



**PARALAX® treatment on oil pipeline West Kazakhstan**

**Introduction and Problem Description**

The customer operates 37km 6inch pipeline tie in to connect to the major terminal of the export pipeline. Pipeline is in the ground 1.5m deep, pipeline has a “wet part” – 5-8km (depending on tide) of the pipe goes thru shallow section of Caspian which often freezes in winters due to low salinity of North Caspian.



Wax buildup causes pipeline throughput to slow down. To prevent storage tanks overflow, some wells have to be shut-in or choked down. The operator does pigging to maintain pipeline ID, but it quite often happens that the pig gets stuck. It leads to days of downtime, using alternative route to terminal by trucks and oil sales lost. To fix it operator does either reverse circulation to send the pig back or excavation works to expose pipeline. Excavation in wet part of the pipeline is impossible.

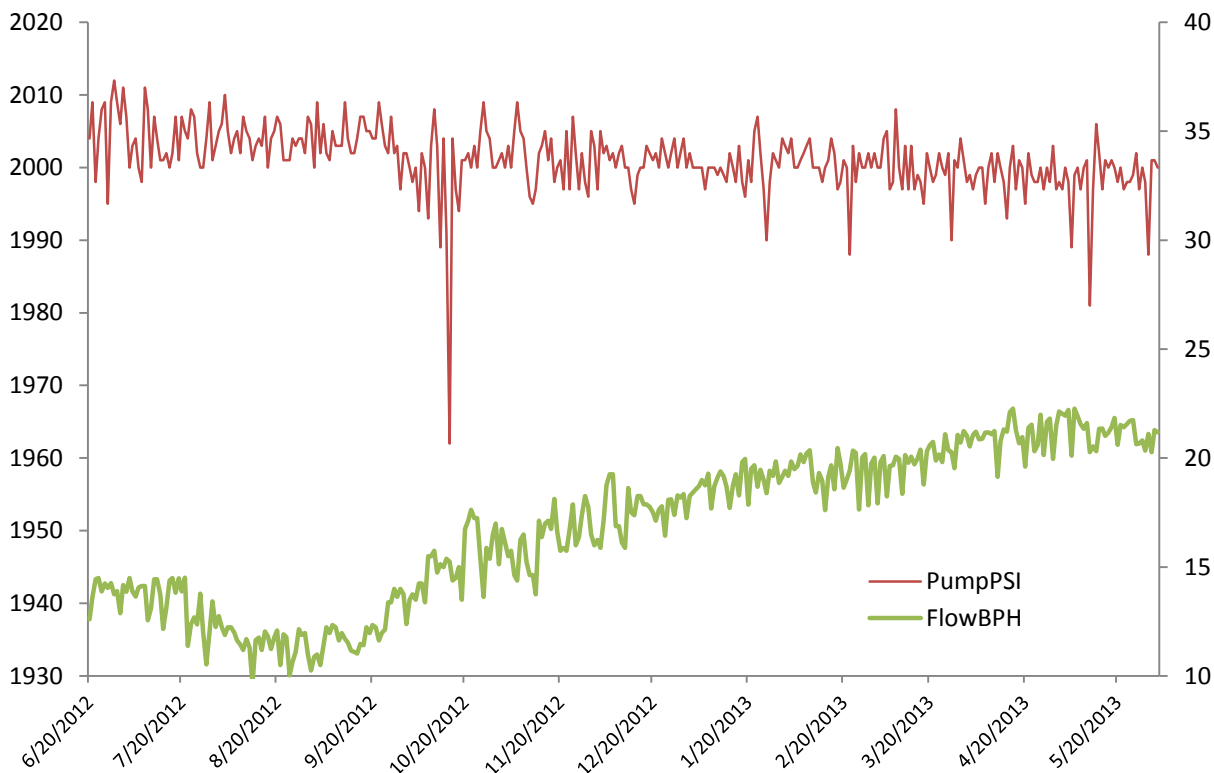
When pigging is impossible, hot diesel is used along with organic solvents to dissolve and soften wax buildup in the pipeline.

**PARALAX® field trial**

It was proposed to apply PARALAX® to pipeline in February 2012. After long process of approvals and logistics, injection started in June. Pump pressure is set at under 150bar to prevent overpressuring and potential pipeline burst. Due to wax buildup pipeline throughput slows down as the pump pressure cannot be exceeded. Below is the graph of daily monitoring summaries:



## OILCONTROL



Below are the major milestones of the project

1. Changes were obvious in August 2012. Nothing major happened during first month as it took a month for saturation and soaking to take place.
2. Major breakthrough happened end of September. Flow rate showed early signs of increase
3. One well put back to production on October 15, 2012.
4. November 2012: flow rate goes up steadily with pump pressure slightly going down
5. Another well put back to production on December 5, 2012.
6. Injection rates during treatment
  - a. 500ppm – June-October to clean the old wax build up.
  - b. 300ppm – November-March finalizing wax build up removal
  - c. 150ppm – ongoing PARALAX® maintenance program since April 2013
7. The pipeline was delivering an average of 10 BPH (barrels per hour) up till the client started using PARALAX®. With continuous injection they now average 25 BPH which is an additional 360 barrels a day. This is using just 15 liters of PARALAX® a day payback in less than 2 days.