Well Bore Images Data Analysis and Asset Protection: Case Study

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ABSTRACT

The effective management of upstream data has a major impact on company performance. Data quality could make the difference between a dry hole and a major discovery. As oil and gas companies grow in size and age, data management becomes increasingly challenging. A significant challenge is the rapid pace of application technology evolution and development. Companies continuously acquire new software solutions over time to better manage their data throughout the business cycle. This progression holds true for well bore image (WBI) data, which provides essential information for identifying and interpreting complex reservoir structures, borehole geomechanics, and the geological environment. WBI data is not only expensive to acquire, but is also difficult to process and interpret. It therefore requires an efficient data management solution. Failure to manage the data in a way that is searchable, reliable, and easily retrievable when needed diminishes its value. However, the dilemma encountered when a decision is made to decommission a legacy WBI application and its associated database in favor of a newer, more effective software solution becomes apparent. As a result, we had to determine the fate of an inventory of thousands records of application-dependent WBI data. In this case study, we have worked with key stakeholders to combine WBI data from multiple data sources. Hence, a solid and comprehensive foundation has been built for advanced analysis. This allowed us to use different data quality tools in which we applied data uniqueness and completeness examination. A list of matching and non-matching records between the legacy database and other WBI repositories were identified and helped in making the decision of what to export and migrate from the legacy database. Also, the analyzed data were stored in different data formats. Thus, after adopting the industry digital log standard format, it is also mandatory to validate the exported data's compatibility with modern geoscience applications. In this work, we will discuss how over 25 years' worth of WBI data were protected, managed and incorporated into the corporate repository in an application-independent format that is fully indexed and searchable. The critical WBI data will not only be indexed and safeguarded but also will heavily contribute to the keen reservoir insight.