MIDSTATES PETROLEUM

NYSE: MPO

Mississippi Lime Development

2/11/2015

Cody Martin

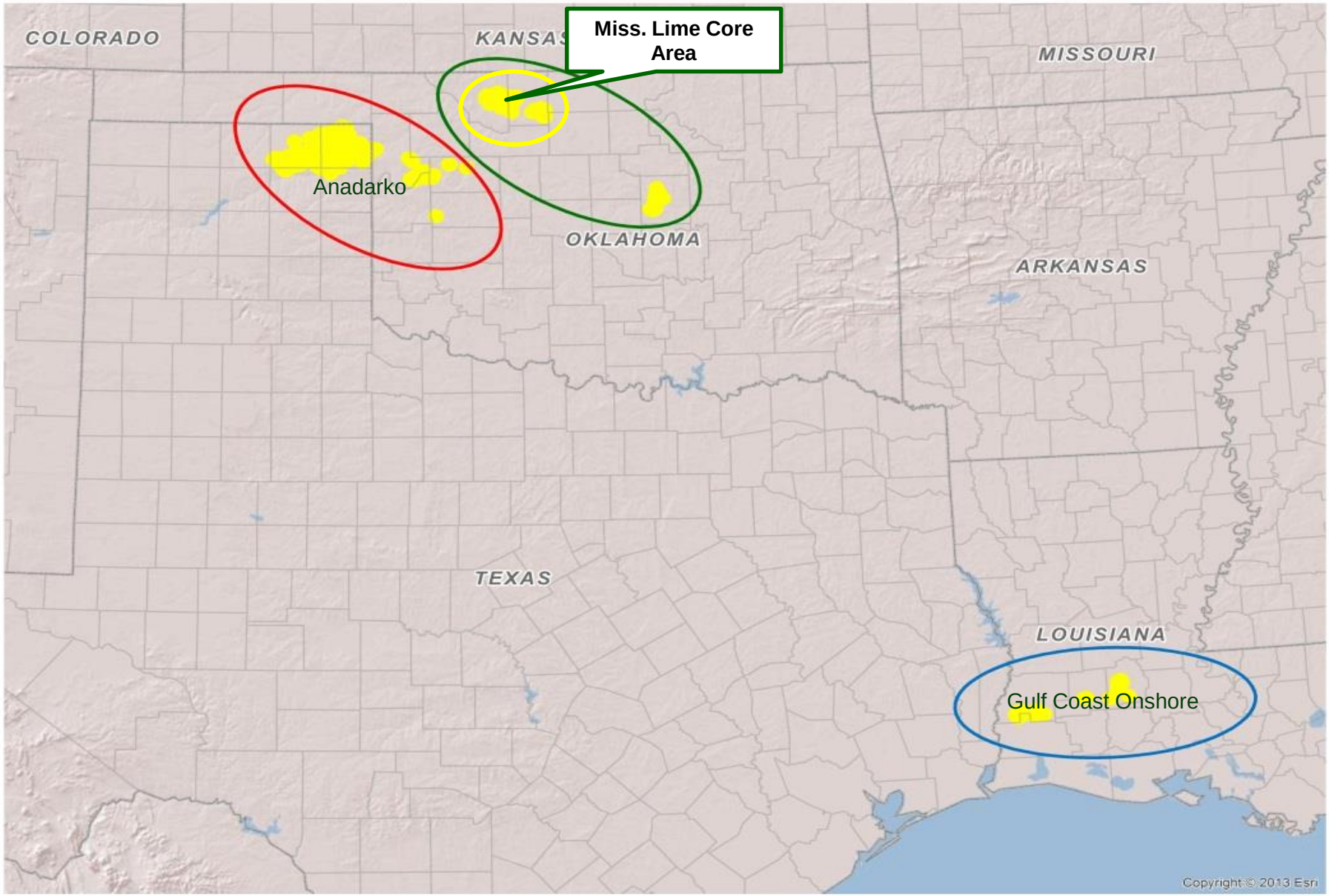
Drilling Engineer

Mississippi Lime Drilling Team

- Mitch Elkins
- Terry Leeper
- Mike Jagneaux
- Daniel Habenicht
- Ian West
- Cody Martin
- Charles Patrick
- Jill Fuller
- Chelce Rouse
- Jacque Croudy
- Larry Rader

