Woodford Shale Development in the Ardmore Basin, Oklahoma

Initial thoughts on beginning an infill drilling program

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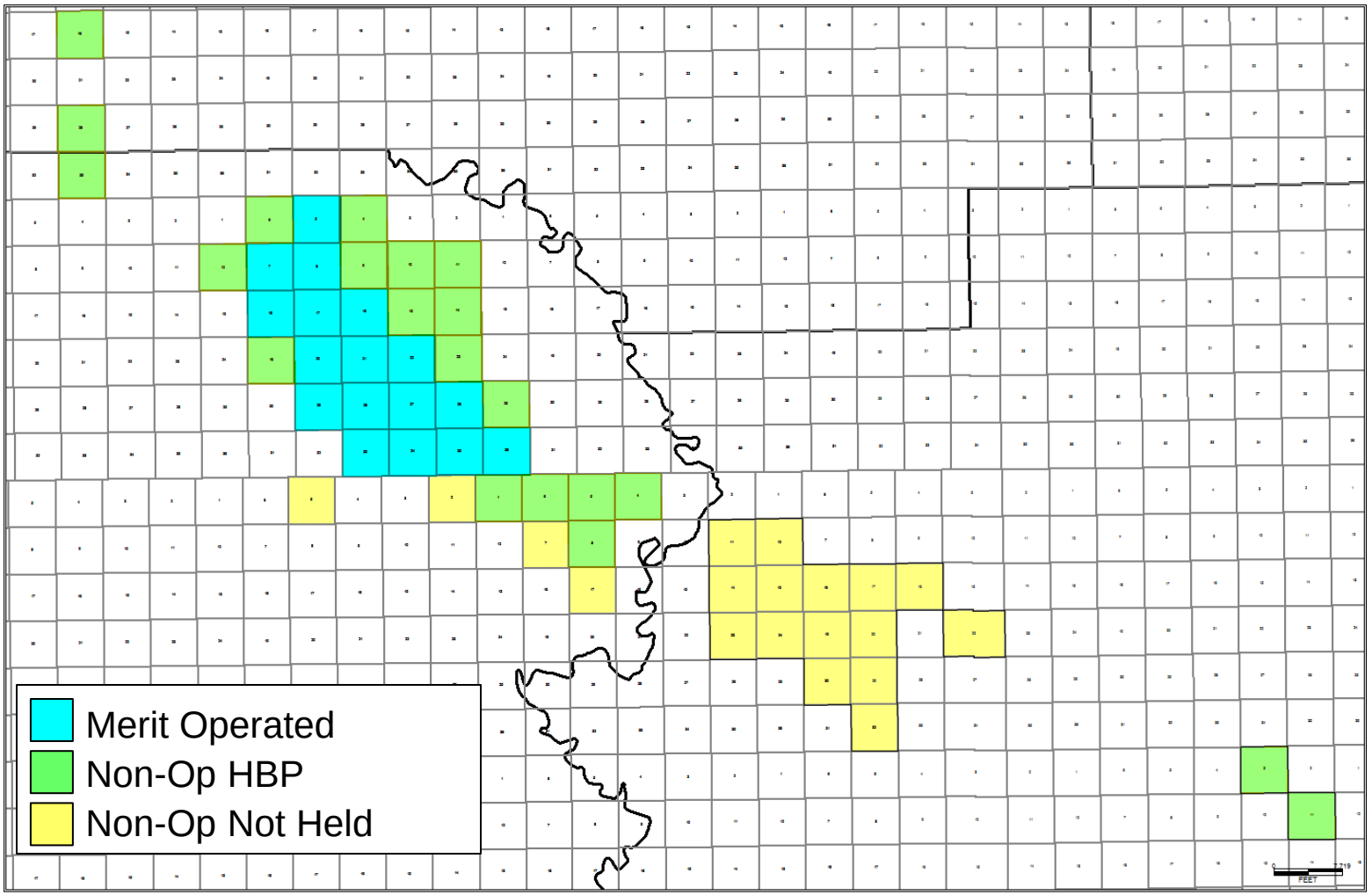
Merit Energy Company

