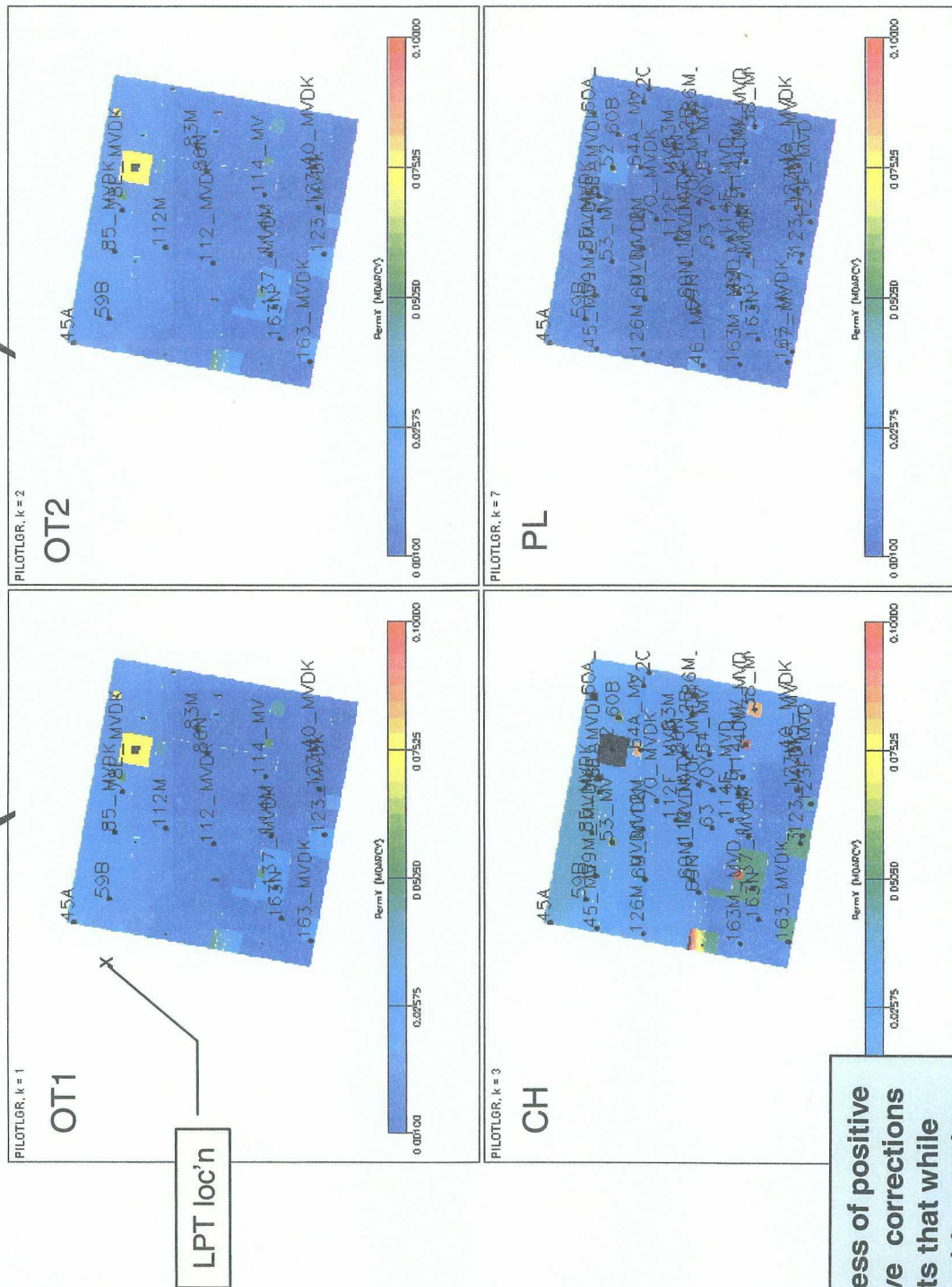


Productivity Modeling

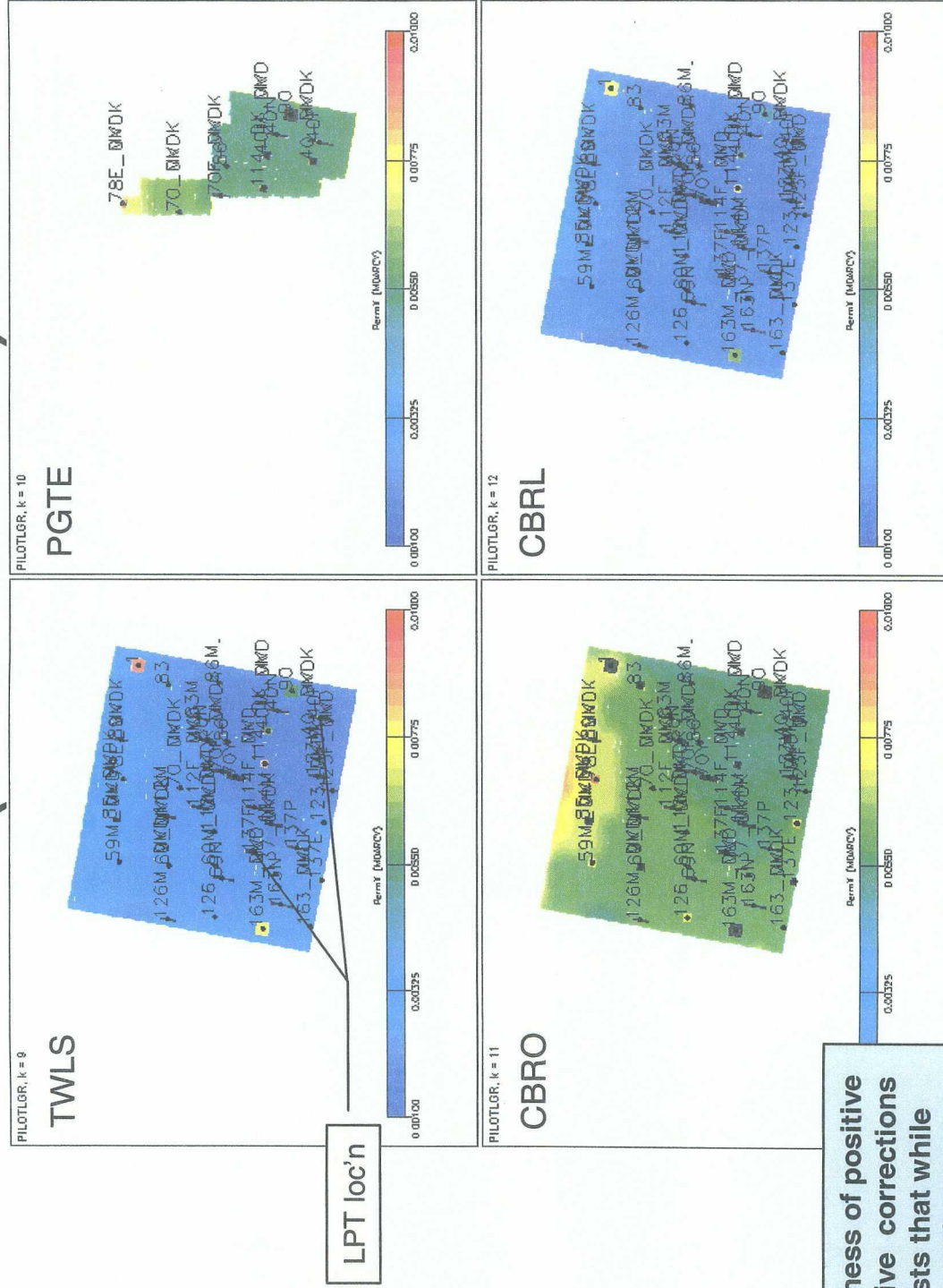
- Stimulations modeled by increasing perms around well cells and honoring x_f from rate transient analysis
- Global perm multipliers applied until approximately half of the wells had too much productivity (and vice versa)
 - Mesaverde global k multiplier = 5.0
 - Dakota global k multiplier = 0.9
- LPT match
 - Perm's redistributed between layers (maintain constant perm-thickness per formation)
 - 20:1 k_y/k_x anisotropy applied to L. Cubero to match data at 40F location
- Model wells with insufficient productivity matched using local perm multipliers
- Model wells with excess productivity matched using PI multipliers
- Challenges
 - Variable productivity
 - Older wells lose significant amount of productivity over time
 - Dual porosity behavior frequently apparent with high productivities at early times
 - Current productivity matching complicated by lack of field optimization/downtime

Mesaverde Permeability (x-direction)



