A PALYNOLOGICAL ANALYSIS OF

ROCKLING-1, GIPPSLAND BASIN

by

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and

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I N T R O D U C T I O N

Thirty eight sidewall cores were processed and examined for palynology. Recovery was poor to fair for the most part, however, except for two samples, enough palynomorphs were extracted so that age determinations could be made.

Zones and lithological/facies subdivisions of the basal Lakes Entrance Formation and the Latrobe Group is summarized below. All samples examined are summarised in Table 1 and each occurrence for the individual species is tabulated in the distribution charts.

S U M M A R Y

UNIT/FACIES	ZONE	DEPTH (in metres)
LAKES ENTRANCE FORMATION Marl	P. tuberculatus	2475 - 2486m
GURNARD FORMATION	Upper ? N. asperus	2494m
Glauconitic Sandstone	Lower N. asperus	2495.5(?) - 2497m
─────────────────── UNCONFORMITY ───────────
LATROBE GROUP	Middle M. diversus	2500 - 2508.5m
Course Clastics	Lower? M. diversus	2512 - 2517.5m
	Lower M. diversus	2519 - 2584m
	Upper L. balmei	2609 - 2659.3m
──────────────── T.D.		2684m ───────

G E O L O G I C A L   C O M M E N T S

1. All Paleocene sediments (2609m to 2659m) are considered to belong to the Upper L. balmei Zone. The lack of markers for the Upper L. balmei below 2640m is believed to be due to poor fossil recovery and low species diversity, rather than to a change in age.

2. By including the unidentified sediments between the last Lower
    M. diversus identification (2584m) and the first positive L. balmei
    sample (2609m) as part of the Lower M. diversus beds, a thickness
    of approximately 90 metres is obtained for the Lower M. diversus
    section, which is similar to that found for West Halibut-1 and
    Fortescue-1.

3. The Lower M. diversus section is conformably overlain by less than
    20 metres of Middle M. diversus sediments.

4. A major unconformity situated between 2497m and 2500m separates
    the Middle M. diversus sediments and the N. asperus age Gurnard
    greensand.

5. The two lower samples from the Gurnard, 2497m and 2495.5m are Lower
    N. asperus in age, however, the next sample above, 2494m, appears to
    be as young as Upper N. asperus.

6. The sample from 2490m between the Lakes Entrance and Gurnard
    Formations is barren of diagnostic fossils and cannot be assigned
    to either with confidence.

DISCUSSION OF ZONES

The presence and distribution of this individual species is presented in
the distribution sheets. The basis for the zonation of this well section
is discussed below:

Upper Lygistepollenites balmei Zone: 2609 - 2659.3 metres.

The highest in-place occurrence of L. balmei, and below the last occurrence
of such Lower Eocene species as S. prominatus and M. diversus, is the basis
for picking the top of the L. balmei zone. The presence of such species as
Proteacidites grandis, P. incurvatus and P. annularis are considered
indicative that the enclosing sediments are no older than the Upper part of
the L. balmei Zone. As noted in the geological discussion, indicator
species for the Upper subzone were not found below 2631.5m but, because of
the paucity of the flora, this absence was not considered significant.

Wetzeliella hyperacantha Zone: 2562.5 - 2584 metres.

Wetzeliella hyperacantha is restricted to the lower part of the Lower
M. diversus Zone in this well, and was not found to extend into the
upper part of the Upper L. balmei sediments, as was noted in nearby
wells.

Lower Malvacipollis diversus Zone: 2514 - 2584 metres.

Sediments above the highest occurrence of L. balmei and including such
forms as S. prominatus, and M. diversus are evidence for a Lower
M. diversus or younger age. The scattered occurrence of Tetracolporites
multistrixus is used as evidence that this section belongs to the Lower
subdivision of the M. diversus Zone.

Lower ? Malvacipollis diversus Zone: 2512 - 2517.5 metres.

Although T. multistrixus is not found in this interval, the continued
upward occurrence of Deflandrea dartmooria and the lack of any M. diversus
Zone markers suggests that these beds may also be Lower M. diversus in age.

