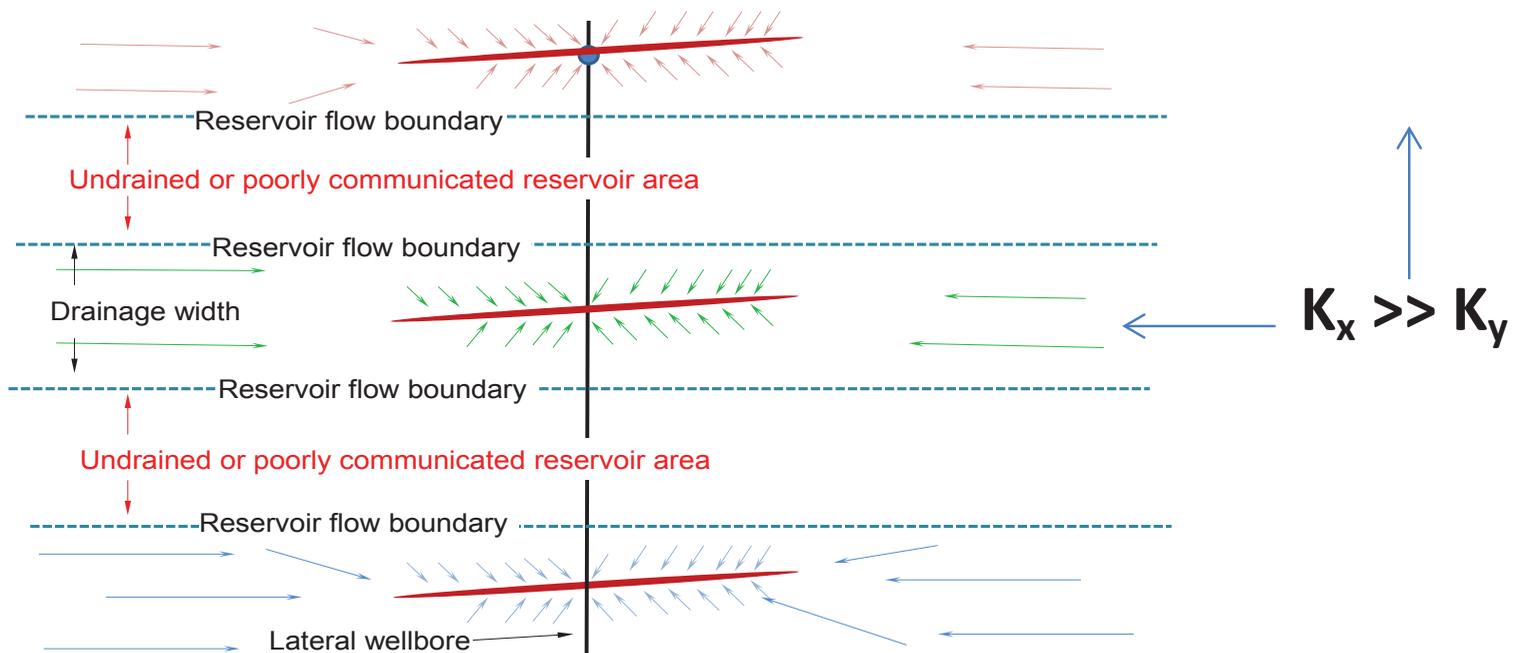


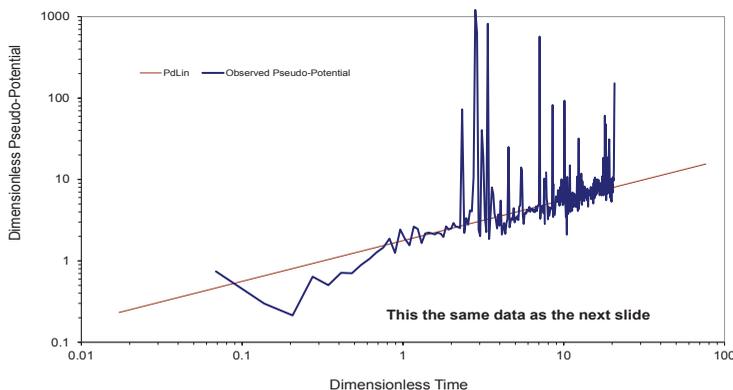
# What is “directional permeability”?

Directional permeability is the result of fluid flow through an anisotropic porous media in which fluids move more easily in one direction than in another. Often referred to as linear flow in a reservoir, directional permeability may be identified through production response analysis which distinguishes parallel no-flow boundaries, independent of fracture orientation. *These boundaries can be created by geologic factors such as in-situ natural fracture networks, depositional environment (i.e., shoals, shore face, channel deposition, etc.) or pressure sealing faults.*

