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## ParaLax treatment in Gulf of Mexico, November 2012

ParaLax treatment performed to clear a 27 mile subsea pipeline, 8" diameter, in the Gulf of Mexico. The pipeline runs from the production platform and ties into a 12" pipeline that is shared with other operators upstream.

Wax in this pipeline had been gradually building up over a six year period with very aggressive Wax build up over the past year. Various efforts over the years had failed to prevent Wax Build up.

Drag Reducer chemical had been in use for the past year, which eliminated turbulence in the pipe and reduced pumping pressure by 200psi only. Pipeline pressure cannot exceed maximum working pressure which limits flow rate as pipe ID diminishes. Due to lowering pipeline flow rate capacity a few wells had to be taken offline, to avoid spills and overflows.

Below graph demonstrates production decline during the year before ParaLax treatment.

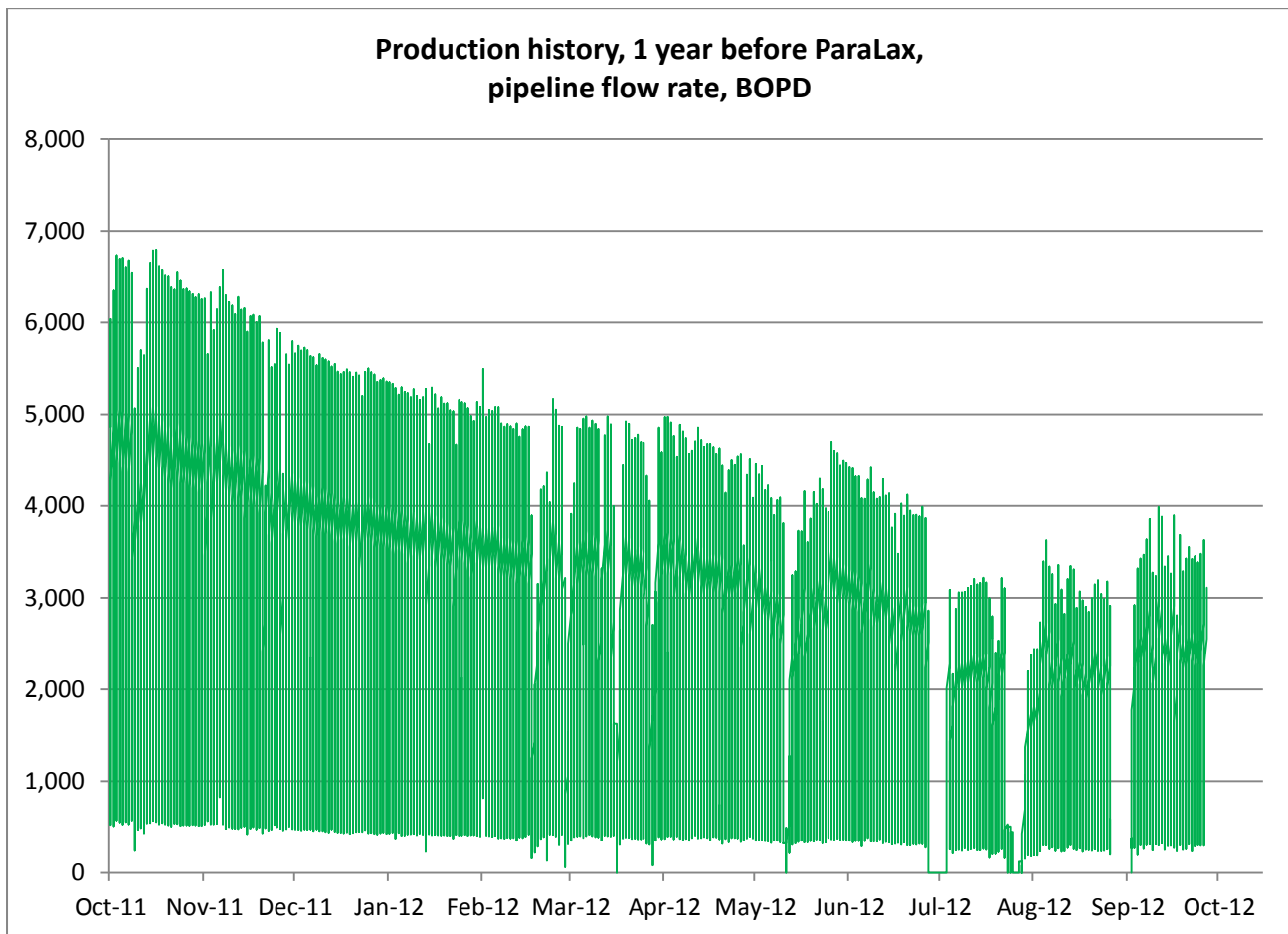


Figure 1. Production decline due to wax buildup in the pipeline.