Mississippi Lime Overview

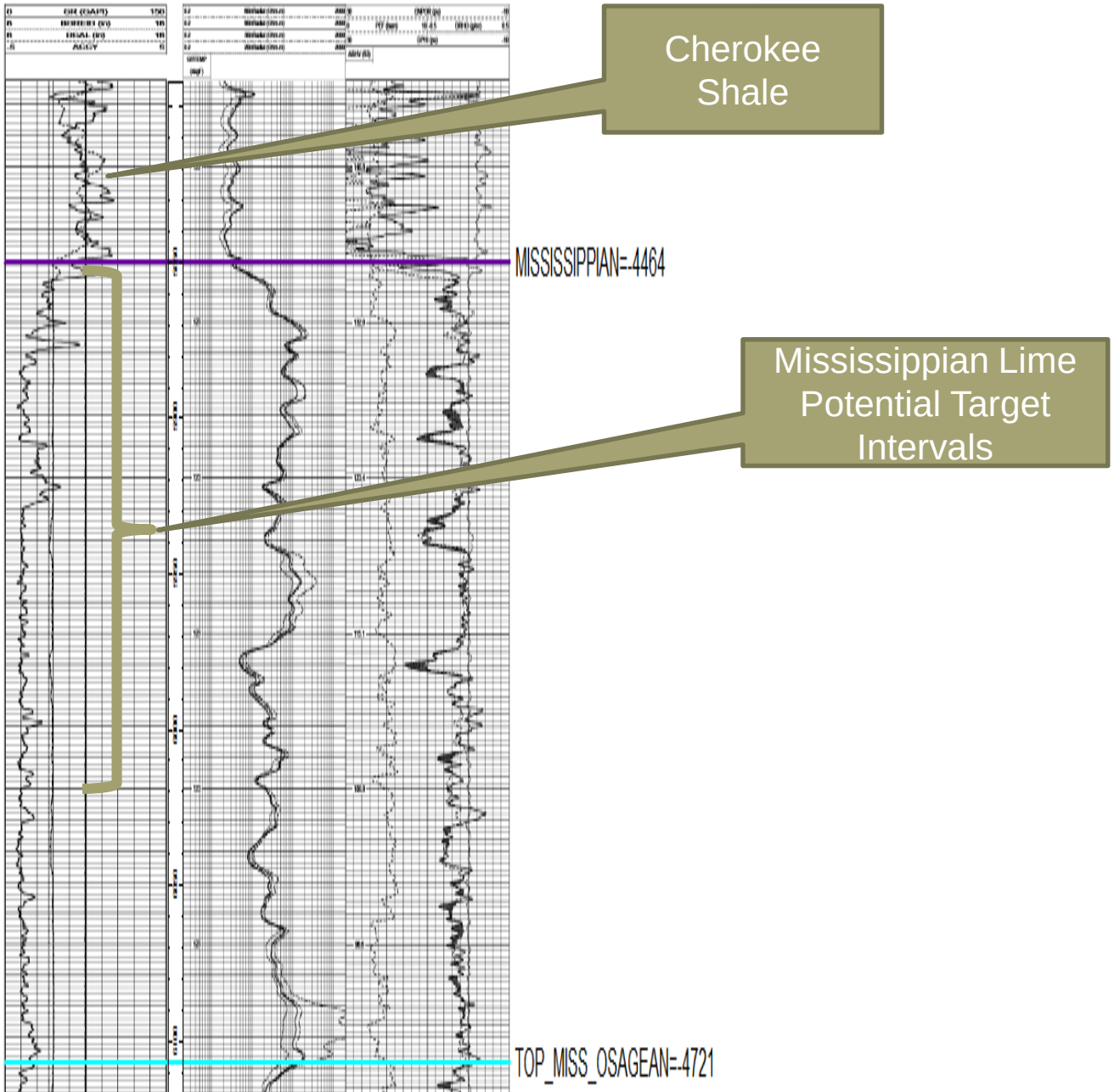
NYSE: MPO



Mississippi Lime Overview

- Acquired Eagle Energy acreage in 2012
- First Midstates drilled well in 2013
- Design and operational changes in 2014
- Capital efficiency in 2015

