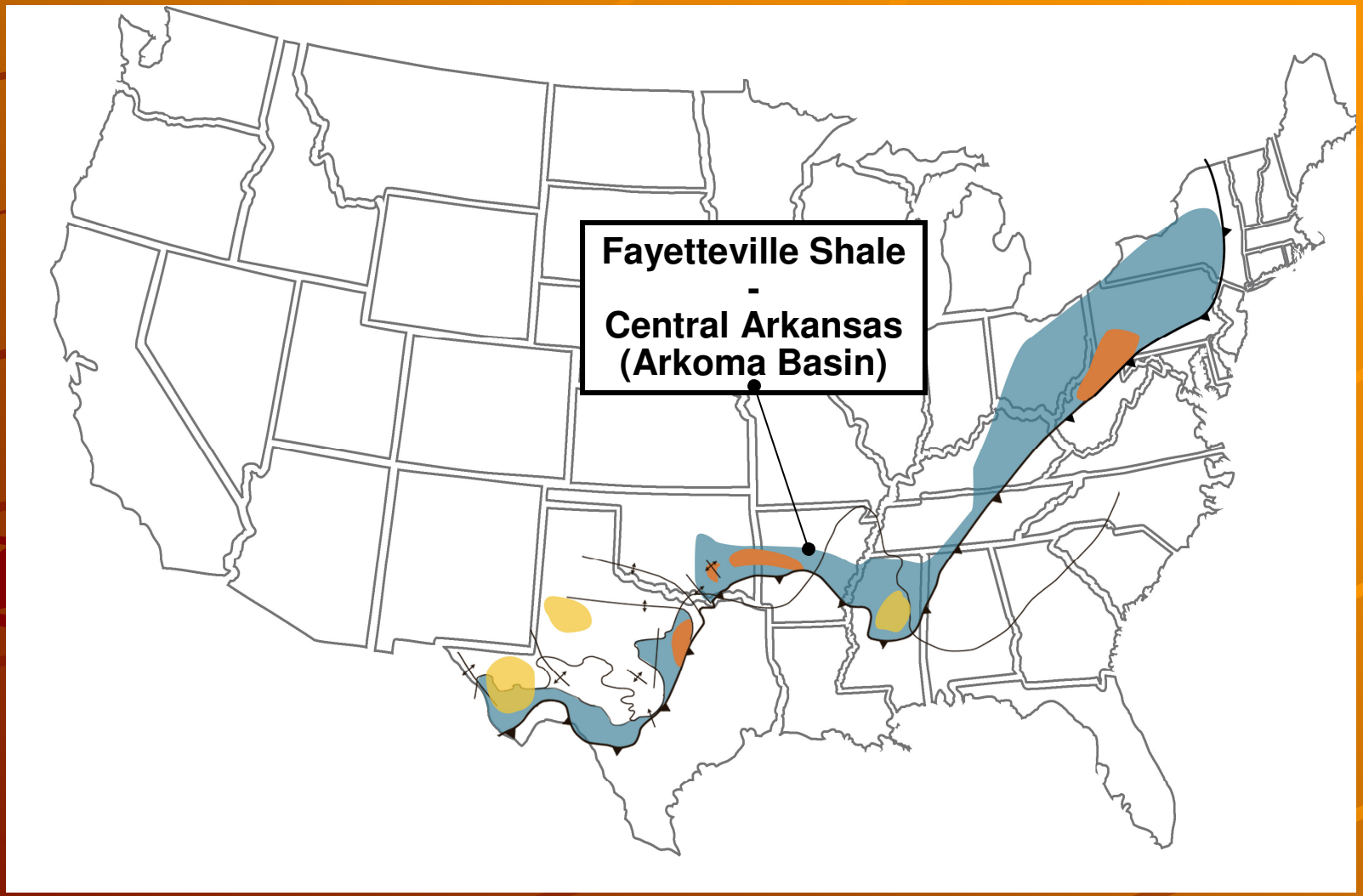
Fayetteville Shale

Brian Teller
Senior Drilling Engineer
XTO Energy

AADE Mid-Continent
Annual Technical Symposium
January 14, 2009

Table of Contents

Where is the Fayetteville Shale??

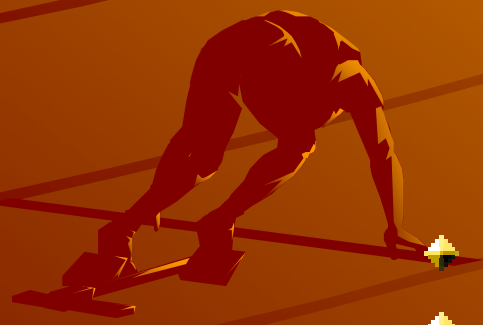


What is the Fayetteville Shale?

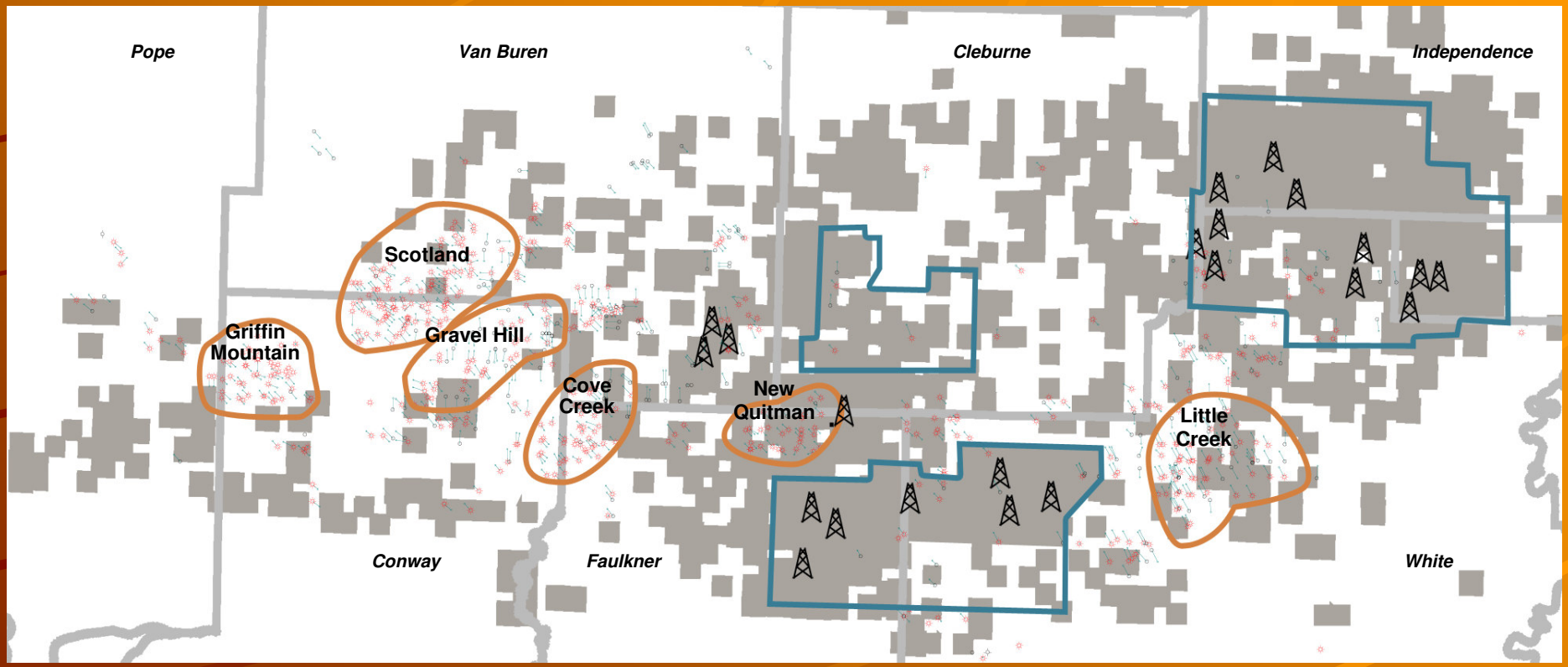
- Mississippian Age organic rich shale
  - Thermally mature shale – dry gas (98% methane)
- Geologic Equivalent to the Barnett Shale of North Texas
- Size – 4,000 square miles
- Productive Formations
  - Hale Sand
  - Fayetteville
    - Upper and Lower (Lower is usually our target)
  - Moorefield
- Depth – 1500’ - 6500’ TVD
- Thickness – 50’ Western AR – 500’ Eastern AR

