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INTERPRETATION REPORT

AIRBORNE ELECTROMAGNETIC (INPUT) SURVEY

of the

WILSON RIVER AREA

TASMANIA, AUSTRALIA

for

RENISON LIMITED

by

GEOTERREX PTY. LIMITED

83-283

SYDNEY, AUSTRALIA

AUGUST, 1978.

G. BUTT

Geophysicist.

INTERPRETED BY geoterrex ltd

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Accompanying this Report

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I. INTRODUCTION

During the period May 8 to 16, 1978, Geoterrex Pty. Limited conducted an airborne electromagnetic INPUT survey for Renison Limited over the Wilson River Area near Rosebery, Tasmania. The survey, flown from Devonport, covered onw irregular shaped area with NE-SW lines spaced at 500 metres. A total of 378.5 line kilometres were surveyed. The purpose of the survey was to search for tin and economic skarn minerals with massive sulphide mineralization, possibly associated with carbonate geology along a granite contact. The contact surrounds an Ordovician - Devonian syncline.

The survey was conducted with a Super Canso PBY-5A, under registration VH-EXG, which is operated by Executive Air Services on charter to Geoterrex Pty. Limited. It was equipped with the Barringer Mark V INPUT system, a Geometrics 803 nuclear precession magnetometer, a Honeywell visicorder, a Sperry Stars RT-220 altimeter, a 50-Hz monitor, and a Geocam 35 mm continuous strip tracking camera.

Navigation was by visual means utilizing airphoto mosaics at an approximate scale of 1:20,000, and a mean terrain clearance between 400 and 600 feet was observed. The flight path was recovered in the field, and a geophysicist selected the anomalies which were then plotted on transparent overlays to the mosaics.

Planning and operation of the survey was carried out by G. Butt, in consultation with L. Newnham and K. Wells representing Renison Limited.

Complete compilation and interpretation of the data were performed in Sydney, Australia.

II. PERSONNEL

The following Geoterrex personnel participated in this survey:

Pilot	J. Edwards
Co-Pilot	C. Moody
Aircraft Engineer	T. Duggan
Electronics Technicians	L. Williams J. Da Costa
Data Compilers	R. Hobbs K. Thomas
Geophysicist	T. Whiting
Geophysicist and Project Manager	G. Butt

The electromagnetic data was interpreted in Sydney by G. Butt.

Final compilation and drafting was carried out in Sydney by J. Templin and P. Sweeney.

III. DATA PRESENTATION

Fair airphoto mosaics at a scale of approximately 1:20,000 have been used to provide the base for the geophysical maps. There are two types of maps - an EM Plan Map and an Isomagnetic Contour Map. Each map is presented on a clear overlay to the airphoto mosaic and includes sufficient planimetry to allow correlation to other data maps of the area. Ammonia prints of both maps are attached to the back of this report.

The EM Plan Map is a combined data and interpretation map. It portrays the key characteristics of the INPUT anomalies using our conventional symbolism. This symbolism, which is explained in the map legend, includes the following:-

- anomaly peak position
- anomaly half-peak width
- number of channels affected
- amplitude of the first and fourth channels, in units of 1/10 inch chart deflection
- terrain clearance of the aircraft, in metres
- amplitude of any apparent associated magnetic anomaly, in nanoteslas.
- any associated response on the 50 Hz monitor.

All INPUT anomalies interpreted as genuine are plotted. The peak position of the response gives the approximate axis of the conductor in the case of broad or dipping zones.

See discussion on edge effect in Appendix B. In the case of relatively narrow conductors the half-peak width of the anomaly would be broader than the actual width of the body.

A lag of 4.0 seconds is used to plot the INPUT anomalies. All amplitudes and half-peak widths are measured from the true zero level. There is sometimes an element of subjectivity in deciding how many channels are affected, or whether a weak inflection represents a conductor axis, or in measuring the amplitude of the later channels.

When the profiles indicate a possibly significant correlation between an INPUT and a magnetic anomaly the amplitude of the magnetic response is shown on the EM Plan Map. If the EM anomaly is located on the flank or edge of a magnetic feature, the magnetic amplitude is affixed with an arrow pointing in the direction of the offset of the magnetic anomaly relative to the conductor.

During the course of data evaluation, groups of anomalies are outlined to show our interpretation of the extent of the geologically conductive zones. If any doubt exists, the outlines are dashed. Conductors of interest are numbered to facilitate reference to the report. In some instances it is suggested that only a portion of a conductor be examined. A rectangular outline and a zone number serve to identify these selections.

If any anomaly is interpreted as having a cultural (man-made) source it is accompanied by a "C". A "C" indicates that a reasonable element of doubt exists and most such features are recommended for ground checks.

On the Isomagnetic Contour Map the total field magnetic data is presented in conventional form by isomagnetic contours. The contour interval used is 10 gammas wherever gradient permits and values are taken from an arbitrary datum.

There are two magnetometer traces on the INPUT records. One contains magnetic data at a scale of 40 gammas per inch (minimum step two gammas). The second trace records the same information at a coarser scale of 400 gammas per inch (minimum step 20 gammas). There is one step every 1.0 second. Positive is upwards. No lag is needed to plot the magnetic data.

The original INPUT records containing the geophysical information are presented in a folder. The various traces are identified on Line 1.

The negative 35 mm. tracking film is delivered in four rolls.

One can refer to the flight log or to the information which is noted on each of the records in order to relate the film to the geophysical records and maps.

The point picking airphotos along with the tracking film must be consulted for accurate location of any ground followup investigation.

Instrument sensitivities and settings are tabled in Appendix C attached to this report.

IV. INTERPRETATION - GENERAL

The primary purpose of the airborne survey and of this interpretation is the exploration for conductive massive sulphides. The INPUT system is the prime tool and the selection of prospects is based mainly on conductor characteristics as interpreted from the INPUT data.

The apparent conductivity, as determined by the rate of decay of the INPUT response, is an important criterion in our analysis of conductors. Other important factors taken into account include :-

- the shape and size of the INPUT anomalies
- the length and degree of isolation of the conductor
- the pattern of conductors
- the associated geophysical parameters like the aeromagnetics
- the position with respect to the direction of structures
- the geological enviroment and the relationship of anomalies to known mineralization
- local variation of the characteristics within the conductor
- the position with respect to features on the airphoto mosaics.

Conductors, as detected by the INPUT system, can be placed in three distinct categories according to their most probable origin : Cultural, Surficial or Bedrock.

Cultural conductors are man-made conductors such as pipelines, railways, powerlines, and fences. No cultural conductors are apparent in this survey.

Surficial conductors are geological conductors located in the overburden or electrolytes found in shears. Common surficial conductors are some residual soils, weathered layers, salty deposits, clay minerals, or river deposits. In this area, surficial anomalies are generally weak and indicate low conductivity. They are associated mainly with the Devonian and Cambrian sediments and the conductivity is not high enough to inhibit depth penetration of the INPUT system. Further weak surficials are associated with drainage systems in the Meredith Granite.

Bedrock conductors are those geological conductors located in the bedrock, such as massive sulphides, graphitic materials, massive magnetite and some serpentinized ultramafic rocks. This classification is normally used to encompass all those conductors occurring in rocks thought to be favourable hosts for mineralization. In this survey area the term is also applied to the conductors associated with the Cambrian serpentinites. These units are strangely magnetic and conductive, and although the INPUT responses are broad and have large amplitudes their source material is expected to be in the fresh rock and not in a weathered derivative.

For a more complete description of our interpretive procedures and anomaly rating system, the reader is referred to Appendix B at the back of this report.

V. INTERPRETATION OF SURVEY DATA

In this section all conductors considered to have a reasonable chance of being bedrock are tabulated in zones and discussed in detail. They are classified according to their most probable type (Bedrock, Surficial or Cultural) and then rated as either good, fair or poor sulphide prospects if they should prove to have a bedrock source. Zone numbers, line numbers, fiducial numbers and channel one to four ratios are included to facilitate reference to the analogue records and plan maps. The order of zone numbers bears no relation to the relative importance of the conductors.

Highly conductive formational units, often significantly related to active magnetic trends, are the dominant geophysical features of the area. They appear to be related to conductors in Cambrian ultramafic intrusives, and are located along the Cambrian - Ordovician contact.

The remainder of the area is generally resistive especially the Meredith Granite. Medium amplitude surficial responses are recorded from the Devonian and Silurian sediments in the centre of the syncline but these are most likely due to minor clay developments in those rocks.

Zone WR-1 Bedrock - Poor

Line 13SW to Line 35NE

Sheets 1 and 2.

Zone WR-1 extends for approximately eight kilometres along the south-western side of the survey area. It is a broad conductor averaging a width of two kilometres. It is associated with high amplitude magnetic anomalies. The combination of high conductivity thickness and active magnetics in a zone of this extent suggests the source is serpentinised ultramafic bedrock and this interpretation is supported by the geological information available.

