



# AADE Mid-Con Symposium

## Extending Laterals Beyond 2-Miles

February 20<sup>th</sup>, 2024

Chris Jamerson, D&C Engineer, Permian & Anadarko



# Agenda

2024 AADE Mid-Con Symposium

COTERRA

- Company Overview
- 2-Mile Design
- 3<sup>rd</sup>-Mile Design Changes
  - 2021+22 - Authentic & Prewit-Justify
  - 2022 - Hardcastle
- 4<sup>th</sup>-Mile Look Ahead
- Project Deciding Factors: 1, 2, 3, or 4-miles?
- Extended Laterals on Horizon

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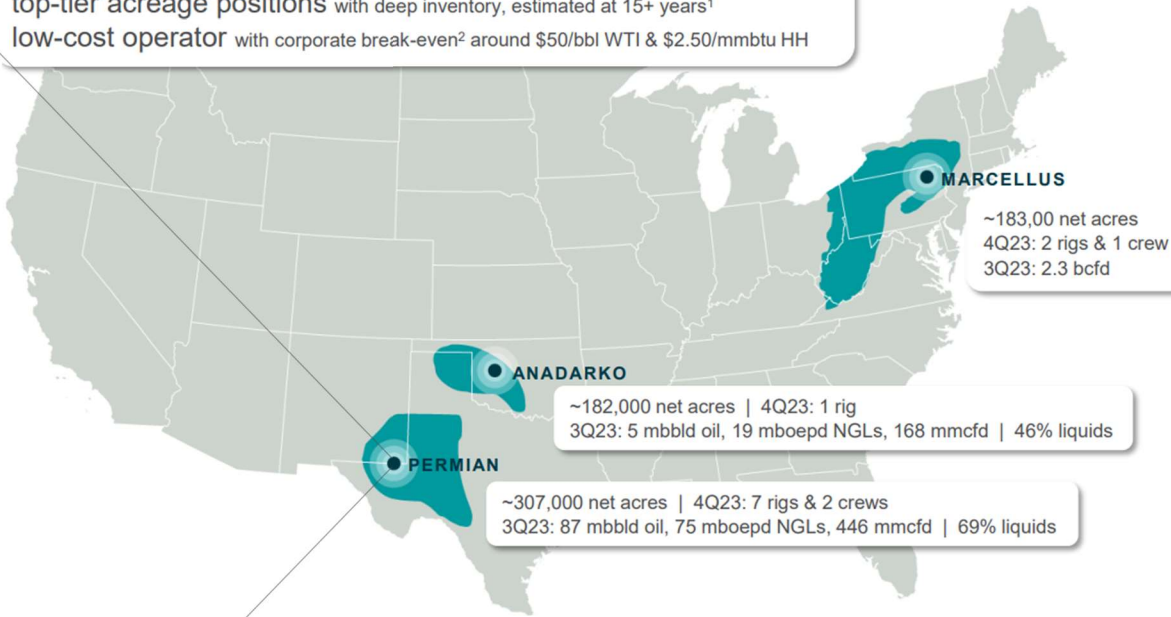
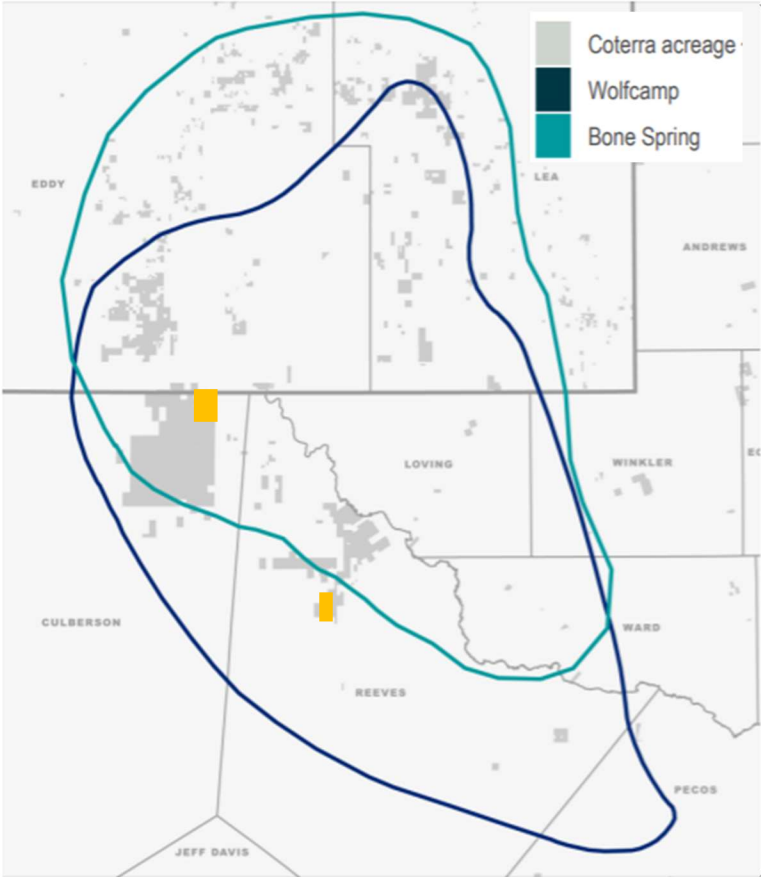
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# Company & Region Overview

