

# A view from the Bus Bench

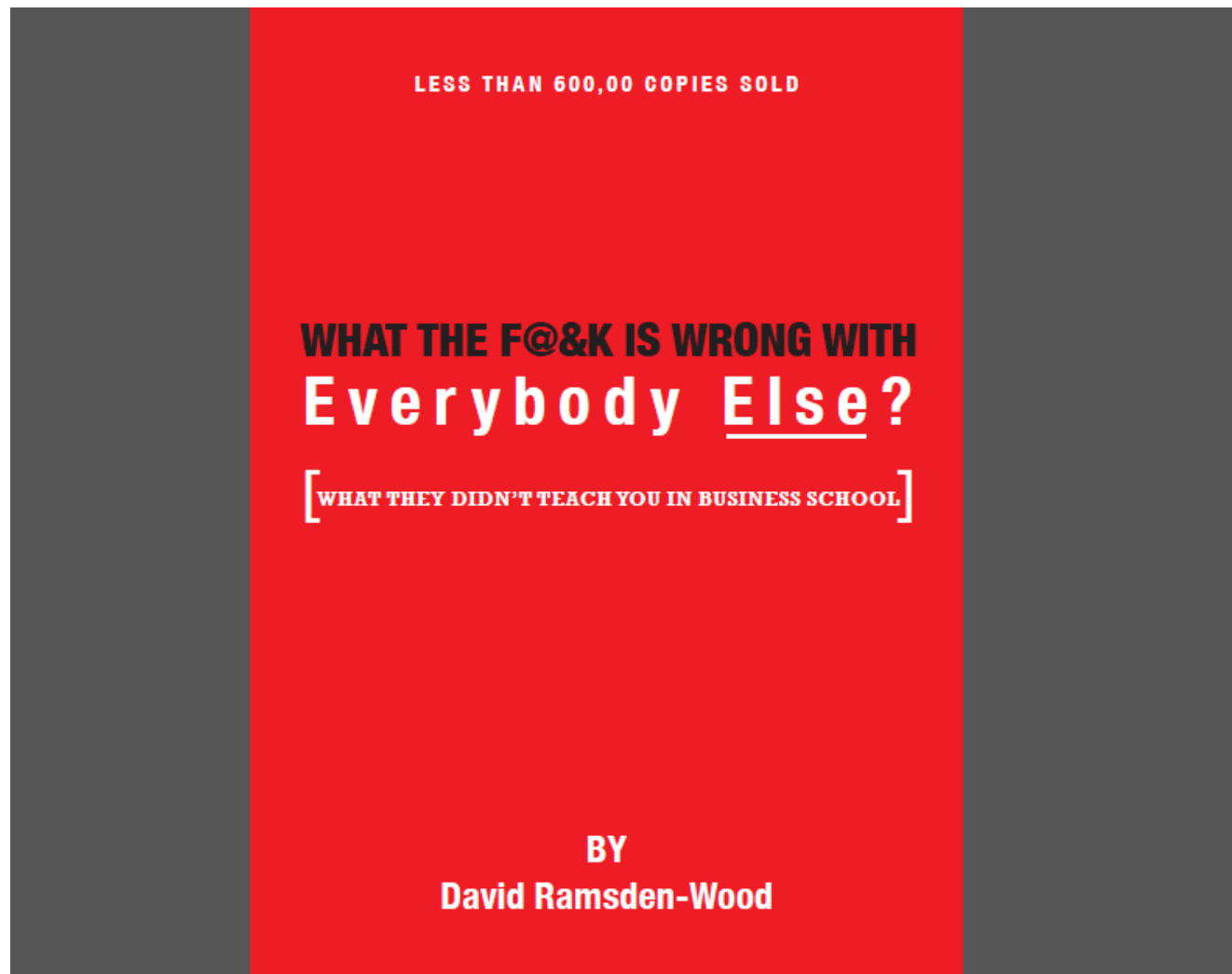
**EXPECTED OIL RECOVERY EFFICIENCIES** Table 2

	Original oil in place, %
<b>Primary methods</b>	
Liquid and rock expansion	Up to 5
Solution gas drive	20
Gas cap expansion	30
Gravity drainage	40
Water influx	60



David Ramsden-Wood  
November 12, 2014

# Other Unpublished Works...



# Forward-Looking Information

## Cautionary Statement for the Purpose of the “Safe Harbor” Provisions of the Private Securities Litigation Reform Act of 1995

This presentation includes “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements included in this presentation other than statements of historical fact, including, but not limited to, statements or information concerning the Company’s future operations, performance, financial condition, production and reserves, schedules, plans, timing of development, returns, budgets, costs, business strategy, objectives, and cash flow, are forward-looking statements. When used in this presentation, the words “could,” “may,” “believe,” “anticipate,” “intend,” “estimate,” “expect,” “project,” “budget,” “plan,” “continue,” “potential,” “guidance,” “strategy,” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain such identifying words. Forward-looking statements are based on the Company’s current expectations and assumptions about future events and currently available information as to the outcome and timing of future events. Although the Company believes the expectations reflected in the forward-looking statements are reasonable and based on reasonable assumptions, no assurance can be given that such expectations will be correct or achieved or that the assumptions are accurate. When considering forward-looking statements, readers should keep in mind the risk factors and other cautionary statements described under Part I, Item 1A. Risk Factors included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2013, registration statements and other reports filed from time to time with the Securities and Exchange Commission (“SEC”), and other announcements the Company makes from time to time.

The Company cautions readers these forward-looking statements are subject to all of the risks and uncertainties, most of which are difficult to predict and many of which are beyond the Company’s control, incident to the exploration for, and development, production, and sale of, crude oil and natural gas. These risks include, but are not limited to, commodity price volatility, inflation, lack of availability of drilling, completion and production equipment and services and transportation infrastructure, environmental risks, drilling and other operating risks, lack of availability and security of computer-based systems, regulatory changes, the uncertainty inherent in estimating crude oil and natural gas reserves and in projecting future rates of production, cash flows and access to capital, the timing of development expenditures, and the other risks described under Part I, Item 1A. Risk Factors in the Company’s Annual Report on Form 10-K for the year ended December 31, 2013, registration statements and other reports filed from time to time with the SEC, and other announcements the Company makes from time to time.

Readers are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date hereof. Should one or more of the risks or uncertainties described in this presentation occur, or should underlying assumptions prove incorrect, the Company’s actual results and plans could differ materially from those expressed in any forward-looking statements. All forward-looking statements are expressly qualified in their entirety by this cautionary statement. This cautionary statement should also be considered in connection with any subsequent written or oral forward-looking statements that the Company, or persons acting on its behalf, may make.

Except as otherwise required by applicable law, the Company disclaims any duty to update any forward-looking statements to reflect events or circumstances after the date of this presentation.

# Themes


- A Dog in the Fight
- A Bottle of Coke
- A Thought on What's Next

# A Dog in the Fight

- The victors write the history books
- The management teams write the slides
  - Positive bias?
  - Realistic bias?
  - Based on what?

