

8-5. Cleaning Test for Heavily Fouled Elements

The regular cleaning procedure, which is part of the system operation, usually restores a decline in less than 15% of the permeate flow rate of the system back to the normal value. However, when the decline in the flow rate is greater than 15% due to missing the cleaning time or an accidental pre-treatment upset, it is usually difficult to recover the lost flow rate fully by the normal cleaning. In this case, an element from the front end or tail end, depending on the location of the problem, should be taken out for cleaning tests using more proper chemicals or more aggressive chemicals. When the cleaning test has proven effective, the treatment can be applied to the whole RO system.

However, cleaning may not be successful when the membrane is damaged, or when the permeate flow of the element is below 50% of specification due to heavy fouling and scaling. Then the element is autopsied to examine the membrane surface, the glue line, and the fouling deposits by the methods shown in the following section.