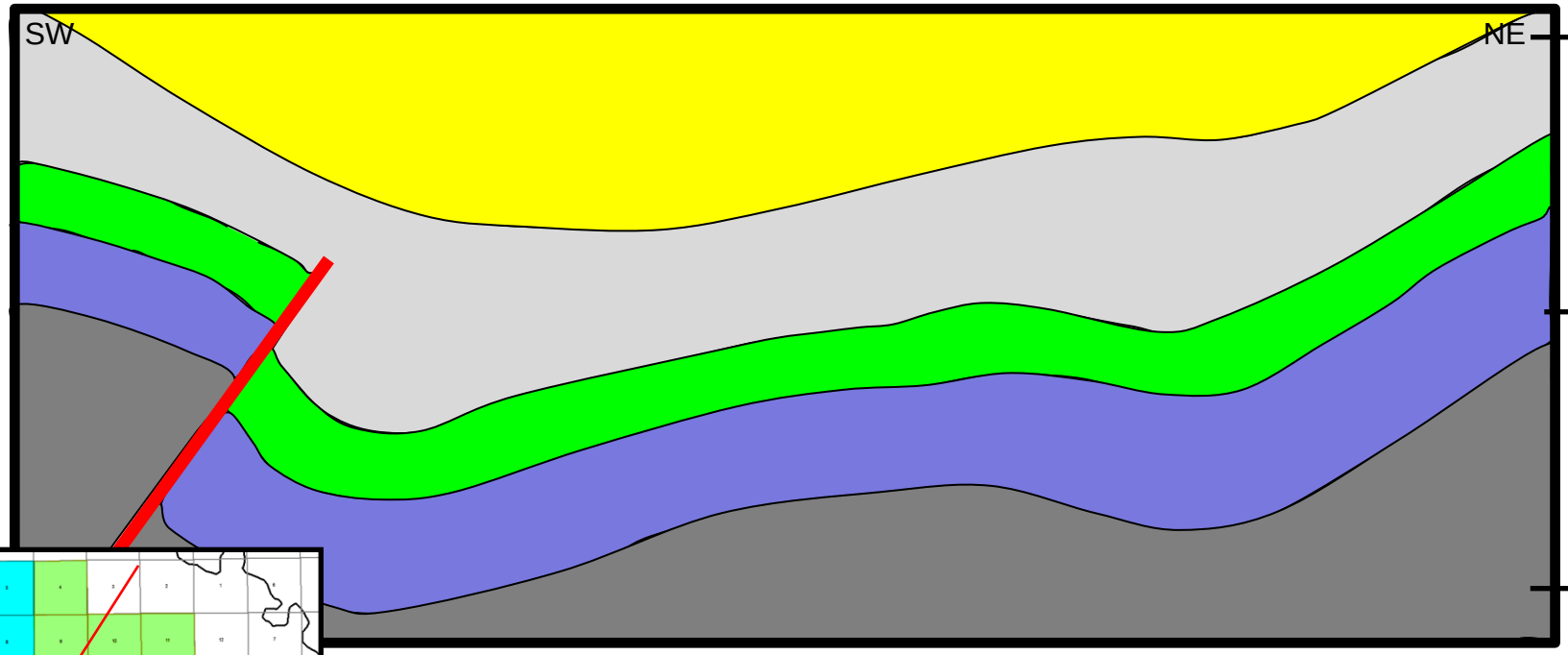
Merit Energy Company

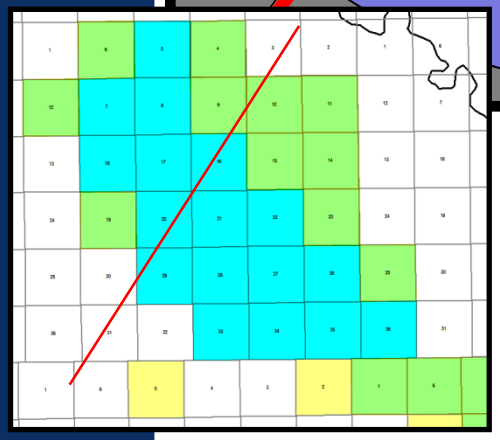
- Founded in 1989
- Primarily focused on purchasing and exploiting long life conventional production
- Operates in 8 states with the majority of production from TX, Mid-Continent, Rockies and MI
- Acquisition of Range Resources Marshall County, OK acreage in November of 2012

