

From: Ole B. Rygg  
Sent: Sun May 16 20:49:36 2010  
To: Mix, Kurt  
Subject: Top kill - 5000 and 15000 bopd  
Importance: Normal  
Attachments: image001.jpg; Shut-in flow outside 3000 3800 psi - Bullheading R1 May 16 2010.pptx

Kurt,  
look at the presentation. interesting results.  
Looks like with 15 000 bopd, you can not kill it with 50 bpm.

Let's discuss and QC these before distributing.

Ole

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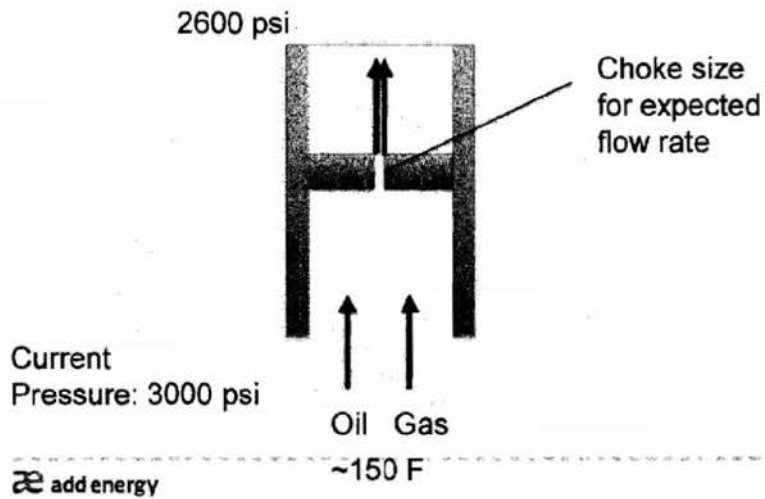
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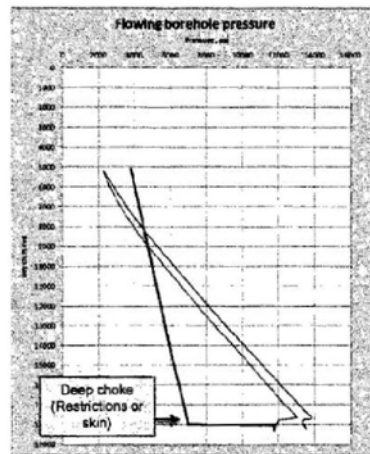
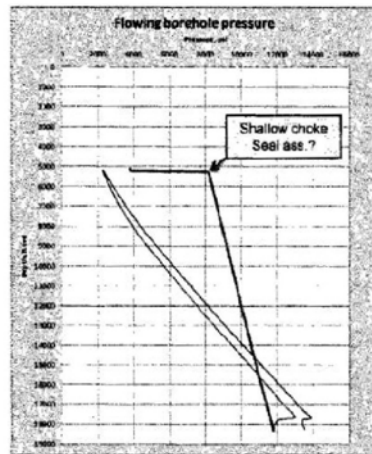
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## Flow Through Stack

