

**From:** mcnuttt@usgs.gov

**Sent:** Thursday, January 06, 2011 2:12 PM

**To:** Tom Hunter

**CC:** David.Dykes@boemre.gov; Jason.Mathews@boemre.gov; Lori\_Caramanian; Donald.Maclay@mms.gov; George.Guthrie@NETL.DOE.GOV; Bill.Lehr@noaa.gov; acratze@sandia.gov; kthurst@sandia.gov; Rachel.Jacobson@sol.doi.gov; mark\_sogge@usgs.gov; pahsieh@usgs.gov; rcamilli@whoi.edu

**Subject:** Re: tom hunter feedback on new data

No concerns about the results being THAT confidential. I just don't think this is ready for web posting by us, although I believe these images are already available. I am assuming that in the end all that we want is the scientifically best defensible flow rate given all of the various inputs we now have. This is new information that we did not have before that may or may not add additional constraint to the problem. My hope, of course, is that it simply reinforces previous work. But clearly we would be remiss to ignore this new evidence.

Marcia

Sent from my iPad

Dr. Marcia K McNutt

Director

US Geological Survey MS 100

12201 Sunrise Valley Drive

Reston, VA 20192

(cell)

(703) 648-7411 (office)

(blackberry)

On Jan 6, 2011, at 1:50 PM, Tom Hunter wrote:

Marcia

this is indeed interesting. I would like to inject a word of caution only because I don't know what is going on with the dept of justice and the technical team. I though they were working with Ron D and Art R on some specifics.

Your comments about the trend have merit but I don't know what should be discussed via email since there is no such thing as confidential as I understand it. I would be cautious with another prediction especially one with such great uncertainty.

With respect to the attachments I would like a more clear explanation of what we are looking at. If it is what I think it is, there is not a big suprise and it is what I had always assumed. It is probably consistent with the early explanation of pressures.

This whole effort needs a systematic correlation of data and forensics.

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I would be hesitant to speculate without guidance from DOJ. Maybe some one on this note has a current view of their actions.

Until then I will refrain from putting too many ideas into broadcast.

great to hear from you

I see you haven't set up a major new gs office in Houston----can't be the food.

tom

----- Original Message -----

From: "Kathleen T Hurst" <kthurst@sandia.gov>

To: "Tom Hunter" <[REDACTED]>

Cc: "Mark K Sogge" <mark\_sogge@usgs.gov>, "Lori Caramanian" <[REDACTED]>, "Lori Caramanian" <[REDACTED]>, "Rachel.Jacobson@sol.doi.gov" <Rachel.Jacobson@sol.doi.gov>, "Jason.Mathews@boemre.gov" <Jason.Mathews@boemre.gov>, "rcamilli@who.edu" <rcamilli@who.edu>, "David.Dykes@boemre.gov" <David.Dykes@boemre.gov>, "Bill.Lehr@noaa.gov" <Bill.Lehr@noaa.gov>, "Donald.Maclay@mms.gov" <Donald.Maclay@mms.gov>, "Arthur C Ratzel" <acratze@sandia.gov>, "George.Guthrie@NETL.DOE.GOV" <George.Guthrie@NETL.DOE.GOV>, "Paul A Hsieh" <pahsieh@usgs.gov>, "Marcia K McNutt" <mcnutt@usgs.gov>, "Kathleen T Hurst" <kthurst@sandia.gov>

Sent: Thursday, January 6, 2011 10:48:37 AM

Subject: RE: USGS Director McNutt would like to discuss BOP forensics

Tom,

FYI â€œ Please see note from Marcia.

