ANOMALY TWO (EL 2367)

APPENDIX

GEOPHYSICAL REPORT

GROUND MAGNETIC DATA FROM ANOMALY TWO

NORTH FLINDERS EXPLORATION

HUGH RUTTER

MAY 1992

CONTENTS

FIGURES:

1. INTRODUCTION

The data was supplied as printed profiles of total magnetic intensity for the following lines:-

Line 19600E	from	9,700N to 10,500N
Line 20000E	from	8,000N to 12,000N
Line 20200E	from	9,700N to 10,500N
Line 20600E	from	9,700N to 10,500N
Line 21000E	from	10,000N to 10,700N
Line 21400E	from	10,000N to 10,700N
Line 21800E	from	8,000N to 12,000N
Line 22200E	from	10,000N to 10,650N

The reading interval was 10m.

Anomaly Two is 14km west of The Granites exploration camp. The airborne magnetic anomaly has an east-west trend, and for most of its length consists of a double peaked anomaly. The northern anomaly is slightly greater in amplitude rising almost 100nT above background: the southern part has an amplitude of closer to 60nT. However there is little doubt that the two are related and are likely to be caused by the same rccktype duplicated by either folding or faulting.

2. Interpretation

Only the two longer lines had sufficient coverage to enable a reliable interpretation and even here there was difficulty isolating the response from each of the two anomalies.

The magnetic data on line 20,000E was graphically smoothed and a profile representing the southern magnetic horizon extracted for modelling. The main characteristics of the body are:

Line 20,000E

Depth	190m
Width	430m
Dip	70deg.S
Susceptibility	0.007emu.

The susceptibility was fixed during the modelling process: the value was derived from previous modelling at Anomally One, further east.

A similar procedure was applied to the data on line 21800E and here an attempt was made to model the two horizons separately. The results are as follows:-

Line 21800E

Southern part	Northern part
Depth 240m	Depth 190m
Width 415m	Width 400m
Dip 40deg.S	Dip 70deg. S
Susceptibility 0.0016emu	Susceptibility O.0008emu.

The depth of the magnetic rock is about 200m and the dip is consistently south. The dip may be in error if there is an appreciable amount of remanent magnetism. The susceptibility is generally low; the value of 0.008emu for the northern horizon on Line 21800E was not fixed in the model, but derived. It is lower than what would be expected if the rock type here was similar to that at the The Granites (Bullakitchie); it does not appear to be a magnetic schist with the same proportion of magnetite.

The shorter data set of Line 21000E were modelled and a surprisingly good fit obtained; this may not mean it is more accurate but the model parameters are similar to those obtained from the adjacent lines.

3. Conclusion

The magnetic modelling has defined two horizons striking east-west, at an average depth of 200m. The dip is modelled as southwards but the presence of magnetic remanence may make the true dip vertical or possibly steep to the north The two horizons are not exactly parallel and also appear to converge in the west: the total feature may be an anticline. The magnetic susceptibility of about 0.0008emu is very low and does not indicate the presence of magnetic schists of the type seen at the mine site, at depth. The rocks have a much lower magnetic content.

