Case Study

Use of Control System to Maximize Efficiency and Reduce Costs

North Shore Sanitary District
Gurnee, IL
North Shore Sanitary District

3 municipal sewage treatment plants
- Clavey Road (17.8 mgd average design flow)
- Gurnee (23.6 mgd average design flow)
- Waukegan (22 mgd average design flow)

Treatment processes
- Primary clarification
- Two-stage nitrification
- Sand filtration
- Excess flow treatment
- Sludge GBT and belt press dewatering
NSSD Objectives Were to Improve Performance and Control Costs

- Automate process to permit single shift operations and eliminate off-shift coverage
- Reduce electrical and chemical costs
- Implement automated data gathering and management
- Reduce emergency responses
Automation Objectives

► Address all process operations
► Increase operational flexibility with multiple control modes
► Provide response to alarm and failure conditions
► Minimize routine maintenance with automate lead/lag sequencing of equipment & exercising of standby equipment
► Automate response to power outage
► Provide remote access to control system
Automation
Hardware & Software Solution

► Distributed Allen Bradley PLCs – total of 10,200 I/O
► Redundant in-plant fiber optic network
► PC-based operator interface (ICONICS)
► Remote modem access
► WAN connection to District headquarters
Project Impact

► Since 1994, Waukegan STP has operated automatically
► Based on success of Waukegan, Clavey Road and Gurnee STPs have also been automated
► Operator coverage at 40 hours per week per plant
► Unmanned operation for holiday weekends (Up to 72 hours)
► Off-shift call-ins average 1 to 2 calls per month
► Plant effluent quality has not been impacted
► Electrical power has been reduced
FIRST PLACE

AWARD OF EXCELLENCE

Presented to
North Shore Sanitary District
Waukegan Treatment Plant, Waukegan, Illinois

Eugene Lukasik
GENERAL MANAGER

FOR OUTSTANDING OPERATION
AND MAINTENANCE OF THE WATER
POLLUTION CONTROL FACILITY
LARGE ADVANCED

1998

Region 5 • Chicago, Illinois
NORTH SHORE SEWER DISTRICT TO CUT FEES 5 PERCENT

By Casey Bukro
Tribune Staff Writer
October 9, 1999

The North Shore Sanitary District Friday announced a 5 percent cut in user fees, the fourth such cut in three years, totaling 20 percent.

Its operations and maintenance budget has dropped from $25 million to $16 million through automation and savings in labor, utility and chemical costs, Jensen said.
NSSD Automation
Keys To Success

► Began with high expectations
► Major Owner involvement from concept to implementation
► Understand unique nature of operations
► Flawless startup
► Continuous improvement