

Pigging Operation in Two-Phase Flow Pipeline- Empirical and Simulation

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Abstract : The main objective of this study is to investigate on pigging operation of two phase flow pipeline and compare the empirical and simulation results for 108 km long , 0.7934 mm (32 inches) diameter sea line of "Phase 1 South Pars Gas Complex", located in south of Iran. The pigging time, pig velocity, the amount of slug and slug catcher pressure were calculated and monitored closely as the key parameters. Simulation was done by "OLGA" dynamic simulation software and obtained results were compared and validated with empirical data in real operation. The relative errors between empirical data and simulation of the process were 3 % and 9 % for pigging time and accumulated slug volume respectively. Simulated pig velocity and changes of slug catcher pressure were consistent with real values, too. It was also found the slug catcher and condensate stabilization units have been adequately sized for gas-liquid separation and handle the slug batch during transient conditions such as pigging and start up.

Keywords : sea line, pigging, slug catcher, two-phase flow, dynamic simulation

Conference Title : ICFTE 2014 : International Conference on Fluids and Thermal Engineering

Conference Location : Rome, Italy

Conference Dates : September 18-19, 2014