

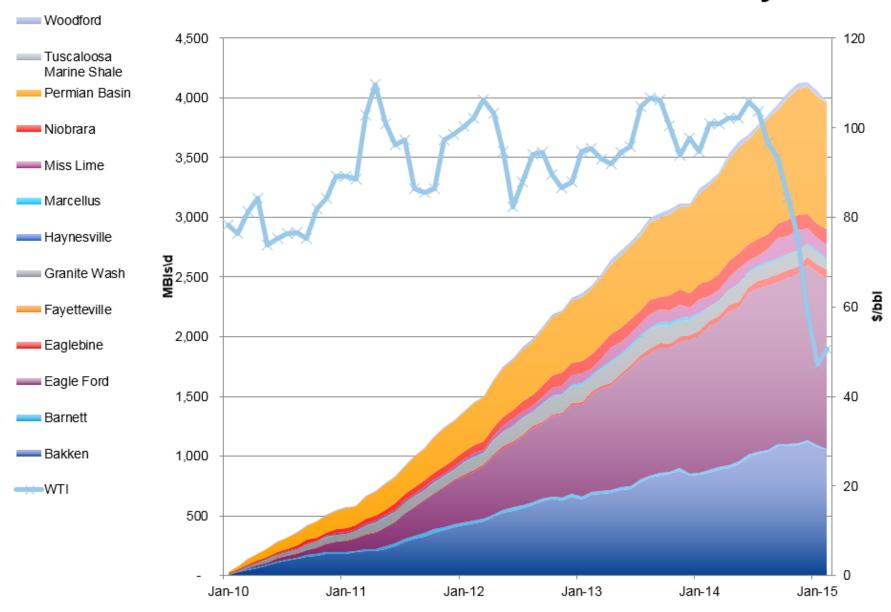
## **US Unconventional Play Advances and Impacts**

