

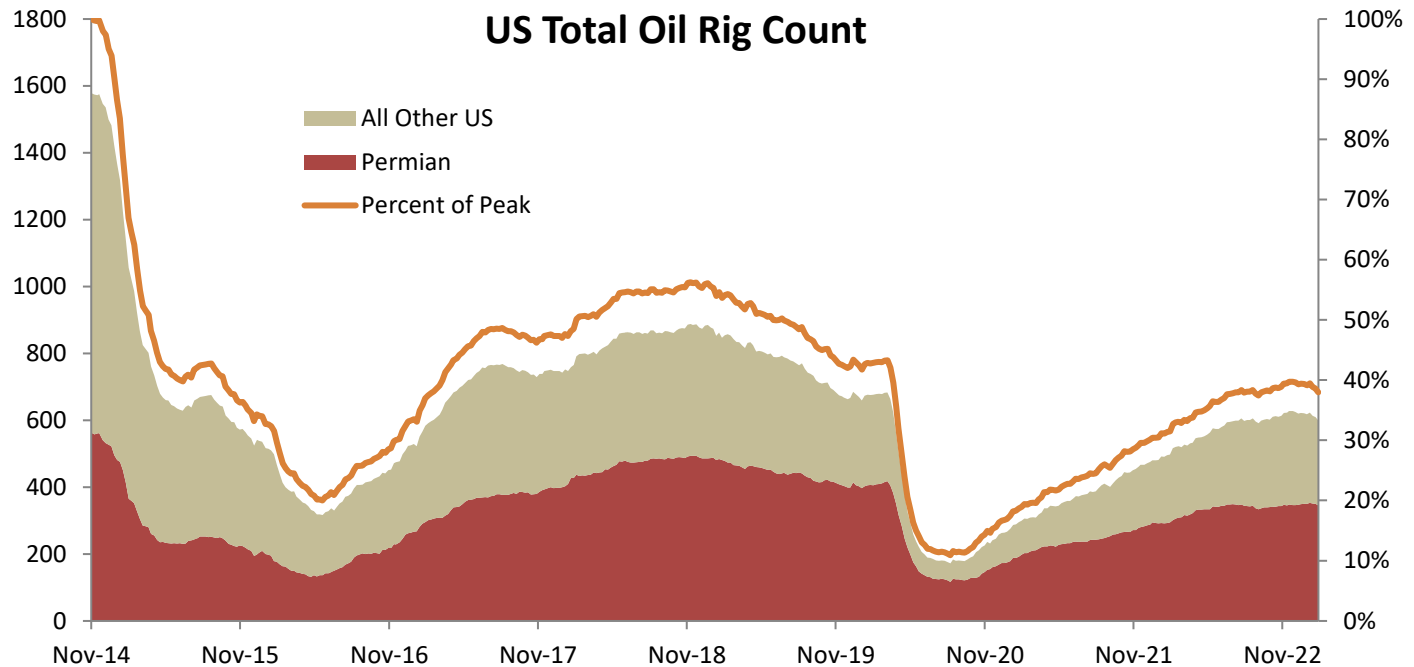
# Baker Hughes Oil Rig and Primary Vision Frac Spread Counts

3 February 2023

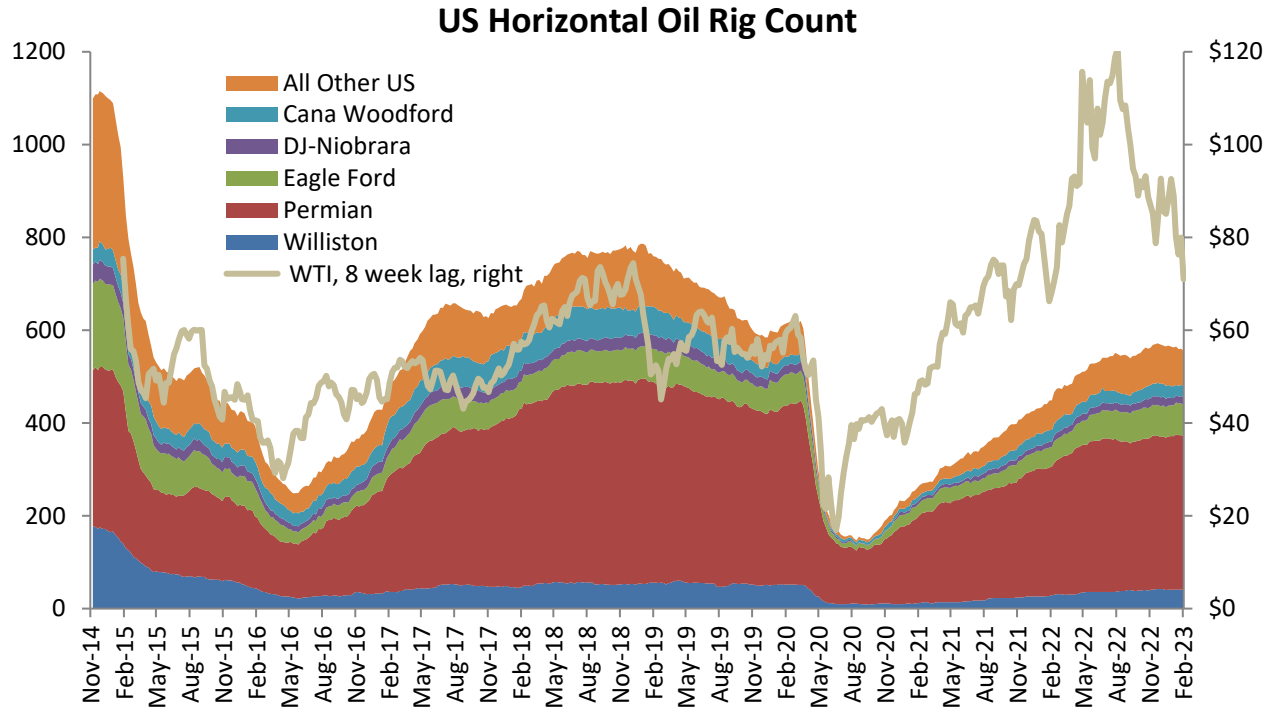
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- Rigs counts were down
  - Total oil rig counts fell sharply, -10 to 599
  - Horizontal oil rig counts also fell, -4 to 556
  - 3 of 4 lost horizontal rigs were from the Permian. Worrying.
  - The pace of horizontal rig additions fell to -1.75 / week on a 4 wma basis
  - The rig count has been eroding now for 2½ months
- The calculated US breakeven to add horizontal oil rigs fell to \$73 / barrel WTI versus \$73 on the screen at writing.
- Frac spreads fell, -8 to 270, still no higher than a year ago
  - As with rigs, the local peak was reached on November 25<sup>th</sup> at 300 spreads.
  - At current rig and spread counts, at latest productivity levels, DUCs appear to be falling once again
- The data suggests the US shale sector is at a turning point
  - WTI has averaged \$85 / barrel (with a lagged value) during the last ten weeks in which rig and spread counts have been declining. This is a high price by historical standards. Nevertheless, declining rig counts say it is not high enough.
  - This development is unprecedented since the beginning of the shale revolution for oil, around 2010. In 2018, the rig count was rising at \$60 / barrel; now it is falling at \$85 / barrel, and from a lower level
  - The latest US data for November and December show declining oil production, down about 300 kbpd compared to October. This is historically unusual.
  - Trouble is brewing.

