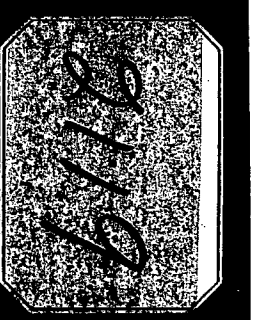
I.P. AND RESISTIVITY SURVEYS
HIGHLAND QUEEN PROPERTY
KAMLOOPS M.D., B.C.



2119

INDUCED POLARIZATION GEOPHYSICAL SURVEY
ON THE HIGHLAND QUEEN PROPERTY, CONSISTING OF FORTY JT CLAIMS, THIRTY-ONE TH CLAIMS, AND NINE LD FRACTIONAL CLAIMS, SITUATED 15 MILES SOUTHEAST OF SPENCES BRIDGE, WITHIN THE KAMLOOPS MINING DIVISION, 50° 19' N, 121° 02' W NTS: 92 I-6

HIGHLAND QUEEN "A" GROUP: 31 claims and 9 fractional claims:

Claim	Record Nos.	Requested Assessment Credit
LD 1 Fr. - 9 Fr.	75042-50	Nil.
TH 1 - 20	72792-811	Nil.
TH 25 - 28	73280-83	1 year each claim
TH 30, 32	73285,73287	Nil.
TH 41, 42	73296,73297	Nil.
TH 44	73349	Nil.
TH 63	73300	Nil.
TH 64	73301	Nil.
	TOTAL:	4 years

Work was carried out on the above claims during the period August 29 to September 27, 1969.

HIGHLAND QUEEN "B" GROUP: 40 claims.

Claim	Record Nos.	Requested Assessment Credit
JT 1 - 21	68589-68609	1 year each claim
JT 22- 40	68610-68628	2 years each claim
	TOTAL:	59 years

Work was carried out on the above claims during the period August 29 to September 27, 1969.

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

NTS: 92 I-6

INDUCED POLARIZATION AND RESISTIVITY SURVEY

HIGHLAND QUEEN PROPERTY
SPENCES BRIDGE AREA
KAMLOOPS M.D., B.C.

October 21, 1969

John M. Hamilton

TABLE OF CONTENTS

SUMMARY

An I.P. survey comprising about 15 miles of traverse covered the northwest quarter of the Highland Queen property, and located three extremely weak responses. These reponses would not have been picked in ordinary exploration contexts, but may have some significance here in view of the possibility that thick glacial drift has diminished a response from sulphide mineralization.

Additional I.P. surveys should be considered over those drift-covered portions of the property which are felt to have merit from a regional geological standpoint.

INTRODUCTION

The Highland Queen Property is located about 15 miles southeast of Spences Bridge in the Highland Valley area of B.C., near the junction of Skuhun and Skuhost Creeks. Access is by way of a dirt road to Chataway Lakes Resort which joins the Spences Bridge - Merritt Highway 14.2 miles southeast of Spences Bridge. The property is located about eight miles up the Chataway Lakes Resort road. The property consists of the Highland Queen "A" Group of 31 claims and nine fractional claims plus the Highland Queen "B" Group of 40 claims, numbered JT 1 to JT 40, and is held by Cominco under an option agreement with Highland Queen Mines (1968) Ltd.

The present geophysical survey was conducted over the northwest quarter of the main block of Highland Queen claims, along the Skuhun Creek valley, at the suggestion of R. J. Nicholson of Cominco. The purpose of the survey was to investigate the Skuhun Creek valley area for large volumes of weakly mineralized rock under the thick accumulation of glacial drift in the valley floor.

Other work by Cominco to date consists of geological mapping, line cutting, and limited soil geochemical and seismic work.

GEOLOGY

Overburden is present throughout most of the geophysically surveyed area, although a limited area of Chataway intrusives is present. Witches Brook and Chataway rocks appear to underlie most of the property, although minor Guichon intrusives may be present. Skuhun Creek may lie along a major fault zone.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

Method:

Most of the survey was performed by field technician Rob Pearson of McPhar Geophysics Ltd. assisted by Art Gates and local personnel between September 1 and September 27, 1969. The survey was performed with a McPhar Model HPTx frequency domain I.P. unit, using frequencies of 0.31 and 5.0 c.p.s.

In all, 15.75 miles of line were surveyed, on 15 parallel lines spaced 500 feet apart, using 400 foot dipoles and five separations. In addition, 0.87 miles of line were surveyed by H. R. Claridge of Cominco Ltd., on August 29, 1969, using a similar electrode configuration.

Data Presentation:

The following data is included with this report:

Plate H.Q. I.P. - 1, plan of anomaly locations, 1" = 1000'.

The following data plots:

Line No.	Dipole Length	Plate No.
60 E	400 feet	I.P. - 50B-1
55 E	" "	I.P. - 50B-2
50 E	" "	I.P. - 50B-3
45 E	" "	I.P. - 50B-4
40 E	" "	I.P. - 50B-5
35 E	" "	I.P. - 50B-6
30 E	" "	I.P. - 50B-7
25 E	" "	I.P. - 50B-8
20 E	" "	I.P. - 50B-9
15 E	" "	I.P. - 50B-10
10 E	" "	I.P. - 50B-11
5 E	" "	I.P. - 50B-12
0	" "	I.P. - 50B-13
5 W	" "	I.P. - 50B-14
10 W	" "	I.P. - 50B-15
35 W	" "	I.P. - 50B-16
40 W	" "	I.P. - 50B-17

Results:

A broad very weak complex response was located from 11 N to 1 S, open to the south, on Line 60 E. This response appears to be coming from a moderately shallow source at its southern end, and a moderately deep source at its northern end, near Skuhun Creek. A similar but much smaller response was located from 19 N to 23 N on this line. These responses lie relatively close to the junction of Skuhun and Skuhost Creeks. Line 65 E, which lies closer to the junction, was not surveyed with I.P.

On Line 55 E, a very weak response was located from 1 N to 7 N. The pattern obtained here is typical of that obtained off the end of the mineralized zone.

One other very weak, shallow, response was obtained. It is located from 0 to 4 S on Line 45 E.

In normal exploration contexts none of the above-mentioned responses would be picked as anomalies. However, in the present context, where the target can be very weakly disseminated sulphides under thicknesses of overburden which are a significant fraction of the designed depth penetration of the survey, they cannot be completely ignored. In addition, the location of the broadest response noted, near the centre of the area of greatest inferred geological interest, coupled with the

fact that the actual junction of Skuhun and Skuhost Creeks was not surveyed by I.P., suggests that attention should be called to the I.P. readings here by terming them "anomalous". There is a chance that these "anomalies", even though they are very weak, are in fact due to (minor) amounts of metallic sulphides in the bedrock.

In addition to the very weak I.P. responses obtained on this survey, a series of sharp resistivity lows was located which generally follow Skuhun Creek. The axis of these resistivity lows is plotted on the I.P. anomaly location plan. It is possible that these resistivity lows are due entirely to increased groundwater content in the valley bottom. However, since the axis of the resistivity lows does not always coincide with Skuhun Creek, it seems probable that the resistivity lows are due at least in part to increased subsurface water content along a fault zone.

CONCLUSIONS

1. I.P. surveys over the northwest quarter of the Highland Queen claims located some extremely weak responses which would not be called anomalous in normal exploration contexts. However, since overburden thicknesses could be large enough in the areas in which they occur to substantially reduce responses from sulphides in bedrock, they have been called anomalous.

2. The resistivity pattern outlined by these surveys supports the hypothesis that a major fault zone is present in the Skuhun Creek valley.

RECOMMENDATIONS

1. Additional I.P. in drift-covered areas, particularly Line 65 E, is warranted if such areas are felt to have merit on a regional geological basis.

Submitted by:

John M. Hamilton, P. Eng.
Geophysicist, Vancouver

Endorsed for Release by:

J. Richardson, P. Eng.
Assistant Chief Geologist,
Western District

JMH/ma
Oct.21/69
Distribution
Mining Recorder,Van. (2)
West. Dist. Expl'n. (1)

APPENDIX I

NOTES ON THE INDUCED POLARIZATION METHOD

March 10, 1969. John M. Hamilton

THEORY:

Polarization is the separation of charge, or blocking action, of metallic or electronic conductors within a medium of ionic solution conduction. Induced polarization refers to this blocking action when caused by an applied electric current.

In its geological context, polarization, or I.P., refers to the electrochemical blocking phenomenon exhibited by metallic minerals such as most sulphides, magnetite and graphite, under the influence of an applied current. When a current is passed through the subsurface, conduction is ionic and is dependent upon ions in the water content of the subsurface because most minerals have a much higher specific resistivity than ground water. The "metallic" minerals have specific resistivities which are much lower than ground water. The I.P., effect occurs at the interfaces between ionic conductive conditions in ground water and electronic conductive conditions in metallic minerals. Electronic charges are built up on these interfaces which oppose the flow of current that produces them.

The blocking action, or I.P. effect, increases with the time during which the current is flowing in a given direction. Hence, if the current is periodically reversed, a high frequency current will be subject to less blocking, or I.P. effect, than will a low frequency, since less time is available for the blocking to occur at a high frequency. It is therefore possible to measure the I.P. effect by measuring resistivity at two frequencies. This is the basis of the frequency domain I.P. system. Field readings consist of current readings between the transmitter electrodes, and voltage readings between the receiver electrodes, at both the high and the low frequency. From these readings a resistivity can be calculated for each frequency, using the relationship V= IR (Ohm's Law) and geometrical constants applicable to the electrode array.

The resistivity values so obtained are actually apparent resistivity values, being an average of all the material sampled for each reading. The resistivity plotted is the high frequency value, since it is least dependent on blocking action or I.P. effect, and hence is a truer value if polarizable material is present. The units used are ohm-feet/2π . To convert these units into ohm-meters used in some other I.P. systems, the ohm-feet/2π values should be multiplied by 1.9.

The percent frequency effect, actually an apparent frequency effect, is defined as $(R_L - R_H)/R_H \times 100\%$, where R_L and R_H are the resistivities at the low and high frequencies, respectively. The percent frequency effect is the parameter measured to show the I.P. effect, and is the frequency domain equivalent of the chargeability "m" used in time domain I.P. work,

The metal factor values are obtained by dividing the percent frequency effect by the resistivity and multiplying by 1000. The metal factor is proportional to the change in conductivity as the frequency of the applied current is varied, and can be shown to be equal to $(\sigma_H - \sigma_L) \times 2\pi \times 10^5$, where σ_H and σ_L are the conductivities at the high and low frequencies, respectively. The metal factor is generally more indicative of the conductive metallic content than is the frequency effect, although there are exceptions to this.

FIELD PROCEDURE:

Current is applied to the ground at two current electrodes (C_1 and C_2) spaced a distance x apart as shown in the accompanying diagram. The potential is measured at two potential electrodes (P_1 and P_2) also spaced a distance x apart and in line with the current electrodes. For any given locations of C_1 and C_2, readings are taken when the distance between the nearest current and potential electrodes is equal to nx, and n has values of 1, 2, 3, etc. The electrode spacing x is determined by the requirements of the survey. Larger values of x would be used when the object is greater depth penetration and faster progress, whereas smaller values of x are employed in more detailed surveys, to provide more accurate anomaly location, but for the smaller values of x, the penetration is less and the survey slower. The value chosen for x should not greatly exceed the width of the target sought. The penetration is greater for the larger values of n.