# 1???

## Evolution of Completion Design

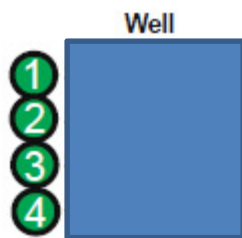
	Completion Technique	Entry Points	 Operated Completions to Date
Pre-2013	<b>Ball &amp; Sleeve</b>	30	696
March 2013	<b>Cemented Liner</b> <i>40 stages x3 perf clusters/stage</i>	up to 120	74
March 2014	<b>Cemented Liner</b> <i>40 stages x5 perf clusters/stage</i>	up to 200	1
March 2014	<b>Coiled Tubing Conveyed</b> <i>Plug &amp; Perf (Skov 31-28-3H)</i>	85	1
April 2014	<b>Slick Water</b> <i>30 stages x3 perf clusters/stage (Sundheim 21-27-1H)</i>	90	1

# Presentation published April 10th

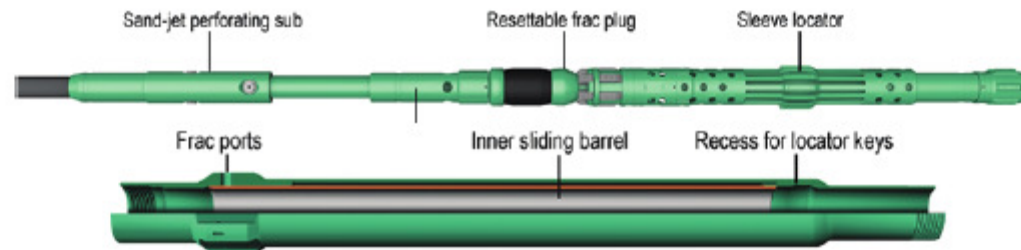
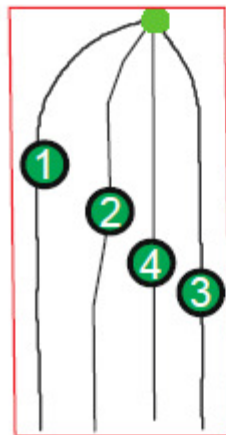
## Evolution of Completion Design



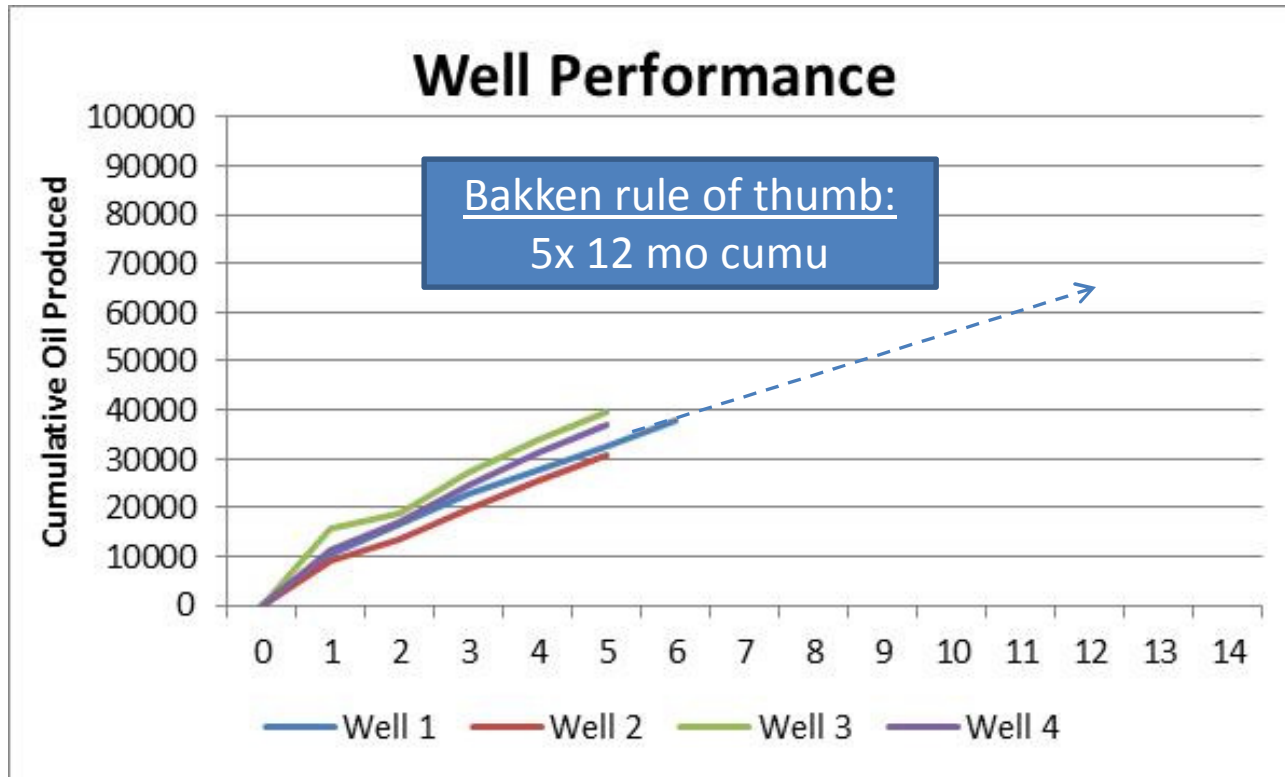
- On May '13
- On Apr '14
- On Apr '14
- On Apr '14



Well	Annulus	Completion Method	Stages	Entry Points	Cost (\$MM)	Incr.	IP (boepd)	Incr.
1	Open	Sliding Sleeve	30	30	7.90	-	927	-
2	Cemented	P&P-3 clusters/stage	30	90	8.10	3%	1072	16%
3	Cemented	P&P-5 clusters/stage	30	150	8.10	3%	1219	31%
4	Cemented	CT-Multistage+(P&P-5)	60+25x5	85	8.80	11%	1607	73%



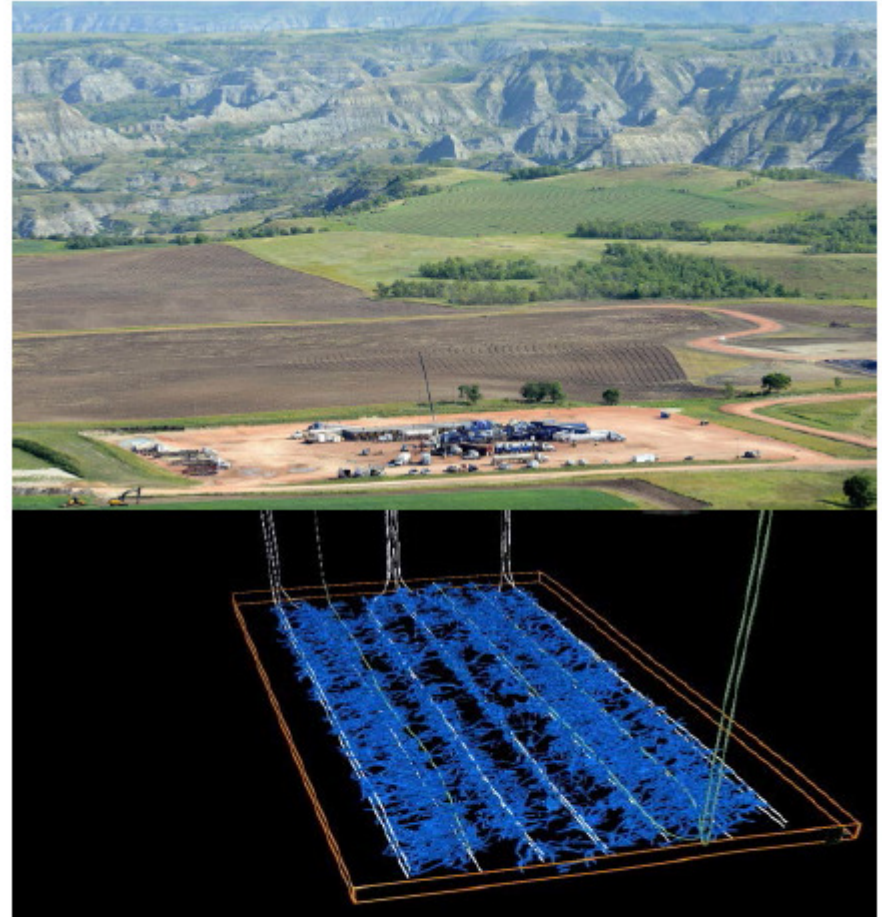
# Production Data to September 1 (monthly)



Have rates translated into the same magnitude increase in  
EUR?



