WHAT THE HELL IS GOING ON?

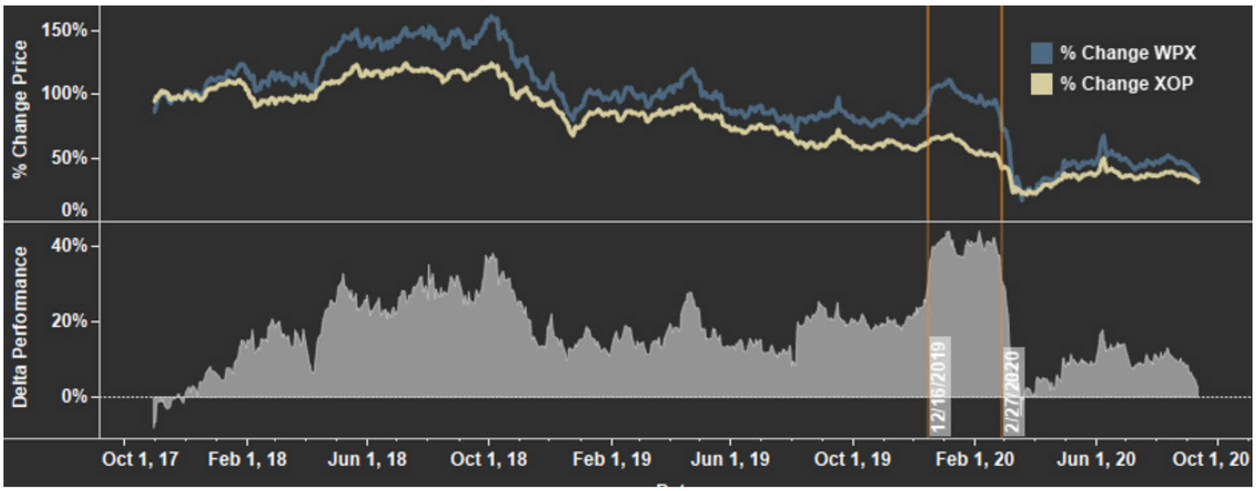
WPX'S PAST CREATES **ITS FUTURE**

The "What in the hell is going on? Series" is all about framing the context for investment managers. We seek to address the context of management's actions and the history of asset performance to understand key motivations and investment risks.

Friezo Loughrey Oil Well Partners (FLOW)
www.flowoilwell.com

WPX'S PAST CREATES ITS **FUTURE**

Over the last few years, the E&P subsector has disappointed investors. However, among the carnage, WPX Energy stands out as a "darling name" as shown by the stock's persistent sector outperformance since the 2017 OPEC+ cut announcement (annotated for Felix and the Q4 2019 earnings call).

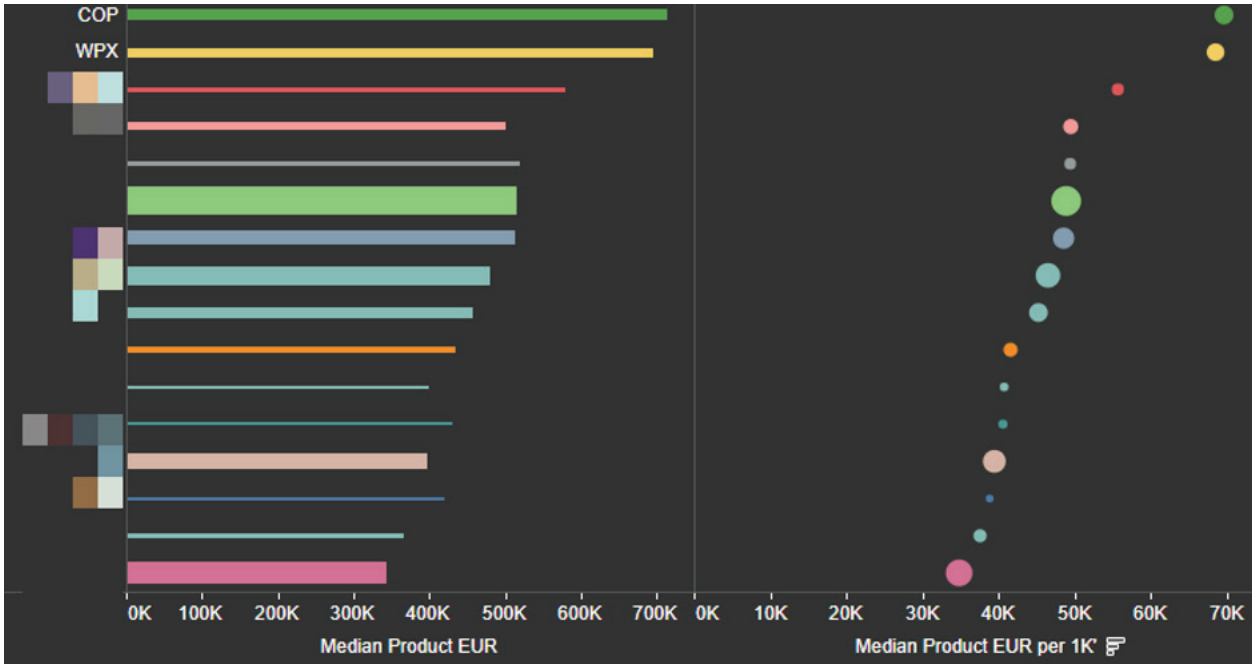


So, in December 2019 when WPX announced the $2.5bn acquisition of Delaware basin Felix Energy II, we felt it was necessary to wrap a data-driven framework around the company's operations.

This discussion will go into depth on Delaware basin-related issues, where in our opinion, the company focuses most of the IR time. However, it must be understood that WPX's Bakken is a first-class asset and is the reason WPX has done so well to date. In fact, 55% of WPX's oil production in 2019 came from the Williston Basin.

01/ WILLISTON BASIN MEDIAN OIL EURS LAST 3 YEARS

Our Basin Evaluator ranks companies by absolute well size and by expected oil per foot drilled. Over the last 3 years, WPX has established top tier results. However, our own buyside travels have included WPX rig visits and steak dinners where the Williston was never mentioned.



WPX is truly a star performer in the Bakken.

Furthermore, their Dunn County wells have been amongst the best performers in the lower 48 as broken out on our county-view heat map.

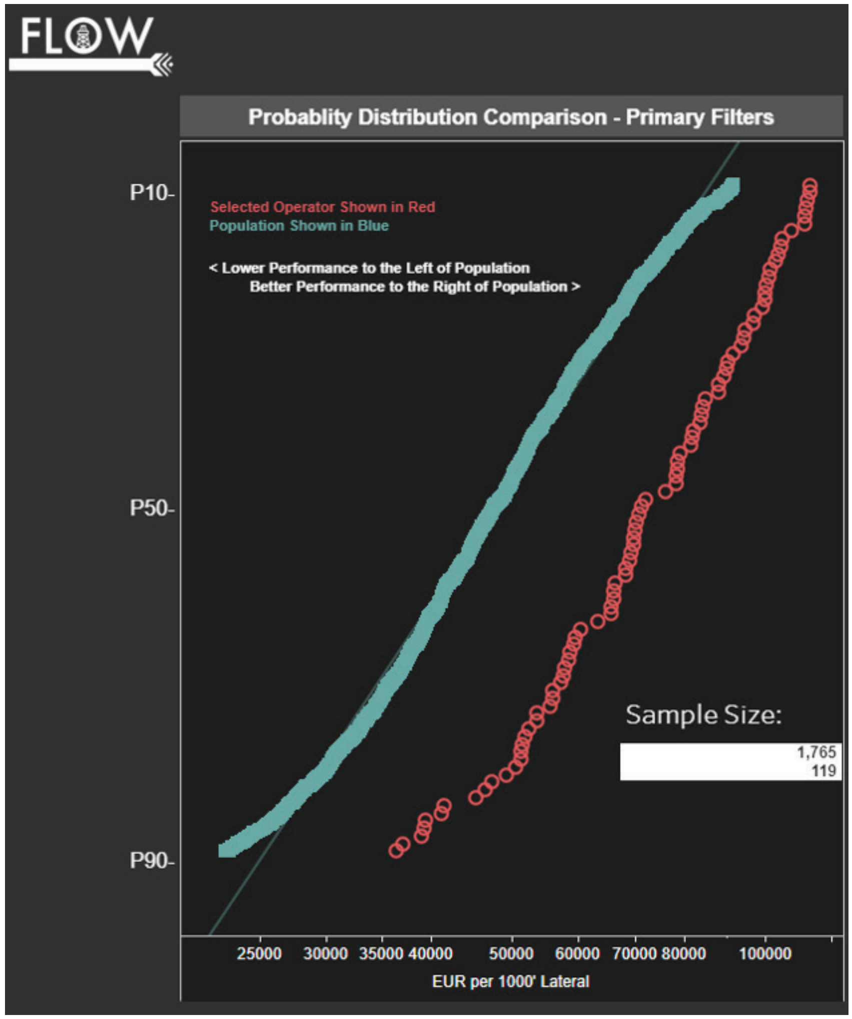
FLOW

Oil EUR Heat Map Parameterized by Production Date

Click here for info on table expansion.