INTERPRETATION:

The values of the resistivity, metal factor and percent frequency effect are plotted on "pseudo-sections", where the plotting point is determined by the intersection of lines drawn at 45° from the horizontal, and originating at the mid-points of the current electrode spread and the potential electrode spread, as shown in the accompanying diagram. The choice of 45° from the horizontal is made because it simplifies plotting on gridded paper. There is no other basis for it, and lines at any other angle would produce just as "correct" a distribution of plotted values. The percent frequency effect is shown either as a superscript to each metal factor value, or as a separate, contoured plot similar to the first two. Depths to causative bodies cannot be scaled from the "pseudo-section," because the relationship between "pseudo-section" depths and true depths depends on anomalous body configuration and size, and other other inhomogeneities in the true resistivity distribution in the earth, as well as on the method used to plot the section.

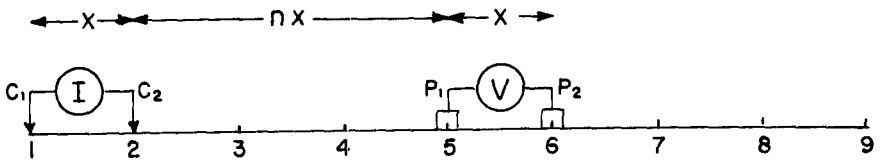
The most favourable type of anomaly would show a frequency effect high with a resistivity low, to provide a marked metal factor high. A frequency effect high, with little or no change in resistivity, to provide a metal factor high, mirroring the frequency effect high, is also favourable. Of lesser interest, but of possible importance, are those anomalies showing no frequency effect change, but a distinct resistivity low, to produce a metal factor anomaly. The type of anomaly, its strength, size and shape should be considered in relation to the geological setting and the target sought.

The surface projection of anomalous zones are shown under the base line of the "pseudo-sections", or data plots. The location of anomalous zones is made after studying the responses at all separations, and is aided by data from computer and tank model-studies, as well as case histories and local geology when known. The source of an anomaly can at best be located only to within one electrode interval or x distance.

Anomalies are classified into three groups: definite, probable and possible. Grouping is based on the strength of the metal

factor, the frequency effect, and the pattern of the anomaly. In general, the true metal factor is dependent on the concentration and distribution of chargeable material in the source, but the survey measures the apparent metal factor, which is an average. A large volume with a small percentage of sulphides could show the same metal factor as a smaller body with more concentrated sulphides. The apparent metal factor will approach the true metal factor when the anomalous body is large, and its depth to top small, relative to the electrode interval.

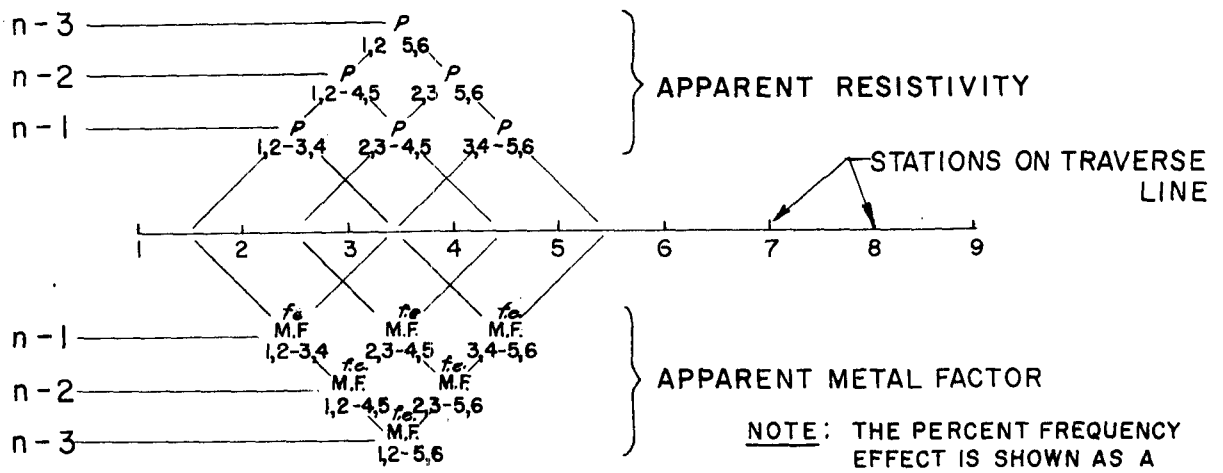
In some cases, a contoured data-plan is prepared, to show frequency effect, metal factor or resistivity values. Only data obtained at one separation is used on such a plan, and commonly the second separation data is plotted, to show results from an intermediate level of investigation. The surface projection of anomalous zones, as determined from the profiles, are also shown, and in many cases these will not coincide with contoured peaks, because data at other separations, if anomalous, will have been considered when locating anomalies. The most profitable use of contoured plans is as a trend indicator.



X = ELECTRODE SPREAD LENGTH OR ELECTRODE SPACING OR DIPOLE LENGTH

n = ELECTRODE SEPARATION = 1, 2, 3....

DIPOLE - DIPOLE ELECTRODE ARRAY



NOTE: THE PERCENT FREQUENCY EFFECT IS SHOWN AS A SUPERSCRIPT TO EACH METAL FACTOR VALUE, OR AS SEPARATE CONTOURED PLOT.

DIAGRAM SHOWING PLOTTING METHOD

HIGHLAND QUEEN PROPERTY

HIGH LAND QUEEN PROPERTY

HIGHLAND QUEEN PROPERTY

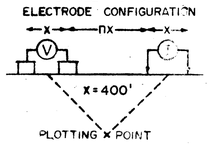
NES PROPERTY

ABBOTT LAKE

SKUHUN CREEK

LEGEND AND NOTES

DIPOLE - DIPOLE ELECTRODE CONFIGURATION



PLOTTING X POINT
n=1, 2, 3, 4, & 5

FREQUENCIES 0.31 & 5.0 cps

SURFACE PROJECTION OF ANOMALOUS ZONES
DEFINITE
PROBABLE
POSSIBLE

Limits of effective I.P. coverage

Axis of resistivity lows

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2119 MAP #2

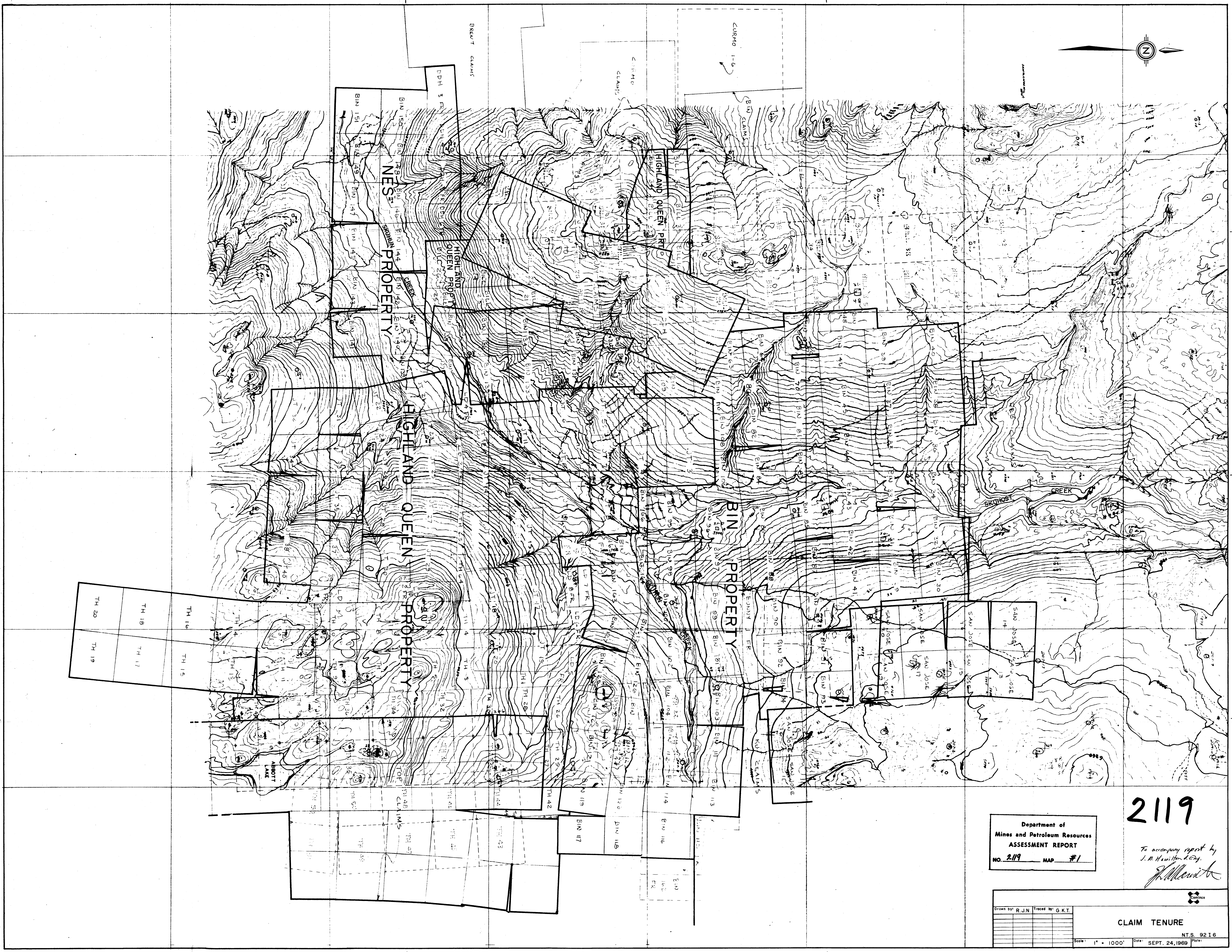
TO ACCOMPANY REPORT BY J.M. HAMILTON, P. ENG.

2119

HIGHLAND QUEEN PROPERTY

Cominco

Drawn by: R.J.N.	Traced by: G.K.T.	I.P. ANOMALY LOCATIONS	
		KAMLOOPS M.D.	N.T.S. 92 I 6
		Scale 1" = 1000'	Date: SEPT. 24, 1969
			Plate:



BRENT CLAIMS
CURMO CLAIMS
CURMO 1-6
BIN CLAIMS
DDH 3 FR
NES PROPERTY
HIGHLAND QUEEN PRTY
HIGHLAND QUEEN PROPTY
HIGHLAND QUEEN PROPERTY
BIN PROPERTY
SKOHUN CREEK
SKUHOST CREEK
ABBOTT LAKE
TOP CLAIMS
KU CLAIMS
DES CLAIMS
BIN 151
BIN 150
BIN 149
BIN 148
BIN 147
BIN 146
BIN 145
BIN 144
BIN 143
BIN 142
BIN 141
BIN 140
BIN 139
TH 20
TH 19
TH 18
TH 17
TH 16
TH 15
SAN JOSE 14
SAN JOSE 13
SAN JOSE 15
SAN JOSE 16
SAN JOSE 17
SAN JOSE 18
SAN JOSE 19
SAN JOSE 20
BIN 117
BIN 118
BIN 116
BIN 119
BIN 120
BIN 113
BIN 114
TH 42
TH 43
TH 47
TH 48
2119
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2119 MAP #1
To accompany report by
J. M. Hamilton P. Eng.
Cominco
Drawn by: R.J.N.
Traced by: G.K.T.
CLAIM TENURE
N.T.S. 92 I 6
Scale: 1" = 1000'
Date: SEPT. 24, 1969
Plate:

2119

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

In the Matter of STATUTORY DECLARATION RELATING TO EXPENDITURES ON A GEOPHYSICAL SURVEY OF THE HIGHLAND QUEEN PROPERTY, KAMLOOPS MINING DIVISION

I, JOHN MURRAY HAMILTON, PROFESSIONAL ENGINEER

of City of North Vancouver

in the Province of British Columbia, do solemnly declare that

1. Copies of a report regarding a geophysical survey on certain mineral claims situated in the Kamloops Mining Division are being filed with the Mining Recorder in Vancouver.

