

of analyzing the data from the Aroo-1 as a solitary database. Statistical analysis of the Aroo-1 data alone produced a zonation of the well and the corresponding 'lithologic' column. The second analysis of the Aroo-1 involved zonation of the well by processing the Aroo-1 data using the saved mathematical functions which define all of the zones in the pseudo well. The Aroo-1 did not contribute to the mathematical functions, that is, it was not one of the wells which were concatenated to form the pseudo well. The saved mathematical functions created a zonation and corresponding 'lithologic' column for the Aroo-1 which is virtually identical to that created by the first method of processing the same data. This indicates that saved mathematical functions created from a subset of wells can successfully be used to identify zones in other wells if those other wells contain the same rock types and curves. The five remaining wells were, therefore, zoned with confidence using the saved mathematical functions. This methodology maintains zone definitions that are similar across the basin.

Three other independent checks on the zonation process also indicate the validity of the zones. First, the zones correspond almost exactly with the 'key' curve defined by empirical examination of the curves on the Log Processing System (LPS). Second, the coal measures correspond with events (reflections) on seismic sections when the 'lithologic' columns and the seismic sections are compared at the same scale. In addition, the zones match with the descriptions of cored intervals from all ten wells.

The results of the computer rock zonation analyses are presented as lithologic zone columns in Appendix E. The full well 'lithologic' columns are Enclosures 1 through 40. Large scale 'lithologic' columns over cored intervals are Enclosures 41 through 48.

A detailed comparison of the facies/environment of deposition to the rock zones defined by this analysis was attempted. This comparison was difficult at times because the conversion of core drilling depth to the log depth of the 'lithology' column in the sand/siltstone/shale sections is unreliable. The uncertainty inherent in the conversion introduced the possibility that the correlations are in error.

The summary of this detailed investigation is that the rock zones appear to be generally related to rock character but are not related to changes in facies or environment of deposition. In general there is an unquestionable correlation between changes in core description and changes in the presence of rock zones. For instance, changes in grain size described in cores consistently correspond to changes in rock zone at the corresponding depth. However, all the sand and shale rock zones are found within each of the multiple environments of deposition.

In summary, the general interpretation of what each sand zone represents appears to be related somewhat to porosity and permeability. Sand type 3, green, seems to be related to the zones of highest core plug permeability. Sand type 2, yellow, also seems to be related to good porosity. Sand type 3, greenish yellow, seems to relate to somewhat poorer porosity. Influences of porosity were removed from the log curves used to define rock zone populations, but since rock properties are so closely