

CR 73/121

FINAL REPORT ON E.L. 753  
MT. HARRIS, N.T.  
BY: C.R.A. EXPLOATION PTY LTD.

E.L. 753 - MT. HARRIS, N.T.

FINAL REPORT

Author : F. E. Hughes

Date : March, 1973

Submitted to : D. H. Mackenzie

Copies to : Mines Dept. N.T. Administration

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gneisses are distinctly uraniferous (with up to 40 ppm of uranium) with a low but variable content of thorium. The uranium levels in these rocks are well below the level of economic interest, and no exposures of calcrete or of sediments in which deposits of secondary uranium are likely to occur were revealed by mapping.

FEH:kec

F. E. Hughes

KEYWORDS

Uranium, alluvium, duricrust, granite, gneiss, Cainozoic, Precambrian, geochem.-rock, radioactivity.

Locality : Napperby SF 53-9 1:250 000 Map Sheet

LIST OF PLANS

<u>Plan No.</u>	<u>Title</u>	<u>Scale</u>	
N.T. 1189	E.L. 753 Mt. Harris, N.T. Locality Plan.	1:250 000	✓
N.T. 1190	E.L. 753 Mt. Harris, N.T. Geological Plan..	1:80 000	✓
N.T. 1191	E.L. 753 Mt. Harris, N.T. Western Monadnock Group, Sample Locality Plan, Petrological Investigations and Rock Analyses.	1:46 000	✓
N.T. 1192	E.L. 753 Mt. Harris, N.T. Eastern Monadnock Group, Sample Locality Plan, Petrological Investigations and Rock Analyses.	1:46 000	✓

Appendix

Petrological Results and Analytical Data on Rock Samples

## 1. INTRODUCTION

Exploration Licence No. 753 (see Plan No. N.T. 1189) was granted for 12 months from 7th November, 1972 to allow for completion of preliminary investigations into the nature of the basement rocks that occur as isolated outcrops of Precambrian granitic and gneissic rocks protruding through the surface of the Burt Plain.

Analyses of samples of all the exposures in the area showed that they are radioactive, and uraniferous in places, but below the level of economic interest, and geological mapping failed to reveal the presence of younger formations favourable to the accumulation of secondary uranium deposits. It is recommended that the area be surrendered as soon as practicable.

## 2. GEOLOGICAL SETTING

The area is situated in the Burt Plain, immediately to the south of the Reaphook/Hann range of hills, composed of thick bedded quartzite, granule and pebble conglomerate of Adelaidean age, which form the northern margin of the plain. These sediments are seen to overlies Precambrian granitic and gneissic rocks unconformably at a number of localities along this contact.

Precambrian outcrops appear as monadnocks in two main areas (see Plans Nos. N.T. 1191 and 1192), mostly as coarse grained pink unstressed porphyritic granite with very large phenocrysts of feldspar, but other granitic rocks occur, and a suite of gneissic rocks, quartzite and schist similar to those encountered elsewhere in the Arunta Complex is also represented. Although these rocks are not lateritised, they are weathered to varying degrees, and are occasionally fresh. Veining with quartz and magnetite, and rare pyrite is seen in places.

The remainder of the area is covered with Quaternary deposits of red soil, alluvium and aeolian sand, with rare low dunes. It is inferred that these deposits overlies Tertiary sediments as are known elsewhere in the general area, but they are nowhere exposed, and no drilling has been carried out in the area.

## 3. RESULTS

Geological mapping on a scale of 1:80 000 is shown on Plan No. N.T. 1190 and the results of investigations on rock outcrops are given in the Appendix. Some of the biotite bearing

