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Adapting to Being a **Better Leader**



The Journey to Reliability Uncovers a **‘Hidden Plant’** Within the Walls by Darren Booth

Those working in the field of maintenance know how important it is to the success of any organization to maximize reliability and minimize or eliminate unscheduled downtime. This can be a daunting task and often requires professional collaboration, a change in organizational culture, and the willingness and ability to make decisions that are not always popular.

Lubrication Engineers (LE) is no different than any other manufacturing facility in the world. It can only make a profit if it is producing quality product and shipping it to customers in a timely fashion. If the facility experiences unscheduled downtime with its production equipment, it causes a ripple effect throughout the entire operation. When this happens, the organization seeks to learn from it and get better to minimize the risk of it occurring again.

LE manufactures its own high-performance industrial and automotive lubricants in its 200,000-square-foot manufacturing and warehouse facility. Its products are distributed and used by companies all over the world (Figure 1). As a batch process manufacturer – as opposed to a continuous process manufacturer – LE is able to give each product an intensive care approach during the cooking and blending steps. It formulates its products to meet the needs of the application and not just to meet minimum specifications.

After the finished product is approved by quality control, the product handling department fills containers ranging in sizes from pint bottles to tanker trucks. Product is stored in three warehouses across the United States, which helps lessen the delivery times to customers in various regions.

All this may sound good, but LE is never satisfied with the status quo. The company works continually to maintain or improve mechanical uptime in order to provide quality product and reliable service to its customers. Seven years ago, LE had some challenges to overcome. The biggest challenge was the need to change the reliability culture in the entire facility. While LE was already very good at helping its customers improve lubrication reliabil-

**Advanced Lubrication
Strategies Help Company
Increase Uptime,
Reduce Costs**



Figure 1: LE distributes products to customers all over the world out of its warehouses in Wichita, Kan., Knoxville, Tenn., and Las Vegas, Nev.

ity and mechanical uptime, the company knew it could do better in its own facility. The organization needed to walk the walk, not just talk the talk.

LE needed to focus on managing its assets at a higher level than ever before. The company initiated plant-wide meetings to discuss reliability topics. Discussions focused on reliability in terms of how it relates to its employees, as well as its customers. LE determined that it could do better in its reliability efforts and save money by doing so.

Getting Started

The beginning of a reliability journey can seem overwhelming, but that is why it is so important to be patient and take one step at a time. Although it would seem easy for a company like LE to get started because it already partners with reliability-minded product and service providers, its reliability journey still sputtered, at best, in the early stages, even with this built-in advantage.

Top-Down Support

It was imperative that senior management recognized that good lubrication practices would protect assets and keep them generating products and profits, positively affecting the bottom line. LE also needed its leaders to place equal importance on both human and mechanical assets.



Figure 2: Continuing education is a priority, as evident by the many LE employees with advanced certifications.

