CONTENTS ENVELOPE 933 DM 391/68

TENEMENT: S.M.L. 182

TENEMENT HOLDER: NORANDA AUSTRALIA

REPORTS:



Plans:



REPORTS:

)CONTENTS ENVELOPE 933 Cont.

REPORT: CONT.

6 months ended Sept 30, 1969 Report No. 129 (pgs. 11-25)

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|---|---|---|
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| Plate 2 | Geophysical Map- location if Prospects. | (933-10) |
| Plate 3 | Wild dog and NunnProspects, Geophgical survey | (933-11) |
| Plate 4 | Winnie Royd Prospects, geophysical survey. | (933-12) |
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| Plate 6 | Rawekeba Prpspect, Geophysical survey. | (933-14) |
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REPORTS:

THOMAS, A. 1970 S.M.L. 182 Myponga, S. Australia. Report for 6 months ended April 15, 1970 (No Plans) (pg. 26)

ENV 933

004

NORANDA AUSTRALIA LIMITED

SPECIAL MINING LEASE NO. 182 - MYPONGA

REPORT FOR SIX MONTHS ENDED OCTOBER 1, 1968

Noranda Australia Limited was granted a Special Mining Lease over an area of 170 square miles for a term of one year commencing April 1, 1968. One of the conditions under which this Special Mining Lease was granted stipulated that Noranda Australia Limited would submit a progress report at the conclusion of each six months. This report is for the six months ended October 1, 1968.

Aerial photographs were purchased to provide stereoscopic coverage of this area. Geological maps have been purchased from the Department of Mines.

Five companies were invited to submit tenders for an airborne spectrometer survey over this Special Mining Lease. Three tenders were received and the contract was awarded to Geophoto Resources Consultants, who have arranged to fly an aircraft and equipment from North America later this year.

Geophoto Resources Consultants will use an Airborne Gamma-ray Spectrometer developed by Texas Instruments. The six large crystal configuration incorporated in this instrument provides a larger detector than that used by the other contractors.

Arrangements have been made to complete this flying prior to the end of 1968.

G. C. Battey,
Chief Geologist.


October 15, 1968.

GCB:GW

ENV 933

005


# SPECIAL MINING LEASE NO. 182
# MYPONGA, SOUTH AUSTRALIA

## REPORT FOR 12 MONTHS ENDED MARCH 31, 1969

Report No. 113 June 1969

by

G. C. BATTEY

Melbourne, Australia

006

EMV 933/1

**NORANDA AUSTRALIA LIMITED**

## MAILING ADVICE

To: The Director of Mines, Adelaide, S.A. Date: June 12, 1969.

From: Noranda Australia Limited, Melbourne, Vic.

The following accompany this memorandum —

Transparencies for Plates 3, 4, 5, 7, 8, 9, 11, 12 and 13 as listed in our Report No. 113 on Special Mining Lease No. 182 - Myponga, forwarded under cover of our letter of June 11, 1969.

GW

# NORANDA AUSTRALIA LIMITED

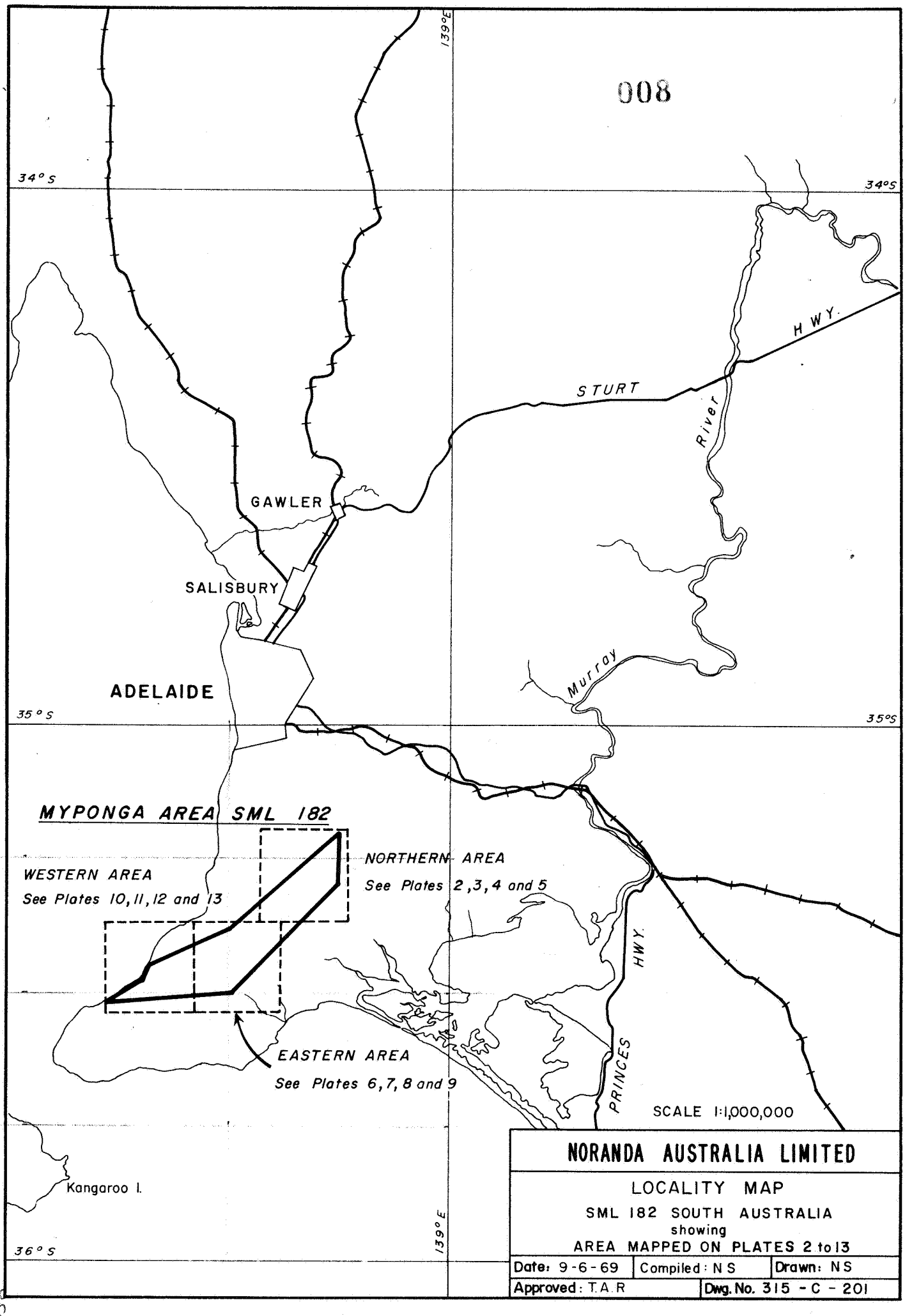
## S.M.L. NO. 182 - MYPONGA, SOUTH AUSTRALIA

## REPORT FOR 12 MONTHS ENDED MARCH 31, 1969

### LIST OF PLATES



(All Plates in plastic pockets at back of report except where otherwise indicated)




## NORANDA AUSTRALIA LIMITED

LOCALITY MAP

SML 182 SOUTH AUSTRALIA

showing

AREA MAPPED ON PLATES 2 to 13

| | | |
|---|---|---|
| Date: 9-6-69 | Compiled: N S | Drawn: N S |
| Approved: T.A.R | | Dwg. No. 315 - C - 201 |

ENV 933-1

138°34'
35°22'

# MYPONGA AREA
# $Bi^{214}$
# ISORADIOACTIVITY CONTOUR MAP
## from
## Digital Airborne Gamma Ray Spectrometry

PREPARED FOR

NORANDA AUSTRALIA PTY. LIMITED
MELBOURNE, VICTORIA, AUSTRALIA

BY

GEOPHOTO SERVICES, INC.
SCIENCE SERVICES DIVISION
**TEXAS INSTRUMENTS INCORPORATED**
DENVER, COLORADO

SCALE
1
24,000

Contour Interval 10 counts per 2 seconds



PLATE 3

138°44'
35°22'

DINGABLEDINGA
HOPE FOREST
MC. HARG CREEK
NORTH OF MT MAGNIFICENT
KLITPO COLONY
MT MAGNIFICENT
YUNDI
MT LOFFIE
MT COMPASS
MT MOON
MT. COMPASS
Blackfellow
Creek

