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A REPORT ON

GRADIENT AND SCHLUMBERGER ARRAY

ELECTRICAL INDUCED POLARIZATION SURVEYS

OVER THE LITTLE OWEN (DORA-HUXLEY) GRID

ON BEHALF OF

THE MOUNT LYELL MINING AND RAILWAY COMPANY LTD.

PRIVATE AND CONFIDENTIAL

REPORT ON

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ON BEHALF OF

THE MOUNT LYELL MINING AND RAILWAY COMPANY LTD.

BY

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SYDNEY, N.S.W.

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TAS-018A

CONTENTS

SCINTREX PTY. LTD.
Formerly
SIEGEL ASSOCIATES AUSTRALASIA PTY. LTD.
GEOPHYSICAL CONSULTANTS AND CONTRACTORS

SUMMARY

Gradient array Electrical Induced Polarization surveys over the Little Owen grid have revealed a number of zones whose geophysical characteristics are similar to, or a variant of, that expected or delineated over known orebodies.

In areas of high electrical noise caused by the operation of DC trams within the mine, a moving Schlumberger array was employed. Within the limitations imposed by the array, excellent data was recorded.

As assessed from the three geophysical characteristics of magnetic response, apparent resistivity and apparent chargeability, a priority of interest for follow-up has been suggested.

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INTRODUCTION

At the request of Mr. K. Reid, Chief Geologist, Scintrex Pty. Ltd. carried out induced polarization surveys over the Little Owen (Dora-Huxley) grid in the Queenstown area, west coast Tasmania. on behalf of the Mount Lyell Mining and Railway Company Ltd.

The work was carried out in several phases, between 2nd November and 6th December, 1973 and on the 3rd, 18th, 19th and 20th of March, 1974. In all, some 9½ single operator days and 163/4 double operator days were taken to cover the 17 line miles.

The survey party was under the immediate direction of Mr. B. Ekstrom with additional Scintrex operators as required. Technical supervision was undertaken by A.W. Howland-Rose and geological supervision by Mr. K. Wells, Senior Exploration Geologist for the Mount Lyell Mining and Railway Company Ltd.

The majority of the survey was carried out using a gradient array, but a portion of the grid required a special moving Schlumberger array. For the most part an IPR-7 was used but an IPR-8 was employed in the Schlumberger survey.

The objective of the survey was to carry out a rapid reconnaissance survey over the grid area which includes areas of extreme terrain. Thus steep slopes will be expected to materially influence the results in certain areas. The method adopted is capable of mapping the substantial pyritic haloes surrounding the Mt. Lyell type mineralisation, and in addition, electrically continuous Cape Horn type mineralisation.

The magnetic field measurements were made using a Geometrics total field proton precession unit and were carried out by Mt. Lyell Mining and Railway Company Ltd. Such first order adjustments as were required to display the data in meaningful form were carried out by Scintrex Pty. Ltd.

The induced polarization method is briefly described in Appendix 'IP' and the IPR-8 in Appendix 'IPR-8'.

THE METHODS

The methods employed on the Little Owen grid have been discussed in reports TAS-016 and TAS-018D. However, for

completeness, these arguments are repeated below together with additional relevant remarks.

The Mount Lyell chalcopyrite orebodies occur within pyrite haloes. To test the magnetic susceptibility and conductivity of the mineralisation, Scintrex Pty. Ltd. carried out tests on diamond drill core from the Selina and Cape Horn areas. The former is an exploration area and the latter an economic deposit in which the grounded loop Turam method played a part in the discovery of the orebody. The object of these surveys was to establish the geophysical characteristics of the mineralisation in order to devise an efficient geophysical approach to the location of favourable zones in the Mt. Read area. The results of these surveys are described in a report entitled "Conductivity, Susceptibility, Chargeability and Resistivity Tests of Diamond Drill Core on behalf of the Mount Lyell Mining and Railway Company Ltd." by A.W. Howland-Rose (TAS-004) and dated November, 1972.

The Cape Horn orebody was observed to have a weakly conductive halo of 0.10 to 0.30 mhos/metre (3 - 10 ohm-metres). It showed that the extensive pyrite developed to higher concentrations of 5% to 20% does not produce significant conductivity, but all significant electromagnetic conductors

contained significant copper mineralisation, the latter acting as an electronic conductor between pyrite grains. However, not all significant chalcopyrite mineralisation proved to be conductive.

Consideration of the results of previous geophysical surveys in the Mt. Lyell area together with the results of the core tests, and bearing in mind the terrain in the survey area, it was decided that the best cost effective reconnaissance geophysical work would consist of large current dipole gradient array survey over the entire area of interest. This together with a proton precession magnetometer survey was expected to yield the following information.

1 - The resistivity, chargeability and magnetic data would, by displaying the various geophysical characteristics of the underlying rocks, materially aid the geological delineation of these rock types in this glacial moraine covered area.

2 - The chargeability data would be expected to define areas of pyritisation within the survey area.

3 - The near surface, relatively narrow, vein type sulphide deposits would be displayed by the induced polarization

data, and where conductive, by the resistivity data.

For the most part, the gradient array method appears to work as expected, however, as the mining areas were approached, high noise levels arose from the operation of the DC trams. Thus the eastern portion of the following lines were surveyed using a moving Schlumberger array: 9200N, 9800N and 10400N.

The problem first became evident at Lake Margaret but here a convenient shutdown period enabled the gradient to be efficiently run, however, at Little Owen this was not possible. Therefore a different method of obtaining neaningful data had to be found. As would be expected, both dipole-dipole and pole-dipole work demonstrated, as did gradient array, that the noise levels were too great for meaningful data to be obtained in an economic fashion. This problem was resolved by the use of a "moving Schlumberger array". This system, due to the short 500 feet current dipole and the internal potential dipole, utilises higher effective current concentrations in the vicinity of the induced polarization measurement. In practice this is some 100 fold greater than for a 10,000 feet gradient array, 40 fold greater than a 2000 feet gradient array, and some 5 to 10 times greater than for the normal moving source arrays of equivalent depth penetration. The practical application of this array gave no noise problems whatsoever.

The practical limitations of the array are (i) that its maximum depth penetration is limited to just in excess of 100 metres, (ii) the current electrodes must be moved along line, and (iii) the passage of each current electrode over an anomalous concentration of chargeable material will also yield an anomalous response, but of smaller dimensions to the main response, which will be contained between the 100 feet potential dipole in the centre of the 500 feet current dipole. A to scale diagram of the array employed is shown on Plate 1 of Report TAS-018D*, and a typical response from a narrow body is seen on line 22W where the source lies immediately below 12.5S, and the subsidiary anomalies at 9.5S and 15.5S are due to responses when the current dipoles are in close proximity to the source. The width of this zone is some 50 to 80 feet, and in these circumstances the "triple" response is easy to identify. However, in wide zones such as that observed between 8S and 11S on line 39W, the picture is somewhat more complex.

With respect to the gradient surveys, it was anticipated that any areas of pyritisation defined in the surveys may be subject to additional geophysical surveys, as well as careful geological examination and, where feasible, geochemical surveys.

Further narrow, conductive chargeable responses considered

* Comstock Grid.

characteristic of the Cape Horn type deposits should receive especially careful ground follow-up.

DISCUSSION OF RESULTS

The data profiles for both the gradient and moving Schlumberger arrays are presented on Sheets 1 and 2 of Plate 1 at the horizontal scale of 1 inch = 200 feet with the chargeability displayed at the scale of 1 inch = 10 milliseconds for the IPR-7 and 1 inch = 10 millivolts/volt for the IPR-8. The resistivity data was displayed on a two inch log cycle and expressed in ohm-metres, with the total field magnetic data shown on a scale of 1 inch = 250 gammas. The base levels for plotting were 0 milliseconds (millivolts/volt), 1000 ohm-metres and 62,500 gammas, respectively.

Plates 2, 3 and 4 respectively, display a contour interpretation of the chargeability, resistivity and magnetic data at a scale of 1 inch = 500 feet. Only the gradient data has been contoured in Plates 2 and 3 as the multiple response Schlumberger array data is not compatible. Each gradient block is contoured separately. Along strike, continuity between current dipole blocks was, as expected compatible however, "end on" current dipole blocks cannot be expected to produce identical values, as non-identical volumes of

material are sampled, especially as the current poles are approached. However, these results are entirely predictable.

The gradient array current dipoles employed to energise the grid area were as follows:

Line	Electrodes	Dipole	Lines Surveyed
2000N	1250W and 3750E	5000'	800N, 1400N, 2000N, 2600N, 3200N
2000N	1000E and 6000E	5000'	800N, 1400N, 2000N, 2600N, 3200N
4400N	750W and 2250E	3000'	3800N, 4400N, 5000N
4400N	750E and 3750E	3000'	3800N, 4400N, 5000N
4400N	2250E and 5250E	3000'	4400N, 5000N
6200N	750W and 2250E	3000'	5600N, 6200N, 6800N
6200N	750E and 3750E	3000'	5600N, 6200N, 6800N
5600N	2250E and 5250E	3000'	5600N, 6200N, 6800N
5600N	3750E and 6750E	3000'	5600N, 6200N, 6800N
8000N	750W and 2250E	3000'	7400N, 8000N, 8600N
8000N	750E and 3750E	3000'	7400N, 8000N, 8600N
8000N	2250E and 5250E	3000'	7400N, 8000N, 8600N
8000N	3750E and 6750E	3000'	7400N, 8000N, 8600N
8000N	5250E and 8250E	3000'	7400N, 8000N, 8600N
9800N	750W and 2250E	3000'	9200N, 9800N, 10400N
9800N	750E and 3750E	3000'	9200N, 9800N, 10400N
9800N	2250E and 5250E	3000'	9200N, 9800N, 10400N

The following gradient block was surveyed using an IPR-8 receiver reading in millivolts/volt rather than milliseconds. The relationship between these units is described in detail in Appendix 'IPR-8'. However, one millisecond is equivalent to about 1.5 millivolts/volt.

Line	Electrodes	Dipole	Lines Surveyed
6200N	6250E and 3750E	2500'	5600N, 6200N, 6800N

Those lines surveyed using a moving Schlumberger array having a current dipole of 500 feet and a potential dipole of 100 feet and using an IPR-8, are as follows:

Line	Co-ordinates
9200N	2950E to 6850E
9800N	4450E to 6850E
10400N	4450E to 6650E

The Contour Interpretations

Resistivity - The observed resistivities ranged between 1000 ohm-metres to just under 15,000 ohm-metres, but 3000 - 4000 ohm-metres can be considered average.

The most resistive rock units recorded in the area were the Queenstown Pyroclastics in the western central and western southern part of the grid. An additional resistive

rock unit was the Andesite Intrusive, but only on the western ends of lines 4400N to 5600N inclusive.

The most conductive area surveyed was, as would be expected, over the glacial moraine on the western extremities of lines 7400N to 8600N. Other less resistive units included most sediments, and the north eastern quartz porphyry. - strange - qtz porphyry layers at Tyndall which are very similar - very resistive 40,000 ohm/metre

no glacial moraine

Chargeability - The recorded apparent chargeabilities ranged from less than 4 to greater than 25 milliseconds, however, the average background can be considered to be between 8 and 10 milliseconds.

Magnetic Field - The magnetic field showed a local variation rarely greater than 1000 gammas in the total field. The more magnetically active rock units included the Andesite Intrusives and the synclinal core of the Queenstown Pyroclastics. The zones of relatively undisturbed magnetic field occur over the areas mapped as agglomerates and sediments.

A general study of the three contour maps does not permit clear cut boundaries to be drawn between the various mapped rock units, only subtle differences can be seen.

Some notes on the interpretation are warranted. With the

gradient array the source of the reading lies between the two equipotential surfaces tapped by the two potential pots employed. For the most part then, when working in the centre section of a gradient array, the source will be "immediately below" the potential dipole used. The reliability therefore of positional information with gradient array is excellent, however, the depth at which the response occurs is difficult to assess with accuracy. The maximum depth can be estimated from a consideration of the profile shape, but the accuracy of this approach will depend on a minimal current dipole length, and of course sharp boundaries to the body. The resolution therefore is not better than half to quarter of the dipole. Many of the maximum depths of 50 feet may in fact either outcrop or sub-outcrop. Some moving source array would be required to obtain an accurate depth estimate.

Similarly the width of bodies is not easy to determine for zones having a width less than half the dipole spacing used. Thus, estimated maximum widths are educated guesses at best for narrow zones. However, wider bodies can be resolved more accurately.

The attitude of a chargeable zone can only really be gauged with any precision in the centre of the gradient array, and of course where the body has a strongly contrasting chargeability

and apparent resistivity to that of the enclosing rock units.

All field measurements were taken between slope distances along lines. This will, in steep areas, produce errors in the calculated apparent resistivity data. However, these errors will be arithmetic, and as significant changes in resistivity are logarithmic, this source of error is not significant. In assessing the position of the source in areas of extreme terrain, it does not lie vertically below the plotted position of the anomaly, but normal to the "local slope". All positions in the text refer to source positions normal to the local slope.

Line by Line Description

Line 800N - Anomalies of about 5 to 6 milliseconds were located centred at 1750E and 2250E respectively. The former is certainly from a resistive source but the latter shows some weak conduction within the host. However, the absolute apparent resistivity of 2500 ohm-metres does not suggest a conductive source as such. The maximum width and depths are 80 feet and 80 feet and 50 feet and 50 feet respectively.

A 5 to 6 millisecond response between 3460E and 3600E from a relatively resistive source, is considered of minor significance only.

Line 1400N - A single point response at 1050E and a broad response between 1500E and 1750E of about 5 milliseconds above background are considered of minor interest only.

A 5 millisecond chargeability response at 3100E is coincident with very weak conduction within the source relative to the enclosing rocks, and a 150 gamma magnetic field distortion. The maximum width and depth are interpreted to be of the order of 50 feet. The source is considered to consist mainly of disseminated sulphides, with some magnetite present.

Line 2000N - Superimposed on a broad high of 8 milliseconds, a well defined peak of 6 milliseconds was recorded centred at 750E. There is no associated magnetic response and the resistivity profile shows only minimal depression in the vicinity of the anomaly. The source is interpreted to be disseminated sulphides at a maximum depth of 50 feet. This response may be assosicated with that seen between 550E and 800E on the previous line.

A broad 5 to 6 millisecond high between 1100E and 1700E may be related to that described on line 1400N between 1500E and 1750E. A broad zone of disseminated sulphides of the order of ½% - 1% by volume is suggested as the source for this response.

Small, 4 millisecond or so responses at 2650E and 3150E associated with minor depression in the resistivity profile lie within a magnetically anomalous zone. The source is put down to near surface segregations of sulphides and magnetite, the former, however, making up the majority of the IP response.

Line 2600N - Two broad zones of 7 to 8 milliseconds recorded on this line between about 450E and 1000E and between 1200E and 1400E were coincident with similar broad distortions in the magnetic field of 200 to 300 gammas. As there is no depression in the resistivity profile, the main source of the IP response is disseminated sulphides with magnetite making a minor contribution.

Line 3200N - The broad zone of induced polarization response referred to above correlates with a zone of similar characteristics seen on this line between 600E and 1400E. Again disseminated sulphides with some magnetite are the source.

A well defined response of 25 milliseconds above background was recorded centred at 310E. The asymmetry of the profile suggests a steep east dip. A complete absence of any depression in the apparent resistivity profile clearly shows disseminated or massive electrically discontinuous sulphides as the source. 2½% sulphides across the 60 feet

width are the interpreted source. Although magnetite is present it only makes up a minor percentage of the causative material.

Between 2750E and 2850E a 5 to 6 millisecond response coincides with a minor depression in the resistivity profile. This anomaly is interpreted as coming from a zone of disseminated sulphides of ½% by volume.

Other responses on this line are considered of minor interest only.

Line 3800N - Between 650E and 1150E a broad chargeability response is associated with a broad low amplitude depression in the apparent resistivity profile. This is a northern extension of the broad zone of disseminated sulphides recorded on the two previous lines.

A small response at 1850E is interpreted to come from a disseminated source some 80 feet wide at a maximum depth of 50 feet below surface. The magnetic data suggests the occurrence of magnetite in close proximity to the sulphides.

A feature of the magnetic profile is a reverse anomaly between 1400E and 1650E coincident with a very highly resistive unit. The origin may be reversely magnetised magnetite within

siliceous Tuffs. This feature assumes some prominence immediately to the north.

Line 4400N - A series of significant responses were recorded on this line, the first of which was recorded between 850E and 1000E, where a 10 millisecond anomaly coincident with a 70% depression in apparent resistivity was recorded. The source is interpreted as being a 150 feet wide source whose top lies within 50 feet of surface. The asymmetry of the profile infers a west dip. The source material is considered to be disseminated sulphides or electrically discontinuous sulphides of a percentage of 2% or so over the 150 feet width. A zone of prime interest.

A second zone of prime interest was recorded centred at 2050E. The 80 to 100 feet wide source has an interpreted west dip and is composed of essentially disseminated sulphides.

A broad zone of 8 to 10 milliseconds recorded between 2750E and 3100E is coincident with an 80% fall in the background resistivity and a 750 gamma magnetic response. The source material is interpreted to consist of disseminated sulphides with magnetite, but may also show more electrically continuous but narrow zones - for instance at 2800E. Again this is a zone of prime interest. The geological map shows that this zone lies just east of an Andesite Intrusive, and just

north of an area mapped as sediments. Pyritic and/or graphitic shales may also be a possible source.

A major change in resistivity form from over 6000 ohm-metres at 3650E to 800 ohm-metres at 3750E is accompanied by a distinct 5 millisecond anomaly on the contact between the two rock units which cause this remarkable change. The anomaly at 3700E has a maximum width of 40 feet, a maximum depth of 25 feet and the asymmetry of the profile form suggests an east dip. This anomaly occurs within an area where sediments have been recorded. However, the geophysical characteristics suggests a careful follow-up is warranted.

A major reversal in the magnetic field between 1000E and 1600E peaking at 1400E with a 1000 gamma response (relative to background) is coincident with a high resistivity unit between these co-ordinates. Reversely magnetised magnetite is the suggested source material. As there is no associated chargeable response, this is considered not to have any potential economic interest.

Line 5000N - This line contains few responses of significance. However, possible correlatives of those described above do occur and are as follows:

Feature	Line 4400N	Line 5000N
IP High	900E	700E
IP High	2050E	2150E
Broad IP Response	2750/3150E	2850/3250E

Line 5600N - A pronounced rise in chargeability from the local base level at 600E of 6 milliseconds to 18 milliseconds at 00 is accompanied by a sympathetic fall in the apparent resistivity from 6500 ohm-metres to 2000 ohm-metres. The magnetic field is significantly lower than to the east of this same zone. The possible source is a gradational change in rock type with an increase in the pyritic content within the pyroclastics mapped in the vicinity.