History

- **2003** – SEECO starts leasing acreage
- **2004** – SEECO successfully tests horizontal drilling and completion technology
- **2005 – Current**
  - XTO acquires 380,000 acres
  - SEECO acquires 860,000 acres
  - Chesapeake acquires 415,000 core acres
  - Several smaller companies acquire sizeable acreage positions
- **June 2007** – XTO spuds 1st Well
- **2008** – XTO ramps up drilling activity
- **Currently** – 7 rigs drilling for XTO



Acreage

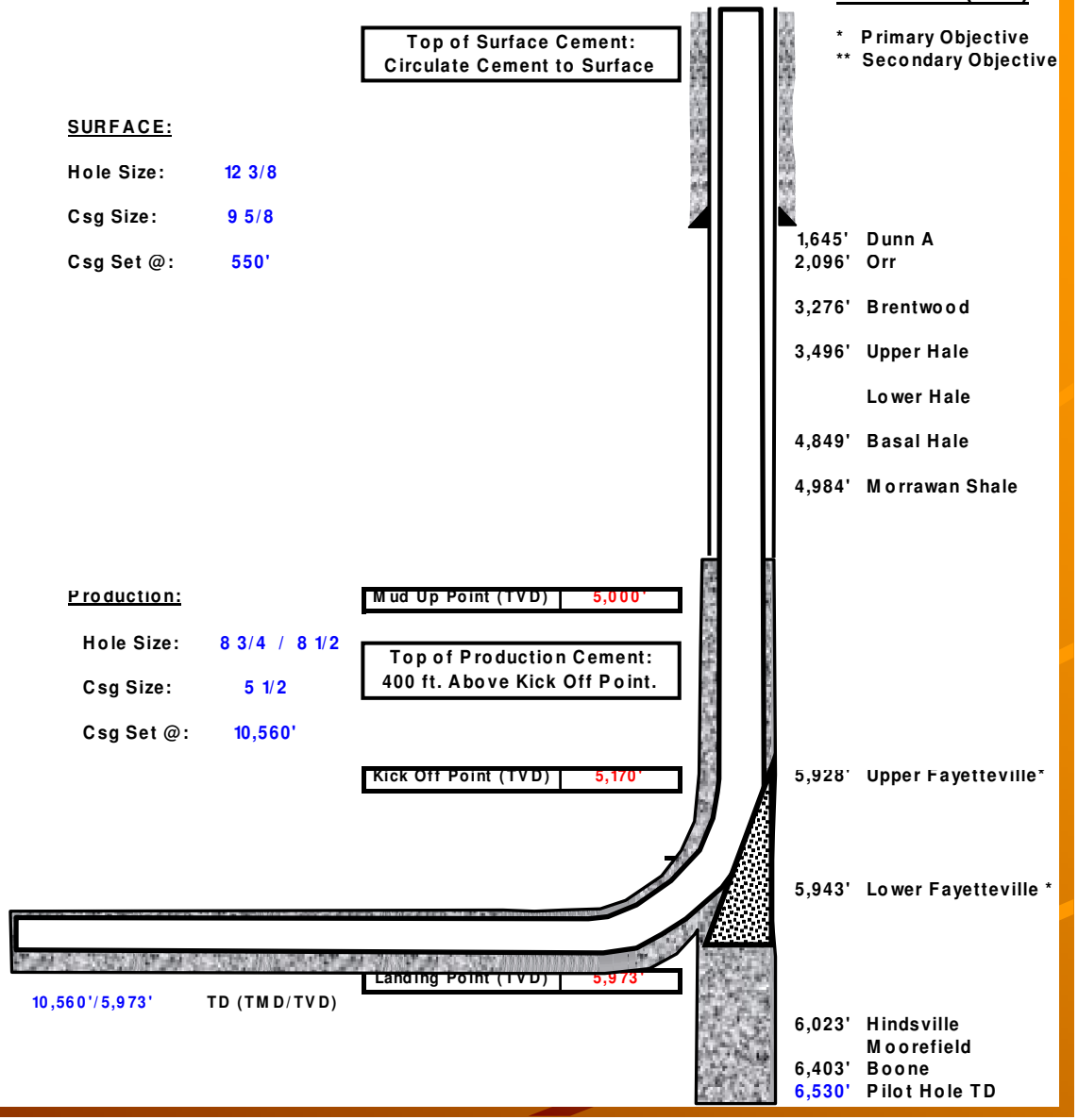


- XTO - 380,000 net acres

General Well Plan

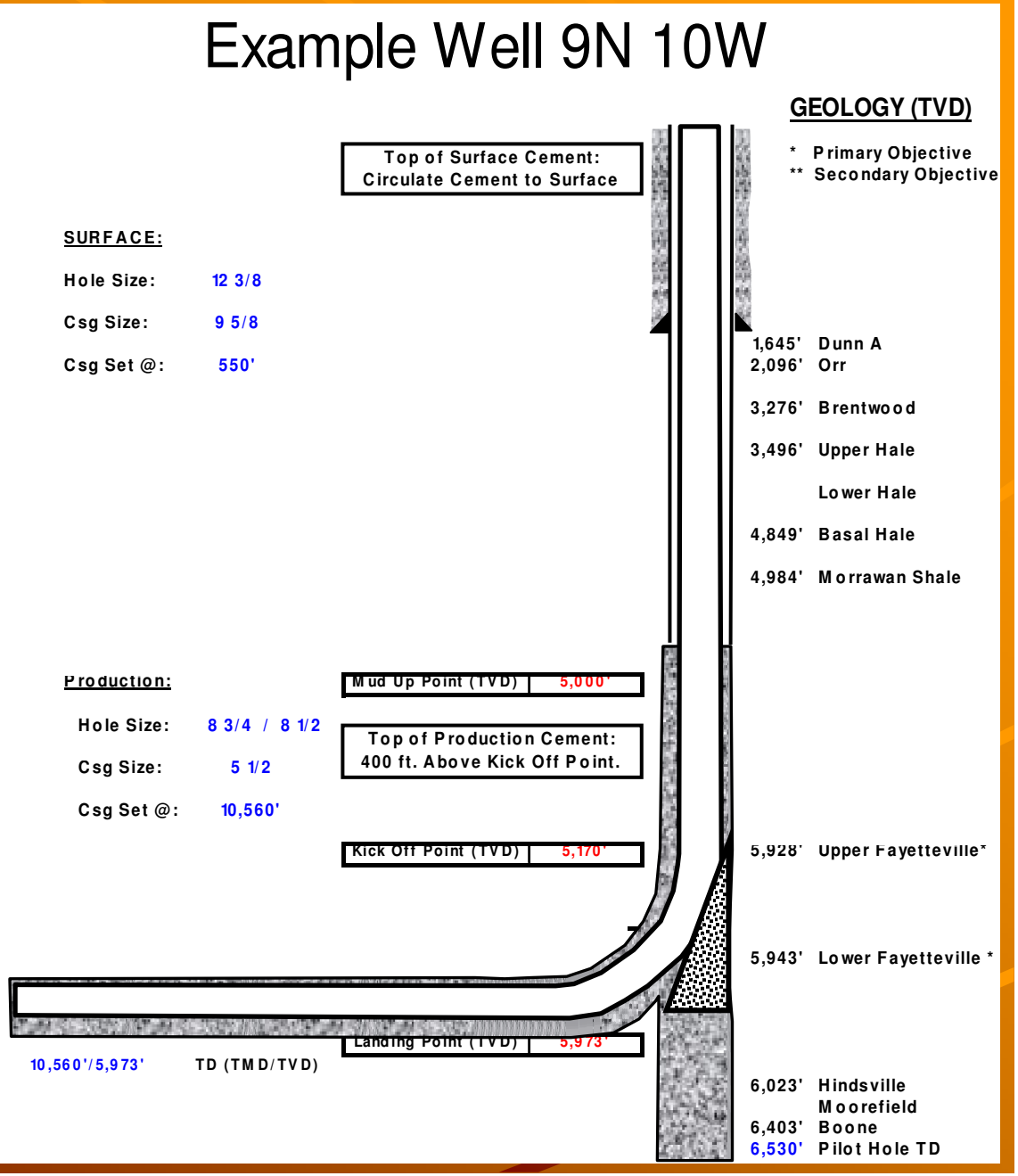
- **SURFACE**
  - Air/Mist
    - Hammer

Example Well 9N 10W



