



**Service/Product Provider**

***ChemTreat, Inc.***

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Business: Industrial Water Treatment  
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**Industrial Partner**

***Eastman Chemical Company***

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Business: Resins  
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**ChemTreat partners with Eastman Chemical to save over 17,000 MMBtu/year from refrigeration**

**Project Scope**

ChemTreat added a conductivity control loop to continually monitor cooling water chemistries. When the conductivity exceeds a preset value, the water is blown down and replaced with makeup water. Ensuring the correct water quality prevents scaling within the cooling system. This change keeps the cooling system functioning more efficiently, and reduces the energy consumed by refrigeration units.

**Project Summary**

In the past, this site ran two refrigeration units (one primary, and a secondary 725-hp unit) full time to cool a process unit. The second unit was needed because of insufficient heat removal by the cooling-water-cooled heat exchangers. The heat exchangers failed to perform as designed due to difficulty in maintaining the proper water chemistry and insufficient application of the cooling water treatment program. Both refrigeration units were needed to maintain adequate cooling capacity for matching the production rates. ChemTreat was able to eliminate chemical treatment problems in the cooling tower, giving the process adequate cooling with use of the primary refrigeration unit only.

- **Energy Savings**  
17,586 MMBtu/year
- **Investment**  
\$20,000, paid over three years
- **Financial Return**  
\$102,012 annual electric savings
- **Other Benefits**  
Provides this specific unit with backup refrigeration capability to maintain operability.

**Monitoring & Verifying Energy Savings**

Utilized the plant information (PI) system to verify baseline hours of operation and loading for the secondary unit. Ammeter readings provided power usage. Net savings for the shutdown of the second unit are \$102,012/year. The calculation assumes that the secondary unit is not running when the primary unit is running, except for one particular product during summer months. Production of this product will require 144 hours of operation, when both the primary and secondary refrigeration units will run.

**Distinguishing Value**

ChemTreat provided the expertise to identify the root cause of the exchanger failure, and developed solutions to prevent recurrence.