68SA16

Transverse Mercator Projection

SCALE = 1:24,000

MYPONGA NORTH

ENV 93-

ENV 933-2



# MYPONGA AREA
# $Bi^{214}/Tl^{208}$
# ISORADIOACTIVITY CONTOUR MAP

from

Digital Airborne Gamma Ray Spectrometry

PREPARED FOR

NORANDA AUSTRALIA PTY. LIMITED
MELBOURNE, VICTORIA, AUSTRALIA

BY

GEOPHOTO SERVICES, INC.
SCIENCE SERVICES DIVISION
TEXAS INSTRUMENTS INCORPORATED
DENVER, COLORADO

SCALE

$\frac{1}{24,000}$

Contour Interval 30 units

PLATE 4

ENV 933-3



# MYPONGA AREA
## $Bi^{214}/K^{40}$
## ISORADIOACTIVITY CONTOUR MAP
from
Digital Airborne Gamma Ray Spectrometry

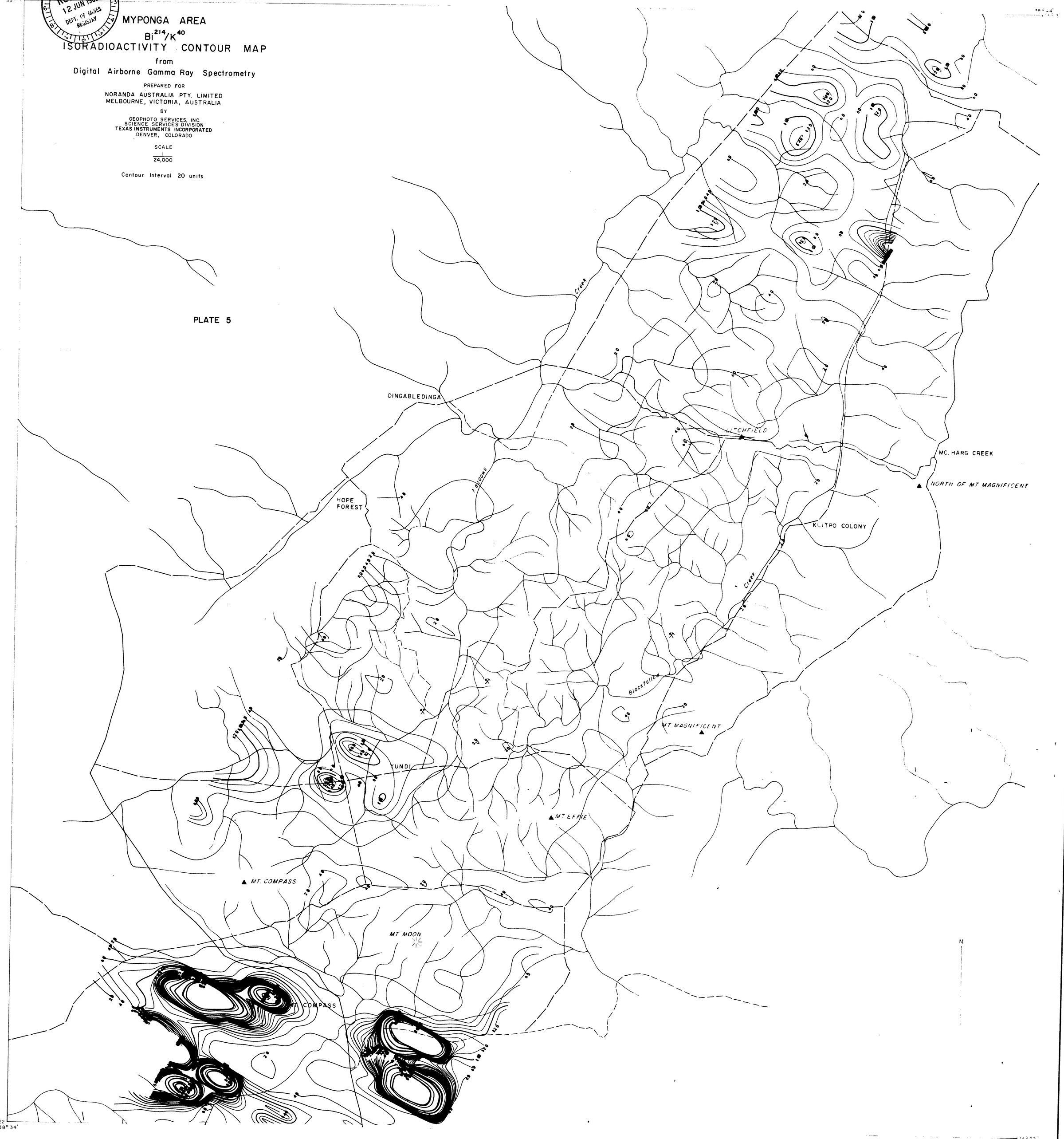
PREPARED FOR
NORANDA AUSTRALIA PTY. LIMITED
MELBOURNE, VICTORIA, AUSTRALIA

BY
GEOPHOTO SERVICES, INC.
SCIENCE SERVICES DIVISION
TEXAS INSTRUMENTS INCORPORATED
DENVER, COLORADO

SCALE
1
24,000

Contour Interval 20 units

PLATE 5




Transverse Mercator Projection

SCALE = 1:24,000

MYPONGA NORTH

ENV 933-3

MYPONGA AREA

$Bi^{214}$

ISORADIOACTIVITY CONTOUR MAP

from

Digital Airborne Gamma Ray Spectrometry

PREPARED FOR

NORANDA AUSTRALIA PTY. LIMITED
MELBOURNE, VICTORIA, AUSTRALIA

BY

GEOPHOTO SERVICES, INC.
SCIENCE SERVICES DIVISION
TEXAS INSTRUMENTS INCORPORATED
DENVER, COLORADO

SCALE
1
24,000

Contour Interval 10 counts per 2 seconds



ZONE 5
ZONE 6

Transverse Mercator Projection

SCALE 1:24,000

MYPONGA

SHEET 2 OF 2

PLATE 7

# MYPONGA AREA

## $Bi^{214}/Tl^{208}$ ISORADIOACTIVITY CONTOUR MAP

from

Digital Airborne Gamma Ray Spectrometry

PREPARED FOR

NORANDA AUSTRALIA PTY. LIMITED
MELBOURNE, VICTORIA, AUSTRALIA

BY

GEOPHOTO SERVICES, INC.
SCIENCE SERVICES DIVISION
TEXAS INSTRUMENTS INCORPORATED
DENVER, COLORADO

SCALE
1
24,000

Contour Interval 6 units



ENV 933

PLATE 8

Transverse Mercator Projection SCALE : 1 24,000 MYPONGA SHEET 2 OF 2

ENV 933 – 5

# MYPONGA AREA
# $Bi^{214}/K^{40}$
# ISORADIOACTIVITY CONTOUR MAP

from

