From: Marcia K McNutt <mcnutt@usgs.gov>
Sent: Wed, 4 Aug 2010 15:10:11
To: GS FOIA 0105 <foia0105@usgs.gov>
Subject: Fw: NIST uncertainty estimate

****

Dr. Marcia McNutt

Director

US Geological Survey

12201 Sunrise Valley Drive, MS 100

Reston, VA 20192

(703) 648-7411

(703) 648-4454 (fax)

(571) 296-6730 (cell)

mcnutt@usgs.gov

www.usgs.gov

****

----- Forwarded by Janet N Arneson/DO/USGS/DOI on 08/04/2010 03:09 PM -----

   From: "Wereley, Steven T." <wereley@purdue.edu>

   To: Marcia K McNutt <mcnutt@usgs.gov>, ira leifer
<ira.leifer@bubbleology.com>

   Cc: "Espina, Pedro I." <pedro.espina@nist.gov>, Bill Lehr
<bill.lehr@noaa.gov>, Juan Lasheras <lasheras@ucsd.edu>, "pete@gso.uri.edu"

             <pete@gso.uri.edu>, Alberto Aliseda <aaliseda@u.washington.edu>, James
J Riley <rileyj@u.washington.edu>, Franklin Shaffer

             <Franklin.Shaffer@NETL.DOE.GOV>, "Savas@newton.berkeley.edu"
<Savas@newton.berkeley.edu>, Paul Bommer <pmbommer@mail.utexas.edu>,

"Gallagher, Patrick D." <patrick.gallagher@nist.gov>, "Kimball, Kevin A." <kevin.kimball@nist.gov>, "Boehm, Jason"

<jason.boehm@nist.gov>, "Wright, John D." <john.wright@nist.gov>, "Johnson, Aaron" <aaron.johnson@nist.gov>, "Moldover, Michael R."

<michael.moldover@nist.gov>

Date: 05/26/2010 08:15 PM

Subject: RE: NIST uncertainty estimate

Marcia and Bill, I'm sure we'll all get calls from the press when our report is released. Do you have any advice for dealing with the press? What can we or should we talk about? I'm already getting calls from lots of reporters and they're asking:

1.   Do you agree with the findings

2.   Were you pressured to deliver some either low or high flow rate

3.   Was BP cooperative

4.   Can you give me the numbers ahead of time (CNN has asked 5 times for the numbers)

So far I've been stalling saying the report is being finalized and the results will be announced in the next day or so.

From previous conversations with both of you, I think you'd like us to
field questions about our opinions (if we choose) but not those of others,
i.e. who said what during the deliberations. Probably we'll need to
consistently and constantly reiterate the point that it is a consensus
report and there is no minority report. Also, there may be potential
modifications in the future as BP provides us with more and better data.

Any other thoughts or advice?

Steve Wereley, Professor of Mechanical Engineering

Birck Nanotechnology Center, Room 2019, 1205 West State Street

Purdue University

West Lafayette, IN 47907

phone: 765/494-5624, fax: 765/494-0539

web page: http://engineering.purdue.edu/~wereley

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

Sent: Wednesday, May 26, 2010 6:41 PM

To: Wereley, Steven T.; ira leifer

Cc: Espina, Pedro I.; Bill Lehr; Juan Lasheras; pete@gso.uri.edu; Alberto
Aliseda; James J Riley; Franklin Shaffer; Savas@newton.berkeley.edu; Paul
Bommer; Gallagher, Patrick D.; Kimball, Kevin A.; Boehm, Jason; Wright,
John D.; Johnson, Aaron; Moldover, Michael R.

Subject: Re: NIST uncertainty estimate

Steve -

Maybe I can comment. We know that all scientific models that attempt to
recreate natural processes are imperfect. Some of that imperfection is
captured in formal statistical uncertainty but often much of it is not. We

can only account for the known unknowns, so to speak, not the unknown unknowns. This entire process of estimating the flow by independent methods is in effect an attempt to try to mitigate the effet of the unknown unknowns because they will affect each calculation differently.

What I believe I was hearing from the flow team was that the effect of the unknown unknowns and the known unknowns affects the upper limit more than the lower, hence the hesitation to put forth a number lest it be misused.

Is this fair?

