

ABSTRACT

Production Unit Jakarta-Pelumas (PUJ-P) is one of production unit owned by PT Pertamina to fulfill requirement of lubricant and grease. PUJ-P have one grease plant (GP) and two Lube Oil Blending Plant (LOBP), that is LOBP I for vehicle lubricant, and LOBP II for industry lubricant. Especially at LOBP I, lubricants are produced in various types with high capacities. To ensure that production can reach specified goals, one of important factor to be paying attention is reliability of production system. Reliability is defined as ability of system to implement the function during operating period. So that reliability system is high, it is required maintenance strategy based on reliability-centered maintenance, and also optimization of spare part procurement to minimize downtime which was procured based on experience before.

Determination of maintenance strategy base on RCM through seven steps, start from understanding the function and expected performance standards, until determine appropriate default actions, if available alternative of preventive maintenance isn't effective and inefficient to be applied in the system. While optimization of spare part procurement is started by determining average failure for each critical part, and then calculate probability assurance for getting amount of spare part. The next step is calculating value of marginal assurance as reference in determining optimal combination. Optimal spare part combination is considered through sensitivity analysis method, with decision of company that maximal increase of combination cost for every improvement of 1% assurance level equal to RP 15.000.000, 00. Also its combination will be determined by period of procurement and considering to minimize inventory cost.

Based on Observation and the result of the data processing, maintenance strategy base on RCM in the form of scheduled On-Condition Task (specially inspection based on human sense) given to 14 parts. The next scheduled failure finding is done to 2 parts, and no scheduled maintenance is given to 19 parts. Only tank is treatment in form of combination task. At determination of spare part optimization is obtained a unity of optimal combination for every alternative period. For one period in a year, spare part combination is Air Cylinder 25:25 counted 17, Pneumatic BRVS4 that is 14, Sensor 8 part, and butterfly valve is 6. Combination of two periods in one year is different, the first 6 month is 12,9,4,4, and the second period is 10,9,6,4. For three periods in one year, optimal combination for every four months is 10,7,4,4. Alternative of procurement period which selected is one period in a year, by spending minimum of inventory cost equal to Rp 123.602.363, 00.

Keyword: RCM, spare part optimization, Reliability