

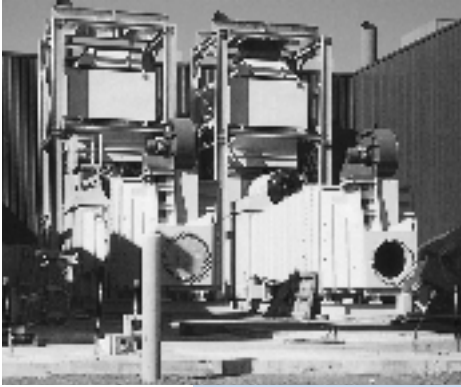


# THE SUPERIOR CONTROLLER

VOLUME 3, ISSUE 3 THIRD QUARTER

## Gas Turbine Automation Leads to Lower Energy Costs

Superior Controls engineers are successfully integrating a major automation project to control and monitor equipment associated with two, 5-megawatt, gas-fired turbine generators.



Onsite, ready for two 5-megawatts gas turbine stations.

With the advent of energy deregulation throughout New England, many heavily energy-dependant manufacturers and communities have been installing their own gas-fired turbines to produce both electricity and steam. These turbines can produce electricity at rates as low as

.04¢ per kilowatt-hour or about 60% the going rate for industrial customers.

One Superior Controls' customer, a major New England based manufacturer, will rely on the two turbines to generate 80-to-100% of their electric needs, as well as to produce 50,000 lbs. of process steam. Each turbine uses high pressure natural gas to continuously run at 15,000 RPMs. Each turbine is attached to a generator nominally rated at 4000 KW. The 900°F exhaust is directed into a Heat Recovery Steam Generator (HRSG) to produce a steady supply of 135 PSI



*The Superior Controller* is published quarterly by Superior Controls, Inc. of Plaistow, NH—the leading controls system integrator specializing in the design and implementation of industrial automation and information systems.

The purpose of this newsletter is to present project examples to our customers. Your comments are welcome. Write or Fax:

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steam. Parallel equipment is used to ensure that the customer can utilize both the turbine-generated power while continuing to draw a nominal load from the local utility.

An existing Bailey Distributed Control System (DCS), previously installed for the fossil fuel boilers, was expanded to control the feedwater loop and the exhaust diverter valve.

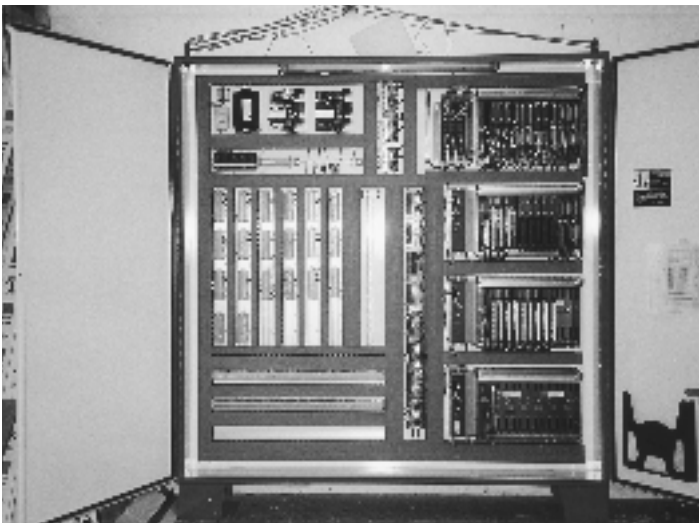
Allen-Bradley programmable logic controllers (PLCs) monitor and control the equipment associated with the two turbines and the Balance of Plant (BOP). The BOP PLC monitors and controls the HRSG, ventilation, fire detection systems, and the electrical load shedding system. This entire project—which is on a fast track—will be implemented in approximately four months.



Bob Patrick of Superior Controls tests the gas turbine control system consisting of four PLC enclosures.

## Fruit Juice For A Hot Summer

Superior Controls is presently completing a major automation project for a New England based Fortune 500, juice manufacturer. The system utilizes four Allen-Bradley PLCs (two 5/40Es and two 5/80Es), a ControlNet Network, numerous remote enclosures with Flex I/O, and four Intellution Full Function SCADA Nodes. Superior Controls engineers are automating the entire process which is dedicated to delivering, treating, pressing, filtering, and concentrating fresh fruit.



