OPEN FILE

relates to CR73/65
A-C

AP2605

EL 114 took over AP2605

CR1973-0048

6.0 MARRAKI AREA

The approximate location of the survey boundaries is shown in Figure 3. The east-west flight lines are spaced approximately one half of one nautical mile apart.

6.1 Geology

The geology of the area is covered by the Darwin 1:250,000 geological sheet and explanatory notes. The area is also covered by the Humpty Doo, Marraki, Mary River and Mount Bundey 1:63,360 geological sheets.

The geology consists primarily of a Lower Proterozoic metamorphic series overlain in part by a thin veneer of Cretaceous Mullaman Beds. A large proportion of the geology is obscured by Quaternary soil cover.

6.2 Interpretation

The interpretation covers the analysis of the analogue spectrometer records, the total count contour map and the total magnetic intensity contour map. The composite interpretation is shown in figures 7A, 7B and 7C.

6.21 Spectrometer Results

The total count map reflects variations in overburden cover on the regional scale and is of little use in mapping extensions of known rock units. The contour map may be of

more use within smaller areas for mapping variations within a given outcrop unit.

Eight minor uranium anomalies were isolated from the analogue spectrometer records as being worthy of further ground investigation. These anomalies were recorded over the Lower Proterozoic, Acacia Gap Tongue (Pla). The anomalies A1 - A8 are plotted on figure 7A. The anomalies are marked as anomalous counts above background. Background is difficult to determine in this area due to soil cover variations. An incorrect choice of background may unduly enhance the anomaly.

6.22 Total Magnetic Intensity Results

The total magnetic intensity contour map is quite spectacular with long narrow linear magnetic zones traversing a relatively flat magnetic area. There are five major linear zones indicating the presence of regional fault structures within the area.

Zones M1, M2, M3 and M4 are sub-parallel and trending in a north-west to south-east direction. They probably represent major fault or joint systems which have been intruded by basic material, possibly dolerite. Zones M2

and M3 appear to terminate at the north-east to south-west trending zone, M5. M5 could represent an extension of the Giants Reef Fault. All five zones appear to have undergone some strike slip faulting. The most interesting area is the intersection of zones M3, M4 and M5 where there appears to be a considerable amount of structural alteration of each zone.

The broad magnetic high in the west portion of Figure 7A appears to correlate reasonably with the Acacia Gap Tongue. This unit has also been cut by zone M1. There does not appear to be any strike slip movement along M1 which suggests that M1 is either a normal fault or a joint plane. The former would be more likely, as there is a change in magnetic character across M1 where it passes through the Acacia Gap Tongue.

The magnetic contours on sheet 3 shows a broad regional magnetic high in the southern half of the sheet. This is probably related to a subsurface extension of the Mt. Bundey Granite which crops out further to the south (Mt. Bundey geological sheet). An approximate northerly subsurface boundary for the Mt. Bundey Granite has been

indicated on figure 7C. This is only a rough estimate, as the boundary could be dipping at a shallow angle towards the north. There are several minor north magnetic trends which appear to be associated with the magnetic high. These could be interpreted as near surface dykes or veins extending out from the granite.

6.3 Summary

Eight minor uranium anomalies were detected over the Acacia Gap Tongue. The priority for ground investigation should follow approximately the numerical order assigned to the anomalies. The total count contour map results were adversely effected by Quaternary soil cover.

The total magnetic intensity contour map has provided useful structural information and indicated the presence of several large structural features not previously known.