Digital Airborne Gamma Ray Spectrometry

PREPARED FOR

NORANDA AUSTRALIA PTY. LIMITED
MELBOURNE, VICTORIA, AUSTRALIA

BY

GEOPHOTO SERVICES, INC.
SCIENCE SERVICES DIVISION
TEXAS INSTRUMENTS INCORPORATED
DENVER, COLORADO

SCALE

1
24,000

Contour Interval 4 units



PLATE 9

Transverse Mercator Projection SCALE 1:24,000 MYPONGA SHEET 2 OF 2

ENV 933

ENV 933-6

ENV 933-7



# MYPONGA AREA

# $Bi^{214}$ RADIOACTIVITY CONTOUR MAP

from

Digital Airborne Gamma Ray Spectrometry

PREPARED FOR

NORANDA AUSTRALIA PTY. LIMITED
MELBOURNE, VICTORIA, AUSTRALIA

BY

GEOPHOTO SERVICES, INC.
SCIENCE SERVICES DIVISION
TEXAS INSTRUMENTS INCORPORATED
DENVER, COLORADO

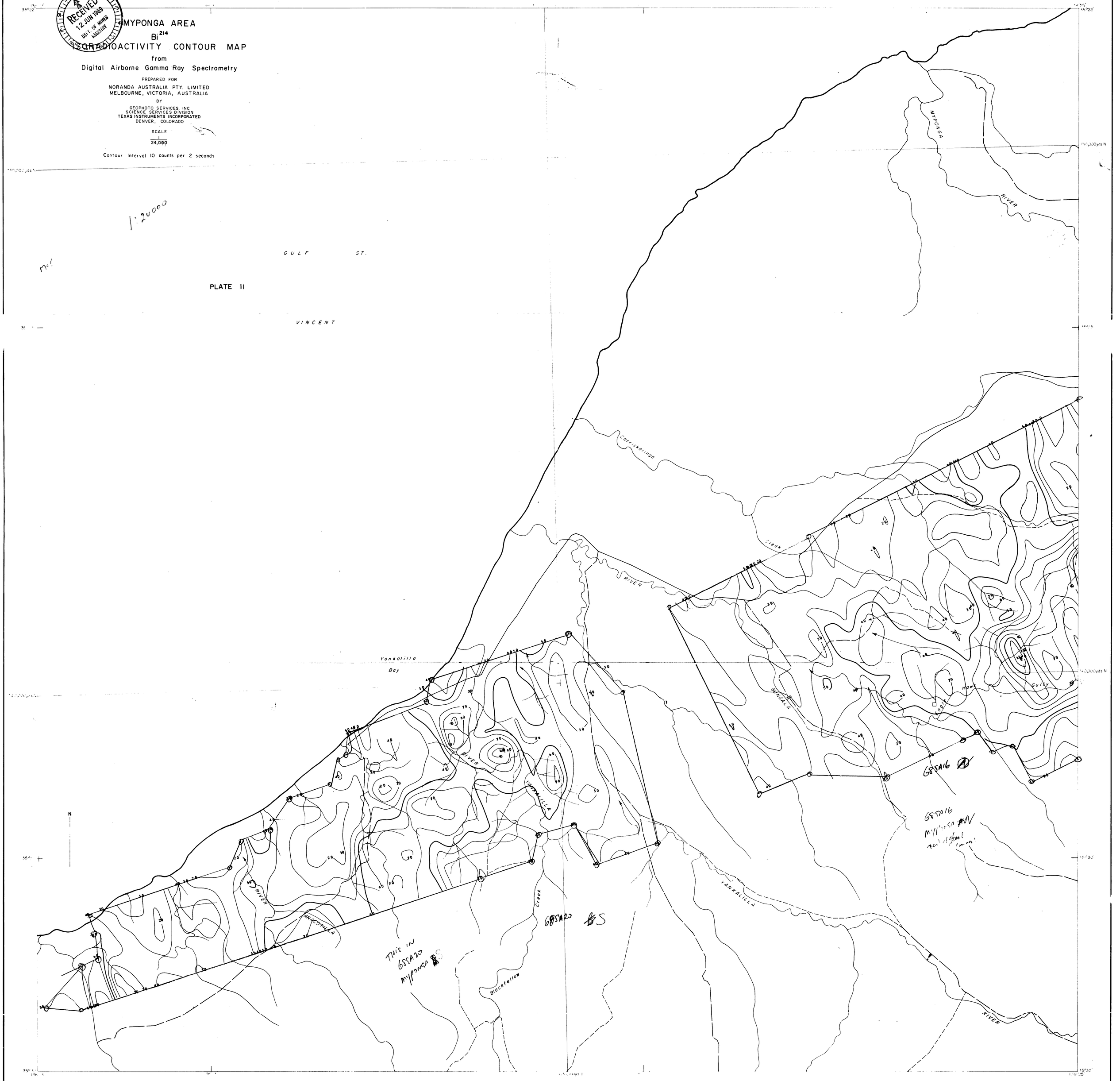
SCALE

1 / 24,000

Contour Interval 10 counts per 2 seconds

1:24000

PLATE II




Transverse Mercator Projection SCALE 1:24,000 MYPONGA SHEET 1 OF 2

ENV 933 - 7

ENV 933-8



# MYPONGA AREA

## $Bi^{214}/Tl^{208}$ ISORADIOACTIVITY CONTOUR MAP

from

Digital Airborne Gamma Ray Spectrometry

PREPARED FOR

NORANDA AUSTRALIA PTY. LIMITED
MELBOURNE, VICTORIA, AUSTRALIA

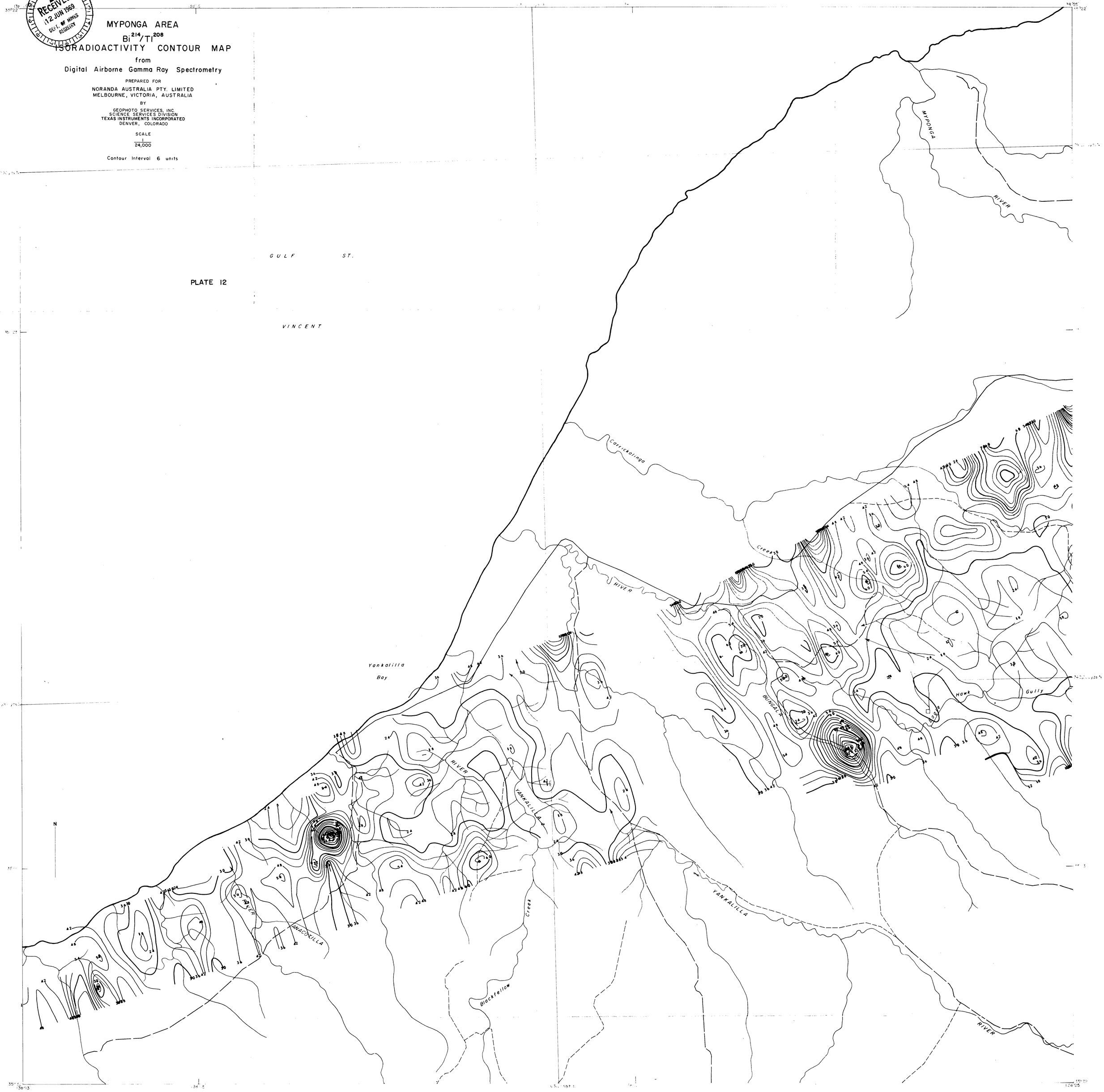
BY

GEOPHOTO SERVICES, INC.
SCIENCE SERVICES DIVISION
TEXAS INSTRUMENTS INCORPORATED
DENVER, COLORADO

SCALE
1
24,000

Contour Interval 6 units

PLATE 12




Transverse Mercator Projection SCALE : 1:24,000 MYPONGA SHEET 1 OF 2

ENV 933-8

ENV 933-9



# MYPONGA AREA

## $Bi^{214}/K^{40}$ ISORADIOACTIVITY CONTOUR MAP

from

Digital Airborne Gamma Ray Spectrometry

PREPARED FOR

NORANDA AUSTRALIA PTY. LIMITED
MELBOURNE, VICTORIA, AUSTRALIA

BY

GEOPHOTO SERVICES, INC.
SCIENCE SERVICES DIVISION
TEXAS INSTRUMENTS INCORPORATED
DENVER, COLORADO

SCALE
1
24,000

Contour Interval 4 units

PLATE 13

GULF ST.

VINCENT

MYPONGA RIVER

Yankalilla Bay

Carrickalinga Creek

RIVER

BUNGALA

Howe Gully

RIVER

HANK YANKALILLA

RIVER

TANACOTTYLLA

Blackfellow Creek

YANKALILLA RIVER

740,000yds.

