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APPENDIX

PALYNOLOGICAL ANALYSIS OF
PERCH-2, GIPPSLAND BASIN

by

M.K. Macphail

Esso Australia Ltd.

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INTRODUCTION

Nineteen sidewall cores samples and three conventional core samples were processed and analysed for spore-pollen and dinoflagellates. Although recovery and preservation were adequate throughout, relatively few samples contained zone indicator species. Consequently many age determinations are of low confidence.

Lithological units and palynological zones from the base of the Lakes Entrance Formation to T.D. are summarized below. Anomalous and unusual occurrences of taxa are listed in Table 2. Basic data are given in Table 3.

SUMMARY

AGE	UNIT	ZONE	DEPTH (m)
Early Oligocene -Early Miocene	Lakes Entrance Formation	<u>P. tuberculatus</u>	1111.5
-----log break at 1119.0m-----			
Late Eocene	Unnamed marl	Upper <u>N. asperus</u>	1119.2-1126.2
-----log break at 1137.0m-----			
Late Eocene	Gurnard Formation equivalent	Middle <u>N. asperus</u>	1142.0
-----log break at 1144.25m-----			
Late Eocene	Latrobe Group coarse clastics	Middle <u>N. asperus</u> Lower <u>N. asperus</u>	1168.3 1175.0-1299.0
			T.D. 1321m

GEOLOGICAL COMMENTS

1. The Perch-2 well contains a continuous sequence of zones from the Middle Eocene, Lower N. asperus Zone to the Early Oligocene, P. tuberculatus Zone.

2. A highly calcareous siltstone dated as Upper N. asperus Zone occurs near the base of the Lakes Entrance Formation (SWC 26, 1119.2m). Sediments at 1125.2m, above Top of Latrobe picked on logs as occurring at 1137.0m, are also calcareous and Upper N. asperus Zone in age. Glauconite is rare. Log data indicate both samples are part of the same unit, extending from 1137.0m to 1119.0m. Essentially the same sequence of Upper N. asperus Zone facies extends across the picked Top of Latrobe in Palmer-1 and may be present in the unsampled interval above 3750 ft in Perch-1 (see Stacy 1982). The Upper N. asperus Zone calcareous shale unit in Perch-2, cited here as an unnamed marl, may be the equivalent of the glauconite-free marl occurring between 6700 and 6820 ft in Bullseye-1.

3. The unnamed marl is underlain by a non-calcareous siltstone, defined by the gamma ray spike between 1137.0 and 1144.5m. This siltstone which contains rare glauconite but abundant fine pyrite, is Middle N. asperus Zone in age and is likely to be the time equivalent of the Gurnard Formation in adjacent wells. The absence of moderate to abundant pelletal glauconite in Perch-2 is in marked contrast to Palmer-1, where a 27m thick greensand of Middle N. asperus zone age is recorded (Stacy ibid). Greensands are also present in the top section of a core taken in Perch-1 (3720-3722.5 ft, 1133.9-1134.6m). The actual thickness of greensands in this well (Perch-1) is unknown but possibly up to 31m given that the Top of Latrobe picked on logs is at 1103.5m. Removal by erosion of a greensand of this thickness at Perch-2 is considered highly unlikely and a more realistic explanation is that a thin greensand, associated with a marked gamma kick between 1128.5 and 1134.5m in Perch-1, is either absent or, less likely, was not sampled in the equivalent unit between 1140 and 1144.5m in Perch-2.

BIOSTRATIGRAPHY

Zone boundaries have been established using the criteria of Stover and Partridge (1973) and subsequent proprietary revisions.

Lower Nothofagidites asperus Zone: 1175.0m - 1299.0m.

The base of the zone is provisionally picked at 1299.0m on the occurrence of the rare species Proteacidites reflexus. The sample concerned is a coal containing a Phyllocladidites mawsonii-Proteacidites-Clavifera triplex palynoflora. The coal at 1295m contains a Nothofagidites-dominated palynoflora in which Clavifera triplex and Proteacidites recavus are frequent. A more reliable lower boundary for the zone is at 1278.0m, a sample containing frequent Proteacidites asperopolus and Nothofagidites.

