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The effect of hydraulic fracture on increasing the hydrocarbon recovery: case study

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Fractures are mechanical breaks in rocks; they originate from strains that arise from stress concentrations around flaws, heterogeneities, and physical discontinuities. They form in response to lithostatic, tectonic, and thermal stresses and high fluid pressures. They occur at a variety of scales, from microscopic to continental. Fractures are important in engineering, geotechnical, and hydrogeological practice because they provide pathways for fluid flow. Many economically significant petroleum, geothermal, and water supply reservoirs form in fractured rocks. Fracture systems control the dispersion of chemical contaminants into and through the subsurface. They also affect the stability of engineered structures and excavations. The application of fracture characterization and fluid flow analysis in engineering, geotechnical, and hydrogeological practice involves addressing three key questions: How can fractures that are significant hydraulic conductors or barriers be identified, located, and characterized? How do flow and transport occur in fracture systems? How can changes in fracture systems be predicted and controlled?. Added to all of that, a real case study of the effect of the Hydraulic fracture on increasing the hydrocarbon production of a field in Egypt will be discussed.

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