Mississippi Lime Overview

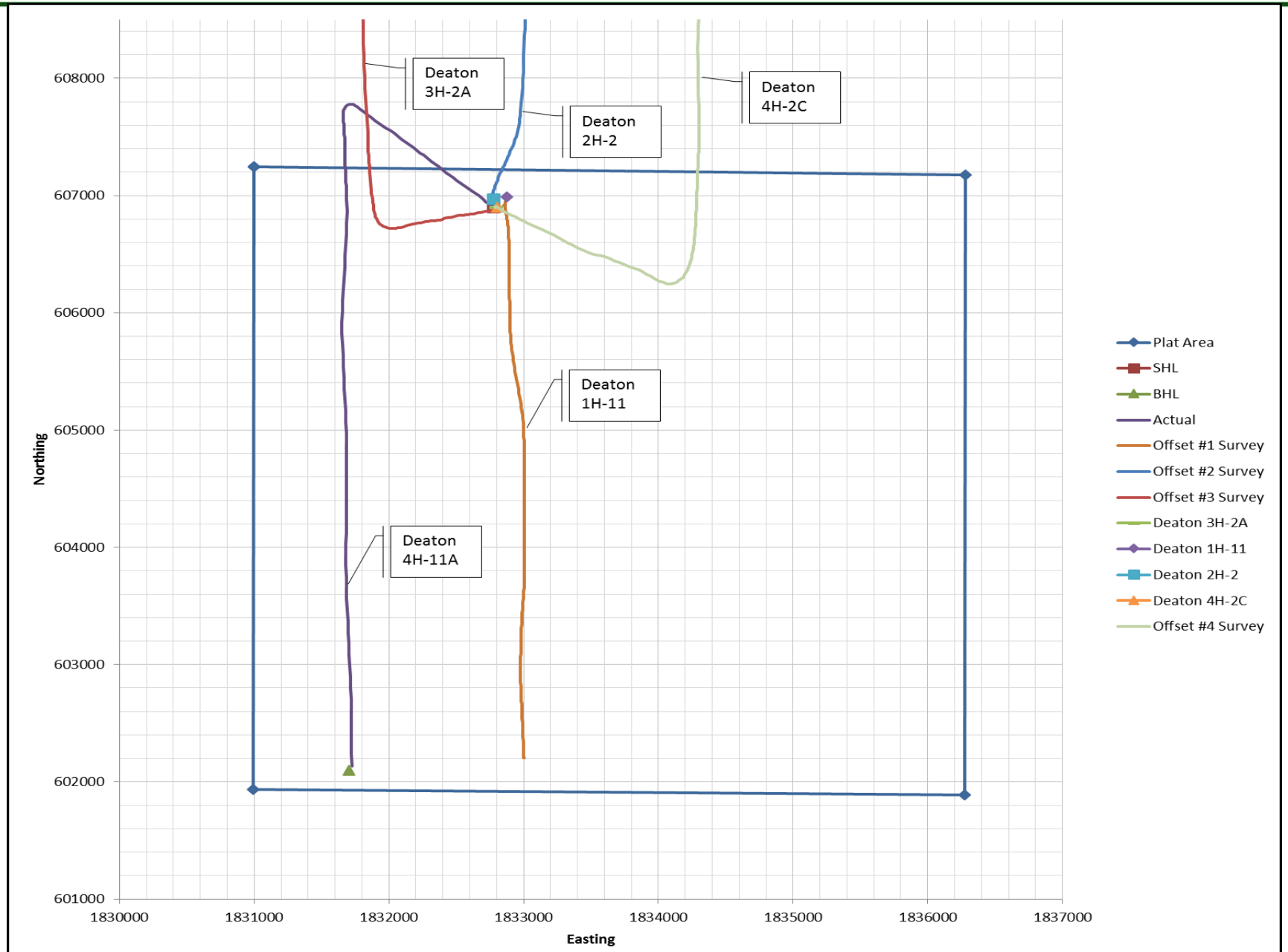


Design Initiative – Addressing The Problem

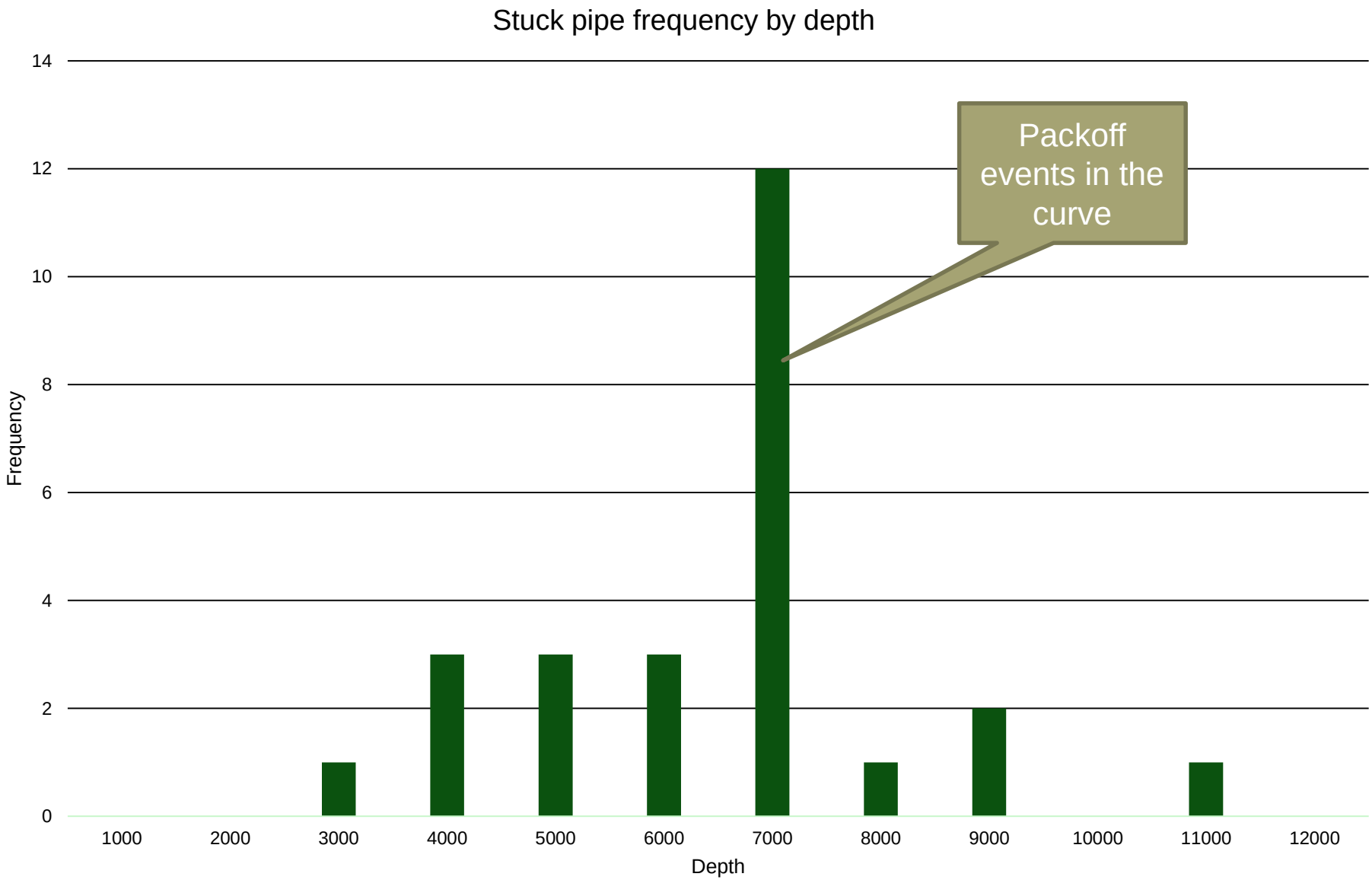
- **Design Directives:**
  - Maintain full-section laterals (± 4,900')
  - Place ESP as low as possible in wellbore to reduce hydrostatic head at intake
  - Pad drill wells to utilize existing infrastructure (location, tanks, SWD)