Kathy

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**From:** Marcia K McNutt [mailto:mcnutt@usgs.gov]

**Sent:** Wednesday, January 05, 2011 10:11 PM

**To:** rcamilli@who.edu; Paul A Hsieh; Bill.Lehr@noaa.gov; Ratzel, Arthur C; Donald.Maclay@mms.gov;

Hunter, Tom; George.Guthrie@NETL.DOE.GOV

**Cc:** Mark K Sogge; Lori\_Caramanian [REDACTED]; Rachel.Jacobson@sol.doi.gov;

Jason.Mathews@boemre.gov; David.Dykes@boemre.gov

**Subject:** FW: USGS Director McNutt would like to discuss BOP forensics

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Dear Friends of Flow Rate:

I just want to give you a heads up on some new information that I just learned about today that will have great bearing on the flow rate. We do not yet have sufficient information to act, but I will be passing along the information to you once I receive it. Please keep this information confidential, although I understand that some of these views are available (although their significance may not be widely appreciated).

Basically the forensics that have been accomplished to date by the Nowegian firm DNV have determined that the blind shear rams were closed and that the flow path is through limited areas (washed out

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areas? channels created by stuck pipes?) around the blades. DNV is conducting at this point in time an exact laser scan to get the cross-sectional area of the region through which flow could have occurred. Seems to me on first blush that this new evidence affects our work in the following manner:  
(1) We can get yet another estimate of initial versus final flow rate using the area of the opening and the initial bottom-hole pressure/final shut-in pressure. This will be an upper bound on the initial flow rate as it would assume that the opening has not increased in size through time.  
(2) Does anyone have any ideas for how to model the erosion of the opening with time? This might be very difficult. In addition, Both of the blind shears are above where the mud was pumped during top kill. Mud wasn't bullheaded down through the blind shears, producing erosion that way. However, we did see quite a bit of mud exiting out the riser, clearly mud was coming back up from below. But that was just for a few days.  
(3) Whatever the restriction of the blind shears, it can't be a lot, otherwise top kill would have worked. Tom: I know you spent a lot of time thinking about where the main restrictions were during top kill.  
(4) In looking at our final curve for flow rate as a function of time, we do need to consider carefully the competing processes of depletion of the reservoir, which causes flow rate to decrease, and possible widening of the flow path, which causes the flow to increase. The final curve may be peaked in the middle for all I know.

Anyway, this is just food for thought. More to come.

Marcia

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**From:** Mathews, Jason <[Jason.Mathews@boemre.gov](mailto:Jason.Mathews@boemre.gov)> [mailto:Mathews, Jason <[Jason.Mathews@boemre.gov](mailto:Jason.Mathews@boemre.gov)>]  
**Sent:** Wednesday, January 05, 2011 1:20 PM  
**To:** "Dykes, David" <[David.Dykes@boemre.gov](mailto:David.Dykes@boemre.gov)>; "McNutt, Marcia" <[mcnutt@usgs.gov](mailto:mcnutt@usgs.gov)>  
**Cc:** "Murphy, Silvia" <[Silvia.Murphy@sol.doi.gov](mailto:Silvia.Murphy@sol.doi.gov)>; "Maclay, Don" <[Donald.Maclay@boemre.gov](mailto:Donald.Maclay@boemre.gov)>; "Sogge, Mark" <[mark\\_sogge@usgs.gov](mailto:mark_sogge@usgs.gov)>  
**Subject:** RE: USGS Director McNutt would like to discuss BOP forensics

Also, here are some additional shots of the washout areas. **(please don't distribute these documents outside of your workgroup)**

**Jason P. Mathews**  
Petroleum Engineer  
BOEM - ORP  
(203) 891-7770  
[jason.mathews@mms.gov](mailto:jason.mathews@mms.gov)

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**From:** Dykes, David  
**Sent:** Wednesday, January 05, 2011 11:59 AM  
**To:** McNutt, Marcia  
**Cc:** Murphy, Silvia; Maclay, Don; Mathews, Jason; Sogge, Mark  
**Subject:** RE: USGS Director McNutt would like to discuss BOP forensics

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Ms McNutt,

I am available to discuss the BOP forensics with you or anyone else today. In short, we found (during the initial recovery and confirmed during the forensic work) that the blind shear rams were in the closed position. The flow path appeared to be washed out areas around the blind ram elements (at right angle to the direction of element travel) on both sides and around/between the blades (in the closed position). See attached file of BOP internals. As you can see, the flow path was limited to this area and was not an open 18 3/4" bore flow path. We are having DNV laser-map this area to determine the total open cross sectional area. Knowing this area now, with known pressures, one could now calculate an actual flow rate, within a small margin of error.

