ABSTRACT

Crude oil storage tank at PT. Pertamina EP is the reception center of production from oil wells through a collection station and then sent to the refinery. The flammable characteristic of crude oil can damage the local environment if the crude oil storage tank leak caused a fire that can be detrimental for the company and residents around the location of storage tank.

One of method to determine the level of risk and predict risk value and plan inspection program by using the RBI (Risk Based Inspection) method of American Petroleum Institute. RBI method is method that using risk as based inspection activity. Before applying to the RBI, conducted early identification with the Failure Mode Effect Analysis (FMEA) to assess the value of the greatest failures of the shelter system. Then performed a qualitative RBI analysis to determine the level of crude oil storage tank risk. Next, determine the risk value of crude oil storage tank with a RBI quantitative method. From the qualitative and quantitative analysis determined plan inspection program as one attempts to minimize the risk on crude oil storage tank.

Based on the results of RBI qualitative and quantitative analysis with consequence value 34 and likelihood value 50, the risk level of crude oil storage tank PT. Pertamina EP level is Medium-High Risk. For flammable risk value which having by crude oil storage tank about 54.76252 ft²/years. From the analysis result, that the planning of the inspection program, conducted once in 3 years with maximum test of visual techniques is 5 years and maximum test ultrasonic is 15 years. Based on management system evaluation of interview needs correction management system of HSE be down on elements in Appendix D RBI 581, to prevent failure or accident needs detection system and safeguard to all of equipment in PT. Pertamina EP.

Keywords: Crude oil storage tank, Failure Mode Effects (FMEA), Risk Based Inspection (RBI), Inspection Program