

ABSTRAK

Keselamatan berkendara atau yang bisa disebut *safety driving behaviour* merupakan aspek penting dalam mendukung kelancaran distribusi logistik, khususnya pada PT Semen Indonesia Logistik yang mengoperasikan ribuan unit armada pada setiap harinya. Penelitian ini bertujuan untuk menganalisis tingkat risiko perilaku pengemudi serta merancang strategi mitigasi yang efektif untuk mengurangi potensi kecelakaan. Metode yang digunakan adalah *Failure Mode and Effect Analysis* (FMEA) untuk mengidentifikasi dan mengukur risiko berdasarkan nilai *Risk Priority Number* (RPN), serta *Analytic Hierarchy Process* (AHP) untuk menentukan prioritas strategi mitigasi. Hasil analisis FMEA menunjukkan lima indikator risiko dengan RPN tertinggi yaitu *Harsh Acceleration* (270), *Driving Time Violation* (225), *Over Speed* (216), *Harsh Braking* (180), dan *Rest Time Violation* (120). Risiko-risiko ini berhubungan erat dengan faktor perilaku pengemudi, kepatuhan terhadap prosedur kerja, serta kelemahan pengawasan istirahat. Selanjutnya, hasil AHP menempatkan indikator prosedural sebagai prioritas utama mitigasi dengan bobot 0,429, diikuti indikator pengemudi (0,350) dan administratif (0,222). Strategi mitigasi yang diusulkan meliputi penegakan disiplin SOP waktu kerja, pelatihan *defensive driving*, pemasangan *speed limiter*, rotasi shift yang terstruktur, serta penguatan sistem pemantauan istirahat. Penelitian ini menyimpulkan bahwa kombinasi metode FMEA dan AHP efektif dalam memberikan dasar pengambilan keputusan mitigasi risiko keselamatan berkendara. Rekomendasi implementasi strategi ini diharapkan dapat mengurangi tingkat pelanggaran, meningkatkan budaya keselamatan, serta mendukung efisiensi operasional PT Semen Indonesia Logistik.

Kata kunci: *Safety Driving Behaviour*, *Failure Mode Effect Analysis* (FMEA), *Analytic Hierarchy Process* (AHP), Mitigasi Risiko, PT Semen Indonesia Logistik.

ABSTRACT

Driving safety, or what can be referred to as safety driving behavior, is an important aspect in supporting the smooth distribution of logistics, especially at PT Semen Indonesia Logistik, which operates thousands of fleet units every day. This study aims to analyze the level of risk in driver behavior and design effective mitigation strategies to reduce the potential for accidents. The methods used are Failure Mode and Effect Analysis (FMEA) to identify and measure risks based on Risk Priority Number (RPN) values, Number (RPN), and the Analytic Hierarchy Process (AHP) to determine mitigation strategy priorities. The FMEA analysis results show five risk indicators with the highest RPN: Harsh Acceleration (270), Driving Time Violation (225), Over Speed (216), Harsh Braking (180), and Rest Time Violation (120). These risks are closely related to driver behavior factors, compliance with work procedures, and weaknesses in rest supervision. Furthermore, the AHP results placed procedural indicators as the top mitigation priority with a weight of 0.429, followed by driver indicators (0.350) and administrative indicators (0.222). The proposed mitigation strategies include enforcing work time SOP discipline, defensive driving training, installing speed limiters, structured shift rotation, and strengthening the rest monitoring system. This study concludes that the combination of the FMEA and AHP methods is effective in providing a basis for decision-making on driving safety risk mitigation. The implementation of these strategies is expected to reduce violation rates, improve safety culture, and support the operational efficiency of PT Semen Indonesia Logistik.

Keywords: Safety Driving Behavior, Failure Mode Effect Analysis (FMEA), Analytic Hierarchy Process (AHP), Risk Mitigation, PT Semen Indonesia Logistik.