2. Attached hereto, and marked with the letter "A" upon which I have signed my name at the time of declaring hereof, is a statement of expenditures incurred in connection with the geophysical survey of the said claims showing in addition the dates during which those making the said survey performed their work.

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 21st day of October, 1969, A.D.

J. M. Hamilton

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

EXHIBIT "A"

C O M I N C O L T D.

EXPLORATION — WESTERN DISTRICT

INDUCED POLARIZATION AND RESISTIVITY SURVEY COSTS
HIGHLAND QUEEN PROPERTY, KAMLOOPS M.D., SPENCES BRIDGE AREA, HIGHLAND VALLEY, B. C.
NTS: 92I-6E, 50° 20' N, 121° 02' W

(i) McPhar Survey:

Operating Day Charge (McPhar) 11 days at $180.00 per day	$ 1,980.00
Standby Travel and Bad Weather Day Charge (McPhar) 7½ days at $85.00 per day	637.50
Expense Accounts (McPhar)	68.00
Helpers' Wages (McPhar) 4 men at $20.00 per day for 18 days plus 20%	1,728.00
Drafting (Altair and Cominco)	250.00
Truck Rental (McPhar)	233.75
Report Writing (Cominco)	200.00
Camp Costs (Cominco) 6 men at $7.75 per day for 18 days	817.00
Communications	65.00
	$5,979.25

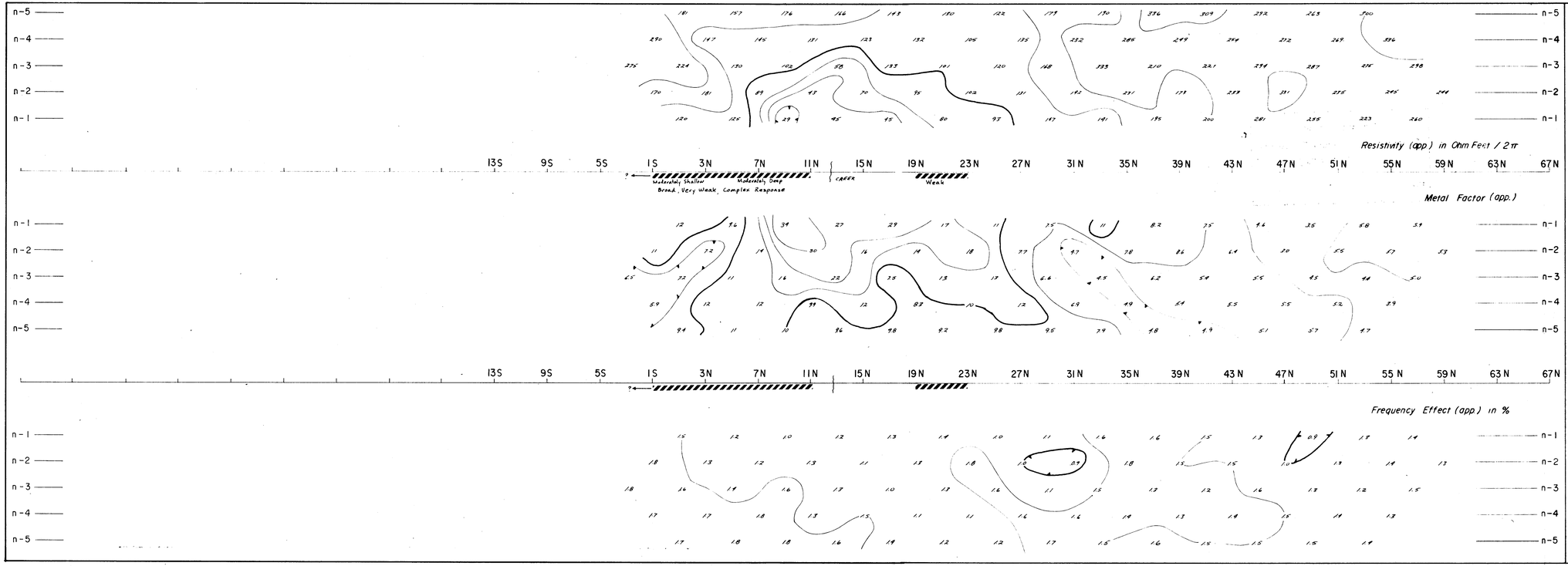
(ii) Cominco Survey: (Lines 35 W and 40 W)

Senior Operator Charge H.R. Claridge Aug. 29 1 day at $40.00	40.00
Instrument Rental, Aug. 29 1 day at $45.00	45.00
Operating Day Charge 1 day at $55.00	55.00
	$ 140.00
Helpers' Wages, Aug. 29 F. Hassard, D. Moule, J. Bellamy, G. Grisak and A. Gates, 5 at $25.00	125.00
Truck Rental, 1 day	10.00
Camp Costs, 6 man days at $7.75	46.50
Cook, 1 day at $20.00	20.00
Expense Accounts	23.25
Communications	15.00
	$ 239.75
TOTAL:	$6,359.00

Signed by _____
J. M. Hamilton, P. Eng.

This is Exhibit "A" to the Statutory Declaration of J. M. Hamilton, declared before me this 21st day of October, 1969 A. D.

_____
A Commissioner for taking Affidavids for British Columbia.



DWG. NO. - I.P. - 50 B 1

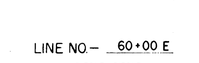
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 60+00 E

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



PLOTTING POINT — X = 400'
n = 1,2,3,4,5

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES 0.31 & 5.0 cps

DATE SURVEYED: Sept 1969

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

APPROVED

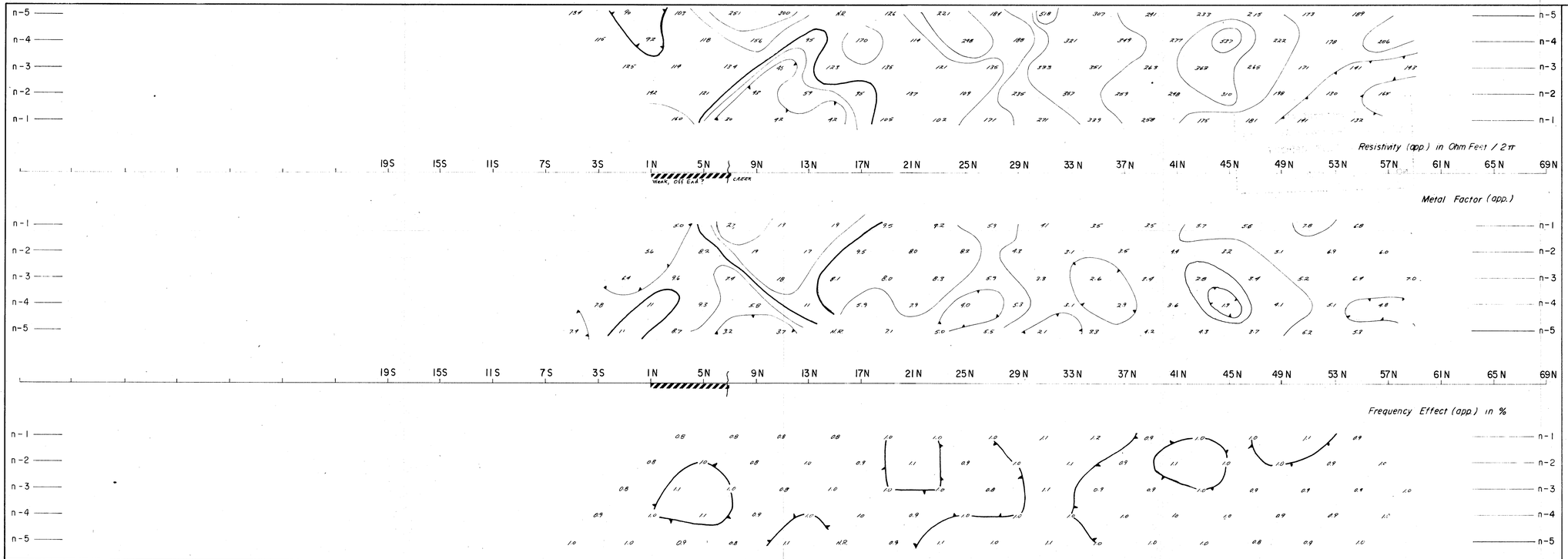
DATE Oct 21/69

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 60+00 E



DWG. NO. - I.P. - 50 B - 2

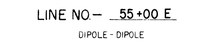
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 55+00 E

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



PLOTTING POINT — X = 400'
n = 1,2,3,4,5

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

APPROVED:

DATE: Oct 24/69

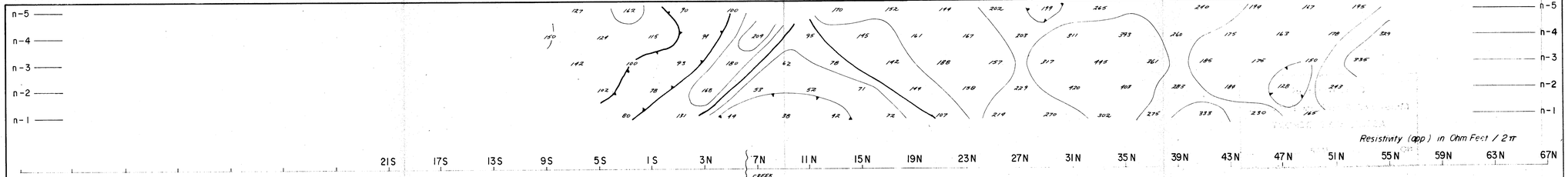
NOTE: CONTOURS AT LOGARITHMIC INTERVALS
1 - 1.5 - 2 - 3 - 5 - 7.5 - 10

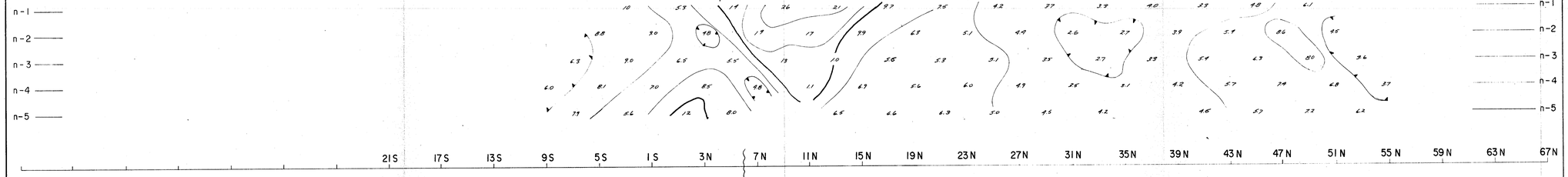
2119

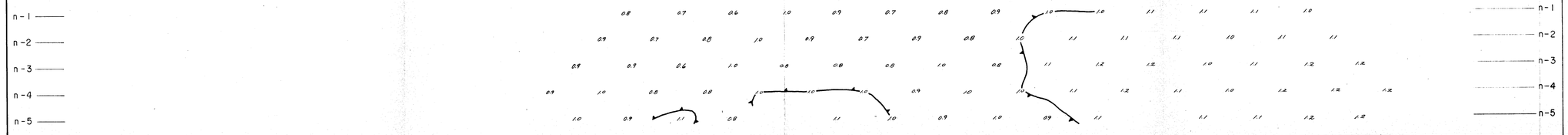
FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 55+00E







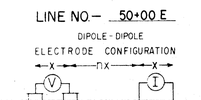
DWG. NO. - I.P. - 50 B - 3

COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 50+00 E



FREQUENCIES 0.31 & 5.0 cps

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

DATE SURVEYED: Sept. 1964

APPROVED:

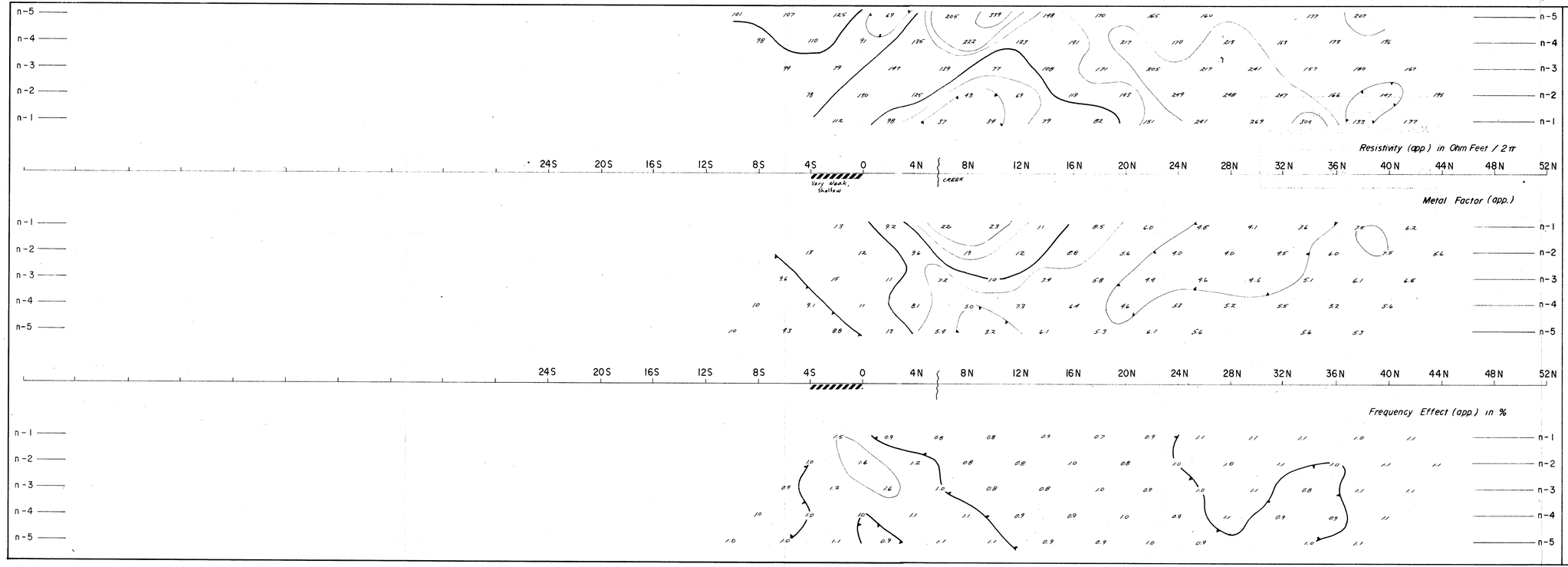
DATE: Oct 24/64

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 50+00 E



DWG. NO. - I.P. - 50 B - 4

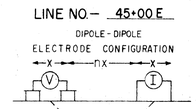
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 45+00 E

DIPOLE - DIPOLE ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

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

APPROVED:

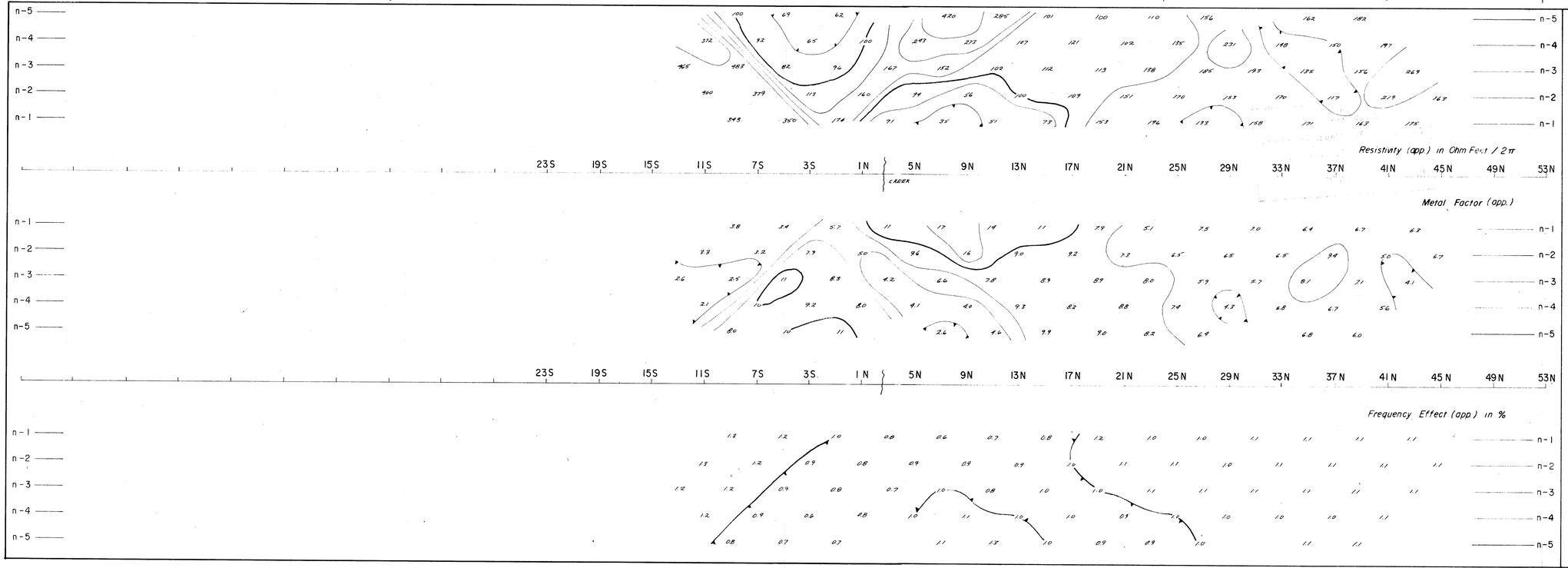
DATE: Oct 21/69

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 45+00 E



DWG. NO. - I.P. - 50 B-5

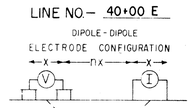
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 40+00 E

DIPOLE - DIPOLE ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

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

APPROVED

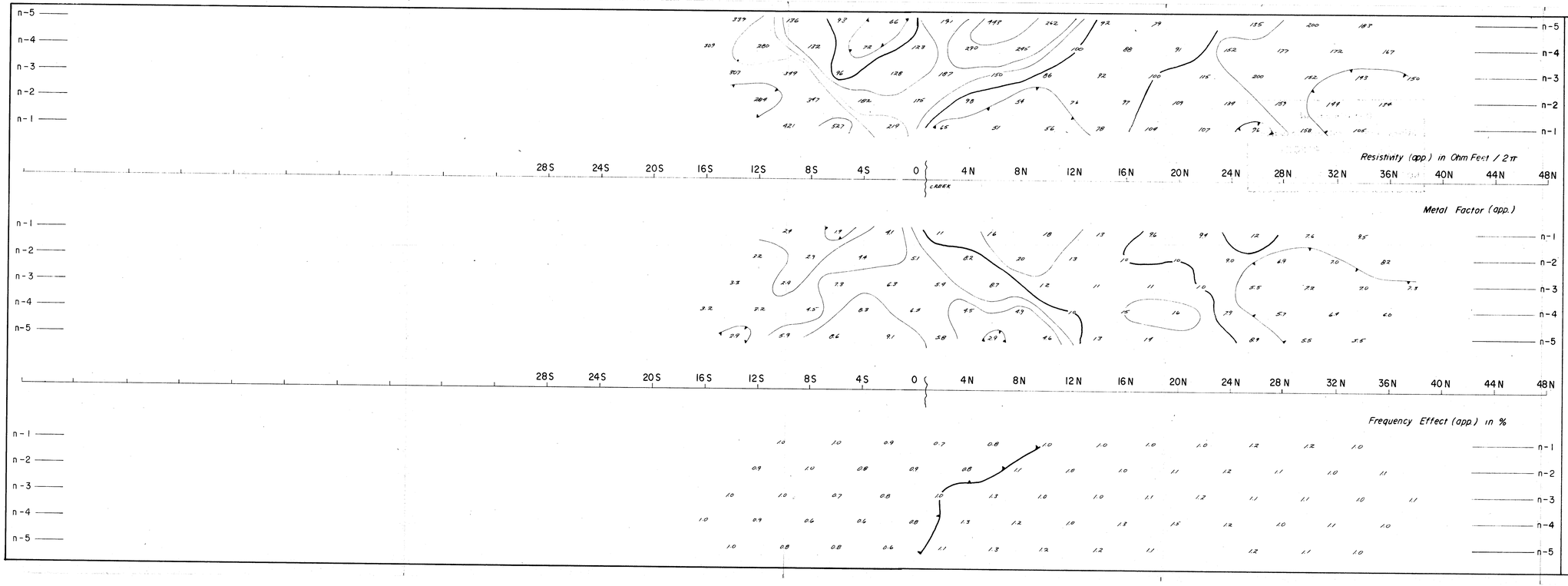
DATE: Oct 2/69

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 40+00 E



DWG. NO. - I.P. - 50 B - 6

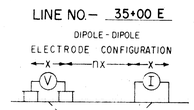
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 35+00 E

DIPOLE - DIPOLE ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

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

APPROVED:

DATE: Oct 21/69

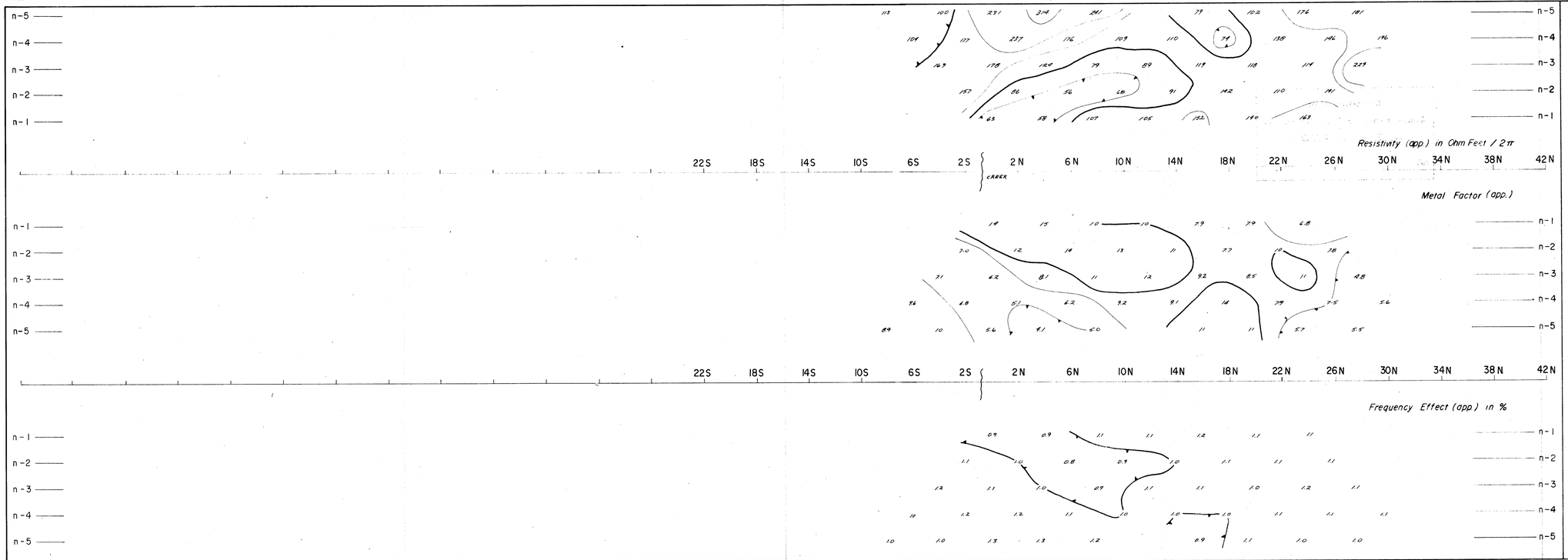
2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY

SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 35+00 E



DWG. NO. - I P - 50 B-7

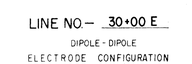
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 30+00 E

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



PLOTTING POINT — X = 400'
n = 1,2,3,4,5

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Sept 1969

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

APPROVED:

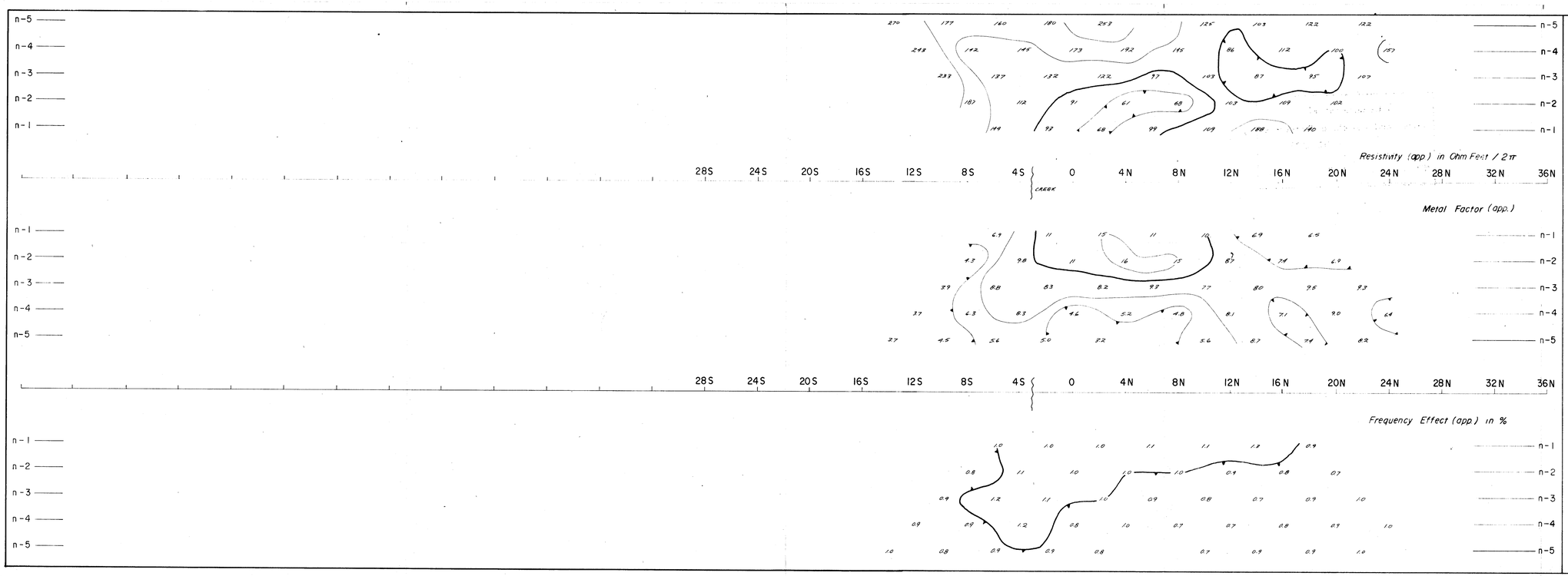
DATE: Oct 21/69

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 30+00 E



DWG. NO. - I.P. - 50 B-8

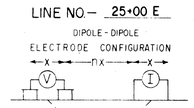
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 25+00 E

DIPOLE - DIPOLE ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

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

APPROVED

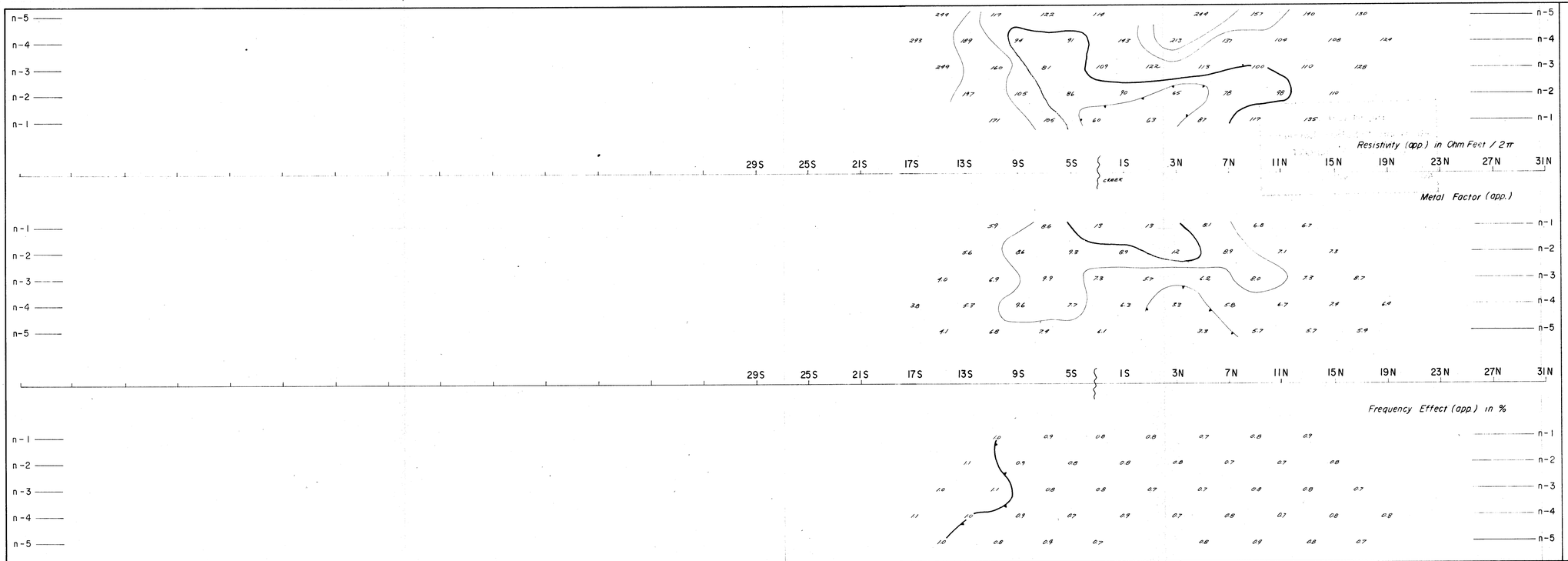
DATE: Oct 9/69

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 25+00 E



DWG. NO. - I.P. - 50 B-9

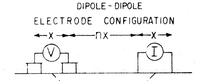
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 20+00 E

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



PLOTTING POINT — X = 400'
n = 1,2,3,4,5

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES 0.31 & 5.0 cps

DATE SURVEYED. Sept. 1969

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

APPROVED:

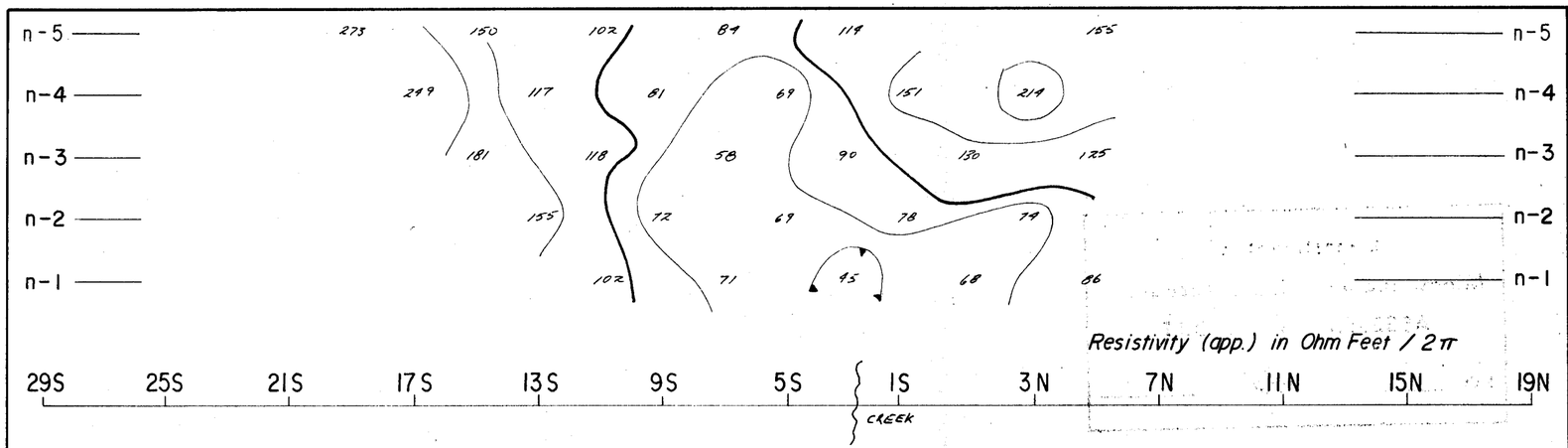
DATE: Oct 2/69

2119

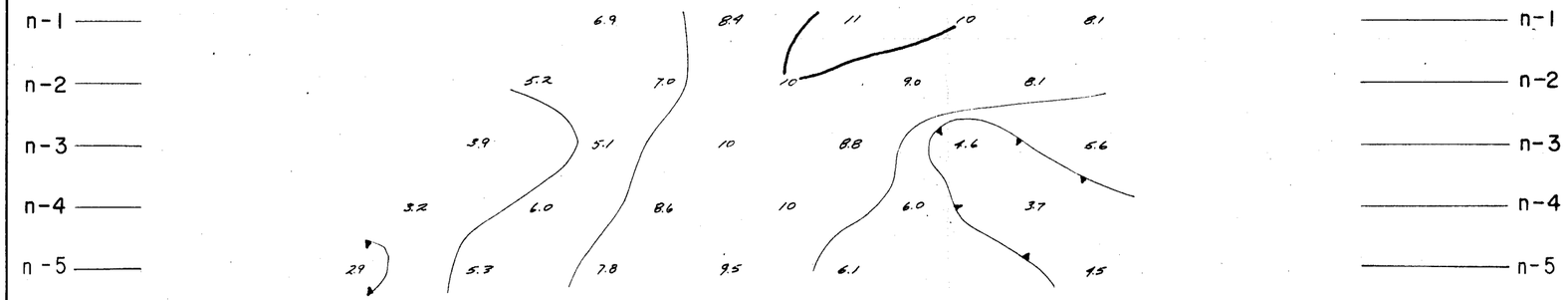
FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 20+00 E



Metal Factor (app.)