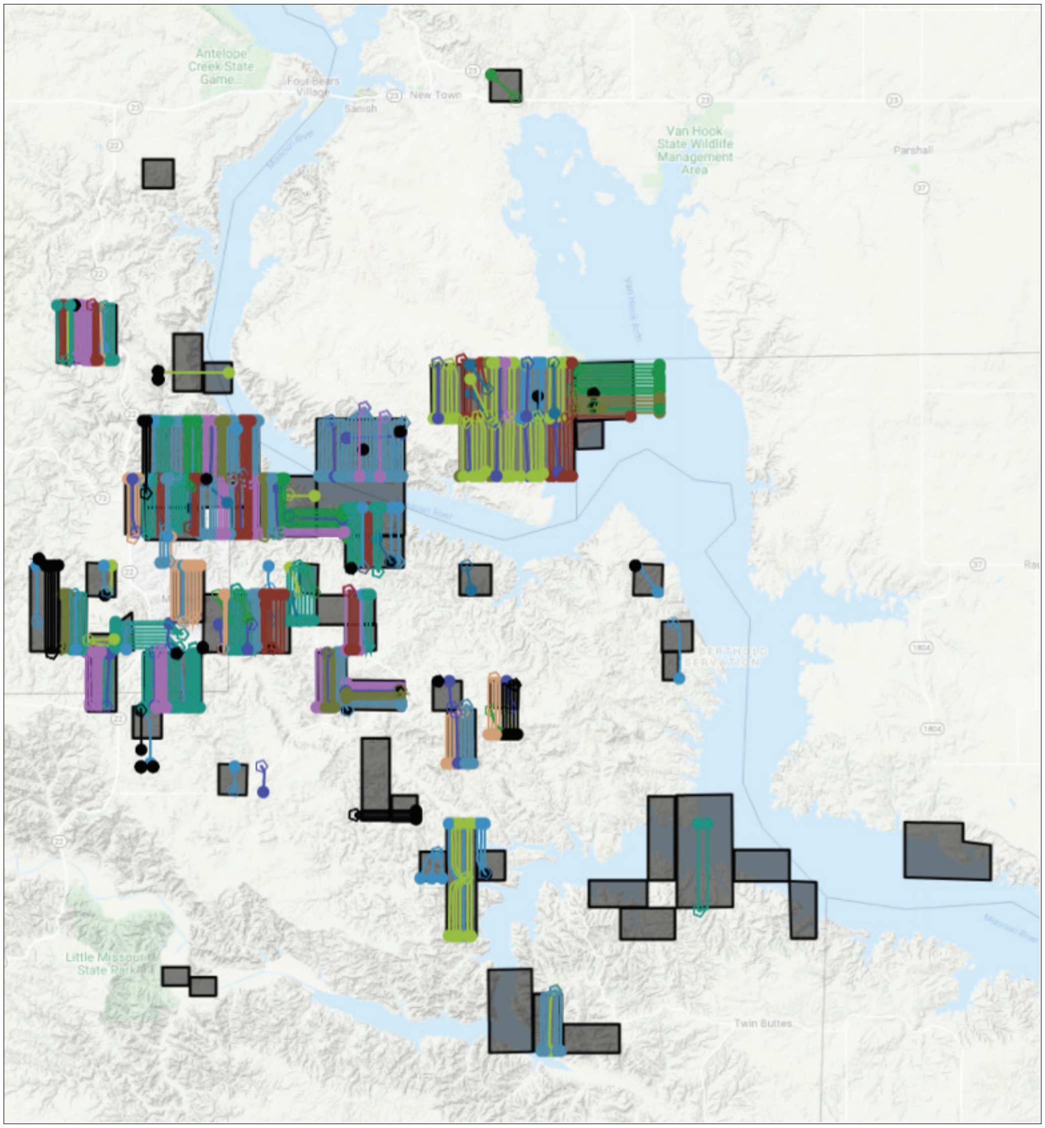
		First production date											
		2017				2018				2019			
Company Ticker	County	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WPX	DUNN	54,927	49,291		49,010		57,097	59,380	88,921	84,304		111,545	
	MC KENZIE		43,759	40,358				65,597	114,624	91,019	57,758	99,709	53,523
	MOUNTRAIL					99,713		82,193					

In comparison to the rest of the basin, WPX's wells dominate across the probability distribution. Their best wells beat the competition, their average wells beat the competition, and their worst wells beat the competition. In fact, 82% of WPX's wells beat the average basin well!



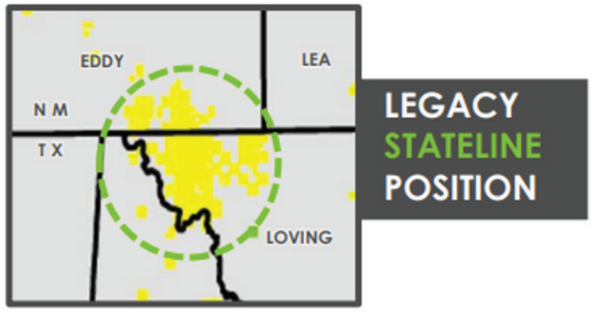
Yet the company's slide decks do not focus on these assets. In fact, since 2017, we observe the company provides just one slide per deck on the Williston. We think this is because the company knows their best asset has limited running room and would prefer to "sell the sizzle" of their Permian assets.

Here is a map of WPX's Williston acreage. They have clearly drilled with density across most of it.



Notice the teal green sticks from the 2019 vintage. Since these wells were crammed into space between existing wells, the company needed to shut in the prior wells every time they fracked an offset. We forecast Base Declines, and we noticed that ~100% of our 2019 variance was due to WPX shutting in up to 10% of their production each month as they moved the frac crews around. That is an unusually large downtime factor, and together with the map it confirms WPX has little open acreage.

02/ WPX STATELINE



WPX entered the Delaware basin with acquisitions in 2015 and 2017 focused on the Stateline area.

