



Correlation between Carbon Dioxide Concentration and Scale Deposition in Neem Petroleum Oil Field, Sudan

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Abstract: In this research, we studied the relationship between the scale formation and the concentration of carbon dioxide in the NEEM oil field, a subsidiary of the Greater Nile Petroleum Operating Company. Five samples of produce water from the separation units were taken before and after the installation of a carbon dioxide removal unit. The effect of the following factors (pH, Alkalinity, CO₂ concentration, temperature, CaCO₃ hardness and TDS), were studied using Langelier Saturation Index (LSI). Based on laboratory results before and after the installation of carbon dioxide removal unit to determine the tendency of water to form scale, the result was that water contains low concentration of carbon dioxide have scale amount greater than that of water with higher concentration of carbon dioxide. Based on this result and conclusions obtained from this study, it is recommended that carbon dioxide removal plant should be isolated and Scale chemical inhibitor must be use.

Keywords: *scale formation, Langelier Saturation Index.*
