

FROM PAPER TO BINARY: PROBLEMS AND SOLUTIONS IN CREATING AND VERIFYING DIGITAL LOG DATABASES

Deborah M. Olson and Thomas M. Howard

PayZone Inc, P O Box 5146, Bakersfield, CA 93388, dmolson@payzoneinc.com

Over the last 30 years major efforts have been made to capture well log data from paper records as digital representations. In the late 1970's, field capture of digital logs became common. However, the archival records stored in most corporate well files and the majority of U.S. public data repositories are still the paper log plots or their scanned images.

The digital logs in corporate databases often have a long history including migration from previous platforms and data structures, merging of information from multiple sources, and access by many people who could edit the data. The staff assumes validity of the data to generate reservoir characterizations. Management bases critical decisions on the analytical results. The entire process relies on the credibility of the digital curves as true representations of the actual well logs, but all too often they are not.

In verifying and repairing many field-wide digital well log databases for a variety of clients, we have found that most of them have defects (sometimes extensive) that must be remediated before any further work can be done. When databases are not verified, much staff time is lost in attempts to repair data in a piecemeal fashion to move the immediate job forward. This costs time and money on every project. And there is always the potential for making incorrect interpretations based on faulty data that was not recognized.

It is not easy, quick, or cheap to verify a log database, and the work should be performed (or at least closely supervised) by staff with extensive knowledge of logging tool physics, well logging operations, methodology of petrophysics, and the geology of the logged intervals. However, validity of basic field data is vital to making sound economic decisions. Many development projects in mature basins still have a long remaining life, and an investment now in an accurate set of reservoir data will provide a significant future payoff.