

Evolution of Spectroscopy Gamma Ray Logging Service Improves the Formation Evaluation in Unconventional Gas Reservoirs

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Abstract

The demand of energy, due to the increase in population and decline of oil production through conventional reservoirs, has caused oil and gas companies to focus on alternative sources for generating energy during exploration, drilling and evaluation, like unconventional reservoirs. Such reservoirs present many challenges, for example; finding the location of sweet spots in the stage of exploration, passing the lithological complexity in the stage of formation evaluation, right through to hydraulic fracturing during production. These challenges have generated a need for service companies to improve their portfolio of products, in terms of workflows, processes and new technologies. In addition, for locating, delimiting, understanding and evaluating the unconventional reservoirs.

In reference to the domain of formation evaluation in unconventional gas reservoirs, the challenges vary. Beginning with the determination of the volumes and types of clay, lithological variations and porosities; and progressing to the volume of organic matter and its corresponding adsorbed gas. To get answers to these questions, it is necessary to obtain relevant information in the early stages of the project or pilot wells, in order to minimize the risks and make appropriate decisions in the following stages. Once the data is acquired, it should be analyzed and interpreted, using a process of workflows developed specifically for unconventional gas reservoirs.