KINGFISHER-1

ONSHORE

Paleontological examination of drill cuttings and
side wall cores from Kingfisher-1,
Bonaparte Gulf, Northern Territory, Australia

Prepared for:

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THE PALEONTOLOGICAL EXAMINATION OF DRILL CUTTINGS AND SIDE WALL CORES FROM KINGFISHER-1 WELL, BONAPARTE GULF, NORTHERN TERRITORY, AUSTRALIA

BY

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INTRODUCTION

A total of 191 samples consisting of drill cuttings, side wall cores and a junk basket sample from 1740 to 3256.7 metres in Kingfisher-1 well drilled in the Bonaparte Gulf, Northern Territory, Australia, were examined for foraminifera. The results of these examinations are set out in Appendix 1.

The samples of drill cuttings and side wall cores were examined as washed residues while the junk basket sample was examined in thin section as well as washed residue. The shales are very indurated so it is possible that fossils, if present, could not be freed in the processing but based on the thin section of the junk basket sample it appears that the shales are also mostly barren of foraminifera.

The preservation of the fossils varied from good to very poor so many specimens could not be identified positively. All samples were examined because of the paucity of fauna. Most samples were found to be barren of fossils.

A computer generated sample list is included at the end of the report. The junk basket sample is shown as a conventional core.

AGE DETERMINATIONS

The section from 1740 to 1810 metres falls somewhere within the Carboniferous (Early Visean to Early Namurian) based on the occurrences of Eostaffella parastruvei parastruvei. This correlates with the section from 660 to 1842 feet in Bonaparte-1.

Haplophragmella is restricted to the Carboniferous so the section down to 2260 metres falls within the Carboniferous if there is no caving involved.

A single specimen found in the side wall core from 2585 metres appears to belong to Endothyranopsis sp. although it could possibly belong to Planoendothyra. These genera indicate a Carboniferous age so the section down to 2585 metres falls within the Carboniferous. Endothyranopsis was not recorded from below 1842 feet while Planoendothyra sp. occurred at approximately 6700 feet in Bonaparte-1.

The age of the section below 2585 metres cannot be determined because of the absence of fossils.

ENVIRONMENTS OF DEPOSITION

It is difficult to give precise environments of deposition based on the foraminifera since all forms are extinct and have no living relatives which would act as a guide. The foraminifera, however, can be taken to indicate a marine environment which is thought most likely to be under shallow water conditions.

Crinoids are marine organisms which therefore can be taken to indicate marine conditions. Ostracods can live in both marine and fresh water conditions but by their association with foraminifera and crinoids in this well they appear to indicate marine conditions.

The absence of marine fossils in many of the samples can be taken to indicate non-marine conditions but this is not always the case. The reason for the absence of fossils cannot be determined but could be due to the sandy nature of many of the samples because fossils are seldom preserved under sandy conditions. There may also have been a rapid rate of deposition which is not favourable for marine animals to occur.

Based on the fossil evidence and the above criteria the section from 1740 to 1810 metres was deposited under marine conditions, possibly shallow water, inner shelf.

It appears that there were either brief marine incursions within a predominately non-marine environment from 1810 to 2620 metres or a marine environment with a rapid rate of sedimentation such as turbidity currents although the former interpretation is preferred. The section from 2620 to 3256.7 metres did not yield any fossils so it could have been deposited under non-marine conditions.

REFERENCES

BELFORD, D.J., 1967. Upper Devonian and Carboniferous Foraminifera, Bonaparte Gulf Basin, Northern Australia. Bull. Aust. Bur. Miner. Resour. Geol. Geophys., 108, 1-40.

MAMET, B.L. and BELFORD, D.J., 1968. Carboniferous Foraminifera, Bonaparte Gulf Basin, northwestern Australia. Micropal., 14 (3), 339-347.

APPENDIX 1

RESULTS OF THE EXAMINATION

The named species belong to the foraminifera. The letters a, c, f and r after the fossil name indicates respectively the fossil is abundant, commom, frequent or rare. A question mark in front of a fossil name indicates the identification is only tentative.

