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COMMONWEALTH OF AUSTRALIA

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DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

RECORD No. ¹⁹⁶²~~1961~~/127

MOUNT FITCH NORTH GEOPHYSICAL SURVEY,
RUM JUNGLE DISTRICT, N.T. 1961

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 It may not be published in any form or used in a company prospectus or statement without the permission in writing of the Director, Bureau of Mineral Resources, Geology and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

The results of radiometric and electromagnetic surveys over an area at Mount Fitch North are described. These surveys were carried out with the approval of the Australian Atomic Energy Commission as part of the 1961 programme of uranium prospecting in the Rum Jungle district.

Both methods outlined only very weak anomalies. On the geophysical evidence, the area does not seem to warrant further investigation.

1. INTRODUCTION

During 1961 the Bureau of Mineral Resources, with the approval of the Australian Atomic Energy Commission, carried out a geophysical survey of an area at Mount Fitch North as part of a programme of uranium prospecting in the Rum Jungle Uranium Field. A radiometric anomaly was discovered at Mount Fitch North in 1952, during an airborne scintillograph survey conducted by the Bureau of Mineral Resources (Wood and McCarthy, 1952). This discovery first attracted attention to the area as a possible uranium prospect. The operating company, Territory Enterprises Pty Ltd did some costeaning in the area but did not find significant evidence of extensive uranium mineralisation. However, the area lies close to a limestone/slate contact, a position considered favourable for uranium mineralisation in the Rum Jungle Field. The 1961 geophysical survey was made in an attempt to locate any such mineralisation.

Mount Fitch North lies in the Hundred of Goyder about six miles north-west of the Rum Jungle Mine (Plate 1). Two roads lead to the area, one from the Rum Jungle Mine, the other via Mount Burton. A low ridge crosses the area in a roughly northerly direction.

The exact position of Mount Fitch North in relation to the Hundred of Goyder co-ordinates is not known. The Lands and Survey Branch of the Northern Territory Administration is at present re-surveying the Hundred, and more accurate information on the position of the area should be available in the near future.

A baseline 4800 ft long (bearing $23^{\circ}55'$) was surveyed across the area, and traverses ranging in length up to 1800 ft were surveyed at right angles to this baseline. The traverses were spaced at 400-ft intervals and marked by pegs every 50 ft.

The entire layout was surveyed with the electromagnetic (Slingram) and radiometric methods. The principles and limitations of these methods have been discussed by Daly (1962) with particular reference to the search for uranium in the Rum Jungle district.

2. GEOPHYSICAL RESULTS

Radiometric Results (Plate 2)

The main area of anomalous radioactivity lies between Traverses 24N and 48N. The broad, irregular, and weak anomaly exceeds two times background in very few locations. The area of maximum intensity coincides approximately with the crest of the low ridge that crosses the area.

Between Traverses 00 and 24N the only area of anomalous radioactivity outlined is a small, very weak anomaly on Traverse 8N.

Electromagnetic Results (Plates 3 and 4)

The electromagnetic method outlined a series of weak, elongated anomalies. Between Traverses 20N and 32N these anomalies strike roughly 350 degrees; over the remainder of the area their strike is roughly parallel to the baseline.

3. DISCUSSION AND CONCLUSIONS

From the geophysical results there is no evidence of extensive mineralisation, either sulphide or uranium, at Mount Fitch North. Both the electromagnetic and radiometric anomalies detected were very weak and further investigation does not appear to be warranted. The electromagnetic anomalies outlined probably relate to lithological boundaries rather than to mineralisation. As yet, geological data on the area are not available, so this suggestion cannot be verified.

