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A METHODOLOGY TO INCREASE INTERVAL BETWEEN TURNAROUNDS MAINTENANCE FOR METHANOL PLANTS BASED ON THE HEAT EXCHANGERS

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ABSTRACT

Methanol plants consist of hundreds of pieces of static and rotating equipment that operate continuously under harsh conditions. Static equipment pieces usually expose many failures such as a wear, corrosion, fatigue and leakage resulting from the fluctuating pressures and temperatures. These failures may cause huge financial consequences for plant. To inspect and maintain these pieces of equipment, plant facilities must be subjected to the total shutdown to conduct Turnaround Maintenance event (TAM), which estimates based on the recommended periods of the Original Equipment Manufacturers (OEMs) in the short-term. However, this strategy may not be represented the most optimum TAM scheduling in the medium and long-term, because operating conditions vary significantly from a company to another. This study aimed to present a methodology for extending TAM interval of Methanol plants based on heat exchangers as critical equipment pieces to avoid the random and permanent shutdown of the plant, mitigate risk consequences, prolong equipment life, maximize uptime, decrease maintenance cost, increase productivity and improve all aspects of reliability, availability, and maintainability. The results showed that an application of methodology at Methanol plants could be prolonged the interval of TAM based on the risks assessment associated with the heat exchangers. Also, this can decrease maintenance cost, reduce production losses and improve availability and reliability of a methanol plant facilities.

Keywords: Turnaround Maintenance (TAM), Risk-Based Inspection (RBI), Weibull Distribution, Heat exchangers.