N

138°13 E

138°25 E

35°

Transverse Mercator Projection

SCALE : 1:24,000

MYPONGA

SHEET 1 OF 2

ENV933-9

# NORANDA AUSTRALIA LIMITED

## SPECIAL MINING LEASE NO. 182

## MYPONGA, SOUTH AUSTRALIA

## REPORT FOR 12 MONTHS ENDED MARCH 31, 1969

### 1. Introduction

Noranda Australia Limited was granted a Special Mining Lease over an area of 170 square miles for a term of one year commencing April 1, 1968. This term has now been extended for a period of one year, expiring on April 14, 1970.

One of the conditions under which this Special Mining Lease was granted stipulated that Noranda Australia Limited would submit a report at the conclusion of each six months. This report is for the 12 months ended March 31, 1969.

### 2. Literature Study

Mr. A. Thomas conducted a literature study of the area from reports available at the South Australian Department of Mines.

No official reports of any airborne scintillometer survey were located but it is believed that a survey was conducted under difficult conditions by contour flying with a light aircraft.

The Myponga pitchblende deposit was discovered by a hand geiger counter in 1953. It was investigated by the Department of Mines. Three shafts were sunk with shallow driving and crosscutting. In addition 23 diamond drill holes, totalling 2308 feet, and 112 waggon holes, totalling 7401 feet, were completed. The Department's activities were completed in May 1955 and the results summarised by Mr. S. W. Parkin in Review No. 103.

As a result of ground prospecting numerous radioactive localities were recorded and most of these, on investigation, proved to be thorium mineralisation in pegmatites.

3. Present Investigation

Aerial photographs were purchased to provide stereoscopic coverage of the area. Geological maps were purchased from the Department of Mines.

Five companies were invited to submit tenders for an airborne spectrometer survey over this Special Mining Lease. The contract was awarded to Geophoto Resources Consultants.

The equipment used was an airborne gamma ray spectrometer developed by Texas Instruments and mounted in a DC3. This system is a multiple large crystal system and appears to be the most sensitive system in use in Australia. The data is recorded in digital form on magnetic tape. The results are processed in the U.S.A. and are presented as isoradioactivity contour maps for uranium. Isoradioactivity contour maps have been prepared to illustrate the U/Th and U/K ratios. Maps showing the position of the flight lines are also presented with this report.

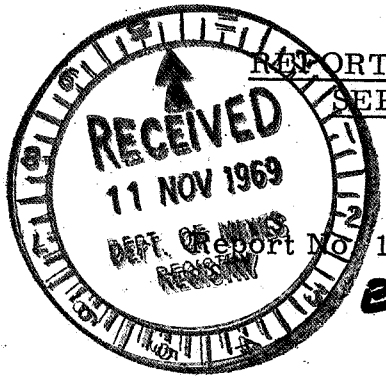
A number of anomalies have been outlined as a result of this airborne spectrometer survey and these will be investigated by field parties.

Expenditure to docket. J.K. T.O. 1/9/72

011

# SPECIAL MINING LEASE NO. 182

## MYPONGA, SOUTH AUSTRALIA




## REPORT FOR 6 MONTHS ENDED SEPTEMBER 30, 1969.

Report No. 129 November, 1969.

ENV 933

By

A. DUNLOP

Melbourne, Australia.

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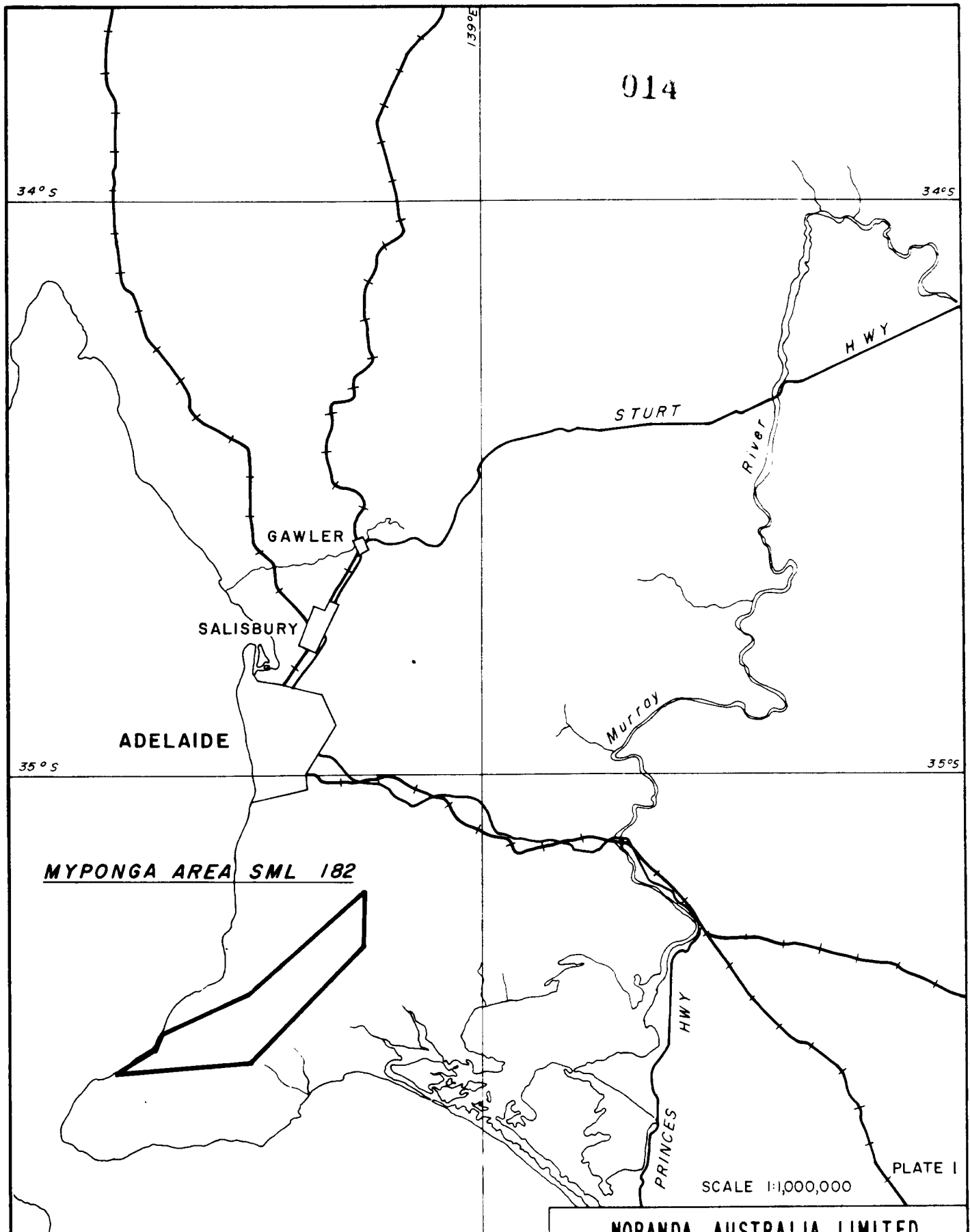



# NORANDA AUSTRALIA LIMITED

## LOCALITY MAP

SPECIAL MINING LEASE 182

MYPONGA

South Australia

| | | |
|---|---|---|
| Date: 7-10-69 | Compiled: N S | Drawn: N S |
| Approved T A R | | Dwg. No. 315 - D - 201 |

MYPONGA

S.M.L. 182
Area Mapped
PLATE 2

35° 25' S

138° 30' E

Nunn See Plate 3
Wild Dog See Plate 3
Winnie Royd See Plate 4
Keelers See Plate 6
Rawakeba See Plate 6
Nantamboo See Plate 7
Eagle Hawk See Plate 8
Tapley See Plate 5

— REFERENCE —

- Boundary of Special Mining Lease No. 182
- Roads and Tracks
- Station where $Bi^{214}$ reduced sum is greater than 100 counts per 2 seconds
- $Bi^{214}$ Isoradiation contour of 100 counts per 2 seconds
- $Bi^{214}/Tl^{208}$ contour of .42
- $Bi^{214}/Tl^{208}$ contour of .60
- 23 Areas of Interest with number of Area

RATINGS for AREAS of INTEREST

- A 1
- B 2
- C 3
- D 4
- E 5
- F 6
- G 7
- H 8
- No rating

Nunn Location and Name of gridded prospect

GEOLOGY

Archean (South Aust. Geological survey)