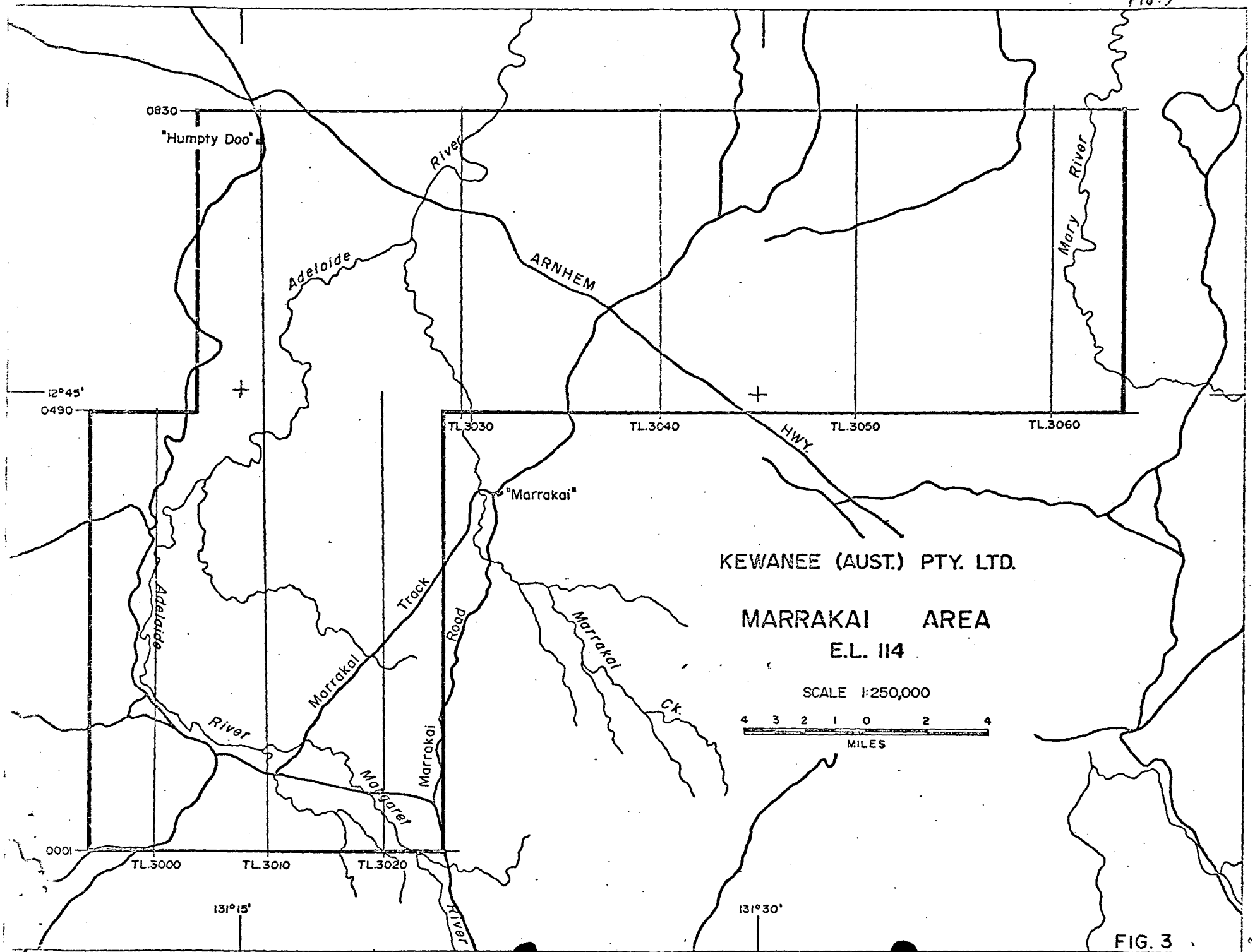
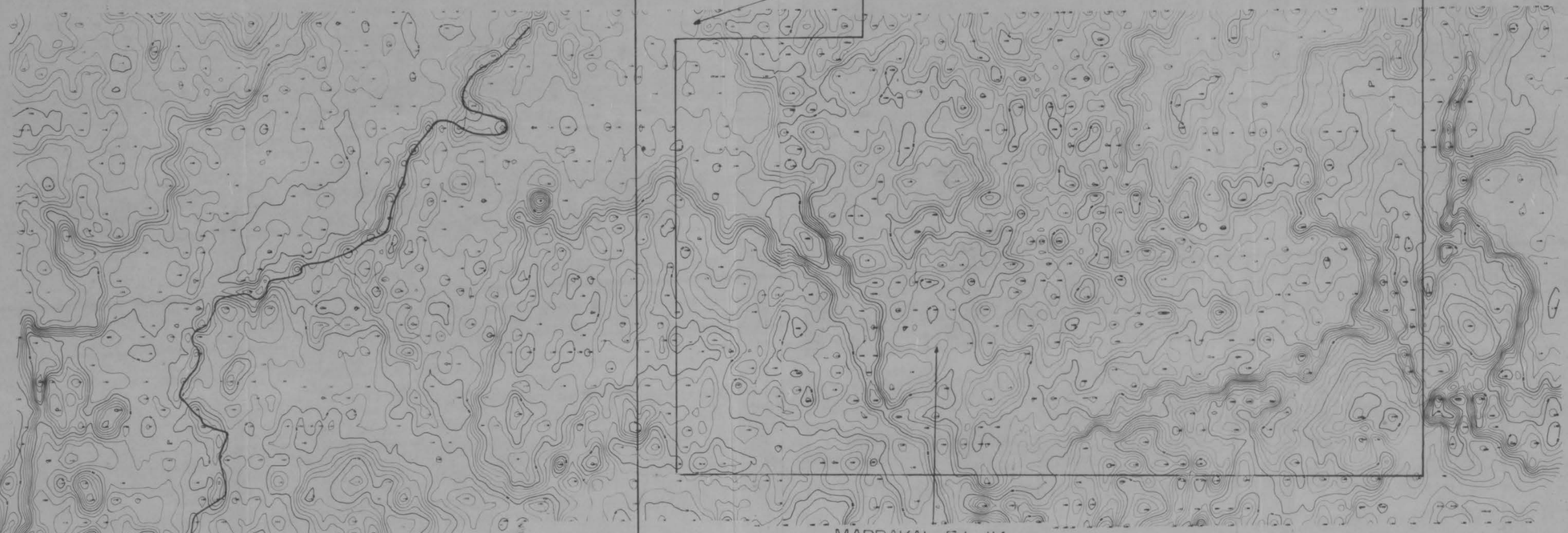