Corey Rhoden, Senior Vice President

August 2015



### Oil Production From US Shale Plays



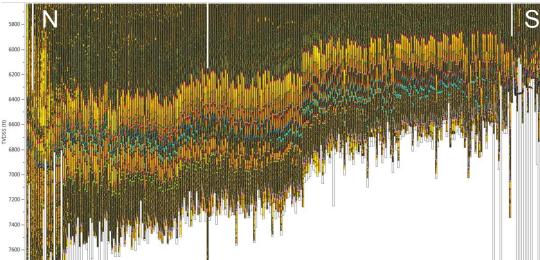


## U.S. SHALES: WHAT IS BREAK-EVEN?

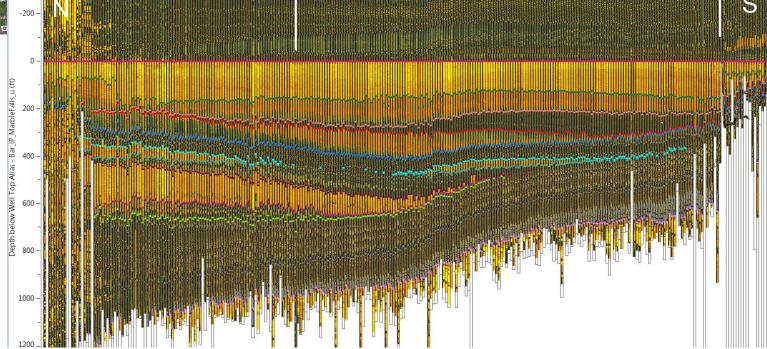


Strike (N-S) Cross-section

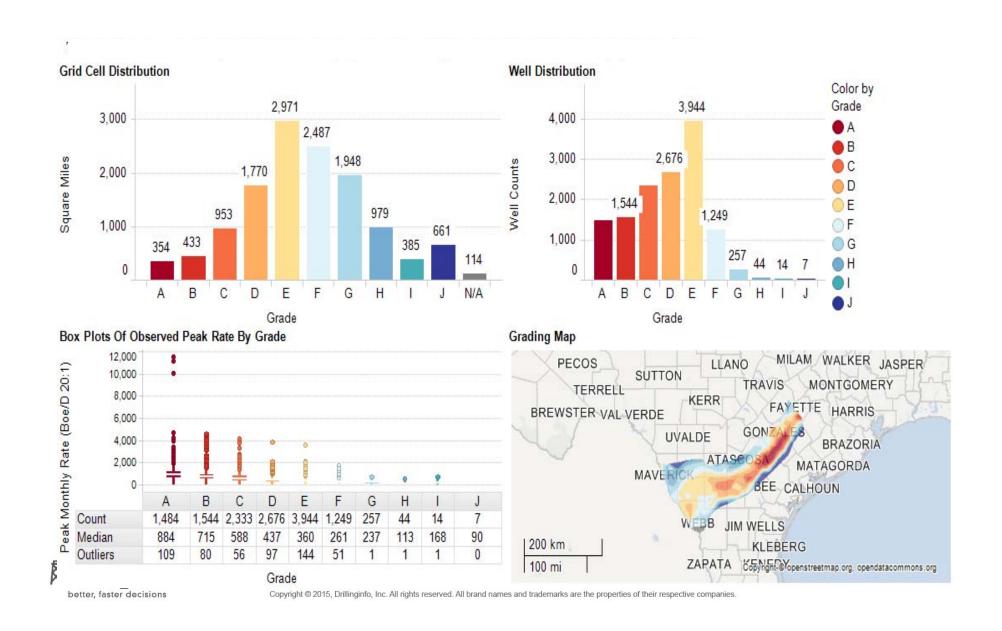




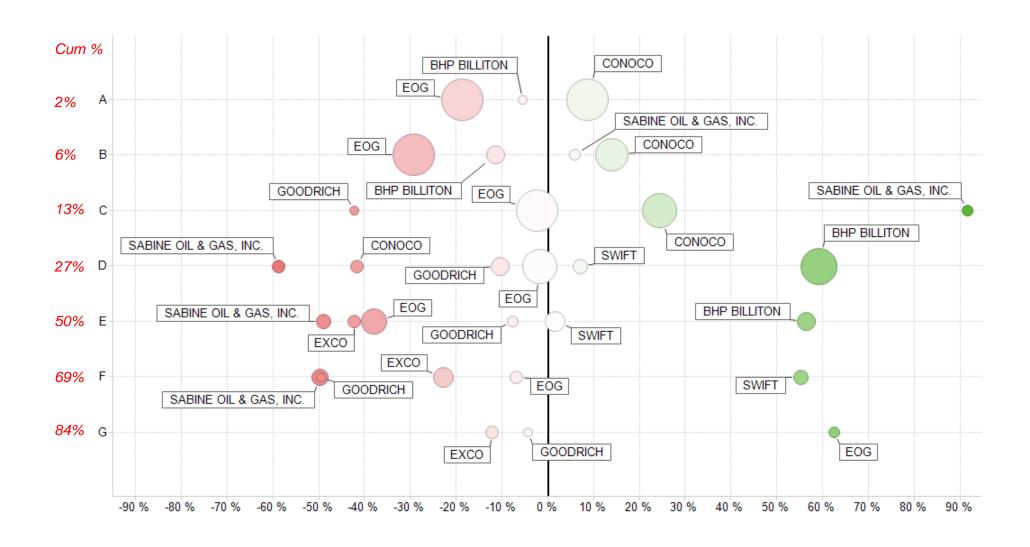
Flattened on Top of Marble Falls



### **EAGLE FORD ACREAGE QUALITY BREAKDOWN**



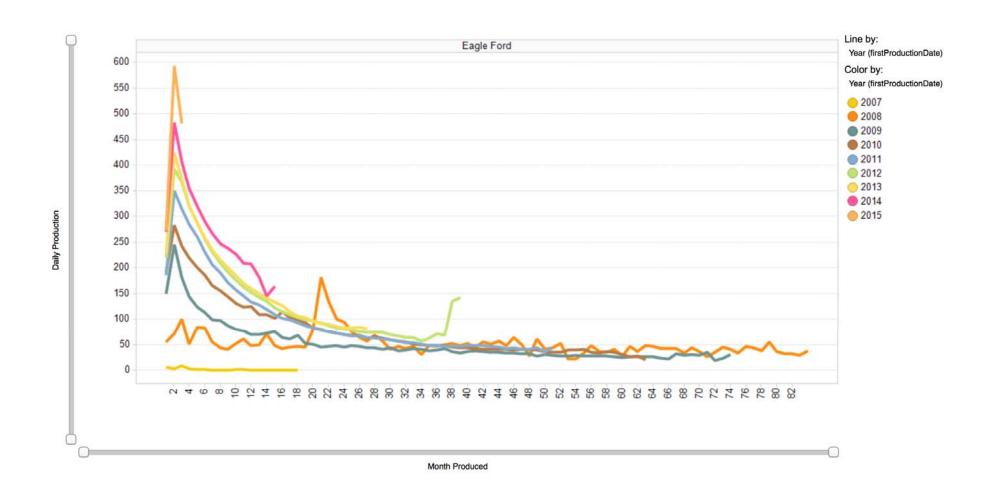
### Eagle Ford: Horizontal Wells, 12 month cum boe 6:1



#### Eagle Ford Operator Performance Differential (old & new cost structure) Size by BHP % of Play Well Count Freeport ≥125 1% A · = 0 Freeport 3% Freeport 9% **20%** <sub>D</sub> <u>OLD</u> **NEW** \$30/Barrel\$24/Barrel **42%** <sub>F</sub> \$40/Barrel\$30/Barrel 70% <sub>F</sub> \$50/Barrel\$40/Barrel 81% G \$60/Barrel\$45/Barrel \$70/Barrel\$55/Barrel -60 % -50 % -20 % -10 % 50% 70 %

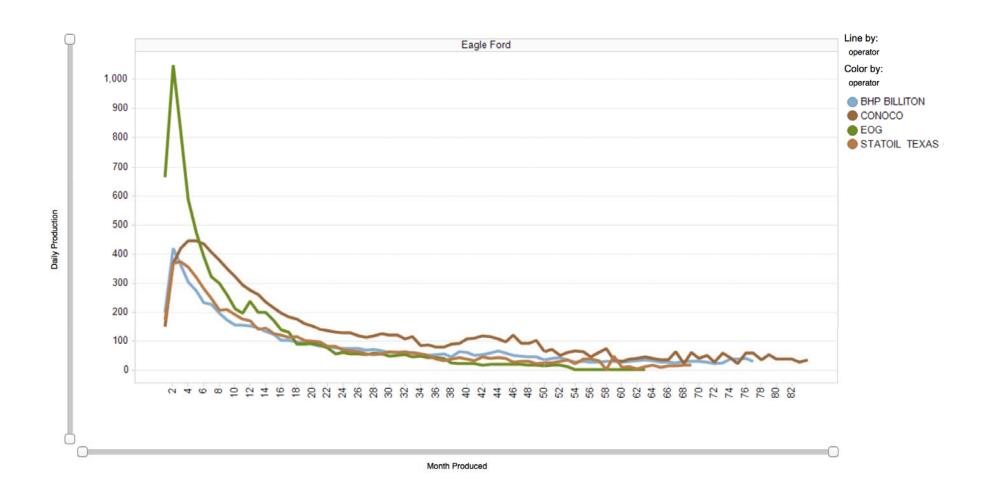
Deviation from Median Max IP (BOE/D) by Grade

