

## CON-SERV MFG Commercial Water Treatment Examples / Considerations

### Commercial Water Treatment Examples

|                            | Treatment Process   |                   |                            |                  |              |              |       |
|----------------------------|---------------------|-------------------|----------------------------|------------------|--------------|--------------|-------|
|                            | Sediment Filtration | Carbon Filtration | Softening and Ion Exchange | Membrane Process | Distillation | Disinfection | Other |
| All Food Service           | x                   | x                 | x                          | x                |              |              | x     |
| All Laundry & Dry Cleaning | x                   |                   | x                          |                  |              |              |       |
| Hospital & Laboratory      | x                   | x                 | x                          | x                | x            | x            | x     |
| Car Wash                   | x                   |                   | x                          | x                |              |              |       |
| Beverage Manufacturing     | x                   | x                 | x                          | x                |              | x            |       |
| Metal Plating              | x                   | x                 | x                          | x                |              |              | x     |
| Cooling Tower & Boiler     | x                   |                   | x                          | x                |              | x            | x     |
| Pool, Spa, & Water Feature | x                   |                   |                            |                  |              | x            |       |
| Office & Non-process       | x                   | x                 | x                          |                  |              | x            | x     |

#### Cost-Effectiveness Analysis

Cost analysis depends upon many variables. Equipment costs for water treatment processes vary from tens to hundreds of thousands of dollars. For select industries, some level of purified water is essential to operation and is an unavoidable cost. Since many variables are involved in analyzing water-treatment alternatives, a cost-benefit analysis, including the cost of energy, should be conducted for each application to determine the most feasible water-treatment option.

#### Recommendations

##### *Proven Practices for Superior Performance*

- For all filtration processes, require pressure gauges to determine when to backwash or change cartridges.
- For all filtration processes, base backwash upon pressure differential.
- For all ion-exchange and softening processes, require recharge cycles to be set by volume of water treated or based upon conductivity controllers.
- Require that all softeners be recharged based upon the amount of water they process (demand-based) or by actual measurement of the grains of hardness removed.

##### *Additional Practices That Achieve Significant Savings*

- Use water treatment only when necessary.
- Choose a reverse-osmosis or nanofiltration system with the lowest reject rate for its size.
- Choose distillation equipment that recovers at least 85 percent of the feed water.
- Evaluate opportunities to reuse backwash waste streams.