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The Effect of Produced Water from Heglig Oil Field On chemical Additives for Fracturing Fluids

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Abstract

Produced water is the water produced with oil or gas during well production as a result of different operations. Recently, many Sudanese oil fields suffer from the massive amount of water production; the most water production problems in Sudan was observed in Heglig oilfield. The Heglig oilfield is located in Muglad Basin in the southeast and middle of Block 2 in Sudan. The oil production from Heglig oilfield was reported to have peaked in 2006, however it has been declined now and the water cut was reached 95 %. It has also been recognised as a major risk of the environmental inthe area surrounding Heglig Oil Field. Due to many environmental impacts, several studies were conducted for treating the produced water from Heglig oilfield to be used in irrigation; no work was presented to study the effect of Heglig oilfield produced water on chemical additives for Fracturing Fluids. However, this work analyses and treats the produced water from Heglig oilfield and evaluates the possibility of the treated water for the re-using in water base fracturing fluids. Samples were collected from two different ponds in the field and analysed according to the American Public Health Association (APHA) and the result were compared with (National Recommended Water Quality (EPA)) to identify the required treatments for the collected water.The analysis was done in Rheine Waal University Of Applied Science-Kamp-Lint fort-Germany. The results showed that the cross-linking ability of the fracturing fluid presented that better cross-linking system were achieved with 0.48g CMHEC at pH of 8 and temperature of 40 °C for HEC and 60 °C CMHEC.

Keywords: Cross-linking system, fracturing fluid, produced water

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