Both the magnetic data and the EM data displays multiple anomalies in this zone. South of Line 24A there are generally two "ridges" of magnetic highs. The INPUT data also defines two main conductors but the position of these conductors relative to the magnetic anomalies changes due to line heading effects.

One subzone has been selected for ground followup within Zone WR-1 since it is expected that sulphides could be associated with the ultramafic unit. A further check could be made on Line 33 at Fid 025.80 to sample the narrow south western conductor of Zone WR-1.

Zone WR-1A Bedrock - Fair

Line 22NE	Fid	038.68	6/2.0
Line 23NE	Fid	023.10	35/5.0
Line 24SW	Fid	257.00	19/3.1
Line 24ASW	Fid	020.78	23/1.5

Sheet 2.

This conductor is located on the south west side of Zone WR-1 just outside the survey boundary. It is selected mainly for the rather narrow responses recorded on Lines 23 and 24. The conductive source is possibly a narrow sulphide development. It is located away from the magnetic anomaly which characterises the ultramafic conductor.

The recommended locations for followup are on Line 22, 23 and 24. The response on Line 24A has only a weakly conductive source.

Detracting from the interest in the zone is its potential extension to the north west where six channel anomalies are recorded on Lines 19,20 and 21 outside the survey boundary.

Zone WR-2 Bedrock - Poor

Line 27 to Line 35.

Sheet 2.

The conductive source of this INPUT zone is thought to be serpentinised ultramafic material, as was the case for Zone WR-1. The magnetic situation is simpler in this zone, there being only one magnetic ridge. As is the case with Zone WR-1, the magnetic anomalies extend further to the north-west than the INPUT responses. It can be seen that the magnetic anomalies become rather broad to the north west, indicating increasing depth to the magnetic body. Obviously north of Line 27 the conductive / magnetic source is too deep to be detected by INPUT.

Zone WR-2 is not as broad as Zone WR-1. Generally there is only one INPUT peak, although on some lines a second peak is apparent. This could be due to resolution of both edges of the source or to the resolution of a second conductor. This is the reason for selection of subzones WR-2A, 2B and 2C below.

Zone WR-2A		Bedrock - Poor
Line 32NE	Fid 032.99	9/0.8
Line 33SW	Fid 020.70	28.3/4.0

Sheet 2.

On these lines two peaks are recorded as part of Zone WR-2. While it is probable that these peaks reflect the resolution of the conductor edges, it is possible that a second, perhaps sulphide, conductor

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present. The highest apparent conductivity is recorded on Line 33. The Line 32 anomaly decays rapidly.

Zone WR-2B Surficial - Poor

Line 34NE Fid. 012.85 22/0.9

Sheet 2.

The anomaly in this zone appears to be located outside Zone WR-2 and it is possibly only a "phantom" related to the edge of the main conductor. It has discrete shape on the early channels but becomes broad and poorly defined on the late channels. The response has low priority for followup.

Zone WR-2C Bedrock - Good

Line 28NE	Fid.	088.67	16/1.0
Line 29SW	Fid.	065.77	31.8/5.4
Line 30NE	Fid.	058.04	20.5/3.2

Sheet 2.

Although this conductor appears to be electrically connected to conductors of Zone WR-2, the response on Line 30 is so sharp and clearly defined that it is possibly caused by a separate steeply dipping sulphide source. The decay rate is very slow and points to a conductor having quite high conductivity thickness.

Zone WR-3		Surficial - Poor
Line 34NE	Fid. 013.55	5/0.5
Line 35NE	Fid. 103.95	14/-

Sheet 2.

This zone consists of two small amplitude anomalies situated approximately one kilometre from Zone WR-2. The main response of interest is recorded on Line 34, since it is narrow and decays more slowly than the anomaly on Line 35.

The zone may be related to other anomalies on Line 31 at Fid. 039.95 and on Line 33 at Fid. 019.52. It is possible that all these responses are caused by weak conductivity related to a particular lithology. Priority for followup is low.

Zone WR-4 Bedrock - Fair

Line 32NE Fid. 034.10 11/1.0

Sheet 2.

This is an isolated response somewhat offset from the weakly conductive trend extending north from Zone WR-3. The anomaly has rather broad "shoulders" on the early channels but is quite narrow on channels 4 and 5.

The high terrain clearance recorded over this zone would account for the small amplitudes on the late channels and the response may in fact penetrate to the sixth channel, indicating higher conductivity than is presently apparent.

Ground followup is recommended.

Zone WR-5 | Bedrock - Poor

Line 31SW Fid. 042.34 7/0.5

Sheet 2.

This is a very sharp and narrow response situated south west of Zone WR-2. It is in an isolated position and this, combined with its good shape, recommends it for further investigation. It is located at least 120 metres from a track, so a cultural source is unlikely.

There is no suggestion of any response on the last two channels and it is thought unlikely that responses would appear on these channels at a lower altitude. The conductivity of the source is thus expected to be lower than that of the Zone WR-4 source.

020

Zone WR-6			Bedrock - Fair
Line 24SW	Fid.	251.26	2.2/0.3
Line 24ASW	Fid.	015.30	5/0.7
Line 25NE	Fid.	009.94	7/0.8

Sheet 2.

This zone is situated close to the north-east end of Zone WR-2. It is selected because it has short strike length and two of the responses indicate sources with reasonable conductivity. The anomalies are also narrow, suggesting a possible bedrock source.

The response on Line 24 has very small amplitude and the noise level on channel four makes an estimate of decay rate difficult. Ground followup is suggested on Lines 24A and 25, with the best response recorded on Line 25.

Zone WR-7			Bedrock - Poor
Line 25NE	Fid.	009.17	11/0.2
Line 26NE	Fid.	212.60	5/-

Sheet 2.

This zone has similar strike to Zone WR-6. Both zones cross the flight lines at very shallow angles, but their interpreted strike is supported by the trend of the magnetic contours.

Only the response on Line 25 is recommended for further investigation. Although it is broad on channel one, a narrow response is recorded on channels two, three and four. The broadness of the channel one response may be caused by the flight direction.

The anomaly on Line 26 although sharp, is weak and has a very low conductivity source.

Zone WR-8		Surficial - Poor
Line 23NE	Fid. 027.37	11/0.4
Line 24SW	Fid. 253.23	6/0.4

Sheet 2.

These anomalies are selected because they have relatively slow decay rates suggesting a source which is more conductive than the surrounding surficial material. However, the anomalies are rather broad and it is unlikely that a bedrock conductor is the cause. A ground check is warranted only if there is geological or geochemical support in this locality.

Zone WR-9			Bedrock - Fair
Line 20NE	Fid.	056.12	13/0.8
Line 21SW	Fid.	053.70	7.5/1.0
Line 22NE	Fid.	039.95	16/1.1

Sheets 1 and 2.

Zone WR-9 is located approximately half a kilometre north east of Zone WR-1. The north west end of Zone WR-9 is associated with weaker responses interpreted to be part of Zone WR-1.

The anomalies are mostly narrow and the decay rates, although fairly fast, indicate medium to high conductivity. The best responses to check are on Lines 21 and 22. The anomaly on Line 20 is somewhat broad, and its peak position is displaced to the east of the other peaks.

Zone WR-10		Surficial - Fair
Line 19SW	Fid. 068.30	3.5/0.2
Line 20NE	Fid. 057.30	63/1.1

Sheet 1.

These anomalies are situated on the northern edge of an extensive area of weak conductivity. This area of conductivity is contained within the Devonian and Silurian sediments along the syncline axis.

The anomalies included in the zone have very different character. The large amplitude anomaly on Line 20 has a fast decay rate and is expected to have a low conductivity source, perhaps conductive ground water in a fault zone. The small amplitude response on Line 19 displays a slower decay rate and is the more likely of the two to have a bedrock source. It is recommended that each of the anomalies is checked individually in case they are caused by separate conductors.

If followup of this zone is encouraging, two other neighbouring anomalies should be checked because of their slow decay rates:

Line 21SW	Fid. 051.83	17/0.5
Line 22NE	Fid. 041.30	13/1.1

Zone WR-11 | Bedrock - Fair

Line 17SW   Fid. 085.44   5/-

Sheet 1.

This is an isolated well shaped response which appears to have short strike length. It has a slow decay rate from channel one through to channel three, but after channel three the decay rate is rapid. However the anomaly warrants ground followup on a high priority basis.

Zone WR-12			Surficial - Poor
Line 14NE	Fid.	116.96	2.5/-
Line 15SW	Fid.	107.43	3/-

Sheet 1.

These two anomalies are very weak and poorly defined, especially on Line 14, where the terrain clearance is high. However, the contact zone along the Wilson River is considered a priority area and these responses should therefore be the subject of further investigation. The Line 14 anomaly may penetrate to more than three channels but due to altitude this cannot be determined from the noise level. Nevertheless the anomaly is encouraging because of its sharp and narrow shape. This is in contrast to the response on Line 15 which is broad and more likely to have a surficial source.

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Zone WR-13 Surficial - Poor

Line 13SW	Fid.	145.60	4/-
Line 13ASW	Fid.	184.23	4/-

Sheet 1.