Tricolporites leuros, which usually first appears in this zone, is present at 1256.2m. The upper boundary is picked at 1175.0m, the highest sample lacking species diagnostic or typical of the Middle N. asperus Zone. Nothofagidites falcatus shows this sample is no older than Lower N. asperus Zone in age.

Middle Nothofagidites asperus Zone: 1142.0-1168.3m.

This interval is characterised by assemblages containing only the general N. asperus Zone indicators, e.g. frequent to abundant Nothofagidites spp. The base of the zone is provisionally picked at 1168.3m, a sample containing abundant Vozzhenikovia extensa. The upper boundary is defined by the only occurrence of the zone indicator species Triorites magnificus in this well.

Upper Nothofagidites asperus Zone: 1119.2-1126.2m.

Two samples are assigned to this zone on the absence of indicator species of the Middle N. asperus Zone or the P. tuberculatus Zone. Although the majority of the dinoflagellates could not be identified, the assemblages resemble those recorded elsewhere in latest Eocene - Early Oligocene sediments. The sample at 1126.2m contains Stereisporites punctatus, a spore which is last recorded in this zone, and Proteacidites tuberculatus a species which first appears in the uppermost Middle N. asperus Zone. Other species which also first appear in the uppermost Middle N. asperus Zone are present at 1119.2m - Proteacidites rectomarginis and Verrucosisporites cristatus. An occurrence of the very rare species, Proteacidites truncatus in this sample extends the known range of the species from the Middle Miocene, I. bellus Zone to the Upper N. asperus Zone in the Gippsland Basin. P. truncatus occurs in Middle N. asperus Zone sediments in the Bass Basin.

Proteacidites tuberculatus Zone: 1111.5m.

Occurrence of Cyatheacidites annulatus and Protoellipsodinium simplex confirm a P. tuberculatus zone age for this sample J-1 Zone foraminifera demonstrate that this sample is Early Oligocene (M.J. Hannah pers. comm.).

REFERENCES

STACEY, H.E. (1982). Palynological Analysis of Palmer-1, Gippsland Basin.

Esso Australia Ltd Palaeontology Report 1982/9.

STOVER, L.E. & Partridge, A.D. (1973). Tertiary and Late Cretaceous spores and pollen from the Gippsland Basin, Southeastern Australia. Proc. Roy. Soc. Vict., 85, 237-86.

TABLE 1: SUMMARY OF INTERPRETATIVE PALYNOLOGICAL DATA

PERCH-2

p. 1 of 2

SAMPLE NO.	DEPTH (m)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE	AGE	CONFIDENCE RATING	COMMENTS
SWC 27	1111.5	<u>P. tuberculatus</u>	-	Early Miocene	0	<u>C. annulatus</u>
SWC 26	1119.2	Upper <u>N. asperus</u>	-	Late Eocene	1	<u>P. rectomarginis</u> , <u>P. tuberculatus</u> <u>V. cristatus</u>
SWC 25	1126.2	Upper <u>N. asperus</u>	-	Late Eocene	1	<u>P. tuberculatus</u> , <u>S. punctatus</u>
SWC 23	1142.0	Middle <u>N. asperus</u>	? <u>C. incompositum</u>	Late Eocene	0	<u>T. magnificus</u> , <u>C. corrugatum</u>
Core 2	1155.85	No older than Lower <u>N. asperus</u> Zone			-	<u>N. falcatus</u>
Core 2	1156.65	No older than Lower <u>N. asperus</u> Zone			-	<u>N. falcatus</u>
Core 2	1158.30	No older than Lower <u>N. asperus</u> Zone			-	<u>N. falcatus</u> , <u>V. extensa</u>
SWC 17	1168.3	Middle <u>N. asperus</u>	-	Late Eocene	2	Abundant <u>V. extensa</u>
SWC 16	1175.0	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>N. falcatus</u> , <u>M. homeopunctatus</u>
SWC 13	1201.8	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>N. falcatus</u>
SWC 12	1212.0	Lower <u>N. asperus</u>	-	Middle Eocene	2	Frequent-common <u>Nothofagidites</u>
SWC 11	1228.5	Lower <u>N. asperus</u>	-	Middle Eocene	2	Frequent-common <u>Nothofagidites</u>
SWC 10	1240.7	Lower <u>N. asperus</u>	-	Middle Eocene	2	Frequent-common <u>Nothofagidites</u>
SWC 9	1250.2	Lower <u>N. asperus</u>	-	Middle Eocene	1	<u>P. asperopolus</u> , abundant <u>Nothofagidites</u>
SWC 7	1254.5	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>Nothofagidites</u> common
SWC 8	1256.2	Lower <u>N. asperus</u>	-	Middle Eocene	1	<u>Nothofagidites</u> common, <u>T. leuros</u>

