

# OPEN FILE

INTERPRETATION REPORT

ON

AIRBORNE MAGNETOMETER SURVEY

~~Magnum Lake~~

Hale  
River

*Adniga*

IN

NORTHERN TERRITORY

FOR

FLAMINGO PETROLEUM PTY. LTD.

Aero Service Limited.

Kalman N. Isaacs.

Ronald R. Hartman.

Geophysicists.

August, 1963.

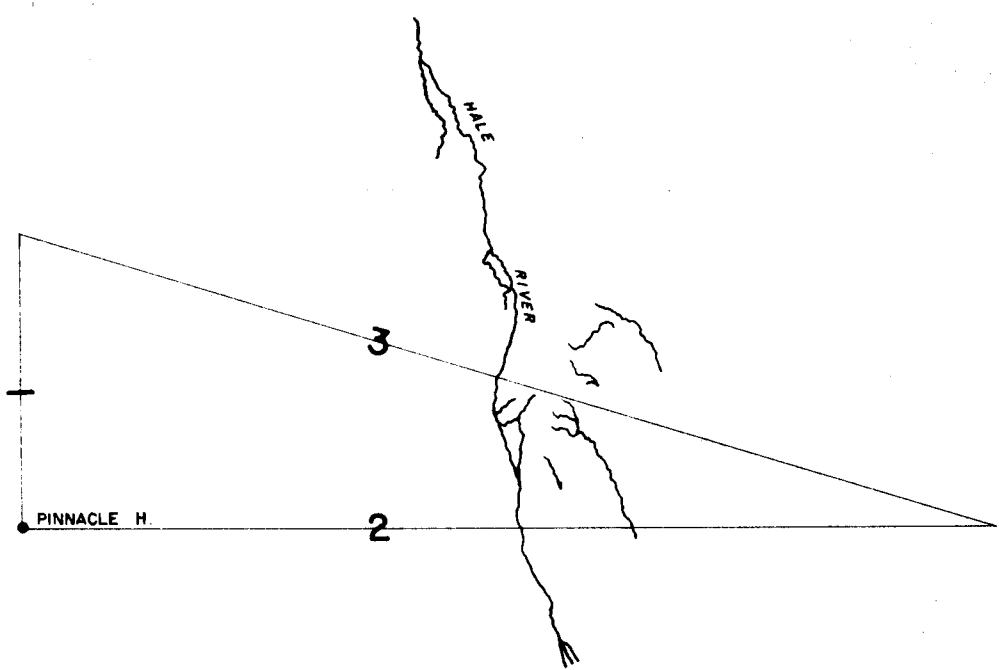
NORTHERN TERRITORY  
GEOLOGICAL SURVEY

PR63/037

135°00'

136°00'

24°00'



**AEROMAGNETIC SURVEY**  
**O.P.54 O.P.75**  
FLAMINGO PETROLEUM PTY. LTD.  
NORTHERN TERRITORY

SCALE = 1:1,000,000



FIG. 1

## INTRODUCTION

On July 27, 1963, a reconnaissance airborne magnetometer survey was flown for Flamingo Petroleum Pty. Ltd., of Sydney by Aero Service Limited of Ramsgate, New South Wales. This report constitutes the interpretation of the survey.

The survey consisted of a triangular pattern of three traverses, flown north and east of Pinnacle Hill in Northern Territory, as indicated on the accompanying index map. The flight altitude was 2,000 ft. above sea level.

The aircraft used to fly the survey was a Piper Apache, equipped with a Gulf Mark III continuously recording flux gate total intensity magnetometer, an Aeropath AS-5 35 mm. continuous strip exposure camera, and an APN-1 radio altimeter.

The area is almost completely covered with dune sand, except for the region immediately east of the Hale River, where Cretaceous sediments are exposed, and a narrow anticline exposing Devonian sandstones in the northwestern corner of the survey area.

The interpretation map delineates broad rock units in the basement, of relatively basic composition, and depth-to-basement contours determined from the averaged depth estimates obtained from the magnetic profiles. Continuity of

features between these widely spaced traverses has been assumed for convenience of presentation.

### GEOPHYSICAL INTERPRETATION

Three major basement rock units of relatively basic composition have been delineated, corresponding to three broad positive magnetic anomalies having deviations exceeding two hundred gammas. They are located in the southwestern corner of the survey area, around Pinnacle Hill, across the central portion of the area in a northwest-southeast direction, and in the extreme east.

The anomaly in the center of the area is irregular and complex, suggesting that it results from a body at relatively shallow depth and that its composition is heterogeneous. It is displayed on the western portion of traverse 3 and the central portion of traverse 2. The features in the extreme southwest and the extreme east are relatively smooth and uncomplicated, indicating deeper sources but not necessarily greater homogeneity.

The depth analysis suggests the existence of a trough in the western part, striking north-south and reaching a maximum

observed depth in excess of 5,000 ft. subsea on the western end of traverse 3. This trough is succeeded to the east by a basement uplift reaching a minimum depth of less than 3,000 ft., roughly corresponding in location to the basement rock unit noted in the central part of the area. In the eastern part of the area, the depth-to-basement increases greatly, with a maximum computed depth of over 9,000 ft. below sea level in the eastern half of traverse 3.

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