399

REPORT ON
INDUCED POLARIZATION SURVEY
WADE GROUP OF CLAIMS
HIGHLAND VALLEY, BRITISH COLUMBIA

for

GENERAL RESOURCES LIMITED

by

HUNTING SURVEY CORPORATION LIMITED
Toronto, Canada

July, 1961

TABLE OF CONTENTS

INTRODUCTION

Between June 12th. and June 18th., 1961, an Induced Polarization (I.P.) survey was carried out by Hunting Survey Corporation Limited on the Wade group of claims for General Resources Limited in the Highland Valley of British Columbia.

The original purpose of this survey was to determine the depth of mineralization present in the trench and outcrop area. For this, four lines (Lines 5+00W, 7+00W, 9+00W and 11+00W) were laid out. After surveying the first three of these lines the known mineralization response to the I.P. method was deemed to be discouraging, but an interesting anomaly was picked up at the south end of Line 5+00W. It was then decided not to survey Line 11+00W but instead to extend this anomaly eastward. For this purpose, Lines 1+00W, 3+00E and 7+00E were laid out and surveyed. The location and orientation of the surveyed lines are shown on the interpretation map (scale 1 inch to 400 feet) in the pocket at the end of this report.

Approximately 1.7 miles (9,000 feet) of profiles were obtained using the three electrode array (1 current, 2 potential electrodes, the second current electrode being at "infinity"). The data were obtained at intervals of 100 feet on all the lines, using electrode spacings of 400 feet and 800 feet except on Line 3+00E where the 800 foot spacing only was used.

The survey was performed by a five-man crew. The geophysicist, the technician operator and the line boss respectively were E. Gregotski, G. Brand and J. Reeves of Hunting Survey

Corporation Limited. General Resources Limited supplied six men, two to complete the five-man crew and four to cut lines and pre-lay the wires.

The Hunting pulse-type I. P. instrument is similar in design and operation to those described by R. W. Baldwin in "A Decade of Development in Overvoltage Survey" A. I. M. E. Transactions, Volume 214, 1959. Power is obtained from a Volkswagen motor coupled to an 18 kw., 400 cycle generator which provides a maximum of 10,000 watts d. c. to the ground. The cycling rate is 1.5 seconds current on and 0.5 seconds current off, the pulses reversing continuously in polarity. The secondary voltage is integrated to provide a measurement of the polarization in millivolt-seconds and is then divided by the primary voltage (across the potential electrodes) to obtain the "chargeability" in milliseconds.

INTERPRETATION

The results of the survey and their interpretation are presented in the form of individual profiles in Appendix I of this report. The interpretation, the surveyed lines and generalized geological data are shown in plan on a map (scale 1 inch to 100 feet) in the pocket at the end of this report.

Due to the geometry of the mineralized zones which are the target of the survey, the usual approach to quantitative interpretation using expanding electrode arrays cannot be applied. The complex problem of the combined effects of depth of burial, width, dip and true chargeability of the mineralized zone plus the physical characteristics of the overburden and country rock has not been solved practically.

Certain rules of thumb plus the experience gained from recent surveys over known orebodies, usually permit certain rough estimates to be made. Thus the maximum possible widths of the zones of mineralization can be shown with the understanding that the zones most probably are narrower than indicated. Rough depth estimates can be made when sufficient data are available. For these, it is necessary to know the electrode spacing at which the maximum response is obtained: thus, a minimum of three electrode spacings across the anomaly must be available. As the geophysical data were obtained using two electrode spacings only, no quantitative depth estimates can be made. Dip of the mineralized zone can be detected sometimes by displacement of the anomalies on the different electrode spacings.

In the present case, the survey was carried out using two electrode spacings and, in the case of Line 3+00E, one electrode spacing only. Thus, no quantitative depth estimate can be made. Furthermore, in the western half of the survey, the interpretation is very complex due to the large spacings used over narrow mineralization at surface. A narrow body at large depth will produce a weak, single peaked anomaly on a large electrode spacing; the width of this anomaly will be equal basically to the spacing. As the depth is decreased, all other conditions remaining constant, the anomaly will increase in amplitude until a maximum is reached. Thereafter, the amplitude decreases as the depth but the anomaly becomes double peaked. When the body is at the surface, two individual peaks can be expected, separated by a distance roughly equal to the spacing. Thus, an individual anomaly narrower than the spacing on which it is observed, is caused by a narrow body at shallow depth located on one or the other side of the anomaly at a distance equal or smaller than the spacing. When a number of such anomalies are observed, spaced at regular intervals equal or smaller than the electrode spacing, their causative bodies cannot be located definitely without data from smaller electrode spacings.

In the eastern half of the survey area, the conditions are somewhat different. The higher response obtained on the larger of the two spacings clearly indicates mineralization at a relatively large depth. As the depth and width of the mineralized zone cannot be determined, it is necessary to show a broad possible extent. On the other hand, the narrow, sharp irregularities superimposed on the broad anomalies at both spacings clearly indicate that some response is obtained from shallow depth. Here again, data from smaller electrode spacings would pinpoint the cause at shallow depth of the irregularities and provide a much easier and more accurately located drill target.

As explained in the preceding paragraphs, a unique interpretation is not possible based on the available data only. An attempt is made to show every possibility. Thus, the individual bodies shown on the profiles and on the interpretation map, may or may not exist depending on which of the many possibilities is the correct one. The following paragraphs deal with this problem in greater detail as each profile is discussed individually.

Line 9+00W

Line 9+00W was surveyed from 12+00N to 23+00N with a 400 foot electrode spacing, and from 12+00N to 25+00N with an 800 foot spacing. The 400 foot spacing indicates a weak anomaly (1.5 to 2.0 milliseconds) extending from about 13+00N to 17+00N. The 800 foot spacing shows a number of disturbances of 1 milliseconds or less on a somewhat higher background. The anomaly on the 400 foot spacing may be broad enough to be caused by the fairly broad, shallow body (b) with a relatively low chargeability. Such a body could be the quartz porphyry dike which coincides with the anomaly. The low chargeability is well within the limits of chargeabilities attributable to rock types without associated mineralization. It is also possible that the 400 foot spacing anomaly is in part due to the narrow body (c) at surface, centered somewhere between 16+50N and 18+50N. The northern peak of such a double anomaly may be very weak and may be represented by the disturbances observed from 20+ 00N to 22+ 00N. Another part of the anomaly may represent the southern peak of a double anomaly indicating the narrow, shallow body (a) centered between 12+ 00N and 14+ 00N. This would imply that there is another peak south of 12+ 00N, beyond the extent of the survey. Furthermore, the anomaly on the 400 foot spacing may be due in part to the response of the broad body (b) and in part due to the narrow body (a) or (c) or both. The disturbances of the 800 foot spacing could be interpreted as supporting to some degree all three of the bodies interpreted.

Geologically, body (b) is seen to coincide with the known quartz porphyry dike. On the other hand, the narrow body (c) coincides with known surface mineralization north of the dike, whereas to the south of the dike the bedrock is covered with overburden. Both geological correlations can be extended eastward to Line 7+ 00W and 5+ 00W and, therefore, do not support one interpretation more than the other. Thus, any one or any two, or all three of the interpreted bodies may in fact exist.

The resistivity data on both spacings indicate a broad but slight decrease in resistivity apparently centered over the main I.P. response. These data neither detract from, nor add to, the above interpretation.

