77-#49-#6175

REPORT ON THE
INDUCED POLARIZATION
AND RESISTIVITY SURVEY
ON THE
ORO DENORO GRID, WILGRESS LAKE AREA
GREENWOOD MINING DIVISION, B.C.
FOR
GRANBY MINING CORPORATION

6175 MAB

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82E/2E

PHOENIX Geophysics Limited

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

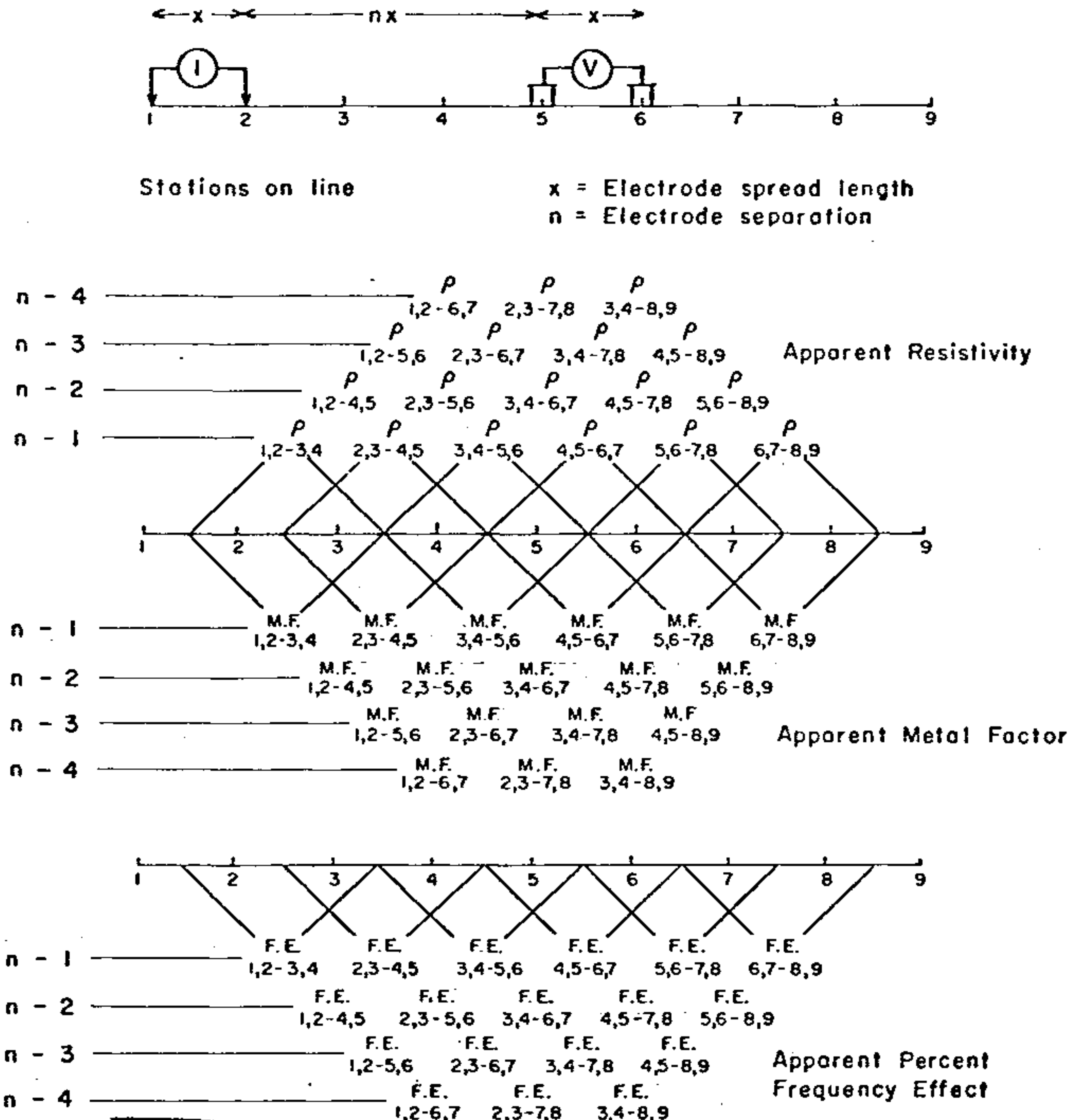

Fig. A

PHOENIX GEOPHYSICS LIMITED

REPORT ON THE

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AND RESISTIVITY SURVEY

ON THE

ORO DENORO GRID, WILGRESS LAKE AREA

GREENWOOD MINING DIVISION, B.C.

FOR

GRANBY MINING CORPORATION

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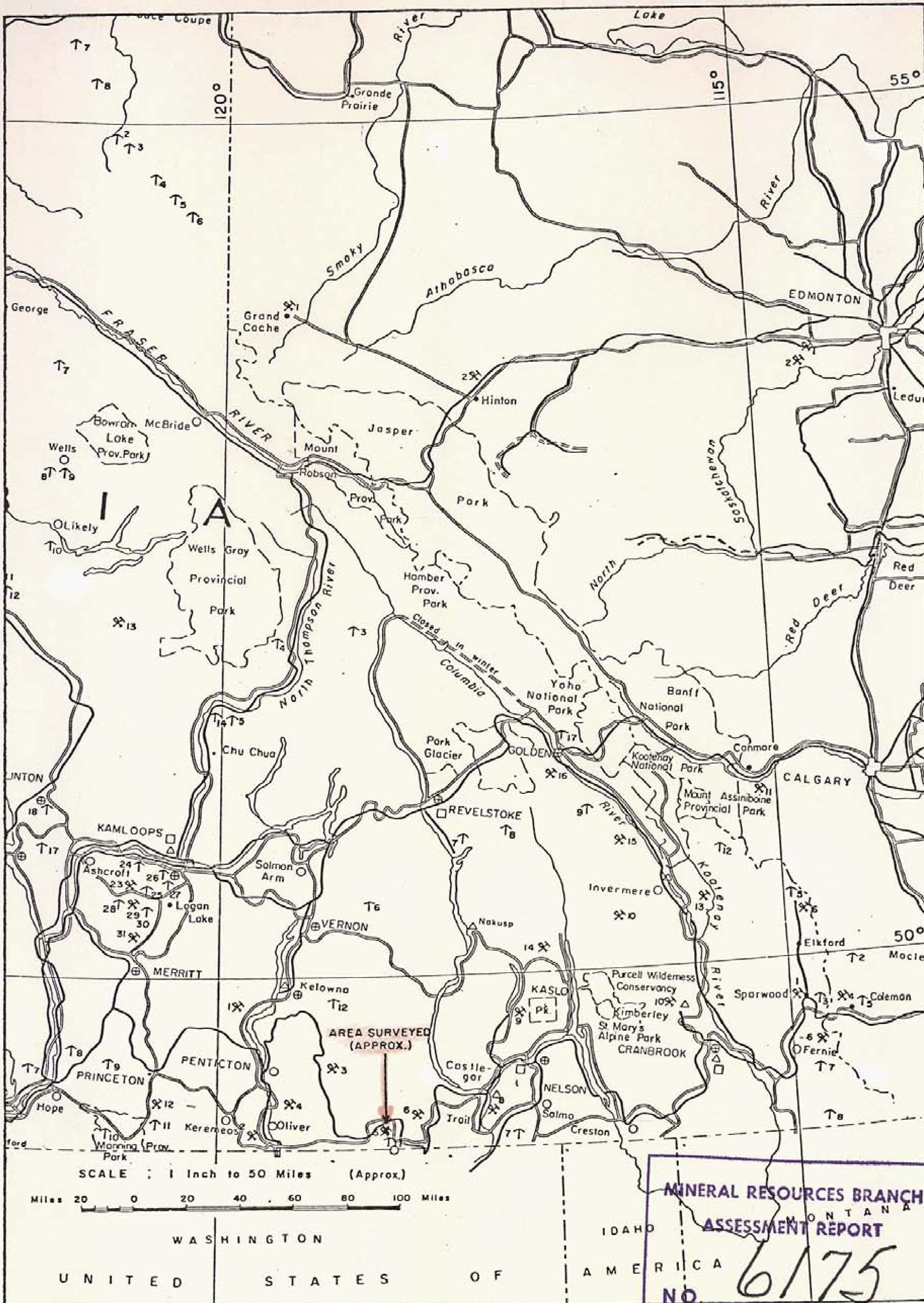
1. INTRODUCTION

An Induced Polarization and Resistivity survey has been carried out for Granby Mining Corporation over part of the Oro Denoro Grid, Wilgress Lake area in the Greenwood Mining Division, B.C.