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Cimarex & Cabot Merged in 2021

multi-basin portfolio provides commodity diversification and capital allocation optionality  
 top-tier acreage positions with deep inventory, estimated at 15+ years<sup>1</sup>  
 low-cost operator with corporate break-even<sup>2</sup> around \$50/bbl WTI & \$2.50/mmbtu HH

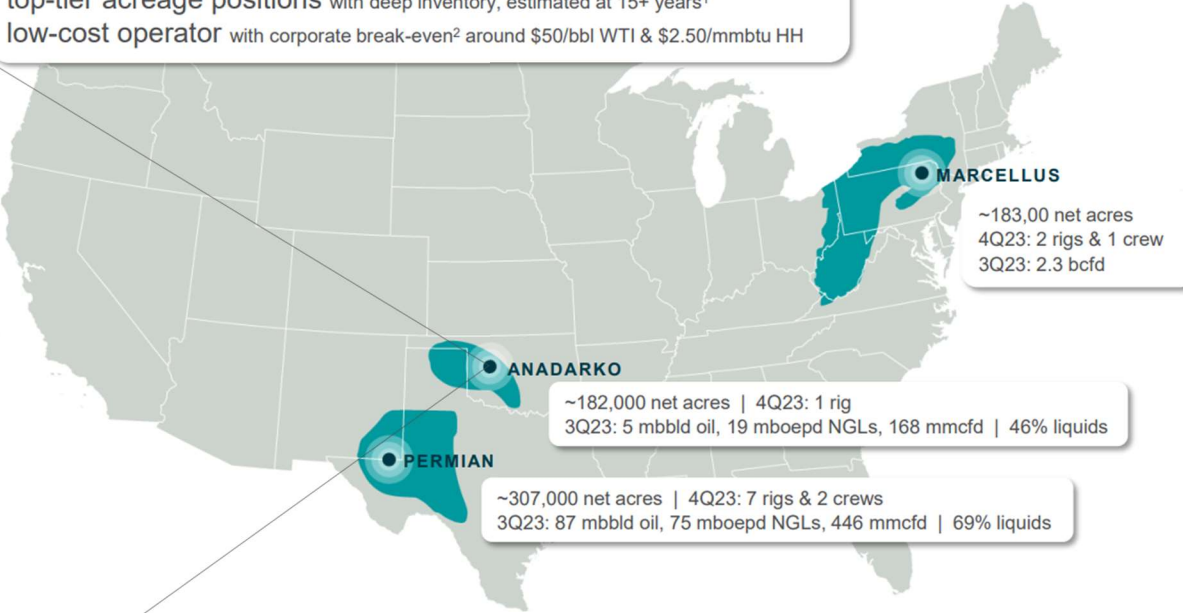
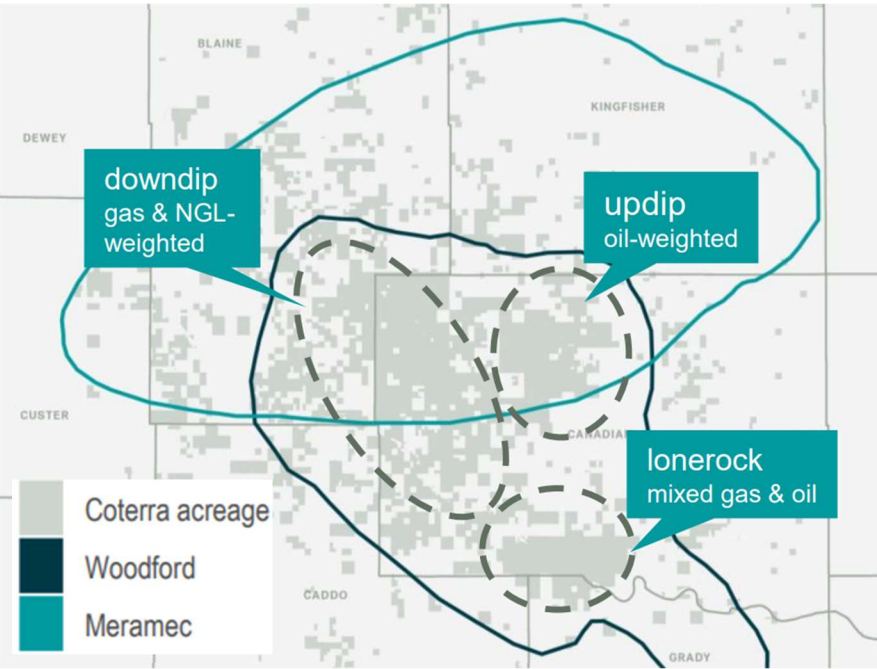




