

Studi kelaikan teknis pengoperasian sistem coriolis mass flow meter pada kegiatan operasi serah terima liquefied natural gas = The engineering feasibility study of operating a coriolis mass flow meter on liquefied natural gas custody transfer

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Abstrak

Kegiatan operasi serah terima LNG skema Cost Insurance and Freight dengan sistem alat ukur tangki terapung dinilai belum akurat, selamat, dan handal. Maka dilakukan studi kelaikan teknis sistem coriolis mass flow meter yang memiliki beberapa kelebihan dibandingkan sistem alat ukur tipe lainnya. Penggunaan sistem coriolis mass flow meter dengan akurasi $\pm 0,015\%$ dan ketidakpastian pengukuran $\pm 0,050\%$ dapat mengurangi losses energi yang diserahkan akibat akurasi alat ukur sebesar ± 77 MMBtu atau $\pm 0,003\%$ dan losses akibat ketidakpastian pengukuran sebesar ± 8.267 MMBtu atau $\pm 0,28\%$ untuk 1 (satu) kali pengapalan, serta meningkatkan risk ranking dari acceptable with control menjadi acceptable as is. Berdasarkan hasil perhitungan losses dan Failure Mode Effects and Criticality Analysis, sistem coriolis mass flow meter lebih akurat, selamat, dan handal dibandingkan sistem alat ukur tangki terapung.

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Liquefied Natural Gas (LNG) custody transfer in Cost Insurance and Freight by using custody transfer measurement system is identified not accurate, safe, and reliable. Hence the engineering feasibility study of coriolis mass flow meter that has several advantages than others has been hold. The using of coriolis mass flow meter with accuracy about $\pm 0,015\%$ and uncertainty about $\pm 0,050\%$ can minimize losses of energy transferred that caused by accuracy of measurement about ± 77 MMBtu or $\pm 0,003\%$ and losses that caused by uncertainty about ± 8.267 MMBtu or $\pm 0,28\%$ for each shipping, then optimize risk ranking from acceptable with control into acceptable as is. Based on losses calculation and Failure Mode Effects and Criticality Analysis, coriolis mass flow meter is more accurate, safe, and reliable compare with custody transfer measurement system.