Middle Malvacipollis diversus Zone: 2500 - 2508.5 metres.

The negative evidence of the lack of such important Lower M. diversus Zone
indicator species as T. multistrixus and the overall similarity of the
assemblages to those in samples from the Middle M. diversus Zone in
adjacent wells is our justification for referring this section to the
Middle M. diversus Zone. Although the evidence is weak, and hence the
zone assignment can only be given a 2 confidence rating, there is no doubt
that the section is of Early Eocene age and that it can be no younger than
the Middle M. diversus Zone. Even though the sidewall cores from this
interval are very badly contaminated with Lakes Entrance Formation fossils
which are suspected to be derived from dissolution and remobilisation of
this formation by the drilling mud.

Lower Nothofagidites asperus Zone: 2497 - 2495.5 metres.

The common occurrence of the dinoflagellate Areosphaeridium dictyoplokus
in the Lower sample confirms the presence of the Lower N. asperus Zone.
The higher sample contains a more limited and less diagnostic assemblage,
however the presence of a possible specimen of Corrudinium incompositum
suggests that this sample could be as young as the Middle N. asperus Zone.

Upper? <u>Nothofagidites asperus</u> Zone : 2494 metres.

The assignment of this flora to the "Upper" part of the <u>N</u>. <u>asperus</u> zone
is based primarily on negative evidence. The Lower <u>N</u>. <u>asperus</u> index,
<u>A</u>. <u>dictyoplokus</u>, which was common in one of the samples below is not
present in this flora: neither are any of the other Lower or Middle
<u>N</u>. <u>asperus</u> markers. At the same time, these palynomorphs are distinct
from the overlying Lakes Entrance Formation assemblages.

<u>Proteacidites tuberculatus</u> Zone: 2475 - 2486 metres.

<u>Cyatheacidites annulatus</u> and the several index species of <u>Dinospherea</u>
were present throughout this section and indicate that these sediments
are Post-Eocene and belong to the Lakes Entrance Formation.

P A L Y N O L O G Y   D A T A   S H E E T

BASIN: **GIPPSLAND** ELEVATION: KB: **31** GL: **69**

WELL NAME: **ROCKLING-1** TOTAL DEPTH: **2684**

AGE	PALYNOLOGICAL ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time	Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time
NEOGENE	T. pleistocenicus										
	M. lipsis										
	C. bifurcatus										
	T. bellus										
PALEOGENE	P. tuberculatus	2475	O				2486	O			
	Upper N. asperus	2494	2				2494	2			
	Mid N. asperus	2495.5	2	2497	1		2497	1			
	Lower N. asperus										
	P. asperopolus										
	Upper M. diversus										
	Mid M. diversus	2500	2				2508.5	2			
	Lower M. diversus	2512	2	2519	1		2584	1			
	Upper L. balmei	2609	1				2659.3	2	2631.5	1	
	Lower L. balmei										
LATE CRETACEOUS	T. longus										
	T. lilliei										
	N. senectus										
	U. T. pachyexinus										
	L. T. pachyexinus										
	C. triplex										
	A. distocarinatus										
EARLY CRET.	C. paradoxus										
	C. striatus										
	F. asymmetricus										
	F. wonthaggiensis										
	C. australiensis										
	PRE-CRETACEOUS										

COMMENTS: <u>Wetzeliella hyperacantha</u> Zone : 2562.5 - 2584 metres.

CONFIDENCE RATING:

O: SWC or Core, <u>Excellent Confidence</u>, assemblage with zone species of spores, pollen and microplankton.

1: SWC or Core, <u>Good Confidence</u>, assemblage with zone species of spores and pollen or microplankton.

2: SWC or Core, <u>Poor Confidence</u>, assemblage with non-diagnostic spores, pollen and/or microplankton.

3: Cuttings, <u>Fair Confidence</u>, assemblage with zone species of either spores and pollen or microplankton, or both.