4. REFERENCES

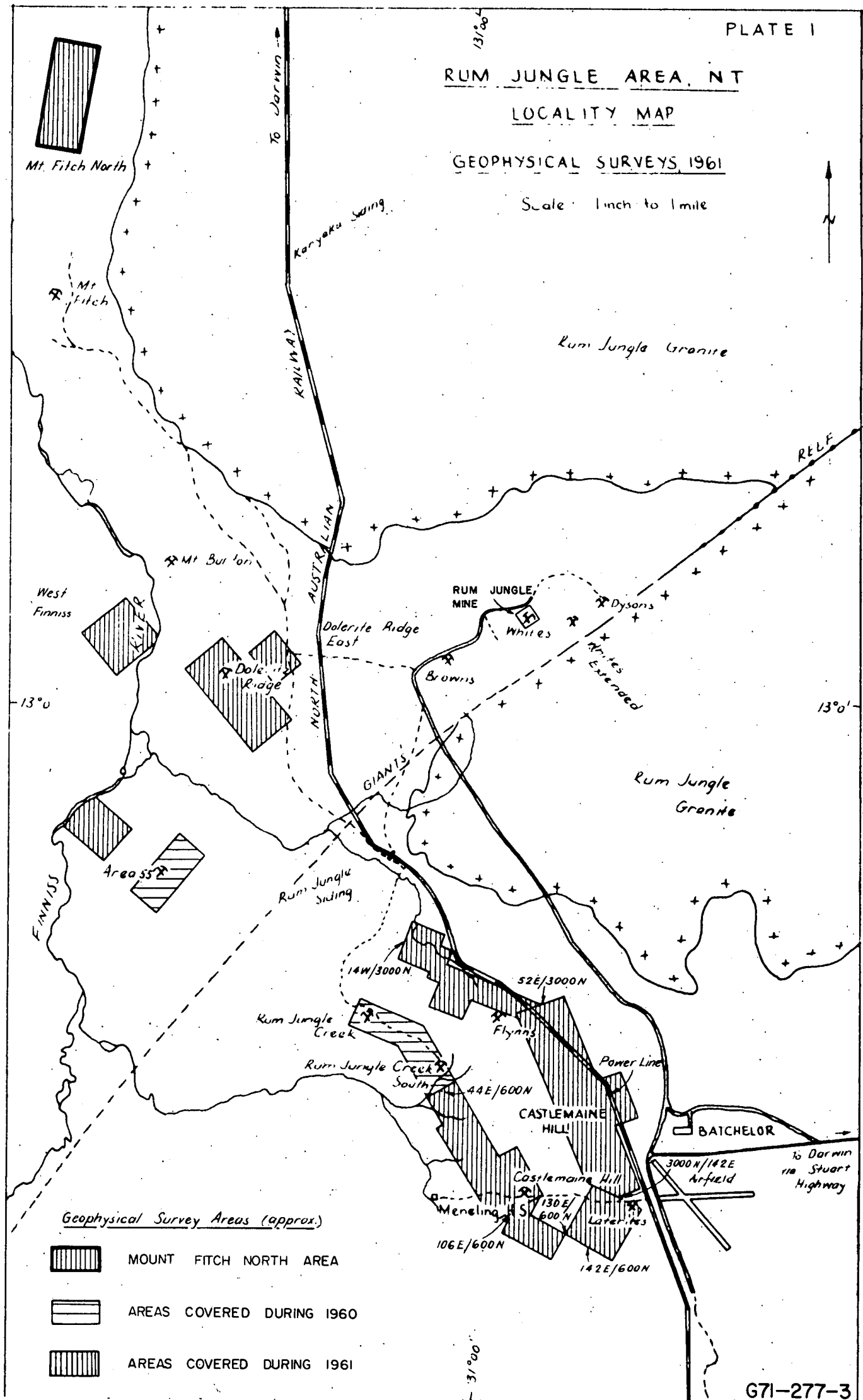
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|-----------------------------|------|--|
| DALY, J. | 1962 | Rum Jungle district, Northern Territory, introductory report on geophysical surveys 1960-61. <u>Bur. Min. Resour. Aust. Record 1962/27.</u> |
| WOOD, F.W. and McCARTHY, E. | 1952 | Preliminary report on scintillometer surveys over the Rum Jungle area and other portions of the Northern Territory. <u>Bur. Min. Resour. Aust. Record 1952/79.</u> |

