 Minorca Place, Don Mills, (Toronto), Ontario.

2. I am a graduate of the Massachusetts Institute of Technology with a B.S. 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 have been practising my profession for ten years.

5. I have no direct or indirect interest, nor do I expect to receive any interest, direct or indirect, in the property or securities of Kennco Explorations (Western) Limited.

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

Dated at Toronto

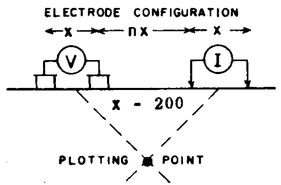
This 9th day of October 1964.

Philip G. Hallof, Ph.D.

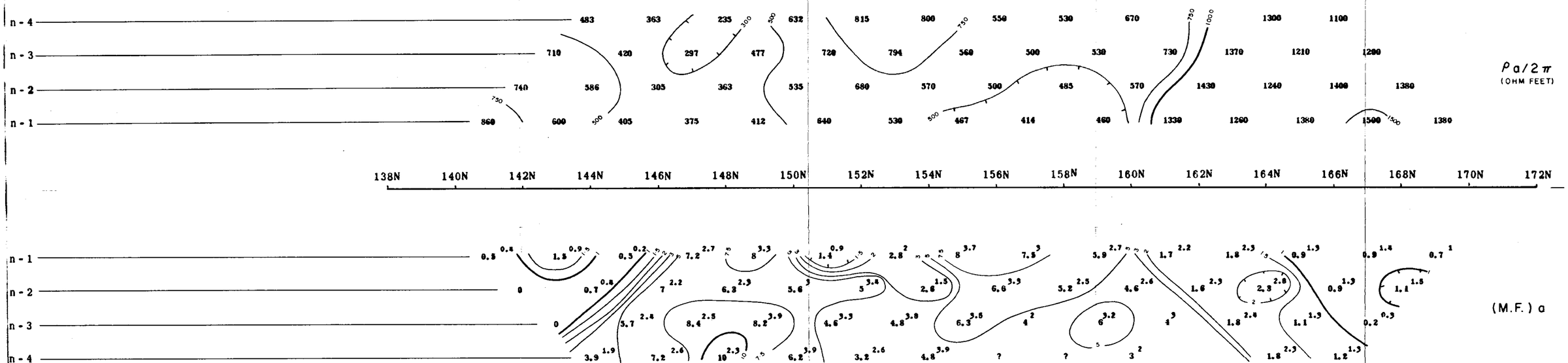
DWG. NO.-I.P.-2185-1

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 585 MAP 2-1



LINE NO.-48 E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA – LIARD M.D. – BRITISH COLUMBIA.

Scale – One inch = 200 Feet

ANOMALOUS ZONE

POSSIBLE ANOMALOUS ZONE

NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0·31 – 5 CPS

DATE SURVEYED SEPT/1964

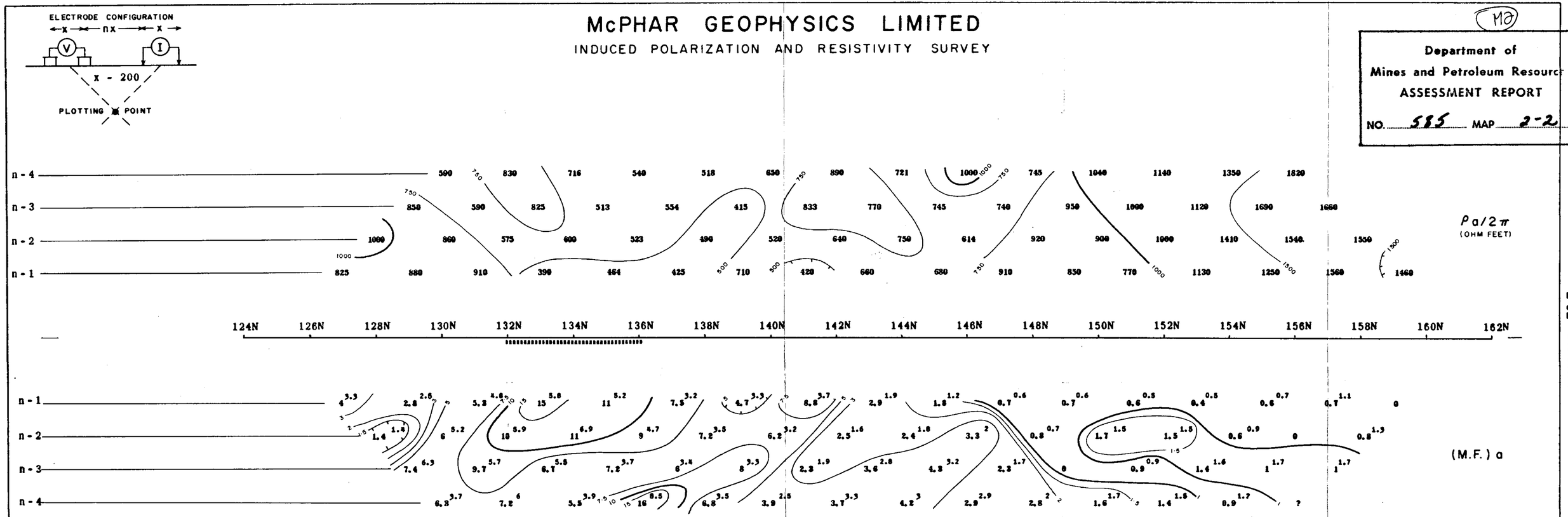
APPROVED

DATE 10/8/64

DWG. NO.-I.P.-2185-2

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



Department of
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ASSESSMENT REPORT
NO. 585 MAP 2-2

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA – LIARD M.D. – BRITISH COLUMBIA.