# A Bottle of Coke



10 wells monitored

Solution Gas Drive Reservoirs with finite drainage

Oceanic

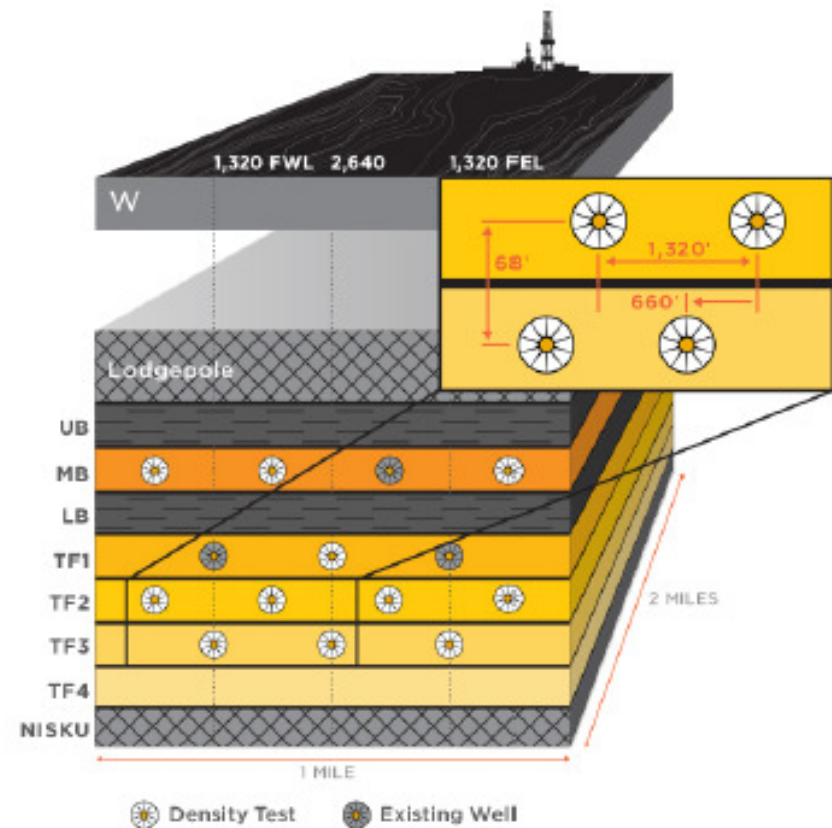
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# Three Equations to Live By

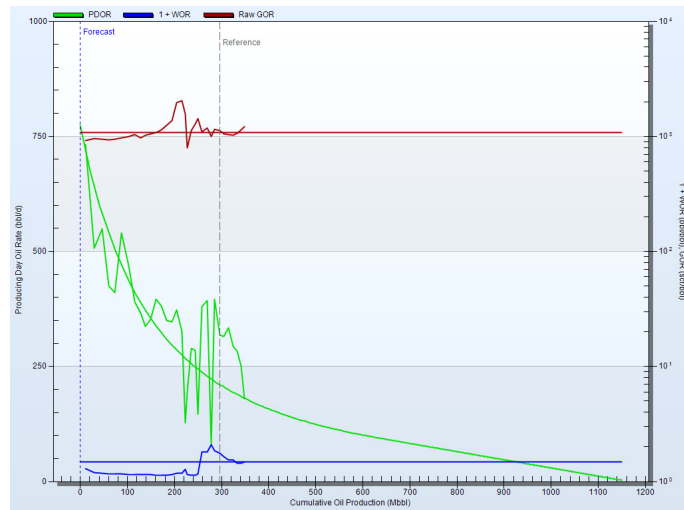
- $L * W * H * \text{Porosity} * \text{Saturation} / \text{Fluid Compressibility} = \text{Volume in Place}$
- $\text{Change in cash} = \text{Operating Cash} + \text{Investing Cash} + \text{Financing Cash}$
- $\text{Rate} = C * (P_r^2 - P_{wf}^2)^n$

# Takeaways

- Technical and economic success
  - Industry's largest microseismic project
  - Full DSU development validated (4 zones on 1,320' spacing)
  - Average well performance exceeds 603 MBoe model by 50%+
  - Project ROR >100%
- Reservoir simulation conclusions
  - Stimulations were contained within BPS
  - Stagger wellbores instead of stacking
  - No lateral communication on 1,320' spacing in Middle Bakken and Three Forks
  - Opportunity for enhanced stimulations
  - Modeling supports future infill MB drilling



# Original "Dovison" Wells

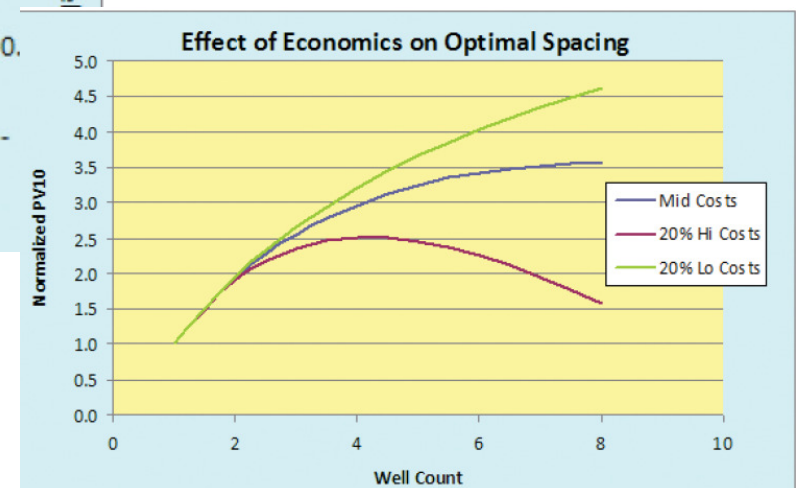
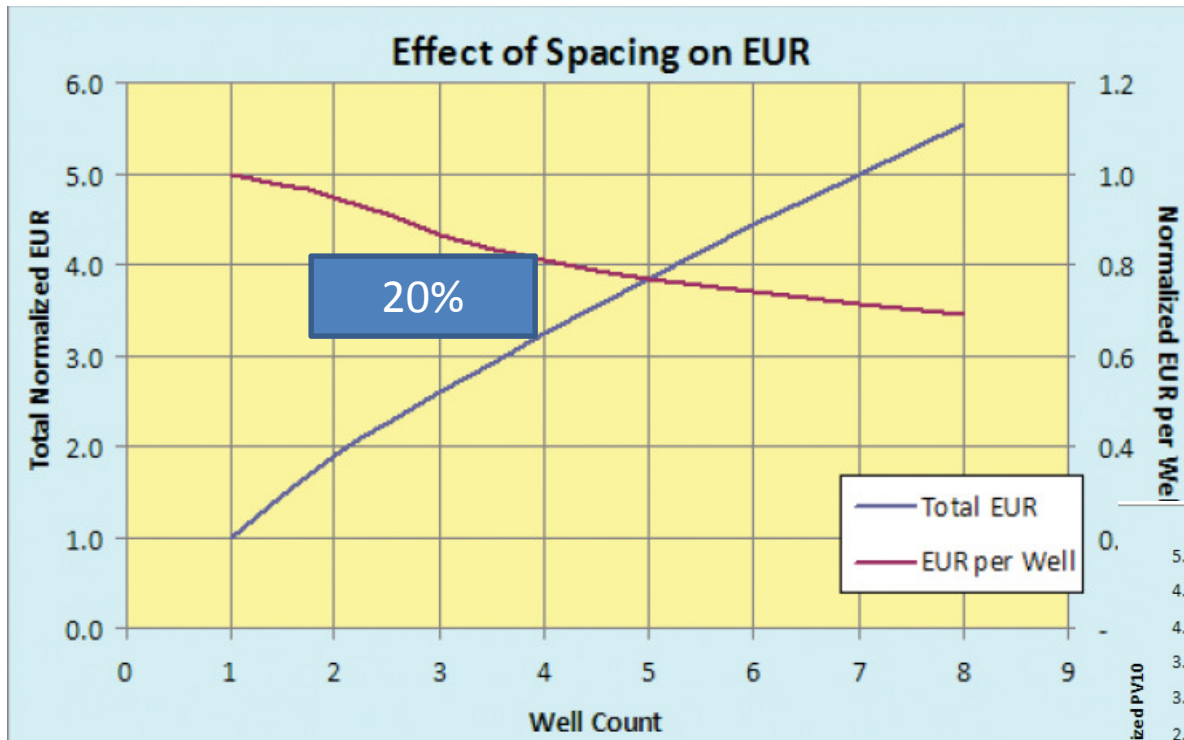


# Ryder Scott Simulation

## June 2012

### Key Points: Economics, spacing

- ◆ Economics degrade with increasing well density. Higher well density can still be profitable, but provides less “bang for the buck.”
- ◆ The optimal PV10 (peak of the curve) is highly dependent on economic input parameters. For this study, Ryder Scott did not evaluate completion efficiency related to lower or higher initial rates, which can drastically affect PV10 and optimal spacing.
- ◆ Over the range shown, results are more sensitive to increasing costs vs. decreasing.



