

# HOW A NOTORIOUS POWER COMPANY USED ULTRASOUND TO EXPAND THE LIFE OF THEIR HIGH-SPEED BEARINGS BY NEARLY TWO YEARS

## ABOUT

This case study is about a well-established power company who operates a global bioenergy supply business with manufacturing facilities at numerous sites in the United States and Canada, producing compressed wood pellets for its own use and for customers in both Europe and Asia.

## THE PROBLEM

This power company faced challenges related to improper lubrication of their 1790 RPM high-speed bearings. Their existing method of lubrication relied on a time-based approach, resulting in unnecessary greasing regardless of the actual lubrication needs. This approach causes problems of both over and under lubrication, significantly reducing the expected lifespan on the high-speed bearings. Consequently, mechanical failures became frequent, often requiring bearing replacements as much as twice

per month. The replacement process itself was not an easy task, necessitating a complete halt in production within the hammer mill.

Given the detrimental impact of these failures such as the loss of valuable resources and costly unplanned downtime, this power company urgently sought an effective solution to significantly prolong the lifespan of their high-speed bearings.

## THE SOLUTION

They decided that a transition from time-based maintenance to condition-based monitoring was necessary, allowing them to monitor the health of their bearings in real-time. To facilitate this transition, they incorporated advanced instruments such as the Ultraprobe 15,000 and Ultraprobe 201 Grease Caddy into their newly installed condition-monitoring program.

The Ultraprobe 15,000 proved to be a game-changer as it enabled them to capture and organize their collected readings efficiently, leveraging the capabilities of UE Systems DMS Software. By analyzing trends in bearing performance over time, they gained proactive insights, staying ahead of potential catastrophic failures. This proactive approach should significantly extend the equipment's lifespan and reduce the frequency of emergency repair.

The Ultraprobe 201 Grease Caddy revolutionized the process by allowing simultaneous greasing and real-time ultrasound monitoring, effectively eliminating the guesswork associated with applying grease to bearings. Instead of relying on predetermined time intervals for greasing, they now had the precision and data to apply the optimal amount of grease every time.

By implementing a condition-based monitoring reliability program and leveraging the capabilities of the Ultraprobe 15,000 and Ultraprobe 201 Grease Caddy, this power company was now setting itself up for a much more efficient future.

## THE RESULT

After about three months of implementing the condition-based monitoring approach, this power company began to witness significant benefits. Most notably, they experienced a remarkable decrease in the frequency of high-speed bearing replacements. This improvement was primarily attributed to the adoption of appropriate lubrication practices that effectively maintained the bearings' health and substantially prolonged their lifespan. Previously, they had to endure the disruptive process of shutting down their entire hammer mill twice per month to replace the high-speed bearings which consumed considerable time, money, and resources. However, with the help of the Ultraprobe 15,000 and Ultraprobe 201 Grease Caddy, **they now only need to replace these same high-speed bearings once every two years.**

This power company quickly recognized the extensive benefits derived from transitioning to condition-based monitoring, resulting in getting back significant time, resources, and financial savings. As they move forward, they have gained a heightened level of confidence in their reliability program and lubrication practices, alleviating concerns about premature equipment failures, catastrophic breakdowns, and unplanned downtime. With immediate plans to further enhance their reliability program, they aim to expand condition-based monitoring to their large motors. Additionally, they intend to utilize the Ultraprobe 15,000 for leak detection and enhance their electrical inspections, cementing their commitment to ongoing improvements.

## SUMMARY

- This well-established power company was having issues accurately greasing their 1790 RPM high-speed bearings, leaving them to have to shut down their hammer mill twice per month to replace the bearings.
- They decided it was time to upgrade their reliability program using condition-based monitoring utilizing the Ultraprobe 15,000 and Ultraprobe 201 Grease Caddy, enabling them to properly grease their high-speed bearings in real-time with the perfect amount of grease.
- It took just 3 months before they started seeing significant improvements in their facility. By switching over to condition-based monitoring, proper lubrication of their high-speed bearings extended the lifespan and they only had to replace them on average once every two years – a major improvement from their previous twice per month routine.
- Moving forward, this power company intends to continue enhancing their reliability program using condition-based monitoring on their large motors, as well as using this equipment to further improve their gas leaks and electrical inspections.



These are pictures of the OnTrak system used as an example of what it looks like in a facility that is not affiliated with this power company.