SWC 1745 metres

Barren

1750 metres

Eostaffella parastruvei parastruvei (r)
?Forschia sp. (r)
crinoid stem (r)
ostracods (r)
gastropods (r)

1750-1760 metres

?Forschia sp. (r)

1760-1770 metres

Eostaffella parastruvei parastruvei (r)
?Forschia sp. (r)
crinoid stem (r)
ostracods (r)
gastropods (r)

SWC 1766 metres

Barren

SWC 1767.5 metres

Barren

SWC 1769.5 metres

Barren

1770-1780 metres

Eostaffella parastruvei parastruvei (r)

SWC 1776 metres

Barren

1780-1790 metres

Eostaffella parastruvei parastruvei (r)
?Forschia sp. (r)
gastropods (r)
ostracods (r)
crinoid stem (r)
indeterminate fossils (r)

SWC 1785.5 metres

Barren

1790-1800 metres

?Forschia sp. (r)
crinoid stem (r)

SWC 1794.5 metres

Barren

SWC 1795.5 metres

Barren

SWC 1798.5 metres

Barren

SWC 1799.5 metres

Barren

1800-1810 metres

Eostaffella parastruvei parastruvei (r)

1810-1820 metres

?Haplophragmella sp. (r)

1820-1830 metres

Barren

1830-1840 metres

Barren

1840-1850 metres

Barren

SWC 1841 metres

Barren

1850-1960 metres

Barren

1860-1870 metres

Barren

1870-1880 metres

Barren

SWC 1878 metres

Barren

1880-1890 metres

Barren

SWC 1884 metres

Barren

1890-1900 metres

Barren

1900-1910 metres

Barren

1910-1920 metres

crinoid stem (r)

1920-1930 metres

Barren

1930-1940 metres

Barren

1940-1950 metres

Barren

1950-1960 metres

Barren

1960-1970 metres

Barren

SWC 1964 metres

Barren

1970-1980 metres

Barren

1980-1990 metres

Barren

1990-2000 metres

Barren

2000-2010 metres

Barren

SWC 2002 metres

Barren

2010-2020 metres

Barren

2020-2030 metres

Barren

2030-2040 metres

Barren

2040-2050 metres

Barren

2050-2060 metres

Barren

2060-2070 metres

Barren

2070-2080 metres

indeterminate agglutinating forms (r)
crinoid stem (r)

2080-2090 metres

Barren

2090-2100 metres

crinoid stem (r)
ostracods (r)

2100-2110 metres

Barren

SWC 2101 metres

Barren

2110-2120 metres

Barren

2120-2130 metres

Barren

SWC 2127.5 metres

Barren

2130-2140 metres

?Forschia sp. (r)

2140-2150 metres

Haplophragmella sp. (r)

2150-2160 metres

Haplophragmella sp. (r)

2160-2170 metres

Barren

2170-2180 metres

Barren

2180-2190 metres

ostracods (r)

2190-2200 metres

Barren

2200-2210 metres

Barren

2210-2220 metres

Barren

2220-2230 metres

Barren

2230-2240 metres

Barren

2240-2250 metres

Barren

2250-2260 metres

Haplophragmella sp. (r)

2260-2270 metres

indeterminate agglutinating forms (r)
gastropods (r)

2270-2280 metres

Barren

2280-2290 metres

Barren

SWC 2289.4 metres

Barren

2290-2300 metres

Barren

SWC 2290 metres

Barren

SWC 2298.5 metres

Barren

2300-2310 metres

Barren

2310-2320 metres

Barren

2320-2330 metres

crinoid stem (r)

2330-2340 metres

Barren

2340-2350 metres

Barren

2350-2360 metres

Barren

2360-2370 metres

Barren

2370-2380 metres

Barren

2380-2390 metres

Barren

2390-2400 metres

ostracods (r)

2400-2410 metres

Barren

2410-2420 metres

Barren

2420-2430 metres

Barren

2430-2440 metres

Barren

2440-2450 metres

Barren

SWC 2441.5 metres

Barren

2450-2460 metres

Barren

2460-2470 metres

Barren

2470-2480 metres

Barren

2480-2490 metres

crinoid stem (r)

2490-2500 metres

Barren

SWC 2492.1 metres

Barren

2500-2510 metres

indeterminate agglutinating forms (r)