Merit Acreage Position



Stylized 3-D Crossline

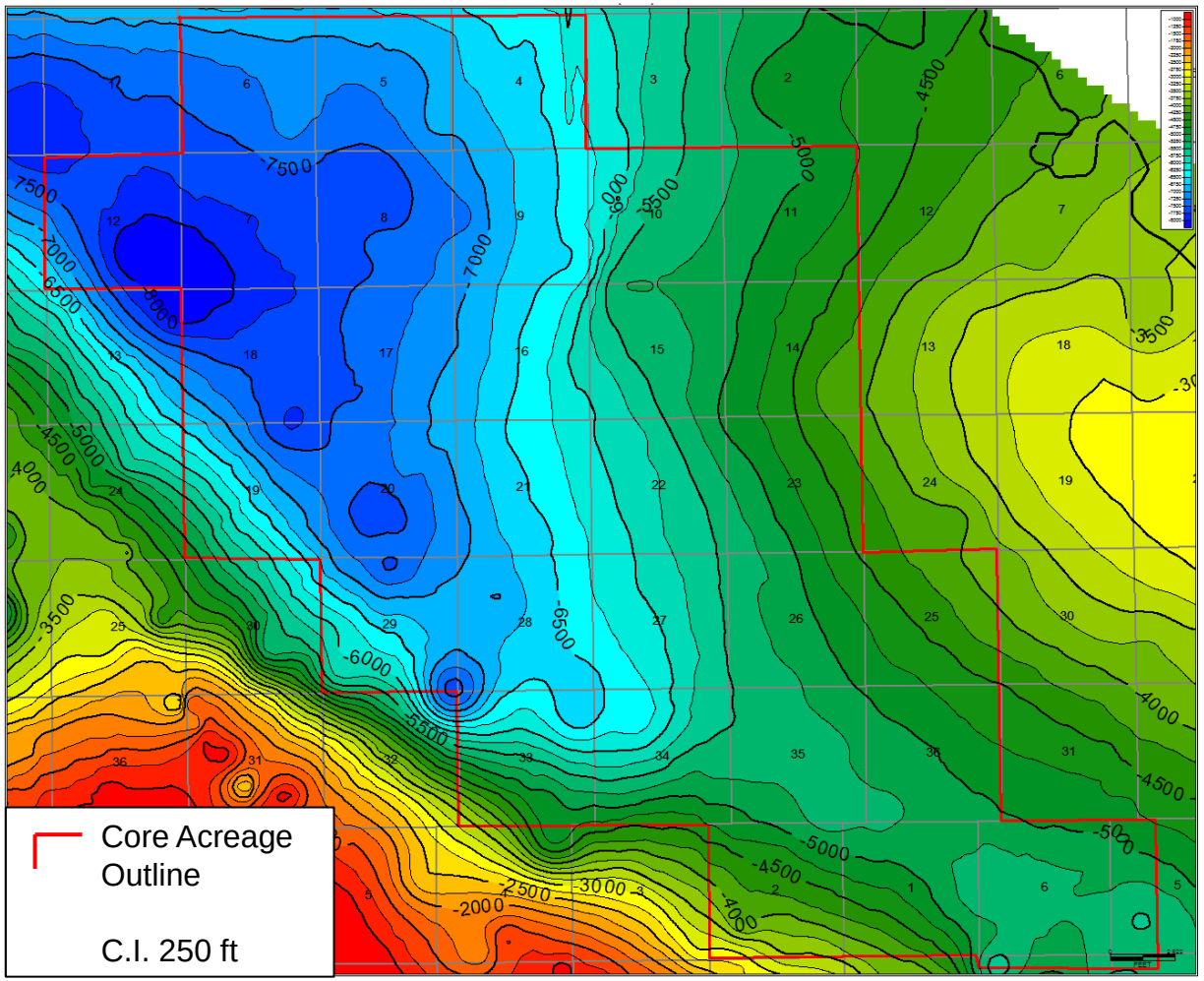




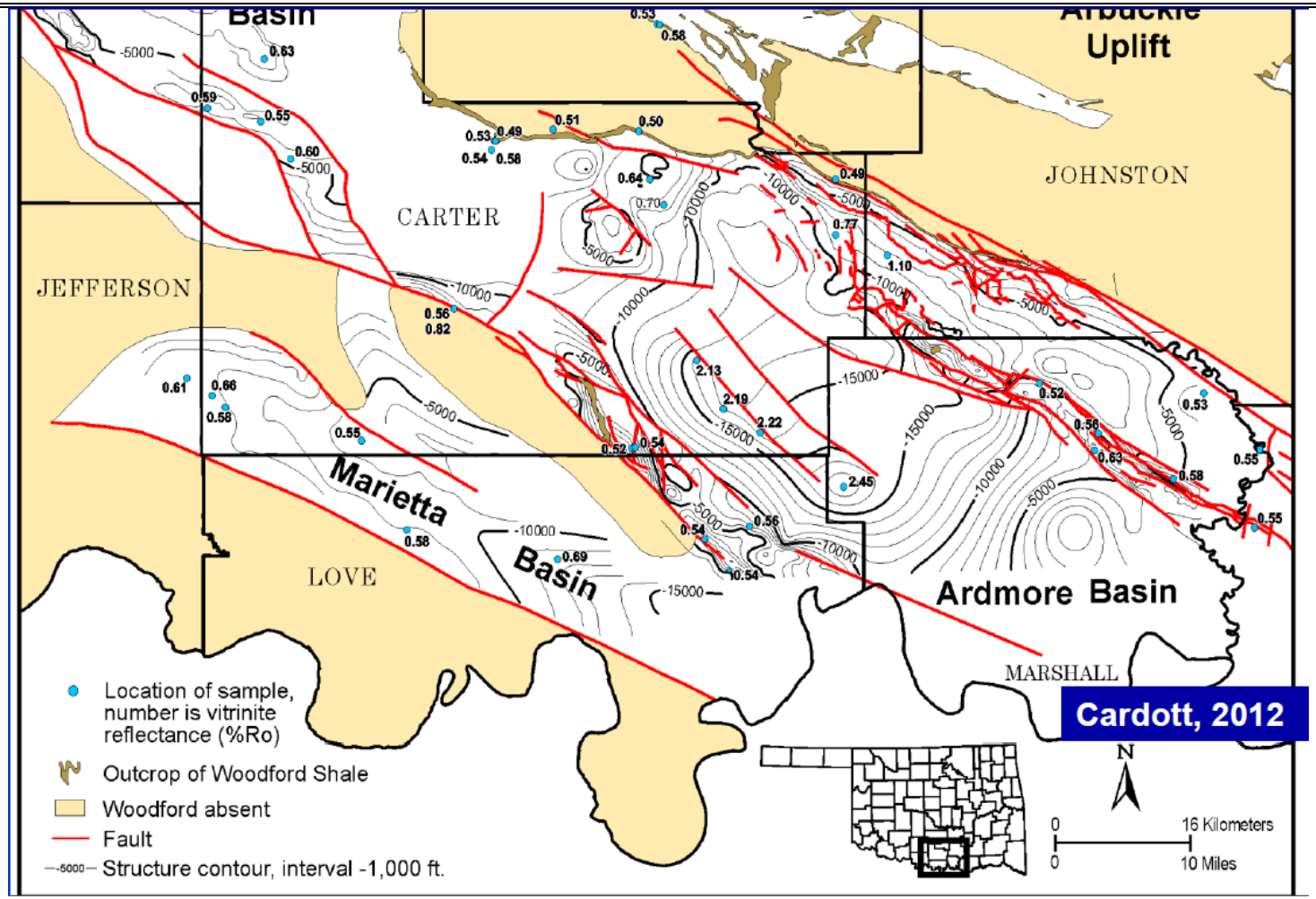
NW-SE striking faults bound the Eastern and Western borders of acreage

Woodford (within green above) strata across Merit's core acreage dips 5 degrees to the NW. Near faulting, dips can increase upwards of 50 degrees

