



RE: UNCERTAINTY: second report

t Espina, Pedro I., Ira Leifer, Juan Lasheras,
Wereley, Steven T. o Alberto Aliseda, Franklin Shaffer , Ömer
: Savas , James J Riley, Poojitha Yapa
"mark_sogge@usgs.gov", "Chris.Barker@noaa.gov"
Cc: "Kathryn_Moran@ostp.eop.gov", Marcia McNutt, Bill Lehr ,
"pmbommer@mail.utexas.edu"

06/06/2010 12:25 AM

History: This message has been replied to.

Pedro, answers below:

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: Thursday, June 03, 2010 3:13 PM
To: Ira Leifer; Juan Lasheras; Alberto Aliseda; Franklin Shaffer; Ömer Savas; Wereley, Steven T.; James J Riley; Poojitha Yapa
Cc: mark_sogge@usgs.gov; Chris.Barker@noaa.gov; Kathryn_Moran@ostp.eop.gov; Marcia McNutt; Bill Lehr; pmbommer@mail.utexas.edu
Subject: UNCERTAINTY: second report
Importance: High

Dear Plume Team Members,

Many of you are working on the PIV analysis of the leak at the end of the drilling riser. In order for NIST to provide NOAA with an uncertainty analysis on this estimate, we need your help. Could you please answer these questions for your current work.

1. Do you think that the enclosed analysis (used during the first report) describes, in principle, what you are doing using the video footage of the leak at the end of the drilling riser? If not, could you tell me why?

You've got it.

2. Do you think that you can determine length scales in the video to about $\pm 5\%$? If not, to what level?

Yep, I agree with 5%.

3. Do you think that you can determine time between video frames to about $\pm 3.8\%$? If not, to what level?

With the new videos, the frame timing issues are non-existent. In comparison with other errors, you can assume the uncertainty on the frame timing is 0.

4. Do you think that you can determine the diameter of the plume (where you are making the PIV determinations) to about $\pm 5\%$? If not, to what level?

5% might be overly ambitious. 10% might be better.

5. What value of average volume fraction of oil in the jet (i.e., oil/total flow) are you using?

I think 29% is conservative. BP reported 50% from the RITT. The truth is somewhere in between.

6. What uncertainty are you willing to assign to that value of average volume fraction of oil in the jet?

Call it 40% +/- 10%, i.e. 29 to 50%.

I know you are loosing sleep at the moment, so I thank you in advance for supporting the NIST work with your answers.

Pedro

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