ABSTRACT

CV Artana Engineering is a manufacturing company that produces various types of tanks based on job orders. The company is experiencing problems in meeting product demand, especially milk tanks. In the company's existing layout, there are backtracking or material flow that goes back and forth, so the total movement material is very high and material transfer costs up to Rp 489,727 per day. Besides that, the distance between facilities is more than 10 meters apart on average so that some workstations cannot be reached by material handling due to limitations of standard fuel usage, causing some material transfer processes must use operators. All of this make material transfer process spend a lot of time and energy, causing production delays. The company should redesign the layout by shortening total movement and facility layout based on production flow to eliminate backtracking. In this final project, the simulation annealing heuristic algorithm is used as an algorithm for improving the Layout of the facility because, this algorithm is in accordance with factory conditions where the size of each facility is different. The results of this final project will be compared with the results of previous studies in terms of the percentage reduction in distance and the resulting layout. Based on the research that has been done, there are two alternative Layouts because the company has a limited area. Layout with an area according to the number of machines required can reduce the total difference by 69% and costs by 6% from eksisting Layout. Layout with the available area can reduce the total distance by 81% and the cost by 8% from the existing Layout, while the results of the layout in previous research can reduce 17.8% total distance movement..

*Keywords— [**Layout Redesign**, **Simulated Annealing Heuristic**]*