

ROV Intervention Will Not Stop a Flowing Well

4423

Exhibit No. _____
Worldwide Court
Reporters, Inc.

From: Byrd, Michael L.
Sent: Wednesday, 14:22 30-01-2004
To: Jackson, Curtis W.; Armstrong, Edm.
Cc: Wilson, Bill; Brown, Gerry; Nepton, Jasper; Vane Buzard, Jr (E-mail); Hernandez, Doug (C/Over Staffing)
Subject: PREP Exercise
Importance: Normal

Dear Curtis,

I wanted to follow-up and see if there are any lessons we have been able to carry from today. For Corey Stern, I am probably the one who would get the call on a BOP situation like this one. This morning I worked this with Vane Buzard, who is a member of my team.

Situation:
Horizon has driven off
Well is flowing at 200,000 - 300,000 bbls / day
BOP is open - no rams closed
Do not know if Dead-Man has actuated or not
ROV flow rate for override is 0.12 GPM

Question:
Can we close the shear rams with ROV over-ride without further damage to the BOP at 100, 200, & 300BPD flow rate

Answer:
No. Closing the shear rams at any of the above flow rates will probably cause them to wash out. One has to assume

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Comments:
1. That case is that the dead man actuated and closed the blind shear.
2. In the case of a dead man failure, the ROV may be utilized assuming visibility is such that the lost valve can be located.
a) The horizon well has casing super shear on the top and conventional blind shear in the second cavity.
b) Volume required to close super shear - 40 gallons (Time to close approximately 1 hour)
c) Volume required to close blind shear - 20 gallons (Time to close approximately 4 hours)
d) The rate are well from action to closing average required is not affected.
e) The casing super shear will not seal on open hole.
f) There is a significant chance the blind shear rams would be washed prior to sealing.
The worst scenario may be to close the top casing super shear first to reduce the flow rate down the blind shear. However, this would take quite a while due to the 40 gallons required and may result in the super shear washing well before closing. Assuming the ROV could pump 1.5 gpm (approx realistic) this would take 40 minutes before closing the second set of shear elements. Closing the second set would require another 20 gallons, however the flow rate would be reduced significantly unless the super shear washed out first.
As a point of reference, 300BPD through an 18-1/4" line square is a velocity of about 10-12 ft/s. Normal flow of 300BPD through a 7" ID line size is about 7.4 ft/s.
Another case is the ROV. I have no ROV experts on my team and have offered the following. If you were to jump an ROV it would be difficult to actually see the top and get since the panel is located high on the well frame but is probably could be done. Chances of how much time it would take. Considering how a dual which can accommodate 300 gal of fluid. Pump rate is about 1 gpm which would close the super shear in about 12 min.

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