



Alliant Energy Center  
1919 Alliant Energy Center Way  
Madison, WI 53713  
Nalco Acct: 500092334

Nalco | an Ecolab Company  
Water and Process Services  
1601 West Diehl Road  
Naperville, IL 60563-1198

Subject: Automation Continuous Improvement Proposal

Attention: Don Kraft

Thank you for your continued patronage with Nalco, an Ecolab Company. We appreciate the opportunity to provide this proposal designed to have a positive impact on the sustainability efforts at the Alliant Energy Center.

Highlights of our proposal include:

- Review current system and program assumptions
- Utilization of Nalco's automation system – 3D TRASAR Control

Nalco is committed to supplying Alliant Energy Center with a Water Treatment Program which creates exceptional value by providing expertise, state-of-the-art chemistry/equipment and world-class service.

Alliant Energy Center is a very important customer and we look forward to strengthening our partnership.

Best Regards,

Scott Fisher  
Area Manager  
Nalco | an Ecolab Company



---

## **CURRENT STATUS:**

---

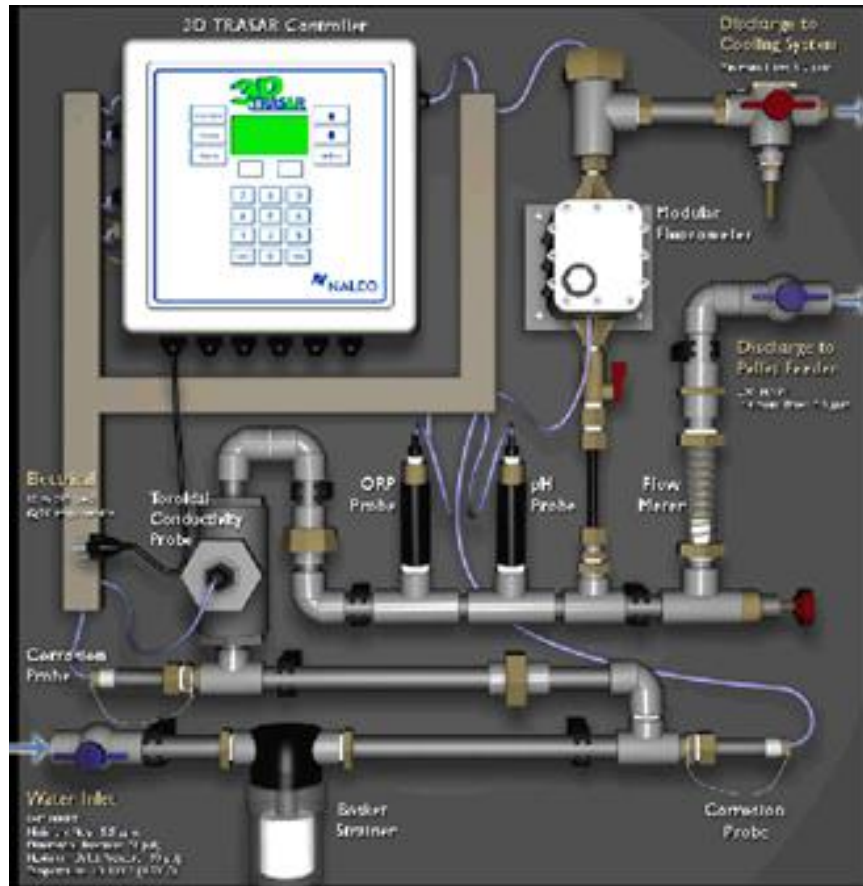
**Water Source:** The water used for processes in the utility operations is Softened Well Water. This water source is high in total alkalinity, scale forming characteristics. The softener provides intermittent hardness upsets to the condenser system.

