

From: O'Bryan, Patrick L
Sent: Tue Apr 27 19:39:27 2010
To: Zanghi, Mike
Subject: RE: Bladder effect
Importance: Normal

Mike,

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Regards,
Pat

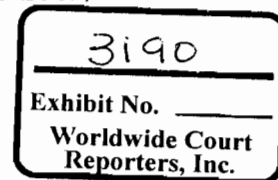
From: Zanghi, Mike
Sent: Tuesday, April 27, 2010 2:26 PM
To: O'Bryan, Patrick L
Subject: FW: Bladder effect

From: Daigle, Keith G
Sent: Tuesday, April 27, 2010 9:32 AM
To: Sigurdson, Scott; Zanghi, Mike
Subject: FW: Bladder effect

Bob Kaluza's thoughts around " bladder effect"
Thanks,
Keith

From: Kaluza, Robert
Sent: Sunday, April 25, 2010 8:23 PM
To: Guide, John; Daigle, Keith G
Cc: Vidrine, Don J
Subject: Bladder effect
John and Keith,

Please consider this suggestion in the analysis about how this happened:
I believe there is a bladder effect on the mud below an annular preventer as we discussed. As we know the pressure differential was approximately 1400 - 1500 psi across an 18 3/4" rubber annular preventer, 14.0 SOBM plus 16.0 ppg Spacer in the riser, seawater and SOBM below the annular bladder. Due to a bladder effect, pressure can and will build below the annular bladder due to the differential pressure but can not flow --- the bladder prevents flow, but we see differential pressure on the other side of the bladder.



Now consider this. The bladder effect is pushing 1400 - 1500 psi against all of the mud below, we have displaced to seawater from 8,367' to just below the annular bladder where we expect to have a 2,350 psi negative differential pressure but due to a bladder effect we may only have a 850 - 950 psi negative pressure until we lighten the load in the riser.

When we displaced the riser to seawater, then we truly had a 2,350 psi differential and negative pressure.

Something to consider in our analysis.

Bob Kaluza

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