

## **The Importance of Reviewing Core Permeability Data Closely Before Reservoir Modeling**

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### **Abstract**

In the oil and gas industry, reservoir modeling involves the construction of a computer model of a petroleum reservoir, for the purposes of improving estimation of reserves and making decisions regarding the development of the field. Values for attributes such as porosity, permeability and water saturation are associated with each cell in the model. The value of each attribute is implicitly deemed to apply uniformly throughout the volume of the reservoir represented by the cell. Core plug permeability tests are one of the main sources of understanding the permeability distribution for each selected lithofacies. Full core tests are performed to develop methods for upscaling plug tests. The validity of full core and plug tests are essential, as they are reference data in upscaling and distributing permeability values in the reservoir simulation model. In this presentation, we will be examining McMurray Formation plug tests modeling. The flow regime and error estimation techniques are investigated and comparison of different modeling techniques will be presented. This work has concluded that the tests should be maintained at laminar flow regime. It minimizes the error and leads to a repeatable test. The tests should be modeled as post Darcy and the established error estimation method can be considered as a test quality index. The quality index could be used to determine the tests' validity as well.