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"Profitable Mineral Management"

BREAKFAST SERIES *for*
Surface and Mineral Owners
Admission by Invitation Only

DATE: August 4, 2015

TOPIC: Oil and Gas Royalty Valuations

LOCATION: San Antonio Petroleum Club
8620 N New Braunfels, Suite 700
San Antonio, TX 78217-6363
P 210.824.9014
F 210.829.5443

TIME: 7:30 AM Breakfast - 8:00 AM Presenters - 8:50 AM Questions & Answers

INTRODUCTION: **E.O. (Trey) Scott, III, Trinity Mineral Management, Ltd.**

PRESENTERS: **Gary Gonzenbach, CG Petroleum Consulting**

Oil and Gas Royalty Valuations

- Discounted Cash Flow Analysis
- Type Curve Analysis
- EUR – Estimated Ultimate Recovery
- Economic Factors
- PDP – Proved Developed Producing
- PUD – Proved Undeveloped

Gary J. Gonzenbach, P.E.
CG Petroleum Consulting
215 West Bandera Rd, Ste 114-108
Boerne, TX 78006
855.826.9580

Gary Gonzenbach is a Texas A&M graduate with a B.S. in Petroleum Engineering in 1985. He worked Acquisition and Divestitures with the title of Evaluation Engineer for Asher Resources of San Antonio before starting TRC Consultants LC in 1994. He served as President of TRC Consultants until 2013. During his nineteen years with TRC, Gary was the chief designer and architect of the company's software, most notably PHDWin (Copyright 1994) and PHDRms (Copyright 2009). In 2013, Gary became President of CG Petroleum Consulting which focuses on properties in the Eagle Ford Shale, West Texas Permian Basin, and the Hunton reservoirs.

In 2010 Gary was elected to the Society of Petroleum Evaluation Engineers Board of Directors, and in 2013 was elected to the Executive Board. He currently serves as President of SPEE.

Gary has given various presentations on the Valuation of Oil & Gas properties and Standardization of Reserves Reconciliations. He is a co-author of "Guidelines for the Practical Evaluation of Undeveloped Reserves in Resource Plays" (SPEE Monograph 3). He will be serving as a guest panelist for the upcoming Reserve Estimation Unconventionals Conference (REU Houston Aug 11th-13th).

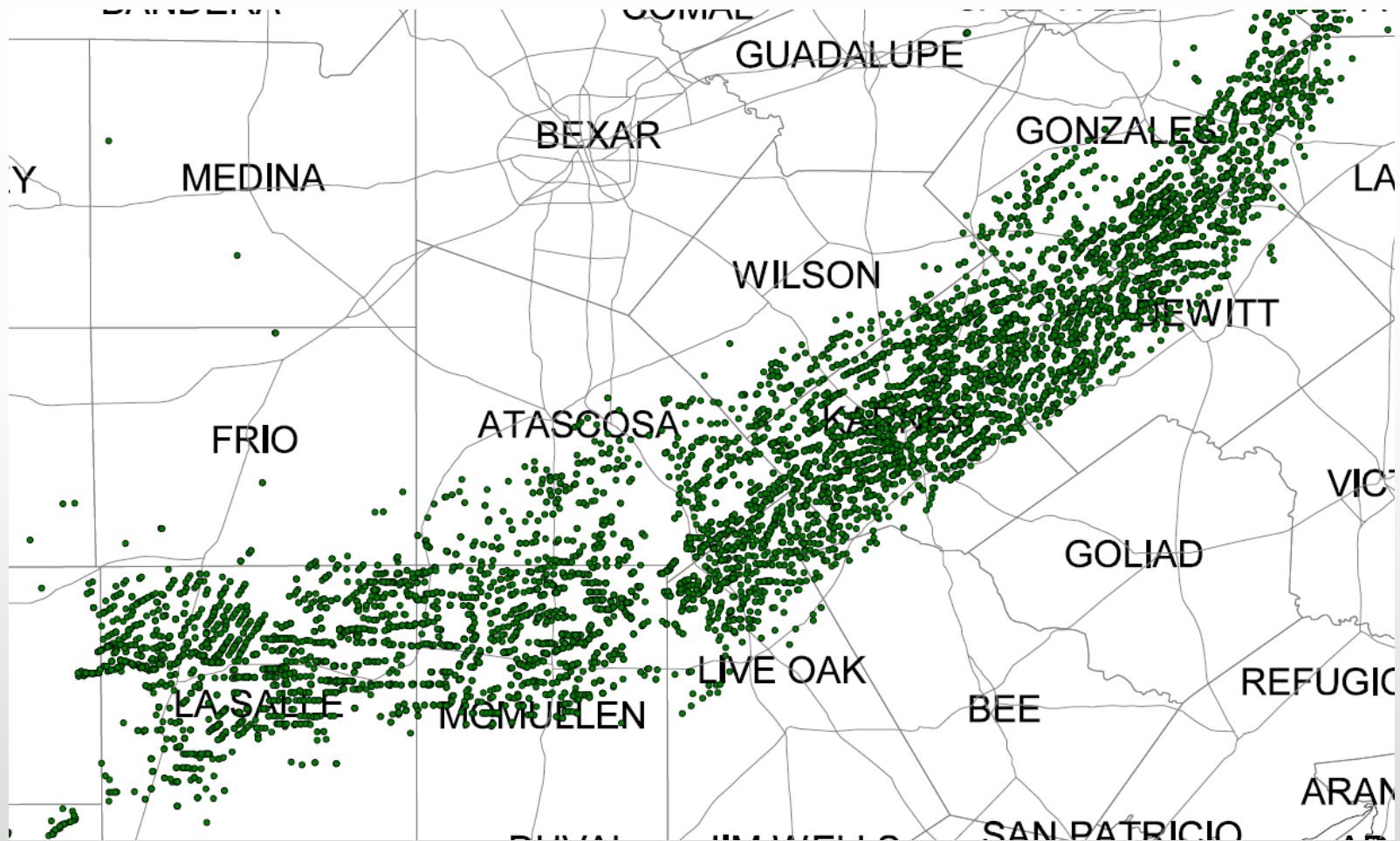
Oil & Gas Royalty Evaluations

Understanding Appraisals of Producing Wells and Undrilled
Locations

Discounted Cash Flow Analysis

- Determine Estimated Ultimate Recovery (EUR)
 - Type Curve Analysis of surrounding Analogous Wells
 - Common Producing Characteristics
 - “B” Factor
 - Decline Rate
 - Initial Producing Rates
 - Gas-Oil Ratios
 - Natural Gas Liquids Yield (NGL Yield)
 - Schedule monthly future production volumes
- Apply Economic Factors
 - Price (including price differentials)
 - Ownership
 - Expenses
 - Drilling Costs (for undrilled locations)
 - Risk Factors

