Studi Keselamatan Inspeksi Berdasarkan Hasil Analisis Risiko (Risk Based Inspection) dan Equipment Criticality Analysis Pressure Safety Valve di Unit Pengolahan Migas PT ABC = Inspection Safety Study Based on the Results of Risk Based Inspection and Equipment Criticality Analysis Pressure Safety Valve at PT ABC`s Oil and Gas Processing Unit

Dipo Wirarchi Purboyo, author

Abstrak

Indonesia mengelola berbagai blok migas. Central processing plant PT ABC sebagai fasilitas yang digunakan untuk mengolah hydrocarbon. Risk Based Analysis merupakan metode menghitung risiko terhadap alat pengaman pada PT ABC. Pada penelitian ini, dalam menentukan tingkat kekritisan PSV pada PT ABC menggunakan metode berbasis risiko sesuai standar yang tersedia, yaitu API RP 581. Dengan membandingkan tingkatan resiko sesuai API RP 581 dengan data aktual maintenance terhadap 31 PSV yang diteliti. Hasil distribusi weibull dari 31unit PSV yang diteliti dibagi berdasarkan fluida severity yaitu mild dan moderate didapatkan nilai eta 12.3238 dan beta 3.1504 pada tipe mild dengan nilai R 0.77, selanjutnya pada tipe moderate didapatkan nilai eta 13.8545 dan beta 4.8625 dengan nilai R 0.933 dengan nilai MTTF dari keseluruhan peralatan adalah 8 tahun. Hasil Analisis Risiko untuk 31 PSV masuk dalam kategori Medium dimana terdapat 2 alat PSV yang terpasang pada lokasi OSBL dengan nilai risk kategori 1 C, selanjutnya terdapat 29 alat PSV masuk kedalam kategori risk level yang low. Analisa berdasarkan tingkat fluida severity, didapatkan nilai keandalannya sebesar 77 % dengan analisa tipe mild, sedangkan analisa dengan tipe moderate didapatkan nilai keandalan 93,3% untuk total 31 peralatan PSV yang dijadikan obyek penelitian ini.

.....Indonesia manages various oil and gas blocks. PT ABC's central processing plant as a facility used to process hydrocarbons. Risk Based Analysis is a method of calculating the risk to safety devices at PT ABC. In this study, in determining the level of criticality of PSV in PT ABC using a risk-based method according to the available standards, namely API RP 581. By comparing the level of risk according to API RP 581 with the actual maintenance data of the 31 PSVs studied. The results of the weibull distribution of the 31 PSV units studied were divided based on the severity fluid, namely mild and moderate, an eta value of 12.3238 and a beta of 3.1504 were obtained in the mild type with an R value of 0.77, then in the moderate type, an eta value of 13.8545 and a beta of 4.8625 with an R value of 0.933 with an MTTF value of the entire equipment was 8 years. The results of the Risk Analysis for 31 PSVs are included in the Medium category where there are 2 PSV devices installed at the OSBL location with a risk value of category 1 C, then there are 29 PSV tools included in the low level risk category. The analysis based on the fluid severity level obtained a reliability value of 77% with mild type analysis, while the moderate type analysis obtained a reliability value of 93.3% for a total of 31 PSV equipment used as the object of this study.