

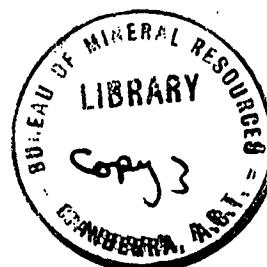
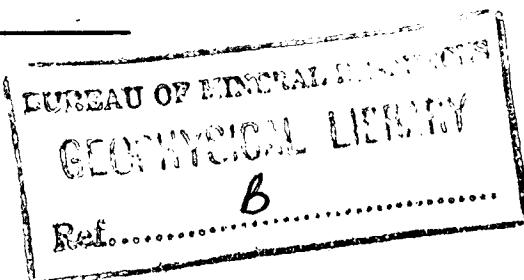
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COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS



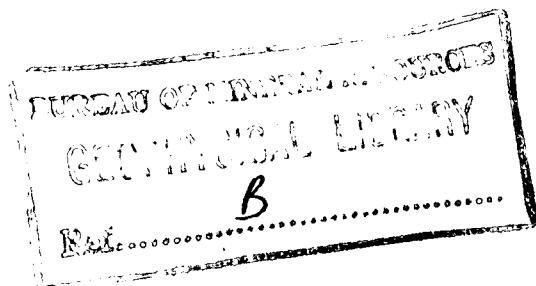
RECORD No. 1962/185

MOUNT BUNDEY TEST MAGNETIC SURVEY, NT 1962

by

J. Ashley

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## SUMMARY

A test magnetic survey was made over an iron deposit near Mount Bundey, NT. The main purpose of the survey was to determine whether an aeromagnetic survey would locate similar deposits.

Large magnetic anomalies were recorded over the deposit, and it is likely that an aeromagnetic survey would detect similar anomalies.

In detail the magnetic results are useful in siting drill holes to investigate possible subsurface extensions of the outcropping deposit.

## 1. INTRODUCTION

At the request of the Northern Territory Administration Mines Branch a test magnetic survey was made by the Bureau of Mineral Resources over the Mount Bundey iron deposit.

The object of the survey was to determine whether aero-magnetic surveys would be useful in locating similar iron deposits. The position of the deposit is latitude  $12^{\circ}51.0'S$ , longitude  $131^{\circ}35.5'E$ , i.e. approximately 60 miles from Darwin in a direction  $S60^{\circ}E$  (Plate 1). Access is by track from either Humpty Doo, the 46-mile, or Adelaide River.

The iron deposit is martite and crops out in one prominent ridge, 100 ft high and 2200 ft long, trending roughly north-east. There are a few smaller outcrops north-west of the ridge. The Mount Goyder Syenite is the only rock type cropping out in the vicinity of the iron deposit.

The magnetic survey was made by J. Ashley (geophysicist) and G. Cole (geophysical assistant) of the Darwin Uranium Group between 24th and 28th July 1962. Seven traverses, spaced at 400-ft intervals and ranging in length from 1050 to 2000 ft, were surveyed. Figure 1 shows the geology and topography of the area and the positions of the geophysical traverses.

## 2. OPERATION AND PRESENTATION OF RESULTS

Relative measurements of the Earth's vertical magnetic field were made along the traverses at intervals of  $12\frac{1}{2}$ , 25, or 50 ft, using a Hilger and Watts variometer. The diurnal variation of the Earth's magnetic field was checked by taking readings at Station 00/00 at time intervals of about two hours, and the field results were corrected for this variation.

The magnetic results are presented as profiles (Plate 2,) and as contour maps, (Plates 3 and 4). The contour map of Plate 4 was obtained by smoothing the profiles of Plate 2. The magnetic data cannot be uniquely contoured as the traverse spacing is large compared with the station spacing. This fact should be borne in mind when studying the contour maps.

## 3. INTERPRETATION AND CONCLUSIONS

The results show that an aeromagnetic survey would locate iron deposits of the Mount Bundey type.

The contour map on Plate 4 gives a better indication than the contour map on Plate 3 of what would be recorded by an aeromagnetic survey. If a flight-line spacing of 1000 ft were used, it is apparent that at least some indication of the anomalies shown on Plate 4 would be recorded.

2.