### **EAGLE FORD TYPE CURVES BY VINTAGE**



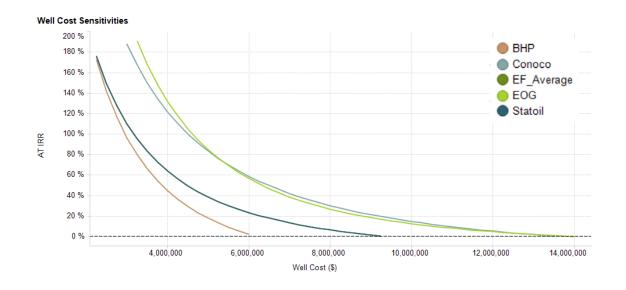


### **EAGLE FORD OPERATOR TYPE CURVES**



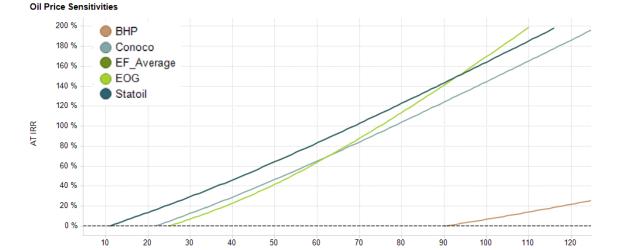


### **EAGLEFORD OPERATORS**





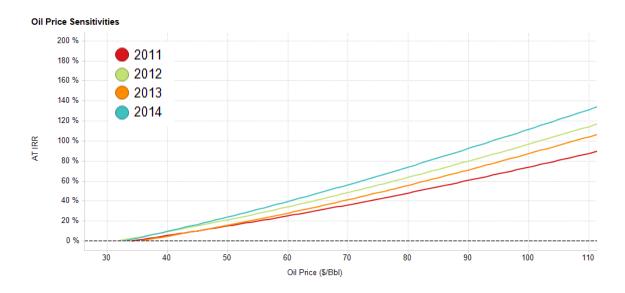
	Payout (Mos)	EUR (mbbl)
ВНР	N/A	130
Conoco	13	305
EOG	12	350
Statoil	10	180
Eagle Ford Average	10	180



Oil Price (\$/Bbl)