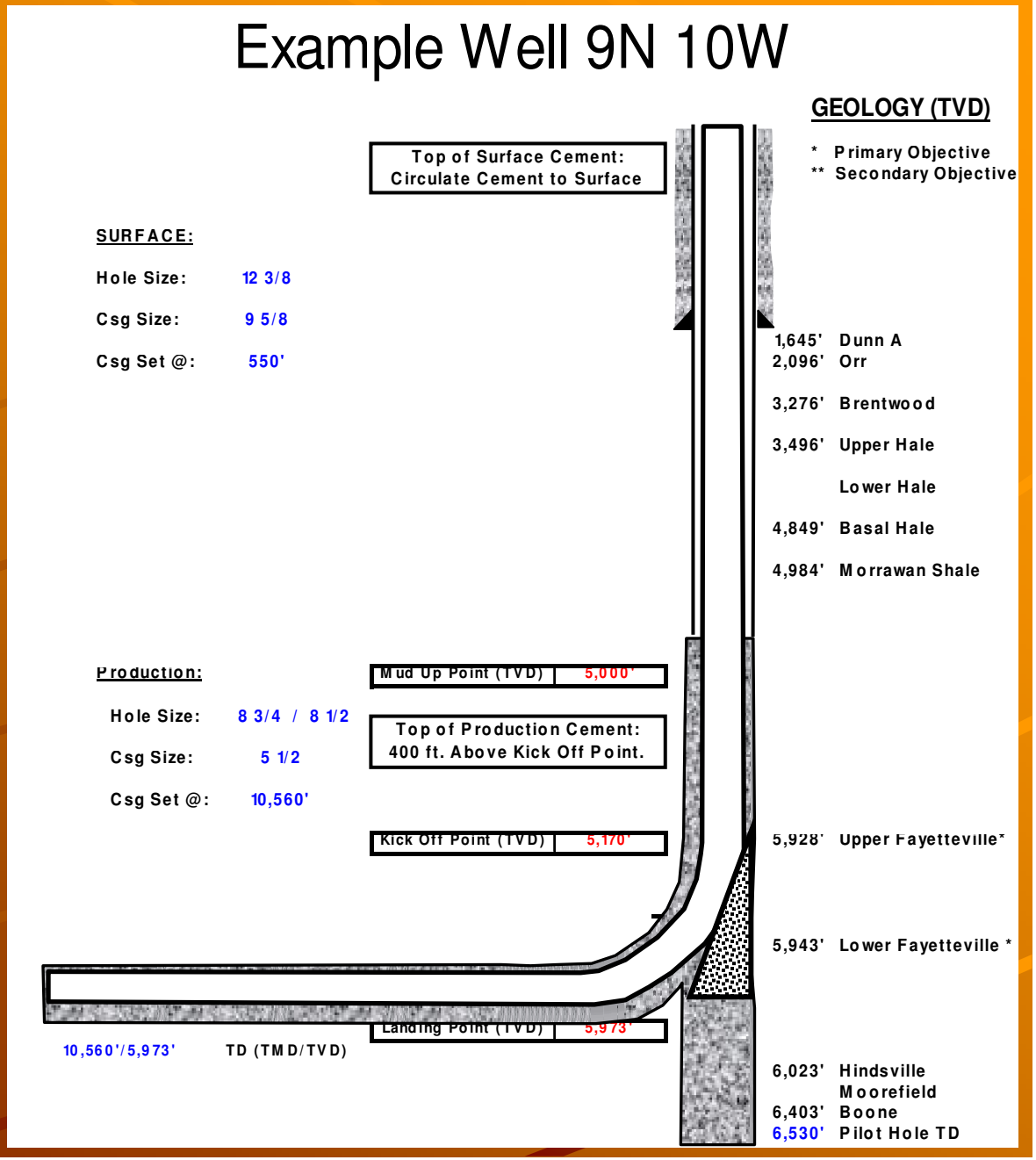
General Well Plan

- **SURFACE**
  - Air/Mist
    - Hammer
- **PRODUCTION**
  - Vertical /Pilot Hole
    - Air/mist to Morrowan Shale
    - Hammers
    - Tricones
    - Mud up w/ Oil Base @ Morrowan Shale
    - 6-blade PDC w/ backup cutters (Pilot Hole)



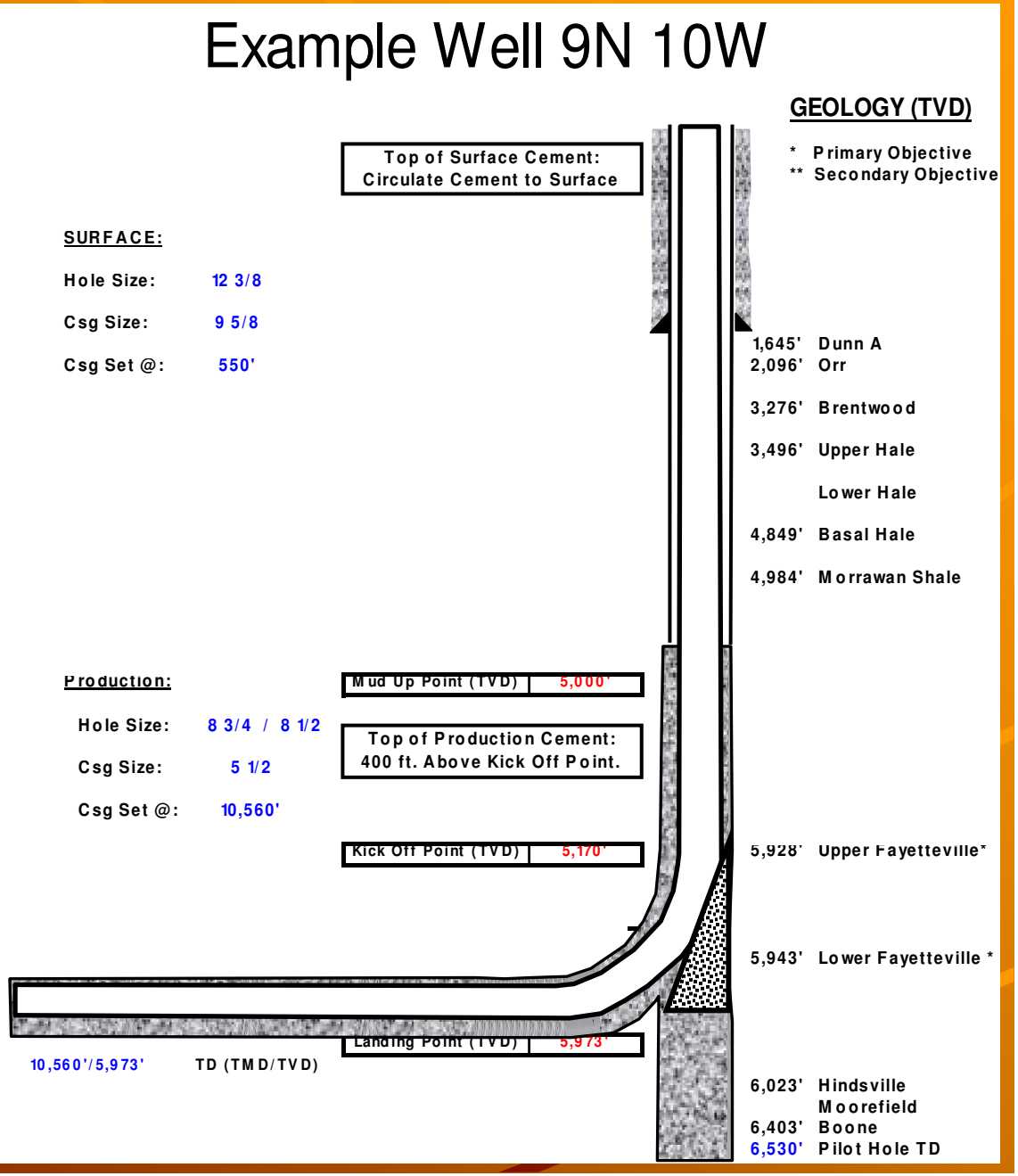
General Well Plan

- **SURFACE**
  - Air/Mist
    - Hammer
- **PRODUCTION**
  - Vertical /Pilot Hole
    - Air/mist to Morrowan Shale
    - Hammers
    - Tricones
    - Oil Base @ Morrowan Shale
    - 6-blade PDC w/ backup cutters
  - Curve
    - Whip Stock (Pilot Hole)
    - 10 deg build rate