This zone has similar priority to Zone WR-12. It is located in a priority geological area but the anomalies, although narrow, have rather poor shapes and fast decay rates. Geophysical ground followup is recommended to determine the source of conductivity. This is unlikely to be alluvial material concentrated by the river, but could be weakly conductive clay material.

Zone WR-14 | Bedrock - Poor

Line 21SW Fid. 048.90 4/-

Sheet 1.

This is a narrow well shaped response. It is located in an area of weak surface conductivity. Since there are no similar responses on adjacent lines, the zone is interpreted to indicate a short strike length bedrock conductor. Its apparent conductivity would be low but a ground check is warranted.

Zone WR-15		Surficial - Poor
Zone WR-15A		Bedrock - Fair
Line 11SW	Fid. 120.68	2.5/1.1
	to	
Line 18NE	Fid. 027.56	23/0.9

Sheet 1.

This zone possibly has a similar source to both Zones WR-1 and WR-2. It is associated with an area of magnetic activity but, unlike the other two zones, the INPUT anomalies do not indicate high conductivities. For this reason it is thought that the anomalies may reflect conductive weathered material associated with deeper ultramafics (these are not mapped on the 1:50,000 geological plan).

The highest conductivity is recorded on Line 17 at Fid. 081.50 and on Line 11 at Fid. 120.68. The latter is described as Zone WR-15A and possibly has a bedrock source. It is recommended for ground followup.

<u>Zone WR-16</u> <u>Bedrock - Poor</u>

Line 16NE Fid. 096.85 18/1.8

Sheet 1.

This zone is located just outside the area boundary and is in an area of magnetic activity. The high apparent conductivity described by this anomaly is very similar to that noted in Zones WR-1 and WR-2 and this zone is interpreted to indicate another area of Cambrian ultramafics. The anomaly is thought to be too broad to be caused directly by a massive sulphide source, unless it was traversed at a shallow angle.

If a ground check is made at this locality and the results are promising, the investigation should extend to Line 17 at Fid. 081.50.

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Zone WR-17 | Bedrock - Fair

Line 9SW Fid. 101.34 3.5/0.7

Sheet 1.

This is a rounded but narrow response located with an isolated magnetic high in Devonian sediments near their contact with a large granite intrusive.

The INPUT anomaly could certainly have a bedrock cause, although it is associated with part of a large area of surface conductivity which extends eastwards and southwards towards Zone WR-2. It could transpire that this anomaly is merely an enhancement of the surficial conductivity.

Since a short strike length conductive - magnetic association is considered to be of high priority in this survey, further ground investigation is certainly recommended in this case.

Zone WR-18 Bedrock - Poor

Line 8ANE Fid. 139.95 4/-

Sheet 2.

A very sharp response such as this would often be expected to have a man-made (cultural) source. In this case the anomaly is located in heavy bush near the Wilson River and no cultural activity is apparent. A bedrock source is thus suggested.

The "Poor" rating stems from the lack of response noted on the last three channels and from the lack of a supporting anomaly on Line 8.

Zone WR-19 | Surficial - Poor

Line 6SW	Fid.	007.84	4/0.9
Line 9SW	Fid.	104.28	4/-

Sheet 1.

This zone describes a weak conductive area located close to the western bank of the Little Wilson River. The geological setting is in Devonian granite and thus the zone does not have a high priority. The only anomaly suggested for a ground check would be on Line 8 at Fid. 091.06, and a check at this locality is only recommended at the discretion of the project geologist.

Zone WR-20			Surficial - Poor
Line 10SW	Fid.	128.83	3.5/-
Zone WR-21			Surficial - Poor
Line 11SW	Fid.	129.31	3/-
Line 11SW	Fid.	127.34	3/-

Sheet 1.

These zones have the same priority as Zone WR-19. They consist of weak responses with fast decay rates and are located in a granitic area.

Both zones are recorded in valleys and may be caused by small concentrations of conductive alluvium. Ground investigation is not recommended on the basis of the EM data.

Zone WR-22		Surficial - Fair
Line 13SW	Fid. 151.44	4/0.7
Line 13ASW	Fid. 190.08	2/-

Sheet 1.

This is a narrow conductor recorded on two flight lines which have traversed the same location. The conductor is very close to the western survey boundary and is situated in the Meredith Granite close to the Stanley River.

The anomalies are somewhat disturbed by compensation noise but are probably four channel responses. The best one is on Line 13 and is very sharp and narrow with small amplitude, although the latter is obviously affected by the high altidue.

The "fair" rating of the zone is warranted due to the short strike length and the medium to high apparent conductivity. However the broadness of the response on Line 13A suggests a surficial source as does the geological location in granitic geology.

Zone WR-23 — Surficial - Poor

Line 6SW to Line 10SW

This zone is also located close to the Stanley River. It consists of anomalies on six lines, with a gradual narrowing of the zone at its northern end. The anomalies at the northern end are of most interest due to their small width. However, this decrease in width is probably not due to a bedrock source; it more likely represents a thinning out of the surficial source.

If the geologist is interested in checking this location, the anomaly on Line 6 at Fid. 010.55 is recommended.

Zone WR-24 Surficial - Fair

Line 2NE Fid. 156.76 3/-

Sheet 1.

This anomaly may only be a narrow enhancement of a zone of surficial conductivity. It is located in a conductive area which may be an extension of Zone WR-23. However the anomaly character on Line 2 is sufficiently encouraging to warrant further attention if the geological setting is appropriate. Although the response has a fast decay rate its narrow shape could be caused by a bedrock source.

Zone WR-25			Surficial - Poor
Line 1SW	Fid.	171.27	5.5/-
Line 2NE	Fid.	159.65	7/-
Line 3SW	Fid.	151.39	6/0.4

Sheet 1.

Zone WR-25 follows roughly the course of the Little Wilson River. It is situated at the north west boundary of the survey area and is open to the north west due to lack of flight line coverage.

The INPUT responses in the zone are rather broad and poorly shaped, and their fast decay rates tend to confirm that the source would be surficial material. However the zone is selected mainly for the anomaly on Line 3 which penetrates to channel four, and is thus of somewhat more interest than the other two. Nevertheless a surficial source is still considered most probable and ground investigation is recommended only if there is support from other field data, say geochemistry.

VI. TABLE I - SUMMARY OF SELECTED CONDUCTORS.

BEDROCK			SURFICIAL		
Good	Fair	Poor	Good	Fair	Poor
WR-2C	WR-1A	WR-1		WR-10	WR-2B
	WR-4	WR-2		WR-22	WR-3
	WR-6	WR-2A		WR-24	WR-8
	WR-9	WR-5			WR-12
	WR-11	WR-7			WR-13
	WR-15A	WR-14			WR-15
	WR-17	WR-16			WR-19
		WR-18			WR-20
					WR-21
					WR-23
					WR-25

VII. CONCLUSIONS AND RECOMMENDATIONS

1. Table I summarizes our interpretation of all the conductors which have any reasonable chance of being bedrock in origin. The two categories indicate the most probable source namely "Bedrock" or "Surficial". The "Good", "Fair" or "Poor" classifications assigned to each indicates the rating of it as a massive sulphide prospect, if proven to be definitely bedrock.

2. The Wilson River area displays a generally resistive background. Areas of surficial conductivity are limited in extent and INPUT responses over these areas are generally weak and fast decaying. Two main zones of high conductivity are recorded and are interpreted to be related to serpentinised ultramafic rocks.

3. One "Bedrock - Good" selection is made (Zone WR-2C) but its proximity to Zone WR-2 implies that its source may also be in the serpentinite.

4. Seven zones are described as "Bedrock - Fair" and all are recommended for followup. The best prospects are expected to be Zones WR-6, WR-9, WR-11, WR-17.

5. Three "Surficial - Fair" prospects are listed and should be checked on a lower priority basis than the Bedrock - Fair zones. The most interesting location is Zone WR-10.

6. The conductors rated as "Poor" have the lowest priority for further investigation but should be upgraded if there is any supporting geological or geochemical data.

Respectfully Submitted,

G. R. Butt.
Geophysicist.

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APPENDIX A

INPUT EQUIPMENT AND PROCEDURES

I. BARRINGER INPUT SYSTEM

a) General:

The INPUT (INduced PUlse Transient) method is based upon the study of the decay of secondary electromagnetic fields created in the ground by short pulses generated from an aircraft. The time-varying characteristics of the decay curve are analyzed and interpreted in terms of information concerning the conductivity characteristics of the terrain.

The principle of separation in time between the production of the primary field and the detection of the measured secondary signal gives rise to an excellent signal-to-noise ratio and an increased depth of penetration compared to conventional continuous wave electromagnetic systems. It also makes the INPUT system relatively independent of air turburlence.

