

## Custom Efficiency

for Complex Projects



Photo courtesy of McCain Foods USA.

### McCain Foods USA

Food Processing Facility  
218 W. Hwy 30  
Burley, ID 83318  
208-678-9431

Owner: McCain Foods, Limited

Quote: "We (McCain) realize that energy conservation is key to the longevity of our business and have set aggressive energy-reduction goals that keep us competitive and meet customer requirements."

Steve Lundberg, McCain Foods USA engineering manager.

## McCain Foods USA Compressed Air System Retrofit Saves Energy

### The Business

Canadian-owned McCain Foods USA food processing plant in Burley produces over 550 million pounds of French fries and specialty potato products per year. In 2007, McCain received the Golbon Frozen Food Supplier of the Year award.

### The Challenge

Two Burley on-site processing plants produce the highest volume of potato products of any McCain Foods' United States plants. Compressed air is critical for processing and packaging potato products. At one of the Burley plants, irregular air supply affected productivity.

Three air compressors supplied the compressed air for production at McCain Foods. Two 200-horsepower (HP) compressors ran fully loaded

year-round, and one 150-HP compressor cycled, meeting the system demand as needed. Both compressors were screw compressors with load-unload controls. Plant departmental managers and the McCain energy conservation team, in conjunction with engineers from Idaho Power's Custom Efficiency program, investigated upgrading the compressed air system.

A compressed air energy audit, conducted by Gardner Denver and Air Equipment Company in October 2006, showed an average year-round load of 382 kilowatts. "As we dug into it, we found there were some energy savings to be had there," said Steve Lundberg, engineering manager at the Burley plant.

### The Solution

Installation of a new refrigerated air dryer, a new variable-speed air compressor, and a compressor control

system provided clean, dry compressed air with increased efficiency and reliability. With minimal interruptions to the production line, the project was completed between May and July 2008.

The plant converted to a variable-speed trim machine control strategy. Energy savings increased by allowing one of the units to run fully loaded, where it is most efficient, with the new variable-speed machine trimming to match the remaining load.

Additional energy savings were realized through the dryer replacement, new oversized piping, and additional receiver capacity. A 3,000-gallon receiver, supplemented with oversized piping, allows for a reduction in pressure drop through the system. The new compressor and new refrigerated dryer added a buffer capacity to the system, enabling steady productivity levels during maintenance

and repairs. A new compressor controller centralized the operation of the machines, optimizing energy and production efficiency.

## The Savings

Energy savings for the project are 1,742,825 kilowatt hours per year, which is equivalent to the average energy use of 138 houses or the planting of 333 acres of trees. Projections suggest more than \$50,000 worth of savings on electric bills per year.

## The Outcome

Labor and materials for the project totaled \$327,404. Lundberg said, "Air quality improved tremendously, and the energy savings are pulling through; those two things are huge."

## The Bottom Line

Idaho Power provided McCain Foods with a \$209,139 incentive for the compressed air system upgrades. "That was what really allowed us to make the return on investment that McCain was looking for and make the project go through our approval process quickly," Lundberg said.

McCain Foods is working with the Custom Efficiency program on upgrading their second production plant in Burley.

If you are looking for similar success, Idaho Power can help. Call 208-388-5949 or 208-388-5624 for more information on the Custom Efficiency program.

The above Success Story was produced in cooperation with, and approval from, Idaho Power customer McCain Foods USA.



Photo courtesy of McCain Foods USA.