APPENDIX

PALYNOLOGICAL ANALYSIS OF BARRACOUTA-5, GIPPSLAND BASIN

by

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1678L

INTERPRETATIVE DATA

INTRODUCTION

Fifty one sidewall cores were processed and examined for spore-pollen and dinoflagellates. Whilst recovery and preservation were usually good, lack of shaley sediments in recovered sidewall cores from the sandy section between 1621 and 1731m limits the age breakdown of the Early Eocene section. Palynological zones and lithological units from the base of the Lakes Entrance to T.D. are summarized below. Drillers depths (m KB) are used throughout. Occurrences of spore-pollen and dinoflagellates are given in the accompanying range chart. Table 2 lists anomalous and unusual occurrences of species; Table 3 provides a summary of the basic data

SUMMARY

AGE	UNIT	ZONE	DEPTH (m)
Early Oligocene	"Oligocene Wedge"	*P. tuberculatus*	1150.0-1182.0m
	log break at 1182m		
Late Eocene	Gurnard Fm.	Middle *N. asperus*	1183.0-1203.6m
	log break at 1204m		
Middle Eocene	Latrobe Group (coarse clastics)	Lower *N. asperus* *P. asperopolus* Upper *M. diversus*	1227.5-1492.0m 1522.4-1621.5m 1731.0m
			T.D.

GEOLOGICAL COMMENTS

1. The Barracouta-5 well contains a continuous sequence of sediments from the Early Eocene Upper M. diversus Zone to the Late Eocene Middle N. asperus Zone. These are (?) conformably overlain by Early Oligocene P. tuberculatus Zone sediments, identified (Rexilius 1985) as the basal member of the Seaspray Group (the "Oligocene Wedge").

2. The diverse dinoflagellate and sparse spore-pollen assemblages in the "Oligocene Wedge" section are consistent with deposition in an offshore, relatively deep water environment as proposed by Rexilius (ibid)

3. The Gurnard Formation (1182.0 to 1203.6m) is likely to be wholly Middle N. asperus Zone in age, as is the equivalent greensand in Barracouta-4. Thicknesses of sediment in both wells are comparable, 22m and 26.5m respectively.

4. It is not clear whether these greensand units conformably overlie the Latrobe Group coarse clastics or not. In Barracouta-5, the greensand unit appears to have been deposited in uppermost Middle N. asperus Zone time whilst the underlying coarse clastics may have ceased accumulating within Lower N. asperus Zone time. The sample closest to the top of the coarse clastics [1218.5m] contains a general N. asperus Zone palynoflora with one reworked Paleocene species. In Barracouta-4, there is no recognizable age break between the greensand and underlying coarse clastics and here at least, the uppermost 14m of the coarse clastics were deposited in uppermost Middle N. asperus Zone time.

5. A similar sequence of coals occurs in the Lower N. asperus and (upper) P. asperopolus Zone sections of both wells [Barracouta-5, 1430-1522m; Barracouta-4, 4040-4300 ft]. The uppermost of these, the thickest coal

encountered in both wells, forms the Lower N. asperus Zone seismic marker. Using this coal as a datum, the undated (Partridge 1977) section between 3482-3642 ft and 4006-4251 ft in Barracouta-4 may be largely Lower N. asperus Zone in age whilst the unsampled coals between ca. 1502-1522m in Barracouta-5 are almost certainly P. asperopolus Zone in age. The fact that the lowest sidewall core sample at 1731.0m in Barracouta-5 is no older than Upper M. diversus Zone in age improves the confidence of the Upper M. diversus Zone date for the section 4739 to 4780 ft in Barracouta-4.

6. The Latrobe Group coarse clastics above the coal at 1431.0m appear to have been deposited in a coastal plain environment that was periodically subject to minor marine incursions. Below this coal, the only evidence for marginal marine conditions, sparse occurrences of dinoflagellates, is at 1595m.

BIOSTRATIGRAPHY

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

Upper Malvacipollis diversus Zone: 1731.0m

One sample is assigned to this zone on the basis of Myrtaceidites tenuis. This species shows the sample is no older than this zone but a P. asperopolus Zone age cannot be excluded.

Proteacidites asperopolus Zone: 1522.4 to 1621.5m

The base of the zone is provisionally placed at 1621.5m, the first occurrence of frequent to common Proteacidites pachypolus and Myrtaceidites tenuis. Both are frequent to common in abundance. Proteacidites recavus, which usually first appears in this zone, is also present in this sample. The first appearance of the nominate species is at 1595.0m. The upper boundary is placed at 1522.4m, based on the highest occurrences of Myrtaceidites tenuis and Proteacidites tuberculiformis.

