INTISARI

Pierhead dalam pembangunan tol *elevated* menjadi salah satu pekerjaan penting sehingga pengendalian mutu perlu dilakukan untuk memastikan *pierhead* aman dan telah sesuai dengan dokumen perencanaan dan syarat yang ada. Penelitian ini bertujuan menganalisis tahapan metode pelaksanaan, material dan pengaruh faktor dominan terhadap mutu pelaksanaan menggunakan metode *six sigma* melalui tahapan *DMAIC (Define, Measure, Analyze, Improve, and Control*).

Analisis dilakukan dengan pencatatan terhadap ketidaksesuaian dan masalah yang muncul di lapangan selama pelaksanaan pekerjaan dari awal sampai akhir. Masalah-masalah tersebut kemudian dikelompokkan berdasarkan faktor 6M (*Man, Machine, Material, Methods, Mother Nature,* dan *Money*) menggunakan diagram sebab-akibat. Proses analisis dilanjutkan dengan pengambilan pendapat terhadap narasumber dan penentuan faktor dominan yang mempengaruhi mutu menggunakan diagram pareto.

Hasil analisis didapatkan bahwa pelaksanaan pekerjaan *pierhead* yang meliputi persiapan, pemasangan *shoring* dan bekisting, pemasangan tulangan dan tendon, pengecoran, *stressing,* serta *grouting* telah sesuai dengan spesifikasi umum proyek dan dokumen rencana. Material yang digunakan seperti beton, baja tulangan, dan *strand* juga telah memenuhi standar yang berlaku dan spesifikasi umum proyek. Faktor material menjadi faktor dominan yang mempengaruhi mutu dengan persentase 37,84%

Kata Kunci: *Pierhead*, Pengendalian Mutu, Metode *Six Sigma*

ABSTRACT

The pierhead in elevated toll road construction is one of the key tasks, making quality control necessary to ensure that the pierhead is safe and complies with the planning documents and existing requirements. This study aims to analyze the stages of implementation methods, materials, and the influence of dominant factors on the quality of execution using the Six Sigma method through the DMAIC (Define, Measure, Analyze, Improve, and Control) stages.

The analysis was conducted by recording non-conformities and issues that arose in the field throughout the entire work process, from start to finish. These issues were then grouped based on the 6M factors (Man, Machine, Material, Methods, Mother Nature, and Money) using a cause-and-effect diagram. The analysis process continued with expert opinions and the identification of dominant factors affecting quality using a Pareto diagram.

The results of the analysis showed that the implementation of pierhead work, including preparation, installation of shoring and formwork, installation of reinforcement and tendons, casting, stressing, and grouting, complied with the project's general specifications and planning documents. The materials used, such as concrete, reinforcing steel, and strands, also met the applicable standards and general project specifications. Material factors were identified as the dominant factor influencing quality, accounting for 37.84%

***Keyword**: Pierhead, Quality Control, Six Sigma Methods*