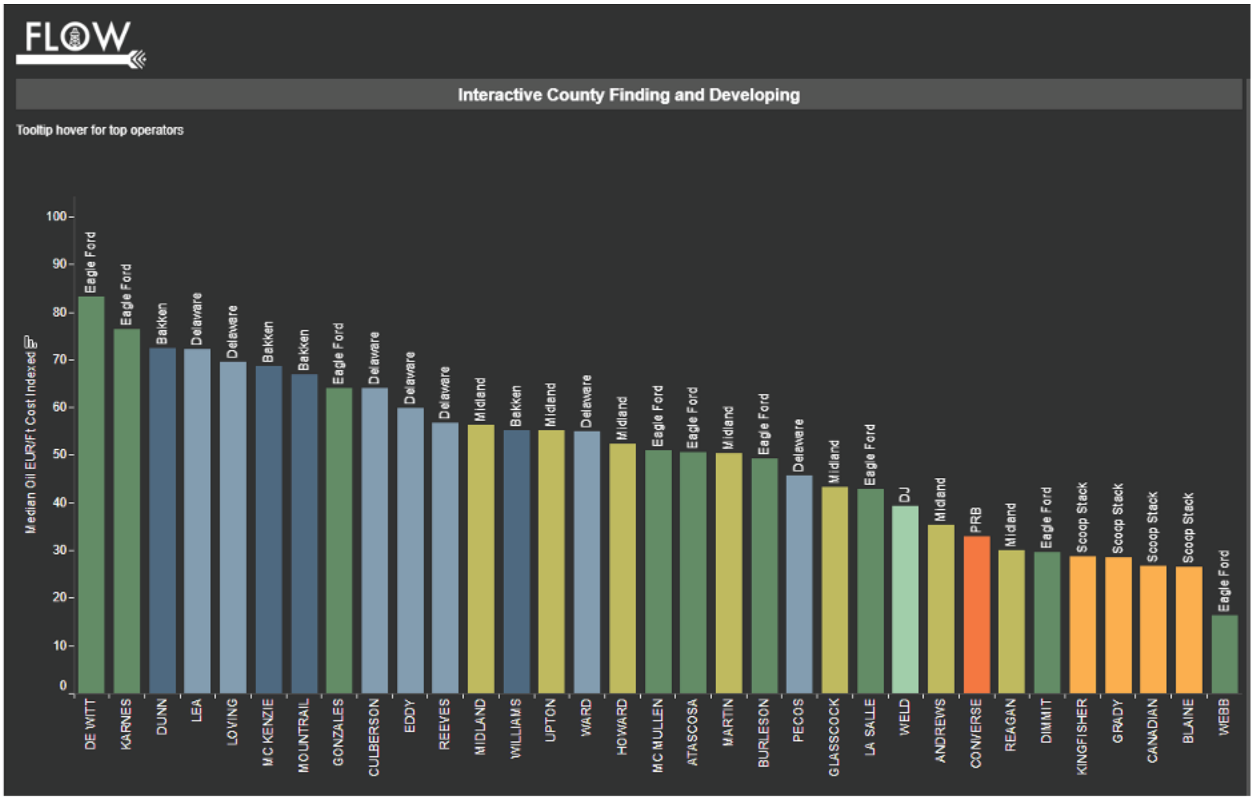
Make no mistake, the wells we see in this area are some of the strongest in the onshore US. The FLOW type curve regions that comprise the overall operator-agnostic Stateline area rank highest in per foot recoveries.

Pecos Bend Condy is our closest analog to Stateline, but the top three Regions also have some acreage overlap.

FLOW Regional Productivity Ranking

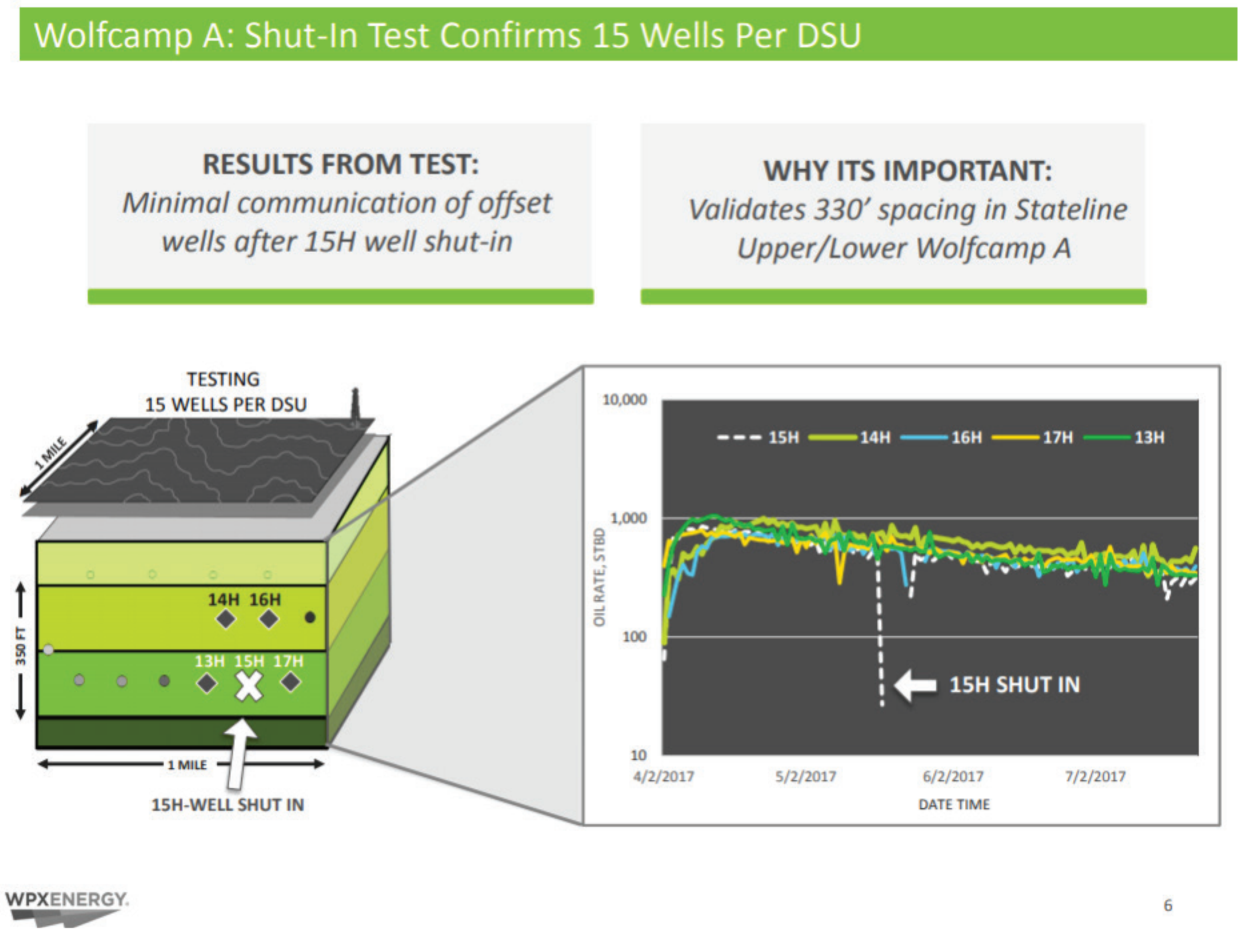
Region	Basin	Median EUR per 1000' Lateral	Rank of Median EUR per 1000' Lateral along Tabl..	Percentile of Median EUR per 1000' Lateral alon..	Median Oil recoverable	Rank of Median Oil recoverable along Table (Down)
Loving Oil	Delaware	70,789	4	96.30%	423,494	20
Northern Reeves Condy	Delaware	78,968	1	100.00%	444,064	14
Lea	Delaware	72,212	2	98.77%	434,648	17
Eddy T1 Oil	Delaware	71,433	3	97.53%	435,333	16
Liquid Culberson	Delaware	68,782	6	93.83%	507,647	6
Pecos Bend	Delaware	69,319	5	95.06%	460,314	10
Winkler	Delaware	67,434	7	92.59%	524,952	3
Eddy Core Oil	Delaware	66,426	8	91.36%	515,051	4
Pecos Bend Condy	Delaware	64,901	9	90.12%	474,854	9
LEA North	Delaware	58,511	11	87.65%	317,622	37
RE/Ward	Delaware	55,637	13	85.19%	452,171	12
Eddy Core Gas	Delaware	57,164	12	86.42%	332,464	35
SE Ward	Delaware	55,155	14	83.95%	504,875	7
Gas Culberson	Delaware	52,298	18	79.01%	428,854	19
EFS Ultra Core	Eagle Ford	53,177	15	82.72%	308,526	38

On a cost-adjusted basis, we believe Lea and Loving counties are neck and neck with Bakken for attractiveness. Below our finding and developing charts rank the median historical well result on a $ per foot drilled basis.