Woodford Depth Structure

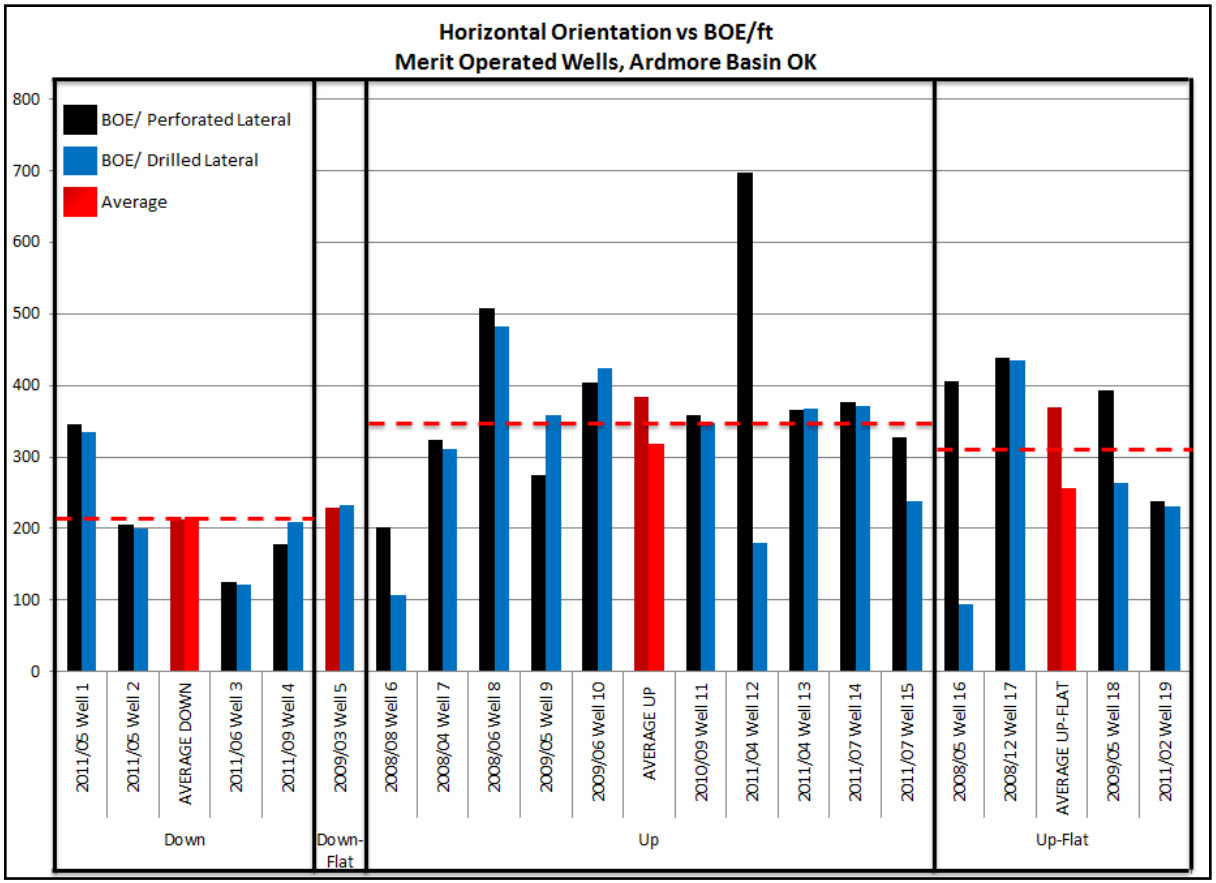


Ardmore Basin Ro and Depth Structure



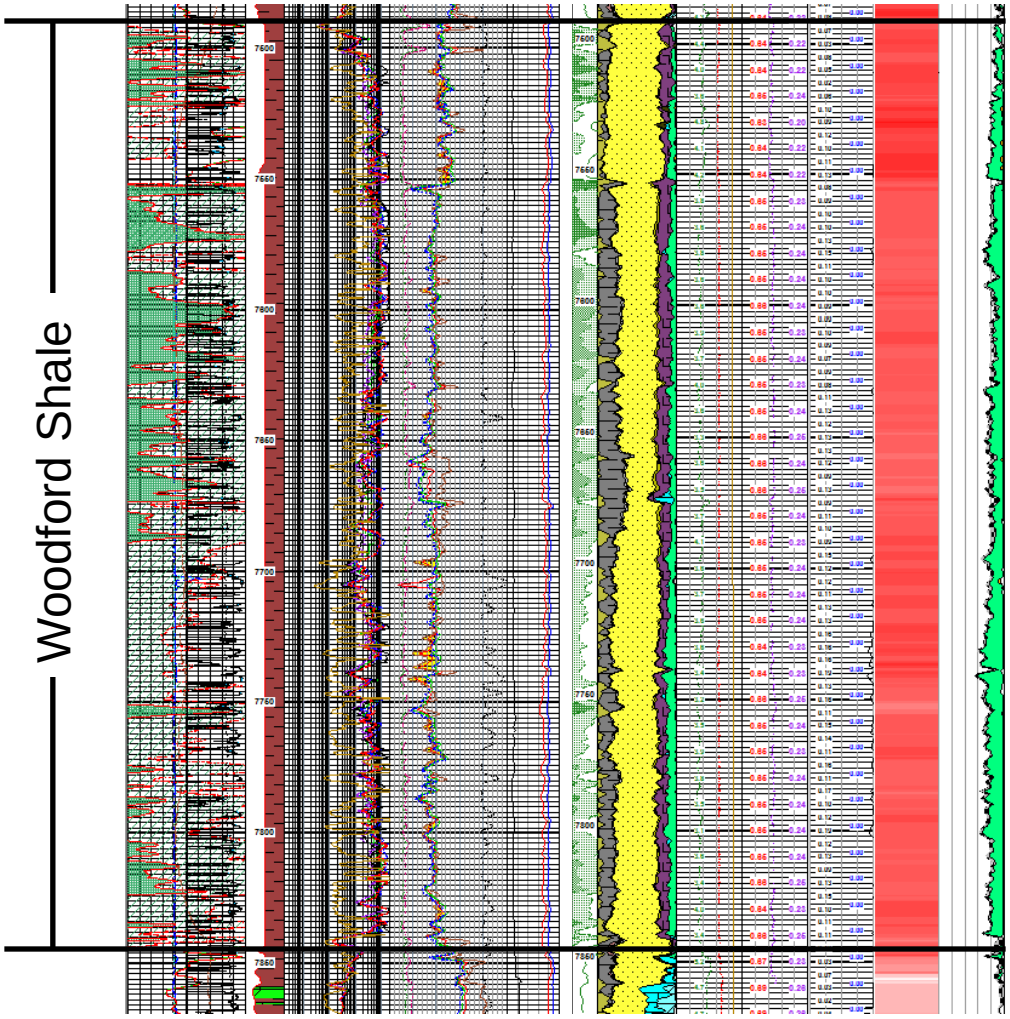
2013 Drilling Program

- Drilled 3 wells YTD
- Goal to duplicate Range's well performance
- Merit acquired two locations where surface holes had been set. One location would be toe down, the other flat/toe up.
- Decided to not drill toe down well



Other Data for Well Planning?

