

ABSTRACT

PT. Pupuk Kujang is a manufacturer of fertilizer which is located in the industrial Cikampek area, West Java. PT Pupuk Kujang has two plant which is Factory Kujang 1A and factory Kujang 1B. Kujang 1A plant has four factories, the factories of ammonia, urea, PPCO, and utility. Ammonia production process plant using natural gas feedstock from existing sources of natural gas in West Java, namely, steam and air. Kujang 1A plant Ammonia Unit has 20 kinds of machines that are used for production, one of which is the engine coil heat exchanger. Based from its functions, Coil Heat Exchanger is equipment that has a great influence in the process of production ammonia due to natural gas that is being input to the process in catalytic tube on the radiant section reformer (the main part) requires elevated temperatures reach 1000⁰ F so it needs to be warmed up beforehand in the Coil Heat Exchanger Machine aims for efficiency. Therefore, it is necessary to ensure a coil heat exchanger always in an optimal state of production that the process can run smoothly, by determine the effective and efficient intervals inspection based on risk and remaining life.

Risk Based inspection (RBI) is a method of determining inspection plan (which and when equipment to get inspection) based on risk failure so can be used as a reference to company policy in doing preventive activity.

Based on the result of quantitative calculation with risk matrix obtained the level of risk to a coil heat exchanger is medium and based on the level of risk obtained inspection intervals is a half of its remaining life. From the interval inspection, obtained that the hot super heater and cold super heater machines has the shortest average inspection intervals. The inspection schedule of this proposal give cost savings nearly about Rp 3.043.111.715 for Mixed Feed, Rp Rp Rp 2.099.715.380 for Fuel Preheat, Rp 413.720.353 for Hot Super Heater, and Rp Rp 692.730.745 for Cold Super Heater.

Key Word—Risk Based Inspection, Remaining Life, Inspection Interval, Risk Matrix, Coil Heat Exchanger