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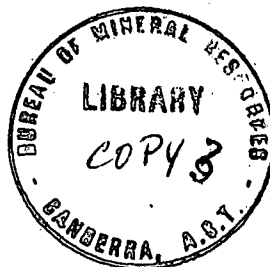
COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

Record 1970/69

**Catalogue of Radiometric Age Determinations
carried out on Australian Rocks in 1967/1968**



010855

Compiled by

Rosalind Bennett

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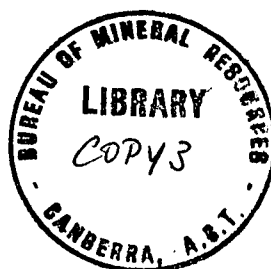
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CATALOGUE OF RADIOMETRIC AGE DETERMINATIONS
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SUMMARY

A catalogue of age determinations carried out on 337 samples from Australian territory has been compiled. This record lists sample numbers, method of age determination, analytical data, locality, collectors and a brief evaluation and comment on the age. Most of the determinations have been carried out at the Department of Geophysics and Geochemistry, Australian National University, Canberra. No new age determinations are available from Victoria, Australian Capital Territory, and Tasmania.

INTRODUCTION

Age determinations done on Australian rocks were summarized to December, 1966, by R.P. Coats (1961), D.A. White (1962), R.R. Harding (1966) and R.W. Page (1968). The present publication lists age determinations which became available between January, 1967, and December, 1968. Much of this data is so far unpublished.

The determinations represent independent projects of the staff and students of the Department of Geophysics and Geochemistry, and a substantial proportion are the result of co-operation between this Department and the Bureau of Mineral Resources in the programme of dating the Australian continent. In this programme, specimens for age determination are collected by Bureau field parties and analysed under the supervision of members of staff of the Department, on machines provided by the University and the Bureau. The samples are listed under State headings and are further subdivided on the basis of publication. The list of published papers referred to in this record appear under "General" or under State headings at the end of this record. An abbreviated reference number e.g., N.S.W.1, N.S.W.2, etc. is given to each publication.

The K-Ar data listed for each sample are set out as follows:

Reference: ROCK UNIT OR ROCK TYPE
 Type of sample analysed: Age
 B.M.R. No.: Analytical data
 GA or Rock type (if part of rock unit)
 Sample No. Locality
 Latitude, longitude, Name of 1:250,000
 and/or grid reference Sheet area.
 Collector (if available)
 Evaluation of age.

The Rb-Sr data are not amenable to this form of presentation.

It was aimed to present enough analytical data for the reader also to evaluate the age quoted for a particular specimen. It must be emphasized, however, that for discussion of the limitations and for proper assessment of the results, the original publication or the analyst should be consulted.

The GA or sample number of each set of data is tabulated (Table 1) under "Period" and "State". Precambrian has been divided into Proterozoic (Adelaidean 600-1400 m.yr, Carpentarian 1400-1800 m.yr and "Lower Proterozoic" 1800-2500 m.yr) and Archaean. Each subdivision in the Proterozoic has been further subdivided into 200 million year periods for ease of presentation. The subdivisions of Phanerozoic time are taken from "The Phanerozoic Time-scale" (Geol. Soc. London, 1964), to which readers should refer for a discussion of the evidence for the divisions. Different components (e.g. feldspar and biotite) of some samples indicate different ages; in these cases, the sample number is assigned to the older or to the more reliable age and tabulated accordingly.

The samples are also indexed according to 1:250,000 sheet number (Index I), and in order of GA and sample number (Index II).

Text Figure 1 shows the location of sheet numbers in Australia; those areas from which samples have been dated are shaded. If, for example, the reader wishes to ascertain which rocks have been analysed isotopically from North Queensland, he should consult Text Figure 1 and note the appropriate 1:250,000 sheet numbers, consult the Queensland part of Index I for these numbers, and note the page reference indicated.

Areas of Australia at present being investigated geochronologically, but for which data are not yet available, include the Kalgoorlie region (W.A.), Pilbara region (W.A.), Cape York area (Qld), Alice Springs region (N.T.), and New Guinea. Text Figure 2 shows the location of samples dated from New Guinea and Antarctica.

Unless otherwise stated, the constants used in determining the ages listed are:

$$\begin{array}{lll} \text{K-Ar Method: } \lambda\beta & = & 4.72 \times 10^{-10} \text{ yr}^{-1} \\ \lambda_e & = & 0.585 \times 10^{-10} \text{ yr}^{-1} \\ K^{40} & = & 1.19 \times 10^{-2} \text{ atom percent} \end{array}$$

$$\begin{array}{lll} \text{Rb-Sr Method: } Rb^{87} & = & 1.39 \times 10^{-11} \text{ yr}^{-1} \text{ (6\% uncertainty)} \\ Rb^{85}/Rb^{87} & = & 2.600 \\ Sr^{88}/Sr^{86} & = & 8.375 \end{array}$$

The Sr in most samples was determined by isotope dilution, but where the present day Sr^{87}/Sr^{86} was determined on an unspiked sample, the Sr^{87}/Sr^{86} value quoted in the text is followed by "(meas.)". The initial Sr^{87}/Sr^{86} value of the sample, quoted after the age of the sample, may have been assumed, or deduced from an isochron: this is indicated by (A) or (I) respectively.

C^{14} Method: Results of C^{14} age determinations carried out on Australian samples of archaeological or geological interest appear in the "Australian Journal of Science", and in "Radiocarbon", an annual publication of the "American Journal of Science".

An attempt has been made to collect all the information available concerning age determinations of Australian rocks; however, it would be appreciated if the Bureau of Mineral Resources could be notified of any omissions so that they can be included in the next Catalogue of Age Determinations.

ACKNOWLEDGEMENTS

I am indebted to members of the Department of Geophysics and Geochemistry, and to Mr. R.W. Page for assistance and advice in the collection and presentation of the age determination results.

ANTARCTICA

Ref: Ant 1 LAKE VANDA SILL

GA 1426 Plagioclase K-Ar age: (1) 153.9 m.y.
(2) 156.4 m.y.

SA.1426

% K	*Ar ⁴⁰ /K ⁴⁰ x10 ⁻³	%Atm.	Ar ⁴⁰
-----	---	-------	------------------

0.258	(1)	9.37	39.8
	(2)	9.52	41.9

Pyroxene and hornblende, K-Ar age: (1) 169.2 m.y.
(2) 164.5 m.y.

% K	*Ar ⁴⁰ /K ⁴⁰ x10 ⁻³	%Atm.	Ar ⁴⁰
-----	---	-------	------------------

0.165	(1)	10.3	75.9
	(2)	10.1	69.0

Pegmatoidal dolerite, same layer containing
sample 4112. Lake Vanda Sill, near
McMurdo Sound

Ref: Ant 1 DOILERITE SILLS

	Rb(ppm)	Common Sr (ppm)	Rb ⁸⁷ /Sr ⁸⁶	Sr ⁸⁷ /Sr ⁸⁶ Present Initial
4012	30	126	0.69	0.7137 0.7122
4013	49+	133+	1.07	0.7135 0.7112 0.7143*
4017	36+	127+	0.82	0.7120 0.7103 0.7119* 0.7128*
4019	20	128	0.45	0.7127 0.7117
4026	11	75	0.35	0.7128 0.7120
4112	73	120	1.75	0.7179 0.7143 0.7183
	75+	123+	1.77	0.7197*
GA 1462	35+	126+	0.80	0.7146* 0.7141 0.7124

	Rb(ppm)	Common Sr (ppm)	Rb ⁸⁷ /Sr ⁸⁶	Sr ⁸⁷ /Sr ⁸⁶	
				Present	Initial
GA 1462, sanidine 233+		93+	7.25	0.7270	0.7114
				0.7277*	
GA 1462, plagioclase			0.05	0.7118	0.7117
4300	78+	108+	2.07	0.7160*	
				0.7158	0.7113
GA 394, plagioclase			0.4	0.7107	0.7090
GA 395, plagioclase			0.6	0.7114	0.7101
4266	56+	136+	1.19	0.7151	0.7125
4165	131	115	(3.28)	0.7236	0.7181
	128+	144+	2.56	0.7246*	
		143+		0.7239*	
4168	43	143	0.87	0.7152	0.7133
4170	49	139	1.02	0.7156	0.7134
4174	49	138	1.02	0.7156	0.7134
4342	20	98	0.59	0.7126	0.7109
				0.7119	
				0.7121	
28906	29	134	0.62	0.7122	0.7109
				0.7122	
26903	12	100	0.35	0.7121	0.7113
4160	226	228	3.38	0.7303	-
4053	118	152	2.24	0.7149	0.7102

*Sr⁸⁷/Sr⁸⁶ of sample calculated from isotopic composition of mixture with double Sr tracer

+ Analysis by isotope-dilution. All other Rb and Sr determinations either from Gunn (1965, 1966) or Gunn (personal communication)

Isochron for hypersthene tholeiites using all date points except 4112, GA 394, GA 395 gives a Rb-Sr age: 151 ± 18 m.y.

4112 is clearly anomalous and GA 394, 395 were not used as it is not certain whether they are from hypersthene dolerite intrusions.

Pegmatoids 4112, 4165, "hybrid" rock 4053, Irizar Granite 4160 plot suggesting a Rb-Sr age: about 580 m.y.

Extremely localised contamination with radiogenic Sr is postulated for samples 4112 and 4165.

The pigeonite tholeiite is definitely older than the hypersthene tholeiite as it is transgressed by the hypersthene tholeiite but cannot be more than approximately 40 m.y. owing to stratigraphic control as younger than Middle Triassic.

The age relation of olivine tholeiite has not been seen but it is assumed that it is of similar age to the other two.

GA 394. Dolerite from middle of sill, few hundred feet thick, Col Peak, 30 miles south of Mt Markham, Queen Elizabeth Range.

GA 395 Dolerite near base of 1300' sill at Bunker Cwm, Mt Miller, N. of Beardmore Glacier.

All other rock localities shown on maps in Gunn (1966, Fig. 1)

Lake Vanda Sill

4012. Chilled margin

4013, 4017, Pegmatoid zone

4019 Felsic zone

4026 Norite zone

Hypersthene
tholeiites

Basement Sill, Solitary Rocks

4112 Pegmatoid

Emmanuel Sheet, Emmanuel Glacier

4300 Pegmatoid

Penepplain Sill, Kukri Hills

4266 Chilled margin

New Mountain Sill

4165, 4168, 4170, 4174 Pegmatoid

Pigeonitic
tholeiites

Thumb Point Sill

4342, 28906

Painted Cliff Sill, N. of Beardmore Glacier

26903

Irizar granite

Taylor Valley 4160

"Hybrid" dolerite-granite

Wright Valley 4053

Olivine
tholeiites

NEW SOUTH WALES

Ref: NSW 1	OLIVINE THOLEIITE		
GA 1958	Total-rock, <u>K-Ar age : 20.9 ± 2.0 m.y.</u>		
	% K $^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	0.401)		
	0.401) 0.401 1.299×10^{-3}	84.4	
	Inverell - Copeton road. Grid reference, 404304.	Inverell	
Ref: NSW 1	NEPHELINE BASANITE		
GA 1959	Total-rock, <u>K-Ar age : 18.5 ± 1.0 m.y.</u>		
	% K $^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	0.841)		
	0.841) 0.841 1.084×10^{-3}	29.5	
	7 miles west of Inverell. Grid reference, 393308.	Inverell	
Ref: NSW 1	ANALCIME BASANITE		
GA 2167	Total-rock, <u>K-Ar age : 20.7 ± 1.0 m.y.</u>		
	% K $^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	2.02)		
	2.02) 2.02 1.239×10^{-3}	16.3	
	Near Bald Knob, 4 miles south of Armidale. Grid reference, 471215	Dorrigo	
Ref: NSW 1	ALKALI OLIVINE BASALT		
GA 2168	Total-rock, <u>K-Ar age : 33.4 ± 1.5 m.y.</u>		
	% K $^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	1.30)		
	1.30) 1.30 1.967×10^{-3}	4.0	
	New England Highway, 26.5 miles north of Guyra. Grid reference, 478299.	Grafton	

Ref: NSW 1 GA 1966	ANALCIME OLIVINE THERALITE Total-rock, <u>K-Ar age : 58.6 ± 2.0 m.y.</u> % K $\frac{^{40}\text{Ar}^*/^{40}\text{K}}$ 1.41) 1.43) 1.42 3.476×10^{-3} Square Top, Nundle. From lower level of Square Top intrusion, west of Nundle. Grid reference, 410108.	% $^{40}\text{Ar}^{\text{atm}}$ 8.0 Tamworth
Ref: NSW 1 GA 1961	ALKALI OLIVINE BASALT Total-rock, <u>K-Ar age : 48.7 ± 2.0 m.y.</u> % K $\frac{^{40}\text{Ar}^*/^{40}\text{K}}$ 0.863) 0.867) 0.865 2.883×10^{-3} Barrington Tops. Grid reference, 446058.	% $^{40}\text{Ar}^{\text{atm}}$ 35.9 Tamworth
Ref: NSW 1 GA 1962	ALKALI DOLERITE Plagioclase, <u>K-Ar age : 54.6 ± 2.0 m.y.</u> % K $\frac{^{40}\text{Ar}^*/^{40}\text{K}}$ 0.265) 0.268) 0.266 3.238×10^{-3} Barrington Tops. Outcrop near G.A. 1961	% $^{40}\text{Ar}^{\text{atm}}$ 48.4 Tamworth
Ref: NSW 1 GA 1957	SODIC QUARTZ TRACHYTE Total-rock, <u>K-Ar age : 15.5 ± 0.6 m.y.</u> % K $\frac{^{40}\text{Ar}^*/^{40}\text{K}}$ 3.87) 3.88) 3.87 0.909×10^{-3} Warrumbungle Mountains. Grid reference, 187117.	% $^{40}\text{Ar}^{\text{atm}}$ 4.3 Gilgandra
Ref: NSW 1 GA 1956	SODIC RHYOLITE (Comendite) Total-rock, <u>K-Ar age : 15.7 ± 0.7 m.y.</u> % K $\frac{^{40}\text{Ar}^*/^{40}\text{K}}$ 3.47) 3.49) 3.48 0.919×10^{-3} Sodic rhyolite (comendite), Mount Oliver. Summit of Mount Oliver, upper Langdowne district. Grid reference, 537784.	% $^{40}\text{Ar}^{\text{atm}}$ 21.8 Hastings

Ref: NSW 1	THOLEIITIC ANDESITE			
GA 1960	Plagioclase, <u>K-Ar age : 18.7 ± 1.0 m.y.</u>			
% K	$^{40}\text{Ar}^*/^{40}\text{K}$		% $^{40}\text{Ar}^{\text{atm}}$	
0.314)				
0.318) 0.316	1.096×10^{-3}		75.4	
Ebor district.	Grid reference, 546240.		Dorrigo	
Ref: NSW 1	THOLEIITIC ANDESITE			
GA 1963	Total-rock <u>K-Ar age : 22.6 ± 1.0 m.y.</u>			
% K	$^{40}\text{Ar}^*/^{40}\text{K}$		% $^{40}\text{Ar}^{\text{atm}}$	
1.67)				
1.69) 1.68	1.326×10^{-3}		14.9	
Fingal Point.	Grid reference, 762002.		Tweed Heads	
Ref: NSW 1	OLIVINE THOLEIITE			
GA 1965	Total-rock, <u>K-Ar age : 23.6 ± 1.0 m.y.</u>			
% K	$^{40}\text{Ar}^*/^{40}\text{K}$		% $^{40}\text{Ar}^{\text{atm}}$	
0.607)				
0.609) 0.608	1.386×10^{-3}		30.5	
Tabulam.	North-west of Tabulam.			
Grid reference, 552436.			Warwick	
Ref: NSW 2	METAMORPHIC ROCKS, BROKEN HILL			
	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Sr}^{86}$	Sr $^{87}/\text{Sr}^{86}$ Norm.
BH 5				
Total-rock	462.6	27.31	48.82	1.878
	452.1	26.60	48.97	1.836
Orthoclase	775.5	60.21	37.09	1.885
	773.4	59.67	37.29	1.905
Biotite	1208	2.767	1259.3	10.62
	1221	2.873	1224.7	10.18
BH 21				
Total-rock	344.3	26.33	37.97	1.636
	352.0	25.98	38.96	1.632
Orthoclase	537.5	79.27	19.52	1.532
	540.2	82.11	18.95	1.496

Ref: NSW 2 METAMORPHIC ROCKS, BROKEN HILL (Cont.)

BH 25

Total-rock	158.6	90.53	5.044	0.8711	0.8726
	157.2	94.79	4.776	0.8717	
Sericite	185.5	187.4		0.8668	
	238.4	185.5	3.700	0.8686	
	241.8				

BH 23

Total-rock	337.6	64.90	14.98	1.100	
Sericite	475.6	127.9	10.71	1.078	
	517.3	125.0	10.74	1.080	
	466.3				

BH 135

Total-rock	280.5	55.77	14.46	0.9506	
Sericite	197.2	65.08	13.15	0.9527	
	301.6	64.82	13.39	0.9480	

BH 134

Total-rock	236.8	72.44	9.411	0.8978	0.8958
Sericite	322.3	101.0	9.188	0.8953	
	531.1	101.9	9.002	0.8933	
	318.6				

BH 2

Total-rock	222.4	103.4	6.191	0.9007	0.8990
Sericite	315.0	132.1	6.863	0.9590	

Rb-Sr age : 1605 ± 35 m.y.

Initial $\text{Sr}^{87}/\text{Sr}^{86}$ 0.759 ± 0.013

BH 135 and BH 134 lie below the isachron and are considered to have become open systems to Rb and Sr at some later time. Lines joining total-rock - sericite pairs could possibly represent a very young retrogressive event.

BH 5 Orthoclase-sillimanite-garnet-biotite gneiss from between No. 2 and No. 3 ore lenses, No. 17 level, Z.C. (Zinc Corporation Limited) Broken Hill.

BH 21 Orthoclase-garnet-sillimanite-biotite gneiss from No. 6 level, Z.C.

BH 25 Sericite-garnet-biotite-feldspar gneiss from No. 12 level, Z.C.

BH 23 Muscovite-garnet schist from No. 6 level, Z.C.

BH 135 Sericite-garnet-feldspar schist from Lord's Hill Fault Zone, No. 23 level, N.B.H. (North Broken Hill Limited)

BH 134 Sericite-garnet schist from "Main Lode Shear" from No. 23 level, N.B.H.

BH 2 Muscovite-feldspar-biotite garnet gneiss from No. 17 level, Z.C.

Ref: NSW 2 POTOSI GNEISS, BROKEN HILL

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}\text{Sr}^{86}$	Sr $^{87}\text{Sr}^{86}$ (calc.)	Norm.
BH 43A					
Total-rock	112.1	279.8	1.153	0.7366	0.7374
Orthoclase	337.8	656.2	1.482	0.7534	
	336.2	663.0	1.460	0.7524	
BH 43B					
Total-rock	147.7	317.7	1.337	0.7417	0.7393
Orthoclase	319.3	759.5	1.210	0.7662	
BH 44					
Orthoclase	325.1	355.0	2.637	0.7864	
	324.4	359.1	2.600	0.7847	
BH 17					
Total-rock	140.1	125.2	3.222	0.7881	0.7872
	177.5	129.0	3.962	0.7860	
	136.7	126.8	3.104	0.7873	
Orthoclase	405.1	206.7	5.643	0.8403	
	399.4	204.3	5.628	0.8402	

Ref: NSW 2 POTOSI GNEISS, BROKEN HILL (Cont.)

Total-rock	183.4	183.7	2.873	0.7779	
	144.7	189.5	2.199	0.7756	
	181.5	188.6	2.770	0.7776	0.7768

GA 312

Total-rock	199.2	78.92	7.267		0.8824
	201.0	80.25	7.210		0.8814
Orthoclase	460.9	170.9	7.765		0.9365
	470.5	184.0	7.361		0.9360
Biotite	1073	3.25	949.4	7.184	

Rb-Sr age : 1690 ± 170 m.y.

Initial $\text{Sr}^{87}/\text{Sr}^{86}$ 0.710 ± 0.009 .

This isochron is determined by total-rock data points. Total-rock-orthoclase tie-lines are not parallel, and can not be interpreted as "young" isotopic events.

BH 43 Feldspar-biotite-garnet gneiss from Potosi Gneiss quarry.

BH 43B is a leucocratic band.

BH 44 Acid pygmatic vein in Potosi Gneiss from Potosi Gneiss quarry.

BH 17 Garnet-feldspar gneiss from No. 6 level Z.C.

BH 45 Sheared Potosi Gneiss from a shear zone in Potosi Gneiss quarry.

GA 312 Garnet-feldspar gneiss, from Potosi Gneiss. Lat. $31^{\circ}57'50''\text{S}$.

Long. $141^{\circ}28'10''\text{E}$. Collected by Zinc Corp. Ltd.

