FALCONBRIDGE NICKEL MINES LIMITED

REPORT ON THE

INDUCED POLARIZATION & RESISTIVITY SURVEY

ON THE

STU & HI CLAIM GROUPS

WHITEHORSE MINING DISTRICT, YUKON TERRITORY

FOR

UNITED KENO HILL MINES LIMITED

N.T.S. 115-I-6/7

090428.

Toronto, Ontario
January 24, 1979

By: Paul A. Smith

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 $1,200.00

D B Craig 26/2/79

Geologist or
Mining Engineer

Considered as representation work under Section 58 of the Yukon Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

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1. Introduction

At the request of R. E. Van Tassell, Exploration Manager for United Keno Hill Mines Limited, a geophysical survey was carried out over portions of the STU and HI claim groups, located in the Whitehorse Mining District, Yukon Territory. Geophysical work consisted of Induced Polarization and Resistivity coverage of approximately 12 line miles or 955 geophysical observations.

The IP survey was done in two phases: a 200 ft. D-D reconnaissance program on 400 ft. line intervals, followed by 100 ft. D-D detail work over anomalous areas. The survey commenced on July 6 and was terminated on July 21, 1978.

The 5-man IP crew consisted of four UKHM Ltd. employees (D. Ouellette, J. Culbert, P. Stirton & K. Dieckman) under the direction of P. A. Smith, Falconbridge Nickel Mines Limited, Toronto, Ontario.

The purpose of the survey was to determine if zones of sulphide mineralization were associated with the previously located geochemical anomalies.

2. Location & Access

The STU claim group is located approximately 200 Km NNW of Whitehorse, latitude 62° 25'N, longitude 136° 50'W. The HI group is approximately 14 Km NW of this location at latitude 62° 29'N, longitude 137° 03'W.

Both properties are situated between the DEF/Minto and the Williams Creek copper deposits (See Appendix V).

Access to the properties was by helicopter based at Carmacks. Equipment supplies and personnel were flown to the property from a location on the Dawson Highway, approximately 12 Km to the east.

3. Regional Geology

The regional geology of the area is described in reports by Joy and Van Tassell dated February 3, 1977 and February 9, 1977. The properties are situated on the northeast flank of the Dawson Range, and are underlain by metamorphic rocks of the Yukon Group which have been intruded by Triassic to Tertiary plutonic rocks. The younger rocks overlie parts of the complex.

Outcrop exposure is generally less than 5%. Elevations on the properties range from about 1300 ft. to 3000 ft. Most of the area is heavily timbered with black spruce.

4. Previous Work

The STU claims, on the NW side of Hoochekoo Creek, had been previously held by Hudson Bay Oil & Gas, and were allowed to lapse after being subjected to geological, geochemical and geophysical assessment with some diamond drilling. United Keno Hill Mines Ltd. staked the area and carried out prospecting and reconnaissance soil sampling in the summer of 1976 as well as Mag and VLF-EM surveys over selected areas.

Parts of the HI group were staked as the CAR (1971) and OZARK (1973) claims shortly after the DEF/Minto discovery. UKHM staked the 78 claim HI group in August 1976, after the previous owners had conducted soil sampling

and prospecting surveys and had allowed the claims to lapse, and subsequently conducted geological and geochemical surveys to further investigate the area.

5. Description of Geophysical Surveys

Equipment for the survey consisted of a McPhar P660 (frequency domain) IP transmitter and a Phoenix IPV1 receiver, which were operated at frequencies of 0.3 and 5.0 hz. The Tx was powered by a 2.5 KVA motor generator unit with a single phase 400 hz output regulated at 125 VAC.

Steel rods were used as transmitting electrodes with non-polarizing porous pots filled with a copper sulphate solution used as receiving (potential) electrodes.

A dipole-dipole electrode configuration was employed throughout with readings taken to n-4 or n-5. In anomalous areas, portions of lines were resurveyed with a 100 ft. dipole interval to enhance the effects of any near surface, narrow conductors.

The theory of induced polarization, method of field operation and presentation of data, is described in the following. These notes are taken in large part from the manuals of McPhar Geophysics, manufacturers of the geophysical equipment used for the survey.

" 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 whenever 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 normal ground waters. The induced polarization effect takes place at the 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 particles. 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 causes 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 a 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.

In the pseudo-section plots, three sets of data are recorded. The apparent resistivity ($\rho_a/2\pi$) is a calculation of the resistivity in the rock mass and is usually based on the potential difference observed at the higher of the two selected operating frequencies. The apparent frequency effect (P.F.E.) is a measurement of the percentage change in apparent resistivity that occurs due to polarization with a change in the applied frequency. Since the degree of polarization is related to the apparent resistivity of the rock, it is generally found that the apparent metal factor (M.F.) values are the most useful in illustrating the induced polarization effect. The apparent metal factor is calculated from the combined resistivity and frequency effect parameters using the formula

$$\frac{\text{PFE} \times 1000}{\text{RESISTIVITY}} = \text{M.F.}$$

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 percentage of sulphides 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 percent 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 cannot 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 in 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 type of survey required (detailed or reconnaissance) usually decides the number of values of (n) used.

In plotting the results, the values of the apparent resistivity, apparent percent frequency effect, and the apparent metal factor obtained

for each set of electrode positions are plotted at the intersections of grid lines, one from the center point of the current electrodes and the other from the center point of the potential electrodes. 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 current and potential electrodes is only one factor which determines the depth to which the ground is being sampled in any particular measurement. It should be noted that the pseudo-section plots are not necessarily vertical 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 must be considered for an accurate 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 200 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 and depth of the mineral deposit being sought, and the speed with which it is desired to progress.

Each value of the apparent resistivity, apparent metal factor, and apparent percent frequency effect is plotted according to the position of the four electrodes when the measurement was made. The values measured for the larger of (n) are plotted farther from the line indicating that the thickness of the layer of the earth (or volume) that is being tested is greater than for the small values of (n); i.e. the depth of measurement is increased.

The I.P. measurement is basically obtained by measuring the difference in potential or voltages ($\triangle V$) 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 exist; the value of the potential difference will be too small to be measured accurately.

In some situations, spurious noise (either man-made or natural) will make it impossible to obtain a good reading. The symbol "N" on the data plots indicates a station at which it is too noisy 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

usually 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 — 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 reasons."

The IP data have been plotted in pseudo-section format for each line, as described in the preceding notes and are appended to this report. It should be noted that the original scale has been reduced in the duplicating process from the original 1" = 200 ft. or 1" = 100 ft. stated in the legend. The station interval indicates the dipole interval used.

Plans 1 through 5 show the grids over which IP coverage was obtained. IP anomalies have been indicated by solid, broken or slashed lines which represent strong, moderate and weak anomalies respectively. Plan 1A is a logarithmic contour map of the n = 1, 200 foot dipole-dipole resistivity values on the STU A grid. This plan has been prepared to provide a general indication of the resistivity trends over the area surveyed, but should not be interpreted as being representative of horizontal sections at any given depth. All plans, with the exception of Fig. 5, are plotted at a scale of 1" = 400 ft.

6. Discussion of Results

The induced polarization method is essentially an averaging process, as are all potential methods, and it is therefore difficult to fix the exact

location of an anomaly. No anomaly can be located with more accuracy than the electrode interval; when using 200 foot spreads, the position of a narrow body can only be determined to be between two stations 200 ft. apart. This margin can be narrowed considerably by using shorter spread length, i.e. 100 ft. although the depth of exploration is proportionately less. In order to locate zones at greater depths, larger spreads must be used, with a corresponding increase in the uncertainty of location. Therefore, while the center of the indicated anomaly probably corresponds fairly well with the source, the length of the anomaly along the line should not be taken to represent the exact edges of the anomalous material.

For ease of presentation, the IP results have been described separately for each grid. Reference is made to the individual pseudo section plots and plans accompanying this report.

STU A

Frequency effects are generally less than 1% and seldom exceed 1.5% except on the weakly anomalous lines where 100 ft. detail was carried out. The relatively low values indicate a lack of polarizable material, probably less than 1% sulphides throughout.

Anomalies are usually selected on basis of the metal factor parameter which is calculated from the FE/resistivity ratio and therefore reflects changes in either of these parameters. On the STU grids, the subtle resistivity anomalies may be more significant than the metal factor or frequency effect values, due to a possible depth of weathering in excess of 600 ft. Moderate to deep resistivity lows can be seen on line 32W, 24W, 8W, 4W and 16E. It is often difficult to separate these apparently deep zones from the bilobate effects of surficial zones. (i.e. the 72 ohm ft. resistivity value

at n = 4 beneath 2S on line 12W (100 ft. dipoles) may be related to the surface low at 0.5S but could also indicate a concentration of more conductive material, or an unweathered section,at a depth of about 200 ft. Unfortunately, there is no increase in frequency effect values on the 100 ft. data which would be expected over an unweathered sulphide conductor.

Fig. 1 shows the erratic nature of the surface projection of the IP anomalies. Fig. 1A gives a general idea of the near surface resistivity trend and outlines an elongated zone of moderately conductive material between lines 4W and 8E. There does not appear to be any direct correlation between this anomaly and the areas of high geochemical values. As previously mentioned, the depth of weathering could exceed 500 ft., and the resistivity low may represent an updip (weathered) extension of a much deeper sulphide body. The main geochemical anomaly occurs south of the base line on line 8W, some 1200 ft. removed from the center of the resistivity anomaly at 4E.

STU B

Three lines of IP coverage were obtained on the northwest side of Hoochekoo Creek. The results were non anomalous with the exception of line 80E where a complex resistivity pattern was observed. The lower resistivity values beneath 3N and 11N may represent a zone of weak conductivity (fault) but are probably influenced in part by topography. The geochemical anomalies near 0 and 4N may represent migration along fault zones.

STU C

The C grid consisted of 7 short lines which showed marked variations in resistivity. One of the strongest anomalies occurs on line 00 at 42S. This zone is open to the west and probably warrants additional work. The conductor (although non-polarizable) should respond to high frequency electro-

magnetic systems and could be delineated with a VLF unit. The zone of low resistivity continues to the east to line 12E near 40S. The copper showing at 35S on this line does not give an IP anomaly. A zone of intermittent high resistivities can be seen a few hundred feet to the north on most lines. This may represent a zone of highly silicified rock. Severe topography precluded complete coverage of line 24E.

STU D

The data on lines 86S and 94S indicate an absence of polarizable material; however, there is a definite zone of low resistivities on both lines. The significance of this apparently deep and fairly broad zone is not fully understood but should be considered as a potential area for follow up work. These lines traversed a broad swampy area in the valley, but the conductivities appear to increase with depth.

HI

On line 00 and 4SW there appears to be a slight increase in conductivity towards the northwest. The low resistivities at the southeast end of line 0 are probably due to the topographic depression associated with the Creek. There are no significant anomalies on either line.

7. Conclusions and Recommendations

IP anomalies on the STU and HI claim groups are generally very weak and poorly defined. There is no evidence to indicate the presence of a large zone of unweathered sulphides within 500 ft. from surface. Anomalies are usually quite complex, resulting mainly from variations in resistivity with little or no change in frequency effect. This is the type of response that one would expect over weathered sulphides. However, the resistivity parameter

will also reflect changes in rock porosity, overburden conductivity and thickness, zones of alteration, faults and shears etc. In addition, permafrost can create marked variations in resistivity.

In general, there appears to be little or no direct correlation between the geochemical anomalies and the IP anomalies with the possible exception of a few lines on the STU A grid. Therefore, one must conclude that the source of the geochemical anomalies has not been adequately identified by geophysical means.

In view of the reported depth of weathering (to 700 ft.) on the Williams Creek property, and its proximity to the STU group, it is recommended that the STU claims be maintained in good standing until more information can be obtained on the property. Several areas appear to warrant further work. It is suggested that trenching be carried out over anomalous areas to better determine the source of the geochemical anomalies. Where warranted, geophysical surveys consisting of 400 ft. dipole-dipole IP and/or gravity surveying should be carried out to locate any deep zones of metallic sulphides which might occur at depths in excess of 600 ft. If possible, geophysical results over the Williams Creek deposit should be analyzed if they are available.

P. A. Smith

PAS:ols

APPENDIX I

GEOPHYSICAL EQUIPMENT

Instrument	- McPhar Model P-660 IP Transmitter (Frequency Domain) Phoenix Model IPVI IP Receiver
Measurement	- Apparent resistivity (ohm-ft.) and frequency effect (%)
Configuration	- Dipole-dipole Array
Electrode Separation	- X = 200' (reconnaissance) or 100' (detail)
Frequencies	- 0.3 & 5.0 hz.
Scale Range	- 10V to 0.1 mv; -10% to +20% FE - 0 - 1000 calibrated vernier
Accuracy	- ± 0.2%
Power Supply	- 2.5 KVA motor generator with single phase regulated output of 125 VAC at 400 hz.
Electrodes	- Tx - stainless steel rods Rx - non polarizing porous pots.

APPENDIX II

STATISTICAL DATA

Property	Line	Spread	n	From - To	Distance	Readings
STU A	32W	200	5	12S - 12N	2400	37
	28W	200	5	12S - 12N	2400	37
	24W	200	5	12S - 12N	2400	37
	20W	200	5	12S - 12N	2400	37
	16W	200	5	12S - 12N	2400	37
	12W	200	5	12S - 12N	2400	36
	12W	100	5	6S - 6N	1200	38
	8W	00	4	12S - 12N	2400	32
	8W	100	5	6S - 6N	1200	38
	4W	200	4	12S - 12N	2400	32
	4W	100	5	6S - 6N	1200	38
	0	200	4	12S - 12N	2400	32
	0	100	5	6S - 6N	1200	38
	4E	200	4	12S - 12N	2400	32
	4E	100	5	6S - 6N	1200	38
	8E	200	4	12S - 12N	2400	32
	12E	200	4	12S - 12N	2400	32
	16E	200	4	12S - 12N	2400	32
STU B	72E	200	4	6S - 16N	2200	29
	76E	200	4	6S - 16N	2200	29
	80E	200	4	6S - 16N	2200	29
STU C	0	200	4	47S - 31S	1600	18
	4E	200	4	45S - 29S	1600	18
	8E	200	4	45S - 29S	1600	18
	12E	200	4	45S - 29S	1600	18

Property	Line	Spread	n	From - To	Distance	Readings
STU C	16E	200	4	45S - 29S	1600	18
	20E	200	4	45S - 29S	1600	18
	24E	200	4	41S - 29S	1200	10
STU D	86S	200	4	00 - 20E	2000	26
	94S	200	4	00 - 20E	2000	26
HI	00	200	4	45E - 22NW	2600	34
	4SW	200	4	00 - 22NW	2200	29

Lines Surveyed	32
Miles of Coverage	12.0
No. of Observations	955

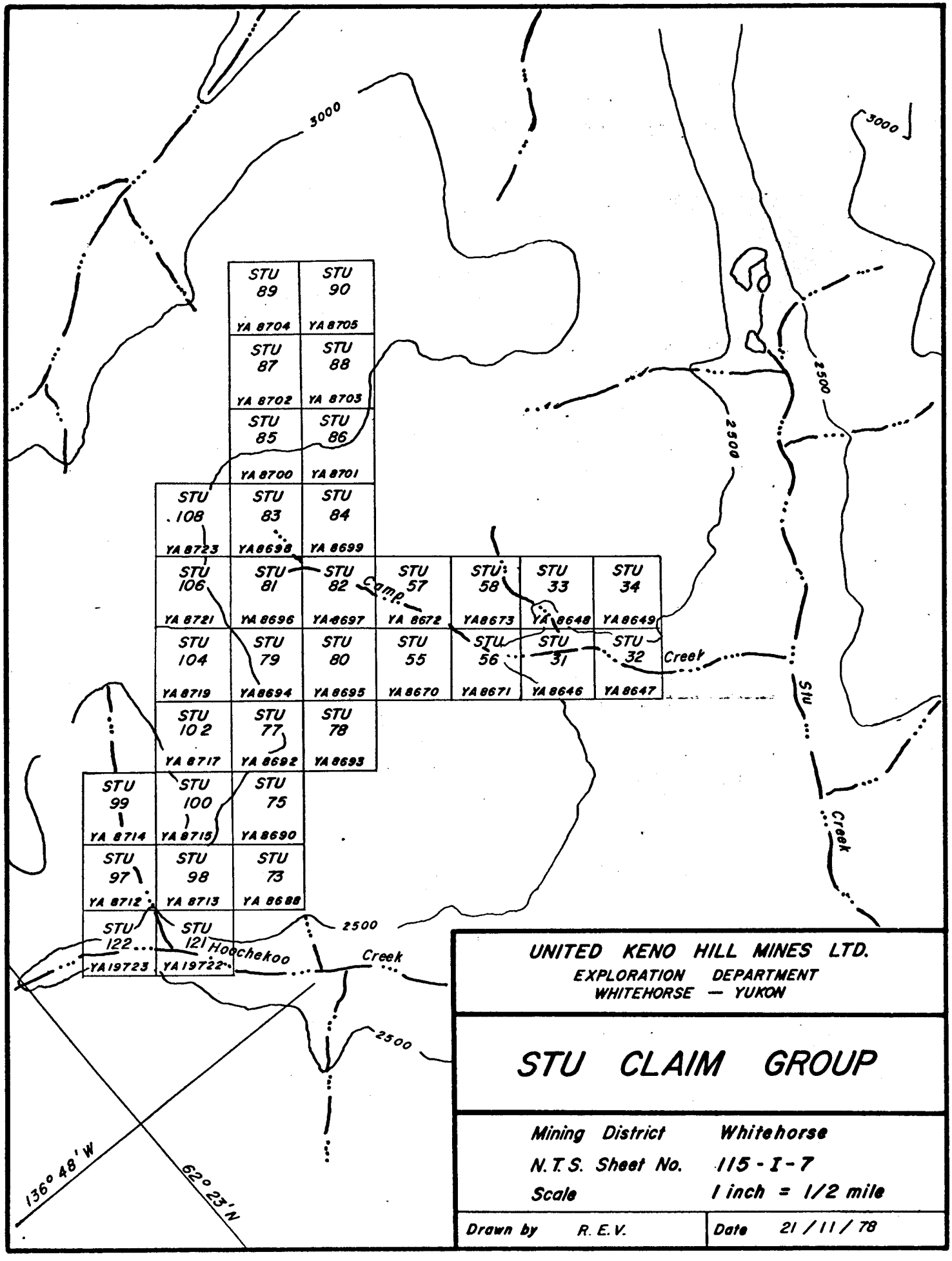
APPENDIX III

LIST OF CLAIMS

CLAIM	GRANT NO.	EXPIRES	LOCATION	NTS SHEET
STU 31	YA8646	1 Feb/83	Hoochekoo Creek	115I-7
STU 32	YA8647	1 Feb/83	"	"
STU 33	YA8648	1 Feb/83	"	"
STU 34	YA8649	1 Feb/83	"	"
STU 55	YA8670	1 Feb/83	"	"
STU 56	YA8671	1 Feb/83	"	"
STU 57	YA8672	1 Feb/83	"	"
STU 58	YA8673	1 Feb/83	"	"
STU 73	YA8688	1 Feb/83	"	"
STU 75	YA8690	1 Feb/83	"	"
STU 77	YA8692	"	"	"
STU 78	YA8693	"	"	"
STU 79	YA8694	"	"	"
STU 80	YA8695	"	"	"
STU 81	YA8696	"	"	"
STU 82	YA8697	"	"	"
STU 83	YA8698	"	"	"
STU 84	YA8699	"	"	"
STU 85	YA8700	"	"	"
STU 86	YA8701	"	"	"
STU 87	YA8702	"	"	"
STU 88	YA8703	"	"	"
STU 89	YA8704	"	"	"
STU 90	YA8705	"	"	"
STU 97	YA8712	"	"	"
STU 98	YA8713	"	"	"
STU 99	YA8714	"	"	"
STU 100	YA8715	"	"	"
STU 102	YA8717	"	"	"
STU 104	YA8719	"	"	"
STU 106	YA8721	"	"	"
STU 108	YA8723	"	"	"
STU 121	YA19722	12 Sept/83	"	"
STU 122	YA19723	12 Sept/83	"	"

APPENDIX IV

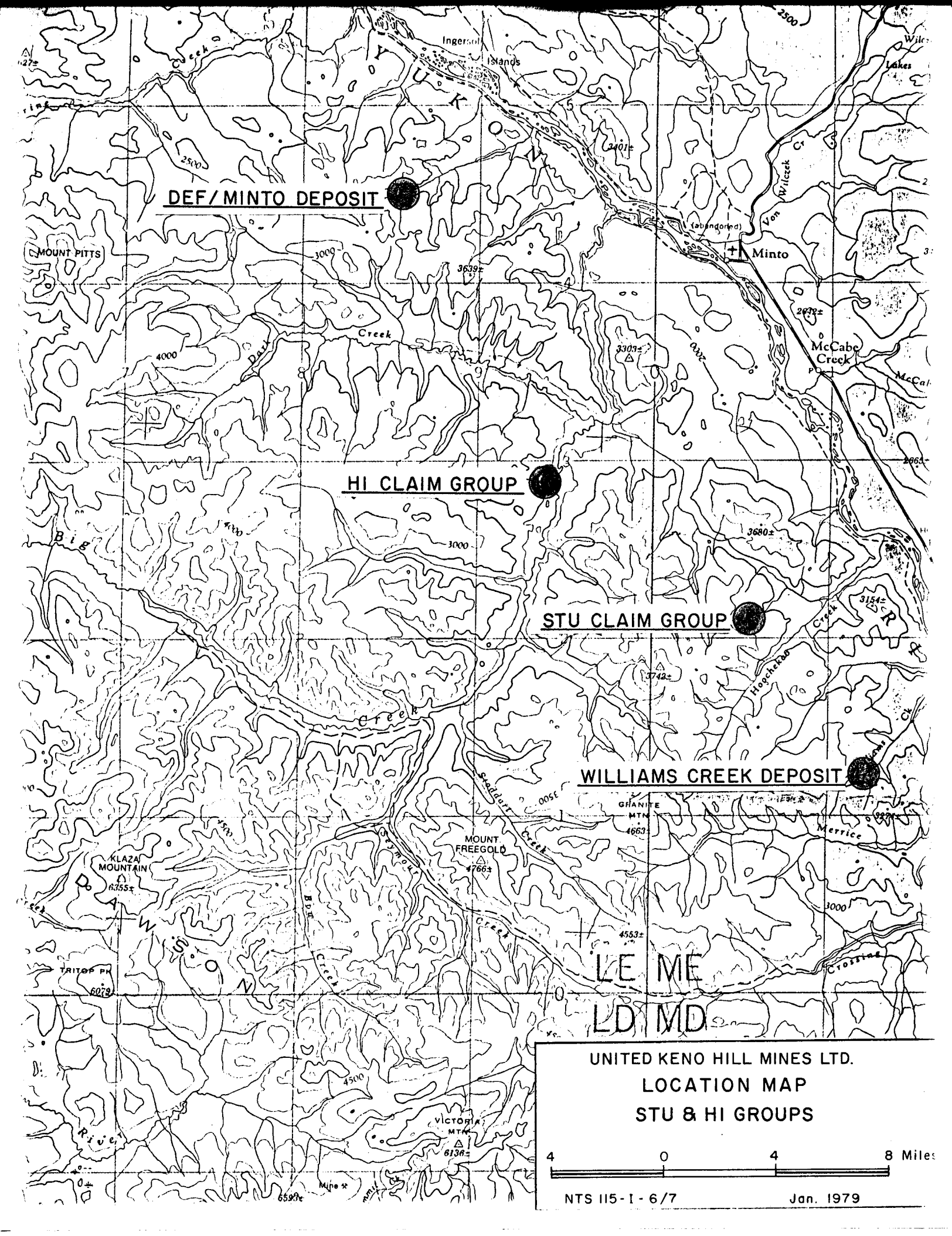
CLAIM MAP



UNITED KENO HILL MINES LTD.
EXPLORATION DEPARTMENT
WHITEHORSE — YUKON

STU CLAIM GROUP

Mining District	Whitehorse
N.T.S. Sheet No.	115 - I - 7
Scale	1 inch = 1/2 mile
Drawn by R. E. V.	Date 21 / 11 / 78



