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EL 1924

ALLANDALE

ANNUAL REPORT TO LICENCE RENEWAL FOR THE PERIOD 5/12/94 TO 31/5/95

Submitted by
John P. Howard
1995

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ENVELOPE 8911

TENEMENT: EL 1924 Allandale

TENEMENT HOLDER: J.P.Howard, Sapphire Mines NL
[Joint Venture]

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END OF CONTENTS

SEPARATELY HELD DATA

DRILLHOLE SAMPLES (held by MESA Core Library)

For up to date information on available drillhole samples, contact the Supervisor, MESA Core Library and quote the Exploration Licence and drillhole number/s you wish to query.
K3M1, K5M1, K5M2.

PETRA SEARCH/SAPPHIRE MINES N.L.

A.C.N. 009 153 128

ALLANDALE

E.L. 1924 SOUTH AUSTRALIA

REPORT FOR THE YEAR ENDING 31 MAY 1995

J.P.Howard
MAY 1995

DISTRIBUTION:

South Australian Department of Mines and Energy	2 copies
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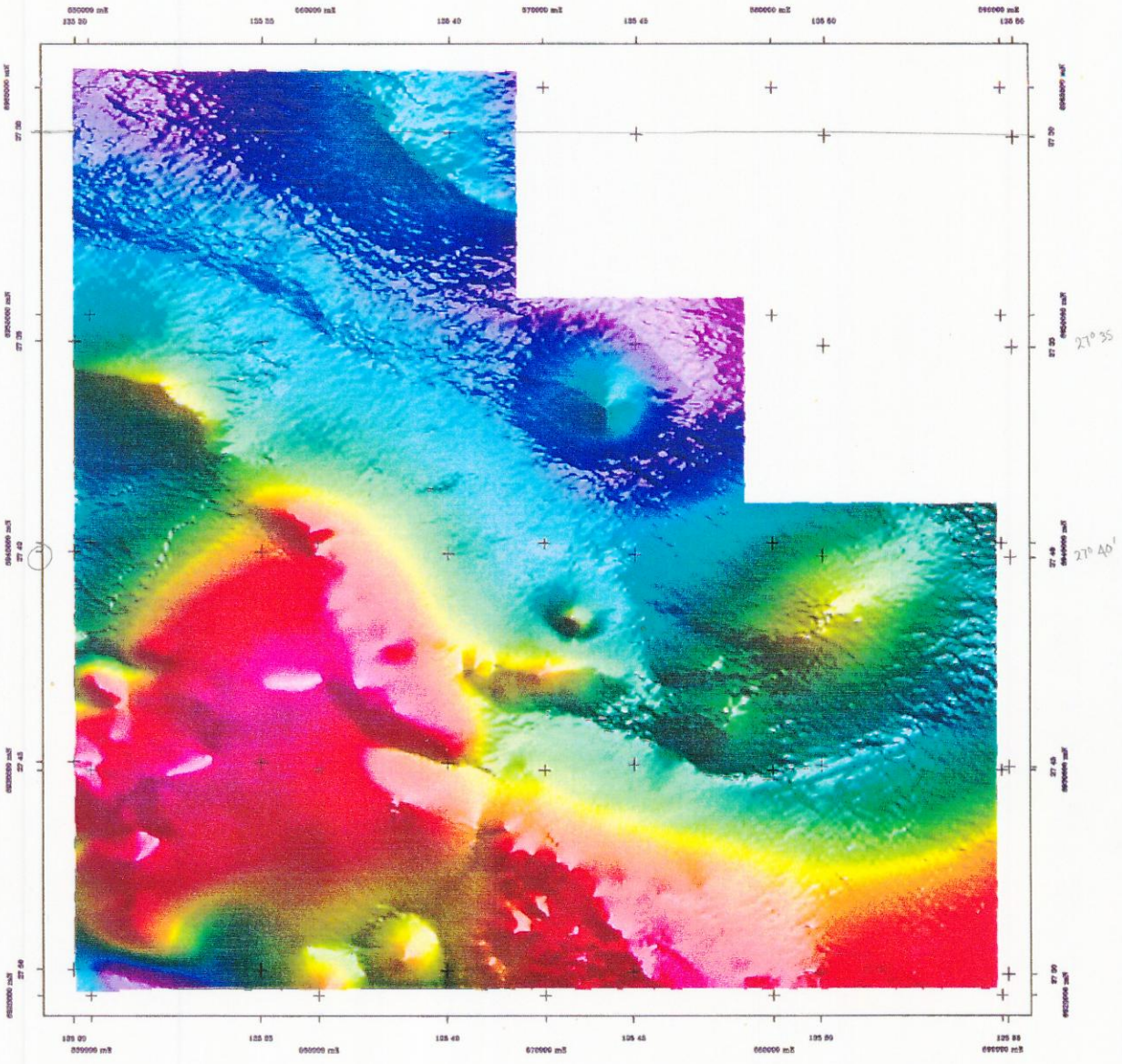
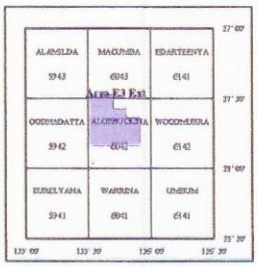
AREA E3 Extension

(parts MACUMBA and ALGEBUCKINA 1:100 000)

J. P. Howard &
Sapphire Mines





REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

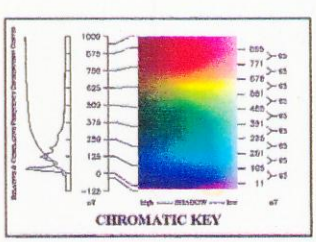
AEROMAGNETIC PIXEL MAP — WORKING SET

COLOUR SCALED TOTAL MAGNETIC INTENSITY WITH RELIEF SHADING AND HIGHLIGHTS

Scale: 1:100 000

2000 0 2000 4000 6000 8000 10000 metres

Universal Transverse Mercator Projection
Central Meridian 135° East, AMG Zone 53
Grid Cell Size 25 metres
Graticules: 10 minutes and 10 kilometres



Data used with the permission of Mines & Energy South Australia.

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1. SUMMARY

The likely young age of the sources of the Abminga magnetic anomalies, together with the probable Jurassic age of large numbers of indicator minerals, including chrome diopsides and fragments of six diamonds, on the western side of the Peak and Denison Ranges suggests that the Tertiary and Mesozoic of Allandale EL 1924 are prospective for diamonds (figure 2).

This interpretation was supported by the presence of a Niobium stream sediment anomaly located by Techmin adjacent to a major fault within the EL 1924, possibly indicating a kimberlitic or lamproitic source.

Previous diamond exploration in the Allandale area has been inconclusive to date, with laboratory technicians experiencing difficulties removing limonite from large quantities of heavy mineral concentrate in gravel samples. However, three samples contained probable pyrope garnet.

A joint venture agreement was made between the Licence holder, J.P.Howard, and Sapphire Mines NL during January 1994, pending the granting of the EL in June 1994, in order to explore for diamonds associated with the Niobium anomaly and the Peak and Denison and Lake Eyre Faults.

The exploration programme carried out during the first year of tenure included an aeromagnetic and radiometric survey (5500 line kilometres, 200 metres line spacing and 80 m MTC), geophysical and geological interpretation, aboriginal liaison and investigation of two kimberlite/ lamproite targets with a total of 580 m of rotary mud drilling.

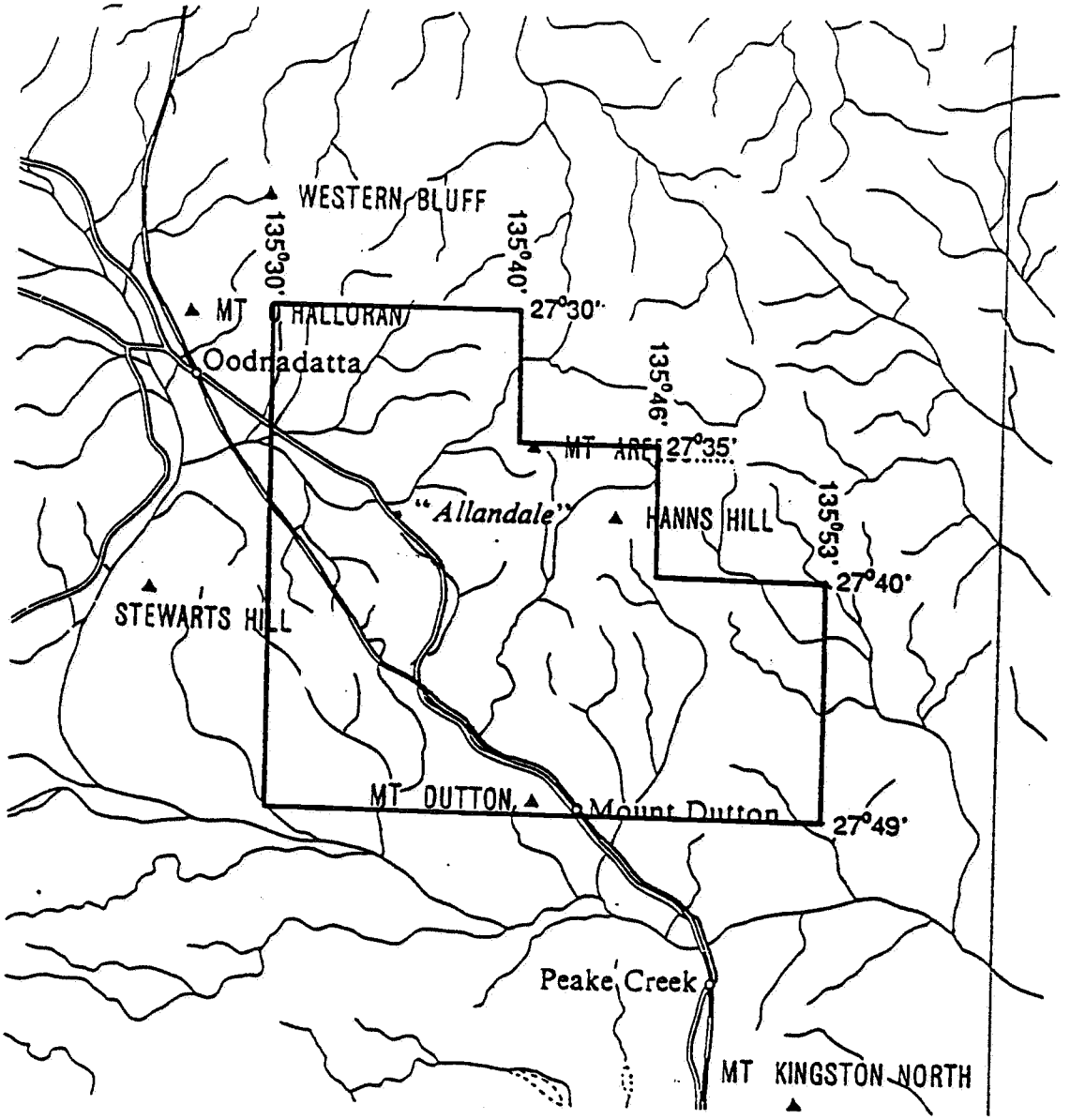
The aeromagnetic survey disclosed a previously unknown province of elevated magnetic response which will form the basis of future exloration for gold and copper-gold (-uranium) deposits.

At the time of writing this report, Sapphire Mines NL had earnt a 75% interest in EL 1924.

2. INTRODUCTION

Exploration Licence 1924 (Allandale) is located in the far northern area of South Australia approximately 25 kilometres southeast from the township of Oodnadatta (Figure 1).

J.P.Howard applied for the Licence on the 7th October, 1993 under Application no. DME 432/93. Processing was delayed as MESA considered the implications of the Mabo High Court ruling. The Licence was eventually granted for six months commencing on the first day of June, 1994 with additional conditions to protect Native Title rights. An Extension to the Licence was



SCALE 1 : 250 000

5 0 5 10 15 20 25

KILOMETRES

ALLANDALE EL 1924

FIGURE 1

granted by MESA on 5 December, 1994 to expire on the 28th November, 1995.

During December 1993 and January 1994 a joint venture agreement was negotiated between J.P.Howard and the Western Australian company Sapphire Mines N.L. (A.C.N.009 153 128), whereby the latter would earn a 75% interest with expenditure which satisfied MESA's requirements for the first year of tenure. As Sapphire Mines NL have spent in excess of the $110000 required by MESA at the time of this report, they now have a 75% equity in EL 1924.

Discussions were also held between J.P.Howard and MESA which arranged a joint venture whereby the area of EL 1924 would be added to the large area "E3" to be flown for magnetic and radiometric data in early 1994 as a part of the South Australian Exploration Initiative (SAEI). The Howard/Sapphire JV contributed $25000 to the costs of the survey.

Subsequently, geophysical interpretation, aboriginal liaison and a programme of rotary mud drilling of subtle potential kimberlite/ lamproite targets has been completed. Future work will focus on deeper base and precious metal aeromagnetic targets.

3. CONCLUSIONS

(i) High quality aeromagnetic and radiometric data has been acquired over the entire licence area.

(ii) Geophysical interpretation defined three near surface subtle aeromagnetic anomalies of significantficant aerial extent within potentially economic depths which were thought to be kimberlite/ lamproite sources

(iii) A programme of rotary mud drilling at these anomalies found no kimberlitic or lamproite rocks, penetrating only Cretaceous shale and sandstone

(iv) Anomalous niobium in outcropping fault breccia suggests that the niobium geochemical anomaly of Techmin may result from the migration of fluids along a shear zone from magnetic, possible BIFs at depth

(v) A large, previously unknown, totally unexplored area of elevated magnetic response (1000nT) measuring 18x10 km has been defined by the aeromagnetic survey

(vi) The source could be Proterozoic or Archaean BIFs with associated gold or copper-gold mineralisation; gold and copper ocurrences and iron formations are known 28 km southeast in outcropping Proterozoic lithologies of the northern Peak and Denison Ranges

(vi) Alternatively, the source could be magnetitic breccias in the Olympic Dam style, with associated copper-gold-uranium mineralisation; a significant gravity anomaly is known over the area of elevated magnetic response and long term regional growth faults bound the area

(vii) A programme of drilling is necessary to test the base metal and precious metal potential of this magnetic ridge

4. REGIONAL SETTING

Geological

The "Allandale" area straddles the boundary of the Gawler Craton which trends in a northwesterly direction as shown on Figure 2. The boundary is marked by a major fault with the Proterozoic Peak and Denison Inlier forming a horst on the northeast, and Paleozoic sediments forming the intracratonic Boorthanna Trough on the southwest. A second major fault, the Lake Eyre Fault, marks the northeast definition of the horst in the area of the EL and other splayed and parallel structures have been interpreted. These faults have controlled sedimentation at least for the Paleozoic and have probably also been active during the Mesozoic or later Periods. They may also have influenced Proterozoic sedimentation.

Geophysical

The Bouger Gravity Anomaly Map of northern SA, indicates that the Allandale area is situated on the edge of a major regional gravity low, comparable with that associated with the Abminga dipolar anomalies northwest of Allandale which are discussed below (Figure 2). The gravity low is suggestive of major crustal downwarping. At Allandale the gravity expression is similar to that of the mobile zones which contain the Ellendale and Argyle lamproite-diamond fields, bordering the Kimberly Craton in northern WA.

The Total Magnetic Intensity Map of northern SA, indicates that the area is relatively quiet magnetically and is, therefore, well suited to detecting low amplitude magnetic anomalies which may be associated with prospective kimberlite or lamproite intrusives.

5. REVIEW OF PREVIOUS DATA

Outcrop within EL 1924, shown on the published Oodnadatta 1:250000 geological map and traced on Figure 12, consists mainly of Tertiary silcrete, laterite and sandstone and Cretaceous shale, sandstone and siltstone with Jurassic and Permian pebbly, conglomeratic sandstone

around the base of the Mount Dutton Proterozoic Inlier. The "Reference" on Figure 12 gives a more detailed description of the lithologies and stratigraphy.

A search at the Mines Department Library revealed that very little geological work has been carried out on the area; Els and Envelopes examined are listed in Appendix 1.

Most work was carried out by Techmin/Oilmin who held EL 750 during 1981 and 1982. They used stream sediment and gravel sampling programmes to search for diamondiferous kimberlite intrusives (Envelope 4041). An initial series of 17 gravel samples weighing 20 kilograms each was examined by AMDEL. Nine of these were taken from the area of Allandale EL 1924, and three of these (DT-9,23,24) contained possible pyrope garnets. Great difficulty was experienced removing limonite from the samples, some of which occurred as coating on grains. Although extensive tests were run using an acid leach to remove the limonite, only 10% of the large quantities of heavy mineral concentrate was processed. A second series of 160 gravel samples were taken during 1981 from EL 750, but only 14 were examined for kimberlitic indicators; of these only seven (B series) are from EL 1924. No indicator minerals were detected in any of these samples (Env. 4041, p136).

EL 750 and two other EL's were subjected to a stream sediment sampling programme of 1500 samples. Two size fractions were collected. Sample positions within Allandale EL 1924 are shown on Figure 3. The -2mm +850 microns fraction was assayed for Niobium whilst the -180 micron fraction was assayed for Nickel, Chromium and Cobalt. An area of Niobium anomalism, where values are greater than four times background, was defined 10 km southeast from Allandale Station. It covers an area of 20 square kilometres adjacent to the regional Lake Eyre Fault . Repeat analyses confirmed the anomaly (Env. 4041, p158), although it is not detected in the minus 180 micron fraction. There is no accompanying Nickel, Cobalt or Chromium anomaly in either of the size fractions. Techmin believed that the Niobium Anomaly was a secondary dispersion effect related to ferruginous geodes. The primary source was unknown.

During 1973 Shell held EL 108, which included a large part of the Allandale EL 1924, to explore for Permian coal measures (Env 2388). No new data was collected on the area of EL 1924 but hole SDA 15, 17 km southwest from the Mount Dutton Proterozoic Inlier, outside the EL, was drilled into the Boorthanna Trough (Figure 12).

EL 743 was held by Carpentaria in the early 1980s, covering the southern strip of Allandale EL. They mapped basal Jurassic conglomerates and sampled for gold, particularly around Mount Dutton, with no anomalous results.

Other tenure over the area produced no information relevant to the Allandale EL.

6. WORK CARRIED OUT

6.1 AEROMAGNETIC AND RADIOMETRIC SURVEY

After discussions with the Director of Mineral Exploration, Ric Horne, and the payment of $10000 by the JV on 7th January, 1994 "Allandale" EL 1924 was added to the SAEI area "E3" as area "E3 Extension", to be included in airborne surveys.

5500 kilometres of aeromagnetic and radiometric survey were subsequently flown over this area by Geoterrex Pty Limited between the 6th and 14th May, 1994. The survey specified a mean terrain clearance of 80m along north-south AMG lines spaced at 200 m, with tie lines at 2000 m east-west AMG. Image processing, microlevelling and production of magnetic tapes and maps was carried out by Pitt Research Pty Limited during June. The data was acquired with the payment of a further $15000 to MESA on 24th August. Detailed specifications are given for both the survey and the processing on the contoured 1:100000 scale maps (e.g. Figure 4) which are enclosed.

Aeromagnetic and radiometric plans and profiles are presented as Figures 4-11. Full sized images of the processed data at 1:100000 scale will be presented with the final report on the EL. Reduced copies at approximately 1:300000 scale are presented here as Plates 1-4.

6.2 GEOPHYSICAL AND GEOLOGICAL INTERPRETATION

John Ashley's report "Interpretation of Airborne Geophysical Data (September, 1994) is included as Appendix 2. Parameters and comments on each aeromagnetic anomaly examined are summarised in Table 1, the locations of which are shown on Ashley's Figure 2B.

Diamond Exploration

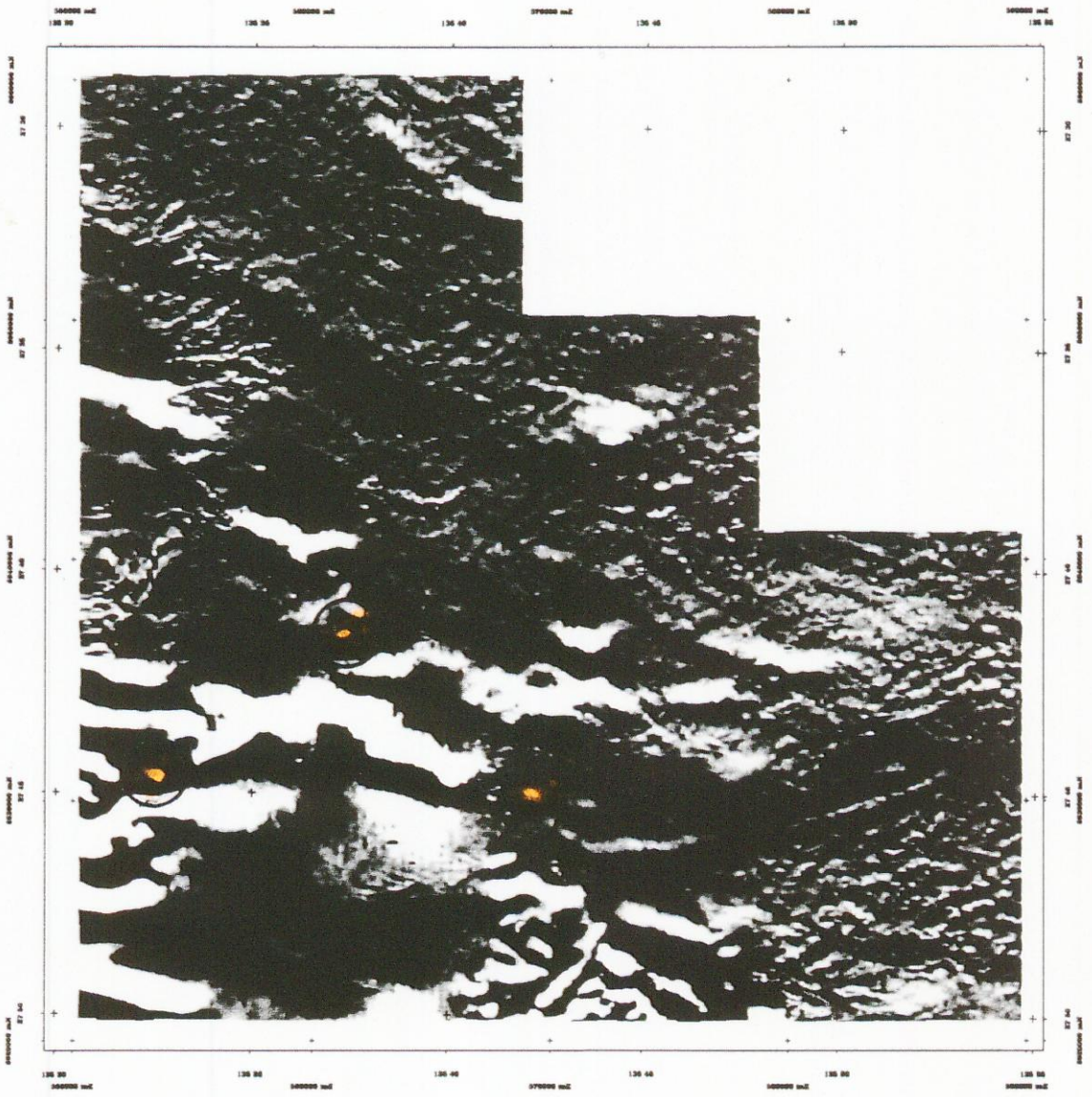
Ashley defined six discrete, low amplitude magnetic anomalies from the first vertical derivative of the TMI data, which could be caused by kimberlite or lamproite intrusive. The emplacement of these 'pipes' is spatially related to the regionally persistent Lake Eyre and Peake and Denison Faults, the latter of which has large numbers of indicator minerals and six diamonds totalling 0.75MC associated with it (MESA Env 3771, p291). One possible kimberlite/lamproite dyke, 2.5 km long and 10 m wide was also indicated.

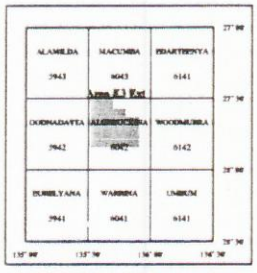
It was recommended that three of the kimberlite/lamproite targets, defined by Ashley as being within economically attractive parameters of depth and area be tested using aircore drill holes. Anomaly locations are shown on Figure 13 on a topograhic base map.Figures 14, 15 and 16 show the planned traces of drill holes at Anomaly K1 and the actual traces for anomaly K3 and K5. A high pass filter was made through the aeromagnetic data at each anomaly and presented as figures 17, 18 and 19.

AREA E3 Extension

(parts MACUMBA and ALGEBUCKINA 1:100 000)

Sapphire Mines





REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

AEROMAGNETIC PIXEL MAP — WORKING SET

GREY SCALED FIRST VERTICAL DERIVATIVE OF TOTAL MAGNETIC INTENSITY

Scale:

Universal Transverse Mercator Projection
Central Meridian: 135° East, AMG Zone 53
Grid Cell Size: 25 metres
Gratitudes: 10 minutes and 10 kilometres

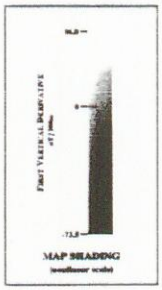


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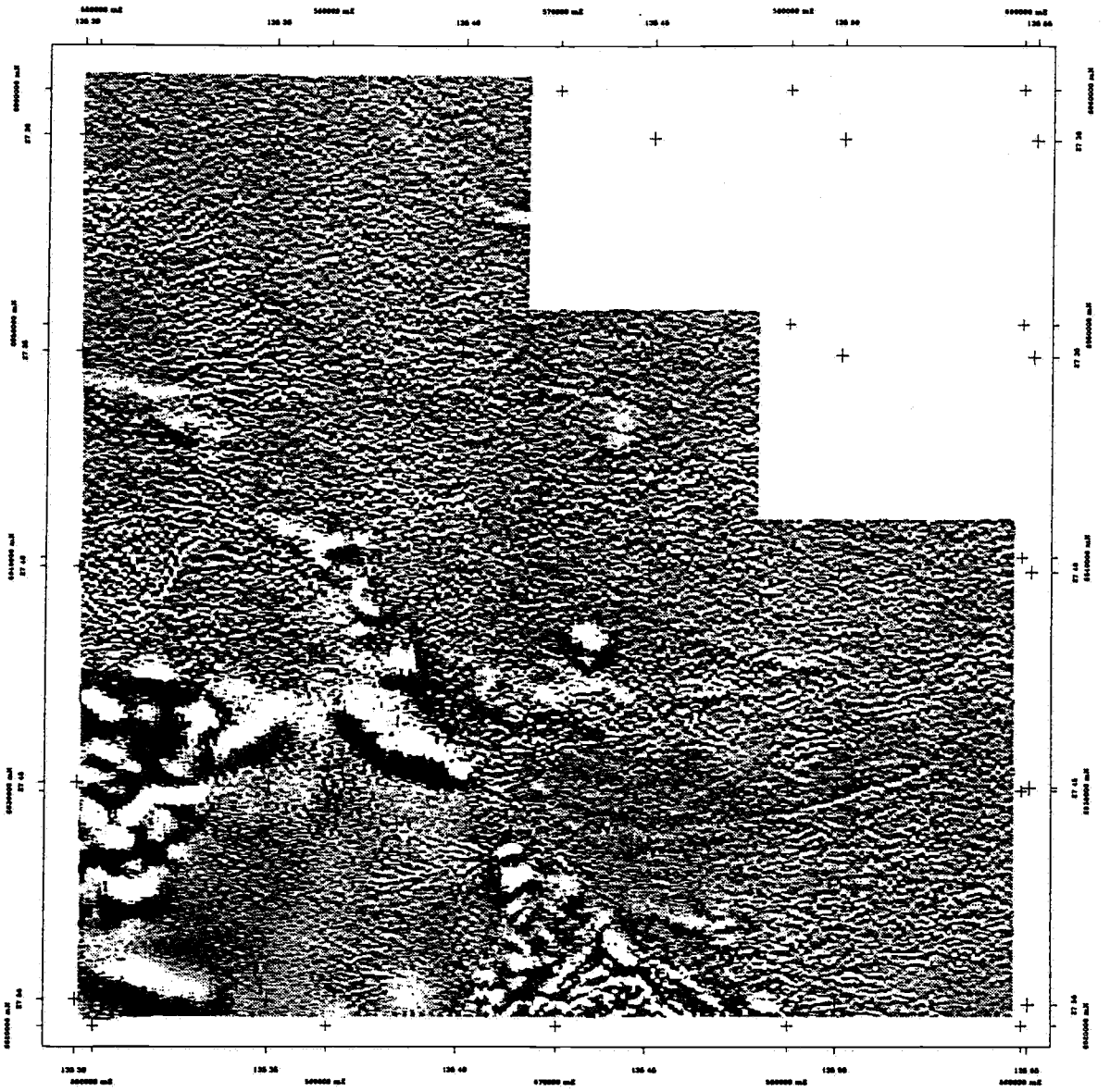
PLATE 2

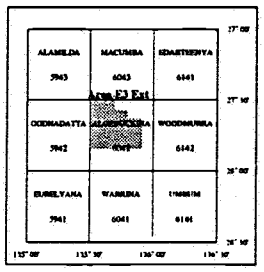
Drill hole targets

AREA E3 Extension

(parts MACUMBA and ALGEBUCKINA 1:100 000)

J. P. Howard &
Sapphire Mines





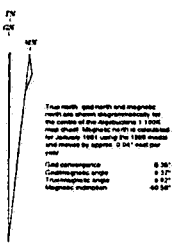
REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

AEROMAGNETIC PIXEL MAP — WORKING SET

GREY SCALE SECOND VERTICAL DERIVATIVE OF TOTAL MAGNETIC INTENSITY

Scale:

Universal Transverse Mercator Projection
Central Meridian: 135° East, AMG Zone 53
Grid Cell Size: 25 metres
Graticules: 10 minutes and 10 kilometres



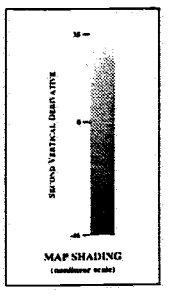


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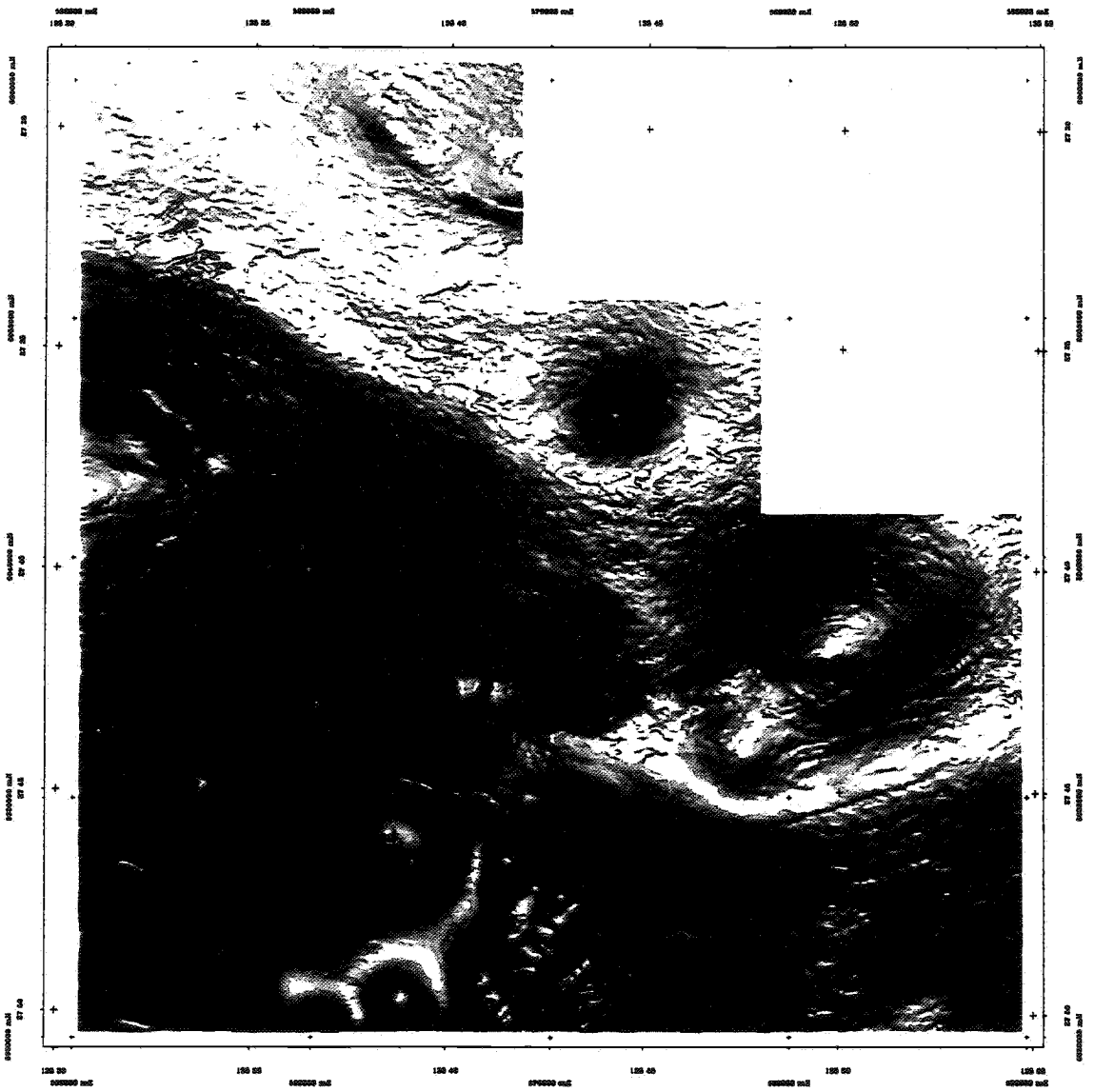
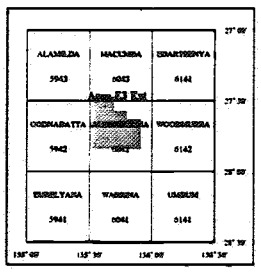
PLATE 3

AREA E3 Extension

(parts MACUMBA and ALGEBUCKINA 1:100 000)

Sapphire Mines





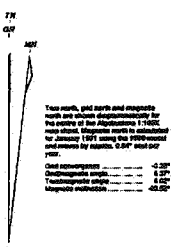
REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

AEROMAGNETIC PIXEL MAP — WORKING SET

GREY SCALED ABSOLUTE VALUE OF MAXIMUM MAGNETIC GRADIENT

Scales

Universal Transverse Mercator Projection
Central Meridian 135° East, AMG Zone 53
Grid Cell Size 25 metres
Graticules 10 minutes and 10 kilometres



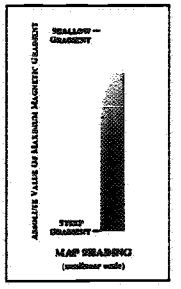


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PLATE 4

AN.	EAST m	NORTH m	Depth	SUSC cgsu	AREA	H.Depth m
K1	553200	6930700	90m	0.00004	16 h	150
K3	560700	6939350	65m	0.000025	9 h	115
K5	569000	6929900	150m	0.000051	20 h	200

Other Intrusives
Four large intrusives with modelled magnetic susceptibilities consistent with basic rocks (or carbonatites) appear to be at depths of 450 to 1300 m.

Base Metal Exploration
The southwestern corner of the EL shows an area measuring 18x10 kilometres of elevated magnetic response (about 1000 nT). As there is no drill hole information in this area, the source is of unknown age and lithologies. It could be a magnetite-rich BIF of Proterozoic or Archaean age with potential to host gold or gold-copper mineralisation. Ashley has interpreted the source rocks, on the basis of gravity and magnetic character, as being equivalent to the Proterozoic Peak Metamorphics (BIF, schist, quartzite, amphibolite, gneiss) outcropping to the south, but at around 500 m depth. Alternatively, potential may exist for Olympic Dam type Mesoproterozoic magnetitic breccias with associated copper-gold-uranium mineralisation.

The three milligal bouger gravity anomaly which is spatially associated with the magnetic features, may result from the downthrown horst block of Proterozoic metamorphics or from magnetitic breccias (see Ashley's figure 4 in appendix 2).

A summary geological map (Figure 12) at 1:100,000 scale has been compiled using the published 1:250000 Geological Map of Oodnadatta in conjunction with the new aeromagnetic and radiometric maps to produce a regional geological interpretation of the Allandale EL. The 20 kilometre strike-length of possible BIFs are shown on this map as"Allandale Units"as are the previously unamed BIFs which outcrop to the south of the EL. Copper and gold occurrences are shown 15 km south of Mt Dutton in the vicinity of these latter BIFs.

The Techmin Niobium anomaly may derive from migration of fluids originating in these rocks along a thrust fault (TF2) which shows in the geophysical interpretation on Figure 12 and Ashley's Figure 3.

6.3 ABORIGINAL LIAISON

Three days were spent in July 1994 with Aboriginal Consultants Reg Dodd, Norm Wood and Paddy Jones of the Marree Arabanna People's Committee and the Oodnadatta Dunjibar Community Council, familiarising them with the forthcoming drilling programme. A further day was spent in early November with Norm Wood, just prior to the commencement of drilling, visiting sites and explaining the final plans.

6.4 DRILLING PROGRAMME

A three hole rotary mud drilling programme totalling 580m was carried out by Strata Exploration Pty. Ltd. using the Hydra 1000 rig. Sites were located using and handheld GPS unit, with 30 repeats at each site and a check during drilling.