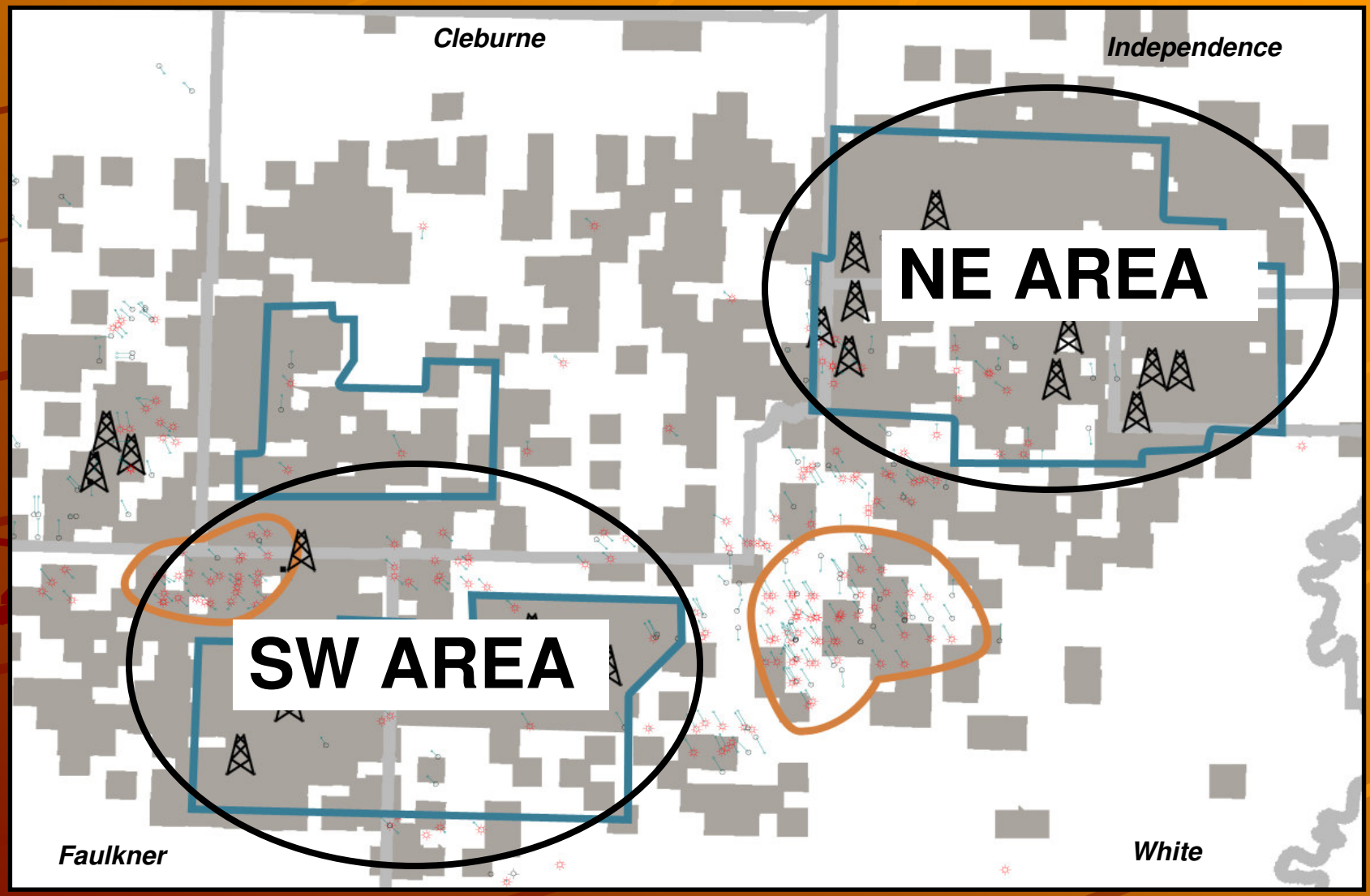


General Well Plan

- **SURFACE**
  - Air/Mist
    - Hammer
- **PRODUCTION**
  - Vertical /Pilot Hole
    - Air/mist to Morrowan Shale
    - Hammers
    - Tricones
    - Oil Base @ Morrowan Shale
    - 6-blade PDC w/ backup cutters
  - Curve
    - Whip Stock (Pilot Hole)
    - 10 deg build rate
  - Lateral
    - Lower Fayetteville
    - 2500’ to 4300’