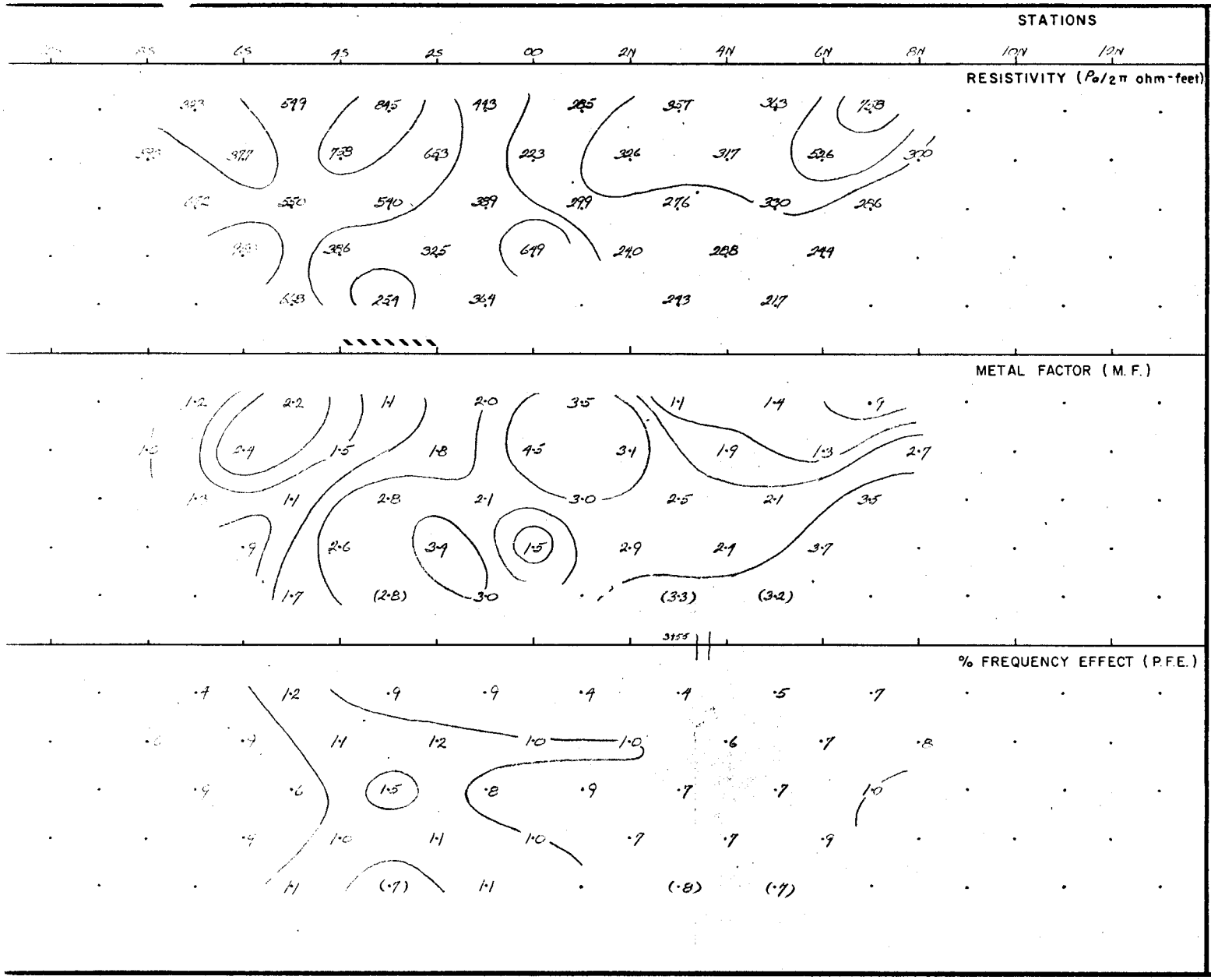
UNITED KENO HILL MINES LTD.

LOCATION MAP

STU & HI GROUPS

4 0 4 8 Miles

NTS 115-I-6/7 Jan. 1979



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU 'A' PROJECT

LINE 32100 W

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: IP-6RX

FREQUENCIES: 0.3 - 3.0 ~~Hz~~

SCALE: 1 Inch = 200 ft.

DATE: 12 JULY, 1978

DATA BY: RSmith

REMARKS:

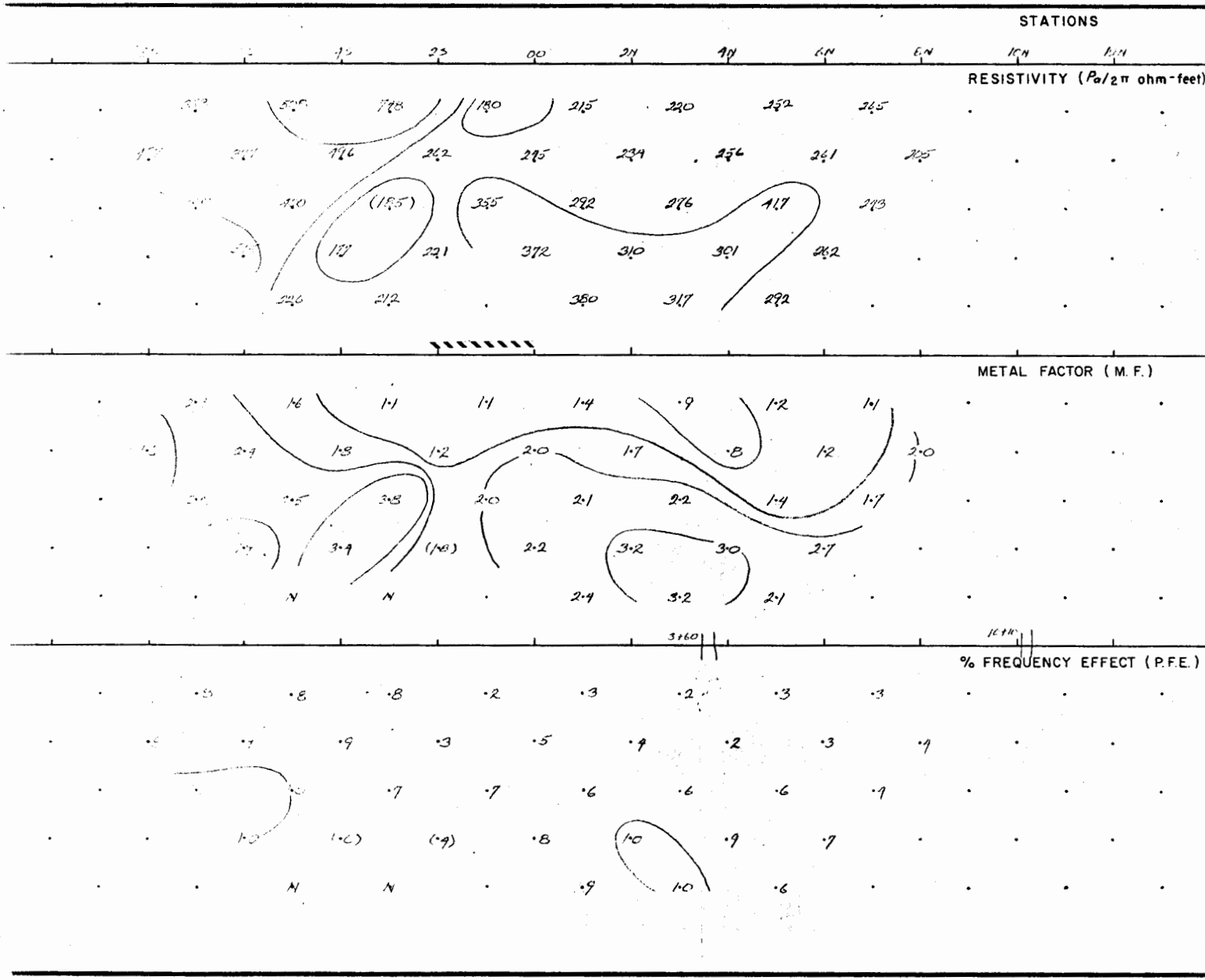
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "N" PROJECT

LINE 28+00W

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0.3 - 3.0 Hz

SCALE: 1 Inch = 400 ft

DATE: Nov, 1978

DATA BY: A. Smith

REMARKS:

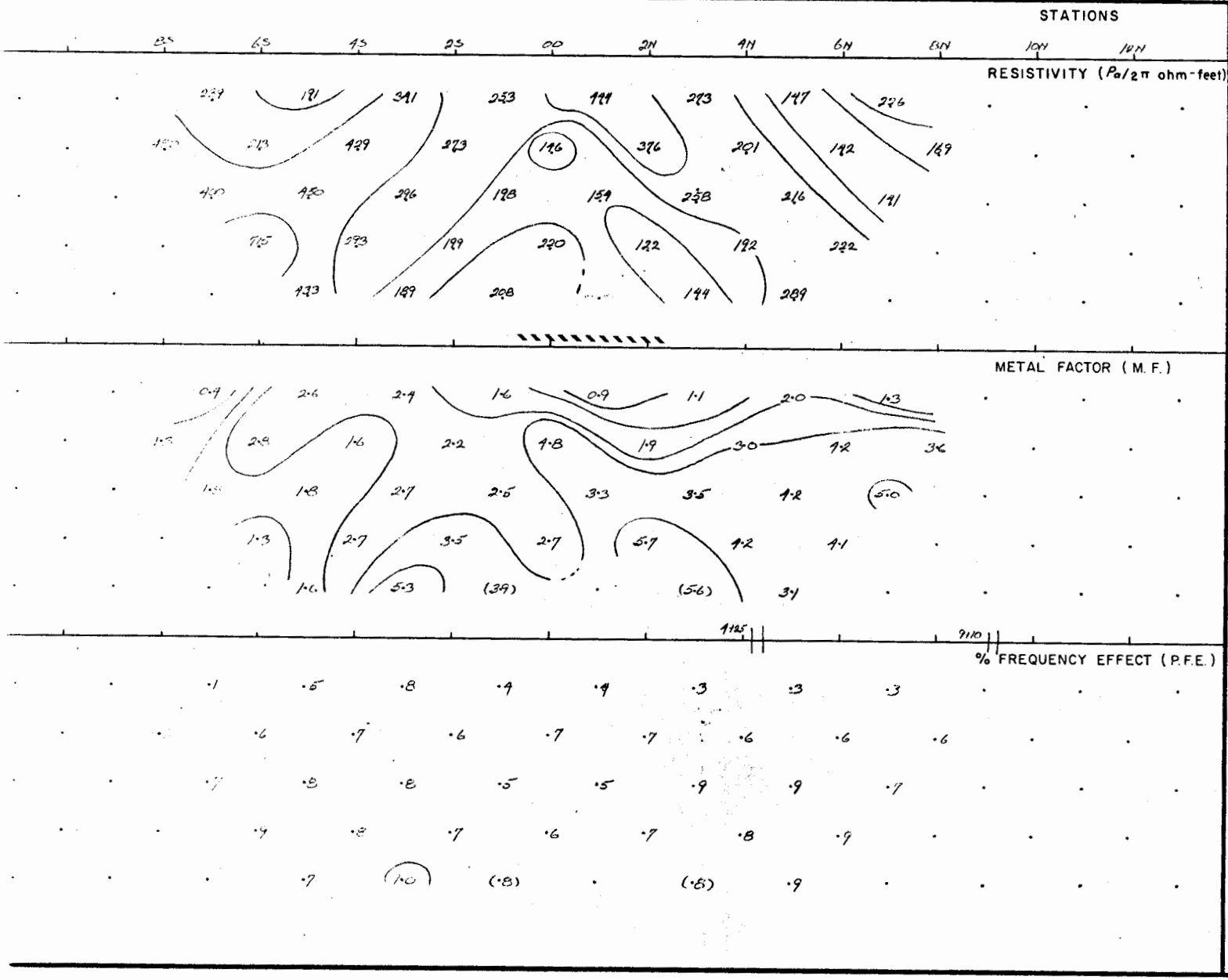
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU 'A' PROJECT

LINE 24100N

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0.3 - 3.0 - 11 -

SCALE: 1 Inch = 200 ft.

DATE: 11 July, 1978

DATA BY: [illegible]

REMARKS:

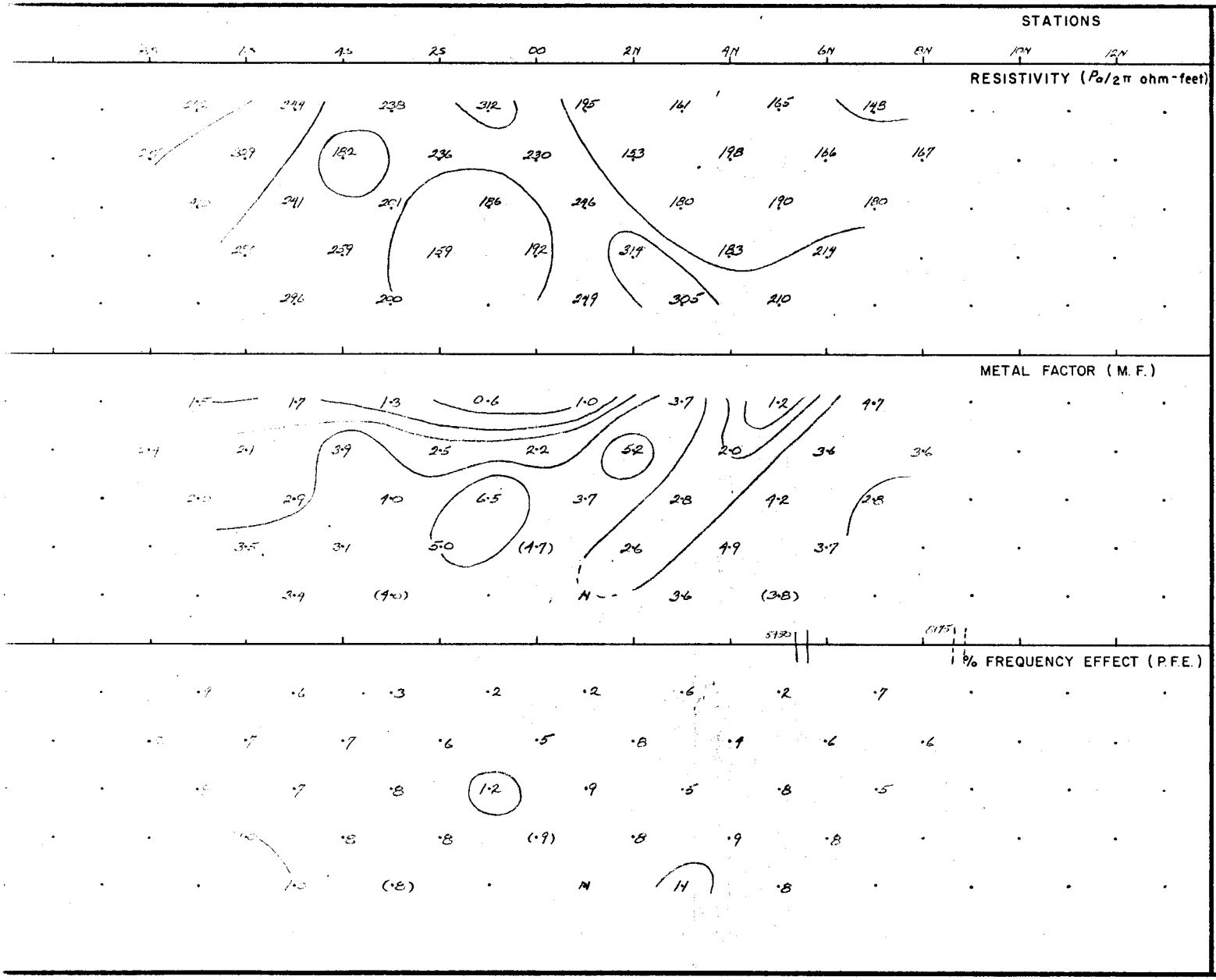
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "A" PROJECT

LINE 20+00W

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0.3 - 5.0 Hz.

SCALE: 1 Inch = 200 ft.

DATE: 11 JULY, 1978

DATA BY: [illegible]

REMARKS:

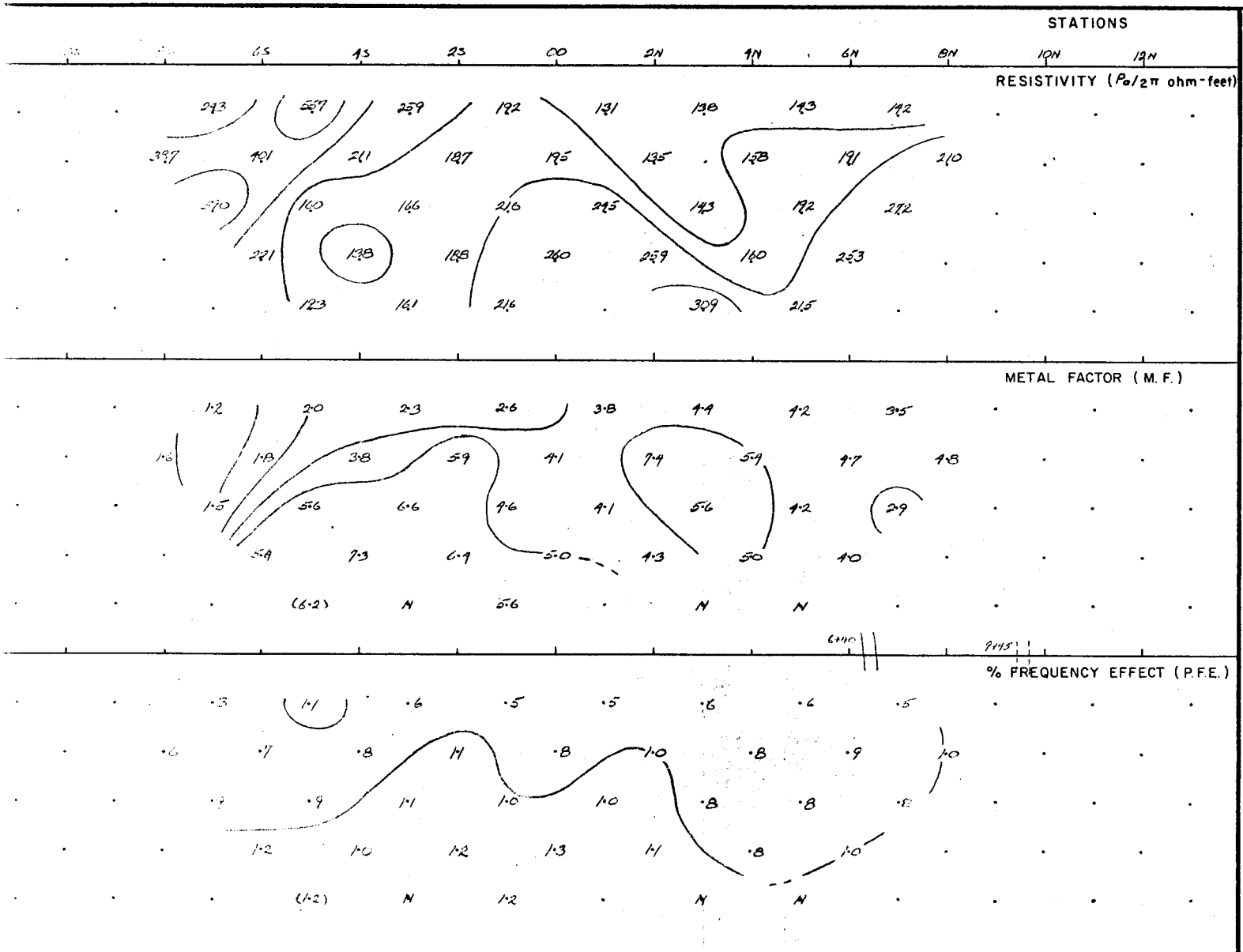
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No. _____



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "A" PROJECT

LINE 16+00 W

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0.3 & 5.0 Hz.

SCALE: 1 Inch = 200 ft.

