

PLANNING SECTION

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COMMONWEALTH OF AUSTRALIA

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DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

RECORD No. 1963/104

AREA 44 GEOPHYSICAL SURVEY,  
NORTHERN TERRITORY 1962



by

A. DOUGLAS

The information contained in this report has been obtained by the Department of National Development as part of the policy of the Commonwealth Government to assist in the exploration and development of mineral resources. It may not be published in any form or used in a company prospectus or statement without the permission in writing of the Director, Bureau of Mineral Resources, Geology and Geophysics.

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## SUMMARY

This Record describes electromagnetic and radiometric surveys made at Area 44, Rum Jungle, NT in the search for uranium.

The radiometric method outlined a broad anomaly extending for almost the whole length of the area. This anomaly is weak and does not warrant further investigation.

The only electromagnetic anomalies of note are in the north-eastern corner and along the western boundary of the survey area. These anomalies are probably related to lithology rather than mineralisation, but this cannot be confirmed until the area surveyed has been extended.

## 1. INTRODUCTION

Since the discovery of uranium at Rum Jungle, NT in 1949, most geophysical prospecting for further uranium deposits has been carried out near known orebodies west and south-west of the Rum Jungle Granite. However, in November 1962 a meeting of officers of the Australian Atomic Energy Commission, Territory Enterprises Pty Ltd (TEP), and the Bureau of Mineral Resources decided to extend exploration to Area 44, which is an area of weak radioactivity on the south-eastern side of the granite. Area 44 is of particular interest as it is near a limestone/shale contact considered a favourable environment for uranium mineralisation in the Rum Jungle area.

Area 44 is  $6\frac{1}{2}$  miles N30°E of Batchelor (Plate 1) and close to the eastern boundary of the Hundred of Goyder. Access is by a rough track from the intersection of the road to Batchelor with the Stuart Highway (see Plate 1). The access road crosses black-soil flats and is impassable in the wet season.

Twelve east-west traverses spaced at 400-ft intervals and up to 3000 ft in length were surveyed across Area 44 and pegged at 50-ft intervals. The traverses were numbered according to the TEP co-ordinate system and the grid was tied to the Hundred of Goyder boundary survey.

All the traverses pegged were investigated with the electromagnetic (Slingram) and radiometric methods. These methods have been discussed by Daly (1962) with reference to the search for uranium in the Rum Jungle area and will not be discussed here.

## 2. GEOPHYSICAL RESULTS

### Radiometric results (Plate 2)

The radiometric results show a broad anomaly extending southwards from Traverse 35,400N to beyond the southern limit of the area surveyed. The axis of this anomaly runs roughly north and lies slightly east of the centre line of the area. Over most of its length the anomaly is weak, approximately  $1\frac{1}{2}$  times background, but small areas of twice background were outlined on Traverses 35,400N, 33,500N and 33,000N.

### Electromagnetic results (Plates 3 and 4)

The most intense electromagnetic anomalies were outlined on the eastern end of Traverses 36,200N and 35,800N; weaker anomalies were outlined near the eastern limits of the other traverses surveyed. A weak anomaly was also detected near the western edge of the area; the axis of this anomaly extends from 35,800N / 59,900E to 34,200N / 60,100E.