Line 7+ 00W

Line 7+ 00W was surveyed from 10+ 00N to 24+ 00N with a 400 foot electrode spacing and from 8+ 00N to 25+ 00N with an 800 foot spacing. The 800 foot spacing response is very similar to that of Line 9+ 00W. It consists of a number of weak, very local disturbances imposed on a generally high background. The 400 foot spacing response shows better defined anomalies. These anomalies indicate the possibility of a number of bodies which are labelled arbitrarily from (a) to (f). Thus the sharp peak at 11+00N on the 400 foot spacing indicates the possible bodies (a) and (b), respectively located somewhere between 7+50N and 10+50N, and between 11+50N and 13+50N. If body (a) exists, there must be another peaked response south of 10+00N. On the other hand, body (b) is sufficient to explain the peaks at 11+00N and 14+00N. The latter, combined with the peak at 17+00N and the intermediate weakly anomalous readings may well be caused by body (c). It is relatively broad and at shallow depth, and its chargeability is very low. It coincides at least in part, with the known quartz porphyry dike. Body (d) may cause all or part of the peak response at 17+00N while its associated northern peak may be too weak to be observed or may be part of the broad, weak response extending northward from 20+00N. This broad response may indicate also the presence of a broad body (e) with a low chargeability, and/or the narrow body (f). The low chargeability of (e) may be inherent to that rock type or may be due to very weak mineralization.

As in the case of Line 9+00W, a number of possibilities are present. Bodies (b), (c) and (d) appear to be extensions of the possible bodies (a), (b) and (c) respectively of Line 9+00W. Due to the number of anomalies or peaks observed and their relative locations, a certain minimum number of bodies must exist. Thus, either or both (a) and (b) must exist. If (c) is correct, bodies (b) and (d) may or may not be real, but if (c) is incorrect, both (b) and (d) must exist. Finally, either (c) or (f), or both, must be present.

The resistivity data neither adds to, nor detracts from, the above interpretation. A slight decrease in the generally high resistivity values is observed in the vicinity of the known quartz porphyry and southward.

Line 5+00W

Line 5+00W was surveyed from 15+00N to 25+00N with a 400 foot electrode spacing, and from 11+00N to 25+00N with an 800 foot spacing. The 800 foot spacing shows a definite anomaly at 14+00N (maximum 5.0 milliseconds) and a weak one at 20+00N (maximum 1.0 milliseconds) imposed over a background of approximately 3.5 milliseconds. The 400 foot spacing starts with an anomalous reading at 15+00N indicating but not defining an anomaly to the south. From 16+00N to 19+00N a relatively weak anomaly (maximum 4.0 milliseconds) is observed peaking at 18+00N. Northward, a broad but very weak fluctuation in the values is observed to extend northward to 24+00N. The background value of the 400 foot spacing profile is probably somewhere between 1.5 and 2.0 milliseconds. These variations in apparent chargeability on both spacings indicate the following possible bodies. Body (a) is suggested by the major peak on the 800 foot spacing assuming a second peak south of 11+00N. On the other hand the two anomalies on the 800 foot spacing, taken together, suggest body (d). As (d) is at a shallow depth, its 400 foot spacing response should be greater than that on the 800 foot spacing. Since this is not the case, it must be assumed that only part of the peak at 14+00N can be attributed to this body, thereby confirming body (a). Bodies (b) and (c) are dependent on the actual shape of the incompletely surveyd anomaly on the 400 foot spacing south of 15+ 00N. If this anomaly is broad and extends southward to 12+ 00N or 13+ 00N, it supports the existence of (b). On the other hand if the peak of this anomaly is indicated by the reading at stations 15+ 00N, this peak combined with that at 18+ 00N indicates the presence of the narrow body (c). The peak on the 400 foot spacing at 18+ 00N combined with the disturbances observed north of 20+ 00N may suggest the narrow body (e). On the other hand, these weak disturbances may simply indicate body (f), a broad body with very weak response decreasing northward.

On the basis of their location and their relation to the various peaks, a certain combination of possibilities can be given. Thus, body (a) exists most probably. Bodies (b) and (c) may or may not be correct depending on the shape of the anomaly to the south of 15+ 00N on the 400 foot spacing. If (d) exists, bodies (c) and (e) may or may not exist, but if (d) is incorrect, (b) or (c) must exist, and also (e). Finally, (e) or (f) must be real. It is to be noted that bodies (c), (d) and (e) correlate with the extensions of bodies (b), (c) and (d) of Line 7+ 00W. Body (a) on the present line may be the western extension of the major, broad anomalous zone observed to the east.

The resistivity data are very similar to that of Line 7+ 00W, indicating a gradual decrease of resistivity southward from the quartz porphyry dike. The 800 foot spacing data show a resistivity low coinciding with the higher values of chargeability: it is quite probable that the resistivity profile due to body (a) would present a similar but inverted appearance as the chargeability.

Line 1+ 00W

Line 1+ 00W was surveyed from 7+ 00N to 21+ 00N with the 400 foot electrode spacing, and to 24+ 00N with the 800 foot spacing. The chargeability profiles are characterized by a broad and relatively strong anomaly on the 800 foot spacing with a maximum value of over 9.0 milli-seconds, extending from approximately 8+ 00N to 20+ 00N. This coincides with a generally high background for the 400 foot spacing. Both spacings show a number of sharp disturbances from the generally smooth profile. The broadness and general smoothness of the anomaly on the 800 foot spacing and the definitely lower response on the smaller spacing, indicate a broad body (a) at a large depth. There is some slight suggestion that the body may actually be divided into two parts, the southern one some-where between 10+ 00N and 14+ 00N and the northern one somewhere between 15+ 00N and 18+ 00N. The sharper but weaker peaks on both spacings suggest that part of this mineralization may reach almost to the surface. Thus the narrow body (b) is suggested by both spacings. Bodies (c) and (d) are suggested only by the 800 foot spacing due to the lack of coverage on the 400 foot spacing. Body (d) is possible if another weak anomaly is present north of 27+ 00N on the 800 foot spacing. Other shallow indications are possible but they could not be correlated satis-factorily on the basis of the available data.

The resistivity data show a relatively high value throughout the length of the profile. At the south end of the line, an anomalous condition is established by a low in resistivity values on the 400 foot spacing coinciding with a combination of a high flanked by a low on either side on the 800 foot spacing. This suggests a narrow low resistivity zone located near surface somewhere between 9+00N and 12+00N. This may be correlated with the southern of the two possible bodies forming (a) as described above. This assumes that the resistivity variation is due to a change in rock type, the lower resistivity rock type containing the mineralization but at depth only.

Line 3+00E

Line 3+00E was surveyed with an 800 foot spacing only, from 9+00N to 25+00N. The apparent chargeability profile clearly shows an anomalous zone extending at most from 10+00N to 21+00N (a). As in the case of Line 1+00W this zone may be divided into two bodies, the southern one located somewhere between 10+00N and 16+00N, and the other one between 16+00N and 21+00N. Some of the weak disturbances imposed over the generally smooth anomaly may indicate a narrow, very shallow body (b) centered somewhere between 18+50N and 20+50N. The interpretation of this narrow body is not necessarily correct nor is that body necessarily the only one present of that type. No other satisfactory correlation could be obtained on the basis of the single spacing available. Body (b) may be the eastward extension of body (c) on Line 1+00W.

The resistivity data result in a relatively smooth profile suggesting a somewhat lower resistivity value coinciding with body (a).

Line 7+00E

Line 7+00E was surveyed from 9+00N to 22+00N with 400 and 800 foot electrode spacings. The data of both spacings produce complex profiles which give rise to several possible interpretations. Basically, both spacings indicate a broad anomaly with sharp, local disturbances.