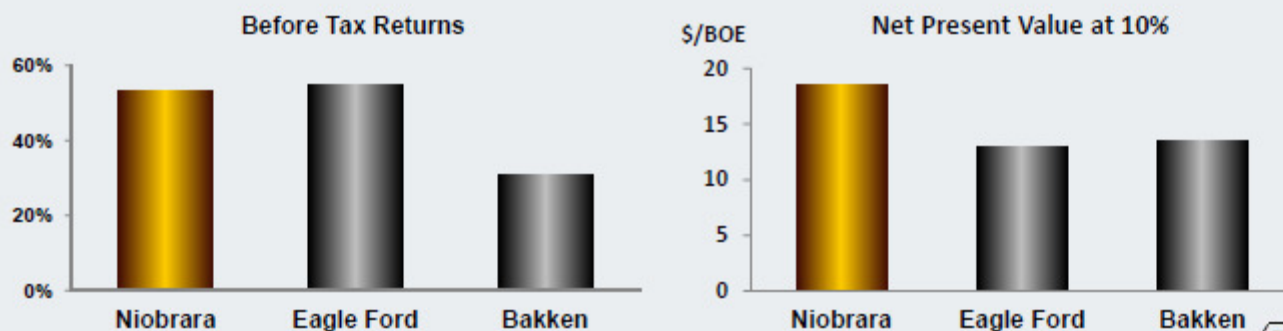
# The Data is Out There

## Niobrara is a Top Oil Resource Play *Superior resources and low development costs*

	Oil Play Characteristics			Well Characteristics				
	Depth (Feet)	Thickness (Feet)	OOIP (MMBoe / Section)	Avg. EUR (MBoe)	Avg. Liquids %	D&C Capital \$MM	Lateral Length (Feet)	Net* F&D (\$/Boe)
NBL Nio Oil Window – Standard Length	5,500-8,200	250-350	65-73	335	65%	\$4.5	4,500	\$16.79
NBL Nio Oil Window – Extended Reach	5,500-8,200	250-350	65-73	750	65%	\$8.3	9,100	\$13.83
NBL East Pony – Standard Length	5,500-8,200	250-350	90	345	85%	\$4.9	4,500	\$17.75
Eagle Ford Oil	4,000-8,000	200-300	30-50	450	65%	\$6.0	5,500	\$16.67
Bakken	7,000-11,000	75-150	10-15	600	86%	\$9.5	10,000	\$19.79

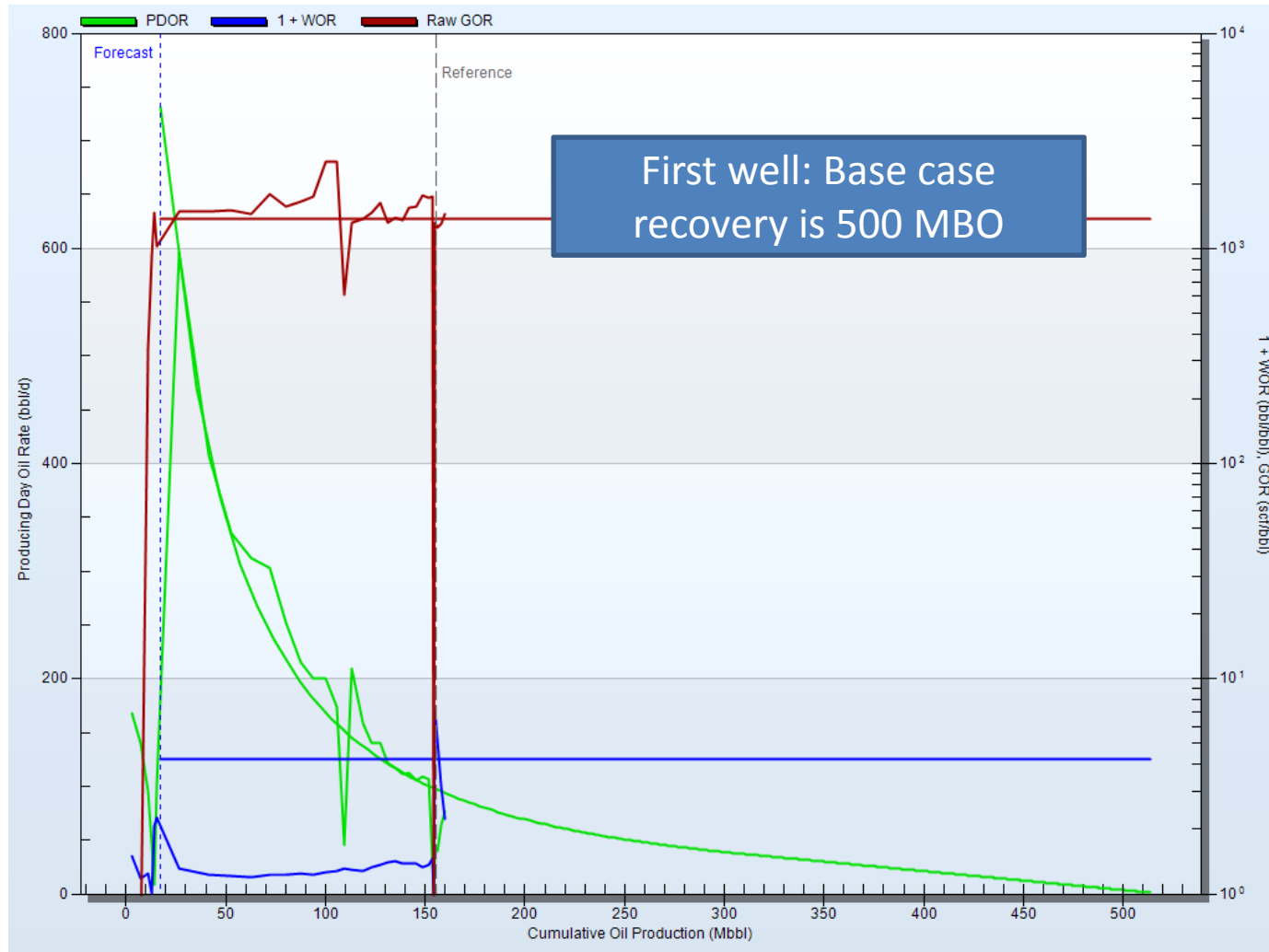
\* 80% NRI assumed

Source: Internal, Wood Mackenzie, External Company Presentations, Tudor Pickering