- **Issues:**
  - High incident rate of stuck pipe from packoff events
    - How can we change design to mitigate wellbore instability?
  - High incident rate of catastrophic downhole tool failure
    - How can we adjust operational procedures to mitigate catastrophic failures?

Typical Pad Design



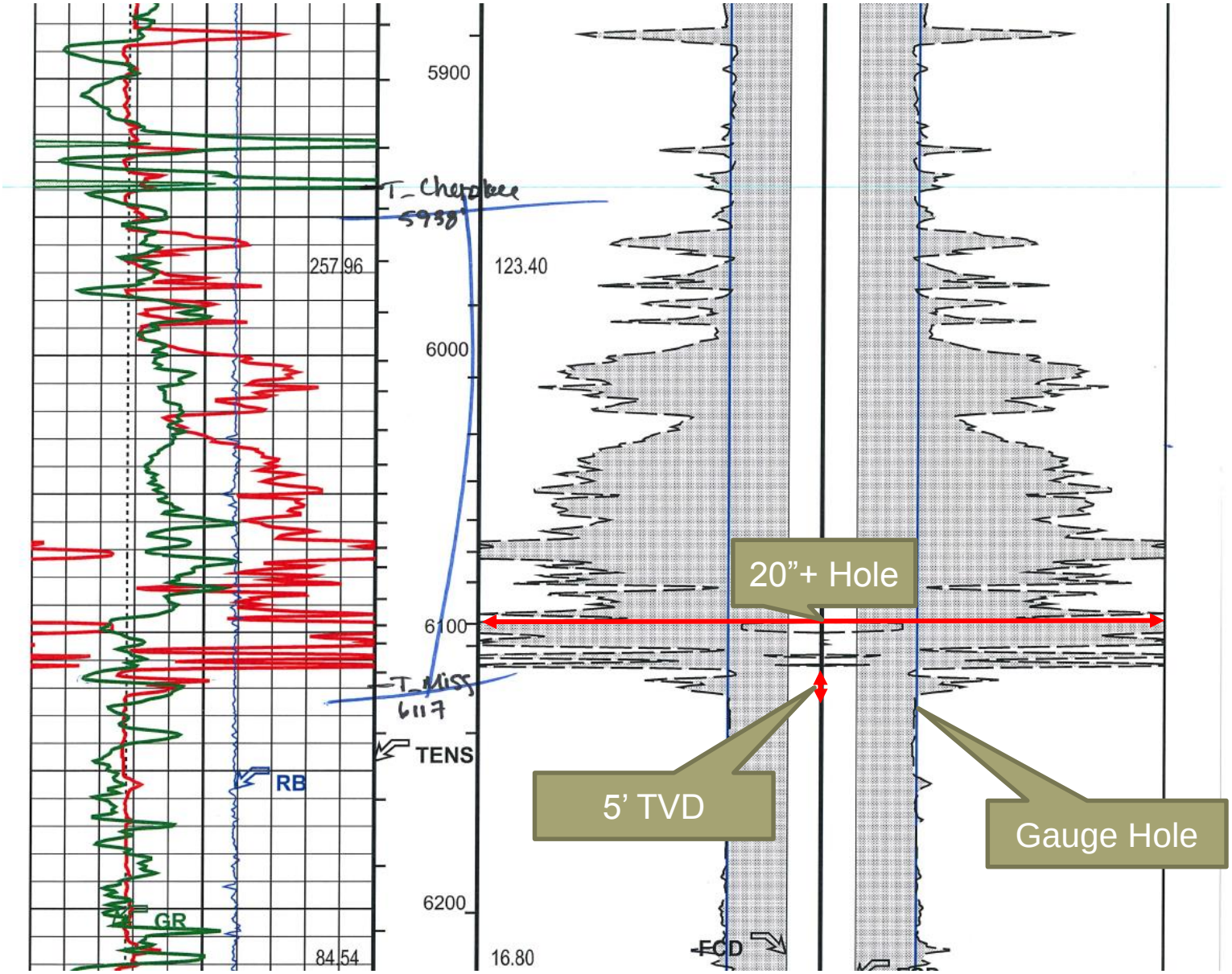
The Problem - Stuck Pipe



The Problem – Stuck Pipe

- **Cherokee Shale is predominately Illite Clay**
  - Extremely dispersive shale

The Problem – Stuck Pipe – Caliper Log