Ref: NSW 2 GRANITIC GNEISS, BROKEN HILL

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Sr}^{86}$	Sr $^{87}/\text{Sr}^{86}$ (calc.)	Norm.
BH 11					
Total-rock	298.7	52.94	16.25	1.130	
	298.9	54.09	15.89	1.129	
Biotite	1328	2.837	1354	9.936	
K-feldspar	467.7	54.35	24.77		1.154

Ref: NSW 2 GRANITIC GNEISS, BROKEN HILL (Cont.)

BH 14

Total-rock	186.0	81.84			0.9200
	283.9	89.20	9.159	0.9208	
K-feldspar	387.5	160.7	6.94	0.9337	
Biotite	1135	4.52	729.7	5.621	

BH 9

Total-rock	280.3	73.15	11.03	0.9853	0.9793
	298.0	70.67	12.13	1.0046	
	276.3	73.06	10.88	0.9814	
K-feldspar	380.8	150.5	7.288	0.9616	
	383.6	150.4	7.345	0.9592	
Biotite	1145	3.64	915.0	6.900	

BH 10

K-feldspar	277.0	182.0	4.382	0.8413	
	275.0	185.3	4.271	0.8400	

RB 465

Total-rock	122.3	278.5	1.264	0.7409	
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GA 314

Total-rock	391.3	66.68	16.88	1.127	
	400.2	69.43	16.60	1.124	
Biotite	2034	3.006	1048	15.18	

Rb-Sr age : 1750 m.y.Initial $\text{Sr}^{87}/\text{Sr}^{86}$ 0.710 ± 0.009

Only four total-rock data points are used to determine this isochron and therefore confidence intervals are not reported. Two of the K-feldspar-total-rock tie lines could be interpreted as indicating a very "young" isotopic event but the interpretation is doubtful.

BH 11 Granitic gneiss from Block 10 Hill, Broken Hill
 BH 14 Granitic gneiss from Block 10 Hill
 BH 9 Granitic gneiss from Block 10 Hill
 BH 10 "Pegmatitic" vein in granitic gneiss from Block 10 Hill
 RB 465 Plagioclase-biotite-garnet gneiss. Collected by
 R.A. Binns from the "Hanging Wall Basin" Billygoat Hill,
 Broken Hill
 GA 314 Granitic gneiss Lat. $31^{\circ}57'10''\text{S}$. Long. $141^{\circ}29'40''\text{E}$
 Broken Hill. Collected by Zinc Corp. Ltd.

Ref: NSW 2 GNEISS AND GRANULITE, BROKEN HILL

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb ⁸⁷ /Sr ⁸⁶	Sr ⁸⁷ /Sr ⁸⁶ (calc.)	Norm.
BH 37					
Total-rock	265.3	32.72	23.33	1.308	
	264.3	30.59	24.87	1.327	
K-feldspar	482.2	48.59	28.55	1.400	
	472.5	47.44	28.66	1.415	
BH 39					
Total-rock	333.9	34.32	28.04	1.389	
	329.3	28.29	33.50	1.505	
K-feldspar	571.0	44.96	36.58	1.589	
	572.6	44.69	36.91	1.605	
BH 35					
Total-rock	170.0	62.60	7.814	0.9014	
	171.6	61.98	7.962	0.9062	
K-feldspar	452.8	129.5	10.07	0.9798	
	443.5	131.8	9.72	0.9782	
GA 439					
Total-rock	281.8	36.89	21.99		1.234
	285.6	37.86	21.70		1.228
K-feldspar	379.5	63.40	17.23		1.231
	359.7	62.96	16.44		1.231
Biotite	1157				
	1182	3.813	892.8	6.979	
	1081	3.192	975.5	8.093	

Rb-Sr age : 1670 ± 100 m.y.

Initial $\text{Sr}^{87}/\text{Sr}^{86}$ 0.732 ± 0.036 .

Both total-rock and feldspar data points define this isochron indicating that the K-feldspar from these samples has remained closed to Rb and Sr. The exception is the K-feldspar from GA 439 which lies well above the isochron suggesting that it may have undergone addition of radiogenic Sr or removal of Rb.

BH 37 Granitic gneiss from approximately 4000 S., 13000 E Z.C. map
(King and Thompson, 1953).

BH 39 Granitic gneiss from approximately 4300 S., 10000 E., Z.C. map.

BH 35 Quartz-plagioclase-garnet-cordiorite granulite from approximately
4000 S., 13000 E., Z.C. map.

GA 439 Granitic augen gneiss from approximately 4300 S., 6000 E.,
Z.C. map.

Ref: NSW 2 LODE AND MUSCOVITE PEGMATITES, BROKEN HILL

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Sr}^{86}$	Sr $^{87}/\text{Sr}^{86}$ (calc.)	Norm.
BH 81					
Muscovite	649.0	13.12	142.8	3.892	
	640.6	14.90	123.6	3.482	
Biotite	863.3	10.46	237.2	2.323	
	846.4	10.73	226.3	2.263	
Sericite	608.0	13.21	132.2	3.475	
BH 31					
Muscovite	750.6	9.222	235.5	5.960	
	732.7	9.399	224.2	5.880	
Microcline	270.2	45.58	17.06		1,102
BH 85					
Muscovite	578.1	9.044	184.6	4.688	
	582.4	8.867	188.4	4.748	
Microcline	455.2	93.55	14.01	0.930	
	455.2	93.81	14.00		
Plagioclase	42.38	97.71	1.249		0.7758
	42.57	97.71	1.254		0.7742
Sericite	396.1	16.67	68.28	1.864	
	404.1	17.02	68.21	1.823	

Ref: NSW 2 LODE AND MUSCOVITE PEGMATITES, BROKEN HILL (Cont.)

BH 94

Muscovite	724.4	6.97	299.0	7.248
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BH 91

Muscovite	752.4	22.08	98.24	2.964
	747.2	21.55	99.97	2.993

BH 56

K-feldspar	465.4	77.50	17.29	1.162
	456.8	75.19	17.49	1.164

BH 27

K-feldspar	600.2	186.0	9.287	0.9792
	590.7	187.7	9.060	0.9786

BH 90

Total-rock	221.1	22.34	28.44	1.190	1.197
K-feldspar	475.6	27.22	50.31	1.335	
	477.7	26.96	51.01	1.340	

BH 47

Muscovite	458.0	8.663	152.2	1.829	
	455.8	8.264	158.7	1.866	
Albite					0.7927

BH 49

Muscovite	494.6	5.684	250.4	2.518	
Albite					0.7689

BH 79

Muscovite	800.8	6.402	359.9	8.698
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Rb-Sr age of lode-pegmatites : 1650 m.y.

The feldspars BH 56 and BH 27 lie on the "gneiss isochron". However BH 90 K-feldspar-total-rock tie line has a much younger age and as the rock is strongly retrogressively altered it seems that BH 90 has remained an open system to Rb and Sr isotopes for sometime after crystallisation (495 m.y.)

Rb-Sr age of muscovite-bearing pegmatites : 1565 ± 40 m.y.

Initial $\text{Sr}^{87}/\text{Sr}^{86}$ 0.74 ± 0.14 .

The above isochron is defined by the muscovites (excluding BH 47 and BH 49) and BH 85 plagioclase and BH 31 microcline.

Biotite and sericite data-points do not fall on the 1565 m.y. isochron.

BH 47 and BH 49 muscovite data points define a distinctly younger apparent age.

BH 81 Pegmatite from a dyke 1 mile east of the Allandale Mine,
Broken Hill.

BH 31 Feldspar-muscovite pegmatite from a dyke transgressing the
Alma Gneiss.

BH 94 Quartz-muscovite pegmatite from No. 14 level N.B.H.C.
(New Broken Hill Consolidated Limited)

BH 91 Discordant quartz-muscovite pegmatite from near the
haulage Shaft, No. 16 level, N.B.H.C.

BH 56 Green-feldspar pegmatite from Bendigo Rockwell Mine,
Little Broken Hill.

BH 27 "Concordant" green-feldspar pegmatite from No. 12 level Z.C.

BH 90 Green feldspar pegmatite from between A and B zinc lodes
No. 14 level, N.B.H.C.

BH 47 and BH 49 Muscovite-albite pegmatites from a shear zone
at Thackaringa.

BH 79 Muscovite-feldspar pegmatite from a shear zone through
the Allandale Mine area.

Ref: NSW 2 MUNDI MUNDI GRANITE

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Rb}^{86}$	Sr $^{87}/\text{Sr}^{86}$ (calc.)	Norm.
BH 70					
Total-rock	370.5	14.90	71.71	2.297	2.318
	371.8				
	367.4	14.81	71.39	2.325	

Ref: NSW 2 MUNDI MUNDI GRANITE (Cont.)

Microcline	851.0	37.95	64.51	2.234
		38.04		
	859.0	38.39	64.47	2.310
Muscovite	1061	4.318	707.4	15.60
	1036	4.425	674.3	15.27

BH 82

Total-rock	315.4	39.55	22.96	1.308	1.272
	314.2	40.43	22.36	1.271	
Microcline	477.2	96.30	14.27	1.125	
	484.2	115.00	12.12	1.127	
Muscovite	984.7	4.14	685.1	15.62	

BH 68

Total-rock	355.7	19.15	53.35	1.982	1.983
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Rb-Sr age : 1520 ± 40 m.y.

Initial $\text{Sr}^{87}/\text{Sr}^{86}$ 0.81 ± 0.25

The unrealistically wide confidence interval for the initial ratio is the result of the high Rb/Sr tie-lines which are not parallel and cannot be interpreted as isochrons.

BH 70 Muscovite-albite granite from the Brewery Well pluton,
Brewery Well.

BH 82 Muscovite granite from a dyke transgressing metasediments
1.5 miles east of the Allandale Mine.

BH 68 Muscovite-albite granite from a dyke near the Brewery Well
stock yards and windmill.

An isochron plot of the combined biotite samples including samples from Richards and Pidgeon (1963) gives an age of 530 ± 70 m.y.

An isochron plot of the primary muscovites from BH 91,
BH 81, BH 85, BH 31, BH 94, BH 79, BH 70 and BH 82 gives an age of

1520 ± 40 m.y.
Initial ratio $\text{Sr}^{87}/\text{Sr}^{86}$ 0.88 ± 0.21 .

Ref: N.S.W. 3

GA 1530

TWO-FELDSPAR TRACHYTE

Sanidine - anorthoclase, K-Ar age : 20.26)20.78) $20.5 \pm 1.0 \text{ m.y.}$

%K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-3}$)	%Ar ^{atm}
3.792)	1.198	10.8
3.746) 3.769	1.221	16.5

Flow 1.5 miles north of

Killarney gap

Manilla

Ref: N.S.W. 3

GA1532A

TWO-FELDSPAR TRACHYTE

Sanidine - anorthoclase, K-Ar age : 18.81)18.48) $18.6 \pm 1.0 \text{ m.y.}$

%K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-3}$)	%Ar ^{atm}
5.076)	1.032	18.6
5.083) 5.080	1.085	14.7

Dome 1 mile south of Bullawa Creek, Manilla

Ref: N.S.W. 3

GA 1533

ALKALI RHYOLITE

Sanidine - anorthoclase, K-Ar age : 18.02)18.24) $18.1 \pm 1.0 \text{ m.y.}$

%K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-3}$)	%Ar ^{atm}
4.770)	1.057	19.0
4.709) 4.740	1.071	23.5

Dome 1.5 miles north of

Nobby's Rocky Creek

Manilla

Ref: N.S.W. 3

GA 1534

MUGEARITE

Whole rock K-Ar age : 18.8)17.86) $18.0 \pm 1.0 \text{ m.y.}$

%K	$^{40}\text{Ar}^*/^{40}\text{K}$	%Ar ^{atm}
2.118)	1.062	45.3
2.107) 2.112	1.048	58.2

Kaputar road 2.5 miles west of

Coryah Gap

Manilla

Ref: N.S.W. 3

GA 1536

ONE-FELDSPAR TRACHYTE

Whole - rock, K-Ar age : 17.26)17.59) 17.4 ± 0.8 m.y.

%K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-3}$)	%Ar ^{atm}
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4.696)	1.012	11.1
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4.633) 4.640	1.032	16.9
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One feldspar cossyrite-aegirine-augite

arfvedsonite trachyte. Dome on Kaputar

road, 1 mile east of upper Bullawa

Creek turn-off

Manilla

Ref: N.S.W. 3

GA 1531

ALKALI RHYOLITE

Sanidine-anorthoclase, K-Ar age : 17.26)17.10) 17.2 ± 0.8 m.y.

%K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-3}$)	%Ar ^{atm}
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5.473)	1.013	28.4
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5.519) 5.496	1.003	24.0
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Mt. Lawler Dome

Manilla

Ref: N.S.W. 3

GA 1547

ONE-FELDSPAR TRACHYTE

Sanidine-anorthoclase, K-Ar age : 17.00)16.96) 17.0 ± 0.8 m.y.

%K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-3}$)	%Ar ^{atm}
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5.210)	1.057	40.0
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5.234) 5.222	0.995	41.7
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One-feldspar cossyrite, aegirine-

augite, arfvedsonite trachyte. East

of Mt. Deriah dome.

Manilla

QUEENSLAND

Ref: QLD 1 GYRANDA FORMATION
 GA 5562 Biotite, K-Ar age : 239 m.y.
 G 56/5/22 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 6.759) (1) 0.01489 2.3
 6.734) 6.75 (2) 0.01488 2.6
 Biotite-tuff.
 Grid reference 309860 Mundubbera

Ref: QLD 1 MARYBOROUGH BASIN GRANITE
 GA 5385 Biotite, K-Ar age : 215 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.206)
 7.210) 7.21 0.01332 8.4
 Grid reference 548705 Gympie

Ref: QLD 1 MARYBOROUGH BASIN GRANITE
 GA 5386 Biotite, K-Ar age : 216 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.582)
 7.592) 7.59 0.01336 2.7
 Grid reference 547706 Gympie

Ref: QLD 1 GRANITES, MARYBOROUGH SHEET AREA
 Rb ug/g Sr ug/g $^{87}\text{Rb}/^{86}\text{Sr}$ $^{87}\text{Sr}/^{86}\text{Sr}$ (meas)
 GA 5314
 Total - rock 170.9 220.8 2.228 0.7110 0.7101
 GA 5318
 Total - rock 120.4 285.6 1.217 0.7076 0.7077
 GA 5320
 Total - rock 141.8 117.4 3.478 0.7160 0.7146

GA 5321
Total - rock 131.7 159.2 2.381 0.7115

GA 5325
Total - rock 73.1 419.0 0.502 0.7051

GA 5501
Total - rock 152.8 54.9 8.026 0.7297
151.9 54.3 8.075 0.7294 0.7295

Rb-Sr age : 218 + 1b m.y.

Initial $^{87}\text{Sr}/^{86}\text{Sr}$ 0.7035 $\pm$ 0.0008

GA 5314 Granite, Grid Ref., 508827 Maryborough
G 56/6/5

GA 5318 Granite - Musket Flat Granite,
G 56/6/7 Maryborough 1:250,000 grid ref.
557821. Lat. $25^{\circ}34'S$. long $152^{\circ}25'E$.

GA 5320 Granite, Maryborough 1:250,000 grid ref.,
G 56/6/14 513858

GA 5321 Granite, Maryborough 1:250,000 grid ref.,
G 56/6/9 511801

GA 5325 Granodiorite, Maryborough 1:250,000 grid
G 56/6/12 ref., 474883.

GA 5501 Granite - Childers Granite, Maryborough
G 56/6/6 1:250,000, grid ref. 538858

Ref: QLD 1,4	RETREAT GRANITE		
GA 1024	Biotite, <u>K-Ar age : 363 m.y.</u>		
F 55/15/9	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.169)		
	7.152) 7.16 0.02339	2.4	
	Adamellite - grid reference		
	569600, 2079600. Lat. 23°27'S.		
	long. 147°31'E.	Emerald	
Ref: QLD 1,4	RETREAT GRANITE		
GA 1025	Biotite, <u>K-Ar age : 372 m.y.</u>		
F 55/15/11	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	6.284)		
	6.305) 6.29 0.02403	3.2	
	Granodiorite - grid reference		
	576000, 2129300. Lat. 23°02'S		
	long. 147°34'E	Emerald	
Ref: QLD 1,4	RETREAT GRANITE		
GA 1026	Biotite, <u>K-Ar age : 366 m.y.</u>		
F 55/12/12	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.279)		
	7.227) 7.25 0.02361	10.4	
	Adamellite - grid reference,		
	556700, 2115000. Lat. 23°09'S		
	long. 147°24'E	Emerald	
Ref: QLD 1,4	RETREAT GRANITE		
GA 1027	Biotite, <u>K-Ar age : 363 m.y.</u>		
F 55/15/13	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	6.331)		
	6.339) 6.34 0.02337	1.5	

Hornblende, K-Ar age : 354 m.y.
 $\%K$ $^{40}Ar^{*}/^{40}K$ $\%^{40}Ar^{atm}$
 0.6396)
 0.6358) 0.638 ? .02273 6.9
 Diorite, grid reference, 562000,
 2118000 Lat. $23^{\circ}07'S$. long. 147°
 27' E. Emerald

Ref: QLD 1, 4 RETREAT GRANITE
 GA 1028 Biotite, K-Ar age : 364 m.y.
 F 55/15/8 $\%K$ $^{40}Ar^{*}/^{40}K$ $\%Ar^{atm}$
 6.737)
 6.743) 6.74 0.02343 2.2
 Granodiorite, grid reference
 573300, 2073000. Lat. $23^{\circ}29\frac{1}{2}'S$
 Long. $147^{\circ}33'E$. Emerald

Ref: QLD 1,4 MOUNT MORGAN GRANITE
 GA 5339 Hornblende, K-Ar age : 360 m.y.
 F 56/13/10 $\%K$ $^{40}Ar^{*}/^{40}K$ $\%^{40}Ar^{atm}$
 0.2920)
 0.2905) 0.291 0.02316 23.0
 Granodiorite, Mount Morgan Mine.
 Grid reference 330000, 2056400
 Lat $23^{\circ}38'S$. long. $150^{\circ}22\frac{1}{2}'E$ Rockhampton

Ref: QLD 1,4 TOWN GRANITE
 GA 5369 Hornblende, K-Ar age, 357 m.y.
 F 56/13/15 $\%K$ $^{40}Ar^{*}/^{40}K$ $\%^{40}Ar^{atm}$
 0.3899)
 0.3872) 0.389 0.02295 21.7
 Diorite - grid reference,
 332400, 2057400. Lat $23^{\circ}37\frac{1}{2}'S$.
 Long. $150^{\circ}23\frac{1}{2}'E$ Rockhampton

Ref: QLD 1,4 MOUNT MORGAN GRANITE
 GA 5370 Hornblende, K-Ar age, 365 m.y.
 F 56/13/16 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.3585)
 0.3608) 0.360 0.02351 31.1
 Diorite. Grid reference,
 328700, 2054600. Lat. $23^{\circ}39'S$
 long. $150^{\circ}21\frac{1}{2}'E$. Rockhampton

Ref: QLD 1,4 MOUNT MORGAN GRANITE
 GA 5371 Hornblende, K-Ar age : 370 m.y.
 F 56/13/17 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.4146)
 0.4156) 0.415 0.02387 34.6
 Diorite. Grid reference,
 329700, 2053200. Lat. $23^{\circ}39\frac{1}{2}'S$
 long. $150^{\circ}22'E$. Rockhampton

Ref: QLD 1,4 TOWN GRANITE
 GA 5372 Hornblende, K-Ar age, 358 m.y.
 F 56/13/18 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.0968)
 0.0964) 0.0966 0.02306 60.5
 Diorite. Grid reference,
 333100, 2053900. Lat. $23^{\circ}39'S$
 long. $150^{\circ}24'E$. Rockhampton

Ref: QLD 1, 4 ANAKIE METAMORPHICS
 GA 1040 Muscovite, K-Ar age : 458 m.y.
 F 55/11/2 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.835)
 7.822) 7.83 0.03028 1.7
 Schist. Lat. $22^{\circ}51'S$ long.
 $147^{\circ}28'E$. Clermont

Ref: QLD 1,4 ADAMELLITE
 GA 1160 Biotite, K-Ar age: 294 m.y.
 F 55/3/17 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.481)
 7.491) 7.49 0.01859 2.0
 Hornblende, K-Ar age : 294 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.3882)
 0.3859) 0.387 0.01859 9.1
 Grid reference, 536900,
 2387000. Lat. $20^{\circ}53\frac{1}{2}'\text{S}$ long.
 $147^{\circ}12'\text{E}$ Bowen

Ref: QLD 1,4 ADAMELLITE
 GA 1161 Biotite, K-Ar age : 290 m.y.
 F53/3/18 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.545)
 7.566) 7.56 0.01834 2.3
 Grid reference, 532800,
 2387100. Lat. $20^{\circ}54'\text{S}$. long.
 $147^{\circ}10'\text{E}$. Bowen

Ref: QLD 1 GRANODIORITE
 GA 5288 Hornblende, K-Ar age : (1) 327 m.y.
 F 55/3/7 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.4052) (1) 0.02085 10.0
 0.4102) 0.408 (2) 0.02110 50.4
 Grid reference, 540700, 2385500 Bowen

Ref: QLD 1,4 ADAMELLITE
 GA 729 Biotite, K-Ar age : (1) 286 m.y.
 F 55/3/3 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 5.784) (1) 0.01803 12.0
 5.797) 5.79 (2) 0.01786 7.8
 Adamellite. Grid reference
 569400, 2411200. Lat $20^{\circ}42'\text{S}$
 long. $147^{\circ}29'\text{E}$. Bowen

Ref: QLD 1,4

GRANODIORITE

GA 831

Biotite, K-Ar age : (1) 276 m.y.(2) 288 m.y.

