CRA EXPLORATION PTY LIMITED

SUBJECT:

EP 10, EP 11, EP 12 and EP 13 GEORGINA BASIN, NORTHERN TERRITORY : PROGRESS REPORT FOR PERMIT YEAR ONE ENDING 31 DECEMBER 1987

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PACIFIC OIL AND GAS PTY. LIMITED

EP 10, EP 11, EP 12 and EP 13

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PROGRESS REPORT FOR PERMIT YEAR ONE

ENDING 31 DECEMBER 1987

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1. SUMMARY AND CONCLUSIONS

This report details work completed during Year 1 (January 1 - December 31, 1987) of the current five-year term of permits EP 10-13 inclusive, in the Georgina Basin, N.T.

Data were acquired, collated and reviewed early in the permit year, with the assistance of a contractor specializing in basin analysis. These data were then synthesised into a preliminary report dealing with basin evolution and overall hydrocarbon prospectivity.

Well data were similarly collated and critically reviewed, to form the basis for a report relating to lithofacies analysis within the Southern Georgina Basin.

Data were incorporated, whenever possible, into 1:500,000 scale maps covering the four permit areas.

A regional gravity survey was carried out in the southern Georgina Basin during the year. Of the 1897 readings acquired, 1630 (86%) were taken within the N.T. permit areas, the balance within ATP-380P, Queensland.

Digital aeromagnetics data were acquired from various sources during the year, and image-processed.

Seven scenes of thematic mapper (LANDSAT Satellite-5) data were acquired, processed and interpreted during 1987. Interpretations of the gravity, aeromagnetics and thematic mapper data sets were, at year end, being synthesised into a basinal tectonic scheme.

A total of 33 core samples from Georgina Basin wells were acquired from various sources and analysed for their source rock potential. Seven samples were analysed for metal content.

A total of 24 samples were acquired and submitted for apatite fission-track analysis (AFTA). Of these, 20 yielded sufficient apatites for analyses to be performed.

Several well sequences, for which adequate geochemical, AFTA and stratigraphic data were available, were modelled in terms of their burial and thermal histories.

An aerial (helicopter) reconnaissance of the permit areas was undertaken during the permit year.

Future (permit year 2) work in the Georgina Basin is to consist of the final interpretation and synthesis of all regional data sets, to provide the basis for the selection of four stratigraphic drilling locations for the 1988 drilling programme in the N.T.

2. INTRODUCTION

The hydrocarbon prospectivity of the Georgina Basin was upgraded by the recovery of live oil from cores from NTGS stratigraphic drillholes in 1985. As a result, CRA Exploration (CRAE) Pty. Limited applied for petroleum exploration permits over the southern portion of the basin. EPs 10, 11, 12 and 13 were granted to CRAE on January 1, 1987 (see Figure 1), and subsequently (June 1987) assigned to Pacific Oil and Gas Pty. Limited.

The following report details work completed during Year 1 (January 1-December 31, 1987) of the current five-year term of permits EP 10-13 inclusive.

3. PREVIOUS WORK

As stated above this report deals with work completed by Pacific Oil and Gas Pty. Limited during the first year of the current five-year term of permits EP 10-13. There is, therefore, no work prior to January 1, 1987 to be discussed in this report.

4. WORK COMPLETED, JANUARY 1-DECEMBER 31,1987

4.1 Data acquisition

Data were examined by Pacific Oil and Gas Pty. Limited representatives (including a petroleum-oriented geological contractor) at the B.M.R., Canberra, the Northern Territory Department of Minerals and Energy, Darwin, and the Northern Territory Geological Survey, Alice Springs, shortly after the granting of exploration permits EP 10-13 on January 1, 1987. All available data and relevant reports were ordered accordingly. Confidential CRAE minerals data were also acquired at this time.

Limitations of the available data were immediately apparent in the emphasis which had historically been placed by petroleum companies on exploration drilling at the expense of other techniques, such as seismic and other regional geophysical coverage. In addition, many data pertaining to the permit areas were mineral-related, and as such of limited relevance to petroleum exploration.

4.2 Data collation and review

The acquisition of open-file and confidential CRAE mineral exploration data, and their subsequent collation, were accelerated by the employment of a petroleum-oriented geological contractor specializing in basin analysis. The data, once acquired and collated, was then systematically reviewed by this Contractor over a three-month period. This work was finally synthesised into a report, entitled "Georgina Basin Study: Preliminary assessment of basin evolution and hydrocarbon prospectivity", consisting of 48 pages of text, 32 figures and 5 appendices.