APPENDIX

Petrological Results and Analytical Data on Rock Samples

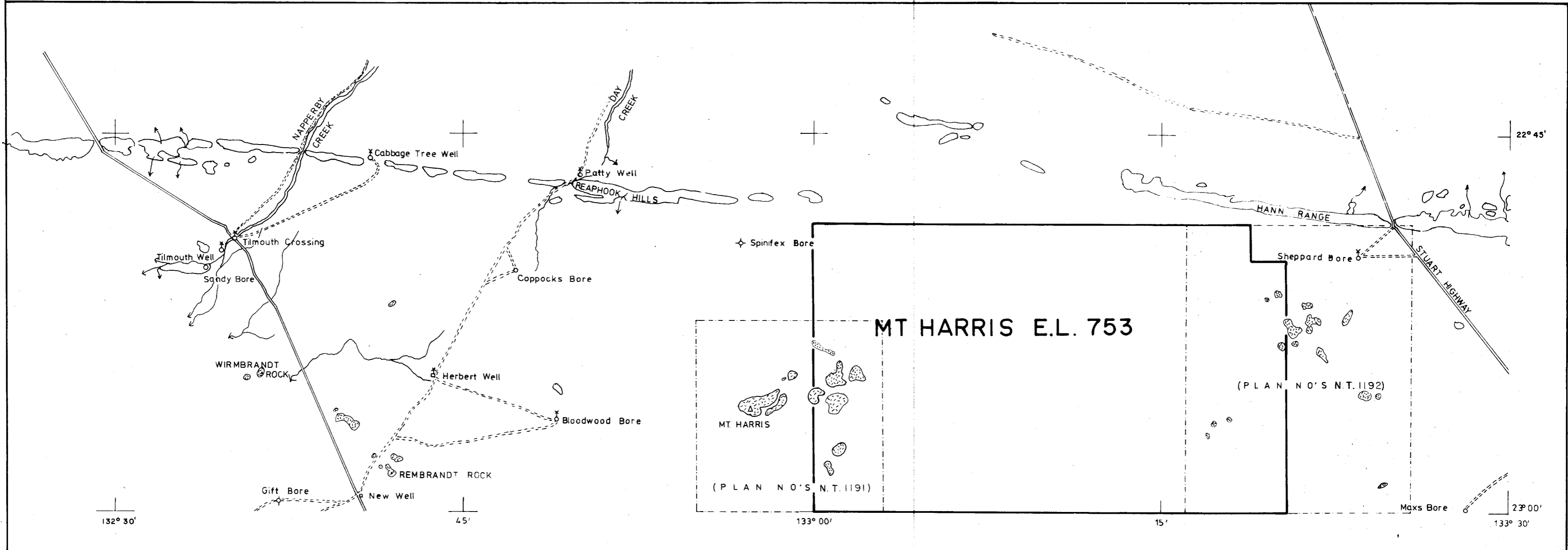
Sample No.	Lithological Description	c.p.s. in situ	c.p.s. at base (b/g = 30)	Analysis	
				U	Th
220246	Poorly foliated biotite gneiss with irregular feldspar development, often auger-like in structure.	170	38	4	35
220247	Quartz vein with manganese and iron staining.	50	32	<1	10
220248	Sandstone and mica schist, very fine grained.	70	30	<1	25
220249	Granitic gneiss, biotite banding visible, fairly fresh.	120	32	6	40
220250	Granitic gneiss, biotite banding visible, fairly fresh.	100	34	16 (14)*	30
220251	Granitic gneiss, distinctly banded, fresh, traversed by vein of fault breccia containing magnetite and pyrite.	100	32	3	30
220252	Quartz vein, brecciated and re-cemented with chalcedonic quartz, some scattered pyrite.	40	30	<1	10
220253	Granitic gneiss, dark, with abundant biotite.	250	32	36 (40)*	10
220254	As Above.	120	36	10 (9)*	40
220255	Quartz vein with hematite and magnetite, 40% mineralisation.	40	28	1 (1)*	5
220256	Quartz vein showing crystals of pyrite and disseminated hematite and magnetite.	25	30	10	<5

Sample No.	Lithological Description	c.p.s. in situ	c.p.s. at base (b/g = 30)	Analysis	
				U	Th
220257	Hematite, banded, associated with quartz veining.	50	32	5	10
220258	Banded granitic gneiss with abundant biotite.	110	32	<1	50
220259	Granitic gneiss, foliated, moderately weathered..	100	36	<1	25
220260	Assimilated country rock hornfelsic texture.	100	34	6 (6)*	25
220261	Granitic gneiss, distinct foliation, fresh.	80	30	2	30
220262	Granitic gneiss, coarsely foliated (1.0 - 1.5 cm foliation), fresh.	80	30	2	15
220263	Granitic gneiss, sparse biotite, fresh.	120	32	2	25
220264	Granite pink, medium-grained, fresh.	150	40	2	30
220265	Quartz vein with sparse hematite mineralisation.	25	30	<1	<5
220266	Quartz vein.	40	28	<1	<5
192763	Coarse biotite-feldspar granite.	150-200	-	2	na
192764	As Above.	150-200	-	3	na
192765	As Above.	200	-	7	na
192766	Weathered granite.	220	-	3	na
192767	As Above.	220	-	2	na
192768	Feldspathic granite (auger gneiss).	300	-	16	na
192770	Epidote granite.	90	-	6	na
192771	Epidote granite.	90	-	2	na

