estimate of the total flow from the well is zero since I did not start my integration of the flow until day three. To accept Appendix B of Dr. Johnson (where Dr. Johnson proposes an alternate model of the transient well flow in an attempt to demonstrate that the model of Dr. Griffiths is not unique), one has to believe that the resistance through the BOP constantly decreases with time in concert with the PI (productivity of the well) increasing with time. These two changes have to occur at remarkably coordinated rates to allow the PT-B pressure reading to behave as if there is no change in either. Dr. Griffiths, however, does not have to propose this serendipitous event and simply has the PT-B pressure reading change due to reservoir depletion, which generates a much more believable model.

In an attempt to discredit the work of Dr. Griffiths (and by implication mine since I rely in part on the work of Dr. Griffiths), Dr. Johnson incorrectly states that Dr. Griffiths has a variable resistance through the BOP. Dr. Griffiths' integration of the flow is better stated as an estimate from the reservoir up to but not including the BOP. By formulating it in this way, the impact of the BOP resistance (constant or not) is not a concern. However, Dr. Griffiths does include a model including the BOP (with a constant resistance) and shows that this results in matching the PT-B pressure measurements and produces similar flow rates. Dr. Griffiths' work was validated by the work of US expert Dr. Pooladi-Darvish. Due to the lack of PT-B data early in May, it is possible that the erosion processes continued past day two as I assumed. This is a source of uncertainty in my modeling. However, the agreement of the Griffiths' model with the PT-B data, and the lack of any significant sand observed in the oil collections prove to me that erosion did not occur past May 14, 2010.

in "deteriorated" cement as Dr. Member assumes. This cement was freshly poured and thus not deteriorated. In fact, the United States' cement expert Benge (TREX 5990), BP's cement expert Calvert (TREX 22791), and BP's Macondo Wells Team Leader Guide (Trial Transcript 8950:17-8951:10) all agree that the cement was not set at the time of the negative pressure test. It is likely that intact or poorly formed cement failed completely and quickly, not in two separate time scales as proposed by Dr. Member. Dr. Member tries to present literature values for erosion rates in volume per time to demonstrate that the rapid failure assumed by myself and Dr. Griffiths is not credible. However, these rates are more traditionally presented in other units (length per time), and these rates are for concretes (as opposed to well cements) that are successfully formed. They in no way apply to the cement in the Macondo well.

E. Dr. Zaldivar's Method Cannot Quantitatively Predict the Flow Rate

BP retained expert Dr. Zaldivar offers a unique method to estimate the flow. While it is quite impressive for Dr. Zaldivar to demonstrate chaotic behavior (switching from double peak to single peak oscillation modes) in a numerical simulation, I do not think that the model of this instability can quantitatively predict the flow rate. The method has never been validated to show