D. H.	EAST m	NORTH m	Depth	SUSC cgsu	AREA	H.Dth m
K3/M1	560700	6939350	65m	0.000025	9 h	120
K5/M1	569000	6930200	150m	0.000051	20 h	210
K5/M2	569000	6930050				250

Drill holes are plotted on aeromagnetic contour plans on Figures 18 and 19 and on Ashley's geophysical cross sections on Figures 15 and 16. These holes were drilled into the best of the very subtle aeromagnetic anomalies of less than 5 nT, but no kimberlitic nor lamproitic lithologies were intersected. Only Cretaceous clays and sands of the Great Artesian Basin, with low but significant magnetic susceptibilities were encountered.

Summary Logs:

K3/M1	0-1 m	Gibber and bulldust
	1-120m EOH	BULLDOG SHALE-medium grey clay with minor gypsum
		Maximum magnetic susceptibility of clay 0.08×10^{-5}SIU
K5/M1	0-1.5 m	Gibber and bulldust
	1.5-6m	SILCRETE AND BULLDOG SHALE
	6-210m EOH	BULLDOG SHALE-light-medium grey clay; minor gypsum
		Maximum magnetic susceptibility of clay 0.25×10^{-5}SIU
K5/M2	0-2.6m	Gibber and bulldust
	2.6-6m	SILCRETE AND BULLDOG SHALE
	6-210m	BULLDOG SHALE-light to medium grey clay; minor gypsum
	210-250m EOH	CADNA-OWIE SANDSTONE-fine to medium, angular to well rounded, clear quartz grains and aggregates; minor jasper
		Maximum magnetic susceptibility of clay 0.17×10^{-5}SIU
		Maximum magnetic susceptibility of sandstone 0.29×10^{-5}SIU

Owing to the lack of success in drilling the K3 and K5 aeromagnetic anomalies, and the loss of 130m of NQ drill string in K5/M2, it was decided not to drill the K1 target.

These magnetic anomalies may be explained by the magnetic susceptibility values noted above in the clays and sands, augmented by possible remnant magnetism.

Sites were rehabilitated during December.

6.5 GEOCHEMICAL SAMPLING

Chip samples were taken in the headwaters of the creek which had elevated niobium geochemistry in the Techmin stream sediment survey. Results for gold and a wide range of ICP elements (AMDEL Codes AA9 and IC3M) are presented in Appendix 4 with sample locations in AMG co-ordinates and located generally on Figure 3. Elevated niobium assays to 40 ppm were returned from a possible fault breccia at 563288m E, 6935389m N AMG. This may be the surface expression of the shear mentioned in section 6.2

7. FUTURE WORK

In order to drill the deeper base and precious metal targets, a new joint venture partner is being sought.

8. KEYWORDS

Aeromagnetic Suvey; Radiometric Survey; Rotary Mud Drilling; Multielement assays Kimberlite/Lamproite; BIF; Archaean; Proterozoic; Olympic Dam

9. EXPENDITURE

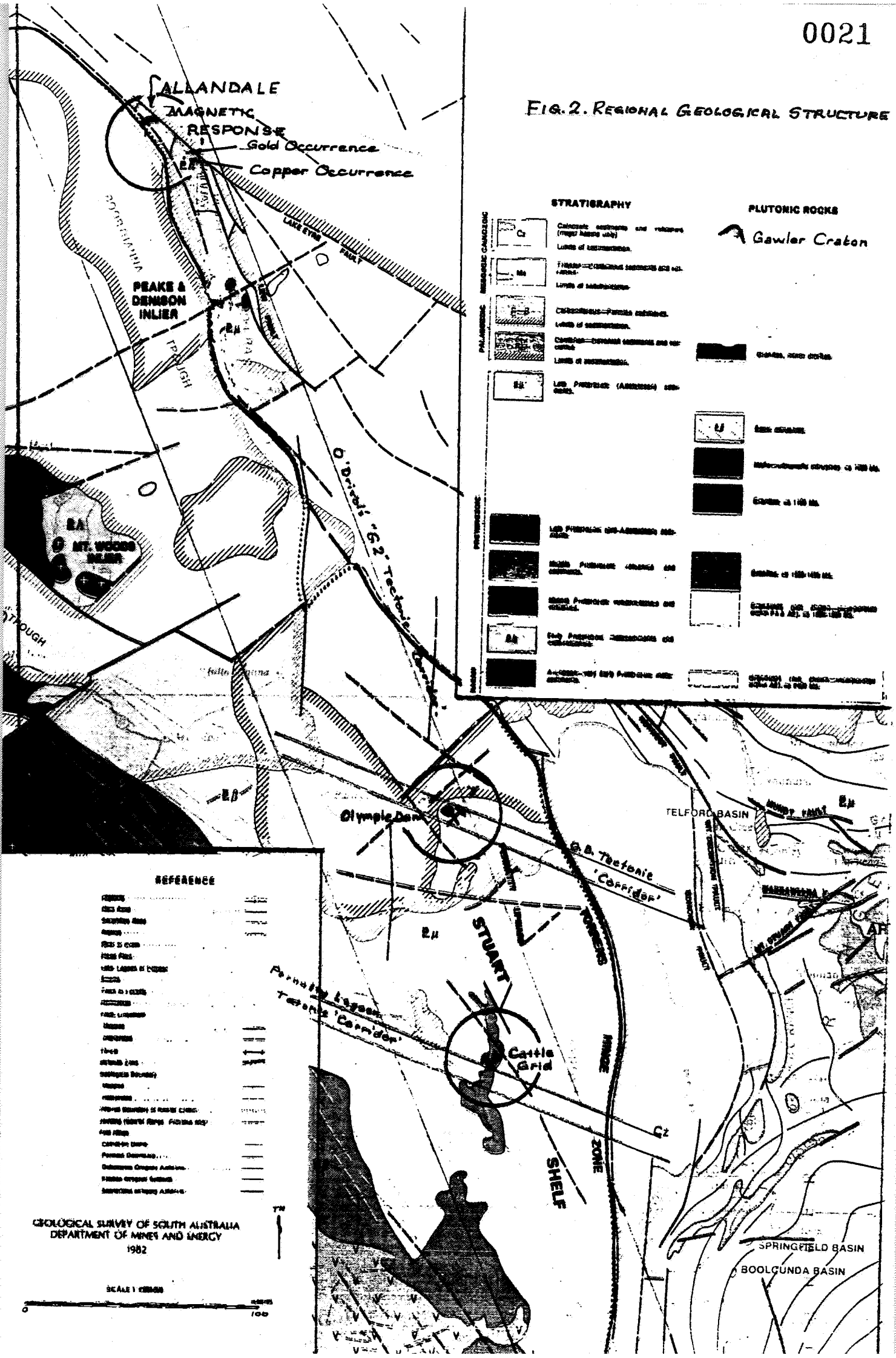
ASSAYS	$216.00
SITE PREPARATION	$3450.00
DRILLING	$24420.00
LOST DRILLING EQUIPMENT	$6105.00
GEOPHYSICS	$29790.00
LAND EXPENSES	$6291.00
EQUIPMENT EXPENSES	$2418.00
DATABASE AQUISITIONS	$577.00
STAFF RELATED COSTS	$9545.00
CONSULTANTS	$38517.00
VEHICLE COSTS	$1857.00
DRAFTING AND COMPUTING	$369.00
OFFICE EXPENSES	$2015.00
FREIGHT	$151.00
CAMP & FIELD	$1251.00
TOTAL	$126972.00

TABLE 1 ALLANDALE EL 1924 SUMMARY OF AEROMAGNETIC ANOMALIES

ANOM	EASTING (m)	NORTHING (m)	AMP. (nT)	DEPTH (m)	DIP	SUSCEPTIBILITY (cgs)	AREA(h)	COMMENTS
A1	571434	6936675	80	450	50-60S	0.001749	100	Possibly dolerite or carbonatite
A2	563400	6935570	50	700	70S	0.010267		Narrow magnetic source-?BIF
A3	563375	6928233						Iron railway bridge
A4	559500	6931750						Iron railway bridge
A5	557830	6943790	10					Allandale Homestead
A6	571770	6943950						Levelling error
A7	572600	6945900	60	1100	90	0.00199	375	Possibly dolerite or carbonatite
A8	568400	6926500	60	450	80S	0.001883	100	Possibly dolerite or carbonatite
A9	555000	6933000	20	700	65S	0.008977		Narrow magnetic source-?BIF
A10	564000	6921500	40	1300	90	0.003633	100	Possibly dolerite or carbonatite
A11	550500	6933700	120	650	60	0.009979		?BIF or mag breccia
A12	552000	6926000	200	500	65S	0.006255		?BIF or mag breccia
A13	553000	6930000	200	550	50	0.010318		Narrow magnetic source-?BIF
A14	555500	6934000	low					Not modelled
A15	557500	6933500	900	300-1500	60S	.002343-.016595		Narrow magnetic source-?BIF
A16	560500	6933500	low					Not modelled
A17	562000	6933500	500	500-1000	65S	.00267-.019845		Narrow magnetic source-?BIF
A18	568500	6927500	10	250	70S	0.000792	4	Possible kimberlite, carbonatite or dolerite
A19	565500	6942500	4	10	35S	0.000395	1	Possible kimberlite dyke, 2.5 km long, 10 m wide
K1	553200	6930900	3	90	90	0.00004	16	Possible kimberlite-recommended for drilling
K2	553600	6927000	10	360	90	0.000588	5.3	Possible kimberlite
K3	560700	6939200	3	65	90	0.000025	9	Possible kimberlite-recommended for drilling
K4	561200	6936700	1	25	90	0.000005	0.6	Possible kimberlite
K5	569000	6930000	4	150	90	0.000051	20	Possible kimberlite-recommended for drilling
K6	577500	6923800	10	210	90	0.00024	23	Possible kimberlite

0020

FIG. 2. REGIONAL GEOLOGICAL STRUCTURE



SAMPLE LOCATION MAP
"ALLANDALE" ELA
FIG. 3

27°35'S

CECILIA
W H

"Allandale"

LOC 7

LOC 3

LOC 2

IC 5

HANN H

Dam

NC 4

IC 4

LOC 1

BARTON HILL

LOC 8

135°46'E

27°40'S

High N

Hematite
Geodyk

TD11

Chip
samples
App. 4.

TD9

TD24

Ockenden

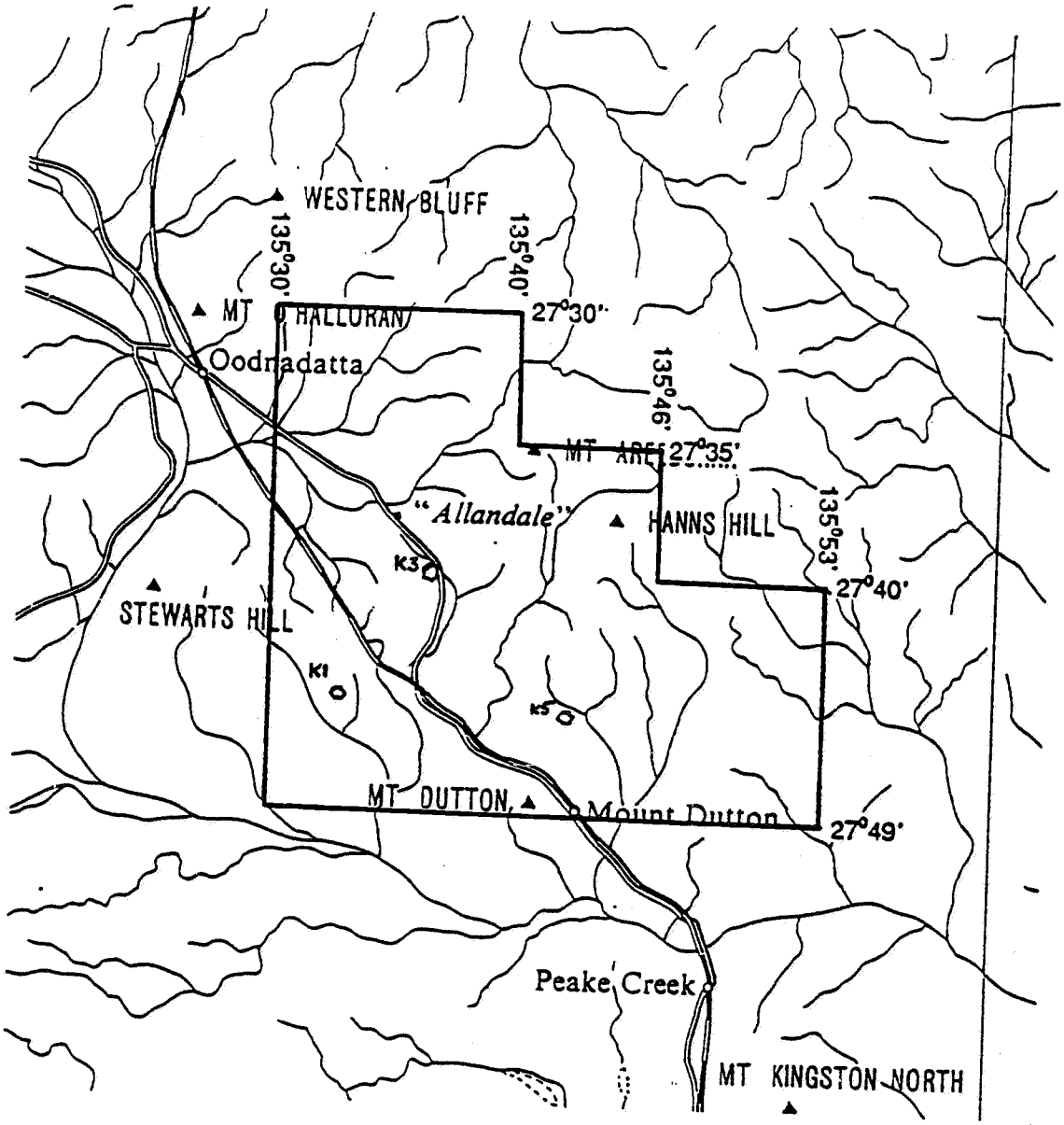
Ck.

MT.
DUTTON

TD8

136°53'E

27°49'S



SCALE 1 : 250 000

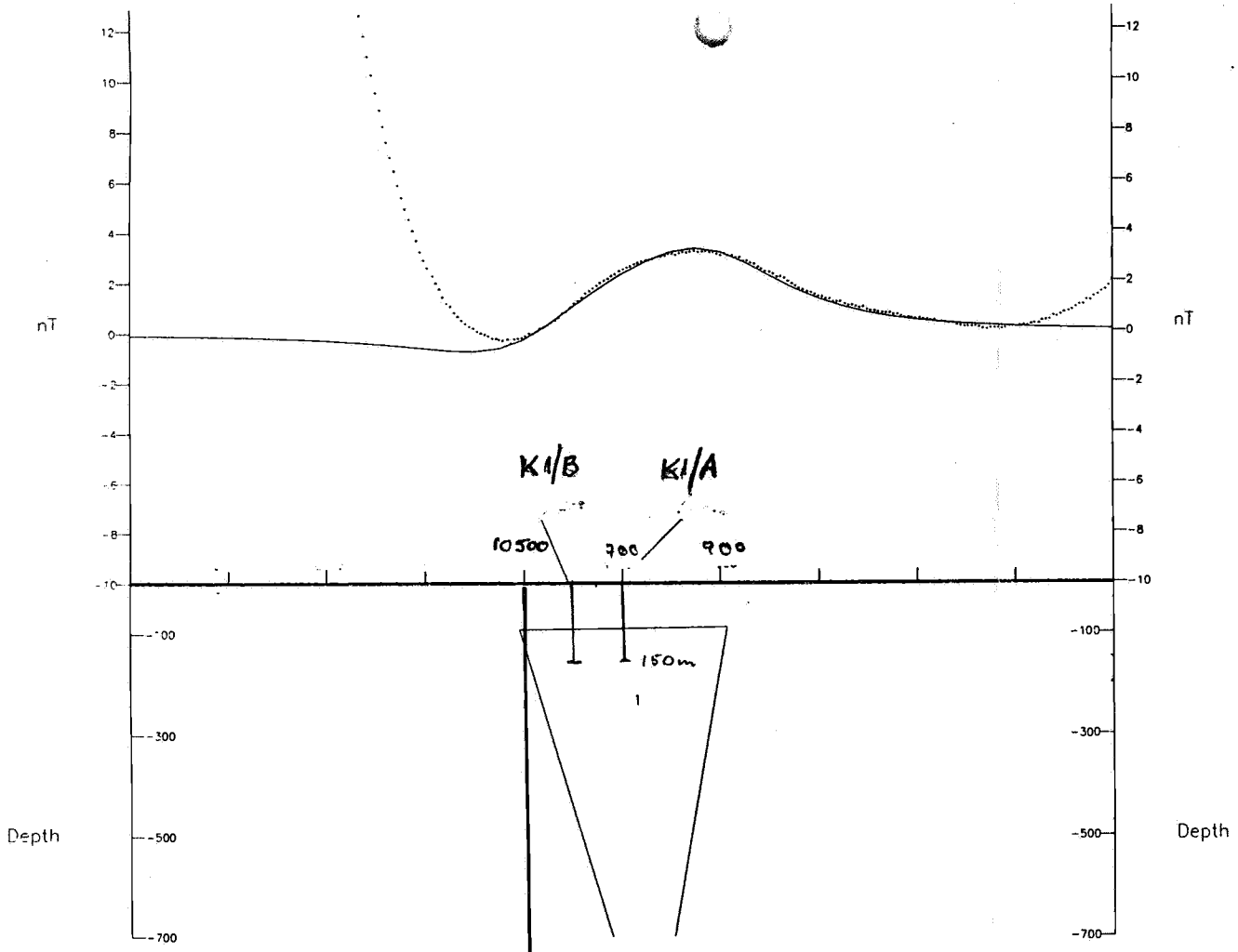
5 0 5 10 15 20 25

KILOMETRES

ALLANDALE EL 1924

TARGET LOCATIONS

FIGURE 13.



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC SUSCEPTIBILITY //STR cgsu	//DIP cgsu	PERP. cgsu	REMANENT MAGNETISM AMP. nT.	INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	300	0				.00004	.00004	.00004	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

6930600mN AMG

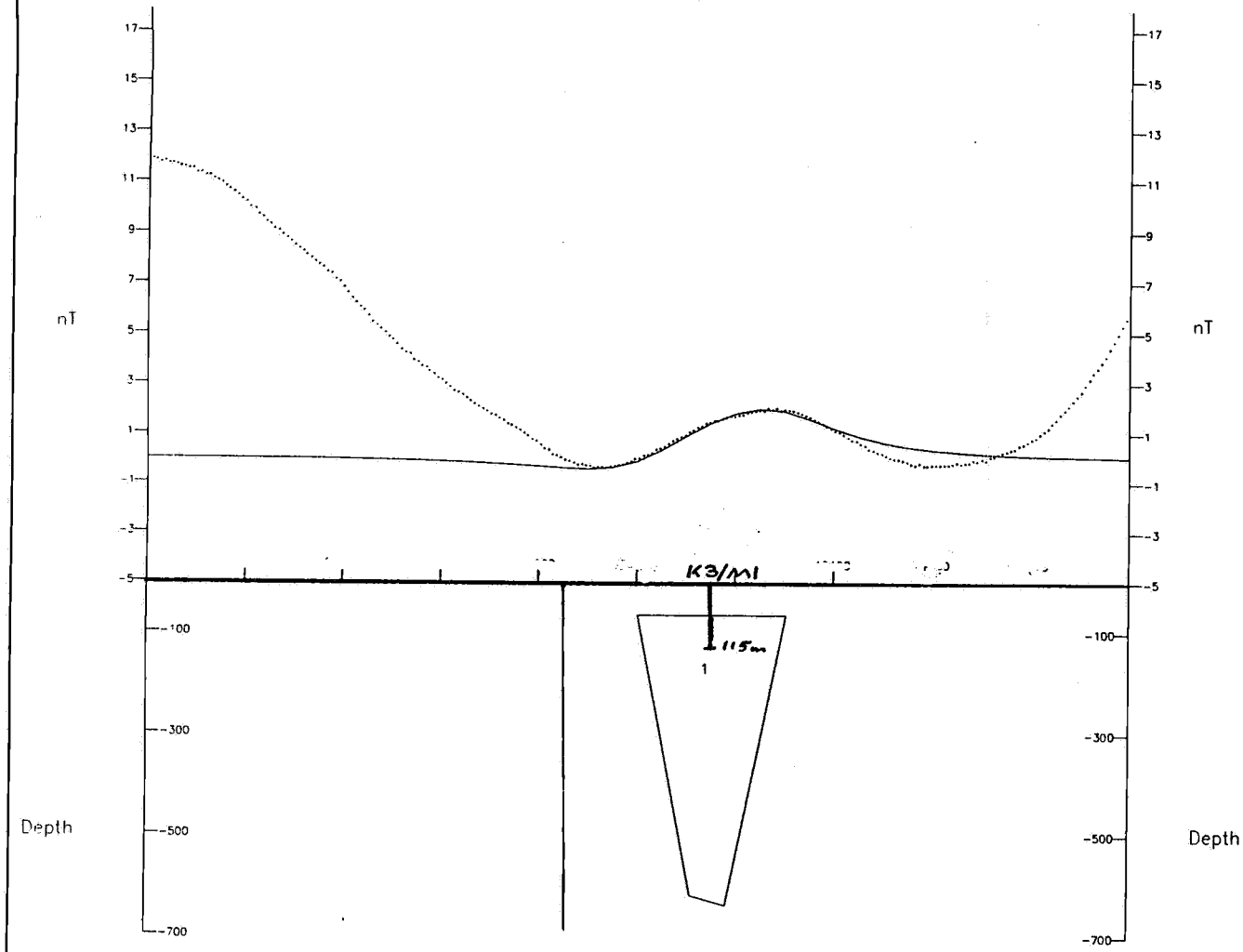
0 200 400
Scale

Adapted from Ashley, fig 18.

JP HOWARD/SAPPHIRE MINES
ALLANDALE AREA, SA
EL 1924
MAGNETIC MODEL – ANOMALY K1
Flight Line 3131
553200mE (AMG)

Date 30-09-1994 | JPH | FIG. 14

0024



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.50	90	300	0				.000025	.000025	.000025	0	0	0	0

6939000m N (AMG)

Adapted from Ashley, fig. 20

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

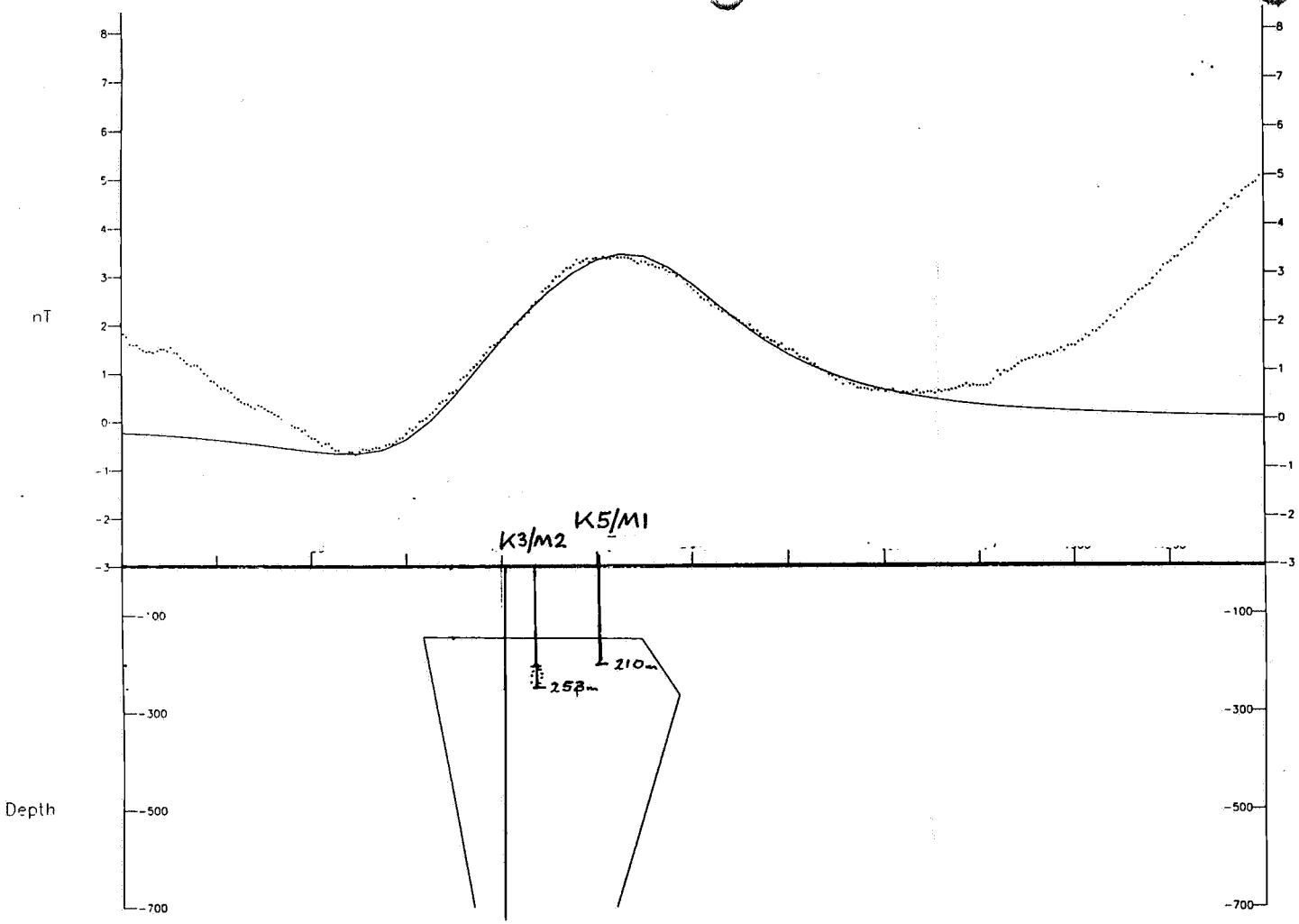
MODEL PROFILE : ———

0 200 400
Scale

JP HOWARD/SAPPHIRE MINES
ALLANDALE AREA, SA
EL 1924
MAGNETIC MODEL – ANOMALY K3
Flight Line 3511
560700 mE (AMG)

Date : 30-09-1994 | JPH | FIG. 15

0025



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	300	0				.000051	.000051	.000051	0	0	0	0

6480000mN(AMG)

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 200 400
Scale

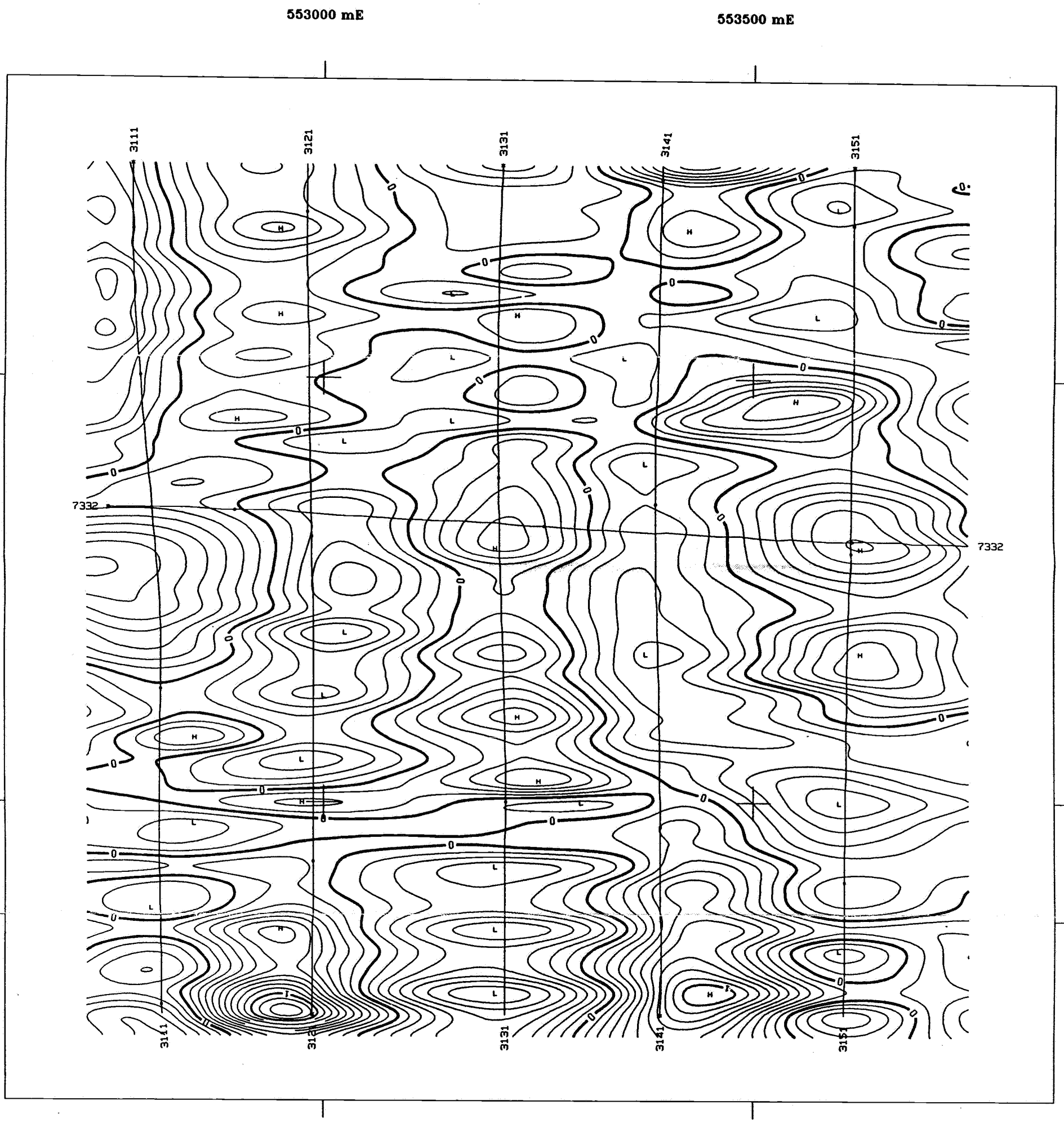
Adapted from Ashley, fig 22

JP HOWARD/SAPPHIRE MINES
ALLANDALE AREA, SA
EL 1924
MAGNETIC MODEL – ANOMALY K5
Flight Line 3921
569000mE(AMG)

Date :30 -09-1994 | JPH | FIG. 16

9200

ANOMALY K1



AEROMAGNETIC CONTOUR MAP

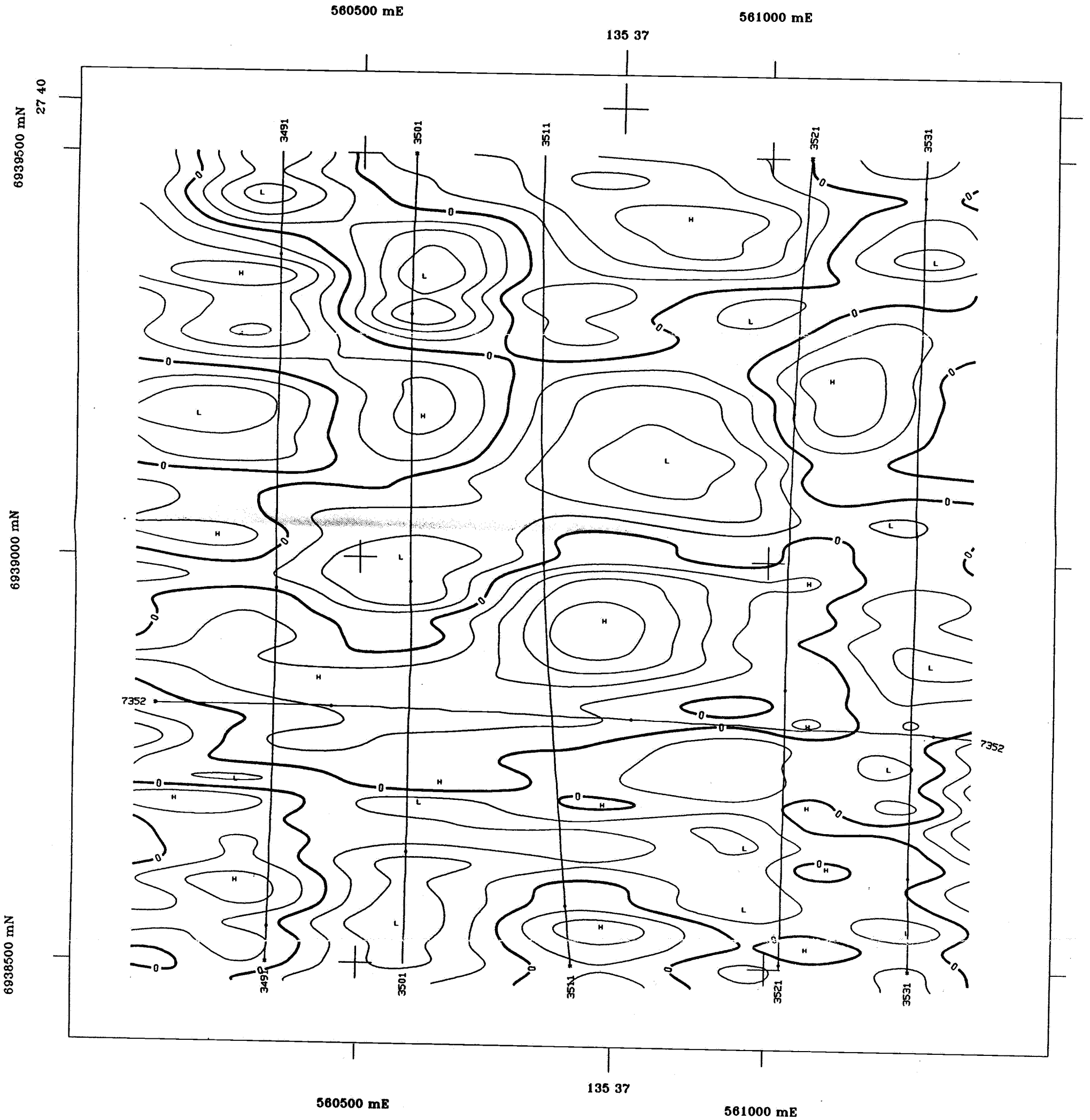
HIGH–PASS FILTERED MAGNETIC INTENSITY

Contour Interval 0.1 nT

Scale: 1:5 000

ALLANDALE EL 192
ANOMALY K1
FIGURE 17

ANOMALY K3



AEROMAGNETIC CONTOUR MAP

HIGH–PASS FILTERED MAGNETIC INTENSITY

Contour Interval 0.1 nT

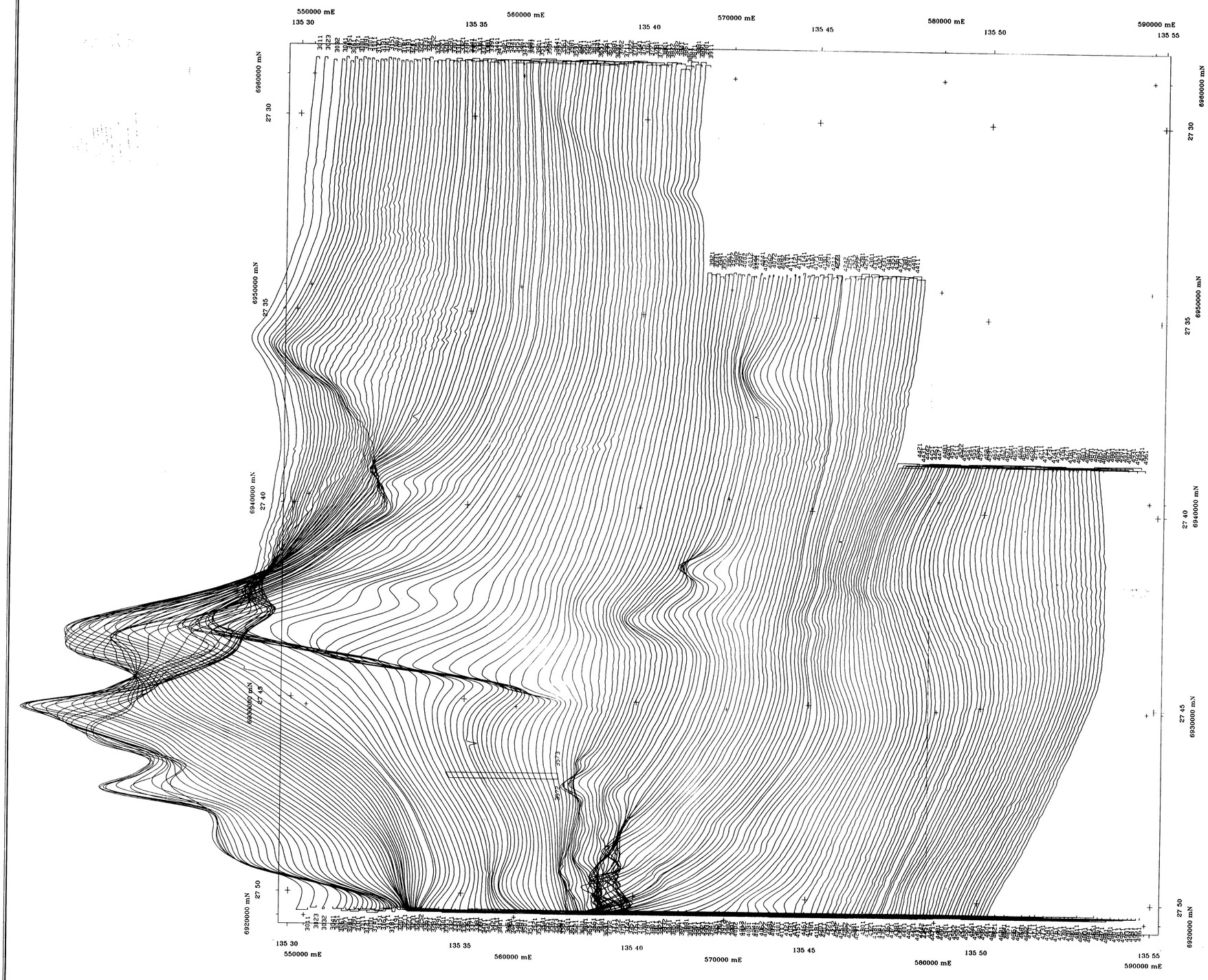
Scale: 1:5 000

ALLANDALE
EL 1924
ANOMALY K3
FIGURE 10

Sapphire Mines

AREA E3 Extension

SAEI 1993-94



DATA ACQUISITION CONTRACTOR
Geoterrex Pty Ltd

7-9 George Place, Artarmon, NSW 2064
Phone: 02 418 8077 ... Fax: 02 418 8581

SURVEY FLOWN	6-14th May 1994
FLIGHT LINE SPACING	TRAVERSE LINES: 200 metres TIE LINES: 2000 metres BASIS: Traverse and tie lines flown along fixed AMG Northings and Eastings.
FLIGHT LINE DIRECTION	TRAVERSE LINES: along Grid NS TIE LINES: along Grid EW
SURVEY HEIGHT	MEAN TERRAIN CLEARANCE: 80 metres
NAVIGATION	Real-time differential GPS
AIRCRAFT	Rockwell Shrike Commander AC500S VH-EXE
MAGNETOMETER	Scintrex split beam Cesium V201 RESOLUTION: 0.001 nanoTeslas CYCLE RATE: 0.1 secs INSTALLATION: Tail stinger
PASSIVE COMPENSATION	Applied. Noise envelope of raw magnetic data 0.2 nT
ACTIVE COMPENSATION	RMS AADC11. Real time compensation. Bandwidth DC to 0.9 Hz. Effective noise envelope mostly less than 0.05 nT. NS,SN,EW,WE: noise envelope difference 25 percent maximum. Output sample rate 0.1 secs (approx 7m along ground).
GAMMA SPECTROMETER	TYPE: Geometrics GR820 256 channel ADC CHANNELS: 256 recorded on tape SAMPLE RATE: 1 second CRYSTAL VOL: 33.56 litres SAMPLE INTVL: CRYSTAL VOL: SPECTRAL WINDOWS:

	Channels From	Channels To	Energy (MeV) From	Energy (MeV) To
Total Count	34	254	0.40	3.00
Potassium	116	132	1.35	1.57
EQ. Uranium	141	157	1.63	1.89
EQ. Thorium	204	237	2.42	2.82
Cs 137	56	56	0.66	0.66
Cosmic	255	255	3.00	6.00

ACQUISITION MANAGEMENT: Chris J.M. Nind, Martin N. Schneider

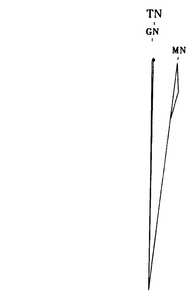
DATA PROCESSING CONTRACTOR
Pitt Research Pty Limited

Image processing, microlevelling and mapping by Pitt Research.
9 Divett Street, Port Adelaide, SA 5015
Phone: 08 341 0025 ... Fax: 08 341 0047

MAGNETIC DATA PROCESSING	The magnetic data have been corrected for regional gradient by subtraction of I.G.R.F. model 1985 and secular variation model 1985-1990. Diurnal magnetic variations have been removed. System parallax has been removed. Microlevelling has been applied. Inclination and declination computed continuously over whole area using IGRF model 1990 computed at year 1991.0 INCLINATION for map centre -60.58 deg. DECLINATION for map centre 6.02 deg.
PRESENTATION	Profiles: Tick indicates correct position of baseline. Baseline set to 0 nT.
GRIDDING PARAMETERS	ALGORITHM: bicubic spline MESH SIZE: 25.0 * 25.0 metres
PROCESSING MANAGEMENT	Mark Deuter

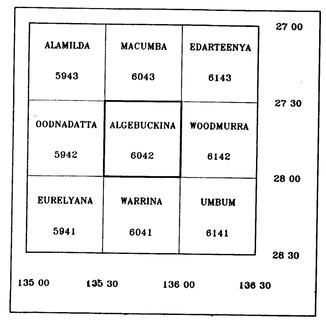
PROJECT SUPERVISION

John Howard
28 Glyde Street Albert Park 5014
Ph (08) 268 5267 Fax (08) 341 8060



True north, grid north and magnetic north are shown for the centre of the Algebuckina 1:100k map sheet. Magnetic north is based on the 1990 model and moves by approx. 0.04 degrees east per year.