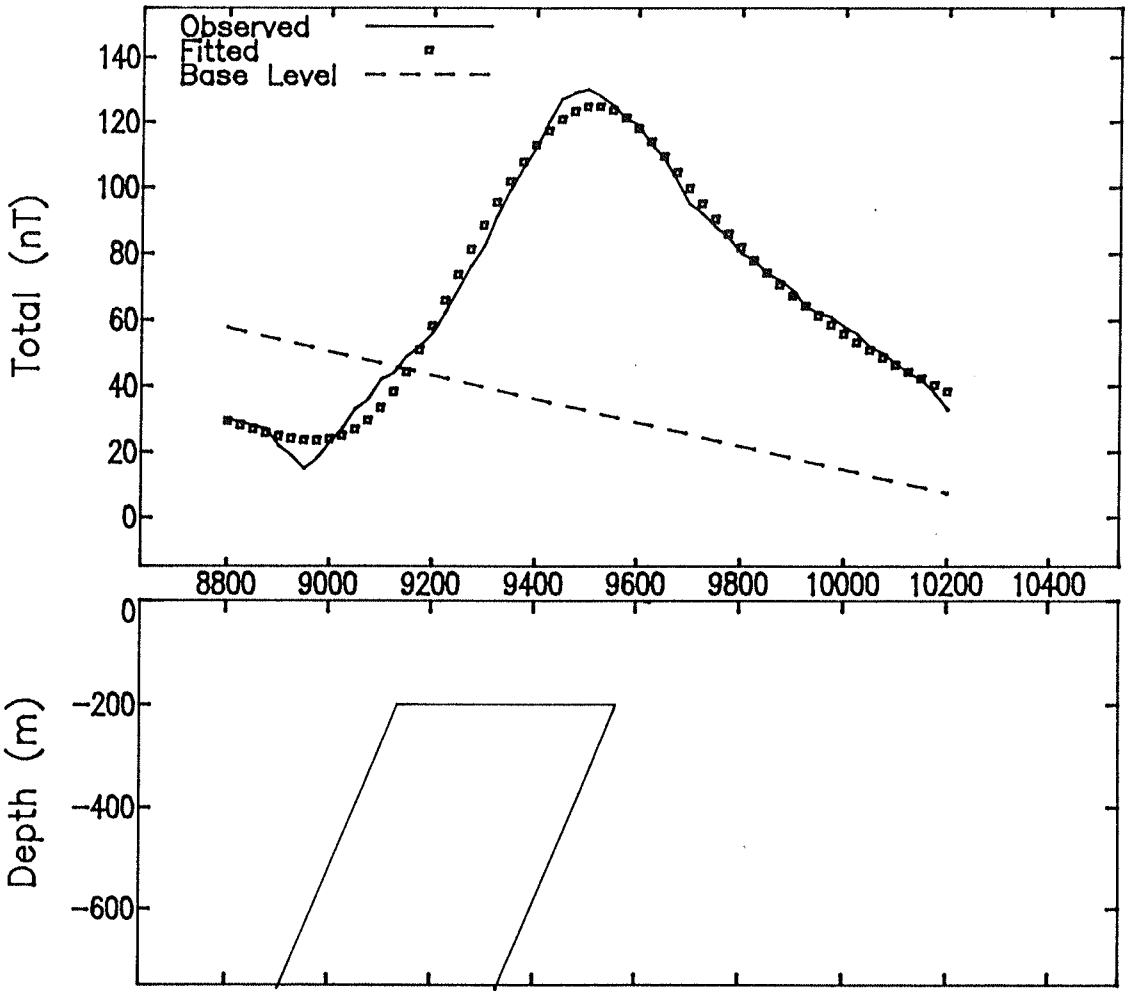
Hugh Rutter
Geophysical Consultant.

616000E
618000E
620000E
622000E
624000E
7728000N
7726000N
7724000N
12000N
10500N
10700N
10650N
10,000N
9700N
8000N
20000E
20200E
21400E
21800E
0 500 1000 1500 2000 3000m
1:25,000

NORTH FLINDERS EXPLORATION
ANOMALY 2 (J16)
GROUND MAGNETIC TRAVERSES
1:25,000
Hugh Rutter: May 1992

North Flinders Exploration

Anomaly 2 : Line 20,000E



MODEL PARAMETERS:

Model Type		Tabular
Depth	F	192 m
Half Width	F	213 m
Dip	F	113 deg
Susceptibility	X	0.000700 emu
Remnance Ratio	X	0
Remnance Incl	X	0 deg
Remnance Decl	X	0 deg
Main Position	F	9349.469 m
Cross Position	X	0 m
Base Level	F	37.92131 nT
Base Slope	F	-.0358577 nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

