

No Mud Enters the Wellbore

From: Thomas Sabbeik
Sent: Fri May 29 08:56:47 2014
To: Mr. Kurt Rygg, Ole (Unknown Business Partner)
Subject: Final top kill runs
Importance: Normal
Attachments: history_matching_28may_served_pipe.xls

Matched previous pumping data applying a system as follows:

- flow up B-annulus, which is connected to the A-annulus
- flow continues down A-annulus and on drillpipe
- pipe rams seal around drillpipe
- drillpipe is severed, 300 ft remaining
- drillpipe is pumped a seal with an opening of app 2" id

Simulating pumping at 78 bpm shows a flat pressure curve, fairly low max pressure and hardly any drop in pressure, consistent with a situation where basically no mud enters the wellbore.

There are other combinations that would give the same outcome, e.g. opening around rams etc., nonetheless, comparing the actual pressure curve with the simulations, there are strong indications that a curve with this shape is the result of a situation where there is not enough restriction at surface to create enough pressure to force the mud into the well. all simulations indicate that in order to get mud down, a fairly steep pressure increase must be observed early in the process, followed by a pressure decline as the hydrostatic head increases.

Best regards,

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