The survey grid is bounded to the east by Highway #3 which provides excellent access to the area. The centre of the grid is positioned at about 49°08' north latitude and 118°33' west longitude. The Phoenix Mine is located about 3.5 miles to the southwest.

The purpose of the IP survey was to explore for copper mineralization in geologically favourable areas.

The field survey took place during the period of September 23 - 29, 1976. The geophysical Party Chief was Richard G. Fernholm. His



Coupe
River
Lake
55°
120°
115°
Grande Prairie
Smoky
Athabasca
River
EDMONTON
George
FRASER
RIVER
Grand Cache
Hinton
Leduc
Jasper
Bowron Lake Prov. Park
McBride
Wells
Mount Robson Prov. Park
Park
Saskatchewan
I A
Likely
Wells Gray Provincial Park
North Thompson River
Hamber Prov. Park
North
Red Deer
Red Deer
Closed in winter
Columbia
Yoho National Park
Banff National Park
Chu Chua
Park Glacier
GOLDEN
Kootenay National Park
Canmore
CALGARY
Mount Assiniboine Provincial Park
KAMLOOPS
REVELSTOKE
River
Ashcroft
Salmon Arm
Logan Lake
Invermere
Kootenay
VERNON
Nakusp
50°
Elkford
Macleod
MERRITT
Purcell Wilderness Conservancy
KASLO
Kelowna
Sparwood
Coleman
River
Kimberley
St. Mary's Alpine Park
CRANBROOK
AREA SURVEYED (APPROX.)
Fernie
PENTICTON
Castlegar
PRINCETON
NELSON
Hope
Trail
Salmo
Keremeos
Oliver
Creston
Manning Prov. Park
SCALE : 1 Inch to 50 Miles (Approx.)
Miles 20 0 20 40 60 80 100 Miles
WASHINGTON
IDAHO
MONTANA
UNITED STATES OF AMERICA

qualification certificate is appended to this report.

A McPhar P-660 frequency domain IP system was used for the survey operating at 0.3 and 5.0 Hz.

2. DESCRIPTION OF THE PROPERTY

The property consists of the following listed claims held under an option agreement from W.E. McArthur Jr. of Greenwood, B.C.

CLAIM NAME	TAG NUMBER	RECORD NUMBER
MAB FRACTION	396112	20360 ✓
MAB 2	287165	21419 ✓
MAB 3	396114	21420 ✓
MAB 4	742650	27005 ✓
MAB 5	742651	27006
JEEP 11 FRACTION	396073	19070
JEEP 13	396075	19072
MINNIE MOORE		L 593

It is reported that Mineral Claim Map # 82 E/2 E (M) does not show all the valid mineral claims in this area.

3. PRESENTATION OF RESULTS

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

Line	Electrode Intervals	Dwg. No.
4S	200 feet	IP 5031-1
0	200 feet	IP 5031-2

Line	Electrode Intervals	Dwg. No.
4N	200 feet	IP 5031-3
8N	200 feet	IP 5031-4
12N	200 feet	IP 5031-5
16N	200 feet	IP 5031-6
20N	200 feet	IP 5031-7
24N	200 feet	IP 5031-8
28N	200 feet	IP 5031-9

Also enclosed with this report is Dwg. I.P.P. 3024, a plan map of the Oro Denoro Grid at a scale of 1" = 200'. The definite, probable and possible Induced Polarization anomalies are indicated by bars, in the manner shown on the legend, on this plan map as well as on the data plots. These bars represent the surface projection of the anomalous zones as interpreted from the location of the transmitter and receiver electrodes when the anomalous values were measured.

Since the Induced Polarization measurement is essentially an averaging process, as are all potential methods, it is frequently difficult to exactly pinpoint the source of an anomaly. Certainly, no anomaly can be located with more accuracy than the electrode interval length; i.e. when using 400' electrode intervals the position of a narrow sulphide body can only be determined to lie between two stations 400' apart. In order to definitely locate, and fully evaluate, a narrow, shallow source it is necessary to use shorter electrode intervals. In order to locate sources at some depth, larger electrode intervals must be used, with a corresponding increase in the uncertainties of location. Therefore, while the centre of the indicated anomaly probably corresponds fairly well with source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

The Grid information shown on Dwg. I.P.P. 3024 has been taken from maps made available by the staff of Granby Mining Corporation.

4. DESCRIPTION OF GEOLOGY

Mining activity, primarily for copper, has been carried on intermittently in the Greenwood-Phoenix area for about 75 years.

The ore deposits are irregular replacement bodies occurring in a limestone close to intermediate and acid intrusives. The limestone is usually locally metamorphosed to a skarn.

The mineralization consists of chalcopyrite, pyrite and magnetite with sphalerite and galena as accessory minerals in some deposits. Gold and silver are recovered from most copper ores.

5. DISCUSSION OF RESULTS

The Induced Polarization (IP) and Resistivity survey has located several low magnitude IP anomalies in moderate to high resistivity environments.

An interpretation of sub-surface resistivity levels is shown on accompanying plan map Dwg. I.P.P. 3024. With this method, the dominant underlying resistivity level is projected to the surface. The resulting contoured presentation can be useful in outlining some geological formations, and cross structures and generally determining strikes and trends.

In the grid area, the limestones display quite variable resistivities depending on impurity content, porosity and degree of alteration. The diorites located near the west end of Line 0 and Line 4S are highly resistive. Acidic intrusives centred at 42+00W on Line 4S and 44+00W on Line 0 are moderately resistive. The resistivity patterns suggest a limited depth extent to these intrusives. Reduced resistivities correlate with mapped skarn at 47+00W on Line 0. The overall trend of the resistivity contours is north-south.

A Turam electromagnetic survey shows very weak EM anomalies coinciding with relative resistivity lows at 59+00W, 57+00W and 47+00W on Line 0. The apparent resistivity values in these zones of low resistivity are not very low. However, the sources may be quite narrow and therefore the resistivity values in the sources would be appreciably lower than the apparent values measured using X = 200 feet. These narrow zones of low resistivity could easily be the source of the weak EM anomalies.

Weak but well defined IP anomalies were located on Line 4S and Line 0. These low magnitude anomalies are not typical of large massive sulphide bodies containing a large proportion of metallic sulphide mineralization. However, since the IP method is an averaging process they could indicate narrow bodies within an unmineralized country rock, or a mineralized body at depth or a mineralized body containing considerable non-metallic sulphide such as sphalerite.

A geochemical soil sample profile over Line 0 shows an anomalous zinc high of 900 ppm coincident with the shallow IP anomaly at 47+00W. Weak zinc anomalies of 125 - 175 ppm occur in the vicinity of the IP anomaly at 59+00W.

Part of Line 4S was previously surveyed by Huntec using relatively large 400 foot dipoles and the pole-dipole array. In general, the two surveys show reasonable agreement. The shorter 200 foot dipoles and the expanding dipole technique used by Phoenix, provide more detail and show both lateral and vertical variations that were averaged out by the Huntec survey.

A discussion of the stronger IP anomalies follow:

Line 4S

A complex IP anomaly, probably consisting of two sources, occurs between 38+00W and 46+00W. The two sources are separated by a zone of higher resistivities which appears to have limited depth extent. A granitic outcrop correlates with the higher resistivities and may occur as a sill. The IP sources are low in magnitude with an indicated depth to the top of about 50 - 100 feet. The IP anomaly could extend beneath the high resistivity zones. The IP anomalies straddle a highway which is bounded on either side by a wooden post, barbed wire fence. Checking for 300 feet either side of the line showed no evidence of electrical grounding. Further to the north on other lines, no anomalies are indicated in the vicinity of these same fences. Therefore it seems unlikely that the fence contributes significantly to the recorded IP effect.

A weak shallow IP anomaly located between 58+00W and 62+00W probably correlates with a similar feature on Line 0 at 59+00W.

Line 0

A complex IP anomaly between 40+00W and 48+00W is quite similar to the anomaly on Line 4S. Again a zone of higher resistivities with limited depth extent, correlating with a granitic outcrop, separates the two anomalous IP sources. The western source at 47+00W appears shallow and is sufficiently far to the west to be unaffected by the barbed wire fence. The eastern source occurs at a depth of about 100 feet. The IP anomaly may extend under the high resistivity section.

A zinc soil geochemical anomaly of 900 ppm and an outcropping of skarn both occur at 47+00W, coincident with the shallow IP anomaly.

A weak probable category IP anomaly, that is shallow relative to the electrode spacing, is centred at 59+00W. A minor increase in zinc soil geochemistry occurs in this vicinity.

Line 4N

A weak IP anomaly in a moderately high resistivity environment is centred at 48+00W. This could be a NNW extension of the complex anomaly described on Line 4S and Line 0. However it is lower in magnitude and more poorly defined.