# Company & Region Overview

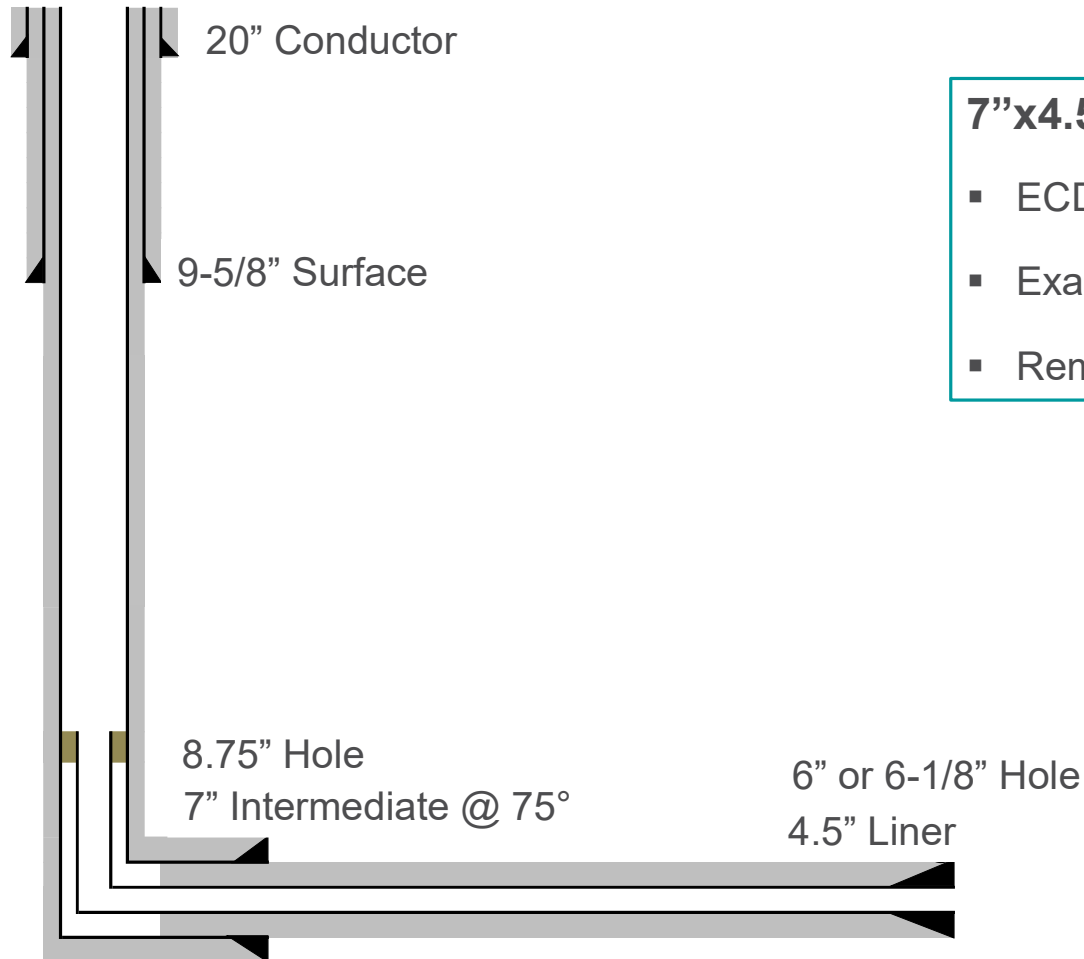
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# 1 & 2-Mile Design - Permian