Between 1450E and 1975E somewhat higher IP background was noted. Between 1825E and 1975E the level is over twice background and is associated with a minor but distinct depression in the apparent resistivity profile to 2800 ohm-metres. The source material is probably disseminated sulphides with magnetite on the western flank.

A strong 8 millisecond anomaly at 2350E from a resistive source is interpreted to come from a source not deeper than 25 feet and dipping to the east.

A very similar response at 2750E occurs within an anomalously

high magnetic area which is interpreted to also come from a disseminated sulphide source having a width of about 80 feet, an eastern dip and a maximum depth of 50 feet.

A narrow anomaly at 3150E whose source has a width not greater than 25 to 30 feet and a maximum depth of not greater than 20 feet or so, is associated with a minor depression in the resistivity profile. However, if the mineralised zone is significantly narrower than can be resolved using the 100 feet potential used in this survey it would not necessarily show up clearly.

The most easterly anomaly located on this line using the IPR-7 was defined at 4550E, where a 6 millisecond anomaly from a resistive source is interpreted as originating from a disseminated sulphide source.

A further section of the line was surveyed using an IPR-8. With this instrument 1 millisecond is equal to approximately $1\frac{1}{2}$ millivolts/volt.

The only significant response recorded with the IPR-8 was located at about 5530E where a material 20 mv/V anomaly was observed within a slight depression in the resistivity background. The inferred dip is steeply to the east. The source is interpreted to be disseminated sulphides within a very weakly conductive host zone 80 feet in width at a

maximum depth of not greater than 120 feet. An examination of decay form shows a very slight progressive increase in M_1, M_3 and M_5, inferring a normal grain size distribution near surface. This response is recommended for careful follow-up work.

Line 6200N - Between 1550E and 2350E and between 3150E and 4600E, higher than background chargeability was observed within a generally higher magnetic background. A formational origin is postulated to explain these variations.

Some three low amplitude anomalies at 200E, 4575E and 4820E are all interpreted as coming from essentially disseminated sulphide sources being within 50 to 70 feet of surface

A broad zone of high magnetic relief between 1600E and 3200E is clearly associated with an Intrusive Andesite mapped between these co-ordinates.

A further section of the line was surveyd using an IPR-8. With this instrument 1 millisecond is equal to approximately $1\frac{1}{2}$ millivolts/volt.

The general resistivity and chargeability profile form over this section does not show much similarity. At 4850E and 5130E, two chargeability anomalies of 7 to 8 millivolts/volt

were defined, each of which shows only minimal conduction. The maximum depths are 120 feet and 150 feet respectively, while the inferred widths of the sources are 80 feet and 100 feet respectively. The former occurs over a proposed fault, while the latter occurs south of mapped siltstones Both sources are essentially disseminated sulphides or graphite.

A broad zone of twice background chargeability was recorded between 5450E and 5750E. As the resistivity remains a high 2000 to 3000 ohm-metres, the source is disseminated sulphides or graphite. This anomaly is worthy of careful follow-up as it occurs within a prospective geological horizon, overlain by moraine.

West of 5950E the apparent resistivity and chargeability increase in sympathy to 6050E where the survey ends. As the area is mapped as Owen Conglomerates this anomaly is considered of minor interest only. It is certainly due to disseminated sulphides, which tends to be confirmed as M_5 is slightly larger than M_1.

Line 6800N - At 125E a well defined response of 7 milliseconds was recorded coincident with an increase in apparent resistivity. The interpreted source is disseminated sulphides.

A minor single point, 5 millisecond anomaly at 650E not associated with any change in the resistivity profile infers a disseminated sulphides source.

A depression in the apparent resistivity profile form from the background of about 5000 ohm-metres is associated with a 5 millisecond anomaly at 2250E. The source is again assessed to be disseminated sulphides.

A six millisecond , 150 feet wide anomaly was defined between 3400E and 3650E. With the exception of station 3400E, there is no reflection of this in the resistivity profiles, therefore the source is interpreted as being disseminated sulphides.

Three minor responses at 4150E, 4600E and 5400E are all associated with a slightly conductive host. However, the sources of all these are considered to be disseminated sulphides. The first named is associated with an old mine shaft and the occurrence of pyrite.

A further section of the line was surveyed using an IPR-8. With this instrument 1 millisecond is equal to approximately $1\frac{1}{2}$ millivolts/volt.

A broad response of some 8 to 9 mv/V was recorded between

5350E and 5475E centred at about 5450E. Only a slight depression in resistivity was noted over this anomaly and a slight increase in magnetic field of about 250 gammas was recorded, inferring the presence of magnetite within the disseminated sulphides which are the interpreted source. The decay curve shows only a slightly longer time constant than normal, inferring a normal grain size distribution near surface. The Great Lyell Adit is in close proximity to this anomaly. From its form, it can readily be seen that a number of other IP response of a similar nature require very careful follow-up work.

Line 7400N - The anomaly noted above on line 6800N between 3400E and 3650E is clearly correlated with an almost identical response on this line between 3400E and 3700E. This zone occurs within an area mapped as coarse agglomerates. Again disseminated sulphides are the suggested source as there is no significant depression in the apparent resistivity profile. Magnetite also occurs within this zone as there is a distinct 250 gamma response over this zone.

A distinct 8 to 9 milliseconds anomaly was defined centred at 5250E, with an asymmetry that suggests an east dip for this 80 feet wide source which is estimated to have a maximum depth of 50 to 70 feet. The anomaly lies within an area mapped as siltstones with shale bands.

Therefore the chargeability could be caused by either disseminated graphite or pyrite.

The 17 millisecond anomaly at 5850E is associated with a sharp change in resistivity occurring on the eastern side of this change. The maximum depth and width is assessed as being 60 feet and 80 feet respectively. The zone lies within an area mapped as "moraine covered", but along the postulated position of a major fault. Also along strike, shales and siltstones have been recorded. The source is therefore interpreted as being disseminated pyrite or sulphides probably of sedimentary origin. Nevertheless the zone should receive careful follow-up work.

Line 8000N - A broad 5 to 6 millisecond response was recorded at 1650E coming from a source interpreted as having a maximum depth of 80 to 100 feet and being about 100 feet wide. There is no magnetic anomaly at this point, however, to the immediate east a substantial rise in magnetic field was recorded. The source is interpreted as disseminated sulphides.

No further anomalies of significance were recorded until 6200E. At this point a rapid increase in chargeability was recorded from 3 milliseconds to in excess of 15

milliseconds. The background apparent resistivity for some hundreds of feet either side of this response is a relatively low 1000 to 1200 ohm-metres. This anomaly occurs within a zone mapped as moraine in close proximity to the mapped position of the fault referred to above. Careful follow-up is recommended as this lies within a particularly favourable geological zone.

A second but smaller anomaly was defined at 6525E, again with little or no depression in the relatively low background apparent resistivity of 1000 to 1200 ohm-metres. The source is interpreted as being either graphite or sulphides in a disseminated form.

Line 8600N - A broad response of from 15 to 18 milliseconds was recorded between 600E and 1450E within resistive background and in a magnetically quiet area. Tuffs and sediments have been recorded in the general area. The source is suggested as disseminated pyrite or perhaps graphite.

A substantial and well defined chargeability response recorded between 3820E and 4120E is interpreted as coming from two sources in close proximity centred at 3980E and 4070E. The former has a disseminated or electrically discontinuous source. There is no associated magnetic anomaly.

Coarse sheared agglomerates have been mapped in the area. The interpreted source is essentially disseminated sulphides, showing some conduction in parts.

At 4450E an increase in chargeability from 7 milliseconds to 19 milliseconds was recorded coincident with an increase in apparent resistivity. The interpreted source is disseminated sulphides.

An excellent 12 millisecond response at 6250E associated with a slight depression in the apparent resistivity profile is interpreted as coming from a disseminated graphite and/or sulphide source whose maximum width and depth is 100 feet and 50 feet respectively. The asymmetry of profile form suggests a steep west dip. This response lies in close proximity to mapped sediments and the postulated position of a major fault, but under glacial moraine. Careful follow-up is suggested.

Line 9200N - Within a broad 50% depression in the apparent resistivity profile centred at 1470E, a well defined 8 millisecond response was recorded. This is interpreted as coming from a source having a maximum depth of 40 feet or so and a width of the order of 80 feet. As there is no distortion in the magnetic field, magnetite makes no contribution to the source material. The interpreted

source material is disseminated sulphides within the Tuffs.

A major 15 millisecond induced polarization anomaly centred at 1800E is coincident with a marked depression in the apparent resistivity profile from in excess of 3000 ohm-metres to just over 1000 ohm-metres. This response is coincident with the postulated position of a major fault and as such warrants further careful investigation. The maximum width and depth of the source is assessed to be 50 feet and 60 feet respectively.

Two minor chargeability responses of 10 and 15 milliseconds were recorded within a significant depression in the resistivity profile at 2950E and 3050E.

Line 9800N - A 12 to 13 millisecond anomaly at 1480E is coincident with an 85% reduction below background apparent resistivity to 300 ohm-metres. This response is clearly correlated with that seen on line 9200N at 1470E, and is more substantial. The maximum depth and width of the source is estimated to be 50 feet and 70 feet respectively, and the source material is either graphite or more likely, sulphides of a disseminated nature, but showing some conduction within the host material. This anomaly is considered of prime interest for further study.

A second anomaly of prime interest was defined centred at 1820E within a minor resistivity depression. This anomaly is positioned on the postulated position of a major fault and correlates with the response recorded at 1800E on line 9200N. The source is interpreted to consist of disseminated sulphides within a zone of about 120 feet in width, at a maximum depth of 70 feet.

At 3680E a chargeable response of greater than 10 milliseconds was recorded from a source having a maximum depth of 100 feet, and being about 150 feet in width. The insignificant depression in resistivity and the absence of any magnetic response infers a disseminated sulphide origin. This anomaly is clearly associated with that seen on line 9200N at about 3650E.

Line 10400N - Within a broad resistivity low, a minor chargeability high of 5 to 7 milliseconds was noted at 1450E. This response is clearly related to that recorded at about the same co-ordinates on the previous two lines.

A major anomaly of 20 milliseconds above the 10 to 12 millisecond background was recorded at 1830E from a source estimated to have a maximum depth of about 50 feet and a maximum width of about 70 feet. The asymmetry of the profile form suggests a steep to moderate east dip - assuming of

course a well defined body. The very minor depression in resistivity suggests only the weakest of conduction within the source. This response occurs over the proposed fault zone, and, correlates with similar anomalies described on previous lines.

Moving Schlumberger Arrays were carried out using an IPR-8 over the eastern flanks of lines 9200N, 9800N and 10400N. With this array a single substantial anomaly will be expected from a body when it is positioned within the potential dipole, and less substantial anomalies when each of the two current poles come in close proximity to the source. The effective penetration of the array is of the order of half the current dipole employed. In this case the current dipole was 500 feet and the potential dipole was 100 feet.

Line 9200N - A single point, 8 to 9 millivolts/volt response from a narrow chargeable zone was recorded from within 4600E to 4700E. The resistivity profile shows only slight reduction in the apparent resistivity, inferring a disseminated source. This anomaly occurs north along strike of an area mapped as coarse Sheared Agglomerates, which has given rise to substantial chargeability anomalies to the south.

A similar zone of less significance was recorded from between

6200E and 6300E. Although the resistivity data showed some conduction, the source is still assessed to be of a disseminated nature. This anomaly occurs in the vicinity of a major fault, and within an area of particular geologic interest.

Line 9800N - A broad zone of up to 50% above background chargeability was defined centred at 5400E. The multiple image of the array makes it difficult to resolve the width of the anomaly with any accuracy, however, the presence of a greater than 50% reduction in the apparent resistivity centred at about 5480E, enhances this anomaly's interest. The geological setting is across a proposed fault line in the vicinity of extensive quartz veining, and north of the coarsely sheared agglomerate unit which has been the site for numerous significant anomalies to the south.

The 8 to 9 millivolts/volt response from a narrow source between 6100E and 6200E is assessed to come from a disseminated source as there is no depression over the anomaly at this point.

A pronounced response of up to 12 millivolts/volt was defined at 6650E $\pm$ 50 feet. The zone is difficult to delineate in detail due to the multiple image nature of the array. However, it is centred between 6600E and

6700E. Again only a minimal depression in the apparent resistivity profile infers a disseminated source. The anomaly occurs within an area mapped as highly sheared Siltstones. These may in fact contain either pyrite or graphite. The pronounced resistivity low at 6400E probably respresents the shear zone.

Line 10400N - Two sources in close proximity are assessed to lie between 3550E ± 50 feet and 3750E ± 50 feet. The latter has a slightly more conductive source. The widths are difficult to assess, but the sources lie within 100 feet of surface. The chargeability response comes from an area mapped as an Andesitic Intrusive.

East of 5000E the chargeability increases dramatically from a background of 8 to 10 millivolts/volt to a "background" of over 25 millivolts/volt as far east as the end of the line at 6800E. Within this highly chargeable zone which traverses the Tuff and highly sheared Siltstone areas west of the postulated fault at 5300E, is quite unlike any other zone surveyed over this grid. Widespread disseminated sulphides are the suggested source. Within this very high background response, four zones centred within ± 50 feet of the following co-ordinates, 5450E, 5750E, 6550E and 6750E, were recorded. Only on the first and last named is there any slight reduction in the resistivity profile. The source

of all four is again suggested as disseminated sulphide, or if massive, electrically discontinuous. This whole zone requires careful ground follow-up.

CONCLUSIONS

1 - The known mineralisation whether "massive" or"disseminated" would be expected to be recorded as essentially discontinuous as seen by the induced polarization method. This view is confirmed as a result of the present surveys in the vicinity of the Great Lyell Adit. It is suggested that a careful study be made of the results of this survey in the vicinity of known mineralisation, prior to an evaluation of the results presented in this report. However, it is concluded that many of the chargeable anomalies located are similar to those expected over economic mineralisation.

2 - The apparent resistivities showed only a limited range of values between 1000 and 15,000 ohm-metres. The various rock units in the area rarely showed clear-cut boundaries between units.

3 - The general levels of chargeability were on the whole a normal 8 to 12 milliseconds. Again, on the whole, rock units did not exhibit well defined induced

polarization levels.

4 - The magnetic field showed only limited variation within the area surveyed. The only rock type to show a significant signature was the Andesite Intrusive unit. However, a number of the induced polarization anomalies have associated magnetic responses indicating the presence of magnetite.

5 - The present survey has efficiently outlined chargeable responses for further study. These have been assessed on the physical properties studied, namely, chargeability resistivity and magnetic field. However, potential economic interest must be biased by the geological and geochemical environment of each anomaly and not their geophysical properties along.

6 - In spite of steep topography and bad weather, it is concluded that the present gradient technique was the most efficient manner in which to carry out a reconnaissance survey.

7 - The moving source Schlumberger array proved to have the noise rejection capabilities calculated for it. However, this was achieved at the cost of a loss of resolution and penetration.

RECOMMENDATIONS

1 - An assessment of the potential economic interest of each of the induced polarization anomalies located on the Little Owen grid have been made on a basis of their similarity to the geophysical signature of the known orebodies. The three priorities have been assessed on their likeness to the "type" mineralisation

Line	Station	Max.Depth	Max.Width	Magnetic Correlation	Priority
800N	1750E	80 feet	80 feet?	No	C
800N	2250E	50 feet	50 feet	No	C
800N	3525E	60 feet	80 feet	No	C
1400N	1050E	?	?	No	C
1400N	1500E/ 1750E	?	250 feet	No	C
1400N	3100E	60 feet	50 feet	Yes	B
2000N	750E	50 feet	100 feet	No	B
2000N	1100E/ 1700E	?	600 feet	No	C
2000N	2600E	50 feet	50 feet	Yes	C
2000N	3150E	50 feet	50 feet	Yes	C
2600N	450/1000E	?	550 feet	Yes	C
2600N	1200E/ 1400E	?	200 feet	Yes	C
3200N	600/1400E	?	800 feet	Yes	C
3200N	310E	50 feet	60 feet	Yes	A*
3200N	2750E/ 2850E	75 feet	100 feet	No	C
3800N	650/1150E	25' (west)	500 feet	No	C
3800N	1850E	50 feet	80 feet	Yes	C

Line	Station	Max. Depth	Max. Width	Magnetic Correlation	Priority
4400N	850/1000E	50 feet	150 feet	No	A*
4400N	2050E	70 feet	80-100 feet	No	A*
4400N	2750E/ 3100E	50 feet(west)	350 feet	Yes	B
4400N	3700E	25 feet	40 feet	No	A
5600N	1825E/ 1975E	25 feet	125 feet	Yes	B
5600N	2350E	25 feet	100 feet?	No	B*
5600N	2750E	50 feet	80 feet	Yes	B*
5600N	3150E	20 feet	25 feet	No	B*
5600N	4550E	50 feet	100 feet	No	B*
5600N	5530E	120 feet	80 feet	No	A*
6200N	200E	70 feet	100 feet	Yes	C
6200N	4575E	70 feet	100 feet	No	C
6200N	4820E	50 feet	80 feet	No	C
6200N	4850E	120 feet	80 feet?	No	B
6200N	5130E	150 feet	100 feet?	No	B*
6200N	5450E/ 5750E	150 feet?	300 feet?	No	B*
6200N	5950E/?	?	?	?	C
6800N	125E	50 feet	80 feet	No	B
6800N	650E	?	?		C
6800N	2250E	50 feet	80 feet	Yes	B
6800N	3400E/ 3650E	50 feet(west)	250 feet	Yes	A*
6800N	4150E	70 feet	100 feet	Yes	B*

Line	Station	Max. Depth	Max. Width	Magnetic Correlation	Priority
6800N	4600E	70 feet	50 feet	No	C
6800N	5400E	100 feet	100 feet	No	C
6800N	5450E	140 feet	120 feet	Yes	A*
7400N	3400E/ 3700E	50-70 feet	300 feet	No	A*
7400N	5250E	50-70 feet	80 feet	No	B
7400N	5850E	60 feet	80 feet	No	A*
8000N	1650E	80-100 feet	100 feet	No	C
8000N	6200E	25 feet	80 feet	No	A*
8000N	6525E	50 feet	50 feet	No	A*
8600N	600/1450E	100 feet	850 feet	No	C
8600N	3980E	50 feet	150 feet	No	A*
8600N	4070E	50 feet	80 feet	No	A*
8600N	4450E	50 feet	?	Yes	B
8600N	6250E	50 feet	100 feet	No	A
9200N	1470E	40 feet	80 feet	No	B
9200N	1800E	60 feet	50 feet	No	A
9200N	2950E	50 feet	80 feet	No	C
9200N	3050E	25 feet	?	No	C
9800N	1480E	50 feet	70 feet	No	A*
9800N	1820E	70 feet	120 feet	No	A*
9800N	3680E	100 feet	150 feet	No	B
10400N	1450E	?	?	No	C
10400N	1830E	50 feet	70 feet	No	A

Schlumberger Array

Line	Station	Depth	Magnetic Correlation	Priority
9200N	4600E/ 4700E	within 50'		B
9200N	6200E/ 6300E	within 50'		B
9800N	6100E/ 6200E	within 50'		B
9800N	6600E/ 6700E	80 feet		B
10400N	3500E/ 3600E	100 feet	No	C
10400N	3700E/ 3800E	100 feet	No	C
10400N	5000E/ 6800E	See text		A

2 - Those anomalies marked with an asterisk are recommended for local detailing with interline spacing of about 200 feet.