Field Strength	52000 nT
Inclination	-51 deg
Declination	5 deg

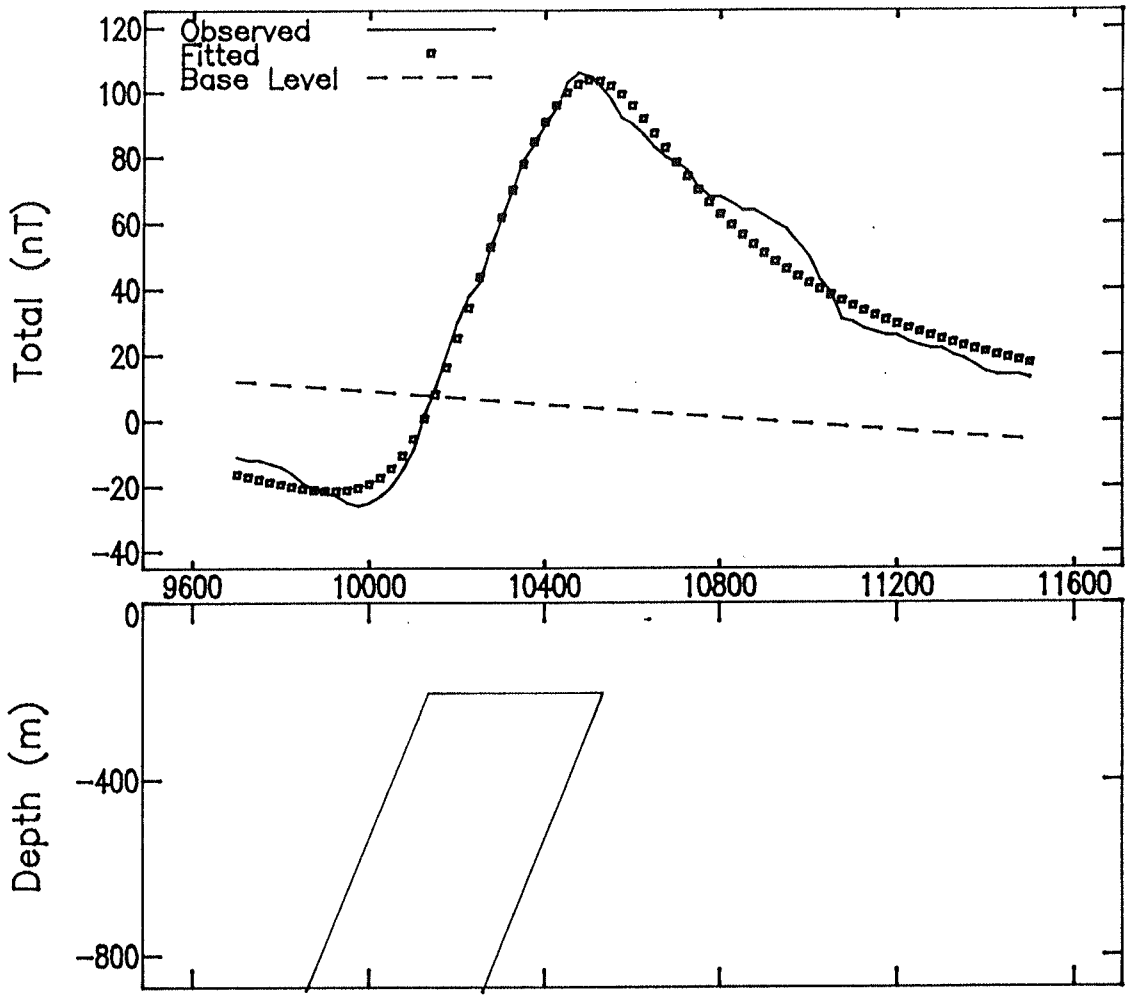
COORDINATES:

Sensor Height	2 m
Strike Perp	0 deg
Line Direction	0 deg
Main Direction	0 deg
Main Offset	
Cross Direction	
Cross Offset	

Geosoft MAGMOD-3 Modeling Result 92/05/12

North Flinders Exploration

Anomaly 2: Line 21,800E. (northern part)



MODEL PARAMETERS:

Model Type		Tabular
Depth	F	194 m
Half Width	F	200 m
Dip	F	112 deg
Susceptibility	F	0.000789 emu
Remnance Ratio	X	0
Remnance Incl	X	0 deg
Remnance Decl	X	0 deg
Main Position	F	10337.25 m
Cross Position	X	0 m
Base Level	F	5.613127 nT
Base Slope	X	-.01 nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

