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**A Fuzzy Expert System for Detection of By-Passed Intervals in a Geologically Complex Reservoir Using
Production-Calibrated Well Log Data**

Conventional well logs in a complex geological environment oftentimes yield insufficient information about intervals with reserves and production potential. Accentuating the situation is the complexities associated with distinguishing between hydrocarbon and water bearing intervals in such complex lithologies. The case of the Monterrey Formation is a prime example for demonstrating the problems of analyzing conventional well logs. From the examination of more than two decades of performance history of low to high producing wells, we have developed a fuzzy expert-system calibration mechanism to decipher new information from old logs. The proposed methodology is an important step or re-examining conventional logs to detect intervals with production potential. Application of the process for two fields with similar lithologies will be presented.