

in some areas, near the Cormorant-1 and Nerita-1 wells, deformation appears to be a Recent event.

The present day maturation stage was also investigated to determine the upper limits of maturation.

Four model cross-sections were chosen to illustrate the theoretical maturation of the basin. Cross-section A-A' (Enclosure 50) crosses the Pelican area graben onto the stable Pelican-3 to Yurongi-1 area. None of the section enters the oil window before 42 m.y.a. Between 42 m.y.a. and present day the Late Cretaceous section enters and stays within the oil window in the area between the Pelican-3 and Dondu-1 wells. In this area, there is not a dominate structural dip component, and as a result, there is no dominate long distance oil migration direction.

The Late Cretaceous and Paleocene intervals pass into and through the oil window between 42 m.y.a. and present day within the deepest portion of the Pelican half graben. Lower M. diversus section is presently within the window south of the Pelican wells. Migration would be in all directions out of the sub basin into the Pelican structure to the northeast and along the top of the basement to the southwest.

Cross section B-B', Enclosure 51, connects the Tarook-1 and Tilana-1 wells. None of the section enters the oil window until after 42 m.y.a. Between 42 m.y.a. and present day, the Late Cretaceous and Paleocene sections enter and pass through the oil window in the central area. At the edge of the basin in the Tilana-1 and model point 63 area these sections are presently within the oil window.

Cross section C-C' (Enclosure 52) through the Yolla-1 well, illustrates that 42 m.y.a. the Late Cretaceous and Paleocene sections are within or through the oil window in the area demonstrating the thickest basinal development, model point 53. From 42 m.y.a. to present day, the oil window moves up into the M. diversus section in the deepest portion of the basin. The Late Cretaceous and Paleocene interval at the edge of the basin enters and remains within the oil window.

Cross section F-F' (Enclosure 53) through the Cormorant-1 well area shows that none of the section has entered the oil window by 42 m.y.a. Between 42 million years ago and present day, the Late Cretaceous and lower Paleocene will enter and pass through the oil window in the Cormorant trough. Southwest of the Cormorant trough, the Late Cretaceous interval of the more stable area enters and remains within the oil window.

Taking into account that there may be extensive laterally continuous volcanic seals within the lower Paleocene section, a summary of the maturation history of the central basin suggests that oil expulsion from the Late Cretaceous and Paleocene intervals developed shortly before and after the end of Eastern View Coal Measure deposition, at 42 m.y.a., within the deep basin areas at Cormorant-1, southwest of Yolla-1 and at the Pelican wells. The vertical migration during this period would be restricted to the section below the volcanic seals with lateral migration taking place below the volcanics seals out of the central basin. Local vertical migration would take place in areas of dominate edge of graben