

Abstract Details

Title: Optimizing Pigging Frequency for Dewaxing of Crude Oil Pipelines

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Abstract: Wax deposition in oil pipelines causes reduced throughput and other associated problems. Periodical pigging program can effectively minimize the cost of wax deposition. This paper shows a typical pigging case study for a field pipeline subject to wax deposition distribution by using Olga software. This paper describes the underlining wax models implemented in OLGA, depending on the laboratory analysis data of this study. OLGA software was used to simulate the wax deposition process (location and thickness) to predict the wax deposition tendencies and recommended the optimum pigging frequency. Steady State Operation for non-pigging and pigging operation at three different flow rates, to predict liquid/water hold-up, to check water slugging and pigging characteristics has been included. The deposition of wax in oil pipelines presents a costly production and transportation problem. The deposited wax is removed periodically by pigging operation in field. However, if for any reason pigging operations are suspended, frictional pressure increase will soon lead to a reduction in throughput. Different scenarios for Wax deposition and pigging frequency issues at three different flow rates has been implemented and created with respect to weather (summer and winter), including studying the effect of changing ambient temperature to match the actual wax thickness & quantities as per wax received at pig receiver trap as well as to determine an optimal pigging frequency. The findings, the model prediction results prove that the wax is distributed in a short, localized accumulation along the first quarter of pipeline. The case study of pipeline is recommended that the current pigging frequency of once per 2 weeks can be reduced (is recommended to be pigged at a frequency of 7 to 10 days) and Pigging frequency can be extended from 2 weeks to once every 4 weeks for winter and summer.

Keywords: Wax appearance temperature (WAT), Wax deposition thickness, pigging frequency, OLGA Simulator, PVTsim.