PPCo Summary

The Jurassic seas in which the black shales were deposited, were probably of a bathyal nature. A period of non-deposition/deposition plus erosion followed, since almost the entire Lower Cretaceous is absent. Sedimentation recommenced in an outer sublittoral environment, where Albian shales were deposited. However, slight uplift again occured as Cenomanian and Turonian chalk is not represented.

INTERVAL 12045' - 12060'; Albian, Lower Cretaceous

General Lithology

The predominant lithologies recorded in this interval are white, green and pink chalk, but it is probable that they have caved. Associated with the chalk throughout the section is buff, micaceous (muscovite), well indurated, dolomitic shale which is rarely glauconitic and pyritic. There are also thin partings of white to light grey, micaceous, dolomitic or calcareous shale and grey-green, glauconitic, micaceous sandstone.

Micropalaeontology and Statigraphical Conclusions

Only one of the samples seen in this section yielded Lower Cretaceous foraminifera - at 12,060'. However, the top of the unit is drawn according to the lithological evidence, i.e. at the appearance of the buff, dolomitic shale at 12,045'. The foraminifera recovered include Lenticulina cf. gaultina, ?Conorboides sp. and Hedbergella planispira. This last form is characteristic of the Albian and therefore that is the age given to the interval. The form termed ?Conorboides sp. may be significant as we have recorded it at similar stratigraphic horizons in this area of the North Sea.

Enviromental Conclusions

An outer sublittoral environment is believed to have existed at the time of deposition of these sediments, and the lithologies indicate that terrigenous material was being brought into the area.

The oldest deposits studied in this well are of Permian age and were probably laid down in an enclosed sea or lagoon . These salts and anhydrites are overlain by Upper Jurassic shales and sandstones and therefore therewas an intervening period of non-deposition or deposition and subsequent erosion involving Triassic to Middle Jurassic rocks. The Jurassic seas in which the black shales were deposited were probably of a bathyal nature.

INTERVAL 12065'- 12120'; Upper Jurassic

General Lithology

The appearance of black, calcareous, pyritic, carbonaceous shale at 12065' delineates the top of this interval. This shale is interbedded with brownish black, angular, fine-grained, argillaceous, dolomitic sandstone which grades into silty shale. There are also minor developments of greenish grey, arenaceous shales, in which the angular sand grains are aligned.

Micropalaeontology, Palynology and Startigraphical Conclusions

No stratigraphically diagnostic palynomorphs, foraminifera or ostracoda were recovered from this interval and the determination is based on the lithological evidence as the black shales and sandstone described above are typical of Upper Jurassic sediments in this region of the North Sea.

Environmental Conclusions

The improverished microfaunas suggest that sedimentation occured in deeper waters relative to the overlaying intervals and a questionable bathyal environment is assigned.