DATE: 10 July, 1978

DATA BY: J.C. SMITH

REMARKS:

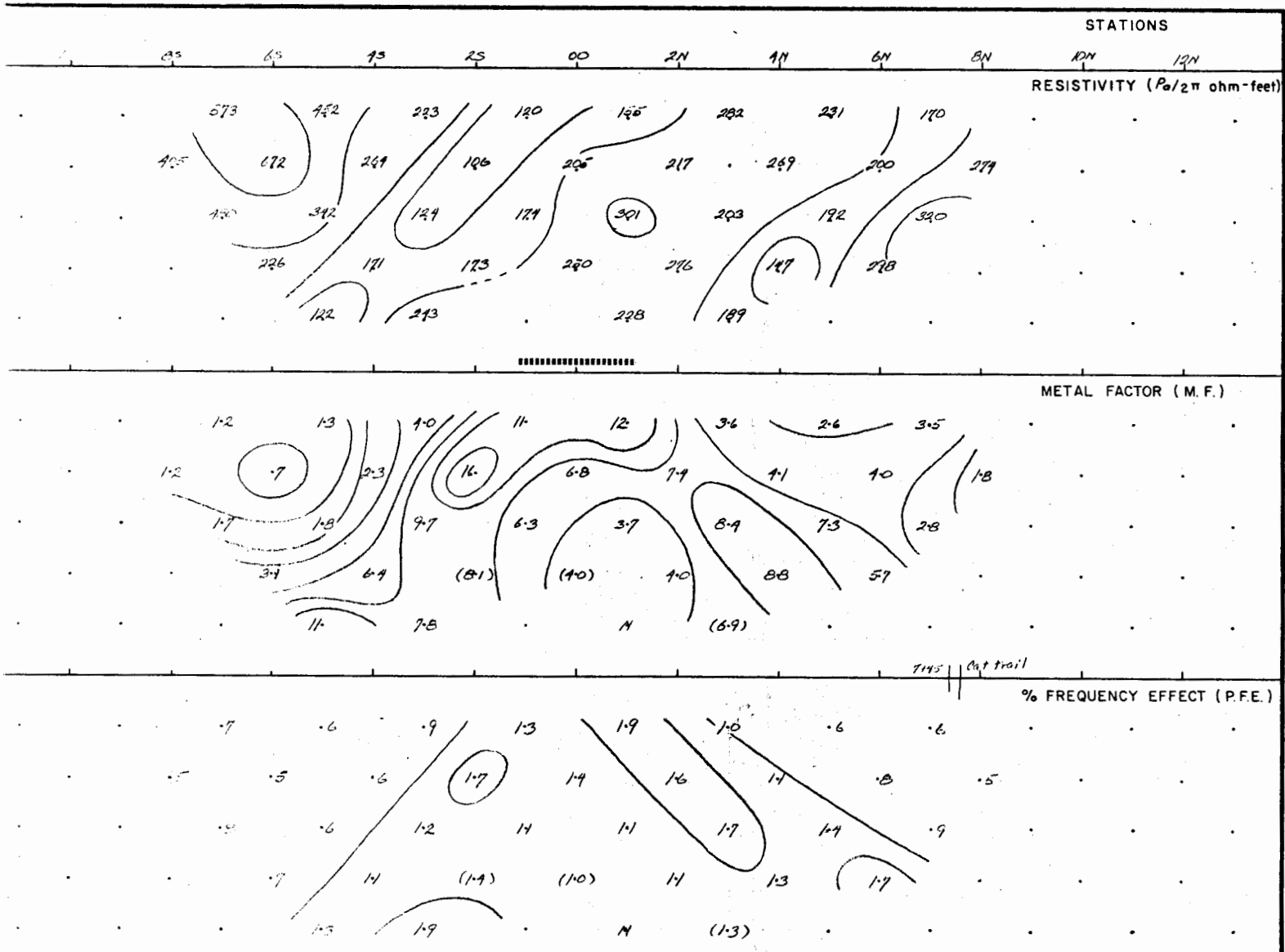
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU 'N' PROJECT

LINE 12+00 W

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0·3 - 5·0 Hz

SCALE: 1 Inch = 200 ft.

DATE: 10 July, 1978

DATA BY: [illegible]

REMARKS:

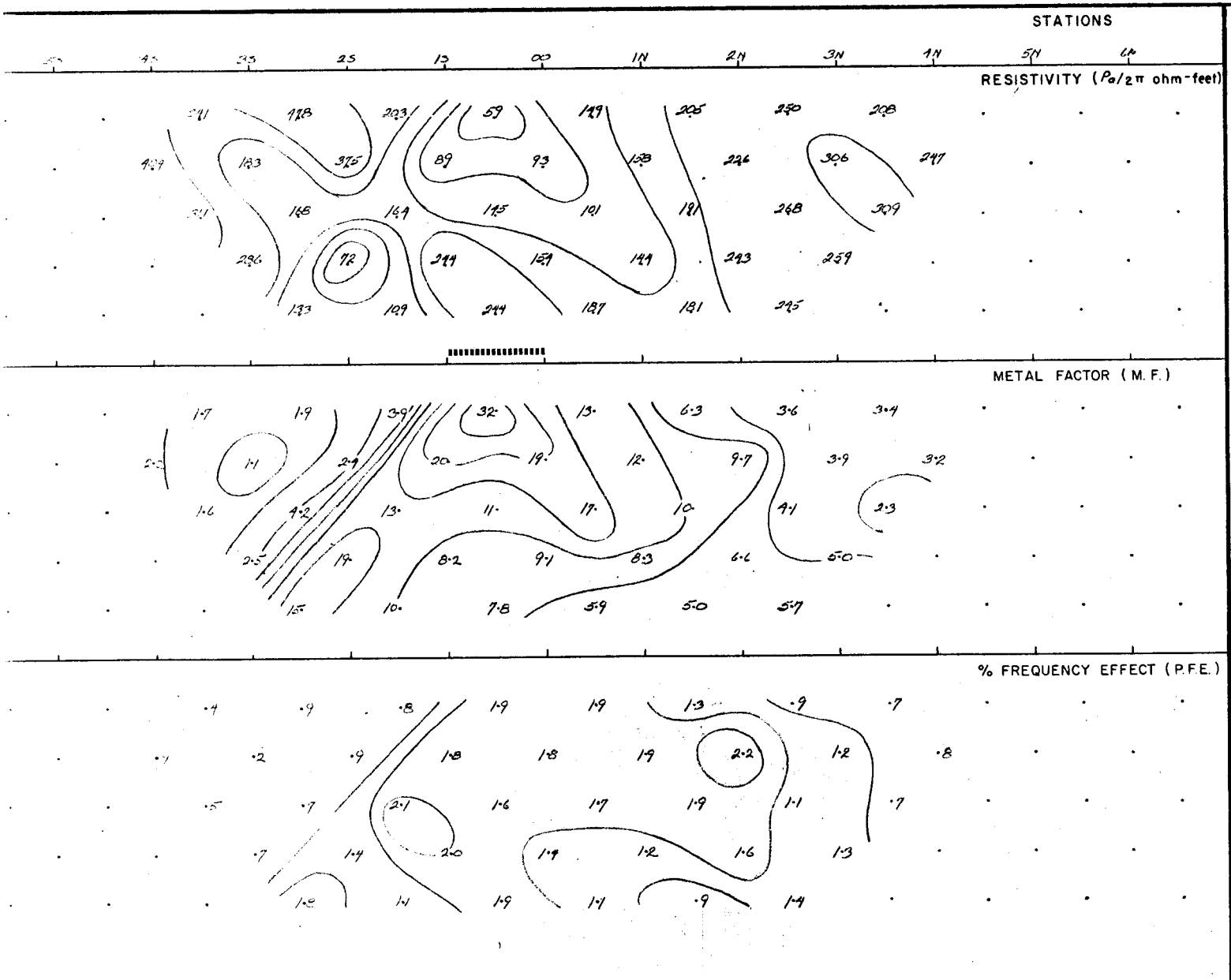
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY – STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "A" PROJECT

LINE 12+00W

LEGEND

ARRAY: DIPOLE-DIPOLE

UNIT: D-6KD

FREQUENCIES: 0.3 - 3.0 Hz.

SCALE: 1 Inch = 100 ft.

DATE: 12 July, 1976

DATA BY: [illegible] SMITH

REMARKS:

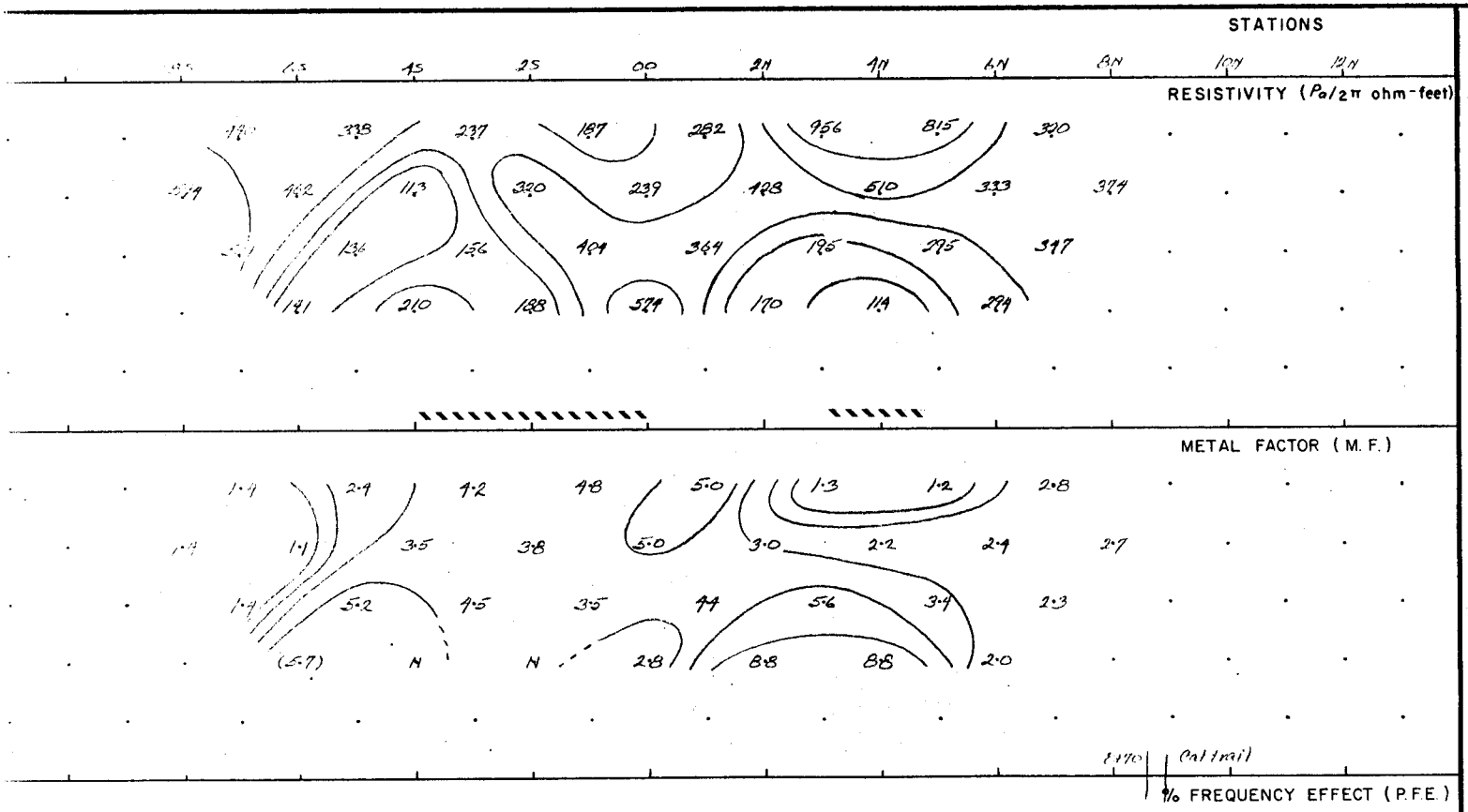
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STA "A" PROJECT

LINE 8100 W

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-IAC

FREQUENCIES: 0.3-2.5 c/s

SCALE: 1 Inch = 200 ft.

DATE: 9 July, 1976

DATA BY: A. SMITH

REMARKS:

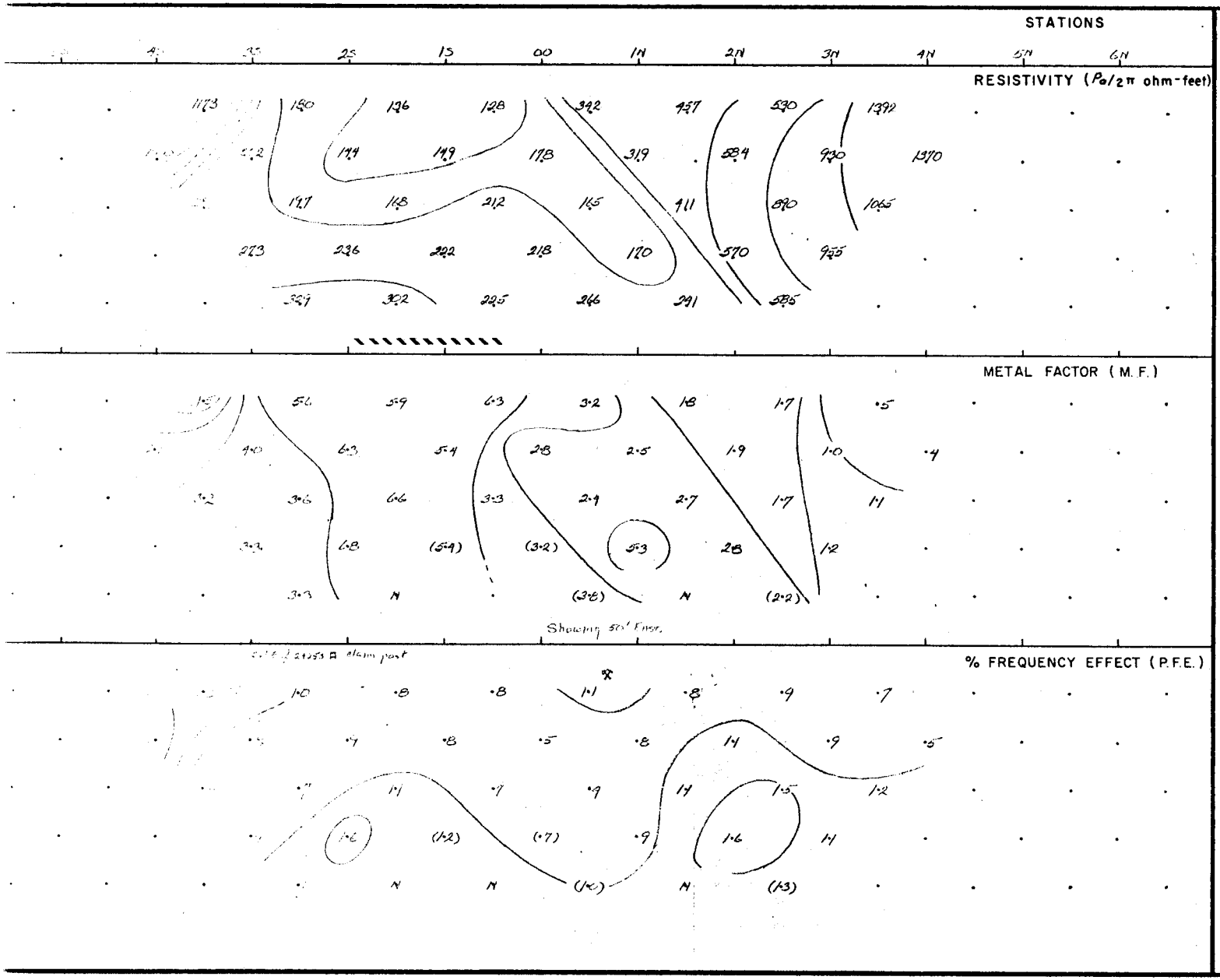
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY – STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STD "A" PROJECT

LINE 3100 W

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P.660

FREQUENCIES: [illegible] Hz.

SCALE: 1 Inch = 100 ft.

DATE: 19 July, 1978

DATA BY: [illegible]

REMARKS:

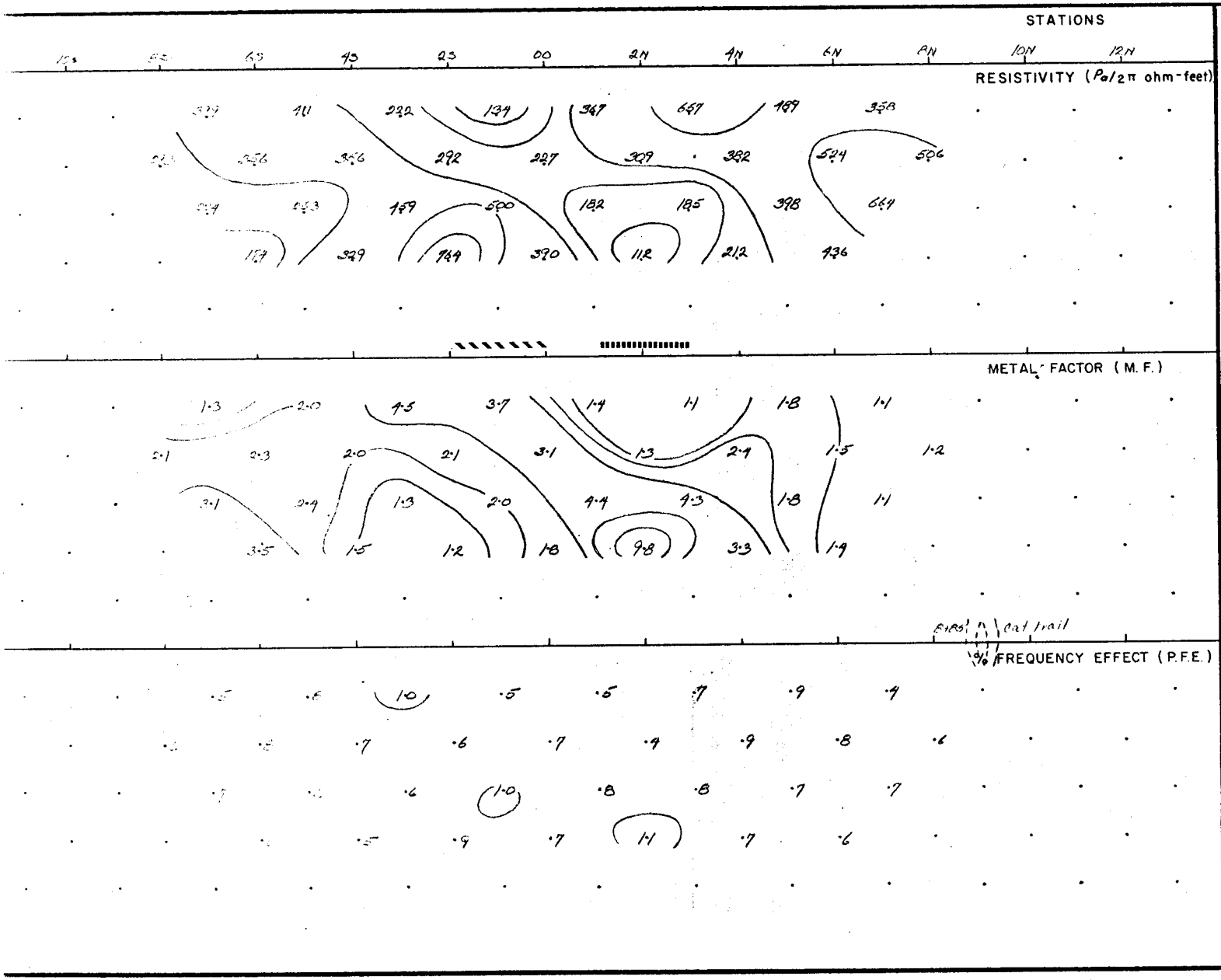
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "A" PROJECT

LINE 4+00 W

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0·3 - 5·0 Hz

SCALE: 1 Inch = 200 ft.

DATE: 9 July, 1978

DATA BY: SMITH

REMARKS:

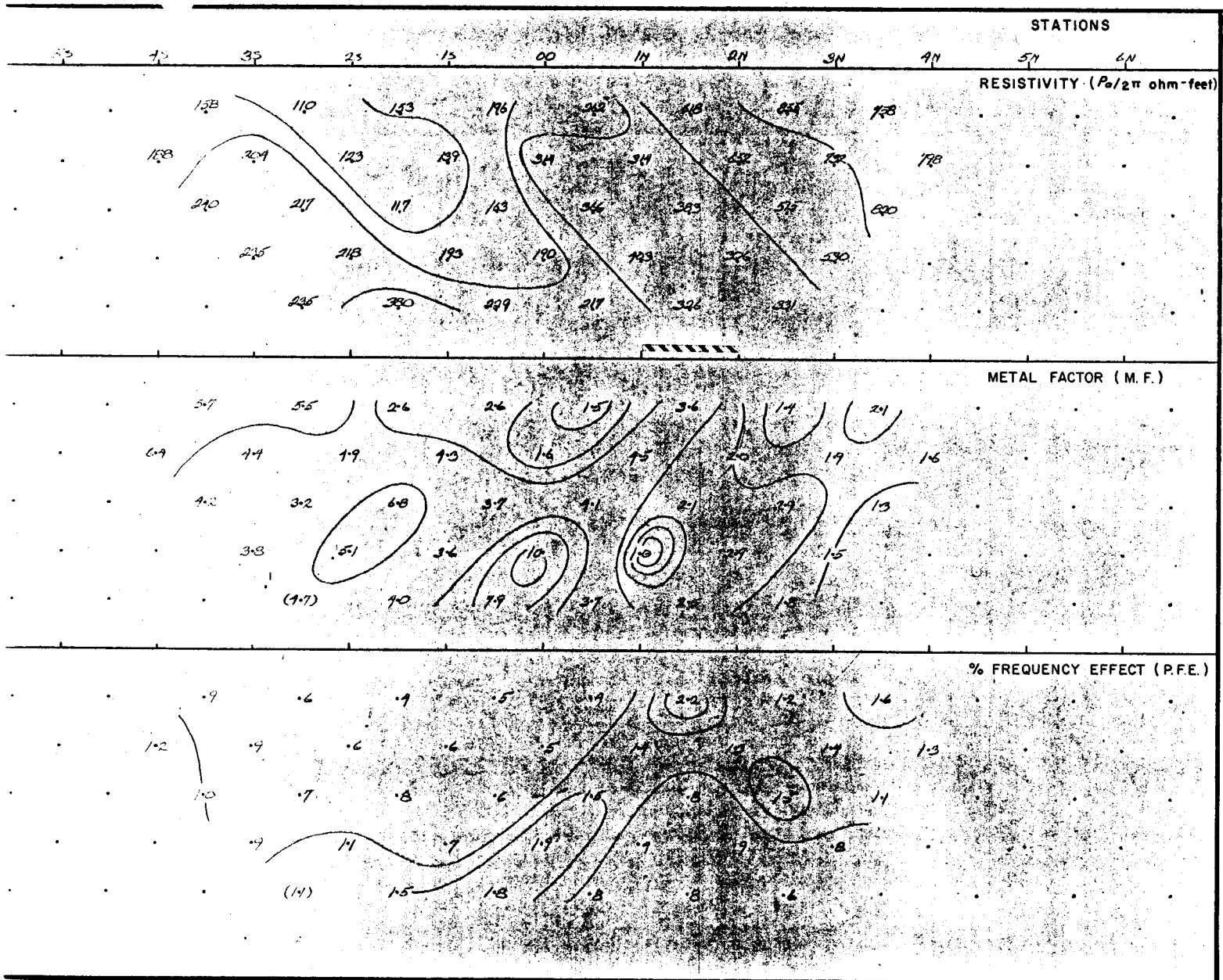
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No. _____



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU 'A' PROJECT

LINE 4+00 W

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0·3 - 5·0 Hz

SCALE: 1 Inch = 100 ft.