**Cooling Tower Systems:** The water cooled evaporative condenser are used to cool ammonia for cooling of freezers and process cooling. The average make-up water consumption is estimated at 7,000 gallons per day, with the current blowdown rate calculated at 35%

## **RECOMMENDED AUTOMATION:**

### ***3D TRASAR AUTOMATION – Cooling Water Control***

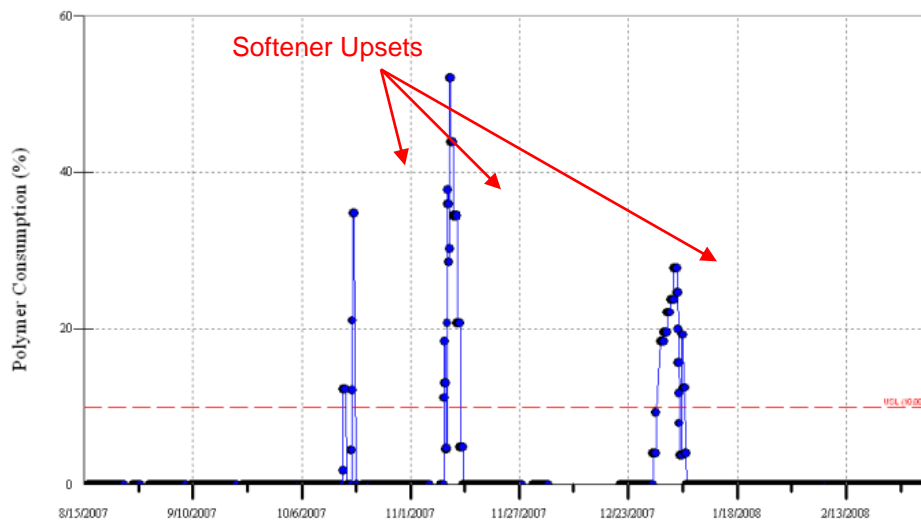
Cooling systems, no matter what their size or design, come with multiple operational challenges. Scale, corrosion, fouling, and biological growth...all are threats, and all can impact costs. Complicating the situation is the widely varying chemical composition of make-up water. 3D TRASAR technology utilizes an electrochemical monitoring technique known as Linear Polarization Resistance to measure corrosion on line and use unique PSO chemistry to control corrosion, uses a tagged polymer to monitor and control the tendency of scale formation. Therefore, the 3D TRASAR system detects the upsets that precede scaling, corrosion and biofouling and then delivers the appropriate chemical response. The result is a balanced, efficient and safe cooling system. Less maintenance, no over- or under-dosing of chemicals, lower operating costs and maximum asset protection are the key deliverables. **Based on these technological advances, Nalco Company won a 2008 Presidential Green Chemistry Challenge Award for the 3D TRASAR technology for cooling water.**



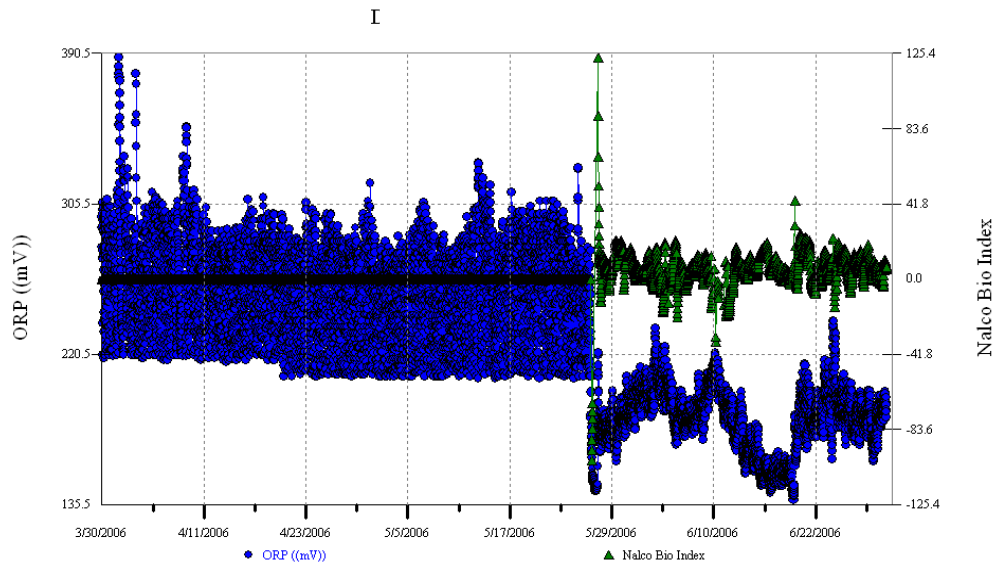
Two illustrations of the unique cooling tower monitoring and control are illustrated below:

Vantage<sup>®</sup> V100

Softened Water Make-up to a Cooling Tower System



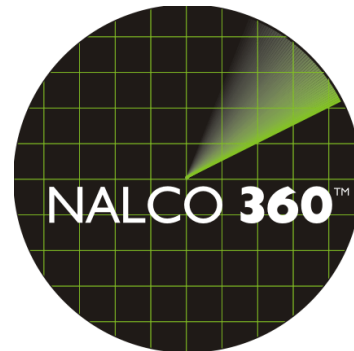
The graph above illustrates the ability to monitor the quality of water entering the cooling tower to prevent excessive hardness content, thus prevent mineral scale formation within the condenser tubes.



The graph above illustrates the difference between continuous biocide feed and demand based control. Excessive biocide feed increases the system corrosion potential and increases overall chemical costs. The blue line illustrates the actual need for biocide after converting to the Nalco Bio Index control.

### ***ALARM MANAGEMENT - FEEDBACK***

Nalco 360™ Service provides peace of mind that your water systems are being monitored by a team of Nalco Experts, 24 hours a day, 7 days a week.



### **Nalco 360 Service**

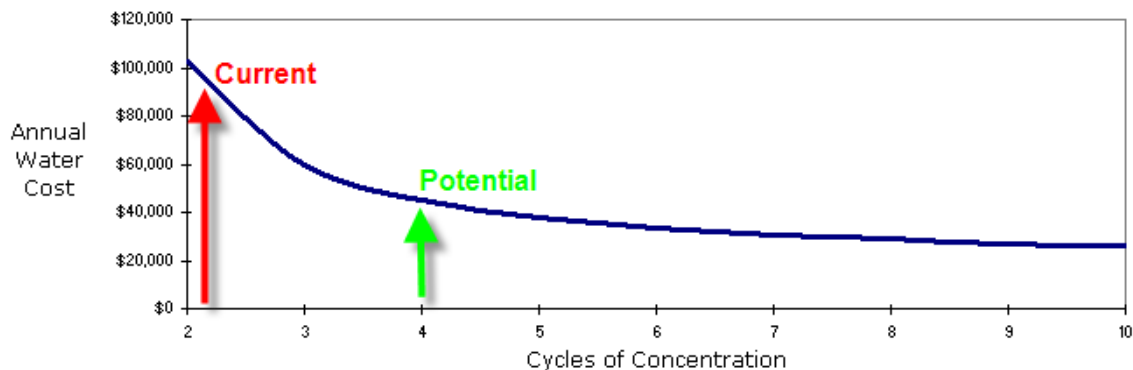
- Immediate notification when alarm occurs
- Expert center troubleshoots alarm then provides summary with:
- Explanation of problem
- Trend graph showing results
- Suggested actions to resolve

### **Benefits**

- Take appropriate action faster when alarm occurs
- Prioritize urgency of alarms



### **OPERATIONAL SAVINGS:**



With improved water and chemical control, there is an opportunity to reduce the blowdown water content from 35% to 20%, a reduction in make-up and blowdown water by 15%.

2.55 MM gallons x 15% = 383,000 gallons of make up and 383,000 gallons of blowdown

Total savings = \$3,066

### **Recommended Equipment**

3D TRASAR for Cooling      Part number 060-TR5500.88      \$5500.00

ROI – 21 months