F55/3/8

(3) 293 m.y.(4) 283 m.y.

%K		$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
6.252)		(1) 0.01737	3.2
6.287)	6.27	(2) 0.01819	2.7
		(3) 0.01850	2.5
		(4) 0.01781	8.0

Grid reference, 536500,
2415600. Lat. $20^{\circ}40'S$ long.
 $147^{\circ}12'E$.

Bowen

Ref: QLD 1,4

ADAMELLITE

GA 832

Biotite, K-Ar age : (1) 278 m.y.(2) 281 m.y.

F 55/3/1

%K		$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
5.668)		(1) 0.01752	6.3
5.624)	5.65	(2) 0.01768	4.4

Grid reference 552700,
2441800 Lat. $20^{\circ}27'S$. long
 $147^{\circ}19\frac{1}{2}'E$

Bowen

Ref: QLD 1,4

ADAMELLITE

GA 1073

Hornblende, K-Ar age : 285 m.y.

F 55/7/1

%K		$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
0.4921)			
0.4920)	0.492	0.01799	11.0

Grid reference 581800,
2347800 Lat. $21^{\circ}12'S$. long
 $147^{\circ}35'E$

Mt. Coolon

Ref: QLD 1,4 GRANODIORITE
 GA 1243 Biotite, K-Ar age : 280 m.y.
 F 55/3/20 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 6.322)
 6.343) 6.33 0.01764 2.1
 Hornblende, K-Ar age: 280 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.3236)
 0.3277) 0.326 0.01762 22.5
 Grid reference 532500, 243000.
 Lat. $20^{\circ}32\frac{1}{2}'\text{S}$. long. $147^{\circ}10\frac{1}{2}'\text{E}$. Bowen

Ref: QLD 1,4, GRANODIORITE
 GA 5198 Biotite, K-Ar age : (1) 283 m.y.
(2) 289 m.y.
(3) 278 m.y.
 F 55/3/23 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 5.647) (1) 0.01783 2.0
 5.652) 5.65 (2) 0.01824 25.6
 (3) 0.01746 2.5
 Hornblende, K-Ar age : (1) 291 m.y.
(2) 282 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.4605) (1) 0.01837 26.0
 0.4631) 0.462 (2) 0.01779 10.1
 Grid reference, 574900, 2423500.
 Lat $20^{\circ}15\frac{1}{2}'\text{S}$ long $147^{\circ}32'\text{E}$.

Ref: QLD 1,4 GRANODIORITE
 GA 5292 Hornblende, K-Ar age : (1) 281 m.y.
(2) 283 m.y.
 F 55/3/9 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.2341) (1) 0.01768 18.1
 0.2333) 0.234 (2) 0.01784 24.2
 Grid reference, 528700, 2402900 Bowen

Ref: QLD 1,4 ADAMELLITE
 GA 5391 Biotite, K-Ar age : 282 m.y.
 F 55/3/42 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % ^{40}Ar atm
 6.588)
 6.596) 6.59 0.01776 7.5
 Grid reference, 546900, 2440500 Bowen

Ref: QLD 1,4 ADAMELLITE
 GA 1029 Biotite, K-Ar age : (1) 281 m.y.
(2) 298 m.y.
 F 55/15/14 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % ^{40}Ar atm
 6.896) (1) 0.01773 6.9
 6.898) 6.90 (2) 0.01883 2.6
 Hornblende, K-Ar age : (1) 286 m.y.
(2) 290 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % ^{40}Ar atm
 0.5848) (1) 0.01788 14.9
 0.5811) 0.583 (2) 0.01834 15.0
 Grid reference, 571000, 2070500.
 Lat. $23^{\circ}31'S$ long $147^{\circ}32'E$ Emerald

Ref: QLD 1,4 ADAMELLITE
 GA 1030 Biotite, K-Ar age : (1) 300 m.y.
(2) 297 m.y.
(3) 287 m.y.
(4) 294 m.y.
 F 55/15/15 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % ^{40}Ar atm
 6.038) (1) 0.01897 10.4
 6.063) 6.05 (2) 0.01881 2.4
 (3) 0.01811 5.1
 (4) 0.01860 1.8
 Hornblende, K-Ar age : (1) 297 m.y.
(2) 284 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % ^{40}Ar atm
 0.5699) (1) 0.01812 14.2
 0.5720) 0.571 (2) 0.01792 18.5
 Grid reference, 571000, 2070500.
 Lat. $23^{\circ}31'S$, long. $147^{\circ}31'E$. Emerald

Ref: QLD 1, 4

BULGONUNNA VOLCANICS

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb ⁸⁷ /Sr ⁸⁶	Sr ⁸⁷ /Sr ⁸⁶	(meas)
GA 5514					
Total Rock	118.1	221.3	1.536	0.7105	0.7112
	116.8	218.5	1.542	0.7112	
GA 5515					
Total Rock	174.1	94.0	5.340		0.7280
	174.3	93.1	5.399	0.7272	0.7274
GA 5517					
Total Rock	99.0	364.3	0.782	0.7088	
	97.9	363.4	0.778	0.7082	
GA 5518					
Total Rock	129.8	227.2	1.648	0.7117	0.7118
GA 5556					
Total Rock	152.5	267.5	1.644	0.7119	
GA 5557					
Total Rock	87.0	400.0	0.628	0.7080	
GA 5559					
Total Rock	164.3	108.3	4.375	0.7232	

Rb/Sr age : 287 ± 12 m.y.

Initial Sr⁸⁷/Sr⁸⁶ = 0.7049 ± 0.0005

GA 5514	Grid reference 546950, 2438900.
F 55/3/40	Bowen
GA 5515	Grid reference, 546950, 2438850.
F 55/3/41	Bowen
GA 5517	Grid reference, 564000, 2408200.
	Bowen
GA 5518	Grid reference, 561700, 2407500
F 55/3/84	Bowen
GA 5556	Grid reference, 538700, 2394300
F 55/3/131	Bowen
GA 5557	Grid reference, 555900, 2389700
F 55/3/132	Bowen
GA 5559	Grid reference, 573400, 2429700
F 55/3/134	Bowen

Ref: QLD 1, 4

GRANITIC ROCKS, BOWEN SHEET AREA

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Sr}^{86}$	Sr $^{87}/\text{Sr}^{86}$	(measured ratio)
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GA 729

Total Rock	131.9	214.9	1.773	0.7117	0.7131
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Biotite	377.1	20.5	53.109	0.9285	
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GA 831

Total Rock	121.8	231.6	1.519	0.7108	0.7110
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GA 832

Total Rock	161.7	152.4	3.067	0.7192	0.7181
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GA 1160

Total Rock	138.0	263.5	1.511	0.7118	
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GA 1243

Total Rock	84.5	359.9	0.678	0.7076	0.7074
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GA 5391

Total Rock	214.4	158.2	3.917	0.7212	0.7216
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Biotite	1082.0	14.5	214.858	1.6106	
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GA 5528

Total Rock	139.5	219.4	1.836	0.7123	0.7121
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Total Rock

Rb + Sr age : 298 + 25 m.y.Initial $\text{Sr}^{87}/\text{Sr}^{86} = 0.7045 \pm 0.0008$ GA 729 Biotite - Rb - Sr age : 286 m.y.GA 5391 Biotite - Rb - Sr age : 286 m.y.

GA 729

F 55/3/3

Adamellite. Bowen, grid reference,

569400, 2411200. Lat. $20^{\circ}42'S$.long. $147^{\circ}29'E$.

GA 831

Granodiorite. Bowen, grid reference,

536500, 2415600. Lat. $20^{\circ}40'S$.long. $147^{\circ}12'E$.

GA 832

Adamellite. Bowen, grid reference,

552700, 2441800. Lat. $20^{\circ}27'S$.long. $147^{\circ}19\frac{1}{2}'E$.

GA 1160	Adamellite, Bowen, grid reference,		
F 55/3/17	536900, 2387000. Lat. $20^{\circ}53\frac{1}{2}'S$. long. $147^{\circ}12'E$.		
GA 1243	Granodiorite, Bowen, grid reference,		
F 55/3/20	532500, 243000. Lat. $20^{\circ}32\frac{1}{2}'S$. long. $147^{\circ}10\frac{1}{2}'E$.		
GA 5391	Adamellite, Bowen, grid reference,		
F 55/3/42	546900, 2440500.		
GA 5528	Granite, Bowen, grid reference,		
F 55/3/22	567200, 2411300.		
Ref: QLD 1	AUBURN COMPLEX		
GA 1067	Biotite, <u>K-Ar age : 301 m.y.</u>		
G 56/5/5	%K $\frac{40Ar^*/40K}$ %Ar ^{atm}		
	7.161)		
	7.169) 7.17 0.01906 1.8		
	Granodiorite, Grid reference		
	337400, 1863900. Lat. $25^{\circ}13'S$		
	long. $150^{\circ}26'E$ Mundubbera		
Ref: QLD 1,4	AUBURN COMPLEX		
GA 1190	Biotite, <u>K-Ar age : 303 m.y.</u>		
G 56/5/7	%K $\frac{40Ar^*/40K}$ % ⁴⁰ Ar ^{atm}		
	6.116)		
	6.106) 6.11 0.01920 2.9		
	Adamellite, Grid reference,		
	310300, 187400. Lat. $25^{\circ}02\frac{1}{2}'S$		
	long. $150^{\circ}26'E$ Mundubbera		
Ref: QLD 1,4	AUBURN COMPLEX		
GA 1251	Biotite, <u>K-Ar age: 300 m.y.</u>		
G 56/1/12	%K $\frac{40Ar^*/40K}$ % ⁴⁰ Ar ^{atm}		
	5.229)		
	5.250) 5.24 0.01897 1.8		
	Hornblende, <u>K-Ar age : 298 m.y.</u>		
	%K $\frac{40Ar^*/40K}$ % ⁴⁰ Ar ^{atm}		
	0.4364)		
	0.4391) 0.438 0.01884		
	Granodiorite. Grid reference,		
	341900, 1908400. Lat. $24^{\circ}51'S$.		
	long $150^{\circ}28'E$. Monto		

Ref: QLD 1,4 AUBURN COMPLEX
 GA 5294 Hornblende, K + Ar age : 294 m.y.
 G 56/5/4 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.4094)
 0.4072) 0.408 0.01859 10.8
 Granodiorite. Grid reference, 336300,
 180600 Lat. $25^{\circ}13\frac{1}{2}'\text{S}$. long. $150^{\circ}26'\text{E}$. Mundubbera

Ref: QLD 1,4 AUBURN COMPLEX
 GA 5361 Biotite, K-Ar age : 299 m.y.
 G 56/1/21 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 6.247)
 6.226) 6.24 0.01895 3.8
 Granodiorite. Grid reference,
 340500, 1904600. Lat. $24^{\circ}53'\text{S}$.
 long. $150^{\circ}28'\text{E}$. Monto

Ref: QLD 1,4 URANNAH IGNEOUS COMPLEX
 GA 812 Biotite, K-Ar age : 270 m.y.
 F 55/3/13 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 6.935)
 6.928) 6.93 0.01690 6.3
 Adamellite. Grid reference,
 647500, 2409300. Lat $20^{\circ}43'\text{S}$.
 long $148^{\circ}10'\text{E}$ Bowen

Ref: QLD 1,4 Muscovite, K-Ar age : (1) 271 m.y.
 GA 1072 (2) 281 m.y.
 F 55/3/11 (3) 268 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 8.273) (1) 0.01702 2.4
 8.317) 8.30 (2) 0.01770 1.7
 (3) 0.01682 3.4
 Granite. Grid reference, 662700,
 2393300. Lat $20^{\circ}51'\text{S}$ long $148^{\circ}18'\text{E}$. Bowen

Ref: QLD 1 URANNAH IGNEOUS COMPLEX
 GA 1135 Biotite, K-Ar age : 235 m.y.
 F55/4/4 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.445)
 7.419) 7.43 0.01461 2.8
 Hornblende, K-Ar age : 235 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.7103)
 0.7051) 0.708 0.01464 7.9
 Granodiorite, Lat $20^{\circ}48'S$,
 long $148^{\circ}32\frac{1}{2}'E$ Proserpine

Ref: QLD 1,4 URANNAH IGNEOUS COMPLEX
 GA 1136 Biotite, K-Ar age : (1) 279 m.y.
(2) 274 m.y.
 F 55/8/9 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.245) (1) 0.01756 2.1
 7.210) 7.23 (2) 0.01721 1.2
 Granodiorite, Grid reference,
 241300, 2347600. Lat. $21^{\circ}13'S$
 long. $148^{\circ}42'E$ Mackay

Ref: QLD 1,4 URANNAH IGNEOUS COMPLEX
 GA 1137 Biotite, K-Ar age : 272 m.y.
 F 55/8/10 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 6.711)
 6.672) 6.69 0.01712 1.8
 Hornblende, K-Ar age : 267 m.y.
 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.3795)
 0.3834) 0.381 0.01674 10.2
 Granodiorite, Grid reference
 138000, 2346600. Lat. $21^{\circ}14'S$
 long. $148^{\circ}41'E$. Mackay

Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX			
GA 1138	<u>Biotite, K-Ar age : 271 m.y.</u>			
F 55/8/11	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	6.492)			
	6.547)	6.52	0.01706	1.7
	<u>Hornblende, K-Ar age : 278 m.y.</u>			
	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	0.3462)			
	0.3480)	0.347	0.01750	13.2
	Granodiorite, Grid reference			
	136600, 2342000. Lat $21^{\circ}17'S$			
	long $148^{\circ}39'E$.			
				Mackay
Ref: QLD 1,4,	URANNAH IGNEOUS COMPLEX			
GA 1162	<u>Biotite, K-Ar age : 268 m.y.</u>			
F 55/3/24	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	6.937)			
	6.984)	6.96	0.01682	2.6
	<u>Hornblende, K-Ar age : 273 m.y.</u>			
	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	0.7913)			
	0.7914)	0.791	0.01719	6.2
	Diorite, Grid reference, 625000,			
	2423900. Lat $20^{\circ}51'S$ long. $148^{\circ}17'E$. Bowen			
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX			
GA 1189	<u>Biotite, K-Ar age : 307 m.y.</u>			
F55/12/9	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	5.213)			
	5.203)	5.21	0.01950	3.4
	<u>Hornblende, K-Ar age : 315 m.y.</u>			
	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	$\%^{40}\text{Ar}^{\text{atm}}$	
	0.4926)			
	0.4737)	0.482	0.02000	12.4
	0.4792)			
	Granodiorite, Grid reference			
	218100, 2190200 Lat $22^{\circ}31'S$			
	long. $149^{\circ}23\frac{1}{2}'E$			
				St. Lawrence

Ref: QLD 1,4,	URANNAH IGNEOUS COMPLEX		
GA 5267	Biotite, <u>K-Ar age : (1) 281 m.y.</u>		
	(2) 279 m.y.		
F 55/8/12	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	7.606)	(1) 0.01768	3.4
	7.608) 7.61	(2) 0.01759	2.8
	Hornblende, <u>K-Ar age : 289 m.y.</u>		
	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	0.6224)		
	0.6256) 0.01825		10.4
	Granodiorite. Grid reference, 147900,		
	2333500		
			Mackay
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5289	Hornblende, <u>K-Ar age : 320 m.y.</u>		
F 55/12/3	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	0.4737)		
	0.474	0.01913	8.8
	0.4746)		
	Granodiorite. Grid reference, 207300,		
	2234000. Lat 22°10'S long 149°18'E.		
			Lawrence
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5290	Hornblende, <u>K-Ar age : 305 m.y.</u>		
F 55/12/8	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	0.4678)		
	0.4659) 0.467	0.01931	8.1
	Granodiorite. Grid reference, 217500,		
	2189600. Lat 22°31½'S. lng 149°23½'E		
			St. Lawrence
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5291	Hornblende, <u>K-Ar age : 289 m.y.</u>		
F 55/8/8	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	0.4959)		
	0.4965) 0.496	0.01816	11.8
	Granodiorite. Grid reference, 207000,		
	2294100. Lat 21°41'S long 149°18'E		
			Mackay

Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5293	Hornblende, <u>K-Ar age : 286 m.y.</u>		
F 55/7/8	%K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.4585)		
	0.4559) 0.457	0.01802	10.5
	Granodiorite, Grid reference 683100,		
	2346300. Lat. 21°12'S long 148°30'E	Coolon	
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5327	Biotite, <u>K-Ar age : 263 m.y.</u>		
F 55/3/105	%K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.880)		
	7.883) 7.88	0.01647	2.8
	Hornblende, <u>K-Ar age: 279 m.y.</u>		
	%K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.3854)		
	0.3845) 0.385	0.01759	11.6
	Diorite, Grid reference, 631150,		
	2443750.	Bowen	
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5328	Biotite, <u>K-Ar age : 265 m.y.</u>		
F 55/3/104	%K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.516)		
	7.504) 7.51	0.01663	3.7
	Hornblende, <u>K-Ar age : 266 m.y.</u>		
	%K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.5790)		
	0.5766) 0.578	0.01671	6.9
	Diorite, Grid reference 626800,		
	2446300.	Bowen	

Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5333	Hornblende, <u>K-Ar age : 270 m.y.</u>		
F 55/3/101	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	0.9921)		
	0.9969)	0.995 0.01698	56.8
	Foliated diorite. Grid reference		
	622900, 246220.		
			Bowen
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5335	Biotite, <u>K-Ar age : 268 m.y.</u>		
F 55/3/37	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	7.599)		
	7.622)	7.61 0.01686	2.4
	Hornblende, <u>K-Ar age : 273 m.y.</u>		
	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	0.5829)		
	0.5790)	0.581 0.01716	14.7
	Granodiorite. Grid reference,		
	643000, 2410900. Lat. 20 41½'S		
	long. 148°07½'E		
			Bowen
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5336	Biotite, <u>K-Ar age : 266</u>		
F 55/3/87	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	7.909)		
	7.913)	7.91 0.01666	3.6
	Hornblende, <u>K-Ar age : 273 m.y.</u>		
	%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	1.0624)		
	1.0600)	1.061 0.01716	5.8
	Foliated diorite. Grid reference,		
	612700, 2458300		
			Bowen

Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5346	Biotite, <u>K-Ar age : 283 m.y.</u>		
F 55/3/113	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.744) 7.74 0.01786	6.2	
	7.736)		
	Diorite, Grid reference 683100, 2397300.	Bowen	
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5347	Biotite, <u>K-Ar age : (1) 187 m.y.</u>		
	(2) 188 m.y.		
F 55/3/106	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.552) (1) 0.01146	3.7	
	7.525) 7.54 (2) 0.01154	9.3	
	Adamellite, Grid reference 656100, 2424700	Bowen	
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5354	Biotite, <u>K-Ar age : 282 m.y.</u>		
F 55/3/135	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.722)		
	7.682) 7.70 0.01775	4.1	
	Adamellite, Grid reference, 684500, 2408500. Lat. $20^{\circ}42\frac{1}{2}'\text{S}$ long $148^{\circ}30'\text{E}$	Bowen	
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5379	Biotite, <u>K-Ar age : 270 m.y.</u>		
F 55/3/108	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.721)		
	7.767) 7.74 0.01697	4.7	
	Gneissic granite, Grid reference 647800, 2413700	Bowen	

Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5392	Biotite, <u>K-Ar age : 289 m.y.</u>		
F 55/3/115	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.303)		
	7.332) 7.32 0.01827	1.7	
	Hornblende, <u>K-Ar age : 294 m.y.</u>		
	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.7406)		
	0.7463) 0.743 0.01857	28.9	
	Granodiorite, Grid reference, 681100, 239900. Lat $20^{\circ}46\frac{1}{2}'\text{S}$ long. $148^{\circ}28'\text{E}$.	Bowen	
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5396	Biotite, <u>K-Ar age : 289 m.y.</u>		
F 55/3/114	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.467)		
	7.462) 7.46 0.01826	1.7	
	Adamellite. Grid reference, 679800, 2401700. Lat. $20^{\circ}46\frac{1}{2}'\text{S}$ long $148^{\circ}28'\text{E}$	Bowen	
Ref: QLD 1,4	URANNAH IGNEOUS COMPLEX		
GA 5397	Biotite, <u>K-Ar age : 263 m.y.</u>		
F 55/8/14	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.104)		
	7.080) 7.09 0.01683	19.0	
	Adamellite. Grid reference, 116400, 2372900	Mackay	

Ref: QLD 1	GRANODIORITE		
GA 5513	Biotite, <u>K-Ar age : (1) 272 m.y.</u>		
	(2) 269 m.y.		
F 55/3/95	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	8.033) 8.03 (1) 0.01710	2.6	
	8.030) (2) 0.01690	7.3	
	Grid reference: 609000, 2490700.	Bowen	
Ref: QLD 1	ADAMELLITE		
GA 5530	Biotite, <u>K-Ar age : 270 m.y.</u>		
F 55/3/67	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.334)		
	7.312) 7.32 0.01698	4.4	
	Grid reference: 584600, 2487300	Bowen	
Ref: QLD 1,4	ADAMELLITE		
GA 5534	Biotite, <u>K-Ar age : (1) 297 m.y.</u>		
	(2) 298 m.y.		
F 55/3/94	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.100) 7.10 (1) 0.01882	2.7	
	7.100) (2) 0.01886	8.3	
	Grid reference, 429200, 2572000	Townsville	
Ref: QLD 1,4	ADAMELLITE		
GA 5560	Biotite, <u>K-Ar age : 132 m.y.</u>		
F 55/3/136	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.615)		
	7.661) 7.64 0.00759	4.2	
	Grid reference, 655900, 2427800	Bowen	

Ref: QLD 1, 4

URANNAH IGNEOUS COMPLEX AND
AUBURN COMPLEX (WESTERN SIDE)

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Sr}^{86}$	Sr $^{87}/\text{Sr}^{86}$	(meas)
GA 1067					
Total Rock	124.9	470.4	0.767	0.7078	
GA 1190					
Total Rock	161.4	134.9	3.450	0.7199	
GA 5361					
Total Rock	97.8	533.0	0.530	0.7065	
GA 5554					
Total Rock	116.5	333.8	1.007	0.7065	
GA 5555					
Total Rock	53.8	582.6	0.267	0.7053	
GA 472					
Biotite	251.8	10.4	69.507	0.9848	
GA 812					
Total Rock	98.6	131.9	2.158	0.7140	
GA 1072					
Total Rock	111.8	121.7	2.648	0.7150	0.7155
GA 5269					
Total Rock	105.5	210.1	2.809	0.7167	0.7168
GA 5270					
Total Rock	141.9	216.4	1.566		
	142.0	216.9	1.565	0.7112	
GA 5289					
Total Rock	93.4	330.1	0.816	0.7081	
GA 5354					
Total Rock	75.4	167.6	1.298	0.7103	
GA 5354					
K feldspar	248.3	157.6	4.546	0.7235	

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Sr}^{86}$	Sr $^{87}/\text{Sr}^{86}$	(meas)
GA 5354					
Plag.	13.9	271.2	0.148	0.7052	
GA 5354					
Biotite	732.3	2.6	809.290	4.1623	
GA 5392					
Total Rock	134.8	257.0	1.513	0.7111	
GA 5392					
Biotite	827.1	9.9	242.060	1.8235	
GA 5396					
Total Rock	152.0	233.6	1.961	0.7135	
GA 5396					
K Feldspar	451.8	195.4	6.673	0.7334	0.7336
GA 5396					
Plag.	12.2	206.6	0.171	0.7053	
GA 5396					
Biotite	1054.5	6.9	439.825	2.7068	

Total rock Urannah Igneous Complex : Rb/Sr age 288 ± 31 m.y.