Line 8N

Increased frequency effects between 44+00W and 54+00N correlate with relatively high resistivities. A resistivity low centred at 47+00W may indicate some concentration of more conductive material. This weak anomaly could be a weak NNW extension of the complex IP anomalies to the south.

Line 12N

A weak poorly defined zone of increased frequency effects occurs between 50+00W and 56+00W. There is no evidence of any significant concentration of metallic material.

Line 16N

A zinc showing is reported in the vicinity of this line. A minor

Metal Factor anomaly is centred at depth under 58+00W. Weak IP anomalies can be important when non-metallic sphalerite is an important constituent of a mineralized showing.

6. SUMMARY AND CONCLUSIONS

An Induced Polarization and Resistivity survey has located complex IP anomalies on Line 4S and Line 0, in a moderately high resistivity environment. Weaker and more poorly defined anomalies on Line 4N, Line 8N, Line 12N and Line 16N, may indicate an extension to the NNW. However, there is a possibility that the anomaly could trend in a more northerly direction under Wilgress Lake.

The complex IP anomalies are believed to consist of two sources separated by a higher resistivity zone which correlates with acidic intrusives. On Line 4S and Line 0 there is an indication both of limited depth to the intrusive and the possibility that the IP anomalies extend under this body.

Some depth to the top of the anomalies is indicated except for the west zone at 47+00W on Line 0. This shallow appearing anomaly correlates with both a zinc soil anomaly of 900 ppm and a skarn outcrop. Since sphalerite could be a constituent of the anomalous source, further investigation is warranted.

Weak, shallow IP anomalies were located on the west side of the grid on Line 4S and Line 0. Extremely weak, possible category, IP effects extend to the north as far as Line 12N. A minor increase in soil zinc content was obtained in this vicinity on Line 0. Any further investigation of these anomalies should await results obtained over the stronger zone to the east.

If favourable results are obtained from the investigation of the complex IP zone, consideration should be given to extending the survey both to the south and north over Wilgress Lake. Any lake work should be done in the winter when the surface is frozen.

SUGGESTED DRILL PROGRAM

There is some indication of an easterly dip to the complex IP anomalies. However, dip determinations tend to be unreliable in the vicinity of multiple sources and the geological dips are believed to be to the west. The shallow anomaly at 47+00W on Line 0 may be narrow and could be missed by a vertical hole. It is recommended that Hole #1 to test this source be drilled to the east. It may be necessary to change the direction in drilling Hole #2 depending on the results obtained from Hole #1.

DH #1 - Line 0 - Drill hole to the east to a depth of 300 feet to pass beneath 47+00W at a depth of 100 feet.

DH #2 - Line 0 - Drill hole to a depth of 400 feet to pass beneath 42+00W at a depth of 200 feet. Azimuth of the hole to depend on results obtained from Hole #1.

DH #3 - Line 0 - Drill a vertical hole to a depth of 300 feet from 45+00W. This hole is designed to investigate the area beneath the resistivity high and would be conditional on favourable indications in Hole #1 and Hole #2.

PHOENIX GEOPHYSICS LIMITED

Ashton W. Mullan, P.Eng.
Geologist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. W. MULLAN

Philip G. Hallof, P.Eng.
Geophysicist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P. G. HALLOF

Expiry Date: February 2, 1977

Dated: November 18, 1976

ASSESSEMENT DETAILS

PROPERTY: Oro Denoro Grid		MINING DIVISION: Greenwood
SPONSOR: Granby Mining Corp.		PROVINCE: British Columbia
LOCATION: Wilgress Lake Area		
TYPE OF SURVEY: Induced Polarization		
OPERATING MAN DAYS:	23	DATE STARTED: September 22, 1976
EQUIVALENT 8 HR. MAN DAYS:	34.5	DATE FINISHED: October 1, 1976
CONSULTING MAN DAYS:	2	NUMBER OF STATIONS: 125
DRAFTING MAN DAYS:	5	NUMBER OF READINGS: 801
TOTAL MAN DAYS:	41.5	MILES OF LINE SURVEYED: 4.39

CONSULTANTS:

Ashton W. Mullan, 1521 Pemberton Ave., North Vancouver, B.C.
Philip G. Hallof, 15 Barnwood Court, Don Mills, Ontario.

FIELD TECHNICIANS:

R. Fernholm, 63 Manchester Road, Kitchener, Ontario.
B. Steele, General Delivery, Beaverdell, B.C.
Plus 2 Helpers: Supplied by Client

DRAUGHTSMEN:

F.R. Peer, 10 Carabob Court, Apt. 402, Agincourt, Ontario.
B. Boden, R.R. #1, Omemee, Ontario.

PHOENIX GEOPHYSICS LIMITED

Ashton W. Mullan

Ashton W. Mullan, ~~P.Eng.~~
Geologist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. W. MULLAN

Dated: November 18, 1976

STATEMENT OF COST

Granby Mining Corp. Ltd. - IP Survey - Oro-Denoro Grid - Wilgress Lake Area, B.C.

CREW: R. Fernholm - B. Steele

Breakdown of Cost

5½ days Operating		@ $395.00/day	$2,172.50
1½ days Travel and Organization)	1½ days	@ $150.00/day	225.00

EXPENSES

Fares	117.44	
Vehicle	25.53	
Meals & Accommodation	190.74	
Freight	13.57	
Telephone	28.97	
Supplies	33.59	
Miscellaneous	9.53	
	419.37	
+ 10%	41.94	
		461.31
		$2,858.81

PHOENIX GEOPHYSICS LIMITED

Ashton W. Mullan, P.Eng.
Geologist

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A. W. MULLAN

Dated: November 18, 1976

CERTIFICATE

I, Ashton W. Mullan, of the City of North Vancouver, in the Province of British Columbia, hereby certify:

1. That I am a geologist/geophysicist and a fellow of the Geological Association of Canada, Geophysics Division, with a business address at 1521 Pemberton Avenue, North Vancouver, B.C.

2. That I am registered as a member of the Association of Professional Engineers of the Provinces of Ontario and British Columbia.

3. That I hold a B.Sc. degree from McGill University.

4. That I have been practising my profession as a geologist/geophysicist for over twenty years.

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

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

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

Dated at North Vancouver

This 18th day of November, 1976

A.W. Mullan, B.Sc. P.Eng.

CERTIFICATE

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

1. I am a geophysicist residing at 15 Barnwood Court, Don Mills, Ontario.

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

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

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

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

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

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

Dated at Toronto

This 18th day of November, 1976

Philip G. Hallof, Ph.D. P.Eng.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
P. G. HALLOF

Expiry Date: February 2, 1977

CERTIFICATE

I, RICHARD GEORGE FERNHOLM, of the Municipality of Kitchener, Ontario, DO HEREBY CERTIFY THAT:

1. I am a geophysical crew leader residing at 63 Manchester Road, Kitchener, Ontario.

2. I am a graduate of the Electronic Communications Course (1961), Radio College of Canada, Toronto, Ontario.

3. I worked with McPhar Geophysics Co. from 1961 - 1975 as a geophysical crew leader.

4. I presently work with Phoenix Geophysics Ltd. of 1521 Pemberton Avenue, North Vancouver, B. C.

Dated at North Vancouver, B. C.