4: Cuttings, <u>No Confidence</u>, assemblage with non-diagnostic spores, pollen and/or microplankton.

NOTE: If an entry is given a 3 or 4 confidence rating, an alternative depth with a better confidence rating should be entered, if possible. If a sample cannot be assigned to one particular zone, then no entry should be made, unless a range of zones is given where the highest possible limit will appear in one zone and the lowest possible limit in another.

DATA RECORDED BY: **H.E. STACY** DATE: **MARCH 20, 1979**

DATA REVISED BY: _____ DATE: _____

Well Name ROCKLING-1   Basin GIPPSLAND   Sheet No. 1 of 8

SAMPLE TYPE *	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
DEPTHS / PALYNOMORPHS	2475	2482	248	2486	2490	2494	2495.5	2497	2500	2503	2505	2507	2508.5	2512	2514	2516	2517.5	2519	2521.5	2542.5	2544.5	2547.5	2553	2557.3	2562.5	2576	2582	2584
A. qualumis																												
A. acutullus																												
A. luteoides																												
A. oculatus																												
A. sectus																												
A. triplaxis																												
A. obscurus																												
B. disconformis																												/
B. arcuatus																												
B. elongatus										/							/				/				/			
B. mutabilis																		/										
B. otwayensis																												
B. elegansiformis																												
B. trigonalis																												
B. verrucosus																												
B. bombaxoides																												
B. emaciatus																												
C. bullatus																												
C. heskermensis																												
C. horrendus																												
C. meleosus																												
C. apiculatus						/																						
C. leptos																												
C. striatus																												
C. vanraadshoovenii																												
C. orthoteichus/major										/																		
C. annulatus	/	/	/	/					/	/																		
C. gigantis																												cf
C. splendens									/	/		/	/				/	/	/	/	/	/	/	/	/	/	/	/
D. australiensis				/																								
D. granulatus					/			/	/	/	/					/		/		/		/			/	/	/	
D. tuberculatus																												
D. delicatus								/																				
D. semilunatus																												
E. notensis																												
E. crassiexinus																												
F. balteus																												
F. crater																												
F. lucunosus																												
F. palaequetrus																												
G. edwardsii																					/							
G. rudata																												
G. divaricatus																												
G. gestus																												
G. catathus																												
G. cranwellae																												
G. wahooensis																	cf											
G. bassensis																												
G. nebulosus																												
H. harrisii				/		/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/		/
H. astrus																												
H. elliottii				/																								
I. anquloclavatus											/														/			
I. antipodus											/																	
I. notabilis														/														
I. gremius																												
I. irregularis		/	/ cf.	/																					/			
J. peiratus																												
K. waterbolkii																												
L. amplus																												
L. crassus											/																	
L. ohaiensis																												
L. bainii																												
L. lanceolatus																												
L. balmei																												?
L. florinii	/					/			/	/	/			/			/	/			/				/	/		/
M. diversus																		/				/						/
M. duratus																												
M. grandis																												
M. perimagnus																												

*C = core; S = sidewall core; T = cuttings.