- Based on prior well performance and vertical log data, decision was made to land wells in middle Woodford and attempt to drill toe up

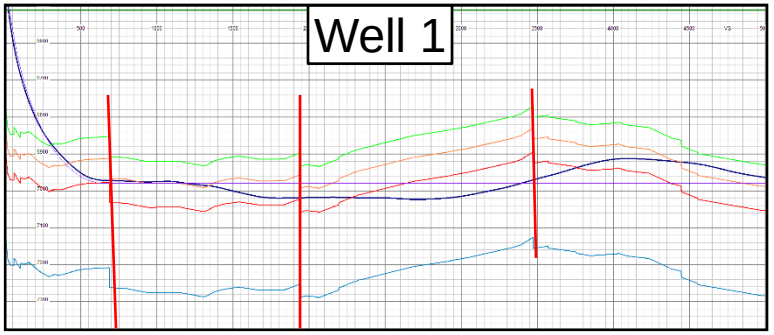


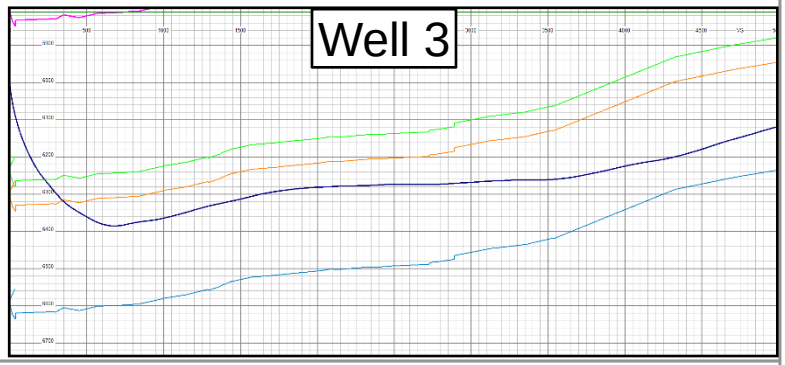
Initial Drill Results

Well 1– Drilled away from offset producers. Lateral largely in upper Woodford. Best Producer of the 3 2013 Merit drill wells

Well 2– Drilled as infill well. 800' away from eastern producer. 950-2800' away from western producer. Lateral in lower Woodford. Worst producer of 2013 Merit drill wells

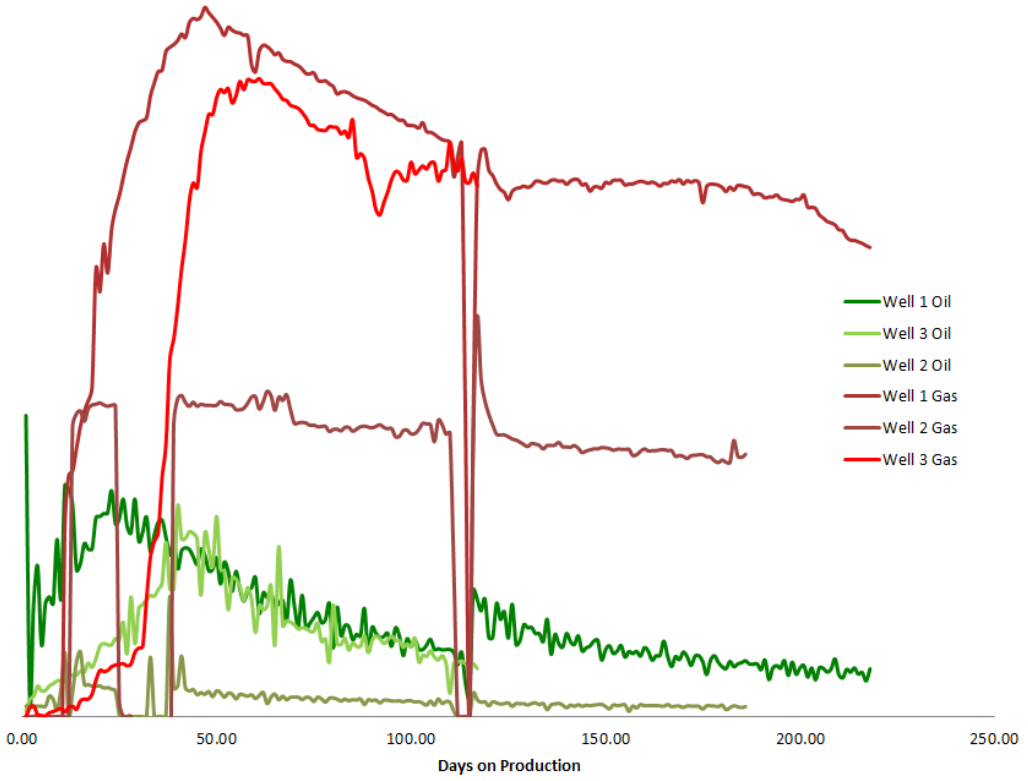
Well 3– Spacing test completed in conjunction with non-op partner wells. Non-op (4 wells) 450' spacing, Merit well 700' to west. Lateral in middle Woodford. Production similar to well 1





Early Production History Takeaways

- Infill drilling best done in conjunction with initial section well
- When infilling producing wells in the future, we may want to complete multiple wells together
- Upper and middle Woodford seem to be great lateral targets, lower still uncertain
- Aggressive down spacing likely an option