This 15th Day of October, 1976

Richard Fernholm

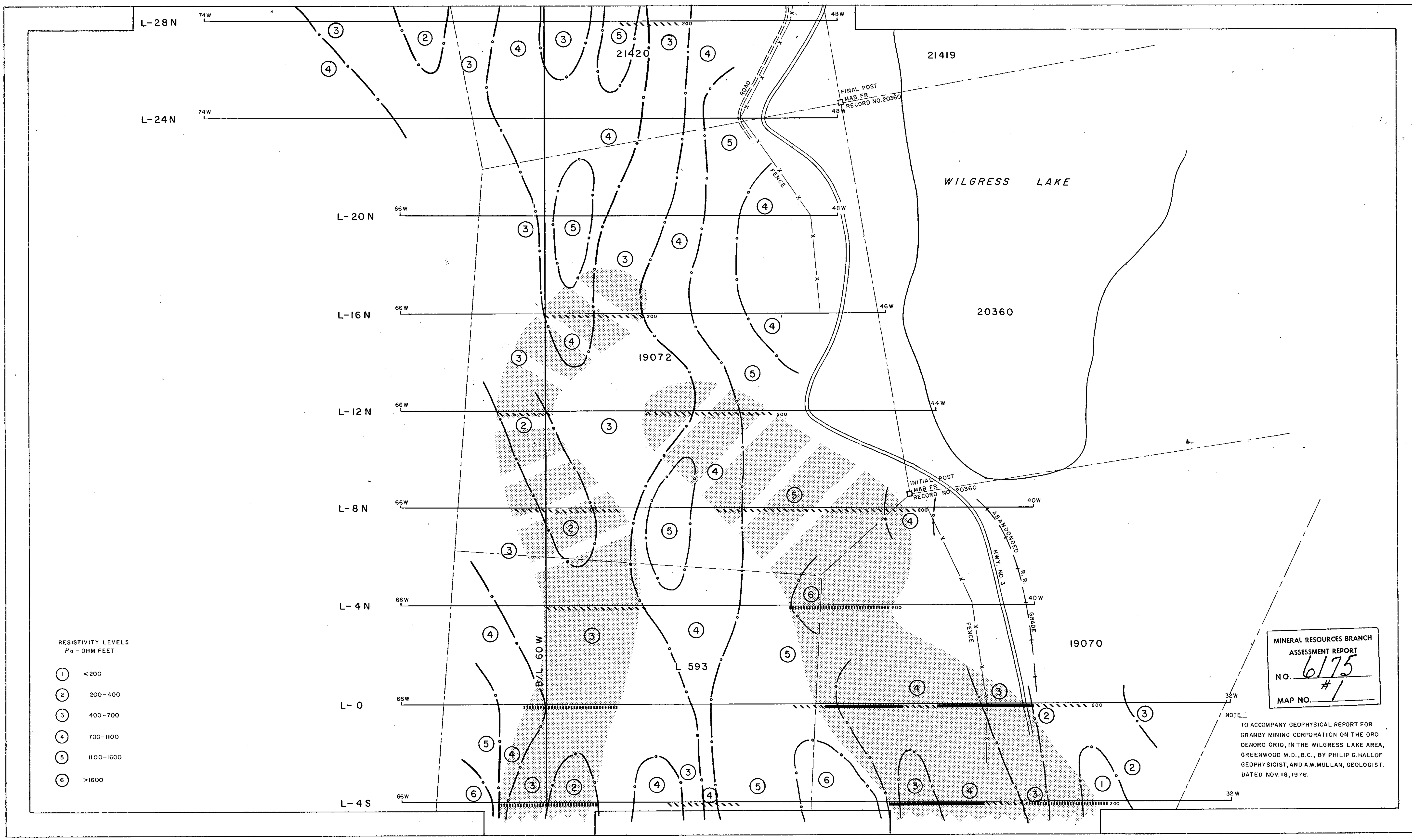
Richard George Fernholm

DWG. NO.-I.P.P.-3024

PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

PLAN MAP



N
24°
TRUE
MAG

SURFACE PROJECTION
OF ANOMALOUS ZONE

DEFINITE
PROBABLE
POSSIBLE

NUMBER AT END OF ANOMALIES
INDICATE SPREAD USED.

GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.

SCALE

One inch = 200 feet

ANOMALOUS I.P. ZONE

6175

DRAWN: F.R.P.
DATE: NOV. 1976
APPROVED: P.G. Hallof
DATE: 11/18/76

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — P. G. HALLOF
Expiry Date: February 2, 1977

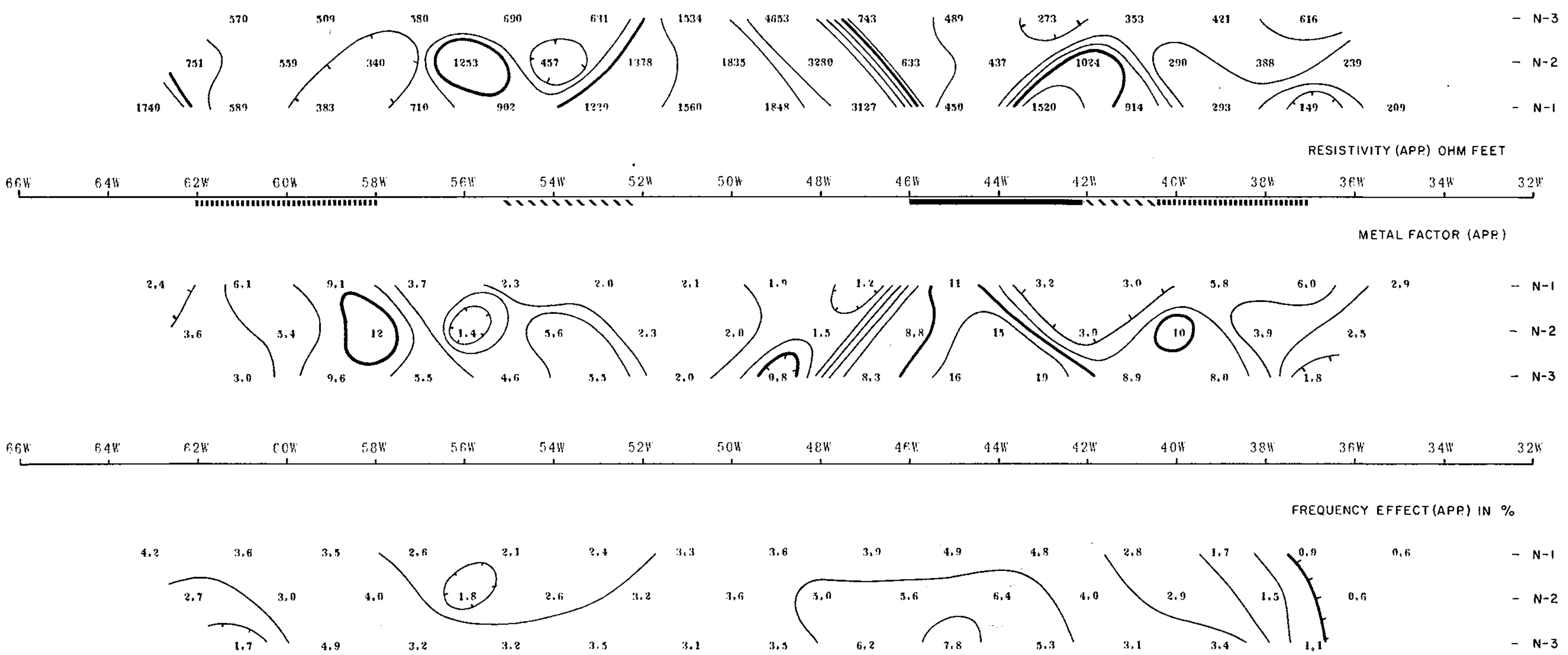
DWG. NO.-I.P.P.-3024

DWG. NO.– I.P.–5031–1

GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.



LINE NO.– 4 S

ELECTRODE CONFIGURATION

PLOTTING POINT → X X=200

SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE

PROBABLE

POSSIBLE

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6175
MAP NO. #2

FREQUENCIES 0.31 – 5.0 HZ.

SEPT. 1976

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

PROFESSIONAL ENGINEER – PROVINCE OF BRITISH COLUMBIA – P. G. HALLOF – APPROVED

11/18/76

Expiry Date: February 2, 1977

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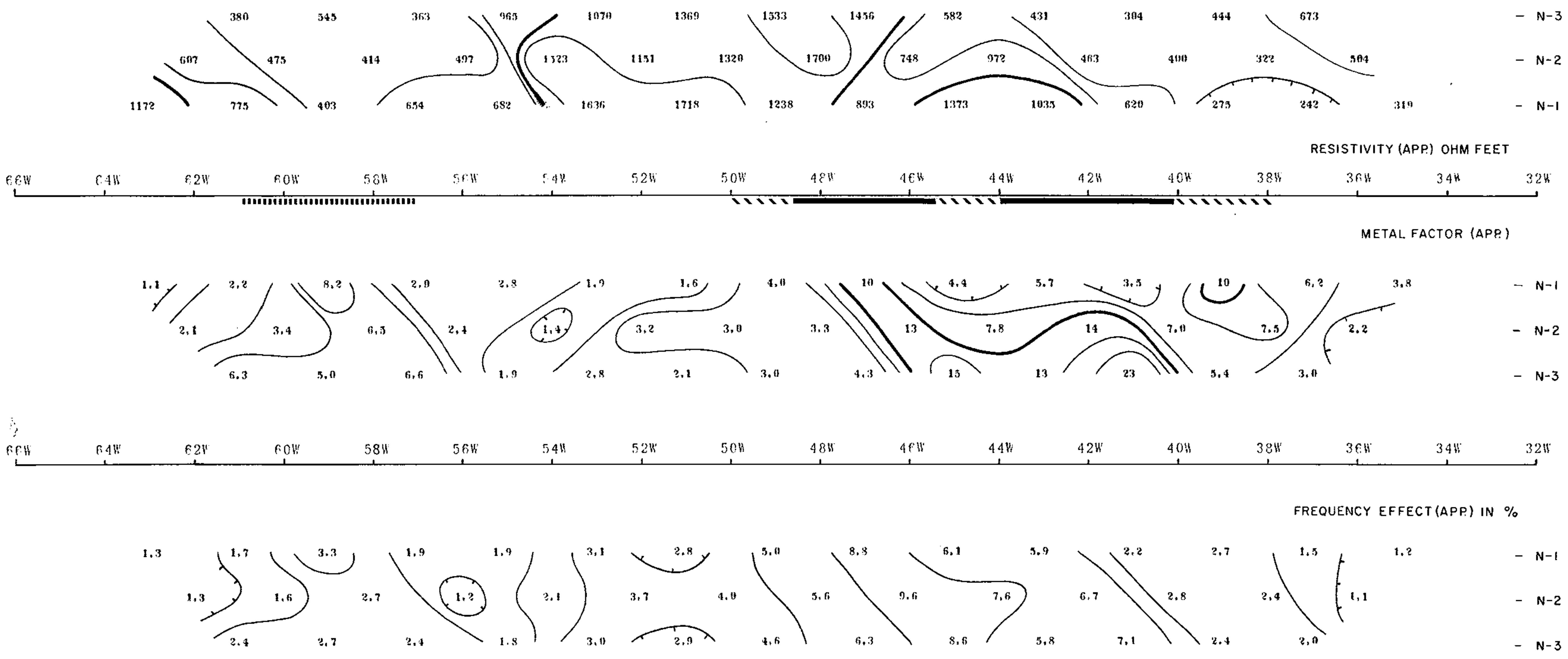
PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.- I.P.-5031-2

GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.

LINE NO.- 0

ELECTRODE CONFIGURATION

X NX X

PLOTTING POINT X=200

SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE

PROBABLE

POSSIBLE

MINERAL RESOURCES BRANCH ASSESSMENT REPORT

NO. 6175

MAP NO. #3

FREQUENCIES 0·31–5·0 HZ.

SURVEYED SEPT. 1976

NOTE – CONTOURS AT LOGARITHMIC INTERVALS 1,-1·5,-2,-3,-5,-7·5,-10

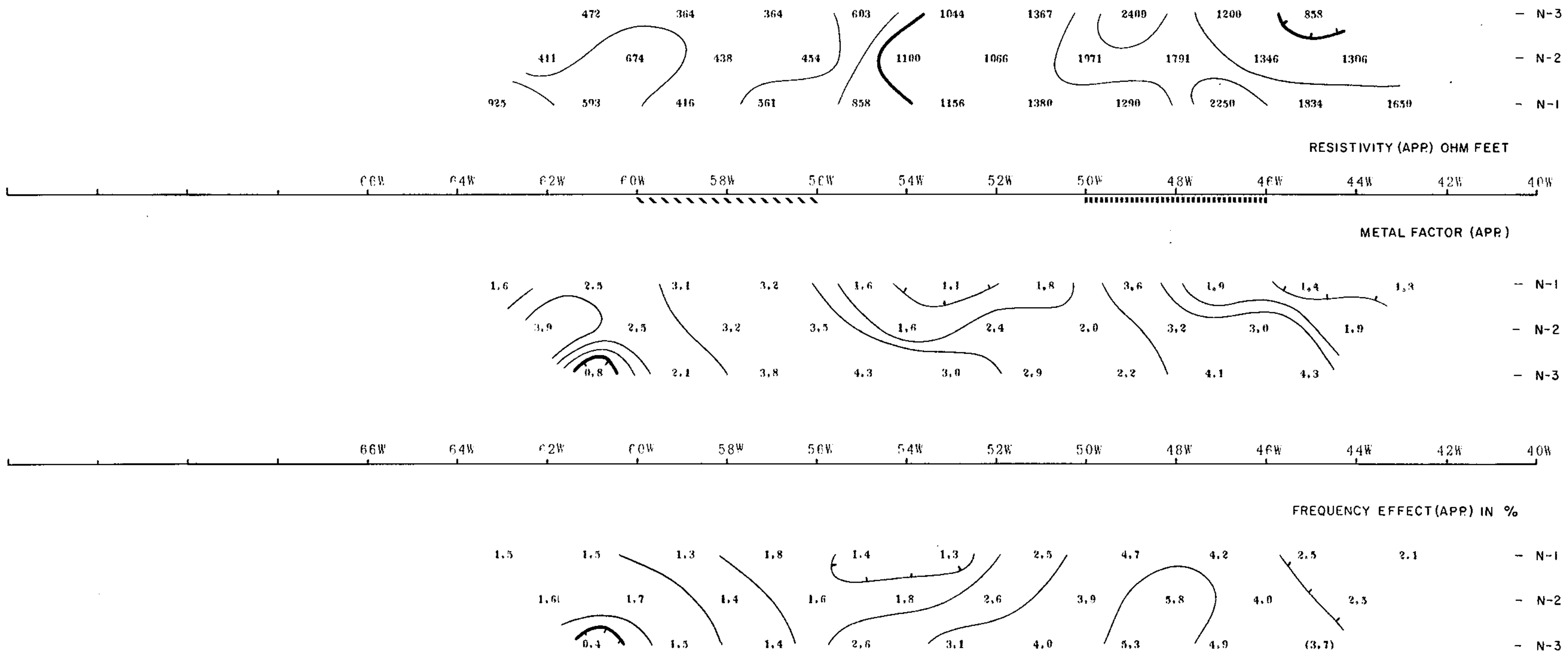
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA P. G. HALLOF APPROVED DATE 11/10/76

Expiry Date: February 2, 1977

6175

PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.– I.P.– 5031-3

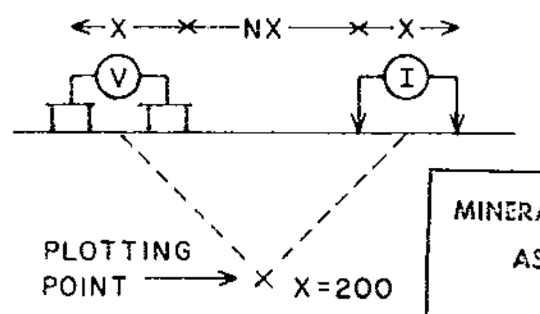
GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.

LINE NO.– 4N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE

PROBABLE

POSSIBLE

MINERAL RESOURCES BRANCH ASSESSMENT REPORT

NO. 6175

MAP NO. #4

FREQUENCIES 0.31–5.0 HZ.

DATE SURVEYED SEPT. 1976

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA P. G. HALLOF

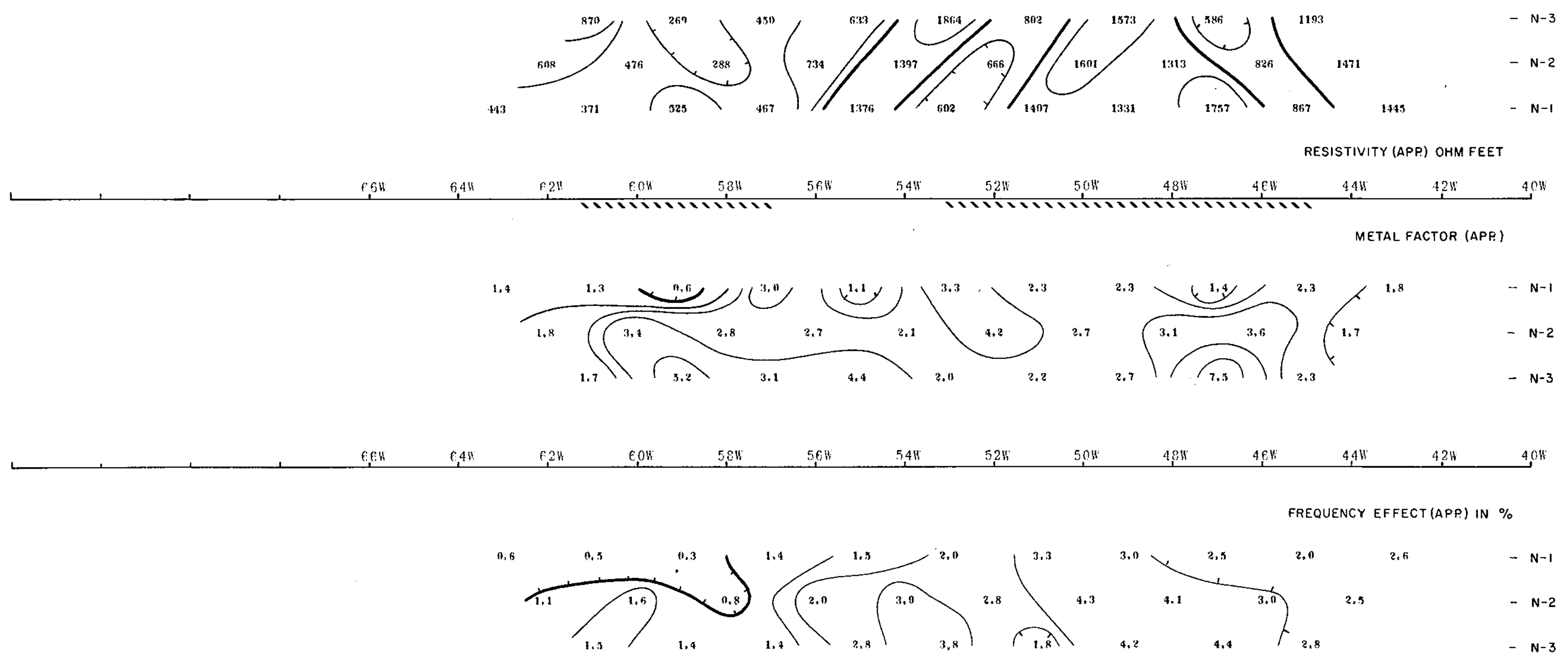
11/18/76

Expiry Date: February 2, 1977

6175

PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.– I.P.–5031-4

GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.