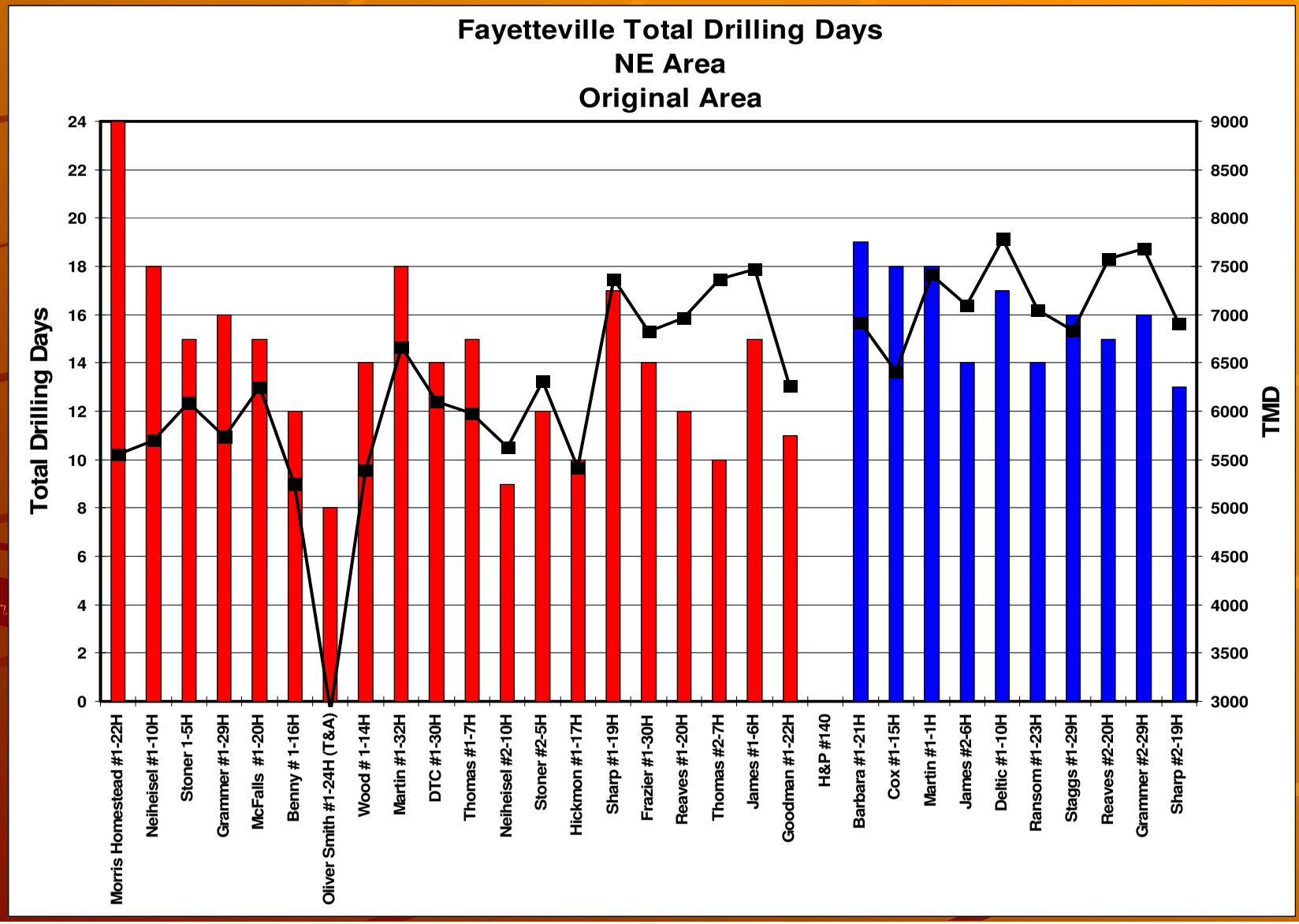
Primary Drilling Activity

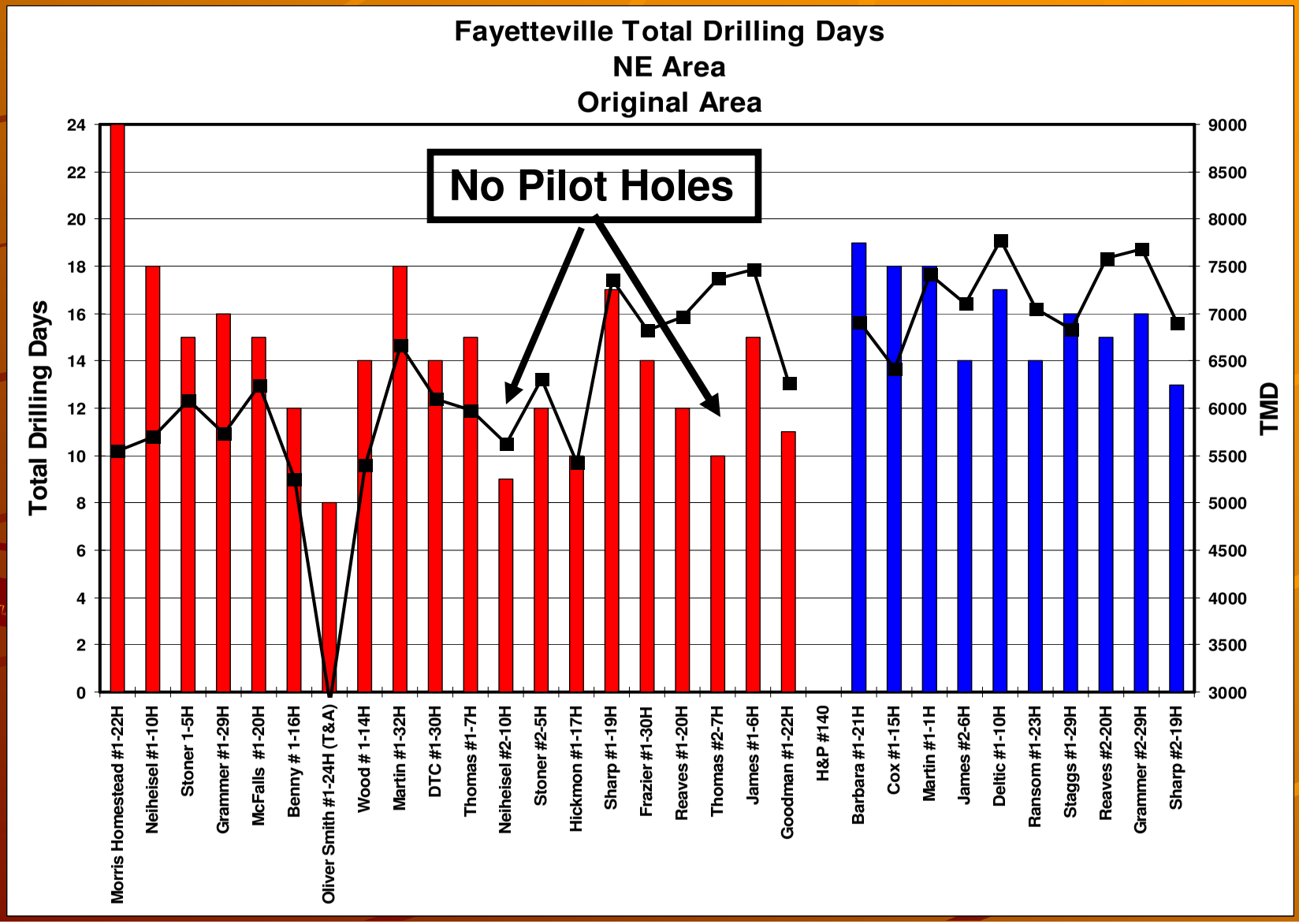


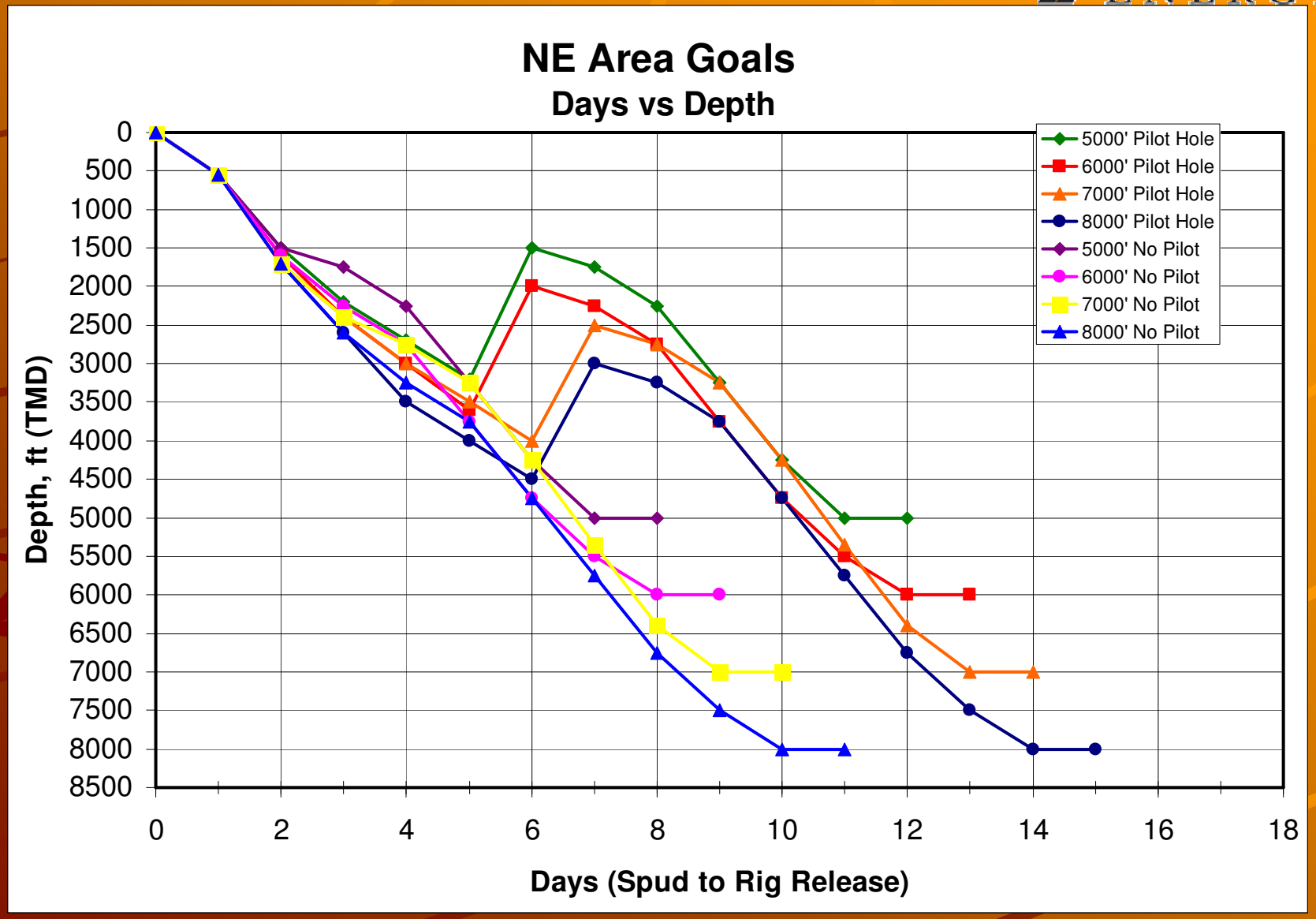
NE AREA

Less complex / more forgiving area (Independence, N. White, Cleburne Co.)