Initial Sr $^{87}/\text{Sr}^{86} = 0.7047 \pm 0.0009$

Total rock Auburn Complex : Rb/Sr age 311 ± 29 m.y.

Initial Sr $^{87}/\text{Sr}^{86} = 0.7040 \pm 0.0007$

Total rock, all data, Rb-Ar age : 305 ± 15 m.y.

Initial Sr $^{87}/\text{Sr}^{86} = 0.7043 \pm 0.0004$

GA 472 Biotite, Rb/Sr age : 284 m.y.

GA 5354 Biotite, Rb/Sr age : 290 m.y.

GA 5392 Biotite, Rb/Sr age : 314 m.y.

GA 5396 Biotite, Rb/Sr age : 308 m.y.

GA 1067

G 56/5/5

Granodiorite - Auburn Complex

Mundubbera, grid reference 337400,

1863900. Lat. $25^{\circ}13'S$. long. $150^{\circ}26'E$

GA 1190	Adamellite - Auburn Complex
G 56/5/7	Mundubbera, grid reference 310300, 1874000. Lat $25^{\circ}62\frac{1}{2}'S$. long. $150^{\circ}26'E$
GA 5361	Granodiorite - Auburn Complex
G 56/1/21	Monto, grid reference 340500, 1904600. Lat. $24^{\circ}53'S$. long. $150^{\circ}28'E$
GA 5554	Granodiorite - Auburn Complex
G 56/1/20	Monto, grid reference 328200, 1947200. Lat. $24^{\circ}32'S$. long. $150^{\circ}20'E$.
GA 5555	Granodiorite - Auburn Complex
G56/1/22	Monto, grid reference 321000, 1898100
GA 472	Granodiorite, Bowen, grid reference
F 55/3/12	661385. Lat. $20^{\circ}51'S$. long. $148^{\circ}17'E$.
GA 812	Adamellite, Urannah Igneous Complex
F 55/3/13	Bowen, grid reference, 647500, 2409300 Lat. $20^{\circ}43'S$. long. $148^{\circ}10'E$.
GA 1072	Adamellite, Urannah Igneous Complex
F 55/3/11	Bowen, grid reference, 662700, 2393300. Lat. $20^{\circ}51'S$. long. $148^{\circ}18'E$.

GA 5269 F 55/12/20	Granodiorite, St. Lawrence, grid reference 220500, 2162000												
GA 5270 F 55/12/21	Granodiorite, St. Lawrence grid reference 219500, 2190500.												
GA 5289 F 55/12/3	Granodiorite, Urannah Igneous Complex. St. Lawrence, grid reference 207300, 2234000. Lat. 22° 10'S long. 149° 18'E.												
GA 5354 F 55/3/135	Adamellite, Urannah Igneous Complex, Bowen, grid reference, 684500, 2308500 Lat. 20° 42½'S long 148° 30'E.												
GA 5392 F 55/3/115	Granodiorite, Urannah Igneous Complex Bowen, grid reference, 681100, 2399000. Lat. 20° 46½'S long 148° 28'E.												
GA 5396 F 55/3/114	Adamellite Urannah Igneous Complex, Bowen, grid reference 679300, 2401700. Lat. 20° 46½'S long 148° 28'E.												
Ref: QLD 1,4	LIZZIE CREEK VOLCANICS												
GA 5373 F 55/3/55	Plagioclase, <u>K-Ar age : 274 m.y.</u> <table><tr><td>%K</td><td>$\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$</td><td>%$^{40}\text{Ar}^{\text{atm}}$</td></tr><tr><td>0.1298)</td><td></td><td></td></tr><tr><td>0.1288)</td><td>0.129</td><td>0.01720</td></tr><tr><td></td><td></td><td>66.0</td></tr></table>	%K	$\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	0.1298)			0.1288)	0.129	0.01720			66.0
%K	$\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$											
0.1298)													
0.1288)	0.129	0.01720											
		66.0											
	Basalt. Grid reference : 565800 2455500 Bowen												

Ref: QLD 1,4	LIZZIE CREEK VOLCANICS		
GA 5374	Plagioclase, <u>K-Ar age : 229 m.y.</u>		
F 55/3/56	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.6319)		
	0.6290) 0.630	0.01420	14.4
	Basalt, Grid reference 568860, 2452500		
		Bowen	
Ref: QLD 1,4	LIZZIE CREEK VOLCANICS		
GA 5375	Plagioclase, <u>K-Ar age : 264 m.y.</u>		
	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.2255)		
	0.2280) 0.227	0.01653	45.6
	Basalt, Grid reference 566700, 2475000.		
		Bowen	
Ref: QLD 1,4	THUNDERBOLT GRANITE		
GA 5252	Biotite, <u>K-Ar age : 264 m.y.</u>		
F 55/3/26	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.543)		
	7.508) 7.53	0.01655	2.6
	Adamellite, Grid reference, 619700, 2457000.		
		Bowen	
Ref: QLD 1,4	THUNDERBOLT GRANITE		
GA 5253	Biotite, <u>K-Ar age : 261 m.y.</u>		
F 55/3/27	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.460)		
	7.416) 7.44	0.01632	3.7
	Granodiorite, Grid reference, 614300, 2446800		
		Bowen	
Ref: QLD 1,4	THUNDERBOLT GRANITE		
GA 5332	Biotite, <u>K-Ar age : 264 m.y.</u>		
F 55/3/86	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.446)		
	7.357) 7.40	0.01659	2.4
	Adamellite, Grid reference, 615700, 2458100		
		Bowen	

Ref: QLD 1, 4	THUNDERBOLT GRANITE			
GA 5338	Biotite, <u>K-Ar age : 259 m.y.</u>			
F 55/3/38	%K	$\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.475)			
	7.429) 7.45	0.01619	4.1	
	Adamellite. Grid reference,			
	413500, 1845600. Lat. 25°22'S			
	long 151°07'E			Bowen
Ref: QLD 1, 4	ADAMELLITE			
GA 5365	Biotite, <u>K-Ar age : 268 m.y.</u>			
F 55/3/125	%K	$\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.401)			
	7.387) 7.39	0.01686	1.7	
	Grid reference, 662600, 2398700			Bowen
Ref: QLD 1, 4	GRANODIORITE			
GA 5378	Biotite, <u>K-Ar age : 268 m.y.</u>			
F 55/3/36	%K	$\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.443)			
	7.463) 7.45	0.01682	15.0	
	Grid reference, 630350, 2423600			Bowen
Ref: QLD 1, 4	ADAMELLITE			
GA 5380	Biotite, <u>K-Ar age : 265 m.y.</u>			
F 55/3/109	% K	$\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.500)			
	7.492) 7.50	0.01664	5.0	
	Grid reference 630300, 2432800			
	Lat. 20°30½'S. long. 148°02'E.			
				Bowen
Ref: QLD 1, 4	THUNDERBOLT GRANITE			
GA 5252	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb ⁸⁷ /Sr ⁸⁶	Sr ⁸⁷ /Sr ⁸⁶
Biotite	771.7	7.8	285.525	1.7988
GA 5332				
Biotite	603.5	5.8	302.066	1.9120

GA 5252 Biotite Rb - Sr age : 260 m.y.GA 5332 Biotite Rb - Sr age : 271 m.y.

GA 5252 Adamellite, Grid reference Bowen,
F 55/3/26 619700, 2457000.

GA 5332 Adamellite, Bowen grid reference
F 55/3/86 615700, 2458100.

Ref: QLD 1, 4 PORPHYRY-MOUNT COOLAN SHEET
Rb ug/g Sr ug/g Rb⁸⁷/Sr⁸⁶ Sr⁸⁷/Sr⁸⁶ (meas)

GA 5502					
Total Rock	142.0	65.6	6.267	0.7284	
GA 5503					
Total Rock	130.4	54.7	6.899	0.7318	
GA 5504					
Total Rock	136.5	35.9	11.031	0.7463	
GA 5505					
Total Rock	117.2	98.3	3.445	0.7183	0.7185
GA 5506					
Total Rock	129.0	55.9	6.662		0.7295

Rb - Sr age : 249 $\pm$ 15 m.y.
Initial Sr⁸⁷/Sr⁸⁶ = 0.7058 $\pm$ 0.0015

GA 5502 Mt. Coolon, grid reference, 674100,
F 55/7/9A 237400 ,

GA 5502 Mt. Coolon, grid reference, 674100,
F 55/7/9B 237400.

GA 5504 Mt. Coolon, grid reference, 674100,
F 55/7/9C 2374000.

GA 5505 Mt. Coolon, grid reference, 674100,
F 55/7/9D 2374000.

GA 5506 Mt. Coolon, grid reference, 674100,
F 55/7/9E 2374000.

Ref: QLD 1,4 MICRODIORITE DYKE
GA 5329 Hornblende, K-Ar age : 255 m.y.
F 55/3/107 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
0.4243)
0.4255) 0.425 0.01593 15.6
Grid reference, 654000, 2432100 Bowen

Ref: QLD 1,4 DIORITE
GA 1163 Hornblende, K-Ar age : 245 m.y.
F 55/12/11 %K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
0.8944)
0.8988) 0.897 0.01528 4.8
Grid reference, 275500, 2167900.
Lat. 22°42'S long 149°53'E St. Lawrence

Ref: QLD 1,4 DIORITE
GA 1164 Biotite, K-Ar age : (1) 249 m.y.
F 55/12/13 (2) 246 m.y.
%K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
6.789) (1) 0.01544 42.9
6.790) 6.79 (2) 0.01534
Hornblende, K-Ar age : 247 m.y.
%K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
0.7613)
0.7618) 0.762 0.01538 19.8
grid reference, 275500, 2167900
Lat. 22°42'S long 149°53'E St. Lawrence

Ref: QLD 1,4	HORNBLLENDE GABBRO		
GA 5263	Hornblende, <u>K-Ar age : 247 m.y.</u>		
F 55/12/16	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.6154)		
	0.6138) 0.615 0.01542	12.6	
	Grid reference, 278900, 216800,		
	Lat 22°42'S long 149°55½'E	St. Lawrence	
Ref: QLD 1,4	DIORITE		
GA 5264	Biotite, <u>K-Ar age : 243 m.y.</u>		
55/12/17 F	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.440)		
	7.432) 7.44 0.01512	1.8	
	Hornblende, <u>K-Ar age : 244 m.y.</u>		
	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.6026)		
	0.5990) 0.601 0.01522	14.4	
	Grid reference, 275200, 2168000,		
	Lat 22°42'S long 149°53'E.	St. Lawrence	
Ref: QLD 1,4	GRANODIORITE		
GA 5265	Biotite, <u>K-Ar age : 243 m.y.</u>		
F 55/12/18	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.433)		
	7.439) 7.44 0.01512	2.5	
	Grid reference, 275500, 2166700		
	Lat 22°43'S long 149°54'E	St. Lawrence	
Ref: QLD 1,4	DIORITE		
GA 5266	Biotite, <u>K-Ar age : 241 m.y.</u>		
F 55/12/19	%K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.326)		
	7.327) 7.33 0.01500	2.3	

Hornblende, <u>K-Ar age : 238 m.y.</u>		
%K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
0.6470)		
0.6482)	0.648 0.01484	11.6
Grid reference, 275500, 2166400.		
Lat. $22^{\circ}43\frac{1}{2}'\text{S}$ long $149^{\circ}53\frac{1}{2}'\text{E}$		St. Lawrence
Ref: QLD 1,4,	XENOLITHIC GRANODIORITE	
GA 1053A	Biotite, <u>K-Ar age : 230 m.y.</u>	
F 55/12/10	%K	$^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
	6.456)	
	6.476) 6.47 0.01429	40.9
	Hornblende, <u>K-Ar age : 238 m.y.</u>	
	%K	$^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
	0.6753)	
	0.6729) 0.674 0.01481	10.5
	Xenolithic Granodiorite - matrix	
	Grid reference, 273600, 2149500	
	Lat $22^{\circ}51'\text{S}$ long $149^{\circ}53'\text{E}$	
		St. Lawrence
Ref: QLD 1,4,	XENOLITH	
GA 1053B	Hornblende, <u>K-Ar age : 232 m.y.</u>	
F 55/12/10	%K	$^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
	0.6563)	
	0.6565) 0.656 0.01444	17.7
	Xenolith in xenolithic granodiorite	
	at same locality as GA 1053A	
		St. Lawrence
Ref: QLD 1,4,	GRANODIORITE	
GA 1054	Biotite, <u>K-Ar age : 240 m.y.</u>	
F 55/12/12	%K	$^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
	7.565)	
	7.583) 7.57 0.01498	2.9
	Hornblende, <u>K-Ar age : 239 m.y.</u>	
	%K	$^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
	0.6323)	
	0.6269) 0.630 0.01490	13.0
	Grid reference 275500D 2167000.	
	Lat $22^{\circ}43'\text{D}$ long $149^{\circ}53\frac{1}{2}'\text{E}$	
		St. Lawrence

Ref: QLD 1, 4 GRANODIORITE

GA 5256 Biotite, K-Ar age : 235 m.y.
 F55/12/14 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.153)
 7.124) 7.14 0.01459 8.9

Hornblende, K-Ar age : 235 m.y.
 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.6807)
 0.6817) 0.681 0.01465 8.1
 Grid reference 274200, 2149000.
 Lat. 22°52'S. long. 149°54'E. St Lawrence

Ref: QLD 1, 4 GABBRO

GA 5257 Hornblende, K-Ar age : 240 m.y.
 F55/12/15 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.8085)
 0.7996) 0.804 0.01497 7.4
 Grid reference, 273300, 2147800.
 Lat. 22°53'S. long. 149°53'E. St Lawrence

Ref: QLD 1, 4 GABBRO

GA 5259 Biotite, K-Ar age : 237 m.y.
 F56/9/2 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.687)
 7.693) 7.69 0.01475 1.4
 Grid reference, 289700, 2157900.
 Lat. 22°48'S. long. 150°01'E Port Clinton

Ref: QLD 1, 4 GRANODIORITE

GA 5261 Biotite, K-Ar age : 232 m.y.
 F56/9/4 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.807)
 7.772) 7.79 0.01445 2.2
 Grid reference, 290600, 2162100.
 Lat. 22°46'S. long. 150°02'E Port Clinton

Ref: QLD 1, 4 GRANODIORITE

GA 5359 Biotite, K-Ar age : 235 m.y.F56/9/6 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

7.554)

7.574) 7.56 0.01465 5.1

Hornblende, K-Ar age : 238 m.y.% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

0.7189)

0.7200) 7.56 0.01465 5.1

Grid reference, 359100, 2157300.

Lat. $22^{\circ}50'S$. long. $150^{\circ}39'E$. Port Clinton

Ref: QLD 1, 4 DIORITE

GA 1068 Hornblende, K-Ar age : 236 m.y.F55/16/2 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

1.0005)

1.0006 ? 1.001 0.01467 11.7

Grid reference, 267700, 2077400.

Lat. $23^{\circ}27\frac{1}{2}'S$. long. $149^{\circ}49'E$. Duaringa

Ref: QLD 1, 4 ADAMELLITE

GA 1069 Biotite, K-Ar age : 237 m.y.F55/16/3 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

0.9035)

0.9023) 0.903 0.01493 15.8

Grid reference, 269300, 2075500.

Lat. $23^{\circ}29'S$. long. $149^{\circ}50'E$. Duaringa

Ref: QLD 1, 4 GRANODIORITE

GA 887 Hornblende, K-Ar age : 249 m.y.G56/1/14 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

0.3188)

0.3151) 0.317 0.01555 28.3

Mulgildie No. 1 Well, Core 14,

3992'4" - 3993'3". Lat. $24^{\circ}58'S$,long. $151^{\circ}08'E$. Monto

Ref: QLD 1, 4 GRANODIORITE

GA 1166

Biotite, K-Ar age : 239 m.y.

G56/1/1

% K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.520)

7.568) 7.54 0.01489

2.6

Hornblende, K-Ar age : 242 m.y.% K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.5858)

0.5836) 0.585 0.01511

14.7

Grid reference, 372000, 1988800.

Lat. 24°12'S. long. 150°45'E.

Monto

Ref: QLD 1, 4 GRANODIORITE

GA 1167

Biotite, K-Ar age : 235 m.y.

G56/1/2

% K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.394)

7.377) 7.39 0.1485

5.9

Hornblende, K-Ar age : 235 m.y.% K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.4398)

0.4385) 0.439 0.01460

18.2

Grid reference, 370300, 1995200.

Lat 24°08'S. long. 150°44'E.

Monto

Ref: QLD 1, 4 AUBURN COMPLEX

GA 1168

Biotite, K-Ar age : 235 m.y.

G56/5/2

% K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.388)

7.384) 7.39 0.01461

3.3

Granodiorite. Grid reference,

352500, 1849100. Lat. 25°20'S.

long. 150°34'E.