3 - Of greater importance than their similarity or otherwise to the "type" signature, is their geological and geochemical setting. Therefore careful evaluation of each of these anomalies is recommended prior to further geophysical work and/or investigation by diamond drilling.

Respectfully submitted on behalf of:

SCINTREX PTY. LTD.

A.W. HOWLAND-ROSE, MSc,DIC,AMAusIMM,FGS.

GEOPHYSICIST

APPENDIX 'I.P.'

INTRODUCTION

For the benefit of those who are unfamiliar with the Induced Polarization method in general, or with the pulse-type method in particular, a few introductory remarks will be directed on the Induced Polarization, or overvoltage, phenomenon. Those who wish a fuller treatment of the subject are directed to Seigel (1962), which paper also includes an extensive list of references.

Induced Polarization in its broadest sense means a separation of charge to form an effective dipolar (polarised) distribution of electrical charges throughout a medium under the action of an applied electric field. When current is caused to pass across the interface between electrolyte and a metallic conducting body, double layers of charge are built up at the interface, in the phenomenon known to electrochemists as "overvoltage". This is the phenomenon which can be utilised for the detection of metallic conducting, rock-forming, minerals such as most sulphides, arsenides, a few oxides and, unfortunately, graphite. In addition, effective dipolar charge distribution occurs to some extent in all rocks, due to ion-sorting in the fine capillaries in which the current is passing.

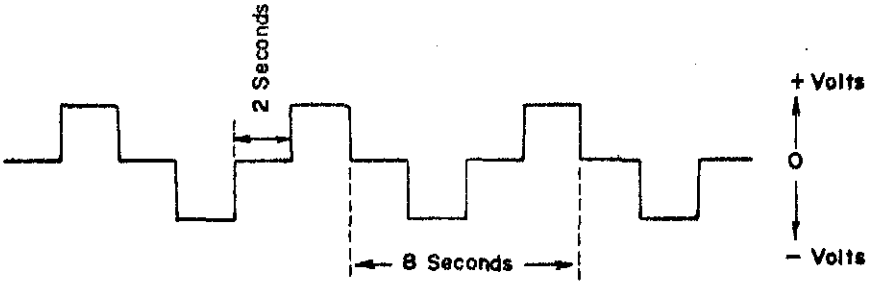
Induced Polarization responses may therefore arise from metallic or non-metallic agencies. Fortunately, the latter generally falls within fairly low and narrow limits for almost all rock types, although there is still no reliable criterion for differentiating overvoltage responses from graphite and metallic sulphides, or for distinguishing between the responses of one type of sulphide and another. Despite these limitations the Induced Polarization method has amply demonstrated its value in mineral exploration since its initial development as a useful exploration tool in 1948 (ed. Wait, 1959).

DESCRIPTION OF METHOD AND EQUIPMENT

For the present programme the pulse or time domain system was employed, using a Scintrex Induced Polarization unit. The standard current-wave form with the unit is two seconds on-time and two seconds off-time. (see Figure 1). This unit features the Newmont type self-triggered receiver which operates remote from the current transmitting equipment. Three fundamental quantities are measured with this unit - the chargeability of 'M' measurement, the 'L' measurement and the resistivity.

The receiver integrates the area under the decay curve during the time interval from 0.45 seconds to 1.1 seconds

MEASUREMENTS TAKEN



Energising frequency is a square wave having a frequency of 0·125 cps.

FIELD MEASUREMENTS MADE

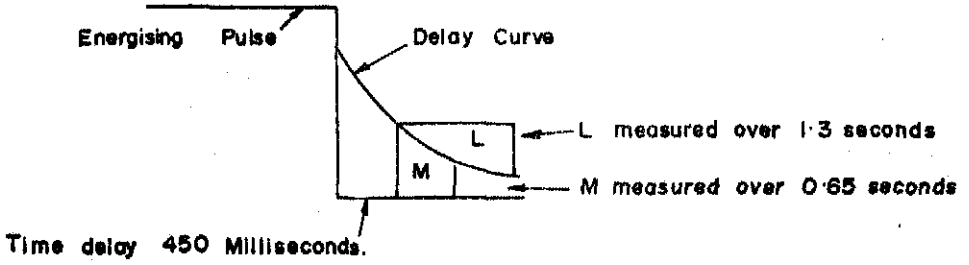


Fig. 1

after termination of the primary current pulse. This integral normalised with respect to its corresponding primary voltage is the chargeability or 'M' measurement, that is, the fundamental Induced Polarization characteristic. It is in units of milliseconds. The Induced Polarization phenomena is dependent on the existence of electronically conducting material within the matrix of ionically conducting material. The chargeability is therefore a measure of the presence of electronically conducting material within the ground being tested.

The second quantity measured is the area over the transient decay curve between 0.45 seconds and 1.75 seconds of the current off-time. This measurement is designated the 'L' measurement and is also in units of milliseconds. The ratio L/M gives a curve factor related to the shape of the transient voltage curve, and is a measure of the rate of decay of the transient voltage. This is of secondary diagnostic value in that the rate of decay of the transient voltage is partially a function of particle size. A large L/M ratio reflects a short time constant, commonly associated with finely disseminated sulphide or graphite, whereas a small L/M ratio reflects the longer time constants associated with the larger sized metallic particles.

The L/M ratio is also effective in determining the presence of electromagnetic coupling effects. With the Scintrex Induced Polarization unit, electromagnetic coupling effects are essentially eliminated by an 0.45 second delay-time following termination of the primary current pulse before measurement of the transient voltage commences. However, in extremely low resistivity areas coupling may occur. Under these conditions the presence of electromagnetic coupling can distort the Induced Polarization response, and it is extremely important to know when this occurs. The presence of such coupling is immediately recognizable from the L/M ratios.

Resistivity measurements are also made as an integral part of all Induced Polarization measurement using the Scintrex Induced Polarization unit. The resistivity values are of primary importance in determining subsurface geological features such as contact zones, faulting, etc., and are of assistance in mapping the geology in general.

Electrode geometries (see Figure 2) utilised in obtaining field measurements are important and no one electrode array is applicable for all conditions. In areas where a low resistivity oxidised surface layer overlies a much higher resistivity freshrock, a high degree of

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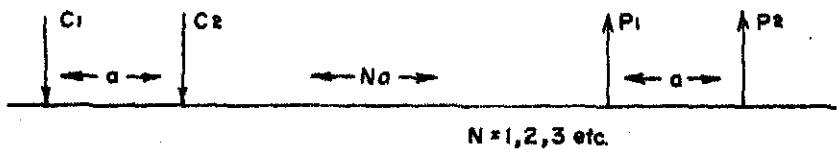
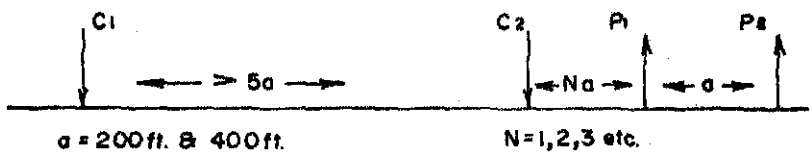
COMMONLY USED ELECTRODE ARRAYS

CLOSE – COUPLED ARRAYS

DIPOLE – DIPOLE



POLE – DIPOLE



GRADIENT ARRAY

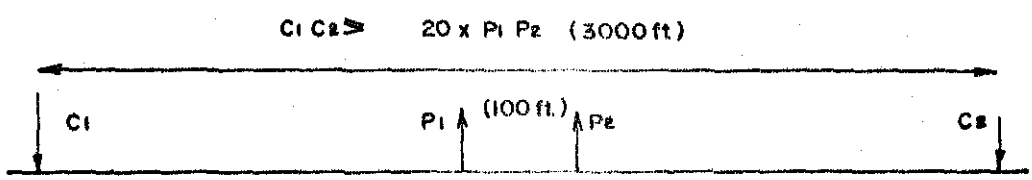


Fig. 2

masking occurs using any of the close-coupled arrays, such as pole-dipole or dipole-dipole. An electrode spacing many times greater than the depth to freshrock must be used in order to obtain responses reasonably representative of the freshrock. With such large electrode spacings the physical properties are effectively averaged over so large a volume that we lose the ability to detect moderate sized bodies of polarizable material. However, under these conditions the gradient array is both feasible and desirable in that it minimises the effects of masking and at the same time has a high degree of resolution for small targets.

In the present areas of investigation, abnormal induced polarization responses may be expected to arise from the electronically conducting sulphide minerals such as pyrite, pyrrhotite, chalcopyrite and pentlandite, plus graphite and magnetite. The response from magnetite has been found to be quite variable and somewhat unpredictable, reflecting the great variation in the mode of electrical conduction in this material. It is not always possible to differentiate between these potential sources of high chargeability from the Induced Polarization and resistivity data alone. Complementary geophysical, geochemical and geological data enable a more complete interpretation to be made of the Induced Polarization data.

REFERENCES

Seigel, 1962 "Induced Polarization and Its Role in Mineral Exploration" H.O. Seigel, Canadian Mining and Metallurgical Bulletin, April, 1962.

ed. Wait, 1959 "Overvoltage Research and Geophysical Applications" editor J.R. Wait, Pergamon Press, London, 1959.

APPENDIX IPR-8

I INTRODUCTION

The basic equipment required for an Induced Polarization survey consists of a transmitter, a receiver, wire and electrodes.

Most time domain induced polarization transmitters transmit square waves with equal "on" and "off" times. Polarity is automatically changed between the pulses. The waveform shown below indicates how the current is usually transmitted. The pulse times range from 1 to 8 seconds.

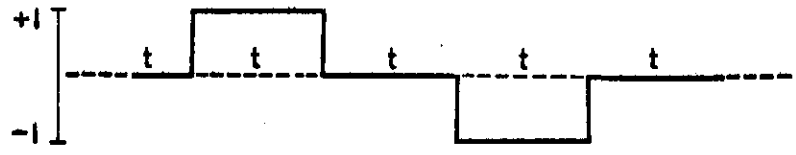


FIGURE 1A

The transmitter is powered by batteries (portable type units) or a motor driven generator. Scintrex manufactures various time domain induced polarization transmitters ranging in power from 25 watts to 15 kW. The choice of a transmitter depends on various factors such as: the electrode spacings to be employed, contact resistance and the resistivity of the subsurface. The IPR-8 receiver is designed for use with any time domain induced polarization transmitter.

The IPR-8 time domain induced polarization receiver is of the state-of-the-art design, packaged in a rugged and portable manner. Using integration and automatic normalization, it measures the characteristics of an induced polarization decay curve set up by overvoltage and other effects occurring in rocks. When induced polarization effects (such as due to metallic-non metallic interfaces in rocks) occur, the waveform received at the receiver is not the same square wave as transmitted by the transmitter. The waveform shown below indicates the sort of wave distortion which is caused by the induced polarization phenomena.

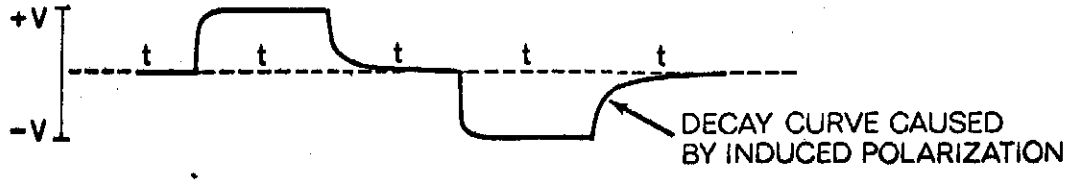


FIGURE 1B

II SPECIFICATIONS

The IPR-8 has the following specifications:

Input Impedance	3 megohms
Primary Voltage (Vp) Range	300 microvolts full scale to 40 volts full scale in 10 ranges
Accuracy of Vp Measurement	±3% of full scale
Vs/Vp Ranges	20 and 100 mV/V full scale
Vs/Vp Accuracy	±3% of full scale
Primary SP Buckout Range	±1 volt
Accuracy of SP Measurement	±3%, ±5 mV
Automatic SP Tracking Range	6 x Vp, maximum ±1 volt
Continuity Meter Reading	0 - 500 k ohms
50 or 60 Hz Powerline Rejection	-50 db (300x)*
Low Pass Filter	6 db/octave with fc = 20 Hz and 12 db/octave with fc = 36 Hz
Required Stability of Transmitter Timing	Need only exceed measuring program selected (1 or 2 seconds)
Operating Temperature Range	-30°C to +60°C
Dimensions	320 mm x 135 mm x 160 mm
Weight, Complete with Lid and Batteries	3.6 kg
Power Supply	4 D cells - Eveready No. 1050 or equivalent; estimated battery life 2 months intermittent duty at 25°C 1 Alkaline cell Eveready No. E91 or equivalent; estimated life 1 year

* 50 or 60 Hz depending on power system.

III QUANTITIES MEASURED BY THE IPR-8

Figure 2 shows the different parameters measured by the IPR-8. The usual measurements are Vp, the received primary voltage and "M", a parameter related to the transient curve. The Vp measurement is used in resistivity calculations while M is the chargeability (induced polarization) parameter. In addition, absolute values of the self-potential (SP) can be measured.

In all cases, the M quantity measured by the IPR-8 is the mean value of the transient voltage over a selected time interval to which the following normalizations have been applied:

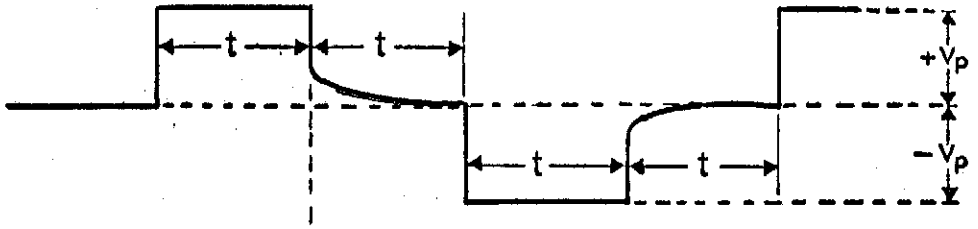
- normalization for the length of the integration interval
- normalization for the primary steady state voltage (Vp)
- normalization for curve shape
- normalization for number of pulses

The units of the quantities measured are, therefore, dimensionless and are normally expressed in "millivolts per volt".

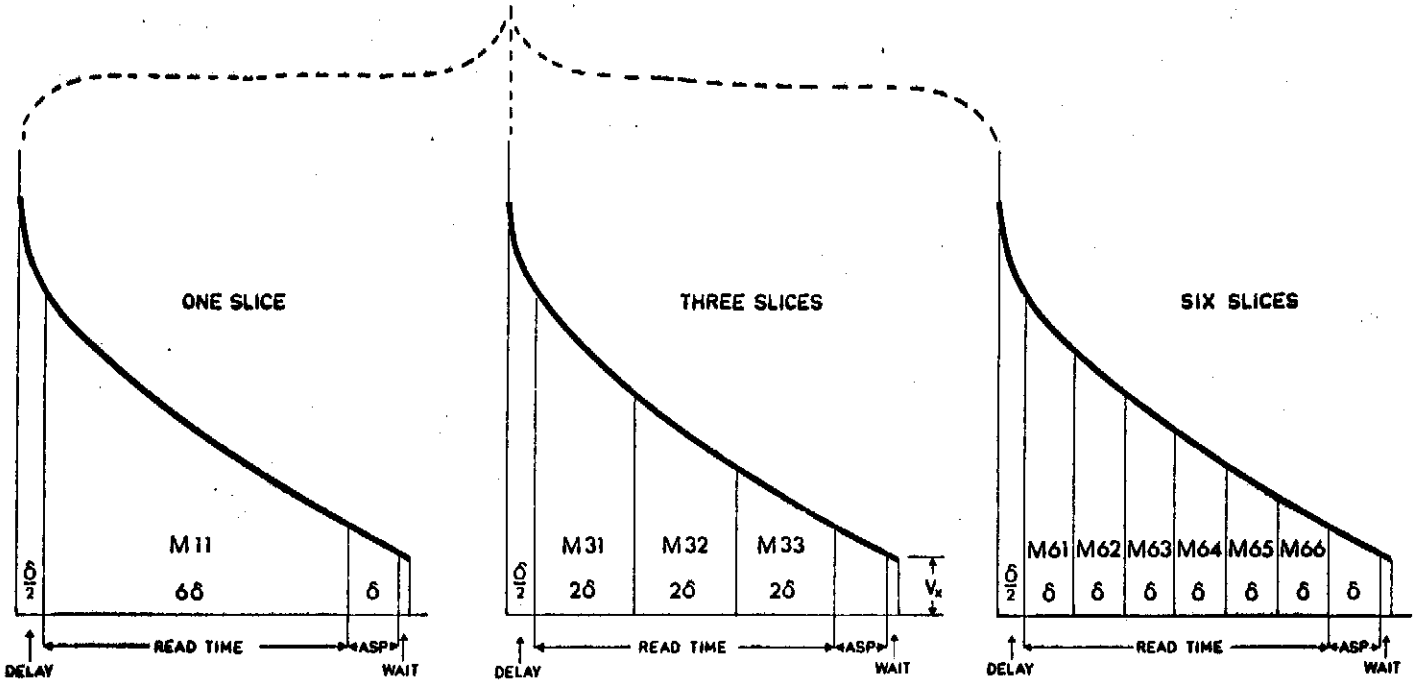
In the various modes of operation the transient voltage following the interruption of the primary current pulse is either integrated over one long period of time or sliced into either 3 or 6 slices. By using 6 slices, a good record of the decay curve shape can be obtained. The 3 slice mode gives some curve shape information and provides an economical standard mode in which to operate. The centre slice of this mode is reasonably close to the measurement made by the Scintrex IPR-7 and other receivers of the "Newmont Type", while the first and last slices can be used for a rapid check of curve shape. A more precise relationship is, however, presented later in this section.

Figure 2 shows the actual times used. For the receiver to operate, the transmitter timing may be any time period of one second or greater (i.e. $t \geq 1$ second) although transmitter and receiver timings of 2 seconds are considered normal for most surveys. Equal on and off timing assures the best noise rejection as the signal is averaged over the longest possible time, and the automatic self-potential adjustment is made closest to the reading time.