*Fruit Juice Project. One of the 12 PLC enclosures designed and programmed by Superior Controls to automate Juice facility.*

Several Intellution FIX packages running on Windows NT operating systems were configured to enable plant operators to monitor and control all major processing operations including filtration and evaporation. An automatic "Clean in Place" or periodic sanitizing of all pipes, valves, and processing equipment has also been programmed into the system.

With this sophisticated automation project, Superior Controls has implemented several networks including Ethernet, ControlNet, AB Remote I/O (RIO), and the AB DataHighway Plus (DH+) industrial network. The entire control system includes more than 700 I/O throughout the plant and approximately 60 FIX operator interface screens for plant operators to control and monitor the processes.

## Pharmaceutical Facility Automates Pilot Plant

When faced with the need to automate their Pilot Plant Facility, a major New England based pharmaceutical company called Superior Controls. Their goal was to design an entirely flexible control system—something their research scientists could easily understand and control intuitively. The system had to maintain sophisticated temperature controls of 23 jacketed batch reactors, include validation documentation to "prove" system functionality, and provide detailed reporting for each batch/reactor.

Superior Controls engineers are configuring and implementing a Fisher Rosemont, Delta V, DCS (Distributed Control System) and expanding the Allen Bradley PLC system to control and monitor all the valves, pumps, and equipment associated with the 23 batch reactors.

Superior Controls is configuring six Operator Stations, nine controllers, and two Allen Bradley PLCs to control the approximately 600 I/O devices associated with the system. All of the enclosures and control equipment will be thoroughly tested and simulated in a formal, documented Factory Acceptance Test (FAT) at Superior Controls before the on-site installation.

## Heather's Wedding



*Heather DeLotto, shown here with her new husband, Dave, as they celebrate their recent nuptials. You may notice a number of familiar Superior Controls faces joining in the festivities.*

## THE PEOPLE WHO ARE SUPERIOR CONTROLS

## Superior Controls Welcomes Three New Professionals

We are pleased to welcome three new members to our Superior Controls engineering team.

**Bob Patrick** is a seasoned professional mechanical engineer with both MS and BS degrees and more than five years of automation experience. Bob moved from Denver, Colorado, where he had been working for a large control system integrator programming PLCs and PCs, to join Superior Controls this past summer. Last month Bob, and his wife Jen, settled into their new house in Candia, New Hampshire.



*Bob Patrick*



*Shalin Patel*

**Shalin Patel** is an experienced chemical engineer with proficiency in both the pharmaceutical and plastic industries. Shalin is presently working nights to finish his graduate thesis entitled "Processing of Ultra High Molecular Weight Polyethylene by Vacuum Compression Molding." This is his last requirement to receive his MS degree in Chemical Engineering from the University of Massachusetts.

**Wes Taber** recently graduated from Columbia University with a BS degree in Chemical Engineering. He has worked in the control systems integration field and has been involved with projects in both the pharmaceutical and power generation industries. Wes recently received advanced training at Rockwell Automation's Cleveland facility for the RS product line.



*Wes Taber*

## Another Annual Success—the Superior Controls Family Picnic



*Superior Controls' employees and their families enjoyed the annual summer outing held August 2nd at Odiorne Point State Park in Rye, New Hampshire.*

# Team Superior Wins Road Race Challenge—Again!



*Superior Controls road race participants.*

Superior Controls entered the HealthSource Corporate 5K (3.1 miles) Road Race for the fourth consecutive year. And for the second straight year, we defeated our friendly rivals, Holmes Distributors, in their own backyard of Manchester, NH.

Fielding a 12-person team, in a race with more than 6,900 people, Superior Controls placed 55th of 116 teams (with a 23:44 average time for the top five [7:39 pace]). This was especially impressive since Team Superiors' two top runners in last year's race (Brian Hopkins and Guillaume Bonnet) were unable to compete. Our top five finishers from first to fifth were:

Andrew Pineo, Jim Anderson, Ron Pierro, Rick Pierro, and Mark LaRoche. Our rivals, Holmes Distributors, finished 74th overall.

One final observation, not one person in their 20s finished within the top five for either team. Our "Young Bucks" are being renamed the "Young Slugs." Congratulations to all.