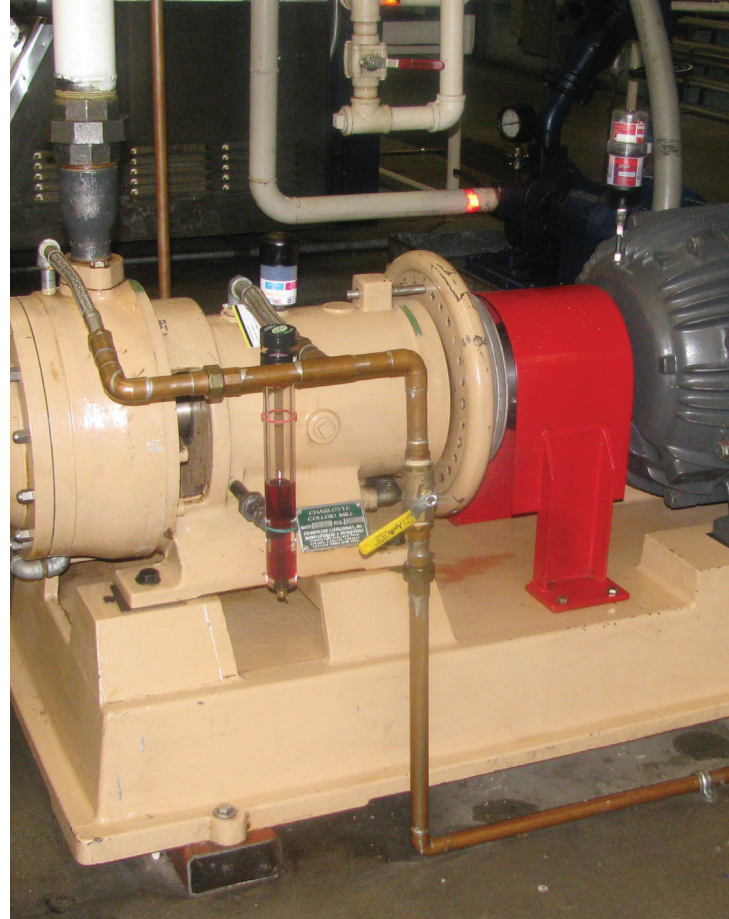


Figure 3: LE installed breathers and sight glasses on critical equipment to exclude or remove water and other particulates

Education & Training

LE chose to spend money on its people to get them the training they needed. The maintenance team and senior management attended maintenance reliability conferences and as many training opportunities as possible. Many were able to earn certifications, including Machinery Lubrication Technician Level I (MLT), Oil Monitoring Analyst Level I (OMA) and Certified Lubrication Specialist (CLS), which further increased their confidence and ownership of the process (Figure 2). They then began implementing what they learned into their operations.



Figure 4: LE's new lubrication system keeps lubricants clean and dry with filtration into and out of each tank, and everything organized and color-coded for a smarter, more efficient process

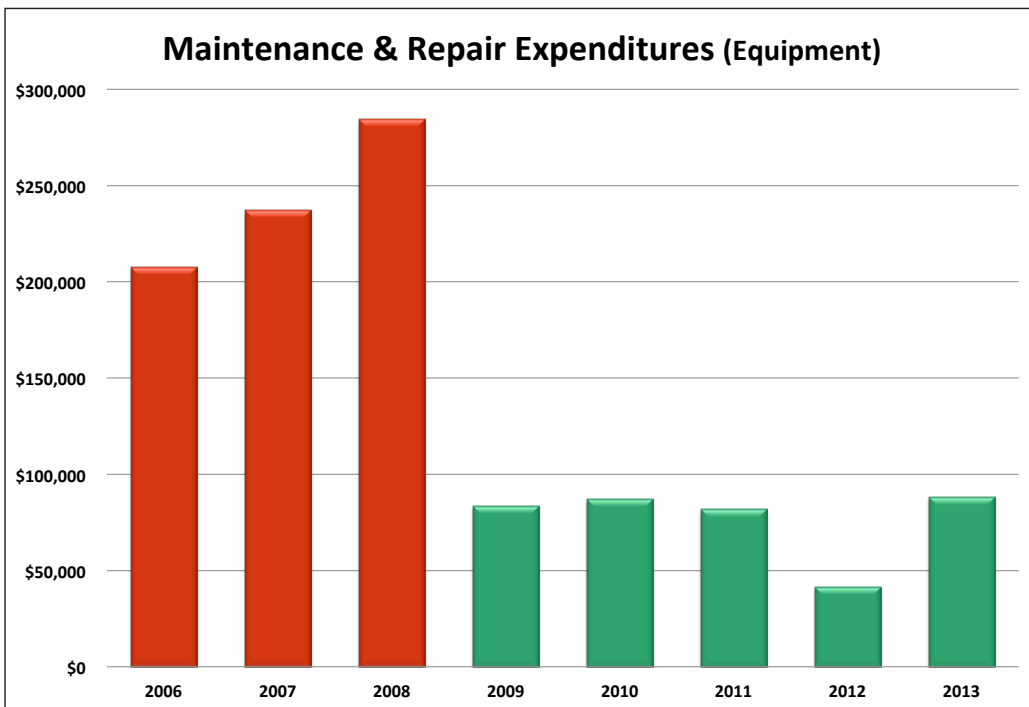


Figure 5: In five full years after implementation of its lubrication reliability program, LE's average annual expenditures on repairs and maintenance dropped 68 percent, from \$243,000 to \$76,000