Grid convergence ..... -0.35 degrees
Grid/magnetic angle ..... 6.37 degrees
True/magnetic angle ..... 6.02 degrees
Magnetic inclination ..... -60.58 degrees



REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

AEROMAGNETIC PROFILE MAP

TOTAL MAGNETIC INTENSITY

Vertical Scale 50 nT/cm

Scale: 1:100 000

2000 0 2000 4000 6000 8000 10000 Metres

Universal Transverse Mercator Projection
Central meridian: 135 degrees East, AMG Zone 53
Graticules: 5 minutes and 10 kilometres

SAPPHIRE MINES

Area E3 Extension
TMI Profiles

Plan No:

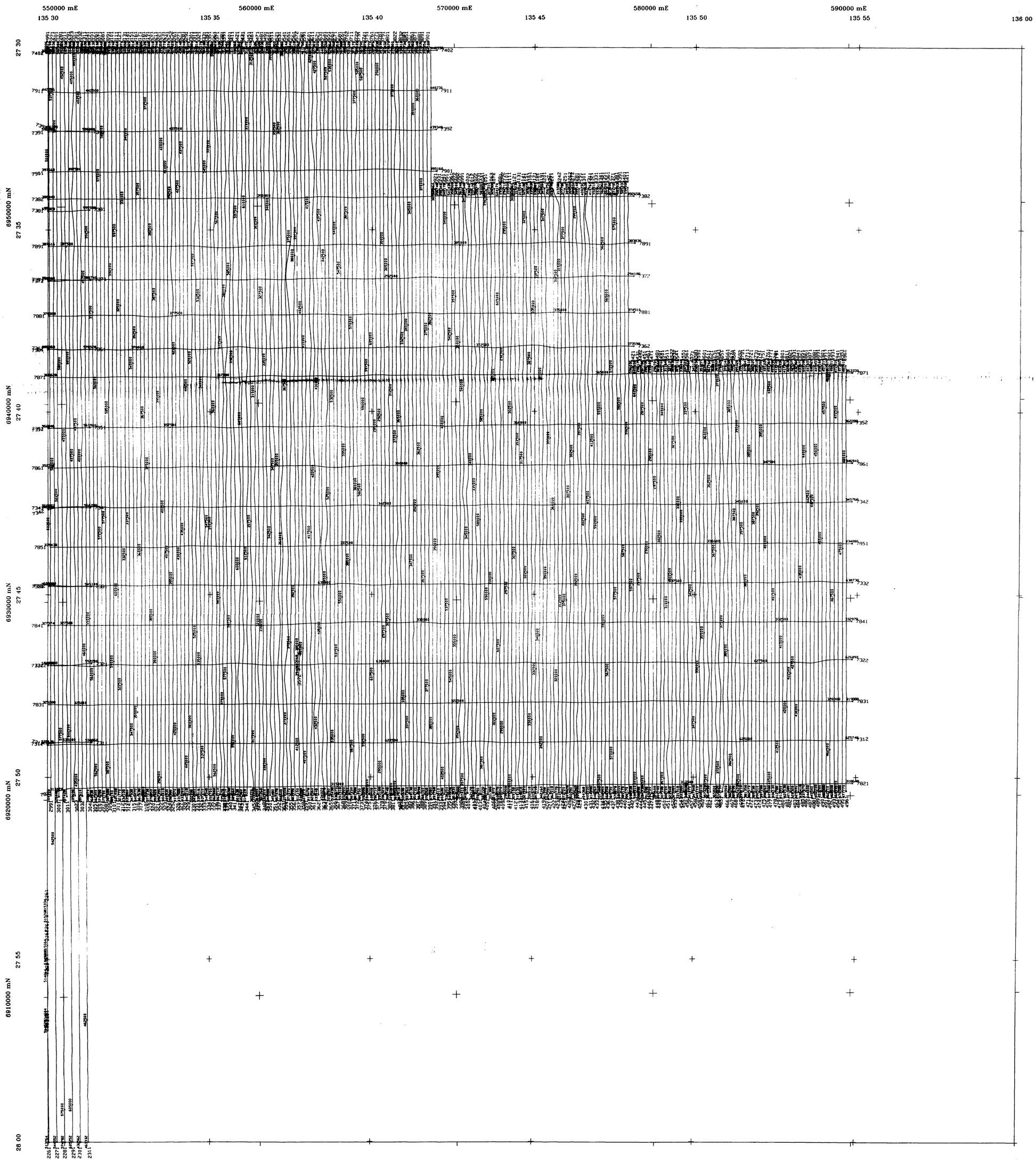
8911-1 FIG.5

1994 Airborne Geophysical Surveys

ALGEBUCKINA 1:100 000

6042

SOUTH AUSTRALIAN EXPLORATION INITIATIVE



DATA ACQUISITION CONTRACTOR
Geoterrex Pty Ltd

7–9 George Place, Artarmon, NSW 2064
Phone: 02 418 8077 ... Fax: 02 418 8581

SURVEY FLOWN	May to June 1994
FLIGHT LINE SPACING	TRAVERSE LINES: 400 metres TIE LINES: 4000 metres BASIS: Traverse and tie lines flown along fixed AMG Northings and Eastings.
FLIGHT LINE DIRECTION	TRAVERSE LINES: along Grid NS TIE LINES: along Grid EW
SURVEY HEIGHT	MEAN TERRAIN CLEARANCE: 80 metres
NAVIGATION	Sercel NDS100 Real–time differential GPS
AIRCRAFT	Rockwell Shrike Commander AC500S VH–EXE
MAGNETOMETER	Scintrex split beam Cesium VIW/H8 RESOLUTION: 0.001 nanoTeslas CYCLE RATE: 0.1 secs INSTALLATION: Tail stinger
PASSIVE COMPENSATION	Applied. Noise envelope of raw magnetic data 0.2 nT
ACTIVE COMPENSATION	RMS AADC11. Real time compensation. Bandwidth DC to 1.5 Hz. Effective noise envelope mostly less than 0.05 nT. NS,SN,EW,WE: noise envelope difference 25 percent maximum. Output sample rate 0.1 secs (approx 7m along ground).
GAMMA SPECTROMETER	TYPE: Geometrics GR820 256 channel ADC CHANNELS: 256 recorded on tape SAMPLE RATE: 1 second SAMPLE INTVL: 70 metres approx along ground CRYSTAL VOL: 33.56 litres SPECTRAL WINDOWS:

	Channels From	Channels To	Energy (MeV) From	Energy (MeV) To
Total Count	34	254	0.40	3.00
Potassium	115	134	1.35	1.57
EQ. Uranium	139	161	1.63	1.89
EQ. Thorium	206	240	2.42	2.81
Cs 137	255		3.07	6.00
Cosmic				

ACQUISITION MANAGEMENT: Chris J.M. Nind, Martin N. Schneider

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Final data processing, microlevelling and mapping by Pitt Research.
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INCLINATION for map centre –60.58 deg.
DECLINATION for map centre 6.02 deg.

GAMMA SPECTROMETRIC DATA PROCESSING: Corrections have been applied for:
. Instrument deadtime
. Cosmic and aircraft background
. Height correction to 80m above ground level
. Stripping to give c/s for K40, Bi214 & Tl208.

The influence of radon has been minimised by the application of long wavelength spatial filtering.

Estimates of radioelement concentration have been made by applying the following sensitivity coefficients:
116.6 c/s percent K, 13.7 c/s ppm U, 6.1 c/s ppm Th.

PRESENTATION: Flight path: • indicates start of line.

GRIDDING PARAMETERS: ALGORITHM: bicubic spline; MESH SIZE: 50 • 50 metres

PROCESSING MANAGEMENT: Mark Deuter, Jon Whellams

True north, grid north and magnetic north are shown diagrammatically for the centre of the map. Magnetic north is based on the 1990 model and moves by approx. 0.04 degrees east per year.

Grid convergence ..... –0.35 degrees
Grid/magnetic angle ..... 6.37 degrees
True/magnetic angle ..... 6.02 degrees
Magnetic inclination ..... –60.58 degrees

TECHNICAL SUPERVISION

Ric M. Horn, MESA, Project Superintendent
Terry N. Crabb, MESA, Chief Geophysicist Minerals
Nick E. Dunston, MESA, Senior Geophysicist
David H. Tucker, Preview Resources Pty Ltd

BIBLIOGRAPHIC REFERENCES

MESA, 1994. Airborne geophysical survey map Algebuckina map sheet (part Area E3). Flight path. (Working Set MESA 94–843). Mines and Energy South Australia.
SAEI Geophysical 1:100 000 Series, sheet 6042.

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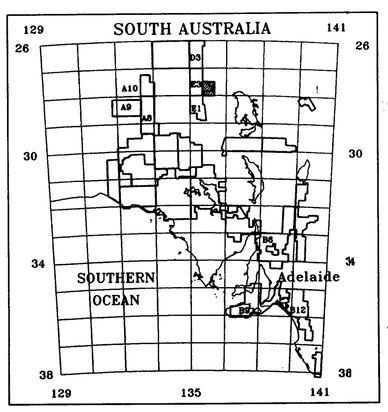


1993–94 SAEI SURVEYS

AIRBORNE GEOPHYSICAL SURVEY MAP – WORKING SET

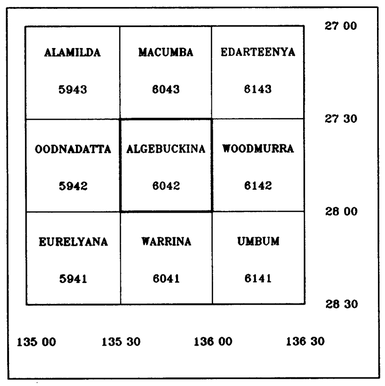
FLIGHT PATH

Scale: 1:100 000

2000 0 2000 4000 6000 8000 10000 Metres

Universal Transverse Mercator Projection
Central meridian: 135 degrees East, AMG Zone 53
Graticules: 5 minutes and 10 kilometres

MINES AND ENERGY
SOUTH AUSTRALIA



REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

Algebuckina 1:100 000 (part Area E3)
GEOPHYSICAL SURVEY FLIGHT PATH MAP

MESA 94–843

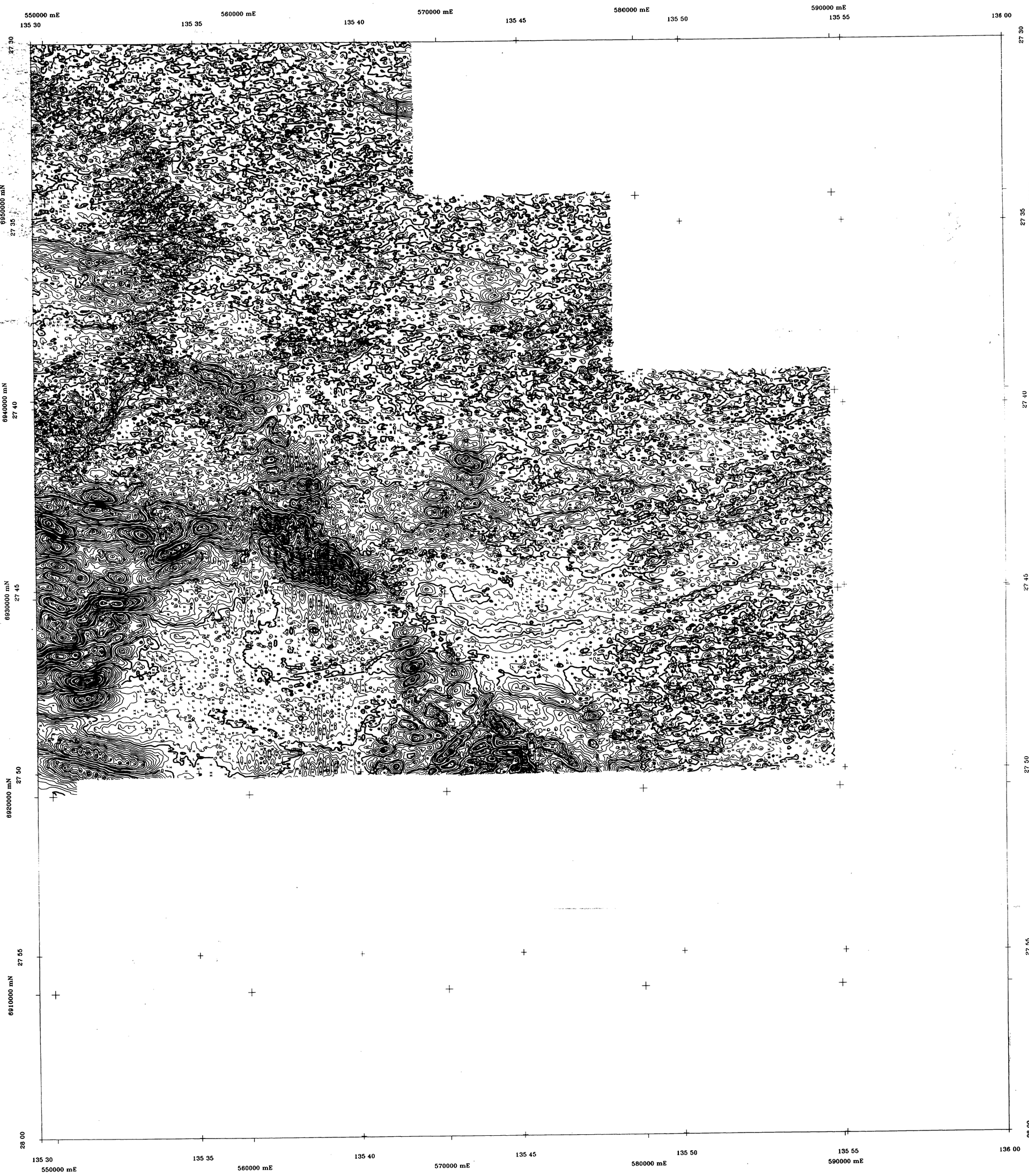
8911-2 FIG. 6

1994 Airborne Geophysical Surveys

ALGEBUCKINA 1:100 000

6042

SOUTH AUSTRALIAN EXPLORATION INITIATIVE



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SURVEY HEIGHT	MEAN TERRAIN CLEARANCE: 80 metres
NAVIGATION	Sercel NDS100 Real–time differential GPS
AIRCRAFT	Rockwell Shrike Commander AC500S VH–EXE
MAGNETOMETER	Scintrex split beam Cesium VIW/H8 RESOLUTION: 0.001 nanoTeslas CYCLE RATE: 0.1 secs INSTALLATION: Tail stinger
PASSIVE COMPENSATION	Applied. Noise envelope of raw magnetic data 0.2 nT
ACTIVE COMPENSATION	RMS AADC11. Real time compensation. Bandwidth DC to 1.5 Hz. Effective noise envelope mostly less than 0.05 nT. NS,SN,EW,WE: noise envelope difference 25 percent maximum. Output sample rate 0.1 secs (approx 7m along ground).
GAMMA SPECTROMETER	TYPE: Geometrics GR320 256 channel ADC CHANNELS: 256 recorded on tape SAMPLE RATE: 1 second SAMPLE INTVL: 70 metres approx along ground CRYSTAL VOL: 33.56 litres SPECTRAL WINDOWS:

	Channels From	Channels To	Energy (MeV) From	Energy (MeV) To
Total Count	34	254	0.40	3.00
Potassium	115	134	1.35	1.57
EQ. Uranium	139	161	1.63	1.89
EQ. Thorium	206	240	2.42	2.81
Cs 137	255		3.01	6.00
Cosmic				

ACQUISITION MANAGEMENT: Chris J.M. Nind, Martin N. Schneider

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Pitt Research Pty Limited

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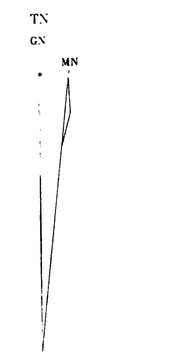
GAMMA SPECTROMETRIC DATA PROCESSING	Corrections have been applied for: . Instrument deadtime . Cosmic and aircraft background . Height correction to 80m above ground level . Stripping to give c/s for K40, Bi214 & Tl208. The influence of radon has been minimised by the application of long wavelength spatial filtering. Estimates of radioelement concentration have been made by applying the following sensitivity coefficients: 116.6 c/s percent K, 13.7 c/s ppm U, 6.1 c/s ppm Th.
PRESENTATION	Contour interval: 1, 10, 100 Contour units: nanoTeslas per 100m (nT/100m)
GRIDDING PARAMETERS	ALGORITHM: bicubic spline MESH SIZE: 50 • 50 metres
PROCESSING MANAGEMENT	Mark Deuter, Jon Whellams

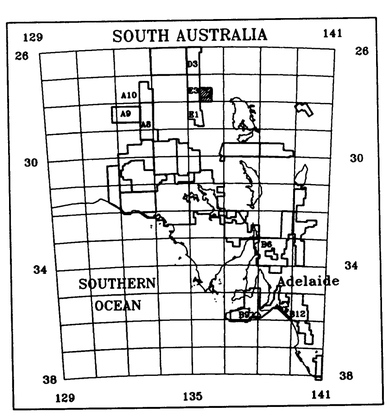


True north, grid north and magnetic north are shown diagrammatically for the centre of the map. Magnetic north is based on the 1990 model and moves by approx. 0.04 degrees east per year.

Grid convergence ..... –0.35 degrees
Grid/magnetic angle ..... 6.37 degrees
True/magnetic angle ..... 6.02 degrees
Magnetic inclination ..... –60.58 degrees

BIBLIOGRAPHIC REFERENCES

MESA, 1994. Aeromagnetic contour map Algebuckina map sheet (part Area E3). First vertical derivative of TMI. 1:100 000 series, sheet 6042.



1993–94 SAEI SURVEYS

AEROMAGNETIC CONTOUR MAP – WORKING SET

FIRST VERTICAL DERIVATIVE OF TMI

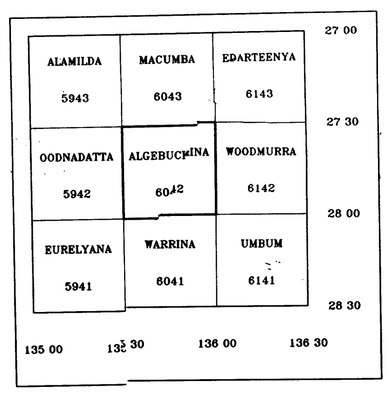
Contour Interval 1 nT/100m

Scale: 1:100 000

2000 0 2000 4000 6000 8000 10000 Metres

Universal Transverse Mercator Projection
Central meridian: 135 degrees East, AMG Zone 53
Graticules: 5 minutes and 10 kilometres

MINES AND ENERGY
SOUTH AUSTRALIA



REFERENCE TO AUSTRALIA 1:100 000 STANDARD MAP SERIES

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Data used with the permission of Mines and Energy SA.

Algebuckina 1:100 000 (part Area E3)
FIRST VERTICAL DERIVATIVE CONTOUR MAP

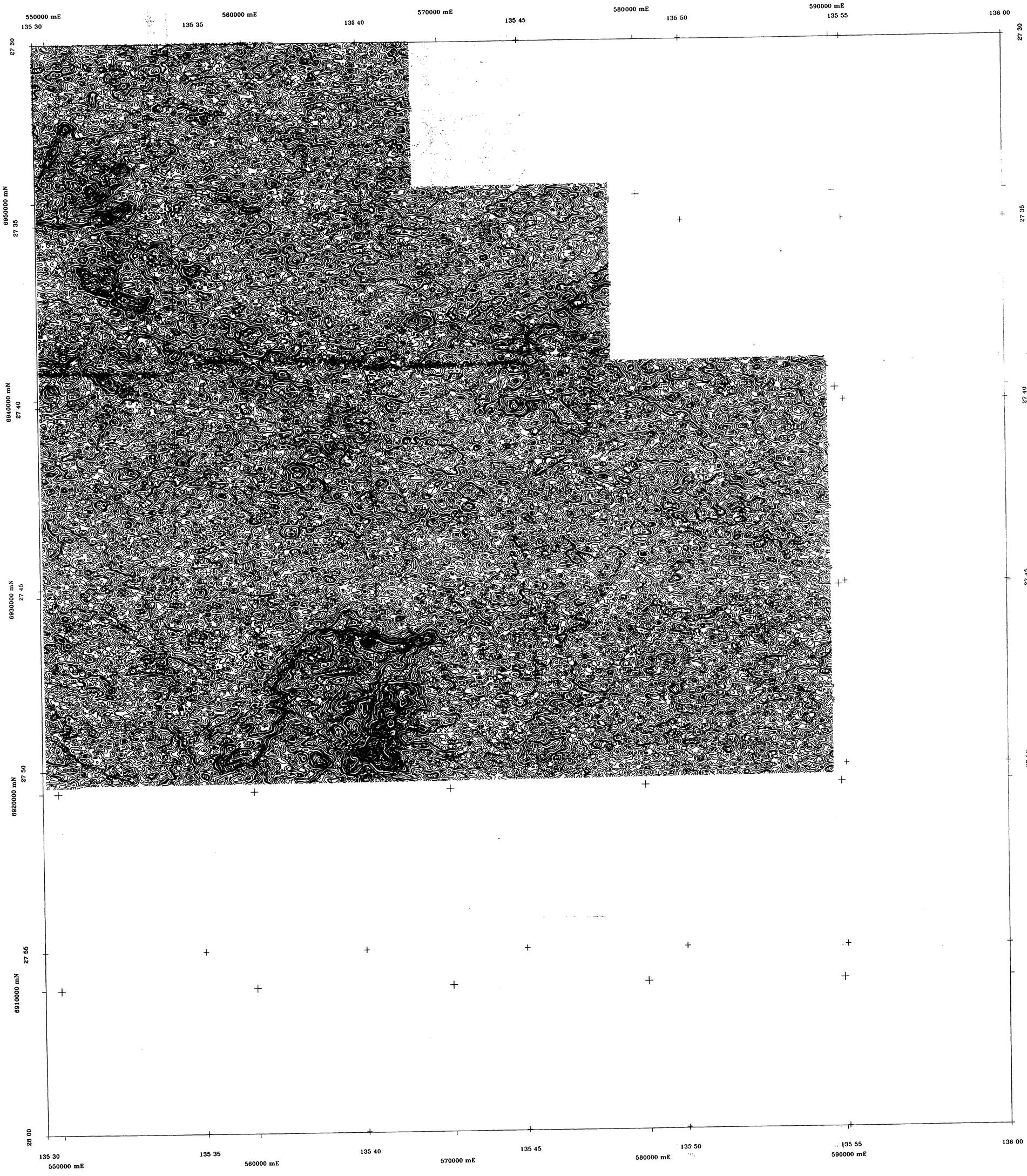
8911-3 FIG. 7

1994 Airborne Geophysical Surveys

ALGEBUCKINA 1:100 000

6042

SOUTH AUSTRALIAN EXPLORATION INITIATIVE



DATA ACQUISITION CONTRACTOR
Geoterrex Pty Ltd

7–9 George Place, Artarmon, NSW 2064
Phone: 02 418 8077 ... Fax: 02 418 8581

SURVEY FLOWN	May to June 1994
FLIGHT LINE SPACING	TRAVERSE LINES: 400 metres TIE LINES: 4000 metres BASIS: Traverse and tie lines flown along fixed AMG Northings and Eastings.
FLIGHT LINE DIRECTION	TRAVERSE LINES: along Grid NS TIE LINES: along Grid EW
SURVEY HEIGHT	MEAN TERRAIN CLEARANCE: 80 metres
NAVIGATION	Sercel NDS100 Real-time differential GPS
AIRCRAFT	Rockwell Shrike Commander AC500S VH-EXE
MAGNETOMETER	Scintrex split beam Cesium VIW/H8 RESOLUTION: 0.001 nanoTeslas CYCLE RATE: 0.1 secs INSTALLATION: Tail stinger
PASSIVE COMPENSATION	Applied. Noise envelope of raw magnetic data 0.2 nT
ACTIVE COMPENSATION	RMS AADC1* Real time compensation. Bandwidth DC to 1.5 Hz. Effective noise envelope mostly less than 0.05 nT. NS,SN,EW,WE: noise envelope difference 25 percent maximum. Output sample rate 0.1 secs (approx 7m along ground).
GAMMA SPECTROMETER	TYPE: Geometrics GR820 256 channel ADC CHANNELS: 256 recorded on tape SAMPLE RATE: 1 second SAMPLE INTVL: 70 metres approx along ground CRYSTAL VOL: 33.56 litres SPECTRAL WINDOWS:

	Channels From	Channels To	Energy (MeV) From	Energy (MeV) To
Total Count	34	254	0.40	3.00
Potassium	115	134	1.35	1.57
EQ. Uranium	139	161	1.53	1.99
EQ. Thorium	206	240	2.42	2.81
Cs 137	255		3.01	6.00
Cosmic				

ACQUISITION MANAGEMENT: Chris J.M. Nind, Martin N. Schneider

DATA PROCESSING CONTRACTOR
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Final data processing, microlevelling and mapping by Pitt Research.
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MAGNETIC DATA PROCESSING

The magnetic data have been corrected for regional gradient by subtraction of I.G.R.F. model 1985 and secular variation model 1985–1990. Diurnal magnetic variations have been removed. System parallax has been removed. Microlevelling has been applied. Inclination and declination computed continuously over whole area using IGRF model 1990 computed at year 1991.
INCLINATION for map centre −60.58 deg.
DECLINATION for map centre 6.02 deg.

GAMMA SPECTROMETRIC DATA PROCESSING

Corrections have been applied for:
. Instrument deadtime
. Cosmic and aircraft background
. Height correction to 80m above ground level
. Stripping to give c/s for K40, Bi214 & Tl208.

The influence of radon has been minimised by the application of long wavelength spatial filtering.

Estimates of radioelement concentration have been made by applying the following sensitivity coefficients:
116.6 c/s per percent K, 13.7 c/s ppm U, 6.1 c/s ppm Th.

PRESENTATION

Contour interval: 10, 100, 1000

Contour units: counts/sec

GRIDDING PARAMETERS

ALGORITHM:	bicubic spline
MESH SIZE:	50 * 50 metres
FILTER:	low pass
CUTOFF PERIOD:	500 metres/cycle

PROCESSING MANAGEMENT: Mark Deuter, Jon Whellams

True north, grid north and magnetic north are shown diagrammatically for the centre of the map. Magnetic north is based on the 1990 model and moves by approx. 0.04 degrees east per year.

Grid convergence ..... −0.35 degrees
Grid/magnetic angle ..... 6.37 degrees
True/magnetic angle ..... 6.02 degrees
Magnetic inclination ..... −60.58 degrees

TECHNICAL SUPERVISION

Ric M. Horn, MESA, Project Superintendent
Terry N. Crabb, MESA, Chief Geophysicist Minerals
Nick E. Dunstan, MESA, Senior Geophysicist
David H. Tucker, Preview Resources Pty Ltd

BIBLIOGRAPHIC REFERENCES

MESA, 1994. Airborne gamma spectrometric contour map Algebuckina map sheet (part Area E3). Total count. (Working Set MESA 94–845). Mines and Energy South Australia. SAEI Geophysical 1:100 000 Series, sheet 6042.

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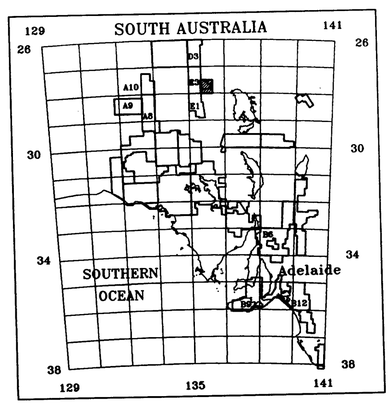
This map is issued under the authority of:
The Hon. D. S. Baker, M.P., Minister for Mines and Energy, and
R. S. H. Fardon, Director–General, Mines and Energy South Australia.



1993–94 SAEI SURVEYS

AIRBORNE GAMMA SPECTROMETRIC CONTOUR MAP – WORKING SET

TOTAL COUNT

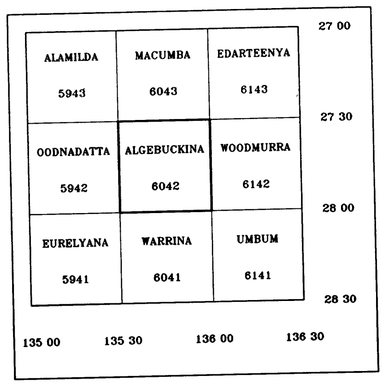
Contour Interval 10 counts/sec

Scale: 1:100 000

2000 0 2000 4000 6000 8000 10000 Metres

Universal Transverse Mercator Projection
Central meridian: 135 degrees East, AMG Zone 53
Graticules: 5 minutes and 10 kilometres

MINES AND ENERGY
SOUTH AUSTRALIA



REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

Algebuckina 1:100 000 (part Area E3)
TOTAL COUNT CONTOUR MAP

MESA 94–845

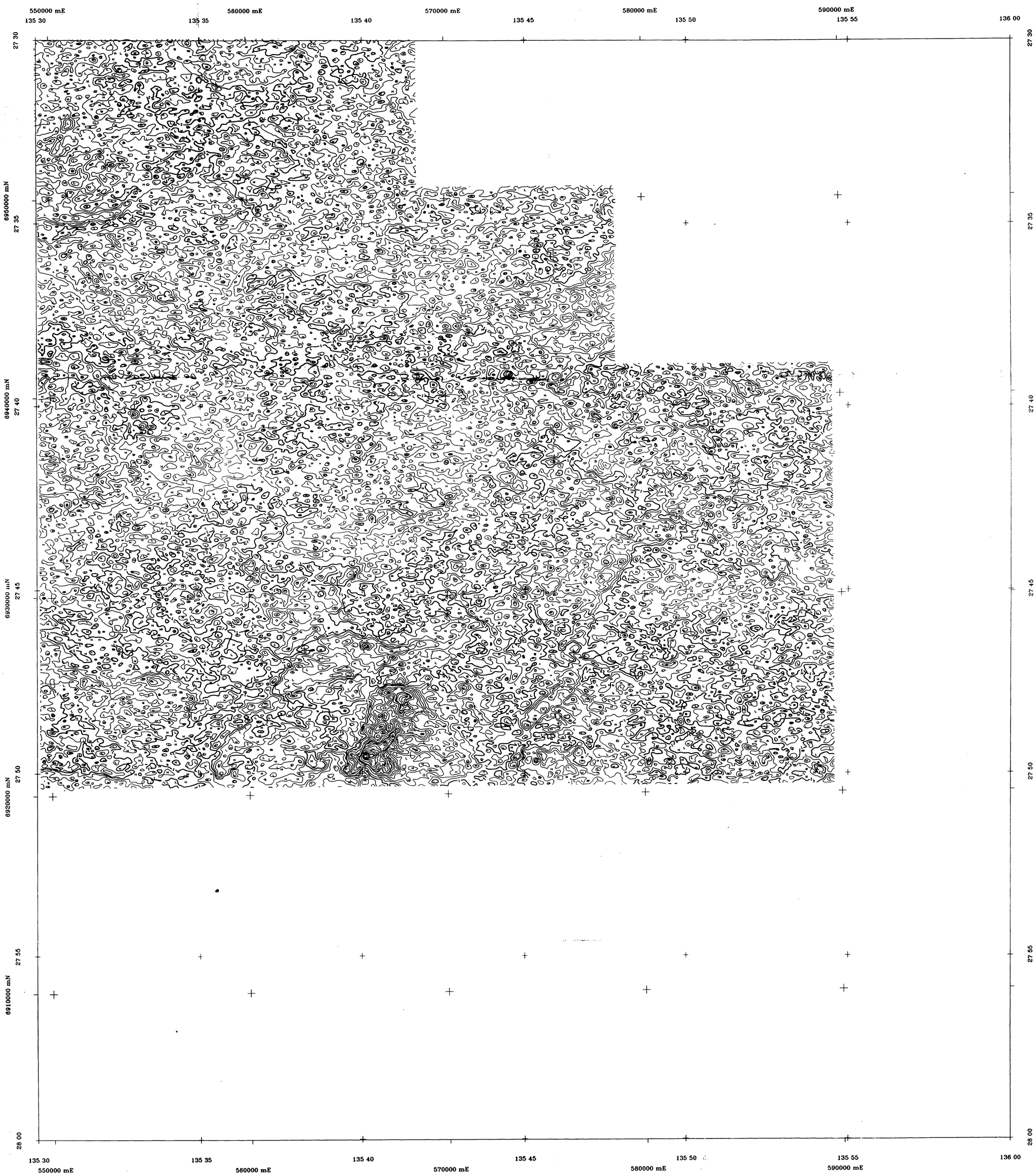
8911-4 FIG. 8

1994 Airborne Geophysical Surveys

ALGEBUCKINA 1:100 000

6042

SOUTH AUSTRALIAN EXPLORATION INITIATIVE



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NAVIGATION	Sercel NDS100 Real-time differential GPS
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MAGNETOMETER	Scintrex split beam Cesium VIW/H8 RESOLUTION: 0.001 nanoTeslas CYCLE RATE: 0.1 secs INSTALLATION: Tail stinger
PASSIVE COMPENSATION	Applied. Noise envelope of raw magnetic data 0.2 nT
ACTIVE COMPENSATION	RMS AADC11. Real time compensation. Bandwidth DC to 1.5 Hz Effective noise envelope mostly less than 0.05 nT: NS,SN,EW,WE: noise envelope difference 25 percent maximum. Output sample rate 0.1 secs (approx 7m along ground).