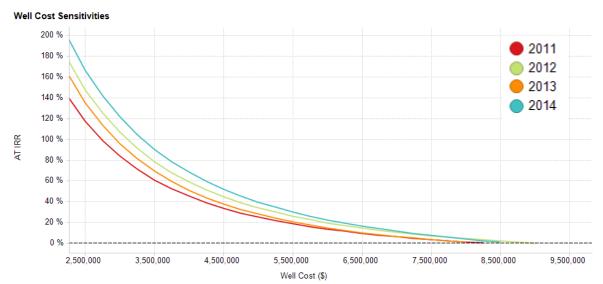


### **EAGLE FORD SHALE PERFORMANCE OVER TIME**



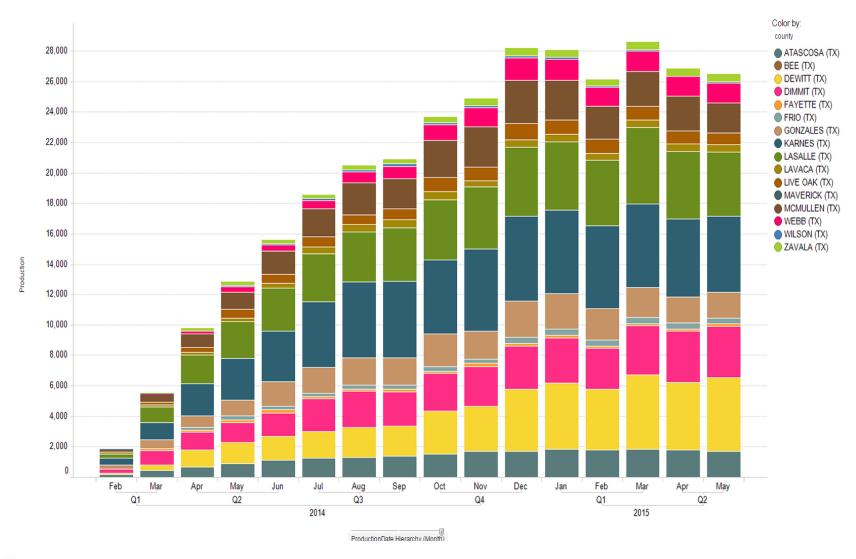


	Payout (Mos)	EUR (mbbl)
2011	27	185
2012	21	208
2013	24	194
2014	18	198



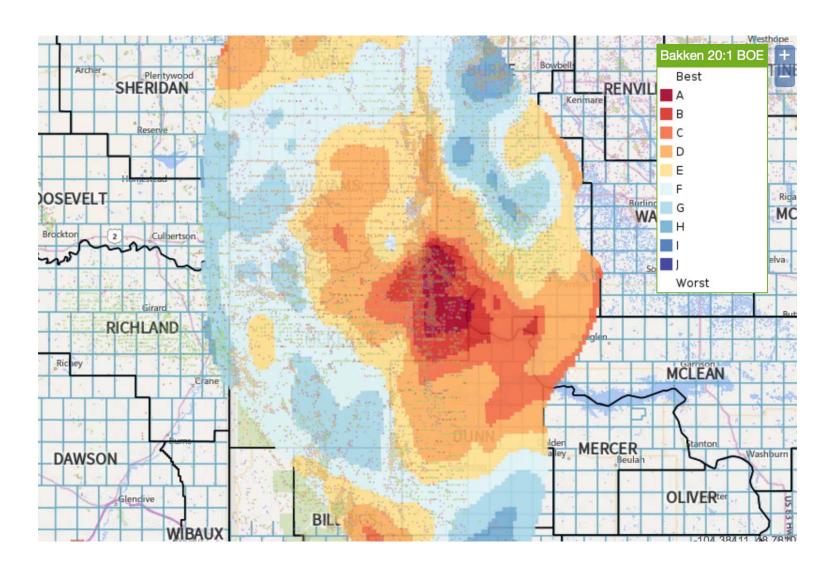


### **EAGLEFORD PRODUCTION THROUGH MAY 2015**



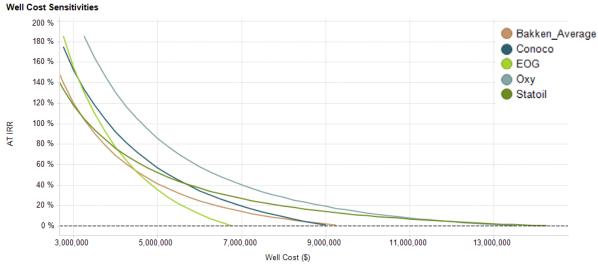


### **U.S. BAKKEN GRADED ACREAGE**





### **BAKKEN OPERATORS**



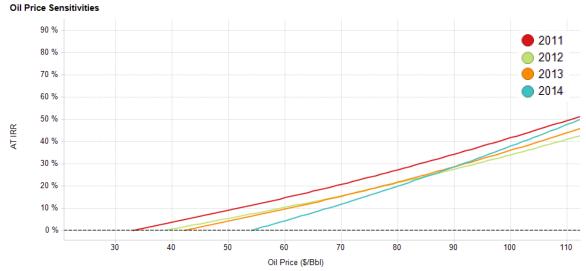
#### Oil Price Sensitivities 180 % Bakken\_Average Conoco 160 % EOG 140 % Oxy Statoil 120 % 100 % 80 % 60 % 40 % 20 % 30 40 50 60 70 80 90 100 110 Oil Price (\$/Bbl)

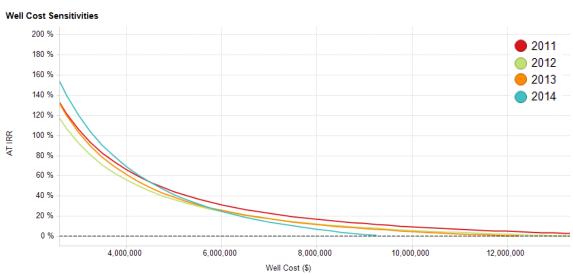
#### **Operator: Payout vs. EUR**

	Payout (Mos)	EUR (mbbl)
Bakken Average	77	240
Conoco	51	215
EOG	N/A	165
OXY	18	195
Statoil	41	355