Lower Nothofagidites asperus Zone: 1227.5 to 1492.0m

The first appearance of Tricolporites delicatus and T. leuros at 1492.0m in a Nothofagidites-dominated palynoflora provides a confident lower boundary for this zone. Proteacidites asperopolus, which last appears in this zone, appears in low frequency across from the section from 1468.0m to 1327.5m but is only frequent to abundant at 1397.8m and 1380.5m. The latter sample is immediately below the first appearance of the Lower N. asperus Zone indicator dinoflagellate, Areosphaeridium diktyoplokus [1379.2m]. First appearances of other species indicative of a Lower N. asperus Zone or younger age are Proteacidites rugulatus [in the coal at 1431.0m], Nothofagidites falcatus at

1375.5 and Tricolpites simatus at 1354.0m. The upper boundary is placed at 1227.5m, the highest sample lacking Middle N. asperus Zone indicators. Proteacidites asperopolus last appears lower within the section, at 1327.0m.

Middle Nothofagidites asperus Zone: 1183.0 to 1203.6m

A Middle N. asperus Zone age is confirmed by occurrences throughout this interval of the zone indicator species Triorites magnificus and Corrudinium incompositum. The first occurrence of the latter, a dinoflagellate, is at 1203.6m. The presence of Aglaoreidia qualumis in this sample indicates it is no older than uppermost Middle N. asperus Zone. Triorites magnificus first occurs at 1198.9m, in association with Corrudinium incompositum. The dinoflagellate Alisocysta ornatum occurs at 1191.0m. Other occurrences of note are: Aglaoreidia qualumis at 1188.0m, Proteacidites pachypolus at 1187.0m; frequent Nothofagidites falcatus at 1186.0m; and Proteacidites rectomarginis, P tuberculatus, Stereisporites punctatus in association with frequent to common N. falcatus at 1184.0m. The upper boundary of the zone is provisionally picked at 1183.0 m, a sample containing species which first appear in the upper section of the Middle N. asperus zone. It is however possible this sample is Upper N. asperus zone in age. A more reliable upper boundary is at 1184.0 m, the highest occurrence of Triorites Magnificus.

Proteacidites tuberculatus Zone: 1150.0 to 1182.0m

Samples within this interval lack the zone indicator species Cyatheacidites annulatus and accordingly resemble Upper N. asperus Zone palynofloras. The age-determination is based on occurrences of the dinoflagellate Protoellipsodinium simplex at 1174.9m and the similarity of the dinoflagellate assemblages in this with other samples within the section. A P. tuberculatus Zone age is confirmed by the occurrences of Zone Ia to Ja forams [Rexilius 1985]. Cyatheacidites annulatus occurs in Zone J2 sediments at 3412 ft near the base of the "Oligocene Wedge" in Barracouta-4 [cf. Partridge 1977, Taylor 1977, Rexilius 1985].

COMPARISON OF AGE-RANGE DATA FOR SELECTED SPORE-POLLEN SPECIES IN BARRACOUTA-4 AND -5

The good geologic correlation between upper P. asperopolus and lower Lower N. asperus Zone coals in Barracouta-4 and -5 provides a framework within which it is possible to compare age-ranges and relative abundance of species currently used to zone the Early-Middle Eocene sections in Gippsland wells. Using the Lower N. asperus seismic marker coal as datum, a number of general conclusions can be made:

(a) Frequent to abundant occurrences of Proteacidites pachypolus are confined to the P. asperopolus and (?) Upper M. diversus Zone: similarly Proteacidites ornatus which, although never attaining levels of abundance reached by P. asperopolus and P. pachypolus, is nevertheless occasionally frequent;

(b) Frequent to abundant occurrences of Proteacidites asperopolus are confined to the Lower N. asperus Zone;

(c) In the case of Proteacidites pachypolus, peaks in relative abundance appear to occur at approximately the same biostratigraphic position in both wells. This may be true of P. asperopolus but is certainly not the case with P. ornatus and P. grandis;

(d) Whilst the last appearances of Myrtaceidites tenuis and Proteacidites ornatus provide a reliable upper boundary to the P. asperopolus Zone, this is not necessarily with Intratriporapollenits notabilis.

