

عنوان مقاله:

HAZ and Weld Metal Corrosion Behavior of SS316L in Permeate, Reject and Desalinated Water Circuits of ROSystem

محل انتشار:

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خلاصه مقاله:

With the expanding use of the reverse osmosis desalination plants, the problems associated with weld metal decay and HAZ concentrated corrosion is being reported. The required long term 24-hour service ability and the high level dependability of the apparatus coupled with excessive rates of corrosion detected, necessitates establishing the mechanisms involved. Effective parameters include high concentrations of aggressive anions in different media comparable to the oil slurry and brine as well as susceptible phases generated during pre/post heat treatments. Following accurate chemical analysis of the raw, permeate and reject waters as well as the evaluation of the pipeline and weld metal materials before and after service; extensive microstructure and phase measurement studies were conducted. The results showed that the copious ferrite formation as a result of changes in equivalent carbon content could be the main cause of the detected corrosion. SEM and low angle XRD studies revealed the interconnected nature of scattered secondary phases. Sulfur was spotted in both different aqueous media and surface deposits, indicating the possibility of hydrogen ingress and possible HE damage.

کلمات کلیدی:

SS316L, Reverse Osmosis. Delta Phase Weld Metal. Corrosion

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