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Entitled

PRODUCED WATER MANAGEMENT FROM PRODUCTION SITES IN THE STATE OF KUWAIT

by

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Abstract

Crude oil extraction leads to the production of produced water (PW). PW is by far the most significant by-product in the process of extracting hydrocarbons from the subsurface. Consequently, handling PW has become a great concern to oil and gas producers. The increasing amounts of PW and more stringent environmental and safety regulations in regard to PW make more efficient treatment methods necessary, where sustainable long-term solutions for PW management need to be provided. The focus of this study is on PW from onshore operations as the majority of the oil and gas extraction operations (upstream processes) are conducted onshore, and it is here that greater quantities of produced water are generated. The additional expense of PW treatment facilities and their relatively low economical returns on investment have always been the major issues for the implementation of innovative water treatment technologies. Therefore, simple disposal of excess PW by means of subsurface reinjection wells remains very common. The current study is directed towards the concept of merging different methods of treatment, namely the Ceramic Membrane Filtration Technology and Adsorption of Hydrocarbon content from Produced Water for the remainder, to achieve an adequate purification of PW at a reasonable cost and by reclaiming other natural waste material found in PW. This study will illustrate the significant economic, environmental, and technical benefits of implementing the experimented treatment methods to the GCC oil producing states by fully utilizing the natural resources at the oil production sites and how it can benefit the overall economy by reducing the waste streams generated at the oilfields in the State of Kuwait.

Keywords: Produced Water, Oil Production, Hydrocarbon extraction, Ceramic Membrane filtration, Adsorption, Produced Water Treatment, Produced Water Management, Produced Water Disposal, Dissolved Solids Removal, Oil, Gas, Salts, Corrosion, Scale, Disposal Wells, Virtual Water, Water Scarcity, Renewable Water sources, Gulf Cooperation Counties, Kuwait, Water Aquifers, Pollution, Salt Removal, Precipitation, Solar Distillation, Evaporation, Biomass, Spent Coffee Grounds.