Scale – One inch = 200 Feet

ANOMALOUS ZONE

POSSIBLE ANOMALOUS ZONE

NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0·31 – 5 CPS

DATE SURVEYED SEPT/1964

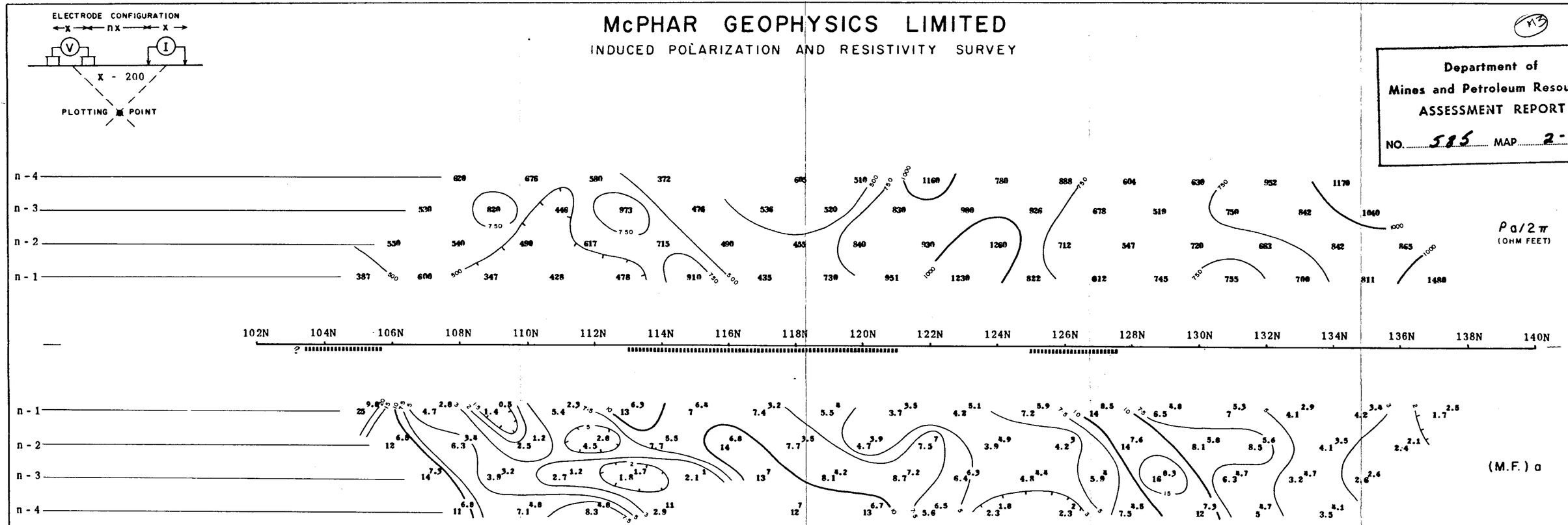
APPROVED

DATE 10/8/64

DWG. NO.-I.P.-2185-3

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 585 MAP 2-3

LINE NO.-80E

ANOMALOUS ZONE
POSSIBLE ANOMALOUS ZONE
NOTE
LOGARITHMIC CONTOUR INTERVAL

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA – LIARD M.D. – BRITISH COLUMBIA.

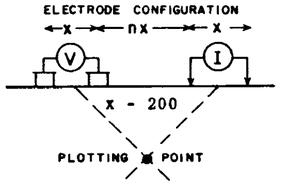
Scale – One inch = 200 Feet

FREQUENCY 0·31–5 CPS
DATE SURVEYED SEPT/1964
APPROVED
DATE 10/8/64

DWG. NO.-I.P.-2185-4

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



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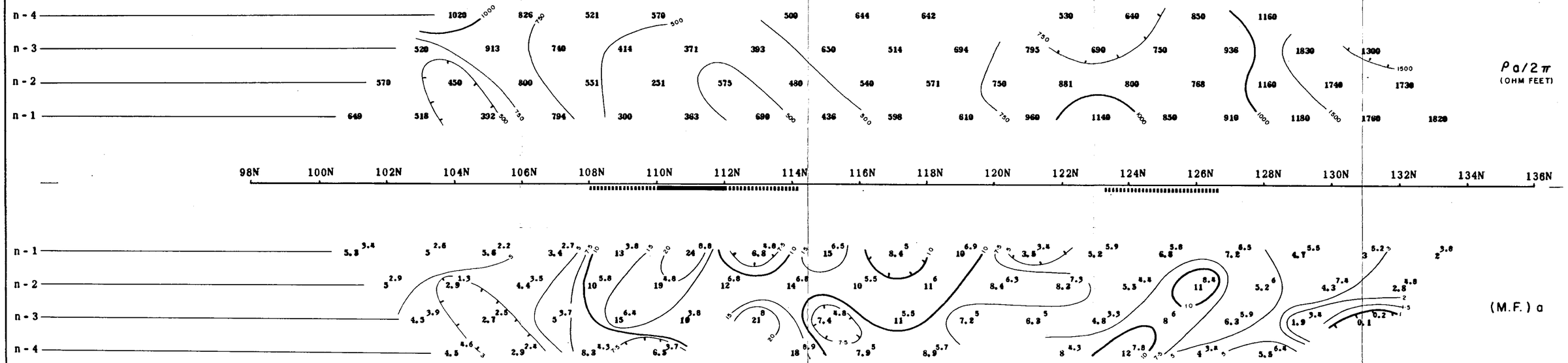
ASSESSMENT REPORT
NO. 585 MAP 2-4



LINE NO.-68E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA - LIARD M.D. - BRITISH COLUMBIA.

