Culligan MATRIX SOLUTIONS®

Culligan Application Brief
Energy & Power

Power plant improves operating efficiency with Culligan Matrix Solutions®

CHALLENGE

A large chemical manufacture was challenged with boiler tube failures in its power plant, resulting in costly repairs and down time. The boiler tube failures were a result of the incoming water quality to the power plant. Until recently, the boiler make-up water was treated with a combination of carbon media filtration and softening. As a result less than 50% of condensate was returned and the power boiler ran at 7 feed water cycles. A local Culligan dealer was asked to review the facility's needs and provide make-up water treatment alternatives to address the challenges faced at the facility.

The local dealer conducted a site survey of the facility, collected appropriate data from the customer, performed Silt Density Index (SDI) tests, collected water samples for analysis and worked with Culligan's applications engineering team to provide a comprehensive water treatment solution

BENEFITS

After a thorough data review, Culligan recommended utilizing a reverse osmosis (RO) system to treat boiler make-up water. The RO would significantly improve the water quality allowing the customer to reduce the boiler blowdown rate from 14% to 2%. Due to the reduction in boiler blowdown and resulting chemical savings, the customer would realize a savings of approximately $200,000 per year. The payback period for this project would be approximately 1.5 years.

We ask the right questions so you get the right solution.

Our consultative approach begins with a Culligan professional working with you to identify your specific water quality needs. We understand energy and power plant water treatment needs and have several technologies that can save you money and help you increase your return on investment (ROI). Let Culligan customize a water system solution that meets your power and energy requirements.

Solution:

Culligan's innovative solution resulted in a significant return on investment. Consulting with the customer and utilizing Culligan's discovery process, the final solution involved repurposing existing equipment, adding a chemical feed system, a RO, a storage tank, level controls and a re-pressurization pump skid.

The existing carbon media filter we be used to pre-treat the feed water to the RO. The media filter reduces chlorine which can affect the performance of RO membranes.

The first new component is a chemical feed system, which will feed an anti-scalant to reduce scale causing minerals. Furthermore, the anti-scalant promotes efficient performance of the newly added RO.

The second new component is a Culligan 175 gpm Industrial G3 reverse osmosis systems from the Culligan Matrix Solutions. The RO systems will reduce total dissolved solids (TDS) in the make-up water.

The softener was repurposed and is now used to polish the RO product water reducing any hardness passing through the RO membranes.

The third new component is the RO product water storage tank with level controls and re-pressurization pumps to feed the boiler.

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For over 75 years, Culligan has made better water. Our global network, comprised of 800+ dealers and international licensees in over 90 countries, is dedicated to addressing your water-related problems. As a worldwide leader in water treatment, our sales representatives and service technicians are familiar with the local water conditions in your area. Being global and local position us to deliver customized solutions to commercial and industrial water issues that affect your business and your bottom line.

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