Well Name __ROCKLING-1__   Basin __GIPPSLAND__   Sheet No. _2_ of _8_

PALYNOMORPHS / DEPTHS (Sample Type: all S)	2475	2482	248	2486	2490	2494	2495.5	2497	2500	2503	2505	2507	2508.5	2512	2514	2516	2517.5	2519	2521.5	2542.5	2544.5	2547.5	2553	2557.3	2562.5	2576	2582	2584
M. subtilis							/			/			/						/	/		/	/	/				
M. ornamentalis						/																						
M. hypolaenoides																												
M. homeopunctatus																												
M. parvus/mesonesus								/		/				/														
M. tenuis																												
M. verrucosus																												
M. australis						/																						
N. asperus																												
N. asperoides																												
N. brachyspinulosus										/	/						/											
N. deminutus	/			/	/			/	/																			
N. emarcidus/heterus	/	/		/	/			/		/								/	/	/	/		/					
N. endurus																												
N. falcatus													cf.															
N. flemingii						/				/	/			/	/	/		/	/	/		/						
N. goniatus																									/			
N. senectus																												
N. vansteenisii								/																				
O. sentosa																												
P. ochesis																												
P. catastus																												
P. demarcatus													/						/			/						
P. magnus																												
P. polyoratus										/			/			/		/		/	/							
P. vesicus																												
P. densus																												
P. velosus																												
P. morganii/jubatus																												
P. mawsonii	/				/	/				/			/		/	/		/	/		/	/	/	/				/
P. reticulosaccatus																												
P. verrucosus																												
P. crescentis																												
P. esobalteus																						/	/					
P. langstonii																												
P. reticulatus																												
P. simplex																												
P. varus																												/
P. adenanthoides (Prot.)								/	/	/			/	/	/	/		/	/		/	/	/					
P. alveolatus																												
P. amolosexinus																												
P. angulatus																												
P. annularis								/	/		/							/	/		/	/	/	/				
P. asperopolus																												
P. biornatus										/																		
P. clarus										/																		
P. cleinei																												
P. confragosus																												
P. crassis																	cf.											
P. delicatus																												
P. formosus																								/				
P. grandis								/	/		/		/	/				/	/	/	/	/	/	/	/			
P. grevillaensis																												
P. incurvatus																		/			/	/	/					
P. intricatus										/																		
P. kopiensis								/																				
P. lapis													/								/		/	/				
P. latrobensis																												
P. leightonii																												
P. obesolabrus																												
P. obscurus																				/		/	/					
P. ornatus																						cf.						
P. otwayensis																												
P. pachypolus																												
P. palisadus																												
P. parvus																												
P. plemmelus													/		/													
P. prodigus				/						/	/																	
P. pseudomoides								/		/	/			/	/				/	/	/	/						
P. recavus																												

*C = core; S = sidewall core; T = cuttings.

Well Name ROCKLING-1 **Basin** GIPPSLAND **Sheet No.** 3 of 8

SAMPLE TYPE *	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
DEPTHS ↘ PALYNOMORPHS	2475	2482	248	2486	2490	2494	2495.5	2497	2500	2503	2505	2507	2508.5	2512	2514	2516	2517.5	2519	2521.5	2542.5	2544.5	2547.5	2553	2557.3	2562.5	2576	2582	2584
P. rectomarginis																												
P. reflexus																												
P. reticulatus																												
P. reticuloconcavus																												
P. reticuloscabratus																												
P. rugulatus																												
P. scitus																												
P. stipplatus																												
P. tenuiexinus																	/	/			/	/	/					
P. truncatus																												
P. tuberculatus																												
P. tuberculiformis																												
P. tuberculotumulatus																												
P. xestoformis (Prot.)																												
O. brossus																												
R. boxatus																												
R. stellatus																												
R. mallatus																		/			/	/	/					/
R. trophus																												
S. cainozoicus																												
S. rotundus																												/
S. digitatoides																												/
S. marlinensis																										/		
S. rarus																												
S. meridianus							/			/							/	/	/		/							/
S. prominatus																								/				/
S. uvatus																												
S. punctatus								/		/			/				/											
S. regium																												
T. multistrixus (CP4)																	/		/			/	/					
T. textus																												
T. verrucosus																												
T. securus																												
T. confessus (C3)																												
T. gillii																												
T. incisus																												
T. longus																												
T. phillipsii																	/						/	/	/			
T. renmarkensis																												
T. sabulosus																												
T. simatus																												
T. thomasii																												
T. waiparaensis																												
T. adelaidensis (CP3)																/			/									
T. angurium															cf.													
T. delicatus																												
T. geraniodes																												
T. leuros																												
T. lilliei																												
T. marginatus																												
T. moultonii																		/							/			
T. paenestriatus																	/											
T. retequetrus																												
T. scabratus																												
T. sphaerica																												
T. magnificus (P3)																												
T. spinosus																												
T. ambiguus																										/		
T. chnosus																												
T. helosus																												
T. scabratus																												
T. sectilis																												
V. attinatus																												
V. cristatus																												
V. kopukuensis						/												/						/			/	

*C = core; S = sidewall core; T = cuttings.

