Improving Unloading Rate At Unloading Port To Decrease Queue Of Bulk Ships Using Simulation Method  
(Case Study: PT Petrokimia Gresik) 

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Abstract 

PT Petrokimia Gresik is a company which produces fertilizers and chemicals, which in the process of distribution of product and raw materials carried by sea. Therefore, the port is a very important part. In 2011 the port is able to handle the activities of loading and up to 3.2 million tonnes per year and continue to increase in 2012. However, in the unloading process, common queue buildup would lean ship. This suggests that the high activity in the port. 

In this research, the selection of alternative solutions proposed to reduce queues. To simplify the analysis, we need simulation method. Simulations were carried out must first be verified and validated according to real operational. The simulated variables include ship arrival patterns, type of cargo, type of boat, dock, unloading facility and capacity of another port. Software that used in this research is EXTEND Series 6. 

As the result, the best alternative is reducing the value of queue with the addition of the dock or port along 260 meters and increase the capacity of unloading equipment such as a kangaroo crane which has an investment of Rp 273,739,393,100. Futhermore the result of demurrage costs is smaller than others and has payback period of 10 years.
Keyword: demurrage, queue of bulk ships, simulation, unloading port, unloading rate