0830
"Humpty Doo"
River
Adeloide
ARNHEM
Mary River
12°45'
0490
TL.3030
TL.3040
TL.3050
TL.3060
HWY.
"Marrakai"
KEWANEE (AUST.) PTY. LTD.
MARRAKAI AREA
E.L. 114
SCALE 1:250,000
4 3 2 1 0 2 4
MILES
Adelaide
Track
Road
Marrakai
Marrakai Ck.
River
Marrakai
Margaret
0001
TL.3000
TL.3010
TL.3020
131°15'
131°30'
River

FIG. 3

MARRAKAI CORR 2 E.L. NO. 579.



MARRAKAI E.L. 114

RUM JUNGLE AREA D EL. 673

AIRBORNE GEOPHYSICAL SURVEY
MARRAKAI
E.L. 114
NORTHERN TERRITORY
KEWANEE (AUSTRALIA) PTY. LTD.
TOTAL COUNT

E.L. 579.
MARRAKAI CORR. NO 2.

MARRAKAI E.L. 114.

RUM JUNGLE AREA 'D' E.L. 673.

E.L. 623
R.J.R.W.E

AIRBORNE GEOPHYSICAL SURVEY
MARRAKAI
E.L. 114
NORTHERN TERRITORY
KEMANCE (AUSTRALIA) PTY LTD
FLIGHT PATH

MARRAKAI CORRIEL 579

MARRAKAI E.L. 114.

RUM JUNGLE AREA D.
E.L. 673.

A8 - U 50
Ts 20
K 30

A7 - U 50
Ts 20
K 30

A6 - U 25
K 25

A5 - U 30

A4 - U 20
K 20

A3 - U25

A2 - U 20
Ts 15
K 100

A1- U15

REFERENCE

LEGEND

AIRBORNE GEOPHYSICAL SURVEY
MARRAKAI
E.L. 114
NORTHERN TERRITORY
KENNECOTT EXPLORATIONS (AUST.) LTD.

INTERPRETATION PLAN

SCALE 1:25000

12°35'S

12°47'S

13°12'E

13°27'E

M4

M5

M4

M5

M4

M3

F

?

REFERENCE

LOWER PROTEROZOIC

Pg Mt. Bundey Granite

Pla Acacia Gap Tongue

LEGEND

Probable subsurface boundary of basic intrusives as suggested by magnetic contour maps

M1 Magnetic Trend

Fault location (possible) inferred from magnetics

Geological outcrop boundary inferred from total count map

SHEET INDEX

2 3

1

AIRBORNE GEOPHYSICAL SURVEY

MARRAKAI

E.L. 114

NORTHERN TERRITORY

KEWANEE (AUSTRALIA) PTY. LTD.

INTERPRETATION PLAN

SCALE 1 : 25,000

0 0·5 1 MILES 2

0 0·5 1 2 KILOMETRES 3

INTERPRETATION BY LAYTON GEOPHYSICAL CONSULTANTS PTY. LTD. FOR AERO SERVICE (AUST.) PTY. LTD.

CR73148

AIRBORNE GEOPHYSICAL SURVEY

MARAKAI

EL 114

NORTHERN TERRITORY

KEWANEE (AUSTRALIA) PTY. LTD.

TOTAL MAGNETIC INTENSITY

SCALE 1:25,000