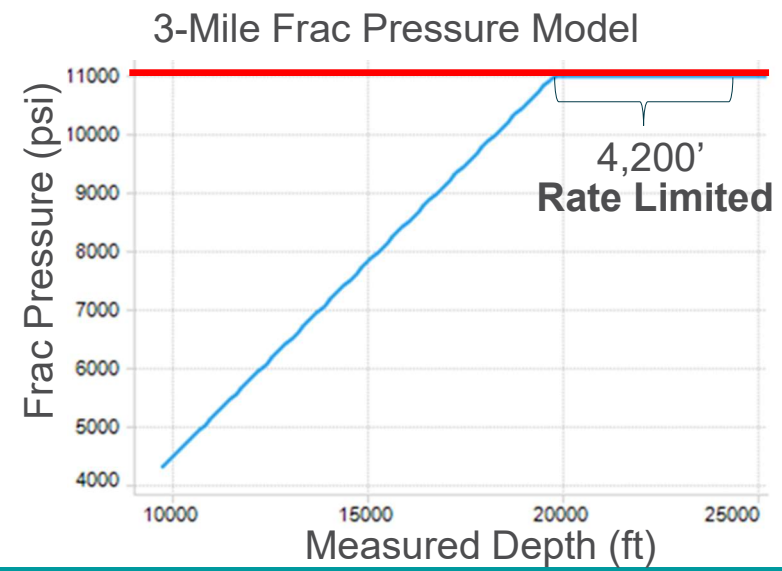
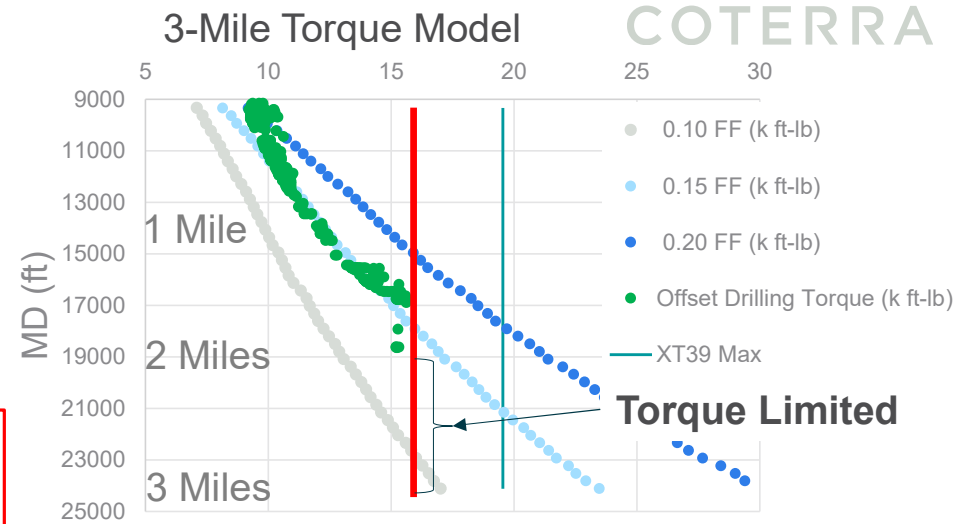
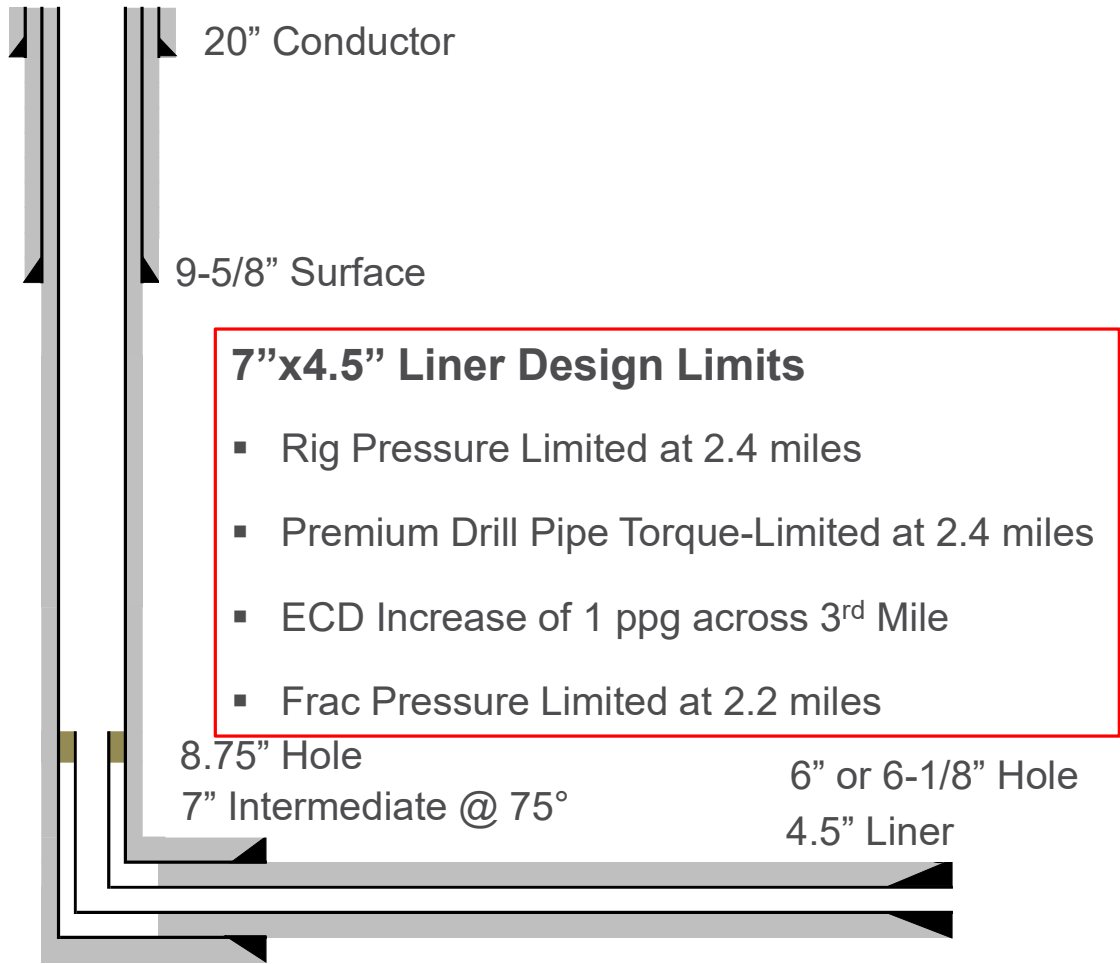
