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Performance of RO plant with solar preheated feed water

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ABSTRACT

An RO plant with capacity of 10 m^3/d was implemented and a solar preheated feed water system was fitted to the RO. Both devices were mathematically analyzed. The performance of the RO plant with the change of feed water temperature was analyzed and as a result an increase in the permeate for about a 40% for increasing in the feed water temperature of 15°C. Also the different applied pressures and different feed water temperatures was analyzed along with effect of feed water temperature on the permeate TDS. Cost analysis of the system was carried out as well in order to show the coupled solar system could save up to 10% on the current cost.

Keywords: Reverse Osmosis, Solar heater, Solar collector, Solar intensity, Recovery, TCF

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