The broad anomaly is definitely stronger on the 800 than on the 400 foot spacing, and reaches a maximum value of approximately 10.0 milli-seconds. Assuming that this anomaly does not extend beyond 22+00N, it indicates a broad zone of possible mineralization (a) extending from 11+00N to 20+00N. As in the case of Lines 3+00E and 1+00W, this zone may break down into two bodies, the separation point being located at approximately 16+00N. The local disturbances, independently of the broad anomalies, suggest a number of possible, narrow and very shallow bodies which have been labelled (b) to (e). Bodies (b), (d) and (e) are correlated with disturbances on both spacings whereas body (c) is indicated by the 400 foot spacing only. Bodies (b) and (c) are interpreted assuming anomalies on both spacings to the south and to the north respec-tively, of the surveyed portion of the line. On the basis of the 400 foot spacing data, either (b) or (c) must exist. If (d) is correct, (b) and (e) may or may not exist, but if (d) is incorrect, (b), (c) and (e) must be real. Body (e) on this line may be the eastern extension of (b) on Line 3+00E and of (c) on Line 1+00W. Body (d) on Line 7+00E may be the counterpart of (b) on Line 1+00W. This body may be present on Line 3+00E although it remained unrecognized.

The resistivity data show the usual decrease in value coinciding with body (a). Minor variations on the 800 foot spacing vaguely support the interpretation of bodies (b) and (d), whereas those on the 400 foot spacing confirm body (c) to some degree. Thus the resistivity data neither adds to, nor detracts from, the above interpretation.

SUMMARY AND CONCLUSIONS

A number of bodies or possible bodies are interpreted. As discussed in detail in the preceding section, it is not possible generally to determine on the basis of the available data, which combination of bodies is correct. Thus, an attempt is made to show every possible body which may have produced some response to the I.P. method. Two types of bodies are shown. Bodies showing definite evidence of relatively large widths are indicated by a cross-hatched symbol extending over their maximum possible widths with the understanding that these bodies are most probably narrower. The second type of bodies are very narrow, at very shallow depth or at surface. Their width is less than 100 feet, except in the case of body (a) on Line 5+00W which may be up to 200 feet wide. These bodies are indicated by showing the possible range in the location of their center. The significant difference between the two types of bodies is that no estimate, however rough, can be made of the true chargeability of the narrow, shallow bodies.

The bodies interpreted on the three westernmost lines are all at shallow depth or at surface. The broad bodies show weak chargeabilities which may be inherent to that rock type without sulphide mineralization. Thus, it is possible that the known quartz porphyry dike may have responded weakly to the method. Narrow zones of unknown concentration of sulphide mineralization at the contacts may or may not have added to the I.P. anomalies. The broader bodies (e) on Line 7+00W and (f) on Line 5+00W may contain some very low concentrations of sulphide mineralization (certainly less than 1%) or their response may be due to the inherent chargeability of that particular rock type. This opens the rather interesting possibility that body (e) on Line 7+00W and the northern part of body (f) on Line 5+00W may be a second quartz porphyry dike striking roughly in a northwest-southeast direction. The quartz porphyry outcropping near the northeast end of Line 5+00W may be part of this second dike and the known dike may extend southeastward rather than northeastward as suggested by the available geological information. Except for body (a) on Line 5+00W, which will be discussed in the following paragraph, no significant sulphide mineralization in or near the outcrop area is indicated by the available I.P. data. This implies that some of the narrow bodies may represent appreciable mineralization over narrow widths, but if they do exist, they were not and could not be indicated definitely by the large spacings used in the survey.

In the eastern half of the area, the results of the survey are quite different. A broad zone of mineralization at a large depth is clearly indicated by the bodies labelled (a) on Lines 1+00W, 3+00E and 7+00E. This zone is open southeastward, and may terminate as the narrow body (a) at a shallow depth on Line 5+00W. Assuming that the body is very broad (800 feet or more), a rough estimate shows that the minimum depth possible is 250 to 400 feet with related minimum true chargeabilities of 12 to 18 milliseconds respectively. A chargeability of 12 milliseconds is usually associated with a sulphide content of approximately 2 to 4 percent by volume, whereas 18 milliseconds represents about 2.5 to 6 percent. Thus, the overall minimum sulphide content ranges roughly from 2 to 6 percent. If the overall mineralized zone is less than 800 feet wide, the depth and true chargeability, and consequently the sulphide content, must increase accordingly.

The cause of the broad anomalies is definitely located within the confines of bodies (a) on Lines 1+00W, 3+00E and 7+00E although it may be formed by one or more zones of unknown width at a poorly defined depth. Certain portions of these bodies or some other, unrelated features may be located at a relatively short distance from the surface. Some of these features, but not necessarily all, are indicated by the interpreted narrow, shallow bodies. Their possible existence has been discussed in detail in the preceding sections.

It is known that magnetite, where present in sufficient quantity, will respond to the I.P. method. The magnetite response is roughly one-third of that of the same volume percentage of sulphide. Thus, a minimum of 6 to 18 percent magnetite is required to produce the observed I.P. anomaly. Such a magnetic body (possibly a basic intrusive) must have a minimum susceptibility varying from 0.015 to 0.045 c.g.s. units as the depth is increased from 250 to 400 feet. A magnetic body 800 feet wide at a depth of 250 feet with a susceptibility of 0.015 c.g.s. units will cause a ground anomaly (vertical component) of 3,300 gammas, and airborne anomalies (total intensity) of 1,400 gammas at 500 foot ground clearance and of 900 gammas at 1,000 feet. On the other hand, a body 400 feet wide at a depth of 400 feet with a susceptibility of 0.045 c.g.s. units will cause a ground anomaly (vertical component) of 4,600 gammas and airborne anomalies (total intensity) of 1,800 gammas at 500 foot ground clearance and of 1,200 gammas at 1,000 feet. The widths used in the above calculations are minimum widths estimated from the I. P. data for the corresponding depths. The amplitude of the magnetic anomalies are to be measured from the magnetic background. Thus, the study of a magnetic survey, whether airborne or carried out on the surface, will establish whether magnetite is the cause of the I. P. anomaly in part or in toto.

It is believed that the known mineralization in the outcrop area is genetically related to the quartz porphyry dike. Similarly the interpreted mineralization at depth may be related to the same quartz porphyry if the dike or dikes extend southeastward across the north-eastern end of Lines 1+00W, 3+00E and 7+00E as previously suggested.

In conclusion, the survey data clearly indicates that no large mass of significant mineralization is present in the outcrop area. However, the survey indicates another zone with good width and mineral possibility. It is located at some depth larger than 250 feet except for some possible shoots which may reach closer to the surface. It is felt, although it could not be proven on the basis of the available data, that if this zone is mineralized, it will be found to be better in sulphide percentage than any mineralization however narrow that may be found in the outcrop area.

RECOMMENDATIONS

No drill target has been obtained in the outcrop area possibly due to the lack of small electrode spacing data. The same lack also prevents the detection of possible shallower parts of the main zone of mineralization. The possibility of magnetite causing the main I.P. anomaly cannot be disregarded as no magnetic data is available at present. Thus, the following steps are recommended.

1. Study any available magnetic survey pertinent to the area to determine the presence or absence of magnetite. If no survey is available, run one or two ground magnetometer profiles to coincide with the main I.P. anomaly. Line 1+00W and/or 7+00E would be quite suitable.

2. Carry out a detailed I.P. survey with 100 and 200 foot electrode spacing over the main anomaly. Extend the survey to the southeast to cut off the anomaly. If the outcrop area is deemed still to be of possible interest, the detailed survey should be extended accordingly.

3. If the magnetic data indicate insufficient or no magnetite present to explain the main I.P. anomaly, a drilling program will be necessary to ascertain the economic possibility of the mineralized zone. If the proposed detailed survey presents no better defined target or if it is not carried out, the mineralized zone on Line 1+00W should be drilled first. Due to the uncertainty in the width and depth of the mineralization, plus the fact that it may consist of two or more separate bodies, it is possible that more than one drill hole may be required.

