A pilot plant study was designed to monitor the performance of two parallel lines with a capacity of 50 m³/day using different pre-treatment technologies prior to reverse osmosis (RO) units for water reclamation from a local-based effluent treatment plant in Malaysia. Line 1 consisted of coagulation-pore controllable fiber filter (PCF) and was denoted as PCF-RO, while line 2 was sand filter-ultrafiltration (UF) and was denoted as UF-RO. The pilot plant was operated continuously everyday for three months throughout the study. In the PCF-RO line, ferric chloride was chosen as a coagulant for the system. The performance and efficiency of PCF-RO compared to UF-RO in terms of system operability, percentage reduction of parameter tested, system deterioration, and the effectiveness of ferric chloride as coagulant were investigated. The results showed that permeate quality for both systems met the WHO drinking water standard for drinking water. However, membrane performance for PCF-RO which was deteriorated over the operation period, had led to lower rejection of BOD, COD, and other parameters. The long-term performance and efficiency of UF-RO in terms of percentage reduction were better than PCF-RO line indicating that membrane performance in the PCF-RO line was affected by coagulant. Interactions of membrane with coagulant seemed to affect RO membrane stability. SEM images were obtained to compare the membranes after long-term operations.

**Keywords:** Ultrafiltration; Pore controllable fiber (PCF) filter; Sewage treatment; Water reclamation