GAMMA SPECTROMETER

TYPE:	Geometrics GR820 256 channel ADC
CHANNELS:	256 recorded on tape
SAMPLE RATE:	1 second
SAMPLE INTVL:	70 metres approx along ground
CRYSTAL VOL:	33.56 litres

SPECTRAL WINDOWS:

	Channels From	Channels To	Energy (MeV) From	Energy (MeV) To
Total Count	34	254	0.40	3.00
Potassium	115	134	1.35	1.57
EQ. Uranium	139	161	1.63	1.89
EQ. Thorium	206	240	2.42	2.81
Cs 137	255		3.01	6.00
Cosmic				

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Final data processing, microlevelling and mapping by Pitt Research.
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DECLINATION for map centre 6.02 deg.

GAMMA SPECTROMETRIC DATA PROCESSING: Corrections have been applied for:
- Instrument deadtime
- Cosmic and aircraft background
- Height correction to 80m above ground level
- Stripping to give c/s for K40, Bi214 & Tl208.

The influence of radon has been minimised by the application of long wavelength spatial filtering.

Estimates of radioelement concentration have been made by applying the following sensitivity coefficients:
116.5 c/s percent K, 13.7 c/s ppm U, 6.1 c/s ppm Th.

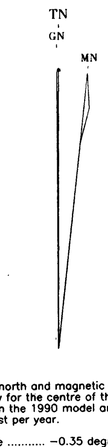
PRESENTATION: Contour interval: 0.1, 1.0, 10.0

Contour units: eq. concentration percent

GRIDDING PARAMETERS

ALGORITHM:	bicubic spline
MESH SIZE:	50 * 50 metres
FILTER:	low pass
CUTOFF PERIOD:	500 metres/cycle

PROCESSING MANAGEMENT: Mark Deuter, Jon Whellams



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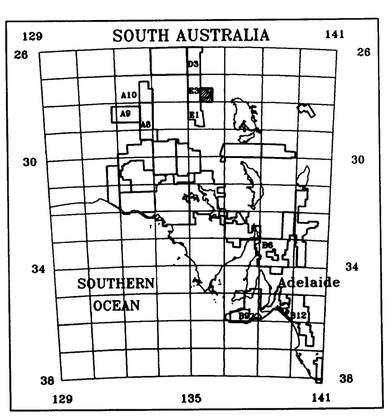
Grid convergence ..... -0.35 degrees
Grid/magnetic angle ..... 6.37 degrees
True/magnetic angle ..... 6.02 degrees
Magnetic inclination ..... -60.58 degrees

BIBLIOGRAPHIC REFERENCES

MESA, 1994. Airborne gamma spectrometric contour map Algebuckina map sheet (part Area E3). Equivalent potassium concentration percent. 1:100 000 Map Series, sheet 6042.



1993-94 SAEI SURVEYS

AIRBORNE GAMMA SPECTROMETRIC CONTOUR MAP - WORKING SET

EQUIVALENT POTASSIUM CONCENTRATION PERCENT

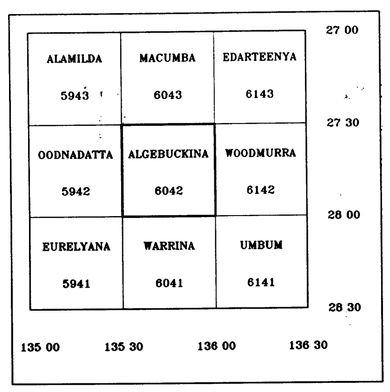
Contour Interval 0.1 percent

Scale: 1:100 000

2000 0 2000 4000 6000 8000 10000 Metres

Universal Transverse Mercator Projection
Central meridian: 135 degrees East, AMG Zone 53
Graticules: 5 minutes and 10 kilometres

MINES AND ENERGY
SOUTH AUSTRALIA



REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

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Data used with the permission of Mines and Energy SA.

Algebuckina 1:100 000 (part Area E3)
EQ. POTASSIUM CONCENTRATION CONTOUR MAP

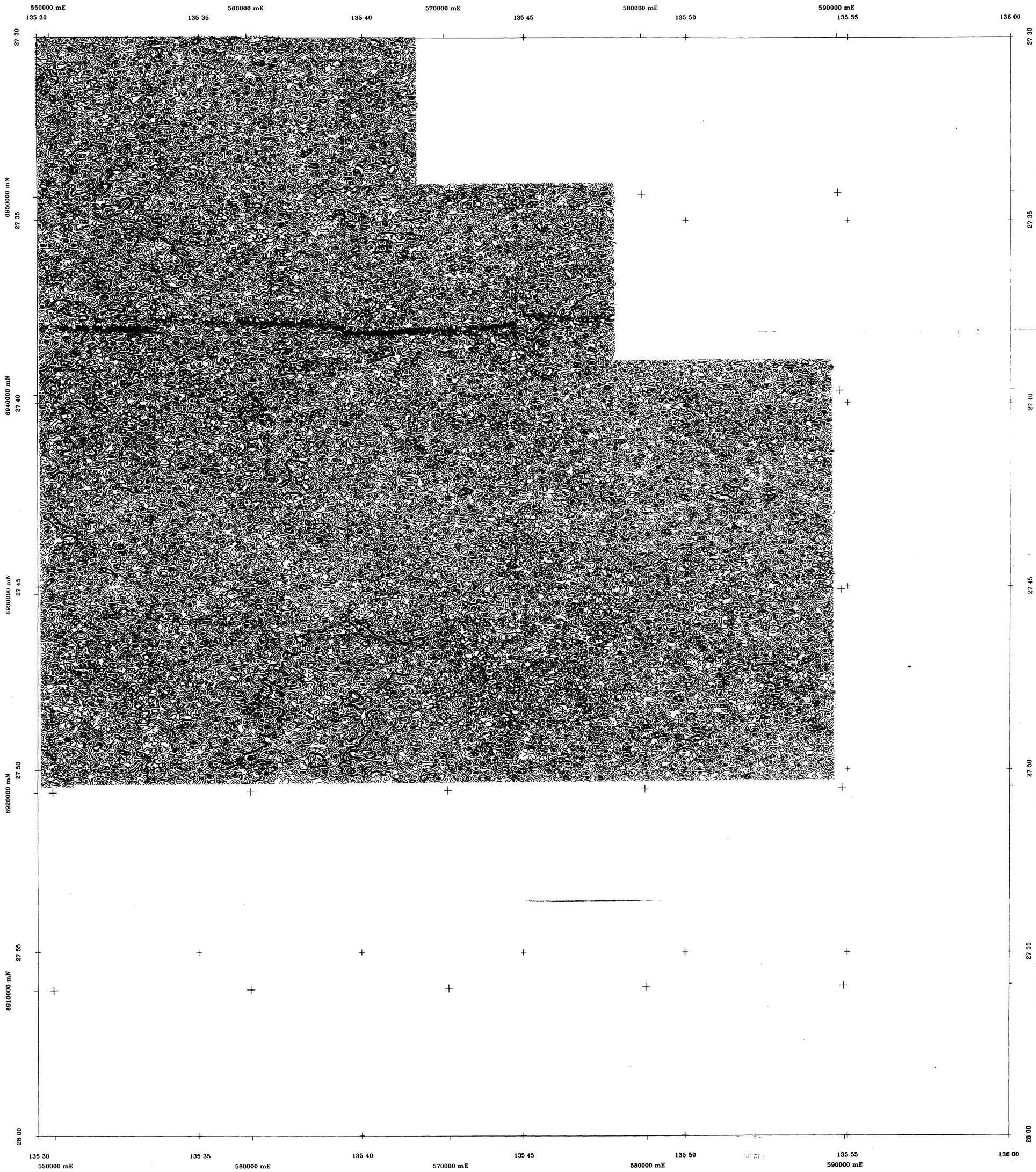
8911-5 FIG.9.

1994 Airborne Geophysical Surveys

ALGEBUCKINA 1:100 000

6042

SOUTH AUSTRALIAN EXPLORATION INITIATIVE



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PASSIVE COMPENSATION	Applied. Noise envelope of raw magnetic data 0.2 nT
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PRESENTATION	Contour interval: 0.2, 2.0, 20.0 Contour units: eq. concentration percent
GRIDDING PARAMETERS	ALGORITHM: bicubic spline MESH SIZE: 50 * 50 metres FILTER: low pass CUTOFF PERIOD: 500 metres/cycle
PROCESSING MANAGEMENT	Mark Deuter, Jon Whellams

True north, grid north and magnetic north are shown diagrammatically for the centre of the map. Magnetic north is based on the 1990 model and moves by approx. 0.04 degrees east per year.

Grid convergence ..... –0.35 degrees
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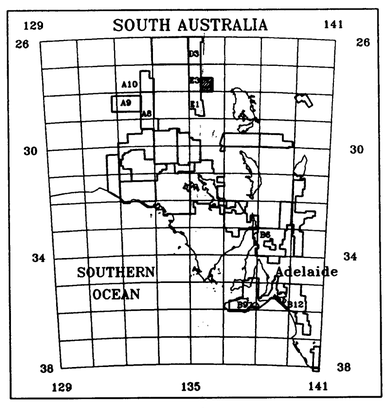
BIBLIOGRAPHIC REFERENCES

MESA, 1994. Airborne gamma spectrometric contour map Algebuckina map sheet (part Area E3). Equivalent thorium concentration ppm. 1:100 000 Map Series, sheet 6042.



1993–94 SAEI SURVEYS

AIRBORNE GAMMA SPECTROMETRIC CONTOUR MAP – WORKING SET

EQUIVALENT THORIUM CONCENTRATION PPM

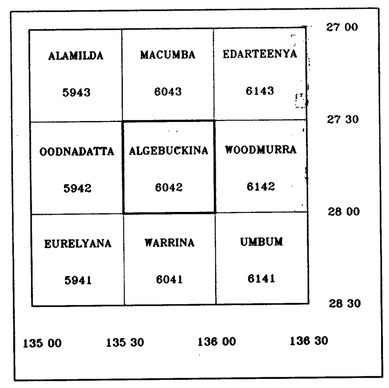
Contour Interval 0.2 ppm

Scale: 1:100 000

2000 0 2000 4000 6000 8000 10000 Metres

Universal Transverse Mercator Projection
Central meridian: 135 degrees East, AMG Zone 53
Graticules: 5 minutes and 10 kilometres

MINES AND ENERGY
SOUTH AUSTRALIA



REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

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Data used with the permission of Mines and Energy SA.

Algebuckina 1:100 000 (part Area E3)
EQ. THORIUM CONCENTRATION CONTOUR MAP

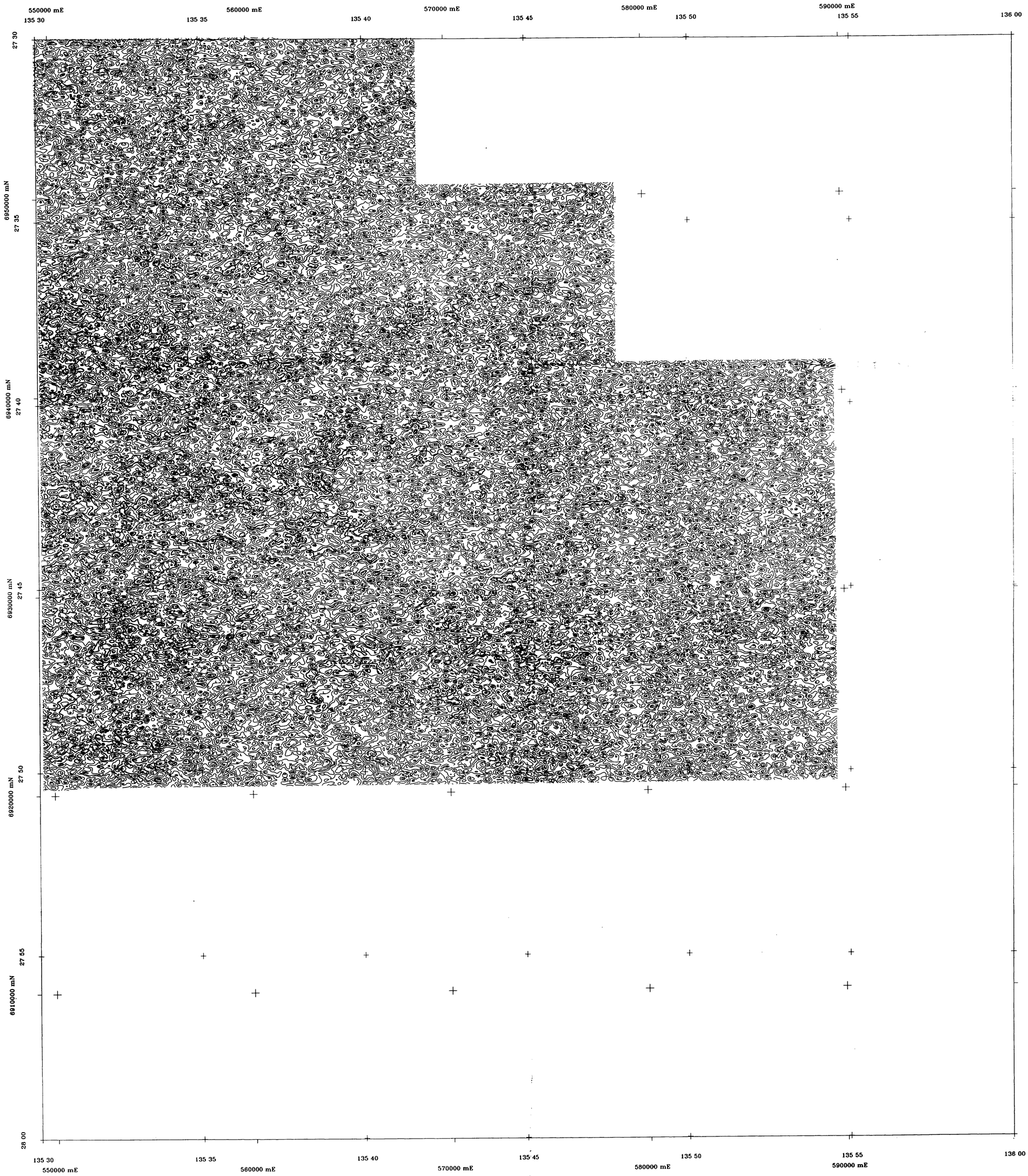
8911-6 FIG 10

1994 Airborne Geophysical Surveys

ALGEBUCKINA 1:100 000

6042

SOUTH AUSTRALIAN EXPLORATION INITIATIVE



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PROCESSING MANAGEMENT	Mark Deuter, Jon Whellams

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Magnetic inclination ..... –60.58 degrees

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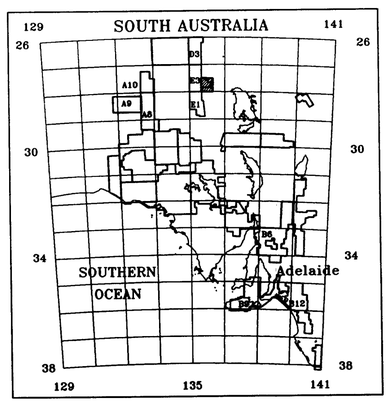


1993–94 SAEI SURVEYS

AIRBORNE GAMMA SPECTROMETRIC CONTOUR MAP – WORKING SET

EQUIVALENT URANIUM CONCENTRATION PPM

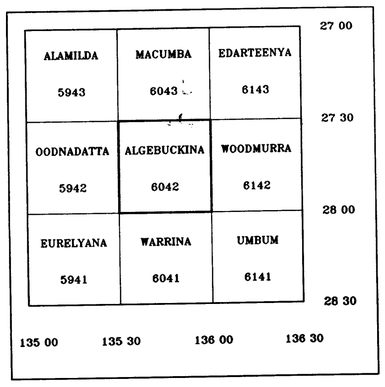
Contour Interval 0.2 ppm

Scale: 1:100 000

2000 0 2000 4000 6000 8000 10000 Metres

Universal Transverse Mercator Projection
Central meridian: 135 degrees East, AMG Zone 53
Graticules: 5 minutes and 10 kilometres

MINES AND ENERGY
SOUTH AUSTRALIA



REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

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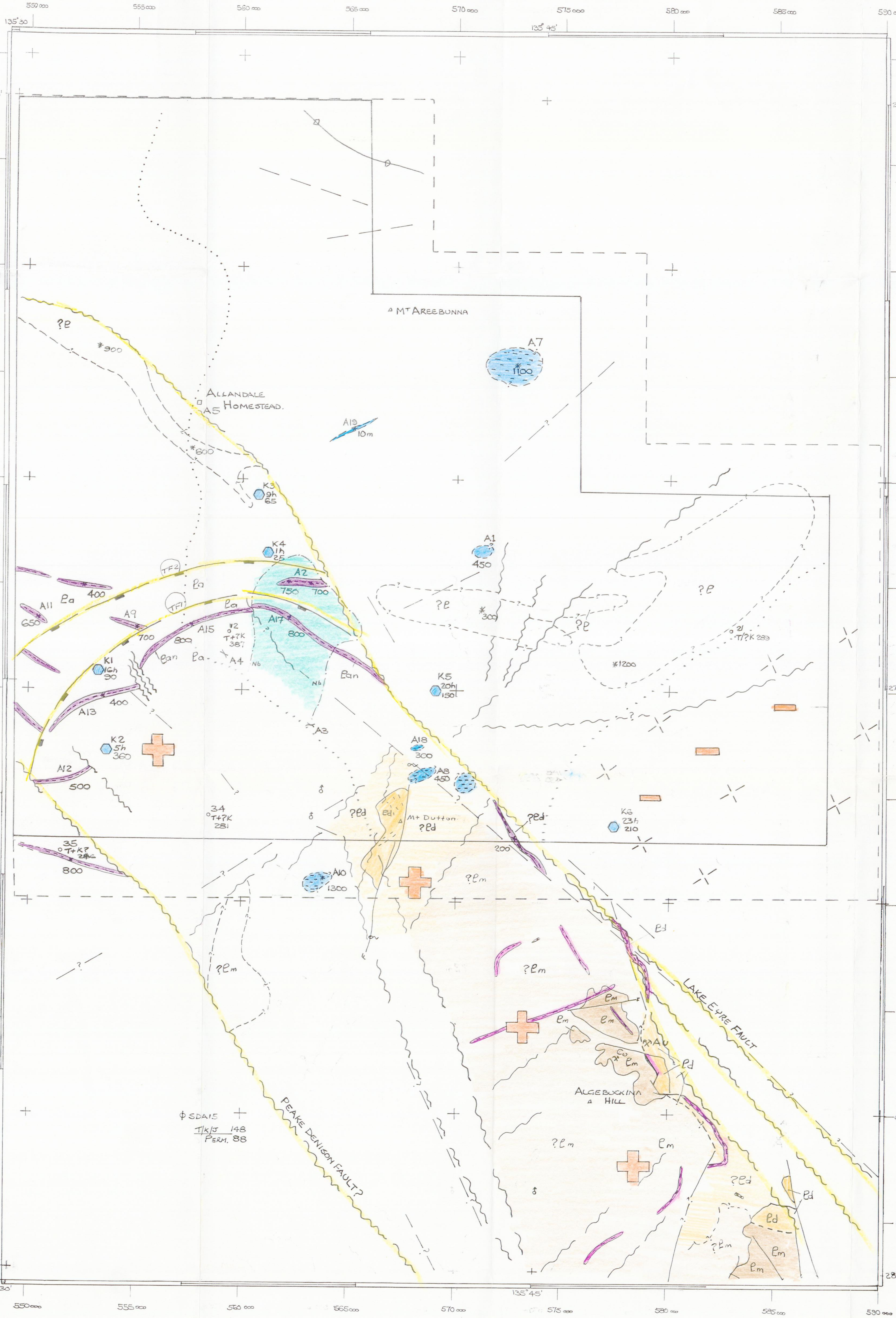
Data used with the permission of Mines and Energy SA.

Algebuckina 1:100 000 (part Area E3)
EQ. URANIUM CONCENTRATION CONTOUR MAP

8911-7

FIG. 11.



Boundary of airborne magnetic & radiometric survey (J V Partners J P Howard, MESA, Sapphire Mines N L)

Geoterrex 1994

MTC 50m

Flight line spacing 200 m NS

Boundary of EL 1924

T=Tertiary
K=Cretaceous
J=Jurassic
P=Permian

GEOLOGICAL INTERP.

Jua — Algebuckina Sandstone; white kaolinitic with basal quartz pebble conglomerate.

Pd — Duff Creek Formation; quartzite & siltstone interbedded with shale & dolomite, ripple marks across beds.

Pa — Allandale units; concealed, interpreted from aeromagnetic survey; includes possible BIF units (Pan) of Palaeoprot. or Mesoproterzoic Age

Pm — Peak Metaphorphics; quartz - mica schist, metaquartzite amphibolite, granite gneiss, pegmatite, aplite.

GEOPHYSICAL INTERP.

Pan — Allandale Unit; narrow zone of magnetic source rocks (within Pd & Pm)

?P — broad zone of magnetic source rocks.

intrusive body

K1 16h 90 — Kimberlite/lamproite target, Anomaly K1 with est. area of 16h at 90m depth

Interpreted fold axis

Interpreted fault

Interpreted thrust fault

Interpreted deep granitoid

Axis of gravity high

Axis of gravity low

Geological boundary from published map

--?-- Inferred geological boundary

*700 Inferred depth to magnetic source

fault from published map

—F fault from published map

Niobium geochemical anomaly

boundary of Stream sediment survey by Techmin EL 750

Iron railway bridge

Cu Copper   Au gold

mineral occurrence

O 21/289 water bore hole with MESA no & H.D & dip

Φ exploration bore hole

Natural spring

2000 0 2000 4000 6000

AUSTRALIAN MAP GRID
WGS 84 SPHEROID
SOUTHERN HEMISPHERE

J.P. HOWARD / SAPPHIRE MINES NL JV

ALLANDALE EL 1924

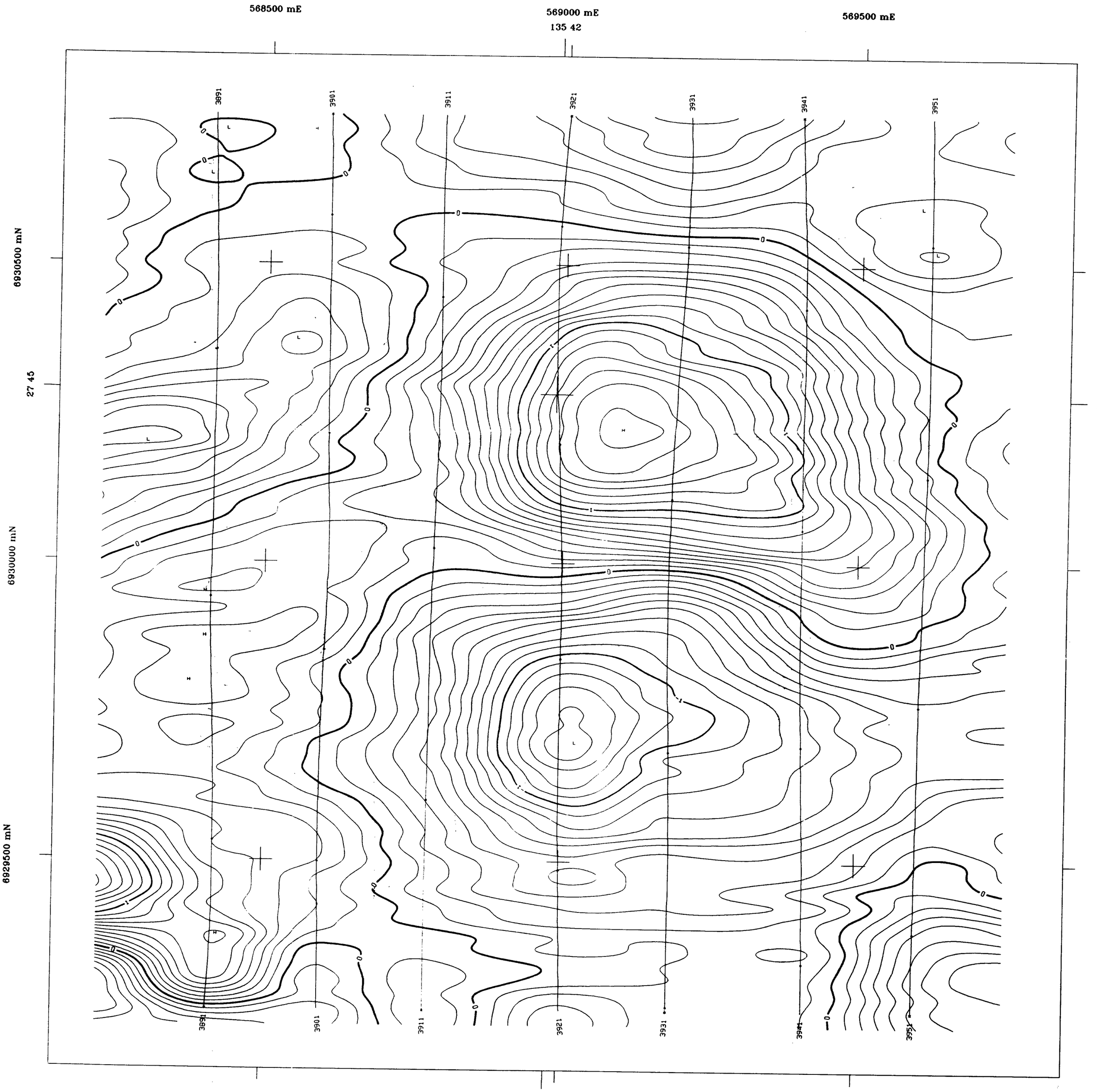
GEOLOGICAL INTERPRETATION

SCALE 1: 100 000	DATE 28·SEPT. 94
DRAWN J.P. HOWARD	PLAN No.

FIG. 12

8911 - 8

ANOMALY K5



8911-9

AEROMAGNETIC CONTOUR MAP

HIGH–PASS FILTERED MAGNETIC INTENSITY

Contour Interval 0.1 nT

Scale: 1:5 000

FIG. 19

APPENDIX 1

LIST OF ELs AND MESA ENVELOPES EXAMINED

LIST OF ELs & MESA ENVELOPES EXAMINED

TITLE	ENVELOPE	COMPANY
SML 329	1241	Occidental
SML 437	1471	Stockholm
EL 108	2388	Shell
EL 743	4031	Carpentaria
EL 750	4041	Techmin/Oilmin
EL 960	3771	Stockdale
EL 1029	4909	BHP
EL 1202	4909	BHP
EL 1221	5629	Getty/Cyprus
EL 1295	6469	Stockdale/Cyprus
EL 1594	5629	Getty/Cyprus
	1495	Pexa

APPENDIX 2

REPORT:"*Interpretation of Airborne Geophysical Data*"

by J.ASHLEY,Sept. 1994

J.P.HOWARD/SAPPHIRE MINES NL JV

ALGEBUCKINA - E3 EXTENSION

ALLANDALE AREA - E

Interpretation of Airborne Geophysical Data

J.ASHLEY

SEPTEMBER 1994

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Figure 3.	Interpretation Map,	scale 1:100000
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Magnetic Models:

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Figure 18.	FL 3131 - K1,	scale 1:10000
Figure 19.	FL 3151 - K2,	"
Figure 20.	FL 3511 - K3,	"
Figure 21.	FL 3531 - K4,	scale 1:2500
Figure 22.	FL 3921 - K5,	scale 1:100000
Figure 23.	FL 4341 - K6,	"

SUMMARY

An interpretation of aeromagnetic data, supplemented by gravity data, over EL 750 (Allandale, SA) has been made, primarily, to outline targets for diamond exploration.

It is inferred, from the data, that the tenement is partly over a basement ridge extending north-northwest from the Peake-Denison Ranges. Modelling of the gravity data tends to confirm this inference.

There are several obvious magnetic features which indicate discrete intrusive magnetic source rocks. These are, however, at depths too great to economically evaluate as diamond targets.

Several, low amplitude, subtle magnetic features have been assessed as possible diamond targets. Three of these are at relatively shallow depths and warrant investigation by drilling.

The 'basement ridge' has potential to host mineralisation of the Roxby Downs type. One locality is suggested as a drill target to determine the nature of source rocks.

1. INTRODUCTION

Airborne geophysical data (magnetic and radiometric) and regional gravity data over EL 750 have been interpreted to assist in exploration for diamonds and for base metal mineralisation.

The airborne geophysical survey was carried out as part of the SA Exploration Initiative (Area E3 extension). Data were acquired by Geoterrex Pty Ltd at height of 80m on north-south flight lines spaced 200m apart. Data processing was done by Pitt Research Pty Ltd in Adelaide, SA.

The following data were made available for interpretation:

Aeromagnetic Data:

1:100000 scale:
- TMI contour map
- TMI profile map
- 1st vertical derivative map

Image maps:
- Colour TMI + relief shading
- Grey scaled maximum magnetic gradient
- Grey scaled 1st vertical derivative
- Grey scaled 2nd vertical derivative

1:25000 scale:
- TMI contour maps (6 sheets)

Radiometric Data:

1:100000 scale:
- Total count contour map
- Equivalent uranium contour map
- Equivalent thorium contour map
- Equivalent potassium contour map

Image maps:
- Total count + relief shading

Potassium/uranium/thorium RGB 3 colour composite

Other Data:

1:100000 scale: Flight Path map

Bouguer gravity contour map

Gravity station postings

Open file aeromagnetic map(BHP)

Geological map

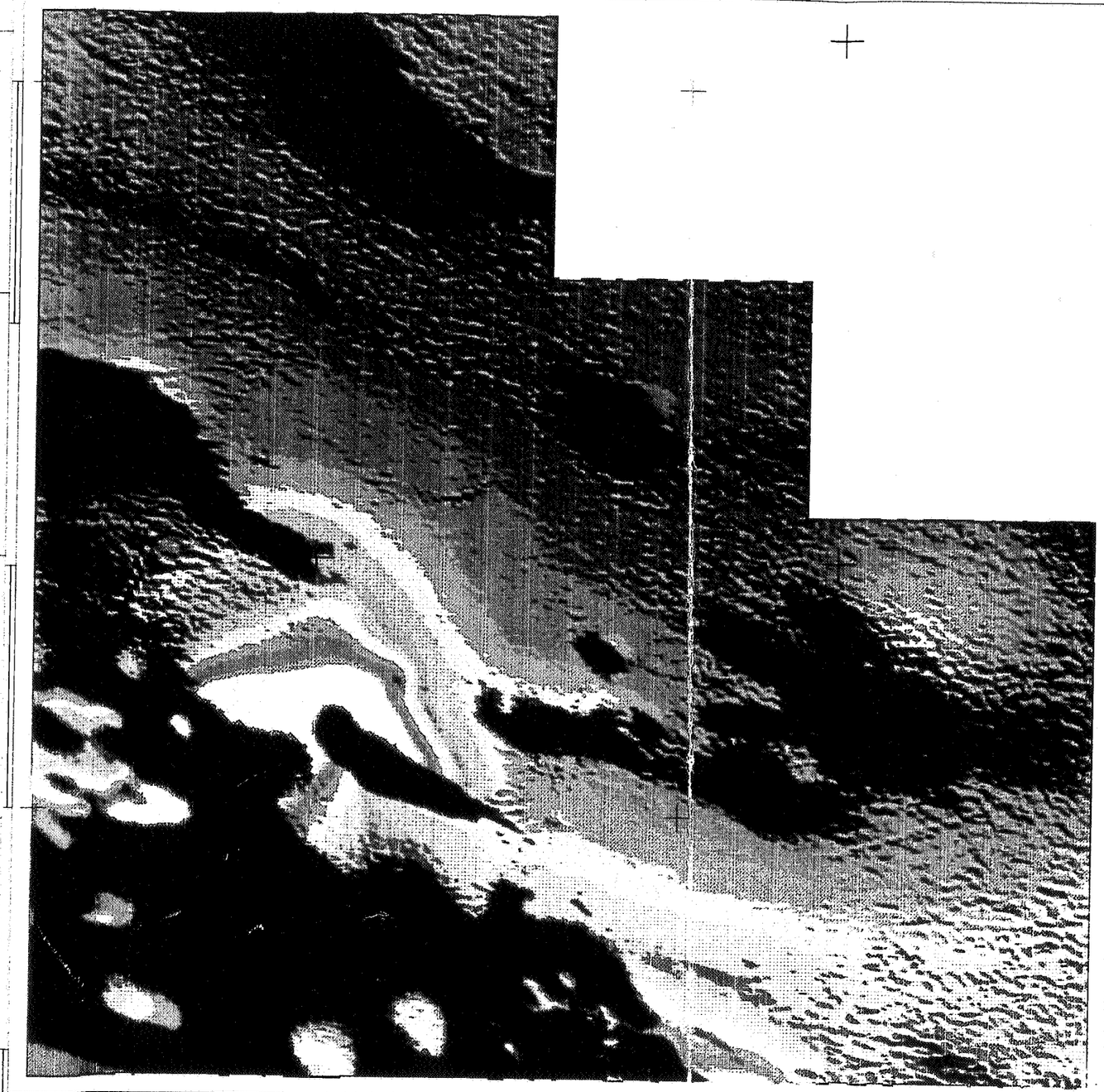
Locality map

Digital Data (magnetic/radiometric)

Report by J P Howard "Invitation to explore the Allandale Area for Diamonds"

Digital magnetic data have been used for modelling and for real-time image processing.

Interpretation of the data is presented in Figure 3 at scale 1:100000.



4000 0 4000 8000 12000

AUSTRALIAN MAP GRID
WGS84 SPHEROID
SOUTHERN HEMISPHERE

SOUTHERN GEOSCIENCE CONSULTANTS

J. P. HOWARD/SAPPHIRE MINES NL JV

ALGEBUCKINA AREA – E3 EXTENSION

ALLANDALE AREA – EL1924

IMAGE OF AEROMAGNETIC DATA

(TMI 25% + NE AGC FILTER 75%)

SCALE: 1: 200. 000	
DATE: 12-09-1994	FIGURE: 1

0033

2. DISCUSSION

The image of Figure 1 is combination of the total magnetic field which contributes much of the coloured relief (white = high, black = low) and the northeast gradient filter which adds shading and detail.

The southwestern half of the tenement contains a magnetic complex which is dominated by a, disrupted, arcuate high of amplitude ~1000nT centred about 10 km south of Allandale homestead ie the 'A12 - A17' zone of Figure 2A.

On a regional scale this magnetic complex is at the northern end of a north-northwestern trending magnetic/gravity high which encloses the Pre-Cambrian rocks which crop out from Mt Dutton to the Peake-Denison Ranges. These rocks are within a basement ridge between the Adelaide geosyncline to the southwest and the Great Artesian Basin to the northeast. Regional fault structures (Lake Eyre and Peake-Denison) flank the ridge to the northeast and southwest.

The gravity anomaly south of Mt Dutton is about 10mgal higher than that over the Allandale area. Modelling of the gravity data (Figures 5A, 5B) along section AA' (Figure 4) show that this amplitude difference is due to Mesozoic cover rocks (density assumed to be ~2.2 t/m^3) of thickness ~500m in the Allandale area relative to zero thickness south of Mt Dutton. The modelling also indicates a gentle slope to the southwest margin of the ridge and a steep slope to the northeast margin. The latter may be a local feature related to a basement granitoid (gravity low, Figure 3); in the Allandale area both contacts may be to shallow dipping.

Within the Allandale area the magnetic complex has been modelled to indicate a range of possible distributions of the magnetic rocks. This has been done on flight lines 3351 and 3581 ie through the anomalies A15 and A17 in the central part of the complex. Results for these sections are shown in Figures 6A - E at scale 1:100000 and Figures 16A-D at scales 1:25000 and 1:100000. (This modelling has been carried out using the Southern Geoscience Consultants software package SGCMAG which allows modelling of bodies of

complex cross-section, finite strike length and variable magnetisation ie induced plus remanent). Horizontal distances on the modelled sections are relative to the southern ends of the flight lines.

In Figure 6A the simplest solution is presented and this demonstrates that the magnetic complex can be explained by a large mass of magnetic rock at variable depth (ie model 1). In Figure 6B a model is presented whereby the anomaly can be caused by a, grossly, anticlinally folded sequence. In Figure 6C an 'extreme' situation is presented but is included because this is the configuration which brings the rocks closest to surface.
In Figure 6D a solution is presented to indicate that there can be a variety of rock types within a 'deep' basement feature. In Figure 6E it is demonstrated that narrow zones of magnetic rocks, above a grossly magnetic basement, can also explain the data. The model of Figure 6F is similar to that of 6A except that the northern margin is thrust faulted as in the A17 section of Figure 16D. An important feature of the models is that it demonstrates the ambiguity of magnetic data ie the source rocks can be at depths of ~300m (Figure 6C) or to depths of ~1500m (Figure 6D). It is also important to realise that the magnetic rocks are unlikely to be at depth less than ~300m.

In Figure 3 the northern margin of the basement ridge is inferred to be thrust faulted (TF1,TF2). These thrust faults are flanked by the inferred northwest faults F1 (the Lake Eyre fault?) and F2 (the Peake-Denison fault?).There is some support for faults TF1 and TF2 from disparate magnetic trends. Depths shown on Figure 3 are for narrow zones of source rocks; southeast of TF1 source rocks may be shallower ie 400-500m if the thrust model is correct.