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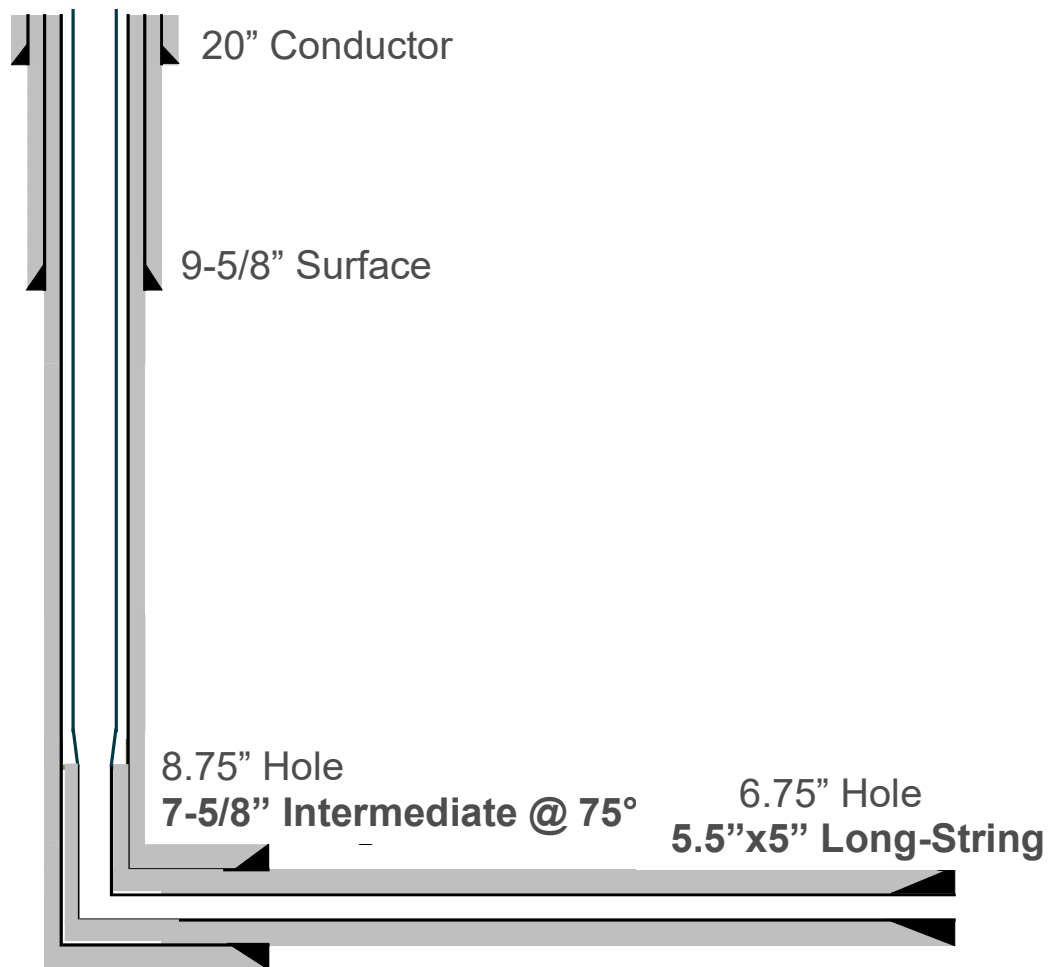
## 7"x4.5" Liner Design Works for 2<sup>nd</sup> Mile