PLATE 2

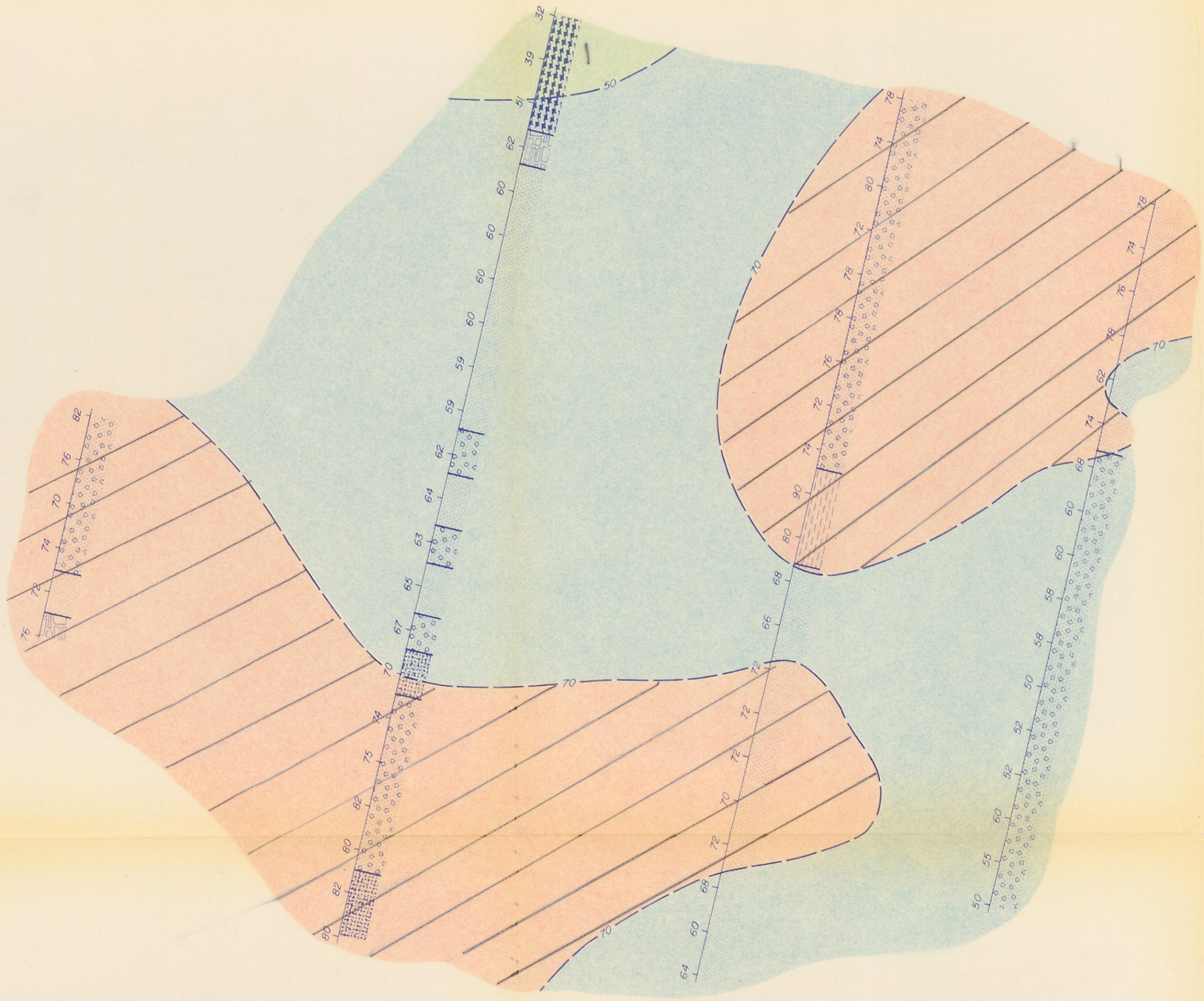
NORANDA AUSTRALIA LTD.

SPECIAL MINING LEASE 182
MYPONGA
South Australia

GEOPHYSICAL MAP — LOCATION OF PROSPECTS

SCALE
2000 0 2000 4000 6000
FEET

| | | |
|---|---|---|
| DATE: Sept. 1969 | GEOPHYSICS: A.C. Dunlop | DRAWN: N.S. |
| APPROVED: T.A.R. | DRAWING No. 315-D-205 | |



Magnetic North

## REFERENCE

58 — Total count radiation – Scintrex BGS I counts per second (cps)

70 — Total count radiation contours counts per second (cps)

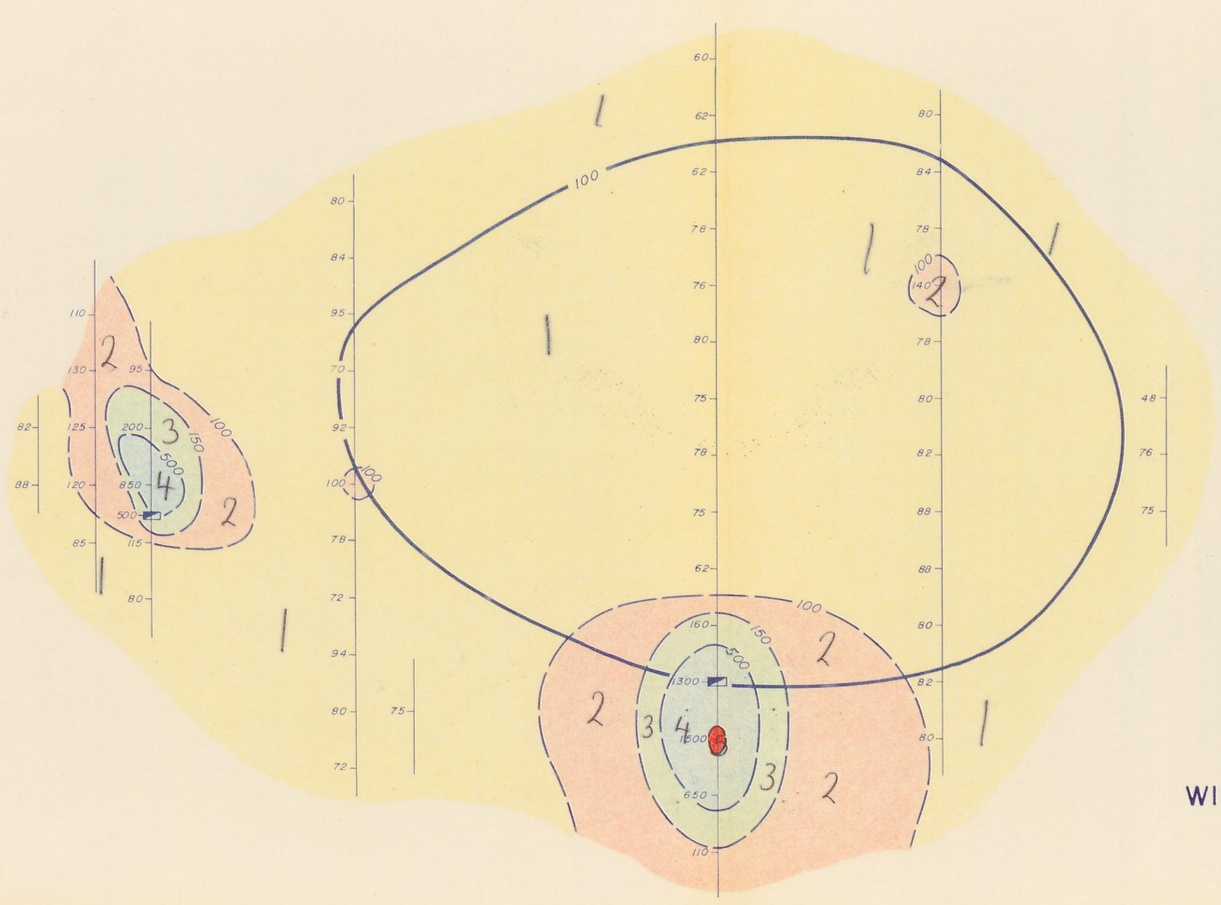
GEOLOGY

- Soil
- Soil and Scree
- Weathered Rock
- Permian Glacials
- Schist
- Weathered Gneiss

RADIATION CONTOURS – BGS I –

- 1 — Less than 50 cps
- 50–70 cps
- Greater than 70 cps

NUNN PROSPECT



Magnetic North

## REFERENCE

140 — Total count radiation – Scintrex BGS I counts per second (cps)

Spot total count in pit

150 — Total count radiation contours counts per second (cps)

100 — 100 counts per 2 sec $Bi^{214}$ (Geophoto Services)