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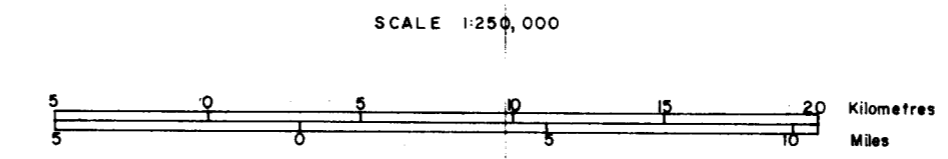
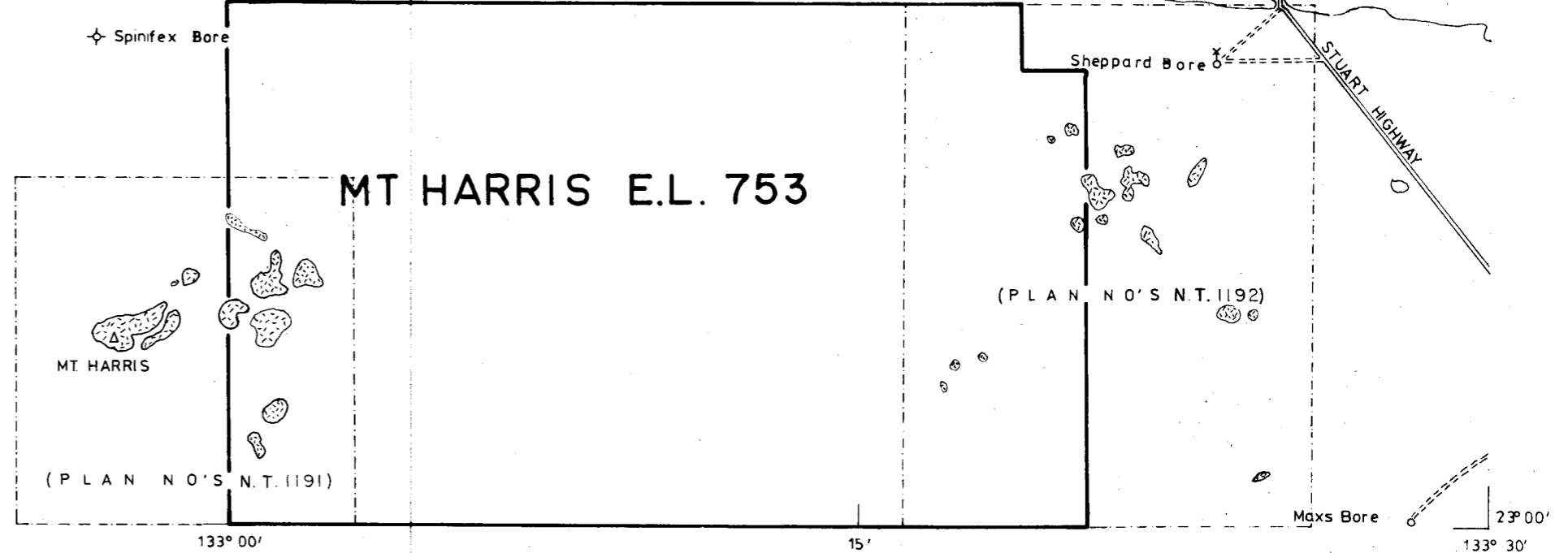
CONTINUATION ON MICROFICHE NO.2  
4 PLANS