Mundubbera

Ref: -QLD 1, 4 AUBURN COMPLEX

GA 1169 Biotite, K-Ar age : 240 m.y.
 G56/5/3 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.409)
 7.367) 7.39 0.01493 2.5
 Grid reference, 350700, 1846700.
 Lat 25°22'S. long. 150°33'E. Mundubbera

Ref: QLD 1, 4 AUBURN COMPLEX

GA 1249 Biotite, K-Ar age : 236 m.y.
 G56/1/8 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 6.918)
 6.865) 6.89 0.01470 2.3

Hornblende, K-Ar age : 241 m.y.
 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.5408)
 0.5389) 0.540 0.01503 14.1
 Grid reference, 369000, 1923400.
 Lat. 24°44'S. long. 150°43'E. Monto

Ref: QLD 1, 4 AUBURN COMPLEX

GA 1250 Biotite, K-Ar age : 234 m.y.
 G56/1/10 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.059)
 7.048) 7.05 0.01455 2.0
 Granodiorite. Grid reference,
 380400, 1903600. Lat. 24°54'S.
 long. 150°49'E. Monto

Ref: QLD 1, 4 AUBURN COMPLEX

GA 1369 Biotite, K-Ar age : 237 m.y.
 G56/1/9 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.4949)
 0.4959) 0.495 0.01439 10.9
 Granodiorite. Grid reference,
 383900, 1919000. Lat. 24°46'S.
 long. 150°51'E. Monto

Ref: QLD 1, 4	AUBURN COMPLEX		
GA 1370	Biotite, <u>K-Ar age : 249 m.y.</u>		
G56/1/11	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.686)		
	7.635) 7.66	0.01558	1.6
	Granodiorite. Grid reference,		
	355300, 1899400. Lat. $24^{\circ}56'S$.		
	long. $150^{\circ}36'E$.		Monto
Ref: QLD 1, 4	GRANITE		
GA 5337	Biotite, <u>K-Ar age : 236 m.y.</u>		
G56/5/21	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.747)		
	7.707) 7.73	0.01468	3.1
	Grid reference, 413500, 1845600.		
	Lat. $25^{\circ}22'S$. long. $151^{\circ}07'E$.		Mundubbera
Ref: QLD 1, 4	FELDSPAR PORPHYRY		
GA 5340	Plagioclase, <u>K-Ar age : 229 m.y.</u>		
F56/13/11	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.7300)		
	0.7299) 0.730	0.01425	12.7
	Dyke cutting Mount Morgan Granite.		
	Grid reference, 330300, 2055700.		
	Lat. $23^{\circ}38'S$. long. $150^{\circ}22\frac{1}{2}'E$.		Rockhampton
Ref: QLD 1, 4	MOONMERA GRANITE		
GA 5341	Biotite, <u>K-Ar age : 237 m.y.</u>		
F56/13/13	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.445)		
	7.435) 7.44	0.01474	3.0
	Granodiorite. Grid reference,		
	332000, 2062600. Lat. $23^{\circ}35'S$.		
	long. $150^{\circ}23\frac{1}{2}'E$.		Rockhampton

Ref: QLD 1, 4 AUBURN COMPLEX

GA 5342 Hornblende, K-Ar age : 238 m.y.G56/5/10 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.445)

7.435) 7.44 0.01474 3.0

Granodiorite. Grid reference,
413500, 1845600. Lat. 25°22'S.
long. 151°07'E.

Mundubbera

Ref: QLD 1, 4 FELDSPAR PORPHYRY

GA 5340 Plagioclase, K-Ar age : 229 m.y.F56/13/11 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.7300)

0.7299) 0.730 0.01425 12.7

Dyke cutting Mount Morgan Granite.
Grid reference, 330300, 2055700.
Lat 23°38'S. long. 150°22½'E.

Rockhampton

Ref: QLD 1, 4 MOONMERA GRANITE

GA 5341 Biotite, K-Ar age : 237 m.y.F56/13/13 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.445)

7.435) 7.44 0.01474 3.0

Granodiorite. Grid reference,
332000, 2062600. Lat. 23°35'S.
long. 150°23½'E.

Rockhampton

Ref: QLD 1, 4 AUBURN COMPLEX

GA 5342 Hornblende, K-Ar age : 238 m.y.G56/5/10 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.7828)

0.7821) 0.782 0.01483 12.5

Amphibolite, Grid reference,
375400, 1843300. Lat. 25°23'S.
long. 150°46'E.

Mundubbera

Ref: QLD 1	AUBURN COMPLEX		
GA 5343	Biotite, <u>K-Ar age : 250 m.y.</u>		
G56/1/17	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.759)		
	7.811) 7.79	0.01563	7.4
	Banded Adamellite. Grid reference, 354200, 1894700. Lat. $24^{\circ}58'S$. long. $150^{\circ}35'E$.		
			Monto
Ref: QLD 1, 4	AUBURN COMPLEX		
GA 5344	Biotite, <u>K-Ar age : 229 m.y.</u>		
G56/5/12	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.921)		
	7.867) 7.89	0.01427	14.6
	Biotite gneiss. Grid reference, 378800, 1841900. Lat. $25^{\circ}24'S$. long. $150^{\circ}48\frac{1}{2}'E$.		
			Mundubbera
Ref: QLD 1, 4	AUBURN COMPLEX		
GA 5345	Biotite, <u>K-Ar age : 228 m.y.</u>		
G56/5/13	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.586)		
	7.619) 7.60	0.01414	10.3
	Adamellite. Grid reference, 379000, 1841900. Lat. $25^{\circ}24'S$. long. $150^{\circ}48\frac{1}{2}'E$.		
			Mundubbera
Ref: QLD 1, 4	GRANODIORITE		
GA 5348	Biotite, <u>K-Ar age : 235 m.y.</u>		
G56/1/15	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	6.492)		
	6.477) 6.48	0.01465	28.8
	Hornblende, <u>K-Ar age : 242 m.y.</u>		
	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.3763)		
	0.3765) 0.376	0.01512	41.7
	Grid reference, 397000, 1926000. Lat. $24^{\circ}43'S$. long. $150^{\circ}59'E$.		
			Monto

Ref: QLD 1, 4 AUBURN COMPLEX

GA 5350

Biotite, K-Ar age : 233 m.y.

G56/5/14

% K

 $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.577)

7.641) 7.61 0.01449

9.5

Hornblende, K-Ar age : 239 m.y.

% K

 $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.7142)

0.7217) 0.718 0.01488

8.0

Granodiorite. Grid reference,
385400, 1840200. Lat. $25^{\circ}25'S$.
long. $150^{\circ}52'E$.

Mundubbera

Ref: QLD 1, 4 DIORITE

GA 5351

Hornblende, K-Ar age : 245 m.y.

G56/5/16

% K

 $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.4893)

0.4909) 0.490 0.01526

14.3

Grid reference, 410700, 1846000.
Lat. $25^{\circ}22'S$. long. $151^{\circ}06'E$.

Mundubbera

Ref: QLD 1, 4 AUBURN COMPLEX

GA 5352

Biotite, K-Ar age : 228 m.y.

G56/5/18

% K

 $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.013)

7.037) 0.730 0.01442

16.8

Granodiorite. Grid reference,
383300, 1874800. Lat. $25^{\circ}07\frac{1}{2}'S$.
long. $150^{\circ}50\frac{1}{2}'E$.

Mundubbera

Ref: QLD 1, 4 AUBURN COMPLEX

GA 5353 Biotite, K-Ar age : 228 m.y.G56/5/19 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

6.836)

6.828) 6.83 0.01418

11.1

Hornblende, K-Ar age : 233 m.y.% K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.7758)

0.7790) 0.777 0.01446

25.5

Granodiorite. Grid reference,
384500, 1885700. Lat. $25^{\circ}02\frac{1}{2}'\text{S}$.
long. $150^{\circ}51'\text{E}$.

Mundubbera

Ref: QLD 1, 4 AUBURN COMPLEX

GA 5357 Biotite, K-Ar age : 228 m.y.G56/5/11 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.619)

7.605) 7.61 0.01417

5.1

Biotite gneiss, Grid reference,
376600, 1842400. Lat. $25^{\circ}23\frac{1}{2}'\text{S}$.
long. $150^{\circ}46\frac{1}{2}'\text{E}$.

Mundubbera

Ref: QLD 1, 4 GRACEMERE GRANITE

GA 5360 Biotite, K-Ar age : 239 m.y.F56/13/5 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.527)

7.558) 7.54 0.01487

4.9

Diorite. Grid reference,
341000, 2087300. Lat. $23^{\circ}28'\text{S}$.
long. $150^{\circ}28'\text{E}$.

Rockhampton

Ref: QLD 1, 4 AUBURN COMPLEX

GA 5362 Biotite, K-Ar age : 236 m.y.G56/5/15 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.364)

7.323) 7.34 0.01468 4.1

Adamellite. Grid reference,

390800, 1838600. Lat. $25^{\circ}26'S$.long. $150^{\circ}55'E$.

Mundubbera

Ref: QLD 1, 4 AUBURN COMPLEX

GA 5364 Biotite, K-Ar age : 234 m.y.G56/5/20 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.144)

7.132) 7.14 0.01458 5.8

Hornblende, K-Ar age : 232 m.y.% K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.7101)

0.7138) 0.712 0.01443 33.4

Granodiorite. Grid reference,

396700, 1876700. Lat. $25^{\circ}06'S$.long. $150^{\circ}57\frac{1}{2}'E$.

Mundubbera

Ref: QLD 1, 4 ADAMELLITE

GA 5393 Biotite, K-Ar age : 238 m.y.F56/13/6 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.333)

7.398) 7.37 0.01483 12.8

Grid reference, 318000, 2064900.

Lat. $23^{\circ}33\frac{1}{2}'S$. long. $150^{\circ}16'E$.

Rockhampton

Ref: QLD 1, 4 ESKDALE GRANITE
 GA 5326 Biotite, K-Ar age : 234 m.y.
 G56/14/19 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 6.150)
 6.124) 6.14 0.01457 4.6
 Adamellite. Perserverance Creek
 Dam. Ipswich

Ref: QLD 1, 4 GRANITE
 GA 5382 Biotite, K-Ar age : 253 m.y.
 G56/10/9 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 5.316)
 5.303) 5.31 0.01581 13.2
 Grid reference, 485711. Gympie

Ref: QLD 1, 4 RAPAKIVI GRANITE
 GA 5384 Biotite, K-Ar age : 245 m.y.
 G56/10/10 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 6.959)
 6.969) 6.96 0.01528 4.3
 Grid reference 475748. Gympie

Ref: QLD 1, 4 GRANITE
 GA 5387 Biotite, K-Ar age : 248 m.y.
 G56/6/1 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 5.849)
 4.857) 5.85 0.01552 3.5
 Grid reference, 463816, Lat.
 25°37'S. long. 151°31'E. Maryborough

Ref: QLD 1 ROCKSBERG GREENSTONES
 Ga 5192 Muscovite, K-Ar age : 244 m.y.
 G56/14/9 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 7.987)
 8.006) 8.00 0.01522 4.0

Glaucophane, K-Ar age : 249 m.y.

% K	$\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$
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0.3221)

0.3235) 0.323 0.01522

4.0

Glaucophane schist. Grid reference,

903412.

Ipswich

Ref: QLD 1, 4 GRANITES

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Sr}^{86}$	Sr $^{87}/\text{Sr}^{86}$ (meas)	
GA 5295					
Total Rock	90.7	172.7	1.518	0.7103	0.7105
GA 5322					
Total Rock	172.8	94.5	5.271	0.7257	0.7260
GA 5382					
Total Rock	133.2	68.6	5.596	0.7243	0.7252
	131.7	68.0	5.605	0.7245	0.7253
GA 5384					
Total Rock	204.7	88.2	6.702		0.7316
GA 5387					
Total Rock	240.9	56.2	12.397	0.7540	0.7542
Biotite	1106.4	6.7	479.340	2.4831	
GA 5326					
Total Rock	203.9	73.8	7.975	0.7321	0.7315
	198.6	72.1	7.967	0.7320	0.7320
Biotite	673.4	3.9	495.200	2.4667	

GA 5387 Biotite Rb/Sr age : 253 m.y.GA 5326 Biotite Rb/Sr age : 242 m.y.

Isochron for granites from Gayndah - Preston area
 gives Rb/Sr age : 274 $\pm$ 28 m.y. Initial $\text{Sr}^{87}/\text{Sr}^{86} = 0.7041 \pm 0.0028$

GA 5295 Granodiorite, Mt. Perry Granite. Maryborough, grid
G56/6/3 reference 456856. Lat. $25^{\circ}15'39''\text{S}$. long. $151^{\circ}30'44''\text{E}$.

GA 5322 Rapakivi granite, Maryborough, grid reference 455798.
G56/6/11

GA 5382 Granite, Gympie, grid reference, 485711.
G56/10/9

GA 5384 Rapakivi granite, Gympie, grid reference 475748.
G56/10/10

GA 5387 Granite, Maryborough grid reference 463816.
G56/6/1 Lat. $25^{\circ}37'\text{S}$. long. $151^{\circ}31'\text{E}$.

GA 5326 Adamellite, Eskdale Granite, Perserverance Creek Dam.
G56/14/19 Ipswich Sheet area.

Ref: QLD 1, 4 "MOUNT WICKHAM RHYOLITE"

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Sr}^{86}$	Sr $^{87}/\text{Sr}^{86}$	(meas.)
GA 5519					
Total Rock	93.2	94.4	2.852	0.7151	0.7151
GA 5520					
Total Rock	72.6	153.7	1.363		0.7097
GA 5521					
Total Rock	117.9	126.2	2.692		0.7149
GA 5522					
Total Rock	106.1	196.9	1.556	0.7106	0.7108
GA 5523					
Total Rock	103.0	200.2	1.486	0.7112	0.7108
GA 5524					
Total Rock	70.6	37.3	5.452	0.7245	0.7241
GA 5525					
Total Rock	91.9	55.1	4.800	0.7214	0.7215
GA 5532					
Total Rock	108.6	61.2	5.133	0.7233	0.7229

Isochron for "Mt. Wickham Rhyolite"

Burdekin - Bogie - Bowen Rivers area gives

Rb/Sr age : 230 ± 15 m.y.Initial $\text{Sr}^{87}/\text{Sr}^{86} = 0.7055 \pm 0.0007$

GA 5519 Acid dyke. Bowen grid reference, 569300, 2436200.

F55/3/143

GA 5520 Acid volcanic. Bowen grid reference, 562050,

F55/3/69 2475700.

GA 5521 Acid volcanic. Bowen grid reference, 565100,

F55/3/74 2448600.

GA 5522 Acid volcanic. Bowen grid reference, 565100,

F55/3/75 2448700.

GA 5523 Acid volcanic. Bowen grid reference, 564800,

F55/3/76 2448500.

GA 5524 Acid volcanic. Bowen grid reference, 572700,

F55/3/72 2455600.

GA 5532 Acid volcanic. Bowen grid reference, 575200,

F55/3/16 2417300

GA 5525 Acid volcanic. Bowen grid reference, 577200,

F55/3/78 2443700.

Ref: QLD 1, 4 GABBRO

GA 1155 Pyroxene, K-Ar age : 220 m.y.F55/12/4 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$

0.03 0.01361

% $^{40}\text{Ar}^{\text{atm}}$

71.7

Grid reference, 193000, 2228000.

Lat. $22^{\circ}10'S$. long. $149^{\circ}17'E$.

St. Lawrence

Ref: QLD 1, 4 GABBRO

GA 1187 Pyroxene, K-Ar age : 211 m.y.F55/12/1 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

0.0714)

0.0716) 0.072 0.01303 37.0

Grid reference, 209500, 2222200.

Lat. 22°15½'S. long. 149°19'E. St. Lawrence

Ref: QLD 1, 4 GRANODIORITE

GA 1245 Biotite, K-Ar age : 216 m.y.G56/1/3 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

7.429)

7.370) 7.40 0.01340 2.6

Hornblende, K-Ar age : 212 m.y.% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

0.3493)

0.3485) 0.349 0.01314 29.9

Grid reference, 412500, 1978200.

Lat. 24°17'S. long. 151°07'E. Monto

Ref: QLD 1, 4 GRANODIORITE

GA 1246 Biotite, K-Ar age : 216 m.y.G56/1/5 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

6.361)

6.355) 6.36 0.01338 2.6

Hornblende, K-Ar age : 211 m.y.% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

0.3516)

0.3505) 0.351 0.01306 16.2

Grid reference, 431900, 1961100.

Lat. 24°25'S. long. 151°17'E. Monto

Ref: QLD 1, 4 GRANODIORITE

GA 1247

Biotite, K-Ar age : 221 m.y.

G56/1/6

% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

5.493)

5.508) 5.50 0.01370

2.3

Hornblende, K-Ar age : 219 m.y.% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

0.3155)

0.3152) 0.315 0.01357

24.6

Grid reference, 431900, 1942700.

Lat. 24°34'S. long. 151°17'E.

Monto

Ref: QLD 1, 4 GRANODIORITE

GA 1248

Biotite, K-Ar age : 220 m.y.

G56/1/7

% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

5.271)

5.288) 5.28 0.01364

3.0

Grid reference, 428400, 1942700.

Lat. 24°34'S. long. 151°15'E.

Monto

Ref: QLD 1, 4 PEGMATITE DYKE

GA 5258

Muscovite, K-Ar age : 218 m.y.

F56/9/1

% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

8.612)

8.642) 8.63 0.01347

2.4

Grid reference, 289400, 2156500.

Lat. 22°49'S. long. 150°01'E.

Port Clinton

Ref: QLD 1, 4 ADAMELLITE

GA 5282

Biotite, K-Ar age : 225 m.y.

H 56/2

% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

5.967)

5.931) 5.95 0.01397

5.7

Grid reference, 508453.

Warwick

Ref: QLD 1, 4 URANNAH IGNEOUS COMPLEX

GA 1170 Biotite, K-Ar age : (1) 117 m.y.(2) 117 m.y.

F55/4/5

% K

 $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.178) (1) 0.007079

4.2

7.198) 7.19 (2) 0.007062

3.4

Adamellite, Grid reference,

121600, 2398000. Lat. $20^{\circ}48'S$.long. $148^{\circ}33\frac{1}{2}'E$.

Proserpine

Ref: QLD 1, 4 MICROGRANITE

GA 1244 Hornblende, K-Ar age : 123 m.y.

F55/11/5

% K

 $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.2225)

0.2219) 0.222 0.007420

32.2

Plagioclase, K-Ar age : 116 m.y.

% K

 $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.2412)

0.2399) 0.241 0.007013

45.4

Grid reference, 664500, 2243600.

Lat. $22^{\circ}04'S$. long. $148^{\circ}20\frac{1}{2}'E$.

Clermont

Ref: QLD 1, 4 GABERO

GA 5272 Plagioclase, K-Ar age : 133 m.y.

F55/3/33

% K

 $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

0.1127)

0.1119) 0.112 0.008027

37.7

Grid reference, 636700, 2373900.

Bowen

Ref: QLD 1, 4 GRANODIORITE

GA 5330 Biotite, K-Ar age : 125 m.y.

F55/3/62

% K

 $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$

7.689)

7.716) 7.70 0.007560

5.2

Hornblende, <u>K-Ar age : 127 m.y.</u>		
% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
0.4236)		
0.4233) 0.423	0.007696	16.7
Grid reference, 669800, 2440950.		Bowen
Ref: QLD 1, 4 ADAMELLITE		
GA 5331 Biotite, <u>K-Ar age : 123 m.y.</u>		
F55/3/61	% K	$^{40}\text{Ar}^*/^{40}\text{K}$
7.466)		% $^{40}\text{Ar}^{\text{atm}}$
7.439) 7.45	0.007397	3.8
Grid reference, 665100, 2434500.		Bowen
Ref: QLD 1, 4 ADAMELLITE		
GA 5355 Biotite, <u>K-Ar age : 124 m.y.</u>		
F55/3/117	% K	$^{40}\text{Ar}^*/^{40}\text{K}$
7.384)		% $^{40}\text{Ar}^{\text{atm}}$
7.414) 7.40	0.007466	3.6
Grid reference, 644350, 2458500.		Bowen
Ref: QLD 1, 4 ADAMELLITE		
GA 5356 Biotite, <u>K-Ar age : 124 m.y.</u>		
F55/3/118	% K	$^{40}\text{Ar}^*/^{40}\text{K}$
7.574)		% $^{40}\text{Ar}^{\text{atm}}$
7.551) 7.56	0.007517	15.2
Hornblende, <u>K-Ar age : 126 m.y.</u>		
% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
0.5051)		
0.5061) 0.506	0.007585	10.9
Grid reference, 648000, 2445500.		Bowen
Ref: QLD 1, 4 ADAMELLITE		
GA 5358 Biotite, <u>K-Ar age : 123 m.y.</u>		
F55/3/127	% K	$^{40}\text{Ar}^*/^{40}\text{K}$
7.464)		% $^{40}\text{Ar}^{\text{atm}}$
7.443) 7.45	0.007446	13.5
Grid reference, 624100, 2411700.		Bowen

Ref: QLD 1, 4	ADAMELLITE		
GA 5398	Biotite, <u>K-Ar age : 128 m.y.</u>		
F55/3/91	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.832)		
	7.865) 7.85 0.007765	2.4	
	Grid reference, 641250, 2444200.	Bowen	
Ref: QLD 1, 4	GRANODIORITE		
GA 5399	Biotite, <u>K-Ar age : 123 m.y.</u>		
F55/3/100	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.539)		
	7.599) 7.57 0.007446	10.0	
	Grid reference, 629100, 2466400.	Bowen	
Ref: QLD 1	HECATE GRANITE		
GA 5529	Biotite, <u>K-Ar age : 120 m.y.</u>		
F55/3/97	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.545)		
	7.570) 7.56 0.007257	8.2	
	Grid reference, 621650, 2467200.	Bowen	
Ref: QLD 1, 4	GRANITE		
GA 1142	Hornblende, <u>K-Ar age : 110 m.y.</u>		
F55/4/2	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.759)		
	0.761) 0.760 0.006588	8.8	
	Grid reference, 171000, 2384400.		
	Lat. 20°55'S. long. 148°59'E.	Proserpine	
Ref: QLD 1, 4	GRANITE		
GA 1154	Hornblende, <u>K-Ar age : 115 m.y.</u>		
F55/4/3	% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.7873)		
	0.7936) 0.790 0.006939	16.5	
	Grid reference, 171000, 2385300.		
	Lat. 20°54'S. long. 148°59'E.	Proserpine	

Ref; QLD 1, 4 MOUNT ABBOT IGNEOUS COMPLEX

GA 5531 Hornblende, K-Ar age : 116 m.y.F55/3/119 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

0.9956)

0.9915) 0.994 0.007012

31.5

Granite. Grid reference,

600600, 2480200.