Scale - One inch = 200 Feet

ANOMALOUS ZONE

POSSIBLE ANOMALOUS ZONE

NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.31-5 CPS

DATE SURVEYED SEPT./1964

APPROVED P/

DATE 10/8/64

DWG. NO.-I.P.-2185-5

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

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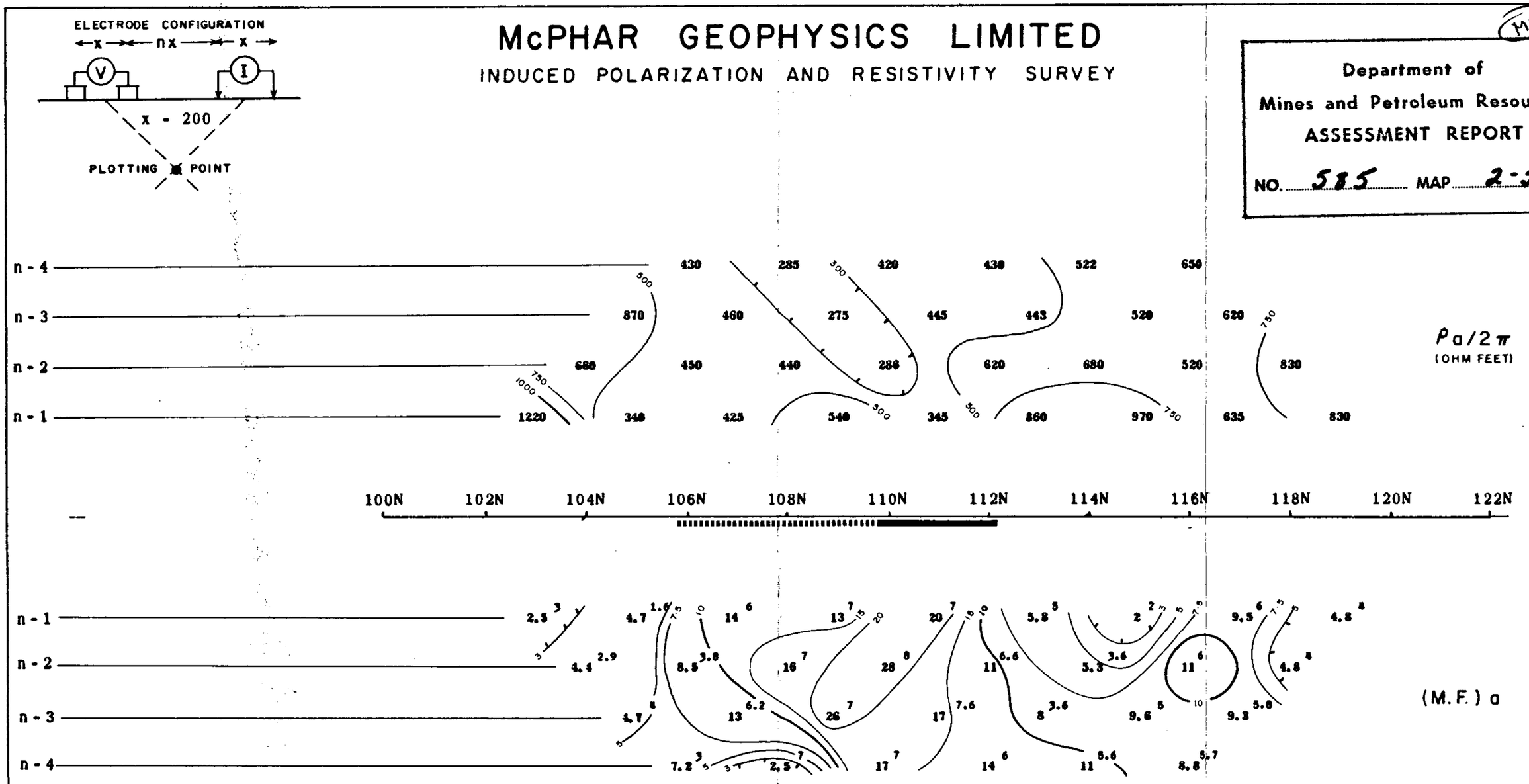
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 585 MAP 2-5



LINE NO.-92E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA — LIARD M.D. — BRITISH COLUMBIA.

Scale — One inch = 200 Feet

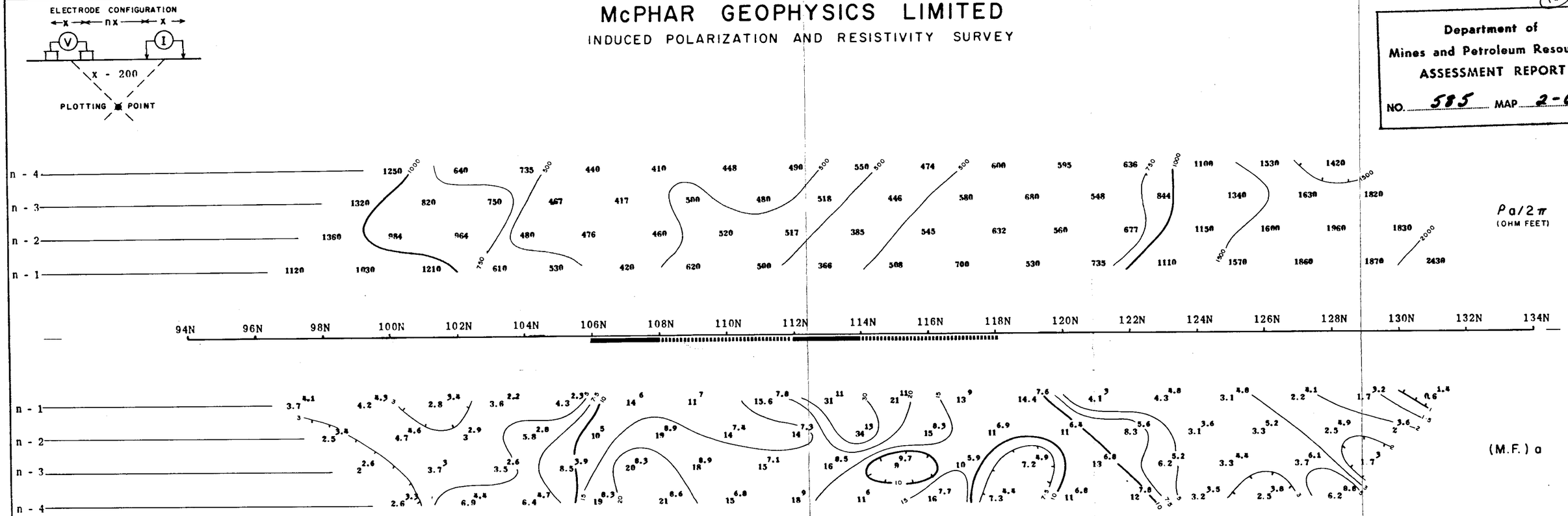
ANOMALOUS ZONE
POSSIBLE ANOMALOUS ZONE
NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.31 - 5 CPS
DATE SURVEYED SEPT./1964
APPROVED
DATE 10/8/64

DWG. NO.-I.P.-2185-6

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



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ASSESSMENT REPORT
NO. 585 MAP 2-6

LINE NO.-96E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA - LIARD M.D. - BRITISH COLUMBIA.

Scale - One inch = 200 Feet

ANOMALOUS ZONE

POSSIBLE ANOMALOUS ZONE

NOTE
LOGARITHMIC CONTOUR INTERVAL

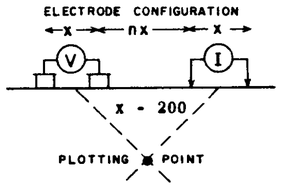
FREQUENCY 0.31 - 5 CPS

DATE SURVEYED SEPT./1964

APPROVED P.I.

