

## RECORDED BENEFITS

- Increased oil flow rate from the oil reservoir
- Prevented capital investment for increased pipeline capacity
- Reduced pressure gradient in the pipeline
- Prevented oil production losses
- Improved oil distribution

## Novel Program Provides Excellent Drag Reduction in Upstream and Midstream Pipeline Application

### Solenis™ FR 121 Friction Reducer

#### Customer Challenge

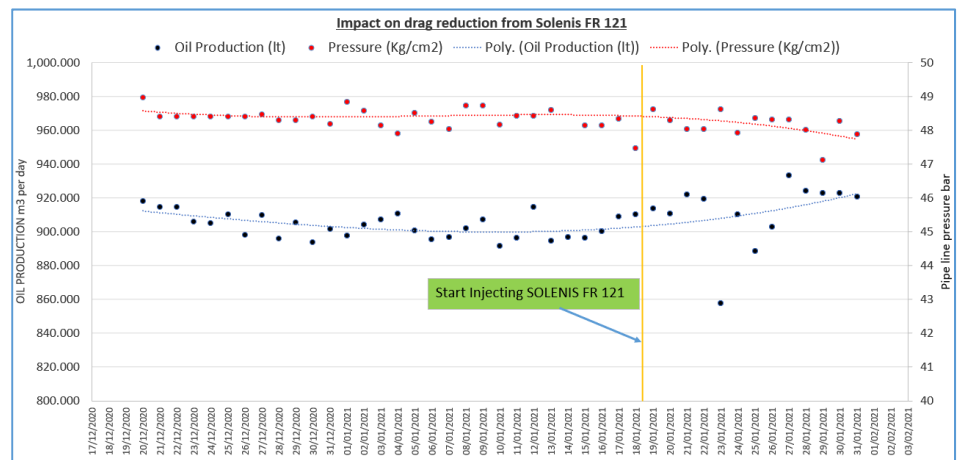
An oilfield customer in Europe was challenged to reduce the pipeline pressure in the outlet of their production well. The increase in pressure was the result of turbulent flow due to the combination of oil, water and gas in the pipeline. The friction in the pipeline was resulting in reduced crude oil production. Pipeline drag was occurring due to the movement of fluid over the inside surface of the pipeline. By reducing the drag of the fluid in the pipe, the flow rate could be increased. The application of friction reducers in pipelines has been common practice for decades.

#### Recommended Solution

Solenis recommended the use of a new friction reducer, Solenis FR 121, an oil soluble polymer widely used for increasing the flow of crude oil in pipelines. The product reduces friction, allowing greater volumes of liquid to be moved. The Solenis FR 121 product activates quickly and maintains performance without product degradation.

#### Results Achieved

Solenis FR 121 friction reducer was able to significantly reduce the pressure and consequently enhance the pipeline flow. The graph below shows the friction reduction capability and the oil production increase after starting the chemical injection.



Impact of Solenis FR 121 on Oil Production and Pressure

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