With the receiver set at $t \approx 1$ second, the decay ($\delta/2$) from the current-off time to the commencement of the measurement is 65 milliseconds and the slice width (δ) is 130 milliseconds. With the receiver set at $t = 2$ seconds the delay is 130 milliseconds and the slice width is 260 milliseconds. Fuller information on the programs is available from the tables in Figure 2.



WAVE FORM AT INPUT TERMINALS



SECONDARY DECAY CURVE SHAPES AS APPLIED TO THE INTEGRATORS

t sec.	δ	delay time	waiting time	M 11				M 31			M 32			M 33			length
				from	to	mean	length	from	to	mean	from	to	mean	from	to	mean	
1	130	65	25	65	845	455	780	65	325	195	325	585	455	585	845	715	260
2	260	130	50	130	1690	910	1560	130	650	390	650	1170	910	1170	1690	1430	520

t sec.	M 61			M 62			M 63			M 64			M 65			M 66			length
	from	to	mean	from	to	mean	from	to	mean	from	to	mean	from	to	mean	from	to	mean	
1	65	195	130	195	325	260	325	455	390	455	585	520	585	715	650	715	845	780	130
2	130	390	260	390	650	520	650	910	780	910	1170	1040	1170	1430	1300	1430	1690	1560	260

FIGURE 2

PARAMETERS MEASURED WITH TIMES OF RECEIVER PROGRAM IN MILLISECONDS.

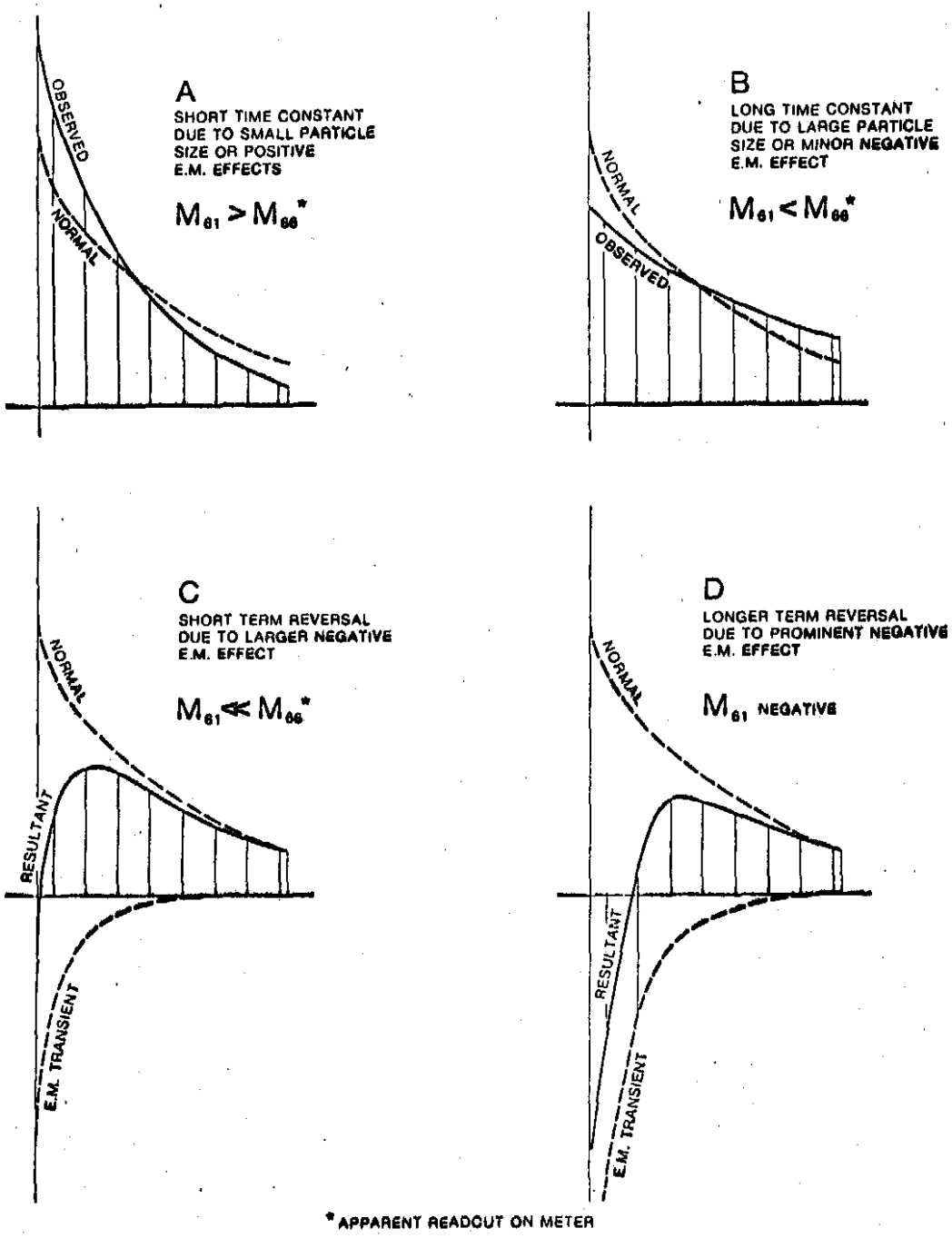


FIGURE 3

THE SIGNIFICANCE OF CURVE SHAPE INFORMATION GAINED USING 6 SLICE READINGS.

Each integration is normalized with respect to the Standard Induced Polarization Decay Curve which has been established by Newmont Exploration Limited. (ref. Dolan and McLaughlin in bibliography) This is achieved by choosing the sensitivities of the integrators so, that if the curve shape is normal, all slices within a given mode show the same amplitude of measurement. A further normalization is built in for the slice width, be it full, one-third or one-sixth of the total integration period. The net effect is that the reading will be the same regardless of the slice measured, providing that a standard transient decay curve form is present and that the same measuring cycle is used for transmitter and receiver (1 second or 2 seconds). Any departure from this standard curve form will be immediately obvious to the operator, without performing any calculations. For instance, a steeper decay will give a higher reading on earlier slices than on later slices. Reconstruction of the actual decay curve is easily effected by using the correction factors given in Table 1.

The shape of a time domain induced polarization decay curve can be altered by electromagnetic or interline coupling, by variations in the average size or degree of interconnection of the metallic particles in the bedrock or by other I.P. sources. Figure 3 illustrates the advantage of breaking the decay curve into slices. Utilizing only one wide slice, there is no indication of the shape of the decay curve. Positive electromagnetic coupling effects or small particle size may give rise to an abnormally short time constant (Case A) which, for multi-slice modes will be indicated by higher normalized readings of the earlier slices with respect to the later slices. An increase in the later slices over the earlier ones (Case B) may imply a longer time constant due to a minor negative EM transient or I.P. responses from large metallic particles, etc. Cases C and D, where the values of the initial slices are considerably reduced or are even negative, show the effect of negative EM transients of increasing amplitude.

A system of symbols has been created to indicate each of the measurable slices.

The general symbol is M_{txy} where:

- t is the timing chosen (i.e. 1 or 2 seconds)
- x is the number of slices in the mode chosen (i.e. 1, 3 or 6)
- y is the number of the slice referred to (i.e. 1, 2, 3, 4, 5 or 6)

Wherever two subscripts only are given, eg. M_{32}, it is understood to apply equally for t = 1 sec. or t = 2 sec.

A chargeability reading is defined by the following formula:

$$M = \frac{V_s \cdot 1000}{V_p} \quad \text{in mV/V}$$

where $$V_s = \frac{t_1 \int^{t_2} V_s \, dt}{t_r} + V_x$$

and t_1 = time at beginning of slice

t_2 = time at end of slice

V_x = residual transient voltage at the end of the automatic self potential correction

$t_r = t_2 - t_1$, i.e. the integrating period

Chargeability values, uncorrected for curve shape, can be easily calculated if required. Normalizations for all slices are made using the M_{232} value as reference. In other words, there is no curve shape normalization applied to this slice; the M_{232} readout is, therefore, directly as measured. The same statement holds for the M_{132} slice, however, its value is one-half the value for M_{232} provided that the transmitter timing matches the receiver timing.

To restore the true transient curve shape (M true), the observed M readings (M read) are multiplied by the factors in Table 1.

TABLE 1

$$M_{true} = M_{read} \cdot k_1$$

Slice	k_1	
M_{11}	1.09	
M_{31}	1.47	
M_{32}	1.00	← NORMAL
M_{33}	0.81	
M_{61}	1.68	
M_{62}	1.27	
M_{63}	1.06	
M_{64}	0.94	
M_{65}	0.85	
M_{66}	0.78	

For the ideal "normal" I.P. transient curve form $M_{2xy} = 2M_{1xy}$ where M_{2xy} is for a 2-second on-off transmitter cycle and M_{1xy} is for a 1-second on-off cycle. The relationship between readings taken with differing transmitter and receiver timings is more complicated, particularly if the curve shapes are not normal.

Table 1 still applies for the case where the transmitting times are longer than the receiving times in order to reconstruct the relative curve shape.

Relationship between IPR-8 and
"Newmont Type" Receiver Measurements

The "Newmont Type" receivers (eg. Scintrex IPR-7) integrate the area under the transient curve from 0.45 seconds to 1.1 seconds. This is then multiplied internally be an instrumental factor to obtain the chargeability M in milliseconds.

For a normal decay curve form, the approximate relationship between the IPR-8 measurements and the Newmont Type chargeability is given by M_{232} (in mV/V) = M_N (in milliseconds) • 0.7.

5 cm

0 200E 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000E

L 6800 N

L 6200 N

L 5600 N

L 5000 N

L 4400 N

L 3800 N

L 3200 N

L 2600 N

L 2000 N

L 1400 N

L 800 N

MAGNETIC INTENSITY IN GAMMAS
63000
62750
62500

CHARGEABILITY IN MILLISECONDS
30
20
10
0

RESISTIVITY IN OHM-METRES
10000
5000
4000
3000
2000
1000

0 200E 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 E

LEGEND

CHARGEABILITY SCALE : 1" = 10 Millisecon
BASE LEVEL = 0
SYMBOL =

RESISTIVITY SCALE: 2" = 1 Logarithmic
BASE LEVEL = 5000 Ohm-
SYMBOL =

MAGNETIC SCALE: 1" = 250 gamma
BASE LEVEL = 62,500
SYMBOL =

THE MOUNT LYEL
RAILWAY COM

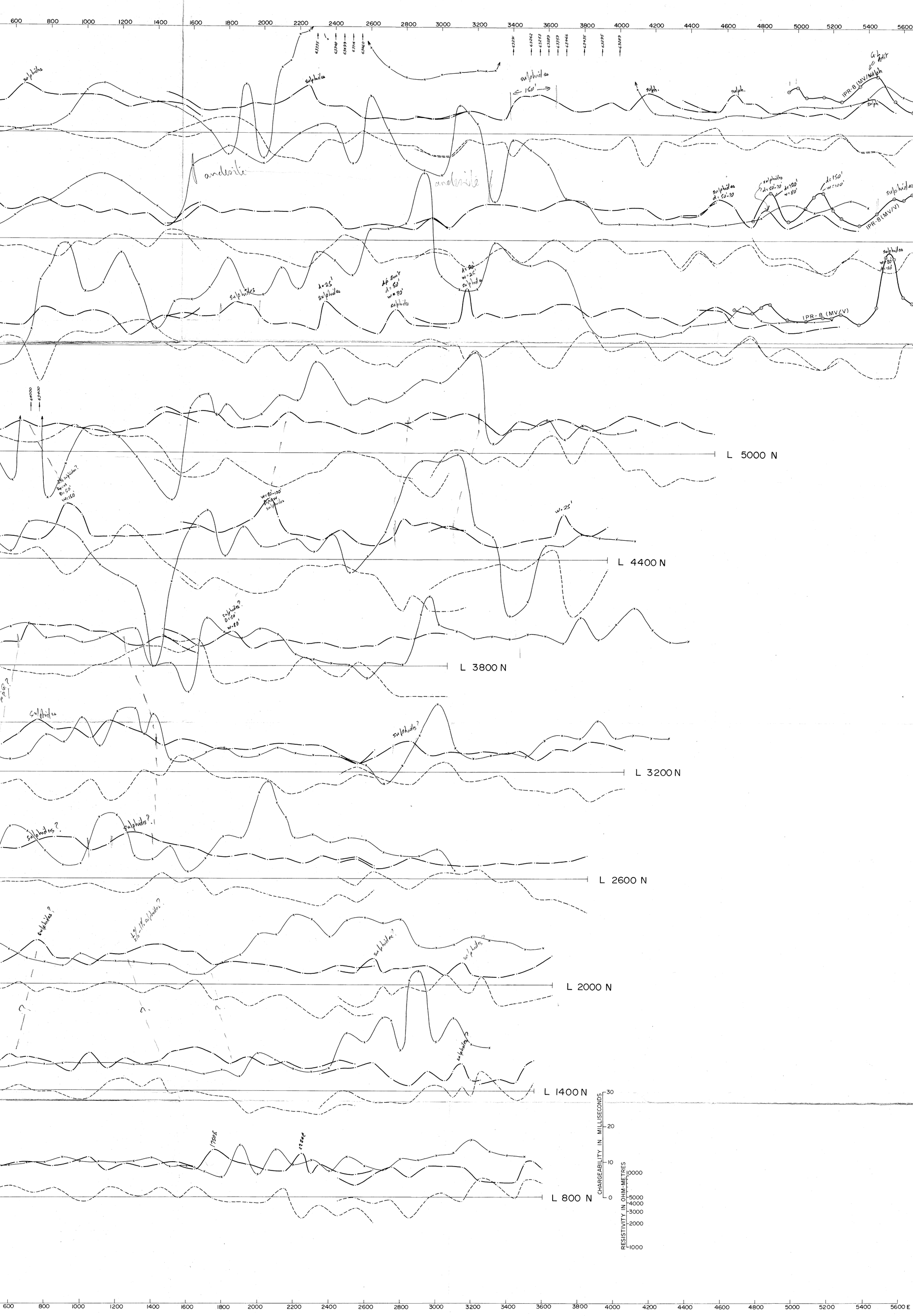
LITTLE OW
WEST COAST,

ELECTRICAL INDUCE
RECONNAISSAN
DATA PR

SURVEYED AND CO
SCINTREX PT
NOV '73 MAR

200 0
SCALE: 1" =

JOB No. TAS. 018A SHEE



LEGEND

CHARGEABILITY SCALE : 1" = 10 Milliseconds
BASE LEVEL = 0
SYMBOL = ·——·——·

RESISTIVITY SCALE: 2" = 1 Logarithmic cycle
BASE LEVEL = 5000 Ohm-metres
SYMBOL = ·---·---·

MAGNETIC SCALE: 1" = 250 gamma
BASE LEVEL = 62,500
SYMBOL = ×——×——×

THE MOUNT LYELL MINING AND RAILWAY COMPANY LTD.

LITTLE OWEN GRID
WEST COAST, TASMANIA

ELECTRICAL INDUCED POLARIZATION RECONNAISSANCE SURVEY
DATA PROFILES

SURVEYED AND COMPILED BY
SCINTREX PTY. LTD.
NOV.'73 MARCH '74

332062

5 cm

200 0 200 400
SCALE: 1" = 200'

061

JOB No. TAS. 018A SHEET 1 of 2 PLATE 1 84-2228

5 cm

00 200E 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600

SCH/IPR-8 (MV/V)

SCH/IPR-8 (MV/V)

SCH/IPR-8 (MV/V)

L9

MAGNETIC INTENSITY IN GAMMAS

63000

62750

62500

00 200E 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600

LEGEND

CHARGEABILITY SCALE : 1" = 10 Milliseconds
BASE LEVEL = 0
SYMBOL = ·——·——·

RESISTIVITY SCALE : 2" = 1 Logarithmic cycle
BASE LEVEL = 5000 Ohm-metres
SYMBOL = ·– – –·– – –·

MAGNETIC SCALE : 1" = 250 gamma
BASE LEVEL = 62,500
SYMBOL = x——x——x

THE MOUNT LYE
RAILWAY CO

LITTLE O
WEST COAS

ELECTRICAL INDUC
RECONNAISSA
DATA

SURVEYED AND
SCINTREX
NOV.'74

200 0

SCALE : 1"

JOB No. TAS. 018A SH

0 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600 6800 7000 7200E

SCH/IPR-8 (MV/V)

L10400 N

SCH/IPR-8 (MV/V)

L9800 N

SCH/IPR-8 (MV/V)

L9200 N

L8600 N

L8000 N

L7400 N

CHARGEABILITY IN MILLISECONDS 0 10 20 30

RESISTIVITY IN OHM-METRES 1000 2000 3000 4000 5000 10000

0 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600 6800 7000 7200 E

LEGEND

ITY SCALE : 1" = 10 Milliseconds
BASE LEVEL = 0
SYMBOL = ·——·——·

SCALE: 2" = 1 Logarithmic cycle
BASE LEVEL = 5000 Ohm-metres
SYMBOL = ·– – –·– – –·

SCALE: 1" = 250 gamma
BASE LEVEL = 62,500
SYMBOL = ×——×——×

THE MOUNT LYELL MINING AND RAILWAY COMPANY LTD.

