



Fullerton lubrication team: (left to right, standing) Agustin Thomas, Henry Piestrzeniewicz, Joseph Cabrera, Jeffery Ng, (seated) David Middleton, Jad Salem and Derek Matheson

Overview

The Kimberly-Clark mill in Fullerton, California, produces facial tissue, bathroom tissue and industrial wipes. From 2000 to 2013, the site was operating on a reactive maintenance basis with equipment in continuous failure mode. Machines were repaired on the premise of getting them running as soon as possible, and subsequent failures were not the primary consideration. The mill's performance lowered employee morale and raised the cost of operation.

"We understood that poor lubrication practices were exposing our equipment to unexpected breakdowns, with potentially severe impacts to the operation as a whole," said Jeffery Ng, the mill's reliability team leader. "We were not confident that our lubrication practices were up to par in all areas."

Challenges

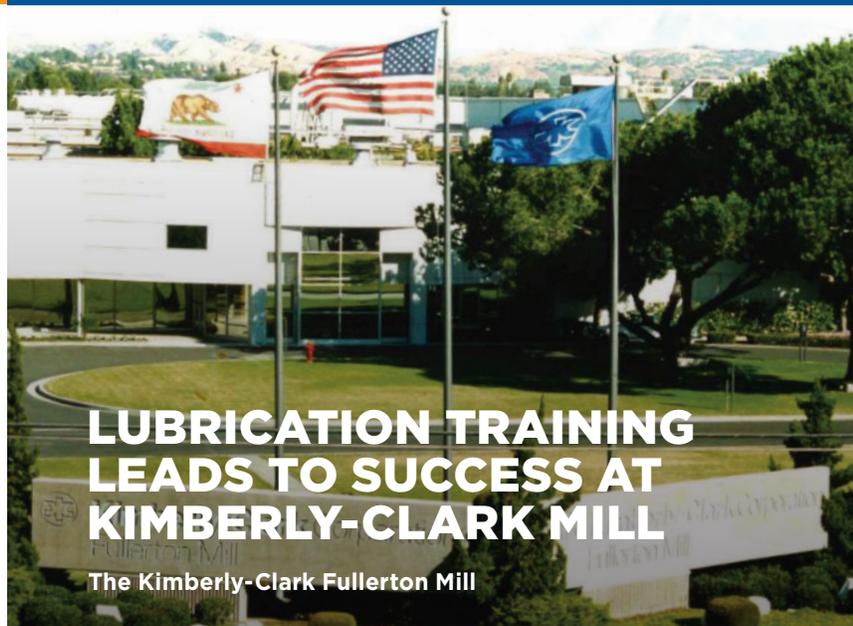
- Unexpected equipment breakdowns
- A reactive approach to maintenance
- Low employee morale

Solution

Noria's Lubrication Program Development (LPD)

Results

- \$10,000 a year in lubricant cost savings
- Reduction in machine delays
- Fewer machine breakdowns
- Improved plant safety



LUBRICATION TRAINING LEADS TO SUCCESS AT KIMBERLY-CLARK MILL

The Kimberly-Clark Fullerton Mill

Revitalization Efforts

As part of the mill's revitalization efforts, moving from reactive maintenance to condition-based maintenance was identified as an important step. This led to the creation of the "reliability office," which consisted of a team of personnel trained in condition monitoring techniques and technologies. This team was charged with introducing and sustaining predictive and preventive maintenance methods in the tissue manufacturing operation, including the incorporation of world-class lubrication practices.

"We did not have good incoming lubricant material control, and the subsequent storage and application practices were exposing lubricants to contamination," recalled Jad Salem, the lubrication program manager. "The equipment was not being monitored for lubricant condition, and the oils were mostly being changed on a planned maintenance schedule."

The mill was using a high volume of lubricants and then having to dispose of a large amount of used oils. Lubricants were stored in different areas under poor conditions with dirty funnels, containers, etc. Desiccant breathers were not installed, and the oil sampling ports were poorly located. The mill's personnel had little knowledge about lubrication, and contamination control was not emphasized at the plant.

There were also no checks in place to confirm lubrication activities were completed. The mill would regularly experience equipment failures due to a lack of or improper lubrication. Some failures were minor, while others were more extreme.

“Untrained operators applied the wrong lubricants, and the equipment was not clearly labelled for the required lubricants,” Ng noted. “We realized that we needed help with evaluating our practices, and we reached out to Noria for a comprehensive review and recommendations.”



The new lubrication room

An Improvement Plan

Noria consultants performed an assessment, and an improvement plan was developed. Reliability office personnel, including site mechanical engineers, attended Noria’s machinery lubrication training. A combination of the information in the Noria assessment and knowledge from the training became the basis for the mill’s lubrication program.

“Our maintenance team saw the importance of machinery lubrication, especially after they went through the training provided by Noria,” Salem explained.



The new drum storage area

The program’s long-term sustainability was improved by the construction of a centralized lube room, which features controlled access and oil-specific filtering prior to delivery to machines. Formal procedures were developed for the receipt of lubricants, initial testing of oils, and the subsequent handling, filtering and dispensing of lubricants. All of these procedures are documented for regular auditing and for future training. While there was some initial resistance due to the existing culture and a lack of knowledge, the changes were eventually welcomed by employees.

In addition, several devices were installed on equipment to make daily inspections easier. These included 3-D bull’s-eye sight glasses, bottom sediment and water bowls, and desiccant breathers. Oil analysis was also implemented on major and critical equipment.

Other upgrades at the mill included purchasing higher-quality grease guns and adding automated greasing systems. Drum handling was also improved and made safer with new electric carts. Finally, the team completed color and symbolic coding of equipment for lubricant identification, as well as management of grease expiration dates.

Seeing Results

The mill has seen a significant decrease in lubricant consumption. Oil losses have been reduced by 30 percent, corresponding to \$10,000 in annual savings. The oil loss reduction not only impacts the cost of operation but also the safety of the mill. Oil on the plant floor and on the equipment presents slip, environmental and fire hazards.

The total delay on a single tissue machine has been reduced significantly over the past three years, with both unplanned mechanical and electrical delays dropping as a result of these efforts.

More decisions are now driven by oil sampling results, and oil changes occur only when needed. Often the oil is simply filtered or water is removed without changing the oil. There are also fewer breakdowns, as issues are frequently detected before the equipment fails.

“There has been a noticeable reduction in the time spent on breakdowns,” Ng said. “Now we spend more time planning our efforts.”

The Future

As the mill continues to improve and refine its lubrication program, more personnel will be receiving training in the near future. Of course, there are changes still to be made, such as adding positive air pressure in the lubricant storage room.

Future opportunities include expanding oil sampling into other areas of the plant, retraining personnel to maintain best practices, implementing and auditing its various processes, and changing from grease to oil lubrication in some areas.

The Fullerton mill has come a long way in the past few years and expects to continue to improve its reliability with world-class lubrication tools and equipment along with an educated and trained workforce.

For more on Noria’s Lubrication Program Development, contact us at 800-597-5460 or visit www.noria.com.

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- Jad Salem, lubrication program manager



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