LINE NO.– 8 N

ELECTRODE CONFIGURATION

X — NX — X

PLOTTING POINT → X=200

SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE
PROBABLE
POSSIBLE

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6175
MAP NO. #5

FREQUENCIES 0.31–5.0 HZ.

SURVEYED SEPT. 1976

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

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, P. G. HALL

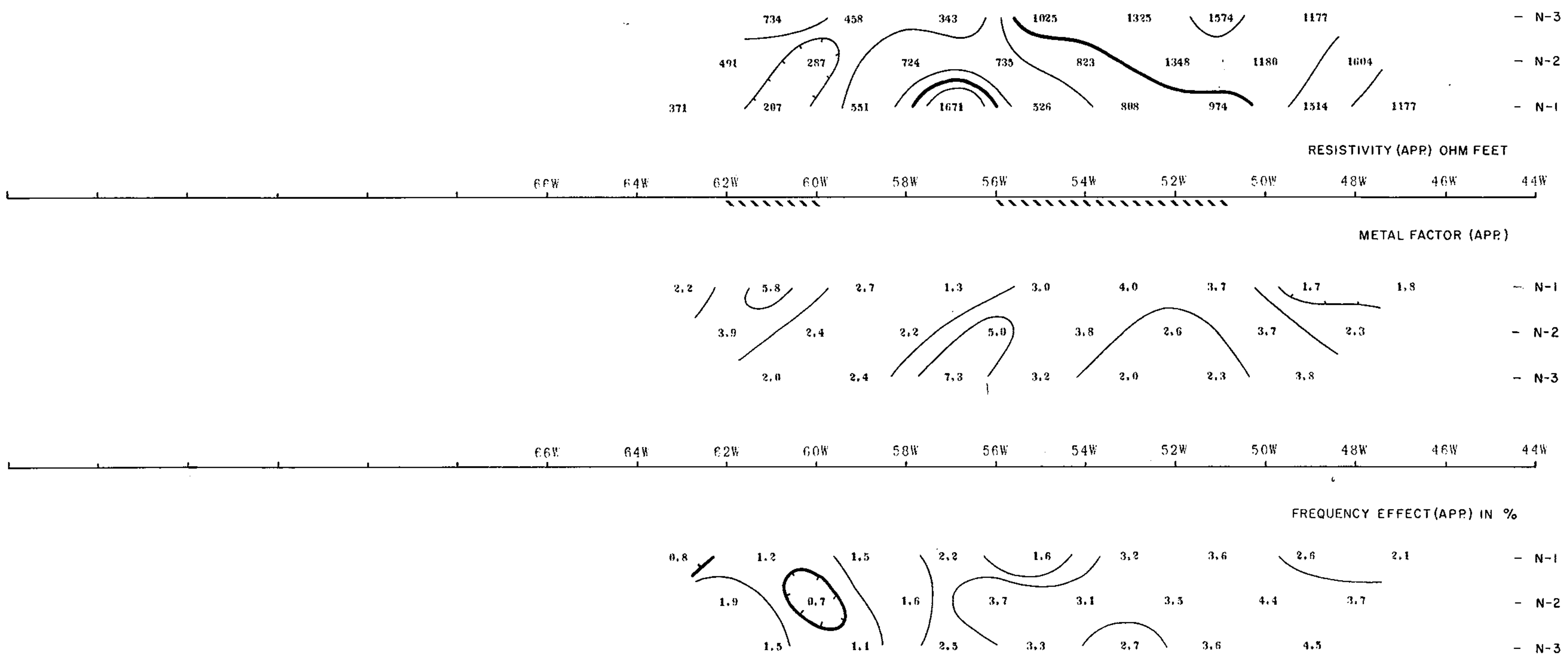
Expiry Date: February 2, 1977

11/10/76

6175

PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.- I.P.-5031-5

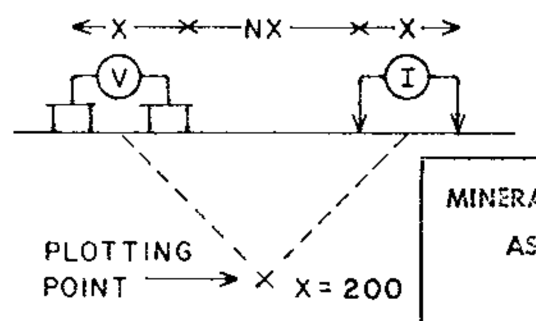
GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.

LINE NO.- 12N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE

PROBABLE

POSSIBLE

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6175
MAP NO. #6

FREQUENCIES 0.31-5.0 HZ.

DATE SURVEYED SEPT. 1976

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

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — P. G. HALLOF

APPROVED

11/18/76

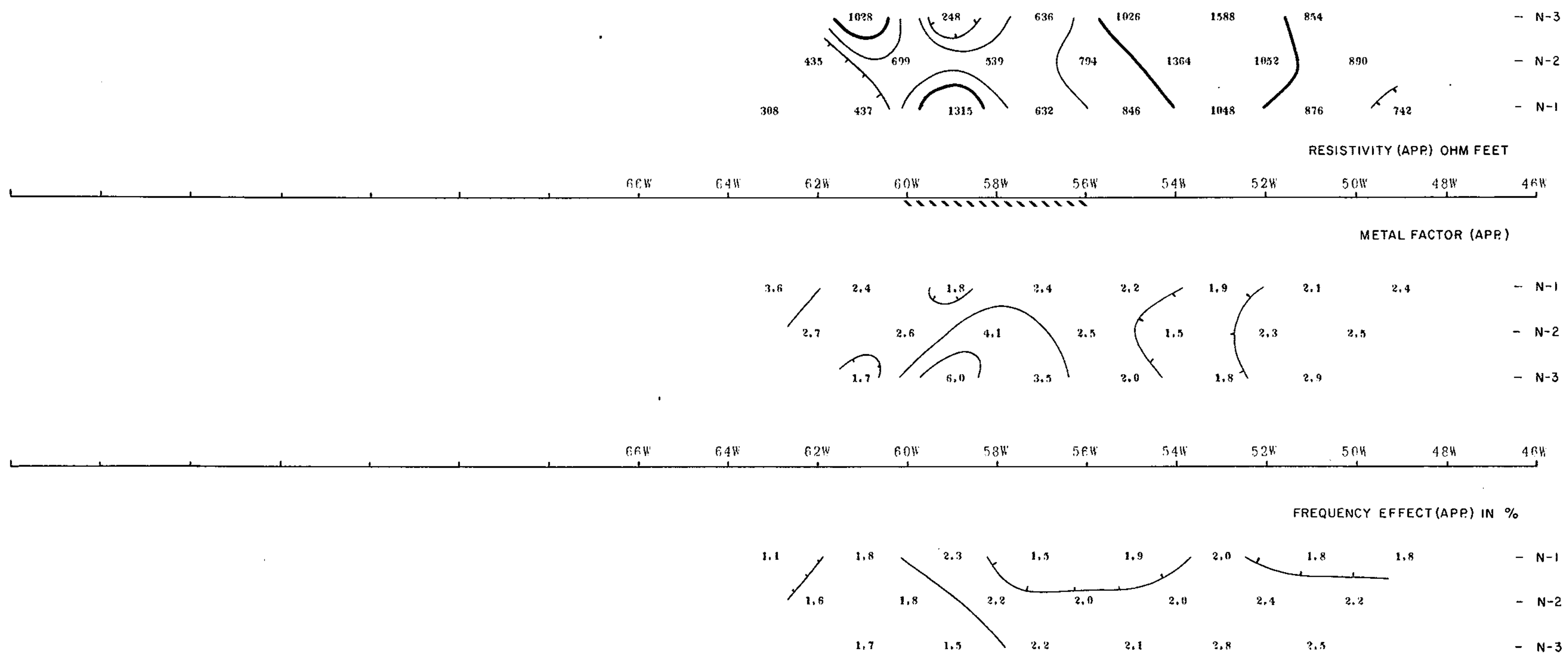
DATE

6175

Expiry Date: February 2, 1977

PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.– I.P.– 5031-6

GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.