3. DISCUSSION AND CONCLUSIONS

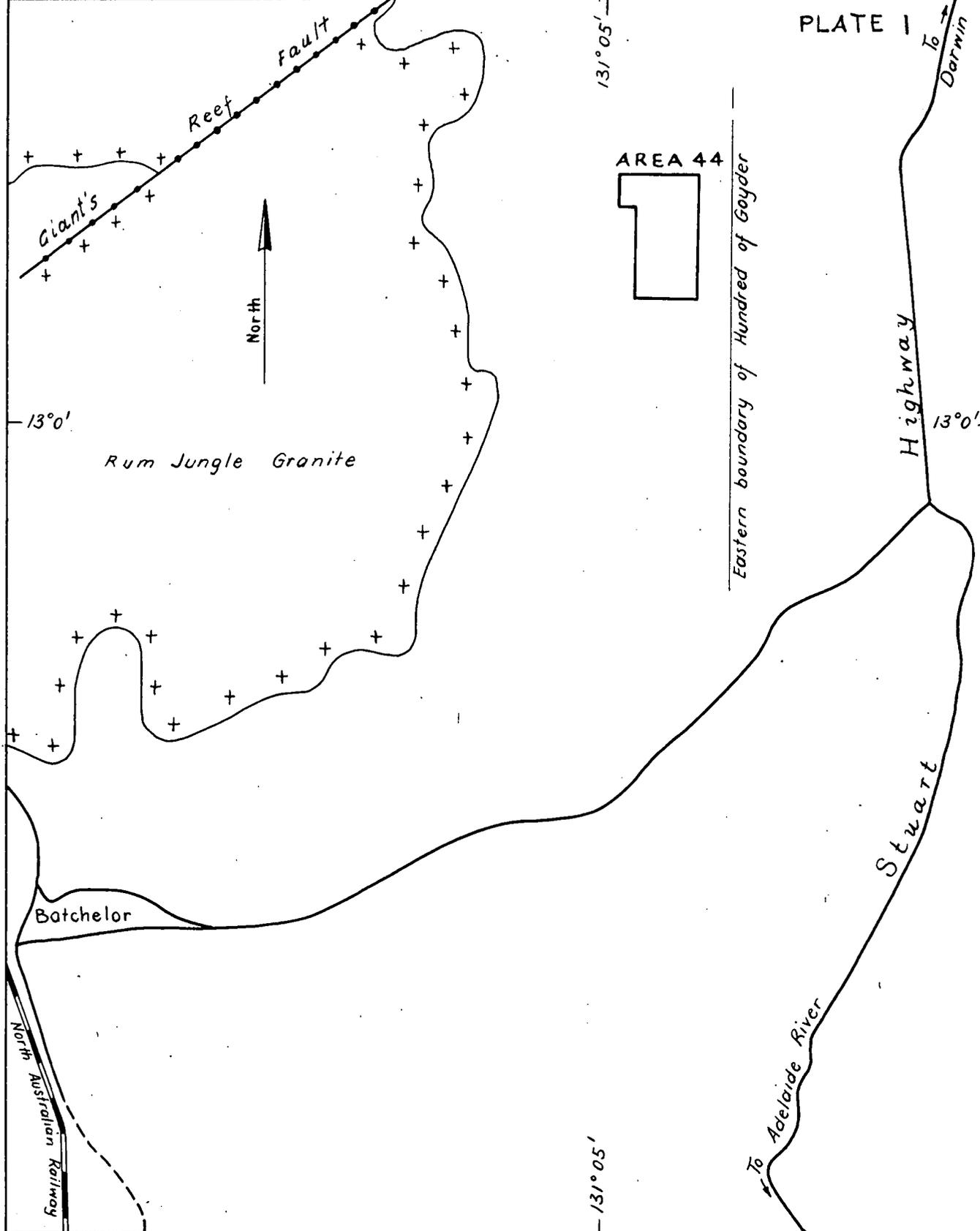
From the geophysical results there is no evidence of extensive mineralisation in the area surveyed. The radiometric anomaly is weak and does not warrant further investigation. The survey area needs to be extended eastwards and northwards before the significance of the electromagnetic results can be assessed but the breadth of the real-component anomalies in the eastern part of the area suggests that the anomalies overlie a broad conducting zone. The weak anomaly near the western limit of the area may mark the limestone/shale junction.

No drilling is recommended at Area 44. If any further geophysical work is done on the south-eastern side of the Rum Jungle Granite, the Area-44 survey should be extended eastwards and northwards to follow the electromagnetic anomalies.

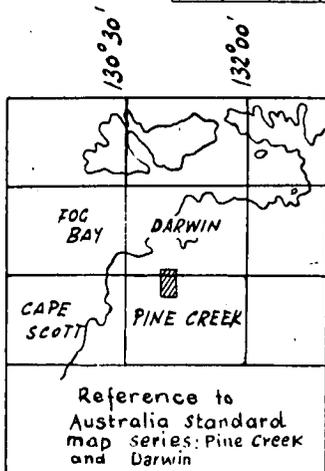
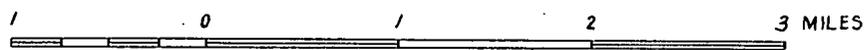
4. REFERENCE

