

## Cornhusker Energy



## Crane Dramatically Reduces Fuel and Water Consumption While Increasing Boiler Life

### KEY HIGHLIGHTS

#### Challenge:

Support major expansion of 40 million gallon per year ethanol refinery in Lexington, Nebraska. The plant expansion from 40 million to 150 million gallons per year involved the installation of high pressure boilers that require high quality make-up water to achieve maximum efficiency.

Provide 1,000 GPM of purified water, with total dissolved solids (TDS) less than 5 parts per million (PPM).

#### Solution:

- Twin 96x840 Reverse Osmosis Systems
- One CE Triplex Permeate Polishing Softener System
- One CIP (Cleaning Station)

**Water Treatment Process:** This boiler feed water water train consists of two RO systems feeding a triplex water softener. Pre-filtered well water is fed at a rate of 1,429 GPM and is dosed with anti-scalant to substantially reduce membrane scaling. The feed water then enters the reverse osmosis systems which removed 99% of the total dissolved solids (TDS), producing 1,000 GPM of water less than 5 PPM. Next, a pH adjustment is made and this water is sent through a triplex polisher softener system which removes any last traces of hardness minerals.

#### Results:

High quality make-up greatly reduced boiler blow-down, significantly lessened scale build-up inside boiler tubes, and dramatically reduced the amount of fuel burned and water used. This translates into substantial cost savings. The Crane-supplied cleaning station allows plant personnel to endure maximum lifespan of RO membrane elements, and protects expected return on investment.

Please contact your Crane representative if you have any questions regarding the above project, call 800-828-2447, or visit [www.cranewater.com](http://www.cranewater.com) for more information.

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*The two reverse osmosis systems were designed and constructed as two bolt-together modules that simplified shipping and installation in the field.*