Type Curve Analysis



Determining EUR

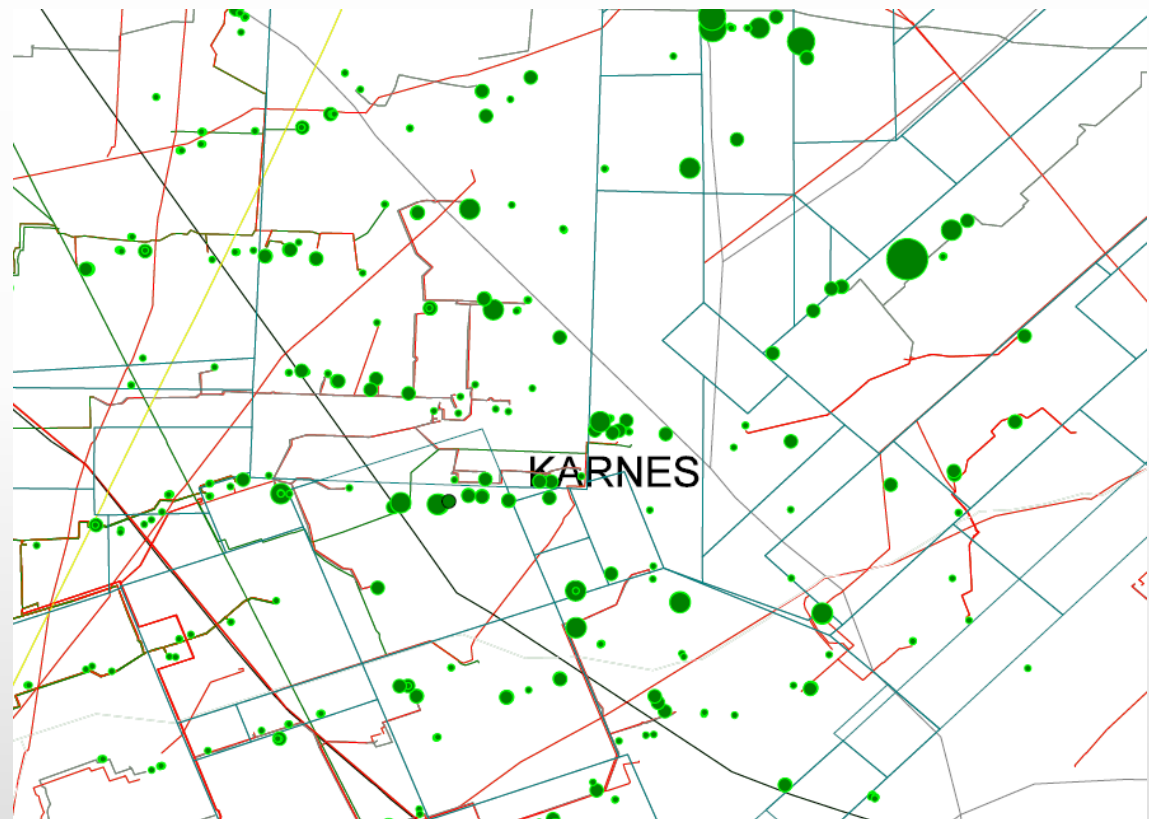
Type Curve Analysis

- **Surrounding Wells**

Sample set large enough to obtain 100+ wells

- **Common Characteristics**

Geology
Lithology
Completion Method
Lateral length
Line pressure
Spacing



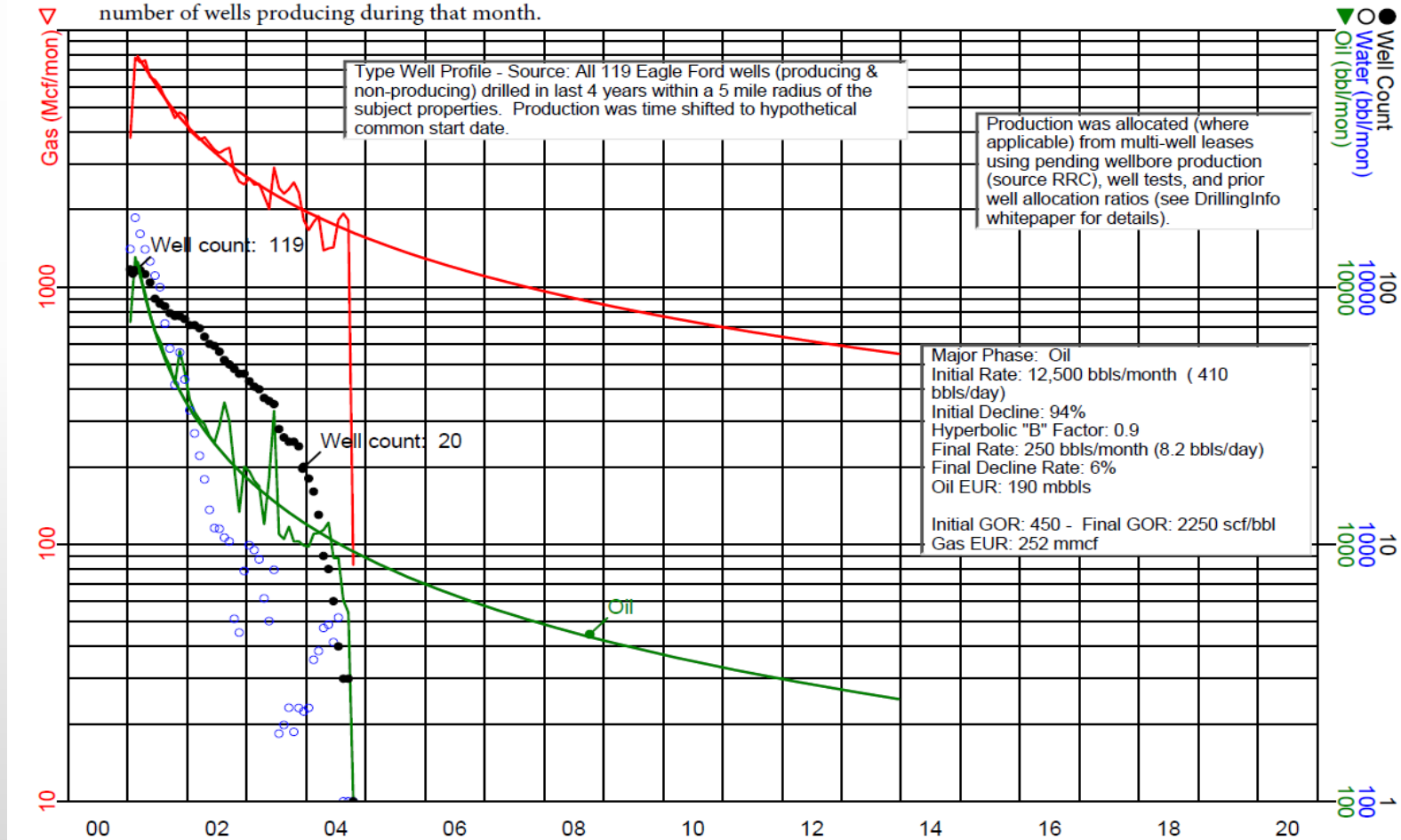
Determining EUR

Type Curve Analysis

Average Type Well Curve

Average performance of all wells in 5 mile radius of subject property.

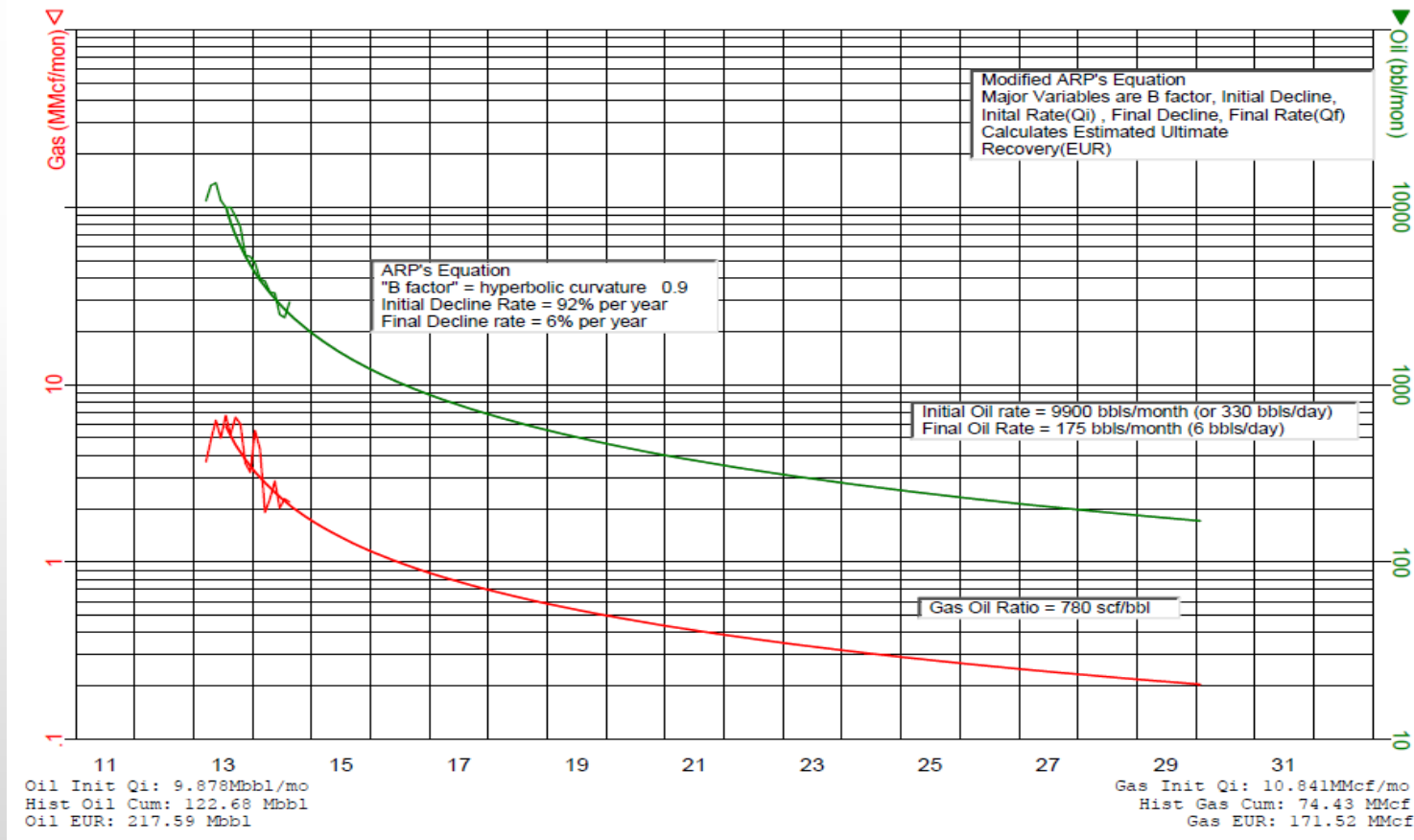
These wells were date shifted to a common, hypothetical, starting date. Then, summed monthly production was divided by the number of wells producing during that month.



