

ABSTRACT

PT Semen Padang is one of the players in the cement industry in Indonesia. In the face of fierce competition in the domestic cement industry, the arrival of several new companies in Indonesia will make the cement industry more competitive. However, according to data from PT Semen Padang's Quality Assurance Factor, there are still defects in the quality of PT Semen Padang's PCC cement products in the Indarung III plant. This study aims to identify defects and quality-related processes that occur in PCC cement products in Indarung III using the Lean Six Sigma approach DMAIC.

Complaints regarding PT Semen Padang's cement, namely compressive strength, and time setting, occurred at the defined stage. During the measurement stage, the PCC cement quality DPMO value in Indarung III was 83.089,31186 in October-December 2019 with a sigma level of 2.89. In the analyze stage, three tools from six sigma are used, namely the cause-effect diagrams (fishbone diagrams), the Statistical Process Control (SPC) and the Failure Mode and Effect Analysis (FMEA). The problems that arise in the cement production process in fishbone diagram tools come from the machine, man, materials, and mother nature. In the SPC tools, 4 control charts were used to analyze the cement production process during October-December 2019; \bar{x} -Chart, R-Chart, p-Chart, and c-Chart. In FMEA tools, 4 factors have been found to cause failure in the cement manufacturing process.

Based on the results of this study, it is expected that the company will be able to prioritize improvements related to problems that arise in the cement manufacturing process, in particular processes that affect quality, as well as maintenance of problematic machinery, and to pay attention to the condition of the material used to make cement.

Keywords: Lean Six Sigma, Semen Padang, DMAIC, Quality, Quality Control.