CASE STUDY

How Improving Lubricant Storage and Handling Can Pay Off

Better Lubrication Management Boosts Gerber's Asset Availability

The Gerber production plant in Fort Smith, Arkansas, manufactures a wide range of high-quality baby food products. Along with aseptic cups, glass jarred products and meat sticks, the facility produces enough infant cereal to supply North America.

In 2006, the plant incorporated oil analysis with its existing predictive maintenance (PdM) tools, including infrared inspections, ultrasonic leak detection, vibration analysis and motor current analysis. It didn't take long for oil analysis to reveal that cost savings could be realized by keeping lubricants clean, dry and controlled.

Because silica was found in virtually every oil sample, an informal root cause failure analysis was conducted to examine how the facility's lubricants were being managed. At the time, the plant was using an open-raftered "oil shed." Hot, humid and windy Arkansas summers combined with a neighboring facility that was manufacturing with sand resulted in lots of dust. When the wind blew, dust would enter the plant's oil shed and settle on everything.

"The oil analysis data opened our eyes and led to a totally different view of how we manage lubricants," said Mark Gonzagowski, the plant's reliability services team lead.

Improving Lubrication Management

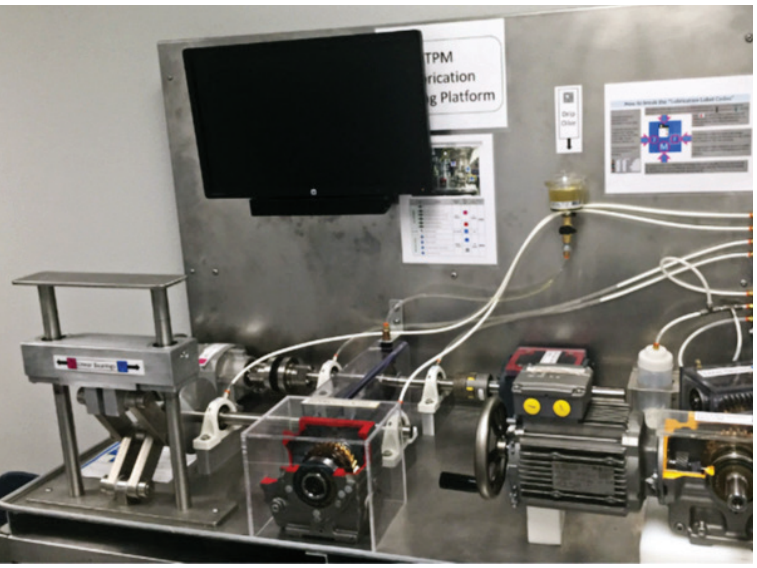
The first step in improving Gerber's lubrication management was to reduce the amount of silica showing up in the oil samples. Nearly everything lubrication related had to be corrected, from how and where lubricants were stored to how much and how often they were applied. Rather than "re-inventing the wheel," Gonzagowski researched lubrication management and found universal truths across all industries.

For instance, oil must be kept clean, dry and controlled from the time of purchase through gearbox top-offs. Subsequently, and by staying true to these truths, Gerber implemented lubrication management with another universal principle as the guide: apply the right lubricant in the proper amount at the correct time.

Gerber team members attended Noria training courses and used the company's learning materials to obtain certifications through the International Council for Machinery Lubrication (ICML). These certifications not only would validate the skills and knowledge gained by personnel but also help ensure better machine reliability.

As part of an initiative known as "zero access," new machine guarding was constructed around eight critical machines. A new approach for maintaining oil levels and

The renovated lube room at the Gerber production plant



The lubrication training center developed by Gerber's Fremont Michigan TPM team and duplicated at the Gerber Fort Smith Arkansas Plant

extracting oil samples from critical gearboxes was developed along with a comprehensive plan that included remote-access minimess extraction ports, catch pipes and breathers. Total productive maintenance (TPM) lubrication standards like machine lube maps would also be important in the transformation process. However, the biggest step was changing how the facility managed lubrication in general, primarily its lubricant storage and handling.

The outdoor oil shed was abandoned after space inside the plant was allocated for the new lubrication center, which would be centrally located, insulated from the elements and offer a means to control access. Only approved technicians would now have access to all the lubricants needed to perform preventive maintenance (PM) tasks. Dedicated point-of-use containers were color-coded to bulk storage containers to simplify tasks, and technicians no longer would have to brave the elements outside to retrieve the necessary resources. Everything was also designed to eliminate contaminant ingression.

Decreasing Lubricant Consumption, Increasing Cleanliness

With a new approach to lubrication management, the facility's average consumption of its two primary food-grade lubricants dropped from 650 gallons to just 110 gallons annually – a reduction of more than 80 percent, which resulted in more than $15,000 a year in savings. This made a sustainable difference in the plant's operations budget.

Despite the dramatic decrease in consumption, the plant's lubricant vendor, Tulco Oil, continues to support Gerber's efforts in all aspects of its lubrication program.

"The relationship between a plant and its lubricant supplier is crucial because that is where lubrication management starts," Gonzagowski said. "If your vendor does not provide or is not willing to take steps to provide a quality product based on specific requirements, cut them loose."

Gerber's reliability team

Changes in gearbox cleanliness at the facility were also seen in the first year. The average ISO cleanliness code improved steadily from 26/24/20 to 20/18/16. Gearbox life cycles and mean time between failures increased by three to four times in most washdown areas and as much as seven to 10 times in dry areas. The cost-avoidance savings achieved by extending gearbox mean time between failures (MTBF) via better lubrication management could also be added to the plant's annual operations budget reduction along with increased machine availability or "asset intensity."

Plant personnel were included in the improvements through Noria's onsite training sessions and training videos. Processes were designed to increase the lubrication skill set, and machine operators will be performing routine lubrication in the near future.

"We've done a lot toward applying the proper amount of grease lubricant when it's needed as opposed to a time-based application," Gonzagowski noted. "Every motor that we would open up before, there were large amounts of grease in the winding field. We don't see that anymore."

Moving Forward

To improve its lubricant storage and handling practices, Gerber has invested a little more than $100,000 in physical resources, with an additional $30,000 to $35,000 in lubrication program development, training and training aids. The plant still hopes to add onsite lubricant analysis and more condition-based maintenance team members so all maintenance can be scheduled and driven by predictive technologies and methodologies. Going forward, TPM standards like 5-S, visual guidelines and other components have driven more changes for the better.

"Good lubrication management impacts so many universal key performance indicators (KPIs) that are common to all industries, be it power generation at a nuclear facility to making the best widget at the most competitive cost," Gonzagowski said. "It can get expensive on the front end for sure, but not seeing gearboxes in our recycling bins makes the expense worth it."