- |          |      |                                                                                                                                                      |
|----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| DALY, J. | 1962 | Rum Jungle district, Northern Territory, introductory report on geophysical surveys 1960-61. <u>Bur. Min. Resour. Aust. Rec. 1962/27 (unpubl.)</u> . |
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To Darwin

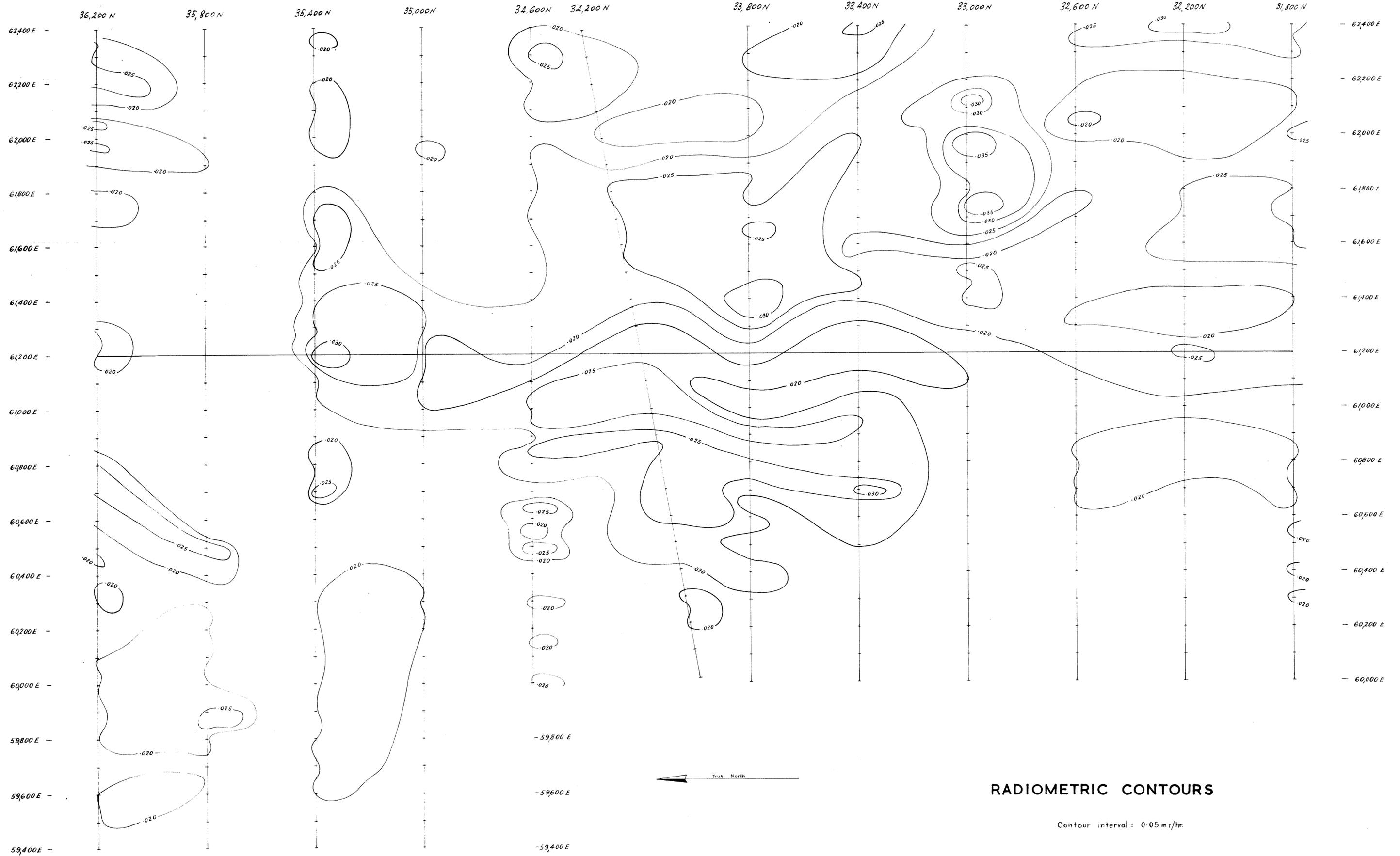


Scale



GEOPHYSICAL SURVEY IN THE RUM JUNGLE AREA, NT 1962

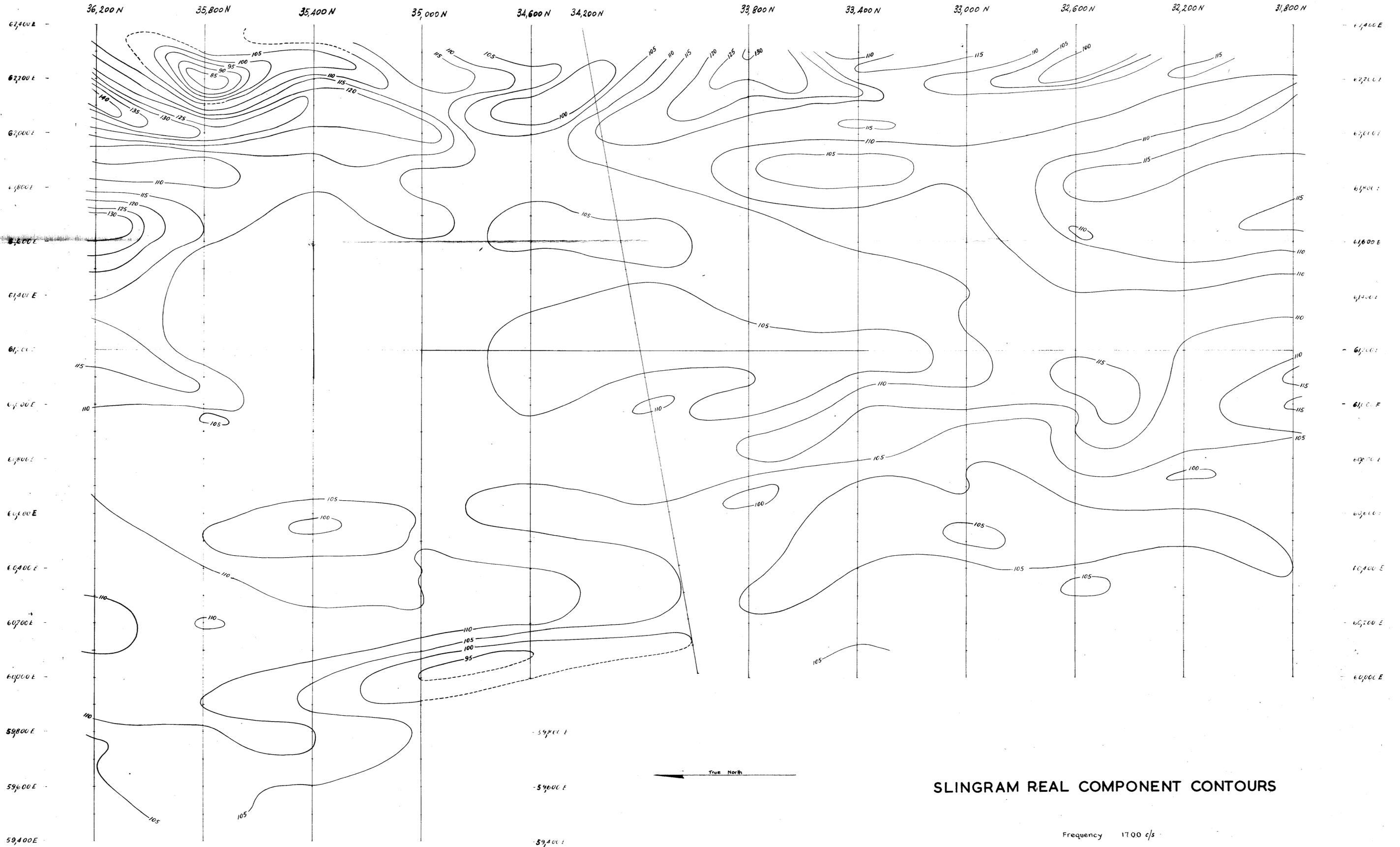
AREA 44 LOCALITY MAP



### RADIOMETRIC CONTOURS

Contour interval: 0.05 mR/hr.