Several of the discrete magnetic anomalies or 'highs' which have been annotated by J P Howard (Figure 2A) have been modelled.

The anomaly A1 (Figure 7) is outside the major magnetic complex and is modelled as a discrete, south dipping, intrusive body at depth ~400m It has (gross) susceptibility of 0.00175 cgsu which is consistent with a mafic (gabbro?) rock.

Anomaly A2 is on the northeast margin of the main magnetic complex and is modelled (Figure 8) as a steeply dipping intrusive body at depth ~700m.

Anomalies A3 - A5 are shallow source anomalies due to cultural features (bridges, homestead).

Anomaly A7 is a discrete feature in the northeast of the tenement and is modelled (Figure 9) as a large intrusive at depth ~1100m. Source rocks are likely to be mafic or ultramafic in composition.

Anomalies A8 and A18 are in the southeast and are separate from the main complex. They are modelled as discrete bodies at depths of ~450m and 300m. Modelled (gross) susceptibilities indicate mafic/ultramafic source rocks.

Anomaly A9 is on the west margin of the main complex. It can be modelled (Figure 11) as one of a series of discrete, narrow, zones of magnetic rocks at depths ~700m.

Anomaly A10, on the central south margin of the tenement, is modelled (Figure 12) as a discrete intrusive at depth ~1300m The modelled susceptibility (0.0036 cgsu) is consistent with mafic rocks.

Anomaly A11 is on the west margin of the tenement, peripheral to the main magnetic complex, and is modelled (Figure 13) as a discrete body at depth ~650m. The susceptibility is quite high (0.015 cgsu) and is indicative of serpentinite or iron-formation.

Anomaly A19 is an elongate 'sharp' anomaly 7kms east of Allandale homestead. It can be modelled as a shallow south dipping sequence (Figure 17A) or as a surficial deposit (Figure 17B).

The magnetic data were examined for lower amplitude, more subtle, magnetic features which could indicate discrete intrusive bodies of interest in diamond exploration.

Six anomalies have been selected, mainly, from the contour map of the first vertical derivative of the total field magnetic data. These anomalies are shown as K1 - K6 on Figure 2A and have been modelled (Figures 18 - 23).

The anomalies range in amplitude from 0.3 to 10nT; all can be modelled as discrete intrusives of low magnetic susceptibilities (0.00005 - 0.00059 cgsu) indicative of very low magnetite or ilmenite content. Source depths range from 25 to 360m.

The radiometric data outline an anomaly (TC/K,Figure 3) in total count and potassium over the outcropping Pre-Cambrian rocks in the vicinity of Mt Dutton. No anomalies of exploration interest have been observed.

3. TARGET AREAS

The primary exploration objective is the search for diamonds.

The tenement undoubtedly contains discrete intrusive bodies of rock which could be diamond bearing, particularly in view of the occurrence of indicator minerals to the south along or adjacent to the Peake-Denison fault.

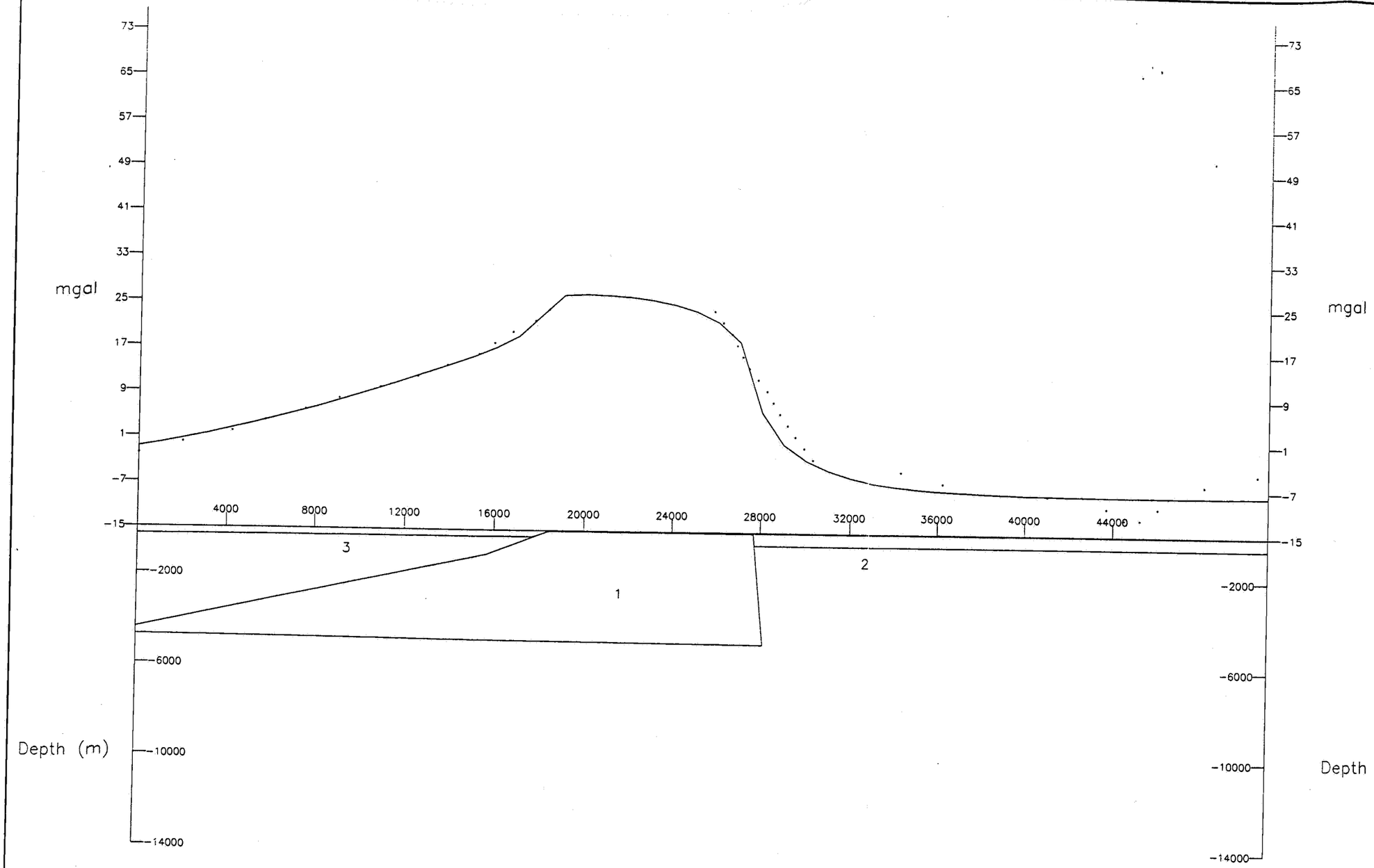
All of the obvious discrete magnetic features (indicative of discrete intrusive bodies) are at considerable depth ie 400 - 800m. One anomaly A19 is at shallow depth but is likely to be due to surficial magnetite/maghemite or to a shallow sill-like body.

The sources of these deep-seated 'intrusive' bodies is conjectural but susceptibility estimates indicate mafic rocks (gabbros?) as likely source rocks. Source depths preclude them as economic diamond targets.

The K1 - K6 anomalies are much more subtle in terms of amplitude but are all prospective since kimberlites/lamproites can have very low magnetic responses.

Modelling shows that K1 (Figure 18), K3 (Figure 20) and perhaps K5 (Figure 22) are at economical depths. All of these are recommended as drill targets particularly as areal extents are substantial (ie several hectares).

The major magnetic complex is considered to have potential to host mineralisation similar to that at Roxby Downs. It is, however, difficult to recommend a specific target for such mineralisation; by analogy the magnetic highs A12, A13, A15 and A17 are potential targets. It is suggested that one of these eg A17 (Figure 16D) be drilled adjacent to the inferred fault TF1 which may be a fluid path and source of the niobium anomaly (Ni,Figure 3). Consideration should be given to making a seismic reflection survey prior to drilling.



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2	2.5D	0	50000	0	2.20
3	2.5D	0	50000	0	2.20

GLOBAL PARAMETERS

BACKGROUND DENSITY : 2.6 g/cc
METER HEIGHT : 1 Metres

FIELD PROFILE : .....

MODEL PROFILE : ———

0 4000 8000

Scale 1:200000

SOUTHERN GEOSCIENCE CONSULTANTS

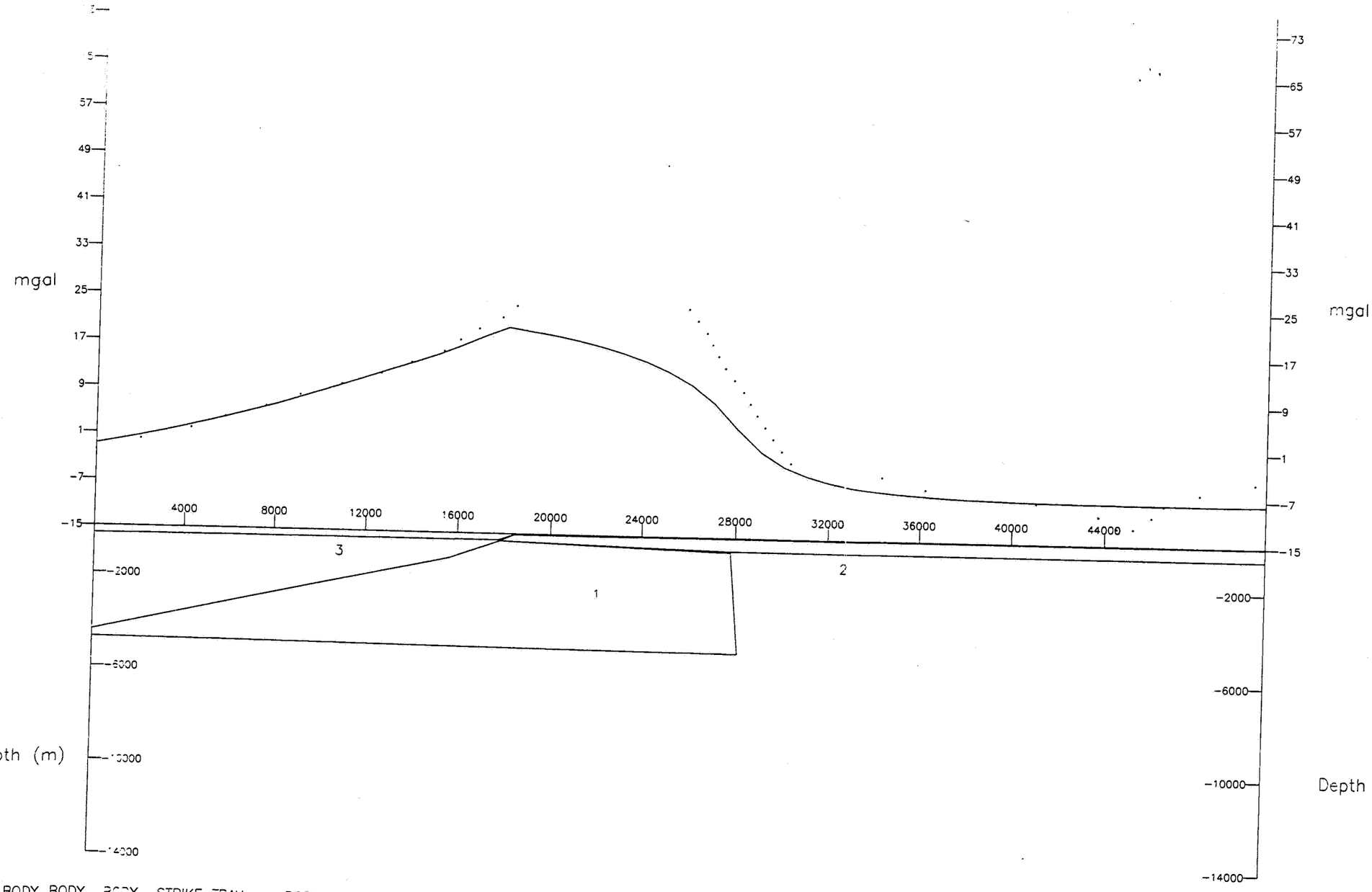
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

GRAVITY MODEL Line AA'

Date : 12-09-1994

Figure : 5A

0024



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3	2.5D	[illegible]	50000	0	2.20

GLOBAL PARAMETERS

BACKGROUND DENSITY : 2.6 g/cc
METER HEIGHT : 1 Metres

FIELD PROFILE : .....
MODEL PROFILE : ———

0 4000 8000

Scale 1:200000

SOUTHERN GEOSCIENCE CONSULTANTS

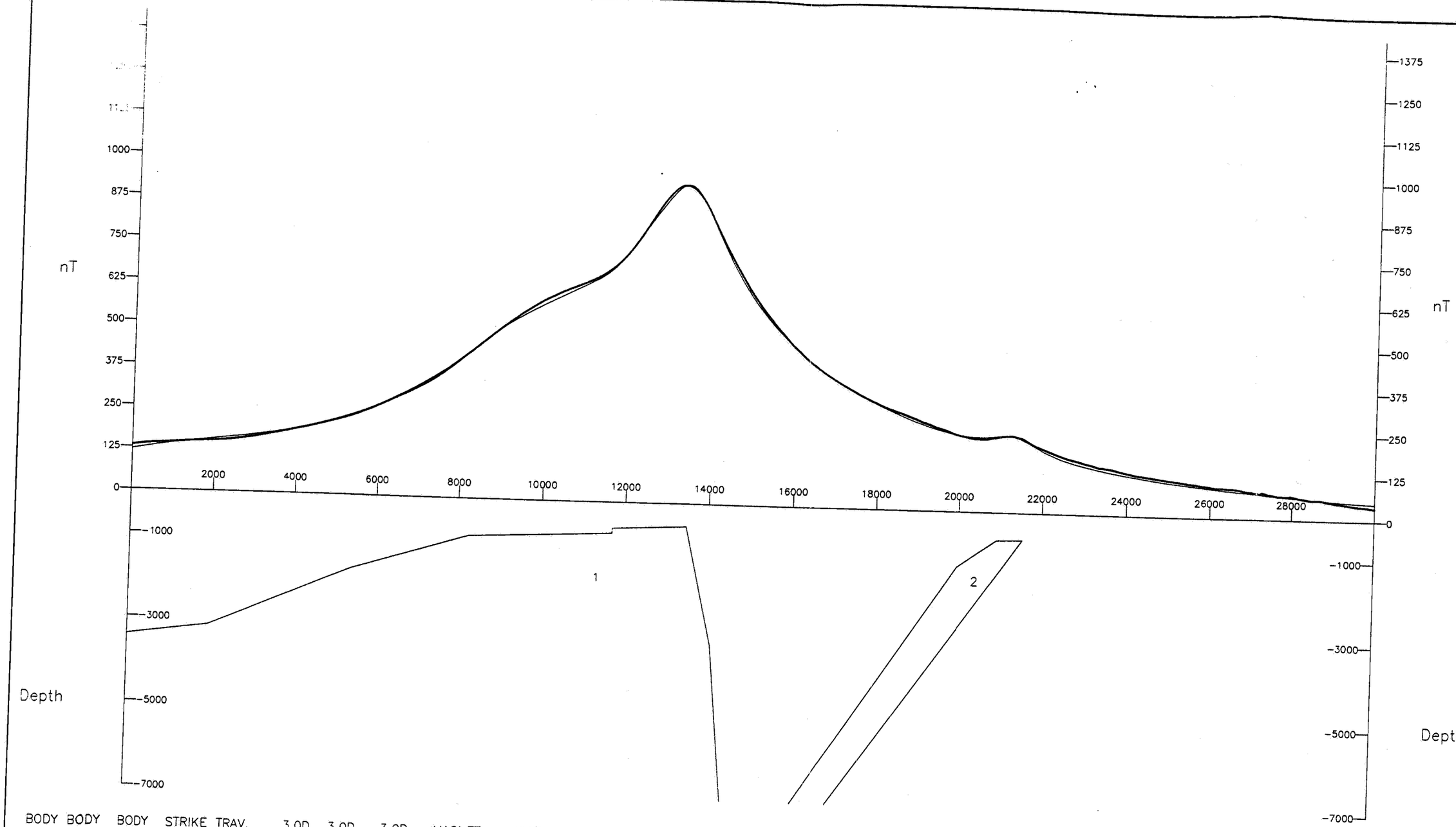
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

GRAVITY MODEL Line AA'

Date : 12-09-1994

Figure : 5B

0043



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1	2.5D	100	30000	9.9				.002343	.002343	.002343	0	0	0	0
2	2.5D	100	500	9.9				.001749	.001749	.001749	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 2000 4000

Scale 1:100000

SOUTHERN GEOSCIENCE CONSULTANTS

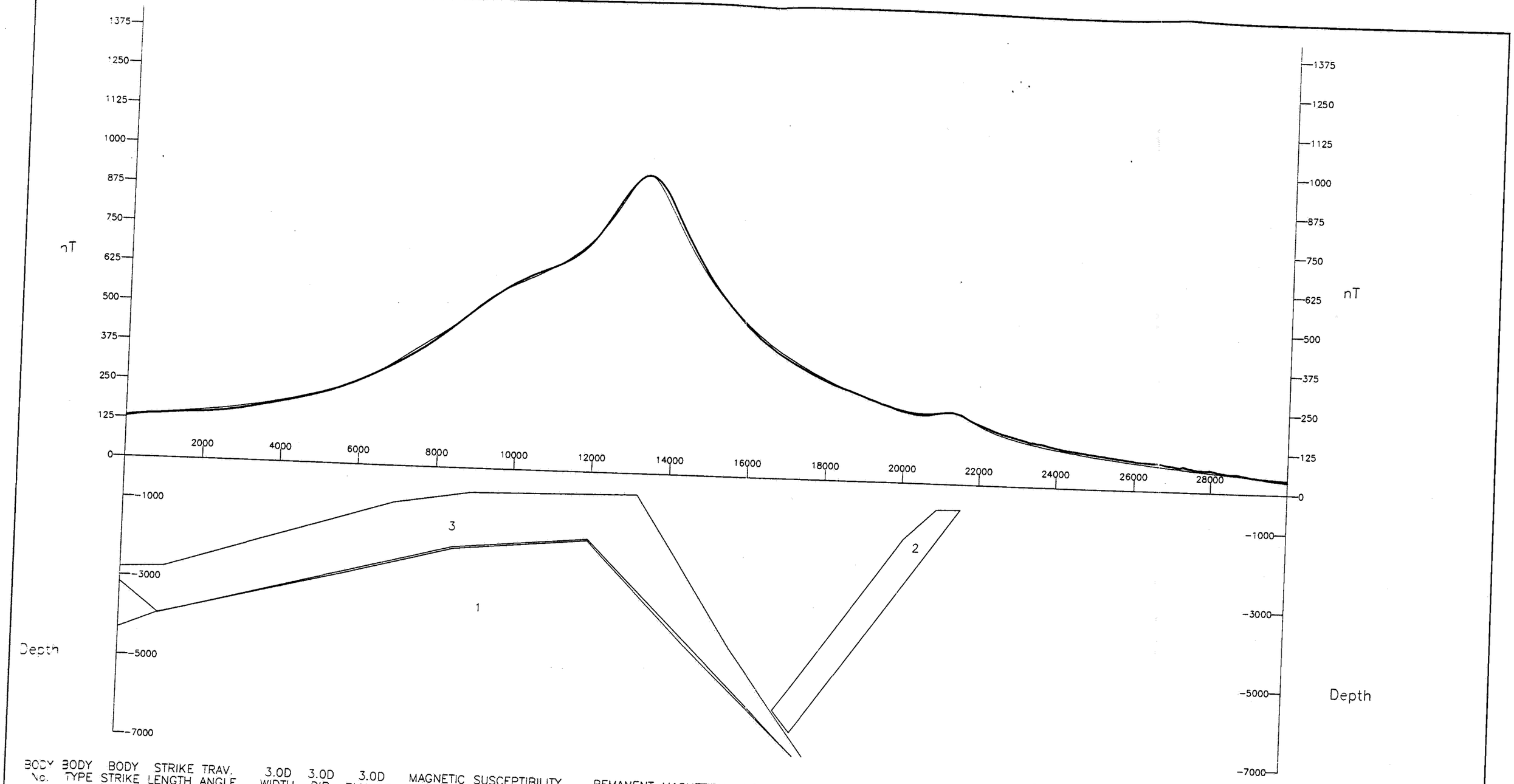
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3351

Date : 11-09-1994

Figure : 6A

0046



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2	2.5D	100	500	9.9				.001749	.001749	.001749	0	0	0	0
3	2.5D	90	5000	0				.002845	.002845	.002845	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 2000 4000

Scale 1:100000

SOUTHERN GEOSCIENCE CONSULTANTS

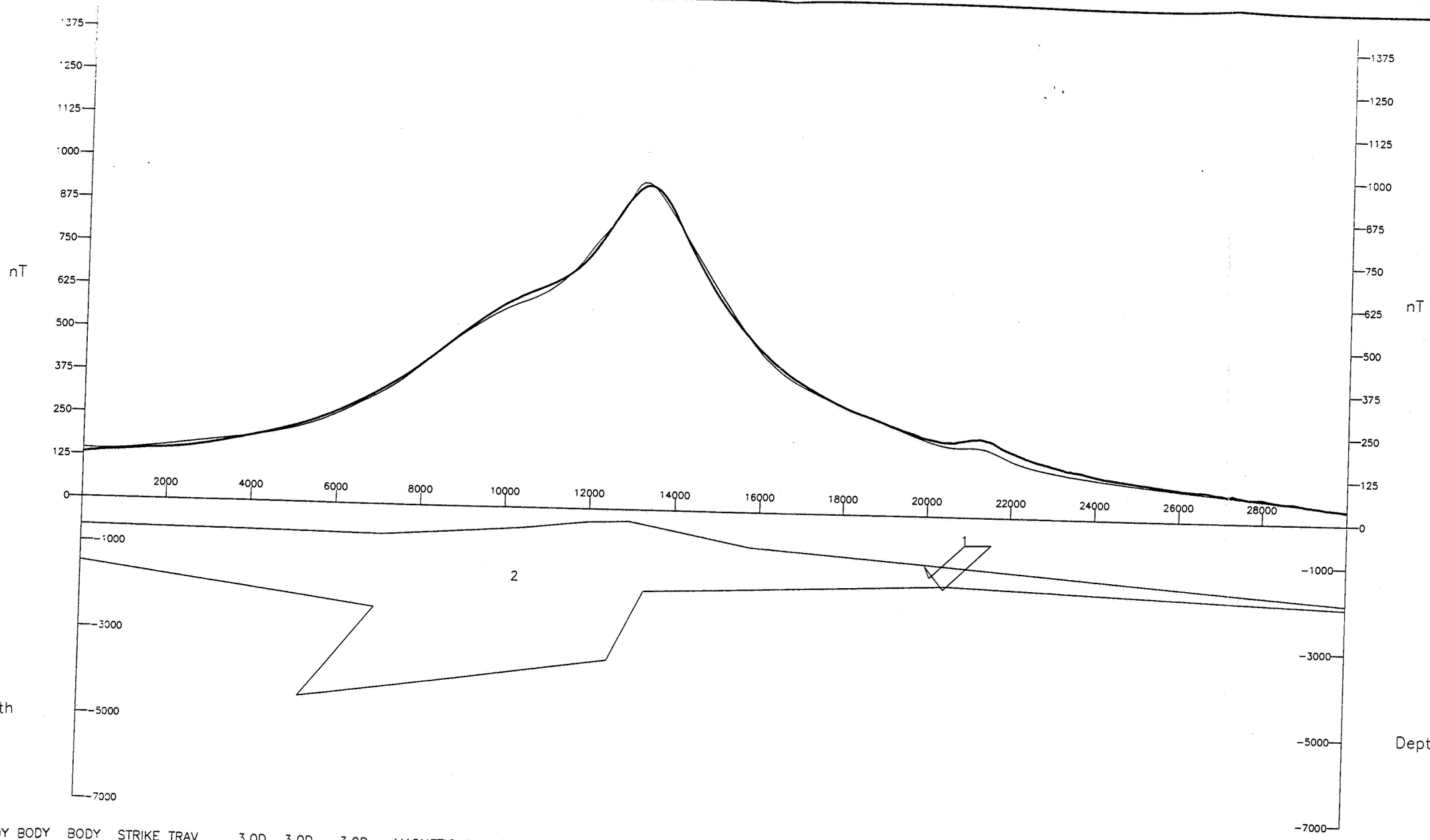
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3351

Date : 11-09-1994

Figure : 6B

0047



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2	2.5D	90	5000	0				.004725	.004725	.004725	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 2000 4000

Scale 1:100000

SOUTHERN GEOSCIENCE CONSULTANTS

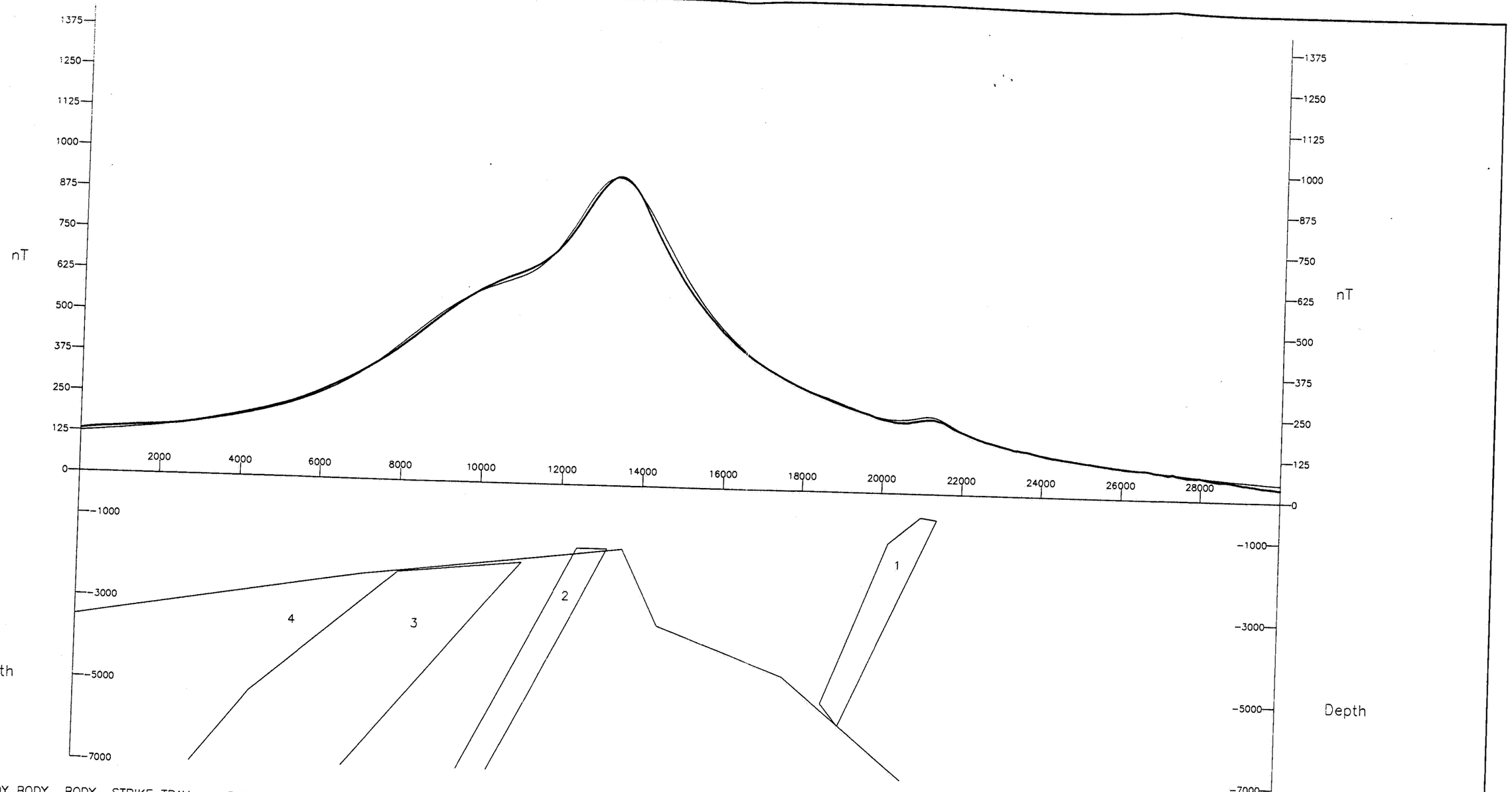
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3351

Date : 11-09-1994

Figure : 6C

0043



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1	2.5D	100	500	9.9				.001749	.001749	.001749	0	0	0	0
2	2.5D	90	5000	0				.010662	.010662	.010662	0	0	0	0
3	2.5D	90	5000	0				.003826	.003826	.003826	0	0	0	0
4	2.5D	90	5000	0				.002694	.002694	.002694	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 2000 4000

Scale 1:100000

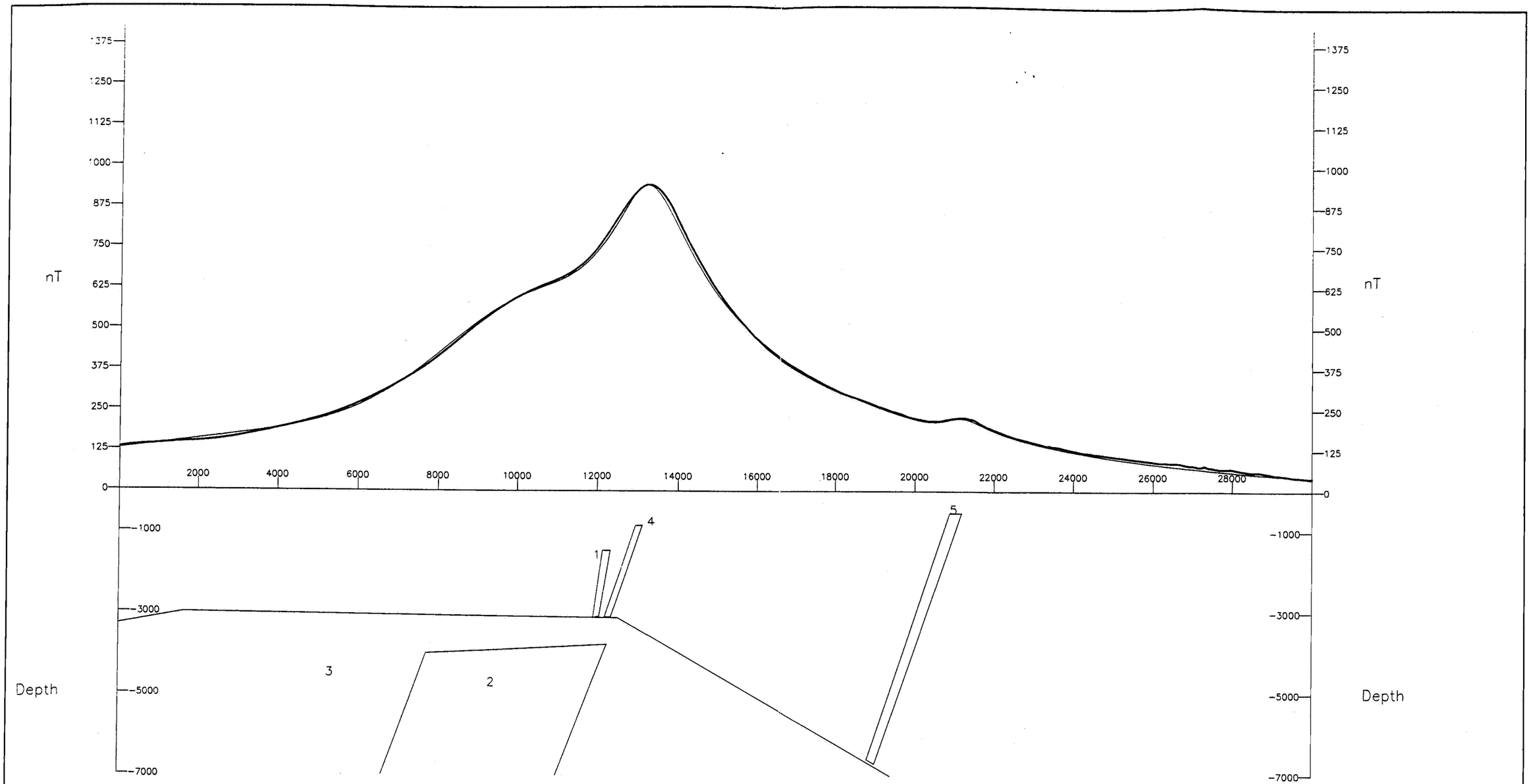
SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3351

Date : 11-09-1994

Figure : 6D



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3	2.5D	90	5000	0				.002827	.002827	.002827	0	0	0	0
4	2.5D	110	5000	20				.016595	.016595	.016595	0	0	0	0
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GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 2000 4000

Scale 1:100000

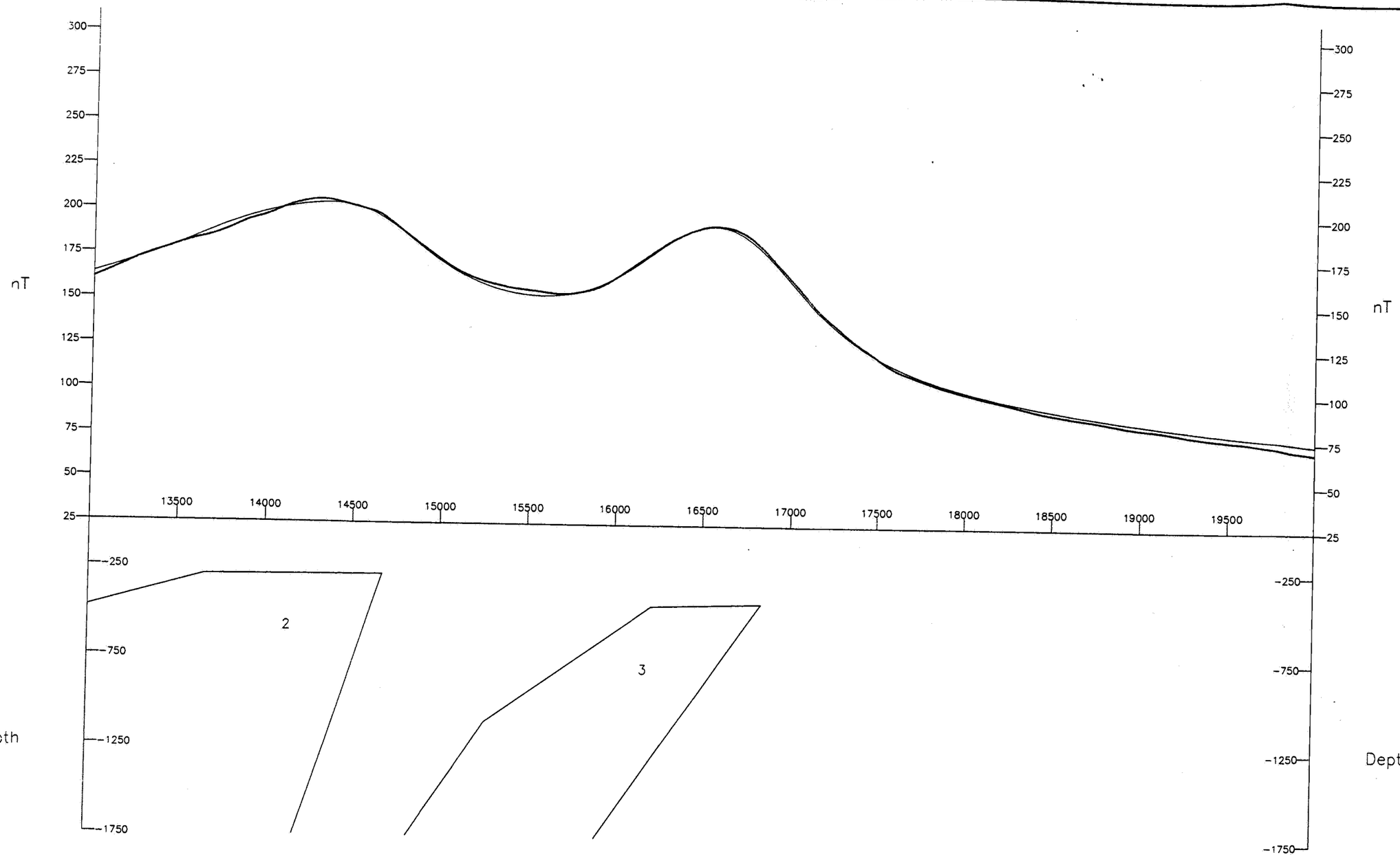
SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3351

Date : 11-09-1994 | Figure : 6E

0050



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2	2.5D	90	10000	0				.000335	.000335	.000335	0	0	0	0
3	2.5D	100	500	9.9				.001749	.001749	.001749	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