LINE NO.– 16 N

ELECTRODE CONFIGURATION

X NX X

PLOTTING POINT

X = 200

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6175
MAP NO. #7

SURFACE PROJECTION OF ANOMALOUS ZONE
DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES 0.31–5.0 HZ.

SURVEYED SEPT. 1976

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA P. G. HALLOF

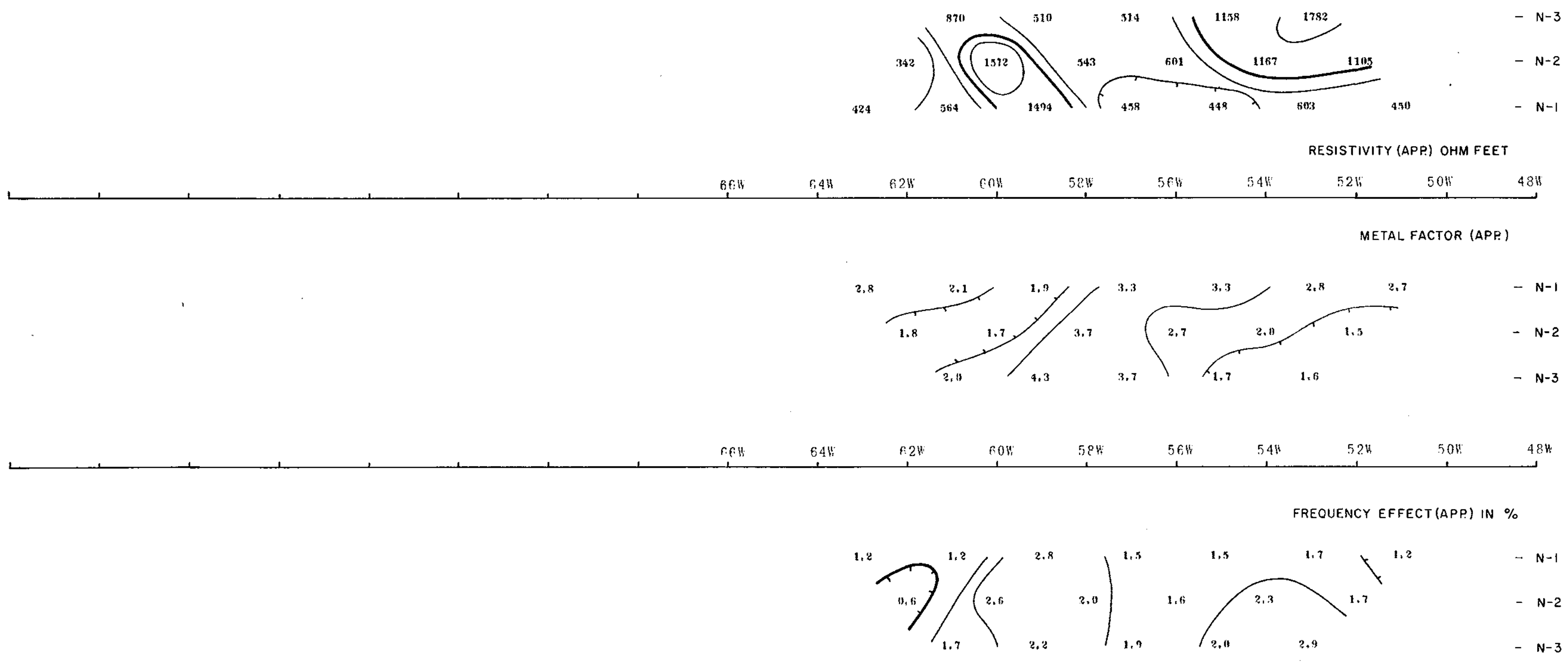
11/18/76

Expiry Date: February 2, 1977

6175

PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.– I.P.– 5031-7

GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.

LINE NO.– 20 N

ELECTRODE CONFIGURATION

X — NX — X

PLOTTING POINT → X = 200

SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE
PROBABLE
POSSIBLE

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6175
MAP NO. #8

FREQUENCIES 0.31 – 5.0 HZ.

SURVEYED SEPT. 1976

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA P. G. HALLOF

APPROVED

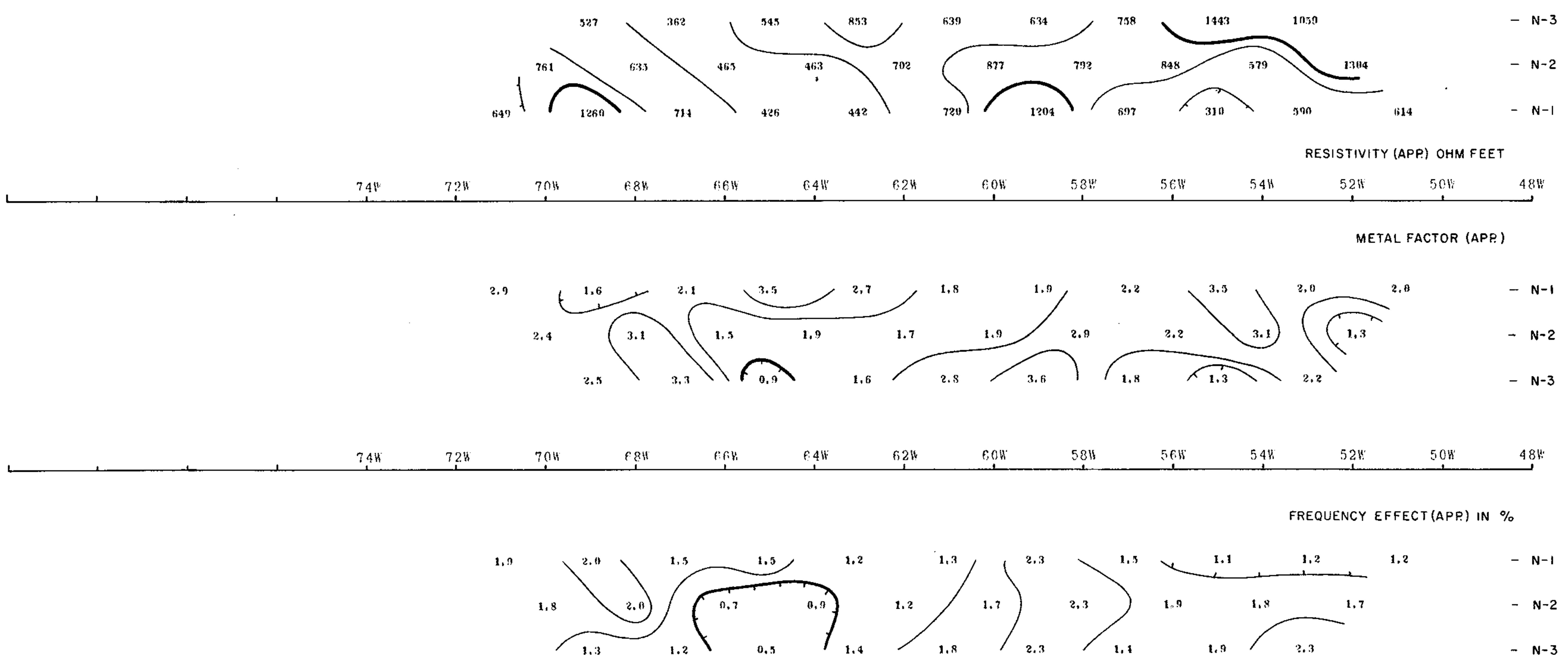
11/18/76

Expiry Date: February 2, 1977

6175

PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.- I.P.- 5031-8

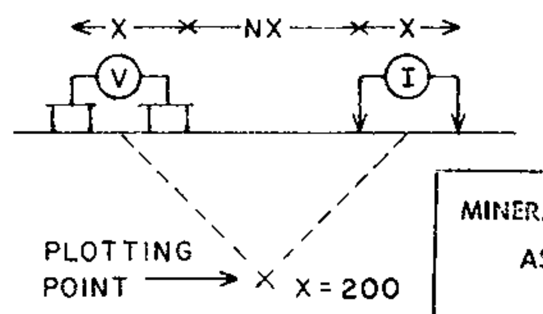
GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.