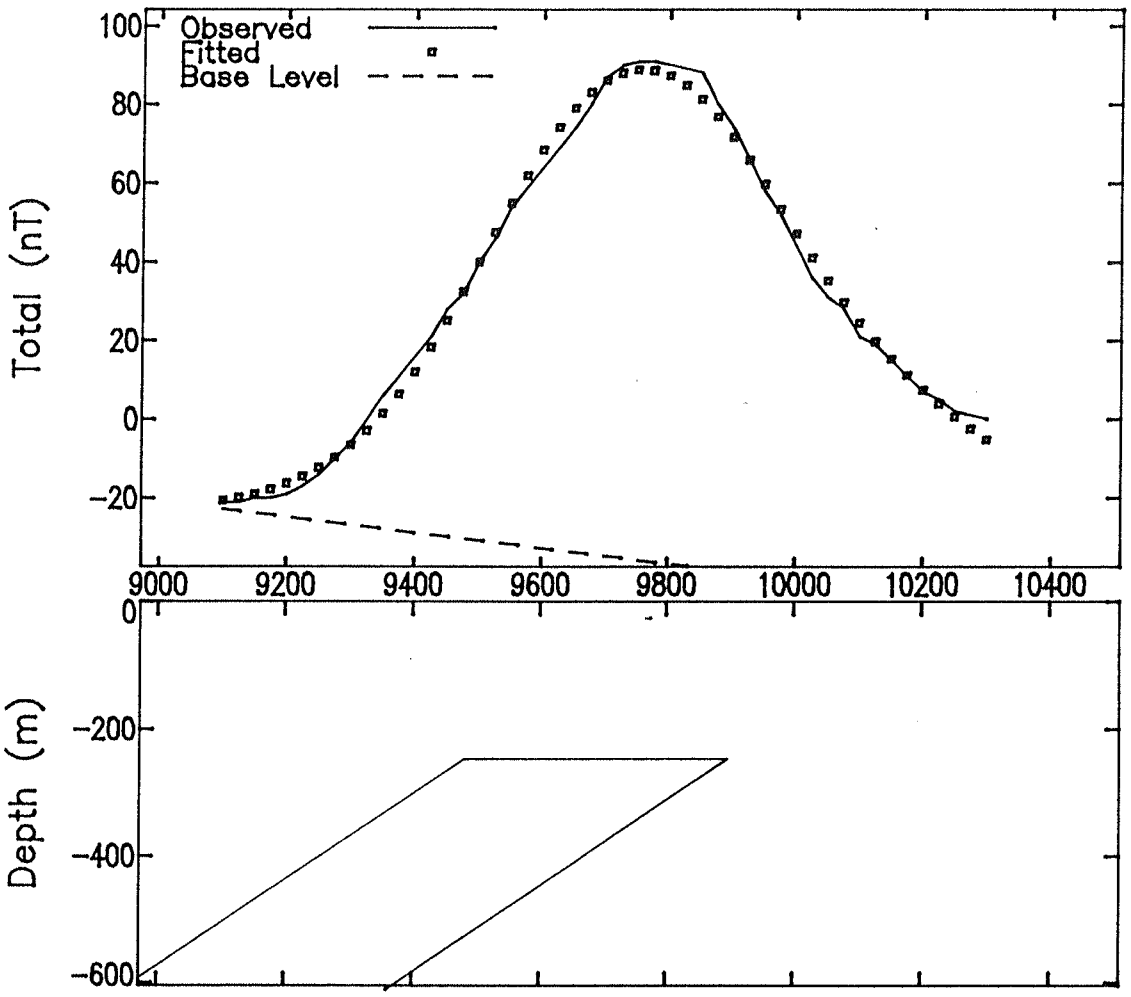
Field Strength	52000 nT
Inclination	-51 deg
Declination	5 deg

COORDINATES:

Sensor Height	2 m
Strike Perp	0 deg
Line Direction	0 deg
Main Direction	0 deg
Main Offset	
Cross Direction	
Cross Offset	

North Flinders Exploration

Anomaly 2 :Line 21,800E (southern part)



MODEL PARAMETERS:

Model Type		Tabular
Depth	F	241 m
Half Width	F	207 m
Dip	F	146 deg
Susceptibility	F	0.00157 emu
Remnance Ratio	X	0
Remnance Incl	X	0 deg
Remnance Decl	X	0 deg
Main Position	F	9688.972 m
Cross Position	X	0 m
Base Level	F	-34.66096 nT
Base Slope	X	-.02 nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