Determining EUR

Estimated Ultimate Recovery (EUR)

- Use Type Curve Factors to schedule remaining monthly Production for each well
 - Modified ARPs formula, “B” hyperbolic factor, Minimum Decline(Terminal)



Economic Factors

- Prices from run sheets
- Calculate Differentials against benchmark pricing (NYMEX)
- Input Royalty fraction from run sheets (or Assignment Sheet)
- Production taxes
- Advalorem taxes
- Gas processing fees (who pays – taken out of checks?)
- Determine Economic Life to operator
- Compare last six months net cash flow
- Risk Factors
- Net cash flow tables & summary
- One-liners

Economic Factors - Prices

CELEBRATING 20 YEARS
ino.com
Pulse Markets News MarketClub Blog Free
Monday Aug 3, 2:58PM EDT
Quotes & Exchanges

S&P 500
2091.71
-12.13 -0.58%

Dow Indu
17535.56
-154.30 -0.87%

Nasdaq
5103.46
-24.82 -0.48%

Crude Oil
45.20
-1.92 -4.11%

Gold
1091.890
-1.460 -0.13%

Euro
1.095790
-0.001455 -0.13%

US Dollar
97.469
+0.229 +0.29%

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SPAM TITAN
AWARD WINNING ANTI SPAM

Sector Analysis
[CLICK HERE](#)

CRUDE OIL WTI CALENDAR (CLRP:CS)

[Markets](#) | [All Futures](#) | [Open Futures](#) | [Exchange List](#) | [Portfolio](#)

LIVE EVENT: Powerful Fibonacci Patters
You'll discover how you could use Fibonacci tools to find powerful profit patterns and:

- How to spot Wave Patterns you'd easily miss without Fibonacci tools.
- How to forecast, find, and trade retracement & extension points for potentially higher profits.
- Secrets of how to use Time & Volume to find hidden opportunities in the market.
- Secrets of Japanese Candlestick every Fib Trader should know.

[Click Here to register for this informative webinar - FREE!](#)

ClearPort (CLRP) > Energy > CRUDE OIL WTI CALENDAR (CS)

Market	Contract	Open	High	Low	Last	Change	Pct	Time
CS.N15.E	Jul 2015 (E)	50.93	50.93	50.93	50.93	-0.06	-0.12%	set 15:11
CS.Q15.E	Aug 2015 (E)	47.26	47.26	47.26	47.26	-1.39	-2.94%	set 15:11
CS.U15.E	Sep 2015 (E)	47.72	47.72	47.72	47.72	-1.37	-2.87%	set 15:11
CS.V15.E	Oct 2015 (E)	48.47	48.47	48.47	48.47	-1.30	-2.68%	set 15:11
CS.X15.E	Nov 2015 (E)	49.10	49.10	49.10	49.10	-1.24	-2.53%	set 15:11
CS.Z15.E	Dec 2015 (E)	49.83	49.83	49.83	49.83	-1.17	-2.35%	set 15:11
CS.F16.E	Jan 2016 (E)	50.51	50.51	50.51	50.51	-1.08	-2.14%	set 15:11
CS.G16.E	Feb 2016 (E)	51.06	51.06	51.06	51.06	-0.98	-1.92%	set 15:11
CS.H16.E	Mar 2016 (E)	51.66	51.66	51.66	51.66	-0.88	-1.70%	set 15:11
CS.J16.E	Apr 2016 (E)	52.17	52.17	52.17	52.17	-0.79	-1.51%	set 15:11
CS.K16.E	May 2016 (E)	52.58	52.58	52.58	52.58	-0.74	-1.41%	set 15:11
CS.M16.E	Jun 2016 (E)	52.94	52.94	52.94	52.94	-0.70	-1.32%	set 15:11
CS.N16.E	Jul 2016 (E)	53.28	53.28	53.28	53.28	-0.69	-1.30%	set 15:11
CS.Q16.E	Aug 2016 (E)	53.61	53.61	53.61	53.61	-0.68	-1.27%	set 15:11
CS.U16.E	Sep 2016 (E)	54.00	54.00	54.00	54.00	-0.68	-1.26%	set 15:11
CS.V16.E	Oct 2016 (E)	54.36	54.36	54.36	54.36	-0.67	-1.23%	set 15:11
CS.X16.F	Nov 2016 (F)	54.69	54.69	54.69	54.69	-0.65	-1.19%	set 15:11

QUOTES

Market Summary

Exchange List

Index Charts

Portfolio

Extreme Markets

EQUITIES

World Indices

Dow 30

Tech Stocks

Top ETFs

Recent Splits

FOREX

Spot Forex

Cross Rates

FUTURES

All Futures

Open Futures

Symbol List

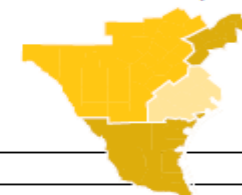
Economic Factors – Expenses, Drilling Costs

Regional Intelligence & Business Opportunities

January 09, 2015



SOUTH TEXAS OIL SCOUT



Serving the local market with drilling activity, permits & multiple listings

Volume 03, No. 01

Regional Activity (State Data) (December 09, 2014 to January 02, 2015)

	Compls	Permits
South Texas (RRC1)	14	189
South Texas (RRC2)	13	136
South Texas (RRC3)	3	48
South Texas (RRC4)	13	49

Most Active Operators by Permits

1	Marathon Oil	53
2	Anadarko E&P	41
3	Chesapeake	41

Permits by Formation (by Last Scout)

Formation	01/09	12/12	11/20
Eagle Ford	314	394	459
Woodbine	19	8	8
Austin Chalk	15	27	23
Olmos	13	5	13
Buda	5	8	16
Vicksburg	4	3	2
Glen Rose	3	1	1
H-434	2	-	-
Queen City Cons	2	-	-
Other Formations	45	93	93
TOTAL	422	539	615

Sources: DrillingInfo & TXRRC

Active Rigs Running (Baker Hughes) 266

Eagle Ford new-well oil production per rig (Dec 2014)

BlackBrush tests first STS Olmos multi-well pad

BlackBrush Oil & Gas wrapped up its first multi-well pad drilling program (three horizontals) on the South Texas Syndicate Olmos project in McMullen Co., according to 27% partner Terrace Energy. The STS #1-6 well was frac'd in 15 stages using a "zipper frac" technique and IP'd 483 bopd and 543 Mcfd in seven days.