Bowen

Ref: QLD 1, 4 PORPHYRY

GA 5394 Total rock, K-Ar age : (1) 106 m.y.

F55/4/9 (2) 96 m.y.

% K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

1.717) (1) 0.006370

15.0

1.711) 1.714 (2) 0.005749

23.7

Pentecost Island. Grid reference,

175100, 2447100.

Proserpine

Ref: QLD 1, 4 DACITE

GA 5553 Hornblende, K-Ar age : 112 m.y.F55/4/25 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ % $^{40}\text{Ar}^{\text{atm}}$

0.3413)

0.3408) 0.341 0.006734

43.9

Carlisle Island. Grid reference,

205800, 2399800.

Proserpine

Ref: QLD 1, 4 PROSERPINE VOLCANICS

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb $^{87}/\text{Sr}^{86}$	Sr $^{87}/\text{Sr}^{86}$ (meas.)	
GA 5507					
Total Rock	113.8	199.0	1.651	0.7067	0.7063
GA 5508					
Total Rock	51.3	242.7	0.611	0.7047	0.7047
GA 5511					
Total Rock	165.2	49.6	9.623	0.7193	0.7195
GA 5512					
Total Rock	152.5	41.0	10.745	0.7204	0.7209

Ref: QLD 1, 4 PROSERPINE VOLCANICS (Cont.)

GA 5539

Total Rock	154.9	73.4	6.096	0.7133	0.7135
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GA 5546

Total Rock	97.7	161.7	1.744	0.7063	0.7065
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GA 5547

Total Rock	148.5	51.1	8.405	0.7180	0.7180
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GA 5552

Total Rock	45.4	199.4	0.656	0.7049	
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Rb/Sr age : 111 ± 5 m.y.Initial $\text{Sr}^{87}/\text{Sr}^{86} = 0.7037 \pm 0.0004$

GA 5507 Acid volcanic. Proserpine grid reference, 139500, 2447800.

F55/4/23

GA 5508 Acid volcanic. Proserpine grid reference, 143800,

F55/4/20 2447900.

GA 5511 Acid volcanic. Proserpine grid reference, 138900,

F55/4/22 2445100.

GA 5512 Acid volcanic. Proserpine grid reference, 137800,

F55/4/21 2445200.

GA 5539 Acid volcanic. Proserpine grid reference, 136600,

F55/4/33 2444100.

GA 5546 Acid volcanic. Proserpine grid reference, 137400,

F55/4/26 2445500.

GA 5547 Acid volcanic. Proserpine grid reference, 139200,

F55/4/27 2445200.

GA 5552 Acid volcanic. Proserpine grid reference, 136400,

F55/4/32 2442200.

Ref: QLD 1	RAVENSWOOD GRANODIORITE COMPLEX		
GA 5274	Biotite, <u>K-Ar age : (1) 440 m.y.</u>		
E55/14/44	<u>(2) 451 m.y.</u>		
	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	6.563)	(1) 0.02897	1.6
	6.560) 6.56	(2) 0.02978	3.0
	Hornblende, <u>K-Ar age : 420 m.y.</u>		
	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	6.101)		
	6.142) 6.12	0.02750	1.4
	Granodiorite. Grid reference,		
	473200, 2511400.		Townsville
Ref: QLD 1	RAVENSWOOD GRANODIORITE COMPLEX		
GA 5283	Biotite, <u>K-Ar age : 420 m.y.</u>		
E55/14/1	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	6.101)		
	6.142) 6.12	0.02750	1.4
	Granodiorite. Grid reference,		
	456500, 2524100.		Townsville
Ref: QLD 1	OWENEE GRANITE		
GA 5284	Biotite, <u>K-Ar age : 298 m.y.</u>		
E55/14/17	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	5.395)		
	5.415) 5.41	0.01886	3.9
	Granite. Grid reference, 384700,		
	2584000.		Townsville
Ref: QLD 1	PALL MALL ADAMELLITE		
GA 5533	Biotite, <u>K-Ar age : 283 m.y.</u>		
E55/14/18	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	7.401)		
	7.371) 7.39	0.01782	2.0
	Grid reference, 418900, 2557700.		Townsville

Ref: QLD 1	ADAMELLITE		
GA 5535	Biotite, <u>K-Ar age : 277 m.y.</u>		
E55/14/5	% K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	7.594)		
	7.616) 7.61 0.01745	1.1	
	Grid reference, 429200, 2572000.	Townsville	
Ref: QLD 1	PORPHYRITE DYKE		
GA 5561	Hornblende, <u>K-Ar age : 328 m.y.</u>		
F55/2/13	% K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.7120)		
	0.7122) 0.712 0.02094	11.8	
	Grid reference, 434000, 2485300.	Charters Towers	
Ref: QLD 1	HORNBLLENDE PORPHYRITIC DYKE		
GA 5720	Hornblende, <u>K-Ar age : 339 m.y.</u>		
F55/2/38	% K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.7003)		
	0.6993) 0.700 0.02169	5.4	
	Grid reference, 309860	Charters Towers	
Ref: QLD 1	HORNBLLENDE PORPHYRITE DYKE		
Ga 5721	Hornblende, <u>K-Ar age : 332 m.y.</u>		
F55/2/39	% K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	0.8561)		
	0.8606) 0.858 0.02124	27.7	
	Grid reference, 434700, 2488500.	Charters Towers	
Ref: QLD 2	TRACHYTE		
GA 686A	Sanidine, <u>K-Ar age : (1) 26.9 m.y.</u>		
F 55/15	% K $^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$	
	5.416) 0.1585	31.7	
	5.429) 5.42 0.1412	39.0	
	Crystal Hill. lat. $23^{\circ}58'S$,		
	long. $148^{\circ}08'E$.	Emerald	

Ref: QLD 2

TRACHYTE

GA 686B

Sanidine, K-Ar age : (1) 28.1 m.y.

F 55/15

(2) 27.7 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
5.391)	0.1651	22.2
5.407) 5.40	0.1632	19.0
Crystal Hill. Lat $23^{\circ}58'S$.		
long. $148^{\circ}08'E$.		
Emerald		

Ref: QLD 2

TRACHYTE

GA 686C

Sanidine, K-Ar age : (1) 27.8 m.y.

F 55/15

(2) 26.1 m.y.(3) 26.6 m.y.(4) 26.4 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
5.729)	0.1635	15.4
5.777) 5.75	0.1538	10.7
	0.1567	34.4
	0.1555	24.6

Crystal Hill. Lat $23^{\circ}58'S$.long. $148^{\circ}08'E$.

Emerald

Ref: QLD 2

TRACHYTE

GA 686D

Sanidine, K-Ar age : (1) 20.5 m.y.

F 55/15

(2) 20.4 m.y.(3) 18.3 m.y.(4) 26.7 m.y.(5) 26.1 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
5.869)	0.1204	61.0
5.777) 5.82	0.1199	18.7
	0.1074	49.6
	0.1570	12.3
	0.1535	25.7

Crystal Hill. Lat $23^{\circ}58'S$.long. $148^{\circ}08'E$.

Emerald

Ref: QLD 2 TRACHYTE

GA 686E

Sanidine, K-Ar age : (1) 26.9 m.y.

F 55/15

(2) 27.0 m.y.(3) 24.0 m.y.(4) 26.1 m.y.(5) 26.8 m.y.(6) 26.7 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
5.821)	0.1586	58.7
5.850)	0.1581	25.4
	0.1412	27.1
	0.1536	14.1
	0.1579	18.6
	0.1571	19.1

Crystal Hill. Lat $23^{\circ}58'S$.long. $148^{\circ}08'E$.

Emerald

Ref: QLD 2 TRACHYTE

GA 1043

Sanidine, K-Ar age : (1) 26.5 m.y.

F 55/15

(2) 25.7 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
6.224)	0.1560	21.5
6.236) 6.23	0.1515	6.6

Minerva Hills. Lat $23^{\circ}59'S$.long. $148^{\circ}05'E$.

Emerald

Ref: QLD 2 RHYOLITE DYKE

GA 1149

Sanidine, K-Ar age : 25.9 m.y.

F 55/15

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
6.214)		
6.221) 6.22	0.1523	9.5

Red Hill. Lat. $24^{\circ}02'S$,long. $148^{\circ}06'E$.

Springsure

Ref: QLD 2

RHYOLITE DYKE

GA 1150A

Sanidine, K-Ar age : (1) 23.2 m.y.

G 55/3

(2) 25.3 m.y.(3) 24.7 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
5.979)	0.1363	21.8
5.944) 5.96	0.1488	11.6
	0.1452	10.6

Red Hill. Lat. $24^{\circ}02'S$.long. $148^{\circ}06'E$.

Springsure

Ref: QLD 2

RHYOLITE DYKE

GA 1150B

Sanidine, K-Ar age : (1) 26.4 m.y.

G 55/3

(2) 25.9 m.y.(3) 26.7 m.y.(4) 25.2 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
5.966)	0.1552	9.9
5.975) 5.97	0.1523	9.7
	0.1572	19.4
	0.1481	14.1

Red Hill. Lat. $24^{\circ}02'S$ long. $148^{\circ}06'E$.

Springsure

Ref: QLD 2

OLIVINE BASALT

GA 777

Whole-rock, K-ar age : 32.8 m.y.32.6 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-2}$)	% $^{40}\text{Ar}^{\text{atm}}$
1.297)	0.1934	39.2
1.300) 1.299	0.1923	37.7

Lat. $23^{\circ}50'S$, long. $148^{\circ}02'E$.

Emerald

Ref: QLD 2	OLIVINE BASALT		
GA 1143	Whole-rock, <u>K-Ar age : 27.8 m.y.</u>		
G 55/15	<u>28.0 m.y.</u>		
% K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-2}$)	% $^{40}\text{Ar}^{\text{atm}}$	
1.396)	0.1636	27.1	
1.396) 1.396	0.1649	26.0	
Lat. 23°42'S, long. 148°05'E.		Emerald	
Ref: QLD 2	OLIVINE BASALT		
GA 5152	Whole-rock, <u>K-Ar age : 26.7 m.y.</u>		
G 55/3	<u>26.7 m.y.</u>		
% K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-2}$)	% $^{40}\text{Ar}^{\text{atm}}$	
1.290)	0.1569	13.1	
1.290) 1.290			
Lat. 23°52'S, long. 148°08'E.		Emerald	
Ref: QLD 2	OLIVINE BASALT		
GA 1031	Whole-rock, <u>K-Ar age : 26.8 m.y.</u>		
G 55/3	<u>26.8 m.y.</u>		
% K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-2}$)	% $^{40}\text{Ar}^{\text{atm}}$	
1.424)	0.1579	24.8	
1.420) 1.422			
Lat. 24°08'S, long. 147°56'E.		Springsure	
Ref: QLD 2	OLIVINE BASALT		
GA 1032	Whole-rock, <u>K-Ar age : 24.0 m.y.</u>		
G 55/3	<u>23.2 m.y.</u>		
% K	$^{40}\text{Ar}^*/^{40}\text{K}$ ($\times 10^{-2}$)	% $^{40}\text{Ar}^{\text{atm}}$	
0.6945)	0.1410	43.6	
0.6918) 0.693	0.1367	41.8	
Lat. 24°08'S, long. 147°55'E.		Springsure	

Ref: QLD 2 OLIVINE BASALT
 GA 1033 Whole-rock, K-Ar age : 27.7 m.y.
 G 55/3 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ $\%^{40}\text{Ar}^{\text{atm}}$
 $(\times 10^{-2})$
 1.193)
 1.192) 1.193 0.1629 20.0
 Lat. $24^{\circ}01'S$, long. $148^{\circ}03'E$. Springsure

Ref: QLD 2 OLIVINE BASALT
 GA 1034 Whole-rock, K-Ar age : 26.7 m.y.
 G 55/3 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ $\%^{40}\text{Ar}^{\text{atm}}$
 $(\times 10^{-2})$
 1.018)
 1.013) 1.016 0.1569 73.5
 Basalt overlies GA 1033. Lat. $24^{\circ}01'S$,
 long. $148^{\circ}03'E$. Springsure

Ref: QLD 2 MUGEARITE
 GA 1035 Whole-rock, K-Ar age : 27.0 m.y.
 G 55/3 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ $\%^{40}\text{Ar}^{\text{atm}}$
 $(\times 10^{-2})$
 3.775)
 3.746) 3.76 0.1592 25.1
 Mugearite overlies GA 1036
 Mt. Boorambool. Lat. $24^{\circ}06'S$,
 long. $148^{\circ}04'E$. Springsure

Ref: QLD 2 BASALT
 GA 1036 Whole-rock, K-Ar age : 27.5 m.y.
 G 55/3 % K $\frac{^{40}\text{Ar}^*}{^{40}\text{K}}$ $\%^{40}\text{Ar}^{\text{atm}}$
 $(\times 10^{-2})$
 1.987)
 1.991) 1.989 0.1618 30.9
 Mt. Boorambool. Lat. $24^{\circ}06'S$,
 long. $148^{\circ}04'E$. Springsure

Ref: QLD 2	OLIVINE BASALT		
GA 5158	Whole-rock, <u>K-Ar age : 25.7 m.y.</u>		
F 55/15	<u>25.7 m.y.</u>		
	<u>26.7 m.y.</u>		
	% K	$^{40}\text{Ar}^{\text{atm}}$ ($\times 10^{-2}$)	% $^{40}\text{Ar}^{\text{atm}}$
	0.6971)	0.1516	63.9
	0.6966) 0.697	0.1510	67.7
		0.1574	73.5
	Same locality as GA 1032. Lat, $24^{\circ}08'S$. long. $147^{\circ}55'E$.		Springsure
Ref: QLD 3	THOLEIITIC ANDESITE		
GA 1964	Total-rock, <u>K-Ar age : 22.9 ± 1.0 m.y.</u>		
H 56/2	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
	1.73)		
	1.73) 1.73	1.344×10^{-3}	12.2
	Burleigh Heads. Grid reference, 645136.		Tweed Heads
Ref: QLD 4	ADAMELLITE		
GA 5296	Biotite, <u>K-Ar age : 236 m.y.</u>		
G56/10/6	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% Ar^{atm}
	6.920	0.01468	2.1
	6.892		
	Hornblende, <u>K-Ar age : 245 m.y.</u>		
	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% Ar^{atm}
	0.5286	0.01526	9.2
	0.5315		
	Grid reference, 510000, 682000.		Gympie
Ref: QLD 4	GRANODIORITE		
GA 5298	Hornblende, <u>K-Ar age : 233 m.y.</u>		
G56/14/8	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% Ar^{atm}
	0.3717	0.01448	14.8
	0.3710		
	Granodiorite. Grid reference, 537000, 627000.		Ipswich

Ref: QLD 4 TONALITE
 GA 5312 Biotite, K-Ar age : 238 m.y.
 G56/10/7 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % Ar^{atm}
 7.038 0.01482 3.0
 7.056
 Grid reference, 513000, 676000. Gympie

Ref: QLD 4 GRANITE
 GA 5313 Biotite, K-Ar age : 240 m.y.
 G56/10/8 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % Ar^{atm}
 6.987 0.01497 3.9
 6.991

Hornblende, K-Ar age : 239 m.y.
 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % Ar^{atm}
 0.6252
 0.6199 0.01487 13.6
 Grid reference, 460000, 745000. Gympie

SOUTH AUSTRALIA

Ref: SA 1 SHALE DULLINGARI NO. 1 WELL

	Rb ⁸⁷	Sr ⁸⁶	Rb ⁸⁷ /Sr ⁸⁶	Sr ⁸⁷ /Sr ⁸⁶
9502 total-rock	0.776	0.1222	6.35	0.7652
<u>HCl leach, 0.03 N,</u> <u>15 min</u>				
Leach*	0.01421	0.03055	0.465	0.7273
Residue	0.787	0.0938	8.39	0.7784
<u>HCl leach, 0.3N,</u> <u>15 min</u>				
	0.01868	0.04528	0.413	0.7260
	0.794	0.07945	9.99	0.7896
<u>HCl leach, 1 N, 5 min</u>				
	0.01722+	0.04541+	0.379+	0.7255
	0.795	0.08031	9.89	0.7884
<u>HCl leach, 1 N, 15 min</u>				
	0.02019	0.04612	0.438	0.7261
	0.794	0.08005	9.92	0.7884
<u>HCl leach, 1 N, 60 min</u>				
	0.02099	0.04646	0.452	0.7266
	0.800	0.07877	10.03	0.7896
<u>Water leach, 5 min, 25 ml</u>				
	$3.36 \cdot 10^{-3}$	$1.85 \cdot 10^{-4}$	(18.3)	0.77
	$3.51 \cdot 10^{-3}$	$4.27 \cdot 10^{-4}$	8.2	-
<u>Water blank plus ion-exchange</u> <u>um/100 ml</u>				
	$2.31 \cdot 10^{-5}$	$1.3 \cdot 10^{-4}$	-	-
<u>Reagent and processing blank</u> <u>um per dissolution</u>				
	$3.6 \cdot 10^{-5}$	$6.2 \cdot 10^{-5}$	-	-

* Concentrations for all the leaches are expressed as μm leached per gram of total-rock.

+ Data calculated from $\text{Sr}^{87}/\text{Sr}^{86}$ for the leach, total-rock and residue, and $\text{Rb}^{87}/\text{Sr}^{86}$ for the residue and total-rock.

Samples	Rb ⁸⁷ μm/g	Sr ⁸⁶ μm/g	Rb ⁸⁷ /Sr ⁸⁶	Sr ⁸⁷ /Sr ⁸⁶
9193, total rock	0.677	0.1360	4.980	0.7546
9193, leach/g t.r.	0.02833	0.06067	0.467	0.7250
9193, residue	0.681	0.0809	8.420	0.7781
9205, total-rock	0.717	0.1265	5.667	0.7588
9205, leach/g t.r.	0.02350	0.04147	0.567	0.7257
9205, residue	0.729	0.08860	8.230	0.7763
9207, total-rock	0.622	0.1372	4.531	0.7516
9207, leach/g t.r.	0.01229	0.02984	0.412	0.7251
9207, residue	0.631	0.1094	5.769	0.7600
9496, total-rock	0.660	0.1614	4.090	0.7493
9496, leach/g t.r.	0.02755*	0.07988*	0.338*	0.7237
9496, residue	0.693	0.08753	7.915	0.7754
9498, total-rock	0.627	0.1638		0.7474
		0.1644	3.815	0.7475
9498, leach/g t.r.	0.01961	0.08426	0.233	0.7231
9498, residue	0.667	0.08607	7.751	0.7735
9191, total-rock	0.642	0.1421	4.521	0.7516
9195, total-rock	0.616	0.1416	4.353	0.7527
9199, total-rock	0.690	0.1240	5.561	0.7590
9203, total-rock	0.598	0.1342	4.457	0.7508
9506, total-rock	0.637	0.1391	4.575	0.7512

* Calculated (see earlier)

Rb-Sr age : 448 ± 3 m.y.*

The age data for the above results shows that sample 9502 has a significantly different initial $\text{Sr}^{87}/\text{Sr}^{86}$ ratio from the other samples, but that the slope of 9502 data is not significantly different from that of the total-rock isochron of all other samples.

* For these samples a decay constant of $\text{Rb}^{87} = 1.47 \times 10^{-11} \text{ yr}^{-1}$.

For leaches, total-rock and residues of 9502 initial $\text{Sr}^{87}/\text{Sr}^{86}$ ratio is 0.8234 ± 0.0004 (M.S.W.D. 1.45)

For all total-rocks, including 9502 initial $\text{Sr}^{87}/\text{Sr}^{86}$ ratio is 0.722 ± 0.004 (M.S.W.D. 6.32)

All sample numbers refer to depths in feet of core samples from Dullingari No. 1 Well, lat. $28^{\circ}07'55.6''\text{S}$, long. $140^{\circ}52'30''\text{E}$. Strezlecki Sheet area.

Ref: SA 2 PALMER GRANITE				
	Rb/g/g	Sr/g/g	$^{87}\text{Rb}/^{86}\text{Sr}$	$^{87}\text{Sr}/^{86}\text{Sr}$
GA 315 Total rock	179	80.3	6.45	0.7536
	175	77.9	6.49	0.7531
K-Feldspar	412	106.0	11.22	0.7849
	415	107.7	11.14	0.7849
Plagioclase	12.0	63.0	0.55	0.714 0.7122
P2 Total rock	138	103	3.86	0.7342
P5 Total rock	144	70	5.93	0.7513
P7 Total rock	151	52	8.35	0.7660
P5 Biotite	1191	1.811	1893	13.499
	1181	2.50	1369	9.883
	1192	2.70		
GA 315				
Biotite (green)	1286	2.69	1378	9.529
Biotite (brown)	1226	6.50	544.6	3.745
	1236	6.50	549.1	3.790
P4 K-Feldspar	437	100	12.59	0.7877
P5 K-Feldspar	465	97	13.82	0.7946
P7 K-Feldspar(1)	447	64	21.48	0.8464
P7 K-Feldspar(2)	463	70.1	19.29	0.8357
	459	69.5	19.30	0.8373

Rb/Sr age : 490 $\pm$ 15 m.y.