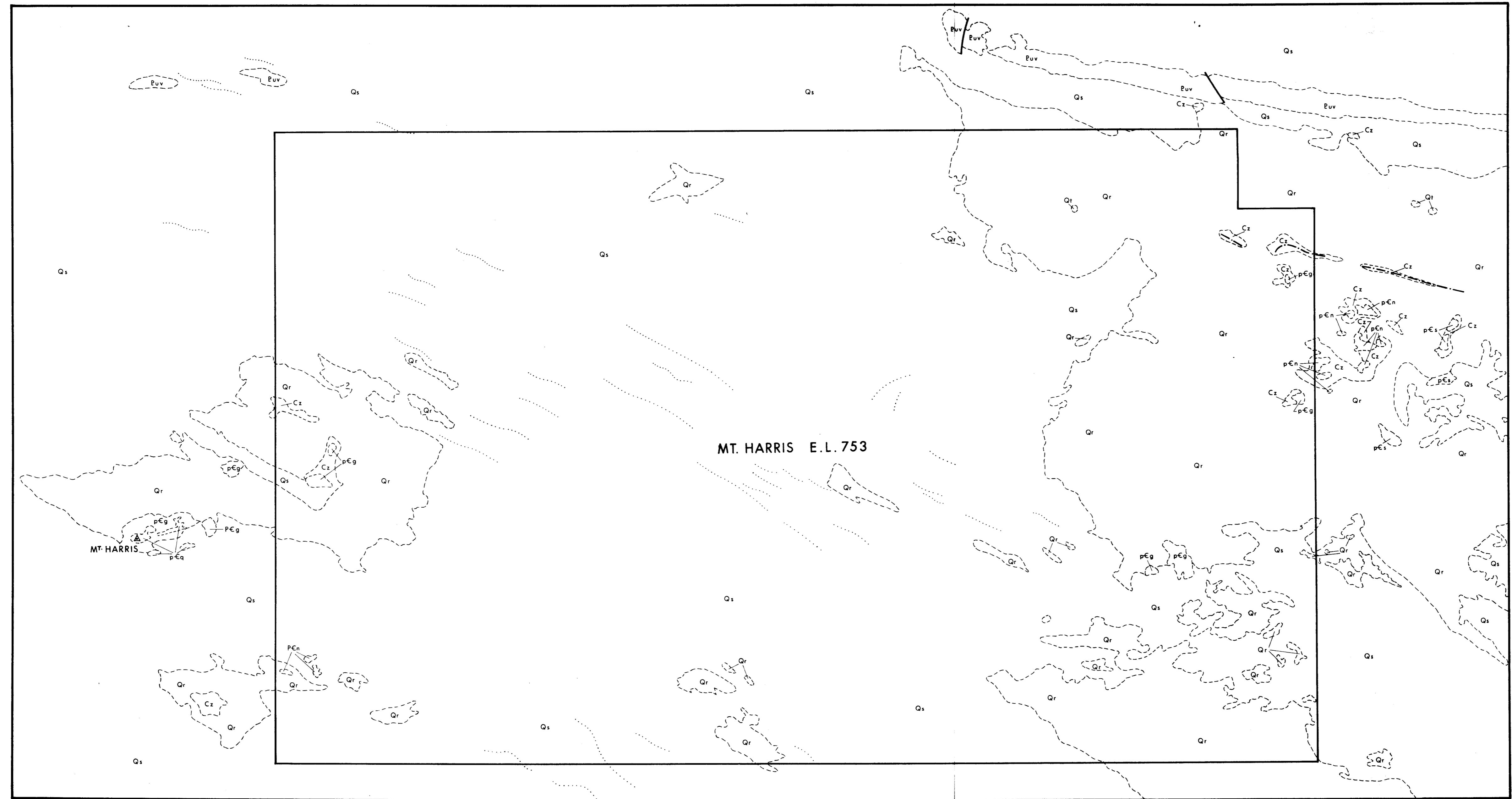


LEGEND

- basement outcrop
- granitic basement outcrop



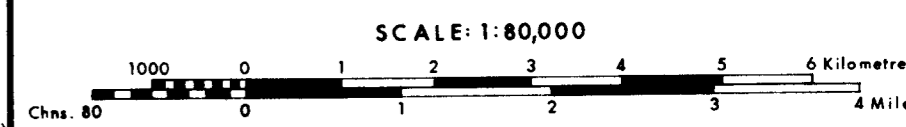
C.R.A. EXPLORATION PTY. LIMITED			
E.L. 753			
MT. HARRIS, N.T.			
LOCALITY PLAN			
KNOS.	APRIL '73	1:250,000	PLAN No. N.T. 1189



