

slightly higher than in the wells previously presented. The age of these sediments is also slightly younger than the age of the sediments in the wells previously presented.

The vitrinite data of the Tilana-1 well are presented on Enclosure 45. The exceptionally high vitrinite values at the top of the Eastern View Coal Measures were excluded from the theoretical vitrinite to actual vitrinite comparisons in that they are thought to be artifacts of high surface temperatures due to extrusive igneous activity during deposition. The best fit geothermal gradient is 1.80°F per 100 feet in the Tilana well.

The vitrinite data of the Yolla-well are presented on Enclosure 46. The measured vitrinite data in the Yolla well are problematical. A linear increasing trend with depth for the vitrinite data is not evident. This is possibly a function of contamination of anomalously high vitrinite values due to intrusive volcanics below the intrusive intervals. The erratic character of the measured vitrinite data for this well makes an evaluation of a geothermal gradient impossible.

The vitrinite data of the Durroon-1 well are presented on Enclosure 47. The significant difference between the Durroon-1 well and the other six wells studied for geothermal gradient analysis is that the Durroon-1 well has sediments significantly older. The oldest sediments penetrated by the first seven wells are 70 million years old. The Durroon well has sediments interpreted to be close to 114 million years old at the well's total depth. The best fit geothermal gradient for the Durroon-1 well data is 1.75° F per 100 feet. It is encouraging that the most common best fit geothermal gradient of the other wells is also seen as a best fit in the well representing the oldest section seen in the basin.

Five of the seven wells evaluated for vitrinite support of a basin wide geothermal gradient indicates that a geothermal gradient of 1.75°F per 100 feet best represents the general temperature regime present in the basin during Cretaceous and Tertiary deposition. The Tilana and Cormorant vitrinite data suggest that a slightly higher geothermal gradient was present locally near the well areas or in a trend connecting the two wells along the northern edge of the expansion grabens. In that the increased geothermal gradients seen in these wells impacts timing of peak oil expulsion by less than five million years (Enclosure 23), basin wide maturation modeling was run with the more representative gradient of 1.75°F per 100 feet, with the understanding that oil expulsion was possibly slightly earlier in the northern flank of the basin.