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Creating Static Conceptual Reservoir Models for Fractured Reservoirs

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Current practices in the numerical simulation of fractured reservoirs rely on the creation of both static and dynamic conceptual models from which to construct the integrated reservoir model to be simulated. The static conceptual models are considered to be an elemental volume of the reservoir or a representative volume that includes fracture property variations. There is great variability on how these conceptual models are created from fracture description data derived from multiple scale of investigation. This presentation will review the need for static conceptual for numerical simulation and will present several techniques for how to generate these models. These various techniques are often dictated by data types available and more importantly dictated by when in the field life the reservoir is "discovered" to be a fractured reservoir. Additionally, the simulators themselves limit our ability to approximate the effects of a variety of fracture sets of differing origin, scale, and fluid flow interaction with the rock matrix. The key to developing effective conceptual models is in learning how to paraphrase quantitative fracture distribution data into modelable representative reservoir volumes including fracture systems of multiple scale of development.