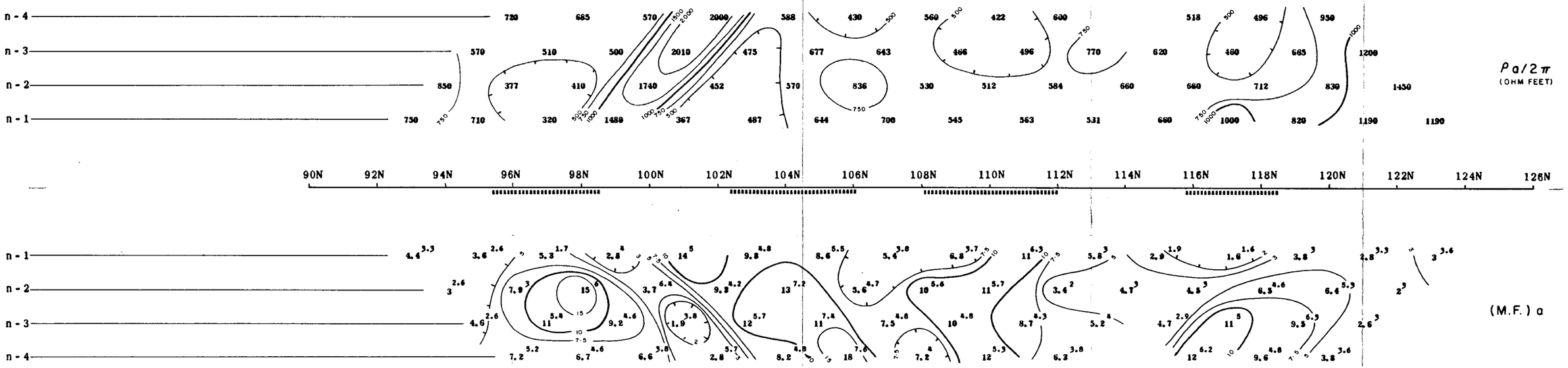
DATE 10/8/64

DWG. NO.-I.P.-2185-7



McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



LINE NO-104E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA – LIARD M.D. – BRITISH COLUMBIA.

Scale – One inch = 200 Feet

ANOMALOUS ZONE

POSSIBLE ANOMALOUS ZONE

NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.31 - 5 CPS

DATE SURVEYED SEPT./1964

APPROVED R

DATE 10/8/64

DWG. NO.-I.P.-2185-8

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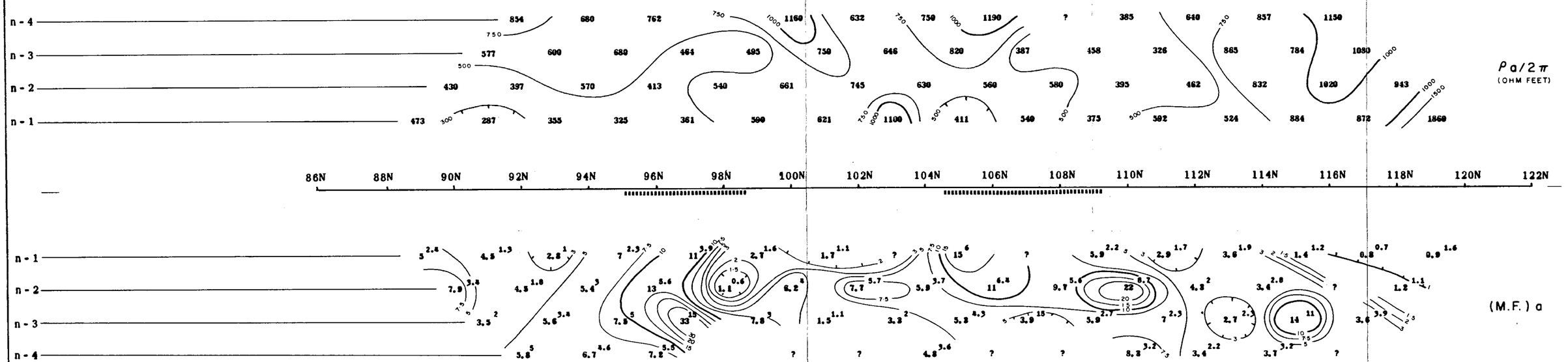
McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 585 MAP 2-8



LINE NO.-112E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA - LIARD M.D. - BRITISH COLUMBIA.

Scale - One inch = 200 Feet

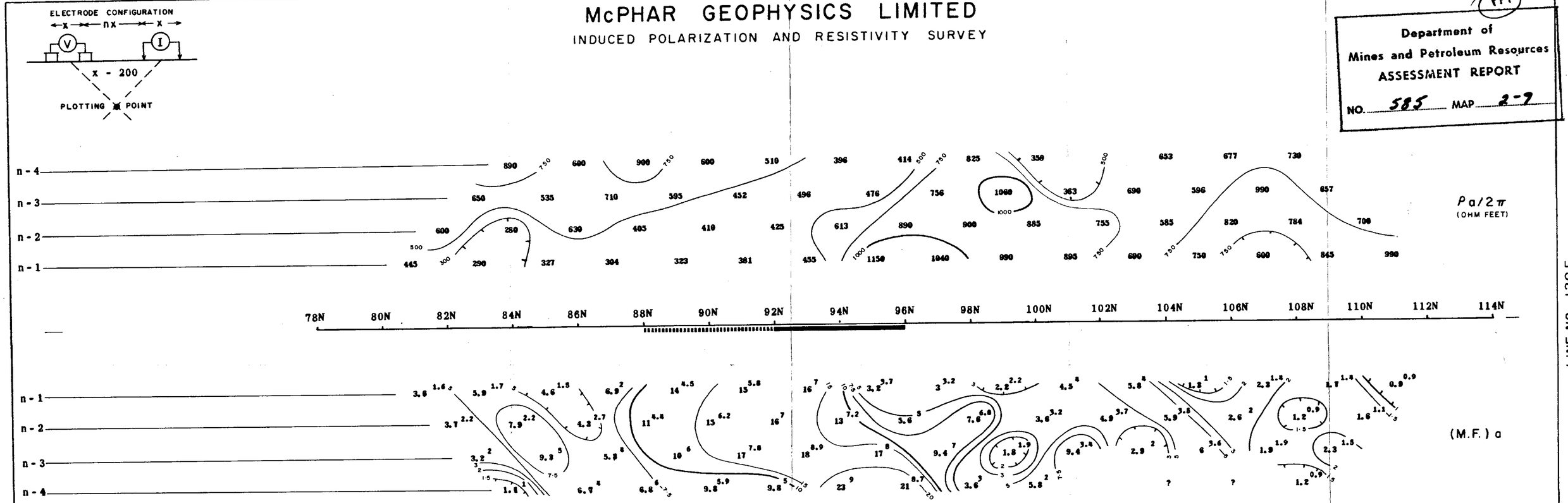
ANOMALOUS ZONE
POSSIBLE ANOMALOUS ZONE
NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.31-5 CPS
DATE SURVEYED SEPT./1964
APPROVED PI
DATE 10/8/64

DWG. NO.-I.P.-2185-9

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA – LIARD M.D. – BRITISH COLUMBIA.