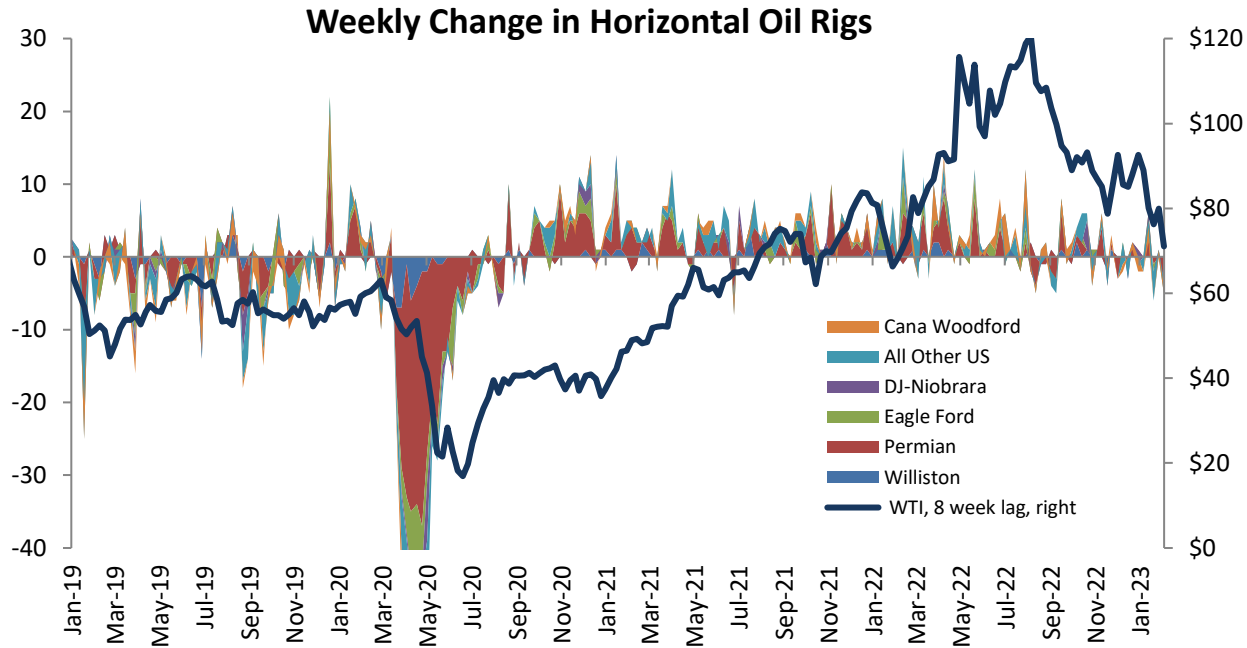


- Total oil rigs: -10 to 599
- Permian: -5
- All Other US: -5



- Horizontal oil rigs: -4 to 556
- Permian: -3
- All Other US: -1

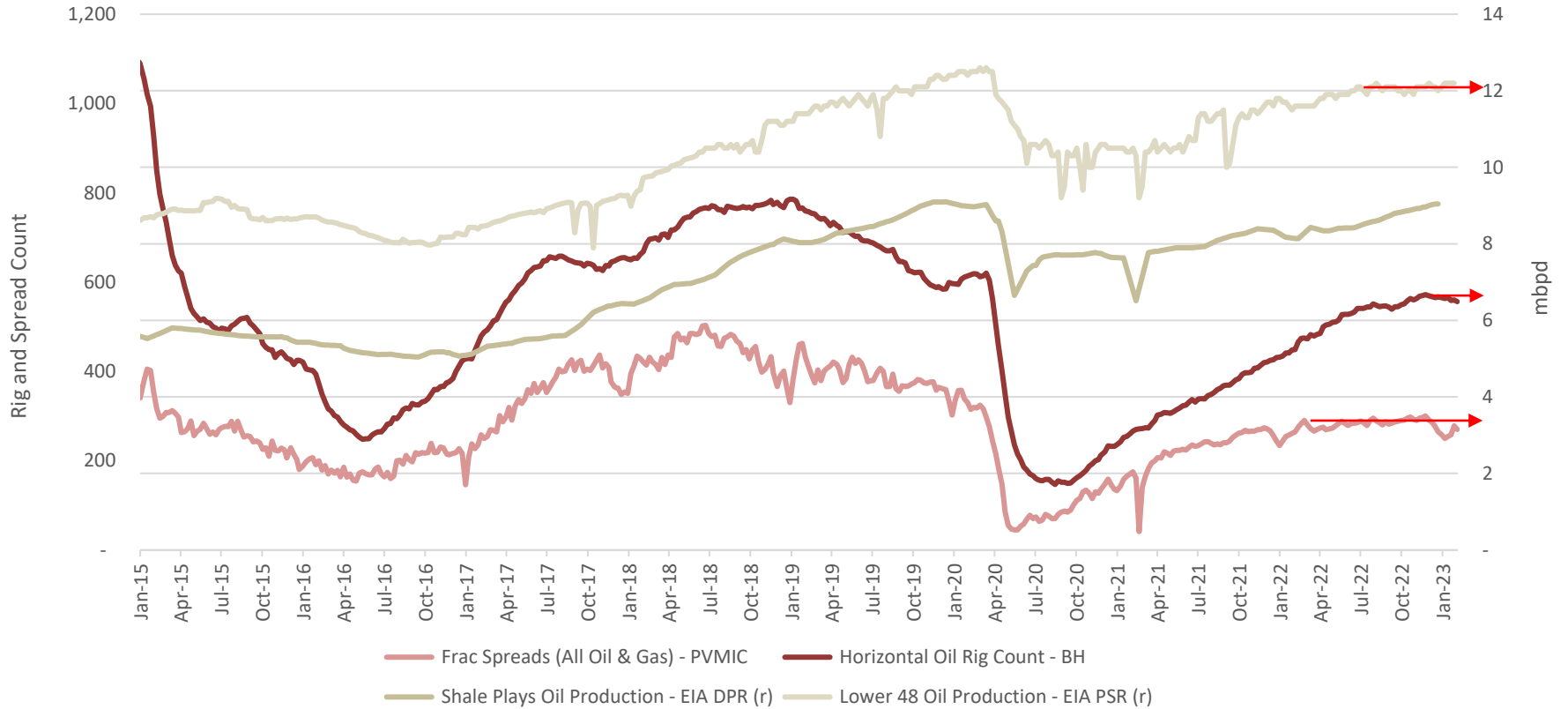
# Weekly Change in Horizontal Oil Rig Count by Basin



• By Basin	Change	Count
- Williston	0	41
- Permian	-3	330
- Eagle Ford	0	68
- DJ Niobrara	0	16
- Cana Wdford	+1	25
- Other US	-2	76
- <b>Total</b>	<b>-4</b>	<b>556</b>

