Analisis perbandingan sensitivitas metode risk assessment muhlbauer dan risk based inspection pada pipa baja distribusi gas alam di Indonesia = Sensitivity comparation analysis of muhlbauer risk assessment methode and risk based inspection at carbon steel natural gas distribution pipeline in Indonesia

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Abstrak

Sensitivitas merupakan efek perubahan dari setiap variabel yang merubah hasil resiko. Metodologi Risk Assessment yang paling umum digunakan di indonesia adalah Muhlbauer, Modified Muhlbauer dan Risk Based Inspection. Pada penelitian ini enam sample segmen jaringan pipa dievaluasi. Secara umum terdapat dua tujuan, yang pertama adalah membandingkan hasil resiko antara metodologi Risk Assessment. yang kedua adalah membandingkan sensitivitas. Metodologi Risk Assessment diterjemahkan kedalam persamaan model matematis dan dihitung dalam software berdasarkan simulasi Montecarlo. Hasil nilai resiko pada segmen high dan medium risk dinilai valid dengan rentang deviasi 24% dan 13%. Hasil analisis sensitivitas menunjukkan bahwa Metodologi Muhlbauer dan Modifikasi Muhlbauer sensitif terhadap kegiatan pihak ketiga. Risk Based Inspection sensitif terhadap damage mechanism intrinsik. Data sensitivitas ini dapat digunakan untuk menghasilkan Metodologi Risk Assessment Pipa Gas yang lebih sensitif dimasa yang akan datang. <hr /> Sensitivity is the effect of changes in any variables that changes the risk results. The most common Risk Assessment Methodology in Indonesia is Muhlbauer, Modified Muhlbauer & Risk Based Inspection. In this study, six natural gas distribution pipeline segment sample was evaluated. In general there are two objectives, firstly comparing the risk result between Risk Assessment Mehodology. Second objectives is to compare the sensitivity. The Risk Assessments methodology is translated into mathematic model and computed in Monte Carlo based simulation software. The risk value result show that in high risk & medium risk pipeline segment, all methodology is valid with 24% and 13% deviation respectively. The sensitivity analysis result show that Muhlbauer & Modified Muhlbauer methodology is sensitive to third party activity. Risk Based Inspection is sensitive to intrinsic damage mechanism. This sensitivity data can be adopted to develop more sensitive Gas Pipeline Risk Assessment Methodology in the future.