

ABSTRACT

PT XYZ is iron steel manufacturing company. Cold Rolling Mill is one of the plants at PT XYZ which produces 3 types of products, namely Hot Rolled Plate, As Rolled, and Full Hard. Full Hard 0.2 x 914 mm product is popular product that is often produced by companies. Full Hard 0.2 x 914 mm has total production in the January to December 2018 period amounting to 121,637 tons with defective products amounting to 19,404 tons. So, the size of 0.2 x 914 mm has the highest inaccessibility compared to the others, which is 9%. The focus of this research is to improve the most problematic process stages, Continuous Tandem Cold Mill (CTCM) mill in the Cold Milling Tandem process or the thickness reduction process which causes ripple edges, wavy edges, center buckles, carry over rust, and over gage defects. Furthermore, Six Sigma research methodology is used, namely DMAIC to reduce the occurrence of the problems. First, CTQ product and process identification is carried out to determine which requirements have not been fulfilled for the products produced. Then, measurements are made of the DPMO mean and sigma level. Obtained an average DPMO value of 26474.3 and an average value of sigma level of 3,432, so that the company's process capability is still below 6 sigma. To find out the causes of the defect in the process, an analysis using fishbone diagrams and 5 why's is done to describe the root causes of the problem. Then determine the priority of repair improvements to defect using FMEA. Proposed improvements given to improve the Tandem Cold Milling process causes of ripple edge defects is making check sheets for checking bending system components. While, proposed improvement of the causes of wavy edge defects is making visual displays for checking the distance or thicknesses between the upper and lower work rolls. Proposed improvements for the cause of center buckle and carry over rust defects are optimizing large coolant water temperatures and rolling speed when sprayed. While the proposed improvement for the cause of over gage defects is the making alarm, sign of change for reduction pressure.

Keywords: Full Hard, Six Sigma, DMAIC, Tandem Cold Milling, CTQ, DPMO, Sigma Level