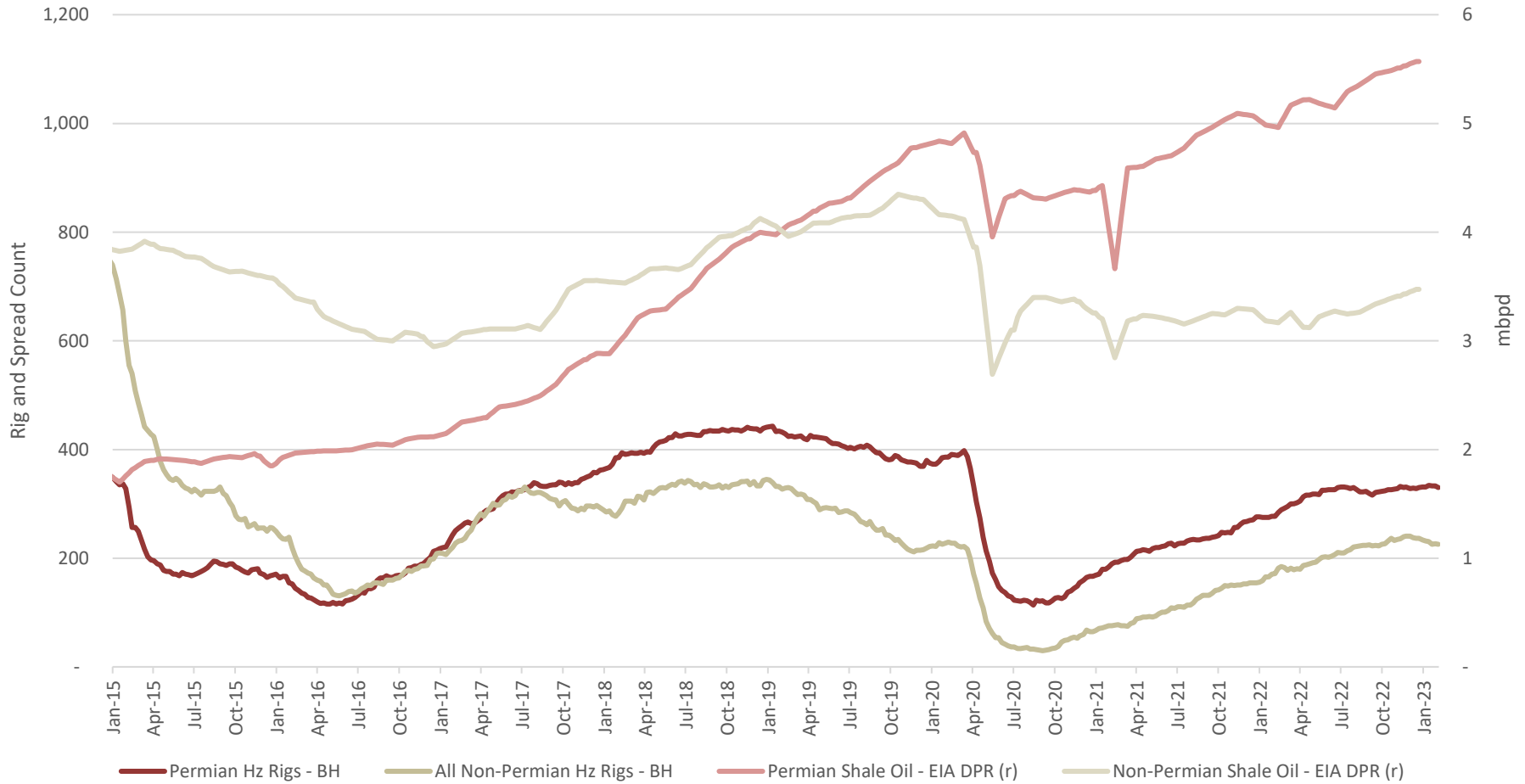
# Rigs, Spreads and US Oil Production

Rigs, Spreads and US Crude and Condensate Production



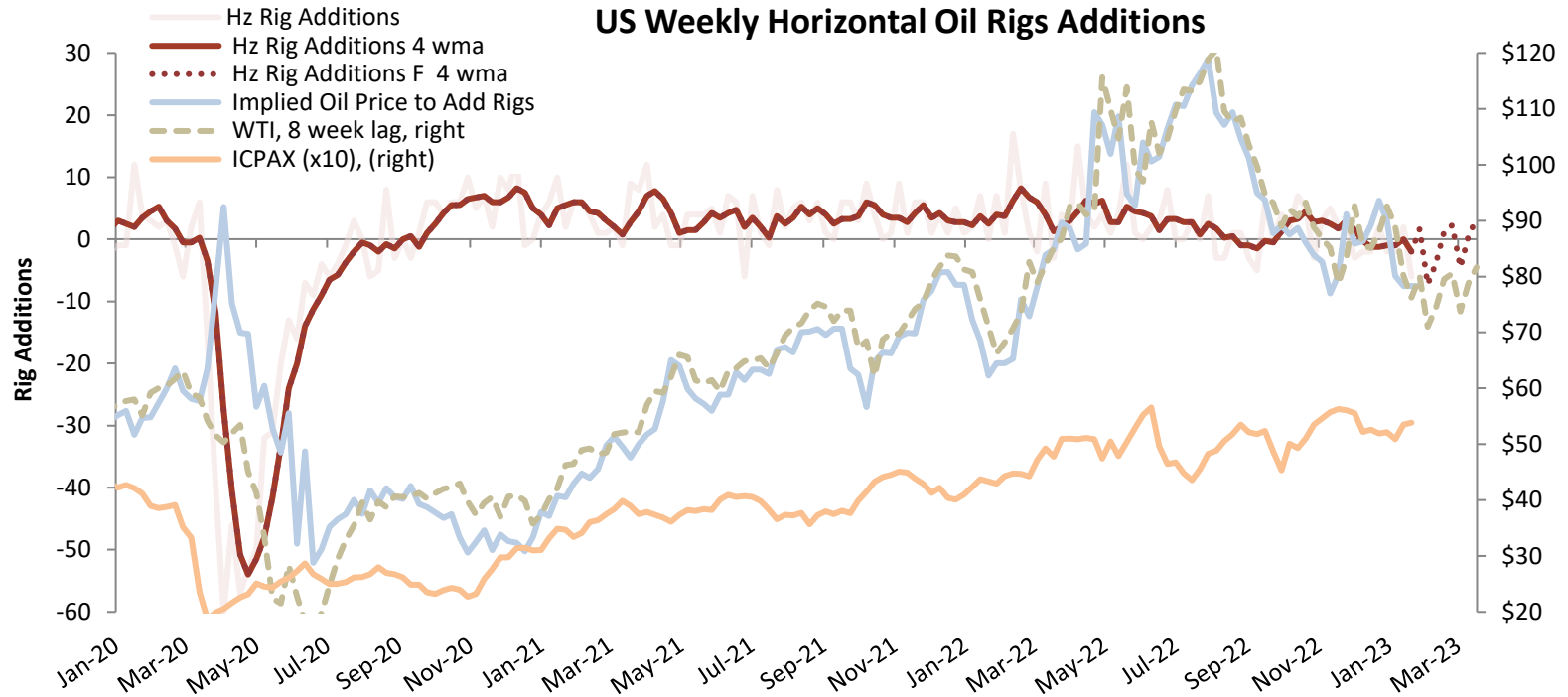
# Permian & Non-Permian Shale Oil Production and Hz Oil Rigs