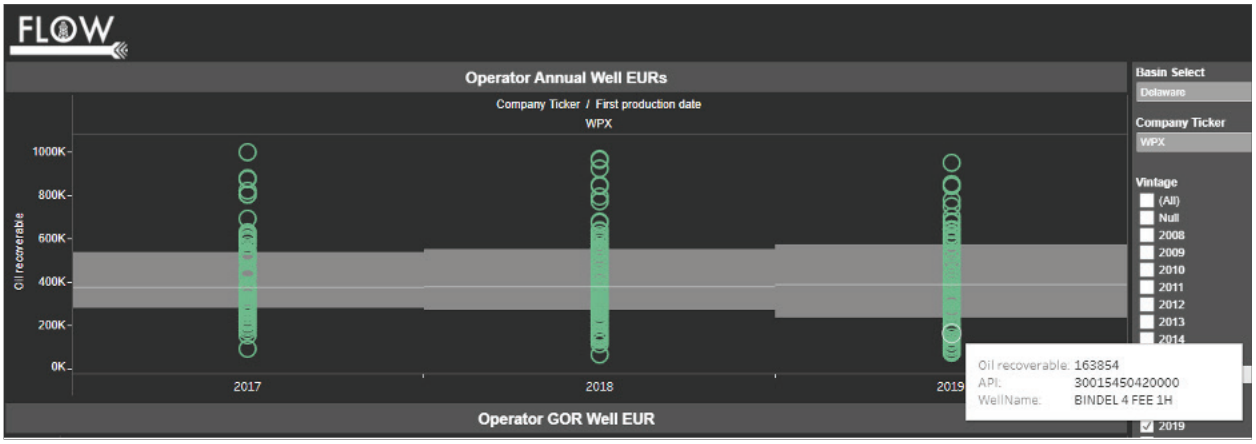


However, a key difference we highlight is the negative effect of high density drilling on the northern Delaware. While the historical wells are very strong, the story changes above about 6 wells per section, and with vertical separation of benches of less than 300'.

Due to the trading prices for Permian acreage in the boom, the acquiring companies needed to drill a lot of wells with good results to make their capital structures work. In 2017, WPX stated they had "confirmed" 15 wells per section in the Wolfcamp alone using 330' lateral spacing within 350 vertical feet of rock. (2Q 2017 Investor Update).

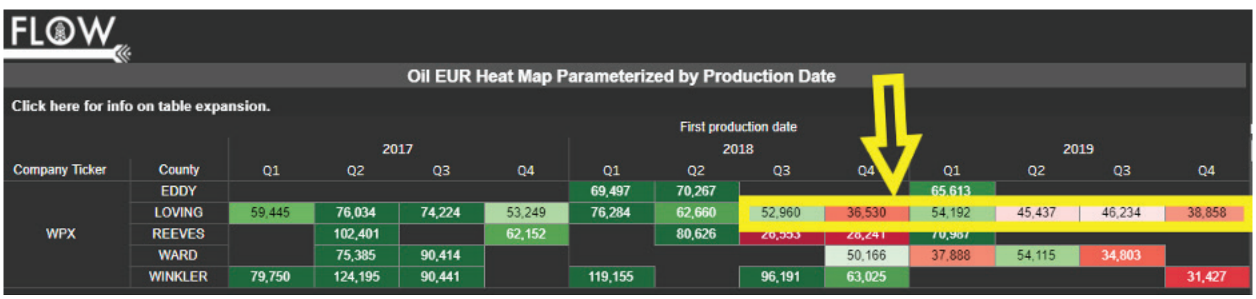


FLOW currently tracks WPX as the second most densely developed operator in the Northern Delaware basin, and we observe many poor wells. Some of these wells are parent wells that have suffered destruction because of developing child wells. It is not just depleted child wells that lower capital efficiency.



At the bottom of this chart, we see many wells with expected recoveries of less than 200 MBO.

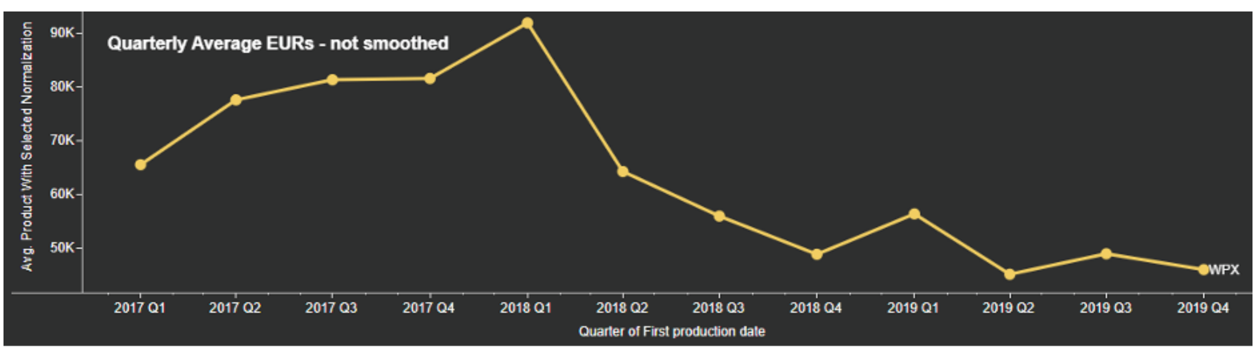
In late 2019, we began warning clients that the strong performance WPX was getting out of the Permian was waning, and we suggested an acquisition and capital raise could be in the works.


FLOW

Oil EUR Heat Map Parameterized by Production Date

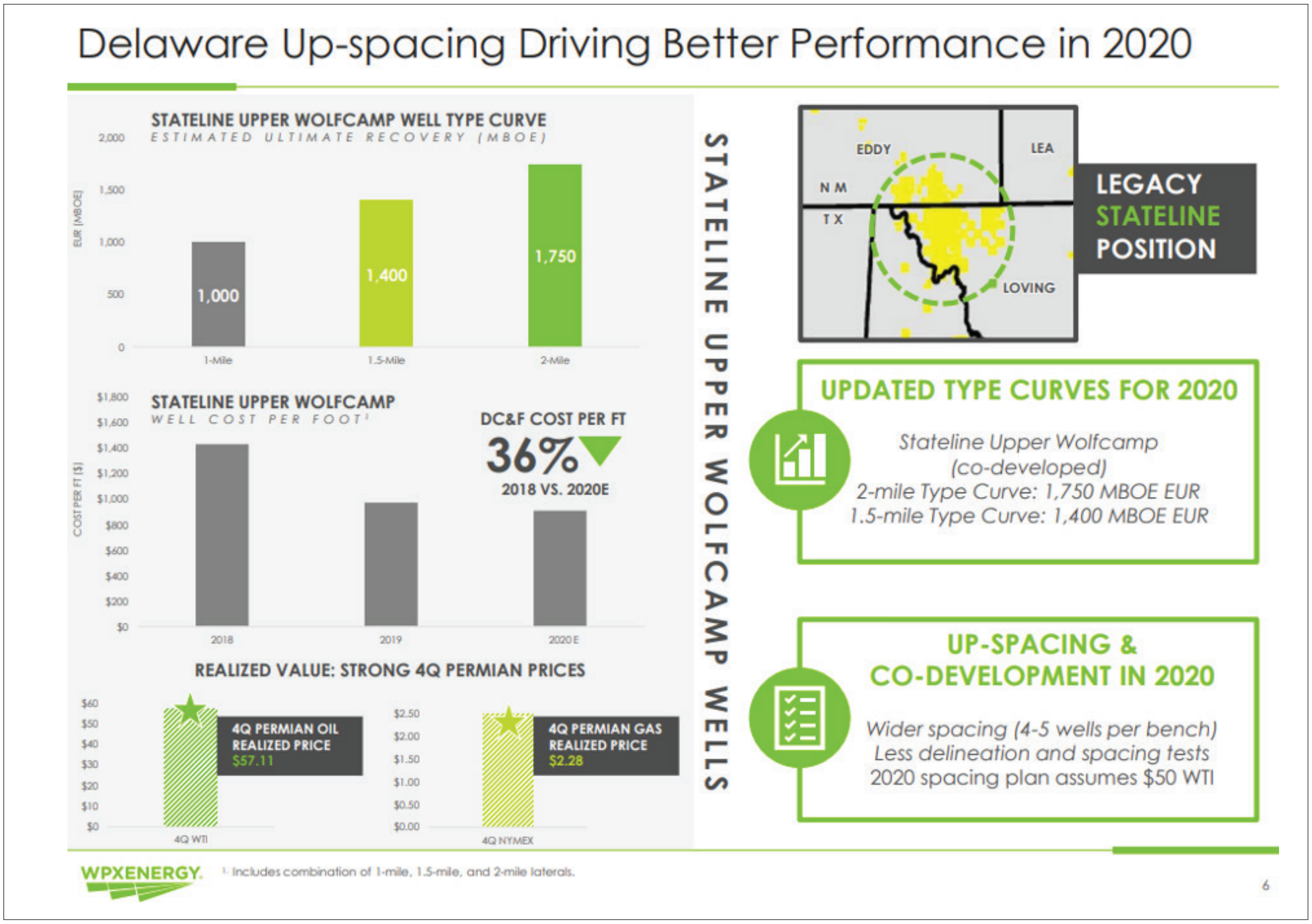
Click here for info on table expansion.