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TABLE 1: SUMMARY OF INTERPRETATIVE PALYNOLOGICAL DATA

PERCH-2

p. 2 of 2

SAMPLE NO.	DEPTH (m)	SPORE-POLLEN ZONE	DINOFLLAGELLATE ZONE	AGE	CONFIDENCE RATING	COMMENTS
SWC 6	1278.0	Lower <u>N. asperus</u>	-	Middle Eocene	1	Frequent <u>Nothofagldites</u> and <u>P. asperopolus</u>
SWC 5	1288.0	Indeterminate	-	-	-	
SWC 4	1295.0	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>Nothofagldites</u> and <u>P. recavus</u> frequent (coal palynoflora)
SWC 3	1299.0	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>P. reflexus</u> (coal palynoflora)
SWC 2	1299.5	No older than <u>P. asperopolus</u> Zone			-	<u>P. recavus</u>

TABLE 2

ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE-POLLEN AND DINOFLAGELLATE TAXA

p. 1 of 2

SAMPLE NO.	DEPTH(m)	ZONE	TAXON	COMMENTS
SWC 26	1119.2	Upper <u>N. asperus</u> (1)	<u>Phyllocladidites palaeogenicus</u>	Uncommon sp.
SWC 26	1119.2	Upper <u>N. asperus</u> (1)	<u>Proteacidites truncatus</u>	Very rare sp.
SWC 26	1119.2	Upper <u>N. asperus</u> (1)	<u>Verrucosiporites cristatus</u>	Very rare sp.
SWC 25	1126.2	Upper <u>N. asperus</u> (1)	<u>Proteacidites tuberculatus</u>	Uncommon sp.
SWC 25	1126.2	Upper <u>N. asperus</u> (1)	<u>Stereisporites punctatus</u>	Top of range of species
SWC 25	1126.2	Upper <u>N. asperus</u> (1)	<u>Beaupreadites elegansiformis</u>	Very rare in this zone.
SWC 25	1126.2	Upper <u>N. asperus</u> (1)	<u>Tetracolpites psillatus</u>	Ms sp. (MKM).
Core 2	1158.30	(Middle <u>N. asperus</u>)	<u>Proteacidites grandis</u>	Rarely, if ever recorded above <u>P. asperopolus</u> zone.
Core 2	1158.30	(Middle <u>N. asperus</u>)	<u>Proteacidites rugulatus</u>	Rare sp.
SWC 16	1175.0	Lower <u>N. asperus</u> (2)	<u>Astella</u>	Modern taxon.
SWC 16	1175.0	Lower <u>N. asperus</u>	<u>Haloragacidites verrucato-</u> <u>harrisii</u>	Rare ms sp. (MKM).
SWC 16	1175.0	Lower <u>N. asperus</u>	<u>Milfordia homeopunctatus</u>	Rare sp.
SWC 16	1175.0	Lower <u>N. asperus</u> (2)	<u>Schizocolpus marlinensis</u>	Rare in this zone.
SWC 13	1201.8	Lower <u>N. asperus</u> (2)	<u>Beaupreadites trigonalis</u>	Rare sp.
SWC 12	1212.0	Lower <u>N. asperus</u> (2)	<u>Schizocolpus marlinensis</u>	As for SWC 16.
SWC 10	1240.7	(Lower <u>N. asperus</u>)	<u>Bascolpites mutabilis</u>	Close to top of range.
SWC 10	1240.7	(Lower <u>N. asperus</u>)	<u>Matonisporites ornamentalis</u>	Rare in this zone.
SWC 10	1240.7	(Lower <u>N. asperus</u>)	<u>Triletes tuberculiformis</u>	Rare in this zone.