The Solution – Stuck Pipe

- **Cherokee Shale is predominately Illite Clay**
  - Extremely dispersive shale
  - Tangent was drilled for 200’ in the Cherokee Shale
    - Approx. 50° - 60° Tangent Angle

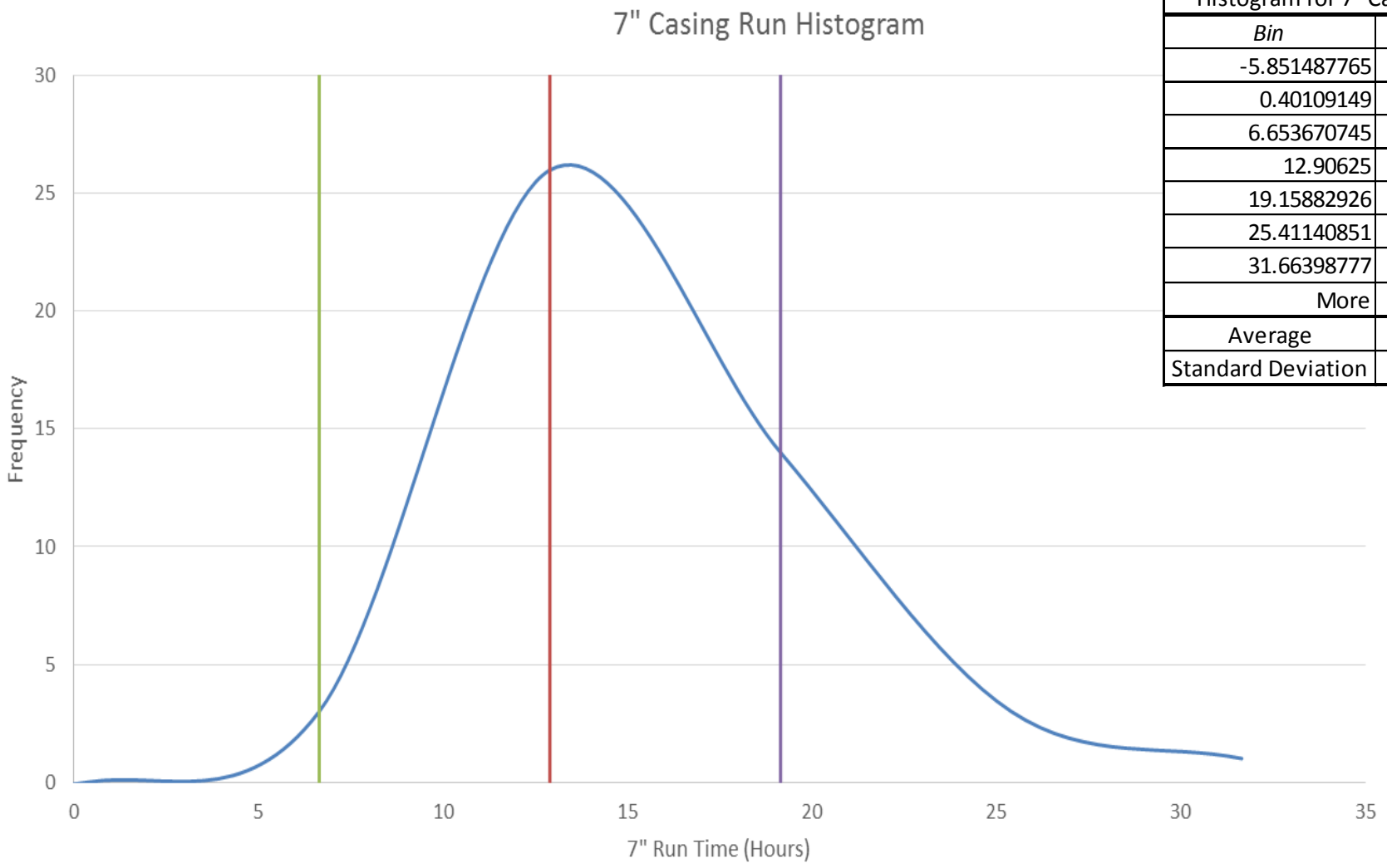
- **Changed ESP tangent angle to 75°**
  - Reduced exposure to dispersive shale
  - Maintained lower hydrostatic head for Production at intake
  - Pushed tangent downhole changed lithology
    - Tangent now drilled in top of the Mississippi Lime