Drillhole and stratigraphic data from the southern part of the Georgina Basin were also collated, critically reviewed, and in some cases reinterpreted, to form the basis of a revised basinal correlation and lithofacies analysis. At year-end, this work was being finalised into a report, entitled "Cambrian to Early Ordovician stratigraphy and lithofacies relationships of the southern part of the Georgina Basin, N.T. and QLD.".

Contoured 1:250,000 gravity and aeromagnetics maps were obtained from the B.M.R. for the sixteen mapsheet areas which include the Georgina Basin exploration permits, EP 10-13 and ATP-380P (Queensland). These maps were photographically reduced and combined into two single maps at 1:500,000 scale. The maps provided a regional overview of likely major structural trends within the southern Georgina Basin, and revealed the complexity of the basement terrain. As such they formed, in conjunction with other data, a good basis for the design and planning of the 1987 regional gravity survey (see below).

Acquired geological data were also incorporated into 1:500,000-scale maps wherever possible, this proving to be a manageable working scale for the entirety of the southern Georgina Basin in general, and the exploration permit areas in particular.

4.3 Geophysics

4.3.1 1987 Gravity Survey

A regional gravity survey over the southern Georgina Basin was commenced on August 20, and completed on September 10, 1987. A total of 1897 gravity readings was acquired, of which 1630 (86%) were taken within EPs 10-13 (the balance of 267 readings being taken in ATP-380P, Queensland). The readings were taken mainly at 1 km. intervals along 15 NE-SW lines, occasionally at 5 km. intervals where southerly extensions were required. The lines were spaced 25 km. apart over much of the survey area, but 12.5 km. infill lines were acquired in the west of the area as the survey drew to a close, and expenditure levels permitted them. The regional extent of the survey, and the distribution of survey lines, is shown in Plan PetAcw 159; the precise line locations are shown in Plans PetNTcw 199-203.

The survey yielded a series of 15 NE-SW profiles across the southern Georgina Basin (Plans PetNTcw 214-228; profiles extending into ATP-380P, Queensland, are included for completeness). The results of the survey were tied to the existing BMR grid, and merged with the 1:250,000 BMR-contoured Bouguer anomaly maps of the area. This exercise did not significantly change the BMR contour configuration, but did have the effect of giving better definition to certain gravity features.

The survey was performed by Geoterrex Pty. Limited, Sydney. Due to the remoteness of the survey area, and its generally featureless terrain, the survey was helicopter-borne, with survey control achieved by an inertial navigation system (I.N.S.).

4.3.2 Image-processed aeromagnetics data

Digital aeromagnetics data became available from various sources during 1987. Chief among these was the BMR, though a significant contribution was made by the NTGS' Barrow Creek and Huckitta surveys. A small area of detailed magnetics data was provided by the CRA Exploration Pty. Limited Lake Nash Survey.

As the above data sets were released, they were acquired by CRA Exploration Pty. Limited, Canberra, and combined into a regional data set, and image-processed. The area of coverage of the image-processed aeromagnetics data is shown in Plan PetNTcw 281.

4.3.3 Thematic Mapper (TM) data interpretation

Seven scenes of digital Thematic Mapper (LANDSAT Satellite-5) data, covering the southern Georgina Basin, were acquired in August 1987 from AMIRA, Melbourne. The extent of TM coverage relative to the permit areas is shown in Plan PetAcw 183. Although the original intention was to process this data into 1:250,000 colour images under contract, it was decided for reasons relating to quality control, to process the data in-house, at CRAE, Canberra. However, whilst quality of image has been ensured, some delays arose during processing, and the last of the seven TM images was not made available for interpretation until December 1987.

Interpretation of the TM data by specialist contractors was therefore still in progress at the year end. By that time, provisional interpretation of nine 1:250,000 sheet areas had been completed, namely Urandangi, Glenormiston, Mt.Whelan (Queensland sheets), Sandover River, Tobermory, Hay River, Elkedra, Huckitta and Illogwa Creek; interpretation was nearing completion for the two remaining sheeting areas, Barrow Creek and Alcoota.

