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Impact of water salinity on the production well yield

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The process of oil extraction often requires pumping water into the injection well to dislodge oil which is finally collected in the production well. Aquifer, river and sea waters have been for injection to stimulate oil production in both on and offshore reservoir. Recent research by British Petroleum (BP) found a strong relationship between the salinity of the injected water and oil recovery. The lowest the water salinity is the highest the oil recovery rate. In other words, using low salinity water in the injection well will increase oil reservoir productivity. Since low salinity water is not always available especially in remote areas, desalination would guarantee the removal of high salinity from seawater for injection well use. Reverse Osmosis (RO) is one of the desalination processes which are widely used in the production of freshwater water from seawater. Although the process is highly reliable and efficient, RO cost is rather expensive. One of the technologies which have been suggested as an alternative to RO seawater desalination is NF-NF/BWRO hybrid membrane system. The proposed system involves using two different types of high permeability and rejection rate membrane for the removal of high salinity from seawater. Pilot plant and simulation results showed the high efficiency and cost-effectiveness of NF-NF/BWRO technology for seawater desalination. The process can be competitive to RO and most importantly more economical. Furthermore, NF-NF/BWRO system is modular and can be retrofitted in any existing plant.

Biography

Ali Altaee has completed his PhD at from Brighton University and postdoctoral studies from University of New South Wales and Surrey University, School of Chemical Engineering. He is now a working for the University of West of Scotland, the UK. He has published more than 20 papers in reputed journals and 5 patents and patent applications.

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