2510-2520 metres

indeterminate agglutinating forms (r)

2520-2530 metres

Barren

SWC 2525.5 metres

Barren

2530-2540 metres

indeterminate agglutinating forms (r)

2540-2550 metres

Barren

2550-2560 metres

Barren

2560-2570 metres

Barren

SWC 2561 metres

Barren

2570-2580 metres

Barren

2580-2590 metres

Barren

SWC 2585 metres

?Endothyranopsis sp. (r)
ostracods (r)

2590-2600 metres

Barren

2600-2610 metres

Barren

SWC 2600 metres

Barren

2610-2620 metres

ostracods (r)
crinoid stem (r)

SWC 2612.9 metres

Barren

SWC 2615 metres

Barren

SWC 2616.5 metres

Barren

2620-2630 metres

Barren

2630-2640 metres

Barren

SWC 2633 metres

Barren

2640-2650 metres

Barren

2650-2660 metres

Barren

2660-2670 metres

Barren

2670-2680 metres

Barren

2680-2690 metres

Barren

2690-2700 metres

Barren

2700-2710 metres

Barren

2710-2720 metres

Barren

SWC 2710 metres

Barren

2720-2730 metres

Barren

2730-2740 metres

Barren

2740-2750 metres

Barren

2750-2760 metres

Barren

2760-2770 metres

Barren

2770-2780 metres

Barren

2780-2790 metres

Barren

2790-2800 metres

Barren

2800-2810 metres

Barren

SWC 2809 metres

Barren

2810-2820 metres

Barren

2813 metres

Barren

2820-2830 metres

Barren

2830-2840 metres

Barren

2840-2850 metres

Barren

SWC 2848 metres

Barren

2850-2860 metres

Barren

2860-2870 metres

Barren

2870-2880 metres

Barren

2880-2890 metres

Barren

2890-2900 metres

Barren

SWC 2897.5 metres

Barren

2900-2910 metres

Barren

2910-2920 metres

Barren

2920-2930 metres

Barren

2930-2940 metres

Barren

2940-2950 metres

Barren

2950-2960 metres

Barren

2960-1970 metres

Barren

2970-2980 metres

Barren

2980-2990 metres

Barren

2990-3000 metres

Barren

3000-3010 metres

Barren

SWC 3001 metres

ostracods (r)