4.3.4 Geophysical interpretation and data synthesis

Some attempts were made late in the year, as the interpretation of the gravity, image-processed aeromagnetics, and thematic mapper data sets proceeded, to synthesis them into a unified basinal tectonic scheme. Certain assumptions were made about the data sets: for example, the aeromagnetic data are largely basement-related, whereas the gravity contours are an expression of the nett effect of densities in both the basement and cover rocks. Thematic mapper data, however, reveals only surface traces of structures which may originate in either the basement or the cover, or both. Hence, it became important to establish an interpretational hierarchy, by identifying all points at which the data sets reinforce each other, and at which they are apparently contradictory, and in each case to try to account for the effect. By the year end, such an approach was proving valuable in the delineation of geological and geophysical provinces within the permit areas, and, following its completion early in 1988, will directly influence the choice of drilling locations for the 1988 programme. Ultimate completion of the data synthesis awaits finalisation of the TM interpretation.

4.4 Geochemistry

4.4.1 Organic

To date, organic geochemical analysis of samples from the Georgina Basin has been restricted to pyrolysis. A number of core samples (33) from the BMR, Canberra and NTGS, Alice Springs, were obtained in January-February 1987 soon after the granting of the permits to CRAE.

These samples were acquired as follows:-

Well Name	January 1987 (Cores) (BMR, Canberra)	February 1987 (Cores) (BMR, Alice Springs)
Brunette Downs-1	3	
Lucy Creek-1	7	
Mulga-1	2	
NTGS Elkedra-3		15
NTGS Huckitta-1		6

These samples were analysed by AMDEL, Adelaide, and the results received in March 1987. These results are shown in Tables 1 - 3.

4.4.2 Inorganic

Seven samples from Lucy Creek-1 cores were analysed for values of base and precious metals, namely Bi, Pb, Zn, Cu, Ni, Co, Ag, Mo, V, As, Au, Pt and Pd. Results of these analyses are shown in Tables 4 and 5.

4.4.3 Geochemical modelling

Several wells, for which geochemical and stratigraphic data were available, were modelled in terms of their burial and thermal histories to gain insights as to the degree and timing of organic maturation on a regional scale. This modelling was performed by Pacific Oil and Gas Pty. Ltd.'s in-house, PC-based programmes. Burial histories were based upon known stratigraphic ages and thicknesses, known tectonic histories, and inferences made from the results of apatite fission-track analysis (see below). The latter also provided control on the thermal histories of the well sections concerned, and geochemical data (chiefly pyrolysis results) provided control for the modelled maturations.

Similar modelling parameters were then extended to wells for which such data were not available for control, to provide estimates of maturation at such localities. This enabled a maturation map to be constructed for the base of the Middle Cambrian source interval over much of the permit areas. However, the regional extent of mature source rocks may be constrained by lithofacies variations; these variations, whilst readily accounted for in some parts of the basin, are less easy to predict in others, particularly in the eastern part of the permit block where well control is poor. Hence, both the distribution and likely degree of maturation of source rocks are very difficult to predict in such areas.

4.5 Apatite Fission-track analysis (AFTA)

This technique was identified early in the programme as a means of improving our understanding of the thermal and tectonic history of the Georgina Basin, and hence its hydrocarbon prospectivity.

Sandstone samples were obtained from 14 wells throughout the southern Georgina Basin, and submitted to Geotrack International, Melbourne for apatite fission-track analysis (AFTA). A further sample, obtained from a Davenport Ranges outcrop of Lr. Cambrian Andagera Fm., was later added to the sample suite. Sample details and apatite yields are shown in Table 6; of the total of 24 samples taken, four failed to yield sufficient apatites and could not therefore be subjected to analysis. Analytical results for the 20 samples which yielded an adequate number of apatite grains are shown in Table 7.

The best vertical fission-track profiles were achieved in two wells, BMR-13 (Sandover River) and NTGS Elkedra-6. Of these, only the former intersected Middle Cambrian source rocks for which organic geochemical data were available. Hence BMR-13 (Sandover River) was the location at which the burial and thermal histories of the Georgina Basin could be most reliably modelled. As explained above (under "4.4.3 Geochemical modelling"), this model was then extended to other basin locations for which analytical data (AFTA and/or organic geochemistry) were less abundant or, in either case, absent.