Company Ticker	County	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4
WPX	EDDY					69,497	70,267			65,613			
	LOVING	59,445	76,034	74,224	53,249	76,284	62,660	52,960	36,530	54,192	45,437	46,234	38,858
	REEVES		102,401		62,152		80,626	[illegible]	[illegible]	[illegible]			
	WARD		75,385	90,414					50,166	37,888	54,115	34,803	
	WINKLER	79,750	124,195	90,441		119,155		96,191	63,025				31,427



Naturally, diminished well results led to the $2.5bn Felix acquisition. We will discuss Felix later in this document.

So where does this leave Stateline in in 2020? Now, WPX is upspacing – **reversing** the density program they had "**confirmed**" in 2015



WPX backtracked on their prior spacing, but there are several moving pieces now:

» They moved to drilling longer laterals

» They adjusted their cost assumption for longer laterals

» Costs have come down for all producers due to exogenous market events

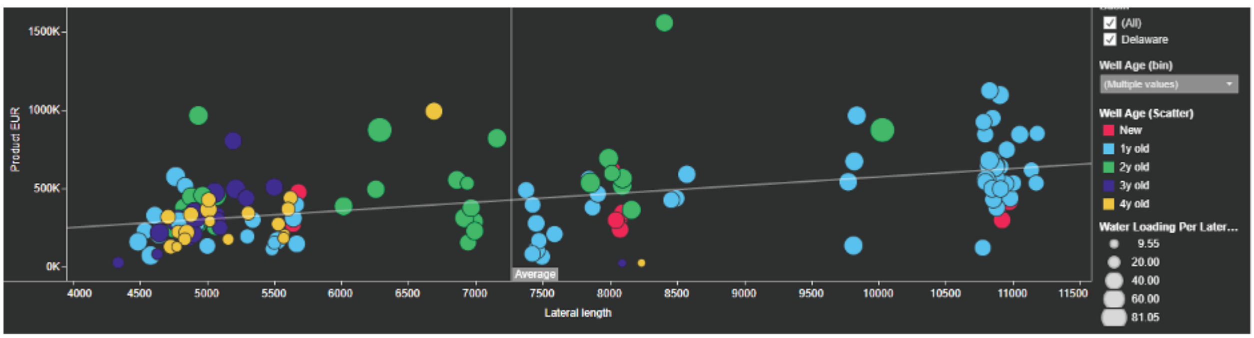
» They are adjusting spacing wider, but now plan to co-develop a **thin vertical** section of Wolfcamp XY sands and Wolfcamp A. This is a risky suggestion that we will revisit in our conclusion.

03/ INCREASING LATERAL LENGTHS IN STATELINE

The company acknowledges an incremental second mile of horizontal development is less efficient than the first mile. We agree. However investors have informed us that the company suggests scaling the type curve at 75% for the second mile, while scaling D&C capex up by a lower number (64%).

We caution that this is an overly simplistic way to perform the analysis. We suggest an empircal approach using well attributes.

Here is a plot of WPX's Stateline lateral lengths versus FLOW oil EURs. Notice the clusters of wells at 1 and 2 mile lengths. This is not a smooth linear relationship, and the trendline has a low r-squared of 26%. Each cluster has it's own outliers.



In order to determine the capital efficiency trade-off, we create individual type curves for each lateral length and examine whether a 36% cost reduction on incremental lateral feet is "capital efficient."

Below is an example of our type curve creation process.

WPX Long Lateral, FLOW Pecos Bend Condy Type Curve

We have extracted a set of 27 long-lateral wells with expected recoveries within 25% of the mean long lateral BOE recoverable (contact us for more information on our type curve construction methods). The average lateral length is slightly longer than 2 miles, so we apply a small normalization to 10,560 feet to compare with our "all operator" curves. These curves are documented at the end of the document.

The result of our WPX-focused analysis is:

» Our WPX type curve scales up at only 59% on oil and 66% on BOE

» This type curve is 12% below the company's 1750 MBO 3-stream curve

» These statistics underperform on both scaling and EUR

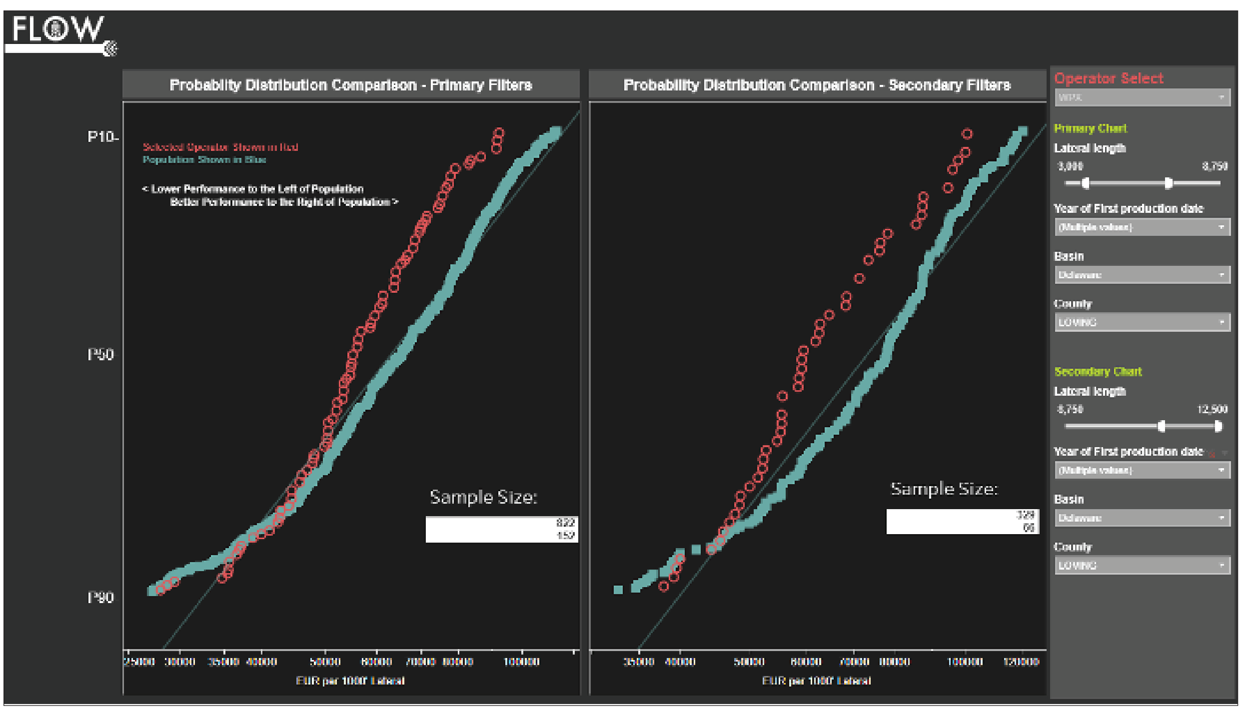
Comparing WPX's empirical results to the overall FLOW Pecos Bend Condy Region. We find that other operators have scaled up to long laterals at a much stronger recovery, scaling at 88% on both oil and 3 Stream EUR. This implies something is weakening WPX's Stateline results.