RUM JUNGLE AREA, NT




LOCALITY MAP

GEOPHYSICAL SURVEYS, 1961

Scale: 1 inch to 1 mile

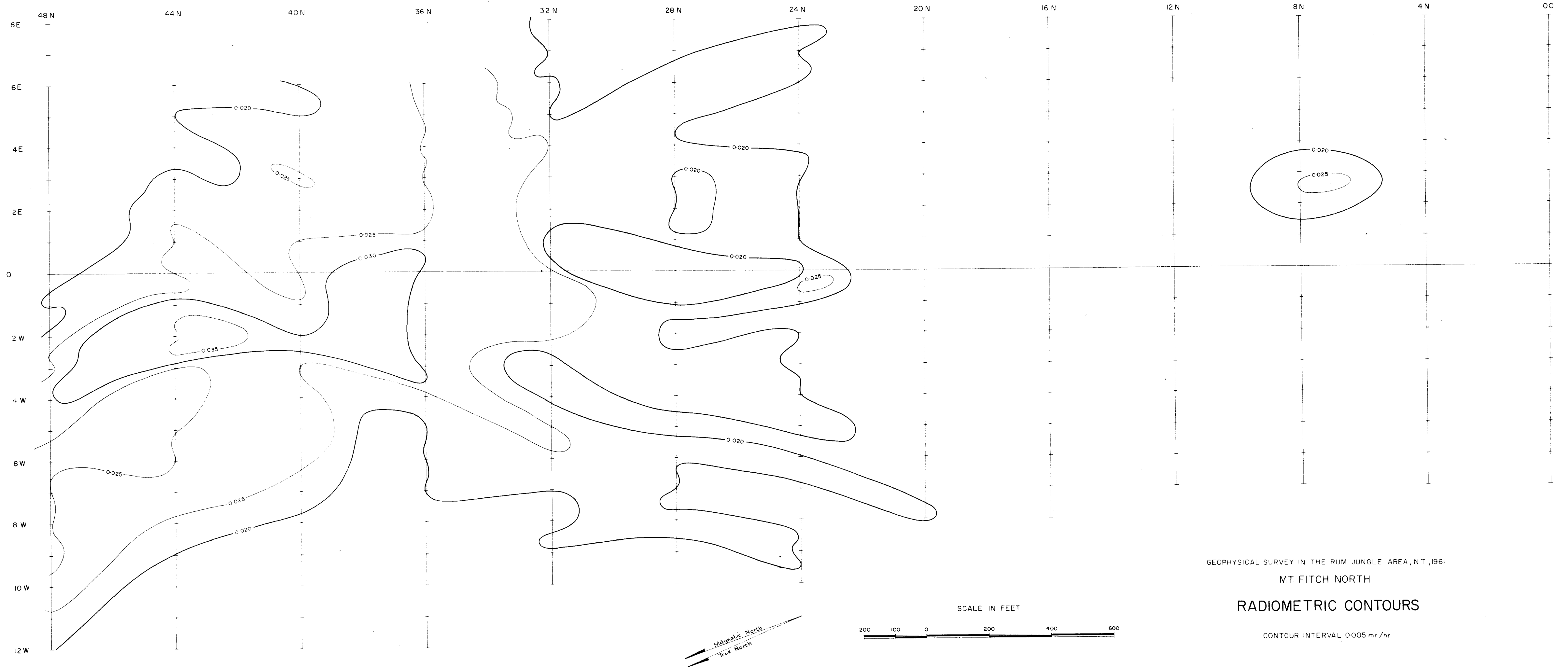


Geophysical Survey Areas (approx.)