- Vertical
  - One Hammer bit to Mud up pt (Morrowan)
  - Possible 300-400 bbl/hr water
- Curve
  - Still using Tricones to build curve
    - Sands in Morrowan damage the gauge of a PDC
- Lateral
  - Hole cleaning
    - ROP > 120 fph
    - Pump rates ~ 375 gpm
    - Mud properties
      - R-6 value > than 14

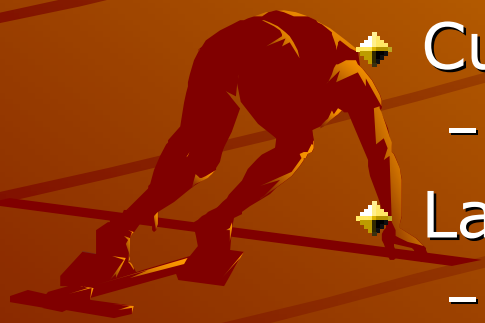

Fayetteville Total Drilling Days
NE Area
Original Area
Total Drilling Days
TMD
0
2
4
6
8
10
12
14
16
18
20
22
24
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500
9000
Morris Homestead #1-22H
Neiheisel #1-10H
Stoner 1-5H
Grammer #1-29H
McFalls #1-20H
Benny # 1-16H
Oliver Smith #1-24H (T&A)
Wood # 1-14H
Martin #1-32H
DTC #1-30H
Thomas #1-7H
Neiheisel #2-10H
Stoner #2-5H
Hickmon #1-17H
Sharp #1-19H
Frazier #1-30H
Reaves #1-20H
Thomas #2-7H
James #1-6H
Goodman #1-22H
H&P #140
Barbara #1-21H
Cox #1-15H
Martin #1-1H
James #2-6H
Deltic #1-10H
Ransom #1-23H
Staggs #1-29H
Reaves #2-20H
Grammer #2-29H
Sharp #2-19H


Fayetteville Total Drilling Days
NE Area
Original Area
No Pilot Holes
Total Drilling Days
TMD
0
2
4
6
8
10
12
14
16
18
20
22
24
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500
9000
Morris Homestead #1-22H
Neiheisel #1-10H
Stoner 1-5H
Grammer #1-29H
McFalls #1-20H
Benny # 1-16H
Oliver Smith #1-24H (T&A)
Wood # 1-14H
Martin #1-32H
DTC #1-30H
Thomas #1-7H
Neiheisel #2-10H
Stoner #2-5H
Hickmon #1-17H
Sharp #1-19H
Frazier #1-30H
Reaves #1-20H
Thomas #2-7H
James #1-6H
Goodman #1-22H
H&P #140
Barbara #1-21H
Cox #1-15H
Martin #1-1H
James #2-6H
Deltic #1-10H
Ransom #1-23H
Staggs #1-29H
Reaves #2-20H
Grammer #2-29H
Sharp #2-19H


NE Area Goals
Days vs Depth
Depth, ft (TMD)
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500
0
2
4
6
8
10
12
14
16
18
Days (Spud to Rig Release)
5000' Pilot Hole
6000' Pilot Hole
7000' Pilot Hole
8000' Pilot Hole
5000' No Pilot
6000' No Pilot
7000' No Pilot
8000' No Pilot

SW AREA

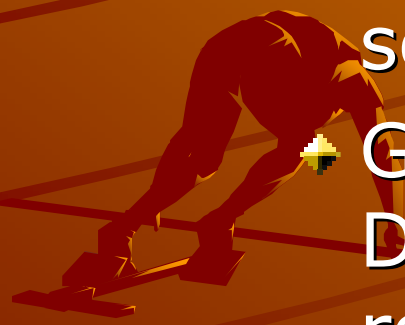
More complex / less forgiving area (Faulkner, White, S. Cleburne Co.)

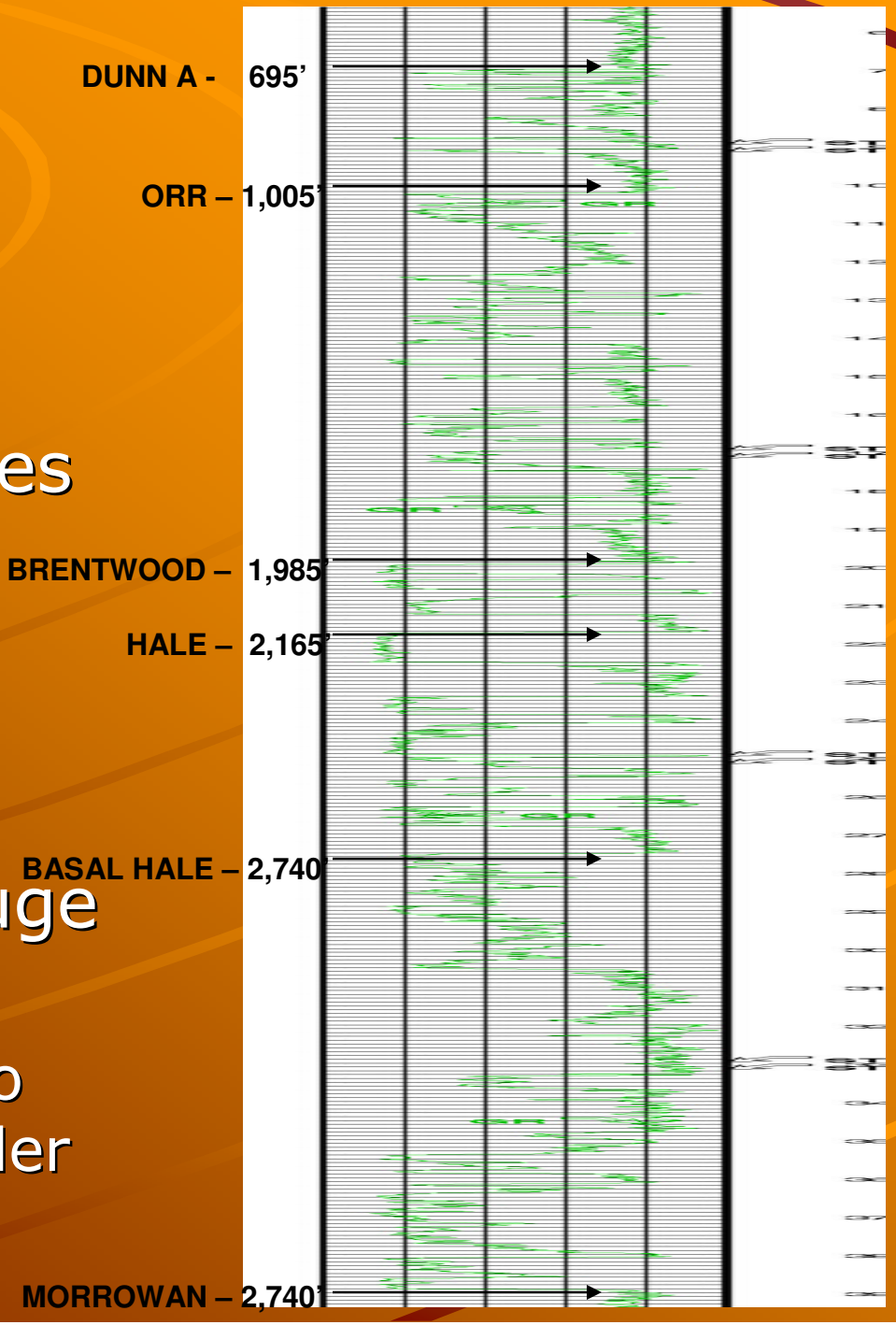


- Vertical
  - Multiple Hammer bits to Mud up pt (Morrowan)
    - Possible Tricone depending on water.
  - 6-Blade PDCs with backup cutters.
- Curve
  - Can drill the curve with a PDC (w/o Whipstock)
- Lateral
  - Target less defined and thinner
  - Hole cleaning is much more important!