Scale – One inch = 200 Feet

ANOMALOUS ZONE

POSSIBLE ANOMALOUS ZONE

NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.31-5CPS

DATE SURVEYED SEPT./1964

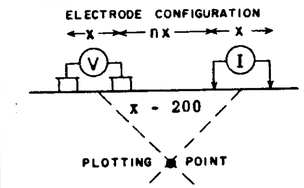
APPROVED

DATE 10/8/64

DWG. NO.-I.P.-2185-10

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



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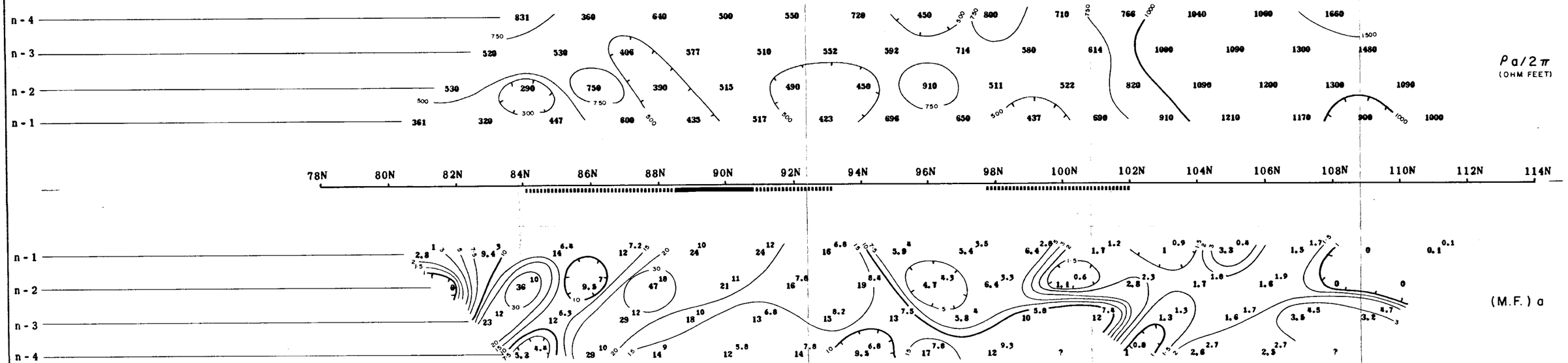


LINE NO.-128E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA - LIARD M.D. - BRITISH COLUMBIA.

Scale - One inch = 200 Feet

ANOMALOUS ZONE
POSSIBLE ANOMALOUS ZONE

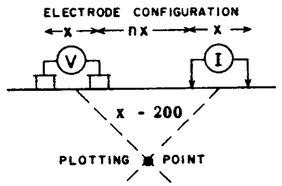
NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.31-5 CPS
DATE SURVEYED SEPT./1964
APPROVED PI
DATE 10/8/64

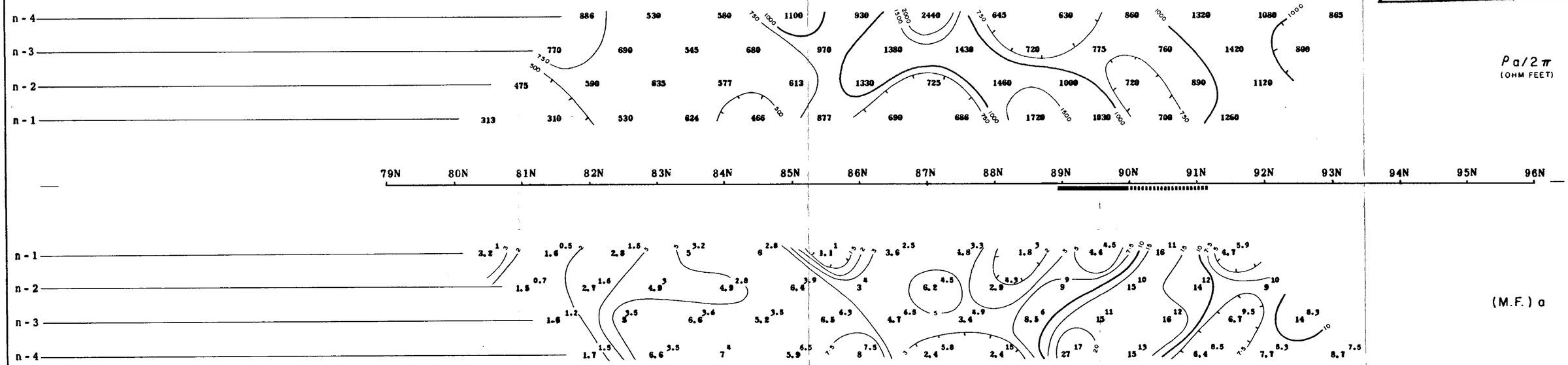
DWG. NO.-I.P.-2187-11

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 585 MAP 2-11



LINE NO.-128E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA – LIARD M.D. – BRITISH COLUMBIA.

