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## Well Evaluation using Early Time Post-Stimulation Flowback Data

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### Abstract

Accurate measurement of all produced fluids and solids during the post-stimulation flowback following an acid or hydraulic fracturing stimulation, and the flowing wellhead pressure on a frequent basis provide the data necessary to assess several valuable reservoir, completion and stimulation parameters. The qualitative and quantitative analysis is performed using the Reciprocal Productivity Index procedures. Most flowback data sets will have sufficient quality to provide good estimates of the contributing effective permeability-thickness, the apparent fracture half-length or effective wellbore radius and unusual reservoir pressure conditions. Qualitatively, the evaluation provides information on effective or damaging flowback management strategies, such as the effect of shut-ins, or excessive drawdown during flowback and the duration of flowback necessary for maximum clean-up. It also provides a means of assessing multi-stage stimulation results and productivity profiles within the well. Although downhole data is always desirable, the method is effective when only surface data is available because of risk or cost issues. Examples are provided to demonstrate several of these situations, in addition to a brief discussion of causative factors.

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