Infilling the Ardmore Woodford

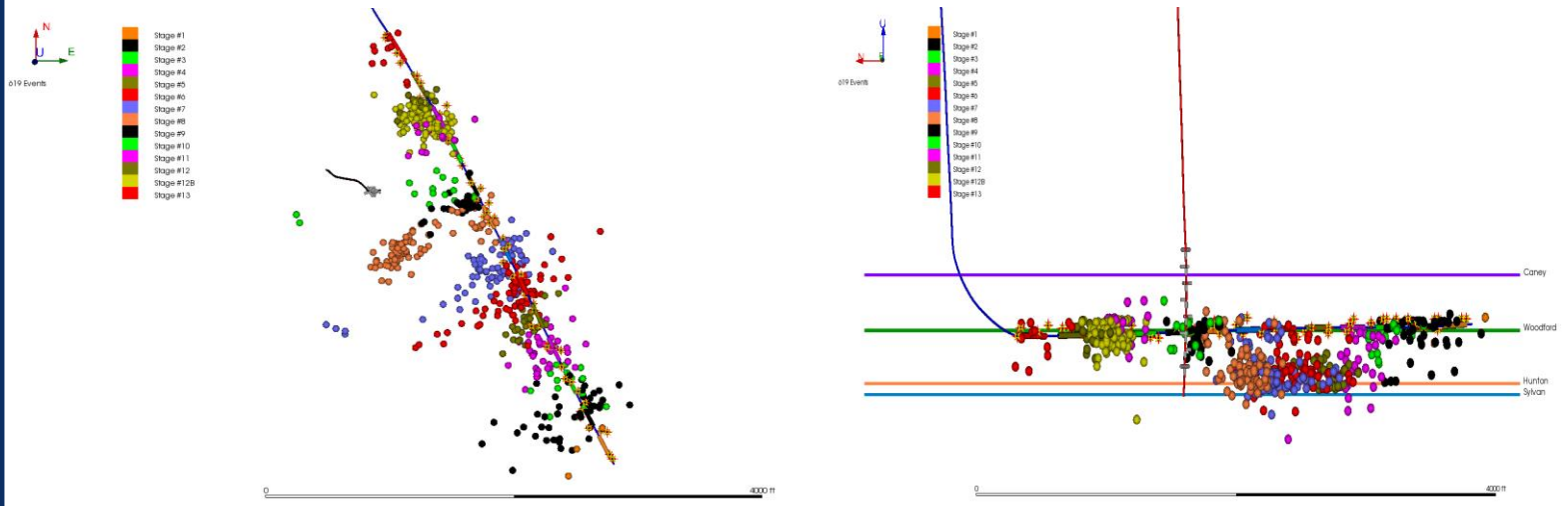
What's the Prize?

- Core analysis local to Merit production estimates over 100 BCF OGIP/section and 29 MB OOIP/section
- EUR estimates for an "average" Marshall Co Woodford well are ~120,000 BO and 3.3 BCF indicating an expected hydrocarbon recovery of 0.4% OOIP and 11% OGIP per well. Clearly there is upside to infilling drilling these sections!

How closely can the wells be spaced together before well to well interference becomes an issue?

- This question much harder to answer. Dependent on geology, completion techniques, lateral placement, economics, etc. Typical Woodford sections may see anywhere from four to eight wells per section

How Effective are the Fracs?

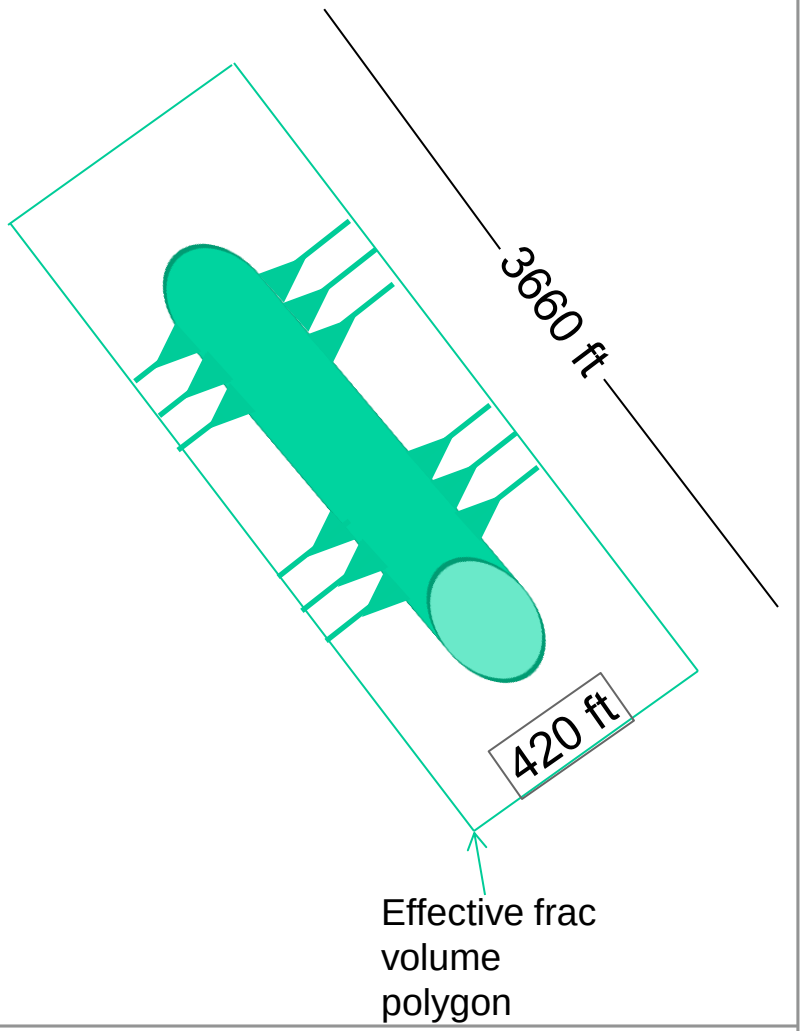


Microseismic monitoring during the Jean Lafitte #2-28H stimulation show frac height growth to be 350-400’ in some stages while microseismic events are recorded as far away from the wellbore as 1800’ (most events <1000’)

Also note that the Sycamore seems to be an effective frac barrier while the Hunton does not.