Well Name ROCKLING-1   **Basin** GIPPSLAND   **Sheet No.** 4 of 8

PALYNOMORPHS / DEPTHS	2475	2482	2484	2486	2490	2494	2495.5	2497	2500	2503	2505	2507	2508.5	2512	2514	2516	2517.5	2519	2521.5	2542.5	2544.5	2547.5	2553	2557.3	2562.5	2576	2582	2584
SAMPLE TYPE *	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Operc. brevum	/																											
Syst. placacantha	/																												
Tuber. vancompoae	/																												
Linq. machaerophorum	/					/																						
H'Kolpoma rugaudae	/					/	/																					cf
Dinosph. simplex	/	/						/																				
Dinosphere sp.	/							/	/	/																		
Operc. centrocarpum	/	/	/	/	/	/	/		/	/				/				/										
Batiacasphaera sp.		/																										
Leptodinium sp.		/																										
Spin. ramosa		/		/													/	/								/		
Dinosph. pontus				/				/			/		cf															
Acritarch, LEOS type				/																								
Defl. obliquipes				/																								
Emsland. australina				/				/																				
Defl. spp.				/																								
Dinosph. scabroellipticus							/																					
Homotryb. tasmaniense							/																					
Homotryblium sp.							/																					
Corrud. incompositum							/																					
Phthanoperidinium sp.							/																					
Tectat. marlum							/																					
Areosph. diktyoplokus								/																				
Hemicystodinium sp.								/																				
Cleistosphaeridium sp.								/																				
Reticulodinium sp.								/																				
Nematosph. balcombiana								/																				
Defl. flounderensis								/																				
Spiniferites sp.								/								/												
Spinidinium spp.											/		/	/														
Paral. indentata											/		/	/	/			/									/	
Paleocyst. australinium											/		/					/										
Heter. paxilla											/		/															
Bitectatodinium sp.											/																	
Senon. morayensis											/			/														
Penta laticinctum											/																	
Defl. dartmooria													/			/	/											
Hystr. tubiferum													/	/														
Adnato. recticulense														/				/										
Dyphes colligerum																/	/											
Thal. pelagica																/										/		
Tubiosph. filosa																cf		/										
Apect.(W) homomorpha(l.s.)																		/								/		/
Apect.(W) hyperacantha																										/		/
Ken. pachycerata																										/		

* C = core; S = sidewall core; T = cuttings.

Well Name ROCKLING-1 **Basin** GIPPSLAND **Sheet No.** 5 **of** 8

SAMPLE TYPE *	S	S	S	S	S	S	S	S	S	S
DEPTHS / PALYNOMORPHS	2609	2616	2618	2631.5	2640	2644.5	2646	2652.5	2656	2659.3
A. qualumis										
A. acutullus										
A. luteoides										
A. oculatus										
A. sectus										
A. triplaxis										
A. obscurus				/		/				
B. disconformis		/								
B. arcuatus										
B. elongatus										
B. mutabilis										
B. otwayensis										
B. elegansiformis										
B. trigonalis										
B. verrucosus										
B. bombaxoides										
B. emaciatus										
C. bullatus										
C. heskermensis										
C. horrendus										
C. meleosus										
C. apiculatus										
C. leptos										
C. striatus										
C. vanraadshoovenii										
C. orthoteichus/major										
C. annulatus				/						
C. gigantis		/								
C. splendens		/		/	/			/		
D. australiensis										
D. granulatus	/	/		/		/				
D. tuberculatus										
D. delicatus										
D. semilunatus										
E. notensis										
E. crassiexinus										
F. balteus										
F. crater										
F. lucunosus										
F. palaequetrus										
G. edwardsii		/		/						
G. rudata										
G. divaricatus										
G. gestus										
G. catathus										
G. cranwellae										
G. wahooensis										
G. bassensis										
G. nebulosus										
H. harrisii	/	/	/	/		/	/	/	/	
H. astrus										
H. elliottii										
I. anguloclavatus										
I. antipodus										
I. notabilis										
I. gremius										
I. irregularis									/		
J. peiratus										
K. waterbolkii										
L. amplus										
L. crassus										
L. ohaiensis										
L. bainii										
L. lanceolatus										
L. balmei	/	/		/	/	/	/	/		
L. florinii	/	/		/	/	/		/		
M. diversus										
M. duratus										
M. grandis										
M. perimagnus										

