Model pengendalian risiko dispersi gas amonia pada pabrik pupuk = Risk control model of ammonia gas dispersion at the fertilizer plant

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Abstrak

[ABSTRAK
Konsep penanggulangan bencana saat ini adalah paradigma pengurangan risiko.Setiap individu, masyarakat di daerah diperkenalkan dengan berbagai ancaman (hazards) dan kerentanan (vulnerability) yang dimiliki, serta meningkatkan kemampuan (capacity) masyarakat dalam menghadapi setiap ancaman. Sehingga studi ini bertujuan mengkaji model pengendalian risiko dispersi gas amonia.
Disain studi adalah cross sectional. Analisis model pengukuran dan struktural menggunakan comfirmatory factor analysis (CFA). Nilai validitas dan reliabilitas hasil uji kesesuaian/Goodness of Fit (GOF) adalah good fit untuk konstruk dari model.Kuesioner disebarkan secara cluster, terdapat 626 responden (area risiko 0- 2600 meter). Dibagi menjadi 293 responden pada zona dalam (area risiko 0-1300 meter) dan 333 responden zona luar (area risiko >1300-2600 meter).
Model pengukuran menghasilkan 5 variabel eksogen (kondisi lingkungan, sosial, ekonomi, biologi dan kapasitas) yang saling berhubungan langsung membentuk variabel endogen risiko dispersi gas amonia. Faktor kondisi lingkungan terdiri dari zona bahaya dan jarak rumah ke jalan raya.Faktor sosial yaitu pelatihan dan pekerjaan.Faktor ekonomi yaitu kecukupan akomodasi, pendapatan, asuransi dan pendidikan.Faktor kapasitas yaitu pengetahuan tentang bahaya, pengetahuan tentang peringatan dini, pengetahuan tentang evakuasi dan perilaku tanggap darurat. Faktor biologi yaitu usia> 65 tahun, anggota keluarga dengan penyakit kronis dan anggota keluarga berkebutuhan khusus. Risiko dispersi gas amonia pada rumah tangga area risiko 0-2600 meter ada pengaruh kontribusi dari 47% faktor sosial, 37% faktor ekonomi, 29% faktor kapasitas dan 9% faktor kondisi. Risiko dispersi gas amonia zona dalam (area risiko 0-1300 meter ada pengaruh kontribusi darifaktor sosialberkontribusi 63%, faktor ekonomi 64%, faktor kapasitas 57% dan biologi 2,3%. Selanjutnya risiko dispersi gas amonia pada rumah tangga area risiko >1300-2600 meter ada pengaruh kontribusi dari 2 (dua) faktor yaitu faktor kondisi 99% dan faktor kapasitas (12%).
Penelitian ini menyimpulkan model risiko dispersi gas amonia dalam penelitian ini menunjukkan faktor yang berkontribusi membentuk risiko dispersi gas amonia sehingga dapat menjadi upaya pengendalian dengan memperhatikan faktor yang berkontribusi tersebut. Rekomendasi kepadaPemerintah Daerah untuk menetapkan peta rawan bencana menjadi peraturan daerah yang berkekuatan hukum dan pemberlakuan peraturan tentang tata ruang (daerah pemukiman), standar keselamatan (pemantauan penggunaan teknologi) dan penerapan sanksi terhadap pelanggar. Mengkoordinasi antara Satuan Kerja Perangkat Daerah
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(SKPD), Dinas Pemadam Kebakaran/ Badan Penanggulangan Bencana Daerah (BPBD), dan dinas terkait untuk evakuasi (akomodasi), kelancaran akses jalur evakuasi. Menyelenggarakan sosialisasi, pendidikan dan pelatihan mengenai kesiapsiagaan bencana dispersi gas amonia kepada masyarakat melalui perkumpulan/organisasi di masyarakat. Rekomendasi kepada perusahaan antara lain : Membuat peta rawan

bencana dan Emergency Respon Plan (ERP) baik internal maupun eksternal; Melakukan perawatan dengan inspeksi rutin berbasis risiko untuk memastikan kehandalan peralatan sistem pendingin amonia; Semua pekerja dalam operasional tangki sistem pendingin amonia selalu dilakukan dengan mengikuti Standard Operating Procedure (SOP), peraturan keselamatan, audit keselamatan; Mengingat sifat gas amonia yang tidak berwarna tetapi sangat beracun serta luasan area risiko yang berdampak perlu adanya sensor untuk gas amonia sebagai alat ukur dan monitoring. Selanjutnya rekomendasi kepada masyarakat agar mengembangkan dan berperan aktif dalam desa siaga bencana (kesiapsiagaan bencana berbasis masyarakat);
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ABSTRACT
The concept of disaster management nowadays is risk reductionsparadigm. Each individual, residents are introduced to various threats and vulnerabilities owned, as well as increased capacity in facing any threats. This study aims to assess the risk control model of ammonia gas dispersion.
The designstudy was cross sectional using confirmatory factor analysis (CFA) as the measurement model and structural analysis. Validity and reliability value for Goodness of Fit (GOF) test is good fit for construct of the model. Questionnaires were distributed by cluster, there were626 respondents (risk area 0-2600 meters) divided into 293 and 333 respondents in the inner and outer zones (risk area >1300-2600 meters). Measurement model produces 5 directly interconnected exogenous variables (environmental, social, economic, biological and capacity condition) to form an endogenous variable risk of ammonia gas dispersion. Environmental conditions consist of danger zone and distance from home to road. Social factors consist of training and job. Economic factors consist of accommodation, salary, assurance and education. Capacity factors consist of hazard knowledge, early warning knowledge, evacuation knowledge and emergency response behavior.Biological factors consist of age >65 year old and family member with chronic disease and disability. The model goodness of fit test result was compatible for RMSEA, CFI, IFI, CN, SRMR, GFI and AGFI. It indicates that the models can describe the ammonia gas dispersion riskformed factors. Social factorscontribute61% of thetotalrisk ofammoniagasdispersion, related toeconomic factors(42%), capacityfactor(36%)andconditionfactor(5.7%). Riskdispersionof ammoniagasin thezoneindicateseconomic factorsaccounted for64% of thetotalrisk ofammoniagas dispersionincludingsocial(63%), capacity(57%) andbiology(2.3%). While theouterzone ofthe conditionfactor(99%) to be importantin the risk ofammoniagasdispersionandcapacity factor(1%).
This study concludes dispersion risk modelsof ammonia gas in this study indicate risk factors that contribute to form ammonia gas dispersion to be a control effort by noticing the factors that contribute as following; recommend to the Regional Government to establish hazard maps into a legally binding regional regulations and enforcement of regulations on spatial (residential areas), safety standards (monitoring the use of technology) and the imposition of sanctions against offenders. Coordinate between work units (SKPD), Fire Department / Agency for Disaster Management (BPBD), and related agencies for evacuation (accommodation), the smooth evacuation route access. Organize socialization,

education and training on disaster preparedness ammonia gas dispersion to the public through associations / organizations in the community. Recommendations to the company include: Creating a hazard map and Emergency Response Plan (ERP) both internally and externally; Perform routine maintenance with risk-based inspections to ensure equipment reliability ammonia refrigeration systems; All workers in the operational tank ammonia cooling system is always done by following the Standard Operating Procedure

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