

**From:** bill.lehr@noaa.gov  
**To:** "Marcia K McNutt" <mcnutt@usgs.gov>  
**Cc:**  
**Bcc:**  
**Date:** Sun, 01 Aug 2010 02:41:08 AM  
**Subject:** Re: Flow Rate Calculation  
**Attachments:**

---

Marcia,

Considering the uncertainties we have in determining the other oil budget terms. I think that the DOE estimates for flow are satisfactory. The 53 K bbl/day at shut-down seem pretty solid. As you point out, if we use the WHOI liquid-gas ratios, then the Plume Team numbers are compatible with the new standard. I would like to see more details someday on the 4% reduction due to riser impedance (as compared to the BP guess of 20%) and justification for the use of a different compressibility than the reported value of 6.

Regards,

Bill Lehr

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

From: Marcia K McNutt  
Date: Saturday, July 31, 2010 12:32 pm  
Subject: Re: Flow Rate Calculation  
To: Steve Chu , "OConnor, Rod"  
Cc: Tom Hunter [REDACTED], Tom Hunter , Ken Salazar , Bill.Lehr@noaa.gov

> I'm ok. I don't think you need to widen the uncertainty bounds for the  
> Plume team, but I will copy to Bill Lehr for input. Original PIV used  
> 0.29 for oil to gas and new WHOI in situ data raises that by 50  
> percent, raising the Plume Team flow rate estimates correspondingly.

>  
> Over and out.

>  
> Marcia

>  
>  
> ----- Original Message -----

> From: SCHU [REDACTED]  
> Sent: 07/31/2010 03:19 PM AST  
> To: "OConnor, Rod"  
> Cc: "Tom Hunter [REDACTED]" ; "Hunter, Tom  
> (Sandia)" ; Marcia McNutt; "Ken Salazar  
> [REDACTED]"  
> Subject: RE: Flow Rate Calculation

>  
>  
>  
> I am OK. Tom, Marcia and Ken should weigh in.  
>  
> Steven Chu

> Department of Energy  
> From: OConnor, Rod  
> Sent: Saturday, July 31, 2010 3:17 PM  
> To: SCHU  
> Subject: RE: Flow Rate Calculation  
>  
> Are you okay with this chart going public?  
>  
> From: SCHU  
> Sent: Saturday, July 31, 2010 3:14 PM  
> To: OConnor, Rod; Owens, Missy; Tom Hunter; Marcia K McNutt  
> Cc: Ken Salazar ([REDACTED])  
> Subject: RE: Flow Rate Calculation  
>  
> Should have listened!  
>  
> We think the uncertainty of the flow just before the sealing cap was  
> used to stop the flow was 53,000 barrels, probably good to  $\pm 5\%$ .  
> However, there are uncertainties with change in pressure due to well  
> depletion. Also, since the plume team was on the low side and the  
> nodal teams had large uncertainties, we decided to expand the  
> uncertainty to  $\pm 10\%$  to be safe.  
>  
> [cid:image001.png@01CB30C3.C56AAE10]  
>  
> Steven Chu  
> Department of Energy  
> From: OConnor, Rod  
> Sent: Saturday, July 31, 2010 3:07 PM  
> To: SCHU; Owens, Missy; Tom Hunter; Marcia K McNutt  
> Subject: RE: Flow Rate Calculation  
>  
> One more change in red-is this okay  
>  
>  
> Total flow ~4.9 million barrels with an estimated uncertainty of  $\pm$   
> 10%. That makes the daily range equivalent to 53,000-62,000 barrels  
> over 84 days (with the flow rate declining towards the lower bound  
> over that period). We will continue to refine this estimate and its uncertainty.  
>  
>  
> Missy Owens  
> Deputy Chief of Staff  
> Department of Energy  
> 202.586.4251 work  
> [REDACTED] cell