-  MOUNT FITCH NORTH AREA
-  AREAS COVERED DURING 1960
-  AREAS COVERED DURING 1961

G71-277-3

TO ACCOMPANY RECORD No 1962/127

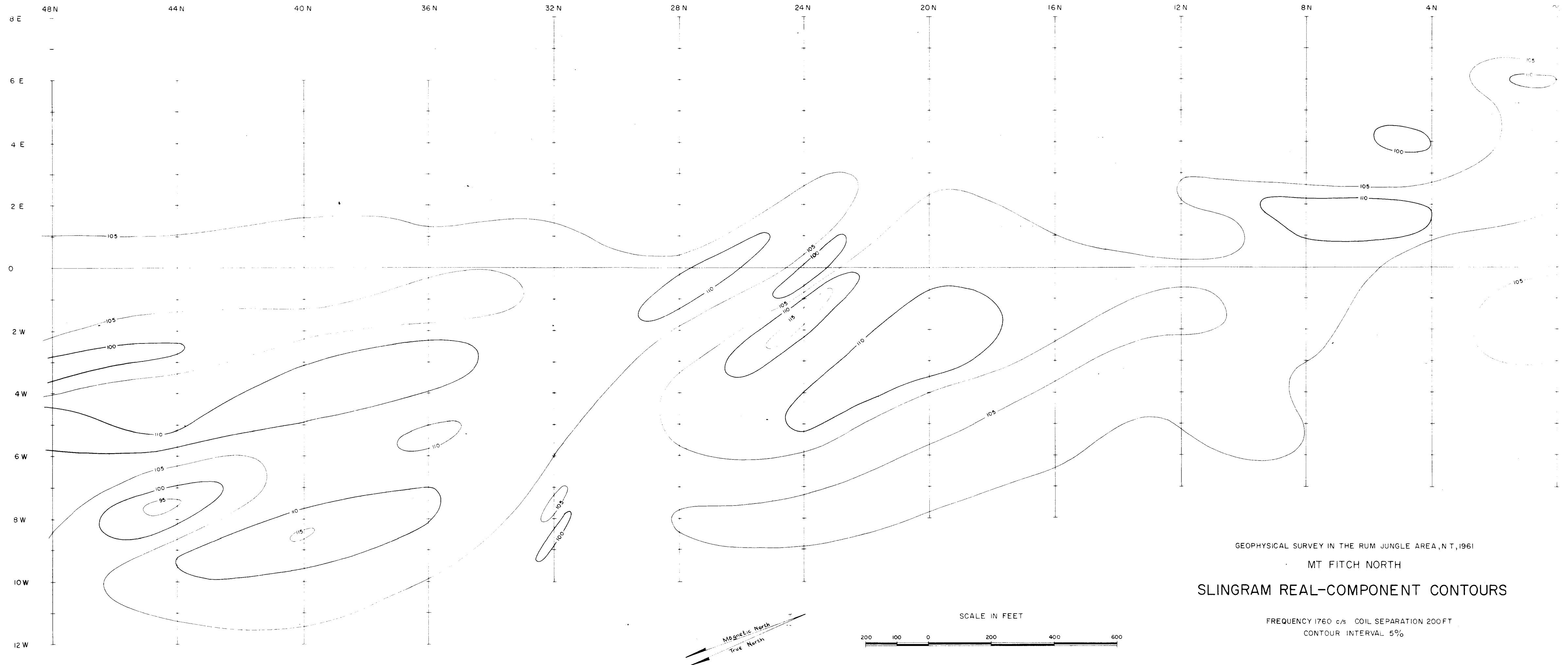


GEOPHYSICAL SURVEY IN THE RUM JUNGLE AREA, NT, 1961

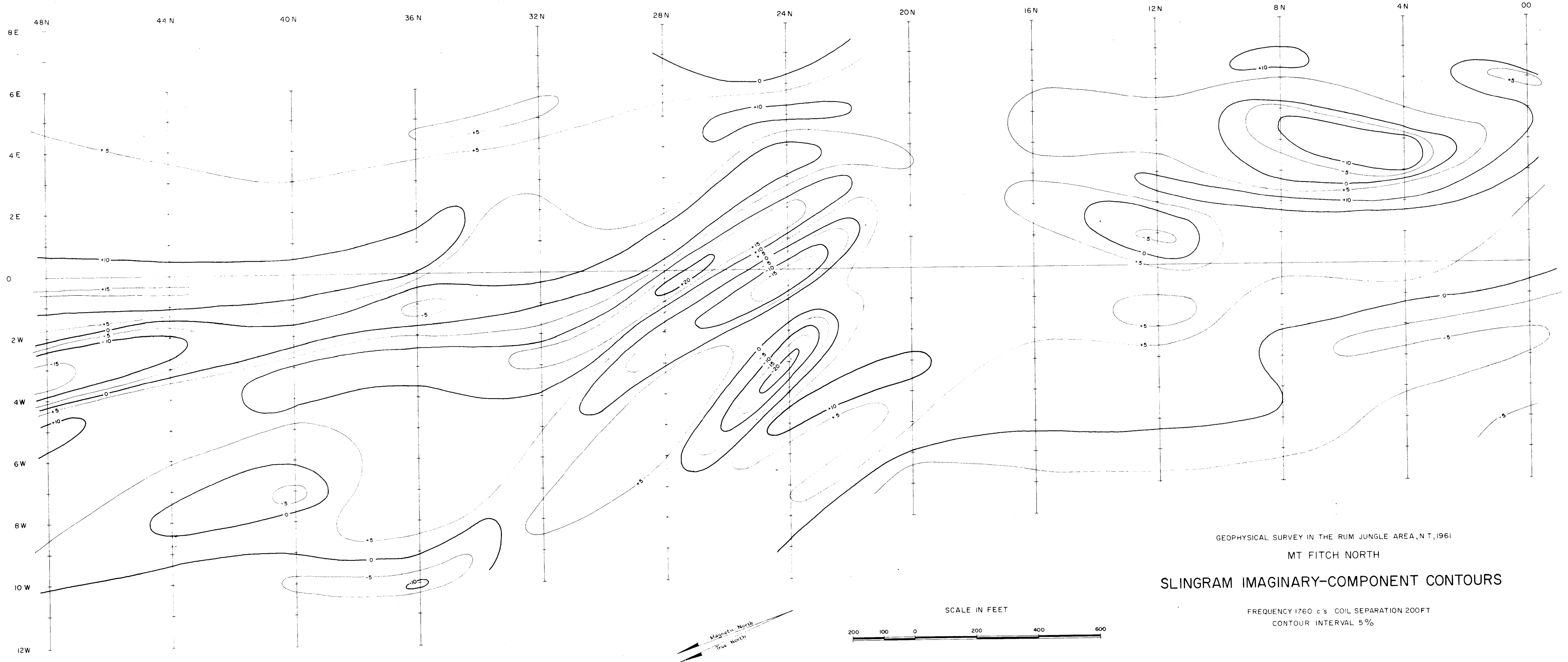
MT FITCH NORTH

RADIOMETRIC CONTOURS

CONTOUR INTERVAL 0.005 mr/hr



GEOPHYSICAL SURVEY IN THE RUM JUNGLE AREA, N.T., 1961
 MT FITCH NORTH
SLINGRAM REAL-COMPONENT CONTOURS
 FREQUENCY 1760 c/s COIL SEPARATION 200 FT
 CONTOUR INTERVAL 5%



GEOPHYSICAL SURVEY IN THE RUM JUNGLE AREA, N.T., 1961

MT FITCH NORTH

SLINGRAM IMAGINARY-COMPONENT CONTOURS

FREQUENCY 1760 c/s COIL SEPARATION 200FT
CONTOUR INTERVAL 5%