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TABLE 2

ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE-POLLEN AND DINOFLAGELLATE TAXA

p. 2 of 2

SAMPLE NO.	DEPTH(m)	ZONE	TAXON	COMMENTS
SWC 9	1250.2	Lower N. asperus (1)	<u>Anacolosidites luteoides</u>	Rare sp.
SWC 9	1250.2	Lower N. asperus	<u>Basopollis mutabilis</u>	As for SWC 10.
SWC 9	1250.2	Lower N. asperus (1)	<u>Drytpollenites semiunatus</u>	Rare sp.
SWC 9	1250.2	Lower N. asperus (1)	<u>cf Histecpteris</u>	Modern taxon.
SWC 9	1250.2	Lower N. asperus (1)	<u>Reticulosporis sp.</u>	Rare above Late Cretaceous.
SWC 7	1254.5	(Lower N. asperus)	<u>Cunoniaceae 3-p</u>	Modern taxon.
SWC 8	1256.2	Lower N. asperus (1)	<u>Beaupreadites trigonalis</u>	As for SWC 13
SWC 8	1256.2	Lower N. asperus (1)	<u>Proteacidites sp. nov.</u>	Resembles <u>Tripoporollenites vargus</u>
SWC 4	1295.0	Lower N. asperus (2)	<u>Banksiaeidites elongatus</u>	In coal palynoflora dominated by <u>Nothofagidites</u> .
SWC 4	1295.0	Lower N. asperus (2)	<u>Clavifera triplex</u>	Common in palynoflora.
SWC 4	1295.0	Lower N. asperus (2)	<u>Proteacidites annularis</u>	Common in palynoflora.
SWC 4	1295.0	Lower N. asperus (2)	<u>Proteacidites recavus</u>	Frequent in palynoflora.
SWC 4	1295.0	Lower N. asperus (2)	<u>Phyllocladidites palaeogenicus</u>	In coal palynoflora dominated by <u>Nothofagidites</u>
SWC 4	1295.0	Lower N. asperus (2)	<u>Tetracolporites cf textus</u>	In coal palynoflora dominated by <u>Nothofagidites</u>
SWC 3	1299.0	(Lower N. asperus)	<u>Clavifera triplex</u>	Common in coal palynoflora dominated by <u>Proteacidites</u> and <u>Phyllocladidites mawsonii</u>
SWC 3	1299.0	(Lower N. asperus)	<u>Proteacidites reflexus</u>	Rare sp.
SWC 2	1299.5	?Lower N. asperus	<u>Clavifera triplex-Phyllocladidites mawsonii</u>	-dominated coal palynoflora
SWC 2	1299.5	?Lower N. asperus	<u>Gephyrapollenites cranwellae</u>	Uncommon sp.

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TABLE 3: SUMMARY OF BASIC PALYNOLOGICAL DATA

DIVERSITY - low medium high
 S & P less than 10 10-30 greater than 30
 D 1-3 3-10 10

SAMPLE NO.	DEPTH (m)	YIELD		DIVERSITY		PRESERVATION	LITHOLOGY	PYRIZATION	COMMENTS
		SPORE-POLLEN	DINOS	SPORE-POLLEN	DINOS				
SWC 6	1278.0	Low	V. low	Medium	Low	Good	Sh.	-	Spore-dominated.
SWC 5	1288.0	V. low	-	Low	-	Fair	Sist.	-	
SWC 4	1295.0	Low	-	High	-	Good	Coal	-	
SWC 3	1299.0	Low	-	Medium	-	Fair	Coal	-	
SWC 2	1299.5	Good	-	Medium	-	Fair	Coal	-	