Permian and Non-Permian Shale Oil Production and Horizontal Rigs





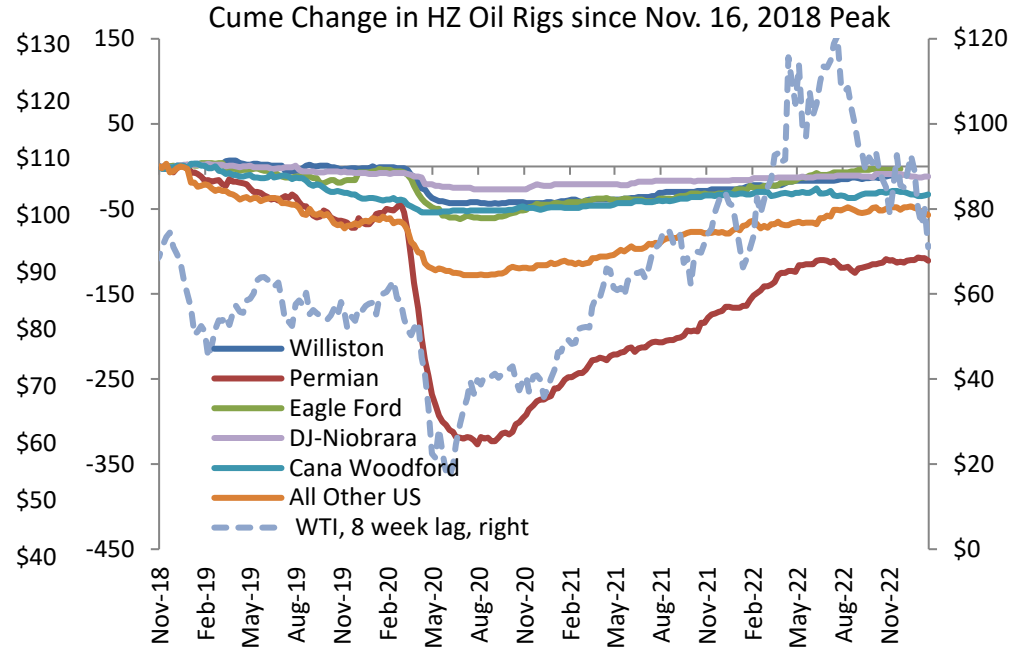
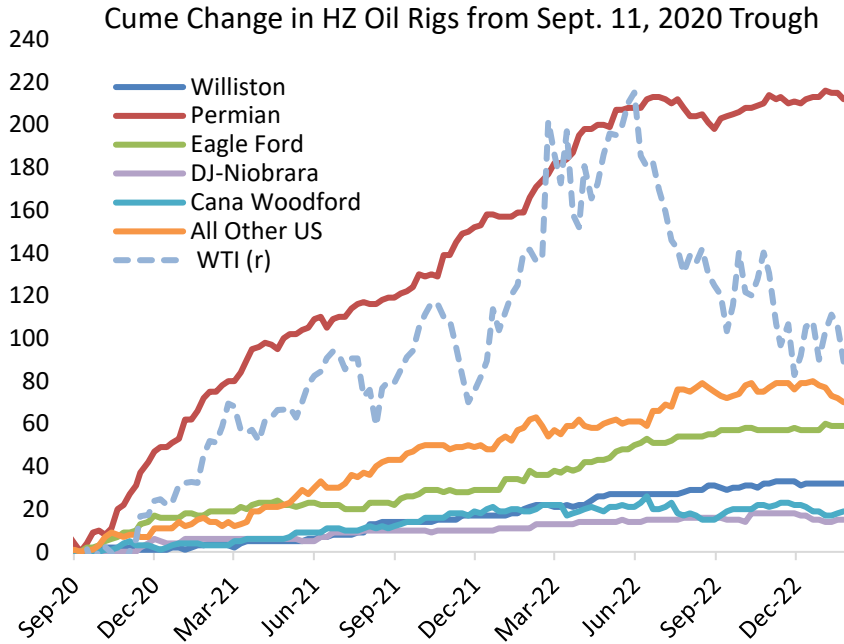
# Rig Additions and Breakevens



- The 4 wma pace of horizontal rig additions fell to -1.75 / week.
- With an eight week lag, the breakeven to add horizontal oil rigs fell to \$73 / barrel on a WTI basis with \$73 on the screen

