

Filters, Water & Instrumentation, Inc.

Water Conservation By Recycling



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A Recycling Approach

First Step of Recycling – Lean-Out the Process

This is always the first rule. Lean-Out means to minimize everything in the process fluid. A Lean Process will reduce the load on subsequent clean up. Often, this in itself will significantly reduce disposal costs. The first step of recycling, – Lean-Out the Process.

Once we have a “Lean Process”, we go to three general phases – Analysis, Equipment & Implementation.

In the Analysis phase we determine what is present in the existing feedwater and in other make up solutions. Finally we determine what are the on site requirements and existing equipment required to support the process.

In the Equipment phase we secure all materials and have them installed as required.

In the Implementation phase, we will stay with the equipment On-Site in a thorough start-up. This phase is more important than in other process applications because the solutions are custom designed and have to be fine tuned for on-site process variables.



Portable
Ultrafilter

Factors to consider in Recycling

- Reduce Transportation & Disposal Costs
- Reduce Volumes – Can Increase Concentrations
- Reduce Concentrations – Without Increasing Volumes
- Reduce Costs of Disposal by Replacement or Substitution
- Reduce Current and Potential Future Liabilities
- Reduce Dependence on Disposal Contractors
- Reduce Surcharges in Discharged Liquids

Membranes in Recycling

Reverse Osmosis(RO) and Ultrafiltration(UF) are Membrane Cross Flow Technologies and are considered as separator/concentrators. Liquid forced through the membrane is clean “Permeate” leaving the contaminants behind in the “Concentrate”. The contaminants are not removed by membrane processes. They are still at the site. They are still in the system in the “Concentrate”. Whenever using RO or UF, you must consider what to do with the Concentrate. In some instances we concentrate to minimize discharge volumes – the same amount of contaminant but in a reduced volume. In other instances, we use the Permeate of the membrane back in the process as clean make-up fluid. In this case we still have Concentrate and we still have to determine what to do with it.

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