

Analisis Risiko Kecelakaan pada Surveyor dalam Pemeriksaan Kapal Bangunan Baru Menggunakan Metode Failure Mode and Effect Analysis (FMEA) dan Fault Tree Analysis (FTA) = Risk Analysis of Accidents on Surveyors in the Inspection of New Ship Structures Using the Failure Mode and Effect Analysis(FMEA) and Fault Tree Analysis (FTA) Method

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Abstrak

Pemeriksaan kapal bangunan baru tidak lepas dari potensi risiko kecelakaan yang berasal dari kegagalan sistem, faktor manusia atau kondisi lingkungan. Untuk mengidentifikasi dan mengelola risiko ini secara efektif, pendekatan analisis risiko seperti Failure Mode and Effects Analysis (FMEA) dan Fault Tree Analysis (FTA) Penelitian ini bertujuan untuk mengidentifikasi tiga risiko kecelakaan utama berdasarkan analisis prioritas risiko terbesar (RPN) dan akar permasalahan dari setiap risiko menggunakan FTA. Risiko yang diidentifikasi meliputi patah tulang akibat terjatuh saat visual welding check, luka bakar akibat ledakan saat leak test, dan luka bakar akibat ledakan saat tes permesinan. FTA mengungkapkan faktor penyebab seperti ketidakpatuhan terhadap penggunaan alat pelindung diri (APD), kondisi lingkungan kerja yang tidak aman, dan kekurangan perawatan peralatan. Hasil dari penelitian ini diharapkan dapat memberikan rekomendasi konkret untuk meningkatkan praktik pemeriksaan kapal bangunan baru, serta meminimalkan risiko kecelakaan bagi surveyor dan keselamatan umum.

.....It is hard to separate the possible danger of accidents resulting from human error, system malfunctions, or environmental factors from the inspection of newly built ships. Risk assessment methods like Failure Mode and Effects Analysis (FMEA) and Fault Tree Analysis (FTA) are used to efficiently detect and manage these risks. By utilizing FTA to determine each risk's root cause and the highest risk priority (RPN) analysis, this study seeks to identify three primary accident hazards. The dangers that have been discovered include burns from explosions during leak tests, burns from explosions during machining tests, and fractures from falls during visual welding checks. The FTA identified contributing issues such unsafe working conditions, a lack of equipment maintenance, and noncompliance with the usage of personal protective equipment (PPE). It is anticipated that the study's conclusions would offer specific suggestions for enhancing the procedure for examining newly constructed ships and reducing the possibility of mishaps involving surveyors and public safety.