Comparison of Microseismic Results and Production Data

- Can build a simple box model to test effective frac calculations from microseismic
- This model assumes 0 permeability without stimulation and 100% drainage from stimulated reservoir.
- Microseismic calculated effective frac lengths vary from 152’ to 725’ along the lateral. The average frac length stimulation is 420’ for the Jean Lafitte #2-28H.

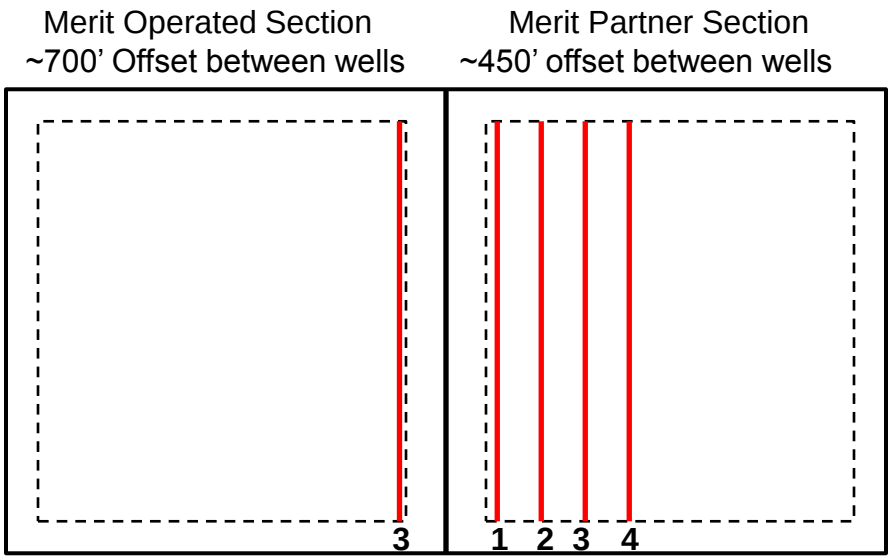


Microseismic numbers seem reasonable for Lafitte #2

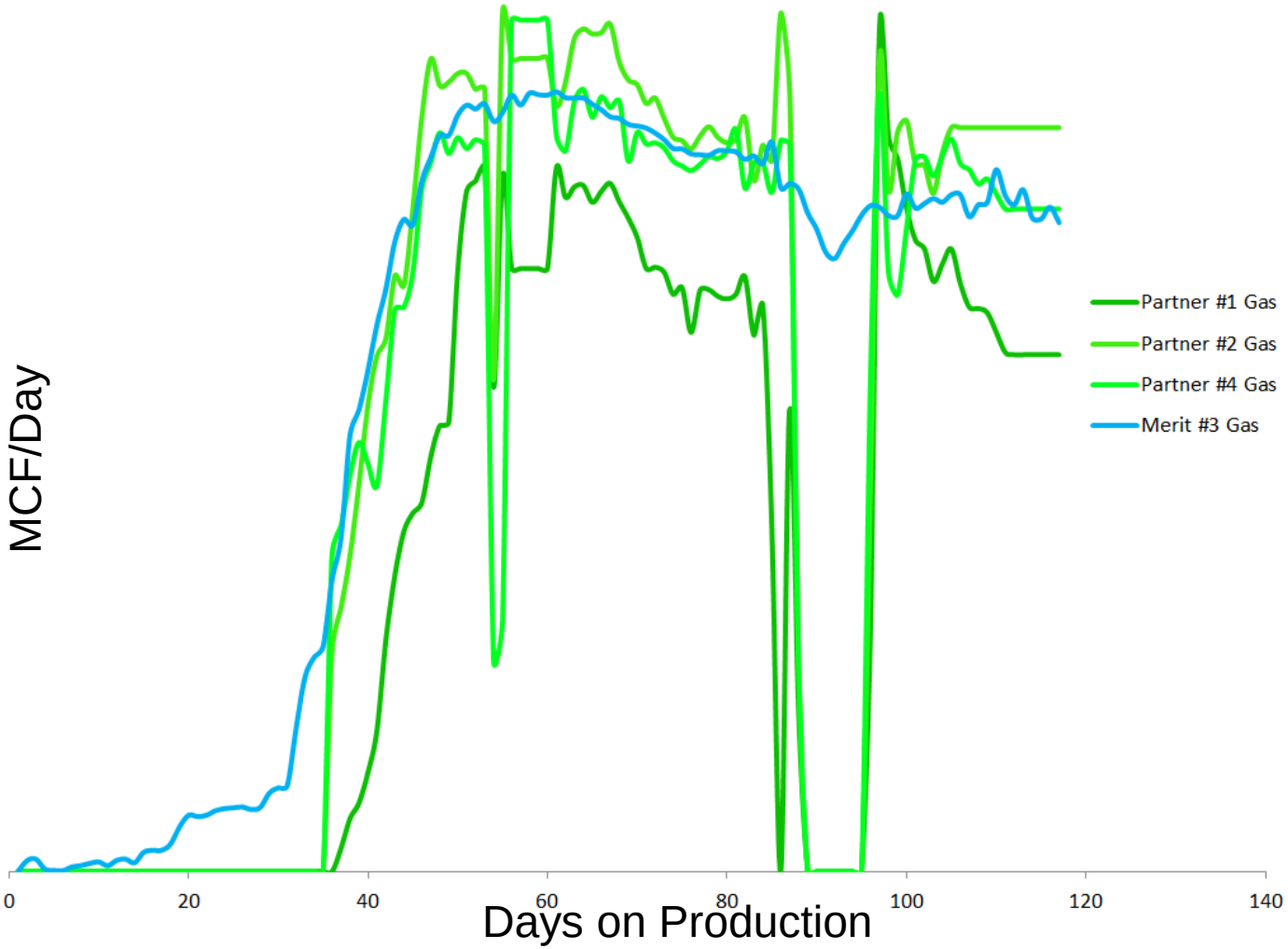
- Jean Lafitte #2 Model
  - Effective fracture volume 519,358,516 ft^3 which is approximately 5% GRV of section 28
  - Section 28 contains ~104 BCF of reserves; if production only occurs via stimulation, the frac should produce ~5.7 BCF of gas
- Jean Lafitte #2 Production
  - Decline curve analysis predicts J. Lafitte #2 will produce 6.4 BCF
  - Model results of a 420’ average frac length support the EUR calculated based on well performance (48 months production data).
  - Expecting up to 725’ of stimulation seems reasonable between wells.