Pecos Bend Condy Type Curve Region

		Length	Oil	Normalized		3St	Normalized		
WPX	Short	5047	352	368	Oil Cut	881	922	Type Curve	% TC
WPX	Long	10836	600	585	39%	1574	1534	1750	88%
			Scale:	59%			66%		
All Operators	Short	4972	347	368		984	1045		
All Operators	Long	10360	681	694		1932	1969		
			Scale:	88%			88%		

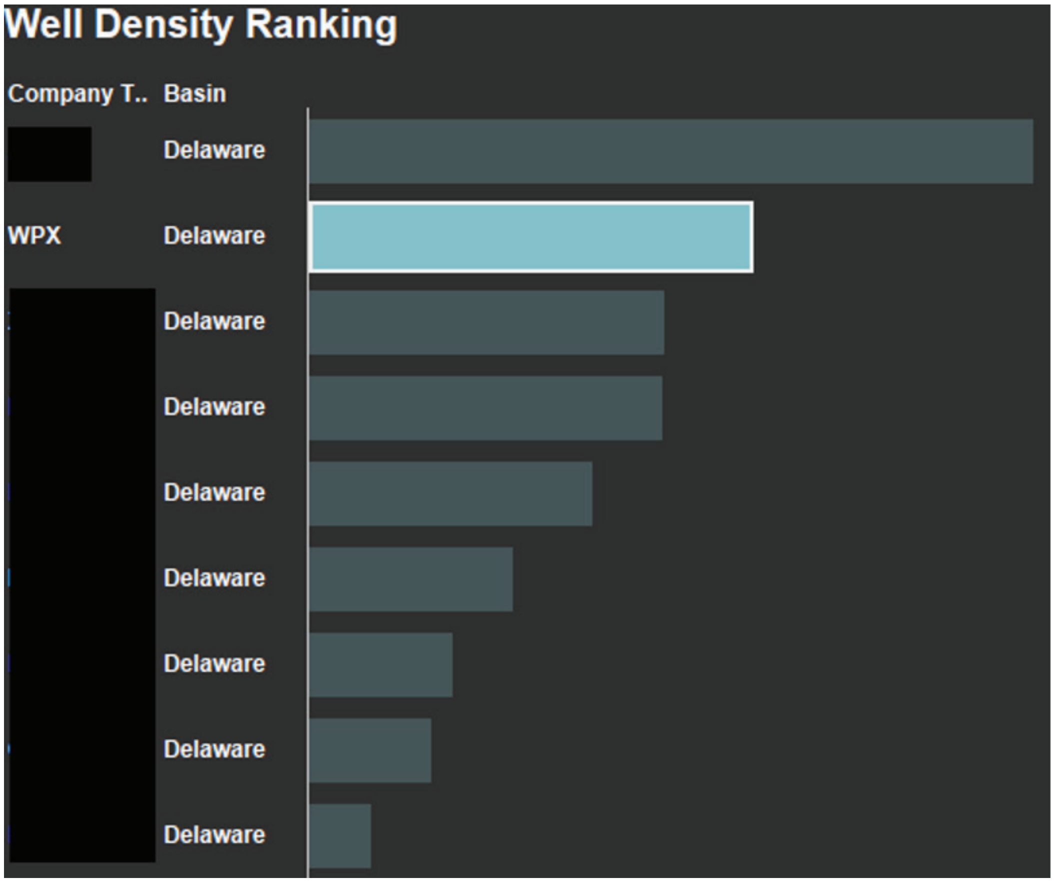
We can quickly confirm this with a look at the probability distribution of WPX versus Loving County operators on "short-mid" and long laterals. WPX does not keep up with the competition in Loving, even if these are "good wells" by Permian standards.

At the same depth, pressure, and well design, all operators wells will cost about the same. Within a tight geography, we can surmise WPX returns less on a well than their peers.



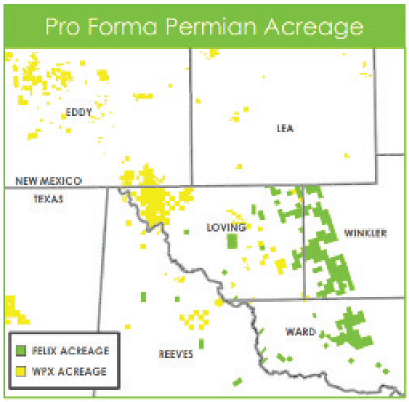
04/ EXPLAINING THE GAP

We explain this with well density. WPX ranks as the second most dense operator in the area. The other operators are drilling long laterals without density concerns. Below we rank regional operator by wells per section.



So if WPX might be inventory deprived, what might they do?

05/ BUY FELIX!

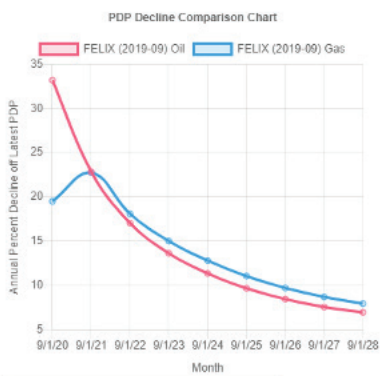


	WPX	FELIX	COMBINED
Production	180.5 MBOE/D[2]	60.0 MBOE/D[2]	240.5 MBOE/D[2]
Net Permian Acreage	125,000	58,500	~184,000
Gross Operated Locations	3,400	1,500	4,900

As we have tracked Felix with our automated reserve forecasts and automatic type curve, we noticed something was very different. Felix exhibited a very low base decline, large type curves and late-peaking well production.

FLOW Felix Base Decline Q3 2019

Expected annual PDP decline: Gross Production



Add Average Across Companies

As of date*

Latest

Company*

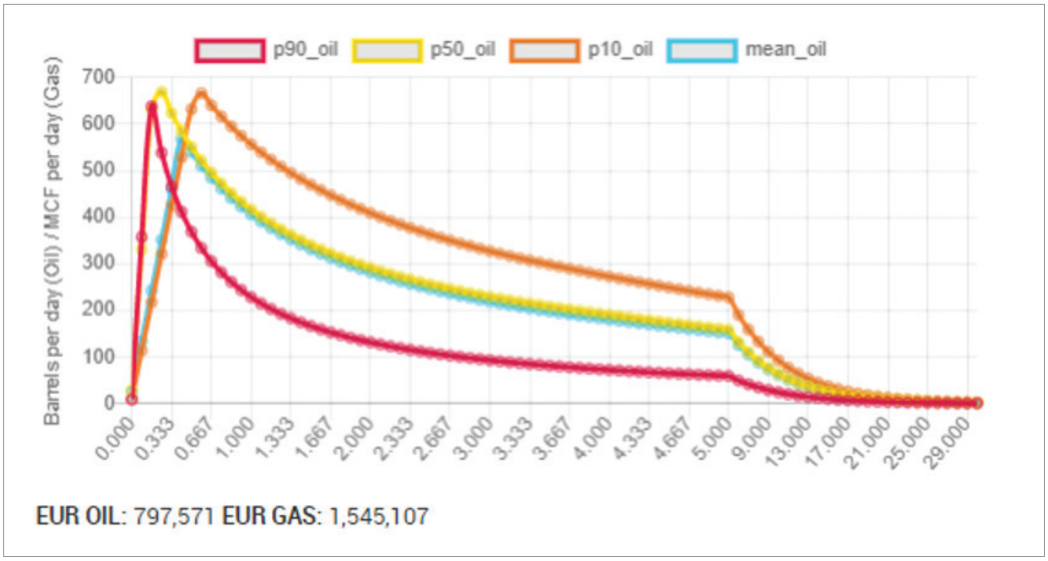
Update chart

Year	Modeled Oil	Modeled Gas	NGL
1	0.332	0.195	0.195
2	0.228	0.227	0.227
3	0.170	0.181	0.181
4	0.136	0.150	0.150
5	0.113	0.128	0.128
6	0.096	0.110	0.110
7	0.084	0.097	0.097
8	0.075	0.087	0.087
9	0.069	0.079	0.079