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## Two weeks continuous injection of ParaLax

ParaLax concentration injected at pump suction is 200ppm. Drag Reducer was still in use. After 7 days of pumping we advised to the operator to discontinue using Drag Reducer during ParaLax treatment. For this particular application Drag Reducer defeats TURBULENCE – ParaLax needs turbulent condition to aggressively attack wax. Below is the flow rate graph in Barrels of Oil Per Hour (BOPH) during ParaLax job.

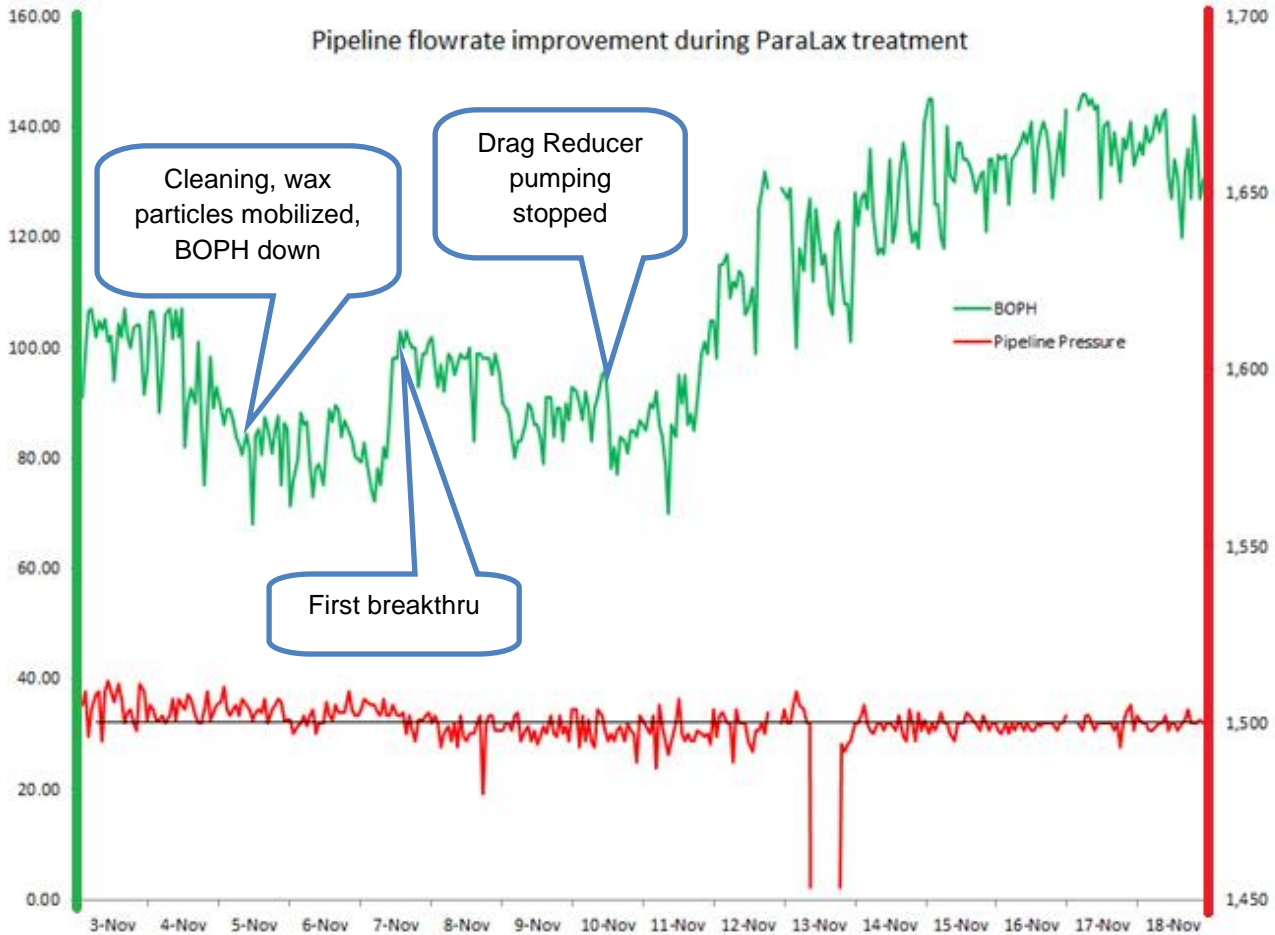


Figure 2. ParaLax treatment process

- Pipeline flow rate started declining due to wax particles mobilizing and partially plugging the pipe
- At first breakthrough 25boph was gained immediately, but further response was still unsatisfactory
- On November 10<sup>th</sup> it was decided to turn off the Drag Reducer to have more turbulence for ParaLax to work better. Immediately lost 20boph due to higher turbulence and friction pressure. But the flow rate started showing signs of improvement.



