

Membranes Solve Taste, Odor and Turbidity Problems on a Fast Track Schedule

Challenge

The North Clackamas County Water Commission (NCCWC) is made up of the Sunrise Water Authority, Oak Lodge Water District and the City of Gladstone. The Commission owns and operates a 10 mgd (37.8 mld) slow sand filtration plant in Oregon City, OR that treats Clackamas River water.

The existing plant operated well under most water quality conditions including algae blooms and seasonal taste and odor events. However, when turbidity levels reached 10 NTU, the plant was shut down and the Commission was required to purchase additional water from a neighboring agency to meet their demands. Turbidity events historically resulted in plant shutdowns ranging from 15 to 30 days a year.

In 2004, the rapidly growing Sunrise Water Authority undertook a 10 mgd (37.9 mld) expansion to the existing plant. In cooperation with their consultant, MWH, submerged membrane filtration was selected for the plant expansion.

In addition to the treatment challenges, the Authority needed additional supply in less than 2 years to meet increasing system demands.

Solution

The MEMCOR® CS submerged membrane system was selected by the Sunrise Water Authority as the most cost-effective solution to meet water quality needs. The submerged system enabled the Authority to:

- Easily handle turbidity spikes from fluctuating river water without losing capacity;
- Employ PAC in the feed to address taste and odor;
- Utilize ACH for assistance in the reduction of TOC and algae

Snapshot - Sunrise Water Authority	
Location	USA
Source	Surface Water
Application	Potable
Technology	Memcor® CS
Capacity	10 MGD (37.9 MLD)
Commissioned	2005

Unlike conventional filters, Memcor® membranes provide a physical barrier that is capable of eliminating solids, viruses, bacteria, and protozoa such as GIARDIA and CRYPTOSPORIDIUM down to 0.04 microns from the water, thereby reducing the quantity of chemicals that need to be used in the treatment process. In comparison to the previous slow-sand filtration facility, the Memcor® membranes were able to consistently and efficiently provide exceptional water quality, despite changing feed water conditions.



MEMCOR® Membrane Systems

Water Technologies

SIEMENS

Operational Data	Sunrise Water Authority
Number of cells	4
Modules per cell	288
Total capacity	10 MGD (37.9 MLD)

Results

"Membrane technology was the perfect complement to the existing slow sand filter plant. Like the slow sand plant, the membrane plant can easily be operated unattended, reducing the overall staffing needs. Further, the membrane plant performs extremely well during water quality conditions that challenge the slow sand plant. Having the flexibility of operating two different types of filtration systems allows the Commission to optimize their operating costs and treated water quality based on the raw water conditions." says Kathryn Mallon, Vice President at MWH.

In less than 18 months, MWH and Siemens designed and delivered a 10 mgd (37.9 mld) low-pressure membrane water treatment plant that addressed all water quality concerns.

"The project was fast-tracked. We got the products we needed in a very timely manner. Siemens exceeded our expectations." says Alan Schacht, Plant Operator for SWA.

In addition, the new state-of-the-art facility met the objectives in a compact footprint that easily fit within the confines of the



existing plant site. The plant is housed in 13,000 sq-ft (3,962 m) building that includes all of the ancillary facilities to the membrane operation, as well as a new control room, maintenance area and chemical feed facilities. The new treatment process is simplified and makes more financial sense for the Sunrise Water Authority.

Finally, the MEMCOR® CS system reduced overall operating costs. Constant chemical addition was replaced with seasonal chemical dosing during the summer and early fall months when TOC or algae in the river was prevalent, thus reducing annual operating costs. Also, because the facility is fully automated using SCADA technology, 24-hour monitoring is not necessary, significantly reducing labor costs.

Membrane Solutions

MEMCOR® membranes from Siemens Water Technologies represent the broadest range of low-pressure membrane filtration products -- submerged, pressurized, large capacity or small systems. They continue to be successfully employed in applications as diverse as wastewater reuse, potable water, RO pretreatment, high solids and sand filter retrofits.

MEMCOR® Products								
Product	Pres-surized	Sub-merged	Water Reuse	Potable Water	High Solids	Sand Filter Retrofits	Large Capacity	Small Systems
CP	■		■	■	■		■	
CS		■	■	■	■	■	■	
XP	■		■	■	■			■
XS		■	■	■	■			■

Siemens Water Technologies

North and South America
+1 508.849.4600 Shrewsbury, MA, USA

Europe, Middle East and Northern Africa
+44(0) 1332.387300 Derbyshire, UK

Asia Pacific and Southern Africa
+61(2) 4577.6800 Windsor, NSW, Australia

© 2009 Siemens Water Technologies Corp.
MC-SUNRISEdr-CS-0209
Subject to change without prior notice.

MEMCOR is a trademark of Siemens, its subsidiaries or affiliates.

The information provided in this literature contains merely general descriptions or characteristics of performance which in actual case of use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of the contract.