Presented 16 May 2010

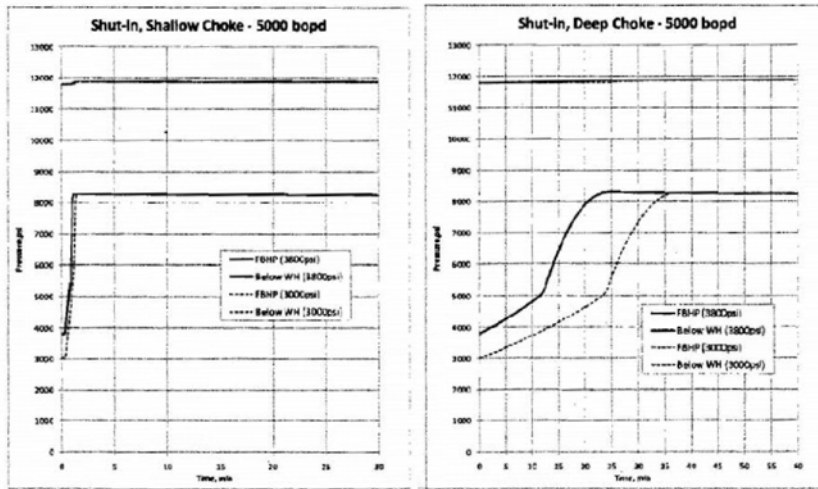


# Flow in annulus - How to match 5000 bopd? (3800 psi at WH)



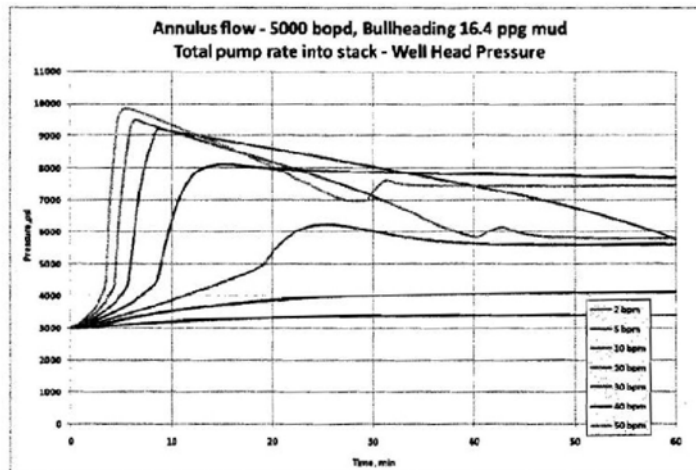
add energy

# Flow in annulus – 5000 bopd Effect of drop in WH pressure from 3800 psi to 3000 psi



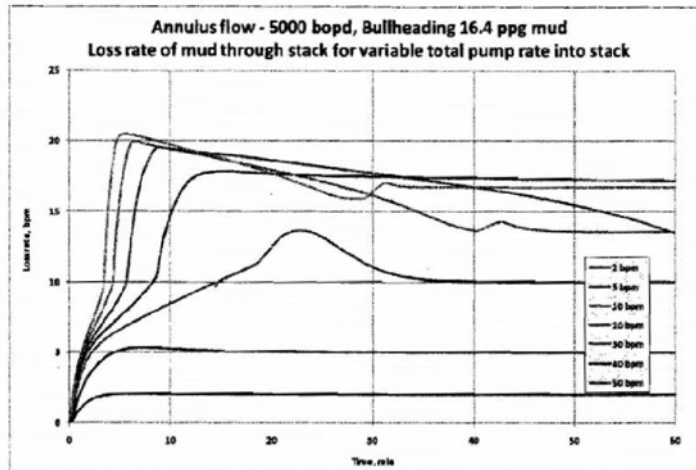
æ add energy

# Bullheading/dynamic kill - Wellhead pressure vs total pump rate into the stack



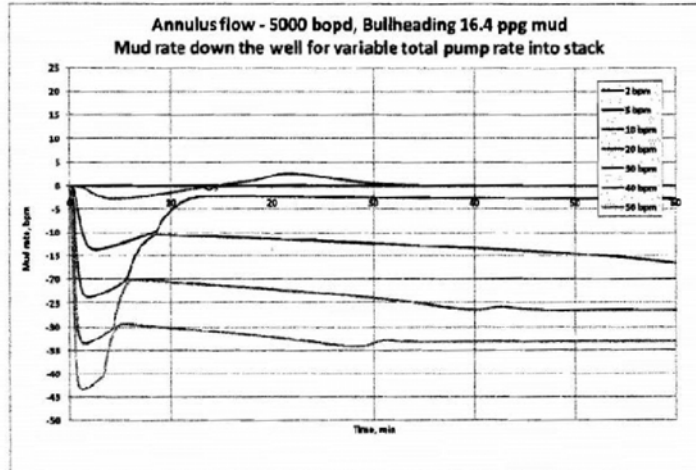
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## Bullheading/dynamic kill - Loss rate of mud through stack