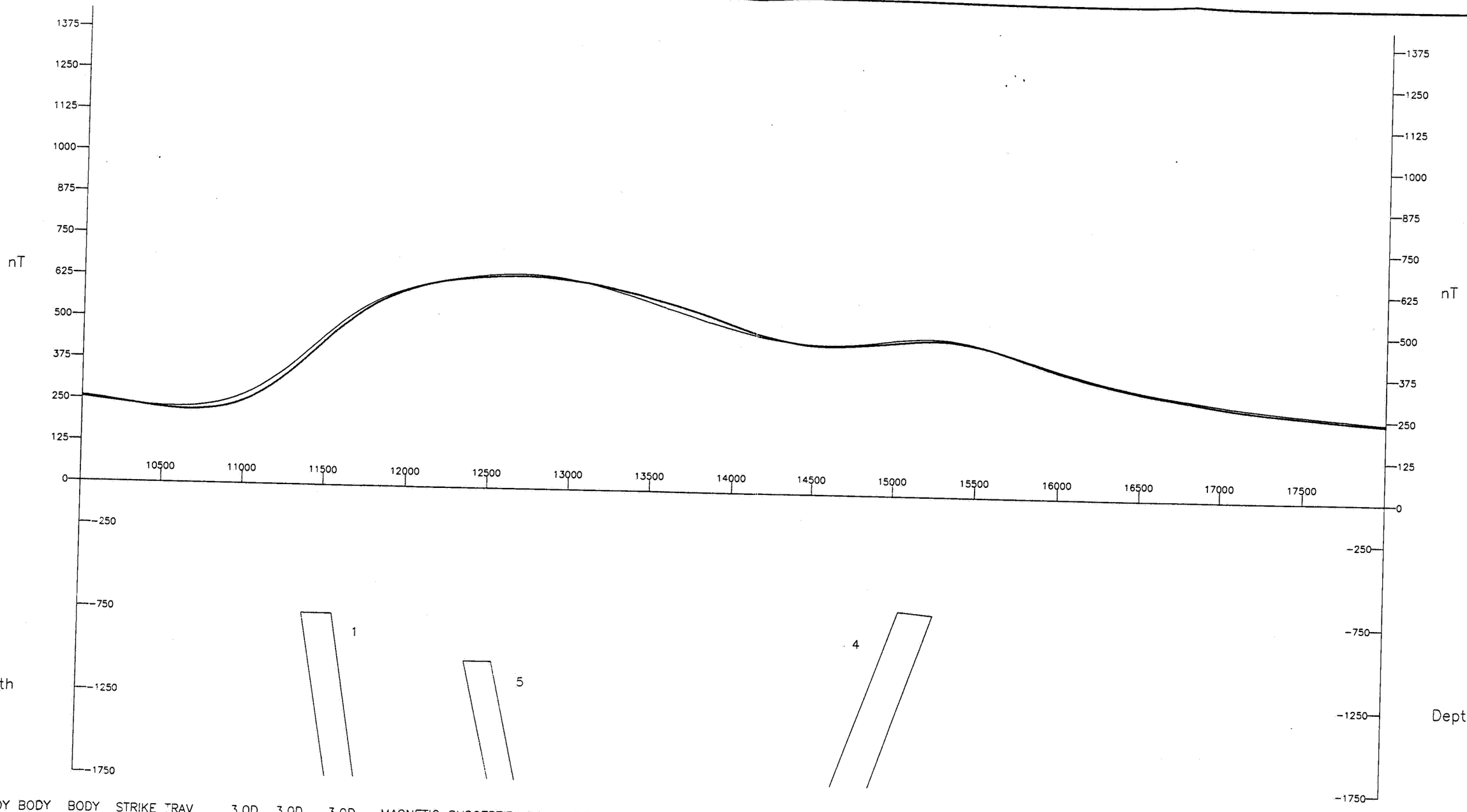
MAGNETIC MODEL Flight Line 4031

AN AI

Date : 11-09-1994

Figure : 7

0051



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2	2.5D	90	5000	0				.002826	.002826	.002826	0	0	0	0
3	2.5D	90	5000	0				.002692	.002692	.002692	0	0	0	0
4	2.5D	65	1000	24.9				.010267	.010267	.010267	0	0	0	0
5	2.5D	110	5000	20				.019845	.019845	.019845	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

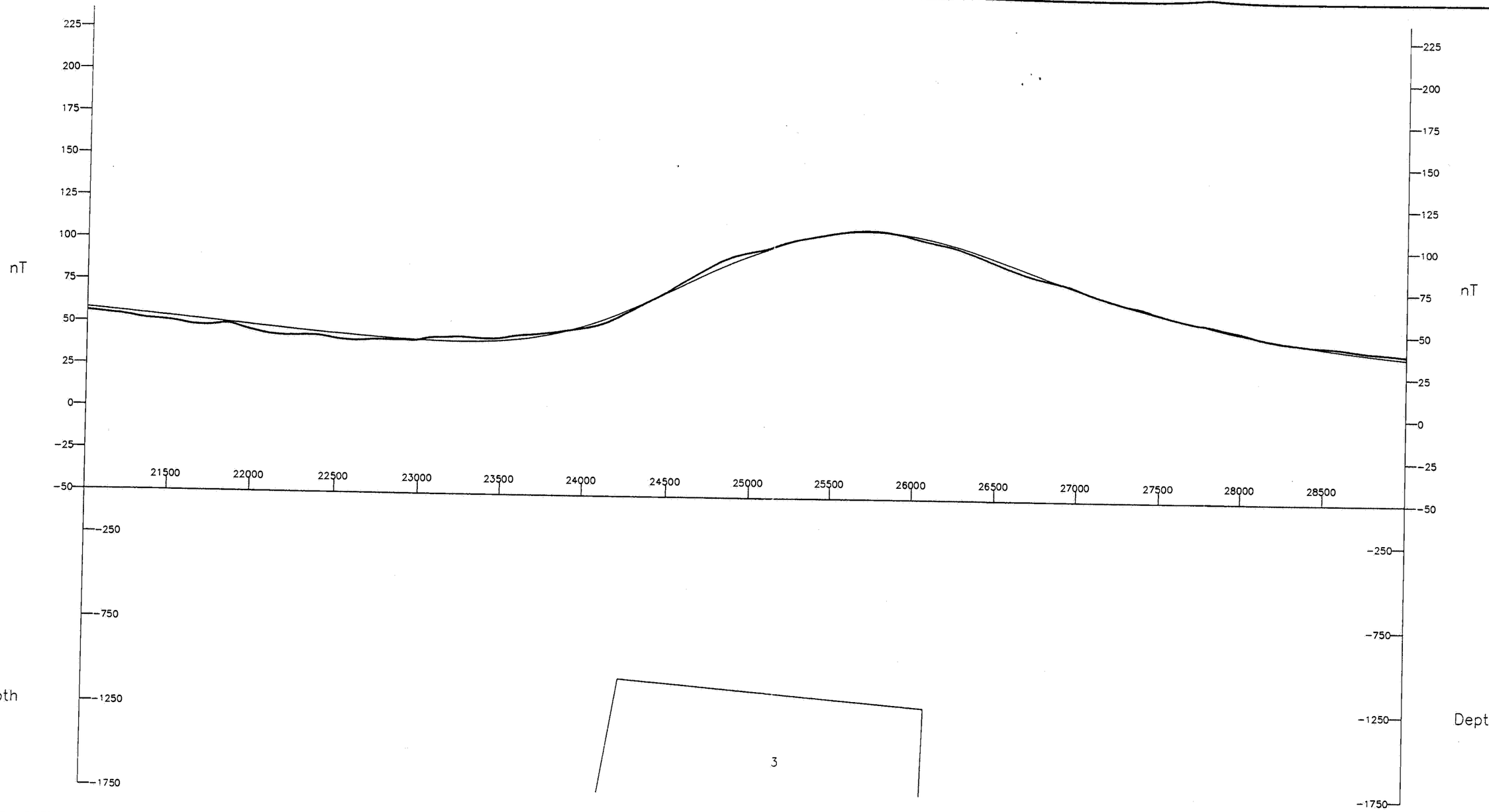
MAGNETIC MODEL Flight Line 3631

4M AIR EM
See 3581

Date : 11-09-1994

Figure : 8

0052



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	5000	0				.003822	.003822	.003822	0	0	0	0
2	2.5D	90	5000	0				.001198	.001198	.001198	0	0	0	0
3	2.5D	90	1500	0				.00119	.00119	.00119	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

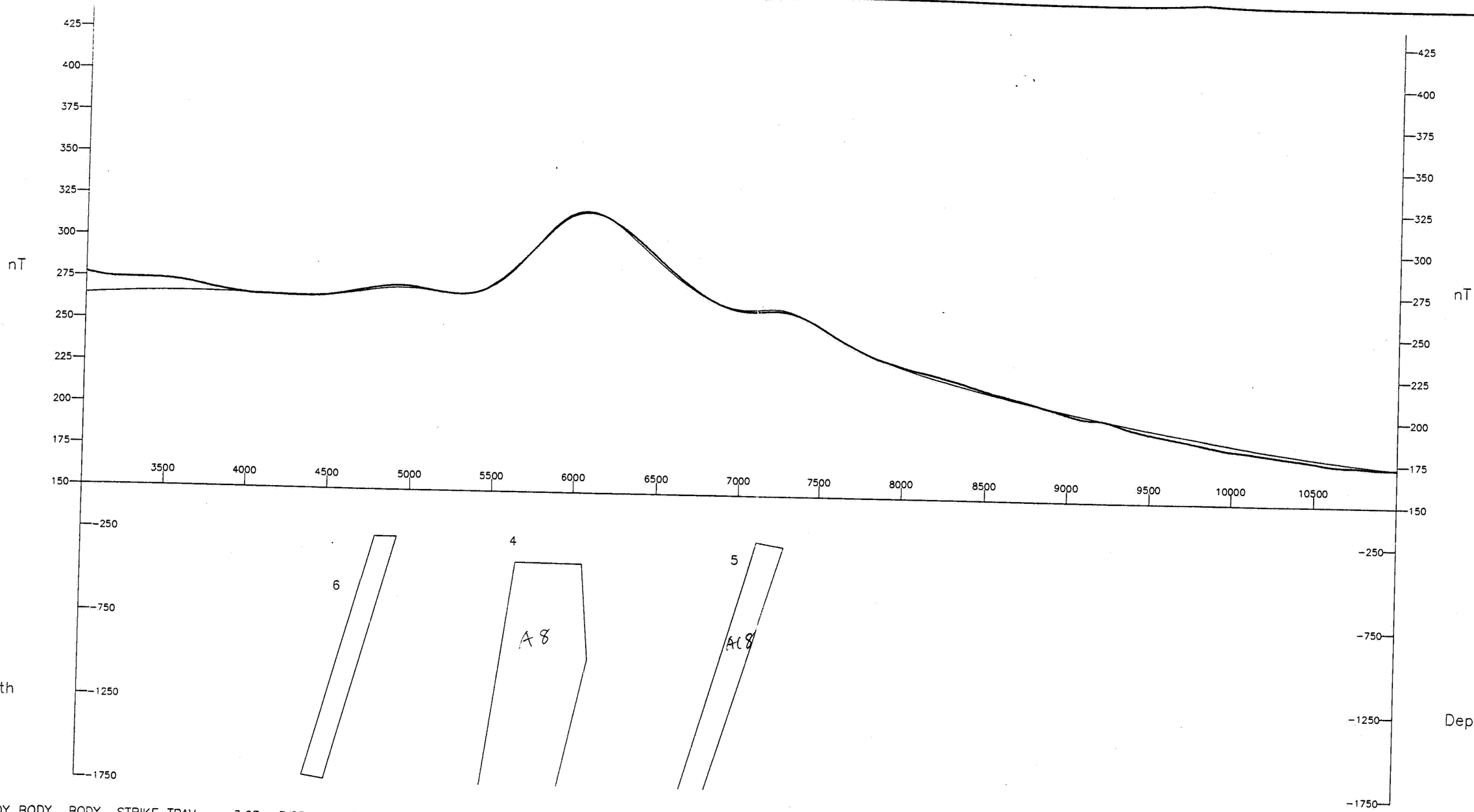
MAGNETIC MODEL Flight Line 4111

AN. AF

Date : 11-09-1994

Figure : 9

3500



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	100	30000	9.9				.001291	.001291	.001291	0	0	0	0
2	2.5D	90	10000	0				.000301	.000301	.000301	0	0	0	0
3	2.5D	100	500	9.9				.001749	.001749	.001749	0	0	0	0
4	2.5D	80	500	9.9				.001883	.001883	.001883	0	0	0	0
5	2.5D	90	400	0				.000792	.000792	.000792	0	0	0	0
6	2.5D	50	1000	40				.000611	.000611	.000611	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

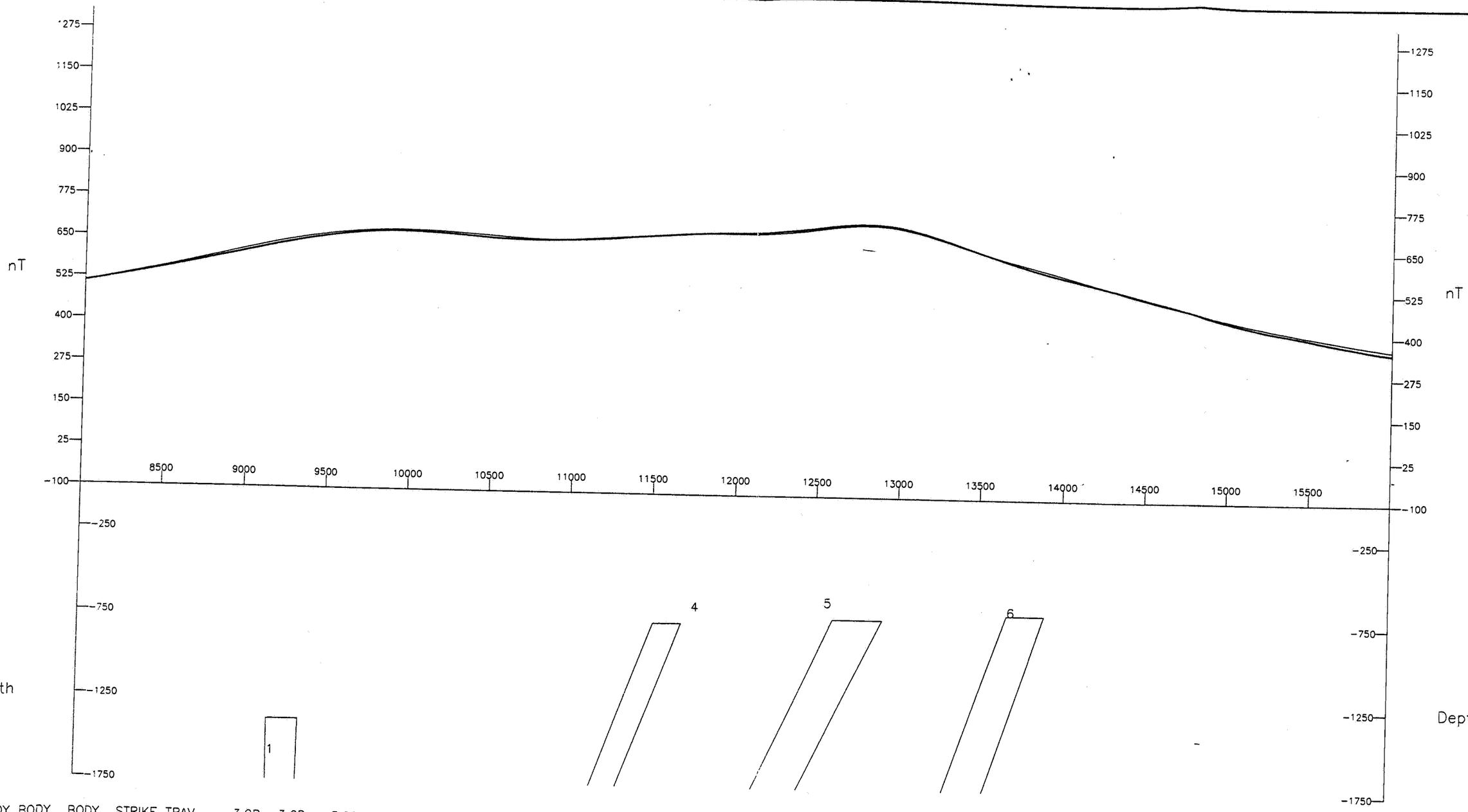
MAGNETIC MODEL Flight Line 3881

A4, A8, A18

Date : 11-09-1994

Figure : 10

0054



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	5000	0				.013446	.013446	.013446	0	0	0	0
2	2.5D	90	5000	0				.009621	.009621	.009621	0	0	0	0
3	2.5D	90	5000	0				.002827	.002827	.002827	0	0	0	0
4	2.5D	110	5000	20				.005961	.005961	.005961	0	0	0	0
5	2.5D	110	1000	20				.008977	.008977	.008977	0	0	0	0
6	2.5D	100	2000	9.9				.00175	.00175	.00175	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

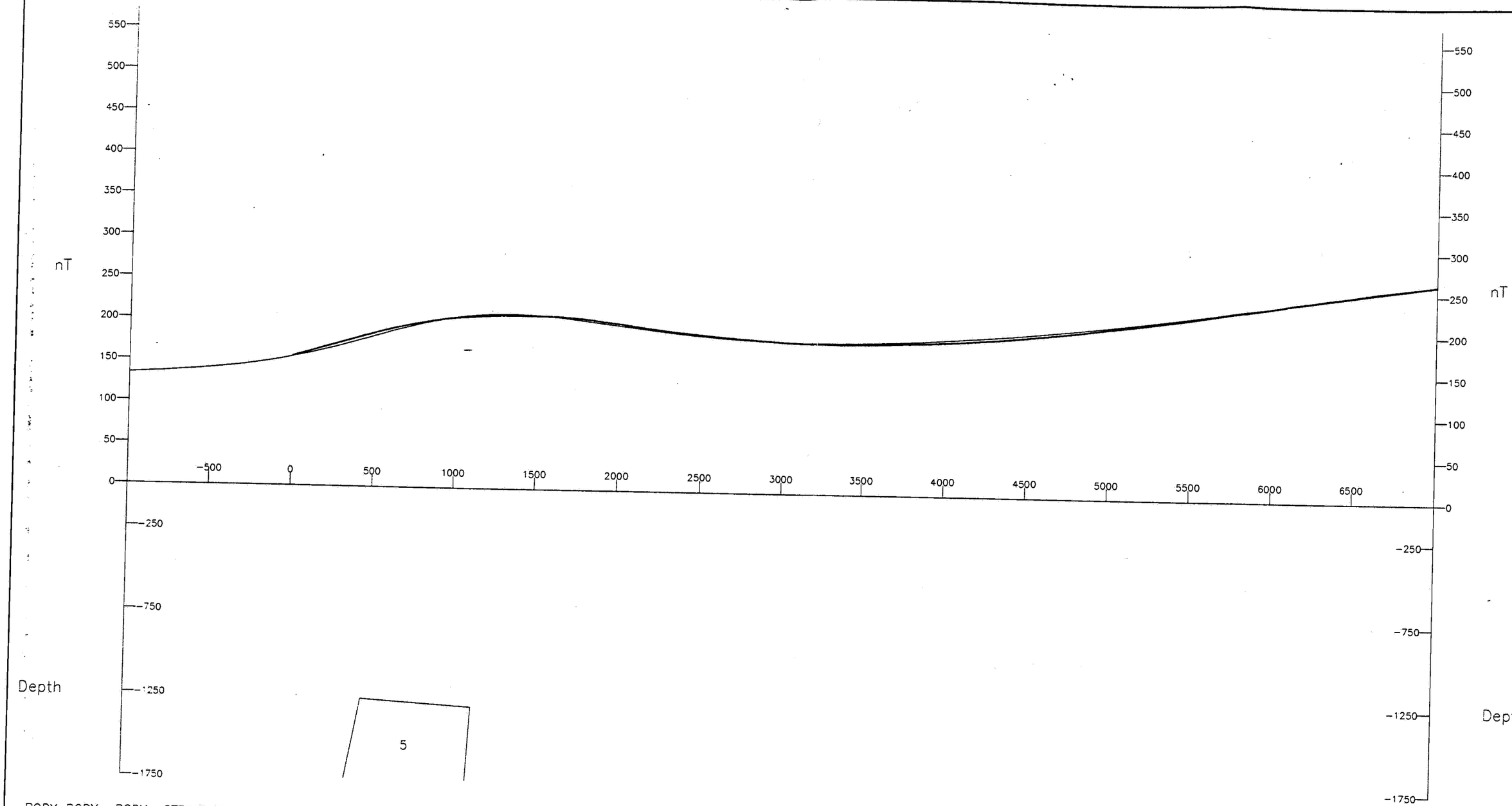
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3221

Date : 11-09-1994

Figure : 11

0055



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	5000	0				.003903	.003903	.003903	0	0	0	0
2	2.5D	90	5000	0				.003318	.003318	.003318	0	0	0	0
3	2.5D	90	5000	0				.002057	.002057	.002057	0	0	0	0
4	2.5D	65	1000	24.9				.001976	.001976	.001976	0	0	0	0
5	2.5D	90	200	0				.003633	.003633	.003633	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

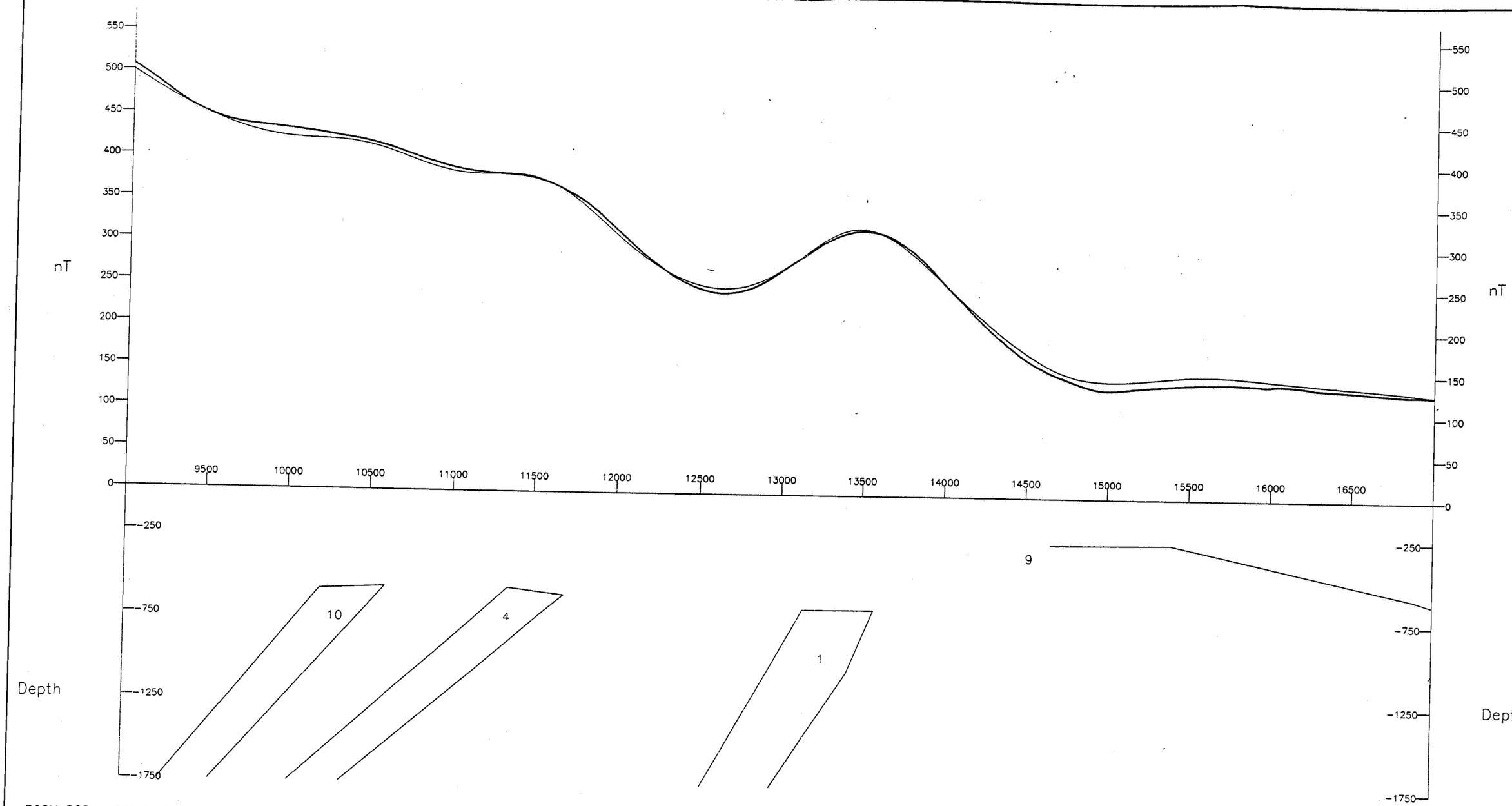
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3661

Date : 11-09-1994

Figure : 12

0056



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	100	500	9.9				.009979	.009979	.009979	0	0	0	0
2	2.5D	80	2000	9.9				.002523	.002523	.002523	0	0	0	0
3	2.5D	90	2000	0				.008694	.008694	.008694	0	0	0	0
4	2.5D	100	1000	9.9				.004175	.004175	.004175	0	0	0	0
5	2.5D	100	5000	9.9				.000631	.000631	.000631	0	0	0	0
6	2.5D	100	2000	9.9				.004028	.004028	.004028	0	0	0	0
7	2.5D	100	3000	9.9				.012366	.012366	.012366	0	0	0	0
8	2.5D	80	2000	9.9				.005242	.005242	.005242	0	0	0	0
9	2.5D	90	1000	0				.000568	.000568	.000568	0	0	0	0
10	2.5D	90	1000	0				.001978	.001978	.001978	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

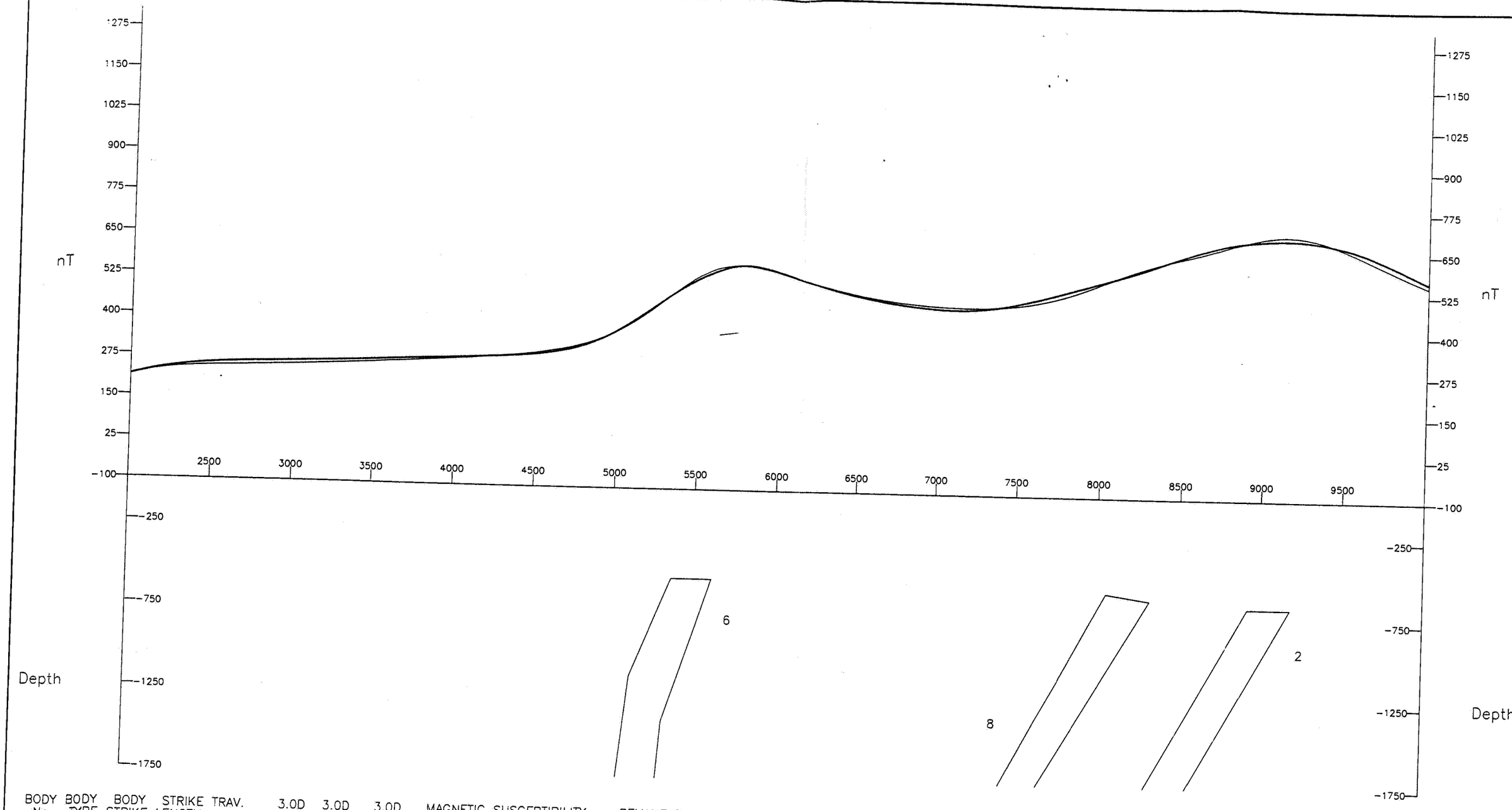
MAGNETIC MODEL Flight Line 2291

AN A11 / 350 m

Date : 11-09-1994

Figure : 13

0052



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	100	500	9.9				.001705	.001705	.001705	0	0	0	0
2	2.5D	80	2000	9.9				.007185	.007185	.007185	0	0	0	0
3	2.5D	90	2000	0				.008621	.008621	.008621	0	0	0	0
4	2.5D	100	5000	9.9				.009115	.009115	.009115	0	0	0	0
5	2.5D	100	5000	9.9				.000631	.000631	.000631	0	0	0	0
6	2.5D	100	2000	9.9				.006255	.006255	.006255	0	0	0	0
7	2.5D	100	3000	9.9				.009085	.009085	.009085	0	0	0	0
8	2.5D	80	2000	9.9				.003728	.003728	.003728	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

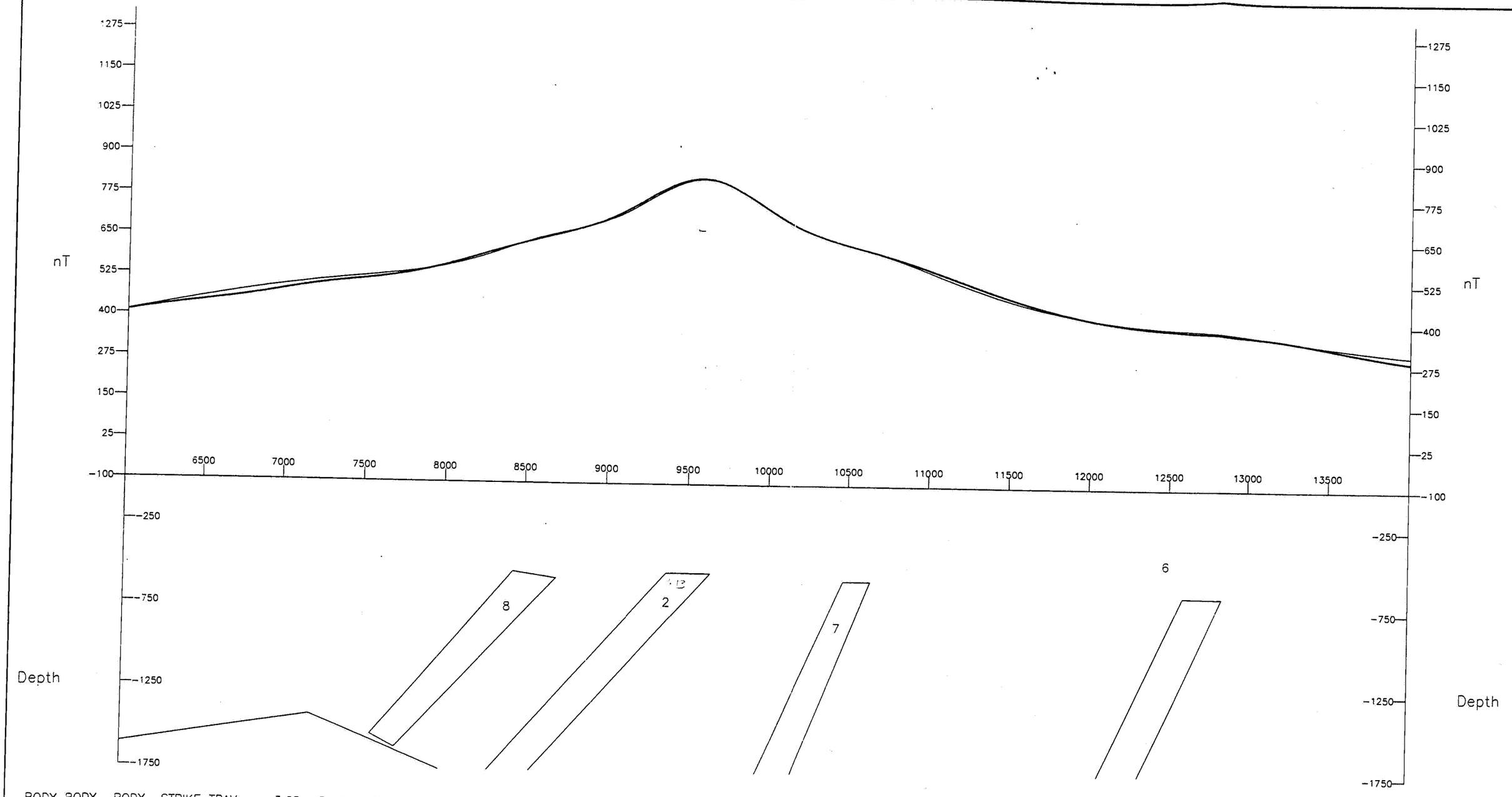
MAGNETIC MODEL Flight Line 3071

AM A12, A6

Date : 11-09-1994

Figure : 14

8058



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	100	500	9.9				.001705	.001705	.001705	0	0	0	0
2	2.5D	80	2000	9.9				.010318	.010318	.010318	0	0	0	0
3	2.5D	90	5000	0				.00364	.00364	.00364	0	0	0	0
4	2.5D	100	5000	9.9				.007365	.007365	.007365	0	0	0	0
5	2.5D	100	5000	9.9				.000847	.000847	.000847	0	0	0	0
6	2.5D	100	2000	9.9				.001127	.001127	.001127	0	0	0	0
7	2.5D	100	3000	9.9				.003466	.003466	.003466	0	0	0	0
8	2.5D	80	2000	9.9				.003381	.003381	.003381	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

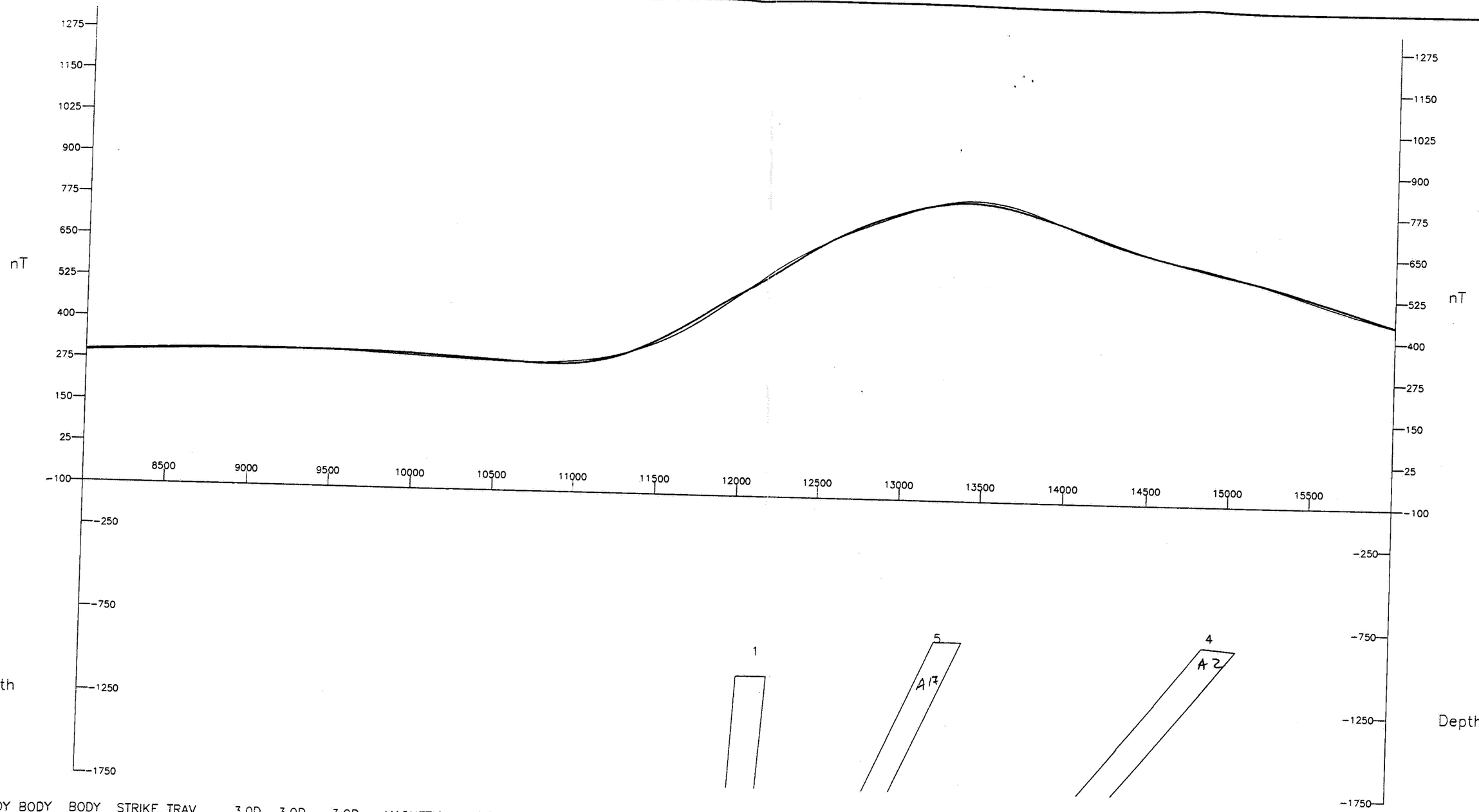
MAGNETIC MODEL Flight Line 3141

Alt. K1, A15.