REFERENCES

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TABLE 1: SUMMARY OF INTERPRETATIVE PALYNOLOGICAL DATA

BARRACOUTA-5

SAMPLE NO.	DEPTH (m)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE	AGE	CONFIDENCE RATING	COMMENTS
SWC 51	1150.0	P. tuberculatus	-	Oligocene	2	Age confirmed by foraminiferal data
SWC 50	1154.9	P. tuberculatus	-	Oligocene	2	Age confirmed by foraminiferal data
SWC 49	1159.9	P. tuberculatus	-	Oligocene	2	Age confirmed by foraminiferal data
SWC 48	1164.9	P. tuberculatus	-	Oligocene	2	Age confirmed by foraminiferal data
SWC 47	1170.1	P. tuberculatus	-	Oligocene	2	Age confirmed by foraminiferal data
SWC 46	1174.9	P. tuberculatus	-	Oligocene	2	P. simplex. Age confirmed by foraminiferal data
SWC 45	1175.9	P. tuberculatus	-	Oligocene	2	Age confirmed by foraminiferal data
SWC 41	1180.0	P. tuberculatus	-	Oligocene	2	P. tuberculatus
SWC 40	1181.0	Indeterminate	-	-	-	T. leuros
SWC 39	1182.0	P. tuberculatus	-	Oligocene	2	Age confirmed by foraminiferal data
SWC 38	1183.0	Middle N. asperus	-	Late Eocene	2	P. rectomarginis
SWC 37	1184.0	Middle N. asperus	-	Late Eocene	0	T. magnificus, S. punctatus, P. rectomarginis, P. tuberculatus
SWC 36	1185.0	N. asperus	-	Late Eocene	-	N. falcatus
SWC 35	1186.0	Middle N. asperus	-	Late Eocene	2	
SWC 34	1187.0	Middle N. asperus	-	Late Eocene	2	P. pachypolus
SWC 33	1188.0	Middle N. asperus	-	Late Eocene	1	A. qualumis
SWC 31	1189.0	Middle N. asperus	-	Late Eocene	2	V. extensa
SWC 30	1191.0	Middle N. asperus	C. incompositum	Late Eocene	1	A. ornata
SWC 29	1191.9	Middle N. asperus	-	Late Eocene	2	V. extensa
SWC 27	1196.0	Middle N. asperus	C. incompositum	Late Eocene	0	C. incompositum, V. extensa
SWC 26	1198.9	Middle N. asperus	C. incompositum	Late Eocene	0	T. magnificus, P. incurvatus, C. incompositum, V. extensa

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BARRACOUTA-5

SAMPLE NO.	DEPTH (m)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE	AGE	CONFIDENCE RATING	COMMENTS
SWC 25	1202.0	Middle N. asperus	C. incompositum	Late Eocene	0	C. incompositum, V. extensa
SWC 24	1203.6	Middle N. asperus	C. incompositum	Late Eocene	1	A. qualumis, P. recavus V. extensa, C. corrugatum
SWC 23	1218.5	N. asperus	-	Middle-Late Eocene	-	Abundant Nothofagidites
SWC 22	1227.5	Lower N. asperus	-	Middle Eocene	2	N. falcatus
SWC 21	1234.2	Lower N. asperus	-	Middle Eocene	2	N. falcatus, S. punctatus
SWC 20	1239.2	Lower N. asperus	-	Middle Eocene	2	N. falcatus
SWC 19	1284.0	Lower N. asperus	-	Middle Eocene	2	N. falcatus, T. delicatus, freq. P. pachypolus
SWC 18	1300.2	Indeterminate	-	-	-	
SWC 17	1306.2	Lower N. asperus	-	Middle Eocene	2	N. falcatus
SWC 16	1309.3	Lower N. asperus	-	Middle Eocene	2	N. falcatus, S. asymmetricum
SWC 14	1321.1	Lower N. asperus	-	Middle Eocene	2	N. falcatus, S. asymmetricum
SWC 13	1327.0	Lower N. asperus	-	Middle Eocene	0	N. falcatus, P. asperopolus
SWC 12	1332.0	Lower N. asperus	-	Middle Eocene	1	P. asperopolus, common Nothofagidites
SWC 11	1335.1	Lower N. asperus	-	Middle Eocene	1	P. asperopolus, T. leuros
SWC 10	1339.5	Lower N. asperus	-	Middle Eocene	1	P. asperopolus, abund. Nothofagidites
SWC 9	1354.0	Lower N. asperus	-	Middle Eocene	0	N. falcatus, P. asperopolus
SWC 8	1375.5	Lower N. asperus	-	Middle Eocene	0	N. falcatus, P. asperopolus, T. delicatus
SWC 7	1379.2	Lower N. asperus	A. diktyoplokus	Middle Eocene	0	P. asperopolus, A. diktyoplokus, P. recavus