The second well, the #2-6H, was frac'd in 22 stages and tested at 589 bopd and 858 Mcfd while the final well, the #3-6H, was also frac'd in 22 stages and IP'd 643 bopd



and 765 Mcfd in seven days. With average laterals of 5,500 ft, the wells each showed oil within the first few hours of testing and produced 12,000 bbl of oil from December 31 to January 8.

BlackBrush successfully drilled and cased its second Olmos three-well pad in La Salle Co. with an average lateral of 5,400 ft. The well will undergo the same zipper frac technique. The company currently has a rig drilling the STS #3-605H well on its third Olmos pad. BlackBrush will continue to run one rig for 2015 drilling three-well pads.

Matador scales back rigs in the Eagle Ford Shale

Matador Resources announced it will pull its rigs out of the Eagle Ford Shale due to plunging crude and natural gas prices. The company was running two rigs in South Texas, where it holds 29,200 net acres (82% HBP) spread across Atascosa, DeWitt, Gonzales, Wilson and Zavala Cos. Its Eagle Ford acreage was producing 7,600 boepd during 3Q14, up 14% YOY, and the company has identified 273 gross (229 net) remaining drilling locations.

With the Eagle Ford out of the picture for now, Matador will shift its focus to the



Permian where it will run three new state-of-the-art "build" rigs—capable carrying out drilling and completion activities simultaneously. One of the three rigs is on-site and the company is expecting delivery of the remaining two in the summer. These new rigs will considerably lower drilling expenses in the Permian Basin. The Dallas-based operator will shift its focus back to the Eagle Ford once commodity prices recover. [▶ Continues On Pg 9](#)

Magnum flows 1.2 MMcf from Wilcox recompletion

Magnum Producing LP recompleted its Lehmann Etal #1 as a gas well located

MD America IP's 5.3 MMcf from Woodbine in Brazos Co.

MD America Energy, operating as Woodbine Acquisition LLC, completed its Wilson #1-OH Woodbine A well with an IP rate of 3,888 Mcfd and 242 bopd, or 5,340 Mcfd, in the Madisonville W Field in Brazos Co. on a 3-inch choke with 100 psi FTP. The well was drilled to 14,904 ft MD (5,420 ft TVD) and was frac'd in 21 stages using 5.4 million lb of sand and 72,146 bbl of fluid. MD is running one horizontal rig in Brazos Co. and one in Madison Co. both drilling the Woodbine A.

Fort Worth-based MD America is a subsidiary of publicly traded Chinese conglomerate Meidu Holding, which acquired the company (then called Woodbine Acquisition) for \$535 million in July 2013. Run by CEO Eric Waller, the company is active in Brazos, Grimes and Madison Cos. According to DrillingInfo, MD is producing 10,314 bopd and 16,106 Mcfd from 78 operated Woodbine wells.

DEALS FOR SALE

ARANSAS CO., TEXAS PROPERTY
11-Active Wells, ~3,200 Acres.
NINE MILE POINT (CONS. FIELD)
Frio Consolidated
Liquids Rich Natural Gas
BBL OPERATED W/ 88% INTEREST

ELG
PP

Economic Factors - Risk



Table 12

CONVENTIONAL						
Composite RAFs for Respondents Who Use RAFs Exclusively or In Conjunction with RADRs (%)						
(71 Respondents)	Average	Median	Standard Deviation	Minimum	Maximum	Mode
Proved Producing	94.3	100.0	14.5	10.0	100.0	100.0
Proved Shut-In	79.8	81.5	15.1	20.0	100.0	90.0
Proved Behind-Pipe	74.9	75.0	15.6	20.0	100.0	75.0
Proved Undeveloped	56.9	50.0	19.8	10.0	100.0	50.0
Probable Producing	36.7	47.5	23.4	0.0	85.0	50.0
Probable Shut-In	30.1	30.0	21.3	0.0	80.0	50.0
Probable Behind-Pipe	28.2	30.0	20.8	0.0	75.0	50.0
Probable Undeveloped	26.6	25.0	20.6	0.0	75.0	50.0
Possible Producing	13.8	10.0	17.1	0.0	85.0	0.0
Possible Shut-In	12.1	9.5	16.0	0.0	85.0	0.0
Possible Behind-Pipe	11.7	10.0	15.2	0.0	85.0	0.0
Possible Undeveloped	11.4	10.0	15.3	0.0	90.0	0.0
Contingent Undeveloped	4.1	0.0	8.0	0.0	50.0	0.0
Prospective Undeveloped	2.1	0.0	3.6	0.0	15.0	0.0

Table 13

UNCONVENTIONAL						
Composite RAFs for Respondents Who Use RAFs Exclusively or In Conjunction with RADRs (%)						
(48 Respondents)	Average	Median	Standard Deviation	Minimum	Maximum	Mode
Proved Producing	94.8	100.0	8.8	50.0	100.0	100.0
Proved Shut-In	78.7	80.0	15.6	25.0	100.0	75.0
Proved Behind-Pipe	73.9	75.0	20.0	10.0	100.0	75.0
Proved Undeveloped	62.1	59.0	20.4	10.0	100.0	50.0
Probable Producing	39.7	50.0	24.2	0.0	90.0	50.0
Probable Shut-In	33.0	30.0	23.6	0.0	85.0	50.0
Probable Behind-Pipe	31.6	29.0	23.2	0.0	80.0	50.0
Probable Undeveloped	30.4	27.0	22.8	0.0	80.0	50.0
Possible Producing	15.8	10.0	16.0	0.0	70.0	0.0
Possible Shut-In	13.2	10.0	14.4	0.0	60.0	0.0
Possible Behind-Pipe	13.0	10.0	13.3	0.0	50.0	0.0
Possible Undeveloped	12.4	10.0	11.8	0.0	50.0	0.0
Contingent Undeveloped	4.4	0.0	6.5	0.0	25.0	0.0
Prospective Undeveloped	2.7	0.0	4.7	0.0	20.0	0.0

SPEE 2014 Annual
Parameter Survey,
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the Society of
Petroleum Evaluation
Engineers

Cash Flow Analysis – Proved Developed Producing (PDP)

Date : 08/03/2015 7:23:18AM

ECONOMIC PROJECTION

Project Name : Nicosia Et Al
 Partner : All Cases
 Case Type : LEASE CASE
 Archive Set : default

As Of Date : 10/01/2014
 Discount Rate (%) : 10.00
 GANN FESTERVAN 1H

Case : GANN FESTERVAN 1H - 1H
 Reserve Cat : Proved Producing
 Field : EAGLEVILLE
 Operator : VALENE OPERATING COMPANY
 Reservoir : EAGLE FORD-1
 Co. State : ATASCOSA (TX), TX

Cum Oil (Mbbbl) : 124.99
 Cum Gas (MMcf) : 76.40
 Cum NGL (Mgal) : 0.00

Year	Gross Oil (Mbbbl)	Gross Gas (MMcf)	Gross NGL (Mgal)	Net Oil (Mbbbl)	Net Gas (MMcf)	Net NGL (Mgal)	Oil Price (\$/bbl)	Gas Price (\$/Mcf)	NGL Price (\$/gal)	Total Revenue (M\$)
2014	6.37	5.52	0.00	0.48	0.41	0.00	99.72	3.91	0.00	49.25
2015	18.33	16.72	0.00	1.37	1.25	0.00	94.93	3.94	0.00	135.43
2016	12.36	11.99	0.00	0.93	0.90	0.00	91.03	4.06	0.00	88.06
2017	9.22	9.31	0.00	0.69	0.70	0.00	88.93	4.22	0.00	64.46
2018	7.33	7.63	0.00	0.55	0.57	0.00	87.72	4.42	0.00	50.78
2019	6.07	6.46	0.00	0.45	0.48	0.00	87.72	4.42	0.00	42.05
2020	5.17	5.62	0.00	0.39	0.42	0.00	87.72	4.42	0.00	35.89
2021	4.48	4.95	0.00	0.34	0.37	0.00	87.72	4.42	0.00	31.10
2022	3.95	4.43	0.00	0.30	0.33	0.00	87.72	4.42	0.00	27.46
2023	3.53	4.01	0.00	0.26	0.30	0.00	87.72	4.42	0.00	24.56
2024	3.20	3.67	0.00	0.24	0.27	0.00	87.72	4.42	0.00	22.24
2025	2.90	3.36	0.00	0.22	0.25	0.00	87.72	4.42	0.00	20.21
2026	2.66	3.11	0.00	0.20	0.23	0.00	87.72	4.42	0.00	18.55
2027	2.46	2.90	0.00	0.18	0.22	0.00	87.72	4.42	0.00	17.13
2028	2.29	2.72	0.00	0.17	0.20	0.00	87.72	4.42	0.00	15.95
Rem	2.28	2.72	0.00	0.17	0.20	0.00	87.72	4.42	0.00	15.80
Total	92.60	95.12	0.00	6.94	7.13	0.00	90.54	4.24	0.00	659.03
Utr	217.59	171.52	0.00							

