

pressure drop is 4850 psi, one determines an altered flow rate of 55,600 bopd. Thus, the flow rate decreased by 5% due to adding the capping stack.

One can use this same method to estimate the flow rate of the well when the reservoir was not depleted. The frictional pressure drop is substantially increased if the reservoir pressure is assumed to be 11,850 prior to depletion:

$$\Delta P_{f(11850-2200)} = 11850 - 3000 - 2200 = 6650 \text{ psi}$$

Note that this describes a fictional initial state since the model implicitly assumed that the well geometry does not change during the 85 days of flowing this well. In fact many geometry changes occurred. These include, but are not limited to, the riser and kink being cut off, junk shots, and erosion. The maximum flow rate is estimated as 66,300 bopd.

The estimates provided in this document are very approximate. They depend upon an estimate of the elevation head, which varies by +/- 500 psi depending upon the choice of the flow path (annular or central). The estimate also depends upon the assumption that the elevation head does not vary in the various flowing conditions analyzed.

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To enable integration of the flow from the first day to the last, one is required to accept a model for the reservoir. Various models of the reservoir could result in a different transient between the initial state and the final state.