

- *"Sensitivity" calculations* presented discharge rates essentially as functions of some other condition or feature of the well system. The goal of this calculation was to assess the sensitivity of flow rate to various input parameters. The results were often shown in Cartesian plots in which a discharge rate was shown as a variable (one of many unknown

effort) using a hydraulic model. An example of such an assumed study would be an evaluation of the pressures that would be encountered in a system that was "producing" oil from the blowout to a vessel on the surface that would collect the oil for transshipment and disposal, which was one type of analysis that I performed at the Houston ICP. Another

- ***Assumed studies*** used a given flow rate in order to determine a key feature or characteristic of a flowing system (relevant to a source control

effort) using a hydraulic model. An example of such an assumed study

wellhead.³²

- ***Assumed studies*** used a given flow rate in order to determine a key feature or characteristic of a flowing system (relevant to a source control

³² An example of such work is Ex. 9446, in which my colleague, Dr. Tim Lockett, depicted discharge rates as functions of temperatures, pressures, and velocities in the well. As Dr. Lockett testified at his deposition, his work was intended to explore how data concerning fluid, velocity, temperature, and pressure could potentially be linked in order to estimate flow rates from the Well. Lockett Tr. at 155-5-20; Ballard Tr. at 118-4-20.

Contrary to Dr. Wilson's suggestion (Wilson Report, p. 20), in using the term "best estimate" to describe the work reflected in Ex. 9446, Dr. Lockett was not denoting his results as a reliable prediction of flow from the Well. As Dr. Lockett testified, a best estimate of flow could only be derived when there is corroboration between the different methods of estimating flow. Lockett Tr. 156:3-16. Dr. Lockett's work shown in Ex. 9446 showed no such corroboration.

³³ See note 29 above.

I disagree with the statement in Dr. Wilson's report that "BP began modeling the flow from the Well immediately following the blowout."³⁴ To the

³⁴ Contrary to the claim in Dr. Wilson's report (see Wilson Report, pp. 11-12), 70,000 bopd is not a "best estimate" of the daily discharge from the Well. Holt Tr. at 266:2-270:22. The initial plan was for Stress Engineering to run sensitivity studies for assumed flow rates of 5,000, 10,000, 20,000, 40,000, 80,000, and 160,000 bopd. Given the significant length of time (10-12 hours) required to complete each modeling run, a case of 70,000 bopd, a number near the midpoint of the range of assumed flow rates, was selected as the first case. Stress Engineering was then asked to run cases of 35,000 and 17,500 bopd, reducing the total number of cases to be run (and computation time) by half. Ex. 9629. The results of the Stress Engineering modeling were shared with a group that included personnel from Transocean, Cameron, Oceaneering, and Wild Well Control. TRN-MDL-02950206-07.

³⁵ Wilson Report, p. 7.

³⁶ Wilson Report, p. 13.