MT. HARRIS E.L. 753

MT. HARRIS

- Legend**
- Fault
  - ⋯ Sand dunes
  - Qs Sand
  - Qr Red soil, alluvium
  - Qr Evaporites
  - Cz Silcrete, gneissic and granitic scree
- CAINOZOIC**
- Quartz
  - pEg Orthogneiss, granite
  - pEa Quartzite, quartz schist
  - pEs Biot schist
  - pEn Paragneiss
- PRECAMBRIAN**



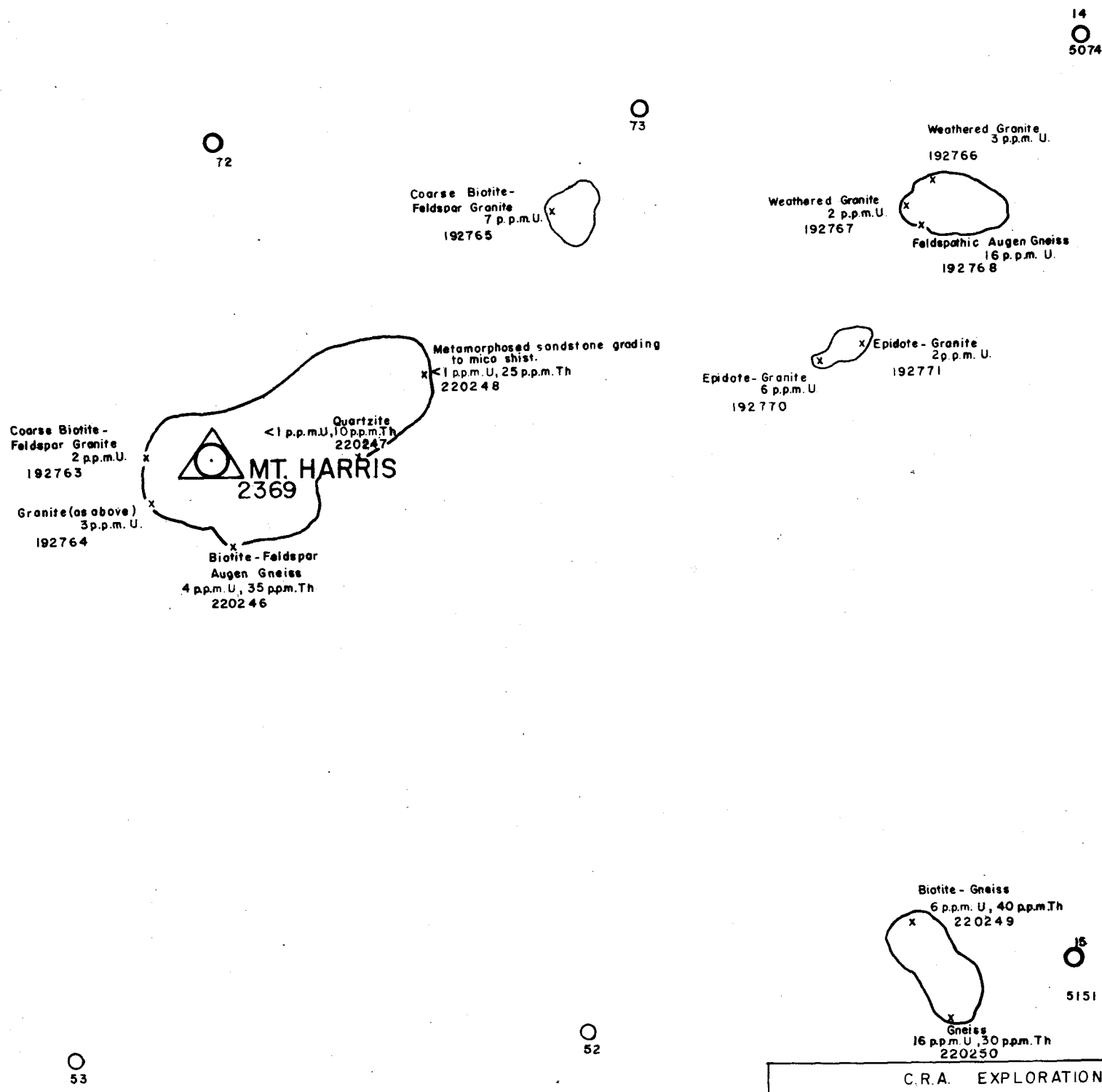
C R A EXPLORATION PTY LTD

NORTHERN TERRITORY

**E.L. 753 MT. HARRIS**

**GEOLOGICAL PLAN**

FE.H. April 1973 Scale: 1:80,000 Plan No. NT1190



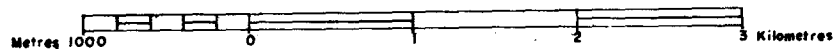
x - rock sample location and number. Uranium & Thorium in p.p.m.