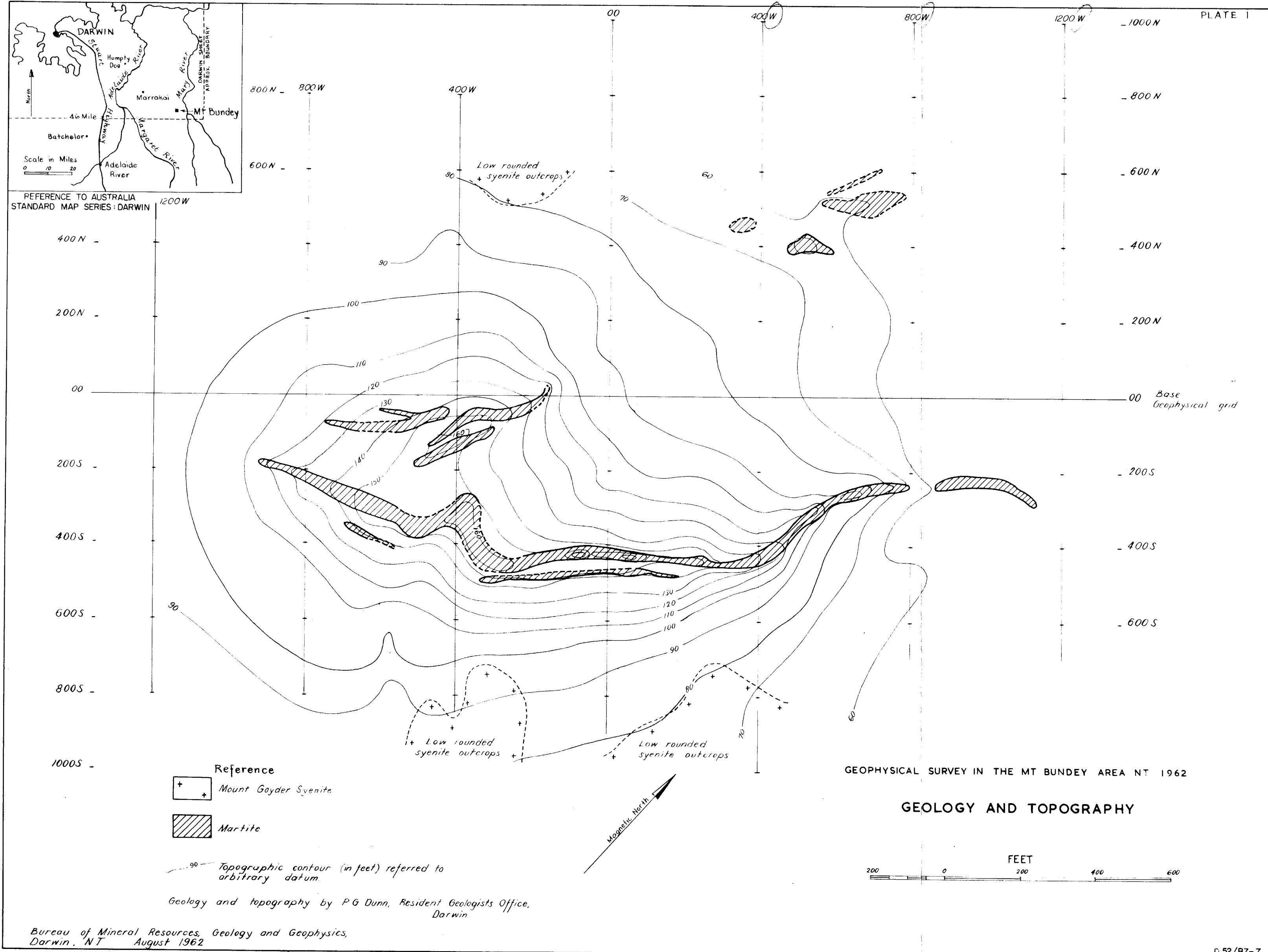
The zones of magnetic anomaly are generally associated with iron outcrops but are more extensive than the outcrops, indicating the possible presence of concealed iron deposits. Possible deposits are also indicated east and west of the surveyed area.