Scale – One inch = 100 Feet

ANOMALOUS ZONE
POSSIBLE ANOMALOUS ZONE

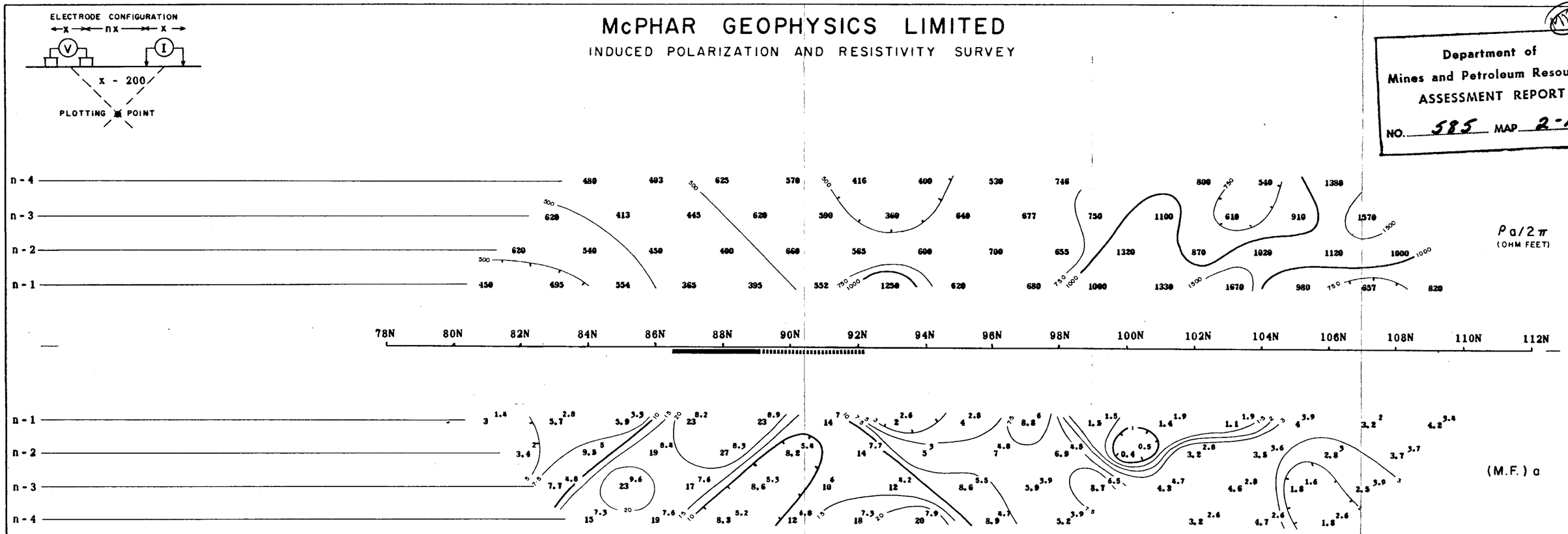
NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.31-5 CPS
DATE SURVEYED SEPT./1964
APPROVED PJ
DATE 10/9/64

DWG. NO.-I.P.-2185-12

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 585 MAP 2-12

LINE NO.- 136E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA – LIARD M.D. – BRITISH COLUMBIA.

Scale – One inch = 200 Feet

ANOMALOUS ZONE

POSSIBLE ANOMALOUS ZONE

NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.31 – 5 CPS

DATE SURVEYED SEPT/1964

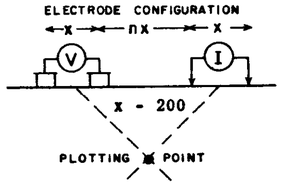
APPROVED PI

DATE 10/8/64

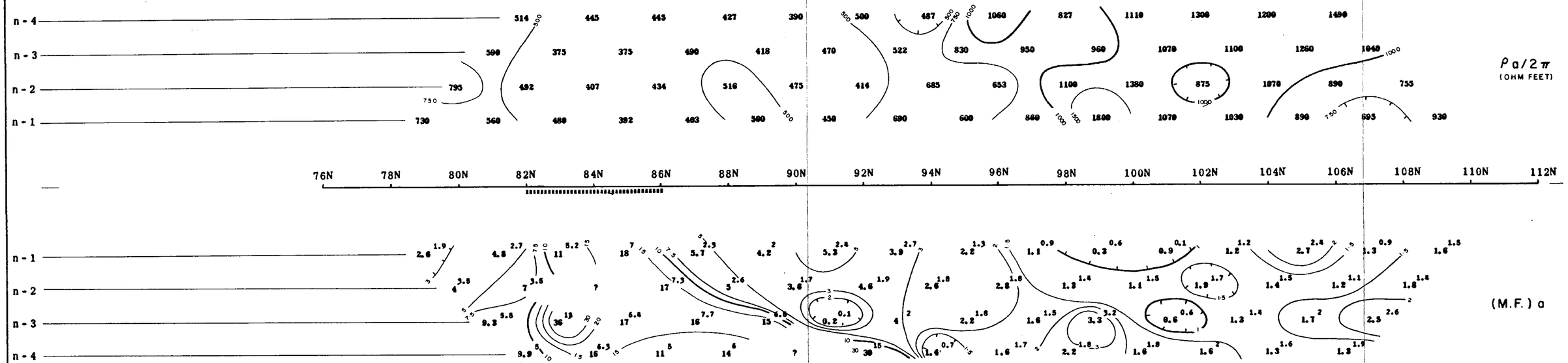
DWG. NO.-I.P.-2185-13

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 585 MAP 2-13



LINE NO.-144E

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA - LIARD M.D. - BRITISH COLUMBIA.

Scale-One inch = 200 Feet

ANOMALOUS ZONE
POSSIBLE ANOMALOUS ZONE
NOTE
LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.31 - 5 CPS
DATE SURVEYED SEPT./1964
APPROVED
DATE 10/8/64

SUB-MINING RECORDER
RECEIVED
OCT 15 1964
M.R. #72245 $247.00
VANCOUVER, B.C.

M14

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

In the Matter of Assessment Work on the Joy Group No. II, Liard Mining Division, B.C. (Joy M.C.'s 15,16,17,18,19,20,21,22,23, 24,25,26,27,28,29,30,31,32)

I, G. H. Rayner, Kennco Explorations, (Western) Limited

of 1030 West Georgia Street, Vancouver

in the Province of British Columbia, do solemnly declare that the costs incurred in assessment work on the above claims are as follows:

