

Beginners Reivew of Flow Assurance

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What is Flow Assurance?

Flow Assurance is a subset of process/production engineering tasked with ensuring delivery/flow of the petroleum from reservoir to end user. Many FA engineers have asked me why I define it as a subset of Process Engineering. I think it's a subset because, before the term Flow Assurance was coined, most of these tasks were the responsibility of Process Engineers.

Why is Flow Assurance Important?

Pipeline Displacement

A Flow Assurance engineer may be requested to assist the operation with various pipeline displacement operations. They request details such as what velocities, pressure and duration the displacement operation should be performed. They could also request Flow Assurance to provide guidance on the parameters and the surveillance strategy that the operations must follow. I am noting down the critical aspects we should be mindful of during displacement and purging in this page.

Typical operation events that can be characterised as displacement are

1. Dead oil displacement.
2. Pipeline displacement and purging for commissioning.
3. Pipeline displacement during decommissioning.
4. Batching of fluid for transport in long-distance pipeline.
5. Any operation where a fluid in the pipe is displaced by another.

Dead oil Displacement

Before you read this section, you would want to read more about what dead oil is. Once you have read and understood what it is, continue reading the rest of the write-up.

Review of Single Phase Flow in Pipeline

Review of Heat Transfer in Pipeline