Source: Credit Suisse

# “Next Downspacing Test”



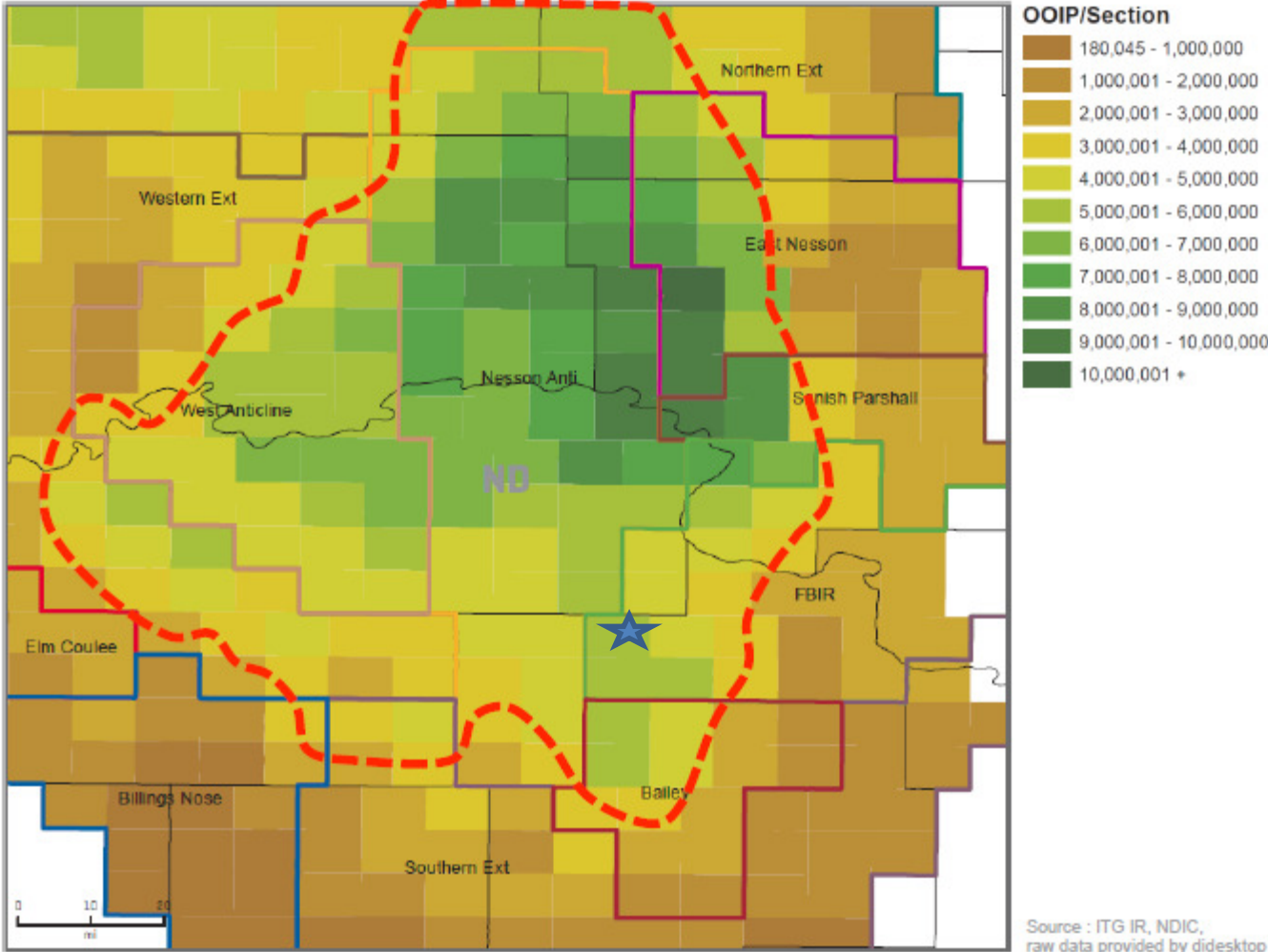
# Two Answers:

- Double the OOIP
  - Same well count in each will recover approximately 2x oil
- Higher Perm
  - Less wells required to effectively meet the same recovery factor



# Estimated Oil in Place Per Section

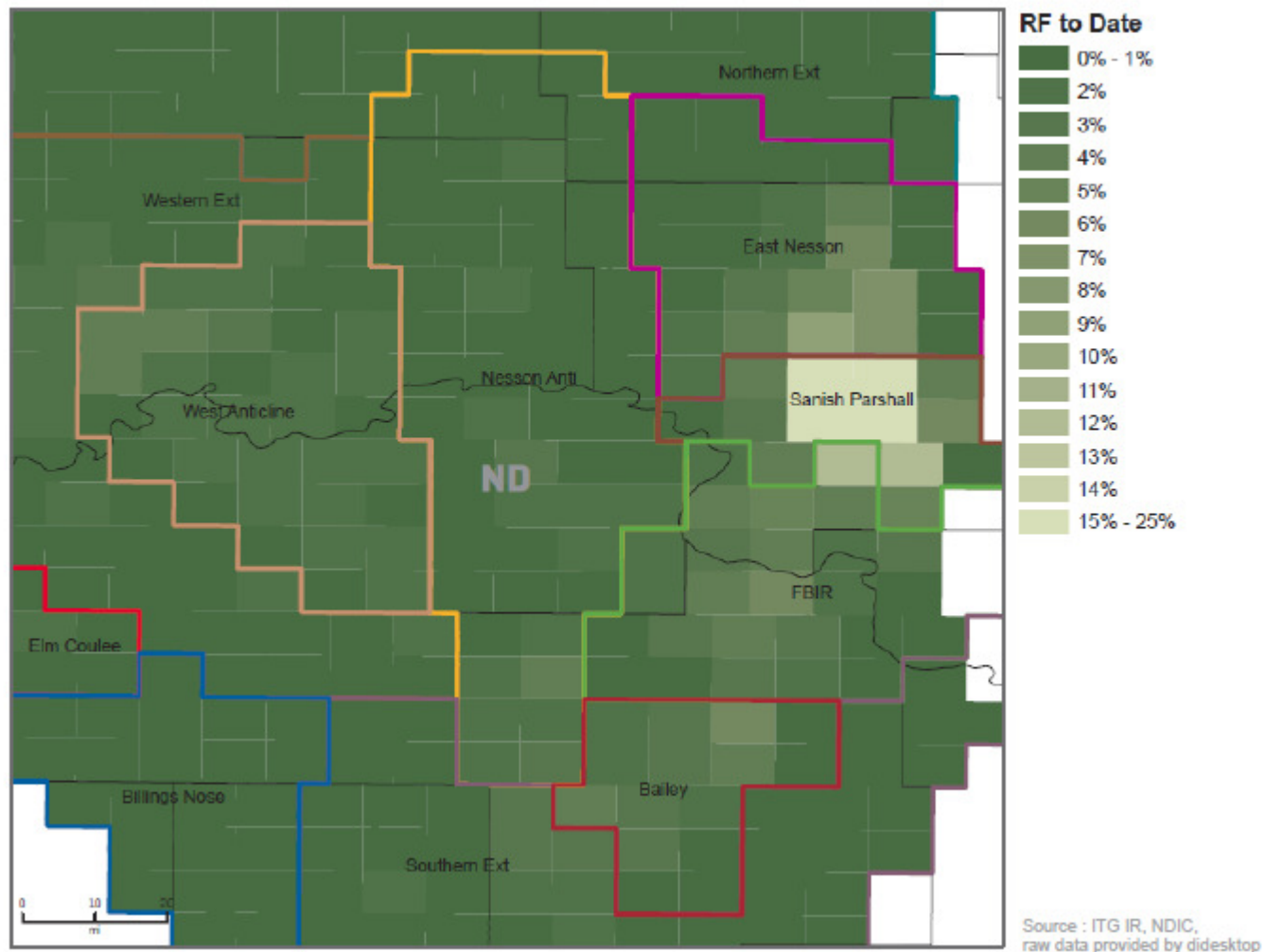
MB OOIP Ranges 6-10 MMbbl/Section in Core



