**OVERVIEW**

Biota assessed lateral productivity and production characteristics of an appraisal well with a non-invasive, high resolution diagnostic combined with machine learning and reservoir engineering.

**PROCESS**

Biota produced a DNA baseline with drill cuttings in the vertical and lateral section that landed in the Meramec formation. Next, Biota sampled production for 6 months to provide a high resolution production contribution log integrated into the client’s workflow.

**CHALLENGE**

Operator engaged Biota to help assess and diagnose the performance and viability of an appraisal well that exhibited unexpected fracking and production characteristics to aid in shaping a new large-scale development play.

![Figure 1: Lateral DNA Profile](image)

- **A.** DNA Profile with sudden shifts in DNA markers indicating fault.
- **B.** Original landing zone planned with no shift in target formation.
- **C.** Target formation shifted significantly resulting in misplaced lateral.
**RESULTS AND VALUE**

- Biota conducted the project non-invasively, safely, and accurately with rigorous quality control processes and integrated analysis into other reservoir engineering workflows.

- The team conclusively determined faulting through the lateral section with high resolution, confirming that a significant portion of the lateral section was landed out-of-zone.

- The team assessed production fluids over the first 6 months of production to determine formation contribution changes and helped the client optimize the next well’s landing zone to maximize drainage and production in subsequent wells.

- The project provided significant insights into landing zone optimization to maximize in zone contribution and formation drainage, increasing capital efficiency and well productivity in the development program.

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**POTENTIAL NEXT STEPS**

- Biota can continue to work closely with the client as development progresses across the section to assess well performance and continue to fine-tune development and completion plans.

- As development continues into new zones and sections, Biota can provide similar solutions to assist client in optimizing capex for production.