TABLE 1: SUMMARY OF INTERPRETATIVE PALYNOLOGICAL DATA

BARRACOUTA-5

SAMPLE NO.	DEPTH (m)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE	AGE	CONFIDENCE RATING	COMMENTS
SWC 6	1380.5	Lower *N. asperus*	-	Middle Eocene	1	*P. asperopolus*, abund. *Nothofagidites*
SWC 5	1394.5	Lower *N. asperus*	-	Middle Eocene	1	Abund. *P. asperopolus* and *Nothofagidites*
SWC 4	1397.8	Lower *N. asperus*	-	Middle Eocene	1	Frequent *P. asperopolus* and *Nothofagidites*
SWC 3	1431.0	Lower *N. asperus*	-	Middle Eocene	2	*T. leuros*, *P. rugulatus*, common *Nothofagidites* (coal palynofloral
SWC 2	1449.0	Lower *N. asperus*	-	Middle Eocene	1	*P. asperopolus*, abund. *Nothofagidites* *P. recavus*
SWC 81	1468.0	Lower *N. asperus*	-	Middle Eocene	1	*P. asperopolus*, *P. rugulatus*, abund. *Nothofagidites*
SWC 80	1492.0	Lower *N. asperus*	-	Middle Eocene	1	*T. delicatus*, *T. leuros*, abund. *Nothofagidites*
SWC 79	1522.4	*P. asperopolus*	-	Early Eocene	0	*P. asperopolus*, *P. tuberculiformis*, *M. tenuis*, freq. *P. pachypolus*
SWC 78	1524.0	*P. asperopolus*	-	Early Eocene	0	*M. tenuis*
SWC 77	1589.0	*P. asperopolus*	-	Early Eocene	2	*M. tenuis*, *P. ornatus*
SWC 75	1595.0	*P. asperopolus*	-	Early Eocene	0	*P. asperopolus*, *S. rotundus*, *M. tenuis*, *P. ornatus*, *I. notabilis*, freq. *P. pachypolus*
SWC 72	1621.5	*P. asperopolus*	-	Early Eocene	2	*M. tenuis* & *P. pachypolus* common, *P. recavus*
SWC 52	1731.0	Upper *M. diversus*	-	Early Eocene	2	*M. tenuis*

TABLE 2

ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE-POLLEN TAXA IN BARRACOUTA-5

SAMPLE NO.	DEPTH(m)	ZONE	TAXON	COMMENTS
SWC 47	1170.1	P. tuberculatus (2)	Proteacidites isopogoniformis	V. rare sp. [in Oligocene palynofloral
SWC 45	1175.9	P. tuberculatus (2)	Peromonolites bacculatus	Rare sp. [in Oligocene palynofloral
SWC 41	1180.0	P. tuberculatus (2)	Proteacidites tuberculatus	Rare sp. [in Oligocene palynofloral
SWC 41	1180.0	P. tuberculatus (2)	Cunoniaceae 2-p	Modern taxon [in Oligocene palynofloral
SWC 40	1181.0	P. tuberculatus	Tricolporites leuros	Very rare above N.asperus zone
SWC 37	1184.0	Uppermost Middle N. asperus (0)	Proteacidites tuberculatus	Rare sp. [in Late Eocene palynofloral
SWC 37	1184.0	Uppermost Middle N. asperus (0)	cf. Canthiumidites oblatus	Resembles N.Z. species
SWC 37	1184.0	Uppermost Middle N. asperus (0)	Sterelsporites punctatus	Close to top of range of sp.
SWC 36	1185.0	(Middle N. asperus)	Cunoniaceae 3-p	Modern taxon
SWC 35	1186.0	(Middle N. asperus)	Quintinia	Modern taxon
SWC 33	1188.0	Middle N. asperus (2)	Agloareidia qualumis	Rare sp.
SWC 27	1196.0	Middle N. asperus (0)	Eucalyptus	Modern taxon
SWC 27	1196.0	Middle N. asperus (0)	Haloragacidites verrucatoharrisii	Rare ms. sp. (MKM)
SWC 26	1198.9	Middle N. asperus (0)	Tetracolpites psilatus	Rare ms. sp. (MKM)
SWC 24	1203.6	Middle N. asperus (0)	Micrantheum spinyspora	V. rare sp.
SWC 24	1203.6	Middle N. asperus (0)	Agloareidia qualumis	Rare sp.
SWC 24	1203.6	Middle N. asperus (0)	Milfordia homeopunctatus	Rare sp.
SWC 21	1234.2	Lower N. asperus (2)	Ericipites scabratus	Resembles Sprengelia
SWC 21	1234.2	Lower N. asperus (2)	Proteacidites canopus	Rare sp.