RADIATION CONTOURS – BGS I –

- 1 — Less than 100 cps
- 2 — 100 – 150 cps
- 3 — 150 – 500 cps
- 4 — 500 – 1500 cps
- 5 — Greater than 1500 cps

WILD DOG PROSPECT



PLATE 3

# NORANDA AUSTRALIA LTD.

SPECIAL MINING LEASE 182
MYPONGA
South Australia

## WILD DOG and NUNN PROSPECTS
## Geophysical Survey

SCALE
100 50 0 100 200
Feet

ENV 933

| | | |
|---|---|---|
| DATE: Sept. 1969 | GEOLOGY: A.C. Dunlop | DRAWN: G.C. |
| APPROVED: T.A.R. | DRAWING No 315-D-202 | |


REFERENCE

72 — Total count radiation – Scintrex BGS I counts per second (cps)

—75— Total count radiation contours counts per second (cps)

—100— 100 counts per 2 sec $Bi^{214}$ (Geophoto Services)

GEOLOGY

- Soil
- Soil and Lateritic Gravel
- Laterite
- Lateritic Gravel
- Gravel

RADIATION CONTOURS – BGS I –

- a — Less than 60 cps
- b — 60 to 75 cps
- c — Greater than 75 cps



PLATE 4

# NORANDA AUSTRALIA LTD.

SPECIAL MINING LEASE 182
MYPONGA
South Australia

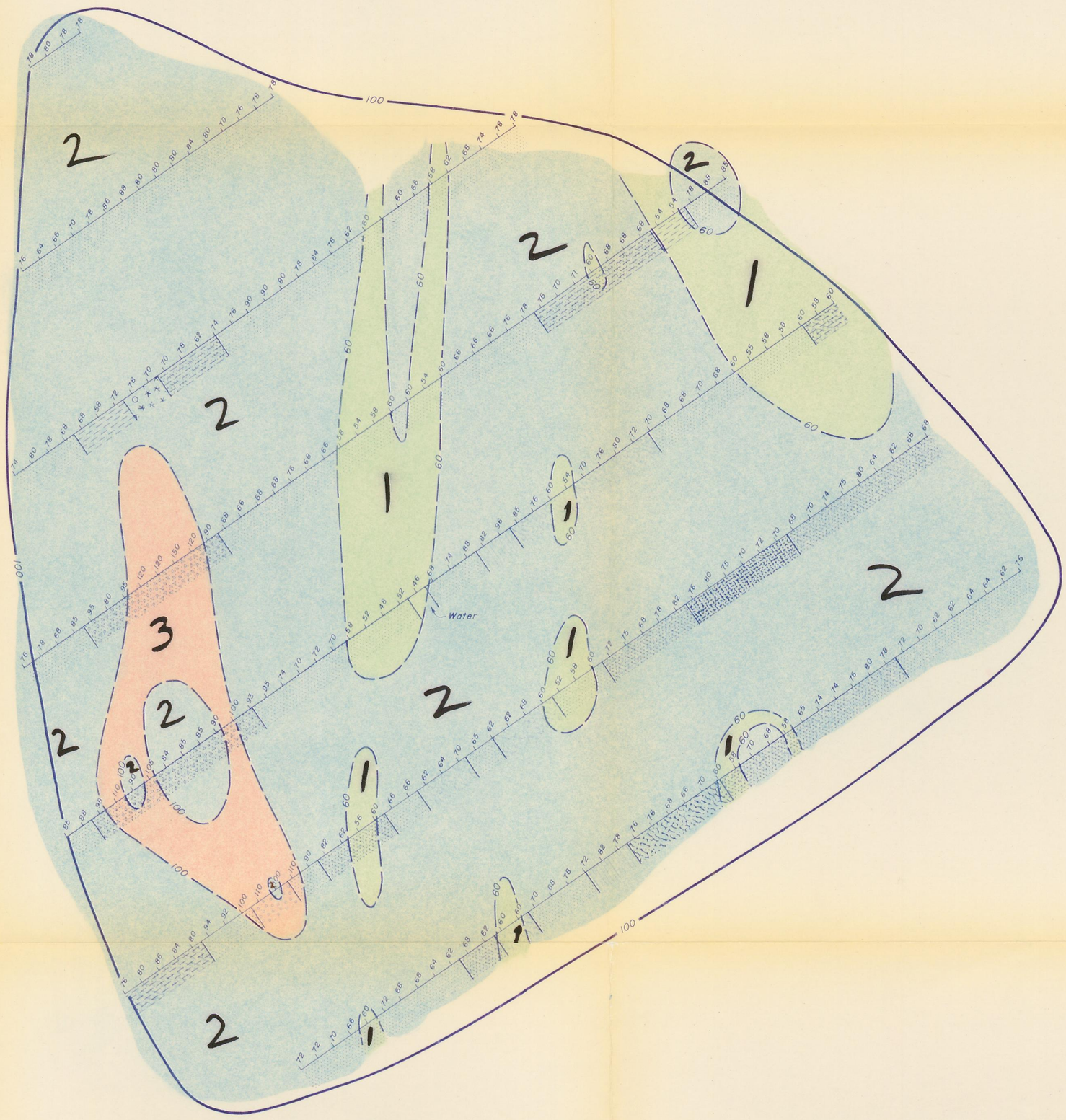
## WINNIE ROYD PROSPECT
## Geophysical Survey

SCALE
100 50 0 100 200
Feet

EMV 933

| | | |
|---|---|---|
| DATE: Sept. 1969 | GEOLOGY: A.C. Dunlop | DRAWN: G.C. |
| APPROVED: T.A.R. | DRAWING Nº 315-D-203 | |

Magnetic North




## REFERENCE

76 — Total count radiation – Scintrex BGS 1 counts per second (cps.)

60 — Total count radiation contours counts per second (cps.)

100 — 100 counts per 2 sec Bi 214 (Geophoto Services)

GEOLOGY

- Soil
- Soil and weathered Schist
- Laterite
- Soil and Laterite
- Gneiss
- Soil and Gneiss
- Mica Gneiss
- Weathered Gneiss
- Schist and Gneiss
- Schist
- Quartz Scree
- Pegmatite

RADIATION CONTOURS – BGS 1 –

- 1 Less than 60 cps
- 2 60 to 100 cps
- 3 Greater than 100 cps



PLATE 5

# NORANDA AUSTRALIA LTD.

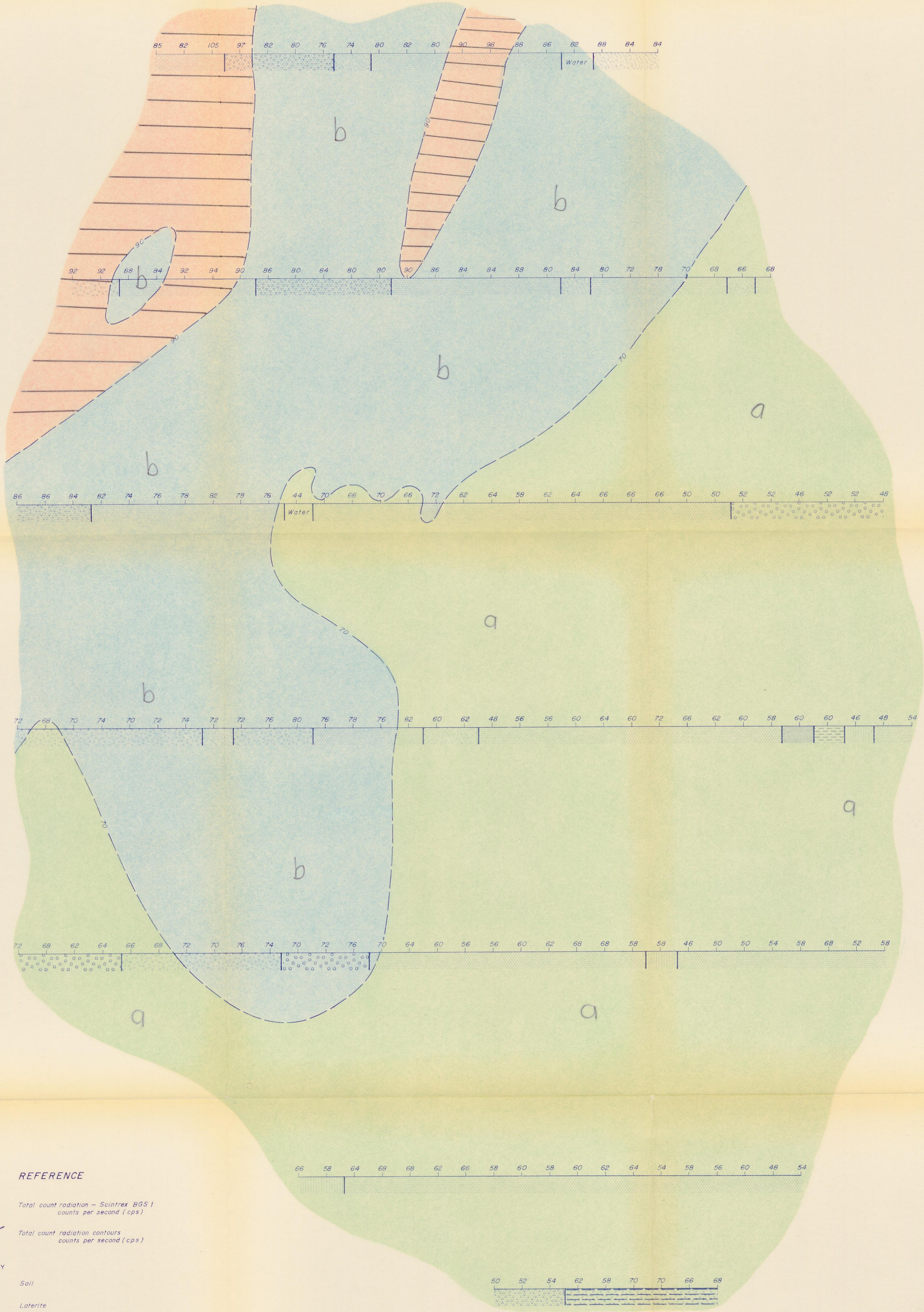
SPECIAL MINING LEASE 182
MYPONGA
South Australia