- ECD Increase <1 ppg across 2<sup>nd</sup> Mile
- Exact same design works in 1/3 of area
- Remainder only needs thicker casing for Frac

# 2-Mile Design Unfit for 3<sup>rd</sup> Mile



## Changes for 3-Mile Design



### 5.5"x5" Long-String Benefits

- Reduced ECD due to hole size increase
- Premium Drill Pipe Torque Limit now ~3.8 miles
- Rig Pressure Limit now ~3.9 miles
- Reduced complexity to float & rotate casing
- Frac Pressure Limit now ~4.0 miles

### Points to note in 3-Mile Design

- Tight-fit 7-5/8" Casing in 8-3/4" Hole
- Larger lateral size may limit ROP
- Stick-pipe drill-out preferable to coiled-tubing



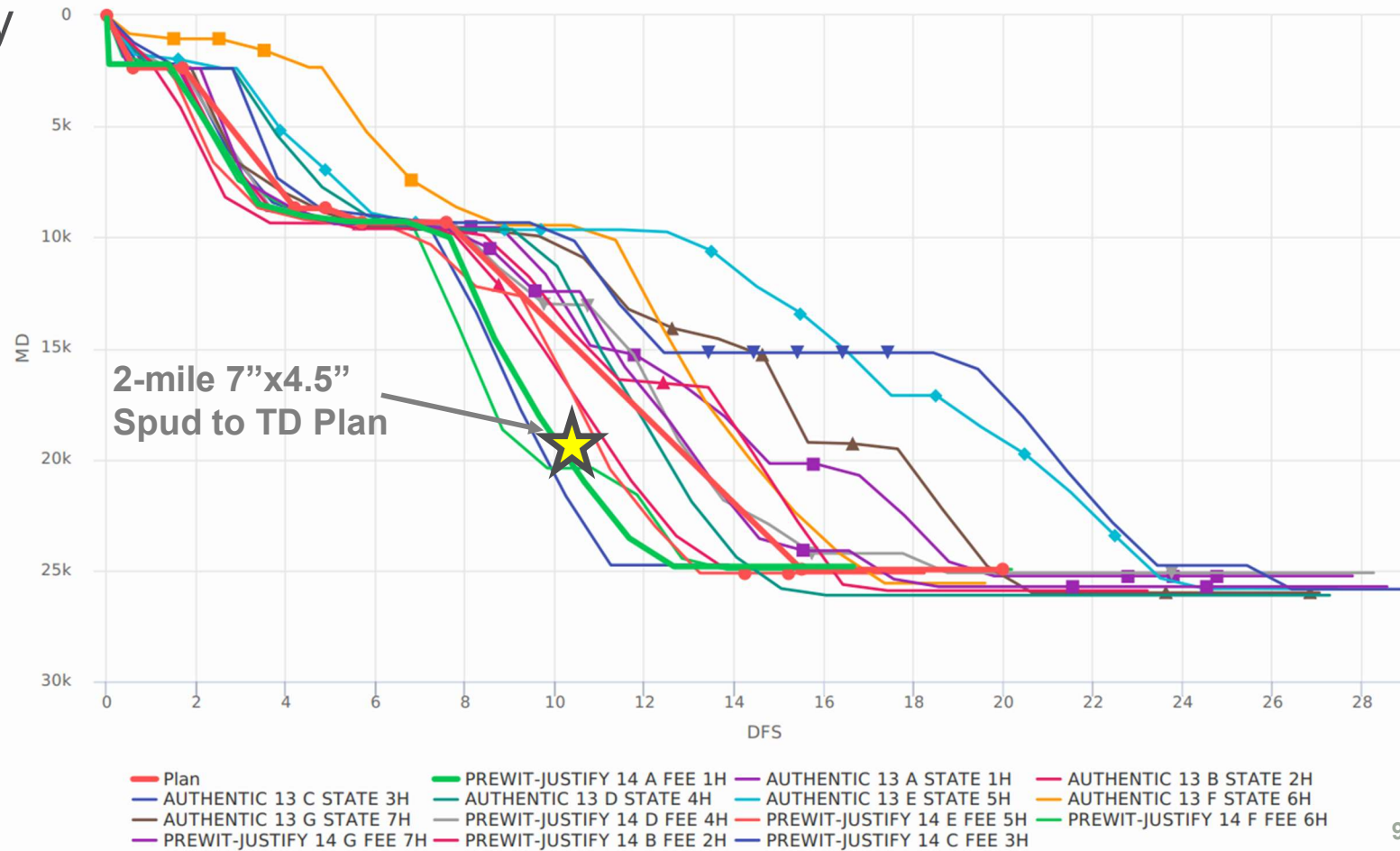
# 2021/2 Prewit-Justify Authentic

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Fourteen 3-mile wells, Culberson County