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

ASIN: GIPPSLAND
 WELL NAME: PERCH-2

ELEVATION: KB: 121.0m GL: -45.0m
 TOTAL DEPTH: 1315m

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	<i>T. pleistocenicus</i>											
	<i>M. lipsis</i>											
	<i>C. bifurcatus</i>											
	<i>T. bellus</i>											
PALEOGENE	<i>P. tuberculatus</i>	1111.5	0				1111.5	0				
	Upper <i>N. asperus</i>	1119.2	1				1126.2	1				
	Mid <i>N. asperus</i>	1142.0	0				1168.3	2				
	Lower <i>N. asperus</i>	1175.0	2				1299.0	2	1278.0	1		
	<i>P. asperopolus</i>											
	Upper <i>M. diversus</i>											
	Mid <i>M. diversus</i>											
	Lower <i>M. diversus</i>											
	Upper <i>L. balmei</i>											
	Lower <i>L. balmei</i>											
	LATE CRETACEOUS	Upper <i>R. longus</i>										
		Lower <i>R. longus</i>										
<i>T. lillieii</i>												
<i>N. senectus</i>												
<i>T. apoxyexinus</i>												
EARLY CRET.	<i>P. mawsonii</i>											
	<i>A. distocarينات</i>											
	<i>P. pannosus</i>											
	<i>C. paradoxa</i>											
	<i>C. striatus</i>											
	<i>C. hughesi</i>											
	<i>F. wonthaggiensis</i>											
	<i>C. australiensis</i>											

COMMENTS: The dinoflagellate *V. extensa* from 1142.0 to 1168.3m.

- CONFIDENCE RATING:
- 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 spores and pollen or microplankton, or both.
 - 4: Cuttings, No Confidence, 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: M.K. Macphail DATE: 22.7.85

DATA REVISED BY: _____ DATE: _____

TABLE 1: SUMMARY OF INTERPRETATIVE PALYNOLOGICAL DATA

PERCH-2

p. 1 of 2

SAMPLE NO.	DEPTH (m)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE	AGE	CONFIDENCE RATING	COMMENTS
SWC 27	1111.5	<u>P. tuberculatus</u>	-	Early Miocene	0	<u>C. annulatus</u>
SWC 26	1119.2	Upper <u>N. asperus</u>	-	Late Eocene	1	<u>P. rectomarginis</u> , <u>P. tuberculatus</u> <u>V. cristatus</u>
SWC 25	1126.2	Upper <u>N. asperus</u>	-	Late Eocene	1	<u>P. tuberculatus</u> , <u>S. punctatus</u>
SWC 23	1142.0	Middle <u>N. asperus</u>	? <u>C. Incompositum</u>	Late Eocene	0	<u>T. magnificus</u> , <u>C. corrugatum</u>
Core 2	1155.85	No older than Lower <u>N. asperus</u> Zone			-	<u>N. falcatus</u>
Core 2	1156.65	No older than Lower <u>N. asperus</u> Zone			-	<u>N. falcatus</u>
Core 2	1158.30	No older than Lower <u>N. asperus</u> Zone			-	<u>N. falcatus</u> , <u>V. extensa</u>
SWC 17	1168.3	Middle <u>N. asperus</u>	-	Late Eocene	2	Abundant <u>V. extensa</u>
SWC 16	1175.0	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>N. falcatus</u> , <u>M. homeopunctatus</u>
SWC 13	1201.8	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>N. falcatus</u>
SWC 12	1212.0	Lower <u>N. asperus</u>	-	Middle Eocene	2	Frequent-common <u>Nothofagidites</u>
SWC 11	1228.5	Lower <u>N. asperus</u>	-	Middle Eocene	2	Frequent-common <u>Nothofagidites</u>
SWC 10	1240.7	Lower <u>N. asperus</u>	-	Middle Eocene	2	Frequent-common <u>Nothofagidites</u>
SWC 9	1250.2	Lower <u>N. asperus</u>	-	Middle Eocene	1	<u>P. asperopolus</u> , abundant <u>Nothofagidites</u>
SWC 7	1254.5	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>Nothofagidites</u> common
SWC 8	1256.2	Lower <u>N. asperus</u>	-	Middle Eocene	1	<u>Nothofagidites</u> common, <u>T. leuros</u>

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TABLE 1: SUMMARY OF INTERPRETATIVE PALYNOLOGICAL DATA

PERCH-2

p. 2 of 2

SAMPLE NO.	DEPTH (m)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE	AGE	CONFIDENCE RATING	COMMENTS
SWC 6	1278.0	Lower <u>N. asperus</u>	-	Middle Eocene	1	Frequent <u>Nothofagidites</u> and <u>P. asperopolus</u>
SWC 5	1288.0	Indeterminate	-	-	-	
SWC 4	1295.0	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>Nothofagidites</u> and <u>P. recavus</u> frequent (coal palynoflora)
SWC 3	1299.0	Lower <u>N. asperus</u>	-	Middle Eocene	2	<u>P. reflexus</u> (coal palynoflora)
SWC 2	1299.5	No older than <u>P. asperopolus</u> Zone			-	<u>P. recavus</u>

