

## **ABSTRACT**

*PT Pupuk Kalimantan Timur is the largest ammonia and urea producer in Indonesia, with a production capacity of 2,76 million tons of ammonia and 3,43 million tons of urea. PT Pupuk Kalimantan Timur operates 5 units of plants for the production of ammonia and urea, and there are 4 units of utility plants that provide electricity, steam and water. Each plant is divided into 5 zones (K-1A, K-2, K-3, K-4, K-5) according to their respective location.*

*In the last two years, the ammonia plant in the K-4 zone has the lowest average ammonia production rate due to the high corrective maintenance level at the plant. The most crucial system in the process of ammonia production is the reformer system, the system which is responsible in reacting the sulfurized natural gas with steam and air which then produces hydrogen gas as an ammonia making composition. Therefore, an appropriate maintenance policy is required in the reformer system.*

*By using the risk matrix, AT-2002, PDT-2014, and PV-2001 are obtained as the selected critical components. Then the maintenance policy, total maintenance costs, and risks are determined using the method of reliability-centered maintenance and risk-based maintenance. Based on the results of collecting and processing the data, there are 6 scheduled on-condition tasks, and 4 scheduled restoration tasks with maintenance time interval in accordance to their task category, a total maintenance cost of Rp 159.702.111 with the risk as much as Rp 82.754.935.*

*Keywords: maintenance, reliability-centered maintenance, risk-based maintenance.*