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### A month without ParaLax injection

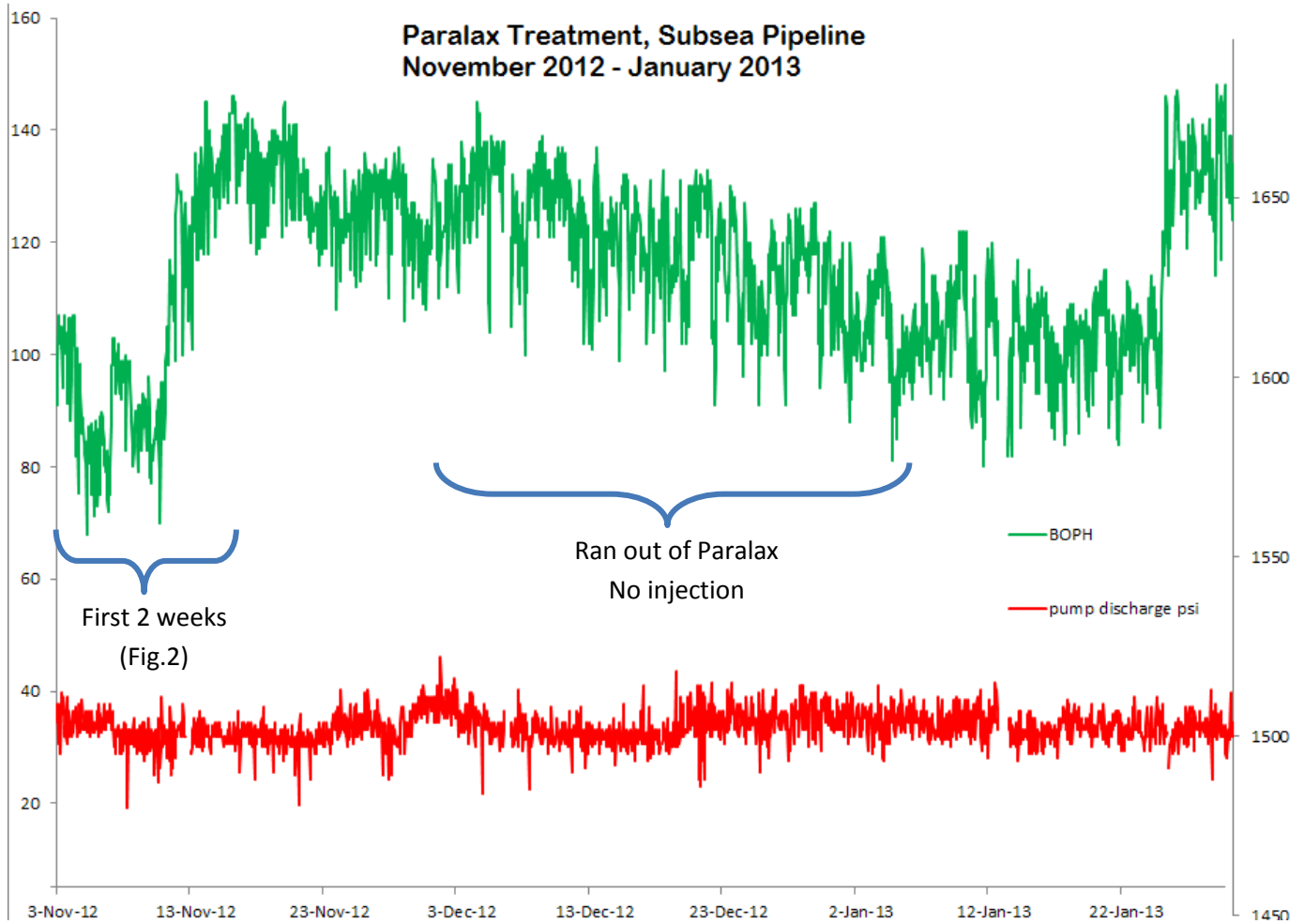


Figure 3.

On January 18<sup>th</sup> ParaLax treatment started again. As you can see from the graph the BOPH went back to the 140 range.



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