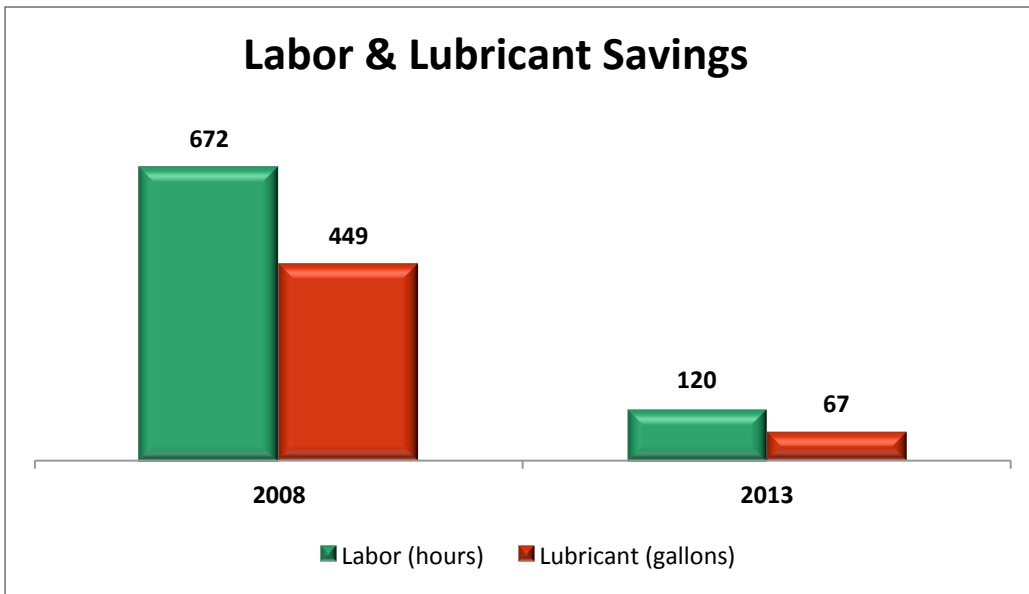


Figure 6: From 2008 to 2013, LE reduced lubricant-related labor hours by 82 percent and lubricant usage by 85 percent, which added another \$21,000 in savings

Reliability Products

One of the first changes made was installing desiccant breathers and sight glasses on many of the assets (Figure 3). Top-down support was crucial for this investment to happen. It was understood and agreed upon that increasing the reliability of each asset would lower the total cost of ownership. LE later incorporated other reliability products, including automatic lubricators and filtration devices.

well-equipped lube room will protect these fluid assets so you can sleep at night.

LE purchased a new lubrication storage system and created a dedicated lube room (Figure 4). This made it evident to all employees that the company was serious about reliability. The maintenance team took ownership of this new lube room and storage system, and they are very proud of it.

Computer System

As the workforce's knowledge level increased and reliability improved due to the small changes put in place, improvements began to accelerate. LE began looking into a computerized maintenance management system (CMMS) because, up to this point, maintenance reliability technicians were working from computer-generated asset cards to do lubrication activities. Maintaining this archaic system was not easy.

During its review of several CMMS packages, LE realized that a CMMS would be more time-consuming to implement than a simple computerized lube route system. At the time, the main goal was to quickly get a better handle on lubrication reliability practices, however, many of the CMMS packages reviewed did not incorporate lubrication, or their lubrication components would have been cumbersome to implement. After many discussions, LE came to the conclusion that adopting a CMMS system did not make sense at that time for its five person, one shift maintenance department. Having made this decision, LE was able to proceed more rapidly with the rest of its journey.

Plant Survey

LE's mechanical assets include 177 gearboxes and gear reducers, 119 electric motors, 51 pumps and 21 stirring vessels, as well as compressors and additional miscellaneous equipment. The entire facility was surveyed and each lubrication point on each asset was identified. This helped the facility visualize the amount and type of equipment it was performing maintenance on and gave it a blueprint to start managing the equipment more efficiently. This is a critical step in the process and should not be skipped.