Days vs Depth

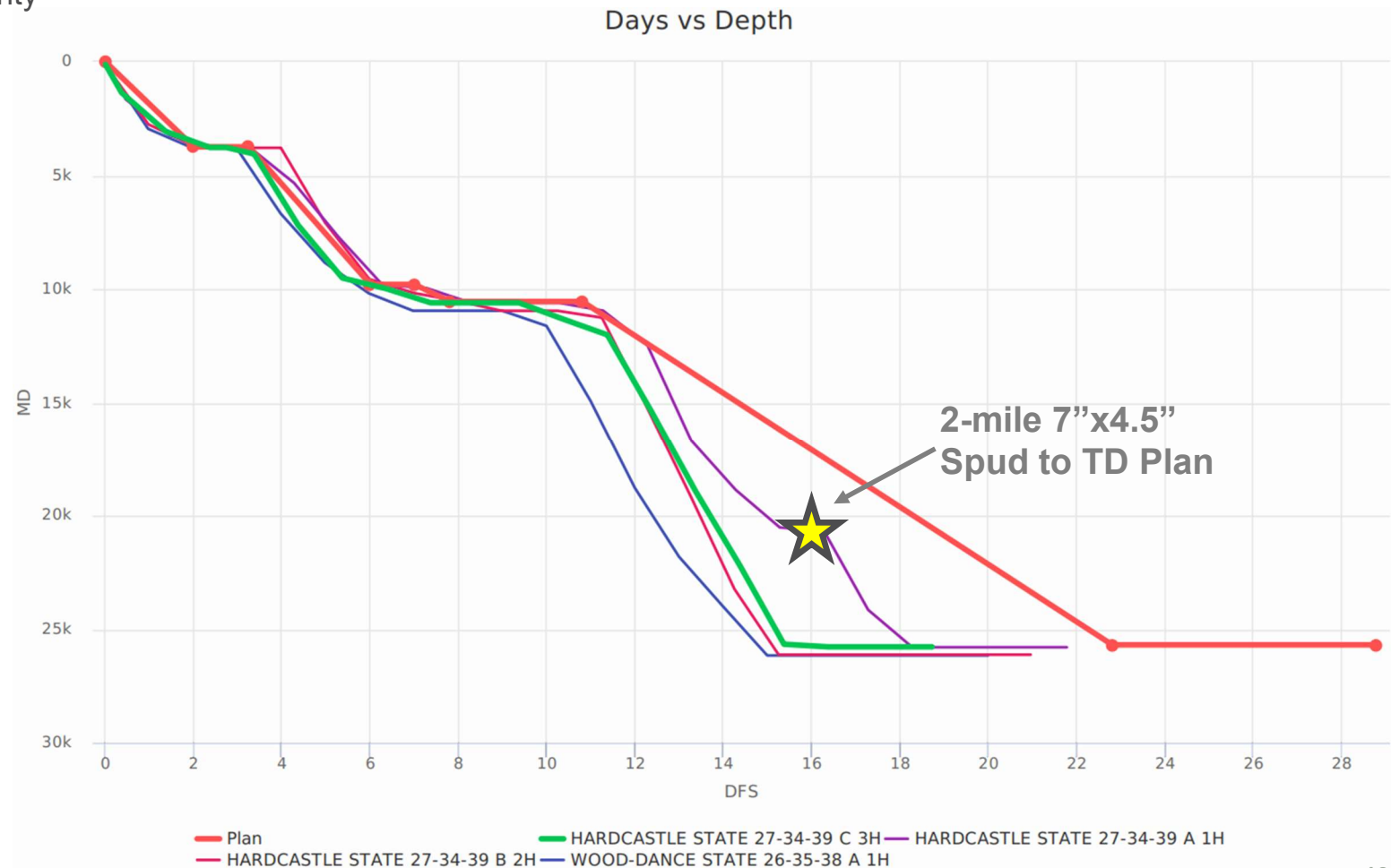
- Culberson County
- 14 wells, 4 pads
- Upper Wolfcamp
- ±9,300' TVD
- 1,300' kick-out