LITTLE OWEN GRID
WEST COAST, TASMANIA

ELECTRICAL INDUCED POLARIZATION RECONNAISSANCE SURVEY
DATA PROFILES

SURVEYED AND COMPILED BY
SCINTREX PTY. LTD.
NOV.'74 MAR'74

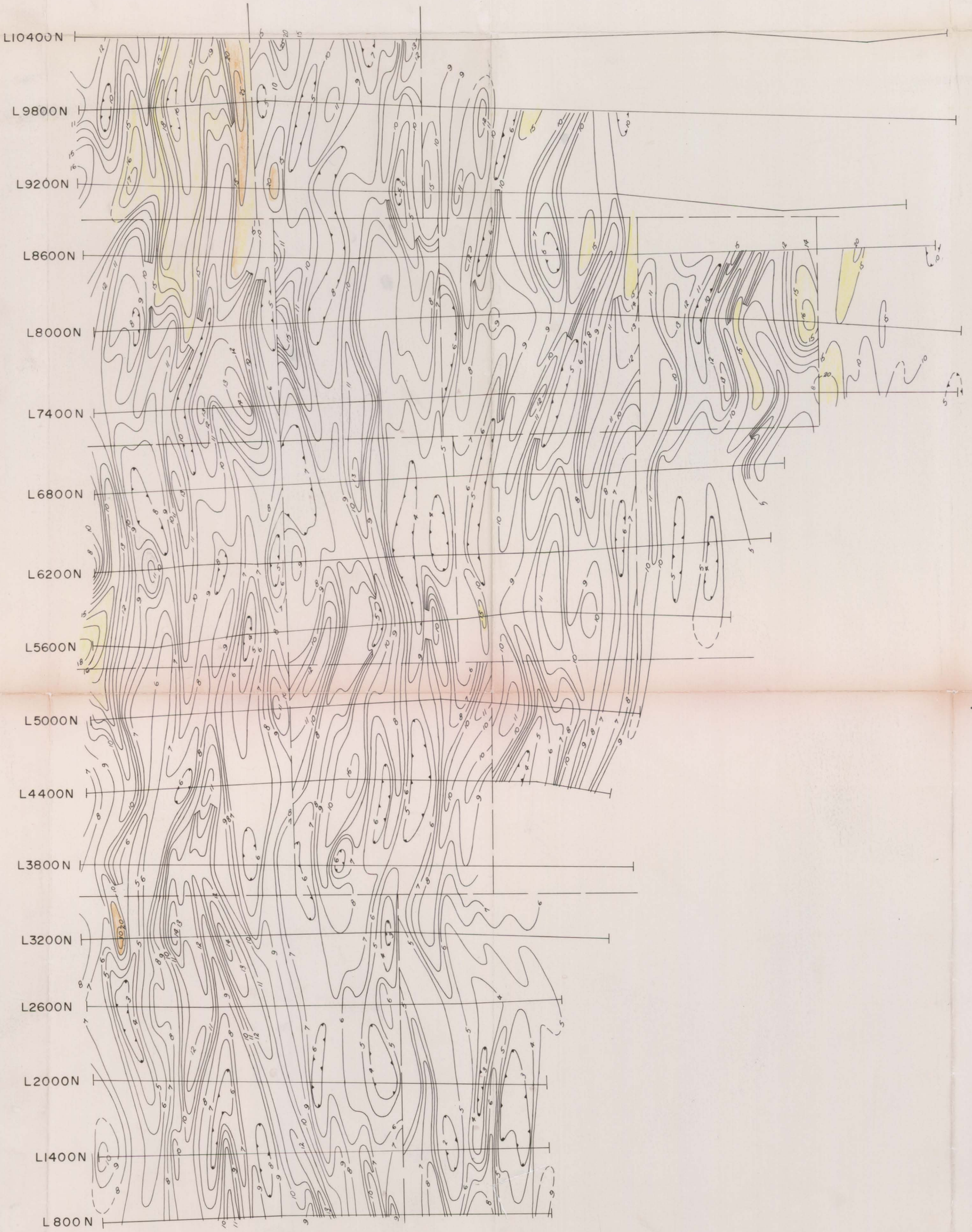
332063

5 cm

200 0 200 400
SCALE: 1" = 200'

062

JOB No. TAS. 018A SHEET 2 of 2 PLATE 1 84-2228



LEGEND

CHARGEABILITY CONTOURS IN MILLISECONDS

CHARGEABILITY LOW

SURVEYED LINES

GRADIENT BLOCK

THE MOUNT LYELL MINING AND RAILWAY COMPANY LTD.

LITTLE OWEN GRID
WEST COAST, TASMANIA

CHARGEABILITY CONTOUR PLAN

SURVEYED AND COMPILED BY

SCINTREX PTY. LTD.

NOV. '73 MARCH '74

332064

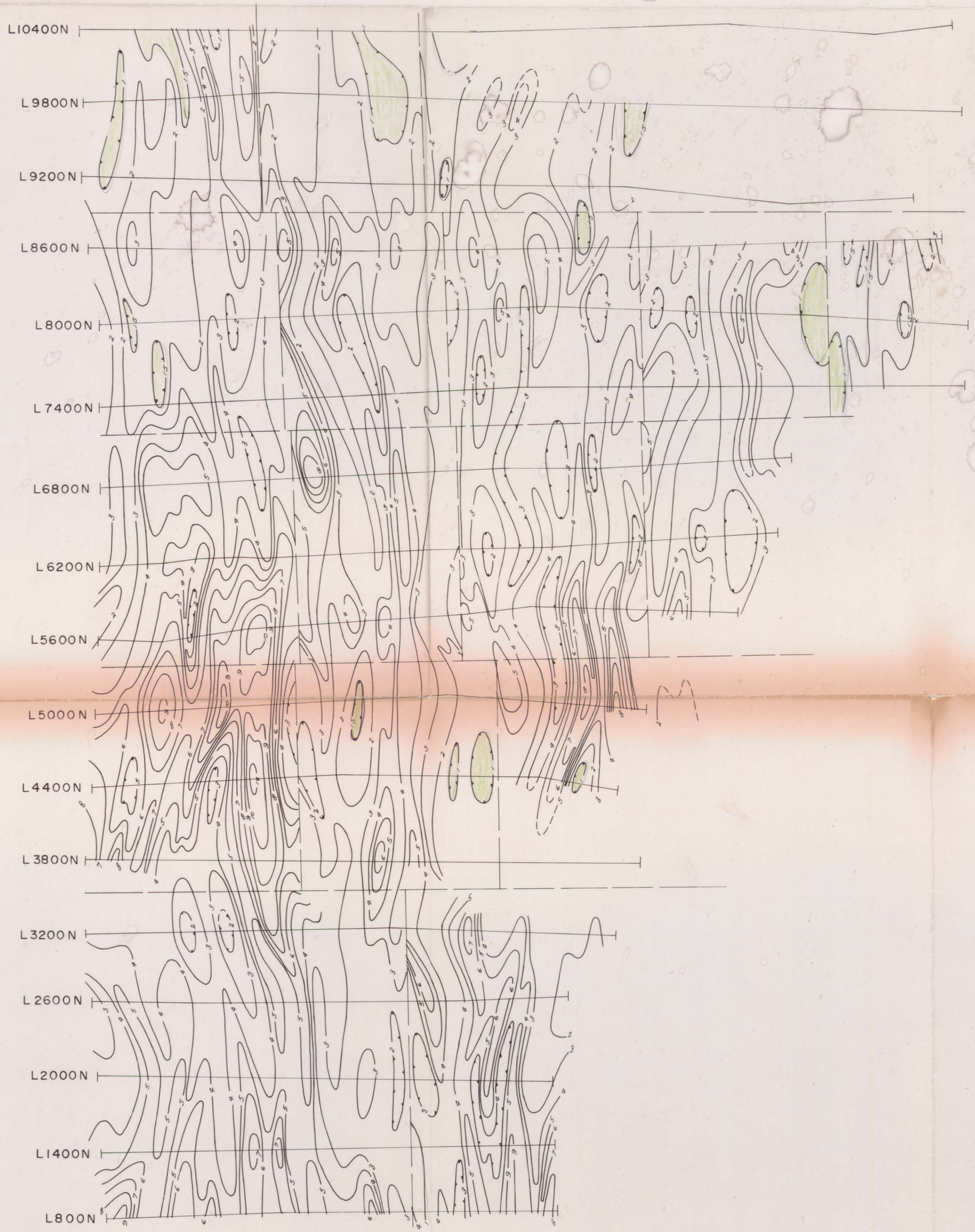
5 cm

500 0 500 1000 feet

1:6000

063

JOB No. TAS. 018 A SHEET 1 of 1 PLATE 2 84-2228



LEGEND

RESISTIVITY CONTOURS IN OHM-METRES

CONTOUR VALUES IN 1000'S e.g. 5=5000

SURVEYED LINES

GRADIENT BLOCK BOUNDARIES

RESISTIVITY LOW

THE MOUNT LYELL MINING AND RAILWAY COMPANY LTD.

LITTLE OWEN GRID
WEST COAST, TASMANIA

RESISTIVITY CONTOUR PLAN

SURVEYED AND COMPILED BY

SCINTREX PTY. LTD.

NOV. '73 MARCH '74

332065

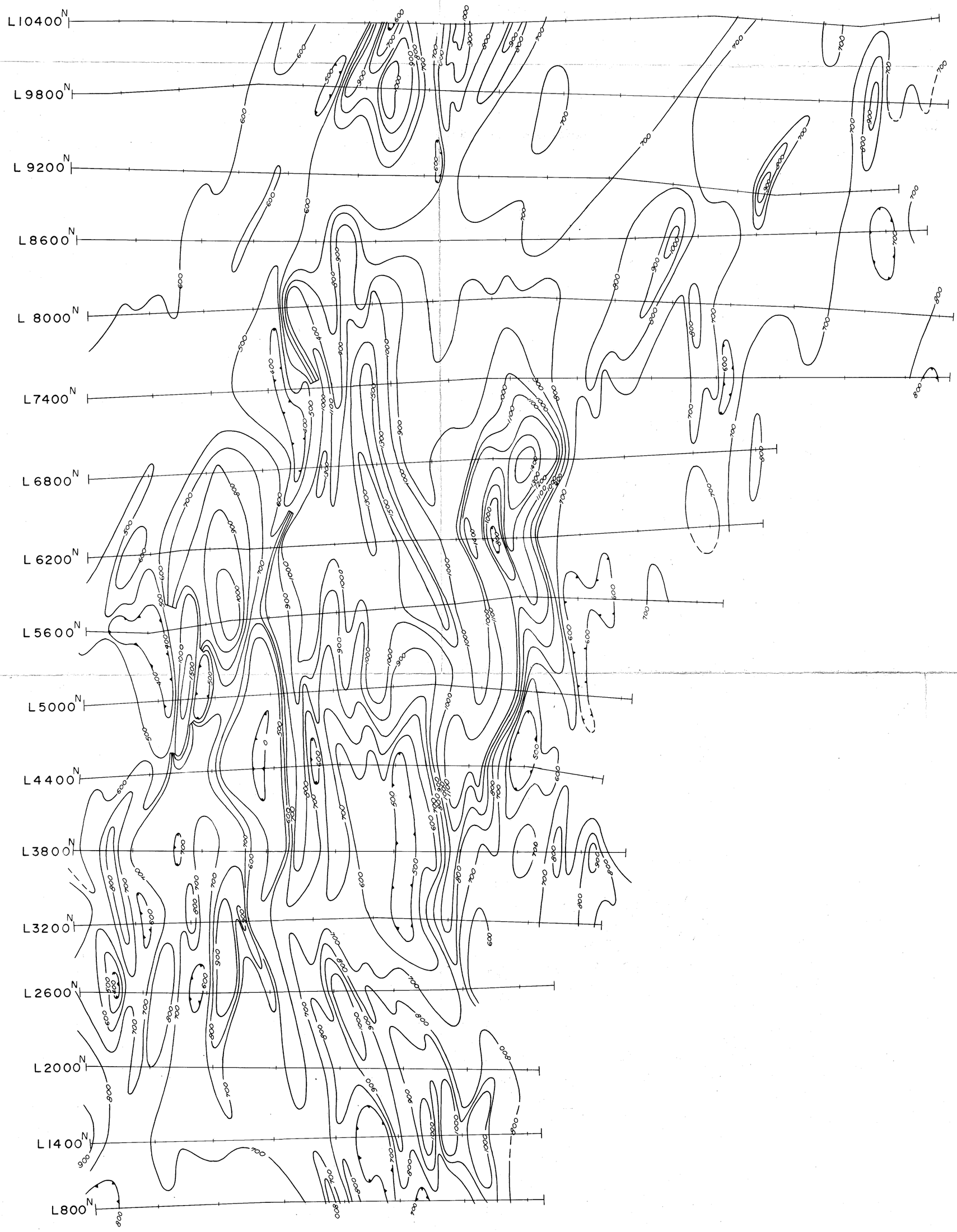
5 cm

500 0 500 1000

1 6000

064

JOB No. TAS. 018 A SHEET 1 of 1 PLATE 3 84-2228



LEGEND

MAGNETIC INTENSITY CONTOURS . . IN GAMMAS

MAGNETIC LOW . . . . . .

SURVEYED LINES . . . . . 500 ft station

ADD 62,000 $ TO VALUES SHOWN FOR TOTAL MAGNETIC FIELD INTENSITY

THE MOUNT LYELL MINING AND RAILWAY COMPANY LTD.

LITTLE OWEN GRID
WEST COAST, TASMANIA

MAGNETIC CONTOUR PLAN

332066

SURVEYED AND COMPILED BY

SCINTREX PTY. LTD.

NOV.'73 MARCH '74.

5 cm

500 0 500 1000 feet

1:6000

065

JOB No. TAS. 018A SHEET 1 of 1 PLATE 4 84-2228

23(b)
000

332067

A REPORT ON
GRADIENT AND SCHLUMBERGER ARRAY
ELECTRICAL INDUCED POLARIZATION SURVEYS
OVER THE LITTLE OWEN (DORA-HUXLEY) GRID
ON BEHALF OF
THE MOUNT LYELL MINING AND RAILWAY COMPANY LTD.

SECTION II

001

332068

TABLE OF MEASUREMENTS

STATION INTERVAL	IN	FEET
RESISTIVITY	IN	OHM-METRES
CHARGEABILITY (M_3)	IN	MILLIVOLTS/VOLT

002

332069

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 6200
AT 6250E AND 3750E

LINES 5600
6200
6800

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 5600				
4650E	5092	10.8		
4750E	7343	9.8		
4850E	4724	11.3		
4850E	3585	12.2		
4950E	4107	7.9		
5050E	3240	7.4		
5150E	2412	8.55		
5250E	2911	8.1		
5250E	3559	9.45		
5350E	2394	6.35		
5450E	1764	11.6		
5550E	1826	25.5		
5550E	1888	24.0		
5650E	5096	14.2		
5650E	5727	12.6		
5750E	4979	10.0		
5750E	8073	11.1		
5850E	5377	6.5		
LINE 6200				
4750E	5260	5.8		
4850E	2610	13.5		
4950E	2625	5.45		
5050E	2418	9.15		
5100E	2903	12.45		

004

Station	Resistivity	Chargeability	L/M	Magnetics
5150E	1573	13.45		
5200E	1571	8.75		
5250E	2211	6.6		
5350E	2541	4.25		
5450E	1945	7.9		
5550E	1669	12.1		
5600E	2200	11.7		
5650E	3249	13.1		
5700E	2760	13.1		
5750E	2618	10.2		
5850E	1018	5.75		
5950E	2040	10.25		
6050E	3856	16.8		
LINE 6800				
4950E	4974	12.1		
5000E	3584	13.3		
5050E	4335	10.4		
5150E	4020	10.9		
5250E	5134	9.6		
5350E	2842	13.85		
5450E	2891	16.2		
5550E	2560	9.9		
5650E	4301	6.8		
5750E	3552	10.5		
5850E	3943	7.5		

005

332072

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 2000N
AT 1250W AND 3750E

LINES 800N
1400N
2000N
2600N
3200N

006

332073

ELECTRICAL INDUCED POLARIZATION SURVEY

AND

TOTAL FIELD MAGNETIC SURVEY

TABLE OF MEASUREMENTS

STATION INTERVAL	IN	FEET
RESISTIVITY	IN	OHM-METRES
CHARGEABILITY	IN	MILLISECONDS
TOTAL MAGNETIC FIELD	IN	GAMMAS

NOTE: Stations intervals are listed every 100 feet in the left hand column. Chargeability and resistivity data in line with this co-ordinate represent the electrical characteristics of the material contained within the 100 feet dipole centred at this point. Readings displayed between these co-ordinates represent intermediate stations.

The magnetic data was invariably taken every 100 feet and represents the total magnetic field at that point.

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 800N				
50E	8800	7.8	0.96	62,704 - 62,690
150E	9920	7.0	0.86	- 62,700 ±20
250E	5750	6.5	0.91	- 62,719
350E	5660	6.5	0.82	- 62,728
450E	4600	6.8	0.74	- 62,728
550E	6540	8.1	0.84	- 62,727
650E	6940	9.8	0.82	- 62,741
750E	5530	9.8	0.87	- 62,742
850E	6820	8.8	0.74	- 62,783
950E	4960	9.6	0.71	- 62,753
1050E	4250	11.3	0.78	-
	5180	9.7	0.77	62,752
1150E	6860	7.4	0.92	- 62,749
1250E	5810	9.6	0.83	- 62,752
1350E	5190	8.3	0.78	- 62,777
1450E	6680	9.2	0.90	- 62,718
1550E	4810	9.9	0.86	-
1550E	5260	9.0	0.89	- 62,718
1650E	6950	8.4	0.76	-
1650E	7110	9.0	0.89	- 62,681
1750E	4510	13.3	0.83	- 62,646
1850E	4180	10.7	0.75	- 62,874
1950E	4170	9.2	0.85	- 62,668
2050E	4280	7.9	0.86	- 62,836
2150E	6850	7.3	0.90	- 62,727

Station	Resistivity	Chargeability	L/M	Magnetics
2250E	2430	12.4	0.67	-
	3020	6.7	0.97	62,765
2350E	3730	9.5	0.63	-
				62,686
2450E	2580	7.0	0.61	-
				62,781
2550E	3420	6.4	0.86	-
				62,722
2650E	2120	7.8	0.74	-
				62,692
LINE 1400N				
				62,914
50W	4130	8.0	0.44	-
50E	4250	10.3	0.67	-
				62,806
150E	4120	9.4	0.53	-
				62,731
250E	5300	7.9	0.67	-
				62,756
350E	5420	6.1	0.56	-
				62,726
450E	4650	5.1	0.65	-
	5670	6.5	0.69	62,673
550E	4630	8.5	0.68	-
	5170	10.1	0.72	62,667
650E	5720	9.1	0.82	-
	5200	9.4	0.59	62,696
750E	4760	9.0	0.76	-
				62,685
850E	4700	7.8	0.55	-
				62,690
950E	3650	5.5	2.28	-
				62,692
1050E	3600	10.5	1.24	-
				62,692
1150E	6070	6.2	1.52	-
				62,698
1250E	7070	9.0	0.83	-
				62,685
1350E	5220	7.6	0.66	-
				62,677
1450E	7080	8.5	0.88	-
	4400	10.8	0.63	62,670
1550E	4480	11.1	0.68	-
				62,646

Station	Resistivity	Chargeability	L/M	Magnetics
1650E	4580	12.1	0.77	- 62,619
1750E	3980	10.4	0.44	- 62,646
1850E	3600	7.5	0.64	- 62,600
1950E	2120	9.4	0.64	- 62,768
2050E	2660	7.0	0.71	- 62,715
2150E	2330	8.1	0.62	- 62,652
2250E	2280	6.1	0.62	- 62,631
2350E	2060	6.5	0.84	- 62,658
2450E	2790	8.3	0.76	- 62,905
2550E	2800	7.3	0.96	- 62,843
LINE 2000N				
50E	3290	8.1	1.09	62,767 - 62,802
150E	3070	6.5	1.08	- 62,704
250E	3250	5.9	0.83	- 62,764
350E	4280	4.4	0.75	- 62,682
450E	5340	3.1	0.90	- 62,800
550E	4330	5.9	0.90	- 62,747
650E	5360	8.8	0.89	- 62,680
750E	3680	12.3	0.96	-
	4070	11.0	0.98	62,657
850E	4370	7.5	1.00	- 62,629
950E	3540	7.1	0.96	- 62,717
1050E	4390	5.4	1.02	- 62,674
1150E	5360	8.4	1.01	- 62,669

