Borehole Image Logs Data Management

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ABSTRACT

Borehole image log data have been acquired over the years and are being used to build subsurface models in Saudi Aramco. Dealing with borehole image log data is a big challenge because these data sets are not conventional log data, and require special software, so they tend to be neglected with respect to data management. There is a variety of emerging wireline and LWD tools, and each logging run contains a variety of curves with tool-specific mnemonics. Tools, software and standards in each service company are also different. Therefore, data quality management has become an essential procedure to assure borehole image log data integrity in the subsurface models. Data quality management shall be performed iteratively and continuously during data acquisition, processing and interpretation. This paper presents the applicable corporate guidelines and procedures used in Saudi Aramco for data quality management of borehole image log data.

A feasibility study has been conducted for several applications in the market: Techlog, Recall and GeoFrame; and it found Techlog meets the required capabilities and functionalities in terms of image logs quality control, processing and interpretation. After coordinating with data processor and interpreter, Techlog software has been selected as corporate repository; and 16 master projects are created considering the performance and geographical distribution.

To ensure borehole image logs are complete, accurate and timely captured in the corporate database, a set of data standards, image log format and QC procedures have been set. More than 90% of borehole image log data have been tracked, QCed, and loaded into relevant repository. To make data easily accessible to the Exploration Community, the data repository is to be linked to GeoKnowledge, a web-based search tool. So far, we can provide quality assured borehole image logs data to the Exploration Community in a timely manner.