

Opportunities Lost – The Value and Application of Image Logs is Missed Due to Inadequate Quality Control.

Lawrence Bourke (Task Geoscience), Jeremy Prosser (Task Geoscience) and Peter Barrett (Fronterra Geosciences)

We live in the digital era. More data hits us from more sources with increasing frequency. During this information overload, unfortunately, we invariably assume that what we receive and see is correct. In the oilfield we are surrounded by cutting edge technology, which includes some of the best to be found on (and indeed in) Earth. However, in spite of these technological advances, there are certainly still some weak links in the information generated, and if you are not aware of them, then the assumption that “the data are good” can lead to costly mistakes and the value of the data not being realized.

The digital revolution has been accompanied by an “imaging revolution”. Nowadays we image just about everything with greater detail and clarity; the universe, our un-born babies, cells within our bodies, and of course, our well bores. The Borehole Image is a versatile and invaluable tool. It can be used to determine both rock fabric and its orientation, and images can thus be applied to problems as varied as deciding your next well location, the direction of a lateral well, characterizing a rock fracture system, identifying zones suitable for completion etc. Unfortunately the value of many borehole image logs is held back by interpretations which do not reveal the true value of the data, often directly as a result of poor to non-existent quality control. It is possible for anyone to obtain access to PC based borehole image processing and interpretation software at relatively low cost. Expensive workstation based software is no longer required. Unfortunately however, the explosion in borehole image users does not appear to have been accompanied by an explosion in training, and it is possible for errors to propagate through the interpretation and utilization of these data through a miss-understanding of data quality and associated issues.

As contractors relying on the accuracy of these images we have stringent quality control procedures. In recent years, we estimate that approximately 45% of image logs which we see come associated with an error which could have a serious impact on the interpretation and hence any further decisions based on this interpretation. Note, this does not mean that 45% of the image logs we see are of poor quality. Rather it emphasizes the fact that a very significant number of the images yield a “red flag” during the QC process, which at least requires further investigation, typically leading to some sort of data correction before the images can be properly utilized. The aim of this presentation is to point out some of the common problems and show some simple quality control steps which will highlight many of the common problems encountered. Unfortunately there is no single workflow suitable for every situation. When you think you have seen it all, some new error or issue invariably comes along ! However, if we can implement a standard set of basic QC procedures, they will have a large positive value impact upon the utilization of one of the greatest tools available to geologists. .