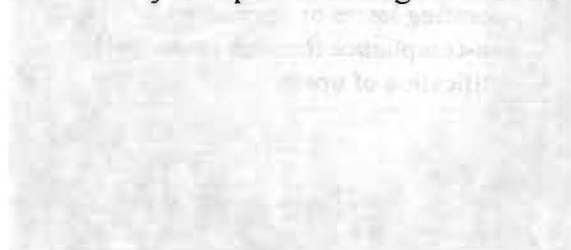
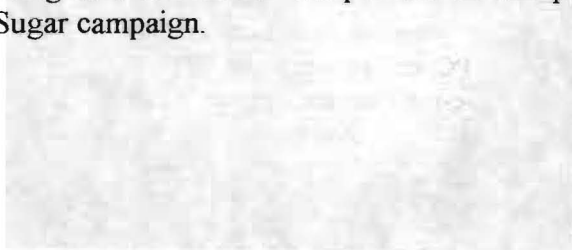


CREIGLOW, JAY <sup>1</sup>, WILLIAM STEWART<sup>2</sup>, NIGEL MOHAMMED<sup>3</sup>, and MONICA KEIL<sup>4</sup>,  
<sup>1&2</sup>Spreckels Sugar Company and <sup>3&4</sup>Nalco Chemical Company, One Nalco Center, Naperville,  
IL 60563. **Real-time monitoring of industrial processes provides improved control  
capability.**

Improving control in sugar beet processing is a continuing challenge. Implementation of on-line, real time monitoring equipment provides a revolutionary method to improve monitoring capabilities and process control. A trial was done at Spreckels Sugar Company in Brawley, California to test the capability and the value to the factory of a real-time monitoring system. The system combines the advantage of wireless technology with the accessibility of the Internet to enable real-time monitoring of industrial processes. The factory is able to access real-time measurements at any time, anywhere with the advantages of multistage alerting capabilities. This can help maximize operating efficiencies and avoid costly downtime due to process upsets or chemical out-of-stock conditions. One key feature of the real-time monitoring is the ability to view data on a daily, weekly, or monthly basis. At the Brawley factory, remote sensors were installed to monitor both instruments and tank levels, which included sugar in the Boiler Feed Direct utilizing Detex. Other critical parameters monitored were the Sodium Analyzer, Chemical inventory in Bulk tank and pH of Cooling Tower. The most valuable applications were the remote monitoring of the DETEX unit and Sodium Analyzer. The patented DETEX technology allows the factory and the Nalco representative to detect sugar shots coming back to the boiler. The wireless technology greatly aided in accessing information in remote areas of the plant where there was no physical infrastructure in place to collect and transfer information; and also was never closely monitored in the past. This technology coupled with the capability of being able to monitor the process on-line proved its versatility and power throughout the 2000 Sugar campaign.



## Knowledge to Value: Using Technology to Improve Factory Operations

### Contributors:

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Jay Creiglow, Spreckels Sugar Company  
Nigel Mohammed, Nalco Chemical Company  
Monica Keil, Nalco Chemical Company

## What if you had....

A *service* that would help lower  
operating costs by empowering  
you with the right information  
to optimize performance....

## What if you had....

A *service* that would help prevent  
operating losses or regulatory  
non-compliance through immediate  
notification of upsets....