Initial $^{87}\text{Sr}/^{86}\text{Sr} = 0.7086 \pm 0.0010$

No localities given

Adelaide

Ref: SA2

PALMER GRANITE

GA 315

Biotite, K-Ar age : (1) 449 m.y.

(2) 459 m.y.

% K	$^{40}\text{Ar}/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
-----	--------------------------------	---------------------------------

7.95

7.80 0.0296

5.2

No locality given

Adelaide

Ref: SA (Unpubl) ACID VOLCANIC ROCK

Geochron R0913

Total-rock, K-Ar age : 331 (± 15) m.y.

% K	$^{40}\text{Ar}/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
-----	--------------------------------	---------------------------------

3.34)

72.1

3.50)

0.0212

90.3

From Core No. 18 11,965 feet, Kalladeina No. 1

Well, South Australia.

Gason

Lat. $27^{\circ}39'28''$, long. $139^{\circ}24'00''$.

The geology section of the report gives the volcanic sequence as "undated" and states

"Radiometric age dating of 331 ± 15 m.y. ...

must indicate a period of tectonic activity

rather than the true age of the rocks".

TERRITORY OF PAPUA AND NEW GUINEA

Ref: T.P.N.G. 1 UOIVI VOLCANICS
 GA 1544 Total-rock, K-Ar age: 0.079 ± 0.01 m.y.
 $\%K$ $^{40}\text{Ar}^*/^{40}\text{K}$ $\%^{40}\text{Ar}^{\text{atm}}$
 2.566)
 2.562) 2.564 0.461×10^{-5} 87.3
 Trachyandesite.
 Lat. 9°8'S, long. 148°27'E. Port Moresby

Ref: T.P.N.G. 1 UOIVI VOLCANICS
 GA 1545 Total-rock, K-Ar age: 0.36 ± 0.04 m.y.
 $\%K$ $^{40}\text{Ar}^*/^{40}\text{K}$ $\%^{40}\text{Ar}^{\text{atm}}$
 0.812)
 0.821) 0.817 2.11×10^{-5} 85.5
 Alkali basalt.
 Lat. 9°8'S, long. 148°26'E. Port Moresby

Ref: T.P.N.G. 1 UOIVI VOLCANICS
 GA 1133 Total-rock, K-Ar age: (1) 0.343)
 $\%K$ $^{40}\text{Ar}^*/^{40}\text{K}$ $\%^{40}\text{Ar}^{\text{atm}}$
 (2) 0.366) 0.355 ± 0.015 m.y.
 2.106) (1) 2.03×10^{-5} 73.9
 2.089) 2.097 (2) 2.14×10^{-5} 62.7
 Trachybasalt.
 Lat. 9°14'S, long. 148°29'E. Port Moresby

Ref: T.P.N.G. 1 UOIVI VOLCANICS
 GA 1134 Total-rock, K-Ar age: 0.44 ± 0.04 m.y.
 SC 55/8 $\%K$ $^{40}\text{Ar}^*/^{40}\text{K}$ $\%^{40}\text{Ar}^{\text{atm}}$
 1.289)
 1.291) 1.290 2.57 78.9
 Trachybasalt.
 Lat. 9°16'S, long. 148°31'E. Tufi

Ref: T.P.N.G. 1 HYDROGRAPHERS VOLCANICS
 GA 1492 Total-rock, $\frac{K-Ar \text{ age}}{40Ar^*/40K} : 0.56 \pm 0.06 \text{ m.y.}$
 $\frac{\%K}{40Ar^*/40K} \quad \frac{\%40Ar^{atm}}{40Ar^*/40K}$
 3.081)
 3.090) 3.085 3.29×10^{-5} 88.3
 Latite
 Lat. $9^{\circ}13'S$, long. $148^{\circ}25'E$ Port Moresby

Ref: T.P.N.G. 1 HYDROGRAPHERS VOLCANICS
 GA 1488 Total-rock, $\frac{K-Ar \text{ age}}{(1) 0.67} : (1) 0.67$
 $\frac{\%K}{40Ar^*/40K} \quad \frac{\%40Ar^{atm}}{(2) 0.67 \pm 0.03 \text{ m.y.}}$
 1.602) (1) 3.90×10^{-5} 56.6
 1.602) 1.602 (2) 3.91×10^{-5} 49.0
 Doreitic basalt.
 Lat. $9^{\circ}00'S$, long. $148^{\circ}23'E$. Port Moresby

Ref: T.P.N.G. 1 HYDROGRAPHERS VOLCANICS
 GA 1490 Total-rock, $\frac{K-Ar \text{ age}}{40Ar^*/40K} : 0.67 \pm 0.04 \text{ m.y.}$
 $\frac{\%K}{40Ar^*/40K} \quad \frac{\%40Ar^{atm}}{40Ar^*/40K}$
 1.658)
 1.661) 1.659 3.93×10^{-5} 48.3
 Basaltic doreite
 Lat. $9^{\circ}00'S$, long. $148^{\circ}22'E$. Port Moresby

Ref: T.P.N.G. 1 HYDROGRAPHERS VOLCANICS
 GA 1489 Total-rock, $\frac{K-Ar \text{ age}}{40Ar^*/40K} : 0.69 \pm 0.04 \text{ m.y.}$
 $\frac{\%K}{40Ar^*/40K} \quad \frac{\%40Ar^{atm}}{40Ar^*/40K}$
 1.901)
 1.904) 1.903 4.02×10^{-5} 51.0
 Doreite
 Lat. $9^{\circ}00'S$, long. $148^{\circ}22'E$. Port Moresby

Ref: T.P.N.G. 1 HYDROGRAPHERS VOLCANICS

GA 1487

Total-rock, K-Ar age : (1) 0.80)
(2) 0.77) 0.785 ± 0.04 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
1.674)	(1) 4.64×10^{-5}	55.5
1.684) 1.685	(2) 4.51×10^{-5}	41.1
1.699)		

Dacitic doreite

Lat. $9^{\circ}00'S$, long. $148^{\circ}23'E$ Port Moresby

Ref: T.P.N.G. 1 HYDROGRAPHERS VOLCANICS

GA 1132

Total-rock, K-Ar age : 1.45 ± 0.08 m.y.

SC 55/7

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
2.712)		
2.714) 2.713	8.58×10^{-5}	50.8

Latite

Lat. $9^{\circ}00'S$, long. $148^{\circ}29'E$. Port Moresby

REF: T.P.N.G. 1 SESARA VOLCANICS

GA 1483

Total-rock, K-Ar age : (1) 5.44
(2) 5.36 5.40 ± 0.2 m.y.

SC 55/7

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
3.234)	(1) 31.9×10^{-5}	50.7
3.241) 3.273	(2) 31.4×10^{-5}	55.0

Latite basalt

Lat. $9^{\circ}15'S$, long. $148^{\circ}28'E$ Port Moresby

Ref: T.P.N.G. 1 SESARA VOLCANICS

GA 1484

Total-rock, K-Ar age : 5.49 ± 0.3 m.y.

% K	$^{40}\text{Ar}/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
3.843)		
3.848) 3.845	32.2×10^{-5}	75.2

Leveite basalt

Lat. $9^{\circ}14'S$, long. $148^{\circ}28'E$ Port Moresby

Ref: T.P.N.G. 1 SESARA VOLCANICS

GA 1485

Total-rock, K-Ar age : 5.57 ± 0.3 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
-----	----------------------------------	---------------------------------

3.558)

3.547) 3.552 32.7×10^{-5} 75.6

Leucite basalt

Lat. $9^{\circ}15'S$, long. $148^{\circ}30'E$ Tufi

Ref: T.P.N.G. 1 SESARA VOLCANICS

GA 1486

Total-rock, K-Ar age : 5.75 ± 0.2 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
-----	----------------------------------	---------------------------------

2.191) 2.196

2.204) 1 33.6×10^{-5} 10.0

Latitic picrite

Lat. $9^{\circ}14'S$, long. $148^{\circ}29'E$ Port Moresby

Ref: T.P.N.G. 1 TONALITE

GA 5477 (Unpubl.)

Biotite, K-Ar age : 13.7 ± 0.2 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
-----	----------------------------------	---------------------------------

7.38)

7.40) 7.39 0.8044×10^{-3} 23.9Hornblende, K-Ar age : 14.1 ± 0.2 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
-----	----------------------------------	---------------------------------

0.251)

0.251) 0.251 0.8284×10^{-3} 63.7

Headwaters of Warangoi River

Lat. $4^{\circ}38'S$, long. $152^{\circ}07'E$ Gazelle Peninsula

Ref: T.P.N.G. DIORITE

GA 5416 (Unpubl.)

Hornblende, K-Ar age: 55 ± 2 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
-----	----------------------------------	---------------------------------

0.1955)

0.1958) 0.196 3.285×10^{-3} 68.0

SB 55/15

Oligoclase, K-Ar age : (1) 50 ± 2 m.y.

(2) 51 ± 2 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
0.2254)	2.950×10^{-3}	52.7
0.2276) 0.227	3.034×10^{-3}	59.2

300 yards south of Kui Village, Morobe

District.

Lat. $7^{\circ}29'S$, long. $147^{\circ}13'E$

Salamaua

Ref: T.P.N.G. DIORITE (Unpubl.)

GA 5481 (Unpubl.) Plagioclase, K-Ar age: 53.2 ± 1.4 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
0.1252)		
0.1264) 0.126	3.149×10^{-3}	66.4

Southarm of Morobe River, 15 miles WSW of

Morobe

Lat. $7^{\circ}48'S$, long. $147^{\circ}24'E$

Salamaua

Ref: T.P.N.G. DOMARA RIVER BEDS (Unpubl.)

GA 5479 (Unpubl.) Total-rock, K-Ar age : 2.36 ± 0.05 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
2.100)		
2.090) 2.10	0.141×10^{-3}	64.3

Plagioclase, K-Ar age : 22.0 ± 0.5 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
0.465)		
0.469) 0.457	1.291×10^{-3}	72.6

Agglomerate, south side of Mt Avuru.

Lat. $9^{\circ}47'S$, long. $148^{\circ}42'E$

Tufi

Ref: T.P.N.G. (Unpubl.) DOLERITE
 GA 5480 Pyroxene, K-Ar age : 116 ± 4 m.y.
 SC 55/3 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 0.0680)
 0.0669) 0.067 7.002×10^{-3} 86.9
 Lower Waria River
 Lat. $8^{\circ}00'S$, long. $147^{\circ}15'E$ Buna

Ref: T.P.N.G. (Unpubl.) DACITE
 GA 5478 Biotite, K-Ar age : 5.3 ± 0.2 m.y.
 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 6.992)
 6.997) 6.99 0.308×10^{-3} 56.8
 Dimidi Creek, tributary Adau River.
 Lat $9^{\circ}49'S$, long. $148^{\circ}52'E$ Tufi

Ref: T.P.N.G. (Unpubl.) BASALT
 Geochron R1164 Total-rock, K-Ar age : $7.0 (\pm 0.5)$ m.y.
 SC 55/2 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 1.87) 34.3
 2.07) 1.97 0.00041 22.9
 From core at 8003 feet, Maiva No. 1 well.
 97 miles (offshore) NW of Port Moresby.
 Lat. $8^{\circ}18'21.8''$, long. $146^{\circ}08'04''$ Yule

Ref: T.P.N.G. (Unpubl.) BASALT
 Geochron R1179 Total-rock, K-Ar age : $5.2 (\pm 0.4)$ m.y.
 % K $^{40}\text{Ar}^*/^{40}\text{K}$ % $^{40}\text{Ar}^{\text{atm}}$
 1.266) 15.1)
 1.267) 1.266 0.00030 14.1)
 Basalt, from core at 9757 feet, Maiva No. 1 Well.
 97 miles (offshore) NW of Port Moresby
 Lat. $8^{\circ}18'21.8''$, long. $146^{\circ}08'04''$ Yule

The whole sequence has been dated as Upper Miocene despite the conflicting K/Ar datings, because of rich Upper Miocene microfaunas present in 5340'-9755' interval.

WESTERN AUSTRALIA

Ref: WA 1 TOLLU VOLCANICS.

	Rb $\mu\text{g/g}$	Sr $\mu\text{g/g}$	Rb ⁸⁷ /Sr ⁸⁶	Sr ⁸⁷ /Sr ⁸⁶
A311-1	215	106	5.98	0.7989
	225	119		
A311-6	211	61.0	10.29	0.8633
	233	62		
A311-7	204	71.0	8.48	0.8297
	210	73		
A311-10	91.0	160.0	1.646	0.7287
	90.5			
	95.0	166		
GA 1350	196	31.6	18.41	0.9577

Rb/Sr age : 1060 $\pm$ 140 m.y.Initial Sr⁸⁷/Sr⁸⁶ = 0.705 $\pm$ 0.007

A311-1	Rhyolite, Tollu Volcanics, Cooper Sheet area
A311-6	Rhyolite, Tollu Volcanics, Cooper Sheet area
A311-7	Rhyolite, Tollu Volcanics, Cooper Sheet area
A311-10	Tuff, Tollu Volcanics, Cooper Sheet area
GA 1350	Porphyry, Warburton Volcanics, Cooper Sheet area

Ref: WA BASALT

(Unpubl.)
GA 2899 Total-rock, K-Ar age: 137.1 m.y.

D 51	% K	$\frac{40_{\text{Ar}^*}}{40_{\text{K}}}$	% $^{40}\text{Ar}^{\text{atm}}$
	1.186)	0.00831	4.2
	1.193) 1.190	0.00834	9.6

Core 18, Ashmore Reef No. 1 Well, 8281 - 8290 feet.

Lat 12°10'49.7", long. 123°05'10.6". On NW margin
of Sahul Shelf, 400 miles NNW of Broome.

Ref: WA BASALT
(unpubl.)

GA 3189 Total-rock, K-Ar age : 128.7 ± 3.0 m.y.

% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
-----	----------------------------------	---------------------------------

1.041)		
1.042)	1.041 0.00778	28.3

Core 19, Ashmore Reef No. 1 Well depth
8841.5 feet. On NW margin of Sahul Shelf,
400 miles NNW of Broome. Lat. $12^{\circ}10'49.7''$,
long. $123^{\circ}05'10.6''$.

Ref: WA BASALT
(unpubl.)

GA 3190	% K	$^{40}\text{Ar}^*/^{40}\text{K}$	% $^{40}\text{Ar}^{\text{atm}}$
---------	-----	----------------------------------	---------------------------------

1.087)		
1.089)	1.088 0.00787	14.3

Core 19, Ashmore Reef No. 1 Well, depth
8842.5 feet. On NW margin of Sahul Shelf,
400 miles NNW of Broome. Lat. $12^{\circ}10'49.7''$,
long. $123^{\circ}05'10.6''$.

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"	4013	4
"	4017	4
"	4019	4
"	4026	4
"	4053	5
"	4112	4
"	4160	5
"	4165	5
"	4168	5
"	4170	5
"	4174	5
"	4266	5
"	4300	5
"	4300	5
"	4342	5
"	26903	5
"	28906	5

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"	1532A	20	F 55/3/26	5252	47
"	1533	20	F 55/3/27	5253	47
"	1534	20	F 55/3/33	5272	69
"	1536	21	F 55/3/36	5378	48
"	1547	21	F 55/3/37	5335	39
			F 55/3/38	5338	48
H 56/10	1960	10	F 55/3/40	5514	31
"	2167	8	F 55/3/41	5515	31
			F 55/3/42	5391	30
H 56/13	1961	9	F 55/3/55	5373	46
	1962	9	F 55/3/56	5374	47
	1966	9	F 55/3/62	5330	69
H 56/14	1956	9	F 55/3/64	5331	70
			F 55/3/67	5530	42
			F 55/3/68	5375	47

QUEENSLAND

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F 55/3/69	5520	65	F 55/3/135	5354	40, 46
F 55/3/72	5524	65	F 55/3/136	5560	42
F 55/3/74	5521	65	F 55/3/143	5519	65
F 55/3/75	5522	65	F 55/4/2	1142	71
F 55/3/76	5523	65	* F 55/4/3	1154	71
F 55/3/78	5525	65	F 55/4/5	1170	69
F 55/3/81	5517	31	F 55/4/9	5394	72
F 55/3/84	5518	31	F 55/4/20	5508	73
F 55/3/86	5332	47	F 55/4/21	5512	73
F 55/3/87	5336	39	F 55/4/22	5511	73
F 55/3/91	5398	71	F 55/4/23	5507	73
F 55/3/94	5534	42	F 55/4/25	5553	72
F 55/3/100	5399	71	F 55/4/26	5546	73
F 55/3/101	5333	39	F 55/4/27	5547	73
F 55/3/104	5328	38	F 55/4/32	5552	73
* F 55/3/105	5327	38	F 55/4/33	5539	73
* F 55/3/106	5347	40	F 55/7/1	1073	28
F 55/3/107	5329	50	F 55/7/8	5293	38
F 55/3/108	5379	40	F 55/7/9A	5502	49
F 55/3/109	5380	48	F 55/7/9B	5503	49
F 55/3/113	5346	40	F 55/7/9C	5504	50
F 55/3/114	5396	41, 46	F 55/7/9D	5505	50
F 55/3/115	5392	41, 46	F 55/7/9E	5506	50
F 55/3/117	5355	70	F 55/8/8	5291	37
F 55/3/118	5356	70	F 55/8/9	1136	35
F 55/3/119	5531	72	F 55/8/10	1137	35
F 55/3/125	5365	48	F 55/8/11	1138	36
F 55/3/127	5358	70	F 55/8/12	5267	37
F 55/3/131	5556	31	F 55/8/14	5397	41
F 55/3/132	5557	31	* F 55/8/14	11155	35
F 55/3/134	5559	31	F 55/11/2	1040	26
* F 55/3/95	5513	42			
* F 55/3/97	5529	71			

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F 55/11/5	1244	69	F 56/9/2	5259	53
F 55/12/1	1187	67	F 56/9/4	5261	53
F 55/12/3	5289	37, 46	F 56/9/6	5359	54
F 55/12/4	1155	66	F 56/13/5	5360	61
F 55/12/8	5290	37	F 56/13/6	5393	62
F 55/12/9	1189	36	F 56/13/10	5339	25
F 55/12/10	1053 A,B	52	F 56/13/11	5340	57, 58
F 55/12/11	1163	50	F 56/13/13	5341	57, 58
F 55/12/12	1054	52	F 56/13/15	5369	25
F 55/12/13	1164	50	F 56/13/16	5370	26
F 55/12/14	5256	53	F 56/13/17	5371	26
F 55/12/15	5257	53	F 56/13/18	5372	26
F 55/12/16	5263	51	G 55/3	1150 A,B	78
F 55/12/17	5264	51		1031	79
F 55/12/18	5265	51		1032	79
F 55/12/19	5266	51		1033	80
F 55/12/20	5269	46		1034	80
F 55/12/21	5270	46		1035	80
F 55/15	686 A,B,C,D,E 75, 76, 77			1036	80
	777	78		5152	79
	1143	79	G 56/1/1	1166	55
	5158	81	G 56/1/2	1167	55
F 55/15	1043	77	G 56/1/3	1245	67
F 55/15	1149	72	G 56/1/5	1246	67
F 55/15/8	1028	25	G 56/1/6	1247	68
F 55/15/9	1024	24	G 56/1/7	1248	68
F 55/15/11	1025	24	G 56/1/8	1249	56
F 55/15/12	1026	24	G 56/1/9	1369	56
F 55/15/13	1027	24	G 56/1/10	1250	56
F 55/15/14	1029	30	G 56/1/11	1370	57
F 55/15/15	1030	30	G 56/1/12	1251	33
F 55/16/2	1068	54	G 56/1/14	887	54
F 55/16/3	1069	54	G 56/1/15	5348	59
F 56/9/1	5258	68	G 56/1/17	5343	59
			G 56/1/20	5554	45
			G 56/1/21	5361	34, 45

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G 56/5/2	1168	55
G 56/5/3	1169	56
G 56/5/4	5294	34
G 56/5/5	1067	33,44
G 56/5/7	1190	33,45
G 56/5/10	5342	58,
G 56/5/11	5357	61
G 56/5/12	5344	59
G 56/5/13	5345	59
G 56/5/14	5350	60
G 56/5/15	5362	62
G 56/5/16	5351	60
G 56/5/18	5352	60
G 56/5/19	5353	61
G 56/5/20	5364	62
G 56/5/21	5337	57
G 56/5/22	5562	22
G 56/6/1	5387	63,64
G 56/6/3	5295	64
G 56/6/5	5314	22
G 56/6/6	5501	23
G 56/6/7	5318	22
G 56/6/9	5321	23
G 56/6/11	5322	64
G 56/6/12	5325	23
G 56/6/14	5320	22
G 56/10/6	5296	81
G 56/10/7	5312	82

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SHEET NO. SAMPLE NO.