Frequency Effect (app.) in %

	29S	25S	21S	17S	13S	9S	5S	1S	3N	7N	11N	15N	19N
n-1					0.7		0.6		0.5		0.7		0.7
n-2				0.8		0.5		0.7		0.7		0.6	
n-3			0.7		0.6		0.6		0.8		0.6		0.7
n-4				0.8		0.7		0.7		0.9		0.8	
n-5			0.8		0.8		0.8		0.8		0.7		0.7

DWG. NO. - I.P. - 50B-10

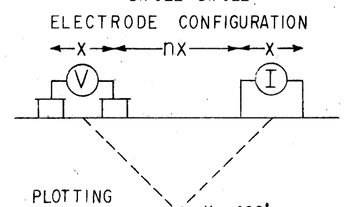
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 15+00 E

DIPOLE-DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

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

APPROVED:

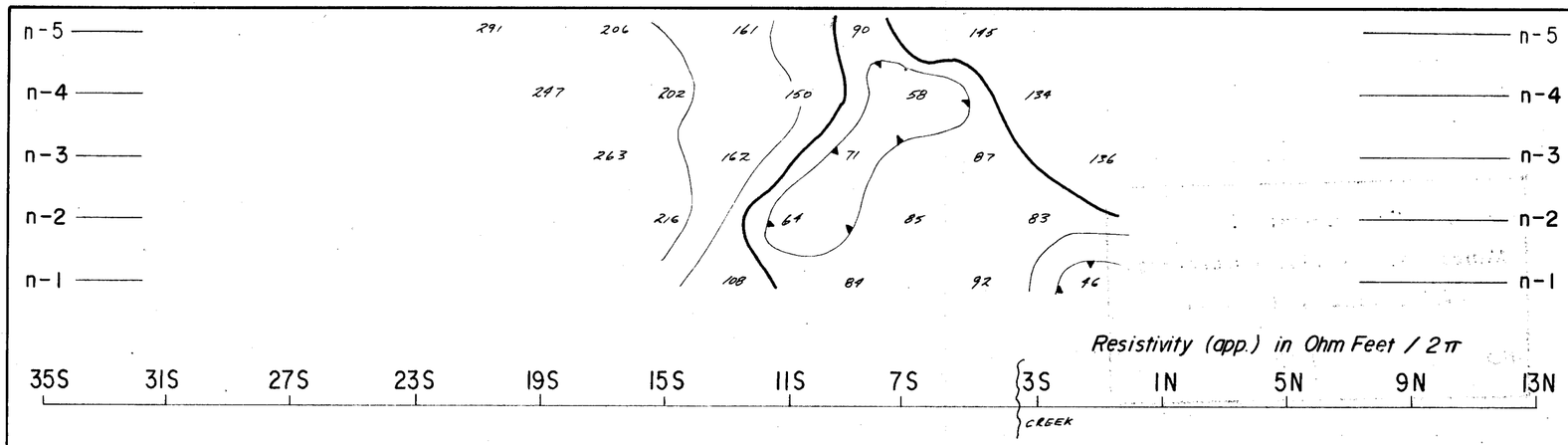
DATE: Oct 21/69

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 15+00E

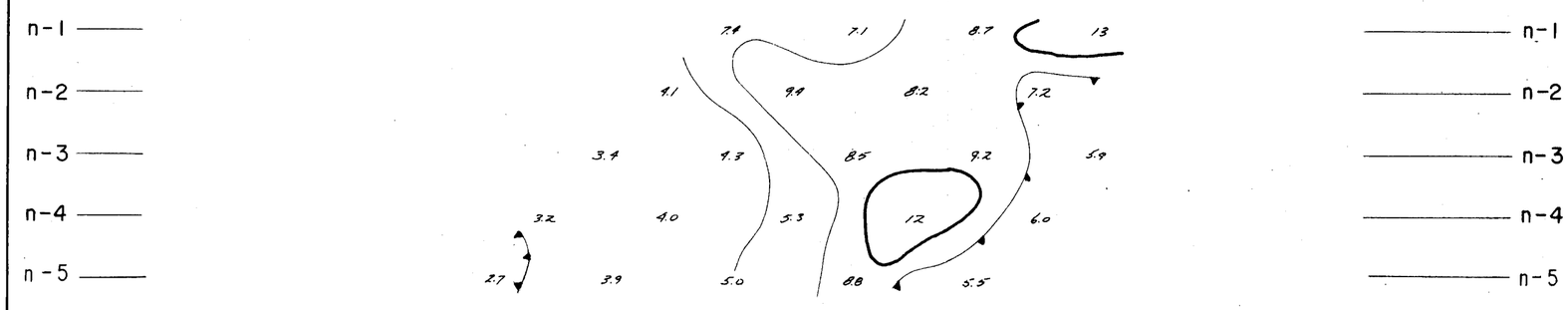


Resistivity (app.) in Ohm Feet / 2π

35S 31S 27S 23S 19S 15S 11S 7S 3S 1N 5N 9N 13N

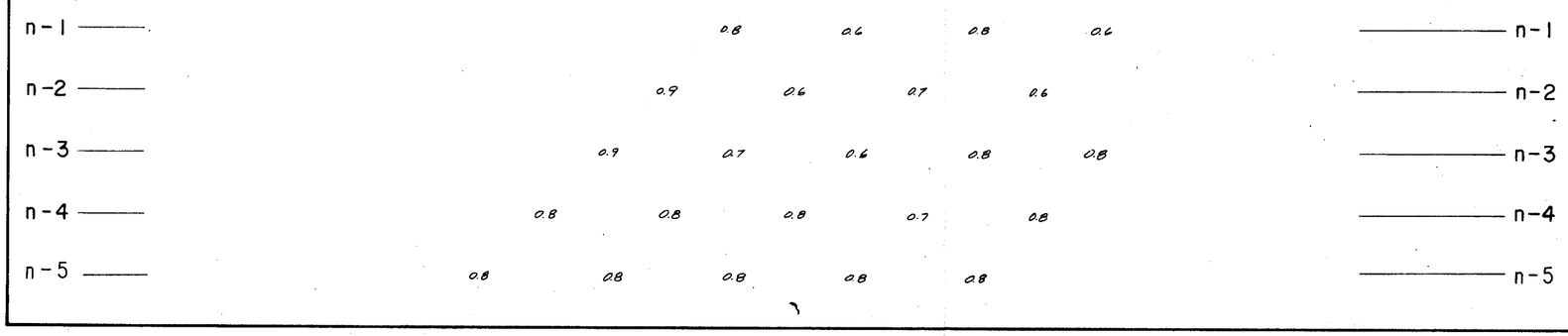
CREEK

Metal Factor (app.)



35S 31S 27S 23S 19S 15S 11S 7S 3S 1N 5N 9N 13N

Frequency Effect (app.) in %



DWG. NO. - I.P. - 50B-11

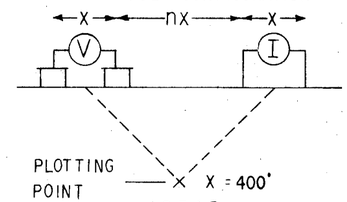
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 10+00 E

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



PLOTTING POINT — X = 400'
n = 1,2,3,4,5

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

APPROVED:

DATE: Oct 2/69

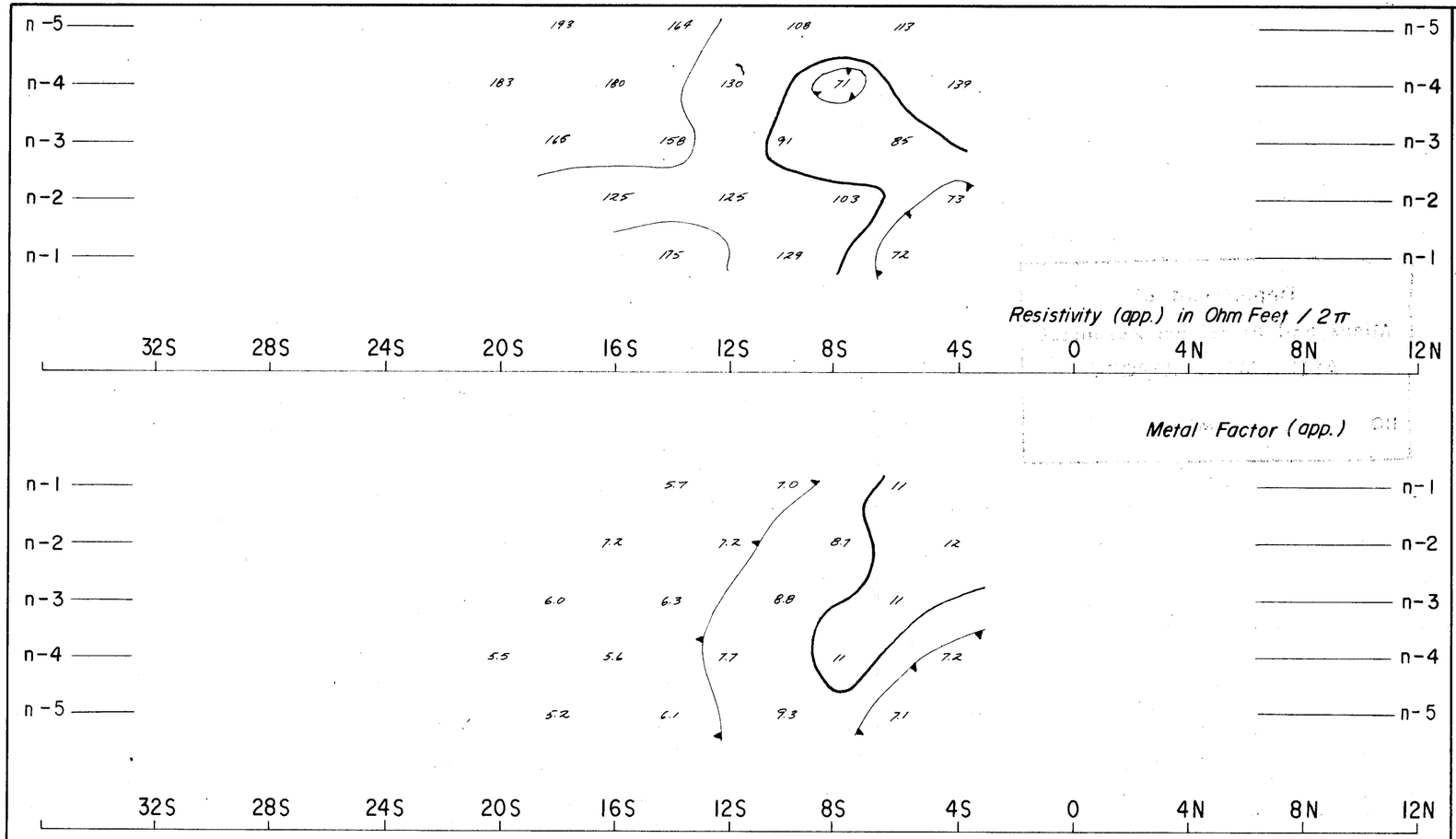
NOTE: CONTOURS AT LOGARITHMIC INTERVALS
1. - 1.5 - 2. - 3. - 5. - 7.5 - 10

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 10+00E



DWG. NO. - I.P. - 50B-12

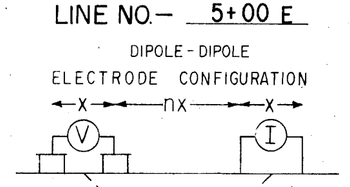
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.— 5+00 E

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

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

APPROVED:

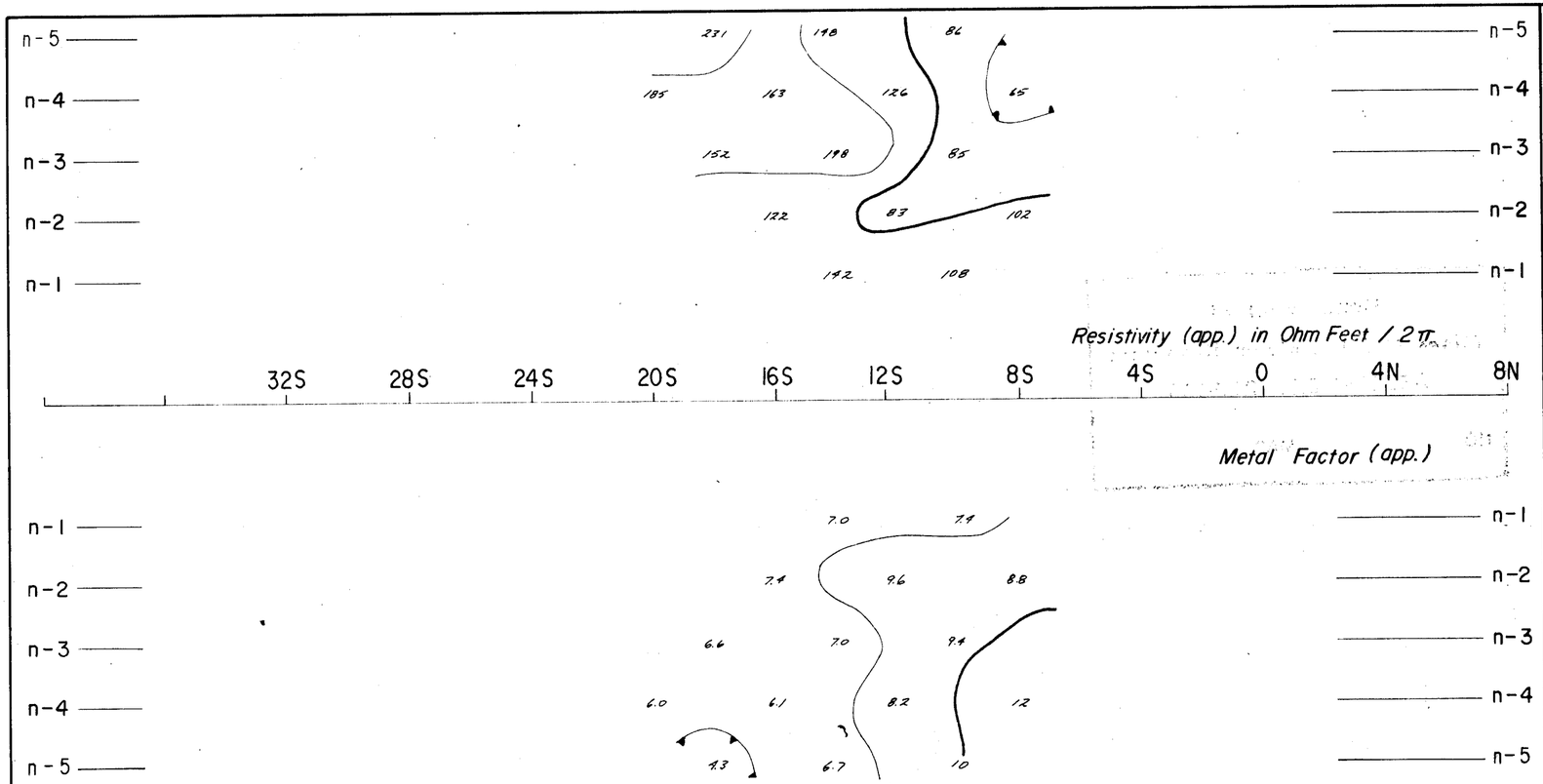
DATE: Oct 21/69

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 5+00 E



DWG. NO. - I.P. - 50B-13

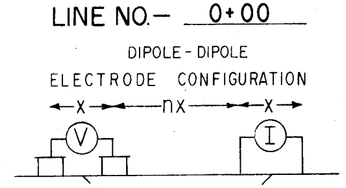
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.— 0+00

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

APPROVED:

DATE: Oct 24/69

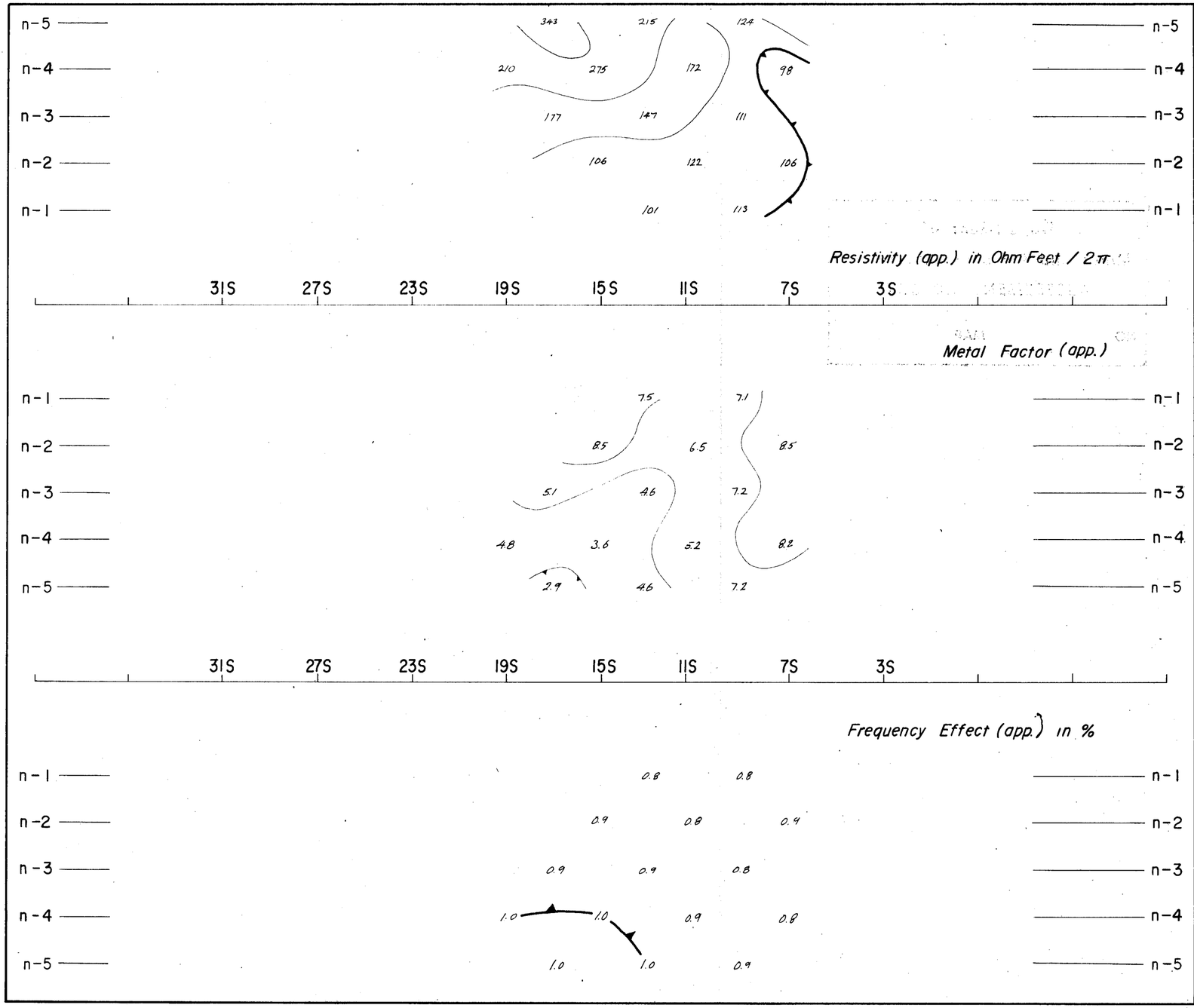
NOTE: CONTOURS AT LOGARITHMIC INTERVALS
1. - 1.5 - 2. - 3. - 5. - 7.5 - 10

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 0+00



DWG. NO. - I.P. - 50B-14

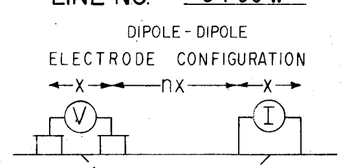
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 5+00 W

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969

APPROVED:

DATE: Oct 21/69

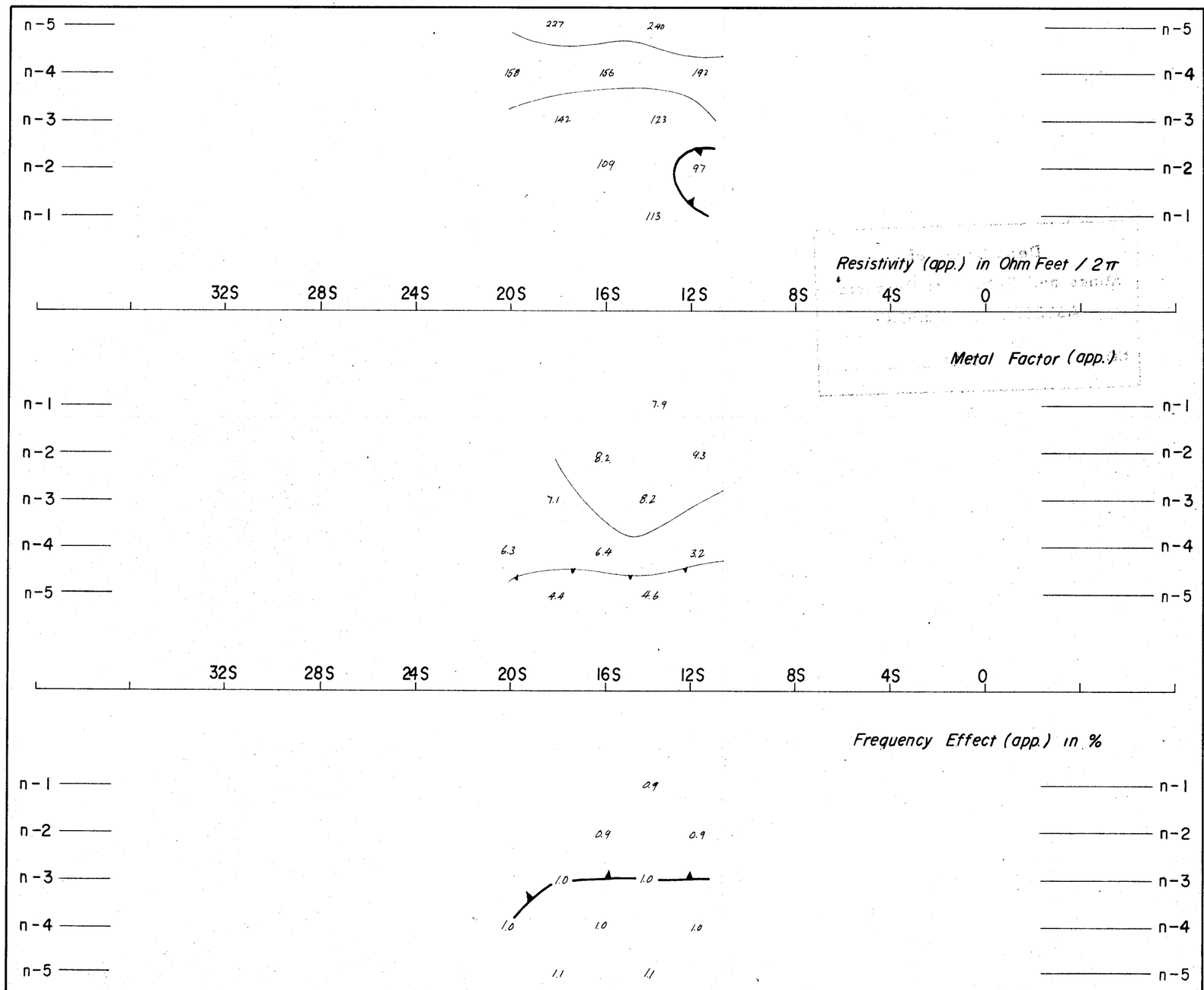
NOTE: CONTOURS AT LOGARITHMIC INTERVALS
1. - 1.5 - 2. - 3. - 5. - 7.5 - 10

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 5+00W



DWG. NO. - I.P. - 50B-15

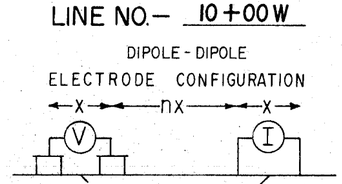
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 10+00W

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Sept. 1969.