Hammer Bits

- Several Transitions between Shales and Sands throughout section.
- Generally Damages Gauge row.
  - Tricone run to ream out under gauge hole



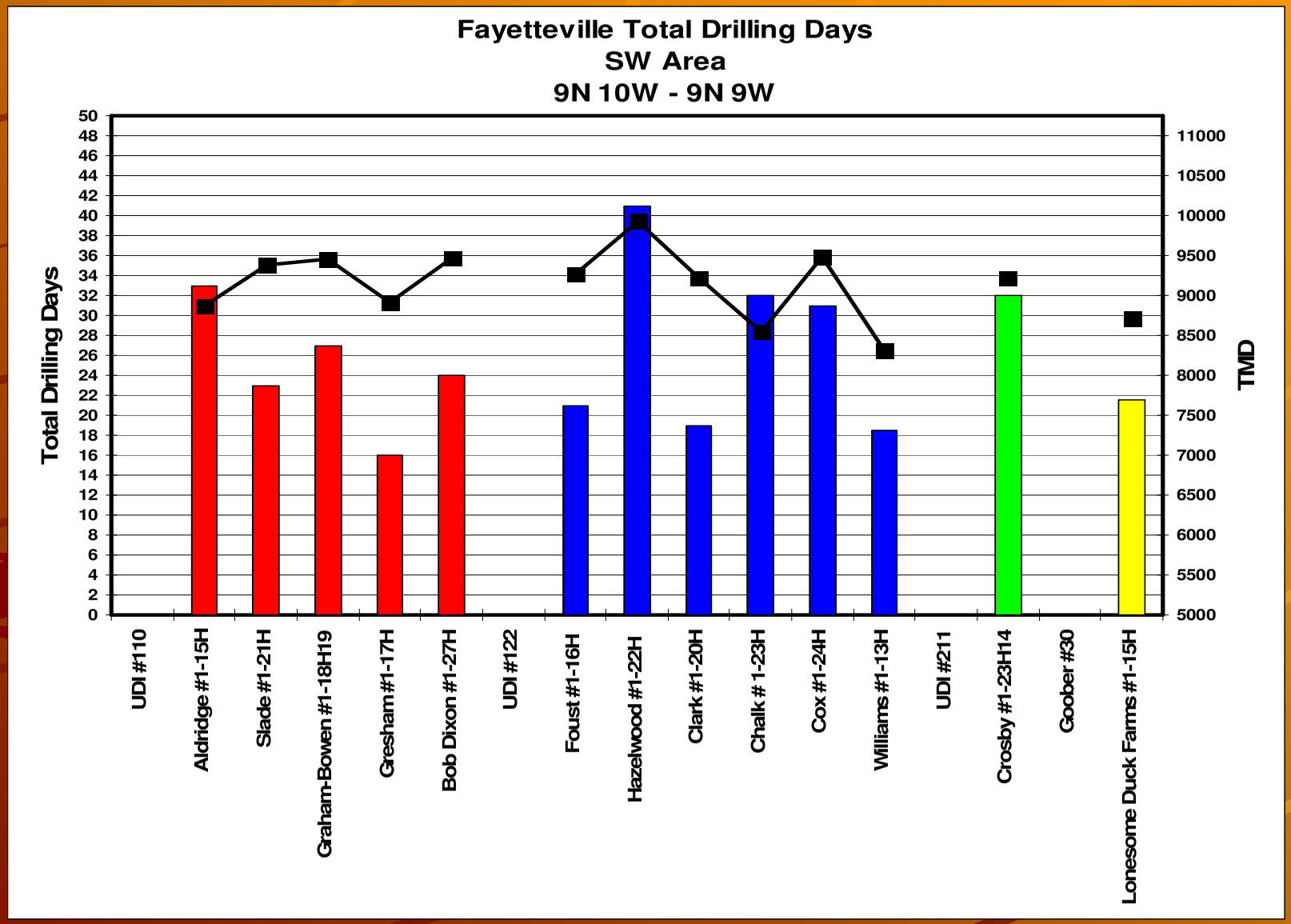


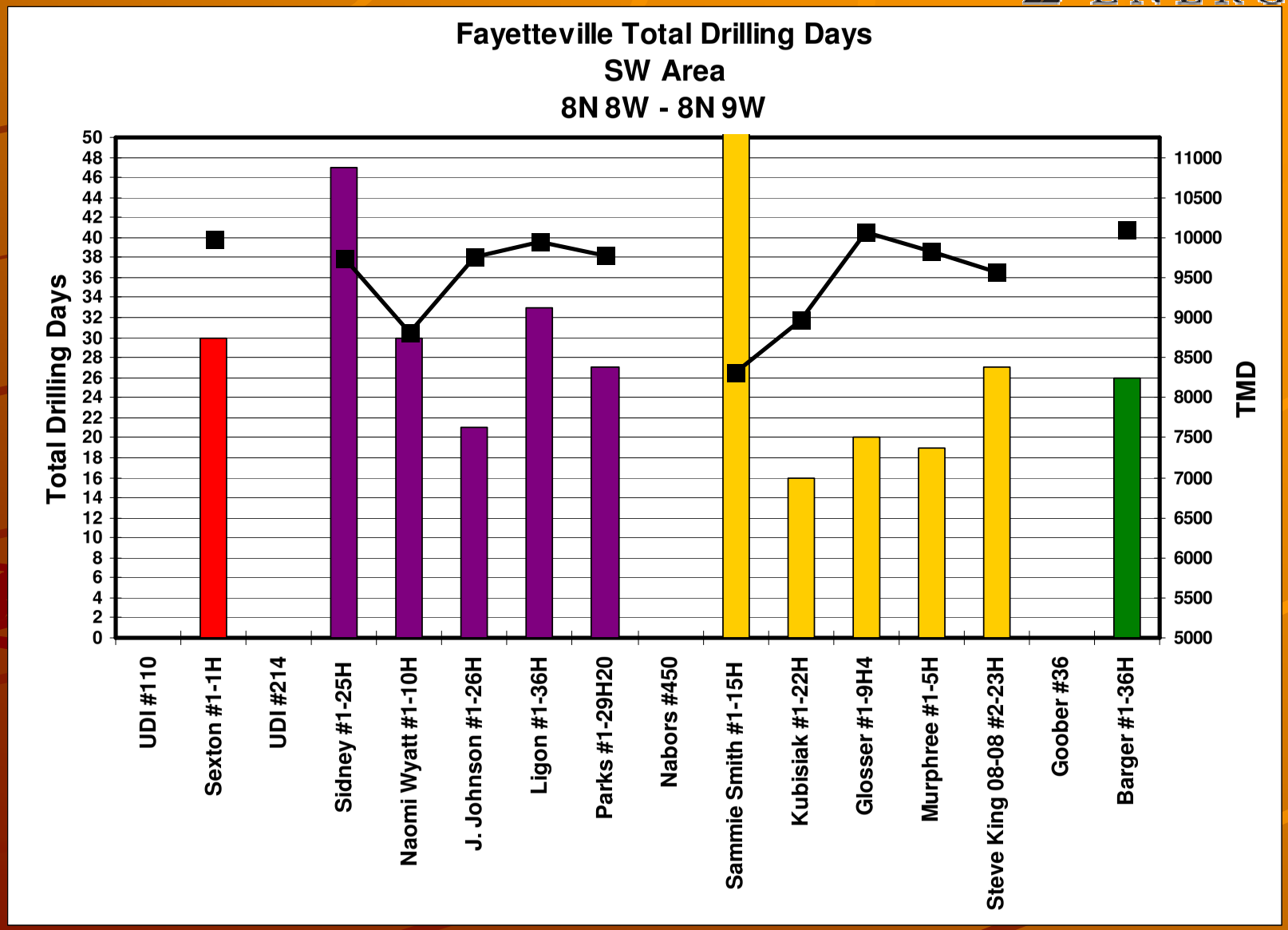
Hole Cleaning

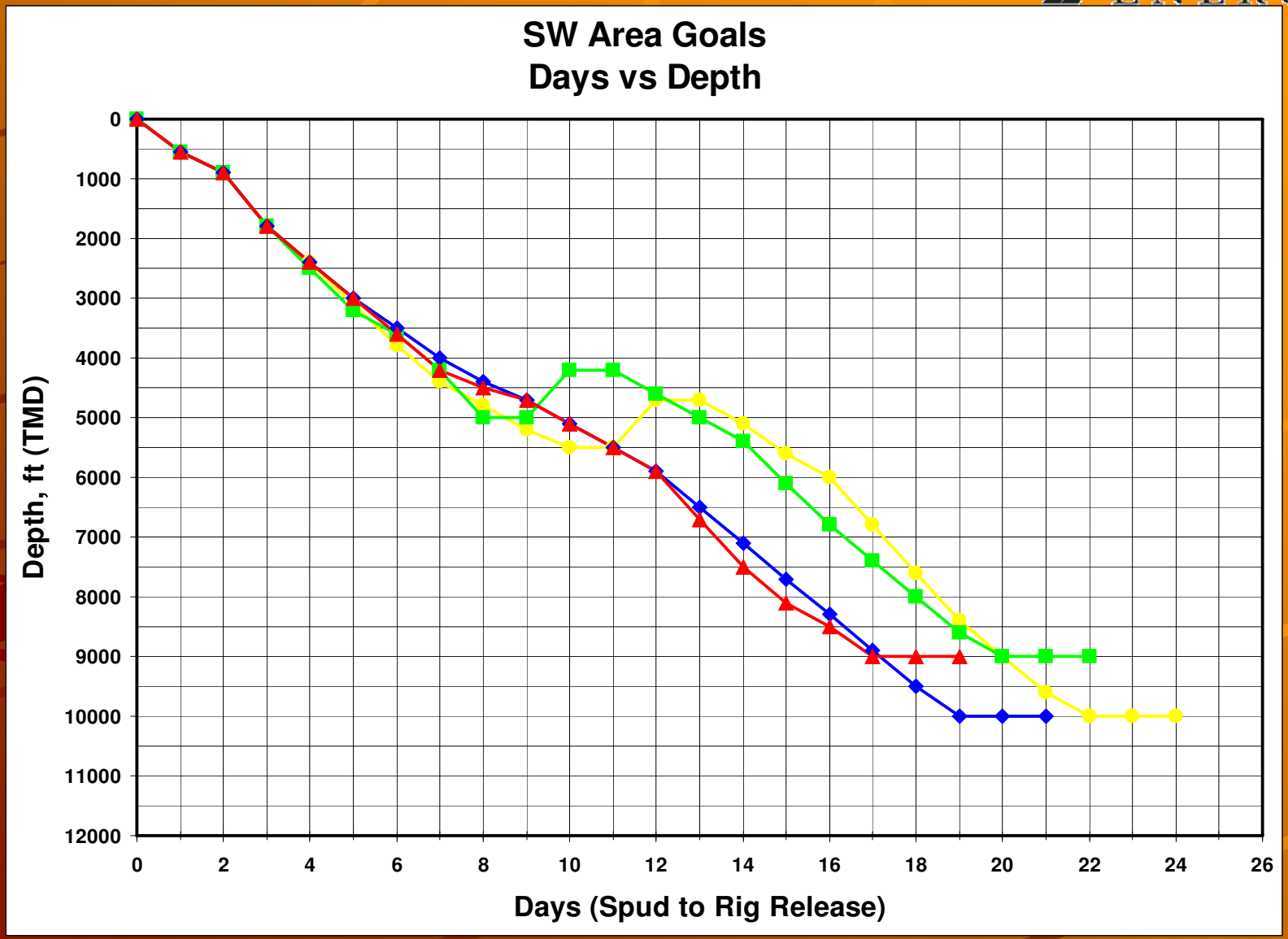
- Pump Rate
- Pipe Rotation
- Circulation
- Mud Properties
- Avoid Packing Off
  - Monitor Drilling Parameters
    - Torque
    - Drag
    - Pressure

Hole Stability

- Mud Weight
- Mud Additives
  - Plugging Agents
    - Gilsonite
    - Asphaltine
- Monitor Pump Pressures!
  - Avoid pressuring up on the formation


Fayetteville Total Drilling Days
SW Area
9N 10W - 9N 9W
Total Drilling Days
TMD
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
5000
5500
6000
6500
7000
7500
8000
8500
9000
9500
10000
10500
11000
UDI #110
Aldridge #1-15H
Slade #1-21H
Graham-Bowen #1-18H19
Gresham #1-17H
Bob Dixon #1-27H
UDI #122
Foust #1-16H
Hazelwood #1-22H
Clark #1-20H
Chalk # 1-23H
Cox #1-24H
Williams #1-13H
UDI #211
Crosby #1-23H14
Goober #30
Lonesome Duck Farms #1-15H

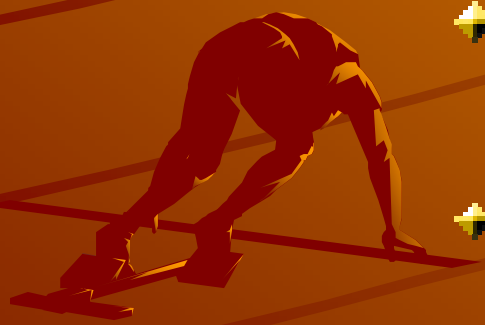

Fayetteville Total Drilling Days
SW Area
8N 8W - 8N 9W
Total Drilling Days
TMD
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
5000
5500
6000
6500
7000
7500
8000
8500
