

ROBERTSON RESEARCH (NORTH AMERICA) LIMITEDPRELIMINARY REPORTTHE MICROPALAEONTOLOGY AND PALYNOLOGY OF THE IKATTOK J-17 WELLMACKENZIE DELTA, ARCTIC CANADABIOSTRATIGRAPHICAL ZONATION:

INTERVAL 90' - 750': Undifferentiated Neogene - Pliocene/Pleistocene

Micropalaeontology

This interval contained an assemblage of Pliocene - Pleistocene foraminifera characterised by the dominant species Protoelphidium orbiculare, Elphidium umbilicatum and Elphidium clavatum between 90' - 540'. The interval below was barren of in situ foraminifera.

Palynology

The palynoflora consists mainly of reworked Mesozoic and Carboniferous forms. Between 570' and 750' the occurrence of "Dinoflagellate ovoid cysts" suggests an undifferentiated Neogene age.

INTERVAL 750' - 1560': Middle Eocene - Oligocene

Micropalaeontology

This interval was barren of in situ foraminifera.

### Palynology

In situ palynomorphs recorded include Tiliaepollenites sp. cf. crassipites, Ulmipollenites sp., Triporopollenites spp., Ericipites (tetrad) sp., Caryapollenites sp. cf. veripites, Tricolpites spp., Pterocaryapollenites sp. and Tricolporopollenites spp. (castaneoid types included). In situ microplankton are absent.

INTERVAL 1560' - 4350': Paleocene - Early Eocene

### Micropalaeontology

This interval was barren of in situ foraminifera with the exception of ditch cuttings sample 2370' which yielded the common occurrence of Cyclamina arctica-borealis. This foraminifer is thought to be of probable Eocene age, fide Langhus & Zingula in Staplin (1976).

### Palynology

Palynomorphs include the angiosperms Pistillipollenites mcgregorii, Paraalnipollenites sp., Tiliaepollenites vescipites, Englehardtia sp., Tricolporopollenites spp., Aquilapollenites spp., Triporopollenites spp., and the spores Cicatricosisporites spp.

Characteristic members of the fungal group recorded include Pesavis tagluensis, Striadiporites sanctaebarae, Pluricellaesporites sp. and Brachysporisporites cotalis.

INTERVAL 4350' - 12,500' (T.D.): Paleocene

Micropalaeontology

This interval was concluded to be barren of in situ foraminifera, although the common occurrence of Late Cretaceous, Campanian - Maastrichtian species including Haplophragmoides collyra, H. rota, H. excavatus, Gaudryina cf. bearpawensis and Verneuulinoides cf. cummingensis were recorded over the interval 5280' - 9810'. Their presence over this interval is discussed in the stratigraphical remarks.

Palynology

The palynoflora is characterised by the continuous dominance of fungal spores. These include Pesavis tagluensis, Diporicellaesporites sp., Ctenosporites sp., Brachysporisporites spp., Microthyriaceous germling and fungal hyphae.

Few in situ pollen and spores were recorded. In situ microplankton are rare.

STRATIGRAPHICAL REMARKS

The Ikattok J-17 well penetrated Tertiary and younger sediments, as determined dominantly on palynological evidence. The stratigraphical intervals are listed above. However, certain anomalies exist regarding the foraminifera recorded. Between 5280' - 9810' a foraminiferid fauna of Late Cretaceous, probably Campanian - Maastrichtian age, was found. This fauna was often quite abundant. Nevertheless, palynological evidence suggests a Paleogene age over this interval. The occurrence of the foraminifera can only be explained by large scale reworking into this Paleogene coastal and delta plain environment as described by Young, Myhr & Yorath (1976). This environmental interpretation is also supported by the lithologies examined which were often sandstone dominated, containing silty and coaly mudstone together with thin discontinuous coal seams. Such an environment is non-conducive to the development of the foraminiferid fauna recorded. The absence of in situ microplankton also supports this suggestion. Large scale reworking of the microfauna is also enhanced by palynological evidence of Late Cretaceous pollen within the interval at 4400' - 5500', in association with an in situ Paleocene flora.

From extrapolation of the regional geology, as described by Young, Myhr & Yorath (1976), it would appear that the Ikattok J-17 well is situated within the Kaltag-Blow Fault Zone which could account for reworking of sediments due

to the long term active nature of this structure. The diagrammatic cross-section of the above authors (fig. 23, section X<sup>1</sup>-X) tends to simplify this fault zone, although to the west, and outside the zone, the top of the Late Cretaceous sediments is thought to exist at approximately 6200'+ below sea level.

REFERENCES

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