*C = core; S = sidewall core; T = cuttings.

Well Name __ROCKLING-1__ Basin __GIPPSLAND__ Sheet No. _6_ of _8_

SAMPLE TYPE *	S	S	S	S	S	S	S	S	S	S
DEPTHS / PALYNOMORPHS	2609	2616	2618	2631.5	2640	2644.5	2646	2652.5	2656	2659.3
M. subtilis	/	/								
M. ornamentalis										
M. hypolaenoides										
M. homeopunctatus										
M. parvus/mesonesus						/				
M. tenuis										
M. verrucosus										
M. australis										
N. asperus		/								
N. asperoides										
N. brachyspinulosus		/				/				
N. deminutus										
N. emarcidus/heterus				/						
N. endurus										
N. falcatus										
N. flemingii		/				/	/			
N. goniatus										
N. senectus										
N. vansteenisii										
O. sentosa										
P. ochesis										
P. catastus										
P. demarcatus										
P. magnus										
P. polyoratus		/	/			/				
P. vesicus										
P. densus										
P. velosus										
P. morganii/jubatus										
P. mawsonii	/	/		/	/	/		/		
P. reticulosaccatus										
P. verrucosus										
P. crescentis										
P. esobalteus										
P. langstonii										
P. reticulatus										
P. simplex										
P. varus										
P. adenanthoides (Prot.)	/	/				/				
P. alveolatus										
P. amolosexinus										
P. angulatus										
P. annularis		/		/	/					
P. asperopolus										
P. biornatus										
P. clarus										
P. cleinei										
P. confragosus										
P. crassis										
P. delicatus										
P. formosus										
P. grandis		/								
P. grevillaensis										
P. incurvatus	/			/						
P. intricatus										
P. kopiensis										
P. lapis	/									
P. latrobensis										
P. leightonii										
P. obesolabrus										
P. obscurus										
P. ornatus										
P. otwayensis										
P. pachypolus										
P. palisadus										
P. parvus										
P. plemmelus										
P. prodigus										
P. pseudomoides								/		
P. recavus										

*C = core; S = sidewall core; T = cuttings.

Well Name ___ROCKLING-1___   Basin __GIPPSLAND__   Sheet No. _8_ of _8_

SAMPLE TYPE *	S	S	S	S	S	S	S	S	S	S
DEPTHS / PALYNOMORPHS	2609	2616	2618	2631.5	2640	2644.5	2646	2652.5	2656	2659.3
Spinidinium sp.	X	X				X				
Apect (W) homomorpha(l.s.)	X	X								
Deflandrea sp.										
Spiniferites sp.	X	X								
Apect (W) homomorpha(s.s.)						X				
Defl. dartmooria	X					X				
Operc. centrocarpum	X	X		X						
Ling. machaerophorum		X								
Dinosphaere simplex		X								
Tect. scabroellipticus		X								

*C= core; S= sidewall core; T= cuttings.

T A B L E   1:

SUMMARY OF PALEONOLOGICAL ANALYSES, ROCKLING-1, GIPPSLAND BASIN.