APPROVED:

DATE: Oct 21/69

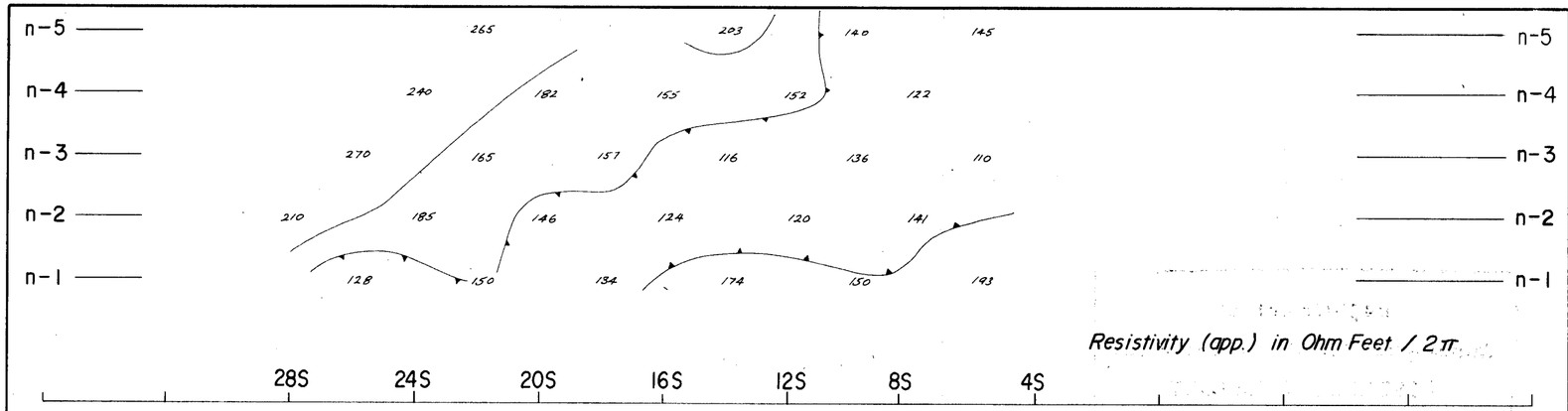
NOTE: CONTOURS AT LOGARITHMIC INTERVALS
1. - 1.5 - 2. - 3. - 5. - 7.5 - 10

2119

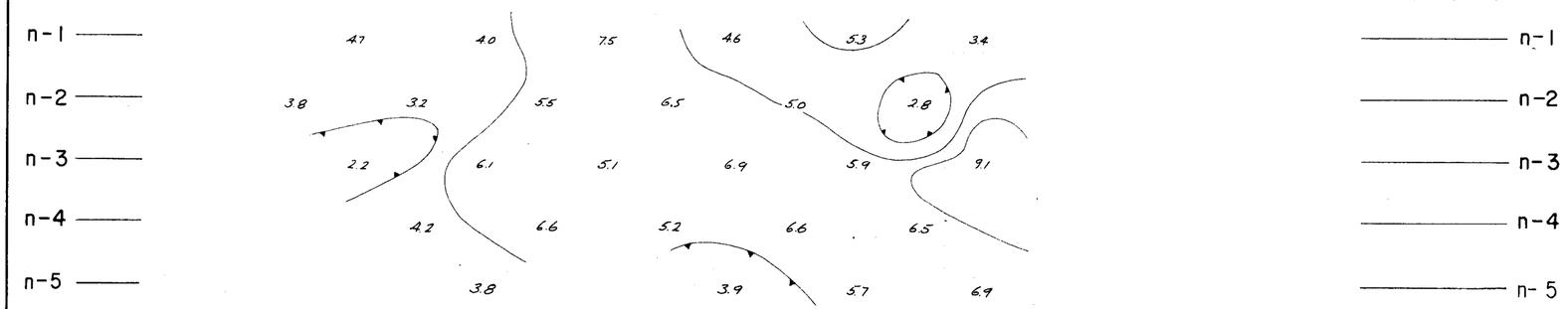
FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

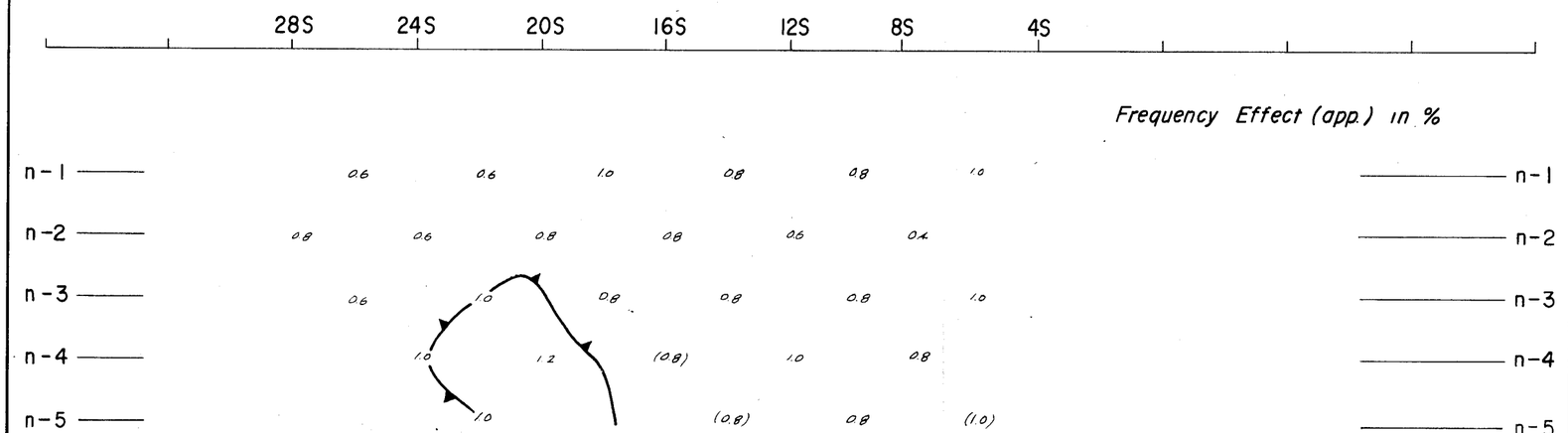
LINE NO. 10+00W



Resistivity (app.) in Ohm Feet / 2π



Metal Factor (app.)



Frequency Effect (app.) in %

DWG. NO. - I.P. - 50B - 16

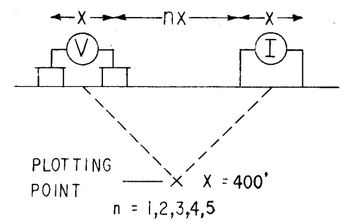
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 35+00 W

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED: Aug. 29/69

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

APPROVED: J. Williamson

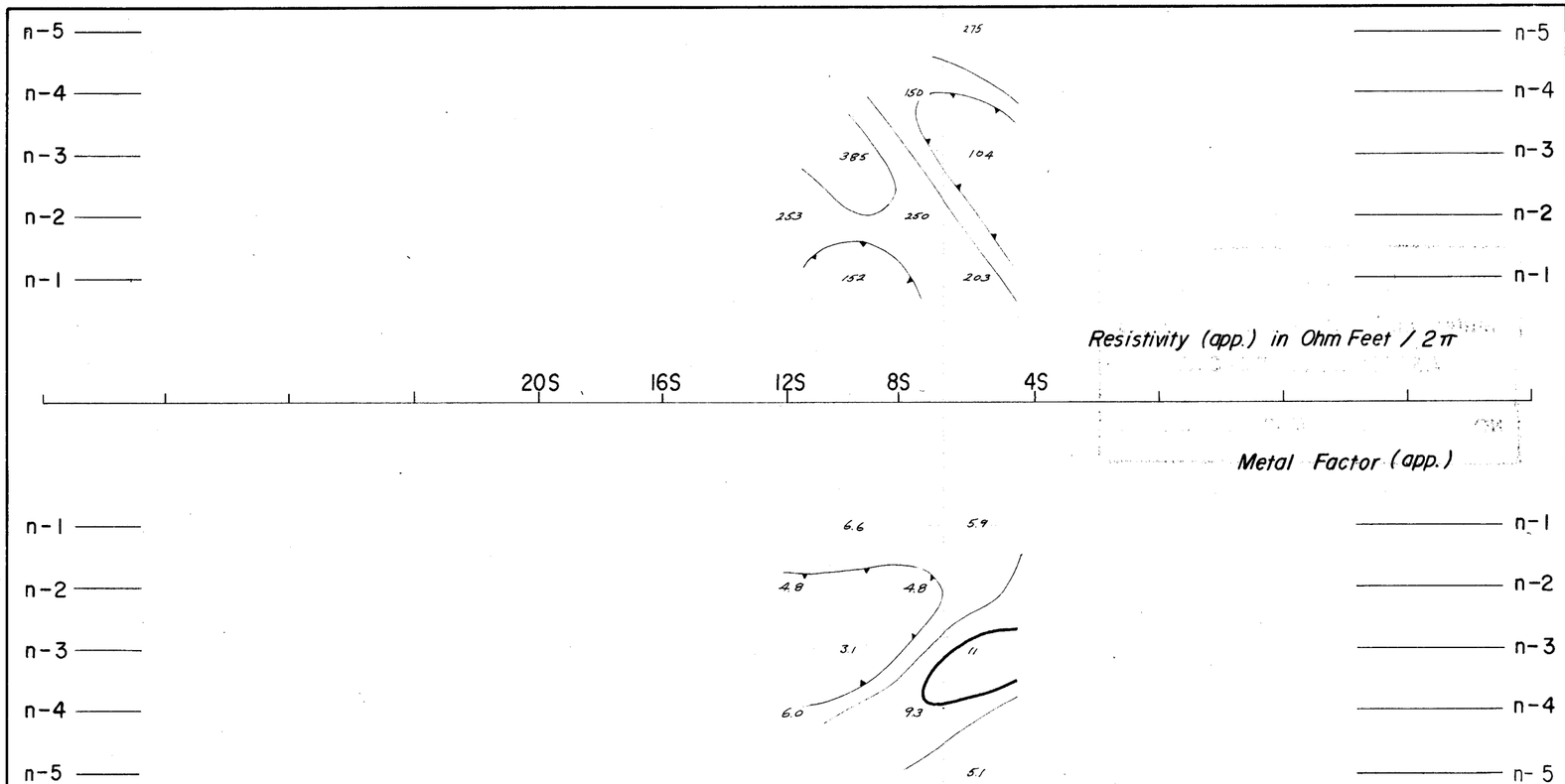
DATE: Oct 21/69

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 35+00 W



DWG. NO. - I.P. - 50B - 17

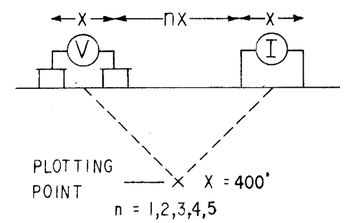
COMINCO LTD.

HIGHLAND QUEEN PROPERTY

HIGHLAND VALLEY AREA, B.C.

LINE NO.- 40+00W

DIPOLE - DIPOLE
ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31 & 5.0 cps

DATE SURVEYED. Aug 29/69

APPROVED:

DATE: Oct 21/69

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

2119

FREQUENCY DOMAIN PROFILE

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY McPHAR GEOPHYSICS LIMITED

LINE NO. 40+00W