Please call me to discuss.

*J. David Dykes*

Office of Safety Management  
Bureau of Ocean Energy Management, Regulation & Enforcement  
Gulf of Mexico Region  
phone 504 736 3249  
fax 504 736 5704  
david.dykes@boemre.gov

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**From:** Marcia K McNutt [mailto:mcnutt@usgs.gov]  
**Sent:** Tuesday, January 04, 2011 7:22 PM  
**To:** Mathews, Jason; Sogge, Mark  
**Cc:** Dykes, David; Murphy, Silvia; Maclay, Don  
**Subject:** RE: USGS Director McNutt would like to discuss BOP forensics

Thanks for getting back to us, Jason. I look forward to speaking to someone who knows the results of the investigation of the BOP as I believe that they could be very crucial to the interpretation of the flow rate data as a function of time.

Thanks.

Marcia

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**From:** Mathews, Jason <Jason.Mathews@boemre.gov> [mailto:Mathews, Jason <Jason.Mathews@boemre.gov>]  
**Sent:** Tuesday, January 04, 2011 8:17 PM  
**To:** "Sogge, Mark" <mark\_sogge@usgs.gov>  
**Cc:** "McNutt, Marcia" <mcnutt@usgs.gov>; "Dykes, David" <David.Dykes@boemre.gov>; "Murphy, Silvia" <Silvia.Murphy@sol.doi.gov>; "Maclay, Don" <Donald.Maclay@boemre.gov>; "Mathews, Jason"

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ETL080-009222

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TREX 009671.0004



<Jason.Mathews@boemre.gov>

**Subject:** RE: USGS Director McNutt would like to discuss BOP forensics

Mark

Thanks for the update. Unfortunately, I am on leave (though checking my emails), and I won't be able to talk with Marcia until next week. I have cc'd some of the people I work with in case they can speak with her earlier, but I would prefer to speak with her early next week.

Have a nice evening -

**Jason P. Mathews**  
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BOEM - ORP  
(203) 891-7770  
jason.mathews@mms.gov

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**From:** Mark K Sogge [mailto:mark\_sogge@usgs.gov]  
**Sent:** Tuesday, January 04, 2011 3:58 PM  
**To:** Mathews, Jason  
**Subject:** USGS Director McNutt would like to discuss BOP forensics  
**Importance:** High

Hi Jason,

You and I spoke on December 20, when you inquired whether BOP forensic results might affect our Flow Rate Technical Group estimates for the spill rate from the Macondo Well. As we discussed, the estimates from the plume video analysis, plume acoustics analysis, and mass balance teams would not be affected. After checking with one of our reservoir model experts (Paul Hsieh, USGS) and the lead of our Nodal Analysis Team (George Guthrie, DOE), it also appeared that their estimates would also not be significantly affected.

However, Dr. Marcia McNutt (USGS Director, and Chair of the Flow Rate Technical Group) informed me today that she believes that the BOP forensic results may have bearing on the pattern of flow rate over time. So she would very much like to speak with you at the earliest opportunity. Her contact information is:

Marcia McNutt; [mcnutt@usgs.gov](mailto:mcnutt@usgs.gov); mobile # [REDACTED]

She can generally be reached at this number throughout the day and into the evening. I know that Marcia will greatly appreciate the opportunity to talk with you in the next day or two, if at all possible.

Thank you very much.

Mark

Mark Sogge  
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