Geochemistry:	Wages:	A. Panteleyev	Aug 12,20	$ 23.40 @11.70/d
		K. Beynon	Aug 12	10.50 @10.50/d
	Laboratory Costs			94.00
Trenching:	Wages	K. Beynon	Aug 23,24	21.00 @10.50/d
		J. Hamilton	Aug 23,24	21.00 @10.50/d
Geol. Mapping:	Wages	C.S. Ney	Aug 18,19,20	105.00 @35.00/d
		A. Panteleyev	Aug 21,22,23,24	48.00 @11.70/d
		K. Beynon	Aug 21,22	21.00 @10.50/d
		J. Hamilton	Aug 21,22	21.00 @10.50/d
Induced Polarization Survey:				
	Contractors Cost			954.47
Line Cutting:	Wages	G.H. Rayner	Aug 20,22,23,24,25	100.00 @20.00/d
		A. Panteleyev	Aug 20,22,23,24,25,Sept 1	105.00 @11.70/d
		D. Cooper	Aug 25,26,27,28,31,Sep 1,2,3	80.00 @10.00/d
		P. Thompson	Aug 24,25,Sept 1,2,3,4,5	75.25 @10.75/d
		H. Quock	Aug 25, Sept 1,2,3,4,5	79.80 @13.30/d
Assisting I.P. Survey:	Wages	G.H. Rayner	Aug 29,30,31	60.00 @20.00/d
		A. Panteleyev	Aug 30,31,Sept 2,3,4,5	105.00 @11.70/d
		D. Cooper	Sept 4,5	20.00 @10.00/d
		P. Thompson	Aug 29,30,31	32.25 @10.75/d
		H. Quock	Aug 29,30,31	39.90 @13.30/d
		J. Williams	Aug 31,Sept 1,2,3	56.70 @14.17/d
				$2,073.27
Other costs applicable				857.40
			Total	$2,930.67

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City of Vancouver, in the Province of British Columbia, this 15 day of October 1964, A.D.

Gerald H. Rayner

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

★o

SUB-MINING RECORDER
RECEIVED
OCT 15 1964
M.R. #72245 $247.00
VANCOUVER, B.C.

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

In the Matter of Assessment Work on the Joy Group No. 1, Liard Mining Division, B.C. (Joy M.C.'s 1,2,3,4,5,6,7,8,9,10, 11,12,13,14)

I, G.H. Rayner, Kennco Explorations, (Western) Limited,

of 1030 West Georgia Street, Vancouver

in the Province of British Columbia, do solemnly declare that the costs incurred in assessment work on the above claims are as follows:

Geochemistry:	Wages	A. Panteleyev	Aug 10,11	$ 23.40 @11.70/day
		K. Beynon	Aug 10,11	21.00 @10.50/day
		J. Hamilton	Aug 25	10.50 @10.50/day
	Laboratory Costs			90.00
Trenching:	Wages	K. Beynon	Aug 17,20	21.00 @10.50/day
		J. Hamilton	Aug 17,20	21.00 @10.50/day
Geol. Mapping:	Wages	C.S. Ney	Aug 16,17	70.00 @35.00/day
		A. Panteleyev	Aug.18,19	24.00 @11.70/day
		K. Beynon	Aug 18,19	21.00 @10.50/day
		J. Hamilton	Aug 18,19	21.00 @10.50/day
Induced Polarization Survey:				
	Contractors Cost			660.53
Line Cutting:	Wages	G.H. Rayner	Aug 17,18,19,21	80.00 @20.00/day
		A. Panteleyev	Aug 17,18,19,21	70.00 @11.70/day
		D. Cooper	Aug 19,20,21,22,23,24	60.00 @10.00/day
		P. Thompson	Aug 18,19,20,21,22	53.70 @10.75/day
		H. Quock	Aug 18,19,21,22,24	66.50 @13.30/day
Assisting I.P. Survey:				
	Wages	G.H. Rayner	Aug 26,27,28	60.00 @20.00/day
		A. Panteleyev	Aug 26,27,28,29	70.00 @11.70/day
		D. Cooper	Aug 29,30	20.00 @10.00/day
		P. Thompson	Aug 26,27,28	32.25 @10.75/day
		H. Quock	Aug 26,27,28	39.90 @13.30/day
				$1,535.78
Direct Costs applicable				484.00
			Total	$2,019.78

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City of Vancouver, in the Province of British Columbia, this 15 day of October 1964, A.D.

Gerald H. Rayner

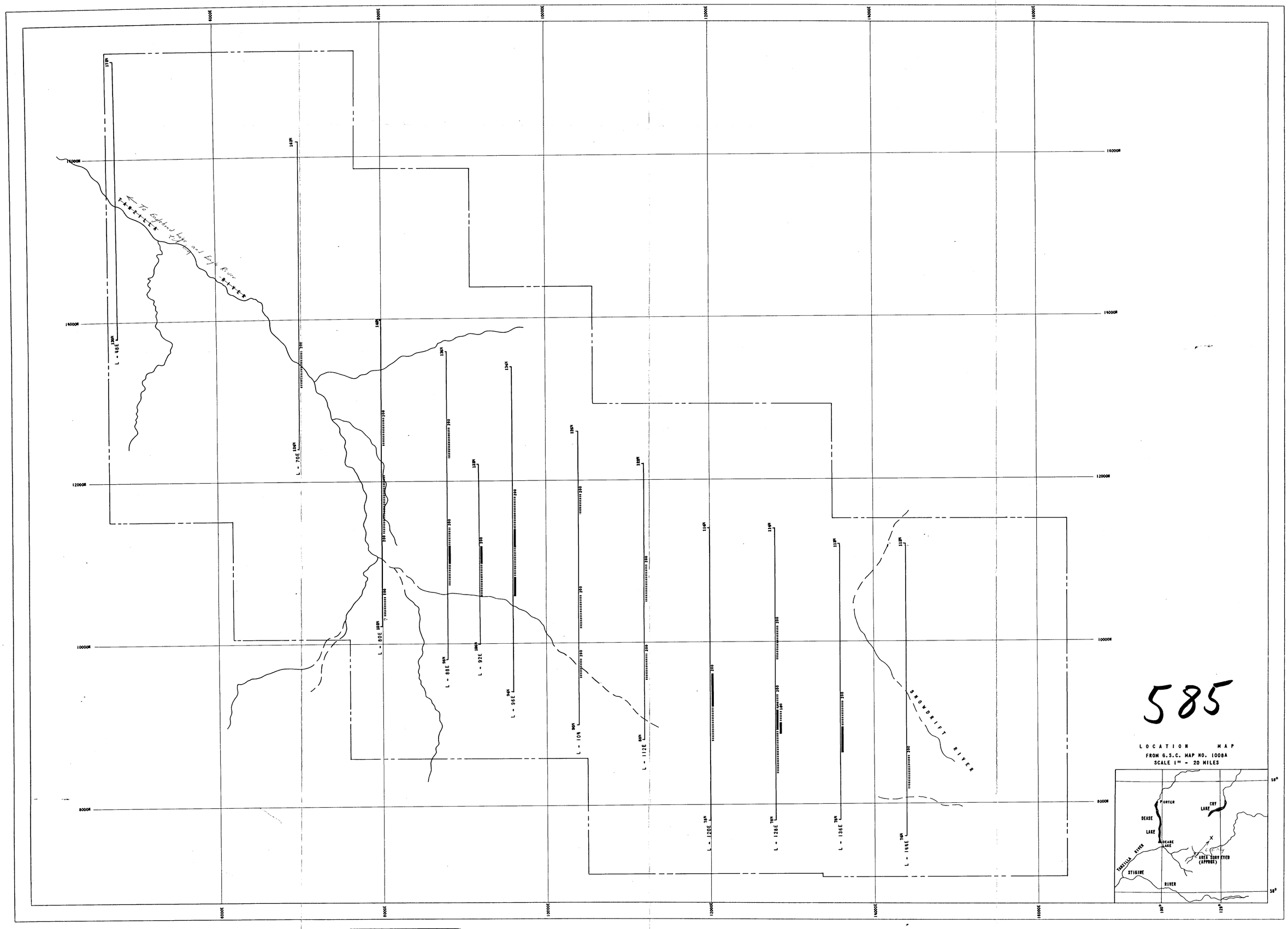
Jill Turner
Sub-mining Recorder ~~A Commissioner, etc.~~
A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