14-Run No.

○ - Position of Photocentres

5151-Photo No.

SCALE 1:46,000



C.R.A. EXPLORATION PTY. LIMITED

E.L.753 - MT. HARRIS, N.T.  
 WESTERN MONADNOCK GROUP,  
 SAMPLE LOCALITY PLAN, PETROLOGICAL  
 INVESTIGATIONS AND ROCK ANALYSES

K.N.O.S.

APRIL '73

1:46,000

PLAN No. N.T. 1191

X SHEPPARD BORE

Quartz Vein only  
<1 p.p.m. U, <5 p.p.m. Th  
220266

Vein or Fault Breccia.  
Gossanous mineralized with pyrite and hematite  
<1 p.p.m. U, 10 p.p.m. Th  
220252

Gneiss with visible  
bands of biotite  
3 p.p.m. U, 30 p.p.m. Th  
220251

Biotite - Gneiss  
2 p.p.m. U, 50 p.p.m. Th  
220251

Granitic Gneiss  
tending to granite  
2 p.p.m. U, 25 p.p.m. Th  
220263

Coarse-biotite Gneiss  
2 p.p.m. U, 15 p.p.m. Th  
220262

Quartz-Biotite Hornfels  
(Assimilated country rock)  
elsewhere Gneiss.  
6 p.p.m. U, 25 p.p.m. Th  
220260

Gneiss with abundant biotite  
36 p.p.m. U, 10 p.p.m. Th  
220253

Gneiss (as above)  
10 p.p.m. U, 40 p.p.m. Th  
220254

Weathered Gneiss  
<1 p.p.m. U, 25 p.p.m. Th  
220259

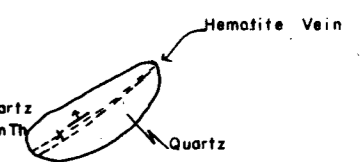
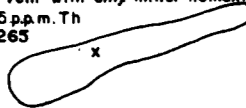
Banded Biotite-Gneiss  
<1 p.p.m. U, 50 p.p.m. Th  
220258

Pink medium-grained granite.  
Also hematite and magnetite  
crystals.  
2 p.p.m. U, 30 p.p.m. Th  
220264

Small quartz vein with  
about 40% Hematite  
1 p.p.m. U, 5 p.p.m. Th  
220255

Quartz vein showing crystals of pyrite  
and disseminated hematite.  
10 p.p.m. U, <5 p.p.m. Th  
220256

Quartz vein with only minor hematite.  
<1 p.p.m. U, <5 p.p.m. Th  
220265



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E.L. 753- MT. HARRIS, N.T.

EASTERN MONADNOCK GROUP,

SAMPLE LOCALITY PLAN, PETROLOGICAL

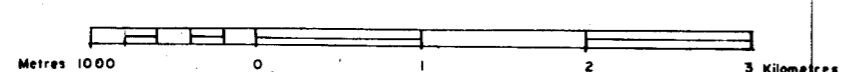
INVESTIGATIONS AND ROCK ANALYSES

K.N.O.S. APRIL '73 1:46,000 PLAN No. N.T.1192

X - rock sample location and number. Uranium & Thorium in p.p.m.

15-Run No.  
O - Position of Photocentres  
43-Photo No.

SCALE 1:46,000





A/L 047

C.R.A. EXPLORATION PTY. LIMITED

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TELEPHONE 666-0231

TELEGRAMS: "EXPLORECO"

TELEX AA31840

23rd May, 1973

The Director,  
Mines Branch,  
Department of the Northern Territory,  
DARWIN N.T. 5790

Dear Sir,

E.L. 753 - Mt. Harris, N.T.  
Report for the Quarter Ending 7th May, 1973

Sampling of the granitic basement for uranium and thorium was completed and ground radiometric surveys were run.

Results were below the level of interest and the area was relinquished on 28th April, 1973.

Final report preparation commenced.

Expenditure to 30th April, the nearest accounting period amounted to \$1,245.

Yours faithfully,

MField

for

D. S. Carruthers  
General Manager

