over the 86 days. Again, this is not the case. Any variation in the wellbore discharge coefficient or productivity index therefore also occurred within the first day or so such that the state of the reservoir and wellbore over most of the 86 days were substantially the same as the state on July 15. And, this includes the state of the cement barrier in the bottom of the well. This view is also supported through calculations performed for BP by Add Energy that address the period just preceding the initial explosion. Under conditions that most closely replicate measured pressures and observable events, their analyses indicate that the effective productivity index increased by over 25% between 21:00 and 21:30 on April 20.[10] This indicates that whatever down-hole restriction existed at that time was failing rapidly, regardless of whether this restriction resided in wellbore debris, the float collar, or cement barrier. For continued failure at this rate, I estimate that the productivity index would further increase to my best-estimate value

in less than 9 hours.[11] At this point, the cement barrier or other impediments would provide no significant restriction to flow from the reservoir into the casing. Subsequent erosion in this region therefore could not have influenced later flow rates.