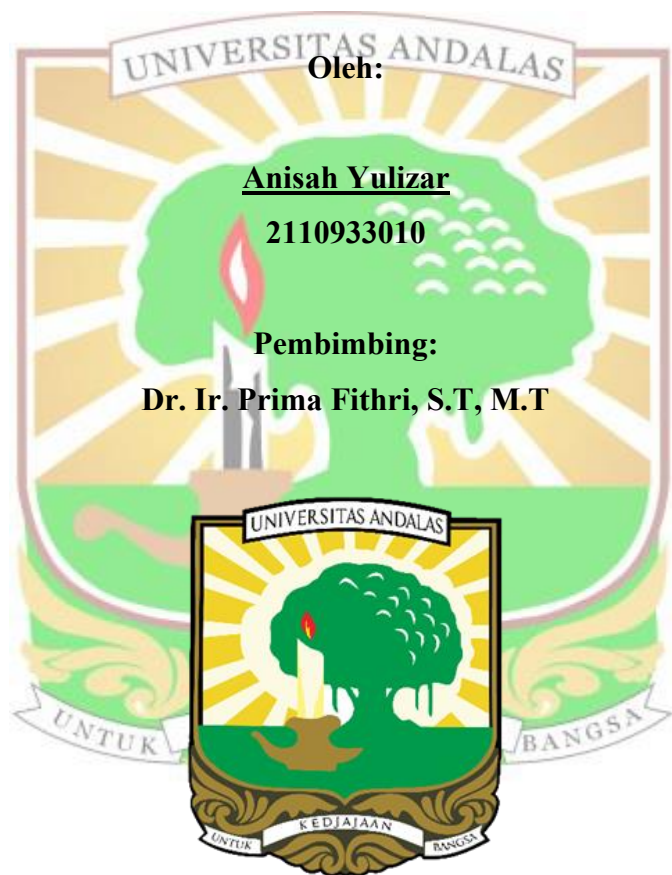


**ANALISIS RISIKO DAN USULAN MITIGASI RISIKO
OPERASIONAL PADA AKTIVITAS GUDANG MATERIAL
CURAH DI UNIT PENGELOLAAN GUDANG PT SEMEN
PADANG**

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ABSTRAK

Aktivitas bisnis gudang material curah di Unit Pengelolaan Gudang PT Semen Padang memiliki risiko operasional yang cukup tinggi karena melibatkan proses penerimaan, penyimpanan, dan pengeluaran material. Risiko tersebut dapat memengaruhi kualitas material, efisiensi operasional, serta keselamatan kerja apabila tidak dikendalikan secara efektif. Penelitian ini bertujuan untuk (1) mengidentifikasi berbagai risiko yang terjadi dalam aktivitas bisnis gudang material curah di Unit Pengelolaan Gudang PT Semen Padang dan (2) memberikan usulan mitigasi risiko yang efektif untuk meminimalkan dampak risiko terhadap kelancaran operasional.

Metode yang digunakan adalah Failure Mode and Effect Analysis (FMEA) untuk menentukan tingkat prioritas risiko berdasarkan nilai Risk Priority Number (RPN), dan Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) untuk menetapkan prioritas mitigasi terbaik berdasarkan beberapa kriteria evaluasi.

Hasil analisis FMEA menunjukkan lima penyebab risiko dengan nilai RPN tertinggi, yaitu cara penumpukan material kurang rapi (A29), penutup bak truk muatan tidak aman (A1), muatan truk melebihi kapasitas (A28), Area stockpile kurang memiliki pencahayaan yang maksimal dan rambu/marka yang jelas (A6), dan pembongkaran pada malam hari dengan visibilitas rendah (A5). Berdasarkan hasil analisis TOPSIS, diperoleh lima alternatif mitigasi prioritas, yaitu M2 (pemasangan isolasi pada bak truk), M5 (monitoring penerapan SOP penumpukan material), M7 (inspeksi visual saat pemuatan), M10 (penambahan petugas checker dan patroli lapangan), dan M12 (melengkapi rambu dan marka fosfor di area kerja).

Kata Kunci: Failure Mode and Effect Analysis (FMEA), Gudang, Manajemen risiko, Technique for Order Preference by Similarity to Ideal Solution (TOPSIS).

ABSTRACT

The bulk material warehouse operations at the Warehouse Management Unit of PT Semen Padang have a relatively high level of operational risk due to the involvement of multiple physical processes, including material receiving, storage, and distribution. These risks can affect material quality, operational efficiency, and occupational safety if not properly controlled. This study aims to (1) identify various risks that occur in the bulk material warehouse business activities at the Warehouse Management Unit of PT Semen Padang, and (2) propose effective risk mitigation measures to minimize the impact of these risks on operational continuity.

The methods used in this research are Failure Mode and Effect Analysis (FMEA) to determine the level of risk priority based on the Risk Priority Number (RPN), and the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) to determine the best mitigation priorities based on several evaluation criteria.

The results of the FMEA analysis show five risk sources with the highest RPN values, namely improper material stacking (A29), unsafe truck cover (A1), truck overloading (A28), inadequate lighting and unclear signage in the stockpile area (A6), and unloading at night with low visibility (A5). Based on the results of the TOPSIS analysis, five priority mitigation alternatives were identified: RA2 (installation of truck bed insulation), RA5 (monitoring the implementation of material stacking SOP), RA7 (visual inspection during loading), RA10 (addition of field checkers and patrol personnel), and RA12 (installation of phosphorescent signs and markings in the work area).

Keywords: Failure Mode and Effect Analysis (FMEA), Warehouse, Risk Management, Technique for Order Preference by Similarity to Ideal Solution (TOPSIS).