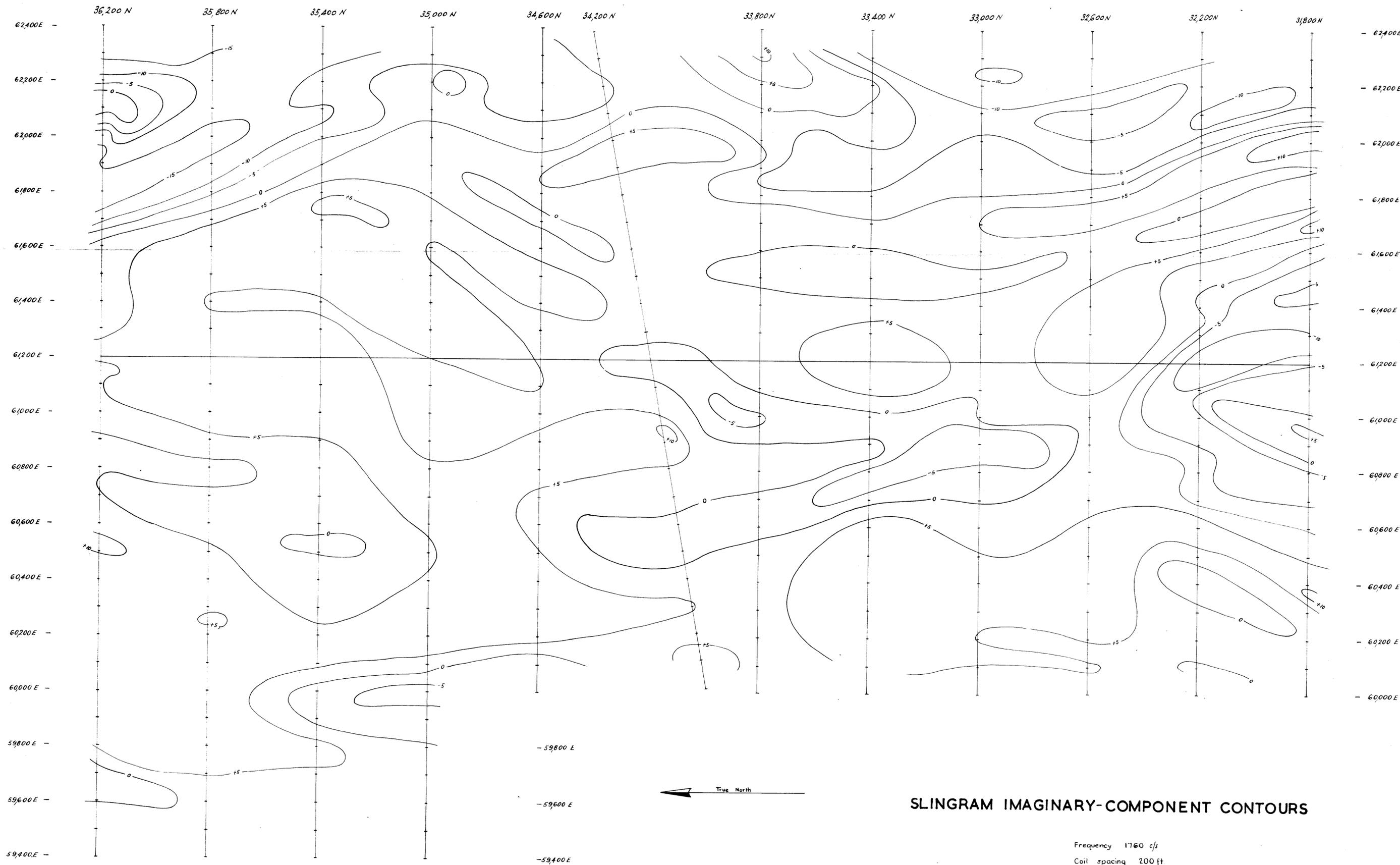




SLINGRAM REAL COMPONENT CONTOURS

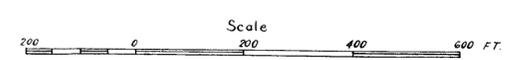
Frequency 1700 c/s  
 Coil spacing 200 ft  
 Contour interval 5%





### SLINGRAM IMAGINARY-COMPONENT CONTOURS

Frequency 1760 c/s  
 Coil spacing 200 ft  
 Contour interval 5%



Bureau of Mineral Resources, Geology and Geophysics,  
 Darwin NT, January 1963

GEOLOGICAL SURVEY IN THE KUM JUNGLE AREA BY M. J. 1964