## TAPLEY PROSPECT
## Geophysical Survey

SCALE
200 100 0 200 400
Feet

ENV 933

| | | |
|---|---|---|
| DATE: Sept. 1969 | GEOLOGY: A.C. Dunlop | DRAWN: G.C. |
| APPROVED: T.A.R. | DRAWING No 315-D-204 | |




## REFERENCE

72 — Total count radiation – Scintrex BGS 1 counts per second (cps)

70 — Total count radiation contours counts per second (cps)

GEOLOGY

- Soil
- Laterite
- Soil and Laterite
- Schist
- Lateritised Mica Schist
- Gneiss
- Pegmatite
- Amphibolite
- Scree

RADIATION CONTOURS – BGS 1 –

- a — Less than 70 cps
- b — 70 – 90 cps
- Greater than 90cps



PLATE 6

# NORANDA AUSTRALIA LTD.

SPECIAL MINING LEASE 182
MYPONGA
South Australia

## RAWEKEBA PROSPECT
## Geophysical Survey

SCALE
100 50 0 100 200
Feet

ENV 933

| | | |
|---|---|---|
| DATE: Sept. 1969 | GEOLOGY: A.C. Dunlop | DRAWN: G.C. |
| APPROVED: T.A.R. | DRAWING No 315-D-206 | |

ENV033-14


## REFERENCE

66 — Total count radiation – Scintrex BGS I counts per second (cps)

80 — Total count radiation contours counts per second (cps)

GEOLOGY

- Soil
- Soil and Quartz Float
- Soil and Laterite
- Laterite
- Pegmatite

RADIATION CONTOURS – BGS I –

1 Less than 80 cps

2 80–100 cps

3 Greater than 100 cps



PLATE 7

# NORANDA AUSTRALIA LTD.

SPECIAL MINING LEASE 182
MYPONGA
South Australia

## NANTAMBOO PROSPECT
## Geophysical Survey

SCALE
100 50 0 100 200
Feet

ENV 933

| | | |
|---|---|---|
| DATE: Sept. 1969 | GEOLOGY: A.C. Dunlop | DRAWN: G.C. |
| APPROVED: T.A.R. | DRAWING Nº 315-D-207 | |

Magnetic North

## REFERENCE

82 — Total count radiation – Scintrex BGS I counts per second (cps)

90 — Total count radiation contours counts per second (cps)

100 — 100 counts per 2 sec $Bi^{214}$ (Geophoto Services)

GEOLOGY

- Soil
- Laterite
- Gneiss and Granite Gneiss
- Pegmatic Gneiss
- Pegmatite
- Amphibolite

RADIATION CONTOURS – BGS I –

- 1 — Less than 90 cps
- 2 — 90 – 110 cps
- 3 — Greater than 110 cps



PLATE 8

# NORANDA AUSTRALIA LTD.

SPECIAL MINING LEASE 182
MYPONGA
South Australia

## EAGLE HAWK PROSPECT
Geophysical Survey

SCALE
100 50 0 100 200
Feet

ENV 933

| | | |
|---|---|---|
| DATE: Sept. 1969 | GEOLOGY: A.C. Dunlop | DRAWN: G.C. |
| APPROVED: T.A.R. | DRAWING No 315-D-208 | |

Magnetic North

## REFERENCE

- Total count radiation — Scintex BGS I counts per second (cps)
- 140 — Spot total count in pit counts per second (cps)
- Total count radiation contour counts per second (cps)
- 100 counts per 2 sec Bi (Geophoto Services Inc)

RADIATION CONTOURS — BGS I —

1. Less than 20 cps
2. 20 – 60 cps
3. 60 – 90 cps
4. Greater than 90 cps

- Sandy soil on tertiary and quaternary grits
- Soil
- Laterite
- Tillite
- Quartz mica schist
- Mica schist
- Kyanite schist
- Laterite schist
- Gneiss
- Lateritised gneiss



PLATE 9

# NORANDA AUSTRALIA LTD.

SPECIAL MINING LEASE 182
MYPONGA
South Australia

## KEELER PROSPECT
Geophysical Survey

SCALE
0 100 200 400 600
feet

ENV 933

| | | |
|---|---|---|
| DATE: Sept. 1969 | GEOLOGY: A. THOMAS | DRAWN: J.F. |
| APPROVED: T.A.R. | DRAWING Nº 315-D-209 | |

# NORANDA AUSTRALIA LIMITED

## SPECIAL MINING LEASE NO. 182
## MYPONGA, SOUTH AUSTRALIA

## REPORT FOR SIX MONTHS ENDED SEPTEMBER 30, 1969.

### 1. Introduction

The Myponga area is situated 38 miles south of Adelaide. Special Mining Lease No. 182 includes several Archean inliers, extending from Yankalilla to Kuipto. It includes several uranium and thorium occurrences, the most important being the Wild Dog Prospect (production 340 tons of 8-lbs. $U_3O_8$/ton).

A programme of airborne gamma ray spectroscopy was carried out by Geophoto Services Inc., with a view to locating further uranium mineralisation within the inliers.

A geologist and assistant were in the Myponga district for three months from January to April 1969, with supervision and assistance from a staff geologist from Port Augusta.

The data from the airborne survey was prepared in 3 sheets - Myponga 1, 2 and 3. Nearly all the apparently anomalous zones are situated in the area covered by sheet 2. (Discussed in detail later in the report). The few areas of high count as indicated by the Isoradioactivity contours on sheet 3 have all been traversed. Data for Myponga sheet 1 only became available from Geophoto Services Inc. near the conclusion of the period of fieldwork in the Myponga district.

## 2. Geology

The area included by Special Mining Lease No. 182 has been mapped by the South Australian Geological Survey (see Barker, Jervis, Yankalilla, Echunga and Milang map sheets).

The archean inliers are strongly metamorphosed and include mainly quartz, mica, felspar schists and gneisses, (with associated pegmatitic secretions). The Archean rocks are flanked by younger Adeladian sediments. A thin cover of Permian glacials exists in some areas. Lateritisation obscures large areas of the inlier particularly south of Myponga.

## 3. Airborne Gamma Ray Spectroscopy

An airborne survey was carried out by Geophoto Services Inc. using a gamma ray spectrometer developed by Texas Instruments, and using digital recording and processing techniques. Lines were flown at 1000 feet intervals at a mean height of 400 feet. Isoradioactivity contour maps were prepared for $Bi^{214}$(U), $Tl^{208}$(Th), $K^{40}$, $Bi^{214}/Tl^{208}$, $Bi^{214}/K^{40}$, and $Tl^{208}/K^{40}$. At the centre of each counting period a 35mm. strip film photograph was taken to aid in the surface location of any anomalous radioactive source.