TABLE 2

ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE-POLLEN TAXA IN BARRACOUTA-5

SAMPLE NO.	DEPTH(m)	ZONE	TAXON	COMMENTS
SWC 19	1284.0	Lower *N. asperus* (1)	*Tricolporites delicatus*	(= *R. alveolatus*)
SWC 16	1209.3	Lower *N. asperus* (2)	*Tricolporites paeneretequetrus*	Rare ms. sp. (MKM)
SWC 14	1321.1	Lower *N. asperus* (2)	*Proteacidites reflexus*	Rare ms. sp. (ADP)
SWC 11	1335.1	Lower *N. asperus* (1)	*Anisotricolporites triplaxis*	V. rare sp.
SWC 11	1335.1	Lower *N. asperus* (1)	*Beaupreadites trigonalis*	Rare ms. sp.
SWC 11	1335.1	Lower *N. asperus* (1)	*Umbelliferae*	Modern taxon
SWC 9	1354.0	Lower *N. asperus* (0)	*Cunoniaceae 2-p*	Modern taxon
SWC 9	1354.0	Lower *N. asperus* (0)	*Quintinia*	Modern taxon
SWC 9	1354.0	Lower *N. asperus* (0)	*Tricolpites simatus*	Rare var. (lacks polar 'boss')
SWC 8	1375.5	Lower *N. asperus* (0)	*Tricolpites delicatus*	(= *R. alveolatus*)
SWC 7	1379.2	Lower *N. asperus* (0)	*Tricolpites paeneretequetrus*	Rare ms. sp. (MKM)
SWC 7	1379.2	Lower *N. asperus* (0)	*Phyllocladidites paleogenieus*	Uncommon sp.
SWC 7	1379.2	Lower *N. asperus* (0)	*Cupanieidites reticulatus*	Rare sp.
SWC 4	1397.8	(Lower *N. asperus*)	*Haloragacidites verrucatoharrisii*	Rare ms. sp. (MKM)
SWC 3	1431.0	(Lower *N. asperus*)	*Quintinia*	Modern taxon [in coal palynofloral
SWC 3	1431.0	(Lower *N. asperus*)	*Triporopollenites heleosus*	Rare sp. [in coal palynofloral
SWC 3	1431.0	(lower *N. asperus*)	*Proteacidites rugulatus*	Rare sp. [in coal palynofloral
SWC 2	1449.0	Lower *N. asperus* (2)	*Tricolporites adelaidensis*	Frequent in sample
SWC 2	1449.0	Lower *N. asperus* (2)	*Dryptopollenites semilunatus*	V. rare sp.
SWC 81	1468.0	Lower *N. asperus* (2)	*Clavatipollenites glarius*	V. rare sp.
SWC 81	1468.0	Lower *N. asperus* (2)	*Kulisporites waterbolkii*	Rare in this zone

TABLE 2

ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE-POLLEN TAXA IN BARRACOUTA-5