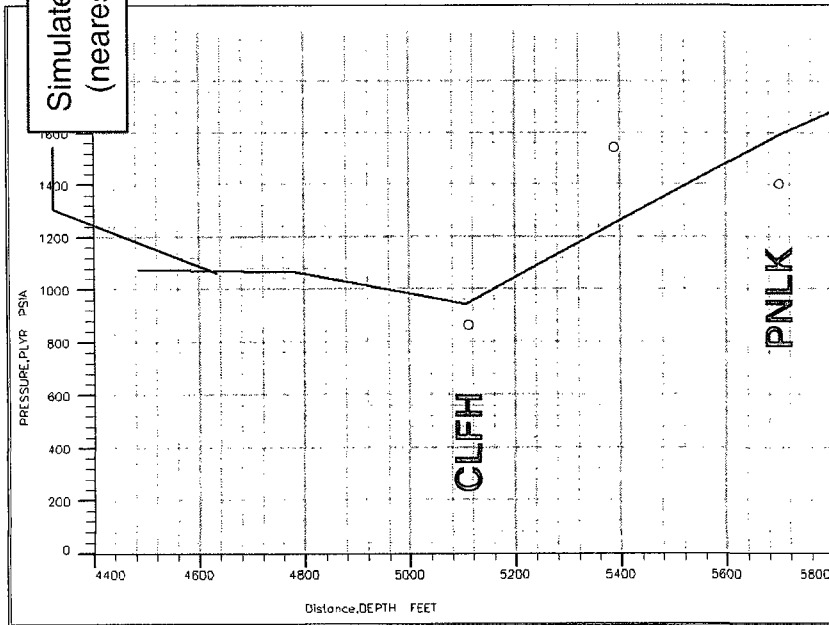
Randomness of positive vs negative corrections suggests that while original grids may be generally correct, they do not capture the true variability of permeability

(x-direction)



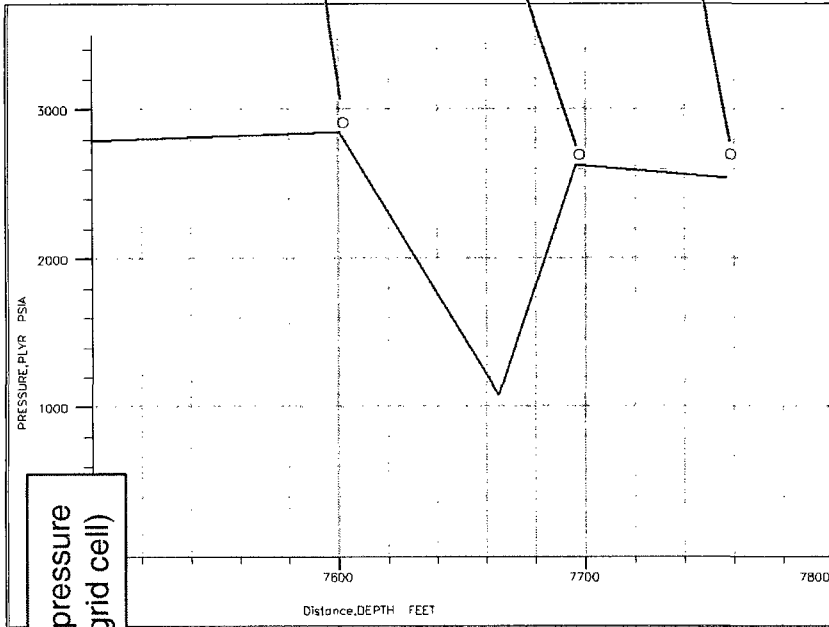
Randomness of positive vs negative corrections suggests that while original grids may be generally correct, they do not capture the true variability of permeability

