Inspection of Water Injection Pipelines and Future Needs

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Vigdis Water Injection

Pipeline
• Flexibel rieser with carcass
• Soft bore
• Carbon steel pipe

Observations
• Deposition on the pipe wall, scale
• River bottom corrosion
Scale from the 2010 Pigging
Cleaning 2010

"Dust" cloud at the start, middle and end of cleaning program.
Data 2010

Clear indication of scale
Test of Brushes in smooth bore PE 2011
River Bottom Cleaning 2011
Cleaning Tools 2011
Data from 2010 and 2011
WT Echo Loss Position vs Distance

Circumferential position [°]

Distance [m]
Tordis Oil Production

ILI 2010

Corrosion in both pipelines, chanelling corrosion
Residual scale in the bottom of the pipe
Increased uncertainty in result due to scale
Decrease in calculated capacity
Tordis Oil Production

ILI 2011

Improved cleaning of scale

No residual scale in the bottom of the pipe

Reestablished calculated capacity
Future needs

• Cleaning of pipelines with hard deposits in combination with material of different wear resistance
• Efficient cleaning of multi diameter pipelines, large diameter changes
• Higher resolution inspection tools, e.g. high wall thickness in gas pipelines
• Inspection at low flow
• Wax rich pipeline has been mentioned before and is still a challenge, both when it comes to proper cleaning prior to inspection and to keep the sensors free of wax
• Semi intelligent cleaning pig, when is the pipe clean enough?
• Unfiltered inspection data on standard format available for the operators
• High temperature
Conclusions

- Challenge to remove scale
- Accelerating scale build-up
- Interesting tool development to look forward to
Thank you

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