At a normal survey altitude of 400 feet (120 metres) above terrain, the typical effective depth penetration is estimated at about 400 feet (120 metres) below surface, depending on the conductivity contrast between the conductive body and surrounding rocks, the size and attitude of the conductor and the presence or lack of conductive overburden. In optimum conditions a penetration of 600 feet (185 metres) subsurface can be achieved.

One of the major advantages of the INPUT method lies in good differentiation between flat-flying surface conductors and bedrock conductors so that the latter can be detected even under a relatively thick overburden such as glacial or pedological formations (laterite, weathered zone, etc.).

However, the application of the airborne INPUT electromagnetic method is limited to the solution of problems that are characterized by a reasonable resistivity contrast. The method is not considered to be applicable to the direct search for disseminated mineralization, except where this resistivity contrast exists.

b) Equipment:

The INPUT system has been developed by Barringer Research Limited of Toronto, Canada.

The transmitted primary field is discontinuous in nature (Fig. 1A) with each pulse lasting one millisecond; the pulse repetition rate is 288 per second. The electromagnetic pulses are created by means of powerful electrical pulses fed into a 3-turn shielded transmitting loop surrounding the survey aircraft and fixed to the nose and tail of the fuselage and to the wing tips.

The secondary field reception is made by means of a receiving coil wound on a ferrite rod and mounted in a "bird" towed behind the aeroplane on a 500 foot (150 metre) co-axial cable. The axis of the pick-up coil is horizontal and parallel to the flight direction. Gaps of two and a half milliseconds between successive primary pulses (Fig. 1B) are used for detecting the INPUT voltage, which is a transient voltage (Fig. 1C) corresponding in time to the decay of the eddy currents in the ground.

The analysis of the signal is made in the INPUT receiver by sampling the decay curve at several points or gates, the centre and width of which have a fixed relationship with respect to time zero (t_0) corresponding to the termination of the pulses. There are six sampling gates, the centres of which are commonly at a mean delay of 300, 500, 700, 1100, 1500 and 1900 microseconds after time zero (Fig 1D).

The signals received at each sampling gate are processed in a multi-channel receiver to give six analogue voltages recorded as six continuous analogue traces (Fig. 2) on a Honeywell Visicorder direct-reading optical galvanometer recorder. Each trace represents the coherent integration of the transient sample, the time constant of integration being about three seconds on the Mark V unit.

INPUT SIGNAL

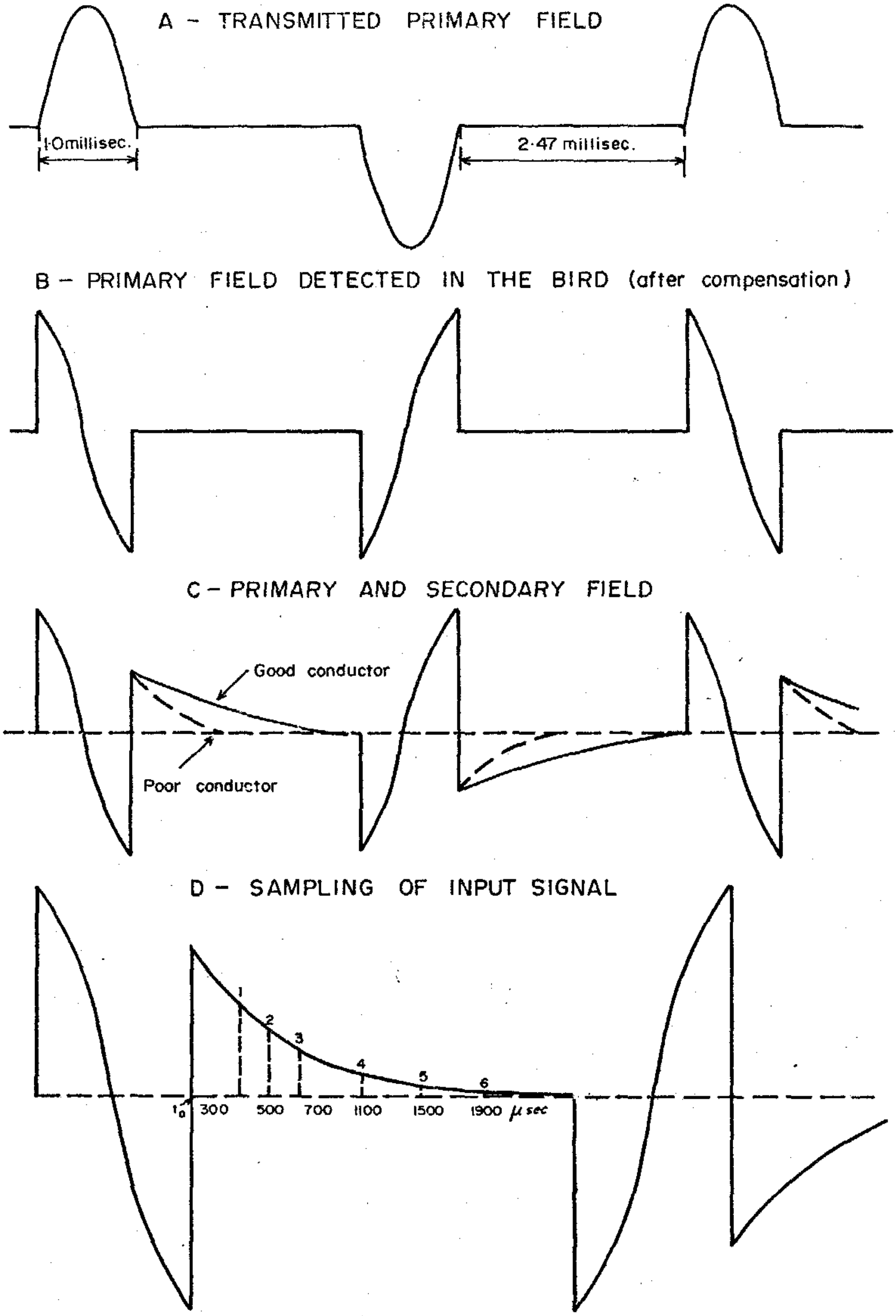

FIGURE 1.

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TYPICAL INPUT RECORDING

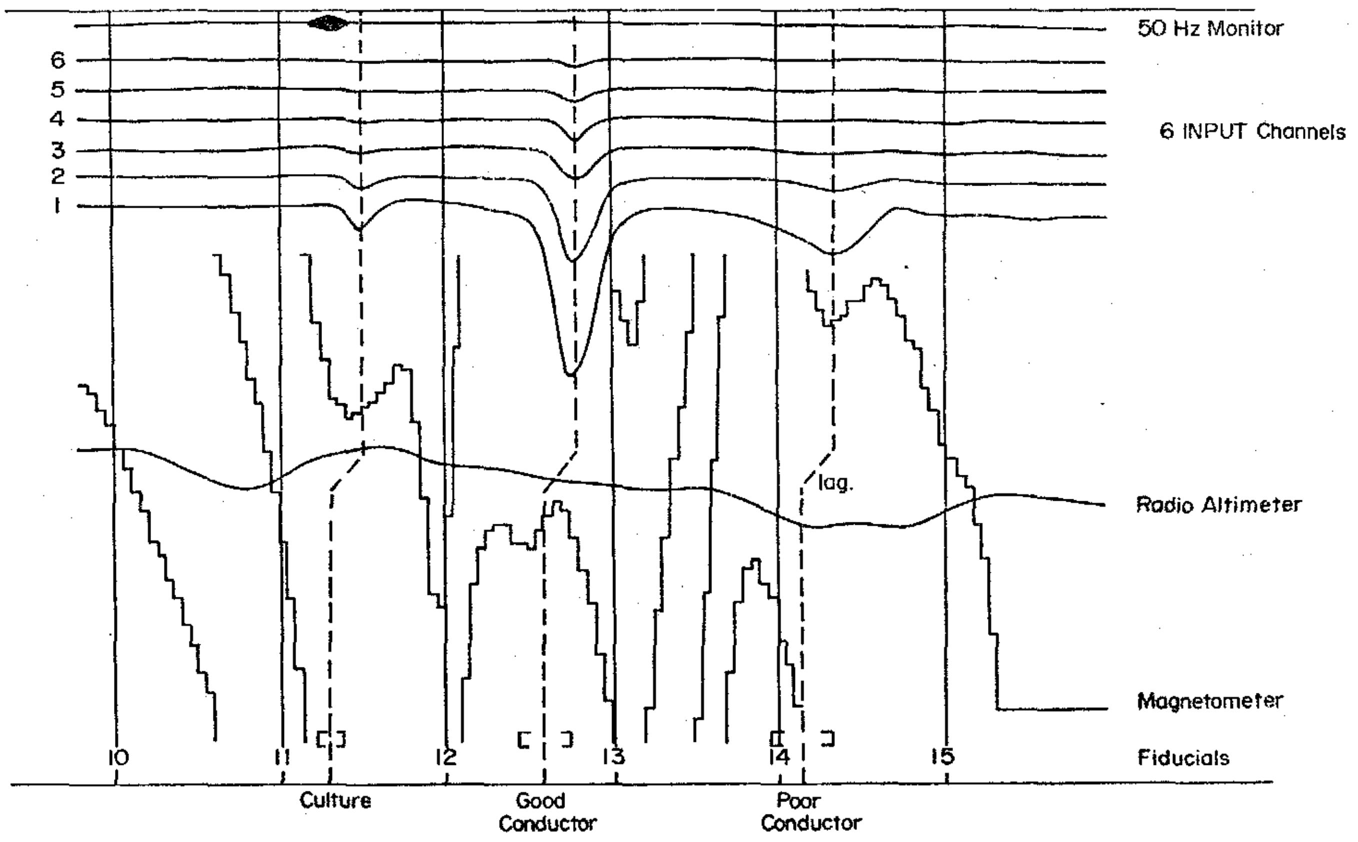

FIGURE 2.