HUNTING SURVEY CORPORATION LIMITED

C. V. Faessler, Geophysicist.

MUtual 2-2751

GENERAL RESOURCES LTD.

Suite 213, 678 Howe Street
Vancouver 1, B.C.

GOVERNMENT AGENT
RECEIVED
FEB 5 1962
MERRITT, B.C.

February 1, 1962

The Mining Recorder,
P. O. Box #339,
Merritt, B.C.

Attention : Mr. T. S. Dobson

Dear Mr. Dobson,

With reference to your letter of January 31st.

1. Appendix 2 is now attached to the second copy.

2. A map was included with the reports showing the surveyed area and also the road work and bulldozer trenching in relation to the claims. Presumably this map was retained by the Merritt office to file with the affidavit for that work and not forwarded to Victoria where, naturally, they were at a loss.

3. The report uses the title Wade Group for all of General Resources' holdings, part of which were grouped under the name Wade Group. A regrouping to include abandoned and restaked ground in the Wade Group and further grouping as Tex, Apache and Wade Groups were filed January 12, 1962. I draw attention to my letter on this matter of January 9, 1962 included with the filing of assessment.

4. The preliminary information with names of the claims covered was forwarded to the geophysicist in Toronto with the readings.

The claims map enclosed illustrates the relation of the survey to the claims.

5. The interpretation map from the back pocket of the report has been sent to Toronto for signature.

6. The information required has been affixed to the cover of the report.

Yours truly,

R B Stokes

R. B. STOKES
Engineer-in-charge
GENERAL RESOURCES LTD.

c.c. for Victoria
RBS:mc

INVOICE

HUNTING SURVEY CORPORATION LIMITED

1409 West Pender Street Vancouver 5 B.C. Canada • MUtual 3-6501 Cables: Canhunt

General Resources Limited,
#213 - 678 Howe Street,
Vancouver 1, B.C.

INVOICE No	742
DATE	31st October 1961
YOUR ORDER No	
JOB No	61-123
TERMS: NET CASH	
SHIPPED VIA	

QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL
	TO:		
	Completion, Engineering Services:		
	Being Induced Polarization survey of your area, vicinity of Merritt, B.C. Daily rate of $375.00 including Mobilization, Interpretation, Report, Crew and Equipment:		
	1. 12th July - 1 day) 13th July - 1 day) 14th July - ½ day) 15th July - 1 day) 16th July - ½ day) 17th July - 1 day) .. being 5 days @ $375.00 per day	$1,875.00	
	18th July - 2 hours	100.00	
	2. To cover general expenses $14.67 + 10%	16.14	
		$1,991.14	
	Less previously invoiced, No. 578	1,600.00	
	This invoice		$391.14

INTEREST MAY BE CHARGED ON OVERDUE ACCOUNTS

APPENDIX I

Profiles - Line 9+ 00W

Line 7+ ooW

Line 5+ 00W

Line 1+ 00W

Line 3+ 00E

Line 7+ 00E

APPENDIX II

I.P. Survey at 100 and 200 foot Electrode Spacings of

Lines 5+00W and 1+00W

I.P. SURVEY AT 100 AND 200 FOOT ELECTRODE SPACINGS
OF LINES 5+00W AND 1+00W

Introduction

Due to the complexity of the anomalies observed and due to the lack of data from short spacings, the interpretation of the original survey was felt to be rather indeterminate. Therefore, Hunting Survey Corporation Limited sent its I.P. crew back to the Wade Property of General Resources Limited to obtain additional data. Thus, Line 5+00W was re-surveyed from 7+50N to 15+50N with an electrode spacing of 100 feet, and from 8+00N to 24+00N with a 200 foot spacing. On Line 1+00W, 100 foot spacing data were obtained from 8+50N to 23+50N, and 200 foot spacing data from 14+00N to 24+00N. This additional work was carried out between July 18th. and July 20th., 1961.

Interpretation

The new and old data, and their interpretation, are shown on the accompanying profiles. On Line 5+00W the new data show no significant variation from relatively low backgrounds. Thus, the narrow bodies at surface labelled (a), (c) and (e) in the original interpretation, are known now to be nonexistent. Body (b) originally interpreted as the cause of a possible anomaly on the 400 foot spacing, is now found to cause also the large anomaly on the 800 foot spacing. Body (d) is detected by the 400 foot spacing and gives no visible response on the 200 and 800 foot spacings. Thus, it must be at too great a depth to be detected by the shorter spacing and too small in vertical cross section to be effective on the 800 foot spacing. A rough estimate of the depth to its center is 300 to 500 feet. This body is not related to the known quartz porphyry dike as originally suggested, as the dike dips northward at a relatively shallow angle. Thus, (d) is located somewhere beneath this intrusive. Body (f) is not detected at surface by the narrower spacing. Its possibility for mineralization is very low due to its very weak response. The suggestion that part of this body may represent the weak response from a second quartz porphyry dike is now invalid due to the new interpretation of body (d). A second quartz porphyry dike may exist but it is not detected by the I.P. survey.

On Line 1+00W, the interpretation of body (a) remains unchanged. The 100 foot spacing data indicate a narrow upward extension to shallow depth of this body. This is labelled (e) and is centered at approximately 9+50N. Body (b) of the original interpretation is known now to possess a very low chargeability if it exists at all, and is of no economic significance. Body (c) is shown to be nonexistent. Bodies (c) and (d) were interpreted due to the apparently narrow width of the 800 foot spacing anomaly at 23+00N. However, (b) on Line 5+00W causes an anomaly approximately 400 feet wide on the 800 foot electrode spacing. The anomaly under discussion on Line 1+00W presents approximately the same width and therefore, is most probably caused by body (f). This body is at a depth as great as, or greater than, that of body (a). Its weaker response may be due to a greater depth or to a narrow width, or to a lower true chargeability (weaker mineralization), or to a combination of all three.

Review of Previous Interpretation

The various possibilities interpreted on the basis of the original survey cannot be eliminated definitely without data from shorter spacings. However, the detailed survey has established definitely that the quartz porphyry dike does not respond to the I. P. method and that no narrow zone of good mineralization exists at the surface on Line 5+00W. It would appear probable that body (d) on Line 5+00W extends westward as bodies (c) on Line 7+00W and (b) on Line 9+00W. All the narrow bodies at surface previously interpreted now appear less probable but they cannot be eliminated definitely without additional data. One exception to this broad statement is the anomaly at 11+00N on Line 7+00W on the 400 foot spacing. This anomaly could be caused by bodies (a) or (b) of the original interpretation. A third possibility is now apparent, that is, a relatively narrow body at some depth centered at 11+00N. Thus, on the basis of the available data, this anomaly is caused by a body at surface or at some depth, located somewhere between 7+50N and 13+50N.