Date : 11-09-1994

Figure : 15

0059



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM NCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	5000	0				.026162	.026162	.026162	0	0	0	0
2	2.5D	90	5000	0				.002826	.002826	.002826	0	0	0	0
3	2.5D	90	5000	0				.002692	.002692	.002692	0	0	0	0
4	2.5D	65	1000	24.9				.010267	.010267	.010267	0	0	0	0
5	2.5D	110	5000	20				.019846	.019846	.019846	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

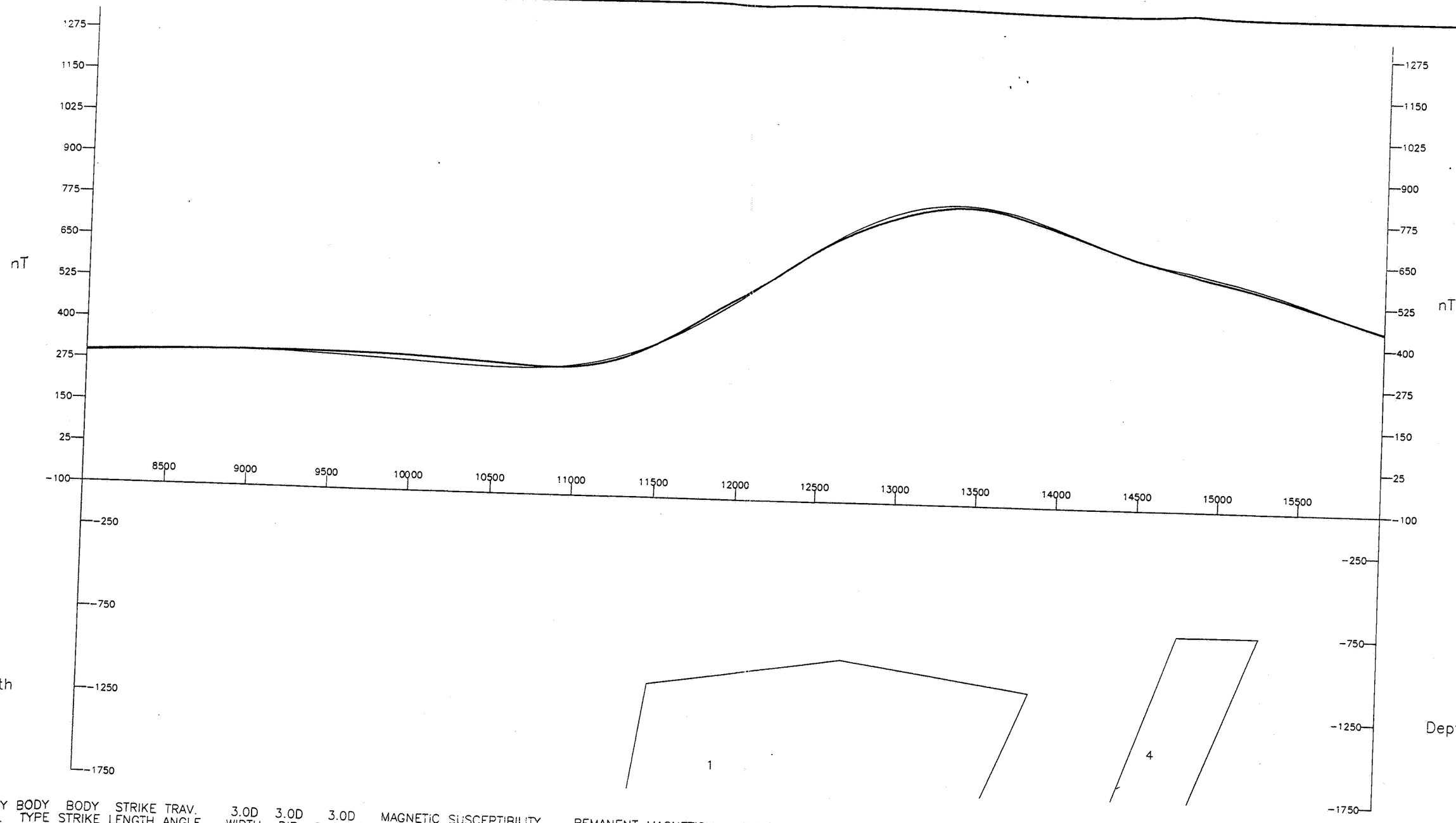
MAGNETIC MODEL Flight Line 3581

Am'd Flt 2
See 3621-Flt 5

Date : 11-09-1994

Figure : 16A

0060



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	SUSCEPTIBILITY PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	MAGNETISM DEC. degr.	KOENIG RATIO
1	2.5D	90	5000	0				.004343	004343	.004343	0	0	0	0
2	2.5D	90	5000	0				.002924	.002924	.002924	0	0	0	0
3	2.5D	90	5000	0				.00267	.00267	.00267	0	0	0	0
4	2.5D	65	1000	24.9				.003654	.003654	.003654	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

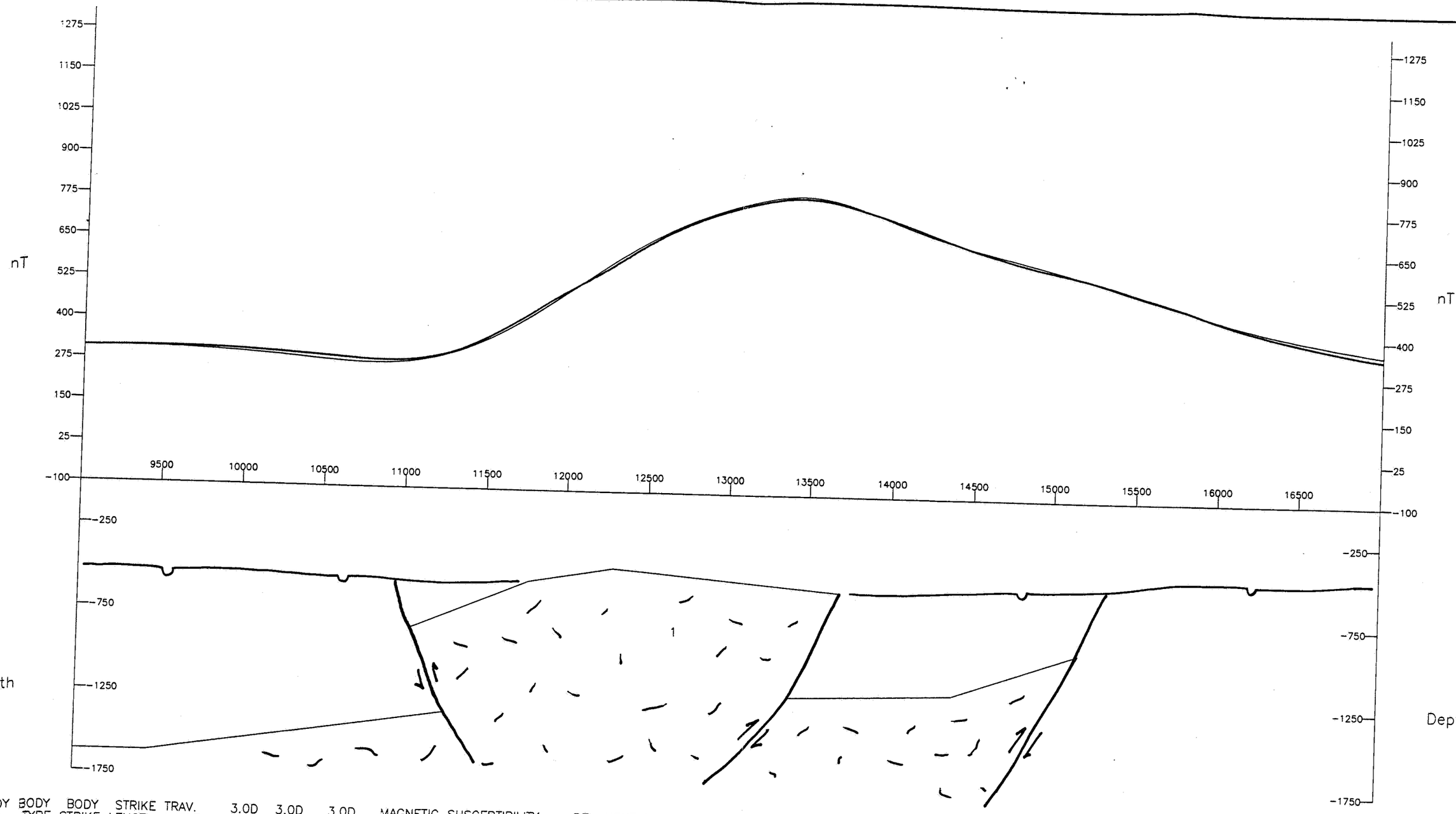
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3581

Date : 11-09-1994

Figure : 16B

0061



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	5000	0				.00267	.00267	.00267	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 500 1000

Scale 1:25000

SOUTHERN GEOSCIENCE CONSULTANTS

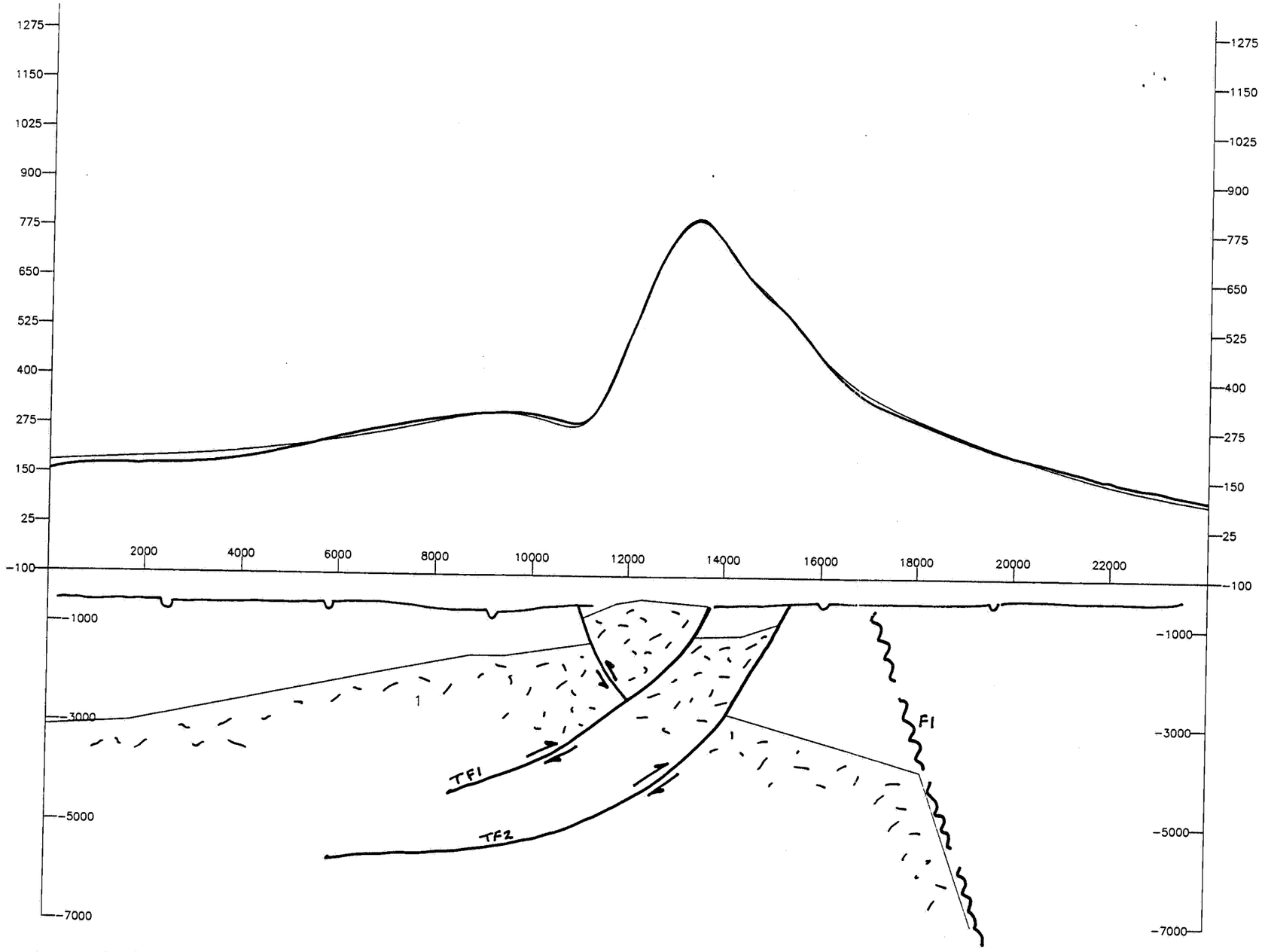
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3581

Date : 14-09-1994

Figure : 16C

0032



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	5000	0				.00267	.00267	.00267	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 2000 4000

Scale 1:100000

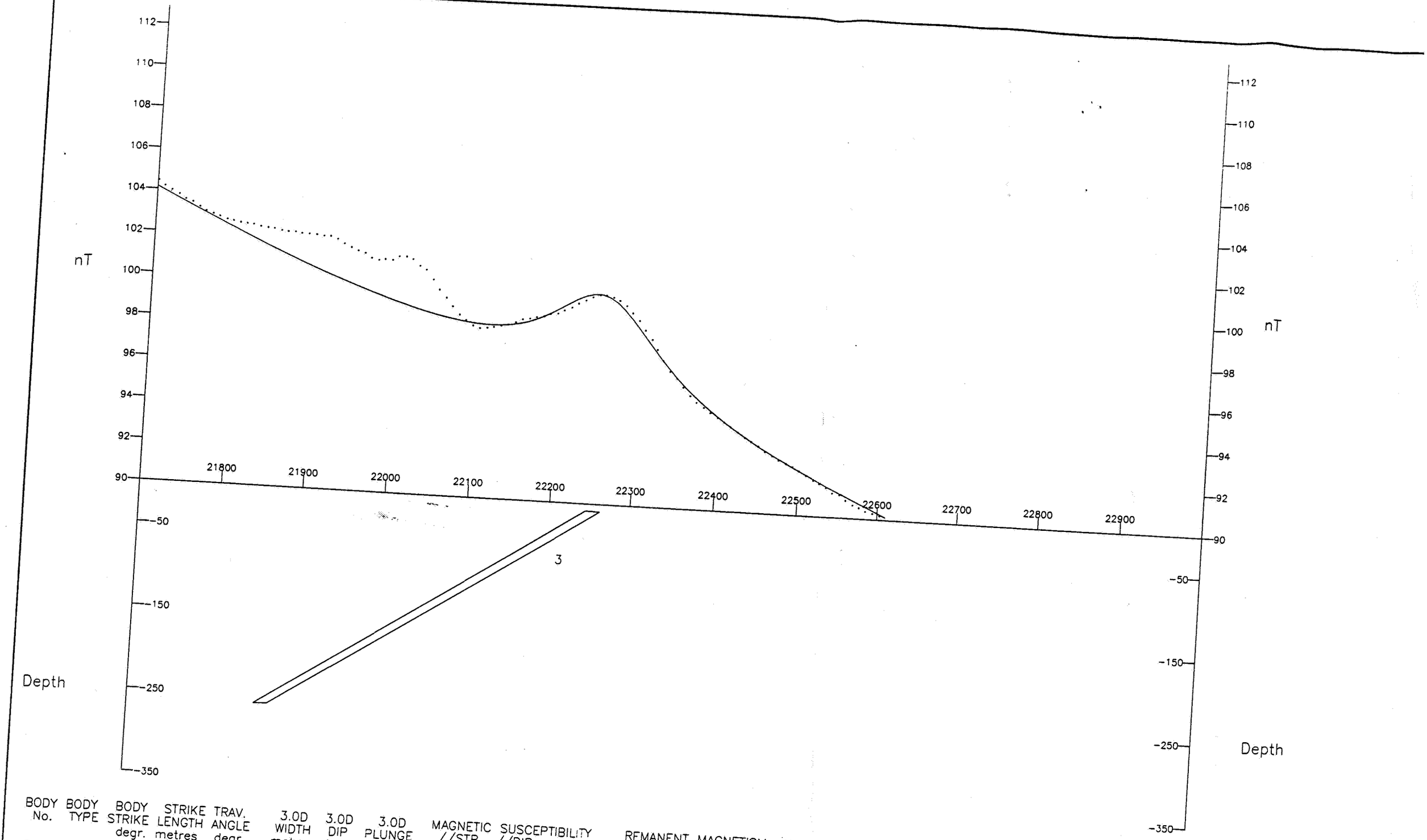
SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3581

Date : 14-09-1994 | Figure : 16D

0063



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	MAGNETIC //DIP cgsu	MAGNETIC PERP. cgsu	REMANENT AMP. nT.	REMANENT INCL. degr.	REMANENT DEC. degr.	KOENIG RATIO
1	2.5D	90	5000	0				.003822	.003822	.003822	0	0	0	0
2	2.5D	90	5000	0				.001893	.001893	.001893	0	0	0	0
3	2.5D	80	2000	9.9				.000395	.000395	.000395	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : _____

0 100 200

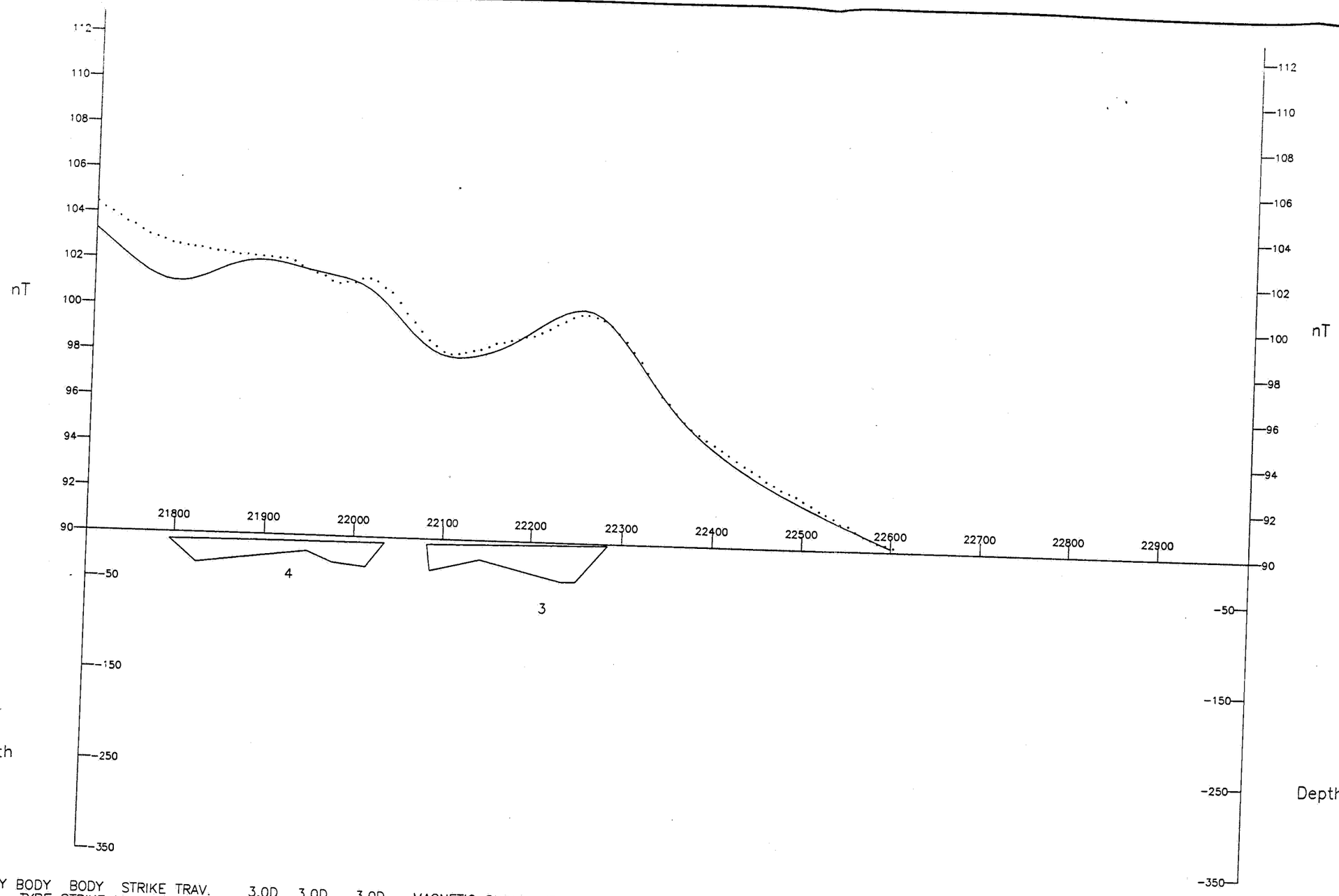
Scale 1:5000

SOUTHERN GEOSCIENCE CO

JP HOWARD/SAPPHIRE
ALLANDALE ARE

MAGNETIC MODE
Flight Line 3731

Date : 11-09-1994



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	5000	0				.003822	.003822	.003822	0	0	0	0
2	2.5D	90	5000	0				.001893	.001893	.001893	0	0	0	0
3	2.5D	80	2000	9.9				.000137	.000137	.000137	0	0	0	0
4	2.5D	100	1000	9.9				.000151	.000151	.000151	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 100 200

Scale 1:5000

SOUTHERN GEOSCIENCE CONSULTANTS

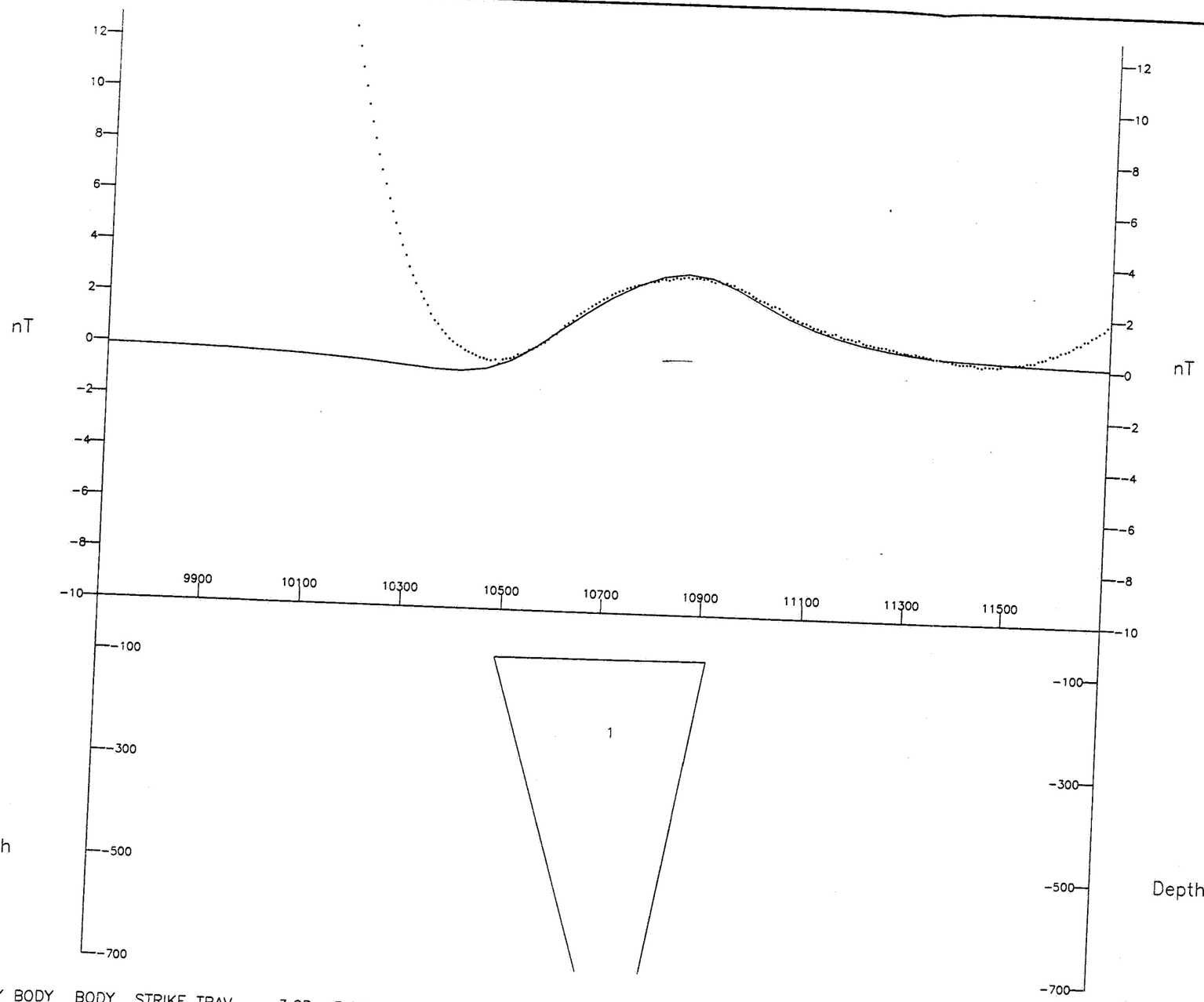
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL Flight Line 3731

Date : 11-09-1994

Figure : 17B

0069



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	300	0				.00004	.00004	.00004	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 200 400

Scale 1:10000

SOUTHERN GEOSCIENCE CONSULTANTS

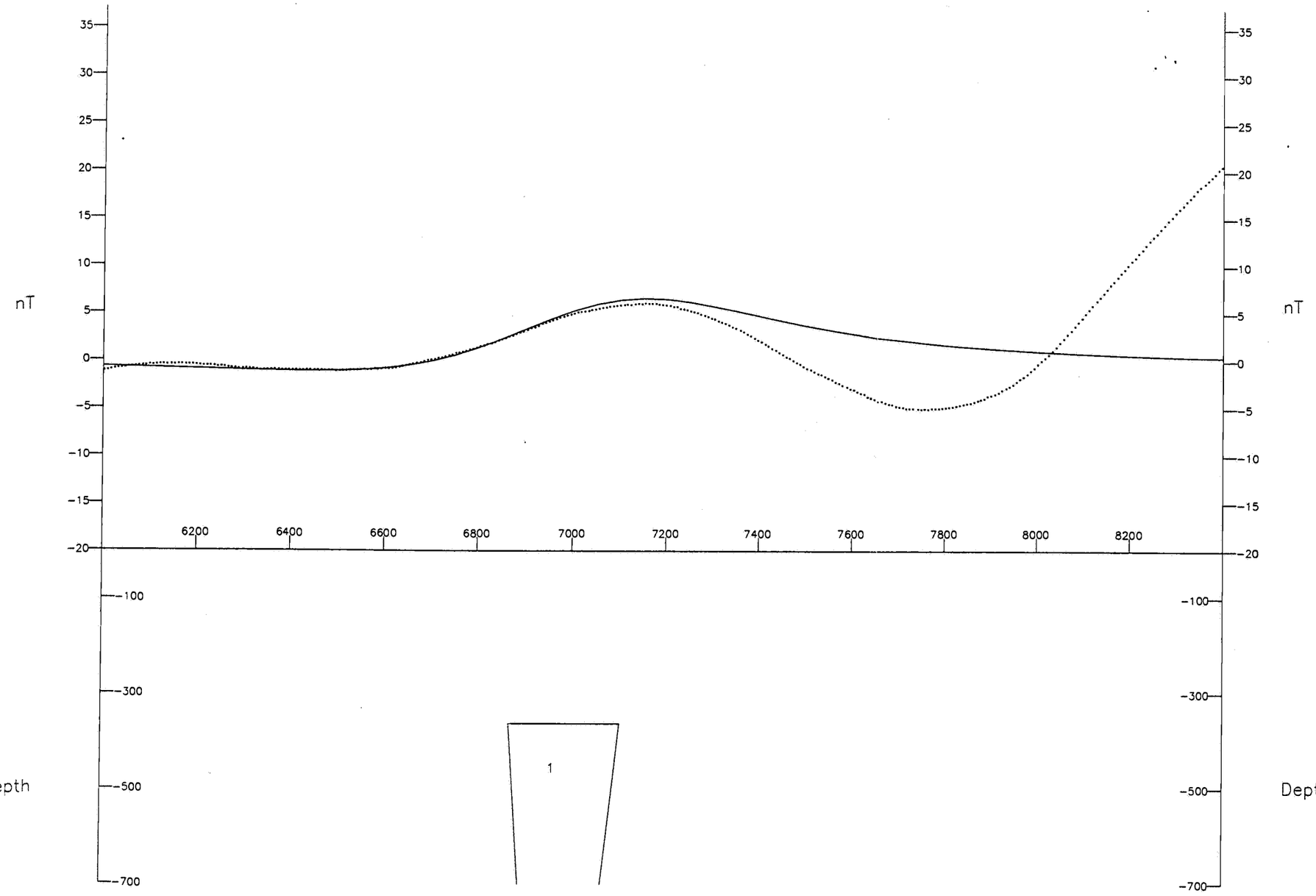
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL – ANOMALY K1 Flight Line 3131

Date : 11-09-1994

Figure : 18

9900



nT

Depth

BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.50	90	300	0				.000588	.000588	.000588	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 200 400

Scale 1:10000

SOUTHERN GEOSCIENCE CONSULTANTS

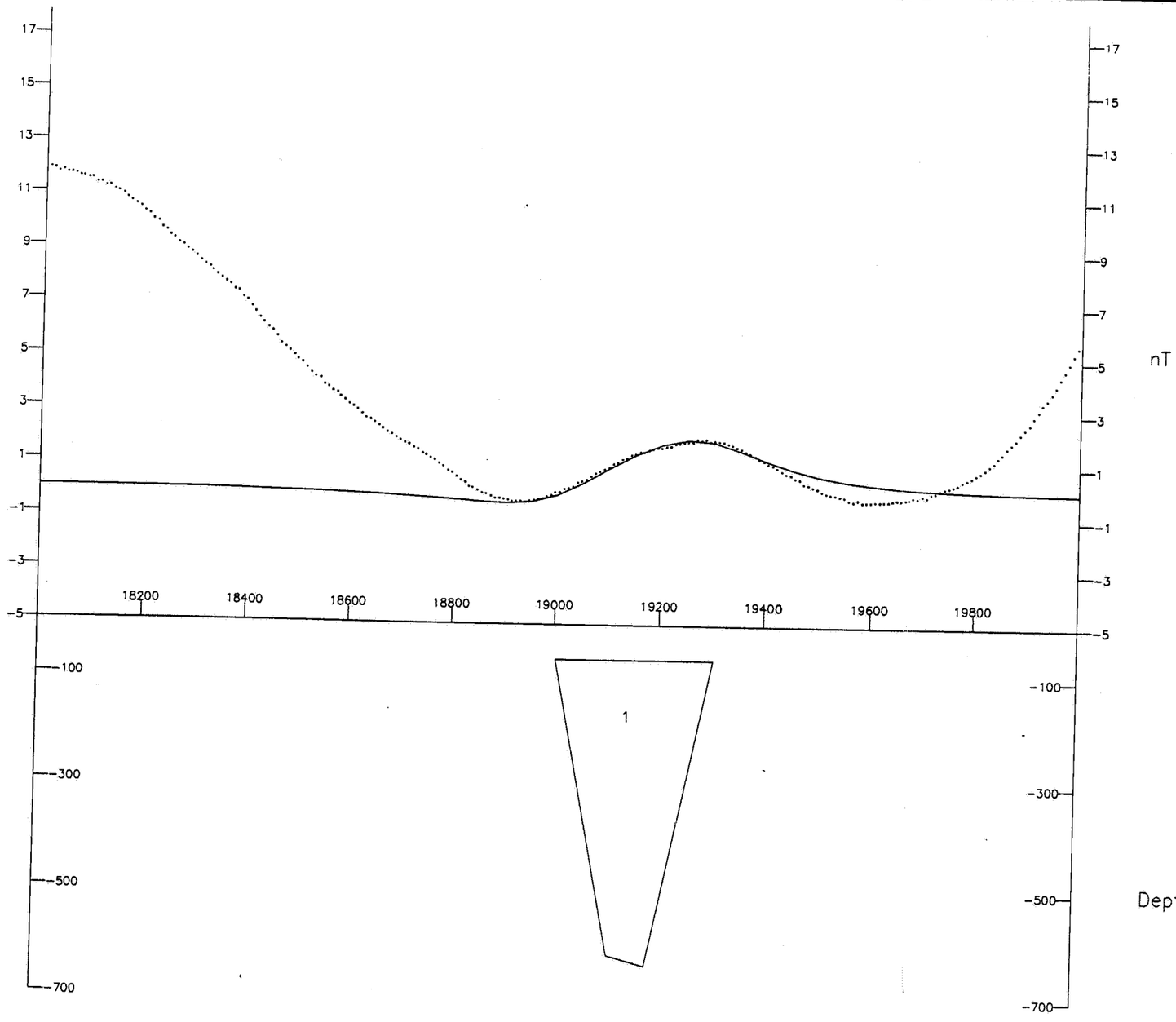
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL – ANOMALY K2 Flight Line 3151

Date : 11-09-1994

Figure : 19

A9900



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	300	0				.000025	.000025	.000025	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 200 400

Scale 1:10000

SOUTHERN GEOSCIENCE CONSULTANTS

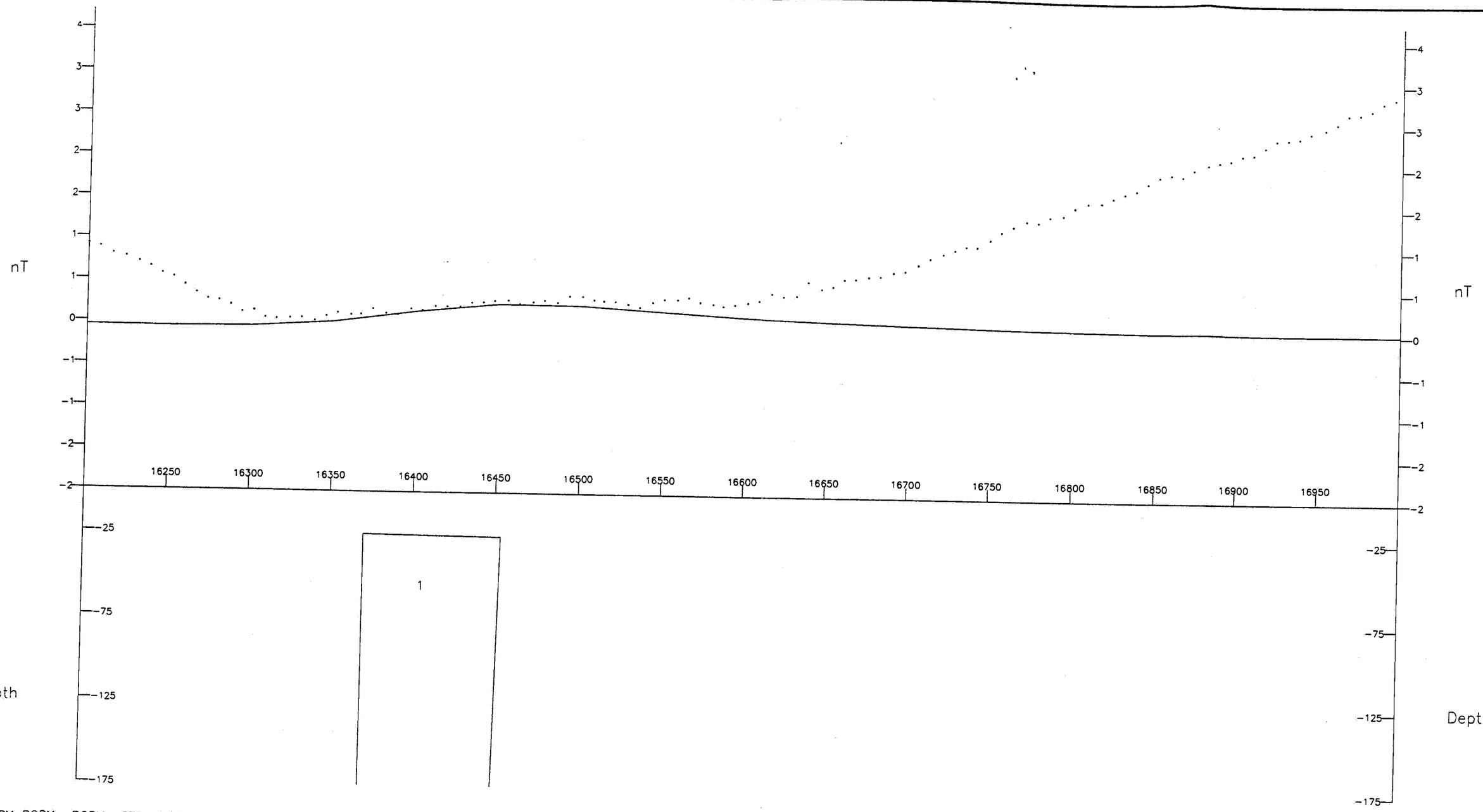
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL – ANOMALY K3 Flight Line 3511

Date : 11-09-1994

Figure : 20

0063



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	SUSCEPTIBILITY PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	MAGNETISM DEC. degr.	KOENIG RATIO
1	2.5D	90	300	0				.000005	.000005	.000005	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 50 100