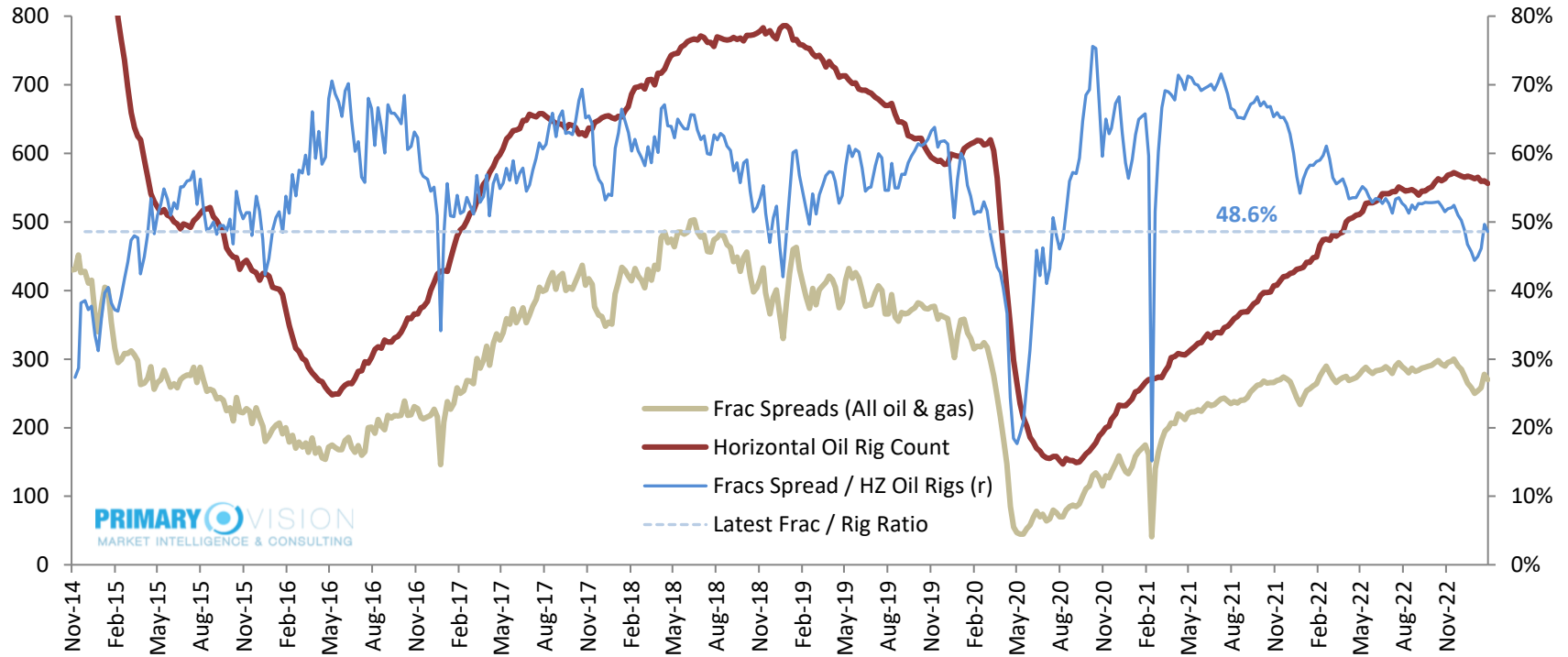


# US Horizontal Oil Rig Change from Peak and Trough

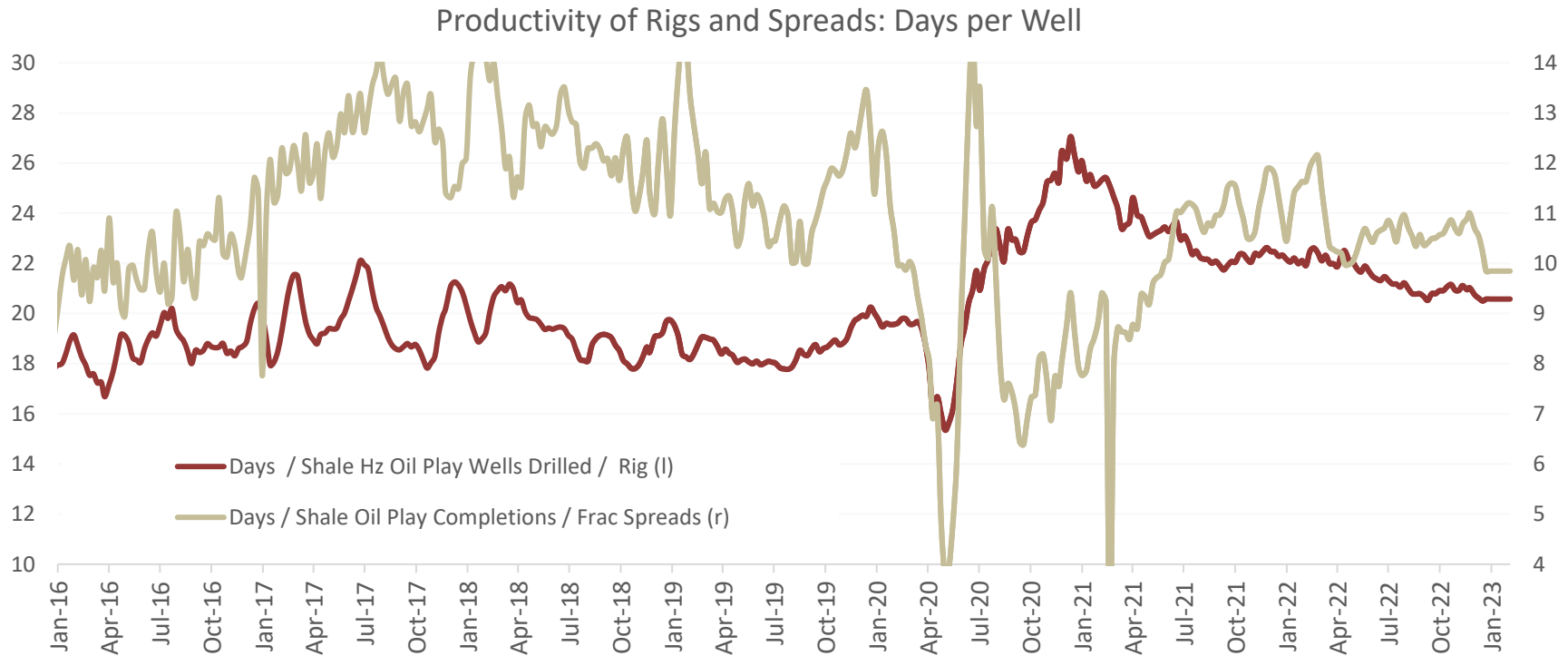


	Latest HZ	Trough August 14, 2020				Prior Peak Nov. 16, 2018			
	Rig Count	Trough Count	Rig Change	Percent Change	Pct of Rig Gained	Peak Count	Rig Change	Percent Change	Pct of Rigs Lost
- Williston	41	11	30	273%	7%	53	(12)	-23%	5%
- Permian	330	114	216	189%	53%	441	(111)	-25%	49%
- Eagle Ford	68	10	58	580%	14%	70	(2)	-3%	1%
- DJ Niobrara	16	1	15	1500%	4%	28	(12)	-43%	5%
- Cana Wdford	25	6	19	317%	5%	58	(33)	-57%	15%
- Other US	76	5	71	1420%	17%	133	(57)	-43%	25%
- <b>Total</b>	<b>556</b>	<b>147</b>	<b>409</b>	<b>278%</b>	<b>100%</b>	<b>783</b>	<b>(227)</b>	<b>-29%</b>	<b>100%</b>
		<i>05/22/20</i>							
- <b>Frac Spreads</b>	<b>270</b>	<b>45</b>	<b>225</b>	<b>500%</b>		<b>433</b>	<b>(163)</b>	<b>-38%</b>	
<i>Spread Ratio</i>	48.6%	30.6%				55.3%			

## Frac Spreads and Horizontal Oil Rigs



- Frac spreads fell, -8 to 270

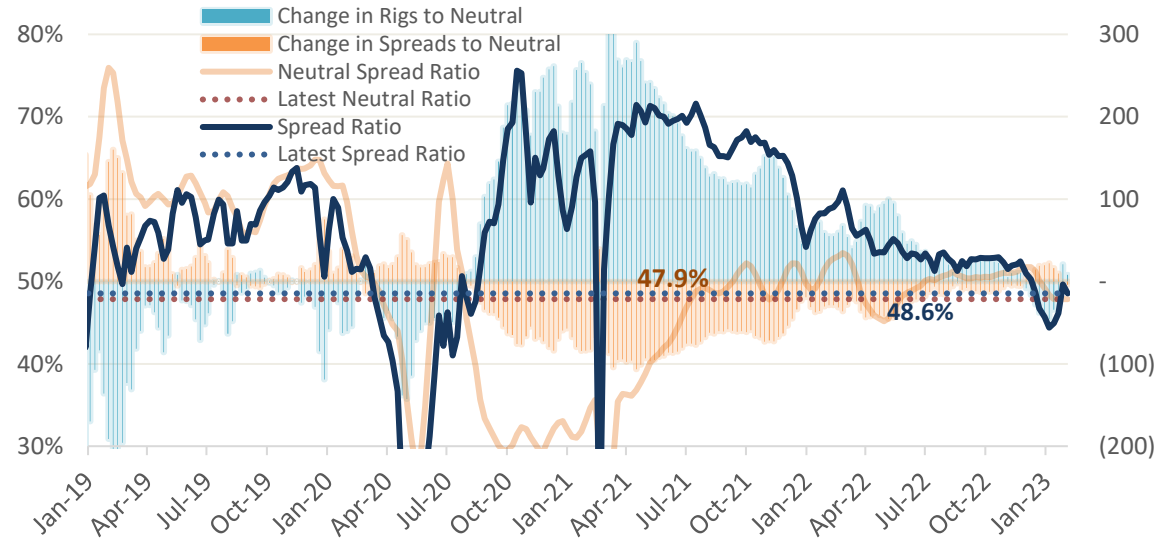


- The latest EIA DPR suggests that rig productivity has stalled and spread productivity is deteriorating modestly.