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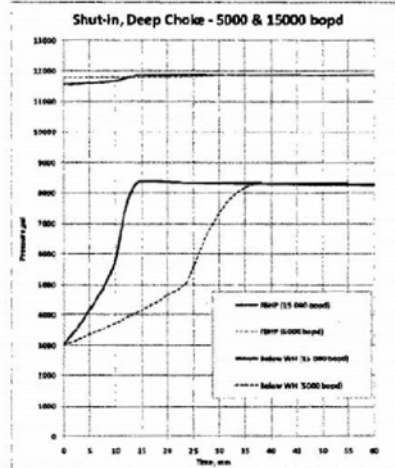
# Bullheading/dynamic kill - Rate of mud going down the well




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## Flow in annulus – Deep choke

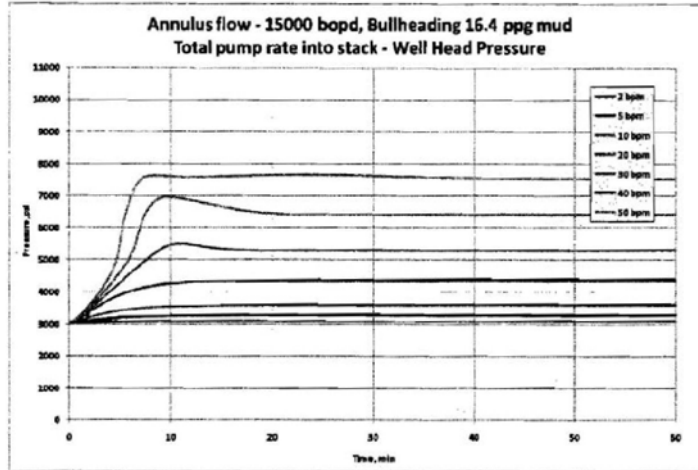
### Effect of oil rate on build-up time



 add energy

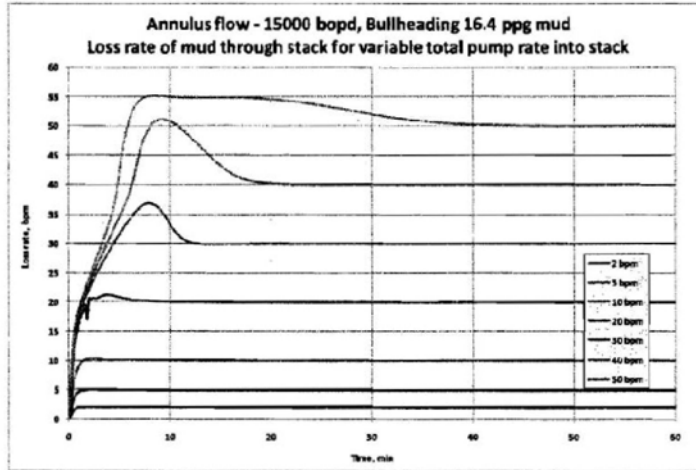


## Bullheading/dynamic kill - Wellhead pressure vs total pump rate into the stack



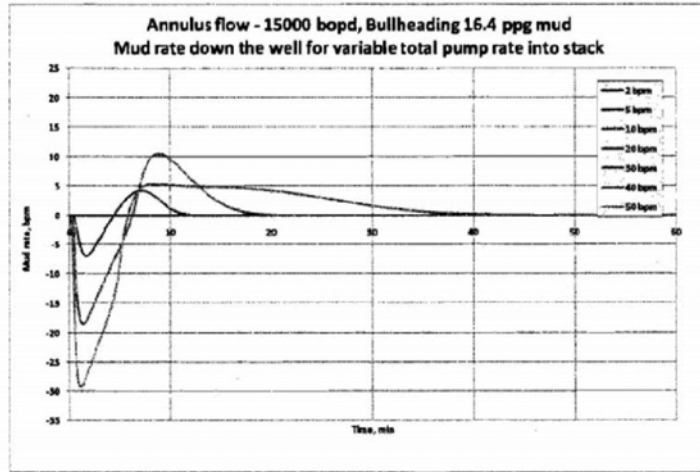
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## Bullheading/dynamic kill - Loss rate of mud through stack



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## Bullheading/dynamic kill - Rate of mud going down the well



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