Lube Room

Lubricants are the lifeblood of mechanical assets throughout any facility. LE regards them as assets, not consumables. In fact, LE looks at lubricants as its number one asset. Just like any other asset, lubricants need to be maintained properly and used properly for specific applications. A



Figure 7: With top-down support, the five-man maintenance crew at LE took ownership of the changes and embodied the new, stronger reliability culture

This created momentum in the lubrication reliability journey, which became increasingly evident as the maintenance team began to think of more ways to improve machine uptime.

Lubricant Identification

All lube points were tagged according to product number and color-coding that matched the storage system tanks was implemented. This helped make lubrication a smarter, more streamlined process for the team and it raised the knowledge level of each team member.

Lube Route Software

After a search of available software solutions, LE purchased lubrication reliability software to manage all its lube tasks. The quick turnover to this system enabled LE to keep its mechanical assets running and minimize downtime. With the software, LE was able to assign lubrication routes and schedules to team members who took ownership of the process to ensure "their" equipment was maintained properly.

The software significantly improved LE's ability to manage the lubrication of its mechanical assets and helped the facility organize its approach to handling maintenance activity.

Results

By implementing all these steps on its reliability journey, LE has seen a major reduction in the cost of equipment repairs and maintenance. From 2006 to 2008, LE documented an annual average expenditure of \$243,000. In 2009, the first full year after lubrication reliability changes, this annual number dropped dramatically to \$83,000. LE spent an average of \$76,000 annually in the five years since the program was implemented on repairs and maintenance of equipment (Figure 5).

Using condition-based monitoring and oil analysis, LE also drastically decreased its oil usage. From 2008 to 2013, annual lubricant usage dropped from 449 gallons to 67 gallons, for a savings of more than \$11,000.

Reducing lube change-outs, as well as repair and maintenance tasks, contributed to significant labor savings. In 2008, 672 hours of labor were dedi-

cated to maintenance and repair tasks; in 2013, that dropped to 120, for a savings of nearly \$10,000 (Figure 6).

Looking back, the main drivers that helped LE on this journey were:

- Supportive top-down leadership;
- Willingness to invest equally in both people and mechanical assets;
- Detailed plan of attack;
- Patience (organizational stamina);
- Quantification of results.

With similar drivers in place, your organization can achieve the same positive results. The most important thing to do is take that first step and get started. Soon, you will be on your way to finding the hidden plant within your facility.

Software System Gets Lubrication Right Every Time

It is critical to get the right lubricant in the right place at the right time using the right procedure or technique – every time – to ensure equipment reliability.

And yet, many companies still rely on the all too fallible memory of employees. Other companies turn to spreadsheets or computerized maintenance systems. These systems are effective, but don't provide detailed tracking and streamlining of lubrication tasks and costs.

Performing lubrication seems elementary, but can be quite complex when you consider that a single plant can have thousands of pieces of equipment, multiple lubrication points per piece of equipment and multiple activities per lubrication point, each done at different intervals. From daily lubing to semiannual oil sampling to yearly tank draining, the required lube tasks can number in the hundreds of thousands per year. A software system dedicated to tracking, managing and documenting lubrication will cut costs, improve efficiencies, eliminate guesswork and extend the life of plant equipment.

A lubrication reliability software breaks the cycle of reactive maintenance, frees up time and resources, helps ensure the success of other maintenance initiatives (e.g., vibration and infrared), minimizes capital equipment replacement and helps companies do more with less.

A software system takes responsibility for hundreds of thousands of lubrication tasks annually, essentially ensuring that none are left behind. Each week the software generates a list of tasks for each route so lubrication responsibilities are always known. These lists can be synchronized to mobile devices and contain full details for each lube point, including precise location and the quantity and type of lubricant to be applied.



Darren Booth, CLS and vice president of Manufacturing Operations, has worked for Lubrication Engineers, Inc. for 25 years. Darren currently oversees plant operations, consisting of manufacturing, product handling, traffic and maintenance. Through his role in helping implement lubrication reliability throughout the operation, he has been a catalyst in lowering LE's total cost of ownership of its mechanical assets. www.LElubricants.com