Station	Resistivity	Chargeability	L/M	Magnetics
1250E	4830	8.8	0.85	- 62,665
1350E	3570	10.8	0.97	- 62,649
1450E	4620	11.5	0.94	- 62,638
1550E	4070	9.6	0.99	- 62,585
1650E	5610	9.0	0.98	- 62,575
1750E	2880	5.3	0.94	- 62,652
1850E	3100	6.5	0.97	- 62,709
1950E	2380	6.1	0.95	- 62,859
2050E	3030	5.5	1.06	- 62,854
2150E	3310	4.8	1.06	- 62,992
2250E	2320	3.1	1.26	- 62,968
2350E	1645	3.5	0.94	- 62,839
2450E	2420	5.5	1.09	- 62,952
2550E	1690	4.9	1.00	- 62,974
2650E	1805	5.5	1.13	- 62,933
LINE 2600N				
50E	2860	6.7	0.97	62,692 - 62,637
150E	3590	6.2	1.05	- 62,596
250E	5290	2.0	1.45	- 62,380
350E	4450	4.0	0.70	- 62,681
450E	3230	6.1	0.79	- 62,647
550E	4120	8.6	0.81	- 62,865

011

332078

Station	Resistivity	Chargeability	L/M	Magnetics
650E	4130	8.5	0.94	-
750E	4430	10.5	0.84	62,827 - 62,693
850E	3550	11.5	0.87	-
950E	3540	11.8	0.85	62,596 - 62,601
1050E	4080	8.0	1.04	-
1150E	3280	9.8	1.00	62,928 - 62,945
1250E	2930	12.9	0.91	-
1350E	3650	12.4	0.81	62,660 - 62,632
1450E	6000	10.4	0.91	-
1550E	4240	9.2	0.97	62,725 - 62,549
1650E	5150	8.3	0.96	-
1750E	2760	6.3	0.95	62,646 - 62,796
1850E	3500	6.1	0.98	-
1950E	3420	7.0	1.04	62,781 - 63,106
2050E	2840	5.3	1.00	63,183 63,035
2150E	2580	5.9	0.98	62,932 62,788
2250E	2235	4.4	0.98	-
2350E	2060	6.2	1.02	62,811 - 62,752
2450E	2860	5.3	0.85	-
2550E	2160	6.1	0.97	62,789 - 62,774
2650E	3220	3.8	1.13	- 62,685
LINE 3200N				
50E	3980	8.5	1.00	62,785 - 62,792

Station	Resistivity	Chargeability	L/M	Magnetics
150E	3980	7.9	0.89	- 62,602
250E	3590	6.3	0.92	- 62,691
	3770	30.3	0.60	
350E	3290	21.0	0.63	- 62,863
	3330	4.6	0.89	
450E	3160	4.8	1.00	- 62,629
550E	3100	7.8	0.89	- 62,586
650E	3610	10.9	1.01	- 62,625
750E	2090	14.9	0.96	- 62,765
850E	1830	12.0	0.94	- 62,707
950E	2310	12.5	0.96	- 62,879
1050E	3740	9.5	1.10	- 62,679
1150E	1885	14.7	0.92	- 62,925
1250E	2500	12.9	0.81	- 62,948
1350E	5190	10.9	0.69	62,761
1450E	4240	7.5	0.77	62,910 - 62,582
1550E	8420	9.1	0.78	- 62,580
1650E	6680	8.3	0.82	- 62,631
1750E	4220	6.6	0.68	- 62,671
1850E	3850	6.4	0.91	- 62,606
1950E	3890	6.3	0.87	- 62,620
2050E	3520	7.6	0.80	- 62,673
2150E	2410	8.0	1.00	- 62,629
2250E	2520	7.5	0.93	- 62,620
2350E	3270	7.5	1.00	- 62,614
2450E	3130	5.0	1.00	- 62,581

Station	Resistivity	Chargeability	L/M	Magnetics
2550E	4460	2.5	1.32	- 62,548
2650E	3910	6.2	1.02	- 62,415

014

332081

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 2000N
AT 1000E AND 6000E

LINES 800N
1400N
2000N
2600N
3200N

015

332082

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 800N				
				62,686
2450E	4160	5.4	0.80	-
				62,781
2550E	4410	3.5	0.71	-
				62,722
2650E	3870	6.3	0.68	-
				62,692
2750E	4250	8.5	0.68	-
				62,771
2850E	2260	5.7	0.72	-
				62,761
2950E	4180	8.7	0.75	-
				62,793
3050E	5430	8.8	0.57	-
				62,817
3150E	4030	8.6	0.73	-
				62,907
3250E	9070	4.5	1.00	-
				62,820
3350E	7000	4.2	0.95	-
				62,791
3450E	4640	4.3	1.00	-
	8110	9.6	0.78	62,786
3550E	8720	10.0	0.98	-
	7780	8.0	1.00	-
LINE 1400N				
				62,631
2350E	2630	4.7	0.96	-
				62,658
2450E	4460	6.0	0.83	-
				62,905
2550E	4040	6.2	0.81	-
				62,843
2650E	3130	7.8	0.87	-
				63,016 ±5
2750E	3130	3.7	0.76	63,000 ±40
				62,788
2850E	3110	1.4	0.71	63,285
				63,343
2950E	5530	5.6	0.71	-
				62,842
3050E	3490	3.0	0.67	-
	3900	5.3	1.04	63,313 ±10
3150E	3610	7.4	0.72	-
	4240	3.0	0.67	62,827

Station	Resistivity	Chargeability	L/M	Magnetics
3250E	9150	3.2	0.72	-
3250E	9030	1.8	1.67	-
				62,804
3350E	5920	3.2	1.09	-
				-
3450E	3660	2.2	1.05	-
	4150	7.0	0.92	-
3550E	6420	8.6	0.85	-
				-
LINE 2000N				
				62,839
2450E	3220	4.0	1.00	-
				62,952
2550E	2360	3.4	0.88	-
				62,974
2650E	2750	7.3	0.82	-
	4590	3.5	1.11	62,933
2750E	3490	4.4	0.82	-
	4240	4.5	1.07	62,982
2850E	4480	5.0	1.10	-
				62,775
2950E	3870	5.4	0.74	-
				62,762
3050E	6780	2.9	0.86	-
				62,782
3150E	3830	6.3	0.78	-
	3750	2.9	1.00	62,839
3250E	6300	2.3	1.09	-
				62,816
3350E	2330	2.0	0.90	-
				62,800
3450E	2610	3.2	1.09	-
				62,750
3550E	2910	5.1	1.04	-
				62,757
3650E	3320	8.2	0.92	-
				-
LINE 2600N				
				62,752
2450E	5310	4.3	0.88	-
				62,789
2550E	3780	5.3	1.04	-
				62,774

Station	Resistivity	Chargeability	L/M	Magnetics
2650E	6140	2.9	1.21	-
2750E	4410	3.7	0.92	62,685 -
2850E	3310	6.0	1.00	62,662 -
2950E	4990	4.8	1.00	62,657 -
3050E	6090	4.0	1.03	62,709 -
3150E	5700	3.8	0.89	62,561 -
3250E	6530	3.9	1.02	- -
3350E	4350	4.3	0.81	- -
3450E	4640	4.0	1.00	- -
3550E	2560	4.7	0.94	- -
3650E	2420	4.5	0.87	- -
3750E	1980	5.0	1.06	- -
3850E	1550	6.3	0.92	- -
LINE 3200N				
2450E	4880	4.2	0.86	62,614 -
2550E	6170	2.4	1.46	62,581 -
2650E	4670	4.1	1.22	62,548 -
2750E	3610	7.5	1.00	62,415 -
2850E	3430	8.7	0.99	62,547 -
2950E	5630	4.9	1.10	62,760 -
3050E	7200	5.5	0.91	62,979 -
3150E	3820	5.3	0.85	62,673 -
3250E	3880	5.8	1.04	62,597 - 62,617

018

332085

Station	Resistivity	Chargeability	L/M	Magnetics
3350E	4540	5.1	0.88	- 62,629
3450E	2840	5.9	0.81	- 62,612
3550E	2750	3.4	1.06	- 62,721
3650E	2540	6.1	0.90	- 62,759
3750E	2920	6.0	0.92	- 62,735
3850E	1890	8.4	1.05	- 62,862
3950E	2500	7.8	0.73	- 62,730
4050E	2880	6.1	0.98	- 62,760
4150E	-	-	-	- 62,737
4250E	-	-	-	- 62,734

019

332086

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 4400N
AT 750W AND 2250E

LINES 3800N
4400N
5000N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 3800N				
50E	8450	8.3	0.94	62,578 - 62,668
150E	6660	9.5	1.05	62,686 - 62,859
250E	8440	7.5	1.04	62,644 - 62,722
350E	6010	5.8	0.86	62,775 - 62,798
450E	7540	4.3	0.77	62,699 - 62,705
550E	4440	6.6	0.95	62,668 - 62,690
650E	3720	6.8	0.66	62,731 - 62,765
	3750	11.5	0.74	62,500 - 62,522
750E	3500	11.4	0.92	62,314 - 62,833
	3750	11.5	0.74	
850E	3460	11.0	0.91	
950E	3260	11.4	0.97	
1050E	4520	9.8	1.00	
1150E	5260	9.5	0.95	
1250E	7050	6.0	0.97	
1350E	9400	5.9	0.93	
1450E	9030	8.4	0.87	
1550E	7780	5.3	1.10	
1650E	10090	3.5	1.00	
LINE 4400N				
50E	7700	6.3	1.03	62,555 - 62,574
150E	6240	8.3	0.94	62,557 - 62,549
250E	5080	9.4	1.01	62,679
	4640	10.3	1.00	
350E	5440	10.0	0.95	
	6640	7.3	1.03	

Station	Resistivity	Chargeability	L/M	Magnetics
450E	6930	5.6	0.98	- 62,638
550E	5990	6.5	1.00	- 62,555
650E	5720	6.0	0.97	- 62,759
750E	7100	5.3	0.94	- 62,752
850E	3820	9.5	0.93	-
	2810	15.6	0.97	62,722
950E	3020	15.0	0.80	-
	3940	12.4	0.89	62,619
1050E	6080	6.4	1.14	- 62,453
1150E	8040	6.4	0.99	- 62,378
1250E	14590	6.3	0.95	- 62,312
1350E	9750	6.9	0.87	62,116 61,749
1450E	4700	7.0	0.97	- 62,346
1550E	3070	8.5	0.98	- 62,711
1650E	2000	9.0	1.06	62,796 62,841
LINE 5000N				
00	4740	10.6	1.18	62,572
50E	4670	12.1	1.14	-
	4630	12.0	1.15	62,540
150E	5020	14.0	1.07	-
	6290	10.3	1.07	62,539
250E	5730	7.1	1.20	- 62,522
350E	7660	6.8	1.18	- 62,475
450E	9050	5.8	1.26	- 62,468
550E	7580	6.8	1.22	- 62,300 ±500
650E	6260	8.9	1.21	- 64,000 ±1000
750E	6600	7.0	1.33	63,400 ±1000 62,177

Station	Resistivity	Chargeability	L/M	Magnetics
850E	8400	8.1	1.17	- 62,421
950E	11400	7.1	1.20	- 62,667
1050E	8290	6.5	1.05	- 62,678
1150E	8620	5.5	1.18	- 62,605
1250E	8090	6.3	1.16	- 62,464
1350E	8150	7.5	1.17	- 62,299
1450E	5140	11.1	1.15	- 62,170
1550E	2330	10.4	1.20	- 62,813
1650E	3360	8.5	1.12	62,896 62,913

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 3800N				
1450E	13050	10.3	0.98	62,500 - 62,522
1550E	10810	8.8	0.91	62,314 - 62,833
1650E	11650	5.5	0.87	62,736 - 62,694
1750E	3040	7.0	1.07	62,765 - 62,722
1850E	2710	9.9	1.01	62,577 - 62,540
1950E	3330	5.0	1.16	62,520 - 62,509
2050E	2910	6.5	1.08	62,408 - 62,519
2150E	3420	7.3	0.89	62,507 - 62,861
2250E	6540	6.1	1.07	62,986 62,791
2350E	4210	6.8	1.15	62,741 - 62,687
2450E	3360	5.0	1.20	62,701 - 62,682
2550E	5560	5.5	1.33	62,719 - 62,701
2650E	3630	5.9	1.10	62,651
2750E	1830	8.1	1.09	
2850E	1790	7.5	0.90	
2950E	1740	9.0	1.06	
3050E	1610	8.8	0.83	
3150E	-	-	-	
3250E	-	-	-	
3350E	-	-	-	
3450E	-	-	-	
3550E	-	-	-	
3650E	-	-	-	

024

332091

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 4400N
AT 750E AND 3750E

LINES 3800N
4400N
5000N

Station	Resistivity	Chargeability	L/M	Magnetics
3750E	-	-	-	-
				62,842
3850E	-	-	-	-
				62,677
3950E	-	-	-	-
				62,795
4050E	-	-	-	-
				62,904
4150E	-	-	-	-
				62,750
4250E	-	-	-	-
				62,662
4350E	-	-	-	-
				62,671
LINE 4400N				
				62,346
1550E	2600	10.5	0.98	-
				62,711
1650E	1760	9.5	1.03	62,796
				62,841
1750E	2600	7.3	1.07	-
				62,525
1850E	2000	9.1	0.97	-
				62,726
1950E	1590	11.4	0.69	-
				62,590
2050E	1650	17.5	0.79	-
	1780	12.0	0.94	62,607
2150E	2720	7.6	1.10	-
				62,641
2250E	3990	6.9	0.87	-
				62,555
2350E	3780	5.8	0.95	-
				62,677
2450E	4050	8.3	0.88	-
				62,407
2550E	3100	4.8	1.04	-
				62,525
2650E	2700	4.0	1.40	-
				62,690
2750E	1210	6.9	0.87	-
	960	11.3	0.91	63,039
2850E	1530	9.7	0.91	-
				63,194

Station	Resistivity	Chargeability	L/M	Magnetics
2950E	960	10.3	1.00	- 63,183
3050E	970	8.5	1.00	- 63,237
3150E	1020	8.1	0.79	- 62,741
LINE 5000N				
1400E	3580	11.5	1.09	62,299
1450E	3380	13.0	1.18	- 62,170
1550E	2160	10.8	1.20	- 62,813
1650E	2060	11.8	1.25	62,896
				62,913
1750E	2510	11.1	1.17	62,769
	3810	8.3	1.20	62,845
1850E	3170	7.0	1.40	- 62,735
1950E	2210	7.4	1.19	- 62,775
2050E	1570	7.3	1.23	-
	1415	9.3	1.16	62,900
2150E	1655	11.5	1.11	- 62,866
2250E	2200	8.5	1.15	- 63,136
2350E	2620	8.9	1.27	- 63,012
2450E	4850	7.1	1.38	- 62,887
2550E	4300	5.5	1.33	- 62,879
2650E	3590	6.5	0.89	- 62,853
2750E	2120	8.3	1.20	- 62,924
2850E	1700	8.9	0.90	- 63,012
2950E	1120	11.6	0.86	- 62,990
3050E	2400	10.0	0.80	- 63,092

027

332094

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 4400N
AT 2250E AND 5250E

LINES 4400N
5000N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 4400N				
2950E	1940	7.8	1.03	63,194 - 63,183
3050E	2780	9.6	0.94	- 63,237
3150E	3380	7.5	0.93	- 62,741
3250E	3750	4.3	1.05	- 62,660
3350E	4260	3.3	1.06	- 62,100 ±500
3450E	3420	4.9	1.02	- 62,200 ±500
3550E	5000	5.8	0.91	- 62,597
3650E	6790	6.4	0.94	-
	1410	12.5	0.94	62,594
3750E	775	9.5	1.05	- 62,674
3850E	1230	6.5	1.00	- 62,650
3950E	3650	9.1	0.82	- 62,643
4050E	-	-	-	- 62,630
LINE 5000N				
2950E	2190	9.8	1.05	63,012 - 62,990
3050E	5050	9.9	0.94	- 63,092
3150E	5020	11.5	0.89	- 63,204
3250E	3190	9.1	0.93	- 62,568
3350E	4140	5.1	0.88	- 62,651
3450E	2860	9.0	0.89	- 62,664
3550E	5910	7.8	0.72	- 62,726
3650E	8150	9.9	0.84	- 62,592

Station	Resistivity	Chargeability	L/M	Magnetics
3750E	3070	8.3	0.88	-
3850E	8510	6.3	0.68	62,698 -
3950E	5390	7.5	0.71	62,645 -
4050E	2510	10.5	0.84	62,637 -
4150E	2610	9.3	0.79	62,669 -
4250E	1490	7.8	0.71	- -
4350E	1960	9.0	0.72	- -
4450E	1860	6.7	0.76	- -
4550E	2150	5.5	0.64	- -

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 6200N
AT 750W AND 2250E

LINES 5600N
6200N
6800N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 5600N				
				62,451
50W	1430	18.3	0.96	-
50E	2480	16.3	0.86	-
				62,295
150E	3140	13.4	0.82	-
				62,367
250E	3880	10.5	0.94	-
				62,352
350E	4520	9.6	0.87	-
				62,377
450E	5020	7.6	0.96	-
				62,356
550E	6670	6.0	1.05	-
				62,399
650E	6060	5.8	1.00	-
				62,622
750E	1470	10.5	1.00	62,965
				63,054
850E	5320	9.4	1.12	63,199
				63,223
950E	7830	8.4	1.01	-
				62,877
1050E	7390	10.0	1.05	-
				62,937
1150E	8780	8.4	1.07	-
				63,158 ±50
1250E	10500	3.1	0.97	63,055
				62,926
1350E	10920	5.8	1.09	-
				62,619
1450E	7120	8.6	0.96	-
				62,813
1550E	5680	7.8	0.97	-
				62,825
1650E	5600	10.9	0.90	-
				62,914
LINE 6200N				
				62,516
50E	2680	8.3	1.20	-
	3170	12.0	0.83	62,507
150E	3030	14.5	0.86	-
				62,433
250E	2910	12.8	1.00	-
				62,693

Station	Resistivity	Chargeability	L/M	Magnetics
350E	3890	9.0	0.89	- 62,620
450E	4440	11.8	0.87	- 62,594
550E	3560	8.5	1.04	- 62,663
650E	3710	9.1	0.97	- 62,733
750E	3060	11.8	1.06	- 62,774
850E	2670	9.5	0.95	- 62,859
950E	4400	9.4	1.01	- 62,933
1050E	3960	7.8	0.94	- 62,956
1150E	5670	8.3	1.02	- 62,910
1250E	5260	6.9	0.98	- 62,824
1350E	3680	7.3	1.00	- 62,731
1450E	6430	3.8	1.00	- 62,648
1550E	6190	7.8	1.03	- 63,022
1650E	3220	10.5	1.00	- 63,087
LINE 6800N				
50E	2550	11.3	0.96	62,567 -
	3240	14.5	0.86	62,559
150E	3700	14.5	0.86	-
	2900	10.8	0.93	62,548
250E	2700	8.5	0.88	- 62,534
350E	5150	7.5	0.80	- 62,515
450E	5790	8.3	0.90	- 62,497
550E	5820	9.0	0.89	- 62,515
650E	5320	13.6	0.88	- 62,531