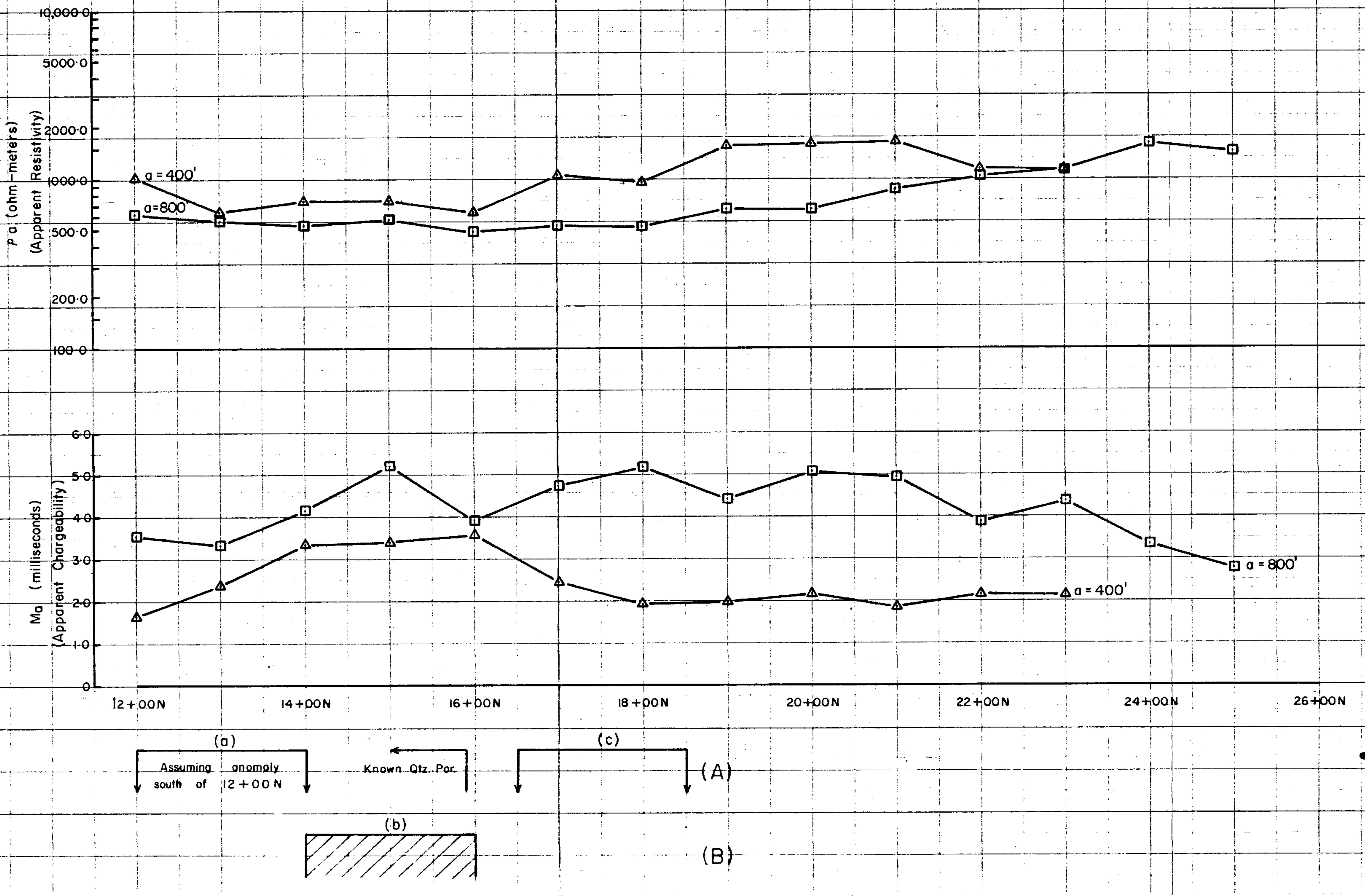
Conclusions

The new data from the shorter spacings have clarified the interpretation on Lines 5+00W and 1+00W. By extrapolation, it is seen that the possibility of strong mineralization in the outcrop area appears remote. Body (d) on Line 5+00W is very small in vertical cross section and would present a difficult drill target. Also, its true chargeability is relatively low, indicating weak mineralization. Thus, the large bodies (a) on the three easternmost lines are still the primary targets for any future drilling program. Therefore, the recommendations as presented in the original report remain unchanged.

HUNTING SURVEY CORPORATION LIMITED

C. W. Faessler,
Geophysicist.

WADE GROUP
GENERAL RESOURCES LTD.
I.P. PROFILE, L-9W
JUNE 1961



3 - ELECTRODE ARRAY

STA. LOC.

C_1 — $\frac{a}{2}$ — $\frac{a}{2}$ — P_1 — a — P_2

Possible extent of location of centre of narrow mineralization at shallow depth.

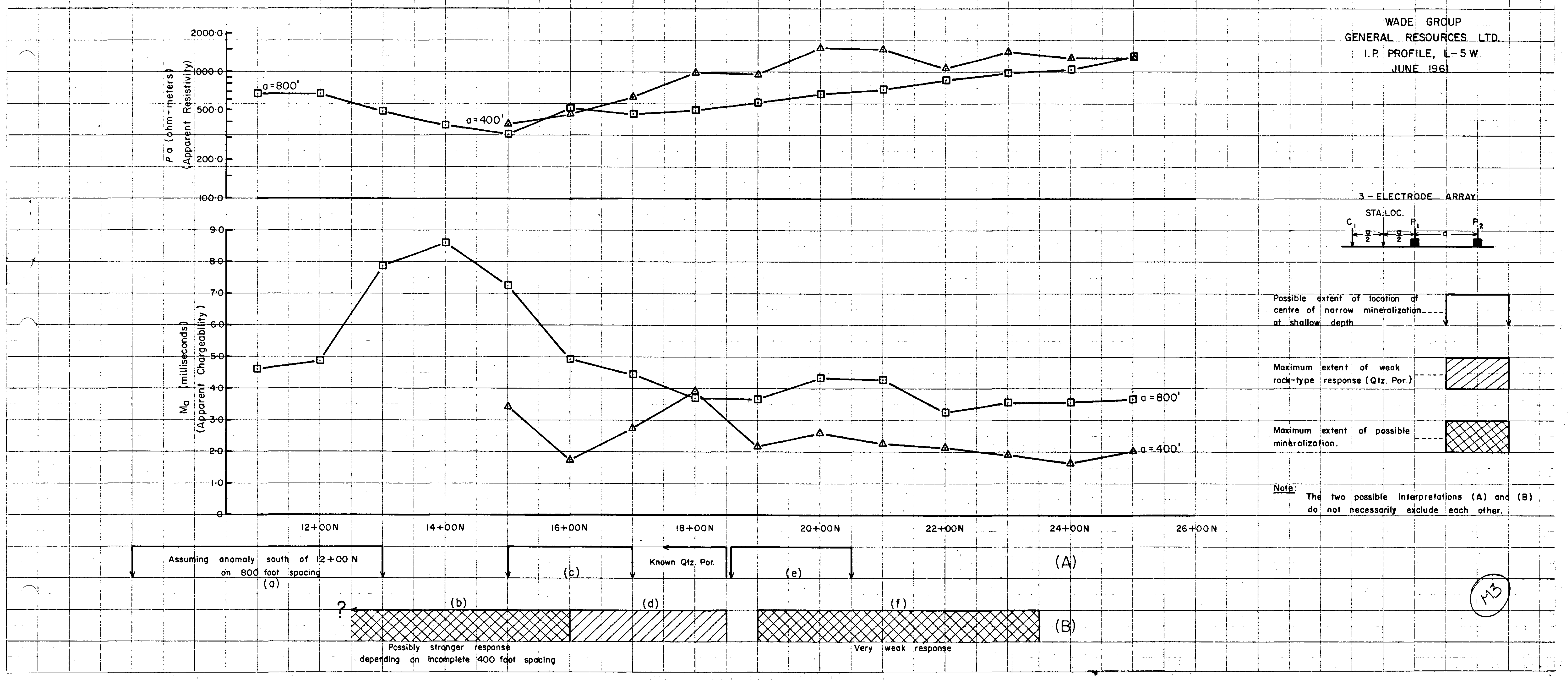
Maximum extent of weak rock-type response (Qtz. Por.)