3010-3020 metres

Barren

SWC 3012.5 metres

Barren

3020-3030 metres

Barren

3030-3040 metres

Barren

3040-3050 metres

Barren

3050-3060 metres

Barren

3060-3070 metres

Barren

3070-3080 metres

Barren

SWC 3070 metres

Barren

SWC 3077 metres

Barren

3080-3090 metres

Barren

3090-3100 metres

Barren

3100-3110 metres

Barren

3110-3120 metres

Barren

3120-3130 metres

Barren

3130-3140 metres

Barren

3140-3150 metres

Barren

3150-3160 metres

Barren

3160-3170 metres

Barren

3170-3180 metres

Barren

3180-3190 metres

Barren

3190-3200 metres

Barren

3200-3210 metres

Barren

3210-3220 metres

Barren

3220-3230 metres

Barren

3230-3240 metres

Barren

3240-3250 metres

Barren

3250-3256.7 metres

Barren

17 August, 1994

FOSSIL RECORDING SYSTEM

GEOTECHNICAL SERVICES

SAMPLES SUMMARY

WELL NAME: KINGFISHER-1

ITEM NO	SAMPLE DEPTH	BARREN (Y/N)	SAMPLE TYPE
1	1745	Y	S.W.C.
3	1750	N	CUTTING
3	1750-1760	N	CUTTING
4	1760-1770	N	CUTTING
5	1766	Y	S.W.C.
6	1767.5	Y	S.W.C.
7	1769.5	Y	S.W.C.
8	1770-1780	N	CUTTING
9	1776	Y	S.W.C.
10	1780-1790	N	CUTTING
11	1785.5	Y	S.W.C.
12	1790-1800	N	CUTTING
13	1794.5	Y	S.W.C.
14	1795.5	Y	S.W.C.
15	1798.5	Y	S.W.C.
16	1799.5	Y	S.W.C.
17	1800-1810	N	CUTTING
18	1810-1820	N	CUTTING
19	1820-1830	Y	CUTTING
20	1830-1840	Y	CUTTING
21	1840-1850	Y	CUTTING
22	1841	Y	S.W.C.
23	1850-1960	Y	CUTTING
24	1860-1870	Y	CUTTING
25	1870-1880	Y	CUTTING
26	1878	Y	S.W.C.
27	1880-1890	Y	CUTTING
28	1884	Y	S.W.C.
29	1890-1900	Y	CUTTING
30	1900-1910	Y	CUTTING
31	1910-1920	N	CUTTING
32	1920-1930	Y	CUTTING
33	1930-1940	Y	CUTTING
34	1940-1950	Y	CUTTING
35	1950-1960	Y	CUTTING
36	1960-1970	Y	CUTTING
37	1964	Y	S.W.C.
38	1970-1980	Y	CUTTING
39	1980-1990	Y	CUTTING
40	1990-2000	Y	CUTTING
41	2000-2010	Y	CUTTING
42	2002	Y	S.W.C.
43	2010-2020	Y	CUTTING
44	2020-2030	Y	CUTTING
45	2030-2040	Y	CUTTING
46	2040-2050	Y	CUTTING
47	2050-2060	Y	CUTTING
48	2060-2070	Y	CUTTING

FOSSIL RECORDING SYSTEM

17 August, 1994

GEOTECHNICAL SERVICES

SAMPLES SUMMARY

WELL NAME: KINGFISHER-1

ITEM NO	SAMPLE DEPTH	BARREN (Y/N)	SAMPLE TYPE
49	2070-2080	N	CUTTING
50	2080-2090	Y	CUTTING
51	2090-2100	N	CUTTING
52	2100-2110	Y	CUTTING
53	2101	Y	S.W.C.
54	2110-2120	Y	CUTTING
55	2120-2130	Y	CUTTING
56	2127.5	Y	S.W.C.
57	2130-2140	N	CUTTING
58	2140-2150	N	CUTTING
59	2150-2160	N	CUTTING
60	2160-2170	Y	CUTTING
61	2170-2180	Y	CUTTING
62	2180-2190	N	CUTTING
63	2190-2200	Y	CUTTING
64	2200-2210	Y	CUTTING
65	2210-2220	Y	CUTTING
66	2220-2230	Y	CUTTING
67	2230-2240	Y	CUTTING
68	2240-2250	Y	CUTTING
69	2250-2260	N	CUTTING
70	2260-2270	N	CUTTING
71	2270-2280	Y	CUTTING
72	2280-2290	Y	CUTTING
73	2289.4	Y	S.W.C.
74	2290-2300	Y	CUTTING
75	2290	Y	S.W.C.
76	2298.5	Y	S.W.C.
77	2300-2310	Y	CUTTING
78	2310-2320	Y	CUTTING
79	2320-2330	N	CUTTING
80	2330-2340	Y	CUTTING
81	2340-2350	Y	CUTTING
82	2350-2360	Y	CUTTING
83	2360-2370	Y	CUTTING
84	2370-2380	Y	CUTTING
85	2380-2390	Y	CUTTING
86	2390-2400	N	CUTTING
87	2400-2410	Y	CUTTING
88	2410-2420	Y	CUTTING
89	2420-2430	Y	CUTTING
90	2430-2440	Y	CUTTING
91	2440-2450	Y	CUTTING
92	2441.5	Y	S.W.C.
93	2450-2460	Y	CUTTING
94	2460-2470	Y	CUTTING
95	2470-2480	Y	CUTTING
96	2480-2490	N	CUTTING