SAMPLE NO.	DEPTH(m)	ZONE	TAXON	COMMENTS
SWC 80	1492.0	Lower N. asperus (1)	Dryptopollenites semilunatus	V. rare sp.
SWC 80	1492.0	Lower N. asperus (1)	Basopollis nutabilis	Close to top of range?
SWC 80	1492.0	Lower N. asperus (1)	Triporopollenites delicatus	(= R. alveolatus)
SWC 79	1522.4	P. asperopolus (1)	Proteacidites tuberculiformis	Top of range
SWC 79	1522.4	P. asperopolus (1)	Tricolpites reticulatus	Ms. sp. (Stover & Evans 1969)
SWC 79	1522.4	P. asperopolus (1)	Podocarpidites ostentatus	Ms. sp. (ADP)
SWC 79	1522.4	P. asperopolus (1)	Matonisporites ornamentalis	Rare in this zone
SWC 77	1589.0	P. asperopolus (1)	Anacolosidites luteoides	Rare sp.
SWC 77	1589.0	P. asperopolus (1)	Conbaculites apiculatus	Rare ms. sp.
SWC 77	1589.0	P. asperopolus (1)	Gemmatricolporites divaricatus	Rare sp.
SWC 77	1589.0	P. asperopolus (1)	Proteacidites ornatus & P. plemmelus	Frequent
SWC 75	1595.0	P. asperopolus (0)	Anacolosidites rotundus	Rare sp.
SWC 75	1595.0	P. asperopolus (0)	Dryptopollenites semilunatus	V. rare sp.
SWC 75	1595.0	P. asperopolus (0)	Astelia	Modern taxa
SWC 75	1595.0	P. asperopolus (0)	Polypodiaceosporites varus	Rare in this zone
SWC 75	1595.0	P. asperopolus (0)	Kuylisporites waterbolkii	Rare in this zone
SWC 72	1621.5	P. asperopolus (2)	Anacolosidites rotundus	Rare sp.
SWC 72	1621.5	P. asperopolus (2)	Gemmatricolporites gestus	Rare sp.
SWC 72	1621.5	P. asperopolus (2)	Tricolpites reticulatus Stover & Evans	Ms. sp. (Stover & Evans 1969)

PALYNOLOGY DATA SHEET

BASIN: Barracouta-5 ELEVATION: KB: +21.0m GL: -45.5m

WELL NAME: Gippsland TOTAL DEPTH: 1770m

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*	1150.0	2				1182.0	2			
	Upper *N. asperus*										
	Mid *N. asperus*	1183.0	2	1184.0	0		1203.6	0			
	Lower *N. asperus*	1227.5	2	1327.0	0		1492.0	1			
	P. asperopolus	1522.4	2				1621.5	2	1595.0	0	
	Upper *M. diversus*	1731.0	2				1731.0	2			
	Mid *M. diversus*										
	Lower *M. diversus*										
	Upper *L. balmei*										
	Lower *L. balmei*										
LATE CRETACEOUS	Upper *T. longus*										
	Lower *T. longus*										
	T. lilliei										
	N. senectus										
	T. apoxyexinus										
	P. mawsonii										
	A. distocarinatus										
EARLY CRET.	*P. pannosus*										
	C. paradoxa										
	C. striatus										
	C. hughesi										
	F. wonthaggiensis										
	C. australiensis										

COMMENTS: C. incompositum Zone 1196.0-1203.6m

A. diktyoplokus Zone 1379.2m

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: 14/6/85

DATA REVISED BY: _____ DATE: _____

TABLE 3: SUMMARY OF BASIC PALYNOLOGICAL DATA

BARRACOUTA-5

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 51	1150.0	Low	Fair	Low	Medium	Poor	Calcilut.		"Oligocene Wedge"
SWC 50	1154.9	Low	Fair	Low	Low	Poor	Calcilut.		"Oligocene Wedge"
SWC 49	1159.9	Low	Fair	Medium	High	Fair	Calcilut.		"Oligocene Wedge"
SWC 48	1164.9	Low	Good	Low	Medium	Good	Calcilut.	Minor	"Oligocene Wedge"
SWC 47	1170.1	Low	Low	Low	Medium	Poor	Calcilut.		"Oligocene Wedge"
SWC 46	1174.9	Fair	Low	Medium	Medium	Fair	Calcilut.	Minor	"Oligocene Wedge"
SWC 45	1175.9	Fair	Low	Medium	Low	Fair	Calcilut.		"Oligocene Wedge"
SWC 41	1180.0	Good	Low	Medium	Low	Poor	Calcilut., glau.	Minor	"Oligocene Wedge"
SWC 40	1181.0	Low	Low	Low	Low	Fair	Calcilut., glau		"Oligocene Wedge"
SWC 39	1182.0	Fair	Low	Medium	Medium	Fair	Clyst., glau.		"Oligocene Wedge"
SWC 38	1183.0	Low	Low	Medium	Low	Fair	Sist./Clyst., glau.		Bulk of sample lost during prep
SWC 37	1184.0	Fair	Low	High	Medium	Good	Sist./Clyst., glau.		
SWC 36	1185.0	Good	Good	Medium	Low	Fair	Sist., glau.	Moderate	
SWC 35	1186.0	Fair	Fair	Medium	Medium	Fair	Sist., glau.		
SWC 34	1187.0	Fair	Good	Medium	Medium	Good	Sist., glau.		
SWC 33	1188.0	Low	Fiar	Medium	Medium	Good	Sist./Clyst., glau.		

