Case Study

Accurate predictions months in advance on a 125 HP

Executive Summary

The MyVIE sensors were outfitted to dozens of high-value assets in a the global campus of a Fortune 100 company. Scheduled inspections of the 125HP motor driving a water pump had previously found the motor operating within normal ranges. MyVIE's Artificial Intelligence (AI) system assessed a variety of vibration parameters to determine specific cause of degradation.

The end user actions did not adequately address the underlying issues. Over time the MyVIE system started reporting multi-component degradations that led to the eventual failure of the machine.

Within months following installation MyVIE:

- **Within days of installation, MyVIE identified specific issues that the user inspections did not reveal**
- **The user had over 4 months advance notice to plan and execute proper corrective actions**

The Facility

Our customer has a large office campus in the Eastern U.S. The facility uses a combination of regular visual inspections and a preventative maintenance protocols to maximize reliability and to minimize unplanned downtime of critical environmental control infrastructure. The customer's management wanted the improve availability through properly planned maintenance activities driven by consistent and early identification of issues.

MyVIE Installation

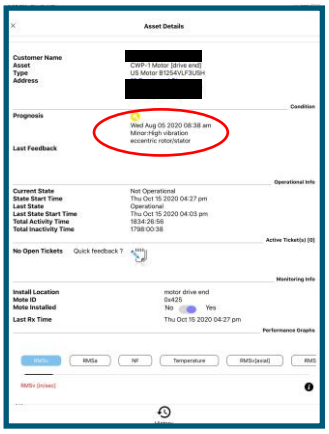
Dozens of MyVIE sensors were epoxied to pumps, motors, and chillers critical to the cooling operation of the facility. Our gateways wirelessly connected to the sensors and established wireless backhaul independent of the customer's network.

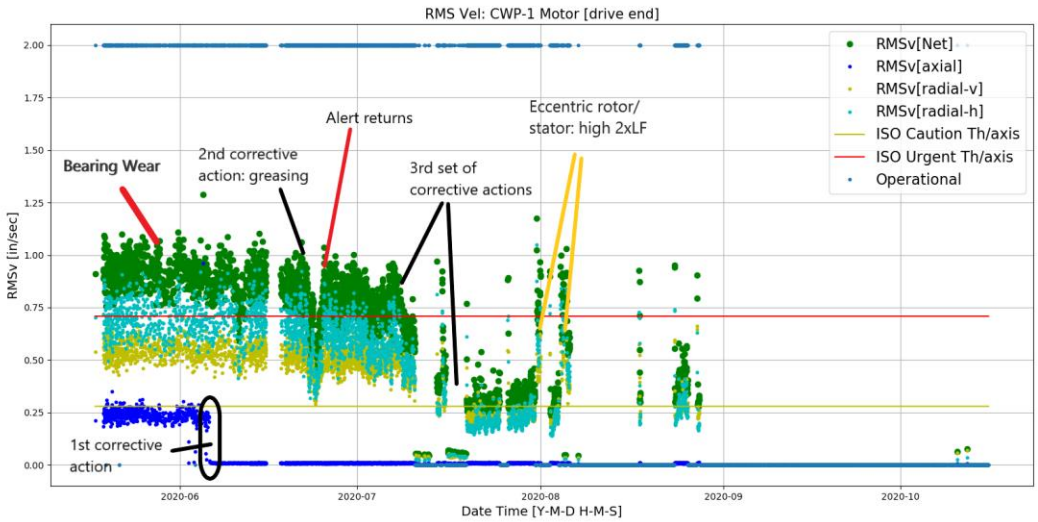
Degradation of a 125HP Motor

This study details how the MyVIE's AI engine performs in conjunction with the end user actions. The example focuses on the drive end of a 125HP 460V motor driving a pump located at the office campus of a Fortune 100 company. The sensors were installed on May 16th, 2020. The MyVIE system consistently reported a progression of developing issues that, if not adequately attended, would lead to equipment failure. User actions did not address the reported issues. In late September, 2020, the customer reported that the motor had finally failed and requires extensive rework to bring back on line.

- The data presented is clearly illustrative of both the early detection by the MyVIE system and corrective actions taken by the user. It also shows the limited impact of the corrective action. One can readily see the initial improvement followed by degradation.
- As shown, the MyVIE's AI engine is responsive to user driven changes but persistently continues delivering specific condition alert unless underlying issues are adequately addressed.

May 16th	MyVIE sensors installed
May 19th	Self calibration completed
May 26th	Red alert: cage wear, outer race wear
Jun 21st	***Inadequate corrective action taken***
Jun 23rd	Yellow alert: cage wear, outer race wear
Jun25th	Red alert: rotating part (bearing) cage wear
Jul 09th	***Partially effective corrective actions taken***
Jul 10th	Green: temporary alleviation of issues
Aug 05th	Yellow alert: eccentric rotor/stator
Sep 16th	User reports machine failure





Conclusion

Within days of installation, MyVIE delivered critical value for our customer's operation. Via precise 24x7 predictive visibility, MyVIE was able to detect an important availability risk not being detected during regular physical inspections.

The customer's personnel reacted to the MyVIE alerts but did not take the right corrective actions resulting in a progression from a single issue to multi-component degradation to eventual machine failure.

MyVIE identified specific component related issues and continued to update the user while adjusting to their actions. The user had over 4 months of early indication of the issues requiring their attention.