The AFTA samples analysed showed an overall coherence of apatite data, suggesting that the entire area shared a similar thermal history. Therefore the extension of the BMR-13 (Sandover River) model to other locations could be made with a certain degree of confidence.

4.6 Aerial reconnaissance

In June 1987, four representatives of Pacific Oil & Gas undertook a helicopter survey of the southern portion of the Georgina Basin. The primary aims of this reconnaissance were to initiate landowner liaison, to investigate ground conditions (to assist in the planning and logistics of exploration programmes such as the gravity survey), and to become familiar with the main stratigraphic and structural features of the basin.

5. FUTURE WORK PROGRAMME

It is intended, early in 1988 (permit year 2), to produce a final interpretation and synthesis of all the regional data sets discussed above, particularly the gravity, aeromagnetics and LANDSAT data sets. Such a synthesis will represent Pacific's most educated estimate of the geological and structural framework of the southern Georgina Basin, and should reveal where the most obvious gaps in our knowledge occur, especially with regard to lithofacies development (the latter having direct implications for source rock and reservoir distribution and development). Therefore, the data synthesis will form the basis for selection of locations for the 1988 stratigraphic drilling programme.

This programme is to consist of five wells, four of which are to be drilled with the N.T. permit areas (the remaining well to be drilled within ATP-380P in Queensland). The four wells should not exceed 5000m. of aggregate drilling, the maximum drilling depth in any one well being approximately 1400m. The wells are to be precollared, rotary drilled to a stratigraphically pre-determined core point, then cored to total depth at CHD 101mm. (HQ) gauge.

It is intended that drilling operations will commence in April 1988.

KEYWORDS

Elkedra SF53-07; Sandover River SF53-08; Huckitta SF53-11; Tobermory SF53-12; Urandangi SF54-05; Glenormiston SF54-09; analysis source rock; apatite; basin; Cambrian; computer applics; correlation; data review; facies; geochemistry; geophys gravity; geophys magnetics; hydrocarbon potential; image-processing; LANDSAT; maturation; Ordovician; source; stratigraphy; structure.

LOCATION

ELKEDRA	SF53-07	1:250,000	(NT)
SANDOVER RIVER	SF53-08	1:250,000	(NT)
HUCKITTA	SF53-11	1:250,000	(NT)
TOBERMORY	SF53-12	1:250,000	(NT)
URANDANGI	SF54-05	1:250,000	(QLD)
GLENORMISTON	SF54-09	1:250,000	(QLD)

JAMES PRESTON

List of Plans

Plan No.	Title	Scale
PetAcw 159	Georgina Basin: Southern Georgina Gravity Survey and Pastoral Holdings	1:1,000,000
PetNTcw 199	South Georgina Basin, N.T.: Line and Station Location Map Sandover River SF53-8	1:250,000
PetNTcw 200	South Georgina Basin, N.T.: Line and Station Location Map Urandangi SF54-8	1:250,000
PetNTcw 201	South Georgina Basin, N.T.: Line and Station Location Map Huckitta SF53-11	1:250,000
PetNTcw 202	South Georgina Basin, N.T.: Line and Station Location Map Tobermory SF53-12	1:250,000
PetNTcw 203	South Georgina Basin, N.T.: Line and Station Location Map Elkedra SF53-7	1:250,000
PetNTcw 214	Georgina Basin, NT/QLD.: Bouger Gravity and Elevation Profile 1987 Gravity Survey Line 1	H 1:250,000 V As shown
PetNTcw 215	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 2	H 1:250,000 V As shown
PetNtcw 216	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 3	H 1:250,000 V As shown
PetNTcw 217	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 4	H 1:250,000 V As shown
PetNTcw 218	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 5	H 1:250,000 V As shown

PetNtcw 219	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 6	H V	1:250,000 As shown
PetNTcw 220	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 7	H V	1:250,000 As shown
PetNTcw 221	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 8	H V	1:250,000 As shown
PetNTcw 222	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 9	H V	1:250,000 As shown
PetNTcw 223	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 10	H V	1:250,000 As shown
PetNTcw 224	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 11	H V	1:250,000 As shown
PetNTcw 225	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 12	H V	1:250,000 As shown
PetNTcw 226	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 13	H V	1:250,000 As shown
PetNTcw 227	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 14	H V	1:250,000 As shown
PetNTcw 228	Georgina Basin, NT/QLD.: Bouguer Gravity and Elevation Profile 1987 Gravity Survey Line 15	H V	1:250,000 As shown
PetNTcw 281	Georgina Basin, NT/QLD.: Image-Processed Aeromagnetics Coverage		1:1,000,000
PetAcw 183	Georgina Basin, NT/QLD.: TM Interpretation, Extent of TM Coverage and Study area.		1:1,000,000