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SAMPLE NO.	DEPTH (m)	YIELD		DIVERSITY		PRESERVATION	LITHOLOGY	PYRIZATION	COMMENTS
		SPORE-POLLEN	DINOS	SPORE-POLLEN	DINOS				
SWC 31	1189.9	Good	Low	Low	Low	Good	Slst., glau.		
SWC 30	1191.0	Good	Fair	Medium	High	Fair	Slst., glau.	Moderate	
SWC 29	1191.9	Low	Low	Low	Medium	Fair	Slst., glau.		
SWC 27	1196.0	Low	Fair	Medium	High	Good	Slst., glau.		
SWC 26	1198.9	Fair	Good	High	High	Good	Clyst./Slst., glau.		
SWC 25	1202.0	Fair	Good	Low	High	Good	Clyst./Slst., glau.	Minor	
SWC 23	1218.5	Fair	-	Low	-	Poor			
SWC 22	1227.5	Fair	-	Low	-	Poor	Slst., carb.	Moderate	
SWC 21	1234.2	Low	V. low	Medium	Low	Good	Clyst., carb.	Minor	
SWC 20	1239.2	Low	V. low	Low	Low	Poor	Clyst./Slst., carb. lam.	Moderate	
SWC 19	1284.0	Good	V. low	Medium	Low	Good	Clyst.		Pollen swollen
SWC 18	1300.2	V. low	-	Low	-	V. poor	Ss., carb. lam.		
SWC 17	1306.2	Low	V. low	Low	Low	Poor	Slst., carb.	Minor	
SWC 16	1309.3	V. good	Low	High	Low	Fair	Slst., carb.	Minor	
SWC 14	1321.1	V. good	V. low	High	Low	Good	Ss., carb.		

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SAMPLE NO.	DEPTH (m)	YIELD		DIVERSITY		PRESERVATION	LITHOLOGY	PYRIZATION	COMMENTS
		SPORE-POLLEN	DINOS	SPORE-POLLEN	DINOS				
SWC 13	1327.0	Fair	Low	High	Low	Fair	Ss./Slst., carb.	Moderate	
SWC 12	1332.0	Fair	Low	Medium	Low	Poor	Slst./Ss., carb.	Minor	
SWC 10	1339.5	Fair	Low	High	Low	Poor	Slst., carb., lam.	Moderate	
SWC 9	1354.0	Low	-	High	-	Good	Ss., silty.		
SWC 8	1375.7	V. good	Low	High	Low	Fair	Ss., carb. lam.	Minor	
SWC 7	1379.2	Good	Low	High	Medium	Fair	Slst., lam.	Minor	
SWC 6	1380.5	Good	V. low	Medium	Low	Fair	Slst., ? oxidized		
SWC 5	1394.5	Low	Low	Low	Low	Poor	Slst., carb. lam	Minor	
SWC 4	1397.8	Low	-	Medium	-	Good	Clyst.		
SWC 3	1431.0	Good	-	Medium	-	Good	Coal		
SWC 2	1449.0	Low	-	Medium	-	Fair	Slst.		
SWC 81	1468.0	Good	-	Medium	-	Fair	Slst., carb. lam.		
SWC 80	1492.0	Fair	-	High	-	V. good	Slst.		
SWC 79	1522.4	Low	V. low	Medium	Low	Fair	Slst.		Dinos caved?
SWC 78	1524.0	V. low	-	Medium	-	Good	Slst., carb. lam.		

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SAMPLE NO.	DEPTH (m)	YIELD		DIVERSITY		PRESERVATION	LITHOLOGY	PYRIZATION	COMMENTS
		SPORE-POLLEN	DINOS	SPORE-POLLEN	DINOS				
SWC 77	1539.0	V. good	-	Medium	-	Fair	Sh.		
SWC 75	1595.0	Fair	V. low	High	Low	Fair	Ss.		
SWC 72	1621.5	Fair	-	Medium	-	Good	Slst.		
SWC 52	1731.0	V. low	-	Low	-	Good	Slst.		