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This integration delay plus the separation between the receiving bird and tracking camera installed in the aircraft introduces a delay which has to be taken into consideration and corrected prior to correlating the electromagnetic data with the other simultaneously recorded data.

Other recorded data are:

- Fiducial marks
- Altimeter trace
- Earth's total magnetic field
- Hz monitor
- Radiometric levels (optional)

An eddy current is induced in the airframe by the primary field. To compensate for this effect a special device is used which feeds into each channel of the INPUT receiver a signal equal in amplitude and waveform but opposite in polarity to the signal induced by the airframe eddy current. The compensation signal is derived from the voltage induced in the receiving coil by the primary field. It is constantly proportional to the inverse cube of the distance between the bird and the aircraft. Thus, swinging of the bird and changes of coupling are automatically corrected. The compensation adjustment is a simple procedure carried out during flight at a terrain clearance of 2,000 feet (600 metres) to eliminate the interference of ground conductors.

II. MAGNETOMETER

The magnetometer is a Geometrics G-803 nuclear precession unit (with high performance option) especially adapted to operate in conjunction with the INPUT equipment. Readings are taken every 1.0 second with a sensitivity of plus or minus 2 gammas and recorded at a full scale of 5 inches for 200 gammas. The coarse trace is recorded at a full scale of 5 inches for 2,000 gammas. The sensing head is mounted at the end of a 3-metre stinger, on the tail of the PBY aircraft. The magnetometer record is also shown in Figure 2.

III. OTHER EQUIPMENT

The tracking camera is a 35 mm Geocam continuous strip camera equipped with a wide-angle lens. The 35 mm film is synchronized with the geophysical record by means of fiducial marks printed every 20 seconds; the counter of the intervalometer being driven by the clock of the magnetometer.

A Sperry RA-220 Altimeter is used, and its output is recorded on the chart.

In most cases a Hz monitor is employed to assist in the detection of power lines.

Optional equipment can include a Doppler navigation system, frame camera (in addition to the strip camera), spectrometer and a digital recorder.

IV. PROCEDURES

a) Field Operations:

The flight line spacing is normally in the range of 1/8 mile to ¼ mile. During survey flights, the altitude of the aircraft is maintained at approximately 400 feet (120 metres) above the ground with the bird flying about 200 feet (60 metres) below the aircraft.

The heading of the aircraft is such that two adjacent lines are normally flown in opposite directions. Visual navigation is based on airphoto mosaics or in some cases on topographic maps of suitable scale.

Just after take-off, the calibration of the altimeter is checked by flying straight and level over the runway at a barometric altitude AGL of 400 feet (120 metres). The compensation adjustment is checked during ferry from the base to the survey area.

b) Compilation:

At the end of each flight, all records and films are developed, edited and all synchronized fiducial marks are checked. Then, the actual flight path recovery is made by picking visible marks common to both 35 mm film and photo mosaics.

Identified points with their fiducial number are plotted on the mosaic. Then, the electromagnetic anomalies are transferred from the records onto the mosaic overlay by interpolation according to their own fiducial number.

The position of the INPUT anomalies must be corrected to take into account the separation between the bird and the aircraft as well as the delay introduced in the integration circuitry. This offset, or lag, is plotted towards the smaller fiducial numbers (to the left on the record).

The INPUT anomalies are represented on a map by means of symbols that condense the most significant characteristics: the location of the centre and half-peak width of the electromagnetic anomaly; the number of INPUT channels affected by a noticeable deflection; the peak amplitudes of the first and fourth channels. Shown also are the altitudes at which the anomalies were recorded, the amplitude of any magnetic features which coincide with INPUT anomalies and any associated response on the Hz monitor.

The only subjective elements introduced by this processing are in the decision as to whether a deflection corresponds to a genuine anomaly or to a noise source (electrostatic atmospheric discharge, compensation noise, etc.) and in the correlation of the anomalies from line to line to delineate a conductive zone.

APPENDIX B

INPUT INTERPRETATION

I. INTRODUCTION

Although the approach to interpretation varies from one survey to another depending upon local conditions, the following generalizations may provide the reader with some helpful background information.

The main purpose of the interpretation is to determine the probable origin of the conductors detected during the survey and to suggest recommendations for a further exploration programme by taking into account a limited amount of available geophysical data. This is possible through an objective analysis of all characteristics of the different types of conductors and correlating magnetics, if any. Then, the maps of electromagnetic results are compared to the available geological maps. A certitude is seldom reached, but a high probability is obtained in the appreciation of the conductive causes in most cases. One of the most important problems is usually the differentiation between non-economic surface conductors and bedrock conductors.

II. TYPES OF CONDUCTORS

a) Bedrock Conductors:

The different types of bedrock conductors that are normally encountered are the following:

1. <u>Graphites</u> (including a large variety of carbonaceous rocks) occur in the sedimentary formations of the Precambrian as well as in volcanic tuffs, often concentrated in shear zones. They correspond generally to long, multiple conductors lying in parallel bands. They are not magnetic unless associated with pyrrhotite or magnetite. Their conductivity is variable but generally high.

2. <u>Massive sulphides</u>. Syngenetic sulphides often correspond to long multiple conductors and their conductivity,which varies considerably,may be very high, as for graphites. Pyrrhotite, often associated with other sulphides may be the cause of coincident magnetic anomalies. Generally, sulphides are not as frequently encountered as is graphite.

Isolated orebodies of massive sulphides give rise to short conductors of high conductivity. They present quite often a direct magnetic anomaly and are easily recognized. However, some sulphide orebodies are not magnetic, some are not very conductive (discontinuous mineralization), and they can be located among formational conductors so that one must not be too dogmatic in the selection of the prospects.

3. <u>Magnetite and some serpentinized ultra-basic</u> rocks are conductive and very magnetic.

4. Manganese oxides may give a weak electromagnetic response.

b) Surface Conductors:

1. Clayey alluvium or residual soils, some swamps and brackish groundwater are usually poorly conductive to medium conductive.

2. In unglaciated areas lateritic formations, residual soils and the weathered layer of the bedrock often cause surface anomalous zones, the conductivity of which is generally low to medium but can occasionally be high. Their presence is often related to the lithology of the underlying bedrock.

c) Man-made Conductors (Cultural):

1. Power Lines. These frequently, but not always produce a conductive type response on the INPUT record. In the case of direct radiation of their field, the anomaly shows phase changes with the different channels which are recognized easily. In the case of a grounded wire, or steel pylon, the anomaly may look very much like a bedrock conductor.

2. Grounded fences or pipelines. These will invariably produce responses much like a bedrock conductor. Whenever they cannot be identified positively a ground check is recommended.

3. General Culture. Metal barns or houses, tailings ponds, dumps, etc., may produce INPUT anomalies. However, their instances are rare and can generally be verified by identification on the path recovery film.

III. ANALYSIS OF THE CONDUCTORS

The apparent conductivity alone is not generally a decisive criterion in the diagnosis, and other factors are also very important:

- the pattern of conductors
- the shape and size
- the associated geophysical parameter (aeromagnetics)
- the position with respect to the direction of structures
- the geological environment
- the local variations of characteristics within conductive zones.

The first objective of the interpretation, then, is to classify each zone under one of three categories, according to its most likely origin. The categories are cultural, surficial, and bedrock. A second objective is to give each zone a rating as either good, fair or poor, according to its potential as a sulphide prospect if it were considered as a bedrock conductor.

The characteristics of each of the three major classifications are discussed below in subsections a, b and c.

For any particular anomaly or zone the criteria used to analyze it are applied as rigorously and consistently as possible in order to establish the correct classification. In the vast majority of zones finally selected, the evidence is never totally conclusive. Consequently, the ultimate class selection is the one which appears to be the most probable, bearing in mind that every zone which is discussed in detail has some chance of being a bedrock conductor.

The experience of handling a large amount of INPUT data and observing the ground followup results over a large portion of this data has confirmed the validity of our interpretational criteria.

a) Cultural Conductors

The vast majority of cultural anomalies occur along roads and are accompanied by a 50 Hz response. Power lines are clearly the most common source. Although some power lines are recognised immediately on the records by virtue of phase reversals or an abnormal rate of decay, most yield INPUT anomalies of a normal "high conductivity" character which would be mistaken for bedrock responses. There are also many power lines which cause no INPUT response whatsoever.

