

THE ULTRAPROBE 15,000 AND ULTRAPROBE 401 GREASE CADDY ENABLED BIOKYOWA INC. TO SHIFT TO PREDICTIVE MAINTENANCE, SAVING THEM OVER \$261,901 ANNUALLY



ABOUT BIOKYOWA INC.

BioKyowa represented the first major plant investment by a Japanese company in the state of Missouri when it began construction in 1982. In 1984, when production began, BioKyowa produced feed supplements for the swine and poultry markets. BioKyowa was the first commercial Lysine producing plant in the United States.

Over the past 30 years, BioKyowa has evolved from a feed grade facility that produces a single product to a multiple plant facility that produces high quality amino acids such as glutamine, arginine, threonine, and valine using advanced biotechnology with strict quality control standards. Their amino acids are used in products such as nutritional food supplements, cosmetics, and precursors for pharmaceuticals.

THE PROBLEM

The problem initially came to surface during routine vibration routes. While a technician was gathering and assessing data, they identified an ultra-high frequency bearing noise in one of their recirculating fans. This particular fan assembly combined a 1250 HP motor connected to a high-speed gearbox, where the faulty bearing was located. Given the complexity of gearboxes with numerous moving parts, pinpointing the precise location of the issue can be challenging. Vibration analysis led the technician to conclude that employing additional technologies would be

essential to accurately assess which bearing in the gearbox was failing.

In addition to a faulty bearing, the technicians also knew their facility contained failing steam traps and air leaks throughout the plant – almost all facilities do – but they didn't have the tools required to efficiently perform steam trap and air leak surveys. This meant that BioKyowa needed to find an instrument that could investigate numerous applications throughout their plant.

THE SOLUTION

In the search for more advanced technologies, the technician discovered UE System's Ultraprobe 15,000 and Ultraprobe 401 Grease Caddy. They also came across Acoem's Falcon Analyzer, providing them plenty of opportunities to improve their reliability program. The Ultraprobe 15,000 is an all-in-one instrument that uses ultrasound to analyze everything from bearings and electrical systems to steam traps and leaks. Coupled with UE Systems' DMS and Spectralyzer software, this single hand-held instrument can easily test and report on every aspect of a plant's equipment, making it the perfect all-around tool for facility maintenance. With the transducer attachment in place, this was the perfect instrument for the job.

The Ultraprobe 401 Grease Caddy completely removes the guesswork of lubrication by allowing users to evaluate the friction in their bearings in real-time. By using these instruments and transitioning from time-based lubrication to condition-based lubrication, users are applying the right amount of grease, setting their facility up for a more reliable and efficient process.

Eventually, using the Ultraprobe 15,000, the technician was able to pinpoint and listen to the source of the high-frequency bearing noise – an output bearing inside the gearbox. This timely diagnosis allowed them to schedule the necessary repairs by obtaining lead times for required parts, resulting in zero downtime and no production loss.

THE RESULTS

After a year of ownership of both the Ultraprobe 15,000 and Ultraprobe 401 Grease Caddy, BioKyowa experienced tremendous energy-saving opportunities through the implementation of these advanced technologies. The transition from reactive maintenance to a condition-based lubrication and predictive maintenance program has been substantial. Leveraging these tools minimizes the uncertainty associated with diagnosing problems in rotating equipment, specifically over and under greasing. As a result, they have observed significantly extended lifespans for their bearings before requiring additional grease.

Following the success of their bearing condition monitoring solution, BioKyowa promptly initiated quarterly grease caddy routes and planned semi-annual air leak and steam trap surveys. Using the Ultraprobe 15,000, they discovered an annual loss of \$175,901 due to failed steam traps and an additional \$86,000 annually from air leaks throughout the plant. Within just a few months of strategic planning, the cost of the Ultraprobe 15,000 and Ultraprobe 401 Grease Caddy paid for themselves with their annual savings.

Moving forward, BioKyowa is committed to the continued use of advanced technologies such as the Ultraprobe 15,000, Ultraprobe 401 Grease Caddy, and vibration analyzers. This approach enables them to closely monitor their equipment. The implementation of a comprehensive reliability program positions them to better predict future problems and proactively address them before they lead to failure.



"By using our UE equipment, we found an issue early, repaired it during a planned shutdown, and prevented a catastrophic and costly failure."

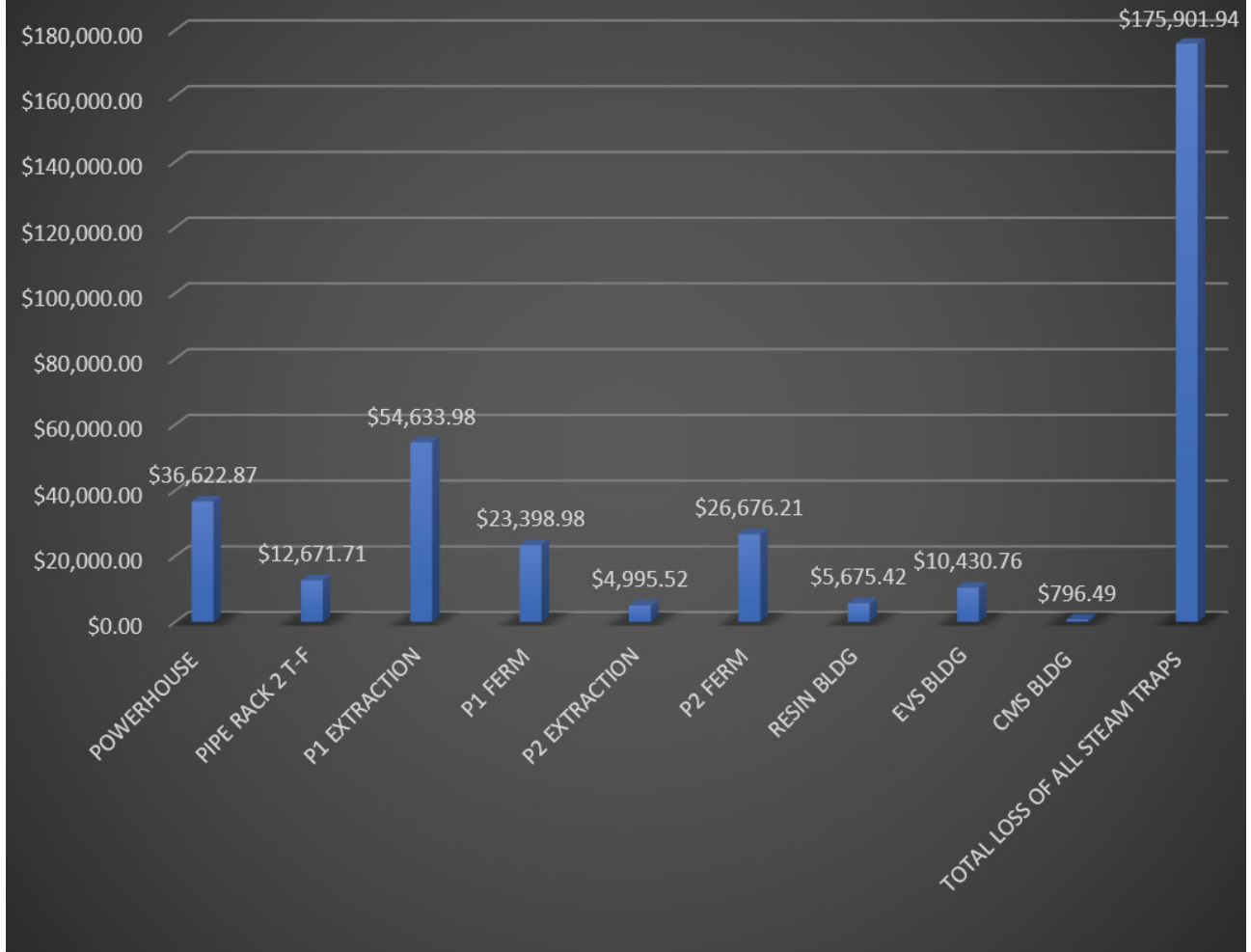
Noah Weatherby, BioKyowa Inc.



SUMMARY

- During data collection, a technician detected an ultra-high frequency bearing noise in a 1250 HP recirculating fan with a complex gearbox. Vibration analysis couldn't determine the fault, resulting in the need for additional technologies to accurately pinpoint the failing bearing in the gearbox.
- In the search for newer technologies, the technician discovered UE System's Ultraprobe 15,000 and Ultraprobe 401 Grease Caddy. They also came across Acoem's Falcon Analyzer, giving them plenty of opportunities to improve their reliability program.
- BioKyowa achieved substantial energy savings with advanced technologies, shifting from reactive to predictive maintenance. This resulted in significantly prolonged bearing lifespans and reduced the frequency of grease application.
- After successfully monitoring bearings, BioKyowa initiated quarterly grease caddy routes and semi-annual air leak and steam trap surveys. Using the Ultraprobe 15,000, they identified an annual loss of \$175,901 from failed steam traps and an additional \$86,000 from air leaks. In just a few months, these savings covered the entire cost of the Ultraprobe 15,000 and Ultraprobe 401 Grease Caddy.
- Moving forward, BioKyowa is committed to the continued use of advanced technologies. The implementation of a comprehensive reliability program positions them to better predict future issues and proactively address them before they lead to failure.



STEAM TRAP LOSS PER BUILDING




Ultrasound Leak Survey - Dashboard


Cost

Captured
\$0

Total Loss Annually
\$86,324

Remaining
\$86,324

Cost - USD

Repaired
Not Repaired

Severity of Leak Chart

Survey Name	Year
INSTURMENT AIR	2023
LOCALE COMPRES	
PROCESS AIR	

Date	Month
06/00/2023 09:59:3	June
06/30/2023 10:08:2	July
06/00/2023 10:13:3	
07/06/2023 01:40:0	

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