Marcia

From: "Wereley, Steven T." [wereley@purdue.edu]
Sent: 05/26/2010 06:17 PM AST
To: ira leifer <ira.leifer@bubbleology.com>
Cc: "Espina, Pedro I." <pedro.espina@nist.gov>; Bill Lehr <bill.lehr@noaa.gov>; Juan Lasheras <lasheras@ucsd.edu>; Marcia McNutt; "pete@gso.uri.edu" <pete@gso.uri.edu>; Alberto Aliseda <aaliseda@u.washington.edu>; James J Riley <rileyj@u.washington.edu>; Franklin Shaffer <Franklin.Shaffer@NETL.DOE.GOV>; "Savas@newton.berkeley.edu" <Savas@newton.berkeley.edu>; Paul Bommer <pmbommer@mail.utexas.edu>; "Gallagher, Patrick D." <patrick.gallagher@nist.gov>; "Kimball, Kevin A." <kevin.kimball@nist.gov>; "Boehm, Jason" <jason.boehm@nist.gov>; "Wright, John D." <john.wright@nist.gov>; "Johnson, Aaron" <aaron.johnson@nist.gov>; "Moldover, Michael R." <michael.moldover@nist.gov>
Subject: RE: NIST uncertainty estimate

Hi all. My intention was to be naïve with my last comment about uncertainty. What does uncertainty represent if not the range of possible values? I think someone will do the math and I did and ask us about it. We should have an answer about how we can have an uncertainty without an upper bound…

Steve Wereley, Professor of Mechanical Engineering

Birck Nanotechnology Center, Room 2019, 1205 West State Street

Purdue University

West Lafayette, IN 47907

phone: 765/494-5624, fax: 765/494-0539

web page: http://engineering.purdue.edu/~wereley

From: ira leifer [mailto:ira.leifer@bubbleology.com]

Sent: Wednesday, May 26, 2010 4:58 PM

To: Wereley, Steven T.

Cc: Espina, Pedro I.; Bill Lehr; Juan Lasheras; Marcia McNutt; pete@gso.uri.edu; Alberto Aliseda; James J Riley; Franklin Shaffer; Savas@newton.berkeley.edu; Paul Bommer; Gallagher, Patrick D.; Kimball, Kevin A.; Boehm, Jason; Wright, John D.; Johnson, Aaron; Moldover, Michael R.

Subject: Re: NIST uncertainty estimate

Hi Steve,

Only if you assume that the flux is representative based on the 1.5 cycles recorded. True one could make that assumption. But . . .

BP was streaming (decent quality) video this AM from the riser which looked largely unchanging over the three hours I had it in the corner of my desktop. I would propose using that data for an upper estimate and applying Pedro's calculation to get the uncertainty.

Warmest regards,

Ira

On May 26, 2010, at 1:52 PM, Wereley, Steven T. wrote:

Hi all. In a moment of calm I was reflecting on our conversation this afternoon. Doesn't Pedro's uncertainty analysis give us a route to calculating some kind of upper bound? If the lower bound is x and the uncertainty is 40%, x/0.4 gives us the expected value and x/0.8 gives us the upper bound, to 95% confidence interval. If that isn't the case, then what does the uncertainty mean?

Steve Wereley, Professor of Mechanical Engineering
Birck Nanotechnology Center, Room 2019, 1205 West State Street
Purdue University
West Lafayette, IN 47907
phone: 765/494-5624, fax: 765/494-0539
web page: http://engineering.purdue.edu/~wereley

From: Espina, Pedro I. [mailto:pedro.espina@nist.gov]
Sent: Wednesday, May 26, 2010 11:24 AM
To: Bill Lehr
Cc: Juan Lasheras; Marcia McNutt; pete@gso.uri.edu; Alberto Aliseda; James J Riley; Franklin Shaffer; ira leifer; Savas@newton.berkeley.edu; Paul Bommer; Wereley, Steven T.; Gallagher, Patrick D.; Kimball, Kevin A.; Boehm, Jason; Wright, John D.; Johnson, Aaron; Moldover, Michael R.
Subject: Re: NIST uncertainty estimate

Bill,

Enclosed the NIST uncertainty estimate for the PIV estimation of the leak on top of the BOV.Bottom line: whatever the PIV guys say +/- 40% (see final page). Because the gas/oil ratio dominates the uncertainty, similar values are likely for PIV estimates at other leak sites.

I am yet to respond to the questions of Ira and Peter, but I will look at those now.

Pedro

On 5/26/10 9:59 AM, "Bill Lehr" <bill.lehr@noaa.gov> wrote:
Attached is mydraft report to the FRTG

•Please send corrections to me as soon as possble
•Juan, your ppt will be included as an appendix
• Pedro, I put you old version in as a placeholder because the new one was not displaying properly. Perhaps you could send it to me as a pdf file?
• Jim, Alberto,and Omer, I need you bio's

Pedro I. Espina, Ph.D.
Program Analyst
Program Office, Office of the Director
Tel: +1 301 975 5444

<:}}}}}>< * <:}}}}}>< * <:}}}}}><

Marine Sciences Institute
University of California
Santa Barbara, CA 93106-5080 USA
(805)893-4931 (Tel)
http://www.bubbleology.com

OFF CAMPUS OFFICE - Preferred for ship/Fax/mail

6740 Cortona Dr, UCSB Engineering Research Center

Ocean Engineering Laboratory,

Goleta CA 93117

Fax (805)893 4927

<:}}}}}>< *   <:}}}}}>< *   <:}}}}}><