Year	Well Count	Net Tax Production (M\$)	Net Tax AdValorem (M\$)	Net Investment (M\$)	Net Lease Costs (M\$)	Net Well Costs (M\$)	Other Costs (M\$)	Net Profits (M\$)	Annual Cash Flow (M\$)	Cum Disc. Cash Flow (M\$)
2014	1.00	2.31	1.23	0.00	0.00	0.00	0.00	0.00	45.70	45.17
2015	1.00	6.37	3.39	0.00	0.00	0.00	0.00	0.00	125.68	162.62
2016	1.00	4.16	2.20	0.00	0.00	0.00	0.00	0.00	81.70	231.96
2017	1.00	3.05	1.61	0.00	0.00	0.00	0.00	0.00	59.79	278.06
2018	1.00	2.41	1.27	0.00	0.00	0.00	0.00	0.00	47.10	311.06
2019	1.00	2.00	1.05	0.00	0.00	0.00	0.00	0.00	39.01	335.90
2020	1.00	1.71	0.90	0.00	0.00	0.00	0.00	0.00	33.29	355.17
2021	1.00	1.48	0.78	0.00	0.00	0.00	0.00	0.00	28.85	370.34
2022	1.00	1.31	0.69	0.00	0.00	0.00	0.00	0.00	25.47	382.52
2023	1.00	1.17	0.61	0.00	0.00	0.00	0.00	0.00	22.78	392.43
2024	1.00	1.06	0.56	0.00	0.00	0.00	0.00	0.00	20.63	400.58
2025	1.00	0.96	0.51	0.00	0.00	0.00	0.00	0.00	18.74	407.31
2026	1.00	0.88	0.46	0.00	0.00	0.00	0.00	0.00	17.20	412.93
2027	1.00	0.82	0.43	0.00	0.00	0.00	0.00	0.00	15.89	417.65
2028	1.00	0.76	0.40	0.00	0.00	0.00	0.00	0.00	14.79	421.64
Rem		0.76	0.40	0.00	0.00	0.00	0.00	0.00	14.74	3.60
Total		31.19	16.48	0.00	0.00	0.00	0.00	0.00	611.36	425.24

Perfs:	Oil	Abandonment Date :	01/27/2030	Present Worth Profile (M\$)
Initial Rate :	9421 - 15876	Working Int :	0.00000000	PW 5.00% :
Abandonment :	2,278.03 bbl/month	Revenue Int :	0.07500000	499.60
Initial Decline :	170.64 bbl/month	Disc. Initial Invest. (M\$) :	0.000	PW 8.00% :
Beg Ratio :	49.12 % year b = 0.900	ROI Investment (disc/undisc) :	0.00 / 0.00	451.69
End Ratio :	0.855 Mcf/bbl	Years to Payout :	0.00	PW 10.00% :
		Internal ROR (%) :	0.00	425.24
				PW 12.00% :
				402.26
				PW 15.00% :
				372.99
				PW 20.00% :
				334.54

Cash Flow Analysis – Proved Developed Producing (PDP) - Revenue

Date : 08/03/2015 7:23:18AM

ECONOMIC PROJECTION

Project Name : Nicosia Et Al
 Partner : All Cases
 Case Type : LEASE CASE
 Archive Set : default

As Of Date : 10/01/2014
 Discount Rate (%) : 10.00
 GANN FESTERVAN 1H

Case : GANN FESTERVAN 1H - 1H
 Reserve Cat. : Proved Producing
 Field : EAGLEVILLE
 Operator : VALENCE OPERATING COMPANY
 Reservoir : EAGLE FORD-1
 Co., State : ATASCOSA (TX), TX

Cum Oil (Mbbbl) : 124.99
 Cum Gas (MMcf) : 76.40
 Cum NGL (Mgal) : 0.00

Year	Gross Oil (Mbbbl)	Gross Gas (MMcf)	Gross NGL (Mgal)	Net Oil (Mbbbl)	Net Gas (MMcf)	Net NGL (Mgal)	Oil Price (\$/bbl)	Gas Price (\$/Mcf)	NGL Price (\$/gal)	Total Revenue (M\$)
2014	6.37	5.52	0.00	0.48	0.41	0.00	99.72	3.91	0.00	49.25
2015	18.33	16.72	0.00	1.37	1.25	0.00	94.93	3.94	0.00	135.43
2016	12.36	11.99	0.00	0.93	0.90	0.00	91.03	4.06	0.00	88.06
2017	9.22	9.31	0.00	0.69	0.70	0.00	88.93	4.22	0.00	64.46
2018	7.33	7.63	0.00	0.55	0.57	0.00	87.72	4.42	0.00	50.78
2019	6.07	6.46	0.00	0.45	0.48	0.00	87.72	4.42	0.00	42.05
2020	5.17	5.62	0.00	0.39	0.42	0.00	87.72	4.42	0.00	35.89
2021	4.48	4.95	0.00	0.34	0.37	0.00	87.72	4.42	0.00	31.10
2022	3.95	4.43	0.00	0.30	0.33	0.00	87.72	4.42	0.00	27.46
2023	3.53	4.01	0.00	0.26	0.30	0.00	87.72	4.42	0.00	24.56
2024	3.20	3.67	0.00	0.24	0.27	0.00	87.72	4.42	0.00	22.24
2025	2.90	3.36	0.00	0.22	0.25	0.00	87.72	4.42	0.00	20.21
2026	2.66	3.11	0.00	0.20	0.23	0.00	87.72	4.42	0.00	18.55
2027	2.46	2.90	0.00	0.18	0.22	0.00	87.72	4.42	0.00	17.13
2028	2.29	2.72	0.00	0.17	0.20	0.00	87.72	4.42	0.00	15.95
Rem	2.28	2.72	0.00	0.17	0.20	0.00	87.72	4.42	0.00	15.89
Total	92.60	95.12	0.00	6.94	7.13	0.00	90.54	4.24	0.00	659.03
Ult	217.59	171.52	0.00							

Cash Flow Analysis – Proved Developed Producing (PDP) - Expense

Year	Well Count	Net Tax Production (M\$)	Net Tax AdValorem (M\$)	Net Investment (M\$)	Net Lease Costs (M\$)	Net Well Costs (M\$)	Other Costs (M\$)	Net Profits (M\$)	Annual Cash Flow (M\$)	Cum Disc. Cash Flow (M\$)
2014	1.00	2.31	1.23	0.00	0.00	0.00	0.00	0.00	45.70	45.17
2015	1.00	6.37	3.39	0.00	0.00	0.00	0.00	0.00	125.68	162.62
2016	1.00	4.16	2.20	0.00	0.00	0.00	0.00	0.00	81.70	231.96
2017	1.00	3.05	1.61	0.00	0.00	0.00	0.00	0.00	59.79	278.06
2018	1.00	2.41	1.27	0.00	0.00	0.00	0.00	0.00	47.10	311.06
2019	1.00	2.00	1.05	0.00	0.00	0.00	0.00	0.00	39.01	335.90
2020	1.00	1.71	0.90	0.00	0.00	0.00	0.00	0.00	33.29	355.17
2021	1.00	1.48	0.78	0.00	0.00	0.00	0.00	0.00	28.85	370.34
2022	1.00	1.31	0.69	0.00	0.00	0.00	0.00	0.00	25.47	382.52
2023	1.00	1.17	0.61	0.00	0.00	0.00	0.00	0.00	22.78	392.43
2024	1.00	1.06	0.56	0.00	0.00	0.00	0.00	0.00	20.63	400.58
2025	1.00	0.96	0.51	0.00	0.00	0.00	0.00	0.00	18.74	407.31
2026	1.00	0.88	0.46	0.00	0.00	0.00	0.00	0.00	17.20	412.93
2027	1.00	0.82	0.43	0.00	0.00	0.00	0.00	0.00	15.89	417.65
2028	1.00	0.76	0.40	0.00	0.00	0.00	0.00	0.00	14.79	421.64
Rem.		0.76	0.40	0.00	0.00	0.00	0.00	0.00	14.74	3.60
Total		31.19	16.48	0.00	0.00	0.00	0.00	0.00	611.36	425.24