G 56/10/8	5313	82
G 56/10/9	5382	63,64
G 56/10/10	5384	63,64
G 56/10/11	5385	22
G 56/10/12	5386	22
G 56/14/8	5298	81
G 56/14/9	5192	63
G 56/14/19	5326	63,64
H 56/2	5282	68
H 56/3	11964	81

SOUTH AUSTRALIA

G 54/13	R0913	86
H 54/2	9191	84
	9193	84
	9195	84
	9199	84
	9203	84
	9205	84
	9207	84
	9496	84
	9498	84
	9502	83
	9506	84
I 54/9	315	86
	P2	85
	P4	85
	P5	85
	P7	85

TERRITORY OF PAPUA AND NEW GUINEAWESTERN AUSTRALIA

1:250,000 GA OR PAGE
SHEET NO. SAMPLE NO.

1:250,000 GA OR PAGE
SHEET NO. SAMPLE NO.

SB 55/15	5416	90	
	5481	91	
SB 56/2	5477	90	
SC 55/2	R1164	92	
	R1179	92	
SC 55/3	5480	92	
SC 55/7	1132	89	
	1133	87	
SC 55/7	1483	89	
	1484	89	
	1486	90	
	1487	89	
	1488	88	
	1489	88	
	1490	88	
	1492	88	
	1544	87	
	1545	87	
	SC 55/8	1134	87
		1485	90
		5478	92
		5479	91

D 51	2899	93
	3189	94
	3190	94
G 52/10	A311-1	93
	A311-6	93
	A311-7	93
	A311-10	93
	1350	93

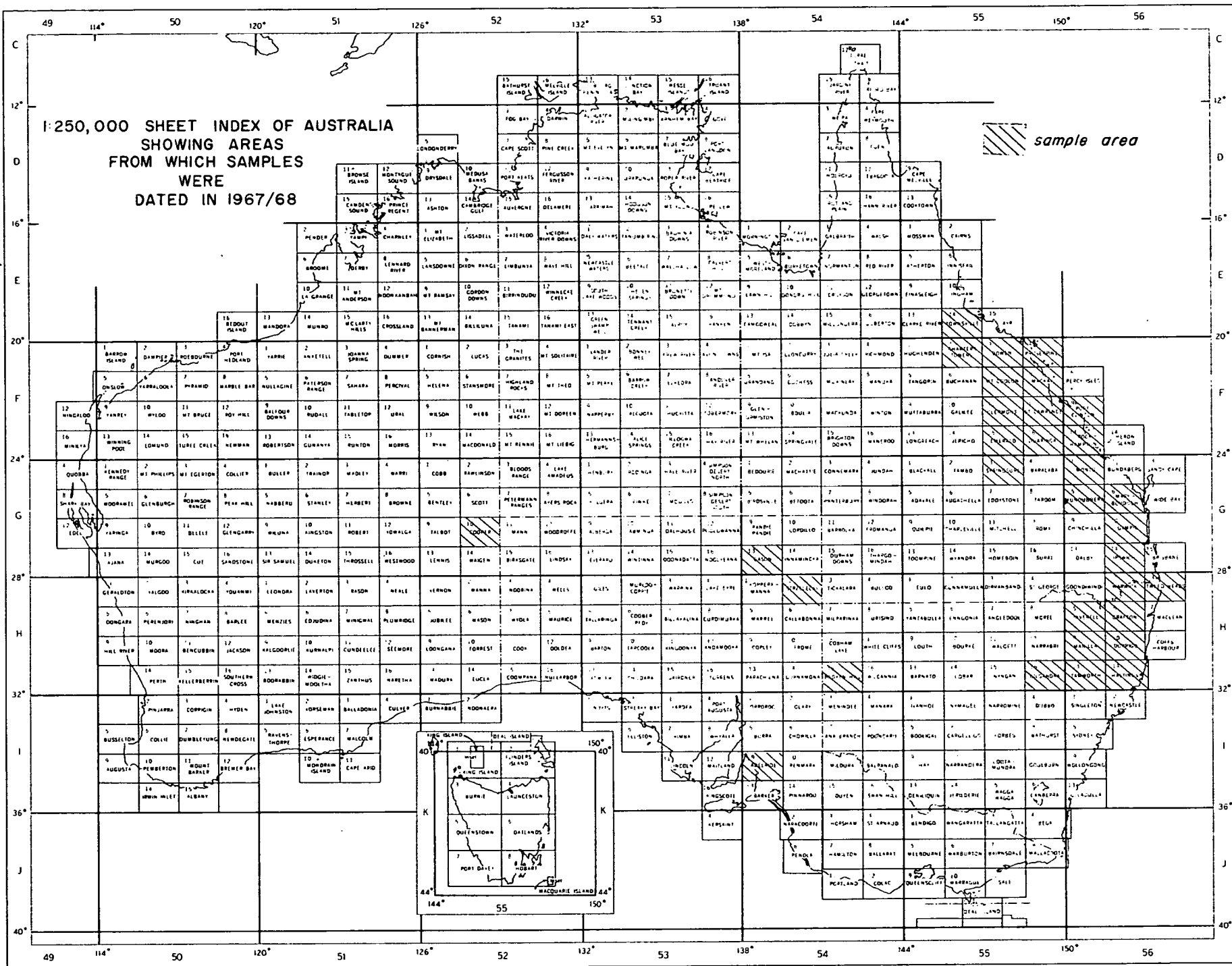
INDEX IIG.A. AND SAMPLE NUMBERS IN NUMERICAL AND ALPHABETICAL ORDER

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395	5	1547	21	BH44	12
1462	4	1956	9	BH45	13
4012	4	1957	9	BH47	17
4013	4	1958	8	BH49	17
4017	4	1959	8	BH56	17
4019	4	1960	10	BH68	19
4026	4	1961	9	BH70	18
4053	5	1962	9	BH79	17
4112	4	1963	10	BH81	16
4160	5			BH82	19
4165	5	1965	10	BH85	16
4168	5	1966	9	BH90	17
4170	5	2167	8	BH91	17
4174	5	2168	8	BH94	17
4266	5	RB465	14	BH134	11
4300	5	BH 2	11	BH135	11
4342	5	BH 5	10		
26903	5	BH 9	14	<u>QUEENSLAND</u>	
28906	5	BH10	14	472	45
		BH11	13	686A	75
		BH14	14	686B	76
<u>NEW SOUTH WALES</u>		BH17	12	686C	76
312	13	BH21	10	686D	76
314	14	BH23	11	686E	77
439	15	BH25	11	729	27
1530	20	BH27	17	777	78
1531	21	BH 31	16	812	34, 45
1532A	20	BH35	15	833	28
1533	20	BH37	15	832	28
1534	20	BH39	15	887	54
		BH43A	12		

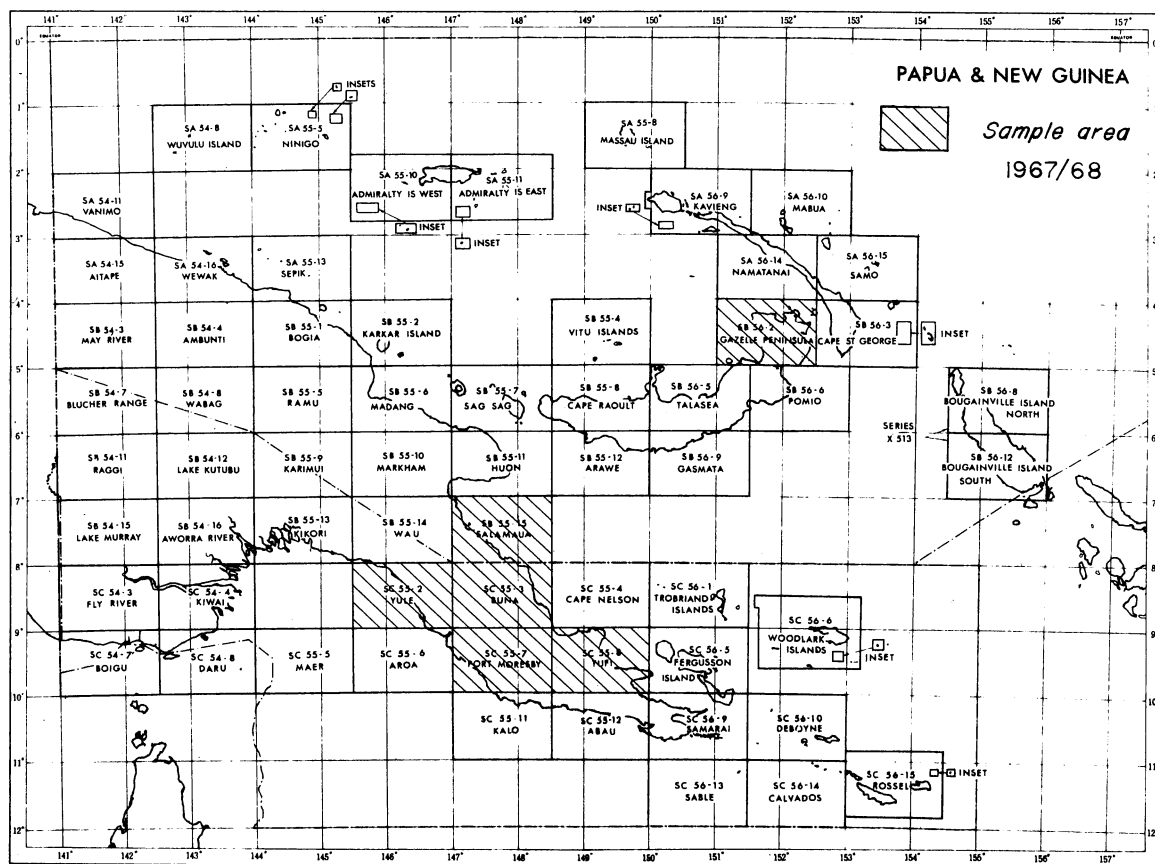
G.A. NO.	PAGE	G.A. NO.	PAGE	G.A. NO.	PAGE
<u>QUEENSLAND</u>		<u>QUEENSLAND</u>		<u>QUEENSLAND</u>	
1024	24	1160	27	5263	51
1025	24	1161	27	5264	51
1026	24	1162	36	5265	51
1027	24	1163	50	5266	51
1028	25	1164	50	5267	37
1029	30	1166	55	5269	46
1030	30	1167	55	5270	46
1031	79	1168	55	5272	69
1032	79	1169	56	5274	74
1033	80	1170	69	5282	68
1034	80	1187	67	5283	74
1035	80	1189	36	5284	74
1036	80	1190	33	5288	27
1040	26	1243	29	5289	37, 46
1043	77	1244	69	5290	37
1053A,B	51	1245	67	5291	37
1054	51	1246	67	5292	29
1067	33, 44	1247	68	5293	38
1068	54	1248	68	5294	34
1069	54	1249	56	5295	64
1072	34, 45	1250	56	5296	81
1073	28	1251	33	5298	81
1135	35	1369	56	5312	82
1136	35	1370	57	5313	82
1137	35	1964	81	5314	22
1138	36	5152	79	5318	22
1142	71	5158	81	5320	22
1143	79	5192	63	5321	23
1149	77	5198	20	5322	64
1150A	78	5252	47	5325	23
1150B	78	5253	47	5326	63, 64
1154	71	5256	53	5327	38
1155	66	5257	53	5328	38
		5258	68		
		5259	53		
		5261	53		

G.A. NO.	PAGE	G.A. NO.	PAGE	G.A. NO.	PAGE
<u>QUEENSLAND</u>		<u>QUEENSLAND</u>		<u>QUEENSLAND</u>	
5329	50	5371	26	5519	65
5330	69	5372	26	5520	65
5331	70	5373	46	5521	65
5332	47	5374	47	5522	65
5333	39	5375	47	5523	65
5335	39	5378	48	5524	65
5336	39	5379	40	5525	65
5337	57	5380	48	5528	32
5338	48	5382	63, 64	5529	71
5339	25	5384	63, 64	5530	42
5340	57, 58	5385	22	5531	72
5341	57, 58	5386	22	5532	65
5342	58	5387	63, 64	5533	74
5343	59	5391	30	5534	42
5344	59	5392	41, 46	5535	75
5345	59	5393	62	5539	73
5346	40	5394	72	5546	73
5347	40	5396	41, 46	5547	73
5348	59	5397	41	5552	73
5350	60	5398	71	5553	72
5351	60	5399	71	5554	45
5352	60	5501	23	5555	45
5353	61	5502	49	5556	31
5354	40, 46	5503	49	5557	31
5355	39, 70	5504	50	5559	31
5356	70	5505	50	5560	42
5357	61	5506	50	5561	75
5358	70	5507	73	5562	22
5359	54	5508	73	5720	75
5360	61	5511	73	5721	75
5361	34, 45	5512	73		
5362	62	5513	42		
5364	62	5514	31		
5365	48	5515	31		
5369	25	5517	31		
5370	26	5518	31		

G.A. NO.	PAGE	G.A. NO.	PAGE
<u>SOUTH AUSTRALIA</u>		<u>TERRITORY OF PAPUA AND NEW GUINEA</u>	
315	86	1544	87
9191	84	1545	87
9193	84	5416	90
9195	84	5477	90
9199	84	5478	92
9203	84	5479	91
9205	84	5480	92
9207	84	5481	91
9496	84	R1164	92
9498	84	R1179	92
9502	83		
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P2	85	<u>WESTERN AUSTRALIA</u>	
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P7	85	A311-6	93
R0913	86	A311-7	93
		A311-10	93
		2899	93
		3189	94
		3190	94
<u>TERRITORY OF PAPUA AND NEW GUINEA</u>			
1132	89		
1133	87		
1134	87		
1483	89		
1484	89		
1485	90		
1486	90		
1487	89		
1488	88		
1489	88		
1490	88		
1492	88		



1:250,000 SHEET INDEX OF PAPUA & NEW GUINEA
SHOWING AREAS FROM WHICH SAMPLES HAVE BEEN DATED



1:250,000 SHEET INDEX OF ANTARCTICA
SHOWING AREAS FROM WHICH SAMPLES HAVE BEEN DATED

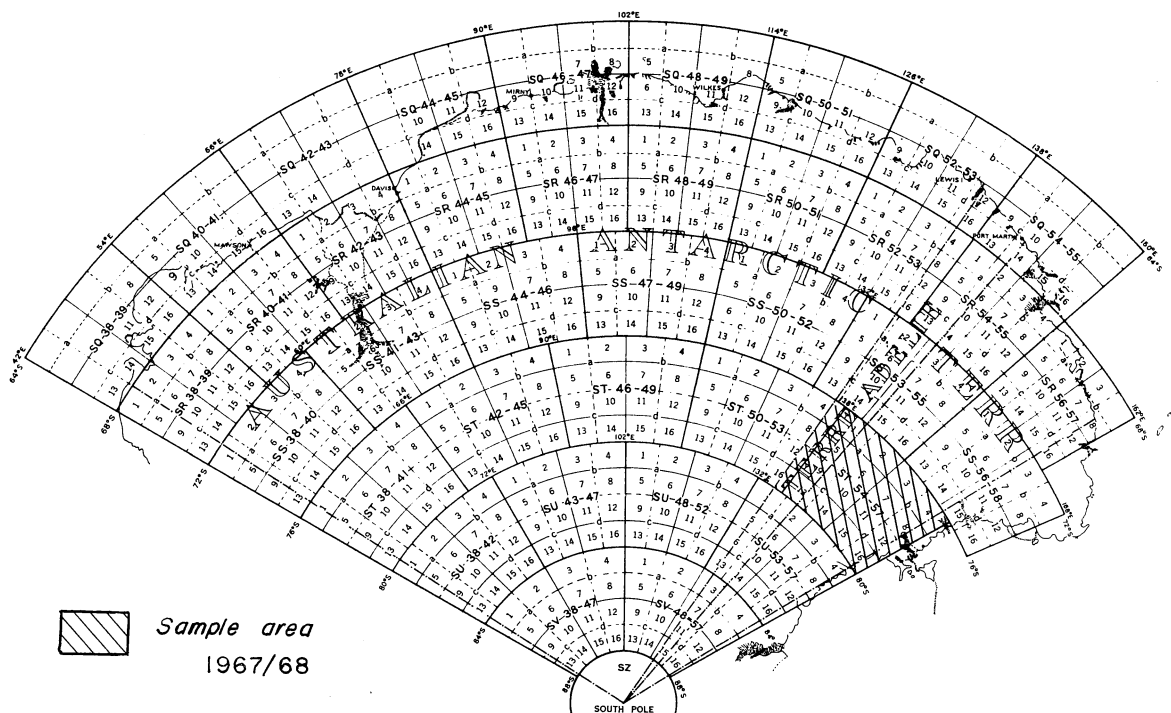


TABLE I

GA NUMBERS OR SAMPLE NUMBERS OF SPECIMENS DATED FROM AUSTRALIAN TERRITORY IN 1967/68

ERA	PERIOD	AGE OF BASE m.y.	NEW SOUTH WALES	T.P.N.G.	SOUTH AUSTRALIA	WESTERN AUSTRALIA	QUEENSLAND	ANTARTICA
CAINOZOIC	QUAT.	2		1132, 1133, 1134, 1487, 1488, 1489, 1490, 1492, 1544, 1545				
	TERT.	65	1530, 1531, 1532A, 1533, 1534, 1536, 1547, 1956, 1957, 1958, 1959, 1960, 1961, 1962 1963, 1965, 1966, 2167, 2168	1483, 1484, 1486, 5416, 5477, 5478, 5479, 5481, R1164, R1179			686A, B, C, D, E, 777, 1032, 1033, 1034, 1035, 1036, 1043, 1143, 1149, 1150A, B, 1964, 5152, 5158	
MESOZOIC	CRET.	136		5480		3189, 3190	1142, 1154, 5272, 5330, 5331, 5355, 5356, 5358, 5394, 5398, 5399, 5507, 5508, 5511, 5512, 5529, 5531, 5539, 5546, 5547, 5552, 5553, 5560	
	JUR.	192				2899	5347	394, 395, 1462, 4012, 4013, 4017, 4019, 4026, 4053, 4112, 4160, 4165, 4168, 4170, 4174, 4266, 4300, 4342, 26903, 28906
	TRIA.	225					1155, 1170, 1187, 1244, 1245, 1246, 1247, 1248, 5258, 5314, 5318, 5320, 5321, 5325, 5501, 812, 817, 1053A, B, 1054, 1068, 1069, 1072, 1135, 1136, 1137, 1138, 1162, 1163, 1164, 1166, 1167, 1168, 1169, 1249, 1250, 1369, 1370, 5192, 5252, 5253, 5256, 5257, 5259, 5261, 5263, 5264, 5265, 5266, 5282, 5295, 5296, 5298, 5312, 5313, 5322, 5326, 5327, 5328, 5329, 5332, 5333, 5335, 5336, 5337, 5338, 5340, 5341, 5342, 5342, 5343, 5344, 5345, 5348, 5350, 5351, 5352, 5353, 5357, 5359, 5360, 5362, 5364, 5365, 5372, 5374, 5375, 5378, 5379, 5380, 5382, 5384, 5385, 5386, 5387, 5393, 5397, 5502, 5503, 5504, 5505, 5506, 5513, 5519, 5520, 5521, 5522, 5523, 5524, 5525, 5530, 5532, 5535, 5562	
PALAEOZOIC	PERM	280						
	CARB.	345			R 0913		472, 729, 812, 831, 832, 1029, 1030, 1067, 1072, 1073, 1160, 1161, 1189, 1190, 1243, 1251, 5198, 5267, 5269, 5270, 5284, 5288, 5289, 5290, 5291, 5292, 5293, 5294, 5346, 5354, 5361, 5391, 5392, 5396, 5514, 5515, 5517, 5518, 5528, 5533, 5334, 5554, 5555, 5556, 5557, 5559, 5561, 5720	
	DEV.	395					1024, 1025, 1026, 1027, 1028, 5339, 5369, 5370, 5371, 5372, 5720	
	SIL	435						
	ORD	500			315, P2, P4, P5, P7, 9191, 9193, 9195, 9199, 9203, 9205, 9207, 9496, 9498, 9502, 9506		1040, 5274, 5283	
	CAMB	570						
PROTEROZOIC	ADEL.	300						
		1000						
		1200				A 311-1, A 311-6, A 311-7 A 311-10, 1350		
		1400						
	CARP.	1600	BH68, BH70, BH82					
		1800	312, 314, 439, RB 465, BH2, BH5, BH9, BH10, BH11, BH14, BH17, BH21, BH23 BH25, BH27, BH31, BH35, BH37, BH43A, B, BH44, BH45, BH47, BH49, BH56, BH79, BH81, BH85, BH90, BH91, BH94, BH134, BH135					
	LOWER PROT.	2000						
		2500						
ARCHEAN		3100						

Division of Precambrian time into arbitrary periods. Division of Phanerozoic time after "The Phanerozoic Time-scale" (1964). Where two ages are listed in the text for one specimen, the G.A. no. of the specimen is tabulated under the older age. All numbers are G.A. numbers (on file, Dept. of Geophysics and Geochemistry, Australian National University, Canberra, A.C.T., except those with letter prefixes or suffixes. Consult Index II for text of above nos.