22.

3.2.5.4. Log Callibration

Although detailed callibration of the physical properties of the various rock types with their geophysical responses was not performed, the method used is regarded as satisfactory for the estimation of broad categories of coal quality.

Coal quality was estimated in terms of relative density from the BRD log based on callibration of cored coal seams with BRD logs elsewhere in the state; these coal seams occur in the same sedimentary succession (of similar or identical age), and the wireline logs of the same were run by BPB using identical recording equipment, and with the same resolution.

Three classes of carbonaceous matter have been recognised, as follows:

Coal: RD $\leqslant$ 1.75,   BRD > 22 500   SBRDU
Heavy Dull Coal (HDC):   RD 1.75 – 1.98,   BRD 20 500 – 22 500   SBRDU
Carbonaceous Mudstone: RD > 1.98,   BRD $\simeq$ 19 000 – 20 500   SBRDU

These categories correspond to ash contents of $\leqslant$ 40%, 40–60% and > 60% as shown in Figure 4.

The interpretations of the wireline logs are shown in Figures 5 to 22.

3.2.5.5. Comments

As stated earlier, the BRD logs were used to estimate down hole depths of coal seams etc., and these values were then transposed on to the LSD, G, NN, and R logs. In the absence of BRD logs, and where the LSD and caliper logs were conjectural, greater emphasis was put on the interpretation of the G and NN logs, the relative usefulness of which can be seen in Table 2.

The limited number of samples of fresh dry rock log responses precludes definitive comments, except that G responses increase by a factor of 2 to 3, and the NN logs by a factor of $\simeq$ 10.

It is apparent that fresh wet G logs do not permit distinction of coal from lithic sandstone, nor heavy dull coal from mudstone. However, the fresh wet NN logs (with virtually the same resolution), allow ready recognition of most of these rocks.