MEMBRANE AUTOPSY SERVICES

Autopsy:
Ancient Greek "autopsia" (αὐτοψία), "to see for oneself"

What is an Autopsy?
A membrane autopsy is the major method for identifying and solving water treatment operational problems. It involves opening your membrane to inspect it at a macro and microscopic level for specific foulants and inorganic scales, as well as assessing the presence of chemical or mechanical damage that has occurred during operation.

When should you do a Membrane Works Autopsy?
A membrane autopsy should be performed when a site is experiencing fouling, poor cleaning performance and are unable to recover the water production. Autopsies are also commonly conducted as a routine analysis, or at end of life by water treatment operators.

Why choose Membrane Works?
Our team of engineers and scientists are recognised experts in the area of membrane filtration, in particular autopsy and failure diagnosis techniques. Collectively we have over four decades of experience in the water sector and have conducted over 150 autopsies across all sectors.

Our extensive history in conducting autopsies for a range of industries and membrane types provides us with the knowledge to systematically identify your membrane problems.

AUTOPSY FEATURES

- Fouling analysis (organic, inorganic and biological)
- Performance testing (flux/salt rejection)
- Electron microscope images (SEM)
- Oxidative damage testing
- Membrane Works expertise and University partnerships
- Extensive autopsy and contaminant database

AUTOPSY BENEFITS

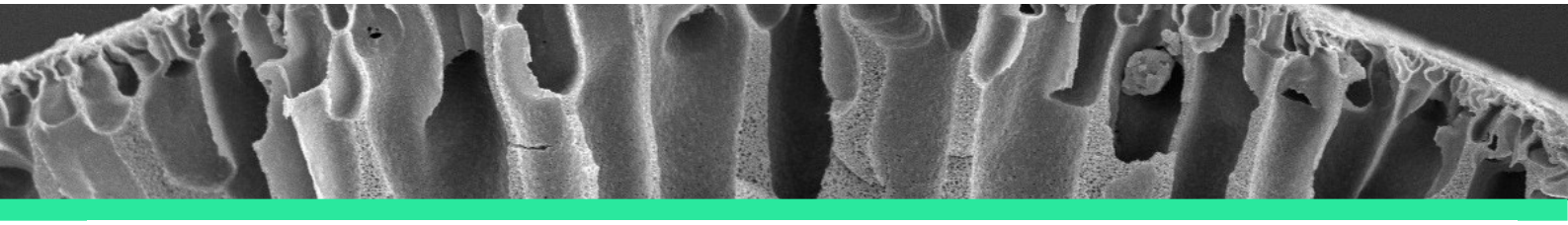
- Improve recovery and reduce waste by up to 20%
- Increase up-time by reducing clean frequency
- Improve water quality by eliminating fouling

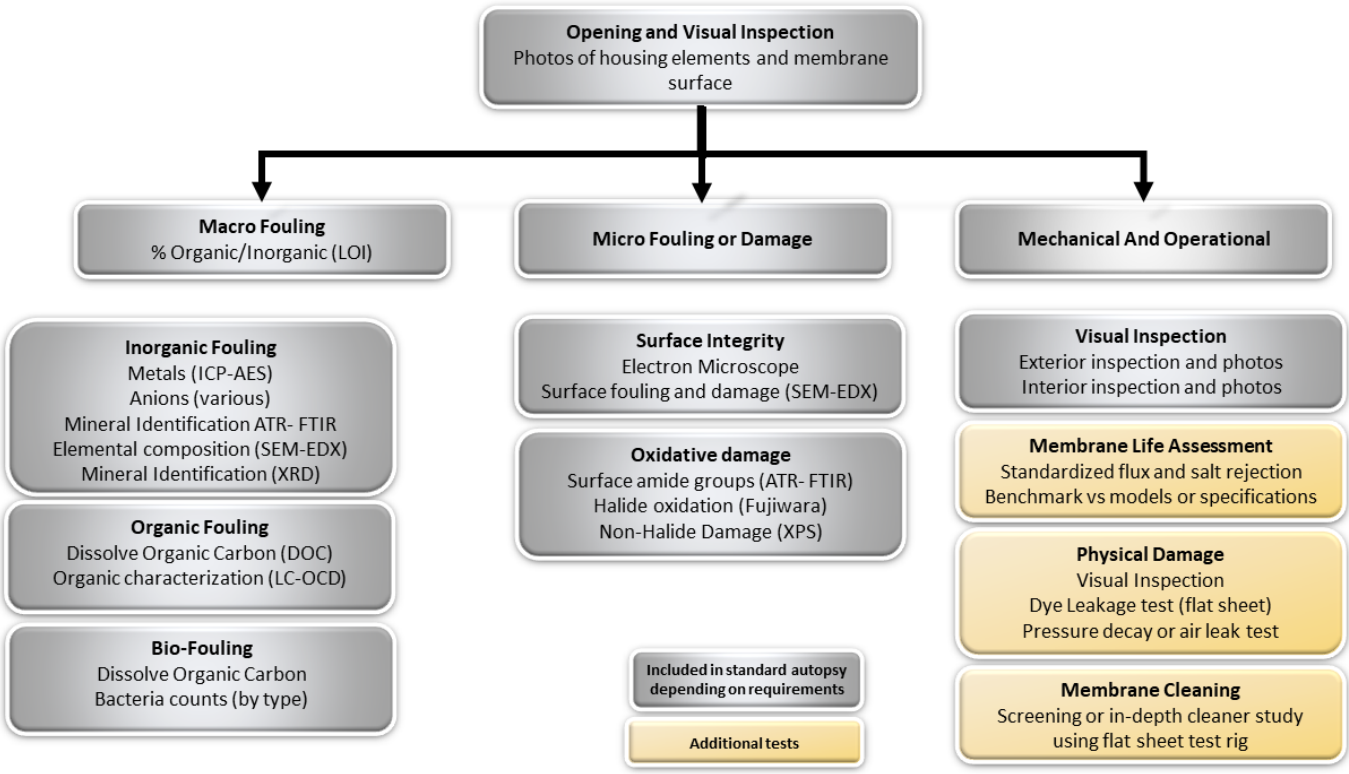
membraneworks

Membrane Works
12/31 Coombes Drive
Penrith, NSW, 2750

P: 1300 910 454
info@membraneworks.com.au
www.membraneworks.com.au

MEMBRANE AUTOPSY SERVICES





CASE STUDY: Paper mill solves pretreatment probem and reduces waste water

Reducing industrial water use is a growing concern, both locally and globally. As part of a water recycling trial at a paper mill which employed reverse osmosis membrane as part of the treatment train. Unfortunately, they were unable to achieve the desired water recovery without severely fouling the membrane. An autopsy was conducted to evaluate the nature of the fouling material, in order to modify the operational conditions such that they could achieve their desired water recovery.

The visual inspection of the membrane showed a high degree of caked fouling material on the membrane surface which felt dry and grainy to touch, indicating the likelihood of inorganic fouling which was confirmed by Loss on Ignition (which measures organic/inorganic composition). Electron microscopy, showed that the fouling was a combination of both calcium carbonate scale and silica fouling.

In order to improve performance, it was recommended that the client modify up stream treatment processes, and alter the pH of the feed solution to the membrane. Following our recommendations, more of the scale was kept in solution and the membrane performed optimally, ensuring our client reached their water saving target.