pdp-forecast-annual-table.csv

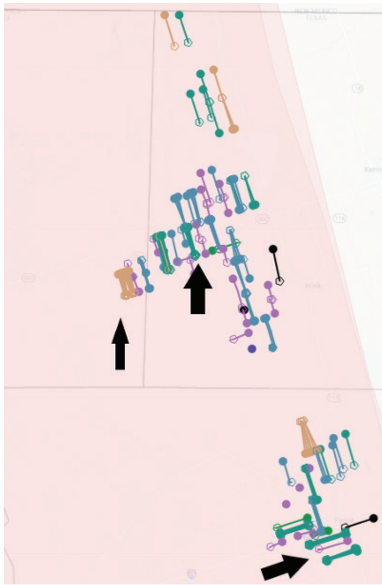
Above, note our pre-deal 33% base decline rate for Felix. This is a low decline rate, especially for a growth company.

Below is a look at one of our internal type curves. Usually, when we look at type curves, it's all about total recoverable. While these are huge type curves, the peaks are unique. The bottom 10% well, the middle well, and the top 10% well all have very similar initial rates. The IP rates are also somewhat unimpressive by IR deck standards. These large wells are being brought on slowly!



Our numerical output shows us just how slowly the wells are brought online. In Q4 2019, we modeled the mean well initial decline at only 58% with a peak after 4 long months online!

	A	B	C	D
1	curve	Di	eur	time.to.peak
2	mean.gas	53%	702,777	0.586
3	mean.oil	58%	682,215	0.348
4	p10.gas	54%	2,130,294	0.490
5	p10.oil	47%	1,134,030	0.241
6	p50.gas	66%	757,243	0.884
7	p50.oil	65%	449,508	0.409
8	p90.gas	69%	624,208	0.419
9	p90.oil	78%	138,087	0.192
10				

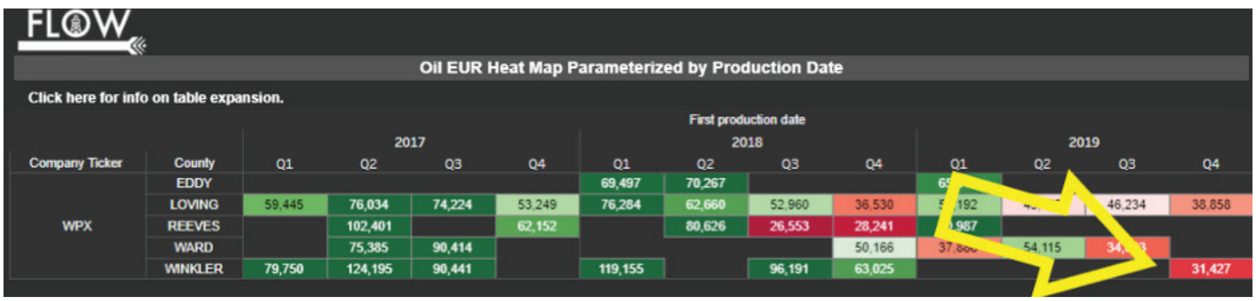


Wide spacing and the operational choice to "slow back" the wells certainly played a part in these exceptional well results. However, at the time of the deal announcement we noted:

- About two dozen permitted wells
- WPX guiding Felix production about 40% higher than state-reported level
- At least 3 very dense pad waiting on completion

This rapid development would certainly change the slow-decline, high EUR nature of the Felix asset.

Now, where we saw degradation in Stateline last year, we are now seeing degradation in the WPX heat map for Winker (legacy Felix).



FLOW

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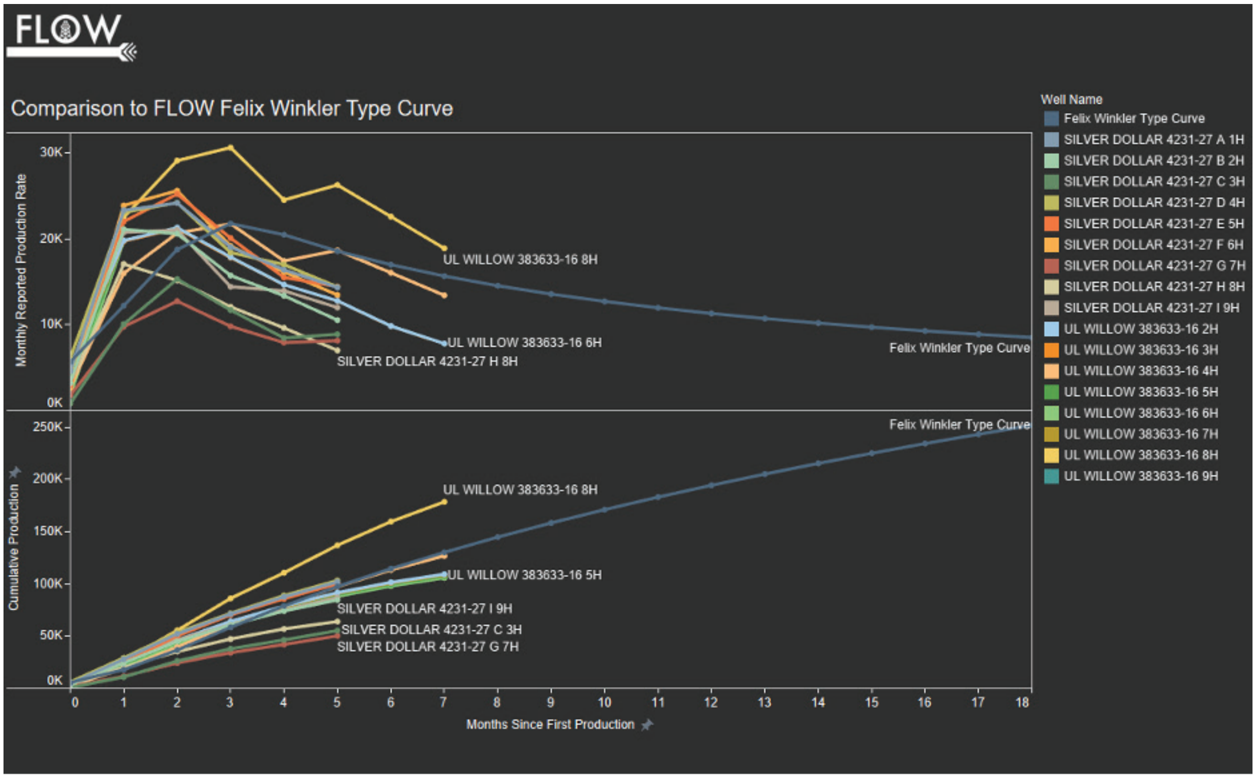
	LOVING	59,445	76,034	74,224	53,249	76,284	62,660	52,960	36,530	[illegible]	[illegible]	46,234	38,858
	REEVES		102,401		62,152		80,626	26,553	28,241	[illegible]			
	WARD		75,385	90,414					50,166	[illegible]	54,115	[illegible]	
	WINKLER	79,750	124,195	90,441		119,155		96,191	63,025				31,427

Did WPX buy a bad asset?

As E&P investors and bankers we've seen bad acquisitions for decades. At FLOW we had already told our clients that Felix was a great asset. However, we also told our clients that operational choices would determine future performance. Looking at the dense pads from year end gives us further insight.