TABLE 1

NTGS ELKEDRA - 3

AMDEL

ROCK-EVAL PYROLYSIS 17/03/87

Client CRA EXPLORATION

Well

DEPTH (m)	T MAX	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	OI
102.4	471	3.14	10.13	0.53	13.27	0.24	19.11	1.10	14.60	69	4
104.1	462	1.19	11.44	0.74	12.63	0.09	15.45	1.05	15.50	74	5
106.1	462	2.05	7.45	0.69	9.50	0.22	10.79	0.79	10.10	74	7
108.0	466	2.61	7.00	0.83	9.61	0.27	8.43	0.80	10.00	70	8
108.7	473	2.76	8.90	1.14	11.66	0.24	7.80	0.97	13.30	67	9
109.2	464	2.36	9.45	0.90	11.81	0.20	10.50	0.98	14.20	67	6
110.6	468	1.40	5.70	0.58	7.10	0.20	9.82	0.59	8.65	66	7
111.8	468	1.79	7.12	0.68	8.91	0.20	10.47	0.74	9.40	76	7
112.7	466	1.72	6.94	0.72	8.66	0.20	9.63	0.72	10.20	68	7
113.3	467	1.98	9.51	0.94	11.49	0.17	10.11	0.95	13.20	72	7
113.7	469	2.26	7.73	1.13	9.99	0.23	6.84	0.83	11.90	65	9
114.3	467	1.90	7.95	1.10	9.85	0.19	7.22	0.82	13.00	61	8
288.7									0.17		
289.6									0.23		
290.4									0.22		

TABLE 2

NTGS HUCKITTA - 1

AMDEL

ROCK-EVAL PYROLYSIS 17/03/87

Client CRA EXPLORATION

Well

DEPTH (m)	T MAX	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	OI
228.5	471	0.15	0.37	0.89	0.52	0.29	0.41	0.04	1.54	24	58
231.3	472	0.10	0.17	0.20	0.27	0.38	0.85	0.02	1.83	9	11
235.0	476	0.14	0.25	0.25	0.39	0.37	1.00	0.03	1.69	15	15
239.2	480	0.19	0.38	0.49	0.57	0.34	0.77	0.04	2.30	17	21
241.7	517	0.21	1.03	0.42	1.24	0.17	2.45	0.10	4.60	22	9
242.8	520	0.29	1.13	0.43	1.42	0.20	2.62	0.11	5.90	19	7

TABLE 3

AMDEL

ROCK-EVAL PYROLYSIS 24/03/87

Client CRA EXPLORATION

DEPTH (m)	T MAX	S1	S2	S3	S1+S2	PI	S2/S3	PC	TOC	HI	OI
WELL No.1	Brunette Downs No. 1										
474									0.07		
535									0.07		
618									0.09		
WELL No.2	Mulga No. 1										
143									0.11		
915									0.02		
WELL No.3	Lucy Creek No. 1										
1074A	428	0.42	2.47	0.63	2.89	0.15	3.92	0.24	1.00	247	63
1074B	435	0.86	7.70	0.59	8.56	0.10	13.05	0.71	2.54	303	23
1074C	435	0.79	7.26	0.77	8.05	0.10	9.42	0.67	2.52	288	31
1073A	437	0.49	1.85	0.64	2.34	0.21	2.89	0.19	0.92	201	70
1073B	442	0.58	3.60	0.58	4.18	0.14	6.20	0.34	1.37	263	42
1073C	441	0.51	2.31	0.63	2.82	0.18	3.66	0.23	1.20	192	52
1072	440	0.66	4.35	0.58	5.01	0.13	7.50	0.41	1.39	313	42