## What if you had....

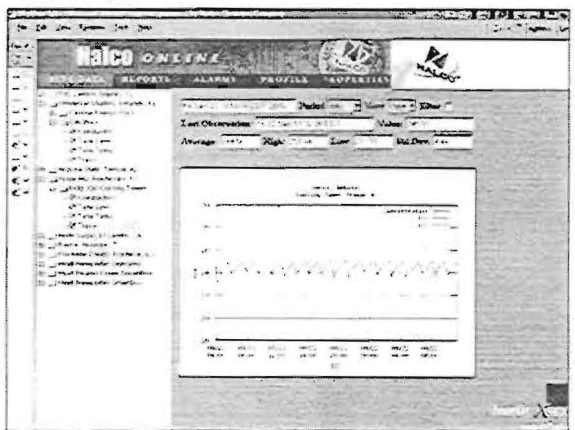
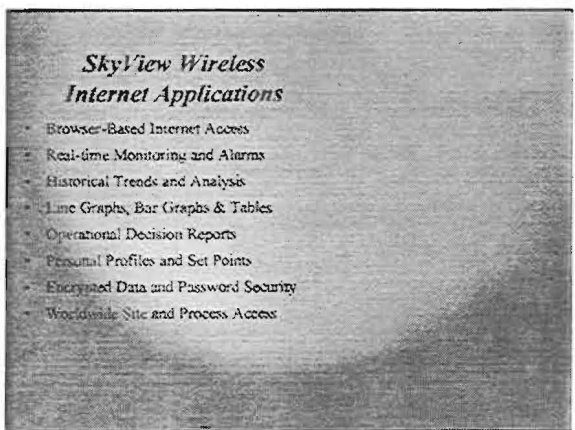
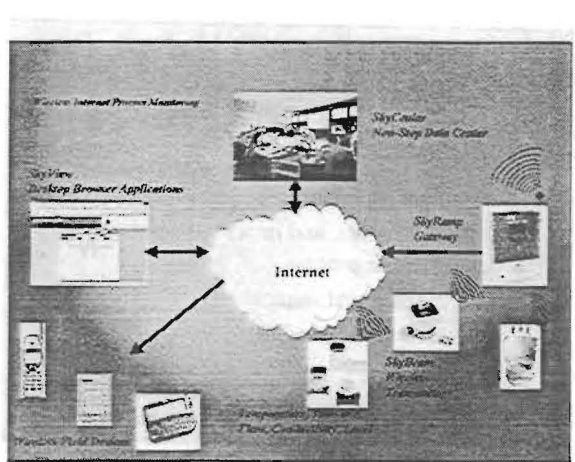
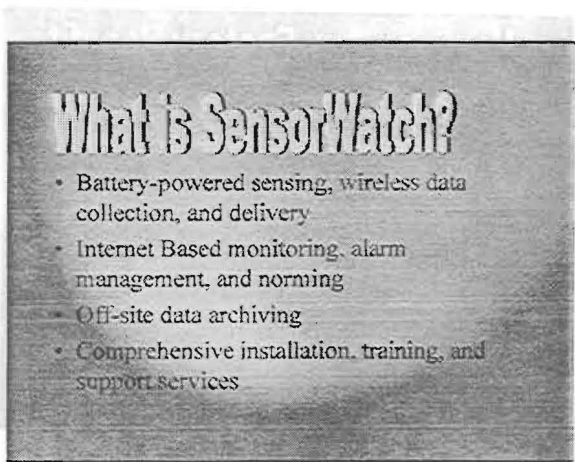
A *service* that would give you easy  
access to information that is critical to  
your business from any:  
PC, cell phone, pager, PDA,  
e-mail service, etc, etc, etc..  
Anytime.  
Anywhere.

## What if you had....

**More effective use of manpower**  
**Proof of your regulatory compliance**  
**Eliminating costs of on-site data storage**  
**Extended equipment life**  
**Reduced downtime**  
**Production rate benchmarking**

## The Power of Technology

- What our customers told us they need
  - To be able to monitor remote locations
  - To know more about my process
  - To be notified when there are upsets
  - To be able to easily access information
  - To have the capability to trend and retain historical data
  - To use data to troubleshoot and improve overall operations



## How did Spreckels Sugar Utilize the SensorWatch System?

- **DETEX** - Patented sugar detection system on boiler feedwater system
- **Sodium Analyzer** - Monitoring carryover in two boilers for 9 MW steam turbine
- **Tank Level** - Bulk tank with no level gauge containing cooling water corrosion inhibitor
- **pH** - Monitoring pH in cooling tower

## Why Were These Parameters Chosen?

- **DETEX** - Crucial for preventing sugar entry into the boiler system
- **Sodium Analyzer** - Carryover deposits on the steam turbine blades damages and decreases its efficiency
- **Tank level** - Improves usage rate and inventory monitoring, eliminates problems with re-ordering
- **pH** - Critical parameter in maintaining effective biocide program in the cooling tower

## How Did Spreckels Benefit from the SensorWatch System?

- Prevented serious sugar contamination of the boiler with alarming capabilities
- Identified upsets, and improved operation & control of the process
- Confirmed actual sugar shots.
- Improved control and performance of turbine.
- Tracked daily usage online of bulk cooling tower chemical.

## How can Any Factory Benefit from the SensorWatch System?

- Receive immediate notification of upset conditions
- Obtain historical records when needed
- Benchmark sugar production parameters for sites anywhere
- Access to data from the Internet anytime, anywhere
- **THE POSSIBILITIES ARE ENDLESS.**

