

**From:** Lockett, Tim  
**Sent:** Wed Jun 02 10:30:10 2010  
**To:** Hill, Trevor; McMullen, Norm (Clover GS)  
**Cc:** Herrold, Matthew; Saidi, Farah; Brown, Mike T; MC252\_Email\_Retention; Mason, Mike C; Wood, Douglas G  
**Subject:** RE: ACTION: Need predicted/measured BOP temperatures for Q4000 design  
**Importance:** Normal

Norm

Just to confirm Trevor's email that 200F is the number we have been working with for the top of the existing BOP stack (upstream of the kink on the old riser). It is insensitive to flowrate over the range 20000 - 40000 sbbl/d. Lower temperatures occur for lower flowrates but I presume you are concerned about the high temperature end.

It is based on a reservoir temperature of 243F and a U-value for the well of 2 BTU/hr/ft<sup>2</sup>/F. The U-value is an assumption which has some basis in operating experience of other wells (i.e. is a good guide) but there is no reason why this should be regarded as a limit.

I trust this helps.

best regards

Tim

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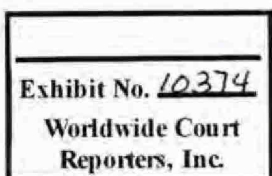
**From:** Hill, Trevor  
**Sent:** 02 June 2010 00:09  
**To:** McMullen, Norm (Clover GS)  
**Cc:** Herrold, Matthew; Saidi, Farah; Brown, Mike T; MC252\_Email\_Retention; Lockett, Tim; Mason, Mike C; Wood, Douglas G  
**Subject:** RE: ACTION: Need predicted/measured BOP temperatures for Q4000 design

Norm, Matthew

To date we have been using a 'working number' of 200F to estimate non-design critical issues such as gas content at riser kink.

Measurements made by ROV showed a maximum of about 175F, and the bias of measurement in cold seawater was felt to be an under-read, so actual likely to be higher than 175F.

Learnings from elsewhere in GoM gave a working heat transfer coefficient in Prosper that results in a wellhead temperature of around 200F (contact Mike Mason), and Tim Lockett has run OLGA with similar results.



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I suggest using 200F as your number. If there is some critical issue that is affected by that assumption then please get back to me (up to 1pm tomorrow) or Doug Wood (from Thursday morning) to discuss a variance or initiate more modelling. However, please note that any modelling still has lots of assumptions.

Regards  
Trevor

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**From:** Norm McMullen [mailto:Norm.McMullen@comcast.net]  
**Sent:** 01 June 2010 22:39  
**To:** Hill, Trevor  
**Cc:** Herrold, Matthew; Saidi, Farah; Brown, Mike T; MC252\_Email\_Retention  
**Subject:** ACTION: Need predicted/measured BOP temperatures for Q4000 design

Trevor,

Matthew Herrold is working rating issues on the Top Kill manifold that will be used for transport to the Q4000. Since temperatures will be higher than what it was rated to, we need best estimate you have for BOP arrival temperature.

Could you send us the "official" design temperature based on latest data to use for this purpose?

Regards,

Norm McMullen  
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