- **Sodium Silicate WBM**
  - Chemical inhibition to shale – similar inhibition to OBM
  - Drill gauge hole through curve for better cleaning

  - Ultimately, changing tangent angle was more beneficial than Silicate WBM

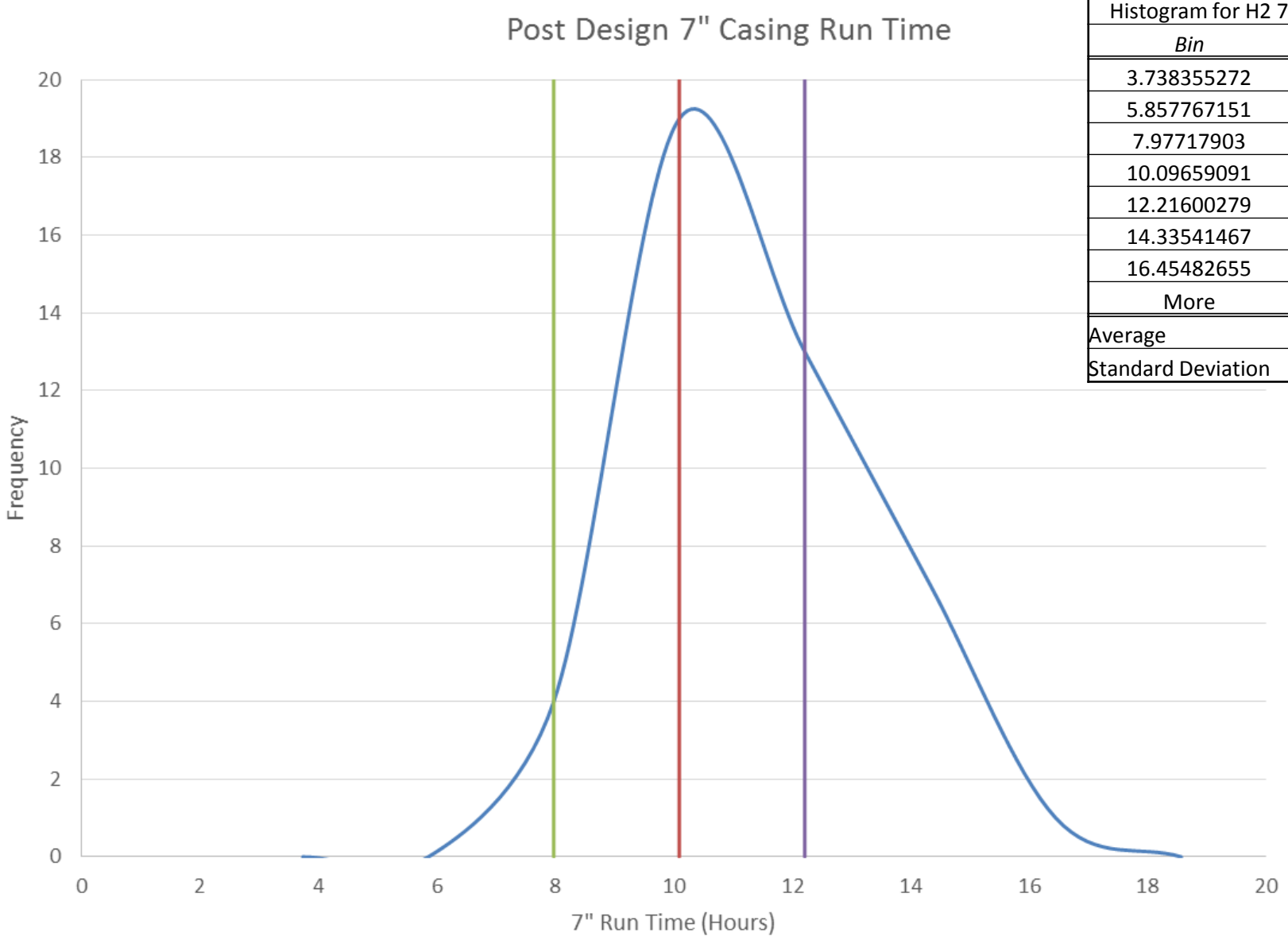
The Curve and Hole Cleaning – Casing Time

Casing run times prior to tangent adjustment and Hole Cleaning initiative



Histogram for 7" Casing Run Time	
Bin	*Frequency*
-5.851487765	0
0.40109149	0
6.653670745	3
12.90625	26
19.15882926	14
25.41140851	3
31.66398777	1
More	1
Average	12.90625
Standard Deviation	6.252579255

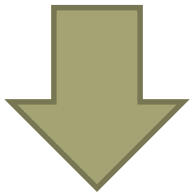
The Curve and Hole Cleaning – Casing Time