Source : ITG IR, NDIC, raw data provided by didesktop

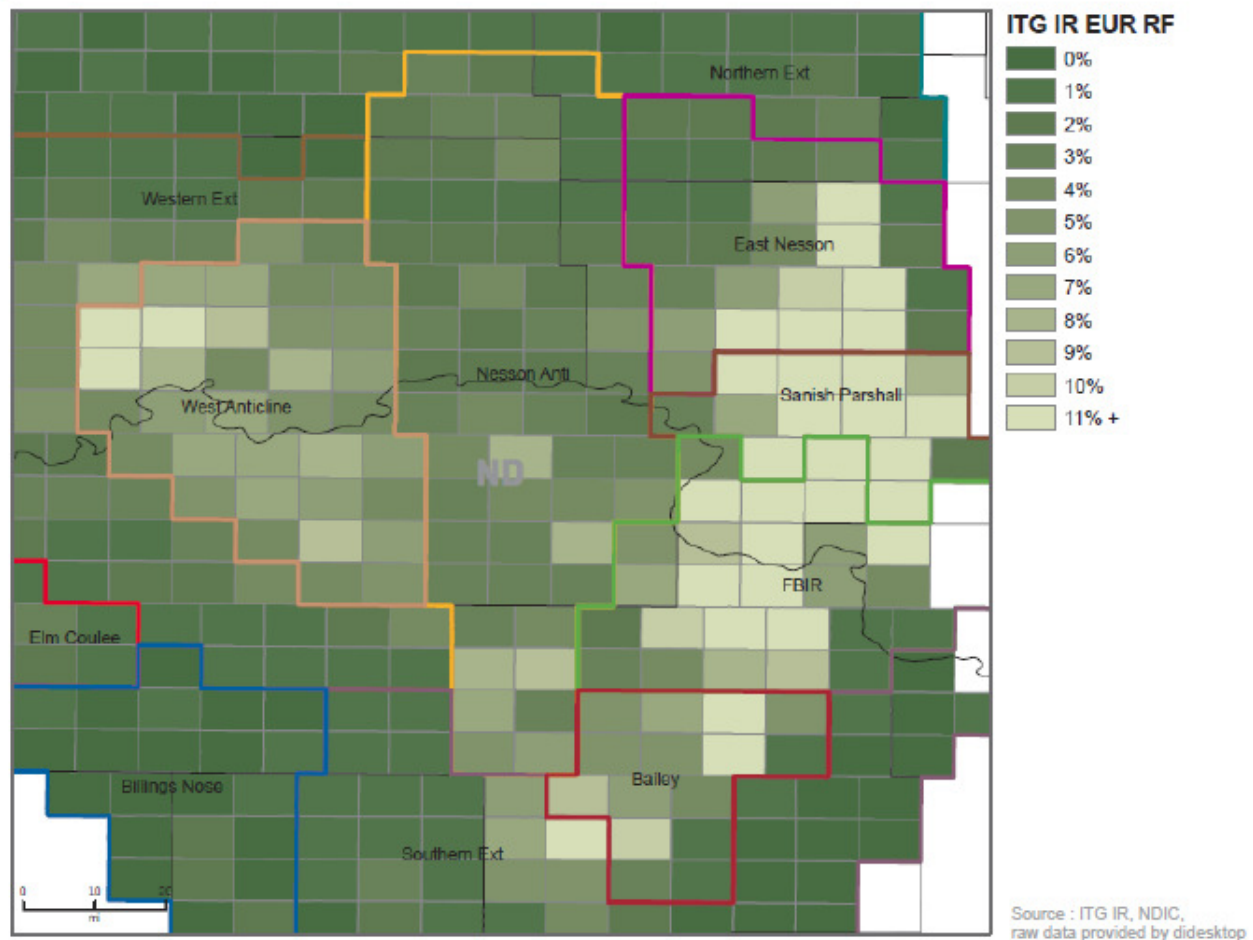
# Oil Produced to Date

Only a Fraction of MB OOIP Recovered To Date



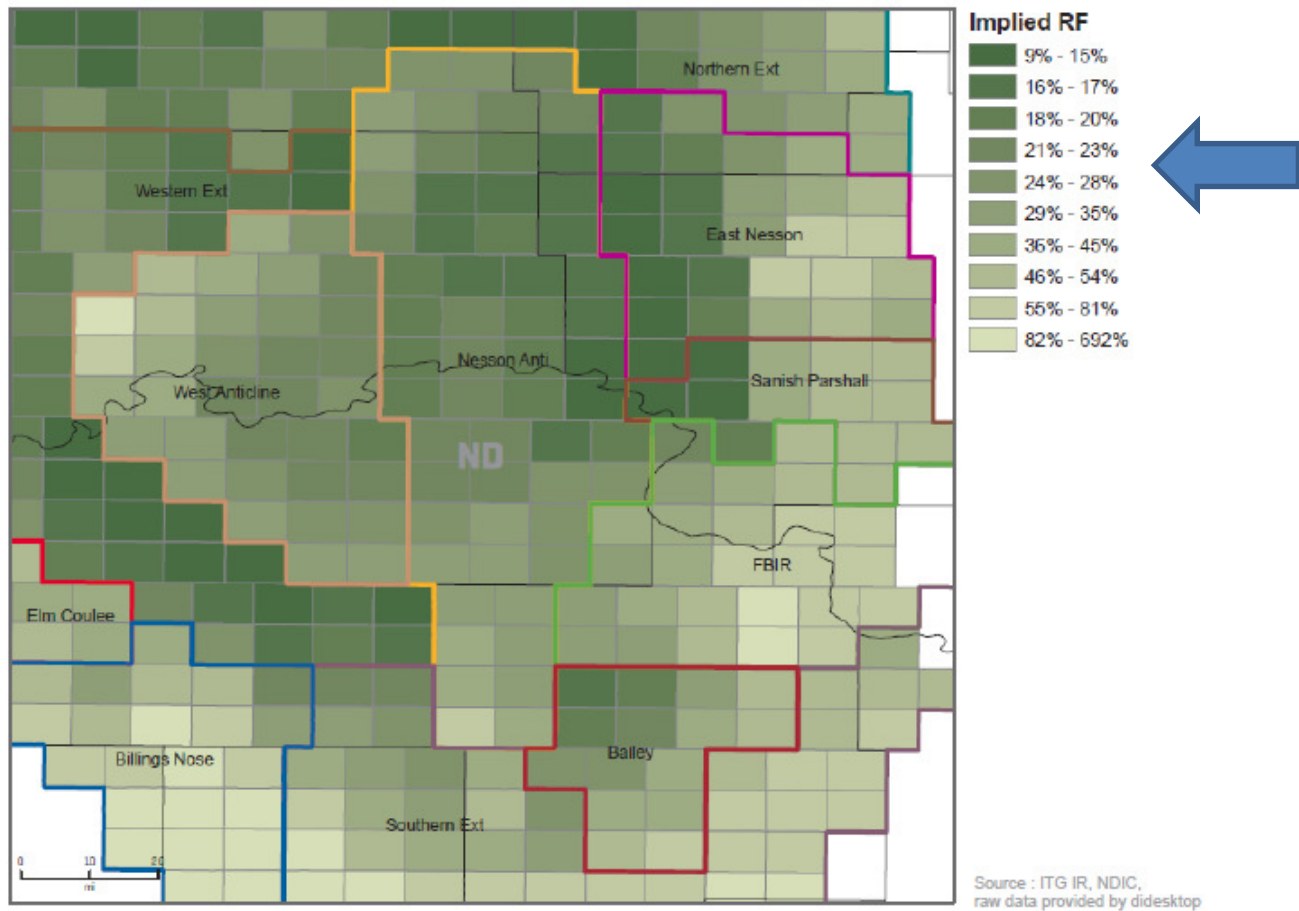
# Recovery Factors with CURRENT WELLS

Expected RF Based on Current Well Count ...