Layer Pressures

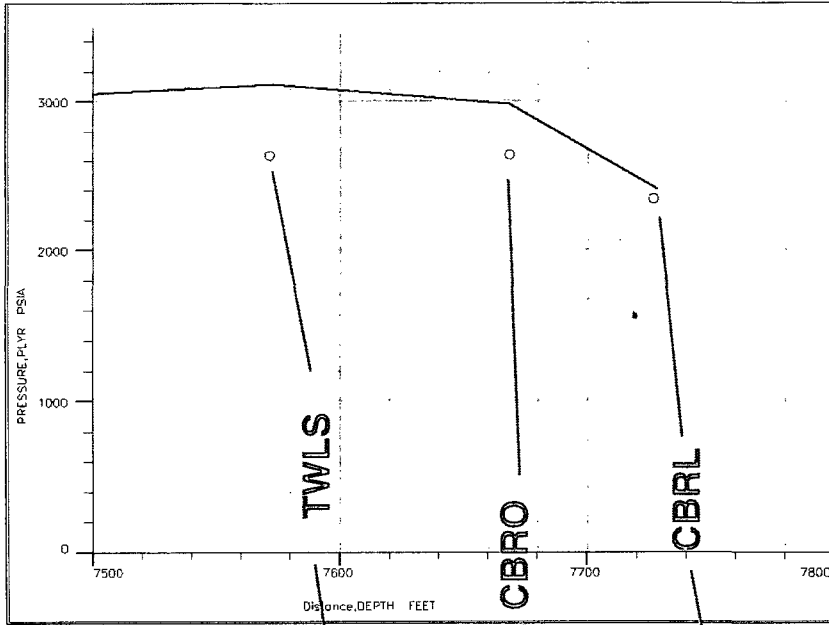


#82N MV LPT

(off grid)