9000
9500
10000
10500
11000
UDI #110
Sexton #1-1H
UDI #214
Sidney #1-25H
Naomi Wyatt #1-10H
J. Johnson #1-26H
Ligon #1-36H
Parks #1-29H20
Nabors #450
Sammie Smith #1-15H
Kubisiak #1-22H
Glosser #1-9H4
Murphree #1-5H
Steve King 08-08 #2-23H
Goober #36
Barger #1-36H


SW Area Goals
Days vs Depth
Depth, ft (TMD)
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
0
2
4
6
8
10
12
14
16
18
20
22
24
26
Days (Spud to Rig Release)

Keys to Success

- Consistent program
- Minimize hole problems
  - Seismic data
    - Well planning (fault predictions)
  - Upgrade equipment and services
    - Pumps
    - Top Drives
- Control well costs to keep the project economic!

2009 Activity



- Budgeted 115 Wells
- 7 Drilling Rigs
- Continue to develop our infrastructure
- Dependent on product prices

QUESTIONS?

Additional Information

XTO's Acreage (Approximately)

- Western AR Fairway – 100,000 acres
- Additional Leasing - 100,000 acres
- Pathfinder - 64,000 acres
- SEECO - 55,000 acres
- Alta - 20,000 acres
- Anadarko - 19,000 acres
- EUR Energy - 17,000 acres
- Other Acquisitions - 5,000 acres

380,000 acres

Hammer Bits

Drilled from 512’ to 1486’

(Orr Formation)

974’ in 15 hrs @ 65 fph

Drilled from 1625’ to 2337’

(Just topped the Lower Hale Formation)

712’ in 22 hrs @ 32 fph