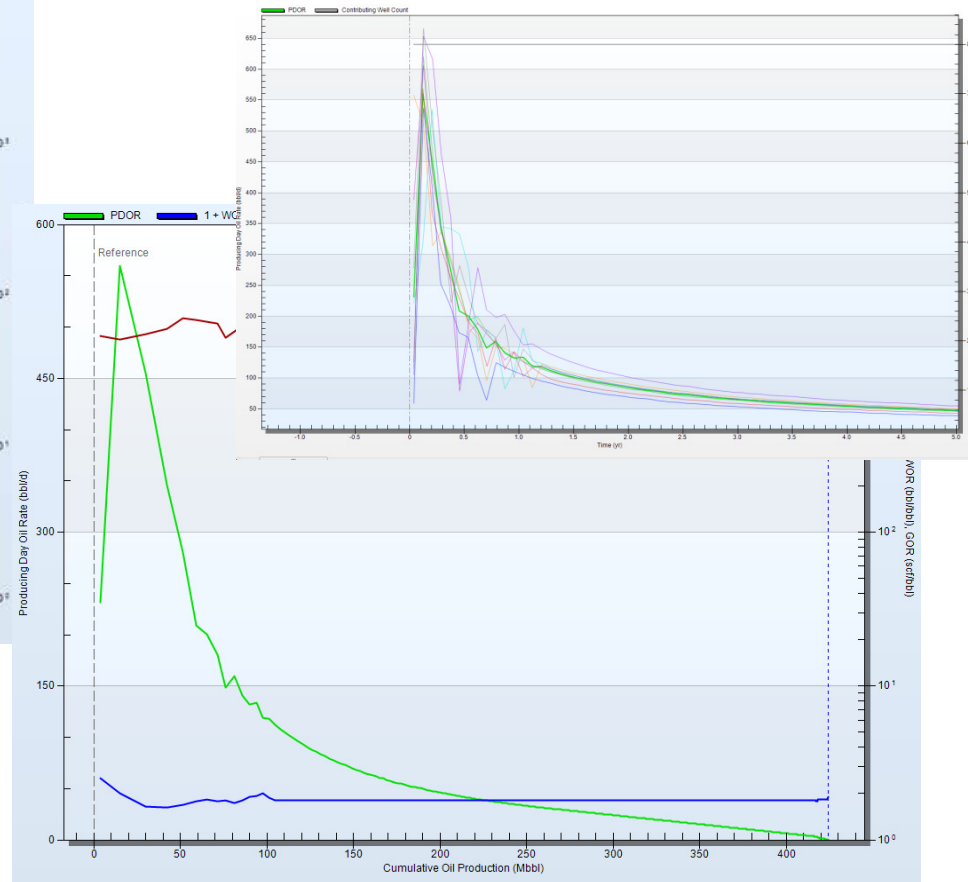
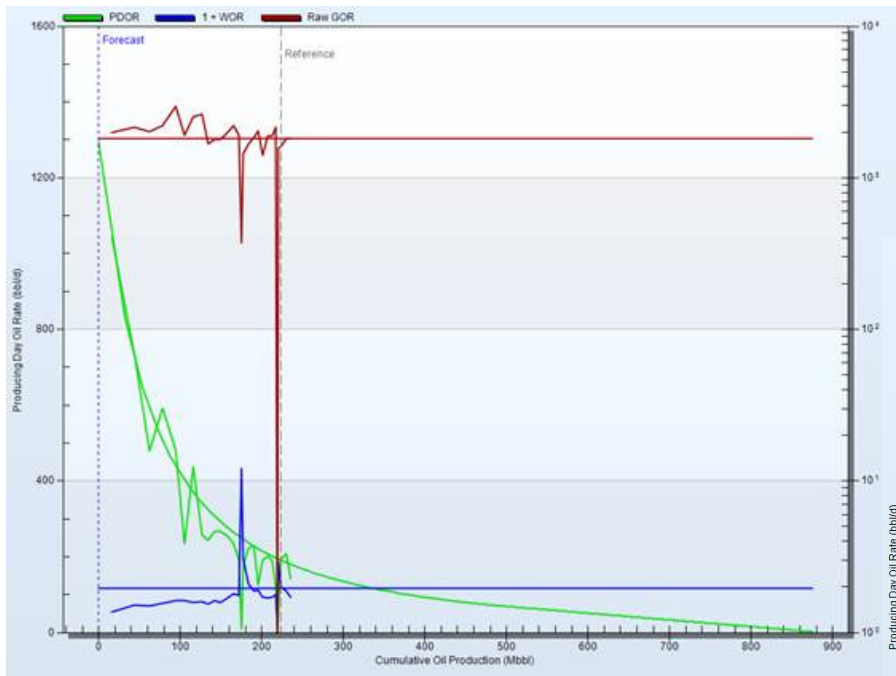


# Using Current Averages

Implied RF Based on Six Wells/1,280-Acre DSU



# First well in Spacing Unit -> Many



# One Man's View from the Bus Bench

## What's Next?

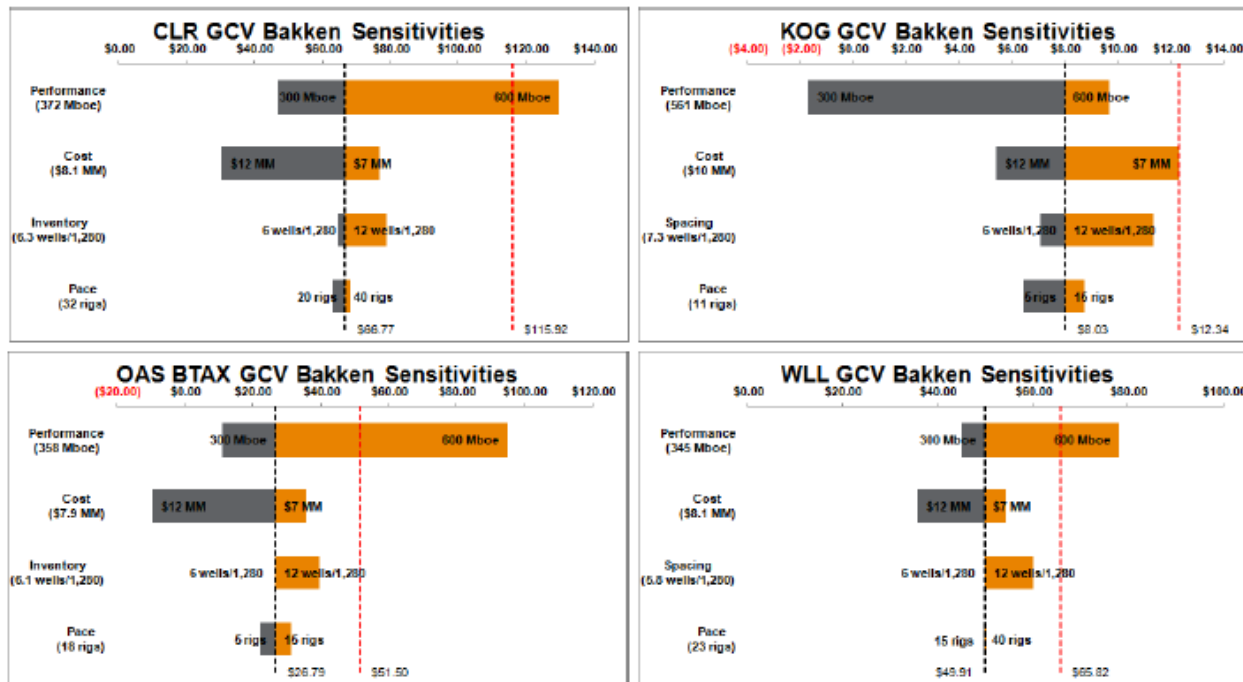
- \$79/bbl oil
  - 11% production tax
  - 20% royalty
  - \$10/bbl deduct
  - \$4/bbl infield transportation
- \$38.49/bbl “Revenue”
- PV of acceleration materially changes
- Commodity price is a convenient way to back off rigs and drill less tightly

# 2015

- Rigs will be dropped and capital will be redeployed
  - Whiting to Colorado
  - Continental to Oklahoma
- Fracs will be delayed until service costs come
- Kodiak – Whiting Merger.... ?

