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but not in the BOP. Despite clear differences among them, these three distinct methods yield a calculated cumulative discharge that ranges from just 5.0 to 5.1 million stock-tank barrels, an incremental variation of only of +/-1%.

Now consider a scenario in which the PI and/or discharge coefficients for the wellbore and/or BOP might have varied. If any of these variations were significant, then the true discharge would differ from my calculated values in at least two of my three methods. If, for example, only the PI varied, then the discharge for my best estimate and first alternate methods would differ from the true value, but the first alternate using only the BOP discharge coefficient would not. Similarly, if only the BOP discharge coefficient varied, then both of my alternative calculations would differ from the true value, but the best-estimate value would not. And, if both the PI and BOP varied, then all three of my cases would yield a cumulative discharge that differs from the true value.

Figure 3 (Figure 6 of original report)

Ambient Sea  
Pressure

Now consider a scenario in which the PI and/or discharge coefficients for the wellbore and/or BOP might have varied. If any of these variations were significant, then the true discharge would differ from my calculated values in at least two of my three methods. If, for example, only the PI varied, then the discharge for my best estimate and first alternate methods would differ from the true value, but the first alternate using only the BOP discharge coefficient would not. Similarly, if only the BOP discharge coefficient varied, then both of my alternative calculations would differ from the true value, but the best-estimate value would not. And, if both the PI and BOP varied, then all three of my cases would yield a cumulative discharge that differs from the true value.

method and one for each of the two alternate methods.

A critical point here is that there is only one value of the true discharge. There is also effectively just one value of the calculated discharge because the best-estimate and two alternate methods are the same to within +/-1%. As such, the three discrepancies for the three methods are all nearly identical. This, however, places stringent constraints on what can and cannot have happened over the course of the 86 days. The reason for this is that one of these discrepancies properly accounts for any changes that might have occurred in the BOP but not elsewhere in the system, one accounts for changes in the PI or wellbore but not in the BOP, and one does not properly account for any such changes that might have occurred.

From the differing physical changes that the three methods account for, we can conclude immediately that the PI alone did not change significantly over this period, that the wellbore alone did not change significantly, and the BOP alone did not change significantly. If any of these had occurred, the three discrepancies could not be equal. Nevertheless, all three discrepancies are in fact the same.