### **BAKKEN SHALE PERFORMANCE OVER TIME**



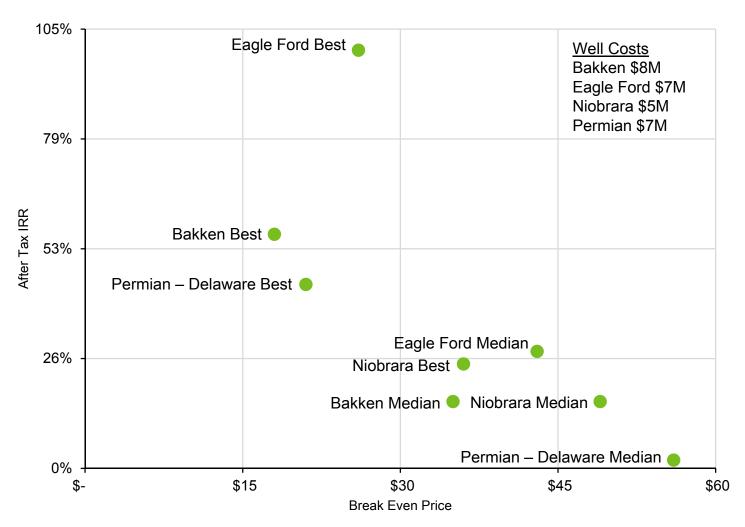


### Vintage: Payout vs. EUR

	Payout (Mos)	EUR (mbbl)
2011	51	400
2012	66	345
2013	66	315
2014	76	240



### BREAK EVEN PRICE AND AFTER TAX IRR BY PLAY

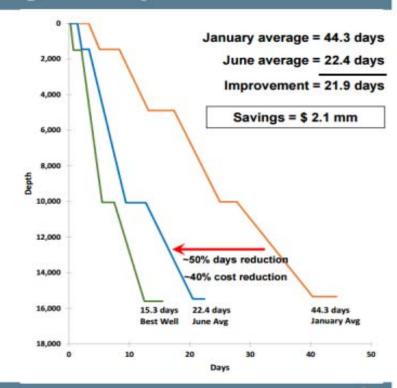




### Second Quarter 2015 Earnings Permian Resources – Drilling Efficiency

### Delaware Basin Wolfcamp A well drilling time reduced by ~50% and costs by ~40%

Technology	Days	
Multi-well pad, reduced move time	1.8	
High-resolution benchmarking	1.5	
Advanced mud system to eliminate casing across salt interval	5.1	
Oxy Drilling Dynamics	8.5	
Curve building optimization	1.2	
Vibration reduction to eliminate downhole tool failures	1.7	
Rig site crew efficiency	2.1	
Total Days Reduction	21.9	

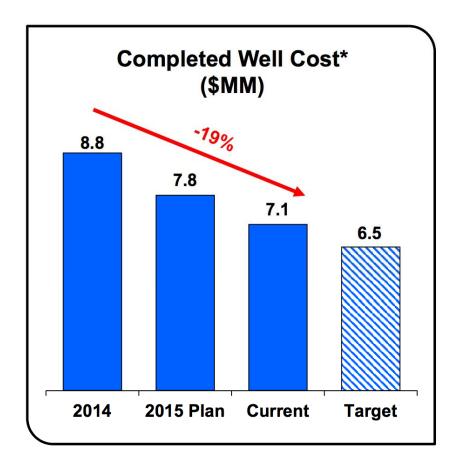


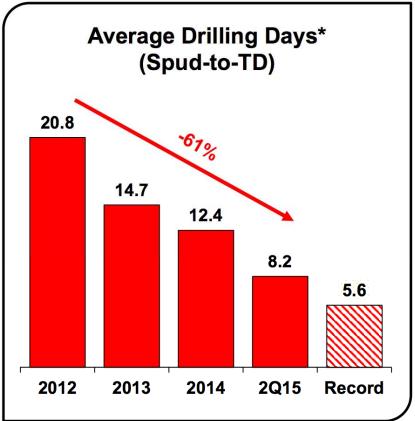
7 **OXY** 

Source: Oxy Q2 2015 Earnings Report



### **EOG Resources Bakken Performance**

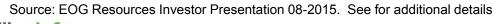




Source: EOG Resources Investor Presentation 08-2015. See for additional details

### EOG Resources Current Returns Versus 2012

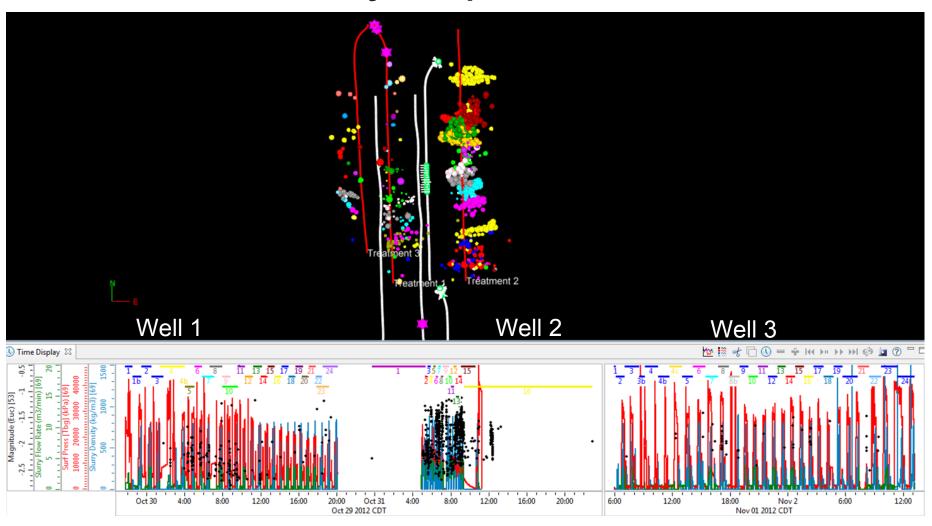
**Economics Today vs.** \$95 Oil Three Years Ago 100% 90% 80% 80% 60% 60% ATROR\* 50% 45% 40% 35% 20% 0% **Western Eagle Ford Delaware Basin Leonard** ■2012 @ \$95 Oil ■ Today @ \$65 Oil ■ Today @ \$55 Oil