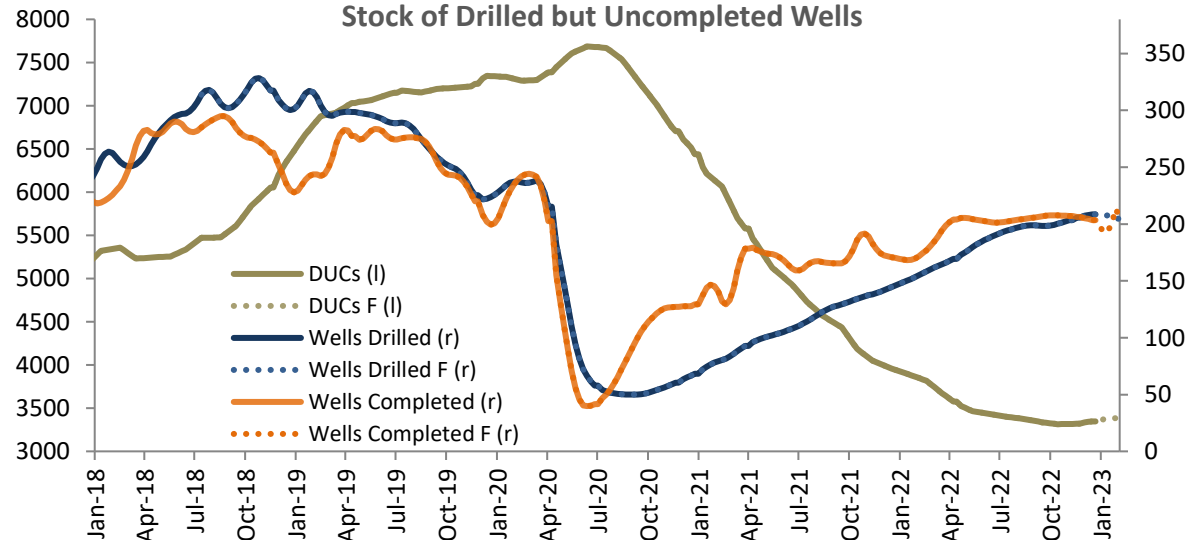
# Rig and Spread Productivity

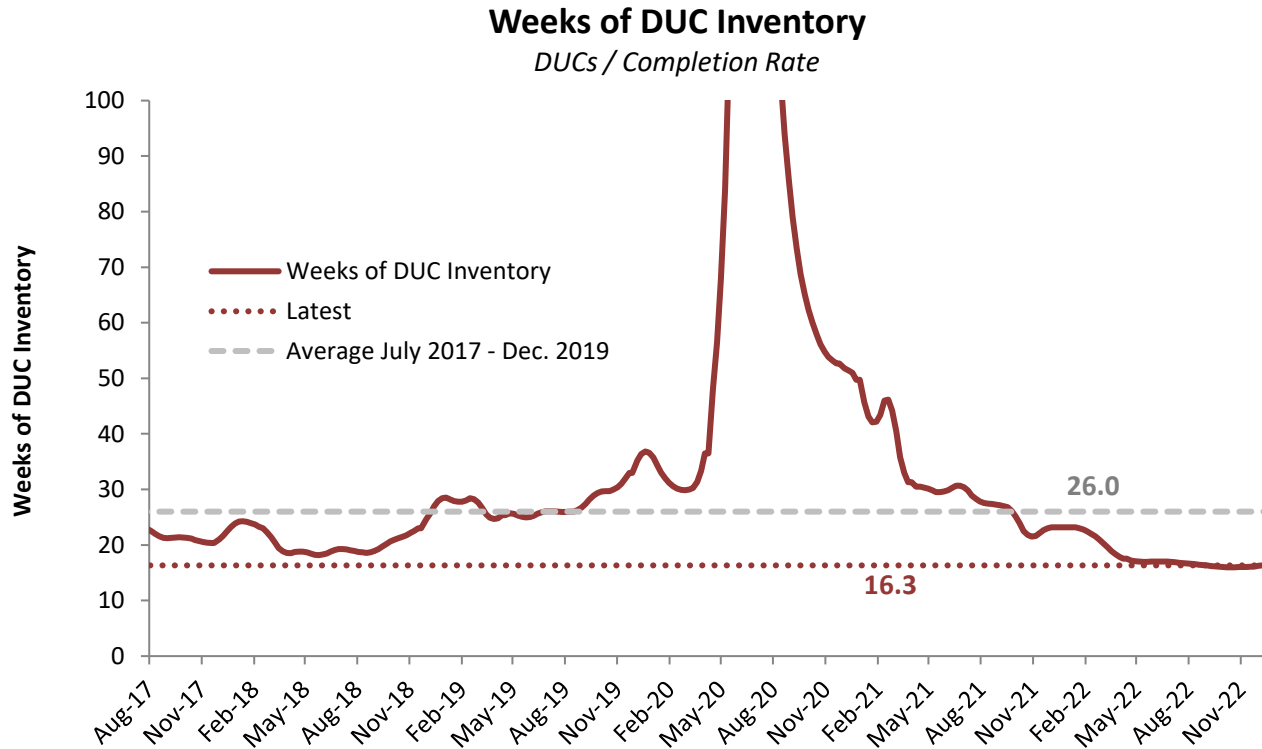
- The neutral Spread Ratio, the ratio of spreads to rigs which will hold the DUC inventory constant, is 47.9%.
- The observed Spread Ratio rose at 48.6% for the week.
- At estimated productivity levels, this suggests the DUC inventory has begun to fall again

The Spread Ratio and Rigs and Spreads for DUC Neutrality



Horizontal Oil Wells Drilled and Completed per Week  
Stock of Drilled but Uncompleted Wells

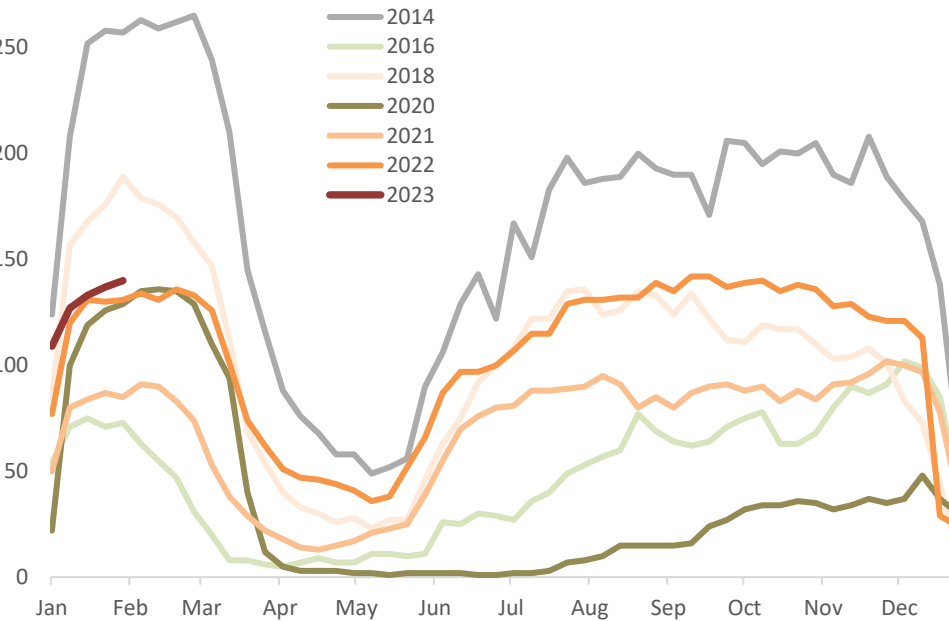




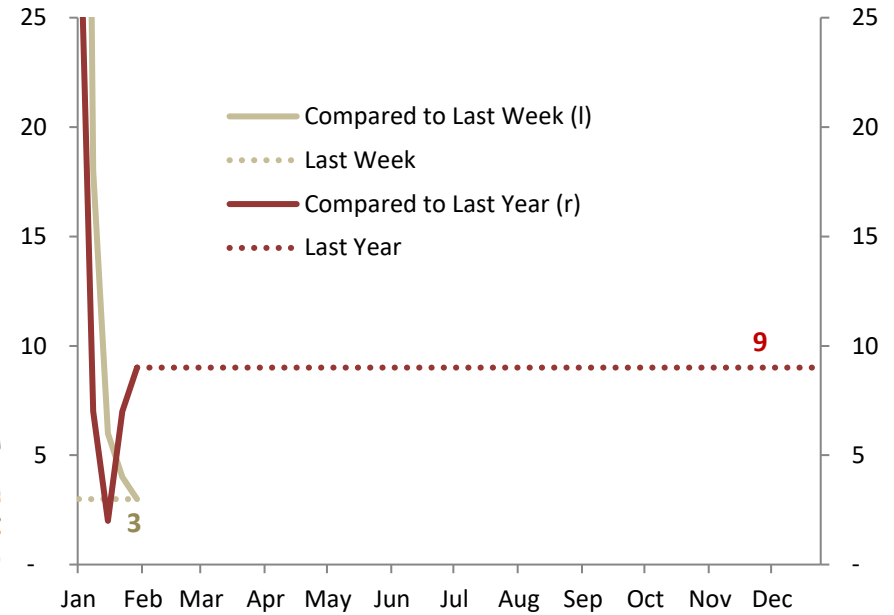
- DUC inventories, in terms of weeks of turnover, are nearly 20 weeks the highest since March, owing principally to low spread counts

