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FINNISS TOWN WATER SUPPLY BORE
PALYNOLOGY OF CORE SAMPLES

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PALYNOLOGY OF CORE SAMPLES

by

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Request submitted : J. Weber, Engineering Division.

Location : Troughbridge Basin (Permian), Murray Basin (Tertiary)
BARKER 1:250 000 sheet (SI 54-13)
Milang 1:100 000 sheet (6627-II)
Hundred Alexandrina, Railway Reserve, Finnis.
Coordinates East 302350 North 608 0210

Borehole Unit No.: 6627 002 WW 01024

<u>Core Samples and Sample Nos:</u>	48.0-48.4 m	S4629
	76.0-76.3 m	S4614
	100.0-100.4 m	S4630

Observations: Sample S4629 is a dark brown slightly calcareous clayey siltstone and yielded the following moderately well preserved assemblage.

Spores and pollen include:

- Arecipites sp.
- Cyathidites minor
- Cupanieidites orthoteichus
- Dilwynites granulatus
- Graminidites sp.
- Haloragacidites harrisii
- Lygistepollenites florinii
- Malvacipollis diversus
- Myrtaceidites parvus
- Nothofagidites asperus
- N. brachyspinulosus
- N. emarcidus
- N. falcatus
- N. flemingii
- Periporopollenites demarcatus
- Phyllocladidites mawsonii
- Polypodiidites sp.
- Proteacidites annularis
- P. obscurus
- P. pachypolus
- P. recavus
- Retitriteles sp.
- Santalumidites cainozoicus
- Sapotaceoidapollenites rotundus
- Tricolporites leuros
- Verrucosisporites kopukuensis

Microplankton:

- Areosphaeridium multicornutum
- A. pectiniforme
- Baltisphaeridium nanum
- Chytroeisphaeridia sp. 1133
- Cordosphaeridium fibrospinosum
- Cyclonephelium fibrospinosum
- Cyclopsiella elliptica
- Dinopterygium cladoides
- Diphyes bulbosum
- Emmetrocyta urnaformis
- Hystrichosphaeridium muratum
- Impagidinium dispersitum
- Membranilarnacia clathroderma

M. angustivela
Membrasphaera maastrichtia
Operculodinium centrocarpum
Palaeostomocystis pachythea
Paralecaniella indentata
Polysphaeridium pseudocolligerum
Reticulodinium incompositum
Samlandia chlamydophora
S. aff. reticulata
Spiniferites adelaidensis
S. ramosus
Tectatodinium sp. 5131
T. sp. 5130
Thalassiphora pelagica

Microplankton comprise about 10% of the palynomorph assemblage.

Samples S4614 and S4630 are lithologically similar and are medium grey slightly calcareous claystones with scattered medium grained quartz sand. They yielded essentially similar assemblages.

Spores and pollen include:
- Calamospora sp.
Emphanisporites sp. (only in S4630)
Florinites ovatus
Ginkgocycadophytus cymbatus
Geminospora cf. lemurata (only in S4630)
Granulatisporites micronodosus
Horriditriletes ramosus
Krauselisporites sp.
Microbaculispora tentula
Plicatipollenites spp.
Potoniesporites sp.
Protohaploxypinus sp.
Punctatosporites sp.
Retusotriletes sp.
Striatoabietes multistriatus

Microplankton:
- Leiofusa sp.
Micrhystridium sp.

Plicatipollenites spp. dominate and microplankton comprise about 2% of the assemblage.

- Conclusions:
1. Sample S4629 is clearly of early Tertiary age and belongs to the Late Eocene Upper Nothofagidites asperus zone of Stover and Partridge (1973). Both the terrestrial and microplankton components indicate this assignment. The microplankton component is marine and indicates a near shore perhaps tidal flat environment. Lithologically the sediments belong to the Buccleuch Beds.
 2. Samples S4616 and S4630 are early Permian in age and belong to Stage 2 (Kemp et al. 1978). The assemblages are similar to those recorded elsewhere from the Cape Jervis Beds at Waterloo Bay, Yorke Peninsula, (Foster, 1974) and from Hallett Cove.

Of interest is the occurrence of reworked Devonian species, Emphanisporites sp., Geminospora sp. and Retusotriletes sp., that have been recorded previously from the Cape Jervis Beds at Waterloo Bay (Harris and McGowran, 1971).

The presence of acritarch at this level indicates a limited marine influence.

Lithologically the sediments are part of the Cape Jervis Beds.

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- Kemp, E.M, Balme, B.E., Helby, R.H., Kyle, R.A., Playford, G. and Price, P.L., 1977. Carboniferous and Permian palynostratigraphy in Australia and Antarctica:
- Stover, L.E., and Partridge, A.D., 1973. Tertiary and Late Cretaceous spores and pollen from the Gippsland Basin, southeastern Australia. Proc. R. Soc. Vict., 85: 237-286.