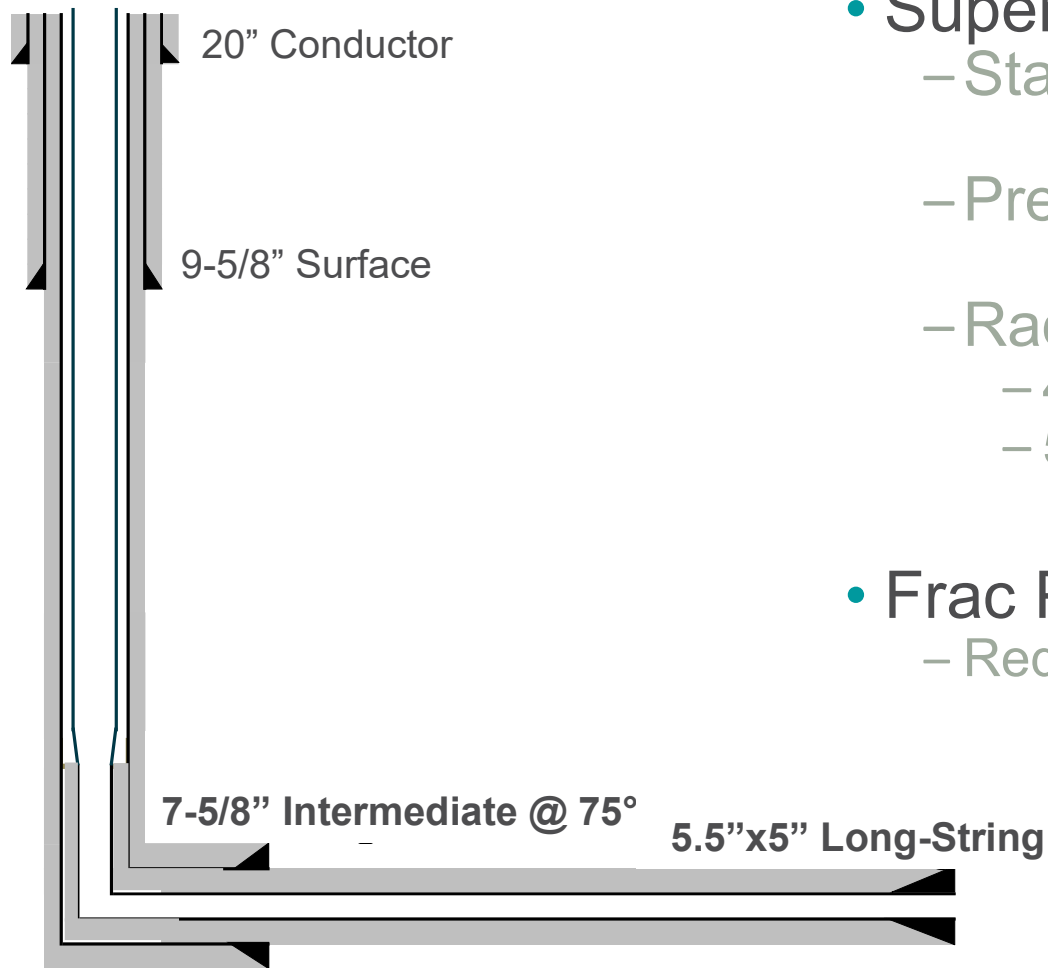
# 2022 Hardcastle

Four 3-mile wells, Reeves County

- Reeves County
- 4 wells, 2 pads
- Middle & Upper Wolfcamp
- ±10,500' TVD
- 500' kick-out
- Fault @ 2.5 miles



## Looking Ahead to 4-Mile



- Super-Spec Rig at 4-miles:
  - Standpipe Limited at 3.9 miles
  - Premium Pipe Torque Limit at 3.8 miles
  - Racking Board & Set-back
    - 4" & 4.5" Drill Pipe to 3.8 miles
    - 5" & 5.5" Drill Pipe to 2.5 miles
- Frac Pressure limit 3.8 to 4.1 miles
  - Reduced treating rate for 0.2 miles

# Extended Lateral Planning

Planning for economic success.

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- Technical concerns:
  - Drilling at Max Parameters
  - Casing Running & Flotation
    - Shallower zones
    - Large side-steps
  - Completing at Max Pressure
  - Plug Drill-outs
- What are projects limiters?
  - Acreage
    - Ownership
    - Offset Wells
  - Existing Infrastructure
  - Large side-steps
  - Reduce Pads or Step-outs?

# Extended Laterals on Horizon

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Planning for economic success.

- Four 3-mile laterals in Eddy County
- Ten wells in Reeves County
  - Five 2.5 mile laterals
  - Five 3.5 mile laterals
- One 2.5-mile lateral in Oklahoma
- Handful of other projects in queue.

Thank you!

Questions?