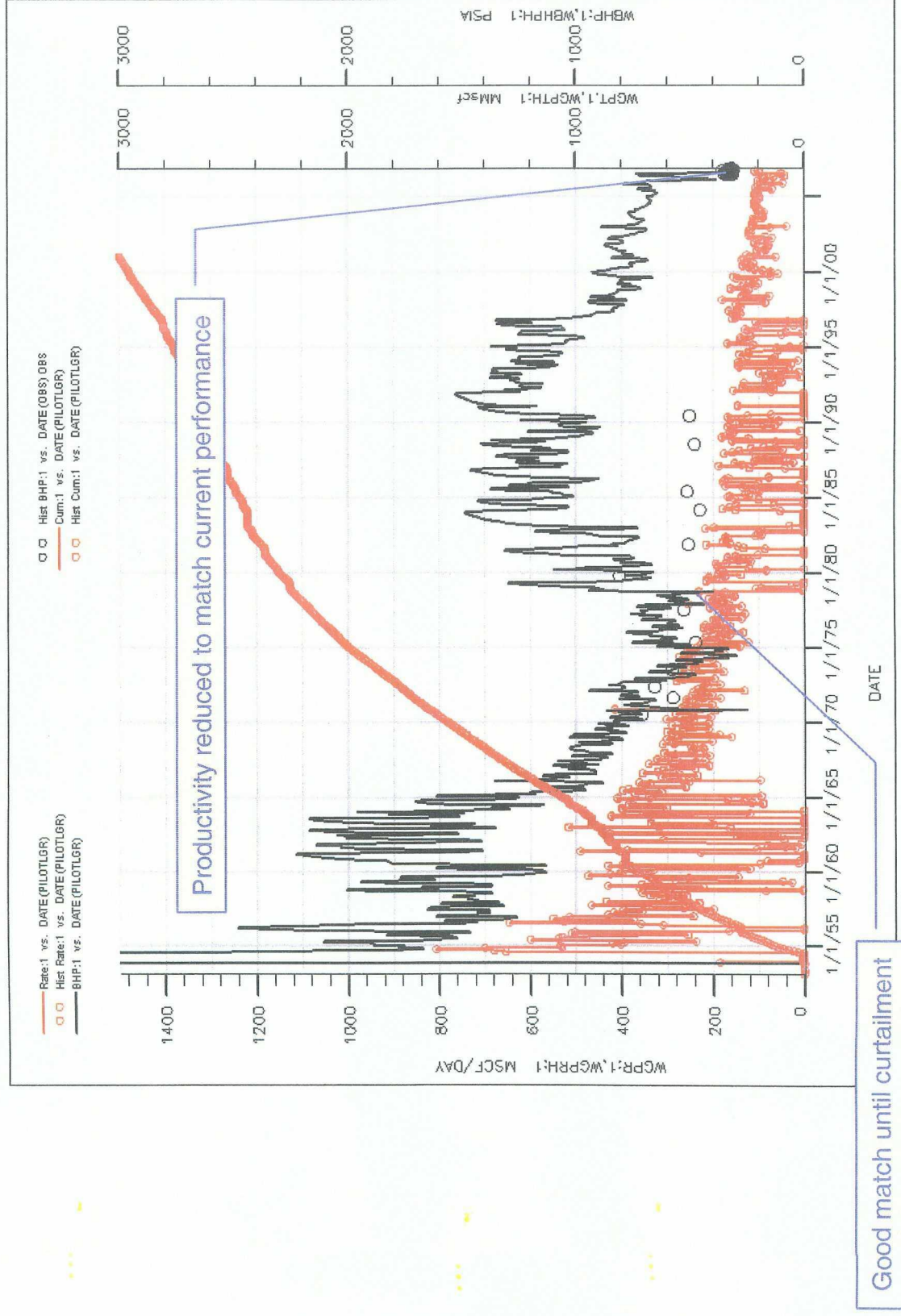


#40F DK LPT

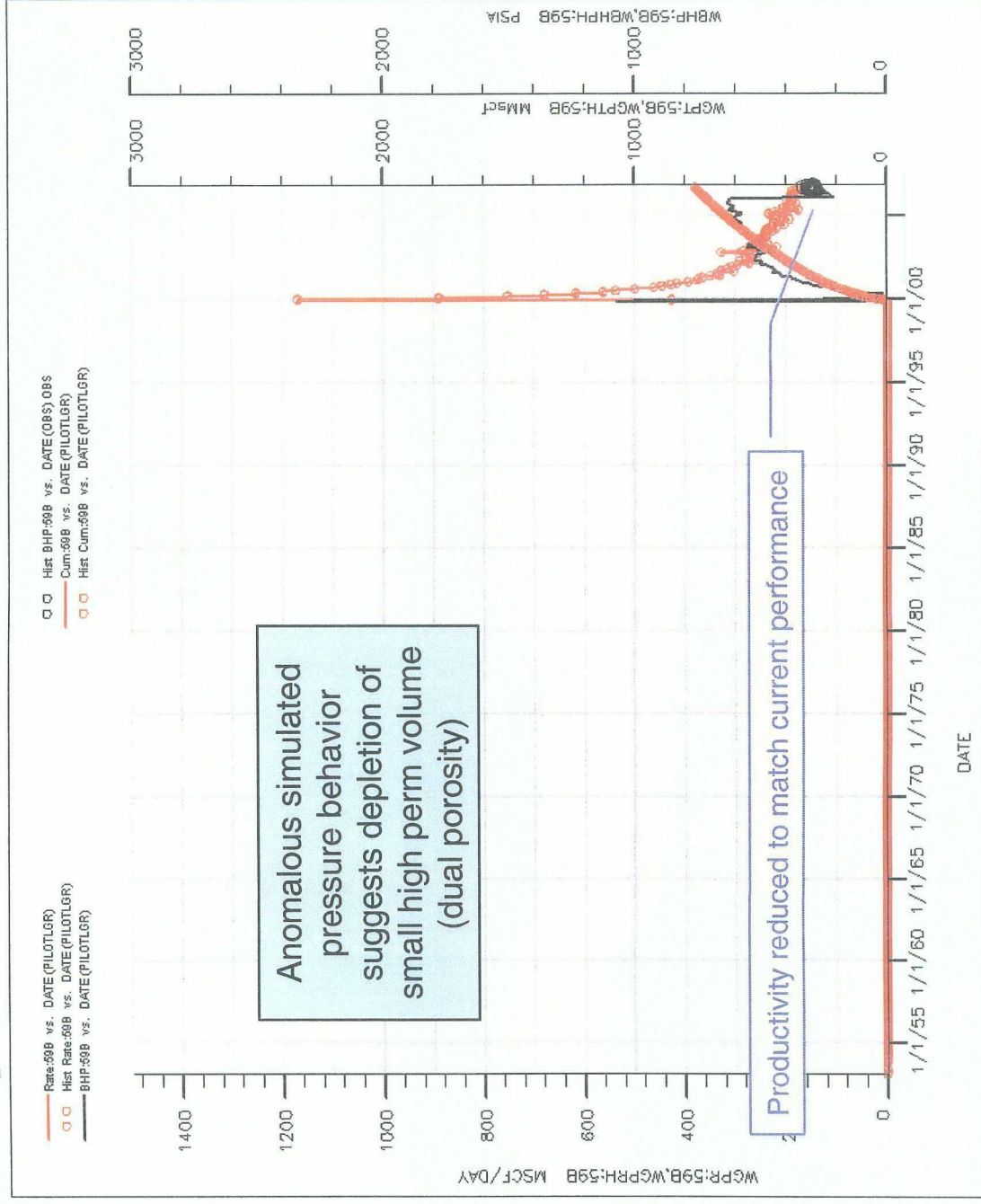


#137F DK LPT

Ex: Loss of Productivity



Ex: Apparent Dual Porosity Effect



Base Model Forecast

