



## INTISARI

Meter Turbin adalah salah satu alat ukur gas alam yang umum digunakan di Indonesia. Ini karena kemudahan pengoperasian, rentang pengukuran yang luas, dan kinerja pengukuran yang andal. Namun dalam pengoperasian jaringan perpipaan terdapat beberapa hal teknis yang menyebabkan terjadinya anomali pengukuran. Penelitian ini mengangkat kasus yang terjadi di lapangan, terjadi penurunan kinerja pengukuran meteran akibat kerusakan sudu meter turbin rotor di industri dengan pemakaian berkisar antara 130-195 m<sup>3</sup> / jam. Dari penelitian sebelumnya, pernah ada penelitian serupa pada kasus minyak mentah. Pemodelan turbin pengukur rotor 16 sudu G-400 dilakukan dengan CFD model simulasi kondisi-tunak, isothermal, dan turbulensi k-e yang dapat direalisasikan, divariasikan untuk laju alir 65-650 m<sup>3</sup> / jam. Hasil penelitian menunjukkan bahwa penurunan kinerja pengukuran turbin meteran sebesar 2,28% untuk laju alir 130 m<sup>3</sup>/jam pada kerusakan 1 sudu rotor meter turbin, dan menurun secara bertahap seiring dengan bertambahnya jumlah sudu rotor meteran turbin yang rusak. Penurunan kinerja muncul ketika 15 sudu rusak sebesar 32,52% untuk laju aliran 130 m<sup>3</sup>/jam

## ABSTRACT

Turbine meter is one of the measuring tools for natural gas which is commonly used in Indonesia. This is due to the ease of operation, wide measurement range and reliable measurement performance. However, in the operation of the piping network there are several technical things that makes the measurement anomalies. This study raises the case that occurred in the field, there was a decrease in the measurement performance of the meter due to damage to the blade rotor turbine meters in industry with usage ranging from 130-195 m<sup>3</sup>/hour. From the previous research, there have been similar studies in the case of crude oil. Modeling of the 16-blade rotor meter turbine G-400 was carried out using CFD of the steady-state simulation, isothermal, and realizable k-e turbulence models, varied for a flow rate of 65-650 m<sup>3</sup>/hour. The results showed that the decrease in the measurement performance of the turbine meter was 2.28% for a flow rate of 130 m<sup>3</sup>/hour on the damage to 1 turbine meter rotor blade, and decreased gradually as the number of damaged turbine meter rotor blades increased. A decrease in performance appears when 15 blades are broken by 32.52% for a flow rate of 130 m<sup>3</sup>/hour.