DATE: 19 JULY, 1978

DATA BY: [illegible] SMITH

REMARKS:

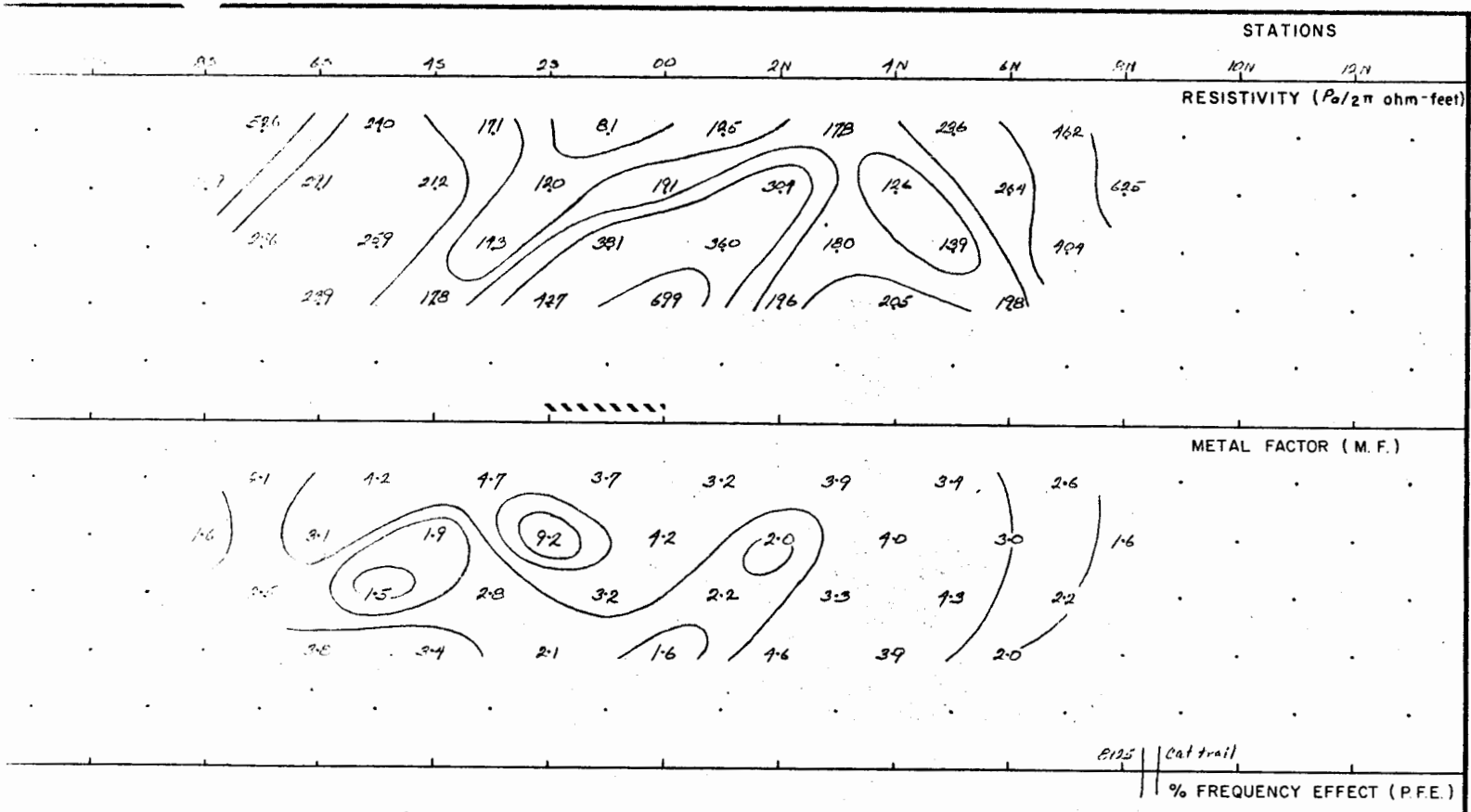
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STN "11" PROJECT

LINE 0+00

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0·3 & 5·0 H..

SCALE: 1 Inch = 200 ft.

DATE: 9 July, 1976

DATA BY: R SMITH

REMARKS:

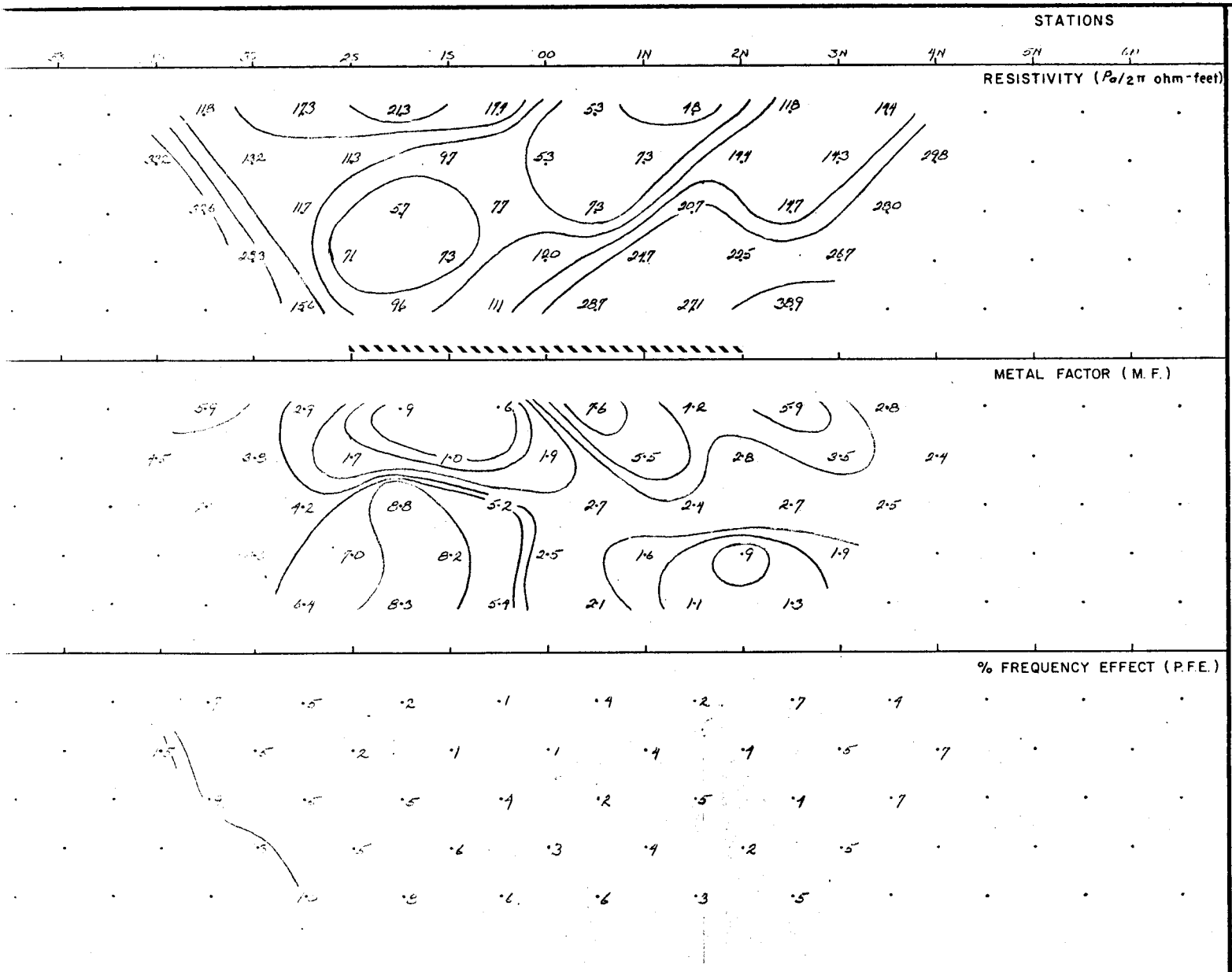
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU 'A' PROJECT

LINE 0100

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0.2 2.0 Hz.

SCALE: 1 Inch = 100 ft.

DATE: 16 July, 1970

DATA BY: [illegible] Smith

REMARKS:

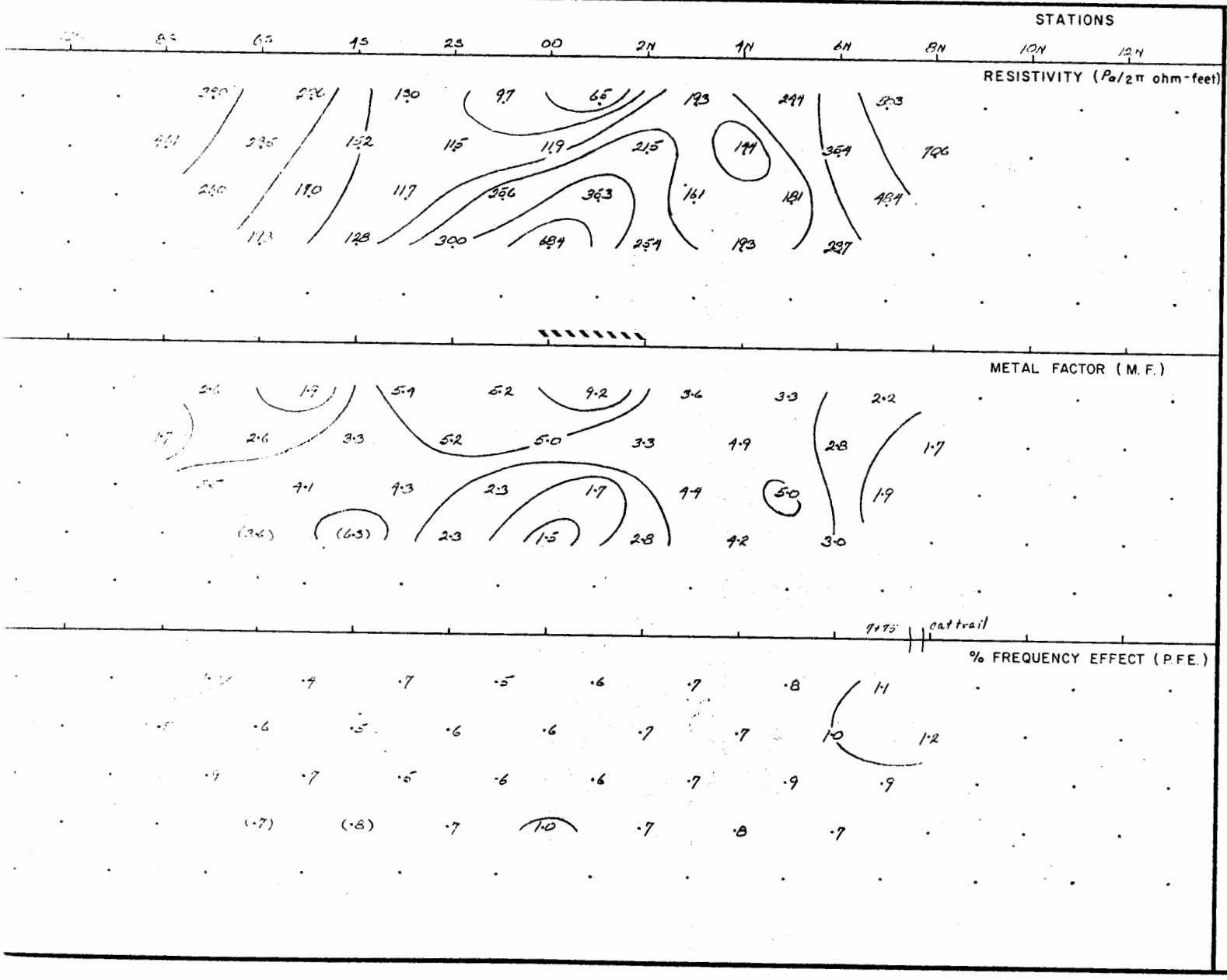
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU 'A' PROJECT

LINE 4+00E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0.3 + 5.0 Hz

SCALE: 1 Inch = 200 ft.

DATE: 8 JULY, 1978

DATA BY: R SMITH

REMARKS:

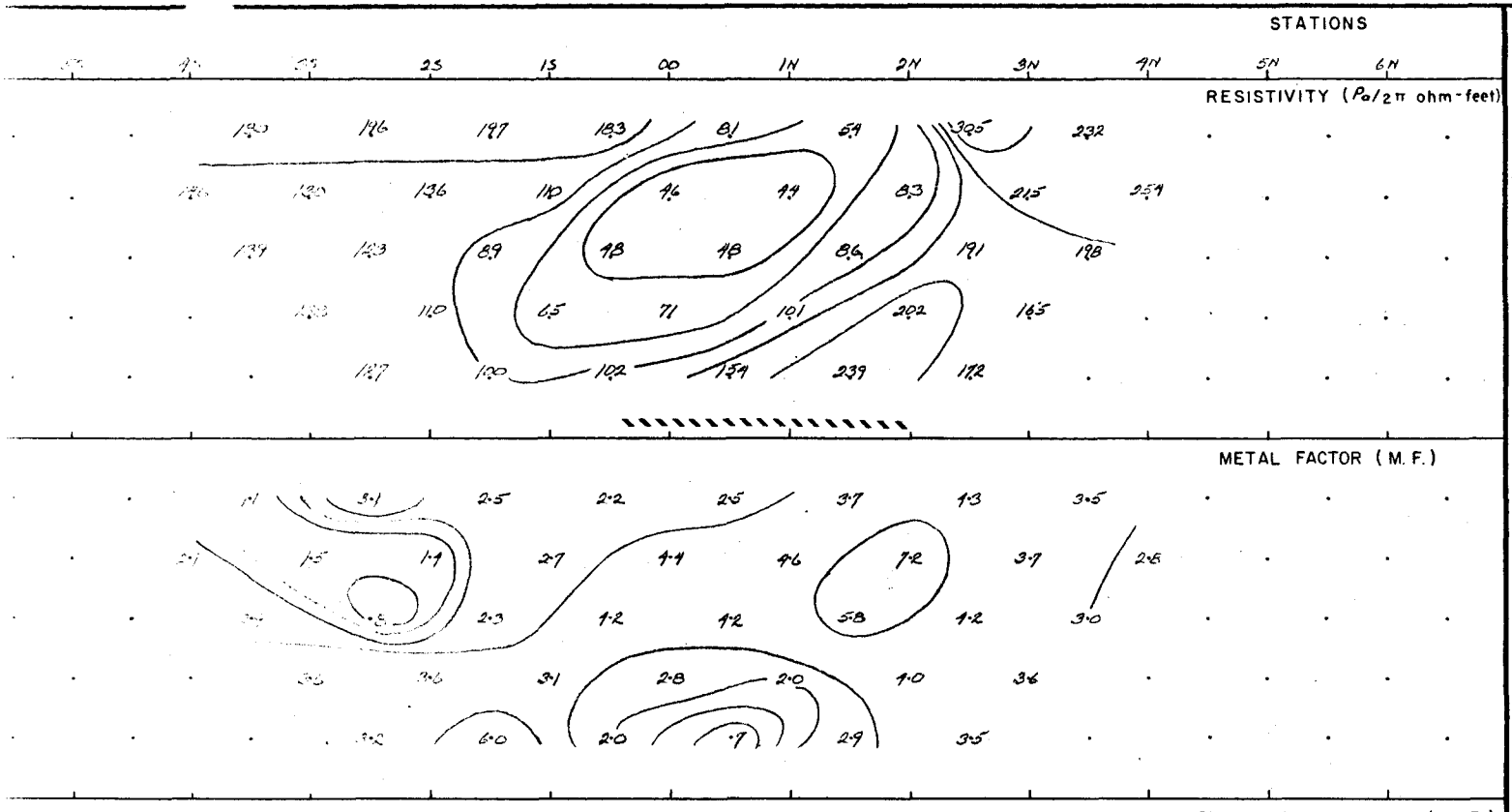
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "A" PROJECT

LINE 4100 E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 2·3 & 0·0 Hz

SCALE: 1 Inch = 100 ft.

DATE: 16 July, 1976

DATA BY: I.P. SURVEY

REMARKS:

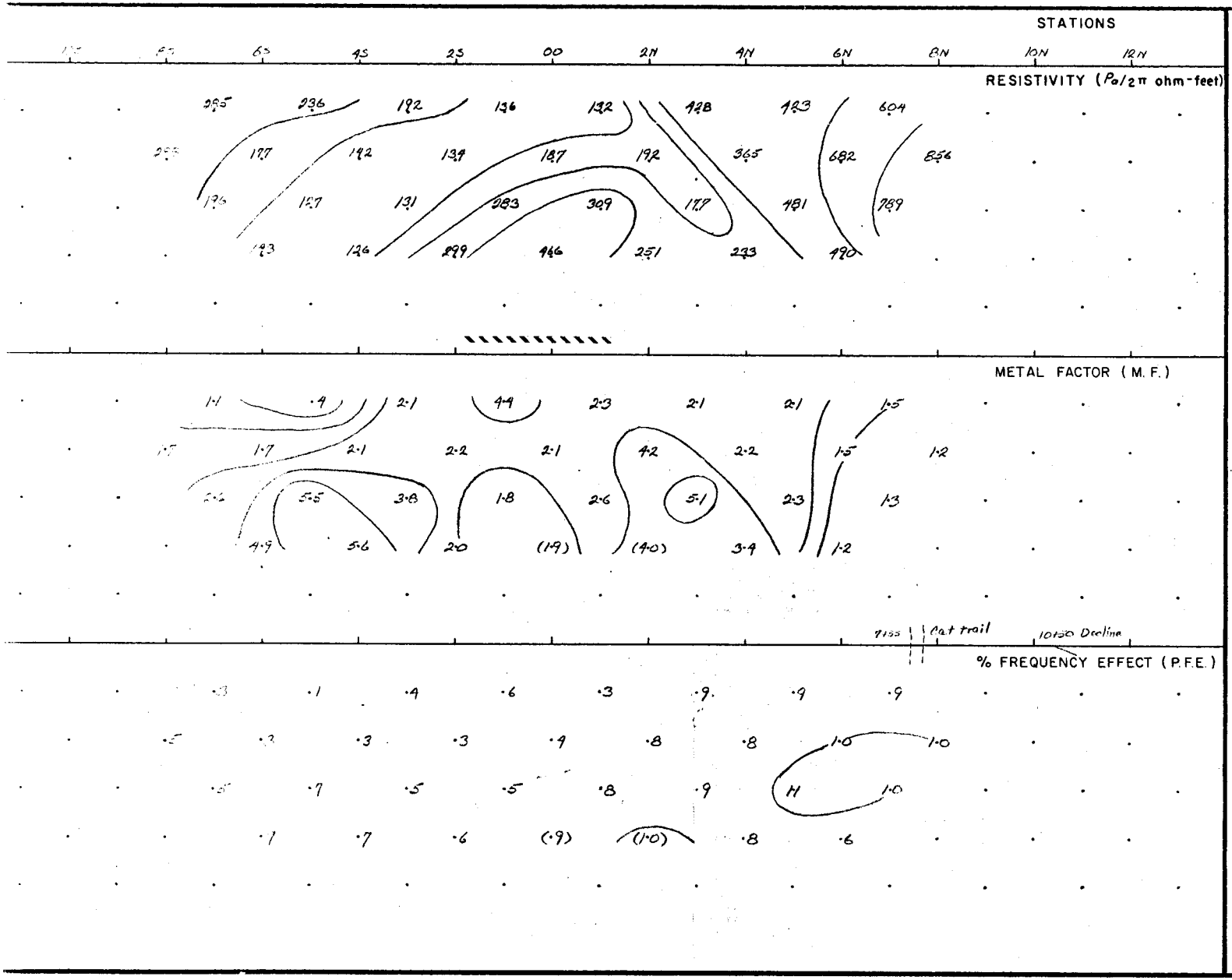
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "A" PROJECT

LINE 8+00E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0·3 - 5·0 Hz

SCALE: 1 Inch = 200 ft.

