

Case Study

Total Water Treatment Solution, 2006



One of the most overlooked, yet costly issues facing many plants today is the presence of an ineffective water treatment system. This can often become a financial burden. A midwestern food processing company was experiencing problems with their water system. Facing continued expenditures, the company decided to have US Water Services design a total water treatment solution for their old system.

By making four major improvements to the water treatment and feedwater systems, the company experienced a dramatic Return on Investment.

The four steps are summarized below:

1) The installation of a Reverse Osmosis (RO) system resulted in a 96% improvement in the quality of water fed into the boiler system. This resulted in:

- Reduced amount of water drained from the boiler during blowdown. This saved a calculated total of \$5281 in water and sewage costs annually.
- Reduced the amount of fuel wasted in blowdown discharge. By decreasing the amount of blowdown, the system wasted less energy, which reduced fuel costs annually.
- Maintain acceptable corrosion rates in the condensate system, while complying with the company's requirements regarding the feed of steam-lined treatment. Steam-line treatments

are not allowed at this facility, so the condensate system was experiencing unacceptable corrosion rates. By removing the majority of alkalinity in the boiler make-up water, the RO system greatly reduced corrosion in the condensate piping.

- The switch to high purity RO treated make-up water allowed the implementation of an advanced polymer chemistry boiler water treatment. Dramatic improvements in boiler tube cleanliness were evident within six months of making this change. Removing old scale from the heat transfer surfaces will greatly increase boiler efficiency, resulting in tens of thousands of dollars in annual fuel savings.

2) The replacement of a feedwater heater with Deaerator provided the system with a mechanical removal of over 90% of the oxygen in the feedwater. The chemical oxygen scavenger demand was reduced significantly. In addition, operator handling of all boiler chemicals was eliminated through implementation of our "EZ Feed chemical delivery and storage system."

3) The entire boiler chemical feed system was automated, including

In This Case Study:

- Annual Savings
- Blowdown
- Boiler Water Treatment
- Engineering / Design
- Food Processing
- Return on Investment
- Reverse Osmosis System
- Water Treatment System

chemical feed, boiler blowdown, and chemical handling. This “state of the art” boiler chemical feed system provides the following benefits:

- Tighter control of boiler blowdown resulting in improved fuel efficiency.
- Improved boiler chemical feed, with consistent results that will lead to boiler efficiency savings and reduced chemical usage.
- Complete containment of all boiler chemicals. The operators have virtually no contact with the water treatment chemicals. This improves operator safety, and reduces waste with the elimination of chemical drums.

4) Improved operation management of the boiler-water treatment program by company maintenance personnel. None of the above improvements would be realized without these efforts. Though systems are automated, they still require attention to ensure correct operation. This includes

- System tested regularly to ensure proper operation.
- Adjustments made to maintain service parameters.
- Conduct preventative maintenance to insure the components of the new feed system are properly cared for.

US Water Services designed a total water treatment plan specifically aimed at the needs of the company. Our exceptional Engineering

Department is capable of creating a total water treatment system customized for your company's needs including...

- Feedwater conditioning equipment
- State-of-the art chemical and water control automation package
- Safe and environmentally friendly chemically handling solutions.
- Precise and reliable chemical feed systems
- Easy and accurate chemical testing kit