Scale 1:2500

SOUTHERN GEOSCIENCE CONSULTANTS

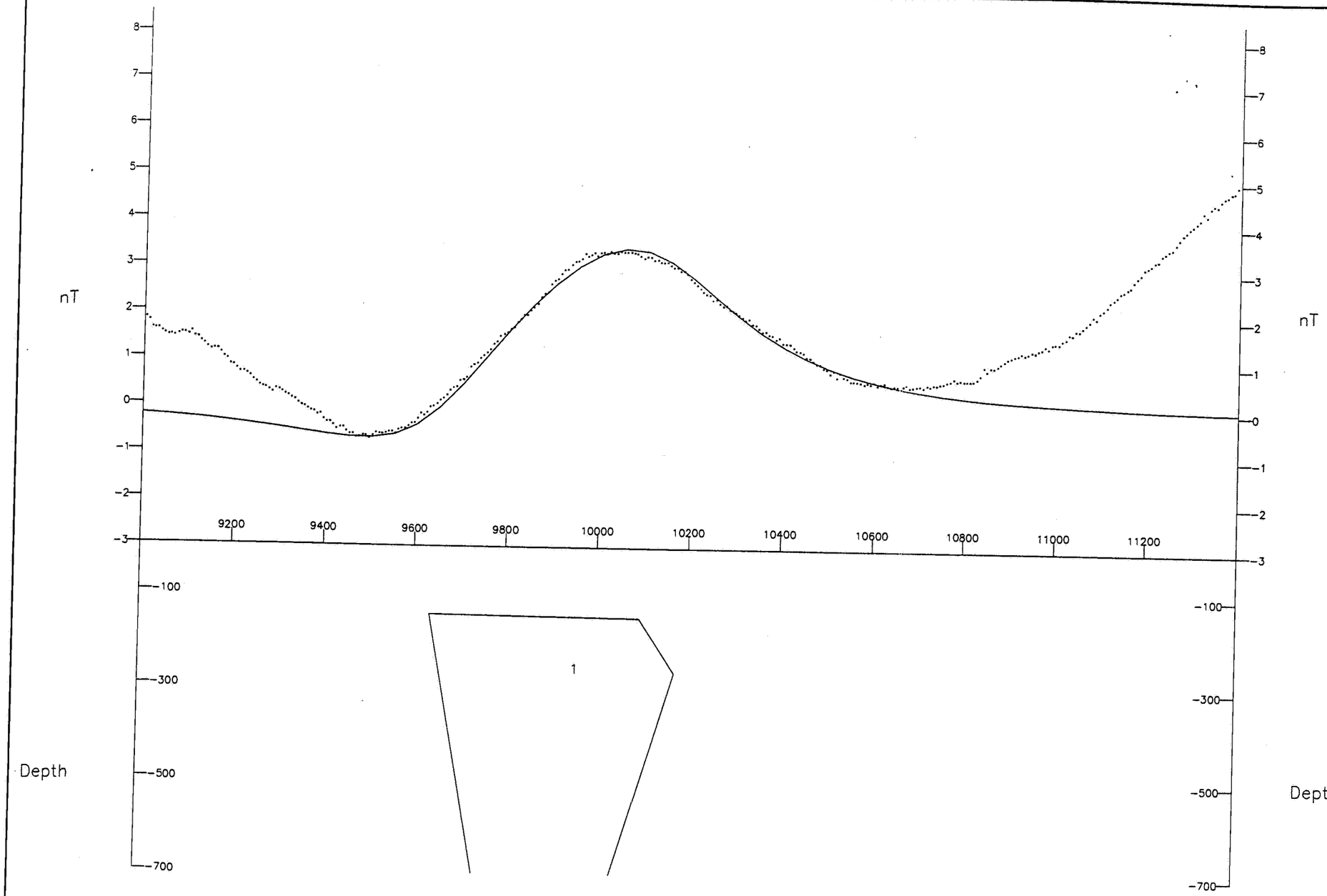
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL – ANOMALY K4 Flight Line 3531

Date : 11-09-1994

Figure : 21

6900



BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT.	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	300	0				.000051	.000051	.000051	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 200 400

Scale 1:10000

SOUTHERN GEOSCIENCE CONSULTANTS

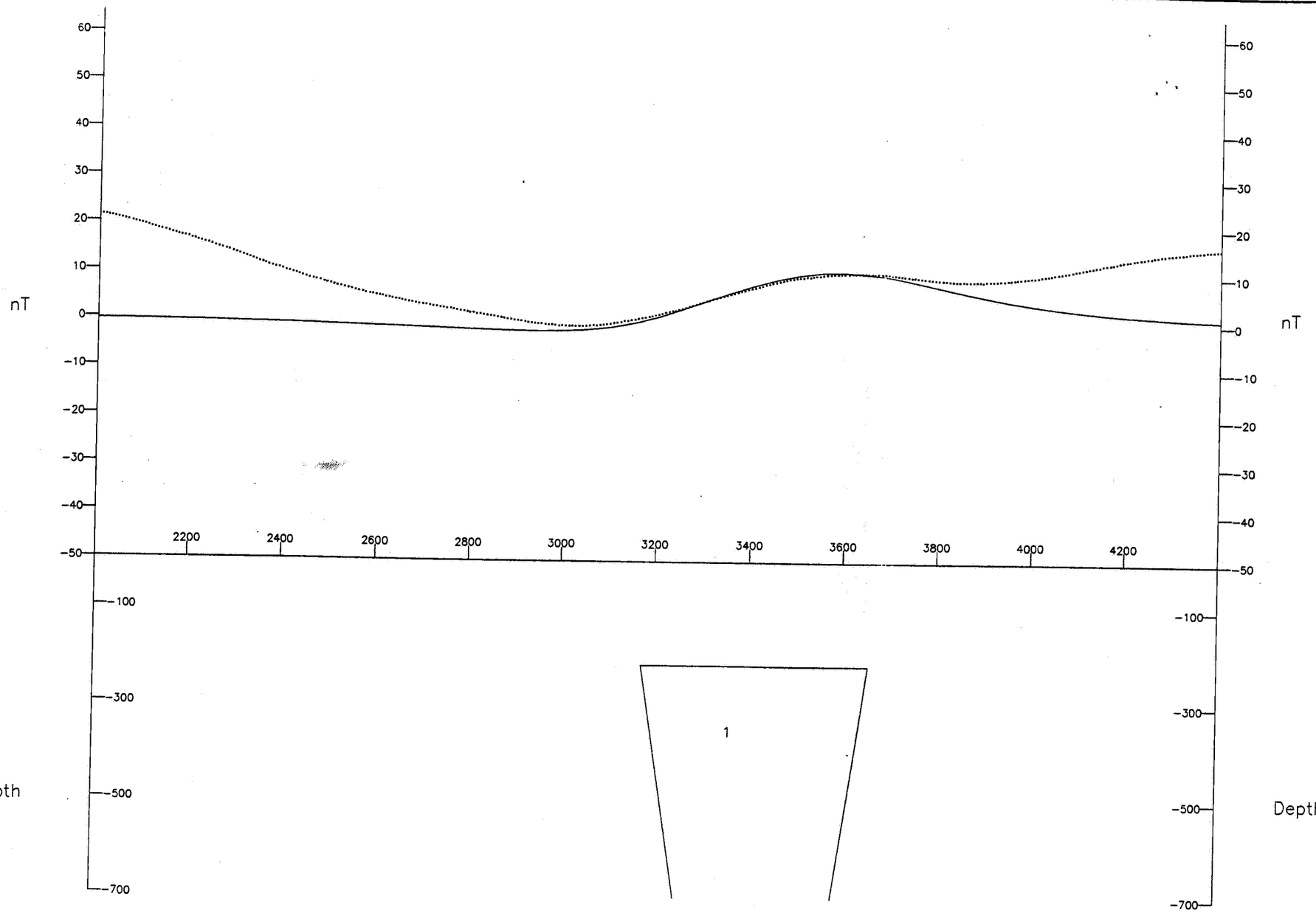
JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL – ANOMALY K5 Flight Line 3521

Date : 11-09-1994

Figure : 22

0070



nT

Depth

BODY No.	BODY TYPE	BODY STRIKE degr.	STRIKE LENGTH metres	TRAV. ANGLE degr.	3.0D WIDTH metres	3.0D DIP degr.	3.0D PLUNGE degr.	MAGNETIC //STR cgsu	SUSCEPTIBILITY //DIP cgsu	PERP. cgsu	REMANENT AMP. nT..	MAGNETISM INCL. degr.	DEC. degr.	KOENIG RATIO
1	2.5D	90	300	0				.00024	.00024	.00024	0	0	0	0

GLOBAL PARAMETERS

TOTAL FIELD : 58000 nT
INCLINATION : -59 Degrees
DECLINATION : 0 Degrees
SENSOR HEIGHT : 80 Metres
PROFILE BEARING : 0 Degrees

FIELD PROFILE : .....

MODEL PROFILE : ———

0 200 400

Scale 1:10000

SOUTHERN GEOSCIENCE CONSULTANTS

JP HOWARD/SAPPHIRE MINES ALLANDALE AREA, SA

MAGNETIC MODEL – ANOMALY K6 Flight Line 4341

Date : 11-09-1994

Figure : 23

0071

550 000 555 000 560 000 565 000 570 000 575 000 580 000 585 000 590 000

135°30' 135°45'

6960 000 6955 000 6950 000 6945 000 6940 000 6935 000 6930 000 6925 000 6920 000 6915 000 6910 000 6905 000

27°30' 27°45' 28°00'

1700

△ Mt Areebunna

900

A7 1100

Allandale Homestead

A19 10m

600

K3

K4

A1 450

A2 750 700

TF2 TF1

400

A11 650

A9 700

A15 800

A17 800

300 300 500

Ni

F1

1200

K1

K5

A13

K2

A18 300

A8 450

A12 500

△ Mt Dutton

Tc/k

K6

200

800

A10 1300

229 347 313 314 315 322 335 351 353 358 363 366 375 388 392 403 411 434

F2

Lake Eyre Fault ?

Peake Denison Fault ?

△ Algebuckina Hill

A

A'

LEGEND

- Modelled sections (4341 / 0)
- " narrow zones of source rocks (700=depth in metres)
- " broad zones of source rocks
- " intrusive bodies
- " kimberlite/lamproite targets
- Inferred fold axis
- " fault
- " thrust fault
- " 'deep' granitoid
- Axis of gravity 'high'
- " " 'low'
- Modelled gravity section (A — A')

N

2000 0 2000 4000 6000

AUSTRALIAN MAP GRID
WGS84 SPHEROID
SOUTHERN HEMISPHERE

SOUTHERN GEOSCIENCE CONSULTANTS

J. P. HOWARD / SAPPHIRE MINES NL JV

ALGEBUCKINA AREA – E3 EXTENSION

ALLANDALE AREA – EL 1924

AEROMAGNETIC SURVEY

INTERPRETATION PLAN

SCALE 1:100,000	
DATE 12-09-1994	FIGURE 3 Ashley

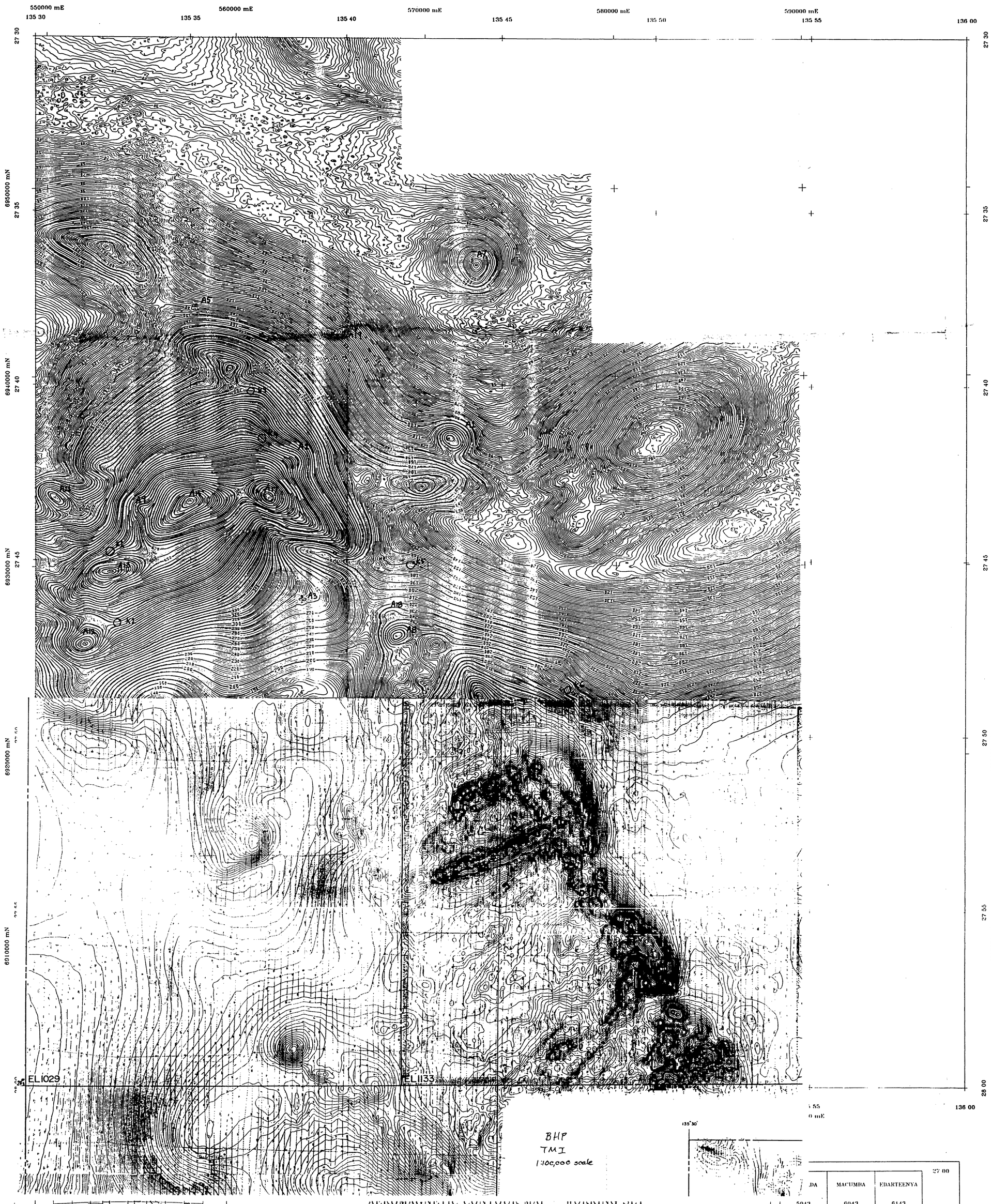
8911-11

1994 Airborne Geophysical Surveys

ALGEBUCKINA 1:100 000

6042

SOUTH AUSTRALIAN EXPLORATION INITIATIVE



BHP
TMI
1:100,000 scale

DATA ACQUISITION CONTRACTOR
Geoterrex Pty Ltd

7–9 George Place, Artarmon, NSW 2064
Phone: 02 418 8077 ... Fax: 02 418 8581

SURVEY FLOWN	May to June 1994
FLIGHT LINE SPACING	TRAVERSE LINES: 400 metres TIE LINES: 4000 metres BASIS: Traverse and tie lines flown along fixed AMG Northings and Eastings.
FLIGHT LINE DIRECTION	TRAVERSE LINES: along Grid NS TIE LINES: along Grid EW
SURVEY HEIGHT	MEAN TERRAIN CLEARANCE: 80 metres
NAVIGATION	Sercel NDS100 Real–time differential GPS
AIRCRAFT	Rockwell Shrike Commander AC500S VH–FXF
MAGNETOMETER	Scintrex split beam Cesium VIW/H8 RESOLUTION: 0.001 nanoteslas CYCLE RATE: 0.1 secs INSTALLATION: Tail stinger
PASSIVE COMPENSATION	Applied. Noise envelope of raw magnetic data 0.2 nT
ACTIVE COMPENSATION	RMS AADC11. Real time compensation. Bandwidth DC to 1.5 Hz. Effective noise envelope mostly less than 0.05 nT. NS,SN,EW,WE: noise envelope difference 25 percent maximum. Output sample rate 0.1 secs (approx 7m along ground).
GAMMA SPECTROMETER	TYPE: Geometrics GR820 256 channel ADC CHANNELS: 256 recorded on tape SAMPLE RATE: 1 second SAMPLE INTVL: 70 metres approx along ground CRYSTAL VOL: 33.56 litres SPECTRAL WINDOWS:

	Channels From	Channels To	Energy (MeV) From	Energy (MeV) To
Total Count	34	254	0.40	3.00
Potassium	115	134	1.35	1.57
EQ. Uranium	139	161	1.63	1.89
EQ. Thorium	206	240	2.42	2.81
Cs 137	255		3.01	6.00
Cosmic				

ACQUISITION MANAGEMENT	Chris J M. Nind, Martin N. Schneider

DATA PROCESSING CONTRACTOR
Pitt Research Pty Limited

Final data processing, microlevelling and mapping by Pitt Research.
11 Divett Street, Port Adelaide, SA, 5015
Phone: 08 341 0025 ... Fax: 08 341 0047

MAGNETIC DATA PROCESSING	The magnetic data have been corrected for regional gradient by subtraction of I.G.R.F. model 1985 and secular variation model 1985–1990. Diurnal magnetic variations have been removed. System parallax has been removed. Microlevelling has been applied. Inclination and declination computed continuously over whole area using IGRF model 1990 computed at year 1991. INCLINATION for map centre –60.58 deg. DECLINATION for map centre 6.02 deg.
GAMMA SPECTROMETRIC DATA PROCESSING	Corrections have been applied for: . Instrument deadtime . Cosmic and aircraft background . Height correction to 80m above ground level . Stripping to give c/s for K40, Bi214 & Tl208. The influence of radon has been minimised by the application of long wavelength spatial filtering. Estimates of radioelement concentration have been made by applying the following sensitivity coefficients: 116.6 c/s percent K, 13.7 c/s ppm U, 6.1 c/s ppm Th.
PRESENTATION	Contour interval: 1, 10, 100 Contour units: nanoteslas (nT)
GRIDDING PARAMETERS	ALGORITHM: bicubic spline MESH SIZE: 50 • 50 metres
PROCESSING MANAGEMENT	Mark Pfeuter, Jon Whelliams

True north, grid north and magnetic north are shown diagrammatically for the centre of the map. Magnetic north is based on the 1991 model and moves by approx. 0.0 degrees east per year.

Grid convergence ..... 0.35 degrees
Grid/magnetic angle ..... 6.37 degrees
True/magnetic angle ..... 6.02 degrees
Magnetic inclination ..... –60.58 degrees

TECHNICAL SUPERVISION

Ric M. Horn, MESA, Project Superintendent
Terry N. Crabb, MESA, Chief Geophysicist Minerals
Nick E. Dunstan, MESA, Senior Geophysicist
David H. Tucker, Preview Resources Pty Ltd

BIBLIOGRAPHIC REFERENCES

MESA, 1994. Aeromagnetic contour map Algebuckina map sheet (part Area E3). Total magnetic intensity. (Working Set MESA 94–844). Mines and Energy South Australia. SAEI Geophysical 1:100 000 Series, sheet 6042.

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MESA, 191 Greenhill Road, Parkside, SA, 5063
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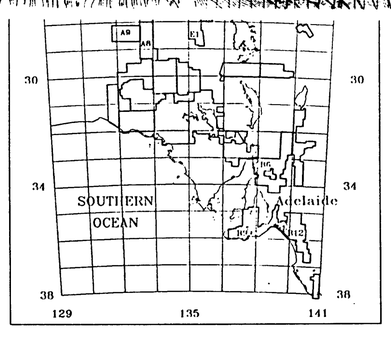
The Hon. D. S. Baker, M.P., Minister for Mines and Energy, and
S. H. Fardon, Director–General, Mines and Energy South Australia.



1993–94 SAEI SURVEYS

AEROMAGNETIC CONTOUR MAP — WORKING SET

TOTAL MAGNETIC INTENSITY

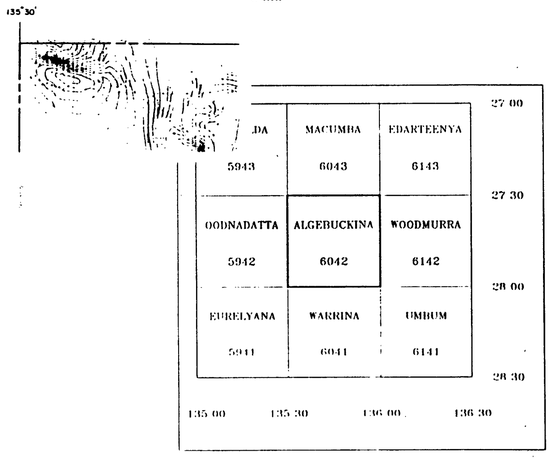
Contour Interval 1 nT

Scale: 1:100 000

2000 0 2000 4000 6000 8000 10000 Metres

Universal Transverse Mercator Projection
Central meridian: 135 degrees East, AMG Zone 53
Graticules: 5 minutes and 10 kilometres

MINES AND ENERGY
SOUTH AUSTRALIA



REFERENCE TO AUSTRALIA 1:100 000
STANDARD MAP SERIES

Algebuckina 1:100 000 (part Area E3)
TOTAL MAGNETIC INTENSITY CONTOUR MAP

Ashley Fig: 2B

MESA 94–844

8911-10

-40

AN

MT AREEBUNNA

27°30'S

Toodla

HANNS HILL

"Allandale"

-20

MT DUTTON ▲

Mt. Dutton

.ES

RIVER

-10

0

Algebuckina

Algebuckina
~~Poake Creek~~

+10

MT KINGSTON NORTH

135° 30'

136° 00'

SCALE

1 : 100,000

MILES 2 0 2 4 6 8 10 12 14 16 18

KILOMETRES 5 0 5 10 15 20 25

Published 1971

BOUGUER ANOMALY MAP

Compiled by R. J. Coppin, Geophysicist, R. A. Gerdes, Assistant Senior Geophysicist.

8911-12 Ashley Fig. 4

APPENDIX 3

GEOLOGICAL DRILL HOLE LOGS

ALLANDALE EL 1924
PROSPECT K3
ROTARY MUD DRILL HOLE K3/M1
AMG Coordinates: 560680mE; 6939360mN Zone 53
DATE: 4th to 6th November, 1994
CONTRACTOR: Stratadrill Hydra 1000 (Rick and Tiny) LOGGED BY: J.P.HOWARD

DEPTH (m		LITHOLOGY	DEPTH	M.SUSC
From	To		0-MTR	x10-5 SIU
0	1	GIBBER:		
0	1	Chert pebbles and boulders, orange-brown, rounded to sub-rounded,		
		polished with GREY CLAY angular fragments and a matrix of orange-brown clay		
1	120	BULLDOG SHALE (Cretaceous)	3	0.08
1	3	CLAY, light grey, plastic	6	0
3	24	CLAY, light grey-green, khaki-red-brown stains, plastic	9	0
			12	0.01
			15	0.01
			18	0
			21	0
			24	0
24	45	CLAY, medium grey, gypsum crystals 2%, white clay <2%, plastic	27	0
			30	0
			33	0.02
			36	0
			39	0
			42	0
			45	0.01
45	120	CLAY, medium grey, plastic	48	0
	EOH		51	0.02
			54	0.01
			57	0.08
			60	0
			63	0
			66	0
			69	0
			72	0
			75	0.01
			78	0
			81	0
			84	0.01
			87	0
			90	0.01
			93	0
			96	0
			99	0
			102	0.01
			105	0.01
			108	0.01
			111	0
			114	0
			117	0
			120	0.01
			EOH	

ALLANDALE EL 1924 0074
PROSPECT K5
ROTARY MUD DRILL HOLE K5/M1
AMG Coordinates: 569000mE; 6930200mN Zone 53
DATE: 6th to 8th November, 1994
CONTRACTOR: Stratadrill Hydra 1000 (Rick and Tiny) LOGGED BY: J.P.HOWARD

DEPTH (m)		LITHOLOGY	DEPTH	M.SUSC
From	To		0-Mtrs	x10-5 SIU
0	1.5	GIBBER:		
0	1.5	Chert pebbles and boulders, orange-brown, rounded to sub-rounded,		
		polished; CLAY, red-brown, angular fragments and a matrix of		
		orange-brown clay		
1.5	6	SILCRETISED BULLDOG SHALE	3	0.06
1.5	6	SILCRETE, 60%, grey-white, minor iron stains, angular fragments	6	1.26
		broken by drill bit	9	0.96
		CLAY, 40%, orange-green, plastic	12	0.71
6	210	BULLDOG SHALE (Cretaceous)	15	0.26
6	12	CLAY, 90%, orange-green-red, plastic	18	0.29
		SILCRETE, 10%, contamination from above	21	0.19
12	24	CLAY, 95%, grey-orange-brown, plastic	24	0.15
		SILCRETE, 5% contamination	27	0.16
24	63	CLAY, 98%, dark grey, plastic	30	0.17
		CLAY, 2%, white, plastic	33	0.15
			36	0.25
			39	0.23
			42	0.21
			45	0.14
			48	0.18
			51	0.12
			54	0.15
			57	0.16
			60	0.15
			63	0.11
			66	0.14
63	210	CLAY, 95%, dark grey, plastic	69	0.12
		SHALE, 5%, thin shale partings, fawn grey	72	0.11
		(dry clay contamination)	75	0.12
			78	0.11
			81	0.16
			84	0.14
		84-87m gypsiferous	87	0.16
			90	0.13
			93	0.16
			96	0.13
			99	0.13
			102	0.21
			105	.0.20
			108	0.17
			111	0.16
			114	0.2
			117	0.2
			120	0.19

ALLANDALE EL 1924
PROSPECT K5
ROTARY MUD DRILL HOLE K5/M1
AMG Coordinates: 569000mE; 6930200mN Zone 53
DATE: 6th to 8th November, 1994
CONTRACTOR: Stratadrill Hydra 1000 (Rick and Tiny) **LOGGED BY: J.P.HOWARD**

0075

DEP	TH (m)	LITHOLOGY	123	0.12
From	To		126	0.15
			129	0.16
			132	0.14
			135	0.15
			138	0.14
			141	0.14
			144	0.15
			147	0.12
			150	0.14
		148.5-149.1 Hard, poor sample return, minor chips of jasper	153	0.13
			156	0.13
		153-156m up to 20% fawn clay, laarge 2cm chips and 'leaves'-contam	159	0.11
			162	0.12
			165	0.12
			168	0.13
			171	0.14
			174	0.13
			177	0.13
			180	0.15
			183	0.16
			186	0.18
		180-183m up to 60% fawn clay with minor jasper-contaminaton	189	0.15
			192	0.14
			195	0.15
			198	0.15
			201	0.15
			204	0.15
			207	0.18
			210	0.23
			EOH	

ALLANDALE EL 1924
PROSPECT K5
ROTARY MUD DRILL HOLE K5/M2
AMG Coordinates: 569000mE; 6930050mN Zone 53
DATE: 9th to 10th November, 1994
CONTRACTOR: Stratadrill Hydra 1000 (Rick and Tiny) **LOGGED BY: J.P.HOWARD**

0076

DEPTH (m)		LITHOLOGY	DEPTH	M.SUSC
From	To		0-Mtrs	x10-5 SIU
0	2.6	GIBBER:		
0	2.6	Silcrete pebbles and boulders , orange-brown, rounded		
		to subrounded, polished; CLAY red-brown, angular		
		fragments and a matrix of orange-brown clay;		
		sharp unconformity in backhoe pit	3	
2.6	6	SILCRETISED BULLDOG SHALE	6	0.08
3	6	SILCRETE, 50%, white and red chalcedonic silcrete	9	0.17
		(used tungsten roller bit to penetrate; slithers of metal)	12	0.07
		CLAY, 50%, light grey-green	15	0.07
6	210	BULLDOG SHALE (Cretaceous)	18	0.1
6	12	CLAY, 90%, grey-green, plastic	21	0.17
		GYPSUM, 1%	24	0.09
		SILCRETE, 9%	27	0.1
12	16	CLAY, Grey-green, plastic, minor gypsum	30	0.18
16	210	CLAY, 90-100%, Grey-green, plastic, minor gypsum	33	0.16
		CLAY, 0-10%, fawn-brown & red-brown 1%	36	0.15
		and manganese stains	39	0.17
			42	0.15
			45	0.13
		48-53m gypsum crystals to 2x1x1 cm	48	0.12
			51	0.17
			54	0.1
			57	0.12
			60	0.08
			63	0.12
			66	0.13
			69	0.11
			72	0.15
			75	0.14
			78	0.13
			81	0.12
			84	0.12
			87	0.11
			90	0.11
			93	0.13
			96	0.14
			99	0.11
			102	0.11
			105	0.18
			108	0.12
			111	0.15
			114	0.13
			117	0.15
			120	0.14
			123	0.12
			126	0.14
			129	0.13

ALLANDALE EL 1924
PROSPECT K5
ROTARY MUD DRILL HOLE K5/M2
AMG Coordinates: 569000mE; 6930050mN Zone 53
DATE: 9th to 10th November, 1994
CONTRACTOR: Stratadrill Hydra 1000 (Rick and Tiny) **LOGGED BY: J.P.HOWARD**

			132	0.12
			135	0.14
			138	0.14
			141	0.12
			144	0.16
		147 m <2% white clay	147	0.14
			150	0.16
			153	0.13
			156	0.1
			159	0.13
			162	0.13
			165	0.13
			168	0.1
			171	0.11
			174	0.13
			177	0.11
			180	0.08
			183	0.12
			186	0.14
			189	0.13
			192	0.14
			195	0.12
			198	0.12
			201	0.14
			204	0.13
			207	0.13
			210	0.29
210	253	CADNA-OWIE SANDSTONE (Cretaceous) EOH	213	0.22
			216	0.3
210	213	SAND 80%, quartzose, medium grained,	219	0.15
		rounded to well rounded, clear	222	0.14
		CLAY 20%, medium grey	225	0.31
213	216	SAND 80%, quartzose, fine grained, rounded to well rounde	228	0.24
		clear, some aggregates	231	0.21
		CLAY 20%, medium grey	234	0.16
		216-234m sample contaminated with clay from	237	0.25
		overnight hardening	240	0.19
216	240	SAND 100%, quartzose, homogenous, fine to medium	243	0.16
		grained, angular to rounded, minor red grains	246	0.12
240	253	SAND 100%,clean, clear 80%, frosty 20%, bimodal,	249	0.12
	EOH	fine grained, medium grained, rounded, becoming coarser	253	0.09
		towards the base of the interval.		
		<1% very fine grained, rounded to well rounded		
		black mineral, non magnetic ?haematite		

APPENDIX 4

CHIP SAMPLE ASSAY RESULTS

APPENDIX 4 **CHIP SAMPLE ASSAY RESULTS**

S.No.	Easting AMG	Northing AMG	Lithology	Niobium ppm
AL1	562682	6936107	Massive goethite and brecciated silcrete with	31.5
			goethite matrix. Only as minor float below	
			small silcrete cap	
AL2	562987	6935481	Goethite float over 5 square m area	5
AL3	563288	6935389	FAULT: Outcrop of dominantly Jarosite	39.5
			angular fragments to 3mm with fine grained	
			hematite-goethite matrix	
AL4	563165	6935810	Outcrop of hematite-rich silcrete and	18
			minor massive goethite	
AL5	563005	6935818	Pink silcrete with angular fragments to 3mm	24.5
			of lighter fawn silcrete-? Fault	
AL6	562735	6935518	Outcrop of massive, sooty, black and red	3.5
			hematite-goethite	
AL7	South from EL	-Neales Ck hole	Massive ironstone-brecciated	3
			Mag Sus 174x10-3 SIU	

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MINERAL CHEMISTRY

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0080

Mr J Howard
Petra Search
28 Glyde Street
ALBERT PARK SA 5014

FINAL ANALYSIS REPORT

Your Order No:

Our Job Number : 5AD1111

Sample rec'd : 24/03/95
No. of samples : 7

Results reported : 03/04/95

Report comprises a cover sheet and pages 1 to 4

This report relates specifically to the samples tested in so far that the samples as supplied are truly representative of the sample source.

Approved Signature:

for
Alan Ciplys
Manager - Mineral Chemistry
AMDEL LABORATORIES ADELAIDE

Report Codes:
N.A. - Not Available.
L.N.R. - Listed But Not Received.
I.S. - Insufficient Sample.

Distribution Codes:
CC - Carbon Copy
EM - Electronic Media
MM - Magnetic Media

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0081

Analytical Chemistry

Final
Job Number:5AD1111
O/N :

ANALYTICAL REPORT

EMENT	UNITS	AL1	AL2	AL3	AL4	AL5	
	ppb	2	2	<1	<1	1	AA9
Dp1	ppb	<1	--	<1	<1	<1	AA9
	ppm	0.5	0.1	0.5	0.2	0.3	IC3M
	ppm	53	65	9.0	43.0	8.0	IC3M
	ppm	1	25	<1	2	<1	IC3M
	ppm	0.6	0.4	0.3	0.4	0.2	IC3M
	ppm	0.6	0.4	0.7	0.4	0.5	IC3M
	ppm	61	22.0	20.5	50	14.5	IC3M
	ppm	10.0	49.5	2.7	13.0	1.6	IC3M
	ppm	0.1	0.8	0.1	0.2	0.1	IC3M
	ppm	40.5	220	26.5	28.0	29.0	IC3M
	ppm	19.5	16.0	4.2	34.0	4.3	IC3M
	ppm	7	2	8	5	6	IC3M
	ppm	0.10	0.20	<0.05	0.05	<0.05	IC3M
	ppm	29.5	7.5	9.5	21.0	7.0	IC3M
	ppm	6.0	22.5	4.8	13.5	3.7	IC3M
	ppm	31.5	5.0	39.5	18.0	24.5	IC3M
	ppm	13	145	6	27	4	IC3M
	ppm	72	55	27.0	68	21.0	IC3M
	ppm	2.2	7.0	2.5	2.7	2.1	IC3M
	ppm	1.5	1.0	1.0	<0.5	0.5	IC3M
	ppm	5.0	8.5	2.5	5.0	2.0	IC3M
	ppm	6.0	3.5	6.0	4.0	4.8	IC3M
	ppm	2.0	0.5	3.0	1.5	2.0	IC3M
	ppm	<0.2	<0.2	<0.2	0.2	<0.2	IC3M
	ppm	15.0	2.1	11.5	6.0	6.5	IC3M
	ppm	0.6	0.4	0.2	0.2	0.1	IC3M
	ppm	6.0	2.3	4.4	4.2	2.8	IC3M
	ppm	4.0	0.6	5.0	3.2	3.3	IC3M
	ppm	27.0	26.0	16.5	20.5	16.5	IC3M
	ppm	3600	540	1900	6600	620	IC3E
	ppm	660	1300	820	680	760	IC3E
	ppm	135	38	110	90	77	IC3E
	ppm	16.2%	47.6%	4.84%	22.4%	2.13%	IC3E
	ppm	260	1700	220	380	220	IC3E
	ppm	320	1400	170	540	155	IC3E
	ppm	400	220	190	1300	165	IC3E
	ppm	480	1700	280	400	240	IC3E
	ppm	320	1700	580	380	80	IC3E
	ppm	320	105	125	240	99	IC3E

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Analytical Chemistry

Final
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ANALYTICAL REPORT

EMENT	UNITS	AL1	AL2	AL3	AL4	AL5	
	ppm	2.18%	1800	2.73%	1.19%	1.72%	IC3E
	ppm	2400	520	135	820	125	IC3E
	ppm	37	680	18	47	45	IC3E
	ppm	260	65	280	125	195	IC3E

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Analytical Chemistry

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ANALYTICAL REPORT

ELEMENT	UNITS	AL6	AL7	
u	ppb	2	<1	AA9
Au Dp1	ppb	<1	<1	AA9
Ag	ppm	<0.1	<0.1	IC3M
s	ppm	18.5	<0.5	IC3M
e	ppm	14	3	IC3M
i	ppm	<0.1	0.6	IC3M
d	ppm	0.1	0.2	IC3M
e	ppm	19.0	6.5	IC3M
Co	ppm	25.0	26.0	IC3M
s	ppm	0.4	0.8	IC3M
Cu	ppm	7.5	120	IC3M
Ga	ppm	5.5	6.5	IC3M
f	ppm	<1	<1	IC3M
n	ppm	<0.05	<0.05	IC3M
La	ppm	6.5	1.75	IC3M
o	ppm	7.5	1.2	IC3M
b	ppm	3.5	3.0	IC3M
Ni	ppm	82	6	IC3M
b	ppm	11.5	5.0	IC3M
b	ppm	6.0	2.3	IC3M
Sb	ppm	<0.5	<0.5	IC3M
e	ppm	1.0	<0.5	IC3M
n	ppm	1.9	2.5	IC3M
Ta	ppm	<0.5	<0.5	IC3M
Te	ppm	<0.2	<0.2	IC3M
h	ppm	0.82	0.28	IC3M
Tl	ppm	<0.1	0.2	IC3M
	ppm	0.43	4.0	IC3M
	ppm	0.2	165	IC3M
Y	ppm	22.0	3.4	IC3M
a	ppm	1000	100	IC3E
a	ppm	1.02%	1300	IC3E
Cr	ppm	13	5	IC3E
Fe	ppm	54.9%	42.8%	IC3E
	ppm	860	165	IC3E
Mg	ppm	920	440	IC3E
n	ppm	3500	300	IC3E
a	ppm	320	155	IC3E
P	ppm	900	185	IC3E
Sr	ppm	340	32	IC3E

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Analytical Chemistry

Final
Job Number:5AD1111
O/N :

ANALYTICAL REPORT

ELEMENT	UNITS	AL6	AL7	
Ti	ppm	380	200	IC3E
V	ppm	42	110	IC3E
Zn	ppm	320	19	IC3E
Zr	ppm	15	<5	IC3E