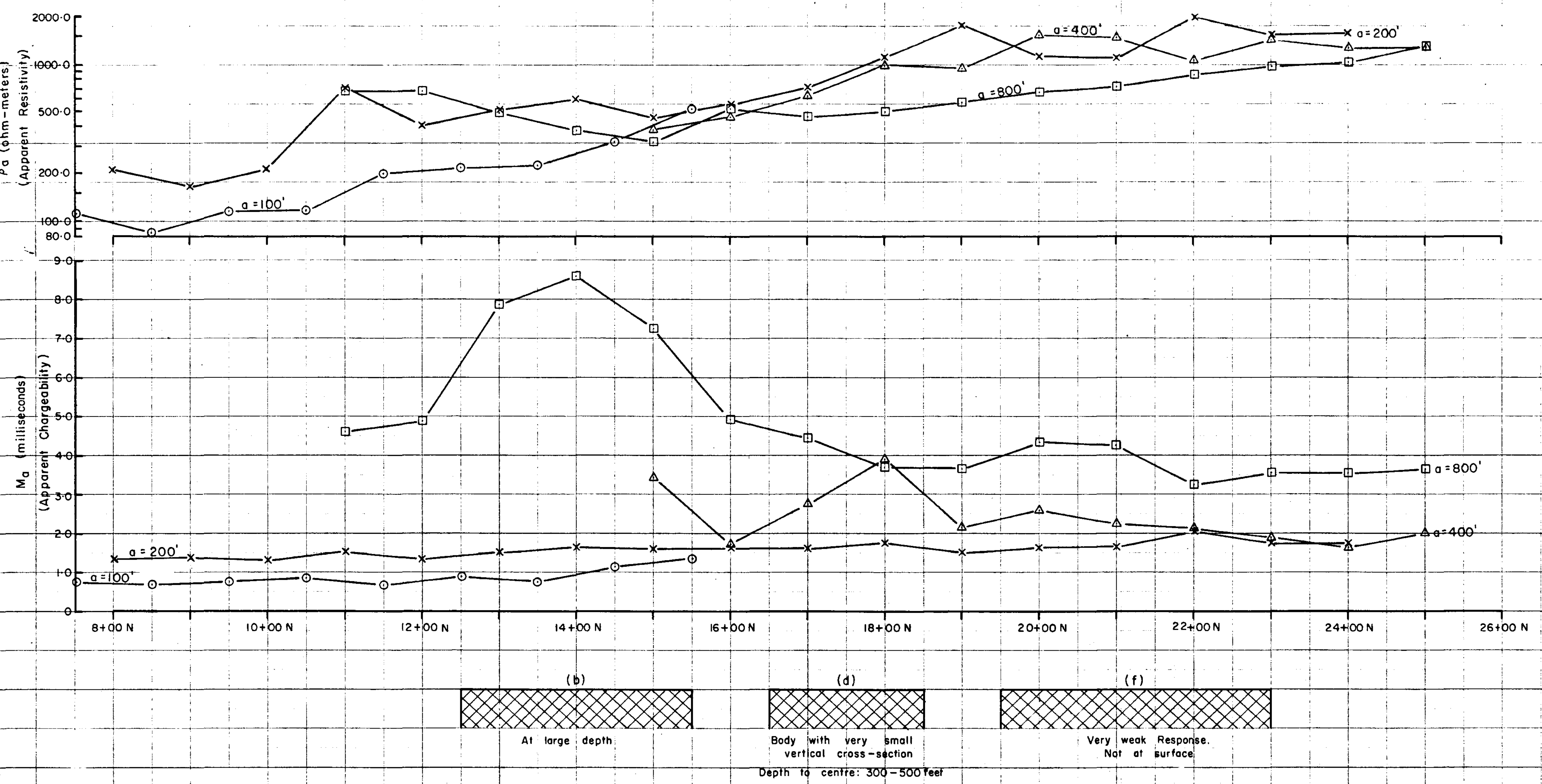
Maximum extent of possible mineralization

Note: The two possible interpretations (A) and (B) do not necessarily exclude each other.

399 (M)

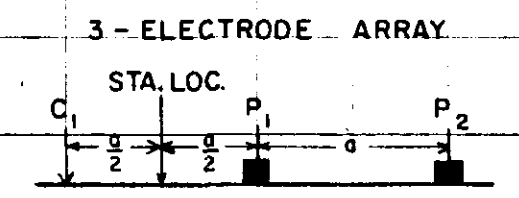

WADE GROUP
GENERAL RESOURCES LTD.
I.P. PROFILE, L-7 W
JUNE 1961
10,000·0
5000·0
2000·0
1000·0
500·0
200·0
100·0
ρ a (ohm-meters)
(Apparent Resistivity)
a = 400'
a = 800'
3-ELECTRODE ARRAY
STA.LOC.
C1
P1
P2
a/2
a
6·0
5·0
4·0
3·0
2·0
1·0
0
Ma (milliseconds)
(Apparent Chargeability)
8+00N
10+00N
12+00N
14+00N
16+00N
18+00N
20+00N
22+00N
24+00N
26+00N
Possible extent of location of centre of narrow mineralization at shallow depth.
Maximum extent of weak rock-type response (Qtz. Por.)
Maximum extent of possible mineralization.
Note: The two possible interpretations (A) and (B) do not necessarily exclude each other.
Assuming anomaly south of 10+00N
(a)
(b)
Known Qtz Por.
(d)
Assuming anomaly north of 24+00N
(f)
(A)
(c)
(e)
Very Weak Mineralization or Change in Rock Type
(B)


WADE GROUP
GENERAL RESOURCES LTD.
I.P. PROFILE, L-5 W.
JUNE 1961
ρ a (ohm-meters)
(Apparent Resistivity)
2000·0
1000·0
500·0
200·0
100·0
a=800'
a=400'
Ma (milliseconds)
(Apparent Chargeability)
9·0
8·0
7·0
6·0
5·0
4·0
3·0
2·0
1·0
0
a=800'
a=400'
12+00N
14+00N
16+00N
18+00N
20+00N
22+00N
24+00N
26+00N
3 - ELECTRODE ARRAY
STA.LOC.
C1
P1
P2
a/2
a/2
a
Possible extent of location of centre of narrow mineralization at shallow depth
Maximum extent of weak rock-type response (Qtz. Por.)
Maximum extent of possible mineralization.
Note: The two possible interpretations (A) and (B) do not necessarily exclude each other.
Assuming anomaly south of 12+00 N on 800 foot spacing
(a)
(c)
Known Qtz. Por.
(e)
(A)
?
(b)
(d)
(f)
(B)
Possibly stronger response depending on incomplete 400 foot spacing
Very weak response
M3



