



HOMESTEAD WATER COMPANY

MEMCOR® XS SUBMERGED MEMBRANE SYSTEM

Cost-effective upgrade improves water quality to meet regulations

IMPROVES QUALITY WHILE KEEPING COSTS LOW

Pressure to meet higher standards

The Homestead, west of Richmond, VA, is America’s longest-running destination resort. It first welcomed guests in 1766, and today the Homestead features 486 guest rooms, 88 suites, skiing, golfing, skating, a beautiful spa and many other amenities.

The resort and the surrounding community is served by the privately owned Homestead Water Company. The water comes from springs on nearby Warm Springs Mountain. The water has a relatively consistent temperature of 55 °F (13 °C) and a low turbidity, less than 1.0 NTU – 2.0 NTU. To meet the requirements of the Surface Water Treatment Rule (SWTR), Homestead Water Company needed new filtration methods to create an absolute barrier against pathogens such as Cryptosporidium, Giardia and bacteria.

Fully-automated, packaged solution eases operations

Following a comprehensive evaluation, Homestead Water Company’s consulting engineer recommended the MEMCOR® XS submerged membrane system. This pre-engineered, skidded system from Evoqua is pre-wired, pre-piped and factory-tested before shipment. The system installed at the Homestead consists of three MEMCOR XS submerged membrane system, each containing 48 oxidant-tolerant membrane modules. Each system produces 200 – 400 GPM (757 – 1,514 LPM), for a total plant capacity of 1.3 MGD (4.9 MLD).

The MEMCOR XS submerged membrane system is fully-automated and self cleaning. Backwash removes built-up solids from the membrane surface at regular, operator-adjustable intervals and the plant’s new SCADA system delivers the convenience of remote monitoring.

Customer location	Hot Springs, Virginia, USA
Industry	Commercial Water
Business challenges	Improve water quality to meet increasing regulatory requirements
Keys to success	Identify an easy-to-implement solution that helps maximize operational efficiency
Results	Fully-automated system keeps operating costs low Turbidity levels less than 0.025 NTU, well below the plant’s permitted upper limit Capacity increased to 1.3 MGD (4.9 MLD)
Solutions / services	MEMCOR® XS submerged membrane system
Customer’s primary business	The Homestead Water Company serves a destination resort and the surrounding community in rural Virginia

MEMCOR® membrane systems overview

MEMCOR® membranes from Evoqua Water Technologies represent the broadest range of low-pressure membrane filtration products — submerged, pressurized, large or small capacity systems. With a product history spanning 25 years, MEMCOR membrane systems process billions litres of water per day in potable, wastewater reuse, industrial process water and pre-treatment to RO in seawater applications.

Fully skid-mounted and self-contained, the MEMCOR XS submerged package membrane system can treat 27 – 90 kL/h on a single compact skid. The innovative side door removal mechanism allows for easy service and reduces ceiling height requirements.

Achieving higher water quality with fewer chemicals and less manpower

By implementing the MEMCOR XS submerged membrane system, Homestead Water Company now has a reliable, cost-effective filtration system to protect public health and meet SWTR requirements. Since its start-up,

the system has maintained turbidity levels of less than 0.025 NTU, well below the plant’s permitted upper limit. Operating costs for the new membrane filtration system are low because the MEMCOR XS submerged membrane system treats the resort’s water without the need for chemical or mechanical pretreatment. Likewise, the upgrade facilitated a reduction in manpower.

The Homestead Water Company also benefits from the MEMCOR XS local control system — ensuring that operating procedures for filtration, backwash, clean-in-place (CIP) and integrity testing are carried out correctly.

Advantages of the MEMCOR membrane systems

- Physical barrier to prevent Cryptosporidium, Giardia, bacteria, turbidity and suspended solids without the need for chemical pretreatment
- Flexibility to handle changing feed water conditions and capacity demand increases
- Simple, automated operation ensures system integrity and provides advanced notice of potential maintenance

MEMCOR® MEMBRANES

Product	Pressurized	Submerged	Water Reuse	Potable Water	High Solids	Sand Filter Retrofits	Large Capacity	Small Systems
CP	■		■	■	■		■	
CS		■	■	■	■	■	■	
XP	■		■	■	■			■
XS		■	■	■	■			■



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