Station	Resistivity	Chargeability	L/M	Magnetics
750E	5380	11.1	0.99	- 62,549
850E	5110	10.3	1.00	- 62,625
950E	4390	10.5	1.09	- 62,790
1050E	3880	10.5	1.09	- 62,844
1150E	3920	9.0	1.11	- 62,782
1250E	3130	7.1	1.06	- 62,740
1350E	2890	8.2	1.04	- 62,718
1450E	4480	8.5	1.00	- 62,676
1550E	4130	7.8	0.90	- 62,612
1650E	4680	4.6	0.87	62,513

034

332101

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 6200N
AT 750E AND 3750E

LINES 5600N
6200N
6800N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 5600N				
1450E	5150	8.0	0.63	62,619 - 62,813
1550E	3800	9.3	0.70	62,825 - 62,914
1650E	5070	8.5	0.76	63,121 - 62,895
1750E	3990	8.9	0.84	62,864 - 63,052
1850E	2950	12.6	0.74	62,902 - 63,167
	2550	11.9	0.76	
1950E	3375	11.5	0.70	63,107 - 63,004
	4330	7.8	0.68	
2050E	4720	6.1	0.54	63,330 - 63,333
2150E	2760	6.5	0.58	
2250E	4970	5.3	0.57	63,374 - 63,721
	4950	4.4	0.57	
2350E	3480	12.8	0.55	62,990 - 62,902
2450E	4320	8.5	0.76	
2550E	2990	5.4	0.70	
2650E	2490	3.6	0.50	
	2680	7.0	0.79	
2750E	2340	10.5	0.72	
	2920	7.8	0.68	
2850E	3620	6.0	0.63	
2950E	4700	5.9	0.64	
3050E	3990	5.3	0.72	
LINE 6200N				
1450E	5800	5.5	0.87	62,731 - 62,648
1550E	5730	6.6	1.06	63,022 - 63,087
1650E	5290	9.3	1.02	63,159
1750E	4670	7.4	1.05	

Station	Resistivity	Chargeability	L/M	Magnetics
1850E	3340	8.8	0.91	- 63,093
1950E	2990	8.0	0.91	- 63,037
2050E	2740	8.1	0.84	- 63,148
2150E	2270	8.0	0.98	- 63,249
2250E	1980	9.3	1.02	- 63,301
2350E	3480	8.5	0.96	-
	4310	6.3	1.03	63,294
2450E	5800	3.5	1.09	- 63,039
2550E	4620	3.9	1.03	- 63,513
2650E	2220	4.5	1.07	- 63,274
2750E	2610	3.9	0.90	- 63,057
2850E	2880	3.0	1.00	- 62,981
2950E	3130	6.4	0.91	- 62,954
3050E	2930	3.0	1.10	- 63,437
LINE 6800N				
1450E	4700	11.3	0.93	62,718 -
1550E	5720	9.5	0.95	62,676 -
1650E	7020	6.6	0.95	62,612 -
1750E	8040	6.9	1.06	62,513 -
1850E	8200	7.0	1.04	62,349 -
1950E	5910	8.5	0.98	62,845 -
2050E	2460	8.0	0.91	63,325 -
2150E	2110	10.3	0.97	62,962 63,010 63,193

037

332104

Station	Resistivity	Chargeability	L/M	Magnetics
2250E	1840	13.3	0.89	63,223
	2820	9.0	1.00	63,335
2350E	3760	7.8	1.06	63,158
				63,348
2450E	3300	7.6	1.03	63,499
				63,714
2550E	5200	4.3	0.88	63,460
				63,100
2650E	3920	4.3	0.88	-
				62,960
2750E	3220	3.9	0.69	-
				62,889
2850E	3130	4.5	1.00	-
				62,878
2950E	2330	4.1	0.93	-
				62,916
3050E	2230	5.1	1.08	-
				62,926
3150E	3720	6.1	0.95	-
				62,938

038

332105

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 6200N
AT 2250E AND 5250E

LINES 5600N
6200N
6800N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 5600N				
2850E	4920	8.1	0.78	63,374
				-
2950E	5870	6.6	0.88	63,721
				-
3050E	4850	6.4	0.86	62,990
	4870	6.9	0.87	-
3150E	2870	16.3	0.90	62,902
	3720	8.1	0.74	-
3250E	3040	9.6	0.81	62,902
				-
3350E	4460	8.1	0.74	63,229
				-
3450E	5550	9.0	0.83	63,120
				-
3550E	2730	9.5	0.79	63,073
				-
3650E	2280	12.0	0.78	63,105
				-
3750E	5200	12.0	0.79	63,044
				-
3850E	7950	8.4	0.71	62,713
				-
3950E	3900	10.5	0.71	62,571
				-
4050E	4500	10.9	0.81	62,579
				-
4150E	5650	8.5	0.71	62,592
				-
4250E	2800	8.4	0.77	62,571
				-
4350E	3880	6.1	0.74	62,598
				62,603
4450E	3050	8.5	0.68	62,647
				-
4550E	2560	11.3	0.71	62,663
				-
4650E	3120	8.6	0.68	62,680
				-
				62,791
LINE 6200N				
2850E	2390	4.8	1.04	63,057
				-
2950E	3300	6.0	0.92	62,981
				-
				62,954

040

332107

Station	Resistivity	Chargeability	L/M	Magnetics
3050E	2980	3.4	0.88	-
3150E	1860	8.0	0.88	63,437 63,394
3250E	2380	10.0	0.85	63,321 -
3350E	3450	10.0	0.88	62,763 -
3450E	2210	9.6	0.97	63,205 -
3550E	3020	8.3	0.90	63,134 -
3650E	4700	10.9	0.90	63,033 -
3750E	3030	11.4	0.88	62,790 -
3850E	4400	9.0	0.78	62,773 -
3950E	4660	8.4	0.89	62,623 -
4050E	2980	9.1	0.80	62,619 -
4050E	3390	2.2	2.86	-
4150E	3090	8.9	0.68	62,616 -
4250E	3140	5.9	0.73	62,612 -
4350E	1730	7.1	0.75	62,615 -
4450E	3210	7.3	0.73	62,620 -
4550E	1895	11.0	0.71	62,607 -
				62,613
LINE 6800N				
2850E	2730	5.0	1.00	62,889 -
2950E	2260	4.0	0.95	62,878 -
3050E	2160	4.5	0.88	62,916 -
3150E	3590	6.6	0.80	62,926 -
3250E	3180	5.1	1.06	62,938 62,931 62,936

Station	Resistivity	Chargeability	L/M	Magnetics
3350E	3330	4.0	0.83	-
	2100	8.6	0.85	63,291
3450E	2910	10.6	0.88	-
	3850	10.3	0.90	63,262
3550E	3630	11.1	0.93	63,253
				63,289
3650E	3760	9.1	0.91	63,359
				63,466
3750E	3340	6.3	0.92	-
				63,435
3850E	2840	6.9	0.72	-
				63,295
3950E	2790	8.9	0.82	-
				63,289
4050E	4360	7.0	0.83	-
				62,815
4150E	1590	11.4	0.79	-
				62,648
4250E	3520	9.7	0.86	-
				62,638
4350E	3150	7.3	0.96	-
				62,618
4450E	3320	6.5	0.83	-
				62,606
4550E	3440	6.6	0.68	-
				62,626

042

332109

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 6200N
AT 3750E AND 6750E

LINES 5600N
6200N
6800N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 5600N				
				62,647
4450E	3400	10.9	0.87	-
				62,663
4550E	4270	10.6	0.90	-
	3420	10.0	0.88	62,680
4650E	4390	6.5	0.85	-
				62,791
4750E	6300	5.6	0.95	-
				62,687
4850E	3350	6.8	0.85	-
				62,675
4950E	3010	4.1	0.93	-
				62,678
5050E	2610	4.5	0.84	-
				62,679
5150E	2360	5.3	0.75	-
				62,691
5250E	3090	6.1	0.79	-
				-
LINE 6200N				
				62,615
4350E	1610	6.9	0.87	-
				62,620
4450E	3150	7.1	0.92	-
	2590	9.3	0.89	62,607
4550E	2010	11.6	0.86	-
				62,613
4650E	3140	9.3	0.81	-
				62,633
4750E	3980	3.9	0.72	-
	2500	7.4	0.78	62,657
4850E	1920	8.3	0.78	-
				62,738
4950E	2140	3.7	0.89	-
				62,746
5050E	1790	5.3	0.72	-
				62,699
5150E	1570	7.3	0.82	-
				62,729
5250E	2070	3.9	0.72	-
				62,780
5350E	3480	3.0	0.77	-
				62,732

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 6800N				
4350E	3650	9.8	0.90	62,638 - 62,618
4450E	4850	7.2	0.94	62,606 - 62,626
4550E	5700 3780	6.2 9.0	0.71 0.98	
4650E	3320 2820	11.2 8.8	0.74 0.85	62,629 - 62,621
4750E	2820	8.9	0.83	
4850E	3950	6.0	0.80	62,656 - 62,695
4950E	3250	6.4	0.91	
5050E	3040	5.3	0.77	62,691 - 62,692
5150E	2760	6.1	0.97	
5250E	4120	4.8	0.81	62,708 - 62,757
5350E	2610	8.6	0.93	
5450E	2670	9.9	0.84	62,846 - 62,768
5550E	1640	6.4	0.78	
5650E	-	-	-	62,727 - 62,714
5750E	-	-	-	

045

332112

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 8000N
AT 750W AND 2250E

LINES 7400N
8000N
8600N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 7400N				
50E	1970	11.4	0.95	62,537 - 62,540
150E	2122	10.3	0.90	62,537 - 62,534
250E	1610	10.3	0.69	62,536 - 62,567
350E	1875	11.9	0.87	62,546 - 62,537
450E	1409	9.8	1.02	62,542 - 62,539
550E	2289	11.1	0.84	62,525 - 62,516
650E	3376	9.0	0.92	62,494 - 62,487
750E	2731	11.1	0.88	62,470 - 62,444
850E	2946	13.3	0.86	62,375 - 62,515
950E	4818	9.9	0.96	
1050E	3012	12.3	0.89	
1150E	3199	13.5	0.81	
1250E	3427	14.1	1.09	
1350E	4019	8.3	0.90	
1450E	4626	6.8	0.96	
1550E	7711	5.5	0.73	
1650E	7237	3.2	0.78	
LINE 8000N				
50W	1160	12.3	0.81	62,611 - 62,610
50E	1510	11.5	0.91	62,608 - 62,598
150E	2130	8.5	0.86	
250E	1400	9.1	0.86	

Station	Resistivity	Chargeability	L/M	Magnetics
350E	1960	7.6	0.79	-
450E	1580	12.5	0.82	62,599 -
550E	1640	12.3	0.81	62,595 -
650E	1520	11.3	0.84	62,592 -
750E	1380	15.1	0.83	62,604 -
850E	2100	12.9	0.84	- -
950E	3420	9.5	0.84	62,588 -
1050E	2460	11.6	0.80	62,586 -
1150E	1720	11.5	0.90	62,592 -
1250E	2350	11.3	0.93	62,594 62,588
1350E	2400	8.9	0.82	62,574 62,565
1450E	3290	5.8	0.83	62,544 62,526
1550E	7490	4.5	0.78	62,510 -
1650E	2080	10.6	1.12	62,480 62,410 62,408
LINE 8600N				
50E	2865	14.5	0.83	62,639 -
150E	1881	14.5	0.79	62,637 -
250E	2285	12.0	0.87	62,639 -
350E	3144	9.4	0.88	62,633 -
450E	2896	9.6	0.78	62,626 -
550E	1807	11.9	0.91	62,625 -
650E	1535	18.4	0.76	62,618 -
				62,613

Station	Resistivity	Chargeability	L/M	Magnetics
750E	1924	17.6	0.84	- 62,603
850E	2087	16.1	0.87	-
850E	2150	16.3	0.77	- 62,598
950E	2410	14.5	0.86	- 62,594
1050E	2950	12.4	0.89	- 62,586
1150E	3250	13.6	0.92	- 62,574
1250E	4150	15.5	0.87	- 62,586
1350E	2700	15.0	0.89	- 62,603
1450E	2450	10.6	0.80	-
	3430	8.8	0.74	62,592
1550E	5640	5.0	0.80	- 62,560
1650E	3100	5.5	0.82	- 62,551

049

332116

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 8000N
AT 750E AND 3750E

LINES 7400N
8000N
8600N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 7400N				
1450E	3222	13.1	0.79	62,470 - 62,444
1550E	5432	9.9	0.99	62,375 - 62,515
1650E	5852	7.3	0.89	62,499 - 62,935
1750E	3285	11.1	0.99	63,038 - 62,852
1850E	1721	9.8	0.97	62,964 - 63,458
1950E	1958	9.5	0.88	63,587 - 63,540
2050E	2453	10.5	0.87	63,104 - 62,931
2150E	2873	11.8	0.96	62,869 - 62,835
2250E	1991	10.8	0.91	62,814 - 62,807
2350E	4150	5.2	1.02	62,816 - 62,832
2450E	3828	5.3	0.91	
2550E	3715	5.0	0.76	
2650E	3505	6.3	0.68	
2750E	3900	6.5	0.85	
2850E	2968	5.5	0.91	
2950E	3621	7.9	0.80	
3050E	4535	8.9	0.84	
LINE 8000N				
1450E	2847	11.8	0.87	62,544 - 62,526
1550E	7704	11.7	0.77	62,510 - 62,480
1650E	2340	16.9	0.85	62,410 - 62,408

Station	Resistivity	Chargeability	L/M	Magnetics
1750E	1702	14.1	0.99	- 62,944
1850E	2145	10.8	0.93	- 62,966
1950E	3040	7.5	0.93	- 62,872
2050E	3248	8.0	0.85	- 62,807
2150E	1950	8.6	0.94	- 62,767
2250E	1978	10.8	0.91	- 62,960
2350E	3109	6.8	0.88	- 62,897
2450E	2436	6.6	0.83	- 63,087
2550E	2622	6.3	0.84	- 62,997
2650E	2249	7.3	1.01	- 62,925
2750E	3141	7.3	0.82	- 62,832
2850E	2340	9.0	0.79	- 62,801
2950E	1641	6.6	0.83	- 62,791
3050E	1253	5.8	0.78	- 62,783
LINE 8600N				
1450E	3356	15.0	0.93	62,603 - 62,592
1550E	4365	13.3	0.85	- 62,560
1650E	5225	13.2	0.82	- 62,551
1750E	2025	10.8	0.91	- 62,580
1850E	1972	10.9	0.83	- 62,608
1950E	2259	9.0	0.98	- 62,659
2050E	5220	8.8	0.85	- 62,798

Station	Resistivity	Chargeability	L/M	Magnetics
2150E	3458	7.4	1.01	62,824 - 62,998
2250E	2286	9.8	0.85	62,959 - 62,927
2350E	3458	8.0	0.83	- 62,740
2450E	2153	6.8	0.74	- 62,716
2550E	3012	5.4	0.80	- 62,717
2650E	2928	7.5	0.67	- 62,719
2750E	2756	5.8	0.95	- 62,731
2850E	3030	7.3	1.00	- 62,731
2950E	2134	6.3	0.87	- 62,713
3050E	4624	8.0	0.88	- 62,709

053

332120

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 8000N
AT 2250E AND 5250E

LINES 7400N
8000N
8600N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 7400N				
2850E	2394	5.0	1.00	62,814 - 62,807
2950E	2551	5.2	1.06	62,816 - 62,832
3050E	3153	8.4	0.89	62,842 - 62,900
3150E	1881	7.6	0.96	62,999 - 63,007
3250E	2784	7.6	0.96	62,919 - 62,848
3350E	3495	5.6	0.86	62,793 - 62,747
	3456	9.4	0.95	
3450E	3530	10.0	0.90	62,723 - 62,811
	2970	9.5	0.95	
3550E	3768	9.3	0.81	62,698 - 62,746
3650E	3657	12.8	0.86	62,741 - 62,622
3750E	3430	3.4	0.74	62,616 - 62,576
3850E	3541	5.8	0.52	
3950E	3670	6.1	0.84	
4050E	2730	10.0	0.80	
4150E	3585	11.0	0.77	
4250E	4500	11.1	0.77	
4350E	3527	9.1	0.66	
4450E	6184	11.4	0.79	
4550E	4699	10.4	0.72	
4650E	7035	9.1	0.82	
LINE 8000N				
2850E	2190	8.4	0.87	62,832 - 62,801

Station	Resistivity	Chargeability	L/M	Magnetics
2950E	1993	5.5	0.96	- 62,791
3050E	1926	5.0	0.86	- 62,783
3150E	2253	5.5	0.82	- 62,794
	2256	8.0	-	
3250E	3243	10.4	0.91	- 62,824
3350E	3229	8.8	0.72	- 62,812
3450E	5067	9.5	0.87	- 62,806
3550E	3654	8.3	0.76	- 62,807
3650E	2827	8.5	0.80	- 62,802
3750E	5017	8.5	0.88	- 62,808
3850E	4523	9.5	0.82	- 62,811
3950E	3248	8.5	0.76	-
3950E	3300	8.3	0.84	- 62,804
4050E	3450	9.5	0.82	- 62,790
4150E	1880	5.8	1.00	- 62,782
4250E	1650	8.8	0.94	- 62,778
4350E	2030	9.1	0.82	- 62,784
4450E	2410	12.2	0.83	- 62,801
4550E	2460	13.6	0.91	- 62,828
4650E	1410	12.4	0.81	- 62,867
LINE 8600N				
2850E	3151	9.8	1.00	62,731 - 62,731
2950E	2380	9.1	0.99	- 62,713
3050E	3104	11.3	1.00	- 62,709

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Station	Resistivity	Chargeability	L/M	Magnetics
3150E	4041	12.4	1.01	- 62,704
3250E	2475	5.1	0.84	- 62,709
3350E	3155	9.0	0.78	- 62,720
3450E	3313	9.9	1.01	- 62,713
3550E	5046	10.8	0.83	- 62,703
3650E	5320	7.1	0.85	- 62,696
3750E	4663	5.9	0.53	- 62,694
3850E	3884	5.0	0.96	-
	3062	7.2	0.88	62,699
3950E	1357	12.0	0.80	-
	1092	14.0	0.86	62,705
4050E	1606	20.0	0.84	-
	2450	18.5	0.88	62,706
4150E	3059	10.9	0.96	-
4250E	2610	6.3	0.96	- - 62,727
4350E	2675	8.8	0.94	-
	3350	15.3	0.82	62,772
4450E	4397	18.9	0.97	-
	2976	16.8	0.97	62,856
4550E	2112	17.1	0.95	- 62,862
4650E	1378	17.9	0.89	- 62,896

