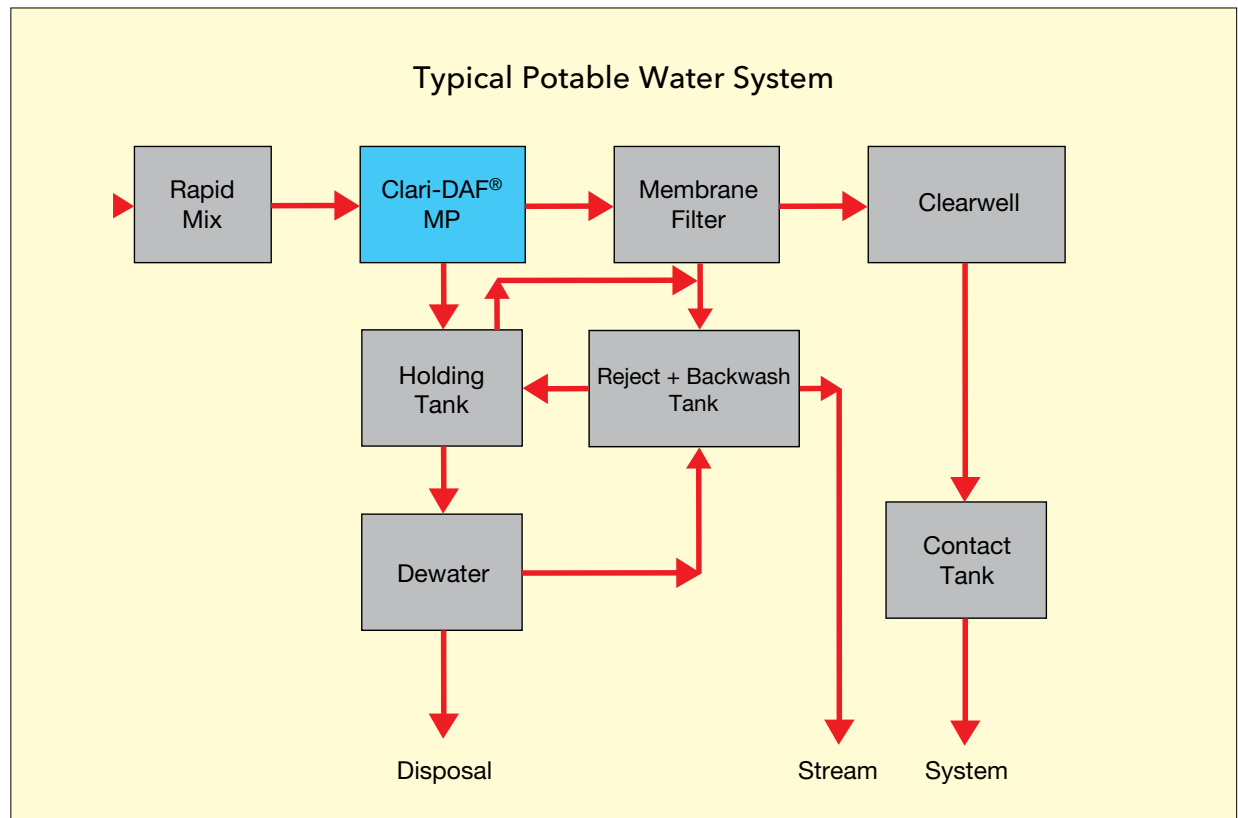




The Leopold® Clari-DAF® MP System

The Leopold® Clari-DAF® MP (Membrane Pretreatment) system is ideal as a clarification technology for potable water treatment systems using membrane filtration. It is an effective method of improving effluent water quality for optimum membrane filter performance, improving solids handling, and lowering your total cost of operation.



Improved Water Quality for Optimum Membrane Filter Performance

Any raw feedwater intended for membrane filtration should be pretreated to remove materials that can foul the membranes. Membrane fouling leads to decreased flux rates and increased cleaning frequency and duration of cleaning.

The Clari-DAF® MP system is particularly suited for pretreating membrane filter feedwater because it can remove low-density particles that are not removed by conventional gravity sedimentation clarification. Typically, the Clari-DAF® MP system can remove flocculated colloidal solids, color, precipitated metals, and pathogenic organisms.

Removes Membrane-Fouling Algae, Foul Taste and Odor

Simply stated, algae are tough on membrane filters. They can rapidly accumulate on the surface of the membranes, ultimately causing reduced flux rates, resulting in costly cleaning and equipment downtime. The problem is more difficult when the algae cells have been damaged by pre-chlorination. Taste and odor typically associated with NOM (Natural Organic Matter) or TOC (Total Organic Carbon) combined with damaged algae cells are also difficult to remove.

The problem is solved with the Clari-DAF® MP system. By means of flotation, it traps the algae cells and raises them intact, along with the broken cells, NOM, and TOC too small for removal by conventional gravity sedimentation clarification, to the surface of the water for removal.

Membrane Protection

Not only does the Clari-DAF® MP system serve to optimize the performance of membrane filters by removing membrane-fouling material from the feed water, it also serves to protect the membranes.

Repeated backwashing of membranes can cause material fatigue. This can result in crippled performance, if not failure. Reducing the frequency and duration of backwashing can help to prevent fatigue and costly replacement of the membrane material.

Another way the Clari-DAF® MP system can protect membranes is by reducing or eliminating their exposure to pretreatment chemicals. Unlike conventional gravity sedimentation clarification, the Clari-DAF® MP system typically requires no polymers to create and precipitate floc. A reduction or elimination of polymer represents a cost savings, too.



This floating blanket of membrane-fouling sludge is a security blanket for membrane filters.

Reduced Capital Cost

An additional benefit of the ability of the Clari-DAF® MP system to improve membrane feedwater quality is reduced capital cost. Because the Clari-DAF® MP system promotes a higher flux rate by removing nearly all of the membrane-fouling material from the filter's feedwater, fewer membrane filter racks are required to achieve the plant's designed flow-through rate.

Improved Solids Handling

The solids content of the sludge removed by the Clari-DAF® MP system is 3% to 5%, compared to 0.5% to 1.0% for conventional gravity sedimentation clarification. This results in increasing the efficiency of sludge handling equipment and a reduction in the cost for sludge handling.

Dewatering can occur without additional thickening. There is less volume of sludge to handle, so it takes less conditioning chemicals, less time to dewater, and less energy. Because cake solids are higher, disposal costs are reduced.



The next step for this sludge produced by a Clari-DAF® system is dewatering where higher cake solids result in lower disposal cost.

How the Leopold® Clari-DAF® MP System Can Lower the Overall Cost of Membrane Filter Plant Operation

Promotes higher membrane flux rate	Reduced capital cost because fewer membrane filter racks are required to achieve the designed flow-through rate
Clarified effluent of <1 NTU	Reduced costly cleaning and equipment downtime, lower energy cost
Protects membranes	Helps to prevent costly replacement of failed membranes due to backwash and cleaning-induced material fatigue
Polymer typically not required	Lower chemical cost
Higher sludge solids concentration	Less time and energy to dewater
Lower sludge volume	Less cost to handle

Call Leopold® to learn more about how the Clari-DAF® MP system can lower your total cost of membrane filter plant operation.