WADE GROUP
GENERAL RESOURCES LTD.
I.P. PROFILE, L-5 W

a = 400', 800' : June, 1961
a = 100', 200' : July, 1961



Maximum extent of possible mineralization

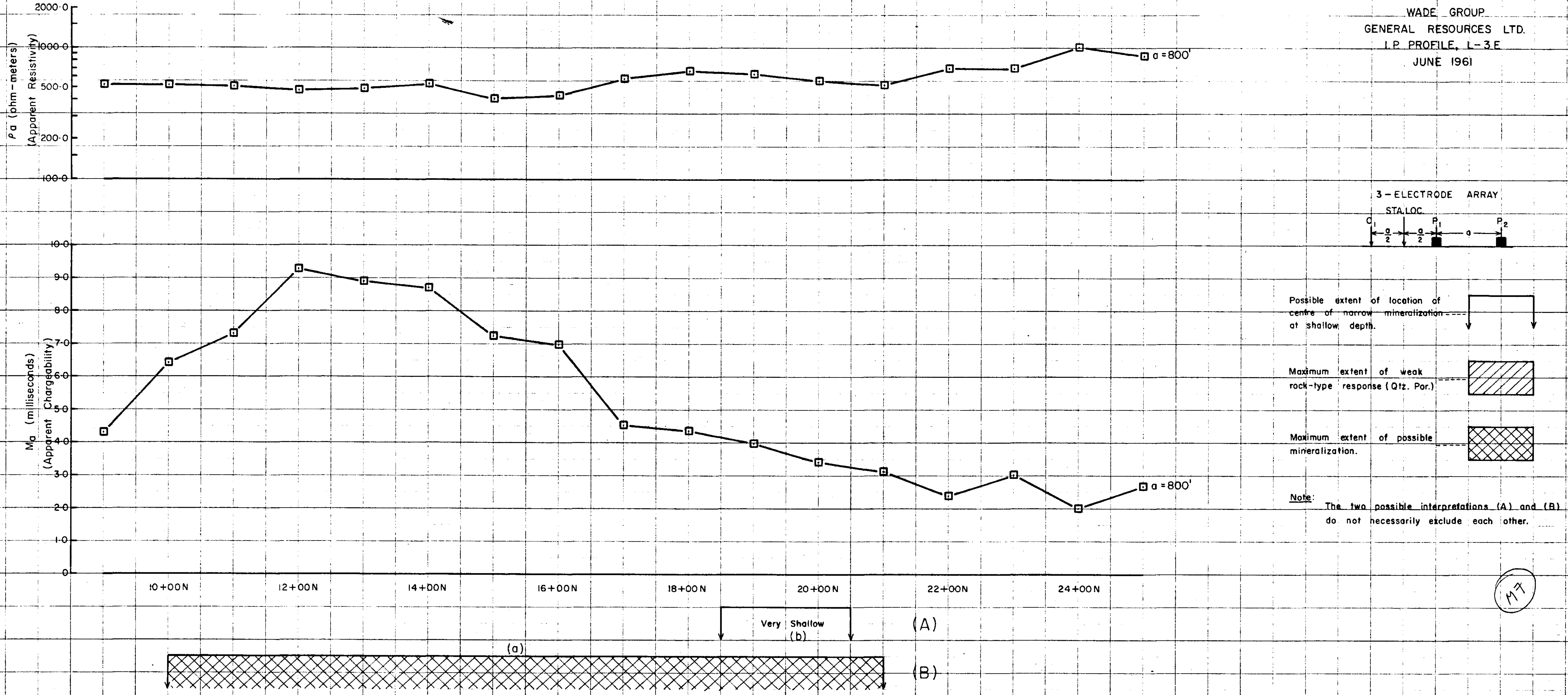
399

Appendix II


WADE GROUP
GENERAL RESOURCES LTD.
I.P. PROFILE, L-1 W
a = 400', 800' : June, 1961
a = 100', 200' : July, 1961
3-ELECTRODE ARRAY
STA.LOC.
C
P1
P2
Maximum extent of possible mineralization
Pa (ohm meters) (Apparent Resistivity)
2000·0
1000·0
500·0
200·0
100·0
a=100'
a=400'
a=800'
a=200'
Ma (milliseconds) (Apparent Chargeability)
10·0
9·0
8·0
7·0
6·0
5·0
4·0
3·0
2·0
1·0
0
a=400'
a=800'
a=200'
a=100
8+00N
10+00N
12+00N
14+00N
16+00N
18+00N
20+00N
22+00N
24+00N
(e)
Upward extension to shallow depth of (a)
(a) at large depth
(f)
at large depth
M5
399
Appendix II

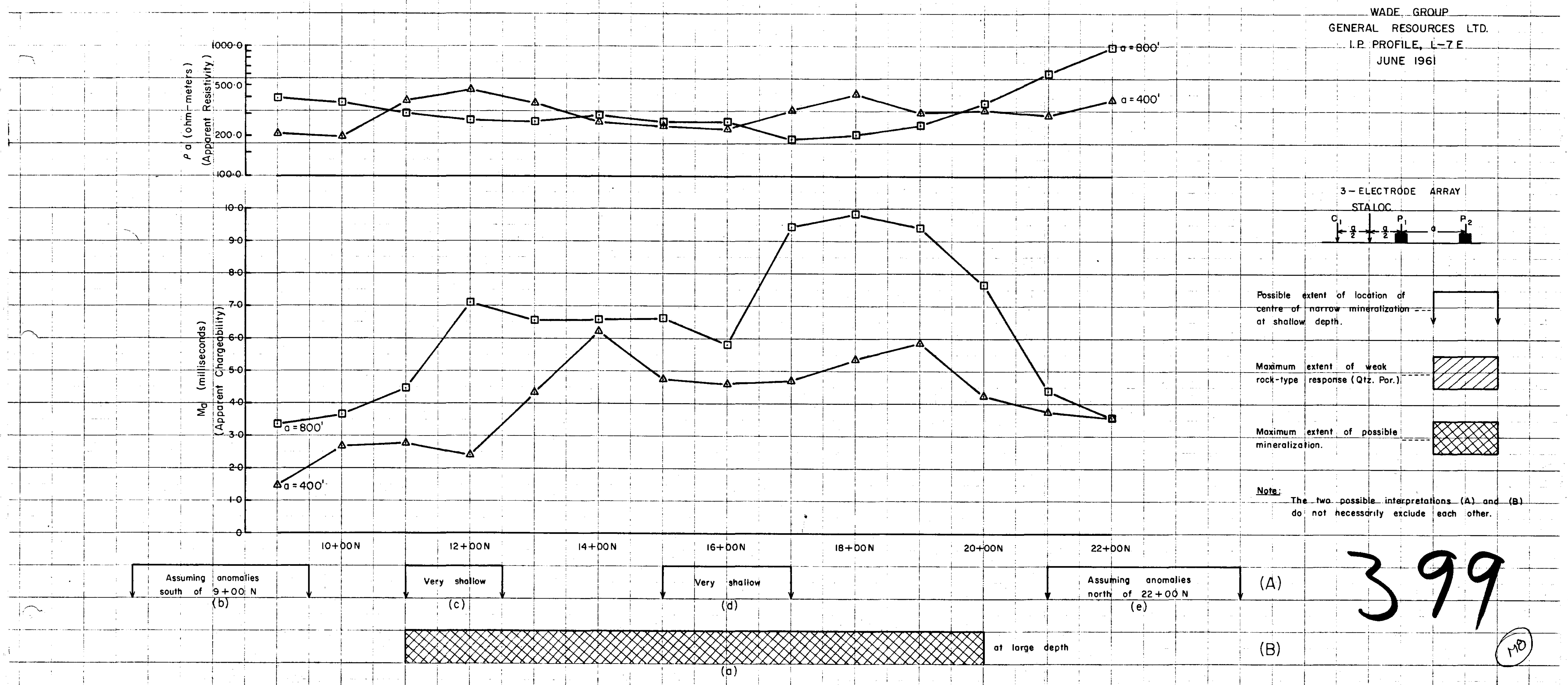

WADE GROUP
GENERAL RESOURCES LTD.
I.P. PROFILE, L-1 W.
JUNE 1961
ρa (ohm-meters)
(Apparent Resistivity)
2000·0
1000·0
500·0
200·0
100·0
a = 400'
a = 800'
Ma (milliseconds)
(Apparent Chargeability)
10·0
9·0
8·0
7·0
6·0
5·0
4·0
3·0
2·0
1·0
0
a = 800'
a = 400'
8+00N
10+00N
12+00N
14+00N
16+00N
18+00N
20+00N
22+00N
24+00N
3 - ELECTRODE ARRAY
STA LOC.
C1
P1
P2
a/2
a/2
a
Possible extent of location of centre of narrow mineralization at shallow depth
Maximum extent of weak rock-type response (Qtz. Por.)
Maximum extent of possible mineralization.
Note: The two possible interpretations (A) and (B) do not necessarily exclude each other.
M6
Very shallow
(b)
Very shallow
(c)
Very shallow
(d)
Assuming anomaly north of 24+00N on 800 foot spacing. No 400 foot spacing coverage
(A)
at large depth
(a)
(B)