LINE NO.- 24 N

ELECTRODE CONFIGURATION



SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE
PROBABLE
POSSIBLE

MINERAL RESOURCES BRANCH ASSESSMENT REPORT

NO. 6175

MAP NO. #9

FREQUENCIES 0.31 - 5.0 HZ.

DATE SURVEYED SEPT. 1976

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA P. G. HALLOF

APPROVED

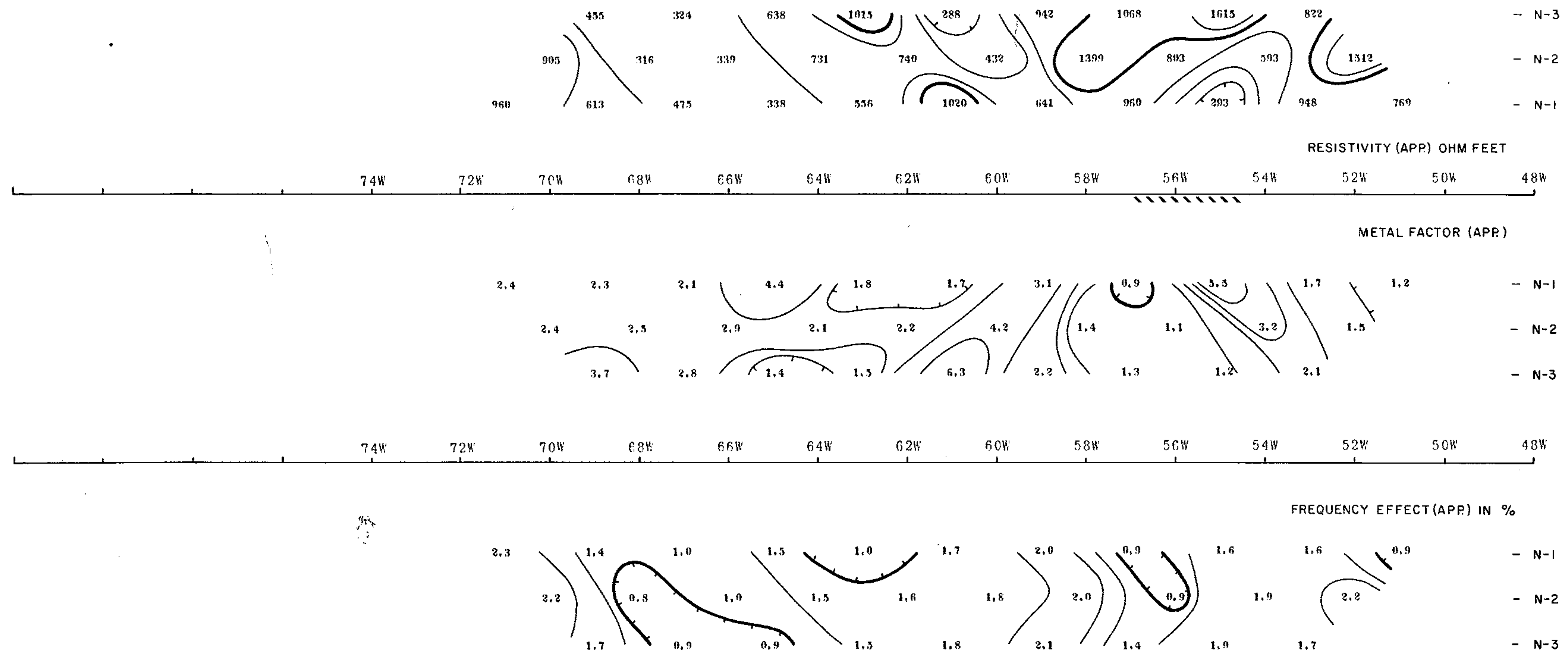
11/10/76

Expiry Date: February 2, 1977

6175

PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



DWG. NO.– I.P.–5031-9

GRANBY MINING CORPORATION

ORO DENORO GRID

WILGRESS LAKE AREA, GREENWOOD M.D., B.C.

LINE NO.– 28 N

ELECTRODE CONFIGURATION

X — NX — X

PLOTTING POINT → X = 200

SURFACE PROJECTION OF ANOMALOUS ZONE

DEFINITE

PROBABLE

POSSIBLE

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6175
MAP NO. #10

FREQUENCIES 0.31 – 5.0 HZ.

DATE SURVEYED SEPT. 1976

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

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, P. G. HALLOF

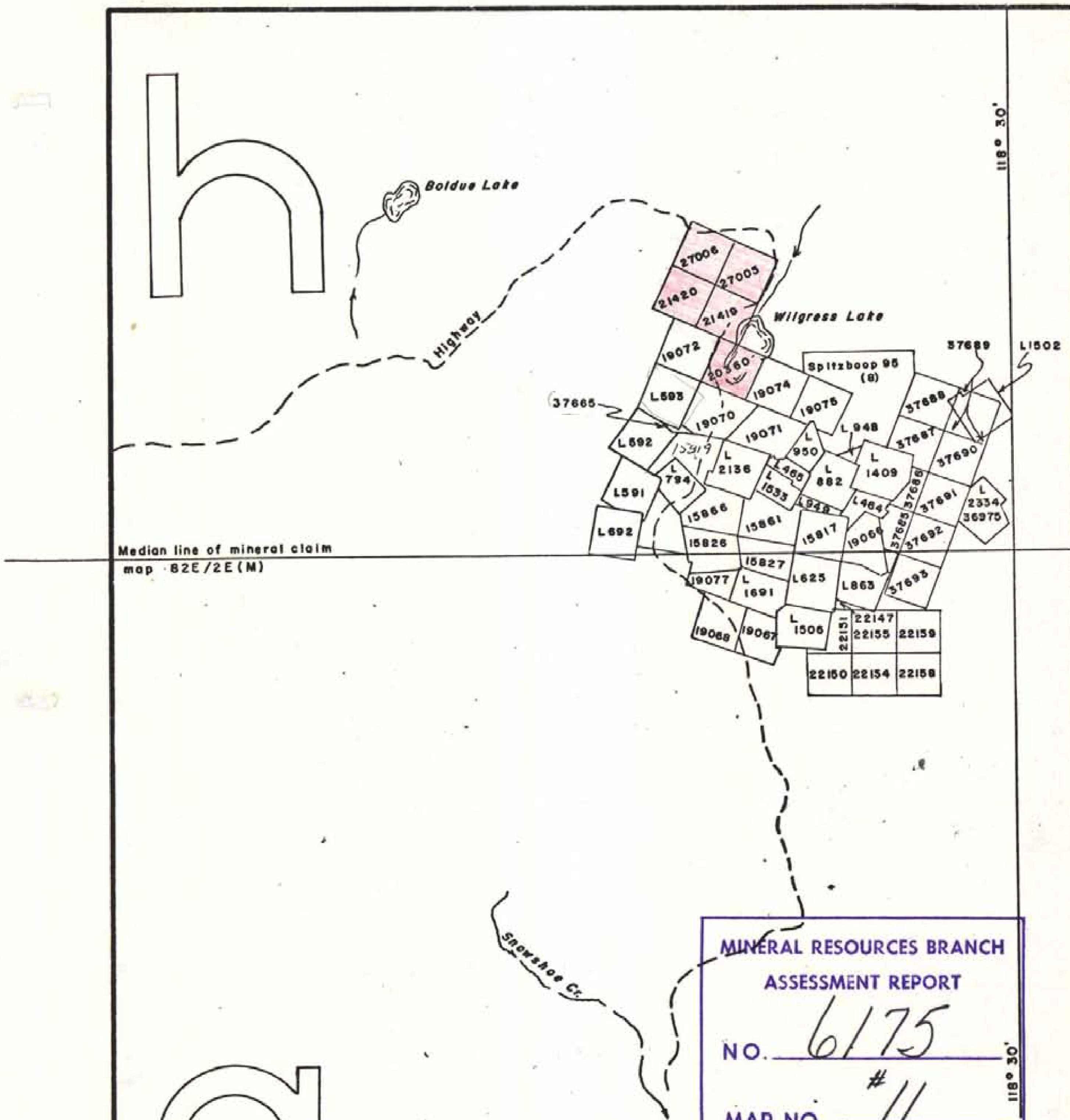
DATE 11/10/76

Expiry Date: February 2, 1977

6175

PHOENIX GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

NO. 6175

MAP NO. #11

GRANBY MINING CORP.

PHOENIX COPPER DIVISION

ADJUSTED MINERAL CLAIM · LOCATE

GRAND FORKS AREA

scale

0 1 2

miles

FROM MINERAL CLAIM MAP 82E/2E(M)

G.D.A. 26-2-76