

RELIABILITY IMPROVEMENT OF PLANT ASSETS THROUGH CONDITION BASED MAINTENANCE: A CASE STUDY

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ABSTRACT

A major part of the energy used in any production process is expended during the maintenance of Plant assets. To ensure plant reliability and equipment availability, a condition-based maintenance policy has been developed in this investigation. This paper describes the application of condition monitoring on a super critical rotary equipment named the Combined Feed Pump in the Cumene unit of Phenol complex in the plant for the case study, which unexpectedly failed to run, so that it requires a large maintenance cost and time for detection and failure analysis for finding out the root cause of the problem for the corrective maintenance action. As the failure of this pump is a critical problem, it was found out that Erosion effect due to Cavitation in pump impeller was the root cause of pump failure. In order to resist Cavitation, some improvements are suggested. It is necessary that, it requires a skilled operation for the confirmation of a complete elimination of the source successfully.

KEYWORDS: Condition Monitoring, Vibration Analysis, Cause and Effect Diagram, Frequency Spectrum Analysis, PDE, PNDE, MDE, MNDE