

on the southeastern flank could be simply a function of the distribution of the data points (see figure 5.4).

- 2) The second model relies on data estimate inaccuracies and localised phenomena to explain the variations seen. The disposition of faulting and pay within the Pelican Field suggests that the gas accumulations may be the result of vertical migration. The expansion of gas as it migrates vertically may cause a local decrease in the temperature gradient.

None of the lower gradients over Pelican field area are ranked as good estimates (see Table 5.2). Further, there is difficulty in establishing an explanation of why Pelican 4 (GOOD ESTIMATE OF RELIABILITY) has a gradient of  $40.47^{\circ}\text{C}/\text{km}$  only a few kilometers away from Pelican 1 (FAIR ESTIMATE OF RELIABILITY) with a gradient of  $35.73^{\circ}\text{C}/\text{km}$ . It is possible that all the wells in the apparently cooler area may have temperature gradients higher than calculated and similarly quite a few of the wells in the apparently hotter zones may be overestimates due to measurement reliability.

Also, Pelican Field is over an overpressured zone, which normally reduces thermal conductivity.

Considering data reliability, the basin can be modelled as having a moderately cooler northwest trending deeper zone, and flanked to the southwest, northeast and north west by slightly higher gradients.

- (3) The data can also be contoured to reflect the major north