057

332124

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 8000N
AT 3750E AND 6750E

LINES 7400N
8000N
8600N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 7400N				
4450E	4406	12.6	0.90	62,741 - 62,622
4550E	3582	9.0	1.03	- 62,616
4650E	3328	12.8	0.88	-
	3005	11.6	0.84	62,576
4750E	2337	11.4	0.86	- 62,744
4850E	3695	11.1	0.99	- 62,712
4950E	2491	11.8	0.87	- 62,745
5050E	2048	14.0	0.93	-
5050E	2013	12.5	1.06	- 62,558
5150E	4051	11.6	0.84	-
5150E	4218	8.8	0.72	- 62,707
5250E	2536	16.2	0.96	- 62,722
5350E	2166	11.5	0.79	- 62,716
5450E	2069	7.4	0.99	- 62,714
5550E	1936	9.8	0.95	- 62,708
5650E	1434	9.3	0.89	- 62,707
5750E	1061	7.4	0.95	-
	1116	13.4	0.92	62,708
5850E	1881	24.3	0.79	-
	2886	18.0	0.88	62,709
5950E	3603	9.3	0.84	- 62,716
6050E	3324	5.9	0.90	- 62,747
LINE 8000N				
4450E	2379	10.0	0.88	62,784 - 62,801
4550E	2904	10.5	0.89	- 62,828

Station	Resistivity	Chargeability	L/M	Magnetics
4650E	2229	10.6	0.83	- 62,867
4750E	1889	11.1	0.81	- 62,919
4850E	2743	13.0	1.02	- 62,778
4950E	2321	13.1	0.92	- 62,713
5050E	1957	11.4	0.90	- 62,694
5150E	3135	9.6	0.94	- 62,875
5250E	2672	12.1	0.93	- 62,777
5350E	3786	10.1	0.99	- 62,652
5450E	5510	15.3	0.75	- 62,654
5550E	2402	9.9	0.89	- 62,672
5650E	1483	9.9	0.84	- 62,683
5750E	1335	10.3	0.87	- 62,687
5850E	1170	12.0	0.82	- 62,691
5950E	917	15.0	0.97	- 62,691
6050E	769	16.3	0.77	- 62,689
6150E	704	15.4	0.83	- 62,678
LINE 8600N				
4450E	3580	13.3	0.81	62,772 -
4550E	2744	12.1	0.85	- 62,856
4650E	2929	12.8	0.84	- 62,862
4750E	3375	11.1	0.88	- 62,896
4850E	2970	10.3	0.85	- 63,003 - 62,868

Station	Resistivity	Chargeability	L/M	Magnetics
4950E	3388	10.1	0.94	- 62,786
5050E	2796	11.0	0.80	- 62,767
5150E	2679	10.5	0.86	-
	2814	10.1	0.82	62,757
5250E	2940	15.4	0.81	- 62,733
5350E	3990	11.8	0.83	- 62,682
5450E	3729	14.0	0.84	- 62,696
5550E	3586	11.4	0.88	- 62,647
5650E	4097	12.0	0.86	- 62,667
5750E	2121	14.8	0.76	- 62,672
5850E	1299	14.0	0.86	- 62,669
5950E	1330	14.0	0.88	- 62,664
6050E	2301	12.3	0.92	- 62,656
6150E	4920	10.0	0.88	- 62,705

061

332128

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 8000N
AT 5250E AND 8250E

LINES 7400N
8000N
8600N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 7400N				
				62,708
5850E	900	21.1	0.81	-
	1446	18.0	0.81	62,709
5950E	1828	8.8	0.94	-
				62,716
6050E	1746	9.1	0.97	-
				62,747
6150E	1881	7.0	0.93	-
				62,707
6250E	2169	10.3	0.90	-
				62,778
6350E	2151	8.9	1.01	-
				62,743
6450E	2151	9.3	0.89	-
				62,768
6550E	2349	9.1	0.88	-
				62,837
6650E	2736	8.0	0.88	-
				62,797
6750E	2536	6.0	0.92	-
				62,802
6850E	2508	4.8	0.83	-
				62,836
6950E	2349	6.5	0.92	-
				-
7050E	2420	6.3	0.84	-
				-
7150E	2766	7.9	0.89	-
				-
LINE 8000N				
				62,687
5850E	1886	6.1	1.03	-
				62,691
5950E	1336	6.1	0.98	-
				62,691
6050E	1192	4.1	1.05	-
				62,689
6150E	1337	2.8	0.68	-
	1027	12.8	0.92	62,678
6250E	1335	15.0	0.92	-
	1118	12.9	0.85	62,720
6350E	1260	11.1	0.90	-
				62,733

Station	Resistivity	Chargeability	L/M	Magnetics
6450E	1669	10.6	0.97	-
	1773	14.5	0.93	62,762
6550E	1740	15.1	0.93	-
	1738	12.5	0.94	62,736
6650E	1363	11.0	0.94	-
				62,732
6750E	2304	10.8	0.95	-
				62,734
6850E	-	-	-	-
				62,754
6950E	-	-	-	-
				62,802
LINE 8600N				
				62,672
5850E	1008	9.0	1.06	-
				62,669
5950E	1151	8.8	1.06	-
				62,664
6050E	1621	8.5	0.92	-
	1378	12.1	0.91	62,656
6150E	1433	16.0	0.91	-
	1395	12.1	0.91	62,705
6250E	916	20.5	0.83	-
	1690	13.9	0.86	62,746
6350E	2305	14.6	0.86	-
				62,662
6450E	1936	14.6	0.88	-
				62,678
6550E	2405	11.1	0.93	-
				62,720
6650E	1881	10.6	0.99	-
				62,672
6750E	3228	9.9	0.91	-
				62,685
6850E	3135	10.3	0.97	-
				-

064

332131

GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 9800N
AT 750W AND 2250E

LINES 9200N
9800N
10400N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 9200N				
50E	1497	16.0	0.94	62,630 - 62,627
150E	985	14.6	0.99	62,623 - 62,618
250E	1077	14.3	0.90	62,621 - 62,617
350E	1485	15.5	0.81	62,614 - 62,618
450E	2259	17.8	0.87	62,615 - 62,619
550E	2237	16.3	0.85	62,620 - 62,613
650E	2337	15.1	0.89	62,603 - 62,609
750E	2018	16.0	0.86	62,603 - 62,594
850E	1653	18.4	0.82	62,584 - 62,586
950E	1958	16.5	0.82	
1050E	1936	17.4	0.80	
1150E	2151	14.7	0.79	
1250E	1977	13.0	0.95	
1350E	1344	12.3	0.85	
	1249	15.3	0.92	
1450E	1122	20.3	0.78	
	1156	17.5	0.85	
1550E	1343	16.8	0.83	
1650E	2376	13.0	0.91	
LINE 9800N				
50E	1284	9.6	0.86	62,645 - 62,641
150E	1254	11.3	0.88	62,640 - 62,643
250E	1270	9.6	0.92	

Station	Resistivity	Chargeability	L/M	Magnetics
350E	964	11.5	0.96	- 62,639
450E	1588	14.6	0.88	- 62,635
550E	2219	15.8	0.87	- 62,632
650E	1772	13.6	0.88	- 62,637
750E	1889	18.3	0.81	- 62,634
850E	2181	15.7	0.76	- 62,636
950E	1479	16.5	0.93	- 62,634
1050E	1710	17.9	0.84	- 62,637
1150E	4641	16.5	0.91	- 62,626
1250E	1433	16.9	0.96	- 62,620
1350E	1086	16.4	0.79	-
	995	16.8	0.97	62,621
1450E	619	26.0	0.71	-
	310	27.8	0.76	62,615
1550E	494	17.8	0.79	- 62,609
1650E	3220	11.5	0.94	- 62,592
LINE 10400N				
50E	1206	12.3	0.77	62,691 -
150E	1433	12.3	0.80	62,693 -
250E	1350	12.3	0.88	62,688 -
350E	1058	10.9	0.94	62,686 -
450E	1112	11.8	1.00	62,683 -
550E	1454	11.3	0.96	62,677 -
650E	1824	13.5	0.93	62,666 -
750E	1672	13.6	1.03	62,662 - 62,660

Station	Resistivity	Chargeability	L/M	Magnetics
850E	1064	15.3	0.90	- 62,648
950E	2237	17.1	0.80	- 62,639
1050E	3335	16.4	0.87	- 62,636
1150E	1741	17.9	0.81	- 62,636
1250E	996	19.1	0.97	- 62,637
1350E	1164	17.3	0.92	- 62,624
1450E	831	22.3	0.96	- 62,618
1550E	921	19.3	0.92	- 62,619
1650E	3000	17.9	0.75	- 62,602

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GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 9800N
AT 750E AND 3750E

LINES 9200N
9800N
10400N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 9200N				
1450E	1458	23.1	0.68	62,603 - 62,594
1550E	1538	21.6	0.67	62,584
1650E	2598	18.8	0.74	-
	3209	16.4	0.63	62,586
1750E	3471	21.3	0.74	-
	1541	24.8	0.67	62,587
1850E	1195	17.5	0.74	-
1850E	1024	15.8	0.70	-
	1138	3.8	-0.39	62,601
1950E	2205	10.5	0.90	-
1950E	1990	9.4	0.84	-
2050E	1902	9.5	0.84	62,596 - 62,593
2150E	2166	7.3	0.96	-
2250E	2018	7.6	0.92	62,610 - 62,610
2350E	2394	10.0	0.88	-
2450E	2237	10.5	0.93	62,611 - 62,629
2550E	1560	9.1	0.88	-
2650E	1946	10.0	0.90	62,641 - 62,661
2750E	1446	- 6.8	-1.54	-
2850E	2060	9.8	0.92	62,659 - -
2950E	2203	14.0	0.91	- 62,632
LINE 9800N				
1450E	2379	17.3	0.69	62,621 - 62,615
1550E	436	14.9	0.29	-
1650E	1950	4.3	-0.67	62,609 - 62,592

Station	Resistivity	Chargeability	L/M	Magnetics
1750E	1629	9.8	0.18	-
				62,597
1850E	1298	12.6	0.63	-
				62,590
1950E	1466	1.10	-2.36	-
1950E	1669	8.5	1.06	-
				62,596
2050E	2480	10.3	0.74	-
2050E	2480	9.1	0.91	-
				62,549
2150E	2090	11.3	0.80	-
				-
2250E	2119	9.6	0.89	-
				62,442
2350E	1363	9.0	0.89	-
				62,989
2450E	870	8.5	0.98	-
				62,898
2550E	733	10.0	1.00	-
				63,012
2650E	593	10.9	0.99	63,236
				62,950
2750E	1857	9.8	0.90	-
				62,930
2850E	1059	10.3	0.97	-
				62,822
2950E	1353	11.3	0.97	-
				62,696
3050E	1116	9.4	1.04	-
				62,844
LINE 10400N				
				62,624
1450E	2301	13.8	1.04	-
				62,618
1550E	2120	9.9	0.94	-
				62,619
1650E	1657	12.9	1.05	-
				62,602
1750E	2363	11.0	0.75	-
	1193	26.1	0.75	62,638
1850E	1332	26.3	0.81	-
	1575	18.8	0.82	62,581

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Station	Resistivity	Chargeability	L/M	Magnetics
1950E	1560	16.4	0.79	-
				62,621
2050E	1790	12.4	0.81	-
				62,616
2150E	2964	8.8	0.80	-
				62,589
2250E	1672	10.6	0.97	-
				-
2350E	998	8.6	0.81	-
				62,590
2450E	1286	6.0	0.83	-
				62,554
2550E	1506	7.8	0.90	-
				62,912
2650E	1997	7.0	0.83	-
	2237	10.4	0.89	62,599
2750E	1736	13.9	0.94	-
	1535	13.3	0.74	62,815
2850E	1810	11.5	1.00	-
				62,693
2950E	831	11.8	1.00	-
				62,642
3050E	818	10.3	1.00	-
				62,813

072

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GRADIENT ARRAY

CURRENT ELECTRODES ON LINE 9800N
AT 2250E AND 5250E

LINES 9200N
9800N

Station	Resistivity	Chargeability	L/M	Magnetics
LINE 9200N				
				62,659
2850E	1765	8.0	0.79	-
	2440	13.5	0.78	-
2950E	2260	17.5	0.76	-
	1390	13.8	0.40	62,632
3050E	932	13.8	0.31	-
				62,615
3125E	1640	8.9	0.94	-
3150E	2070	9.3	0.90	62,556
				62,773
3250E	2360	11.3	0.71	-
				62,715
3350E	2010	6.5	-0.69	-
				62,679
3450E	3620	10.5	0.74	-
				62,671
3550E	2980	6.0	0.22	-
				62,660
3650E	2550	12.5	0.74	-
				62,670
3750E	2670	11.0	0.66	-
				62,678
3850E	2630	7.9	0.72	-
				62,685
3950E	1880	7.1	-0.07	-
				62,679
4050E	1810	10.8	0.82	-
				62,677
4150E	1675	12.4	0.91	-
				62,671
4250E	2300	13.0	0.88	-
				62,674
4350E	2320	9.4	1.00	-
				62,682
4450E	1630	9.1	0.91	-
				62,685
4550E	1825	12.0	0.87	-
				62,703
LINE 9800N				
				62,930
2850E	2000	8.1	0.93	-
				62,822
2950E	1510	9.5	0.84	-
				62,696

Station	Resistivity	Chargeability	L/M	Magnetics
3050E	1475	8.4	0.95	-
3150E	2110	9.5	0.95	62,844 62,821
3250E	2280	10.2	0.97	62,888 -
3350E	3270	12.3	0.97	62,768 -
3450E	2230	9.9	0.81	62,830 -
3550E	4140	5.4	1.17	62,780 -
3650E	3050	15.7	0.78	62,698 -
3750E	2190	15.2	0.70	62,647 -
3850E	2930	11.1	0.94	- -
3950E	1705	10.3	0.78	62,748 -
4050E	2740	7.8	0.77	62,706 -
4150E	1765	10.4	0.77	62,690 -
4250E	2190	9.6	0.92	62,682 -
4350E	1795	11.0	0.98	62,681 -
4450E	1445	9.9	0.86	62,685 -
4550E	1025	12.8	0.84	62,693 -
4650E	1510	9.8	0.80	62,683 -
				62,685

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SCHLUMBERGER ARRAY

LINES 9200N
9800N
10400N

STATION INTERVAL IN FEET
RESISTIVITY IN OHM-METRES
CHARGEABILITY IN MILLIVOLTS/VOLT
TOTAL MAGNETIC FIELD IN GAMMAS

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Station	Resistivity	Chargeability	Magnetics
Line 9200N			
4450E	1469	8.8	- 62,685
4550E	1331	9.4	- 62,703
4650E	1062	17.8	- 62,717
4750E	1286	11.6	- 62,722
4850E	1549	10.5	- 62,744
4950E	1546	14.0	- 62,797
5050E	1175	11.3	- 62,724
5150E	1434	12.0	- 62,695
5250E	2060	13.0	- 62,694
5350E	1632	10.8	- 62,695
5450E	897	10.8	- 62,689
5550E	1239	9.0	- 62,697
5650E	2198	10.3	62,734
5750E	2635	10.3	62,996 - 62,661
5850E	1903	11.3	- 62,675
5950E	1062	11.5	- 62,669
6050E	1460	14.0	- 62,672
6150E	2124	13.0	- 62,669
6250E	1451	16.5	- 62,670
6350E	1395	14.5	- 62,742
6450E	2950	10.5	- 62,735
6550E	1336	12.5	- 62,710
6650E	2023	13.5	- 62,704

Station	Resistivity	Chargeability	Magnetics
Line 9800N			
4450E	1204	8.5	- 62,693
4550E	961	12.8	- 62,683
4650E	1376	8.5	- 62,685
4750E	1829	10.0	- 62,686
4850E	1829	12.7	- 62,690
4950E	1982	10.8	- 62,697
5050E	1522	12.0	- 62,707
5150E	1151	11.5	- 62,698
5250E	1363	13.3	- 62,690
5350E	1620	14.0	- 62,688
5450E	714	16.1	- 62,699
5550E	850	14.8	- 62,692
5650E	1564	13.2	- 62,691
5750E	802	11.7	- 62,684
5850E	1573	13.5	- 62,674
5950E	1569	13.0	- 62,679
6050E	1420	9.5	- 62,664
6150E	1676	16.8	- 62,697
6250E	2065	13.5	- 62,720
6350E	1070	12.4	- 62,979
6450E	962	13.5	- 62,694
6550E	2419	16.0	- 62,622
6650E	1646	24.0	- 62,710
6750E	2065	19.8	- 62,691

Station	Resistivity	Chargeability	Magnetics
6850E	1770	19.0	- 62,729
6950E	-	-	- 62,795
Line 10400N			
2950E	782	14.3	- 62,642
3050E	1239	14.5	- 62,813
3150E	960	16.2	- 63,117
3250E	929	17.7	- 62,893
3350E	1349	13.5	- 62,831
3450E	998	15.8	- 62,762
3550E	1451	21.0	- 62,944
3650E	1355	20.8	- 62,790
3750E	865	21.7	- 62,708
3850E	1018	14.5	- 62,684
3950E	679	13.5	- 62,676
4050E	724	11.3	- 62,669
4150E	857	8.0	- 62,660
4250E	854	7.0	- 62,669
4350E	728	7.0	- 62,674
4450E	732	10.2	- 62,681
4550E	885	7.5	- 62,685
4650E	1189	9.5	- 62,682
4750E	1186	11.7	- 62,682
4850E	1292	15.8	- 62,689
4950E	1062	15.0	- 62,698
5050E	1069	18.0	- 62,691

Station	Resistivity	Chargeability	Magnetics
5150E	1443	26.0	-
5250E	1145	24.0	62,697 -
5350E	1396	25.8	62,699 -
5450E	1363	39.8	62,731 -
5550E	708	36.8	62,684 -
5650E	1180	35.3	62,688 -
5750E	1097	40.3	62,682 -
5850E	1121	22.3	62,681 -
5950E	1125	29.3	62,676 -
6050E	1023	33.0	62,702 -
6150E	1814	26.7	62,711 -
6250E	985	32.0	62,622 -
6350E	788	27.7	62,652 -
6450E	684	35.0	62,672 -
6550E	842	39.3	62,699 -
6650E	1012	34.5	62,690 -
6750E	472	44.3	62,682 -
6850E	861	33.3	62,686 -
6950E	-	-	62,690 -
7050E	-	-	62,695 -
			62,696