DATE: 8 JULY, 1978

DATA BY: R. SMITH

REMARKS:

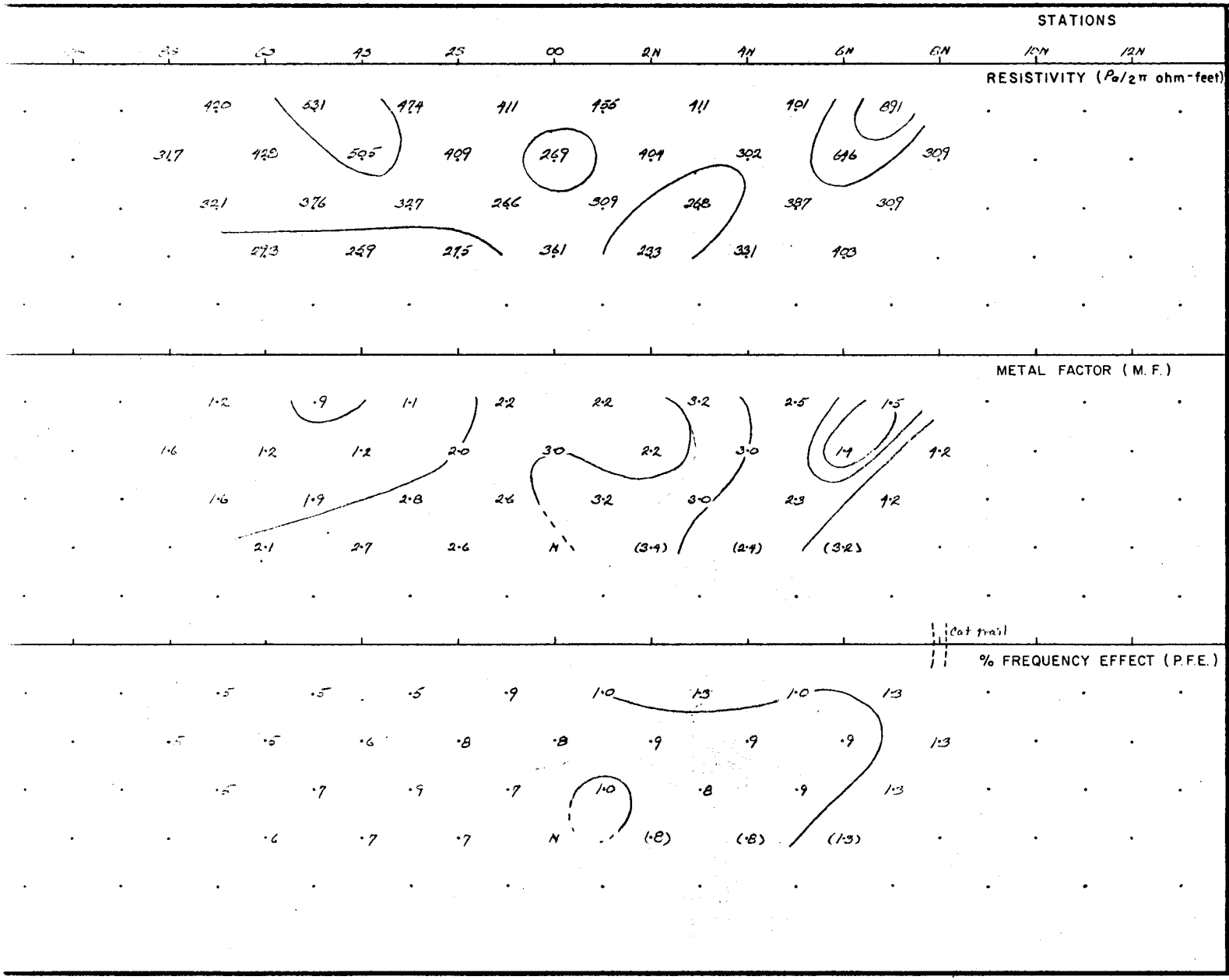
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No. _____



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU 'A' PROJECT

LINE 12+00E

LEGEND

ARRAY: DIPOLE-DIPOLE

UNIT: P-660

FREQUENCIES: 0·3 - 5·0 Hz

SCALE: 1 Inch = 200 ft.

DATE: 8 July, 1976

DATA BY: R.SMITH

REMARKS:

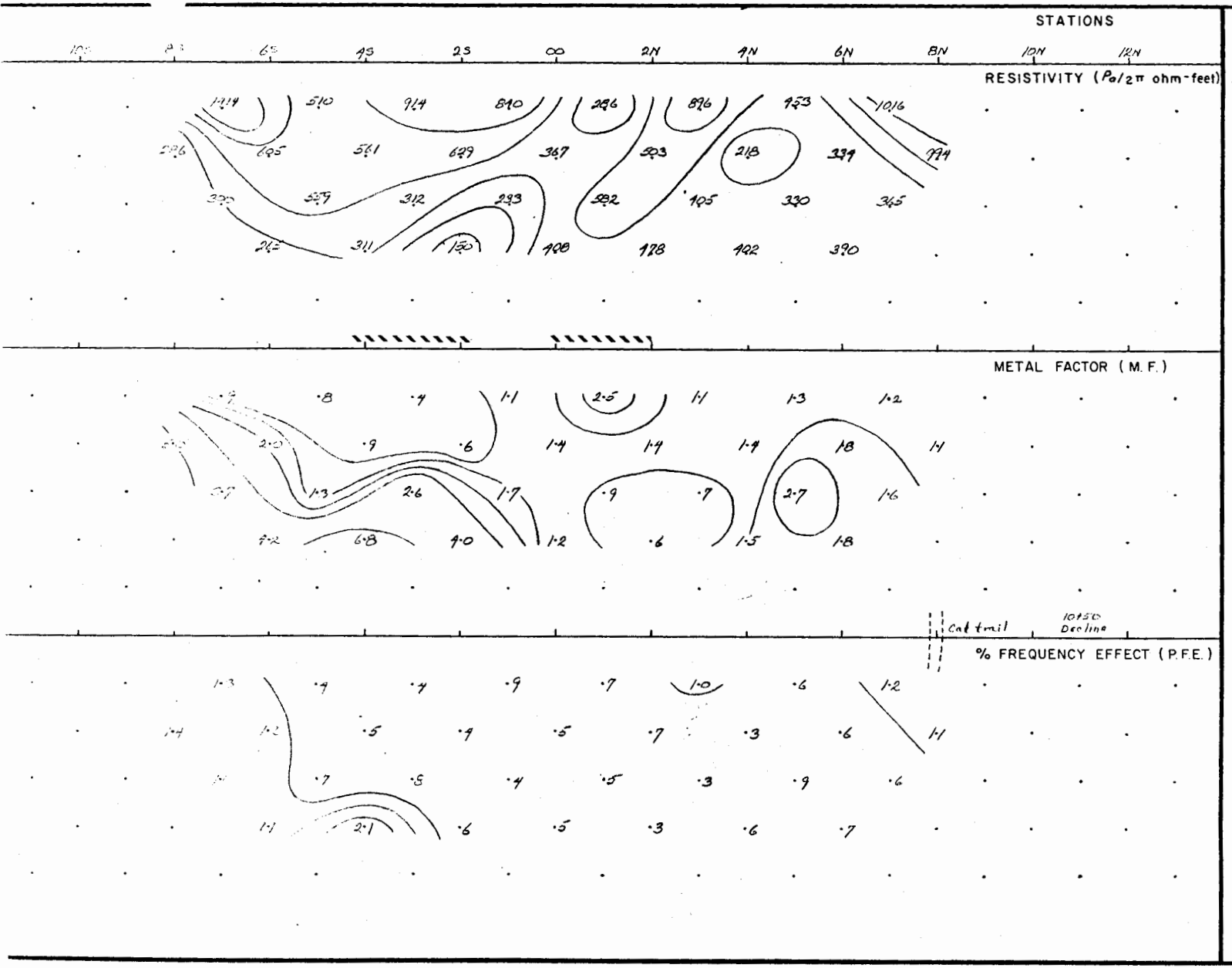
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY – STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "A" PROJECT

LINE 16+00 E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P.A.G.O.

FREQUENCIES: 0·3 - 5·0

SCALE: 1 inch = 200 ft.

DATE: 7 July, 1978

DATA BY: [illegible]

REMARKS:

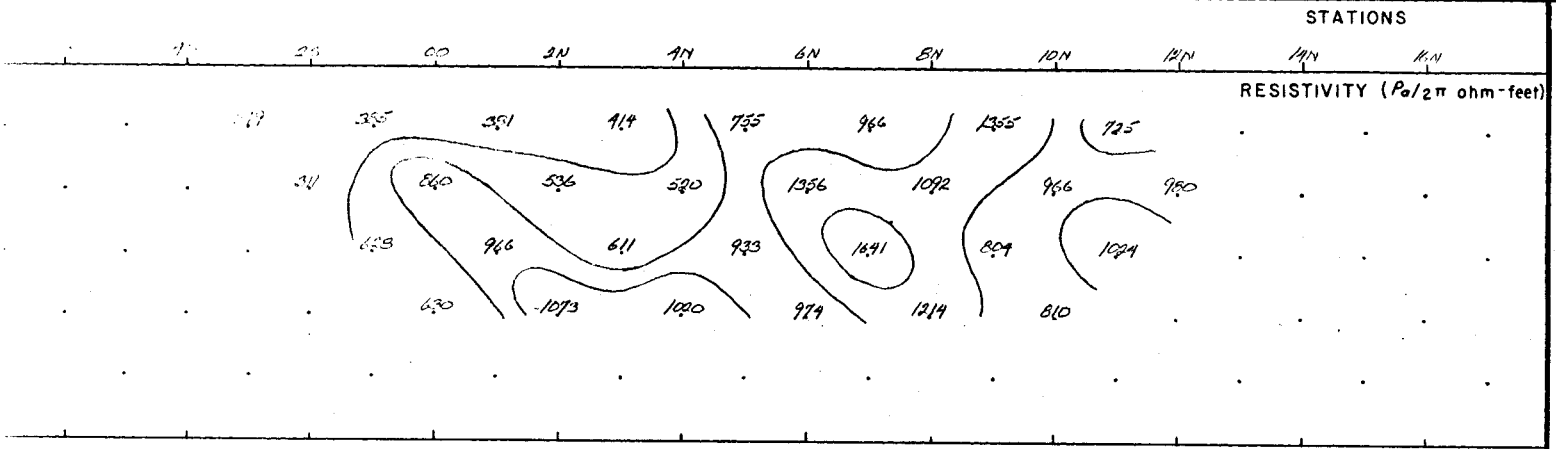
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

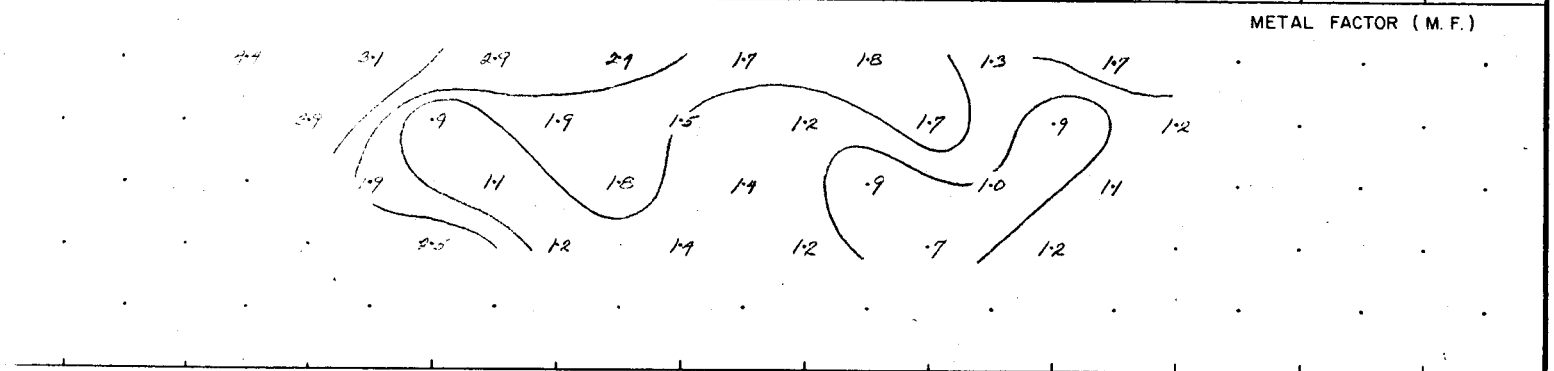
I.P. ANOMALY - STRONG

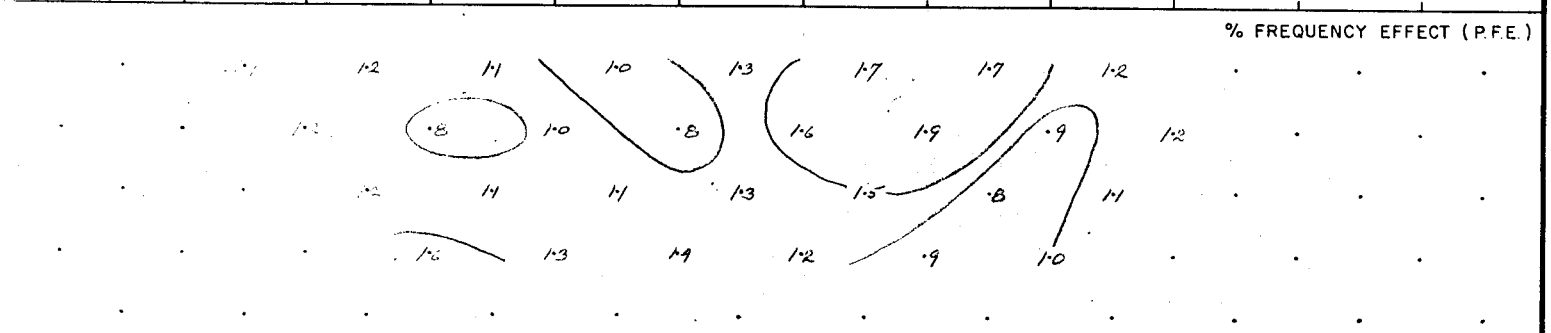
MODERATE

WEAK

DWG. No. _____







FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "B" PROJECT

LINE 72+00E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: IP-660

FREQUENCIES: 0.3 - 5.0 Hz.

SCALE: 1 Inch = 200 ft.

DATE: 19 Jan, 1970

DATA BY: [illegible]

REMARKS:

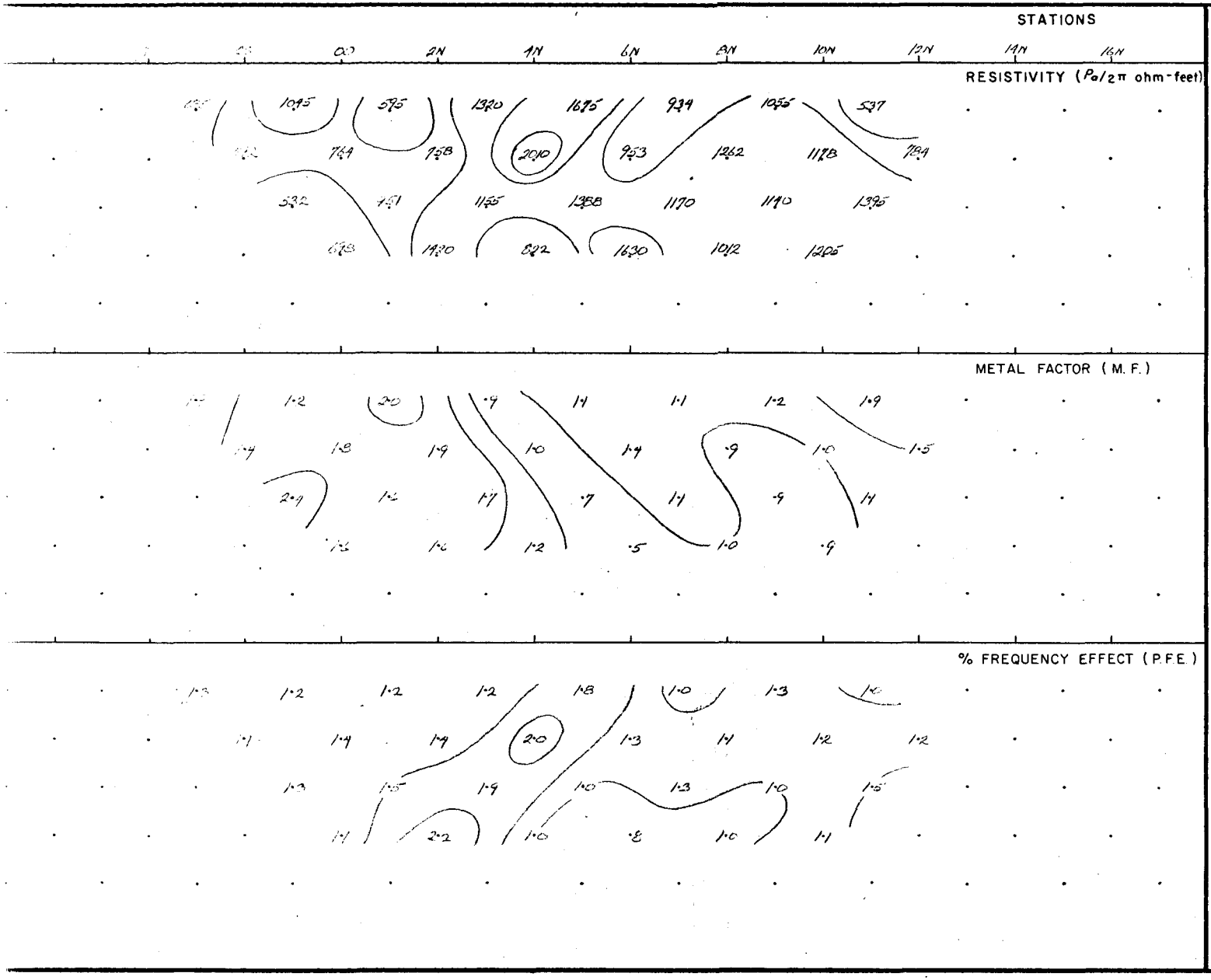
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

[illegible] PROJECT

LINE [illegible]

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: [illegible]

FREQUENCIES: [illegible]

SCALE: 1 Inch = 200 ft.

DATE: 19 July, 1965

DATA BY: [illegible]

REMARKS:

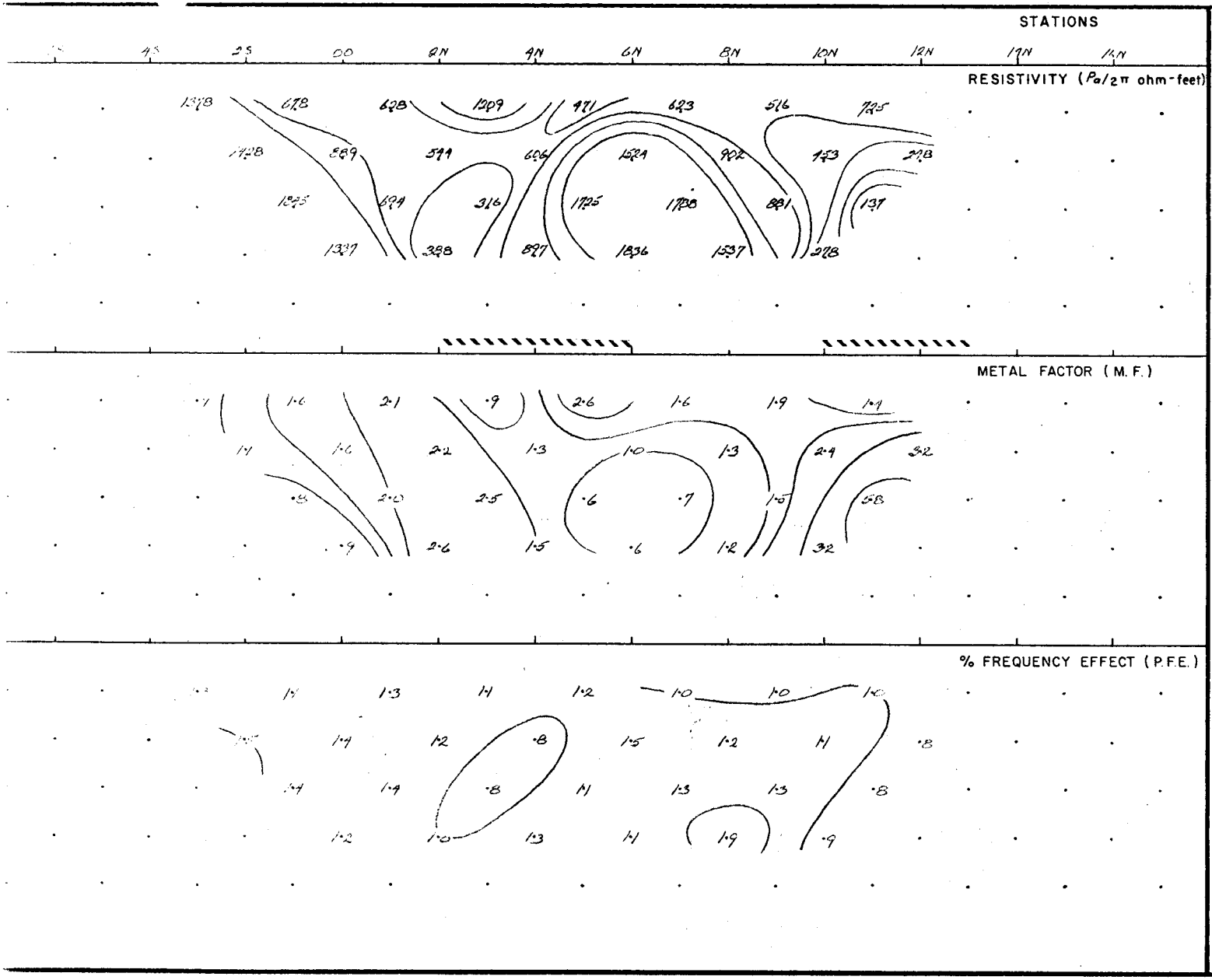
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

BTU "B" PROJECT

LINE 20+00E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: [illegible] c/s

SCALE: 1 Inch = 200 ft.