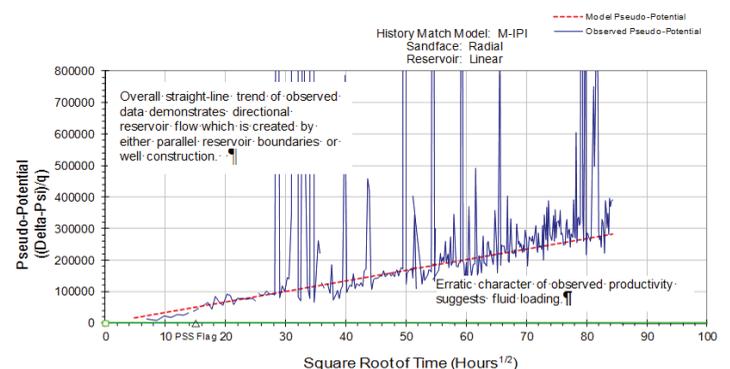


## How is directional permeability identified?

Linear flow is characterized by a half-slope on a log-log plot and/or a straight line on a square root of time plot (RPI for this example). Directional permeability of a hydraulic fractured reservoir **MUST** be verified with a finite difference simulator.



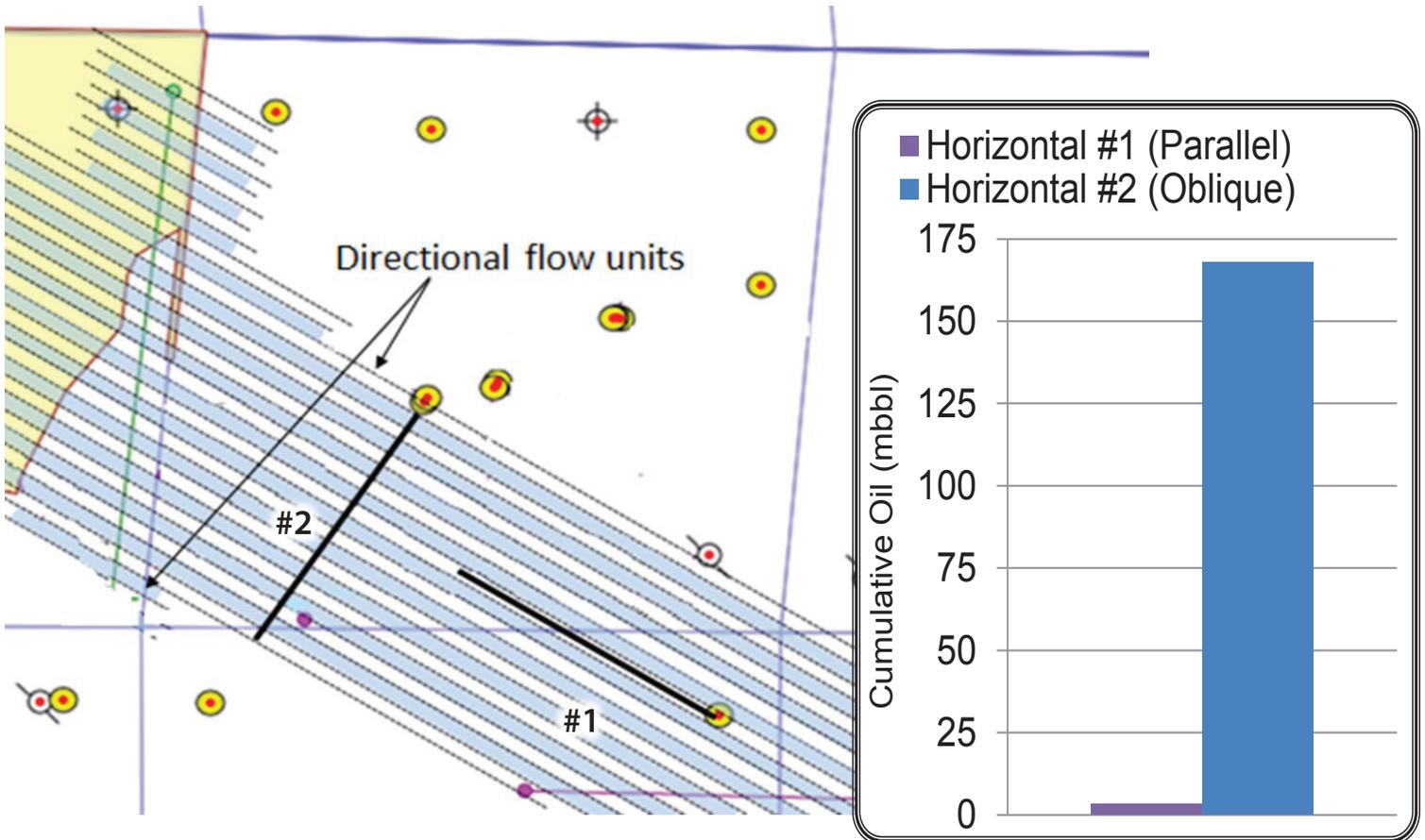
Normalized inverse productivity index: semi-log of time



Normalized inverse productivity index: square root of time

## Why is this important?

Horizontal wellbores should be oriented to ensure as many directional flow units are contacted as operationally possible. An improperly oriented lateral (parallel to directional permeability) may yield cumulative production similar to a single vertical well.



**Not effectively contacting your reservoir can result in reserves being left behind!**

***Knowing and understanding the producing mechanisms of your reservoir will help maximize the recovery of your reserves!***