SAMPLE	DEPTH (m)	DEPTH (ft)	ZONE	AGE	CONFIDENCE RATING	YIELD	DIVERSITY	COMMENTS
SWC 75	2475	8120	P. tuberculatus	Oligo-Miocene?	O	Low	Moderate	
SWC 72	2482	8143	P. tuberculatus	Oligo-Miocene?	O	Low	Moderate	
SWC 71	2484	8153	P. tuberculatus	Oligo-Miocene?	1	Very low	Very Poor	Almost barren, but C. annulatus present
SWC 70	2486	8156	P. tuberculatus	Oligo-Miocene?	O	Very low	Poor	
SWC 68	2490	8169	Indeterminate	–	–	Very low	Very Poor	Almost barren.
SWC 66	2494	8182	Upper? N. asperus	Late Eocene	2	Low	Moderate	
SWC 30	2495.5	8187	Lower N. asperus	Middle Eocene	2	Low	High	
SWC 65	2497	8192	Lower N. asperus	Middle Eocene	1	Low	Moderate	A. dictyoplokus
SWC 64	2500	8202	Middle M. diversus	Early Eocene	2	Fair	Poor	Badly contaminated, D. flounderensis
SWC 63	2503	8212	Middle M. diversus	Early Eocene	2	Fair	Moderate	
SWC 62	2505	8219	Middle M. diversus	Early Eocene	2	Low	Poor	Badly contaminated
SWC 61	2507	8225	Middle M. diversus	Early Eocene	2	Low	Moderate	P. biornatus
SWC 29	2508.5	8230	Middle M. diversus	Early Eocene	2	Low	Moderate	I. intipodicus
SWC 59	2512	8241	Lower? M. diversus	Early Eocene	2	Fair	Moderate	Numerous dinoflagellates, Defl. dartmooria
SWC 58	2514	8248	Lower? M. diversus	Early Eocene	2	Fair	Moderate	
SWC 57	2516	8255	Lower? M. diversus	Early Eocene	2	Low	Poor	
SWC 28	2517.5	8260	Lower? M. diversus	Early Eocene	2	Fair	Moderate	
SWC 56	2519	8264	Lower M. diversus	Early Eocene	1	Good	High	T. multistrixus
SWC 55	2521.5	8273	Lower M. diversus	Early Eocene	1	Low	Poor	
SWC 24	2542.5	8342	Lower M. diversus	Early Eocene	1	Good	Moderate	
SWC 23	2544.5	8348	Lower M. diversus	Early Eocene	1	Good	Moderate	
SWC 22	2547.5	8358	Lower M. diversus	Early Eocene	1	Good	High	T. multistrixus
SWC 21	2553	8376	Lower M. diversus	Early Eocene	1	Good	High	T. multistrixus
SWC 20	2557.3	8390	Lower M. diversus	Early Eocene	1	Good	High	S. prominatus
SWC 19	2562.5	8407	Lower M. diversus	Early Eocene	1	Good	High	A. hyperacantha
SWC 18	2576	8451	Lower M. diversus	Early Eocene	2	Low	Very Poor	
SWC 17	2582	8471	Lower M. diversus	Early Eocene	1	Low	Poor	S. prominatus
SWC 16	2584	8478	Lower M. diversus	Early Eocene	1	Low	High	A. hyperacantha, S. prominatus, L.balmei (RW)
SWC 14	2609	8560	Upper L. balmei	Paleocene	1	Fair	Moderate	A. homomorpha
SWC 12	2616	8583	Upper L. balmei	Paleocene	1	Good	Moderate	P. grandis
SWC 11	2618	8589	Indeterminate	–	–	Low	Poor	P. tuberculatus flora only
SWC 9	2631.5	8634	Upper L. balmei	Paleocene	1	Low	Poor	
SWC 7	2640	8661	Upper? L. balmei	Paleocene	2	Low	Poor	
SWC 6	2644.5	8676	Upper? L. balmei	Paleocene	2	Low	Poor	
SWC 5	2646	8681	Upper? L. balmei	Paleocene	2	Low	Poor	
SWC 4	2652.5	8702	Upper? L. balmei	Paleocene	2	Low	Poor	
SWC 3	2656	8714	Upper? L. balmei	Paleocene	2	Fair	Poor	
SWC 2	2659.3	8725	Upper? L. balmei	Paleocene	2	Low	Very Poor	