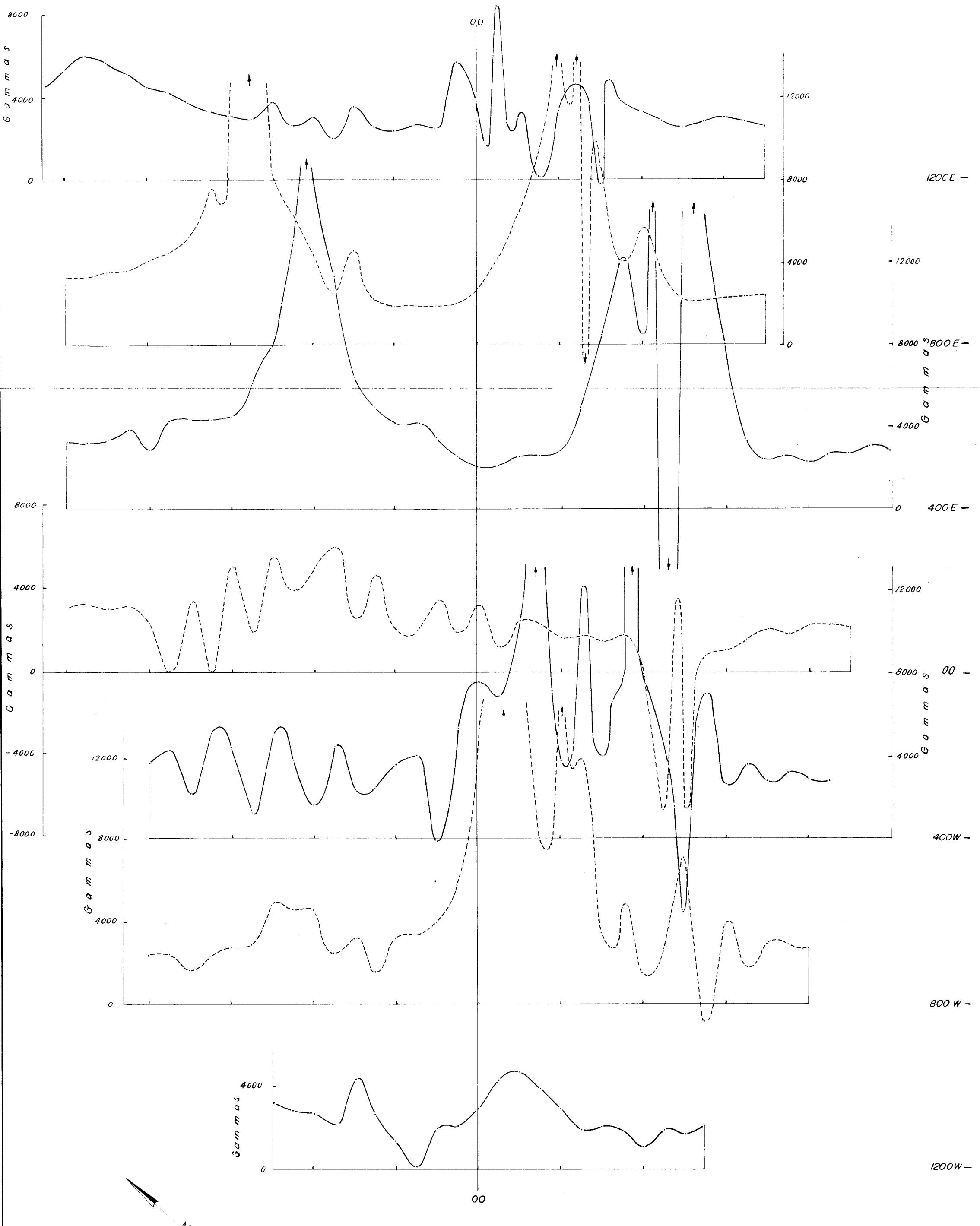
The magnetic data indicate the presence of substantial deposits extending from about 400N/200E to 900N/1200E and from about 200S/200W to 50S/900W. Calculations show that Anomaly A (Plate 3) could be due to a narrow vertical magnetic body 1200 ft in length, centred at 500N/600E, with its upper surface at a depth of 50 ft and lower surface at a depth of 150 ft beneath ground level. The axis of this body follows that of the magnetic anomaly.

4. RECOMMENDATIONS

To test the subsurface extensions of the deposit, drill holes are recommended at the following sites :

- a. 600N/800E      } inclined at 60 degrees to the horizontal  
                        } in the direction 117 degrees (magnetic)
- b. 450N/400E      }
- c. 25S/800W        - inclined at 60 degrees to the horizontal  
                        in the direction 138 degrees (magnetic)