Field Strength	52000 nT
Inclination	-51 deg
Declination	5 deg

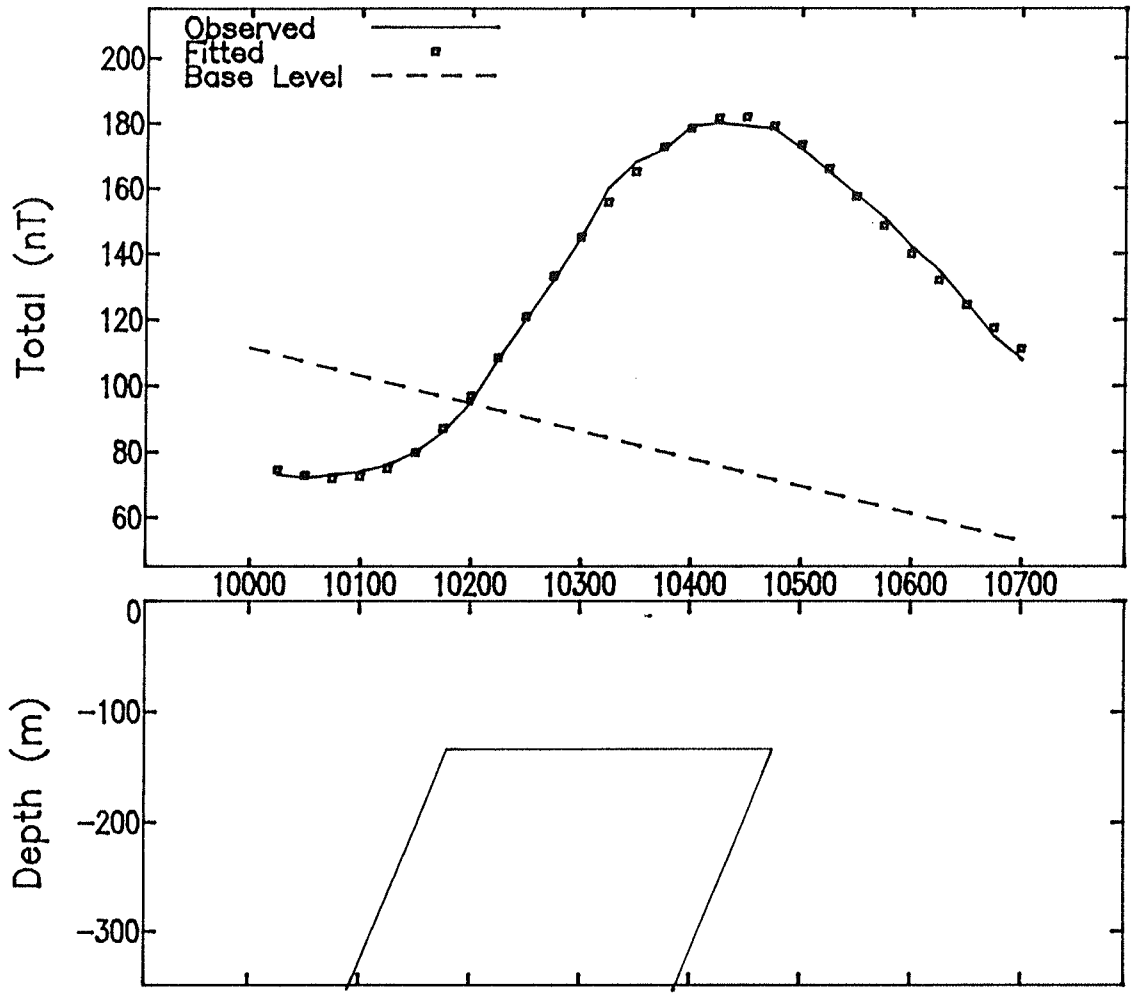
COORDINATES:

Sensor Height	2 m
Strike Perp	0 deg
Line Direction	0 deg
Main Direction	0 deg
Main Offset	
Cross Direction	
Cross Offset	

Geosoft MAGMOD-3 Modeling Result 92/05/12

North Flinders Exploration

Anomaly 2 : Line 21,000E



MODEL PARAMETERS:

Model Type		Tabular
Depth	F	130 m
Half Width	F	148 m
Dip	F	112 deg
Susceptibility	X	0.000800 emu
Remnance Ratio	X	0
Remnance Incl	X	0 deg
Remnance Decl	X	0 deg
Main Position	F	10328.87 m
Cross Position	X	0 m
Base Level	F	83.81427 nT
Base Slope	F	-.0839067 nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

Field Strength	52000 nT
Inclination	-51 deg
Declination	5 deg

COORDINATES:

Sensor Height	2 m
Strike Perp	0 deg
Line Direction	0 deg
Main Direction	0 deg
Main Offset	
Cross Direction	
Cross Offset	