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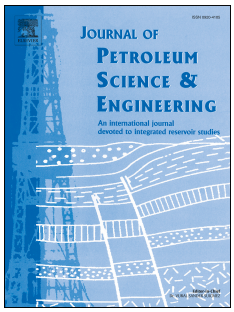

Experimental results of pipeline dewatering through surfactant injection

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Experimental results of pipeline dewatering through surfactant injection

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Abstract: Liquid loading is a common problem affecting hydrocarbon production both in well and pipeline. Pipelines transporting hydrocarbons from the wells to the downstream facilities often come across a hilly terrain, which could be considered the main reason of liquid loading phenomenon. Currently the main technique used to solve the problem is the mechanical pigging. Nevertheless, this technique is not free of risks, in fact when the mechanical pigging is possible, operators and engineers have to deal with several issues. This paper presents an alternative method to deliquify pipelines, by using foamer injection. Even if in its preliminary stage, this research work represents a breakthrough since the feasibility of the method can allow an easier, safer and cheaper solution of the water accumulation in pipelines.

The effectiveness of pipeline deliquification treatments by foaming injection is difficult to predict a priori, due to a high number of variables affecting the foam formation and transport within the pipeline. In this paper the issues related to the application of this method are described and some preliminary results on foam formation conditions, obtained on an experimental test bench are presented.

Keywords: pipeline deliquification, liquid loading, foam, foamer, surfactant.

1. Introduction

Foam is composed of a continuous liquid phase that surrounds and traps a gaseous phase and can be treated as a homogeneous fluid with both variable density and viscosity (Lord, 1979).