## 4. Interpretation of Airborne Survey Results

A preliminary examination of the data, indicated that there were no outstanding uranium anomalies, (a view supported by an expert from Geophoto Services Inc.), though several areas of high background values were delineated. Initially, areas of twice background were followed up on the ground using a regular gridding method. Traverses were made at 400 feet intervals with readings taken every 50 feet along the traverse using a Scintrex BGS 1 Scintillometer. After gridding 8 weakly anomalous areas (for details see section 5) and traversing the centre of five others, no uranium mineralisation was located.

The digital record sheets were then closely studied and it was decided to ignore the isoradiation contours, which are averages (and rectangular replots for computer contouring) of a series of recordings which may mask a small group of anomalous readings. The position of all apparently anomalous (greater than twice background) were plotted on an overlay of the flight lines. These readings or groups of readings were rated on the basis of:-

(a) reduced uranium values;

(b) reduced uranium/thorium ratio;

(c) shape of the uranium profile;

(d) the number of readings which could be considered to belong to the same group.

In this way 99 areas (from Myponga sheets 2 and 3) were delineated, and of these 47 are considered worthy of further follow up. (Plate 2 and Table 1.)

| Priority rating | Uranium Value | U/Th Ratio | Small or large group | No. falling within this rating |
|---|---|---|---|---|
| 1. | U >150 | U/Th >0.6 | small | 7 |
| 2. | U >150 | U/Th <0.6>0.42 | small | 8 |
| 3. | U >150 | U/Th >0.6 | isolated | 2 |
| 4. | U >150 | U/Th <0.6>0.42 | isolated | 5 |
| 5. | U >150 | U/Th >0.6 | large | 1 |
| 6. | U >150 | U/Th <0.42 | - | 1 |
| 7. | U>100<150 | U/Th >0.6 | small | 9 |
| 8. | U>100<150 | U/Th <0.6>0.42 | small | 14 |

TABLE 1. PRIORITY RATINGS FOR ANOMALIES ON MYPONGA SHEETS 2 AND 3.

## 5. Initial Ground Follow Up.

All grid readings were taken with a Scintrex BGS 1 total count scintillometer. Details of the localities gridded are outlined below.

### 5.1 Wild Dog Prospect (Plate 3)

This area was the site of the only uranium production in the district. 340 tons of 8-lb. $U_3O_8$/ton were mined. Two anomalous areas were outlined corresponding to the two lodes worked by the South Australian Mines Department. These anomalies are enclosed by the 500cps contour (a considerable portion of this count is due to dump material, and thus it is not of much use for orientation purposes). The general background for the area is about 75cps and rarely does it rise above 100cps.

### 5.2 Winnie Royd Prospect (Plate 4)

This area was gridded with traverses every 200 feet. The area was covered with soil and laterite and had a background of about 65cps. A few insignificant patches of about 100cps were recorded.

### 5.3 Tapley Prospect (Plate 5)

The area was gridded with traverses every 400 feet. A weakly anomalous zone was delineated 1200' x 200' with count greater than 100cps. and up to 250cps. The zone of interest is covered by laterite and only in nearby creek banks is fresh quartz, felspar gneiss, visible. Later follow up, using a Scintrex GIS 2 Spectrometer, suggests that the main source of the radiation is thorium, which reduces the interest of this anomaly.

### 5.4 Nunn Prospect (Plate 3)

The area was gridded with traverses every 400 feet. No zones of anomalous count were located. Outcrop was generally poor with

mainly soil and scree overlying quartz, mica schists and gneisses. The area is of no further interest.

5.5 Rawekeba Prospect (Plate 6)

This area was gridded with traverses every 400 feet. A weakly anomalous zone of 90-100cps. over laterite was indicated against a background of 65cps. Further follow up outside the grid revealed that this zone was not continuous. As a result, the area is of no further interest.

5.6 Nantamboo Prospect (Plate 7)

In this area, traverses were followed at 400 feet intervals. Outcrop was again poor. A few small patches of 150cps. were located, but these do not appear to be significant against a background of 70-80cps.

5.7 Eagle Hawk Prospect (Plate 8)

This area was gridded with traverses every 400 feet. A zone 1000' x 150' was delineated as having a count of greater than 110cps. against a background of 70-80cps. This weakly anomalous zone is conformable with the attitude of adjacent gneissic rocks, in a zone of migmatisation and injection, and is probably related to some pegmatitic phase. The area does not appear to warrant any further attention.

5.8 Keeler Prospect (Plate 9)

This large area was gridded with traverses every 400 feet. A few small irregular patches of 90-100cps. were located, and these appear to be insignificant against a background of 60cps. The masking effect of soil and permian grits is well illustrated in this area. Two shallow pits have been sunk in ferruginius gneiss.

Here the count is generally low (60cps.) but in one pit a small patch gives 240cps.

## 6. Further Work Required at Myponga.

### 6.1 Myponga Sheet 1

(a) Recompile and interpret data from Geophoto Services Inc. Estimate 3 days.

(b) Resulting follow up gridding, traversing and prospecting. Estimate 7 days.

TOTAL - 10 days.

### 6.2 Myponga Sheet 2

(a) Anomaly rating 1; 6 anomalies still to be gridded (viz. 6, 9, 10, 43, 56, 57) at 3 days per grid. 18 days. Anomaly 65 was covered in Keeler prospect.

(b) Anomaly rating 2; 6 anomalies to be traversed (viz. 12, 15, 29, 44, 52, 53) at one day per anomaly. 6 days. Anomalies 23 and 46 were covered in the Rawekeba and Nantamboo grids respectively.

(c) Anomaly rating 3; 1 anomaly to be traversed and prospected, (viz. 83) at one day per anomaly. 1 day. Anomaly 62 was covered by the Keeler grid.

(d) Anomaly rating 4; 4 anomalies to be traversed and prospected, (viz. 4, 19, 22, 51) at one day per anomaly. 4 days. Anomaly 5 was covered by gridding Eagle Hawk Prospect.

(e) Anomaly rating 5; 1 anomaly to be traversed and prospected (viz. 42) at one day per anomaly. 1 day.

(f) Anomaly rating 6; This group has been completed as anomaly 25 has been traversed.

(g) Anomaly rating 7; 9 anomalies to be traversed and prospected, (viz. 31, 34, 49, 50, 58, 64, 67, 69, 76) at ½ day per anomaly. 4½ days.

(h) Anomaly rating 8; 11 anomalies to be traversed and prospected, (viz. 3, 11, 14, 28, 41, 32, 47, 59, 74, 78, 83) at ½ day per anomaly. 5½ days.
Anomalies 24 and 40 were covered in the Rawekeba and Winnie Royd grids respectively.

(i) Follow up; it is estimated that approximately two weeks would be required for gridding and geological mapping of any suitable anomalies from the ratings 2 - 8.
10 days.

TOTAL - 50 days.

6.3 Myponga Sheet 3.

(a) Anomaly rating 4; 1 anomaly to be prospected and traversed, (viz. 96) at one day per anomaly.
1 day.

(b) Anomaly rating 8; 1 anomaly to be traversed and prospected, (viz. 98) at ½ day per anomaly.
½ day.

TOTAL - 1½ days.

TOTAL WORK REQUIRED TO COMPLETE MYPONGA AREA - 61½ days.

## 7. Conclusion

To date, it appears that the high count areas are primarily due to concentrations of radiation within the lateritic crust, and also to Thorium rich pegmatitic secretions.

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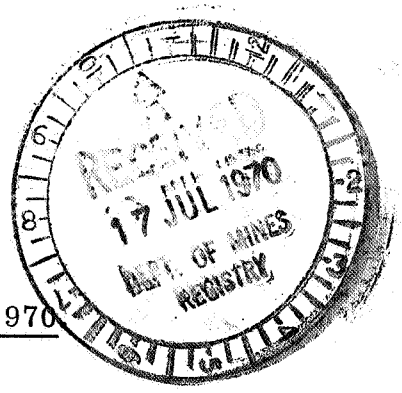


SPECIAL MINING LEASE NO. 182

MYPONGA, SOUTH AUSTRALIA

REPORT FOR SIX MONTHS ENDED APRIL 15, 1970

In November 1969 a detailed report No. 129 was submitted to the Department of Mines. This report was accompanied by a complete set of plans etc. It covered approximately three-quarters of the area.

Due to the acute shortage of technical staff, work on this particular Special Mining Lease has been suspended until additional work is completed in the remaining Special Mining Leases for uranium in this particular district. Therefore, there is no new information to submit.

That portion of the area not covered by our work, and also a portion around the Wild Dog Mine at Myponga deemed worthy of further expenditure, were applied for in 1970 and leases for twelve months granted on two new reduced areas.

G. C. Battey

for A. Thomas,
Chief Geologist - Western.

July 15, 1970
GCB:BHD