

# F A C S I M I L E



## BIOSTRATA PTY LTD

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21 June 1996

Our ref: PR96/18

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### PROVISIONAL REPORT No. 3 GIPPSLAND BASIN—PALYNOLOGICAL STUDY

The results of palynological analysis of an additional eight samples from Dutson Downs-1, Golden Beach West-1 and Merriman-1 are reported in the following tables. These samples were collected on the 14 June and their analysis completes the samples contracted for under Requisition for Goods/Services No. VP032.

The Tertiary samples in Dutson Downs-1 confirms our knowledge of the onshore Latrobe sequence. The base of the sequence consists of a moderate thickness of the Palaeocene *L. balmei* Zone (occasionally extending into Late Maastrichtian Upper *T. longus* Zone as in Wonga Binda-1) overlain by the thicker coal measures sequence of the Middle Eocene to basal Oligocene *N. asperus* sub-Zones.

The presence of caved specimens of the key index *Myrtaceldites tenuis* in cuttings from Dutson Downs-1 (at 4330-40ft) and Merriman-1 (at 5960-70ft) suggests that a thin section of Early Eocene (equivalent to Upper *M. diversus* to *P. asperopolis* Zones) does occur onshore. Unfortunately this section has not been sampled during this project. Inspection of sidewall cores and cores in Golden Beach West-1 between 3500ft to 5022ft revealed a predominantly sandy section without any samples suitable for palynological analysis. Similarly inspection of cuttings over the interval 3920-4330ft in Dutson Downs-1 revealed a sandy section unsuitable for palynology.

It is possible core-3 at 4245-58ft in Dutson Downs-1 may provide some control over the above interval. The surprising *N. senectus* Zone age from the sample processed from this core is clearly out-of-place.

The three samples from the Golden Beach Group analysed gave mixed results. The two samples from Merriman-1 confirm the presence of the *P. mawsonii* Zone but the evidence is weak. The core sample from Golden Beach West-1 yielded a good specimen of the lacustrine algal cyst *Rimostocysta* confirming that rocks time equivalent to the Kipper Shale had been deposited in the onshore portion of the basin. The association of the algae with assemblages dominated by *Dilwynites*, which is a manifestation of "Neves effect", further suggests the widespread and often deep water lacustrine lake facies also extend onshore.

Yours sincerely

  
Alan D. Partridge

To: Lesley Knight  
Biostrata Facsimile

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DUTSON DOWNS-1

Sample	Depth*		Spore-Pollen Zone (Microplankton Zones and Subzone)	Comments and Key Species Present
	Metres	Feet		
Core-2	914.4	3000	Middle <i>N. asperus</i> ( <i>G. extensa</i> )	Microplankton <1%. <i>Nothofagidites</i> spp. 84%. <i>Trilorites magnificus</i> present.
Cuttings	1115.6	3660	Lower <i>N. asperus</i>	Coaly sample dominated by <i>Phyllocladites mawsonii</i> >40%. <i>Proteacidites rugulatus</i> present.
Cuttings	1194.8	3920	Lower <i>N. asperus</i> or older	Spore-pollen dominated by <i>Gleicheniidites/Clavifera</i> spp. 28% and <i>Haloragacidites harrisi</i> 21% with <i>Nothofagidites</i> spp. only 8%.
Core-3	1293.9	4245	<i>N. senectus</i>	<i>Forcipites sabulosus</i> 12% <i>Nothofagidites senectus</i> <1%. Sample out of place, should be from core 4 or 5.
Cuttings	1319.8	4330	Upper <i>L. balmei</i>	LAD for <i>Lygistepollenites balmei</i> and <i>Australopollis obscurus</i> in heavily caved assemblage. Presence of caved <i>Myrtacoidites</i> <i>terreus</i> indicates presence of Early Eocene interval in overlying section.

\* Top of interval

LAD = Last Appearance Datum

**Discussion:**

The two core and three cuttings samples were selected for analysis to obtain some age control on the Tertiary Latrobe section.

Unfortunately the sample from core-3 has clearly been wrongly collected. It appears I have mistakenly collected a piece of either cores 4 or 5 instead of core-3. I believe the mistake was made at the core store as I recall there was some ambiguity in the labelling of the core boxes for these three cores. The high frequency of *Forcipites sabulosus* clearly indicates it is from the *N. senectus* Zone. Overall the assemblage is similar to those from sidewall cores at 4811ft and 5063ft (see Provisional Report-1).

The dominance of *Haloragacidites harrisi* relative to *Nothofagidites* spp. in the cuttings at 3920-30ft suggest this sample could be older than the Lower *N. asperus* Zone. However it is currently retained in the younger zone in the absence of any older species in the slides examined.

Prepared by: Alan D. Partridge  
21 June 1996

**PROVISIONAL REPORT No. 3  
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GOLDEN BEACH WEST-1**

Sample	Depth		Spore-Pollen Zone (Microplankton Zones)	Comments and Key Species Present
	Metres	Feet		
Core-7	2089.7- 2090.0	6856- 6857	<i>P. mawsonii</i> ( <i>Rimosicysta</i> Superzone)	Microplankton <1%. Spore-pollen dominated by <i>Dilwynites</i> spp. at 50%. <i>Phyllocladites mawsonii</i> and <i>Rimosicysta asperus</i> present.

**Discussion:**

The combination of species abundances and presence of rare index species provide a firm time and facies correlation to the offshore Kipper Shale. It would now be desirable to inspect the lithological and electric logs to identify the thickness of the lacustrine beds.

**MERRIMAN-1**

Sample	Depth		Spore-Pollen Zone	Comments and Key Species Present
	Metres	Feet		
Core 4	1546.9- 1548.7	5075- 5081	<i>P. mawsonii</i>	Assemblage dominated by <i>Cyathidites</i> spp. 22% and <i>Podocarpidites</i> spp. 20% with <i>Phyllocladites mawsonii</i> , <i>Coptospora pileolus</i> ms and <i>Rugulatisporites admirabilis</i> ms key species recorded. Approximately 15% of assemblage comprised of reworked Permo-Triassic palynomorphs.
Cuttings	1816.6- 1819.7	5960- 5970	No older than <i>P. mawsonii</i>	Over 50% of assemblage caved. In situ spore-pollen distinguished by poorer preservation not particularly diagnostic, but dominated by <i>Dilwynites</i> spp.

**Discussion:**

Both assemblages are poorly preserved (except for caved fossils in cuttings) and index species rare. The firm age from the core constrains the youngest age for the underlying cuttings while the absence of species abundances or index species characteristic of the Strzelecki Group suggests the section can be no older than the *P. mawsonii* Zone.