Fences, pipelines, communciation lines, railways and other man-made conductors can give rise to INPUT repsonses, the strength of which will obviously depend on the grounding of these objects.

Our analysis of suspected cultural anomalies is helped a great deal by the 50 Hz monitor. It is important to note, however, that the 50 Hz response must be sharply peaked in order to be a reliable indicator and it is equally noteworthy that the 50 Hz response along a power line will occasionally vanish on one or more lines.

The exact location of an INPUT anomaly with respect to the associated 50 Hz response is important. In cases where a definite cultural conductor is known, the lag between the monitor and INPUT responses is consistnet from line to line. Any departure of the lag interval from the "normal" would raise suspicion of an additional conductor being present.

The direction of the power line must also be considered, as the inductive response diminishes, sometimes markedly, with reduced coupling when the power line makes a shallow angle with the flight line. In other cases, the shallow angle results in a broadening of the anomaly shape and of the 50 Hz response.

Geological conductors often carry 50 Hz response in the vicinity of power lines but these usually have the appearance of broad swells on the monitor record rather than sharp peaks.

Invariably, there are a few borderline cases which are uncertain; hence the "Hz?" nomenclature appears occasionally on the maps.

It is also necessary to utilize the tracking film. The exact positions of all anomalies, with the exception of the obvious broad surficial features, are checked on the film and possible cultural sources, or the lack thereof, are noted on the work sheets. In this way, cultural features are located which may not be apparent on the planimetric maps, as are small offsets from cultural features which can be very significant in the interpretation of the data.

Another facet of this analysis is the line-to-line comparison of anomaly character along suspected man-made conductors. In general, cultural anomalies should be very narrow, sometimes exhibiting small negatives on their leading edge, and the lag for plotting is often slightly greater than for geological conductors. The INPUT amplitude, the rate of decay, and the anomaly width should not vary a great deal along any one man-made conductor, except for the variation in amplitude related to terrain clearance variation. A marked departure from the average response character along any given feature gives rise to the possibility of a second conductor.

Any monotonous string of narrow anomalies along a road with a sharp 50 Hz response can be discarded immediately. Even the more localized narrow anomalies can usually be eliminated if a potential cultural source is evident on the tracking film and there is a sharp 50 Hz response. A response over a farm or a farm laneway can be eliminated with confidence if the source of power to the farm is obvious. Similarly, an apparently isolated response along a road can often be discarded by checking for feeble, unplotted anomalies on adjacent lines or for 50 Hz responses with no INPUT anomalies.

Anomalies identified as cultural with a very high degree of reliability (designated by "C") can be ignored in the followup programme. In those cases where any reasonable element of doubt remains as to the type of source and/or where the anomalies have sufficiently favourable character to be considered sulphide prospects, a "C?" is shown and the conductive zone is outlined and a ground check is usually recommended.

In most cases a visual examination of the site will suffice as it is only necessary to verify the presence of a man-made conductor. In a few instances we know already that one cultural conductor is present and the object of the ground check is to determine if there is a second cultural source, a variation in the construction of the single source, a change in the grounding conditions, or perhaps a bedrock source. This type of check is obviously more difficult to accomplish.

b) Surficial Conductors

This term is used for geological conductors in the overburden, either glacial or residual, and in the weathered layer of the bedrock. Most surficial conductors are probably caused by clay minerals. In some environments, salty deposits give rise to highly conductive surficial features.

Other possible electrolytic conductors are residual soils, swamps, brackish groundwater and lake or river-bottom deposits.

Fortunately, most conductive surficial features have low, or at best, intermediate conductivity so they are not easily mistaken for highly conducting bedrock features. Many of them are very broad features and their anomaly shapes are typical of broad horizontal sheets.

When the conductivity is higher, it is usually still possible to identify a flay-lying surficial conductor, thanks to a typical asymmetry in the INPUT responses observed on both edges of the conductor (edge effect) when flying adjacent lines in opposite directions (Figure 1). Flying from A to B, the coupling between the transmitting coil and the flat-lying conductor AB is maximum when the coil is over the leading edge A and minimum when the coil is over the edge B. The INPUT response appears stronger over Point A than over Point B. The phenomenon is reversed when

EDGE EFFECT

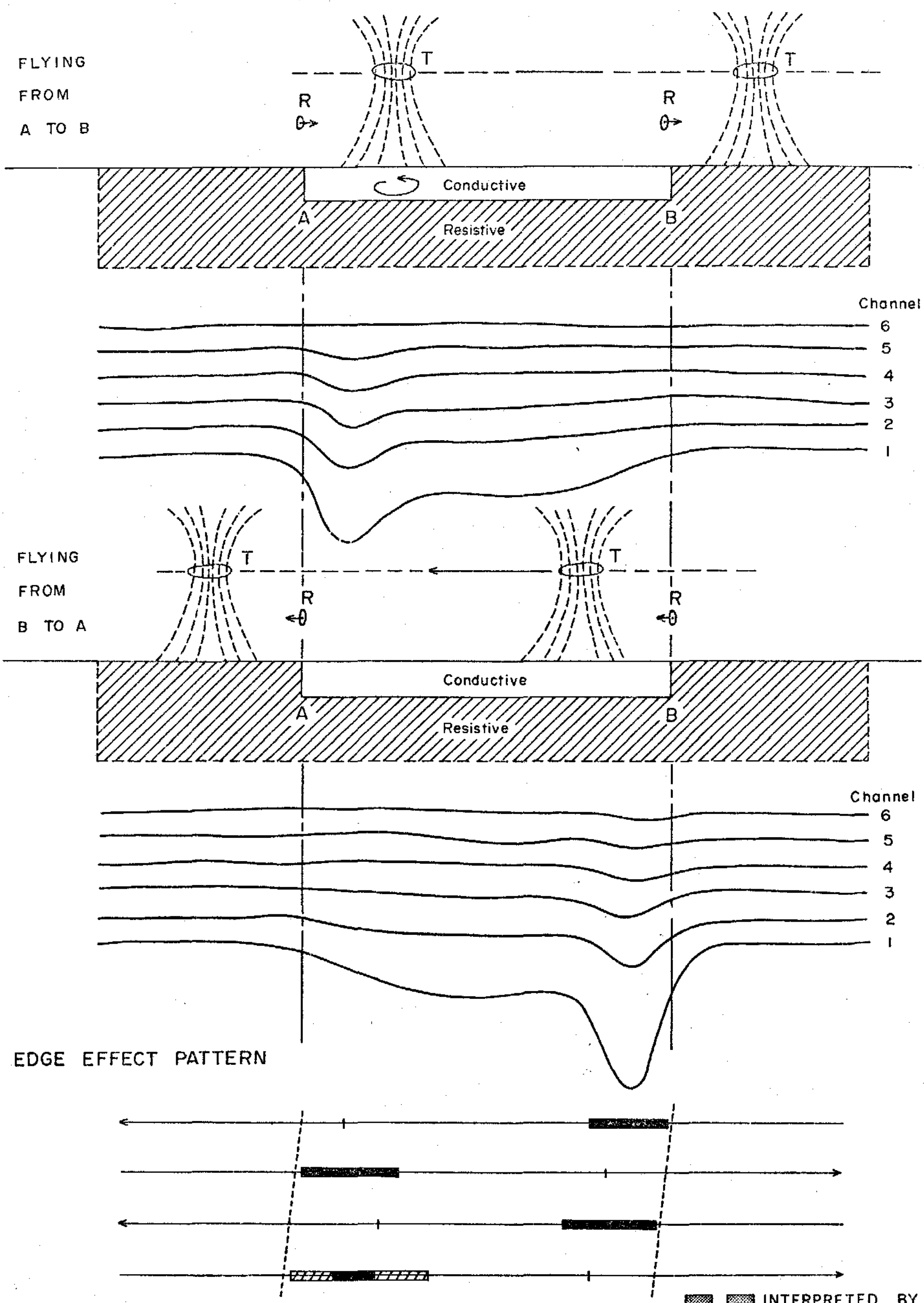

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FIGURE I.

flying from B to A. The actual limits of the conductive zone correspond, in fact, to the envelope of the leading edges of staggered anomalies. In practice there are many variations on this basic pattern caused by variations in width, thickness and conductivity.

Other surficial conductors may be recognized by analyzing the radio-altimeter trace, e.g. conductive deposits in the valleys or increased thickness of the weathered zone on top of the hills. Also, a comparison to the altimeter profile is essential when flying over a surface layer of apparently high conductivity where a sudden dip of short duration (or small hill) can cause an apparent anomaly which is quite sharp.

However, the existence of surficial conductors related to bedrock lithology does introduce ambiguities into the interpretation. There are instances where we cannot distinguish between weakly conductive serpentine or poorly developed graphite within the bedrock and weakly conducting soils or weathered layer above the bedrock. This does not generally detract from the prime purpose of the survey which is the location of highly conducting massive sulphides, but it does complicate the overall analysis of the data.

