North American Tire Company Saves Energy, Improves Yield with Emerson™ Steam Trap Connected Services

RESULTS

- Reduced steam usage by 4.1 million lbs. annualized
- \$60K saved in energy the first year with no initial capital investment
- Improved tire yield
- Reduced maintenance
- Improved safety

APPLICATION

Steam Trap Connected Services

CUSTOMER

North American Tire Company

CHALLENGE

A North American Tire Company manufactures 15,000 tires per year with steam presses from the 1950s. Steam trap health is important to the plant to ensure high quality of steam and reduce steam loss. "We had poor steam quality throughout our facility," said the Maintenance Manager of the plant. "It caused a lot of wear and tear on our equipment, and impacted our plant reliability. We also had significant steam loss from traps that leaked or were stuck open. We were looking for an affordable solution to give us early indication of poor performing traps."

Manual surveys are difficult and time consuming. It would take two people four days (over a two week period) to complete each survey, and not every trap could be diagnosed. "It is difficult to properly assess all traps during a survey," he stated. "Some are extremely difficult to get to (like those located in the pits), and cannot be evaluated. Others are inactive due to the natural cycles of our batch process, and are also unassessed." As a result, time is wasted on trips to the inactive traps, and there is the possibility that some traps go untested for years.

These surveys also present a safety concern, because steam must be present in order to assess the traps. "When live steam is present, there is always a chance to get injured," said the manager. "This is heightened when you are reaching into an area that is hard to get to. Safety is always a concern for us."

The plant wanted to have continuous information on trap status as well as weekly reports instead of surveys once or twice per year.



"We saved \$60K in energy costs the first year alone, with another estimated \$60,000 in savings when all the traps receive attention. We have improved tire yield with better quality steam, and improved plant reliability."

Maintenance Manager North American Tire Company



Manual steam trap monitoring can be difficult, as in the case of the "pits" at the tire plant, and always includes working near live steam.



Increased manual surveys were not possible because of the man-hours required and the safety considerations. A new, innovative solution was required.

SOLUTION

The tire manufacturer subscribed to Emerson's Steam Trap Connected Services, and 194 Rosemount[™] 708 Wireless Acoustic Transmitters were installed on steam traps in the tire presses and fabric process. The traps communicate through three Emerson 1410 Gateways to a cellular signal for monitoring by Emerson's Pervasive Sensing Center of Excellence.

This innovative solution required no capital project dollars up front. "Emerson owns all of the hardware installed in the plant," said the customer. "We did not pay any money up front. Instead, we signed a five-year contract to pay a monthly fee that includes the hardware costs, installation, and 24 hour per day, 7 day per week monitoring of all traps."

Detailed weekly and monthly reports (see side margin) are sent to the plant for action, and for long term monitoring. These reports also estimate the energy impact each trap (based on size, flow, type of failure, etc.) will cost the plant if not addressed. Summary reports are also included for a quick view of traps that have failed, and also to look at the overall energy impact on the plant.

Since subscribing to the service, online monitoring has detected 27 percent or 52 out of 194 traps needing maintenance. On follow-up, 16 were cold, 26 had blow-through, and one was good (nine others had yet to receive attention). "We saved \$60,000 in energy costs the first year alone," said the maintenance manager, "with another estimated \$60,000 savings when all the traps receive attention." In the two years since the solution was installed, the company has saved 4.3 million pounds of steam with another 4 million pounds available if all information was acted on.

The customer was also pleased to note that better management of steam quality and supply led to a reduction in tire loss and an improvement in plant reliability. Safety was improved by eliminating trips to test the traps. "We are very pleased with the acoustic monitoring of our steam traps," he concluded. "We have won the Continuous Improvement Award over six other plants with our on-line monitoring, and are now promoting it to the Facilities Group for handling of larger steam traps in our plant."

RESOURCES

Emerson Chemical Industry

Emerson.com/Chemical

Rosemount 708 Wireless Acoustic Transmitter & Steam Trap Monitor

Emerson.com/Rosemount/Wireless/708-Acoustic

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Rosemount 708 Wireless Acoustic Transmitter installed upstream of the trap to detect blow-through, cold, flooded, or inactive trap status.



Emerson provides 24/7 monitoring of 194 traps within the facility, and prepares weekly and monthly detailed reports (showing blow-through traps, specifically) and summary reports to the customer.