# Canada Horizontal Oil Rig Count

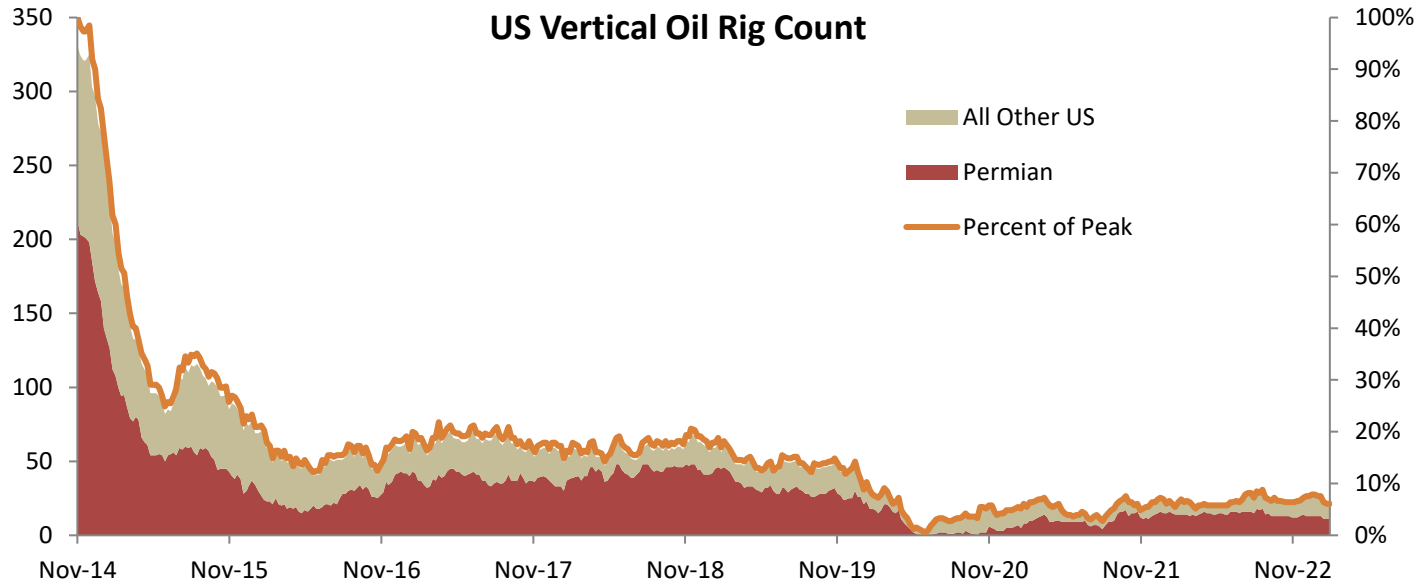
## Canada Horizontal Oil Rigs



## Compared to Previous Week, Previous Year



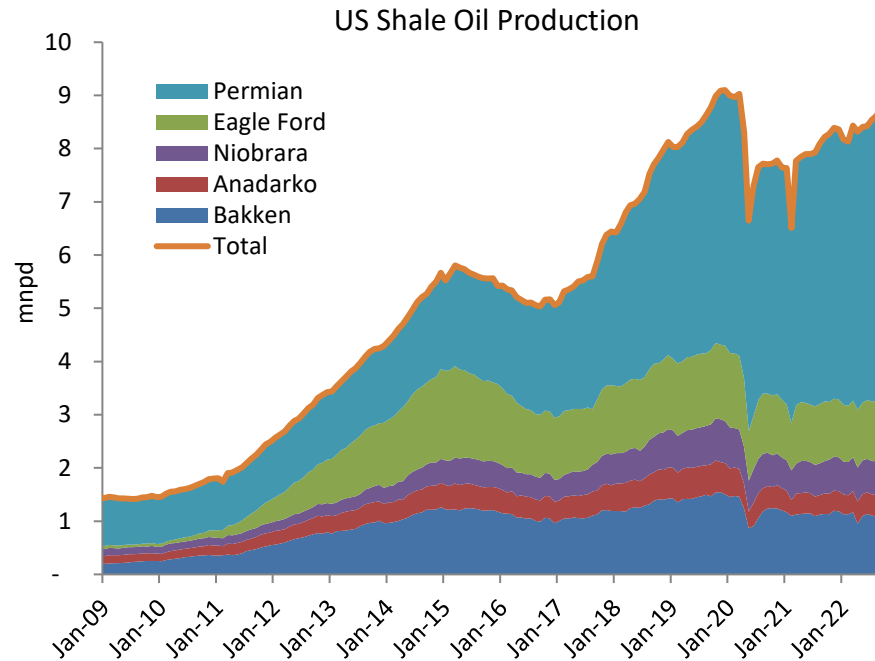
- Canada horizontal oil rigs rose seasonally, +3 to 140 last week
- Rigs counts were 9 above last year.