If the anomaly shapes show a dependence on line direction, a surficial source is probable; if they show multiple peaking and a lack of dependence on line direction a bedrock source is probable; but in the weaker anomalies the shape is often insufficiently clear for a reliable interpretation.

Formational surficial conductors seem to be most commonly related to rocks of intermediate to basic composition, as they tend to follow magnetic highs. (This is also true of most of the formational bedrock conductors.) However, there are also examples of formational surficial conductors in acidic environments.

Surficial conductors are not always portrayed completely on the EM Map because weaker INPUT responses are not usually plotted. Sometimes, the distribution of this type of conductor is indicated by the stronger sections which are plotted and by the conductor outline which delineates the entire zone.

Any outlined conductive zones which are not assigned an identification number can be taken as interpreted surficial features. Similarly, any isolated anomalies which bear no zone number and no "C" designation are interpreted as surficial.

c) Bedrock Conductors

This category is comprised of those anomalies which do not fit the criteria laid down for classifications a and b. It is difficult to assign a specific set of values which signify bedrock conductivity because any individual zone or anomaly might exhibit some, but not all, of these values and still be a bedrock conductor.

The criteria considered as favourable pointers to a bedrock conductor are:

1. Intermediate to high conductivity. Channels five and six are generally affected. Where the conductivity drops (i.e. first to fourth channel ratios greater than 15) it is difficult to distinguish narrow surficial conductors from bedrock ones.

2. Good anomaly shape. Narrow, relatively symmetrical, anomalies with well defined peaks are preferred to wider anomalies with rounded peaks. The leading flank should show a gradual increasing response with no abrupt change in slope or tendency to go negative.

3. No serious displacement of anomaly peak position with line direction, i.e. edge effect. Some displacement can be expected from a wide bedrock source or banded bedrock source which is not resolved into more than a single peak. However, major displacements in peak position appears to be associated with surficial conductors only.

4. Small to intermediate amplitude. Large amplitudes do occur but, generally, the amplitude of the response is smaller than for thick, extensive surficial conductors. The amplitude varies according to the depth of the source.

5. A degree of continuity. Maintenance of any, or all, of characteristics 1, 2, 3 and 4 is strong evidence in favour of a bedrock conductor.

6. Associated magnetic response with similar strike. A related magnetic response is usually interpreted as signifying a lithologic unit carrying the magnetic and conductive material.

However, as discussed in subsection b, some basic rocks which weather to produce a conductive upper layer will possess this magnetic association. In the absence of characteristics 1, 2, 3 or 4, the related magnetic response does not help to distinguish between surficial conductivity related to a bedrock feature and genuine bedrock conductivity.

Interference, then, with a conductive overburden can make the identification of a bedrock conductor somewhat difficult but a careful and consistent comparison of residual responses to the above criteria results in a high level of success.

Residual anomalies, basically, are those which, in comparison to other deflections, appear to be located "on" rather than "part of" the already deflected traces.

Most obvious bedrock conductors occur in long, relatively monotonous, sometimes multiple zones following formational strike. Graphitic material is usually the most probable source. Massive syngenetic sulphides running for many miles are known in nature but, in general, they are not common.

Other sources of bedrock conductivity are massive magnetite and serpentine. We rely heavily on the amplitude and dimensions of the associated magnetic activity plus the geological setting of the conductor to distinguish these cases.

The criteria used for selection of a bedrock conductor which is considered to have a good chance of being due to a massive sulphide are:

- high conductivity,
- good anomaly shape,
- small to intermediate amplitude,
- isolation,
- short strike length,
- preferable with a localized, small amplitude magnetic anomaly of the same width.

If the magnetic anomaly has similar lateral dimensions, has an amplitude of the order of 20 to 400 gammas, and correlates directly with the EM response, there is a strong possibility of pyrrhotite being present.

We must consider, however, the possibility of localized occurrences of massive sulphides within or near formational conductors. The selection of targets from within these extensive belts is a difficult problem. They are singled out primarily on the basis of a marked local increase in conductivity and/or amplitude or some evidence for a relatively localized occurrence. Variations within the conductive formations themselves can account for these characteristics so the reliability of this type of selection is considered to be low.

Localized magnetic correlations within long formational conductors can be taken as evidence of pyrrhotite. In some environments, however, this criterion is very difficult to apply due to the prevalent association of conductors to magnetically active rock types. The compilation of the magnetic data into isomagnetic contour maps assists this type of selection.

067

APPENDIX C: INSTRUMENT SPECIFICATIONS

MARK V INPUT SYSTEM

TRANSMITTER: Pulse Width : 0.8

Pulse Separation : 2.67 msec.

RECEIVER:	CHANNEL	GATE CENTRE (usec)	GATE WIDTH (usec)
	1	350	200
	2	550	200
	3	750	400
	4	1150	400
	5	1550	600
	6	1950	600

Calibration : 2mV at cable amplifier input = 3.0" response

Primary field at cable amplifier input =1.5V

MAGNETOMETER: Geometrics Model 803

	Sensitivity	Scale
Fine Scale : 200nT Full Scale	± 2nT	inch = 40nT
Coarse Scale : 2000nT Full Scale	± 20nT	inch = 400nT

Total field increases upwards.

Magnetometer reads every 1.0 sec.

ALTIMETER : Model Sperry Stars RT-220.

Approximate scale: 1 inch = 60 metres approximately.

Height increases downwards.

FIDUCIAL SYSTEM

1 Fiducial = 20 secs = 20 magnetometer readings.

INPUT lag = 4.0 secs = 0.2 fiducials.

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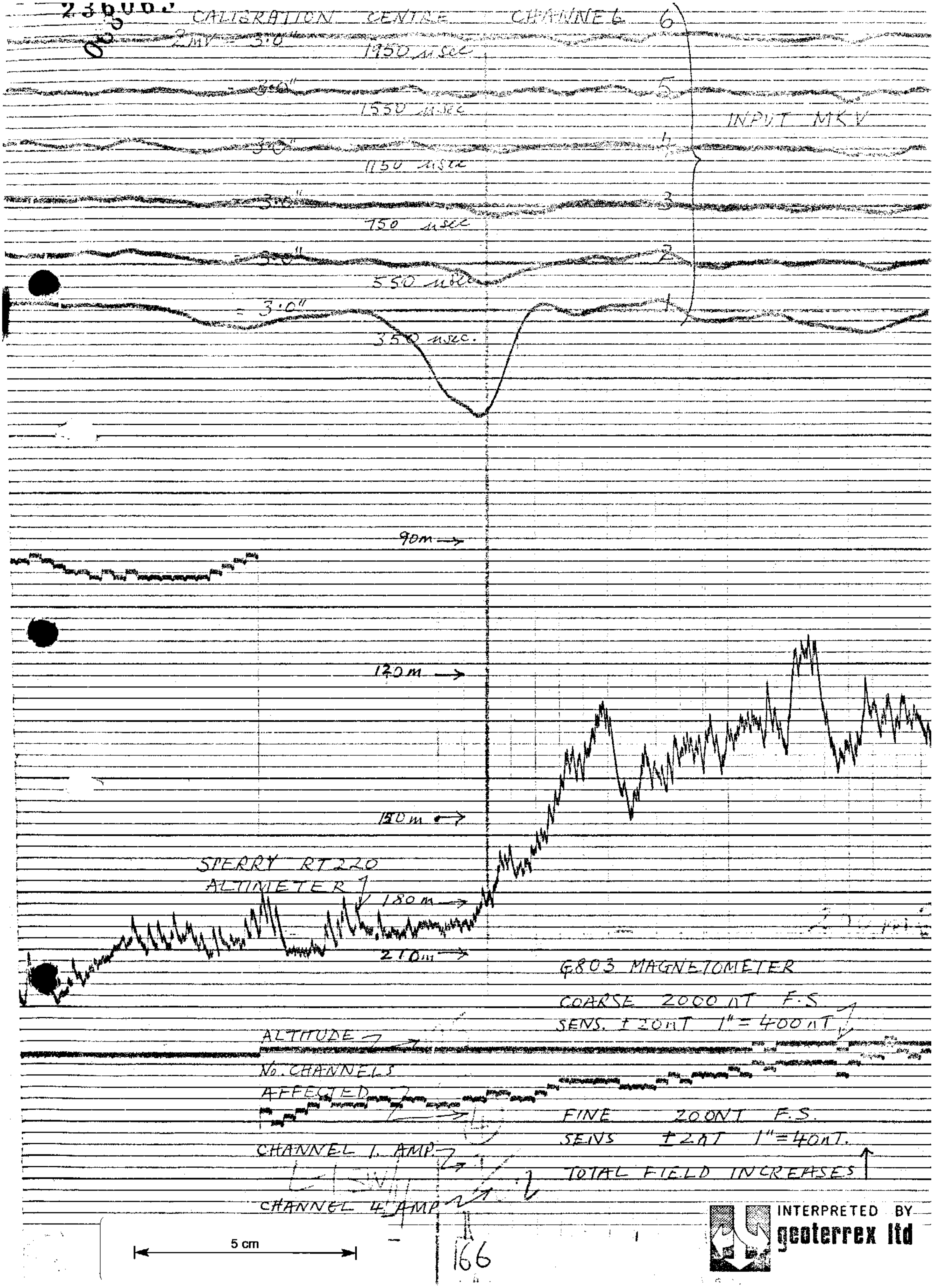
CALIBRATION CENTRE
CHANNEL 6
2mV = 3.0"
1950 μsec
5
1550 μsec
INPUT MKV
4
1150 μsec
3
750 μsec
2
550 μsec
1
350 μsec
90m →
120m →
150m →
SPERRY RT220 ALTIMETER
180m →
210m →
G803 MAGNETOMETER
COARSE 2000 nT F.S.
SENS. ±20nT 1" = 400nT
ALTITUDE
No. CHANNELS AFFECTED
FINE 200nT F.S.
SENS ±2nT 1" = 40nT.
CHANNEL 1. AMP
TOTAL FIELD INCREASES
CHANNEL 4 AMP
5 cm
166
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1860