TABLE 2

ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE-POLLEN AND DINOFLAGELLATE TAXA

p. 1 of 2

SAMPLE NO.	DEPTH(m)	ZONE	TAXON	COMMENTS
SWC 26	1119.2	Upper <u>N. asperus</u> (1)	<u>Phyllocladidites palaeogenicus</u>	Uncommon sp.
SWC 26	1119.2	Upper <u>N. asperus</u> (1)	<u>Proteacidites truncatus</u>	Very rare sp.
SWC 26	1119.2	Upper <u>N. asperus</u> (1)	<u>Verrucosiporites cristatus</u>	Very rare sp.
SWC 25	1126.2	Upper <u>N. asperus</u> (1)	<u>Proteacidites tuberculatus</u>	Uncommon sp.
SWC 25	1126.2	Upper <u>N. asperus</u> (1)	<u>Stereisporites punctatus</u>	Top of range of species
SWC 25	1126.2	Upper <u>N. asperus</u> (1)	<u>Beaupreadites elegansiformis</u>	Very rare in this zone.
SWC 25	1126.2	Upper <u>N. asperus</u> (1)	<u>Tetracolpites psilatus</u>	Ms sp. (MKM).
Core 2	1158.30	(Middle <u>N. asperus</u>)	<u>Proteacidites grandis</u>	Rarely, if ever recorded above <u>P. asperopolis</u> zone.
Core 2	1158.30	(Middle <u>N. asperus</u>)	<u>Proteacidites rugulatus</u>	Rare sp.
SWC 16	1175.0	Lower <u>N. asperus</u> (2)	<u>Astella</u>	Modern taxon.
SWC 16	1175.0	Lower <u>N. asperus</u>	<u>Haloragacidites verrucato-</u> <u>harrisii</u>	Rare ms sp. (MKM).
SWC 16	1175.0	Lower <u>N. asperus</u>	<u>Milfordia homeopunctatus</u>	Rare sp.
SWC 16	1175.0	Lower <u>N. asperus</u> (2)	<u>Schizocolpus marlinensis</u>	Rare in this zone.
SWC 13	1201.8	Lower <u>N. asperus</u> (2)	<u>Beaupreadites trigonalls</u>	Rare sp.
SWC 12	1212.0	Lower <u>N. asperus</u> (2)	<u>Schizocolpus marlinensis</u>	As for SWC 16.
SWC 10	1240.7	(Lower <u>N. asperus</u>)	<u>Basopollis mutabilis</u>	Close to top of range.
SWC 10	1240.7	(Lower <u>N. asperus</u>)	<u>Matonisporites ornamentalis</u>	Rare in this zone.
SWC 10	1240.7	(Lower <u>N. asperus</u>)	<u>Triletes tuberculiformis</u>	Rare in this zone.

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TABLE 2

ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE-POLLEN AND DINOFLAGELLATE TAXA

