



Tommy Pierce from Grundfos (orange vest) discusses the new Grundfos Hydro HP high pressure pump system with Virginia Poultry's Engineering Manager Phil Miller (middle) and Steve Floyd from solutions provider Carotek

**Grundfos Case Story:** Virginia Poultry

# Turkey processing plant increases reliability while cutting energy usage with a Grundfos high-pressure pump solution

## INTRODUCTION

After frequent and costly breakdowns, a turkey processing plant needed a more reliable pumping solution for its high-pressure washdown and sanitation system. Industrial equipment supplier, Carotek, supplied a Grundfos Hydro HP system with a Grundfos CU352 pump control system. The combination of a highly reliable and efficient Grundfos solution reduced energy consumption by more than 50%, yielding energy savings over \$50,000.

## THE SITUATION

About 200 growers raise tom turkeys as part of the Virginia Poultry Growers Cooperative (VPGC), based in Hinton, Virginia. Its turkey processing plant was experiencing frequent and recurring pump failures on two 150 horsepower pitot tube pumps for the high-pressure washdown and sanitation system.

"My major pain point with our old high-pressure pump system was reliability," says Phil Miller, Engineering Manager at VPGC. "The pumps would last anywhere from maybe six months to a year, and we'd have to replace them." Maintenance costs were averaging between \$40K-50K per year.

"During my visit at Virginia Poultry Growers, I took a tour of the existing pitot tube pumps. The first thing that I noticed was the noise," says Steve Floyd of Carotek, Inc., a Grundfos distributor and supplier of industrial equipment and solutions for the southeastern United States. "It immediately made me think about a new high pressure pump system from Grundfos."

## THE SOLUTION

Steve Floyd and Carotek proposed a Grundfos Hydro HP solution – a multi-pump system specifically designed for high-pressure water demands in food and beverage plants. VPGC was familiar with

Grundfos, after previously installing a Grundfos Hydro MPC-E system. The proposed Hydro HP solution included a Grundfos CU352 controller, as well as two 15 horsepower jockey pumps to handle low flows under 60gpm – the typical maximum demand during first shift production. High flow is typically only required during the plant's washdown and sanitation process.

The previous pitot tube pump system was originally designed to supply 300gpm at 1000psi. The VPGC engineering team determined that 1000psi was unnecessary for plant washdown and a lower design pressure would also reduce pump horsepower required to keep the plant clean. The new Hydro HP solution could deliver more than 400gpm at 680psi.

"This application was unique because not only were we pumping at a high pressure, but we were also using variable speed drives to adjust the speed of the pumps," says Brendan Watson, Senior Technical Sales Manager, Grundfos. "The CU352 controller's pilot pump feature enabled us to run larger pumps at higher peak periods where demand was needed more and more water was needed and running a jockey pump at lower demand periods – thus saving energy."

He adds that the CU352 is controlling all eight pumps on the system, but also monitoring everything about the system – from pressures to run times to alarm history to energy consumption.

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Grundfos Senior Technical Sales Manager Brendan Watson shows the inside of the CU352 pump controller cabinet.

### THE OUTCOME

Today, the VPGC’s sanitation crew cleans the plant in the same amount of time with 300 psi less pressure, and the sanitation crew has not reported any noticeable decrease in pressure. VPGC’s decision to reduce system pressure along with the high efficiency operation of the Grundfos Hydro HP has reduced energy consumption of the plants high-pressure system by more than 50%, according to Grundfos Sales Engineer Tommy Pierce. Plant energy usage will be reduced by more than 600,000 kWh per year – the equivalent to more than \$50,000 a year. Pierce says with energy savings and reduced maintenance costs, VPGC can expect a ROI of less than two years on the new pump system.

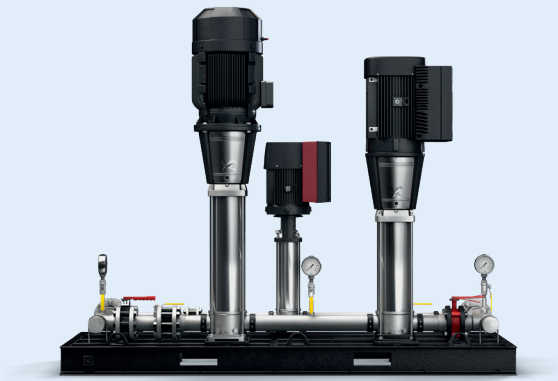
VPGC Engineering Manager Phil Miller says, “Grundfos is the first pump company in 20 years that has presented me with an alternative to the pitot tube pumps. The controls are a lot more bulletproof than I thought they were. They only run when we need the water. They go up and down with our flow way better than our other system. I am not even looking back.”



The Grundfos Hydro HP system is saving VPGC more than \$50,000 a year in energy costs from the previous pitot tube pump.

### HIGH PRESSURE PUMP SYSTEM: HYDRO HP (Total System Performance: 400gpm @ 680psi)

No.	Grundfos Pump	Description	Flow per pump (gpm)
2	CRNE95-2-2 (25HP)	System Feed Pumps	400
2	CRN45-7-2 (50HP)	Standard Pumps	200
2	CRN45-7 (60HP)	High Pressure Pumps	200
2	CRN10-17 (15HP)	High Pressure Jockey Pumps	60



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