INPUT LEGEND

6 CHANNEL ANOMALY
5 CHANNEL ANOMALY
4 CHANNEL ANOMALY
3 CHANNEL ANOMALY
2 CHANNEL ANOMALY
1 CHANNEL ANOMALY

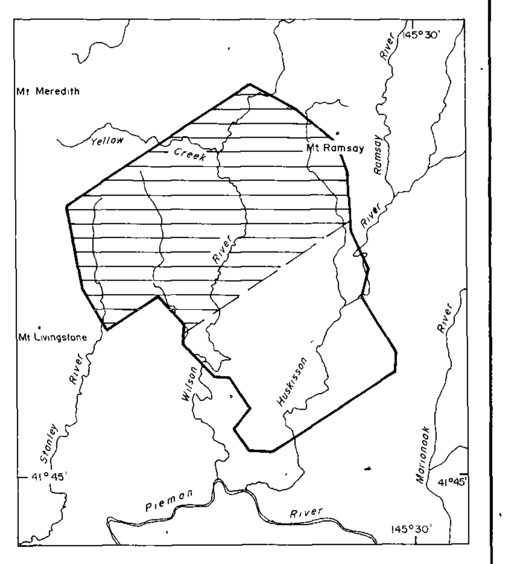
PEAK POSITION
1st and 4th CHANNEL AMPLITUDES 18/25
ALTITUDE (METRES) 120
COINCIDENT MAGNETIC ANOMALY (nT) 1240nT
OFFSET MAGNETIC ANOMALY 1240nT

INTERPRETATION LEGEND

CONDUCTOR OUTLINE
IDENTIFICATION NUMBER WR-15

LOCATION MAP

SCALE 1 250,000



5 cm

78-1290

COMBINED AIRBORNE EM AND MAGNETOMETER SURVEY

BARRINGER "INPUT" ELECTROMAGNETIC SYSTEM

EM PLAN MAP

WILSON RIVER AREA
TASMANIA

FOR

RENISON LIMITED

SHEET 1

SCALE 1 20,000

0 0.2 0.4 0.6 0.8 1.0
KILOMETRES

geoterrex pty. ltd SYDNEY

FLOWN IN MAY 1978 JOB No 83-283

236070 1860 1860

1861

L-22NE
L-23NE
L-24SW
L-24ASW
L-25NE
L-26NE
L-26ASW
L-27SW
L-27ASW
L-28NE
L-29SW
L-30NE
L-31SW
L-32NE
L-33SW
L-34NE
L-35NE
WR-1
WR-1A
WR-2
WR2A
WR-2B
WR2C
WR-3
WR-4
WR-5
WR-6
WR-7
WR-8
WR-9
Parsons Hood
WILSON
RIVER
Creek
PIEMAN
Tinder
Crimson Creek
HUSKISSON
MARIONOAK
Boco
Farrell Junction
INPUT LEGEND
6 CHANNEL ANOMALY
5 CHANNEL ANOMALY
4 CHANNEL ANOMALY
3 CHANNEL ANOMALY
2 CHANNEL ANOMALY
1 CHANNEL ANOMALY
PEAK POSITION
1st and 4th CHANNEL AMPLITUDES
ALTITUDE (METRES)
COINCIDENT MAGNETIC ANOMALY (nT)
OFFSET MAGNETIC ANOMALY
18/2.5
120
1240nT
INTERPRETATION LEGEND
CONDUCTOR OUTLINE
IDENTIFICATION NUMBER
WR-3
LOCATION MAP
SCALE 1 : 250,000
5 cm
78-1290
COMBINED AIRBORNE EM AND MAGNETOMETER SURVEY
BARRINGER "INPUT" ELECTROMAGNETIC SYSTEM
EM PLAN MAP
WILSON RIVER AREA
TASMANIA
FOR
RENISON LIMITED
SHEET 2
SCALE 1 20,000
0 0.2 0.4 0.6 0.8 1.0
KILOMETRES
geoterrex pty ltd SYDNEY
FLOWN IN MAY 1978
JOB No 83-283
1861

1858

LEGEND

250 GAMMAS

50 GAMMAS

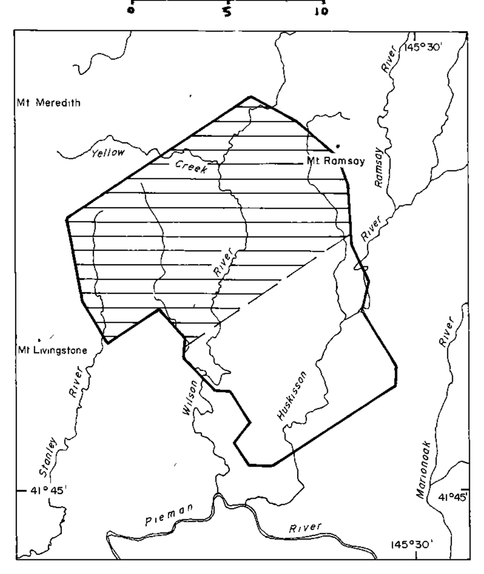
10 GAMMAS

CONTOUR INTERVAL 10 GAMMAS

MAGNETIC LOW

LOCATION MAP

SCALE 1 : 250,000



5 cm

78-1290

COMBINED AIRBORNE EM AND MAGNETOMETER SURVEY

BARRINGER "INPUT" ELECTROMAGNETIC SYSTEM

ISOMAGNETIC CONTOUR MAP

WILSON RIVER AREA

TASMANIA

236072

FOR

RENISON LIMITED

SHEET 1

SCALE 1 20,000

0 0.2 0.4 0.6 0.8 1.0

KILOMETRES

geoterrex pty. ltd SYDNEY

FLOWN IN MAY 1978

JOB No 83-283

1858

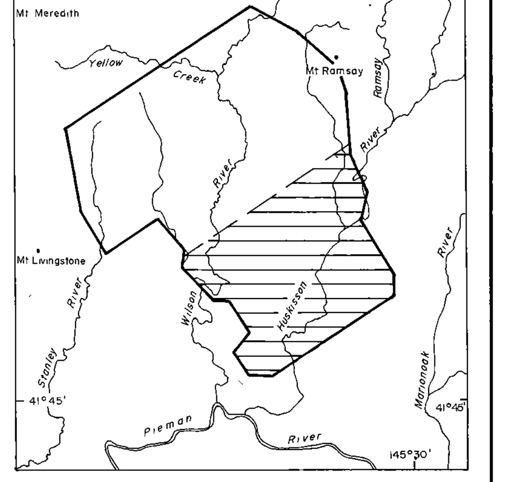
1859

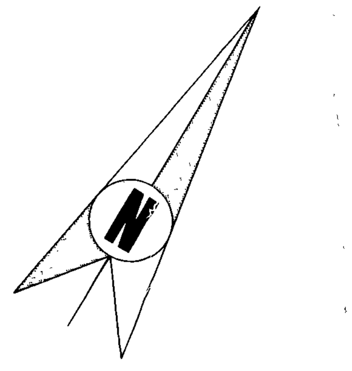
LEGEND

250 GAMMAS	
50 GAMMAS	
10 GAMMAS	
CONTOUR INTERVAL	10 GAMMAS
MAGNETIC LOW	

LOCATION MAP

SCALE 1 250,000





5 cm

78-1290

COMBINED AIRBORNE EM AND MAGNETOMETER SURVEY

BARRINGER "INPUT" ELECTROMAGNETIC SYSTEM

ISOMAGNETIC CONTOUR MAP

WILSON RIVER AREA

TASMANIA

236073

FOR

RENISON LIMITED

SHEET 2

SCALE 1 20,000

0 0 2 0 4 0 6 0 8 1 0

KILOMETRES

geoterrex pty. ltd SYDNEY

FLOWN IN MAY 1978

JOB No 83-283

1859