LUCY CREEK No. 1

Analysis Code PM4/1

Results in µg/g

DEPTH (m)	Au	Pt	Pd
1074 (A)	<0.005	<0.005	0.005
1074 (B)	<0.005	<0.005	0.005
1074 (c)	<0.005	<0.005	<0.005
1073 (A)	<0.005	<0.005	<0.005
1073 (B)	<0.005	<0.005	<0.005
1073 (C)	0.045	<0.005	<0.005
1072	<0.005	<0.005	<0.005

amdel

TABLE 5

LUCY CREEK No. 1

Analysis code A1,A2 Report AC 3097/87 Page G1

NATA Certificate Results in ppm

DEPTH (m)	Bi	Pb	Zn	Cu	Ni	Co	Ag
1074 (A)	<10	80	315	34	26	10	1
1074 (B)	<10	74	19	64	56	14	1
1074 (C)	<10	88	13	60	56	18	1
1073 (A)	<10	34	13	32	26	6	<1
1073 (B)	<10	30	13	43	34	8	<1
1073 (C)	<10	24	13	36	28	8	<1
1072	<10	110	115	48	40	6	<1
Detn limit	(10)	(5)	(2)	(2)	(5)	(5)	(1)

	Mo	V	As
1074 (A)	9	130	80
1074 (B)	11	750	80
1074 (C)	10	410	80
1073 (A)	3	130	80
1073 (B)	3	170	90
1073 (C)	2	150	90
1072	3	400	90
Detn limit	(1)	(20)	(50)

TABLE 6

Sample details and apatite yields, Georgina Basin.

Geotrack Number	Well Name	Depth (m)	Stratigraphic Details	Weight (g)	Apatite yield
8722-1	Barrow Creek-1	300.7-301.7	Arrinthrunga Fm., M-U Cambrian	710	Excellent
8722-2	The Brothers	277.4 - 353.6	Mesozoic	820	Excellent
8722-3	Beantree-1	548.6	Basement	900	Excellent
8722-4	Netting Fence-1	15.2 - 137.2	Carlo Sandstone, L. Ordovician	1000	Excellent
8722-5	"	2030 - 2031.3	Basement	1000	Excellent
8722-6	Brunette Downs-1	335.3 - 404.5	Mittiebah Sandstone, Adelaidean?	780	Excellent
8722-7	Morstone-1	650.1 - 893.4	Adelaidean	880	None
8722-8	Mulga-1	603.5 - 761.4	Adelaidean	960	Poor
8722-9	Lake Nash-1	362.7 - 399.3	Adelaidean?	850	Poor
8722-10	"	308.5 - 312.1	Adelaidean ?	700	None
8722-11	BMR-13 (SR)	1007.4 - 1014.4	Basement	750	Excellent
8722-12	"	408.4 - 409	Arrinthrunga Fm., M-U Cambrian	750	None
8722-13	"	320 - 321.3	" "	670	Excellent
8722-14	"	99.4 - 100.3	" "	770	Fair
8722-15	Lucy Creek -1	1104.6	Basement	550	Fair
8722-16	"	905.3 - 1008.9	Marqua Beds, M. Cambrian	550	Excellent
8722-17	BMR Mt. Whelan-2	5 - 18	Sun Hill Arkose, Adelaidean	720	Excellent
8722-18	NTGS Huckitta-1	377.9 - 379.8	Mt Borgan Formation, L.Cambrian	640	Excellent
8722-19	NTGS Elkedra-6	141-143	Tomahawk Beds, L. Ordovician	740	Excellent
8722-20	"	372.5 - 374.1	Arrinthrunga Fm., M-U Cambrian	570	Good
8722-21	"	552.7 - 560.2	Chabalowe Sandstone,M.Cambrian	750	None
8722-22	"	840.0 - 841.0	Basement	410	Excellent
8722-23	NTGS Elkedra-3	210.19 - 212.12	Errarra Formation, L. Cambrian	670	Good

TABLE 7

Apatite fission track analytical results: Georgina Basin, Northern Territory and Queensland.