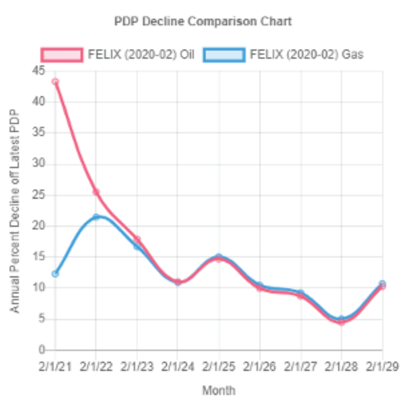
We have plotted the FLOW Felix Winkler Region (which extends into the county of Ward) against the Silver Dollar 4231 and the UL Willow 383633 pads. Look specifically at the rate chart on the top.

The new wells exhibit much earlier peaks than the composite type curve. Recall, Felix's largest wells were brought on the slowest. Now, the wells are hitting peak production faster than ever before. The rates quickly moved well below past performance. These are poor wells exhibiting different operational choices.



The incremental higher initial declines along with the fast growth of Q4/Q1 boosted our Felix base decline by 10 percentage points to 43%. This rate was actually in-line with WPX management guidance, so we are left with a few questions.

Expected annual PDP decline: Gross Production



Add Average Across Companies

As of date*

Latest

Company*

Year	Modeled Oil	Modeled Gas	NGL
1	0.433	0.123	0.123
2	0.255	0.214	0.214
3	0.179	0.167	0.167
4	0.110	0.109	0.109
5	0.147	0.150	0.150
6	0.100	0.105	0.105
7	0.087	0.093	0.093
8	0.045	0.050	0.050
9	0.103	0.107	0.107

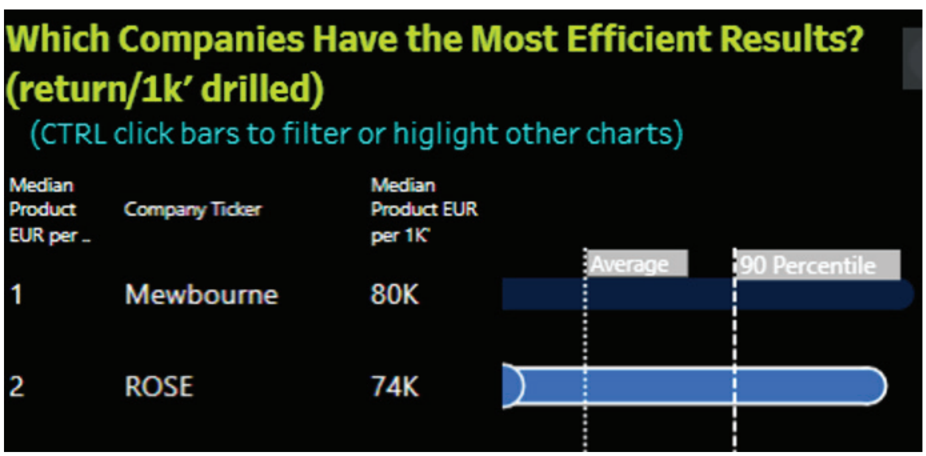
pdp-forecast-annual-table.csv

06/ WHAT WE REALLY WANT TO KNOW:

- » Why were at least 3 pads drilled super tight around the handoff from Felix to WPX?
- » Was this a requirement to hit the 60K BOEPD WPX discussed on the deal announcement call?
- » Did Felix think they had to prove their rock could take 330' spacing?
- » Why is WPX not fully supportive of the "slow back" technique after Felix's prior great results?

07/ GAME OVER? NO WAY

In FLOW's full universe ranking of per-foot EURs, Felix's neighbor Rose Hill ranks in the #2 spot. Rose Hill's performance is remarkable because they fully developed their acreage. FLOW ranks Rose Hill as the most densely developed operator in Loving County by a factor of 80% over the runner-up! Even though the company is now bankrupt due to the right-hand side of their balance sheet, they did an outstanding job drilling with tremendous density in Loving County.



Great results can be achieved out of nearby rock. Two small companies made it happen; so perhaps cultural issues made boutique completions possible. WPX has the chance to show their skill on this acreage. It's certainly not game over. Some of the eastern acreage may be less attractive, but investors should expect better than Silver Dollar, Willow, and Smoking Joe.

08/ WHAT IN THE HELL IS GOING ON HERE?

WPX made a pivot to oil from gas several years ago. Their Bakken has been exceptional but is nearly drilled up. Their Stateline has also been exceptional but is showing clear signs of degradation now.

WPX purchased a very good asset when the bought Felix. Recent pads have been poor, and we don't know whether WPX is to blame or if these were legacy Felix decisions.

09/THAT'S WHAT'S GOING ON.

Management has made this clear as mud and seems content on ignoring the investor shift to external data insights. Upper Wolfcamp densification in Stateline is a distraction, maybe even an obfuscation. Exploitation of the Bakken and capital efficient development of Winkler are key to stakeholders returns in WPX securities.

We concluded with a special risk to the WPX story: management eats their own cooking. If WPX over-develops Stateline to tell a NAV or density story, it is money poorly spent. Unfortunately, this is an oft-repeated problem in our sector.

TYPE CURVE DOCUMENTATION

WPX Pecos Bend Short Laterals

TYPE CURVE SUMMARY

Oil Cou..	Gas Co..
24	24

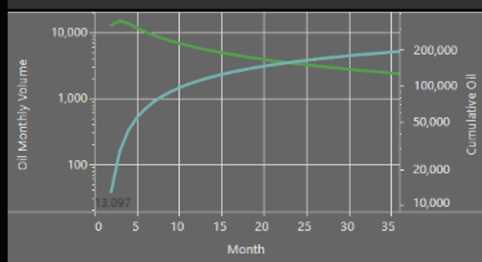
Shrink Factor

0.7

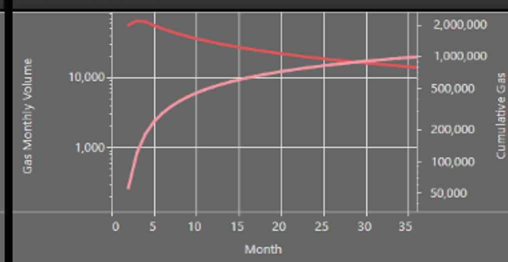
NGL Yield (BBL/MCF)

0.125

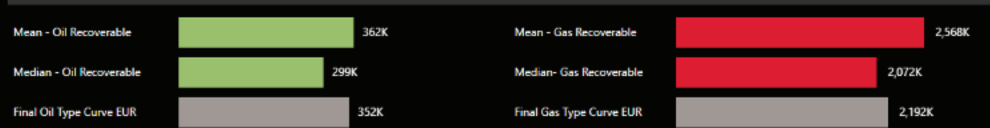
OIL TYPE CURVE



GAS TYPE CURVE



COMPARISON AFTER FILTERING



KEY STATISTICS

WPX	Pecos Bend Condy	Percentile Group BOE	711,801
		Oil Count	24.00
		Gas Count	24.00
		Avg. Lateral length	5,047
		Oil Type Curve EUR	351,577
		Gas Type Curve EUR	2,192,454
		NGL Type Curve EUR	274,057
		Type Curve EUR BOE 2-stream	716,986
		Type Curve EUR BOE 3-stream	881,420
		Percent Oil 2-stream	49%
		Percent Oil 3-stream	40%
		Percent Liquids 3-stream	71%

Pecos Bend Short Laterals – All Companies

Percentile Group BOE	711,801
Oil Count	24.00
Gas Count	24.00
Avg. Lateral length	5,047
Oil Type Curve EUR	351,577
Gas Type Curve EUR	2,192,454
NGL Type Curve EUR	274,057
Type Curve EUR BOE 2-stream	716,986
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Pecos Bend Long Laterals – All Companies

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ABOUT FLOW

Friezo Loughrey Oil Well Partners (FLOW) is an analytics company serving investors in the oil and gas sector. FLOW applies big data and cutting-edge petroleum engineering models to address the investor's challenges of identifying value through unbiased, actual well results. FLOW's automation makes the information actionable at market speed. FLOW has been recognized and used as a trusted source by Bloomberg, The Wall Street Journal and the Financial Times.

FLOW

BIG DATA

CUTTING EDGE PETROLEUM

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