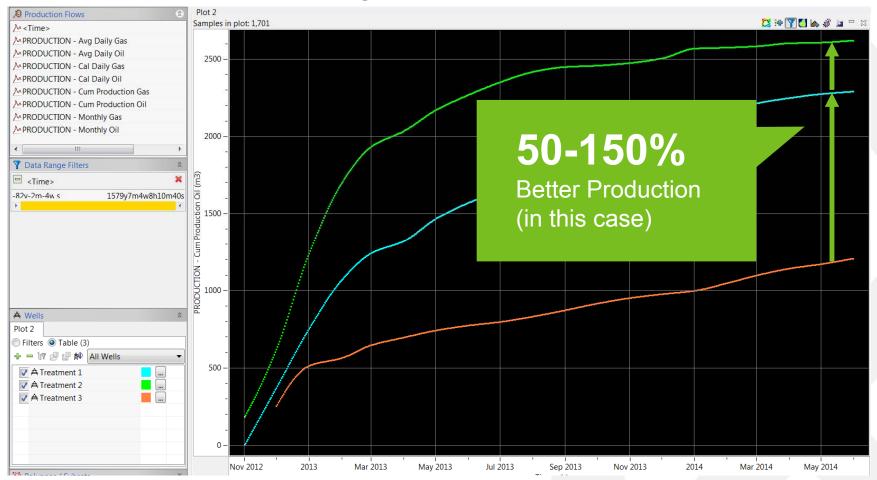
# TECHNOLOGY CONTINUES TO IMPROVE EFFICIENCY



### **Production Variations By Completion/Stimulation Practices**



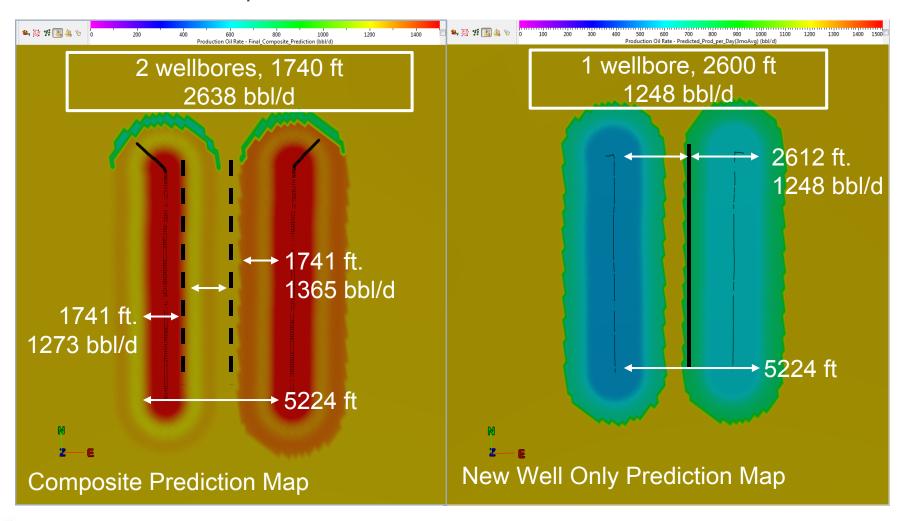
### **Production Variations By Completion/Stimulation Practices**





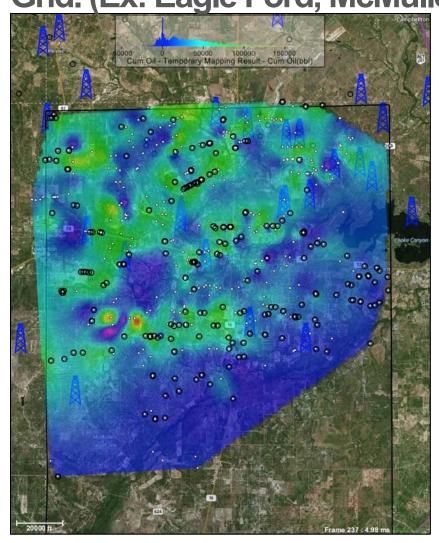
### FIELD PLANNING: WELL SPACING

### **Combined Production Map**

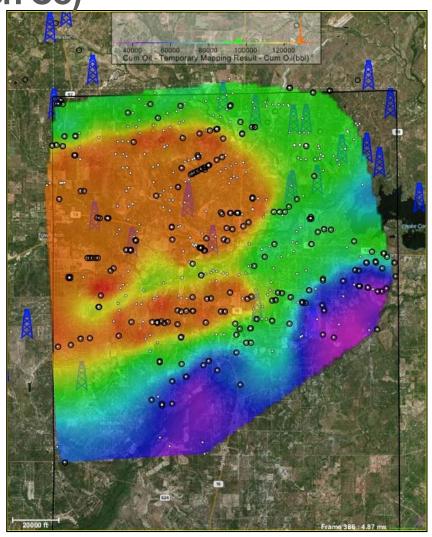




Statistical Analysis Of Geology Vs. Straight Production Grid. (Ex: Eagle Ford, McMullen Co)

