

## Minimizing Fresh and Wastewater Using Water Pinch Technique in Petrochemical Industries

**Authors :** Wasif Mughees, Malik Al-Ahmad, Muhammad Naeem

**Abstract :** This research involves the design and analysis of pinch-based water/wastewater networks to minimize water utility in the petrochemical and petroleum industries. A study has been done on Tehran Oil Refinery to analyze feasibilities of regeneration, reuse and recycling of water network. COD is considered as a single key contaminant. Amount of freshwater was reduced about 149m<sup>3</sup>/h (43.8%) regarding COD. Re-design (or retrofitting) of water allocation in the networks was undertaken. The results were analyzed through graphical method and mathematical programming technique which clearly demonstrated that amount of required water would be determined by mass transfer of COD.

**Keywords :** minimization, water pinch, water management, pollution prevention

**Conference Title :** ICWEEM 2014 : International Conference on Water, Energy and Environmental Management

**Conference Location :** Paris, France

**Conference Dates :** December 30-31, 2014