#3 Well Spacing Test

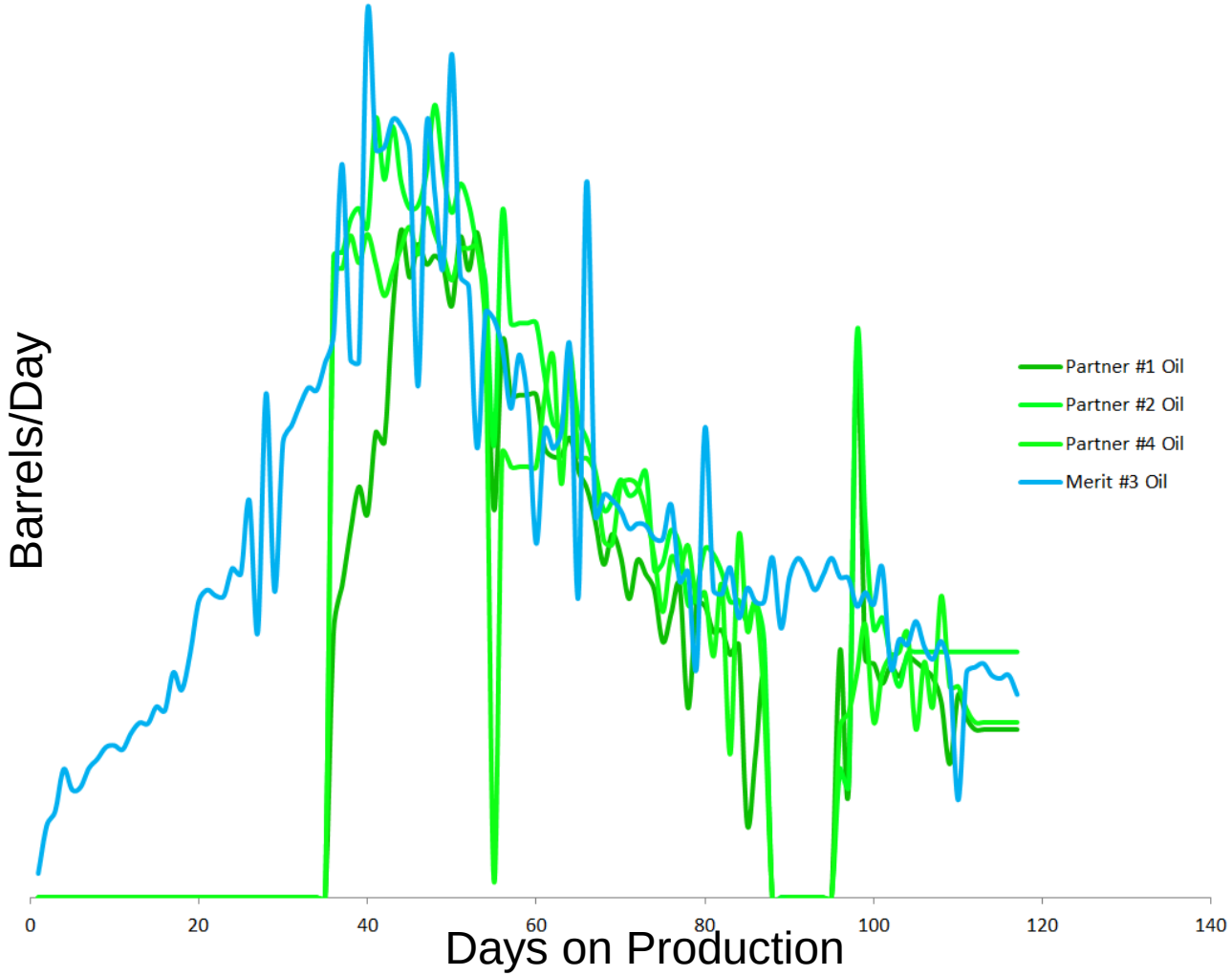
- Drilled and completed well #3 in coordination with partner 4 well development
- Merit well #3 was simultaneously completed with partner well #1



Initial Production Results (Gas)



Initial Production Results (Oil)



Conclusions

- A company focused on long-life conventional assets can be successful in unconventional development
- Lateral orientation (toe up or down) has a significant impact on overall well performance
- We are still looking for the sweet spot while drilling. Identification of natural fracture networks within the Woodford may increase production rate

Conclusions

- Reservoir pressure is important!
  - Spacing test shows that on sub-1000 ft wells are in near-instantaneous pressure communication
  - Aggressive infill drilling (<600') may be viable in this area, more production history/additional testing needed
  - Development of these assets is leaving most of the oil behind