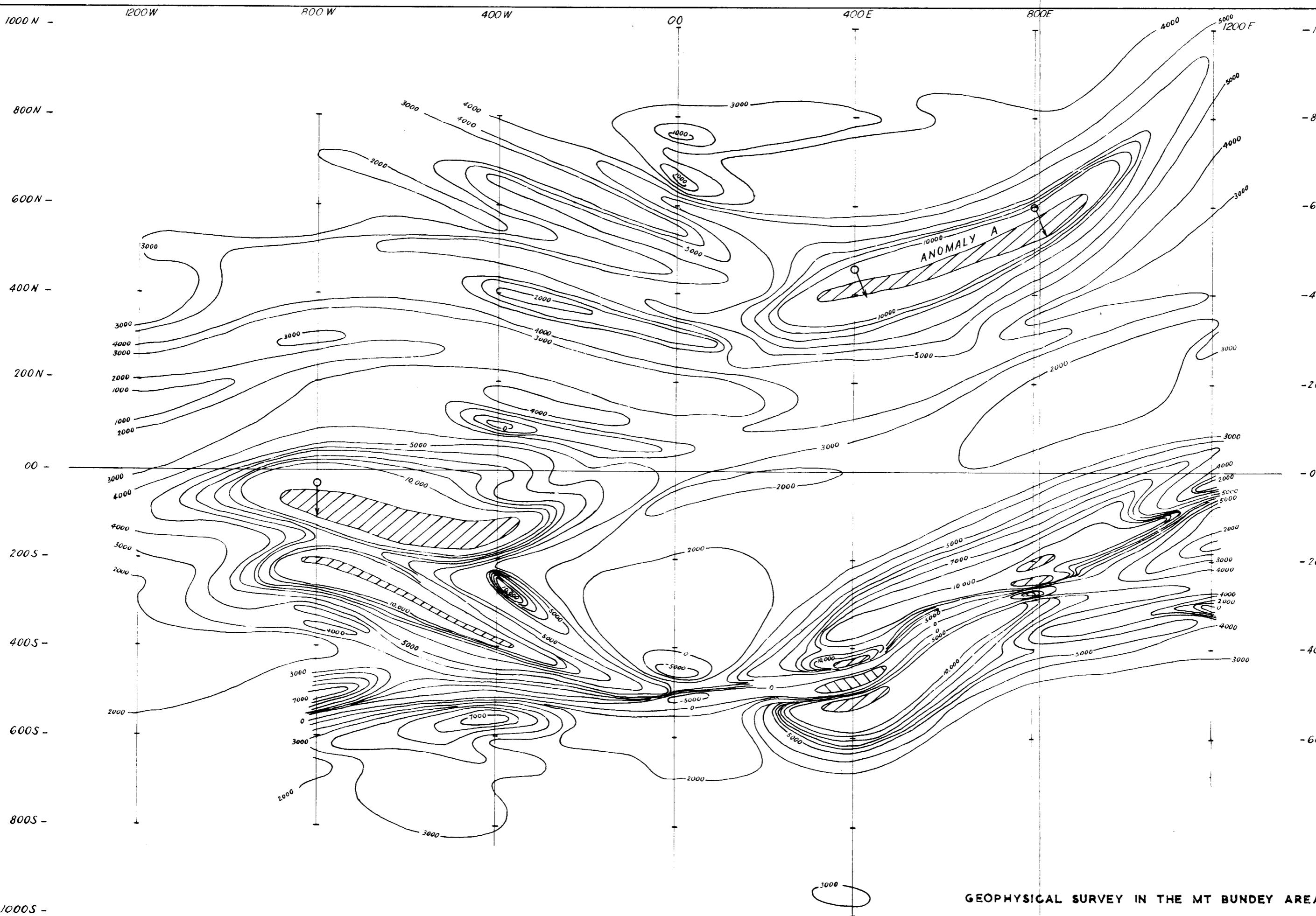




GEOPHYSICAL SURVEY IN THE MT BUNDEY AREA NT 1962

## PROFILES OF VERTICAL MAGNETIC INTENSITY

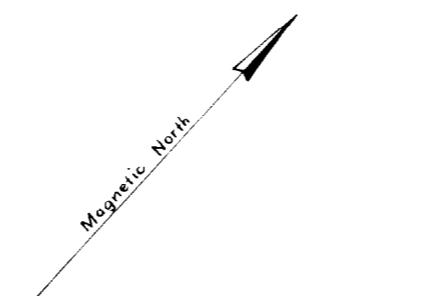
Horizontal 200 0 200 400 600 Feet  
Vertical 4000 0 4000 8000 12000 Gammas



GEOPHYSICAL SURVEY IN THE MT BUNNEY AREA NT 1962

## VERTICAL MAGNETIC INTENSITY CONTOURS

Contour interval variable



- LEGEND
- Greater than +13,000 gammas
  - Less than -13,000 gammas
  - 3,000-gammas contour
  - Recommended drill-hole site