DATE: 19 Jan, 1970

DATA BY: R Smith

REMARKS:

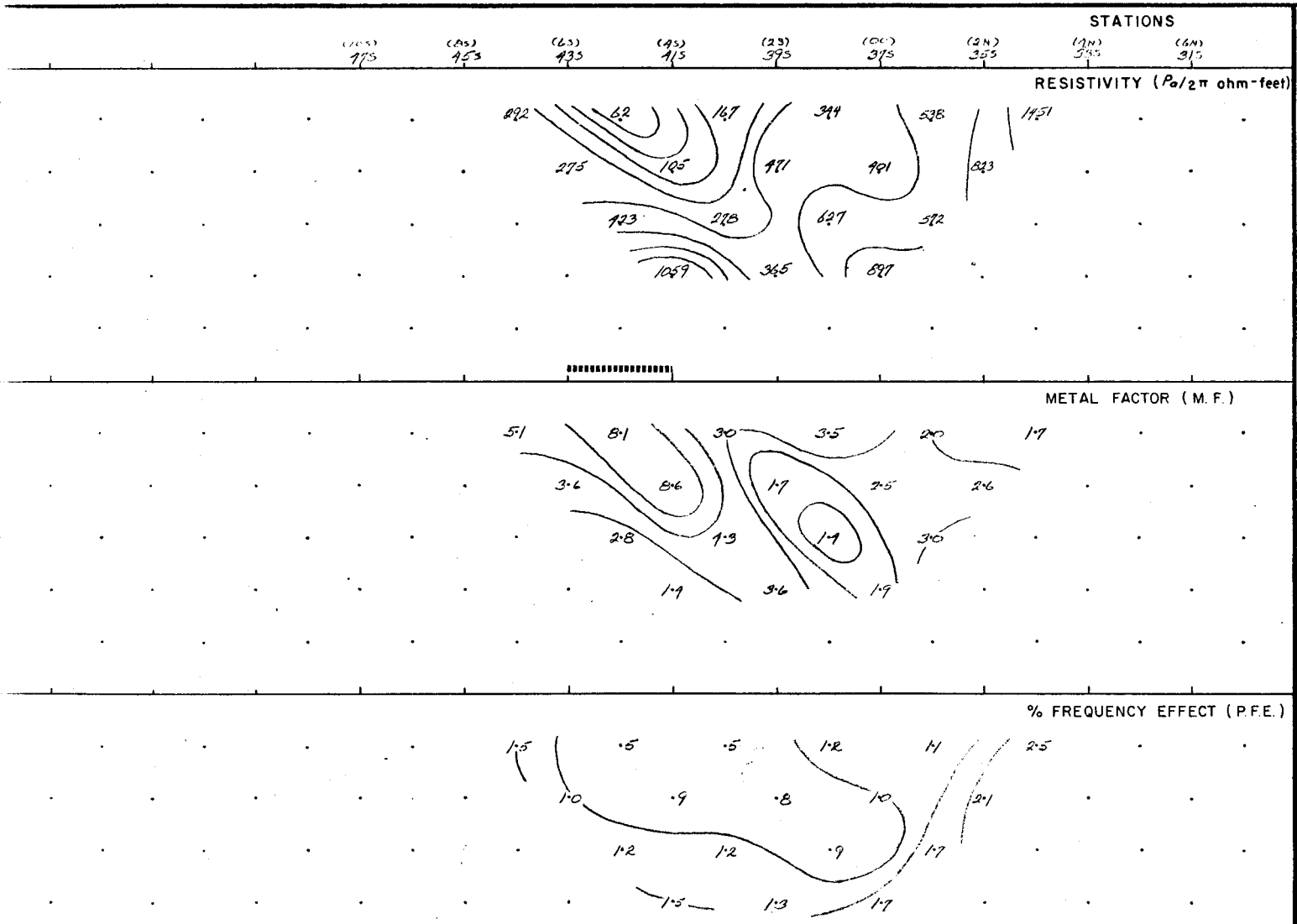
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY – STRONG

MODERATE

WEAK

DWG. No. _____



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "C" PROJECT

LINE 0+00

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: 1"=400'

FREQUENCIES: 0.33 ~ 10 ~

SCALE: 1 Inch = 200 ft.

DATE: 17 July, 1970

DATA BY: F. Smith

REMARKS: Line not chained. Baseline for "C" grid is at 37+00 S.

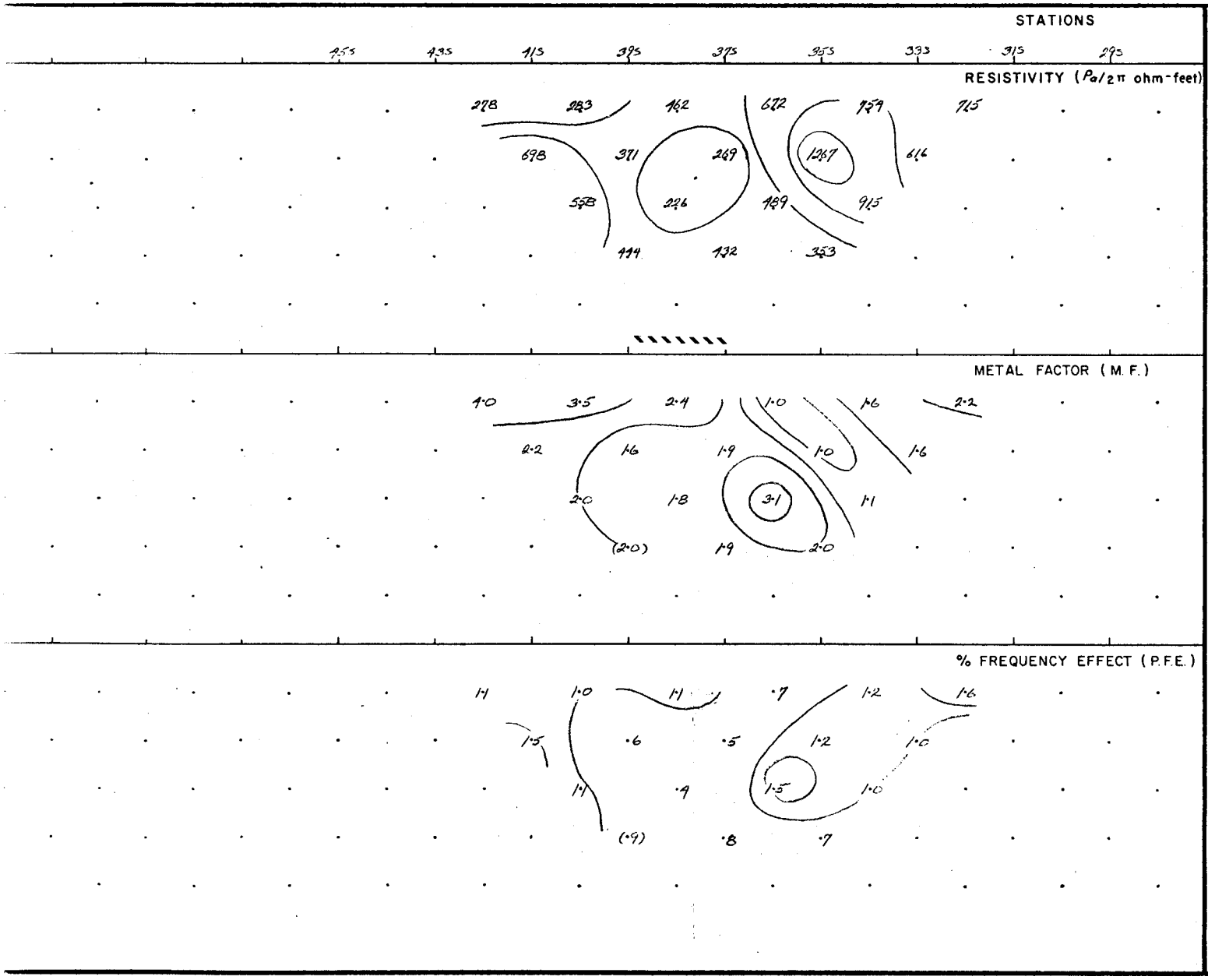
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No. _____



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STD 'C' PROJECT

LINE 4100 E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: 2.6kw

FREQUENCIES: 0.3 - 5.0 c/s

SCALE: 1 Inch = 200 ft.

DATE: 14 July, 1975

DATA BY: [illegible] MUSH

REMARKS:

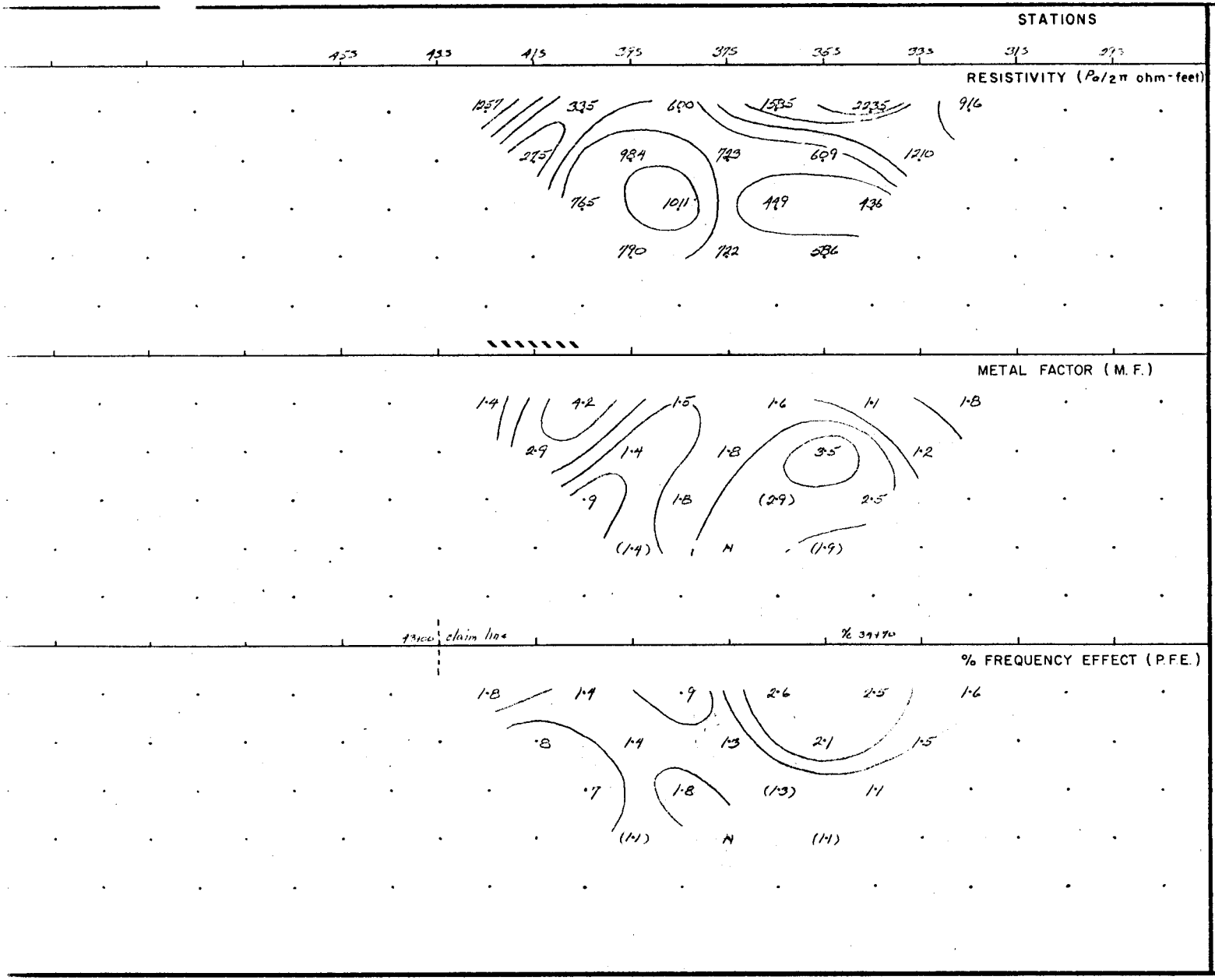
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "C" PROJECT

LINE 8100 E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-66C

FREQUENCIES: [illegible] Hz

SCALE: 1 Inch = 200 ft

DATE: 18 July, 1978

DATA BY: R. SMITH

REMARKS:

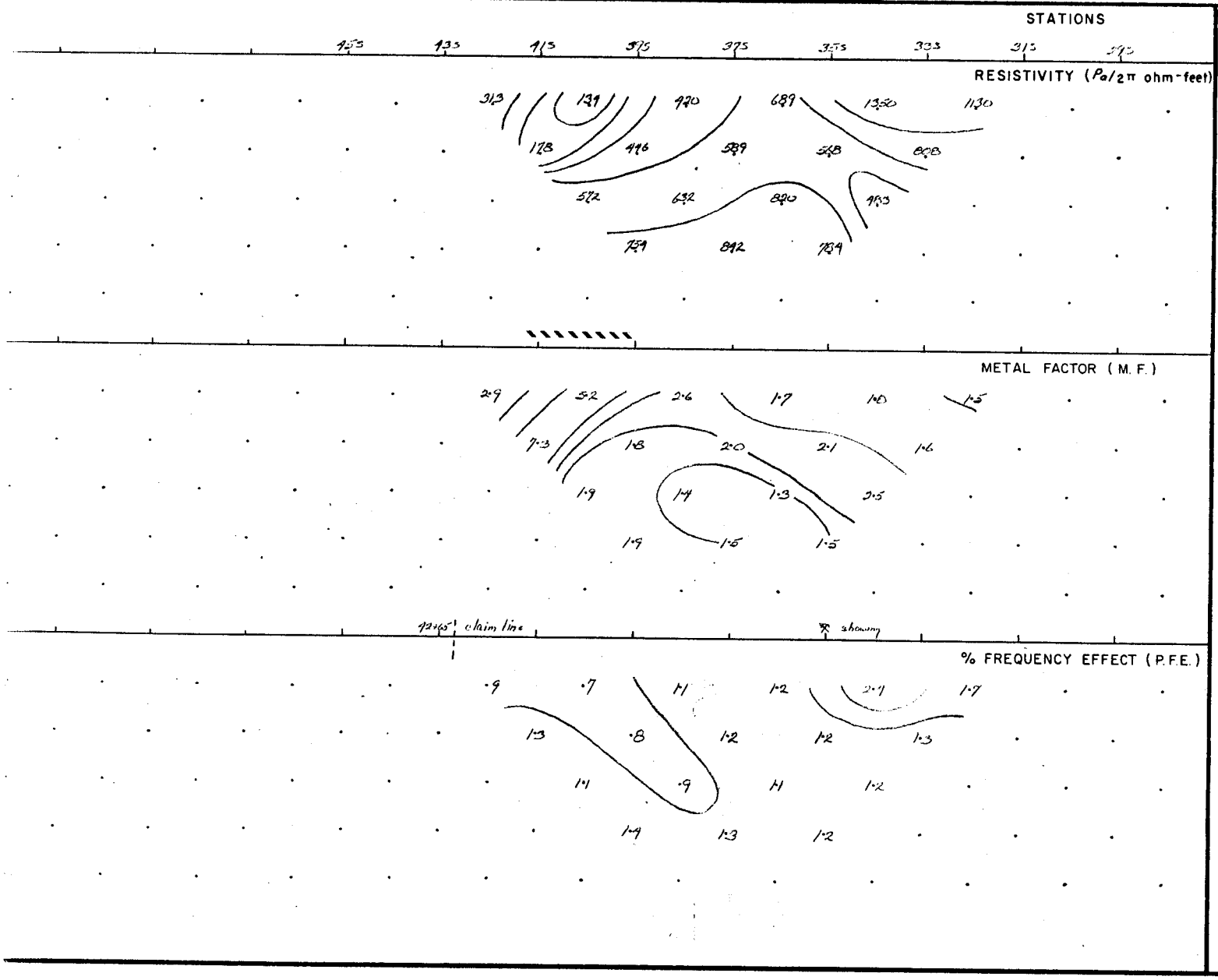
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "C" PROJECT

LINE 12+00 E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0·3 - 2·0 Hz

SCALE: 1 Inch = 200 ft

DATE: 18 July, 1976

DATA BY: E. Smith

REMARKS:

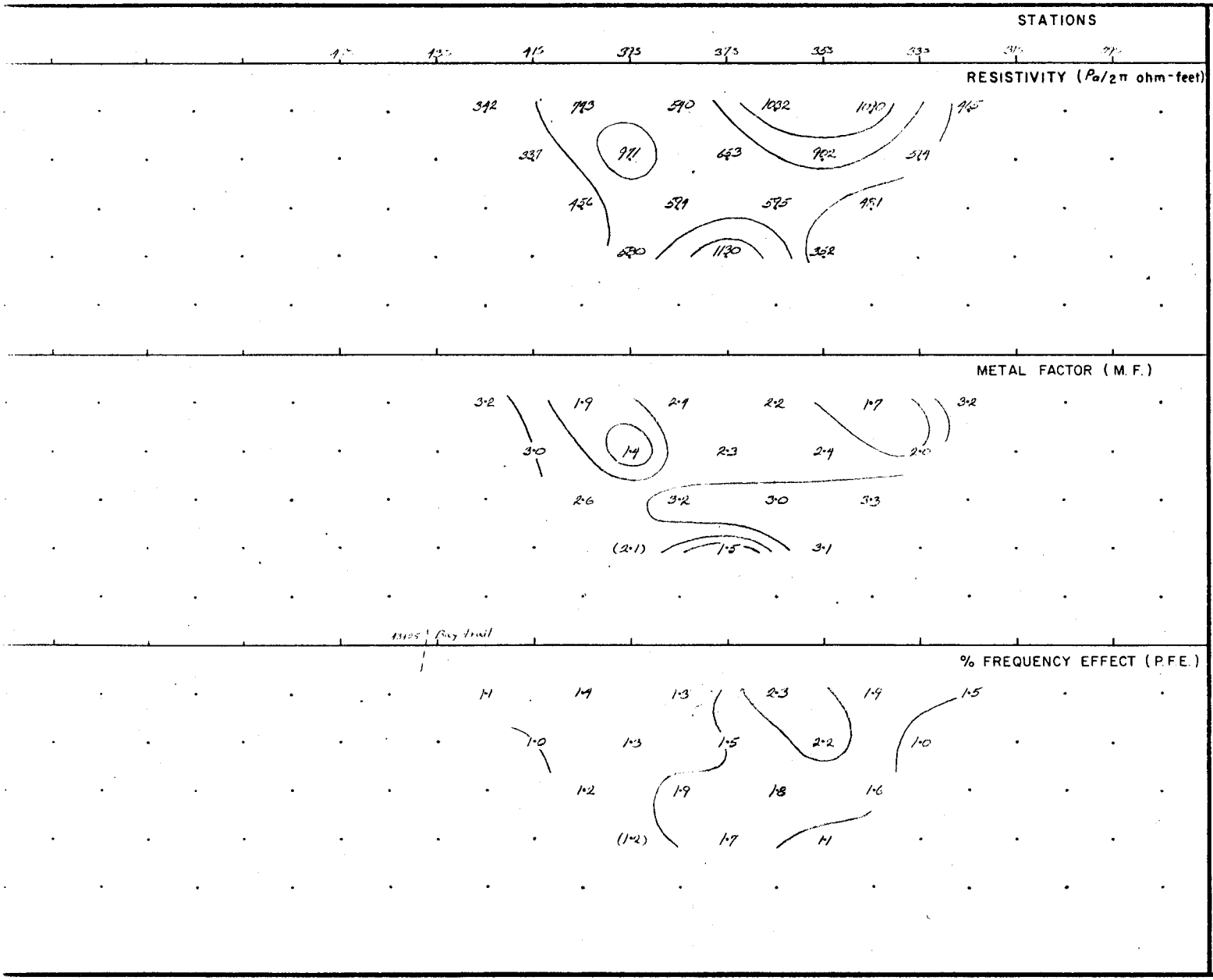
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "C" PROJECT

LINE 16+00 E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: 12-660

FREQUENCIES: 0·3 - 2·0 Hz

SCALE: 1 Inch = 200 ft.

DATE: 12 July, 1976

DATA BY: R.SMITH

REMARKS:

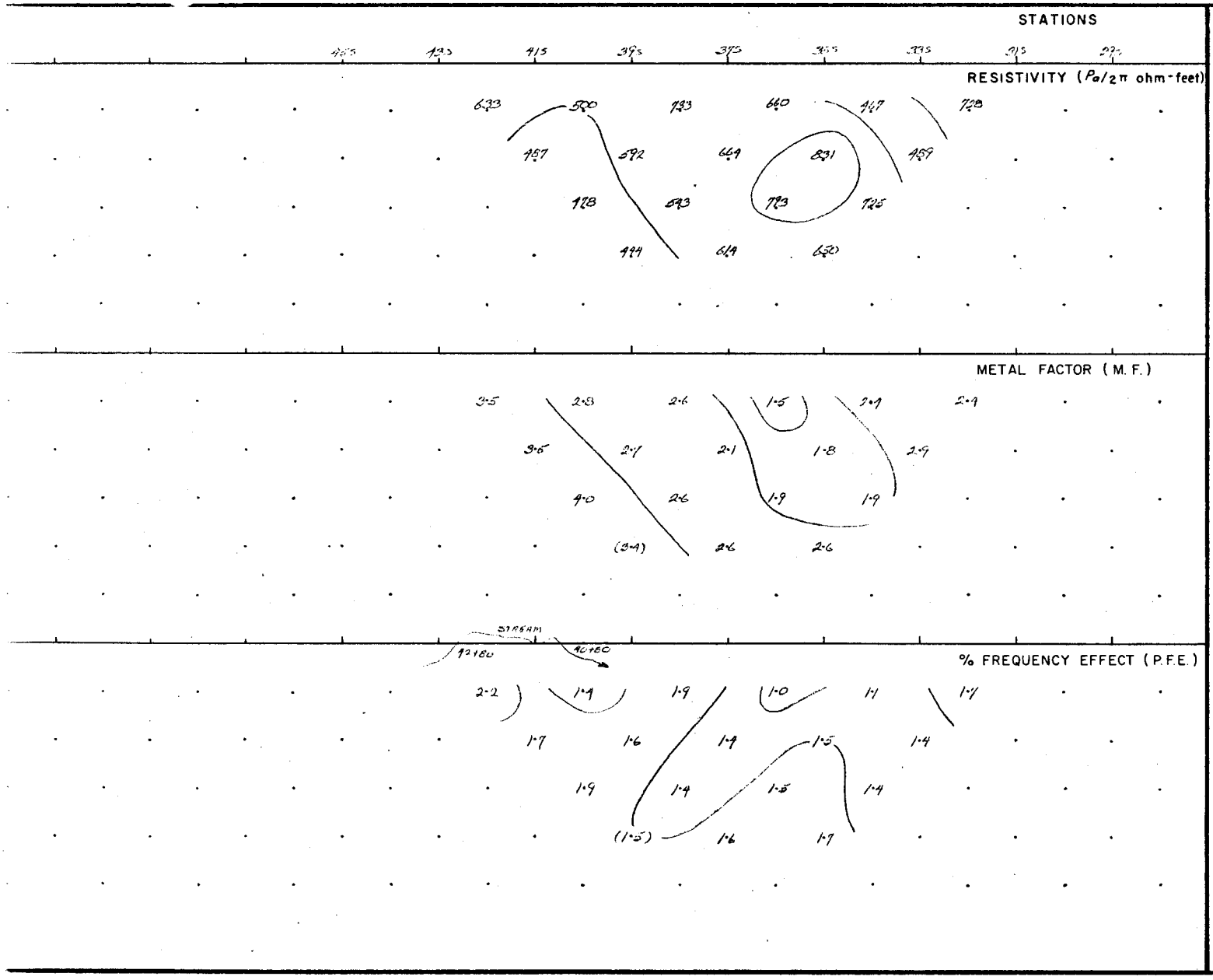
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "C" PROJECT

LINE 20+00E

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: [illegible]

FREQUENCIES: [illegible]

SCALE: 1 Inch = [illegible]

DATE: [illegible]

DATA BY: [illegible]

REMARKS:

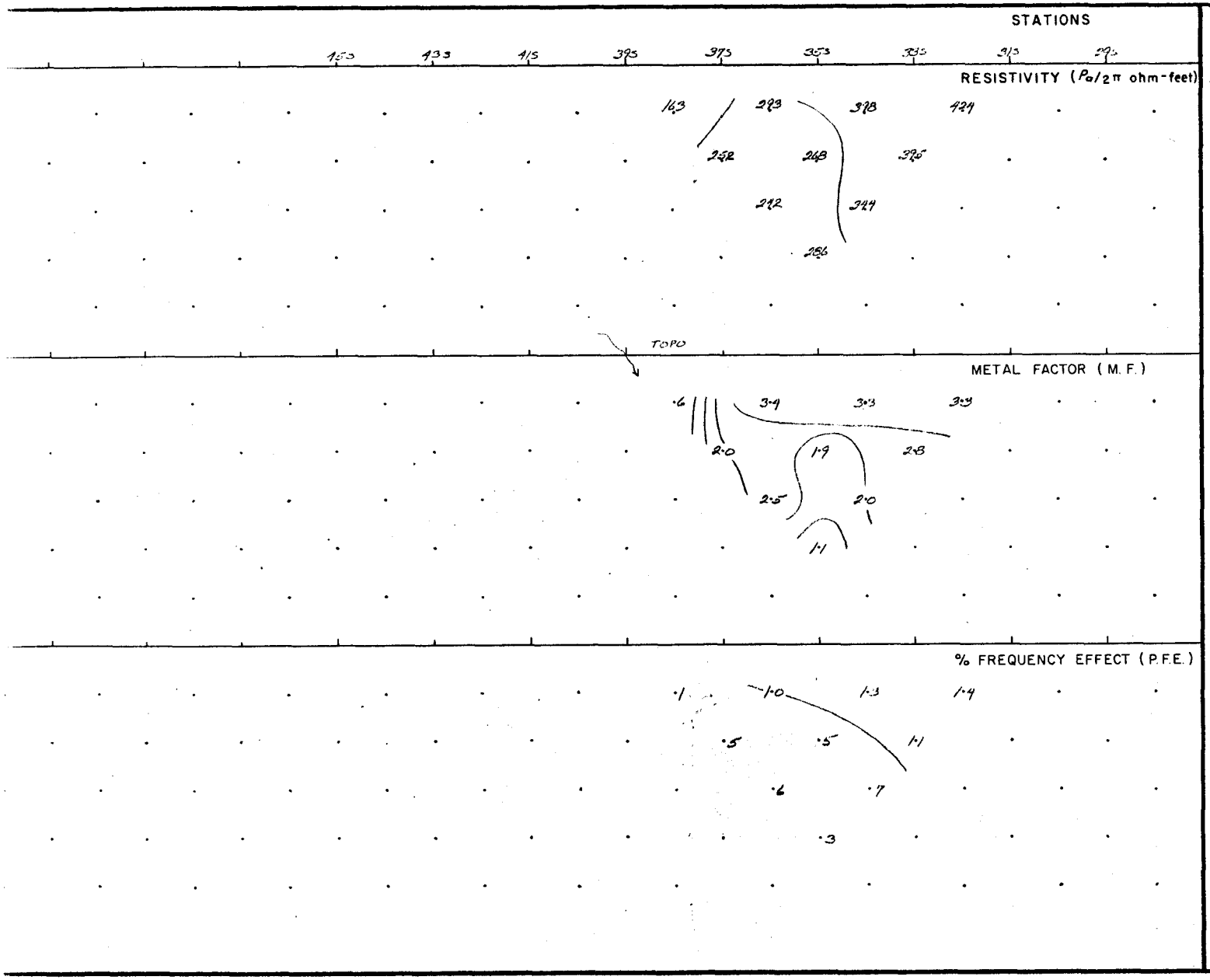
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "C" PROJECT

LINE 2400E

LEGEND

ARRAY: DIPOLE-DIPOLE

UNIT: [illegible]

FREQUENCIES: [illegible]

SCALE: 1 Inch = [illegible]

DATE: 18 June, 1965

DATA BY: [illegible]

REMARKS:

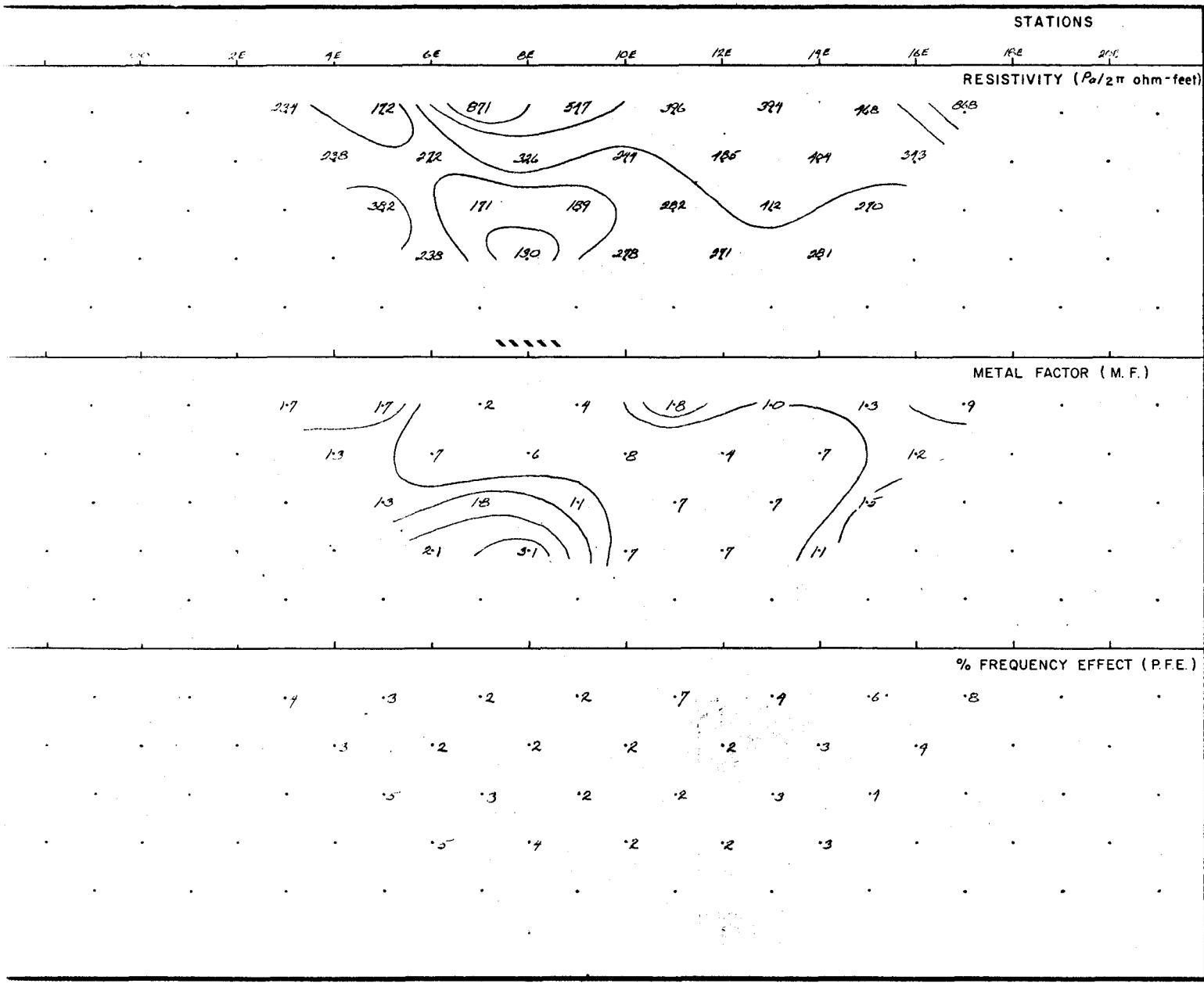
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

STU "D" PROJECT

LINE 86+00S

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-660

FREQUENCIES: 0·3 - 5·0 Hz.

SCALE: 1 Inch = 200 ft.

DATE: 17 July, 1978

DATA BY: [illegible]

REMARKS:

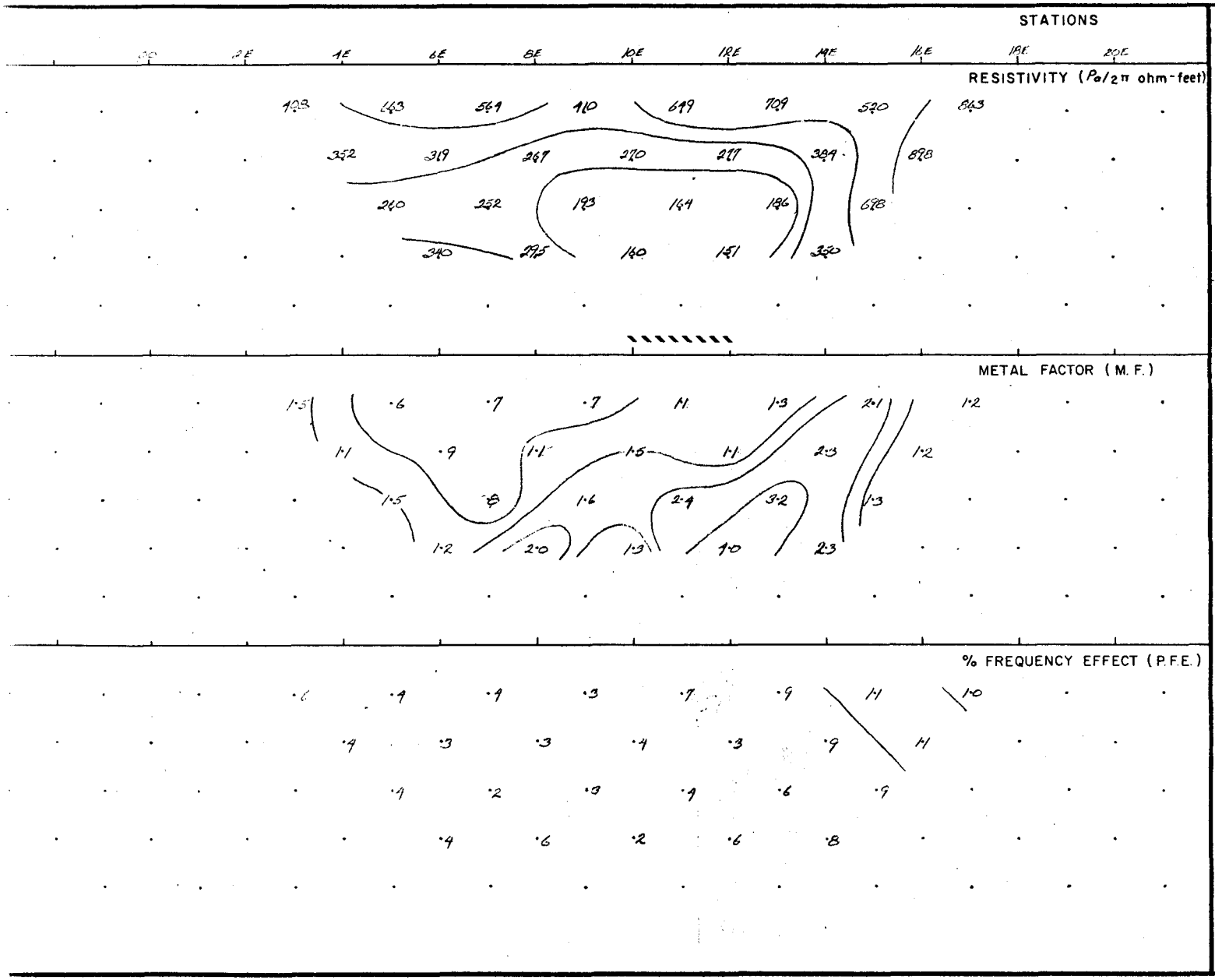
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No. _____



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

3TU "D" PROJECT

LINE 991009

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P.660

FREQUENCIES: 0·3 - 5·0 Hz.

SCALE: 1 Inch = 200 ft.

DATE: 17 July, 1976

DATA BY: D. Smith

REMARKS:

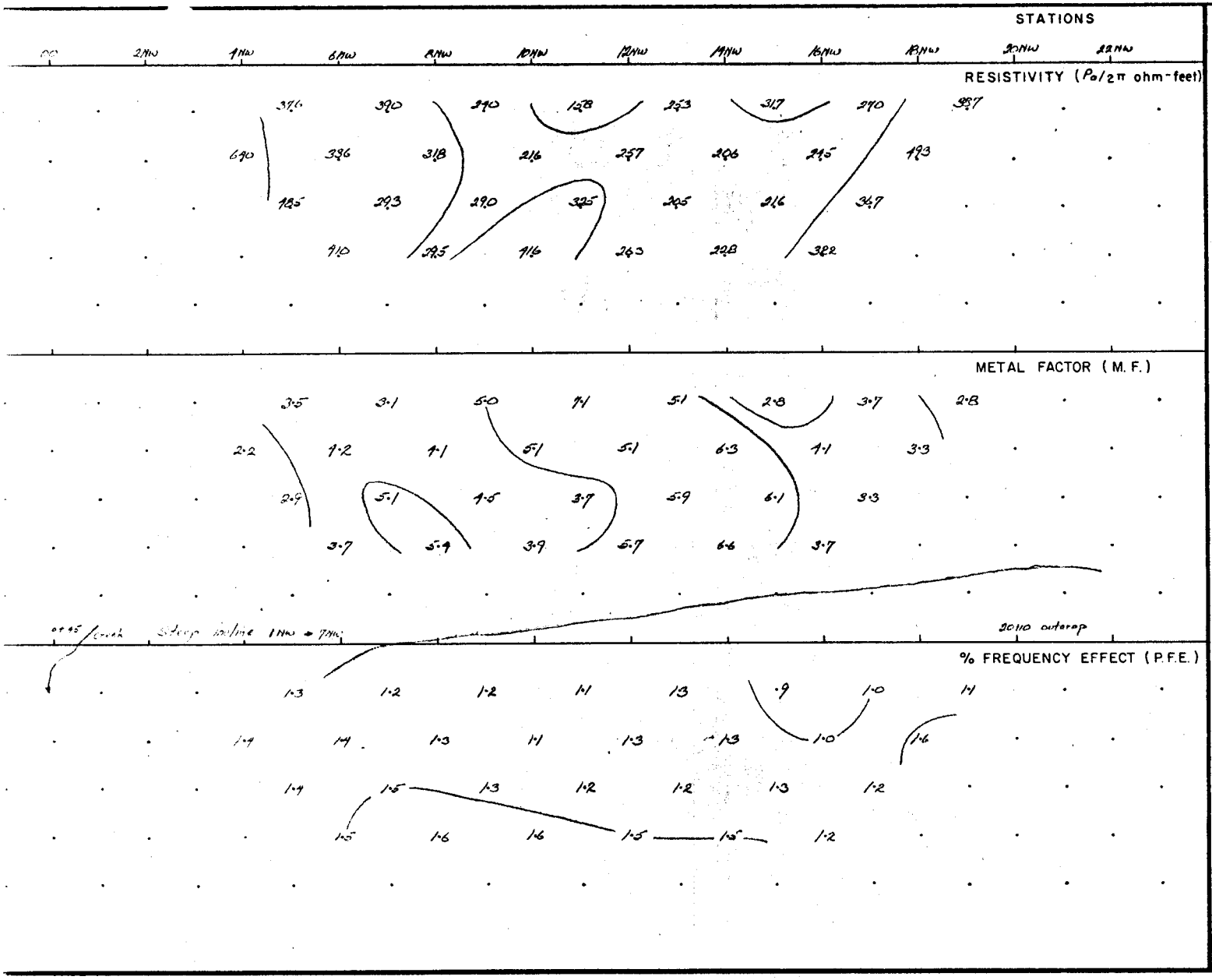
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No. _____



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

HI PROJECT

LINE 1+00 SW

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P.660

FREQUENCIES: 0.3 - 5.0 Hz

SCALE: 1 Inch = 200 ft.

DATE: 21 July, 1978

DATA BY: [illegible]

REMARKS:

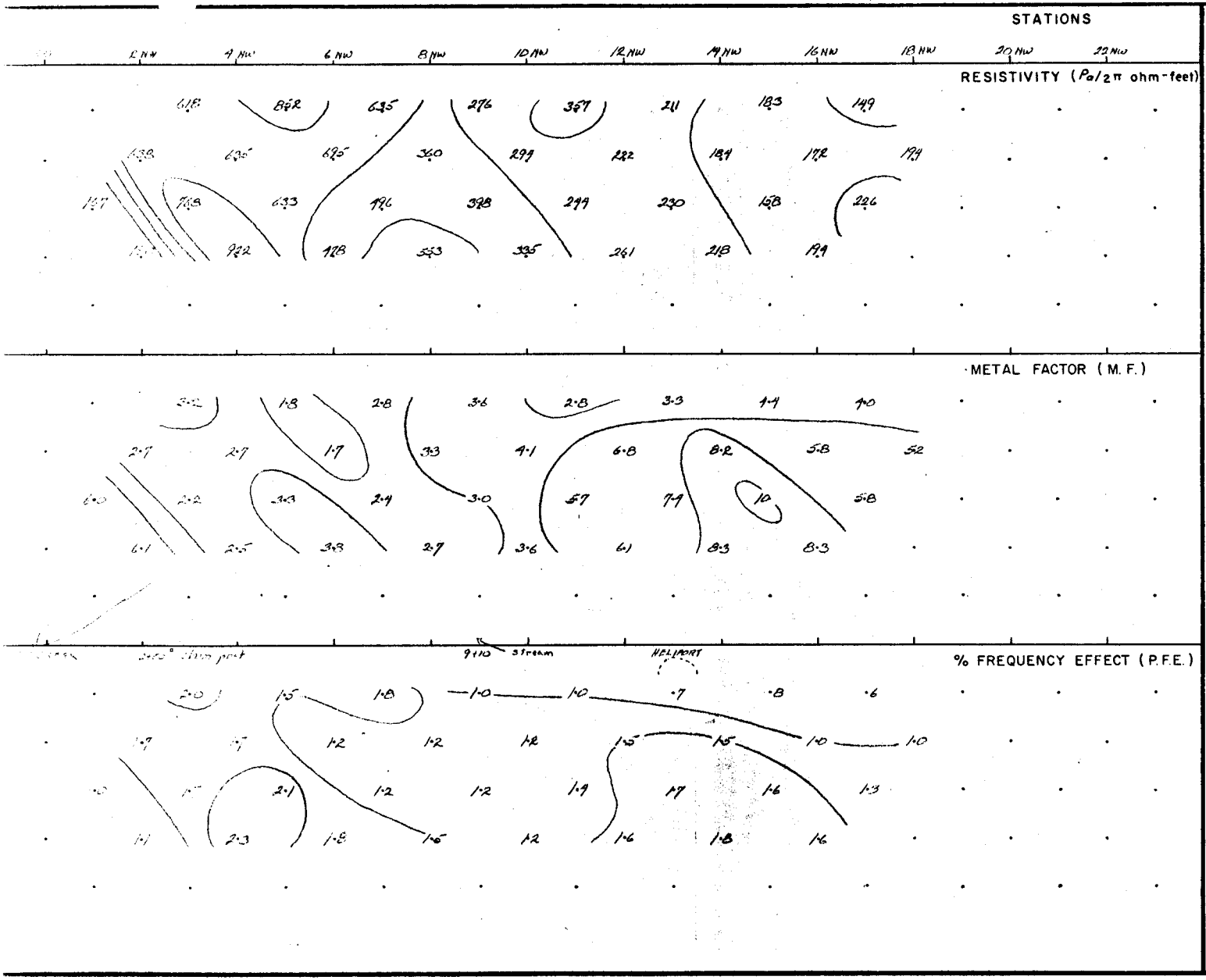
LOGARITHMIC CONTOURS — 1.0, 1.5, 2, 3, 5, 7.5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



FALCONBRIDGE NICKEL MINES LIMITED

INDUCED POLARIZATION SURVEY

HI PROJECT

LINE 0+00

LEGEND

ARRAY: DIPOLE - DIPOLE

UNIT: P-6A0

FREQUENCIES: 0·3 - 5·0 Hz.

SCALE: 1 Inch = 200 ft.

DATE: 21 July, 1978

DATA BY: [illegible]

REMARKS:

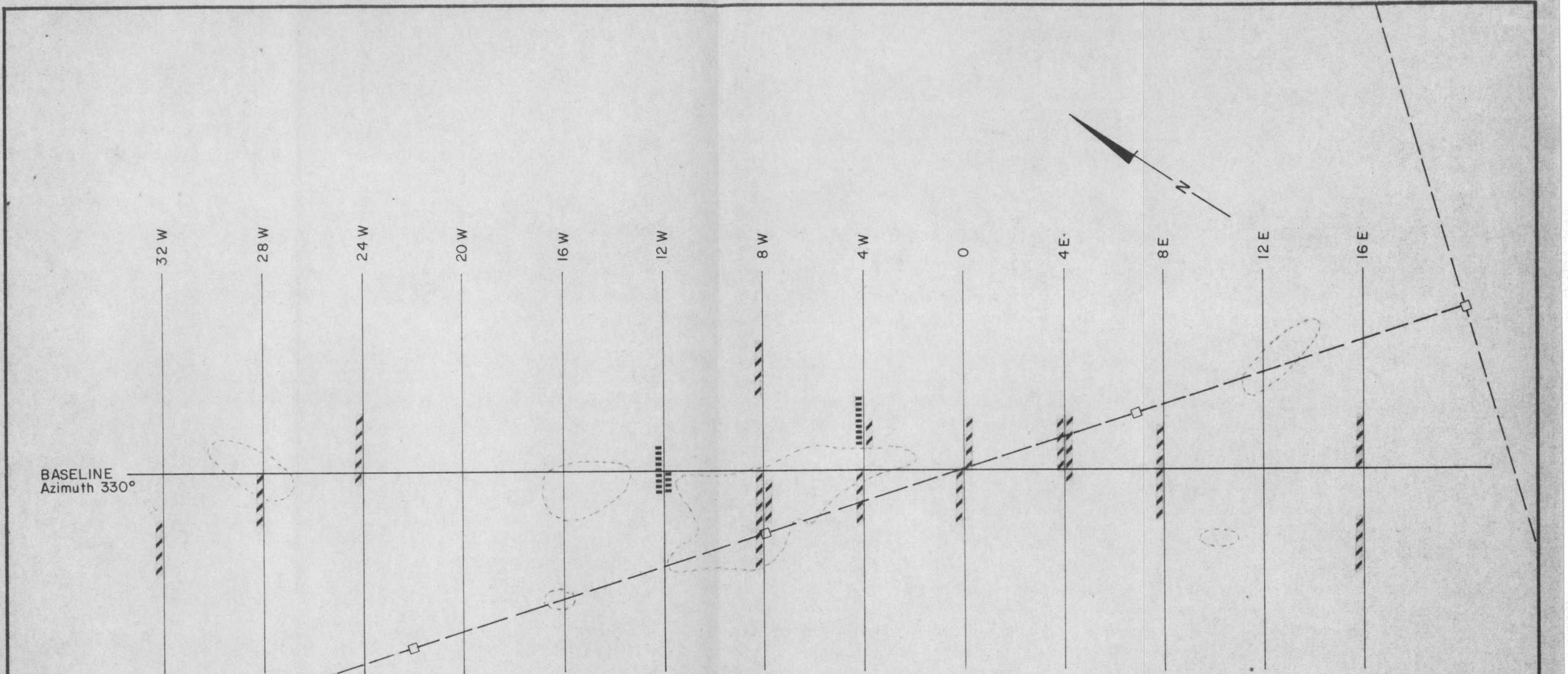
LOGARITHMIC CONTOURS — 1·0, 1·5, 2, 3, 5, 7·5

I.P. ANOMALY - STRONG

MODERATE

WEAK

DWG. No.