Cash Flow Analysis – Proved Developed Producing (PDP) – Discount Table

Present Worth Profile (M\$)

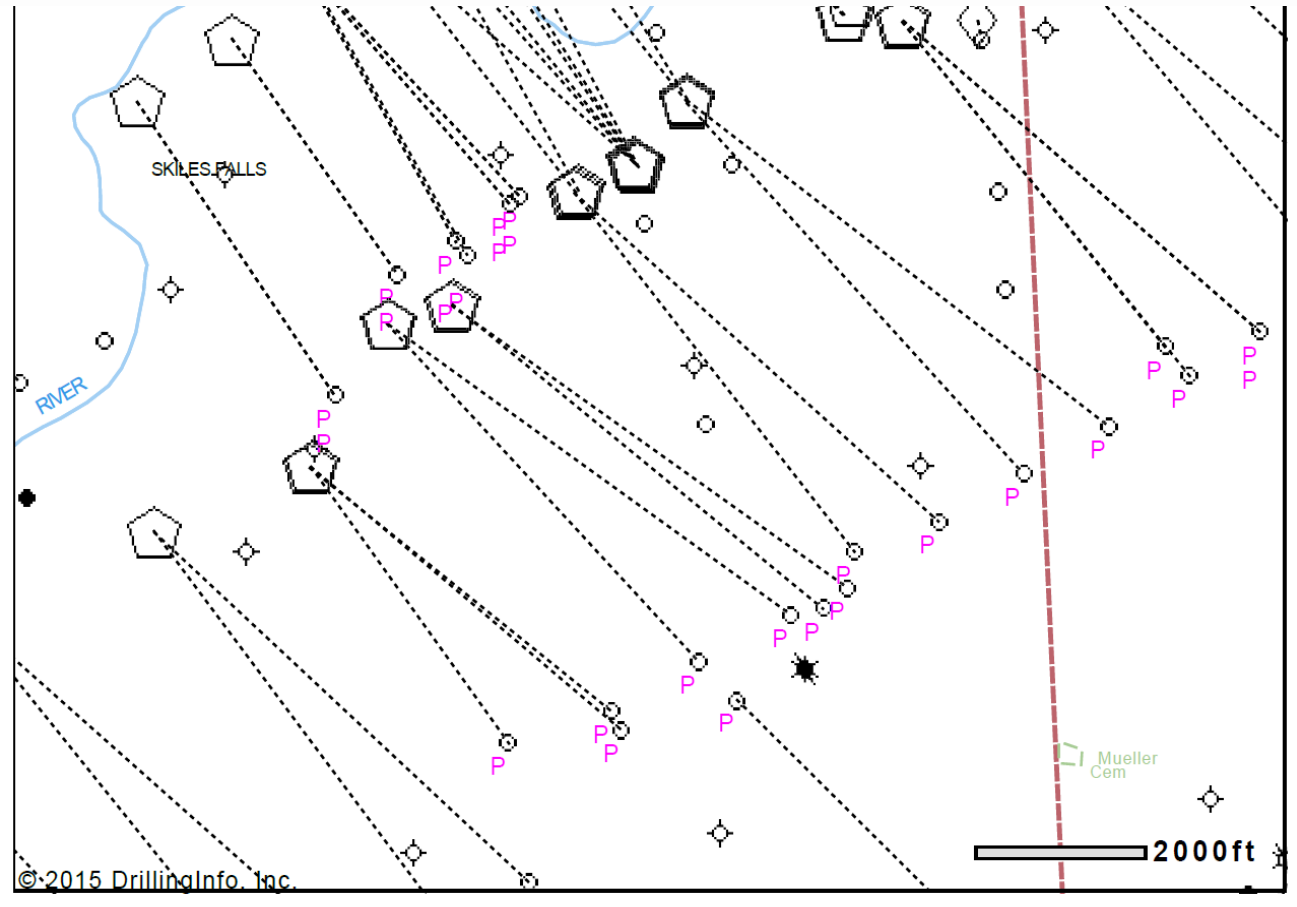
PW	5.00% :	499.60
PW	8.00% :	451.69
PW	10.00% :	425.24
PW	12.00% :	402.26
PW	15.00% :	372.99
PW	20.00% :	334.54

- Compounding
 - Monthly
 - Annual
- Accrual
 - Month
 - (Beg, Mid, End)

Banks use 9% or 10% Discounting, then apply Risk

Estimated Ultimate Recovery of Undrilled Locations – Proved Undeveloped (PUD)

- Determine Opportunity Count
- Lateral Length (4000'-9000')
- Unit Spacing (Field Rules)
- 80 -120 acres (oil well)



PUDs – Estimated Ultimate Recovery

Estimated Ultimate Recovery of Undrilled Locations – Proved Undeveloped (PUD)

- Which of the opportunities can be classified as PROVED?

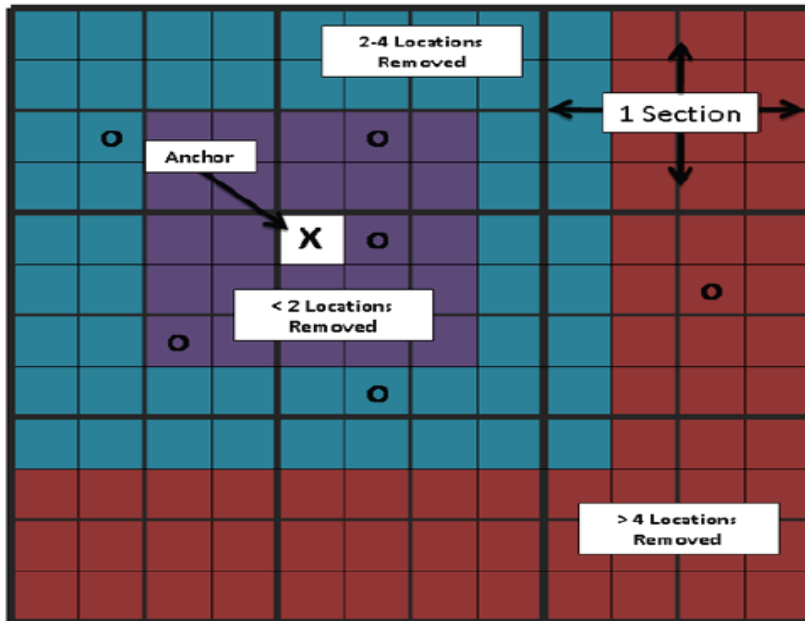


Fig. 3.8 – Example 1 – Test Set Areas Surrounding Anchor Well

Before Resource Plays,

“Proved” traditionally located one-offset away

SPEE Monograph 3: Guidelines for the Practical Evaluation of Undeveloped Reserves in Resource Plays, Chapter 3, @Copyright 2010 by the Society of Petroleum Evaluation Engineers

Estimated Ultimate Recovery of Undrilled Locations – Proved Undeveloped (PUD)