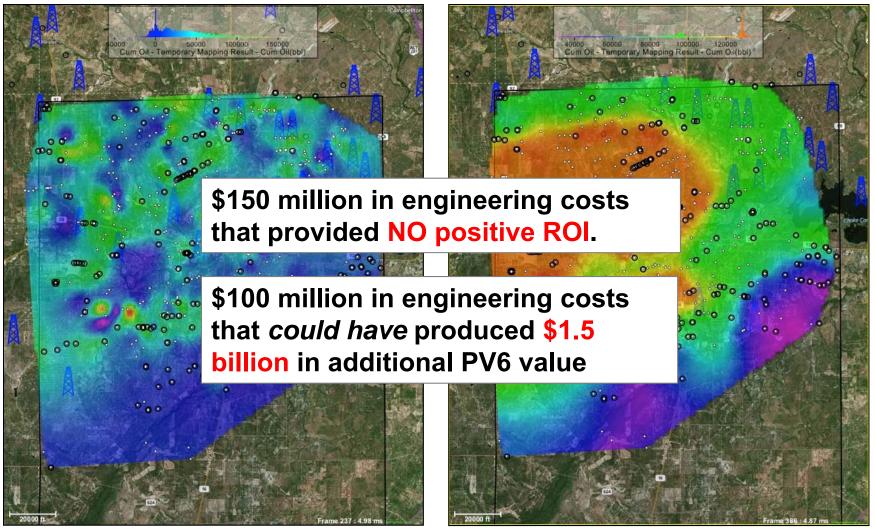


6 Month Actual Oil Production Map



6 Month Oil Native Production Map (Normalized Engineering)

### Example: Eagle Ford, McMullen Co.



6 Month Actual Oil Production Map

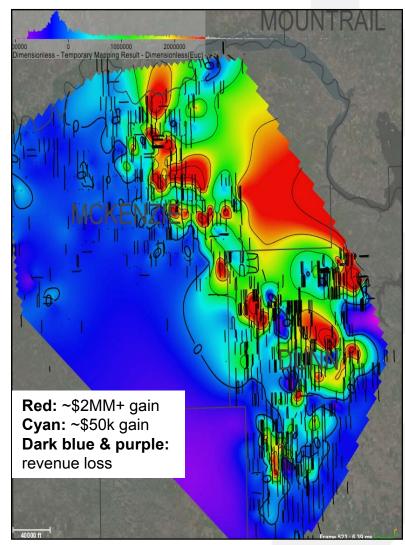
6 Month Oil Native Production Map (Normalized Engineering)

### PREDICTED PRODUCTION MAPS BASED ON TIER 2 DUNN & MCKENZIE NON-LINEAR REGRESSION MODEL

This shows the <u>revenue difference</u> between the 700 lbs/ft model and the 400 lbs/ft model

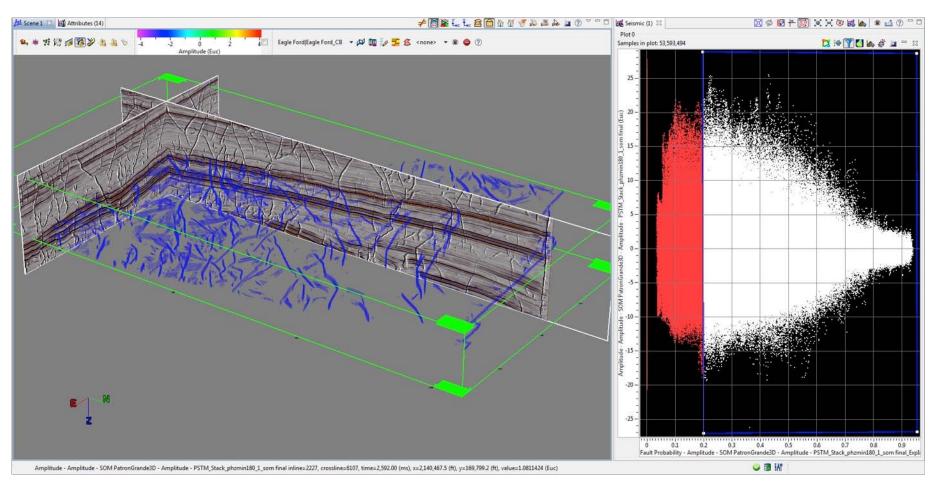
#### Assuming:

10,000 ft laterals \$0.20/lb of proppant \$40/bbl return for oil



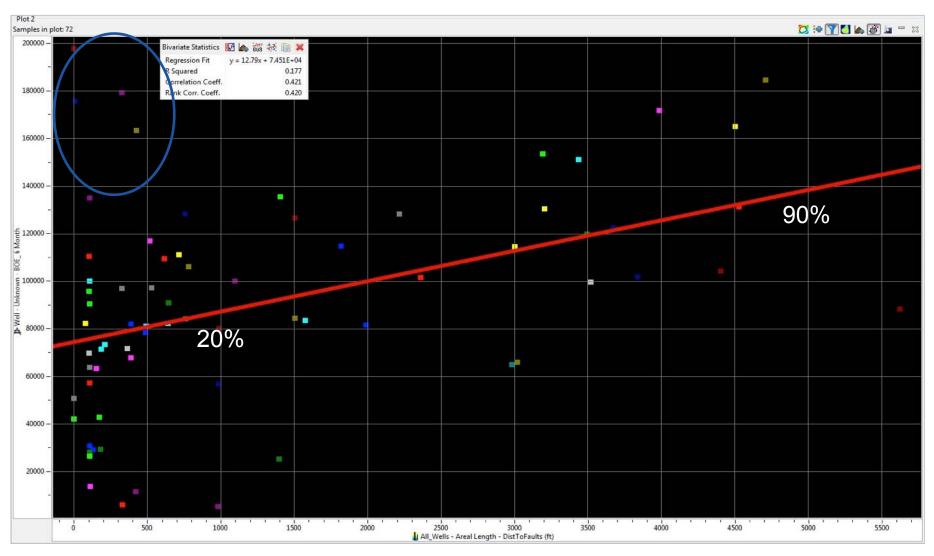


### **Fault Proximity Impact on Production**



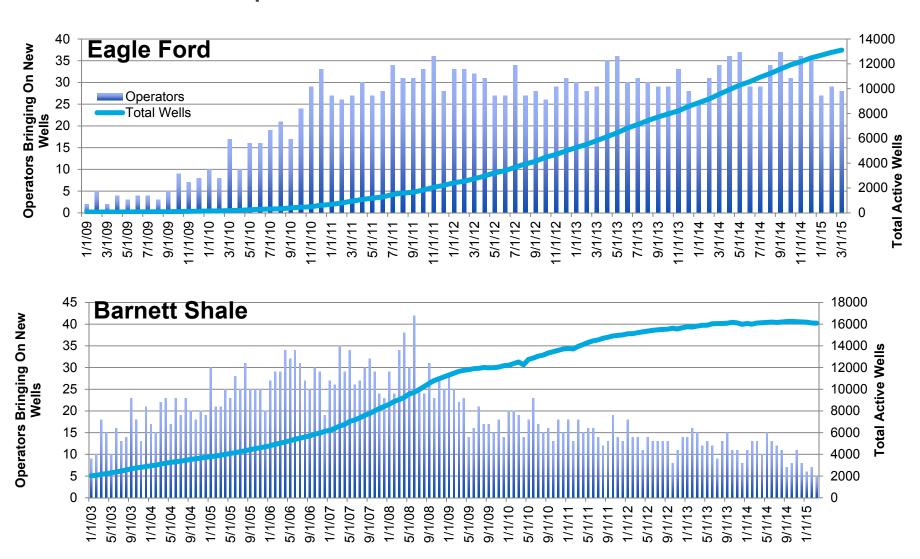
Probabilistic determination of faulting

### **Fault Proximity Impact on Production**



Distance to Faults versus BOE

### Efficiencies Are Driven By 100's of Operators, 1000's of Companies, across 10,000's of Wells

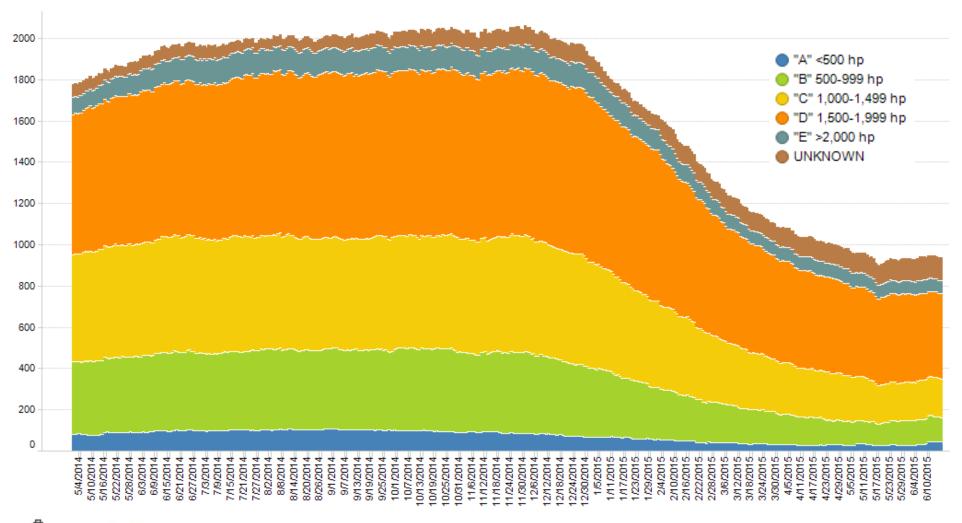


# IMPACT OF EFFICIENCY ON US ACTIVITY AND PRODUCTION



### **U.S. Rig Count by Drilling Intensity**

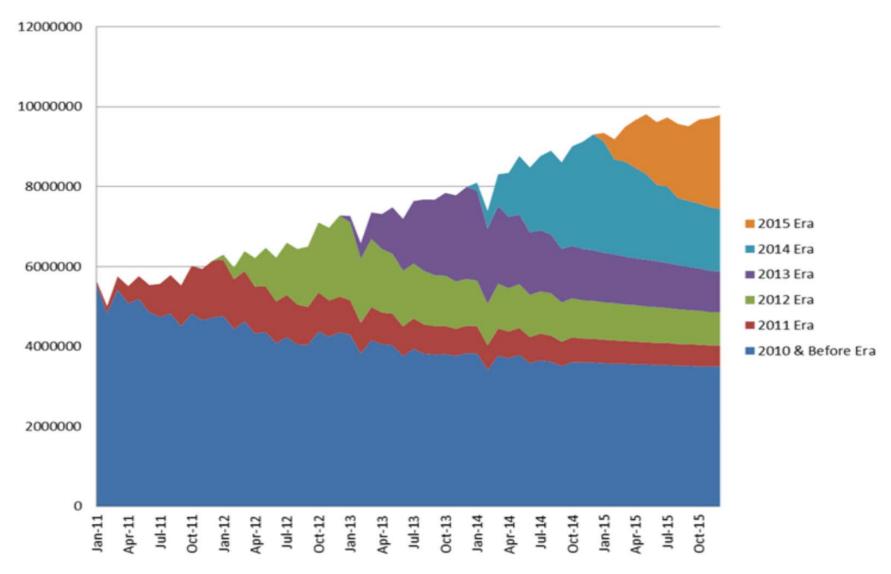
March 2014 – June 10, 2015



**CURRENT US RIG OVERVIEW AUGUST 19, 2015** 



#### DRILLINGINFO'S APRIL 2015 FORWARD US OIL PRODUCTION ESTIMATE





### THANK YOU.