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SAMPLE NO.	DEPTH(m)	ZONE	TAXON	COMMENTS
SWC 9	1250.2	Lower N. asperus (1)	<u>Anacolosidites luteoides</u>	Rare sp.
SWC 9	1250.2	Lower N. asperus	<u>Basopollis mutabilis</u>	As for SWC 10.
SWC 9	1250.2	Lower N. asperus (1)	<u>Drytpollenites semilunatus</u>	Rare sp.
SWC 9	1250.2	Lower N. asperus (1)	<u>cf Histecopteris</u>	Modern taxon.
SWC 9	1250.2	Lower N. asperus (1)	<u>Reticulosporis sp.</u>	Rare above Late Cretaceous.
SWC 7	1254.5	(Lower N. asperus)	<u>Cunoniaceae 3-p</u>	Modern taxon.
SWC 8	1256.2	Lower N. asperus (1)	<u>Beaupreadites trigonalis</u>	As for SWC 13
SWC 8	1256.2	Lower N. asperus (1)	<u>Proteacidites sp. nov.</u>	Resembles <u>Triporepollenites vargus</u>
SWC 4	1295.0	Lower N. asperus (2)	<u>Banksiaeidites elongatus</u>	In coal palynoflora dominated by <u>Nothofagidites</u> .
SWC 4	1295.0	Lower N. asperus (2)	<u>Clavifera triplex</u>	Common in palynoflora.
SWC 4	1295.0	Lower N. asperus (2)	<u>Proteacidites annularis</u>	Common in palynoflora.
SWC 4	1295.0	Lower N. asperus (2)	<u>Proteacidites recavus</u>	Frequent in palynoflora.
SWC 4	1295.0	Lower N. asperus (2)	<u>Phyllocladidites palaeogenicus</u>	In coal palynoflora dominated by <u>Nothofagidites</u>
SWC 4	1295.0	Lower N. asperus (2)	<u>Tetracolporites cf textus</u>	In coal palynoflora dominated by <u>Nothofagidites</u>
SWC 3	1299.0	(Lower N. asperus)	<u>Clavifera triplex</u>	Common in coal palynoflora dominated by <u>Proteacidites</u> and <u>Phyllocladidites mawsonii</u>
SWC 3	1299.0	(Lower N. asperus)	<u>Proteacidites reflexus</u>	Rare sp.
SWC 2	1299.5	?Lower N. asperus	<u>Clavifera triplex-Phyllocladidites mawsonii</u>	-dominated coal palynoflora
SWC 2	1299.5	?Lower N. asperus	<u>Gephyrapollenites cranwellae</u>	Uncommon sp.

TABLE 3: SUMMARY OF BASIC PALYNOLOGICAL DATA

SAMPLE NO.	DEPTH (m)	YIELD		DIVERSITY		PRESERVATION	LITHOLOGY	PYRIZATION	COMMENTS
		SPORE-POLLEN	DINOS	SPORE-POLLEN	DINOS				
SWC 27	1111.5	Fair	Good	Low	Medium	Fair	Sh., calc.	-	
SWC 26	1119.2	Fair	Low	Medium	Medium	Good	Sist., calc., glau.	-	
SWC 25	1126.2	Fair	Low	Medium	Medium	Poor	Clyst.	-	Spore-dominated.
SWC 23	1142.0	Fair	Low	Medium	Low	Good	Sist.	-	
Core 2	1155.85	Fair	Fair	Low	Low	Poor	Mdst./Clyst.	Moderate	
Core 2	1156.65	Fair	Fair	Low	Low	Poor	Mdst./Clyst.	-	
Core 2	1158.30	Good	Low	Medium	Medium	Poor	Mdst./Clyst.	Minor	
SWC 18	1159.0	V. low	-	V. low	-	Poor	Sh.	-	
SWC 17	1168.3	Fair	Fair	Low	Low	Poor	Sh.	Moderate	
SWC 13	1201.8	Low	Low	Low	Low	Fair	Sist., lam.	-	Spore-pollen swollen.
SWC 12	1212.0	Low	Good	Low	Low	Poor	Sh., lam.	-	
SWC 11	1228.5	V. low	-	Low	-	Good	Coal	-	
SWC 10	1240.7	V. good	-	Medium	-	Poor	Sh.	-	
SWC 9	1250.2	Good	-	High	-	Good	Sh.	-	
SWC 7	1254.5	Good	-	Low	-	Fair	Sist., carb. lam.	-	

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TABLE 3: SUMMARY OF BASIC PALYNOLOGICAL DATA

DIVERSITY - low medium high
 S & P less than 10 10-30 greater than 30
 D 1-3 3-10 10

SAMPLE NO.	DEPTH (m)	YIELD		DIVERSITY		PRESERVATION	LITHOLOGY	PYRIZATION	COMMENTS
		SPORE-POLLEN	DINOS	SPORE-POLLEN	DINOS				
SWC 6	1278.0	Low	V. low	Medium	Low	Good	Sh.	-	Spore-dominated.
SWC 5	1288.0	V. low	-	Low	-	Fair	Sist.	-	
SWC 4	1295.0	Low	-	High	-	Good	Coal	-	
SWC 3	1299.0	Low	-	Medium	-	Fair	Coal	-	
SWC 2	1299.5	Good	-	Medium	-	Fair	Coal	-	