

Prediksi sisa umur bejana tekan absorber, separator dan filter pada fasilitas pra-pemrosesan gas = Remaining life prediction of pressure vessel absorber separator and filter on gas pre processing facilities

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Abstrak

Risk Based Inspection atau disingkat RBI merupakan sebuah metode untuk merencanakan pemeriksaan peralatan statis yang berdasarkan risiko yang dimiliki oleh suatu peralatan produksi. Kegiatan inspeksi, pengamatan dan pemeriksaan diperlukan untuk memastikan kesiapan kondisi operasi. Hal ini adalah untuk memastikan keselamatan kerja, produktivitas dan keuntungan operasi menjadi tujuan perusahaan.

Penelitian kali ini di titik beratkan pada peralatan bejana tekan (Absorber, Separator dan Filter) pada fasilitas pra-pemrosesan gas. Hasil inspeksi dan perhitungan menunjukkan bahwa ketebalan sisa material masih cukup dan mengindikasikan korosi merata. Hasil perhitungan PoF dan CoF diperoleh bahwa Gas Absorber, Separator dan Filter memiliki risiko menengah ? tinggi yang memerlukan perhatian. Sedangkan Absorber memiliki tingkat resiko tertinggi disebabkan konsekuensi finansial.

Dari penilaian FFS API 579 ditemukan bahwa absorber masih dapat beroperasi hingga 55 tahun kedepan dihitung dari waktu studi. PV elite adalah alat bantu perencana yg dapat digunakan untuk mengevaluasi keadaan sekarang dan sisa umur bejana tekan. Pada studi ini, Absorber memiliki sisa umur yang cukup panjang dan juga MAWP (Maximum Allowable Working Pressure) melebihi MAWP yang dibutuhkan.

.....Risk Based Inspection or known as RBI is one methodes to plan inspection on static equipment based on own risk in production facilities. Inspection activity, monitoring and assesment are required to ensuring operation readiness. This is also to ensure Safety, Productivity and Operational advantage are the Company Objectives.

This research focused on three pressure vessel at the Gas pre-treatment facilities named Absorber, Separator and Filter. These facilities are expoxed with high CO₂ from raw gas. Inspection and calculation result show that the remaining thickness of these pressure vessel is still adequate and indicate uniform corrosion. The result calculation of PoF and CoF of the equipment was found that the Absorber, Separator and Filter have a medium-high level of risk that required special attention. While the Absorber has highest operation risk due to higher financial consequencey.

From Fitness for Service API 579 assessment it is found that the absorber could be in service for next 55 year from day of study. PV elite is the design software that utilized to study pressure vessel design and also has capability to perform evaluating the current state and remaining life of existing vessels. In this study, the absorber has a good remaining life and also the MAWP (Maximum Allowable Working Pressure) exceeds required MAWP.