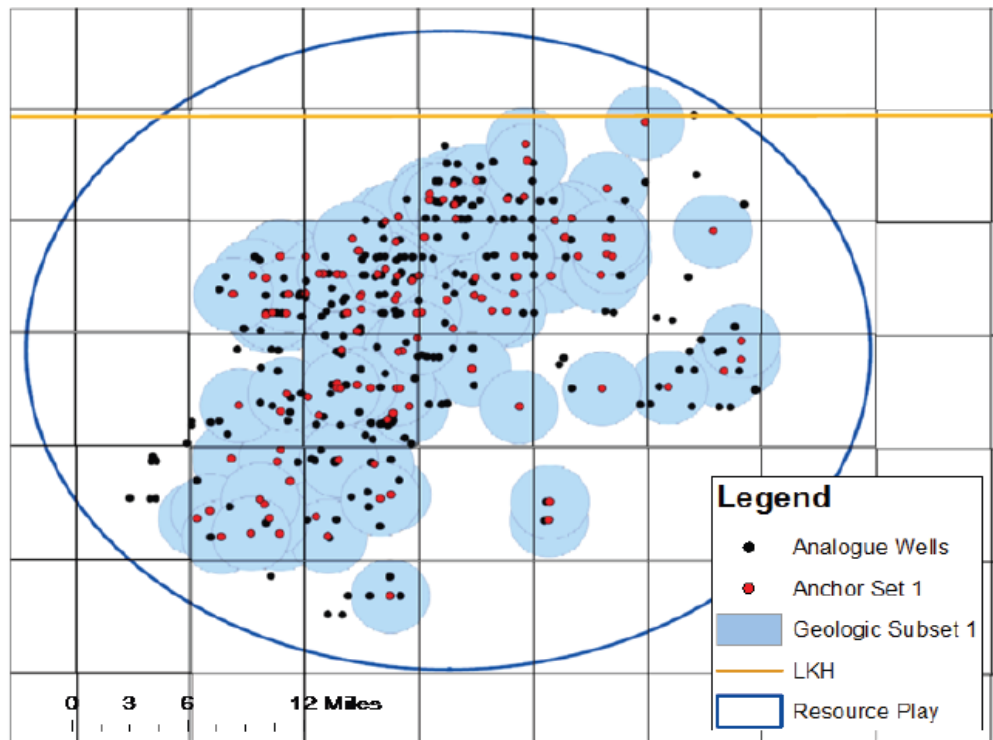
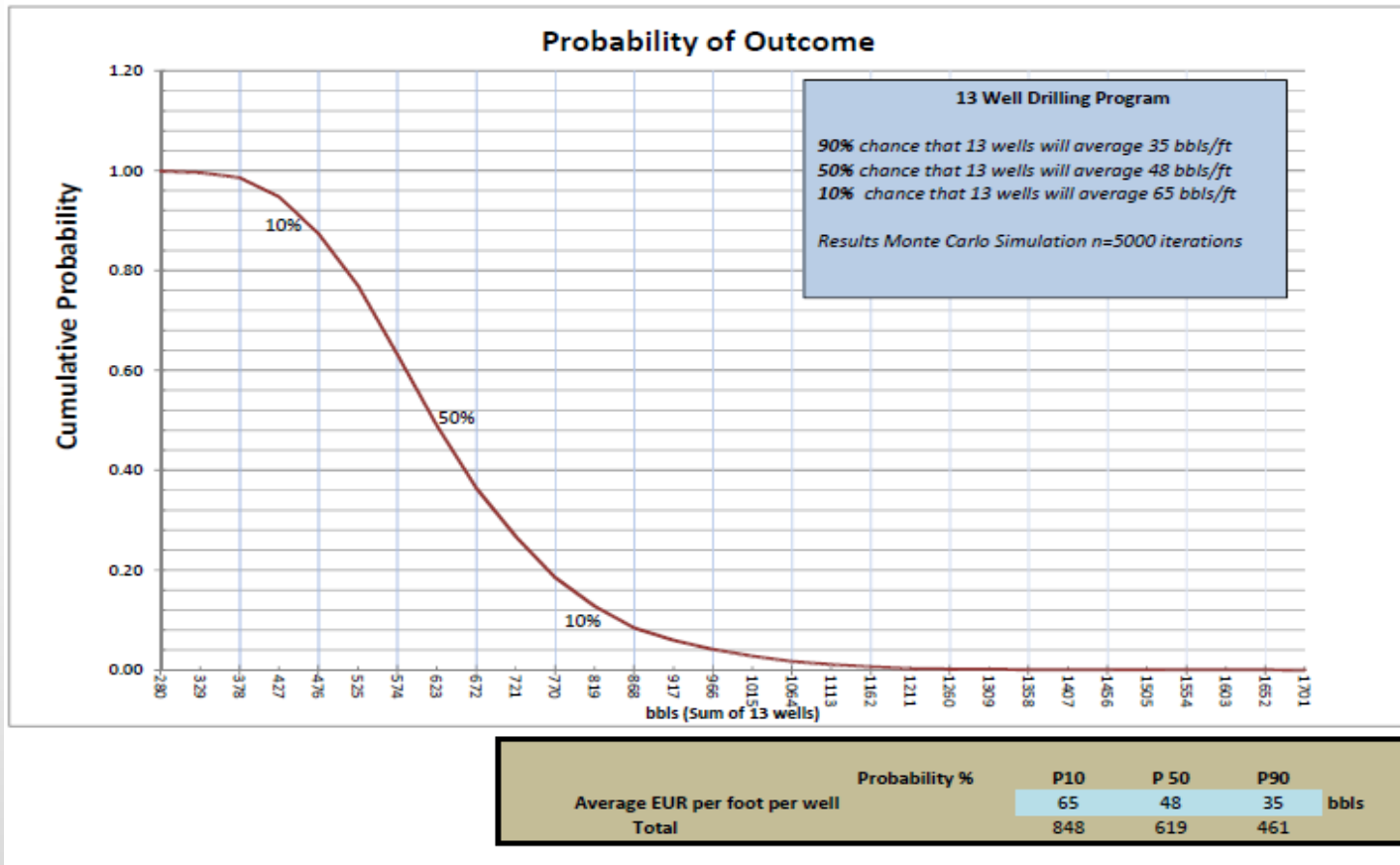


Fig. 3.13 – Example 2 - Anchor Wells in Resource Play

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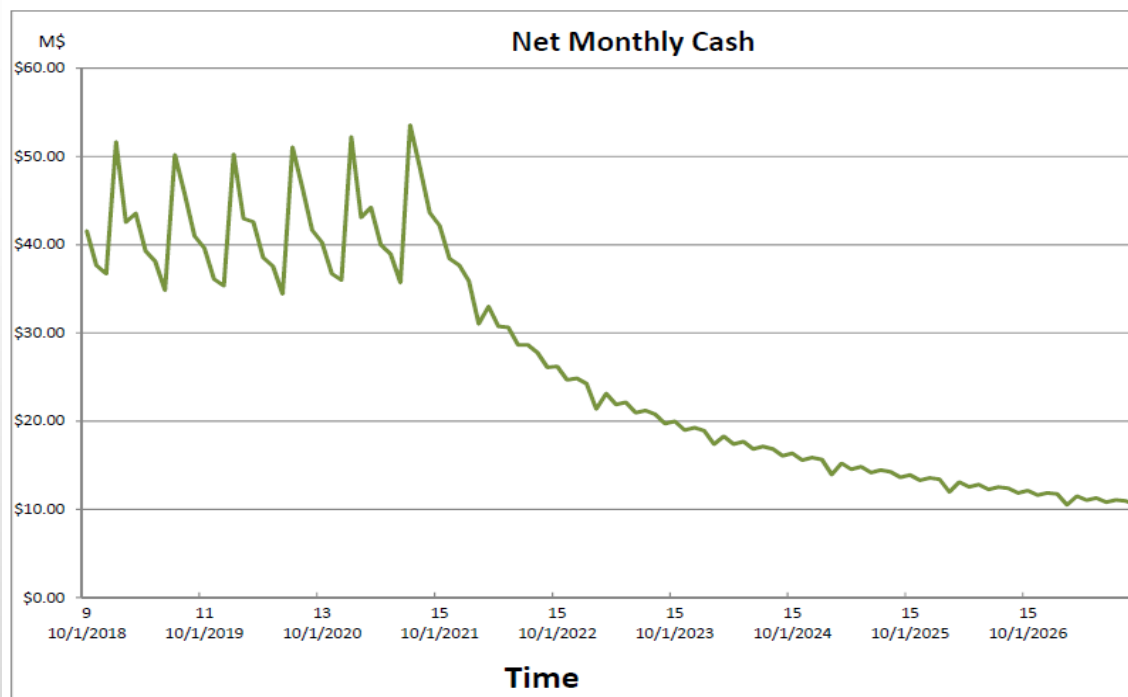
Adjusted EUR of Undrilled Locations – Proved Undeveloped (PUD) Uncertainty



PUDs – Estimated Ultimate Recovery

Cash Flow Analysis – Summary PDP plus PUDs

- What does the Cash Flow look like over the next 10+ years after scheduling projected drilling program?



