



PALYNOLOGICAL REPORT OF THE LINDON-1 WELL  
FOR BEACH PETROLEUM N/L

BY

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GEOLOGICAL SURVEY OF VICTORIA 1984

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Side wall core samples from the Lindon No. 1 well were examined for palynological dating purposes for Beach Petroleum N/L. The palynomorph yields for all samples were low, particularly for the deepest samples where a sparse yield was obtained at 2848m, and no yield was obtained at 3001.4m.

Above this at 2449m, the palynomorph assemblage is assignable to the D. speciosus Zone on the basis of the presence of P. notensis and D. speciosus. While the assemblage can be considered non-marine, the presence of a small number of acritarchs (Leiosphaeridia spp.) indicate an aquatic environment in the sediments. The number and diversity of the acritarchs increase going up through the sequence, indicating an increasing aquatic (brackish), influence (Burger 1980).

The samples at 1752.5m and 1237.5m are both non-marine, but contain a higher proportion of acritarchs than the deeper sample and the palynomorph yield is low and poorly preserved. The poor preservation and sparse yield of these samples allows only for a range of zones to be given. The sample at 1752.5m contains a corroded specimen of C. pseudotripartitus which together with F. asymmetricus limits the assemblage to the upper C. paradoxa - middle T. pannosus zones (Middle Albian - early Cenomanian).

The 1237.5m sample contains the species Cupuliferoidaepollenites cf. parvulus, an angiosperm which does not appear until the T. pannosus zone. The presence of K. jubatus restricts the assemblage to the T. pannosus - C. triplex zones (Late Albian - early Coniacian).

At 1223.1m the assemblage contains both dinoflagellates and spores and pollen, indicating a restricted marine environment. Reworking from the early Cretaceous C. paradoxa Zone is evident although this zone was not found in the samples examined. Permian reworking is also present. the assemblage contains frequent A. dilwynensis, an angiosperm which ranges from the A. distocarínatus Zone; (Cenomanian) and C. triplex which ranges from the C. triplex Zone (Turonian). The dinoflagellate species present indicate a Senonian age for the assemblage; restricted to the Santonian - early Campanian by the presence of Heterosphaeridium sp (Wilson & Clowes 1980).

At 1206.8m the sample contains dinoflagellate species which restrict the assemblage to the Santonian. The assemblage contains Heterosphaeridium spp., I. cretaceum and A. denticulata which are indicative of the I cretacea Zone. (Partridge et al, 1979 (Unpublished)).

The spore pollen zonation scheme used is that of Dettmann & Playford 1969. For the marine samples the dinoflagellate zonation scheme of Partridge et al 1979 (Unpublished) is used. The age of the sample at 1223.1m, while based on dinoflagellate species ranges, contained no index fossils for a particular zone and hence no zone is given. Both of the samples (1223.1 and 1206.8m) would be equivalent in age to the T. pachyexinus spore-pollen zone of Dettmann & Playford.

RESULTS OF THE PALYNOLOGICAL DATING OF LINDON-1 FOR BEACH PETROLEUM

SAMPLE DEPTH (m)	CONFIDENCE RATING	BIOSTRATIGRAPHIC ZONE	AGE
1206.8	1	<u>I.cretacea</u> zone	Santonian
1223.1	2	-	Santonian-Early Campanian
1237.5	2	<u>T.panosus</u> - <u>C.triplex</u> <i>P. panosus</i>	Late Albian - early Coniacian
1752.5	2	Upper <u>C. paradoxa</u> - mid <u>T. pannosus</u>	Middle Albian - early Cenomanian
2449	1	<u>D. speciosus</u> Zone	Neocomian - Early Albian
2848		Indeterminate	
3001.4		Barren-Indeterminate	

- RATINGS : 0 SWC or CORE, EXCELLENT CONFIDENCE, assemblage with zone species of spores, pollen and microplankton.
- 1 SWC or CORE, GOOD CONFIDENCE, assemblage with zone species of spores and pollen or microplankton.
- 2 SWC or CORE, POOR CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.
- 3 CUTTINGS; FAIR CONFIDENCE, assemblage with zone species of either spore and pollen or microplankton, or both.
- 4 CUTTINGS, NO CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.

## SPECIES LIST : LINDON NO. 1

	Depth(m)	1206.8m	1223.1	1237.5	1752.5	2449	2848
) Aequitriradites verrucosus					+	+	
Alisporites grandis					+	+	
A. similis						+	
Amosopollis dilwynensis			+				
Baculatisporites comaumensis						+	
Camarozonosporites sp.				+			
Ceratosporites equalis						+	
Clavifera triplex			+				
Cicatricosporites australiensis				+		+	
C. ludbrookiae						+	
C. pseudotripartitus					+		
C. of C. cuneiformis			+		+		
Classopollis cf. C. classoides				+	+	+	
) Cupuliferoidaepollenites cf parvulus				+			
Cyathidites australis			+	+	+	+	+
C. minor				+			
Dictyophyllidites sp.		+					
Dictyotosporites speciosus						+	
Foraminisporis asymmetricus					+		
F. dailyi						+	
Ginkgocycadophytus nitidus						+	
Gleicheniidites cf G. circinidites			+	+			
Klukisporites scaberis						+	
Kraeuselisporites jubatus				+			
Laevigatosporites ovatus			+				
) Leptolepidites verrucatus						+	
Lunatisporites sp.			R/W				
Lycopodiumsporites spp.				+		+	
Marsupipollenites triradiatus striatus			r/W				
Microcachyridites antarcticus			+	+			
Neoraistrickia truncatus						+	
Nothofagidites emarcidus/heterus				C			
Osmundacidites wellmanii				+			
Parasaccites gondwanensis			R/W	R/W			
Pilosporites grandis			R/W				
P. notensis						+	

	Depth(m)	1206.8m	1223.1	1237.5	1752.5	2449	2848
Podocarpidites cf P.ellipticus		+				+	+
Polycingulatisporites densatus					+		
Stereisporites antiquasporites				+	+		
Triporoletes radiatus					+		
Trisaccites microsaccatus		+		+		+	
Tsugaepollenites dampieri		+					

Dinoflagellates

Amphidiadema denticulata		+					
Chatangiella tripartita		+					
Cyclone pnelium distinctum			+				
Dinogymnium cf. D. nelsonense			+				
aff. Dioxya armata				+		+	
Heterosphaeridium conjunctum			+				
H. heteracanthum		+	+				
Impagidinium cf. I. margaritifera			+				
Isabelidinium belfastense		+					
I. cretaceum		+					
Odontichitina operculata			+				

Acritarchs

Leiosphaeridia spp.				+	+	+	
Micrhystridium sp.				+			

Unclassified palynomorphs

Schizosporis spp.			+	+		+	
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R/W - reworked

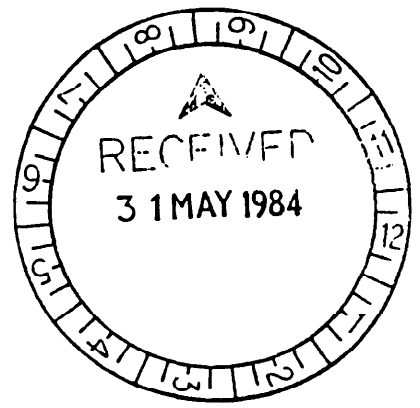
C - cavings, contamination

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PALYNOLOGICAL REPORT ON SAMPLES FROM THE  
LINDON NO 1 WELL

FOR BEACH PETROLEUM N L

V ARCHER/MAY 1984