17 August, 1994

FOSSIL RECORDING SYSTEM

GEOTECHNICAL SERVICES

SAMPLES SUMMARY

WELL NAME: KINGFISHER-1

ITEM NO	SAMPLE DEPTH	BARREN (Y/N)	SAMPLE TYPE
97	2490-2500	Y	CUTTING
98	2492.1	Y	S.W.C.
99	2500-2510	N	CUTTING
100	2510-2520	N	CUTTING
101	2520-2530	Y	CUTTING
102	2525.5	Y	S.W.C.
103	2530-2540	N	CUTTING
104	2540-2550	Y	CUTTING
105	2550-2560	Y	CUTTING
106	2560-2570	Y	CUTTING
107	2561	Y	S.W.C.
108	2570-2580	Y	CUTTING
109	2580-2590	Y	CUTTING
110	2585	N	S.W.C.
111	2590-2600	Y	CUTTING
112	2600-2610	Y	CUTTING
113	2600	Y	S.W.C.
114	2610-2620	N	CUTTING
115	2612.9	Y	S.W.C.
116	2615	Y	S.W.C.
117	2616.5	Y	S.W.C.
118	2620-2630	Y	CUTTING
119	2630-2640	Y	CUTTING
120	2633	Y	S.W.C.
121	2640-2650	Y	CUTTING
122	2650-2660	Y	CUTTING
123	2660-2670	Y	CUTTING
124	2670-2680	Y	CUTTING
125	2680-2690	Y	CUTTING
126	2690-2700	Y	CUTTING
127	2700-2710	Y	CUTTING
128	2710-2720	Y	CUTTING
129	2710	Y	S.W.C.
130	2720-2730	Y	CUTTING
131	2730-2740	Y	CUTTING
132	2740-2750	Y	CUTTING
133	2750-2760	Y	CUTTING
134	2760-2770	Y	CUTTING
135	2770-2780	Y	CUTTING
136	2780-2790	Y	CUTTING
137	2790-2800	Y	CUTTING
138	2800-2810	Y	CUTTING
139	2809	Y	S.W.C.
140	2810-2820	Y	CUTTING
141	2813	Y	CONV. CORE
142	2820-2830	Y	CUTTING
143	2830-2840	Y	CUTTING
144	2840-2850	Y	CUTTING

17 August, 1994

FOSSIL RECORDING SYSTEM

GEOTECHNICAL SERVICES

SAMPLES SUMMARY

WELL NAME: KINGFISHER-1

ITEM NO	SAMPLE DEPTH	BARREN (Y/N)	SAMPLE TYPE
145	2848	Y	S.W.C.
146	2850-2860	Y	CUTTING
147	2860-2870	Y	CUTTING
148	2870-2880	Y	CUTTING
149	2880-2890	Y	CUTTING
150	2890-2900	Y	CUTTING
151	2897.5	Y	S.W.C.
152	2900-2910	Y	CUTTING
153	2910-2920	Y	CUTTING
154	2920-2930	Y	CUTTING
155	2930-2940	Y	CUTTING
156	2940-2950	Y	CUTTING
157	2950-2960	Y	CUTTING
158	2960-1970	Y	CUTTING
159	2970-2980	Y	CUTTING
160	2980-2990	Y	CUTTING
161	2990-3000	Y	CUTTING
162	3000-3010	Y	CUTTING
163	3001	N	S.W.C.
164	3010-3020	Y	CUTTING
165	3012.5	Y	S.W.C.
166	3020-3030	Y	CUTTING
167	3030-3040	Y	CUTTING
168	3040-3050	Y	CUTTING
169	3050-3060	Y	CUTTING
170	3060-3070	Y	CUTTING
171	3070-3080	Y	CUTTING
172	3070	Y	S.W.C.
173	3077	Y	S.W.C.
174	3080-3090	Y	CUTTING
175	3090-3100	Y	CUTTING
176	3100-3110	Y	CUTTING
177	3110-3120	Y	CUTTING
178	3120-3130	Y	CUTTING
179	3130-3140	Y	CUTTING
180	3140-3150	Y	CUTTING
181	3150-3160	Y	CUTTING
182	3160-3170	Y	CUTTING
183	3170-3180	Y	CUTTING
184	3180-3190	Y	CUTTING
185	3190-3200	Y	CUTTING
186	3200-3210	Y	CUTTING
187	3210-3220	Y	CUTTING
188	3220-3230	Y	CUTTING
189	3230-3240	Y	CUTTING
190	3240-3250	Y	CUTTING
191	3250-3256.7	Y	CUTTING

Total No. of Samples in this Well: 191
Total No. of Fossils in this Well: 79

Total No. of Barren Samples : 165
Total No. of Non-Barren Samples : 26