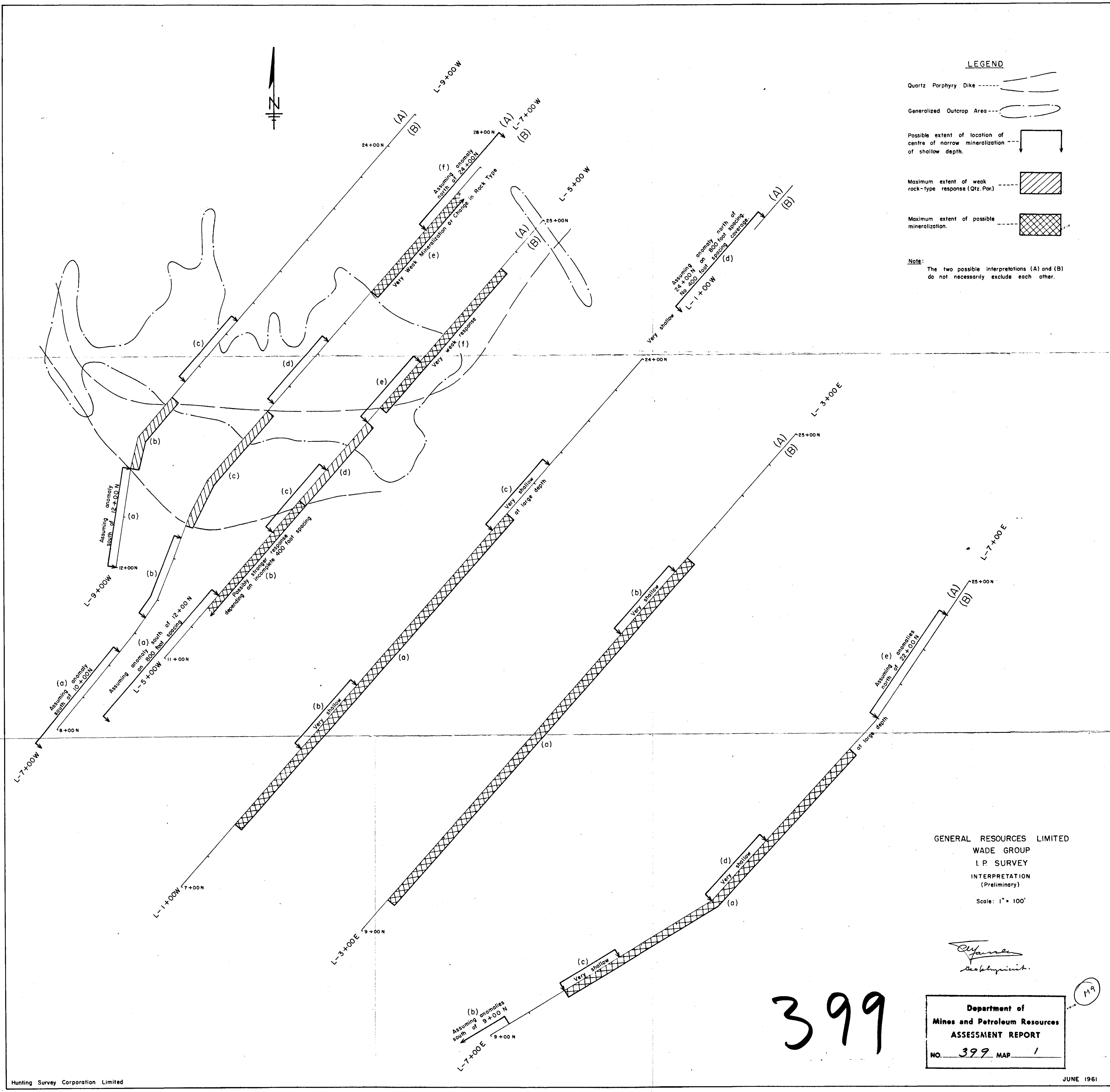
WADE GROUP
GENERAL RESOURCES LTD.
I.P. PROFILE, L-3E
JUNE 1961



Note: The two possible interpretations (A) and (B) do not necessarily exclude each other.

M7


WADE GROUP
GENERAL RESOURCES LTD.
I.P. PROFILE, L-7E
JUNE 1961
ρ a (ohm-meters)
(Apparent Resistivity)
1000·0
500·0
200·0
100·0
a = 800'
a = 400'
Ma (milliseconds)
(Apparent Chargeability)
10·0
9·0
8·0
7·0
6·0
5·0
4·0
3·0
2·0
1·0
0
a = 800'
a = 400'
10+00N
12+00N
14+00N
16+00N
18+00N
20+00N
22+00N
3 - ELECTRODE ARRAY
STALOC
C1
a/2
a/2
P1
a
P2
Possible extent of location of centre of narrow mineralization at shallow depth.
Maximum extent of weak rock-type response (Qtz. Por.)
Maximum extent of possible mineralization.
Note: The two possible interpretations (A) and (B) do not necessarily exclude each other.
Assuming anomalies south of 9+00 N
(b)
Very shallow
(c)
Very shallow
(d)
Assuming anomalies north of 22+00 N
(e)
(A)
at large depth
(a)
(B)
399
MO


LEGEND
Quartz Porphyry Dike
Generalized Outcrop Area
Possible extent of location of centre of narrow mineralization of shallow depth.
Maximum extent of weak rock-type response (Qtz. Por.)
Maximum extent of possible mineralization.
Note: The two possible interpretations (A) and (B) do not necessarily exclude each other.
L-9+00W
L-7+00W
L-5+00W
L-1+00W
L-3+00E
L-7+00E
24+00N
28+00N
25+00N
12+00N
11+00N
8+00N
7+00N
9+00N
(A)
(B)
Assuming anomaly north of 24+00N
Very Weak Mineralization or Change in Rock Type
Assuming anomaly north of 24+00N on 800 foot spacing. No 400 foot spacing coverage.
Very shallow
Very weak response
Assuming anomaly south of 12+00N
Possibly stronger response depending on incomplete 400 foot spacing
Assuming anomaly south of 12+00N on 800 foot spacing
Assuming anomaly south of 10+00N
Very shallow at large depth
Assuming anomalies north of 22+00N
at large depth
Assuming anomalies south of 9+00N
GENERAL RESOURCES LIMITED
WADE GROUP
I. P. SURVEY
INTERPRETATION
(Preliminary)
Scale: 1" = 100'
Geophysicist.
399
Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 399 MAP 1
M9
Hunting Survey Corporation Limited
JUNE 1961

I.P. Survey Lines ——— W. W. [signature]

Trenches ———

Main Road ———

Side Road ———

GENERAL RESOURCES LTD.

MERRITT B.C.

WADE GROUP AREA

TOPOGRAPHIC MAP

CLAIMS AS OF JULY 12. 1961.

SCALE 0 500 1000 1500 2000 FEET

399

M10

Topography prepared by Hunting Survey Corporation Ltd. for General Resources Ltd. June 1961