Histogram for H2 7" Casing Run Time	
Bin	*Frequency*
3.738355272	0
5.857767151	0
7.97717903	4
10.09659091	19
12.21600279	13
14.33541467	7
16.45482655	1
More	0
Average	10.09659091
Standard Deviation	2.119411879

The Curve and Hole Cleaning – Casing Time

- **Changed ESP tangent angle to 75°**
  - Reduced exposure to dispersive shale
  - Maintained lower hydrostatic head for Production at intake
  - Pushed tangent downhole changed lithology
    - Tangent now drilled in top of the Mississippi Lime



- **Reduced 7” Casing Time Average and Train Wrecks!**
  - Average running reduced **2.8** hours
    - Previous average was 12.9 Hours
    - New average is 10.1 Hours
  - Longest casing run was 13.5 hours
    - No pulled casing strings!
    - Previous longest casing time was 41 Hours
      - Pulled casing and multiple conditioning runs

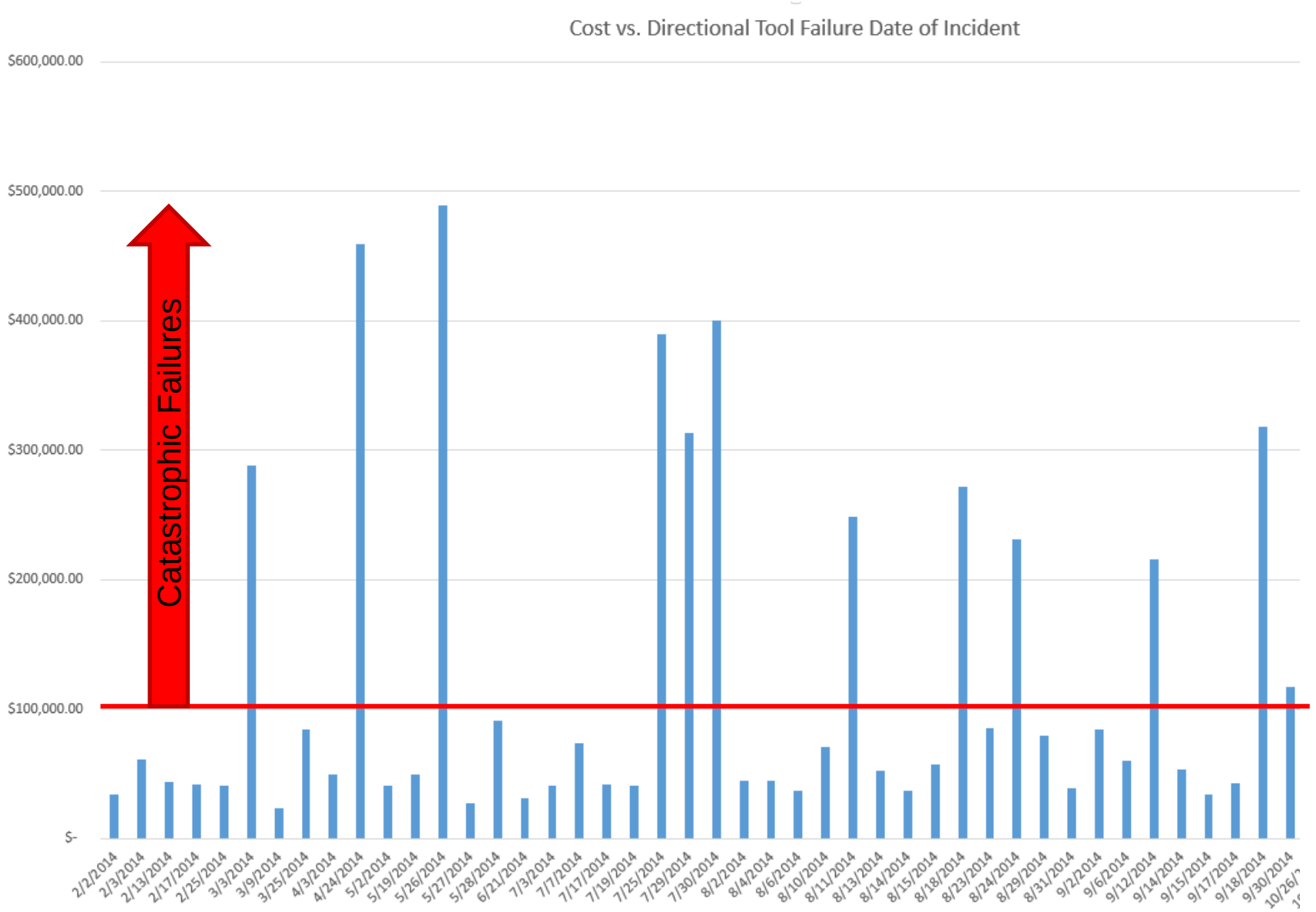
The Problem – Catastrophic DHT Failures

- **DHT failures were persistent issues**
  - Catastrophic failures – resulting in sidetracks
  - Near-catastrophic – success retrieving tools
  - Undiagnosed failure – TOOH for new assembly

