

3rd World Congress on

PETROLEUM ENGINEERING AND NATURAL GAS RECOVERY

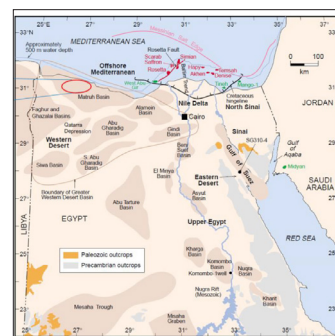
July 20-21, 2018 Sydney, Australia

New approach for unconventional reservoirs rock typing characterization: Egyptian unconventional gas reservoirs

Mohamed A Fathy

British University in Egypt, Egypt

According to OPEC 2013, Global economy is strongly based on fossil fuels which represent 90% of the primary energy produced in the world. Fossil fuels by definition are non-renewable sources of energy and their amount is limited, moreover huge amounts of oil and gas world reserves have been produced. Nowadays, world energy consuming at an all-time very high where all resources are required such as renewable energies including solar, wind besides nuclear energy, and biofuel. There is no source that can supply and fulfill our increasing demands of energy consumption. Unconventional reservoirs can add huge amount to resource base like organic shale, tight gas and oil, coalbed methane. These reservoirs are transforming the global energy market through advances in reservoir characterization, drilling and completion technologies have turned these reservoirs from uneconomical source rocks into sought-after resources. The greatest industry challenges are the determination of how to systematically convert these unconventional resources potential into economical and commercial reserves. In addition to improve scientific understanding of the unique characteristics of these formations is leading the way to a cleaner energy future. Although shale resource estimates will likely be changed over time, the initial estimate of technically recoverable shale gas resources in 41 countries is 7,299 trillion cubic feet (Tcf). To put that into perspective, just 1 Tcf is enough to heat 15 million homes for a year. For all shale, including liquids, conservative estimates for oil and gas resources exceeds 2 trillion barrels of oil equivalent. Almost all unconventional wells must be hydraulically fractured in multiple stages. The better reservoir extent, hydrocarbon content, permeability and pressure are the better play's potential. In addition, a successful project depends upon interconnectedness of natural fracture networks, mineralogy and thermal maturity of the shale. Creating the reservoir quality (RQ) maps across a given play helps reservoir engineers to overcome the difficulties of these resources of nano-darcy permeability, this requires a good formation evaluation plan and in terms of the nature of the formations and their fluid content of unconventional reservoirs by using element of spectroscopy (EOS) and other modern techniques in Egypt where it has two substantial resources of oil shale with reserves more than 11 billion barrel of oil shale.



References

- Subsurface Science and Engineering of Shale (2016) Amer Geophysical Union. The Science of Shale (1st ed) (2013). Houston, TEXAS: Schlumberger.
- Yen, Teh Fu, and George V Chilingar. *Oil Shale*. 1st ed. Amsterdam: Elsevier Scientific Pub. Co., 1976.

Biography

Mohamed A Fathy is currently a student of Petroleum Engineering and Gas Technology (PEGT) at the British University in Egypt (BUE). He had participated in SPE ADIPEC University program 2016 and also presented Poster in the undergraduate contest at the 58th SPWLA Annual Symposium in Oklahoma City, USA.

mohamed125686@bue.edu.eg

Notes: