

Unconventional Resources Classifications in Kuwait

Mohammad Al-Bahar¹, Vandana Suresh¹, Ghaida Al-Sahlan¹, and Mohammed Al-Ajmi¹

¹Kuwait Oil Company, Ahmadi, Kuwait.

ABSTRACT

Over the past few decades KOC has focused mainly on the exploration and development of conventional resources only. However, an initial assessment suggests that Kuwait has a huge potential in its unconventional resources. As the conventional resources are already in mature stage of exploitation, KOC is working on various strategies for the development of its unconventional resources. Based on detailed evaluation of several core and log data in various wells, it has been established that Kuwait has a huge potential of unconventional resources in Najmah and Makhul formations of Jurassic age. However, exploration and development of these resources is very challenging because of the complex structural setup. Also, the major challenge in the exploitation is due to its disposition in terms of thickness and depth of occurrence. These resources, though are of huge lateral extent, they are encountered at relatively greater depths and in relatively thinner rock units. The unconventional resources of Kuwait can be categorized into 3 types Class-I Organic-rich formation which are the main source rocks for the oil and gas across the entire Kuwait, Class-II Tight formations and Class-III Formations with Mobile/immobile heavy oil. However, the current focus is on the exploitation of kerogen rich zones of Class-I. However, the real challenges of exploitation of unconventional resources of Kuwait can be attributed to the completion and fracture design strategy which will be governed by the distribution of regional and local stress patterns and other geomechanical parameters. Another important aspect is that exploitation of unconventional resources involves huge capital expenditure and hence involves proper planning and proactive strategies. Currently KOC management is working to have a specific classification for Kuwait unconventional resources along with sound understanding of challenges associated with them and to finalize a process appropriate for their exploration and development. So that a road map can be generated to establish the additional production from unconventional resources as a part of KOC's 2040 strategy.