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Customer Success Story - Middle East MDS

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GE's Team of Experts Succeed in Resolving a Decade Old Vibration Problem.

For over ten years a power plant customer in the Middle East had high vibration on two motor driven Boiler Feed Water Pumps (BFWPs) limiting their load availability and reliability. The customer requested GE's Bently Nevada Machinery Diagnostic (MDS) engineers to bring their units back to a reliable condition.



PROBLEM

Throughout the company's decade long struggle with high vibration, it had consulted more than three different companies on solutions to lower the vibration. Numerous recommendations were made including modifying the pump design, replacing the pump, and even doubling the protection setpoints to meet the load demand resulting in running the units on excessive vibration and increasing the frequency of outages and repairs.

SOLUTION

The company called in the support of GE's MDS engineers to help identify the cause of the high vibration. The vibration monitoring system was upgraded and connected into GE's System 1* monitoring and diagnostic software and a Keyphasor* was retro-fitted on the pump. An initial observation of the excessive vibration was noted and the possibility of lowering it to an acceptable level through field balancing was recommended. A field balance was then conducted on the pump rotor using the coupling bolts. The field balancing was successful to reduce the vibration on the drive end (DE) side but it had no effect on the non-drive end (NDE) side.

The MDS team was determined to resolve the problem. The decision was made to modify the NDE Keyphasor* bushing to create a balance plane. A new bushing was designed by GE Regional

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Design & Installation Technical Leader, fabricated by the customer with high precision, and installed on the NDE of the rotor. The newly designed bushing enabled the team to carry out field balancing and drive the vibration levels below the Original Equipment Manufacturers (OEM's) alarm levels.

PAYBACK

The customer learned some valuable lessons from this project, most notably that the GE MDS team is capable of modifying a machine and developing effective technical designs. At a higher level, the customer realized GE's Bently Nevada can provide solutions for complex asset management problems, in areas where others have failed. Thanks to the GE team's expertise, external focus and innovation the customer is operating both BFWPs at very low vibration levels allowing reliable feed for the load increase requirement on their steam power generation train.

BENEFITS

- Reduced outages and repairs: Prior to commissioning GE's MDS team, the customer experienced many costly outages and repairs.
- Increased production: Once the BFWPs were brought back to reliable condition, the customer was able to meet the load increase requirement.
- Top-notch expertise: GE's team of experts was able to resolve a problem that had persisted for over a decade despite attempts by others to resolve.

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