Geotrack number	Depth (m)	Number of grains	Standard track density ($x10^6 cm^{-2}$)	Fossil track density ($x10^6 cm^{-2}$)	Induced track density ($x10^6 cm^{-2}$)	Correlation coefficient	Chi square probability	Age (Ma)	Uranium (ppm)	Mean track length (µm)	Std. Dev. (µm)
Barrow Creek -1											
8722-1	300.7-301.7	20	1.293 (2763)	3.017 (1318)	2.914 (1273)	0.945	~3%	251.6 ± 19.1*	30	12.94 ± 0.12 (100)	1.21
The Brothers											
8722-2	277.4-353.6	20	1.293 (2763)	1.257 (847)	1.252 (843)	0.732	<1%	233.9 ± 23.6*	13	13.46 ± 0.12 (101	1.16
Beantree-1											
8722-3	548.6	20	1.294 (4018)	2.693 (1676)	2.656 (1653)	0.965	20%	227.8 ± 8.7	27	11.83 ± 0.15 (100)	1.46
Netting Fence-1											
8722-4	15.2-137.2	20	1.293 (2763	1.006 (591)	0.897 (527)	0.940	20%	251.3 ± 15.8	9	12.93 ± 0.14 (100)	1.37
8722-5	2030-2031.3	20	1.293 (2763)	6.941 (795)	2.737 (3135)	0.917	<1%	58.5 ± 3.6*	28	11.28 ± 0.16 (100)	1.58
Brunette Downs -1											
8722-6	335.3-404.5	20	1.293 (2763)	2.636 (1564)	2.245 (1332)	0.897	<1%	245.7 ± 24.0*	23	12.76 ± 0.16 (100)	1.58
Mulga-1											
8722-8	603.5-761.4	2	1.293 (2763)	5.727 (235)	0.592 (243)	1.000	6%	217.3 ± 20.3	6	12.91 ± 0.41 (8)	1.17
Lake Nash-1											
8722-9	362.7-399.3	4	1.294 (4018)	1.282 (149)	1.239 (144)	0.995	60%	232.4 ± 27.4	13	12.36 ± 0.74 (5)	1.65
BMR-13											
8722-11	1007.4-1014.4	20	1.294 (4018)	9.396 (906)	1.219 (1175)	0.699	6%	174.0 ± 8.2	13	12.52 ± 0.15 (101)	1.53
8722-13	320.0-321.3	20	1.293 (2763)	2.245 (875)	1.829 (713)	0.967	20%	274.5 ± 14.8	19	11.73 ± 0.24 (101)	2.38
8722-14	99.4-100.3	8	1.293 (2763)	2.168 (417)	1.331 (256)	0.966	30%	361.9 ± 29.5	14	11.91 ± 0.41 (29)	2.21
Lucy Creek-1											
8722-15	1104.6	10	1.294 (4018)	1.093 (472)	1.788 (772)	0.984	40%	138.3 ± 8.4	18	12.74 ± 0.27 (21)	1.22
8722-16	905.3-1008.9	20	1.293 (2763)	2.794 (793)	2.660 (755)	0.893	<1%	234.4 ± 16.4*	27	11.74 ± 0.22 (100)	2.19
BMR Mt Whelan-2											

TABLE 7 (contd)

8722-17	5-18	20	1.293 (2763)	1.661 (1096)	1.556 (1027)	0.888	<1%	237.8 ± 19.7*	16	13.12 ± 0.12 (100)	1.16
NTGS Huckitta-1											
8722-18	377.9-379.8	20	1.294 (4018)	2.311 (1306)	2.372 (1340)	0.964	<1%	248.0 ± 14.8*	24	13.08 ± 0.13 (100)	1.34
NTGS Elkedra-6											
8722-19	141-143	20	1.294 (4018)	2.712 (1247)	2.044 (940)	0.928	<1%	295.5 ± 22.3*	21	13.12 ± 0.15 (101)	1.46
8722-20	372.5-374.1	14	1.293 (2763)	2.422 (766)	2.858 (904)	0.953	~4%	200.3 ± 21.6*	29	13.02 ± 0.25 (38)	1.52
8722-22	840.0-841.0	20	1.294 (4018)	2.177 (1522)	2.938 (2054)	0.927	<1%	180.4 ± 12.4*	30	12.75 ± 0.13 (100)	1.29
NTGS Elkedra-3											
8722-23	210.2-212.1	20	1.294 (4018)	2.446 (1286)	2.020 (1062)	0.976	60%	271.2 ± 12.0	21	12.91 ± 0.17 (59)	1.32

Brackets show number of tracks counted or measured. Standard and induced track densities measured on mica external detectors (g=0.5), and fossil track densities on internal mineral surfaces. Ages calculated using z=353.5 for dosimeter glass SRM612 (Green, 1985).
* Mean age, used where pooled data fail c^2 test at 5%.