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Troubleshooting and Resolution of High Vibration Issue in a Gas Compressor

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Abstract : This paper presents a case study on the troubleshooting and resolution of a high-vibration issue in a gas compressor. The compressor, a critical component in Khurais Producing Department Saudi Aramco, experienced elevated vibration levels on the drive end side, posing a significant risk of equipment failure and production downtime. Through a detailed investigation, the root cause of the high vibration was identified as liquid carryover from the knockout drum and inadequate pre-startup draining. To address the issue, a field balancing procedure was performed on the drive end side of the compressor. This corrective action effectively reduced vibration levels to acceptable limits, restoring the equipment to optimal operating conditions. The successful resolution of this issue has resulted in significant benefits, including the prevention of catastrophic failures, optimized equipment performance, reduced maintenance costs, enhanced production reliability and demonstrated technical expertise. The lessons learned from this case study can be applied to similar industrial equipment to improve reliability and minimize operational disruptions.

Keywords : gas compressor, vibration analysis, root cause analysis, mechanical engineering
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