Cash Flow Analysis – Summary PDP plus PUDs

8/3/2015 3:14:24PM

Economic One-Liners

Project Name : Oil & Gas Portfolio

As of Date: 7/1/2015

Ownership Group : Royalty Cash Flow

Risked

Lease Name <i>Risked / UnRisked</i>	Reserve Category	Net Reserves		Net Revenue			Expense & Tax (M\$)	Invest. (M\$)	Cash Flow		Life (years)
		Oil (Mbbbl)	Gas (MMcf)	Oil (M\$)	Gas (M\$)	Other (M\$)			Non-Disc. (M\$)	Disc. CF (M\$)	
Grand Total	Total	48.12	36.53	2,405.90	127.86	0.00	183.60	0.00	2,350.16	1,480.97	15.57
UNIT 10H - 101H	P-DP	0.04	0.49	2.09	1.73	0.00	0.32	0.00	3.50	3.37	0.83
NORTH 3 - 3H	P-DP	4.22	2.64	210.75	9.26	0.00	15.89	0.00	204.12	140.71	14.95
WEST 2H - 0	P-DP	7.08	4.40	353.98	15.42	0.00	26.67	0.00	342.72	231.87	14.79
NORTH PUD 1 (9800) - 3H	P-UD	4.11	4.24	203.36	14.86	0.00	16.07	0.00	204.15	142.91	15.57
NORTH PUD 2 (8500) - 3H	P-UD	3.26	2.52	163.00	8.82	0.00	12.46	0.00	159.37	109.34	13.75
SOUTH PUD 2 (8123) - 0	P-UD	6.24	5.98	311.80	20.92	0.00	24.23	0.00	308.49	191.59	14.98
SOUTH PUD 2A (4180) - 0	P-UD	2.66	1.99	132.79	6.96	0.00	10.12	0.00	129.62	72.01	11.27
SOUTH PUD 3 (5000) - 0	P-UD	3.39	2.62	169.50	9.17	0.00	12.95	0.00	165.72	103.97	11.16
SOUTH PUD 3A (5666) - 0	P-UD	2.75	1.63	137.42	5.71	0.00	10.33	0.00	132.80	70.39	11.79
SOUTH PUD 4 (4000) - 0	P-UD	2.73	2.06	136.67	7.21	0.00	10.42	0.00	133.45	81.24	10.50
SOUTH PUD 4A (4350) - 0	P-UD	1.50	0.67	74.91	2.36	0.00	5.55	0.00	71.71	36.19	10.31
WEST PUD 1 (6500) - 0	P-UD	4.72	3.61	235.85	12.64	0.00	18.01	0.00	230.47	154.44	12.31
WEST PUD 1A (4400) - 0	P-UD	2.90	1.77	144.85	6.20	0.00	10.90	0.00	140.14	70.55	12.50
WEST PUD 5 (3900) - 0	P-UD	2.54	1.89	126.94	6.62	0.00	9.67	0.00	123.88	72.40	10.60

Cash Flow Analysis – Summary PDP plus PUDs

Date : 08/03/2015 3:11:31PM
Partner : Royalty Cash Flow

ECONOMIC SUMMARY PROJECTION

Total

Oil & Gas Portfolio
All Cases
Discount Rate : 10.00
As of : 07/01/2015

Est. Cum Oil (Mbbbl) : 137.12
Est. Cum Gas (MMcf) : 128.24
Est. Cum Water (Mbbbl) : 138.42

Year	Oil Gross (Mbbbl)	Gas Gross (MMcf)	Oil Net (Mbbbl)	Gas Net (MMcf)	Oil Price (\$/bbl)	Gas Price (\$/Mcf)	Oil & Gas Rev. Net (M\$)	Misc. Rev. Net (M\$)	Costs Net (M\$)	Taxes Net (M\$)	Invest. Net (M\$)	NonDisc. CF Annual (M\$)	Cum Disc. CF (M\$)	
2015	11.88	13.41	1.34	1.01	50.00	3.50	70.39	0.00	0.00	5.10	0.00	65.29	63.80	
2016	26.72	24.64	3.01	1.77	50.00	3.50	156.52	0.00	0.00	11.29	0.00	145.23	195.12	
2017	44.14	39.69	4.97	2.79	50.00	3.50	258.05	0.00	0.00	18.60	0.00	239.45	392.80	
2018	60.12	60.07	6.76	4.18	50.00	3.50	352.84	0.00	0.00	25.48	0.00	327.37	639.43	
2019	53.77	61.22	6.05	4.26	50.00	3.50	317.33	0.00	0.00	22.96	0.00	294.37	840.89	
2020	53.19	62.32	5.98	4.33	50.00	3.50	314.35	0.00	0.00	22.76	0.00	291.59	1,022.19	
2021	51.95	60.68	5.84	4.21	50.00	3.50	306.97	0.00	0.00	22.22	0.00	284.75	1,183.36	
2022	33.48	47.03	3.77	3.27	50.00	3.50	199.77	0.00	0.00	14.52	0.00	185.26	1,278.69	
2023	24.71	38.15	2.78	2.65	50.00	3.50	148.27	0.00	0.00	10.80	0.00	137.48	1,342.94	
2024	19.97	32.52	2.25	2.26	50.00	3.50	120.24	0.00	0.00	8.77	0.00	111.48	1,390.27	
2025	16.58	28.13	1.86	1.96	50.00	3.50	100.08	0.00	0.00	7.30	0.00	92.78	1,426.10	
2026	11.45	19.85	1.29	1.38	50.00	3.50	69.25	0.00	0.00	5.06	0.00	64.19	1,448.66	
2027	7.98	13.87	0.90	0.97	50.00	3.50	48.27	0.00	0.00	3.53	0.00	44.74	1,462.95	
2028	5.32	9.41	0.60	0.66	50.00	3.50	32.20	0.00	0.00	2.35	0.00	29.85	1,471.60	
2029	4.49	7.93	0.51	0.55	50.00	3.50	27.19	0.00	0.00	1.99	0.00	25.21	1,478.25	
Rem.	1.96	4.02	0.22	0.28	50.00	3.50	12.02	0.00	0.00	0.88	0.00	11.14	2.72	
Total	15.6	427.72	522.93	48.12	36.53	50.00	3.50	2,533.76	0.00	0.00	183.60	0.00	2,350.16	1,480.97
Ult.	564.84	651.17												

Eco. Indicators

Return on Investment (disc) : 0.00
Return on Investment (undisc) : 0.00
Years to Payout : 0.00
Internal Rate of Return (%) : 0.00

Present Worth Profile (M\$)

PW 5.00% :	1,836.78	PW 20.00% :	1,035.12
PW 8.00% :	1,608.77	PW 30.00% :	777.35
PW 10.00% :	1,480.97	PW 40.00% :	614.69
PW 12.00% :	1,368.90	PW 50.00% :	505.07
PW 15.00% :	1,225.06	PW 60.00% :	427.35

References

- www.spee.org
- www.ino.com
- www.plsx.com
- SPEE Monograph 3: Guidelines For the Practical Evaluation of Undeveloped Reserves in Resource Plays
- SPEE Annual Parameter Survey
- Petroleum Listing Service

Questions?