# Financial Modeling

## NAVs Most Sensitive to Well Performance



\* Share prices as at November 11, 2013



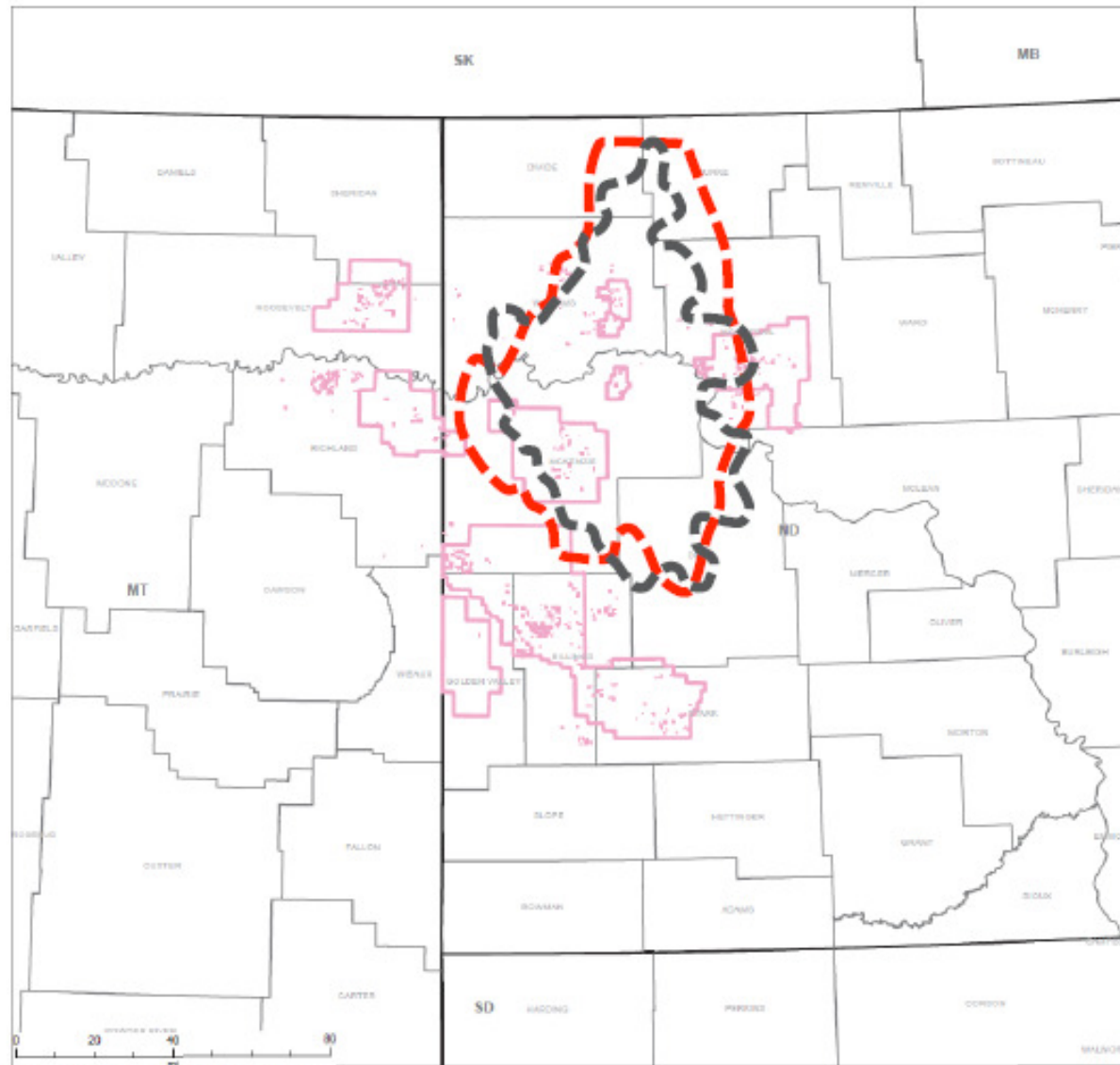
Source : ITG IR

NAV Ratio of WLL/KOG is 6.21 as at 11/2013; share exchange ratio is 5.7

Slide No. 2



# Much WLL Acreage Outside of Fairways



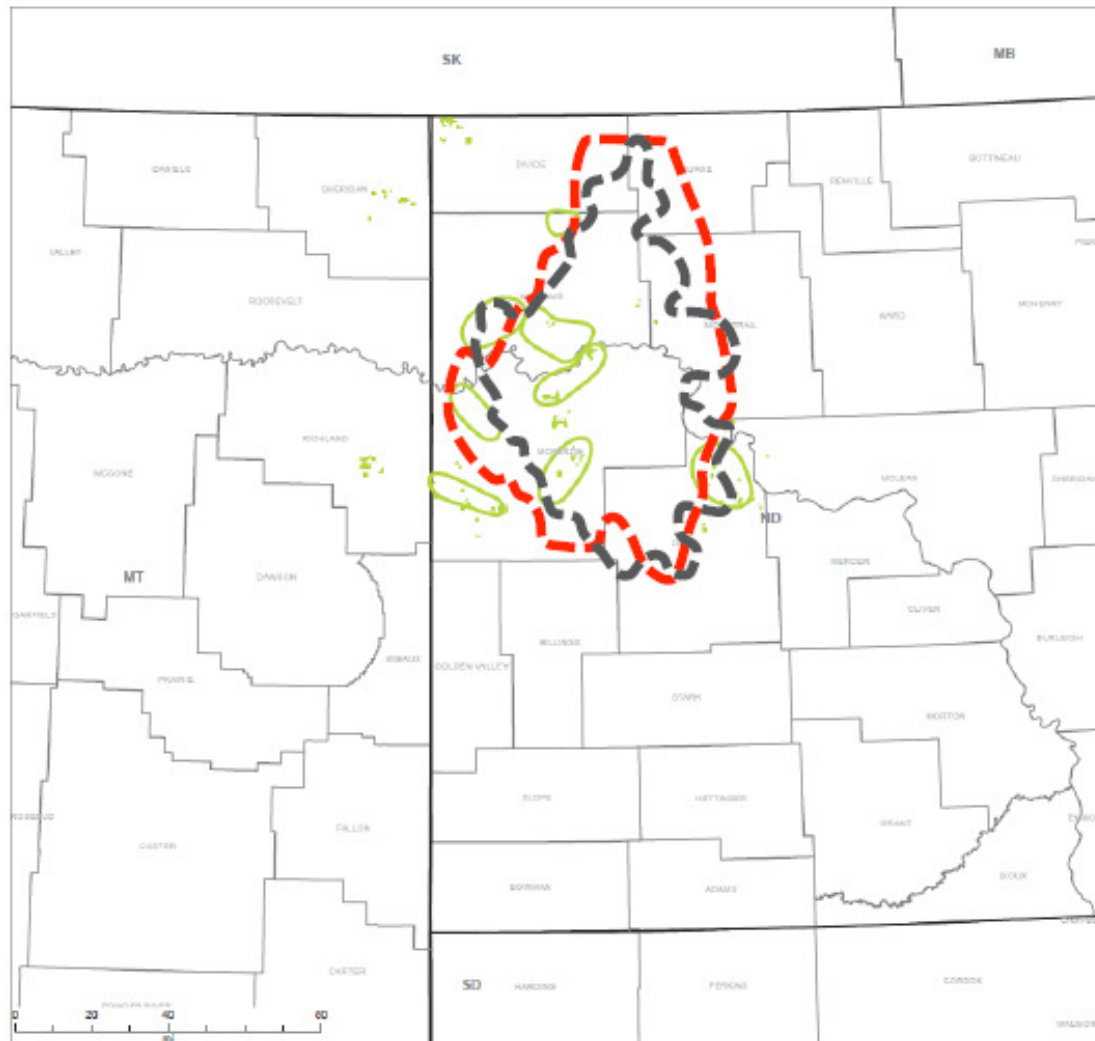
Source : ITG IR, company presentations

U.S. Bakken Well Design, Downspacing and Deeper Benches

11/2013

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# Most KOG Acreage Also Within ITG IR MB “Cores”



Source : ITG IR, company presentations

U.S. Bakken Well Design, Downspacing and Deeper Benches

11/2013

Slide No. 34

# 5 Years Ago

- What were the big plays being drilled?
  - Barnett
  - Haynesville
  - Rockies gas (Piceance, Pinedale, CBM)
- Now?
  - Wattenberg
  - Marcellus
  - Eagleford
  - Bakken
- 5 years from now
  - ?