LEGEND

IP ANOMALIES — STRONG
MODERATE
WEAK

CLAIM LINES

+100 ppm Cu

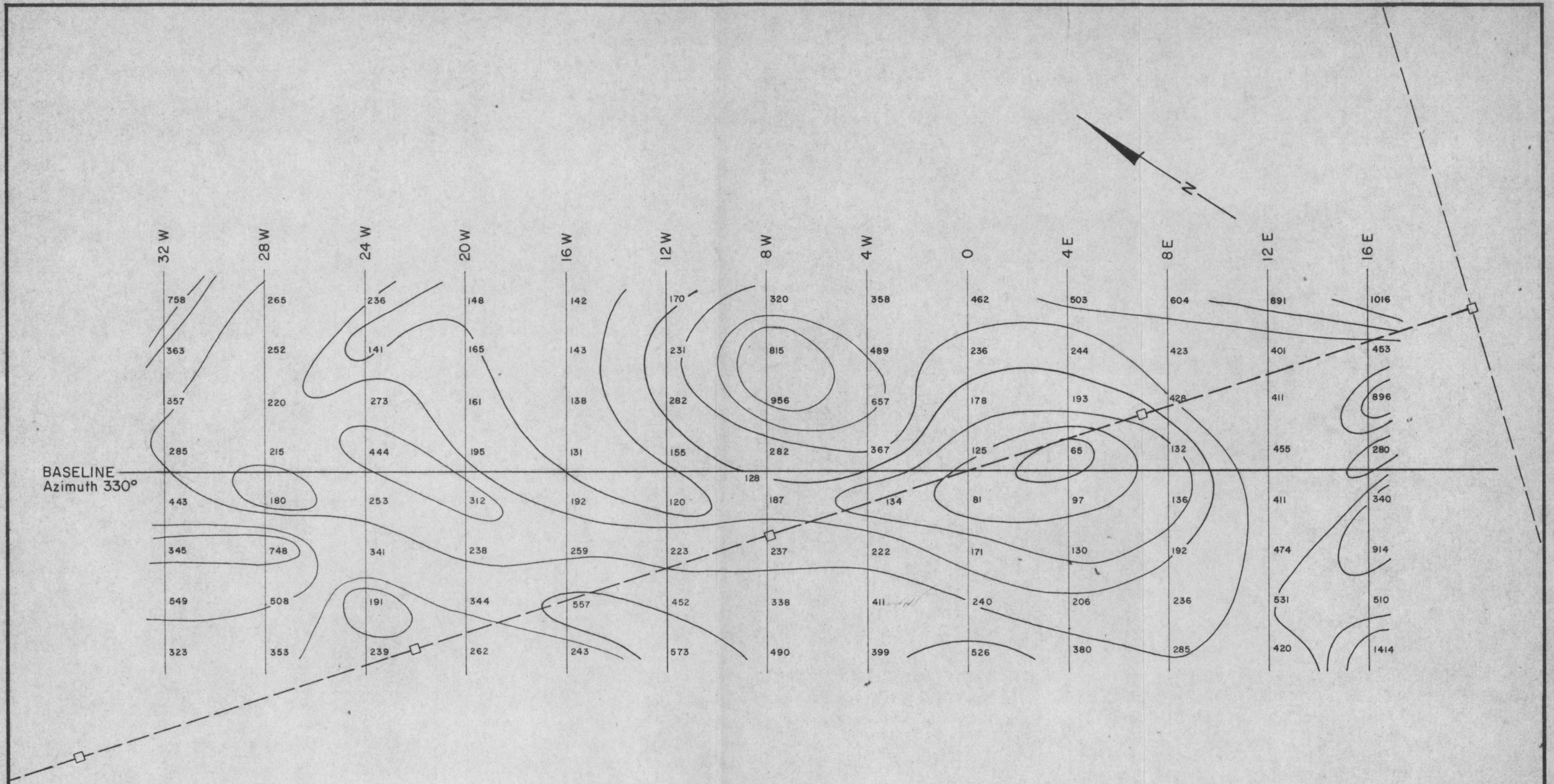
PLAN - I

FALCONBRIDGE NICKEL MINES LTD.

UNITED KENO HILL MINES LTD.

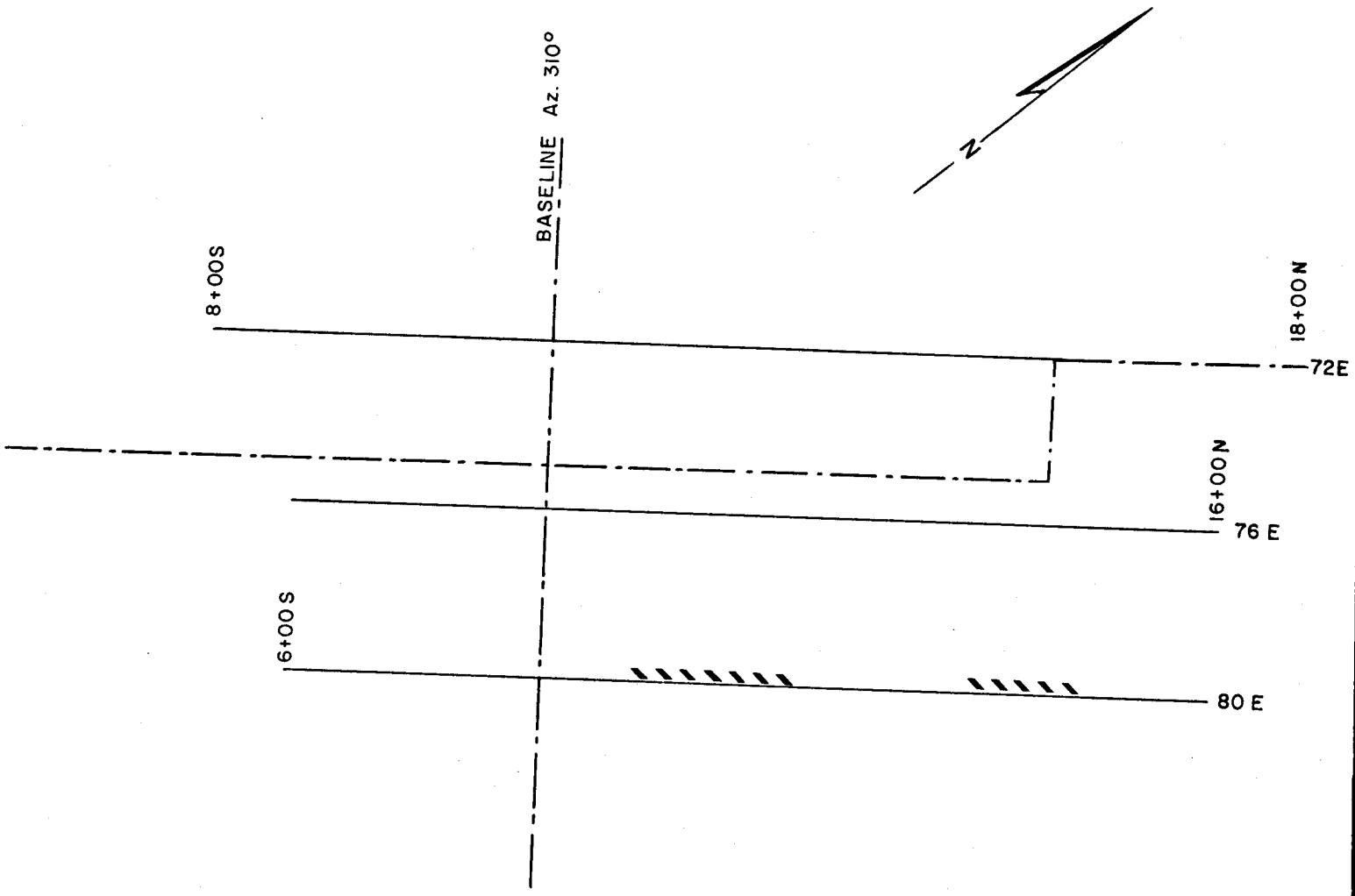
STU CLAIM GROUP - GRID A
I.P. ANOMALY PLAN

SCALE 1 inch = 400 feet	DRAWN P.A. Smith
DATE Jan. 24, 1979	DATA BY P.A.S.



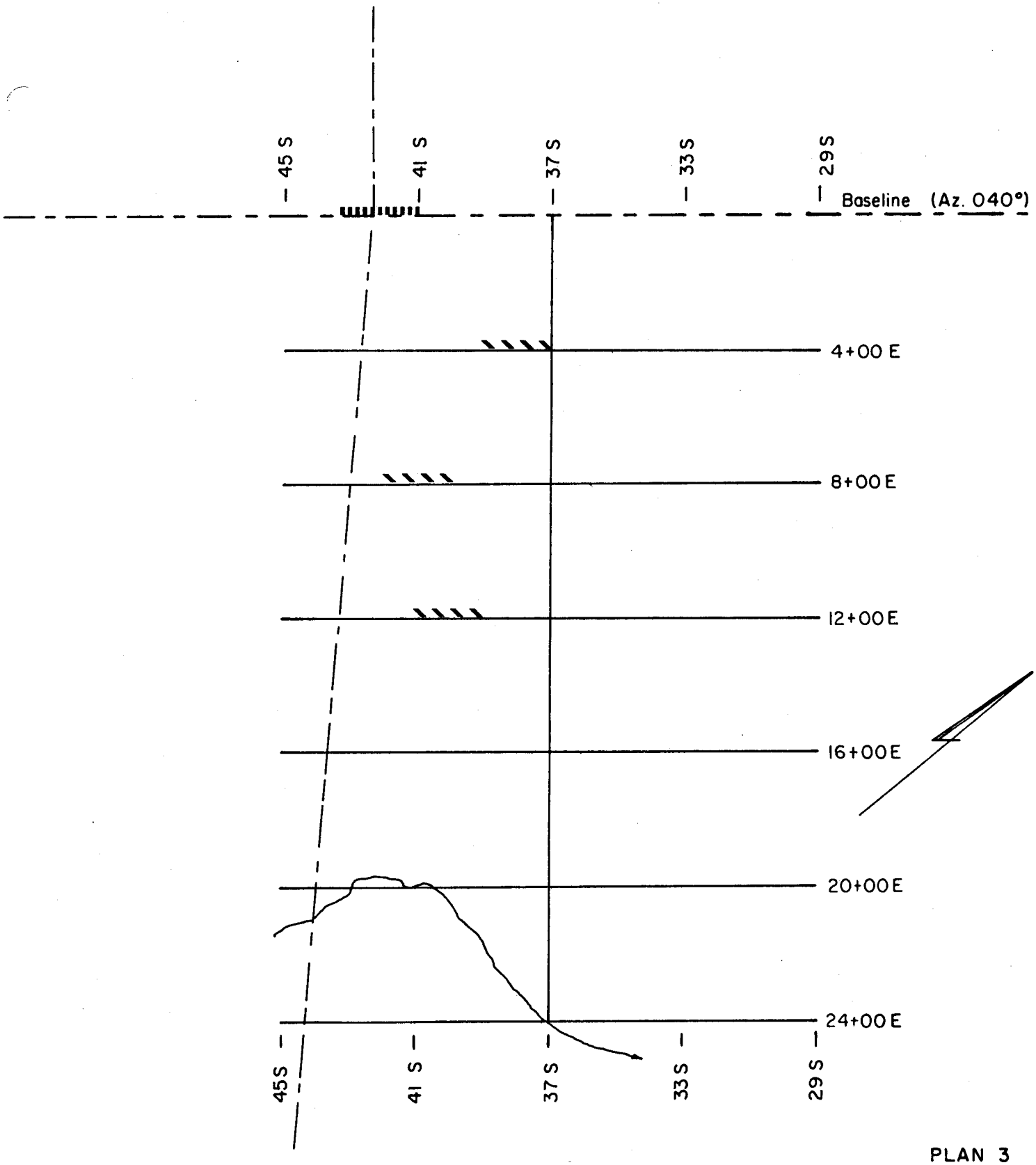
PLAN IA

FALCONBRIDGE NICKEL MINES LTD.	
UNITED KENO HILL MINES LTD.	
STU CLAIM GROUP - GRID A	
n=1 RESISTIVITY PLAN (200'D-D)	
SCALE 1inch = 400 feet	DRAWN P.A.Smith
DATE Jan. 24, 1979	DATA BY P.A.S.



PLAN 2

FALCONBRIDGE NICKEL MINES LTD.	
UNITED KENO HILL MINES LTD. STU CLAIM GROUP - GRID B IP ANOMALY PLAN	
SCALE 1" = 400'	DRAWN P.A.S.
DATE 24 JAN. 1979	DATA BY P.A.S.



PLAN 3

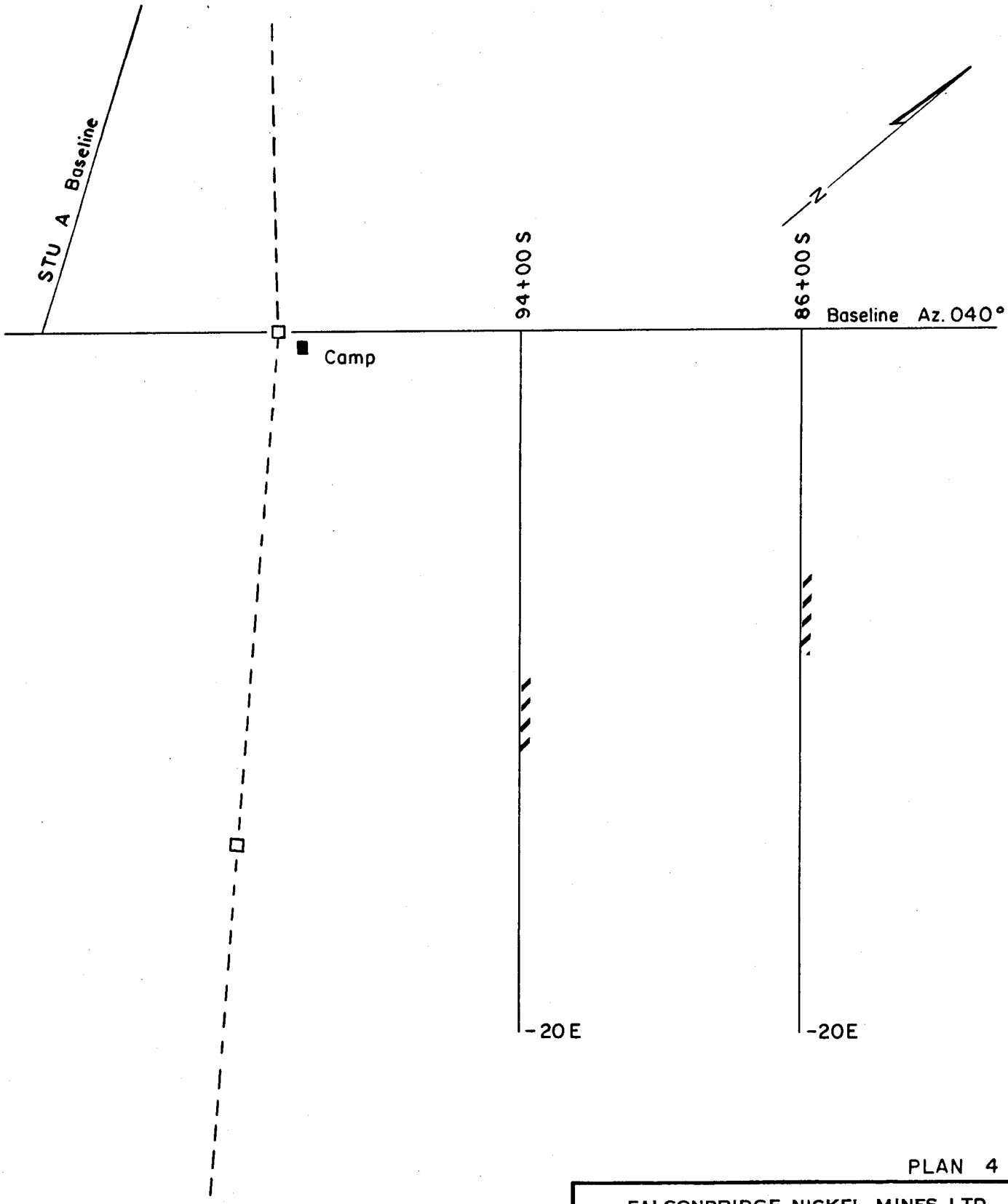
I.P. Anomalies:
strong
moderate
weak

Claim line

FALCONBRIDGE NICKEL MINES LTD.

UNITED KENO HILL MINES LTD.
STU CLAIM GROUP – GRID C
I.P. ANOMALY PLAN

SCALE 1" = 400'	DRAWN PAS
DATE 24 Jan. 1979	DATA BY PAS



PLAN 4

FALCONBRIDGE NICKEL MINES LTD.

UNITED KENO HILL MINES LTD.

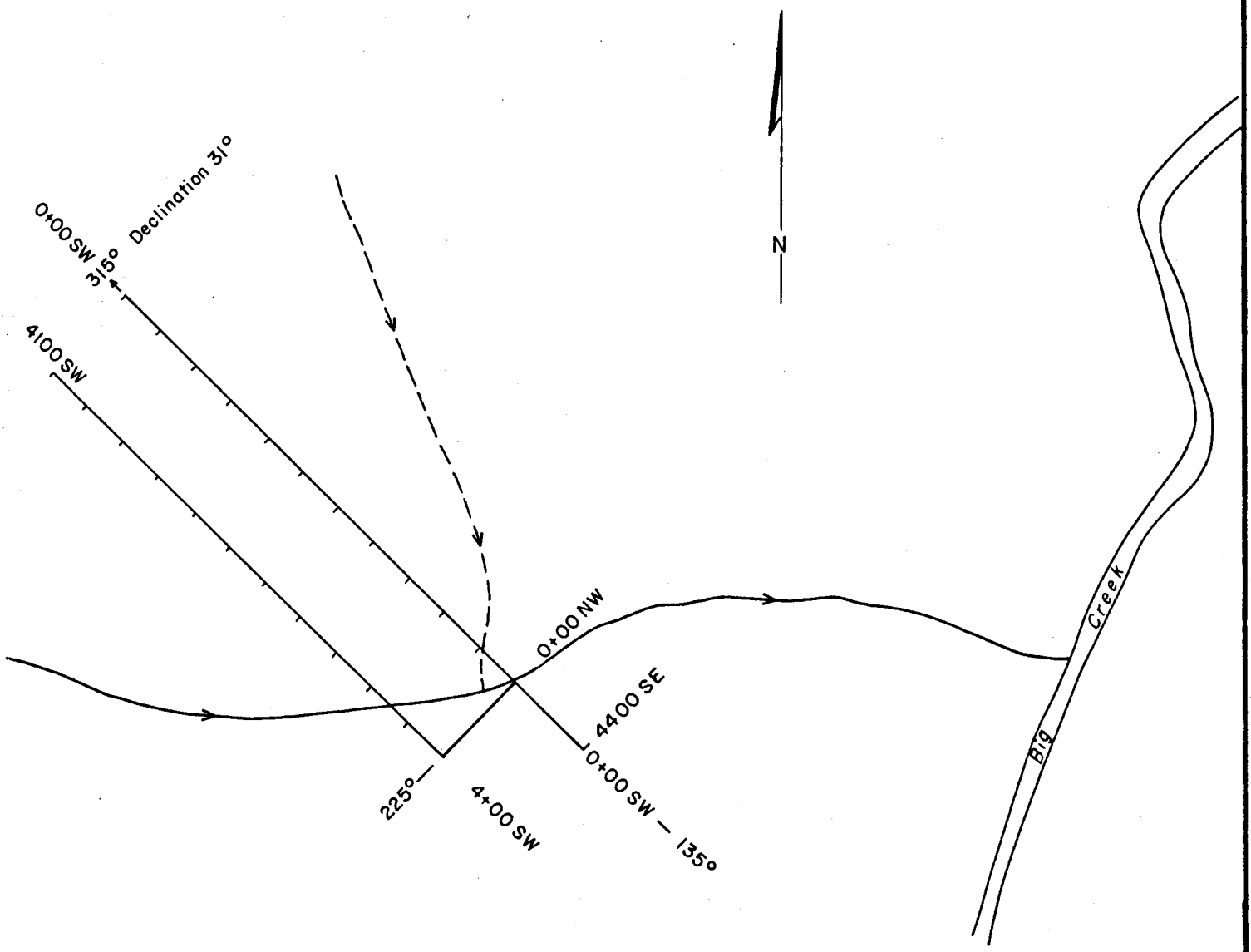
STU CLAIM GROUP – GRID D

I.P. ANOMALY PLAN

I.P. Anomalies:
strong
moderate
weak

Claim line

SCALE 1" = 400'	DRAWN
DATE 24 Jan. 1979	DATA BY PAS



PLAN 5

FALCONBRIDGE NICKEL MINES LTD.	
UNITED KENO HILL MINES LTD. HI CLAIM GROUP IP COVERAGE - 1978	
SCALE 1" = 800'	DRAWN
DATE 24 JAN. 1979	DATA BY P.A.S.