- Vertical oil rigs: +0 to 20
- Permian: +0
- All Other US: +0

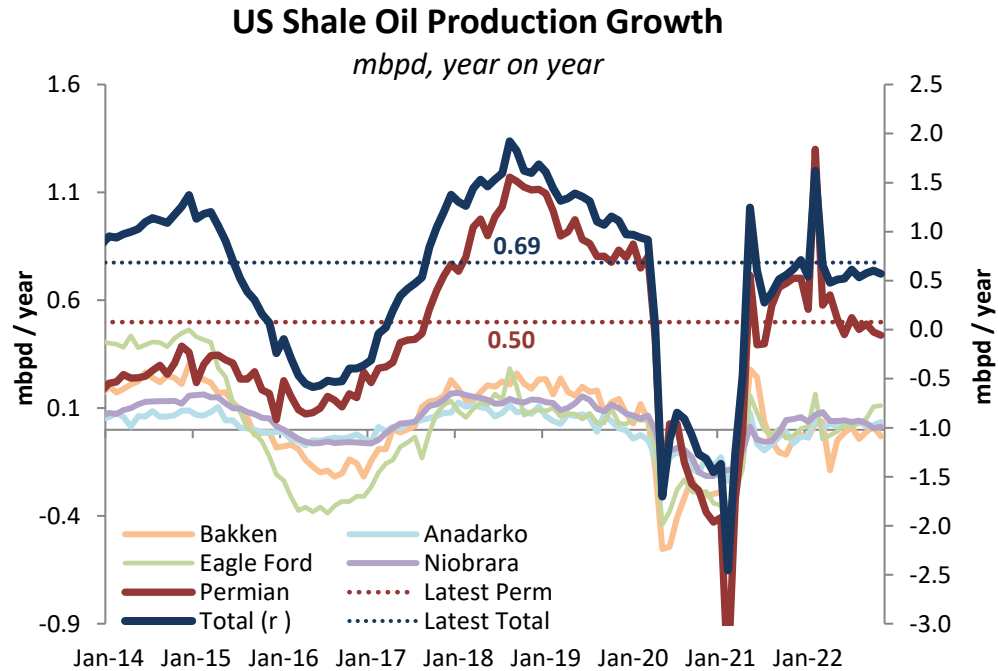


# US Shale Production Growth (January DPR)



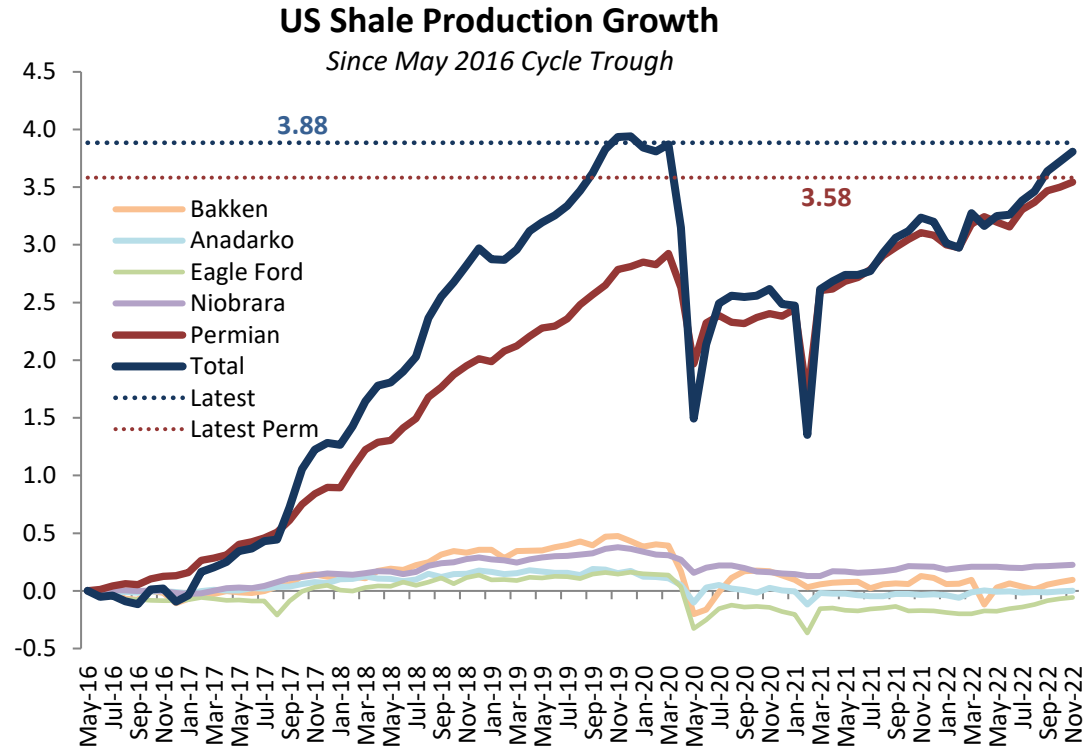
- In the January DPR report, crude and condensate production from key shale plays rose to 9.04 mmbpd in December, up 79 kbbpd from November. Total shale oil production growth has averaged 82 kbbpd / month over the last three months
- Permian production was up 38 kbbpd in December. Permian production growth has averaged 38 kbbpd per month over the last three months
- The EIA revised up historical shale production quite sharply, on average by more than 130 kbbpd in the Sept. 2021 to June 2022 time frame. Current growth rates appear smaller as a result of base month upward revision.

# US Shale Production Growth (January DPR)



- Compared to last year, total shale oil production is up 0.69 mbpd
- The Permian is up 0.51 mbpd
- This is quite healthy growth

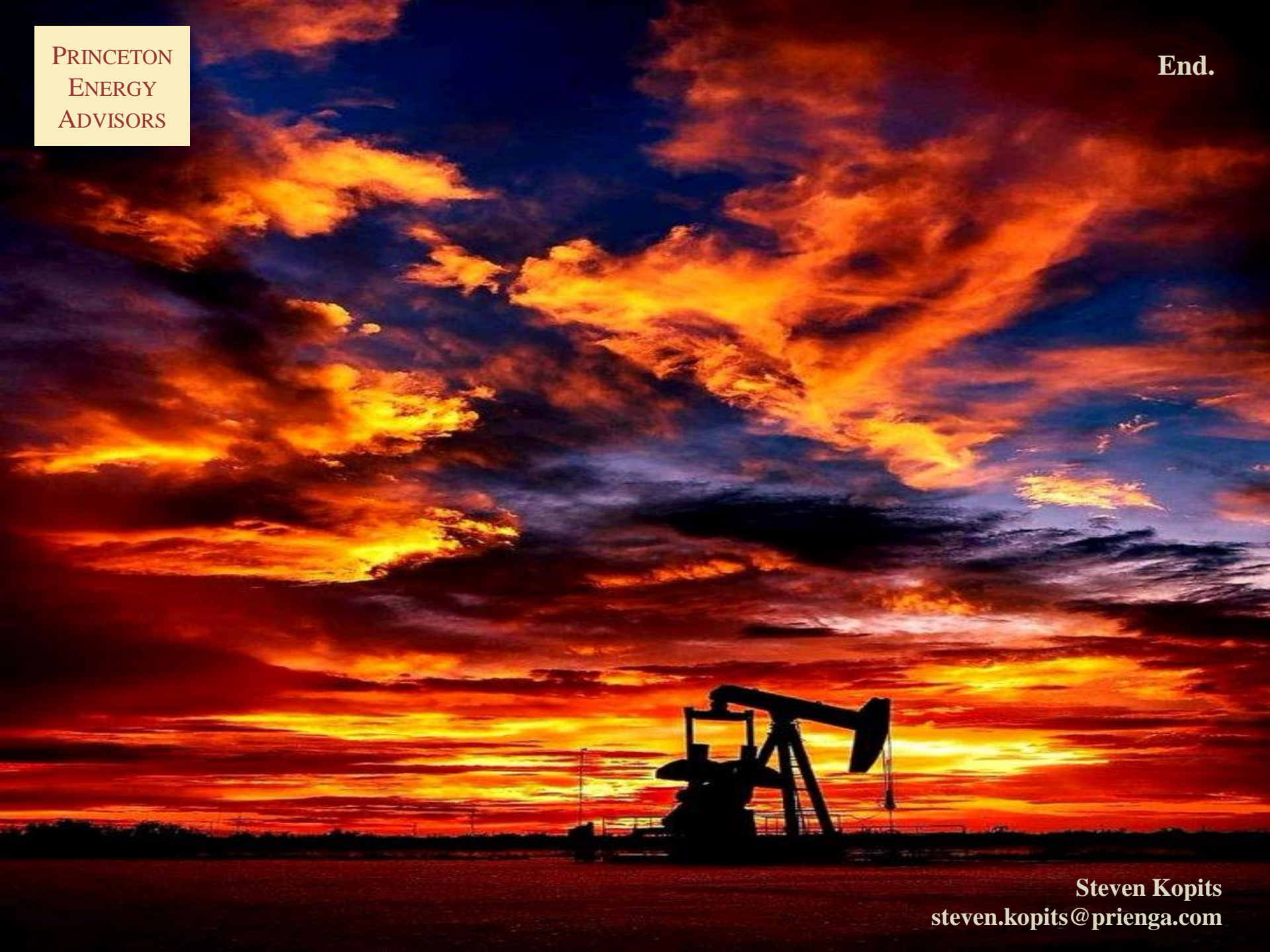
# US Shale Production Growth from May '16 (January DPR)



- Since the prior cyclical trough in May 2016, total shale oil production from the key plays is up 3.88 mbpd
- All but 300,000 bpd of this growth comes from the Permian basin

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