- **Why were so many tools breaking?**

The Problem – DHT Failure Cost

NYSE: MPO



The Solution – Catastrophic DHT Failures

- **DHT failures were persistent issues**
  - Catastrophic failures – resulting in sidetracks
  - Near-catastrophic – success retrieving tools
  - Undiagnosed failure – TOOH for new assembly

- **Why were so many tools breaking?**

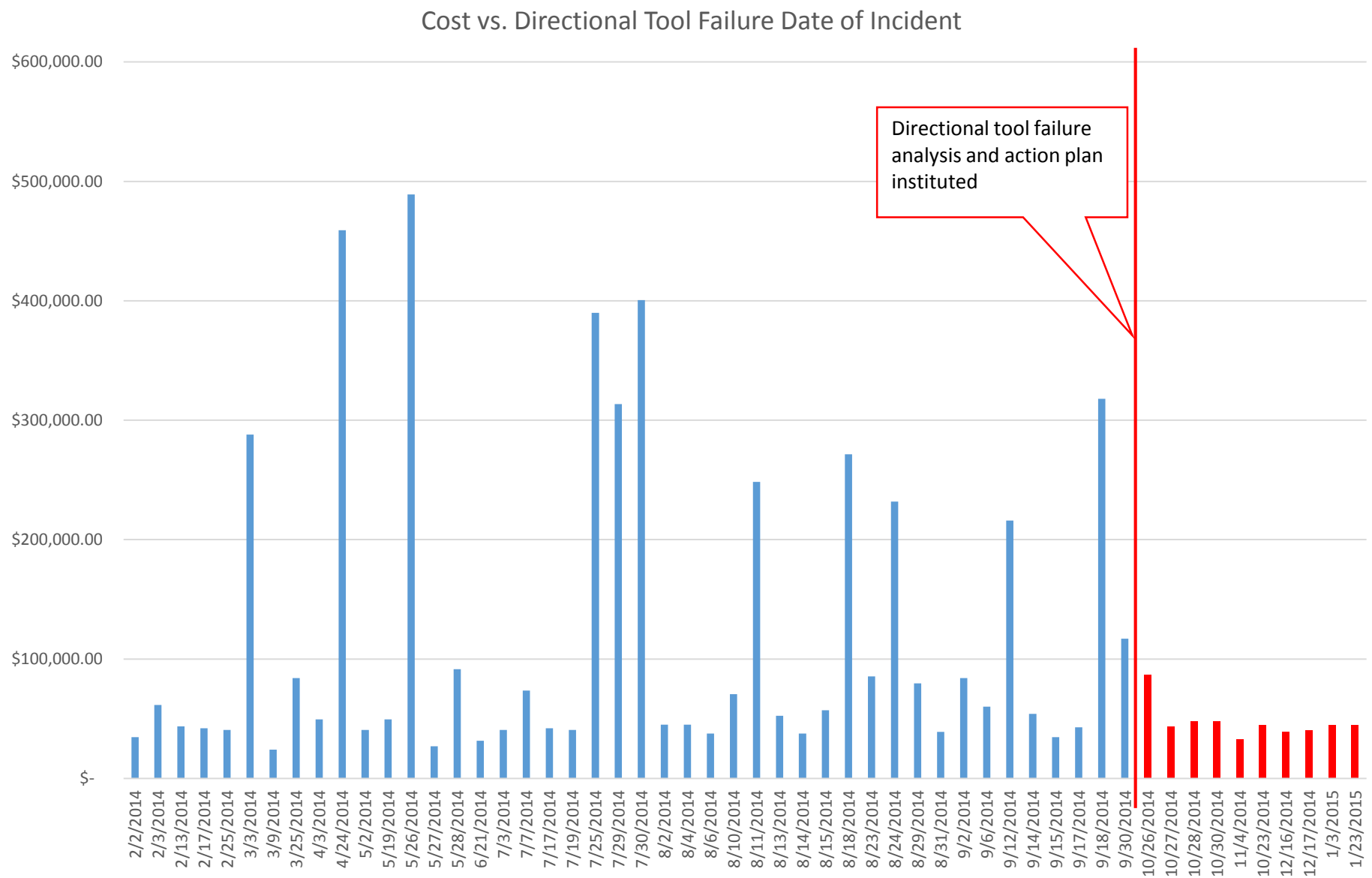
- **Implement DHT guidelines and procedure rollout**
  - Clearly define the issue at hand
  - Clearly state the operational parameters
  - Training, training, training!
    - Engineer, Company Man, driller, and DD **MUST** work together!

- **Document failures**
  - Learn from the mistakes
  - Keep it in the open so it's not forgotten!

- **"It's not the hole you make, it's the hole you keep!"**

The Solution – DHT Failures

NYSE: MPO



2015+

- Address capital efficiency
- Mitigate slow ROP and “yo-yoing” in high chert areas
- Work diligently to “stay in pay”
- Proactive measures during a runaway cost scenario

Questions

- Thank you for listening

- Questions?