

Reliability-Centered Maintenance Application for the Development of Maintenance Strategy for a Cement Plant

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Abstract : This study's main goal is to develop a model and a maintenance strategy for a cement factory called Arabian Cement Company, Rabigh Plant. The proposed work here depends on Reliability centric maintenance approach to develop a strategy and maintenance schedule that ensures increasing the reliability of the production system components, thus ensuring continuous productivity. The cost-effective maintenance of the plant's dependability performance is the key goal of durability-based maintenance is. The cement plant consists of 7 important steps, so, developing a maintenance plan based on Reliability centric maintenance (RCM) method is made up of 10 steps accordingly starting from selecting units and data until performing and updating the model. The processing unit chosen for the analysis of this case is the calcinatory unit regarding model's validation and the Travancore Titanium Products Ltd (TTP) using the claimed data history acquired from the maintenance department maintenance from the mentioned company. After applying the proposed model, the results of the maintenance simulation justified the plant's existing scheduled maintenance policy being reconsidered. Results represent the need for preventive maintenance for all Class A criticality equipment instead of the planned maintenance and the breakdown one for all other equipment depends on its criticality and an FMEA report. Consequently, the additional cost of preventive maintenance would be offset by the cost savings from breakdown maintenance for the remaining equipment.

Keywords : engineering, reliability, strategy, maintenance, failure modes, effects and criticality analysis (FMEA)

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