★o

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

LOCATION MAP



585

N

ANOMALOUS ZONE

POSSIBLE ANOMALOUS ZONE

NUMBERS AT END OF ANOMALIES INDICATE SPREAD USED

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 585 MAP 1

two #1 maps

KENNCO EXPLORATIONS (WESTERN) LIMITED

JOY CLAIM GROUP, SNOWDRIFT RIVER AREA – LIARD M.D. – BRITISH COLUMBIA.

SCALE

400 200 0 400 800 1200 1600 2000
FEET FEET

One Inch = Four Hundred Feet

TO ACCOMPANY REPORT BY P.G. HALLOF,
DATED: OCTOBER 9th, 1964.

Report 585

DRAWN: F.R.P.
DATE: OCTOBER, 1964.
APPROVED: PI
DATE: 10/8/64

DWG. MISC. 4103

585

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

In the Matter of Assessment Work on the Joy Group No. 1, Liard Mining Division, B.C. (Joy M.C.'s 1,2,3,4,5,6,7,8,9,10, 11,12,13,14)

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		K. Beynon	Aug 10,11	21.00 @10.50/day
		J. Hamilton	Aug 25	10.50 @10.50/day
	Laboratory Costs			90.00
Trenching:	Wages	K. Beynon	Aug 17,20	21.00 @10.50/day
		J. Hamilton	Aug 17,20	21.00 @10.50/day
Geol. Mapping:	Wages	C.S. Ney	Aug 16,17	70.00 @35.00/day
		A. Panteleyev	Aug.18,19	24.00 @11.70/day
		K. Beynon	Aug 18,19	21.00 @10.50/day
		J. Hamilton	Aug 18,19	21.00 @10.50/day
Induced Polarization Survey:				
	Contractors Cost			660.53
Line Cutting:	Wages	G.H. Rayner	Aug 17,18,19,21	80.00 @20.00/day
		A. Panteleyev	Aug 17,18,19,21	70.00 @11.70/day
		D. Cooper	Aug 19,20,21,22,23,24	60.00 @10.00/day
		P. Thompson	Aug 18,19,20,21,22	53.70 @10.75/day
		H. Quock	Aug 18,19,21,22,24	66.50 @13.30/day
Assisting I.P. Survey:				
	Wages	G.H. Rayner	Aug 26,27,28	60.00 @20.00/day
		A. Panteleyev	Aug 26,27,28,29	70.00 @11.70/day
		D. Cooper	Aug 29,30	20.00 @10.00/day
		P. Thompson	Aug 26,27,28	32.25 @10.75/day
		H. Quock	Aug 26,27,28	39.90 @13.30/day
				$1,535.78
Direct Costs applicable				484.00
			Total	$2,019.78

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City of Vancouver, in the Province of British Columbia, this 15 day of October 1964, A.D.

Gerald H. Rayner

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

★o

G.1 OCT
72345 D 247.00

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA

To Wit:

In the Matter of Assessment Work on the Joy Group No. II, Liard Mining Division, B.C. (Joy M.C.'s 15,16,17,18,19,20,21,22,23, 24,25,26,27,28,29,30,31,32)

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		K. Beynon	Aug 12	10.50 @10.50/d
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		J. Hamilton	Aug 23,24	21.00 @10.50/d
Geol. Mapping:	Wages	C.S. Ney	Aug 18,19,20	105.00 @35.00/d
		A. Panteleyev	Aug 21,22,23,24	48.00 @11.70/d
		K. Beynon	Aug 21,22	21.00 @10.50/d
		J. Hamilton	Aug 21,22	21.00 @10.50/d
Induced Polarization Survey:				
	Contractors Cost			954.47
Line Cutting:	Wages	G.H. Rayner	Aug 20,22,23,24,25	100.00 @20.00/d
		A. Panteleyev	Aug 20,22,23,24,25,Sept 1	105.00 @11.70/d
		B. Cooper	Aug 25,26,27,28,31,Sep 1,2,3	96.00 @16.00/d
		P. Thompson	Aug 24,25,Sept 1,2,3,4,5	75.25 @10.75/d
		H. Quock	Aug 25, Sept 1,2,3,4,5	79.00 @13.30/d
Amplitude I.P. Survey:				
	Wages	G.H. Rayner	Aug 29,30,31	60.00 @20.00/d
		A. Panteleyev	Aug 30,31,Sept 2,3,4,5	105.00 @11.70/d
		B. Cooper	Sept 4,5	20.00 @16.00/d
		P. Thompson	Aug 29,30,31	32.25 @16.75/d
		H. Quock	Aug 29,30,31	39.90 @13.30/d
		J. Williams	Aug 31,Sept 1,2,3	56.70 @14.17/d
				$2,073.37
Other costs applicable				257.40
			Total	$2,330.87

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City of Vancouver, in the Province of British Columbia, this 15 day of October 1964. A.D.

Gerald H. Rayner

Jill Turner

Submitting Reporter

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