

Baker Hughes Oil Rig and Primary Vision Frac Spread Counts

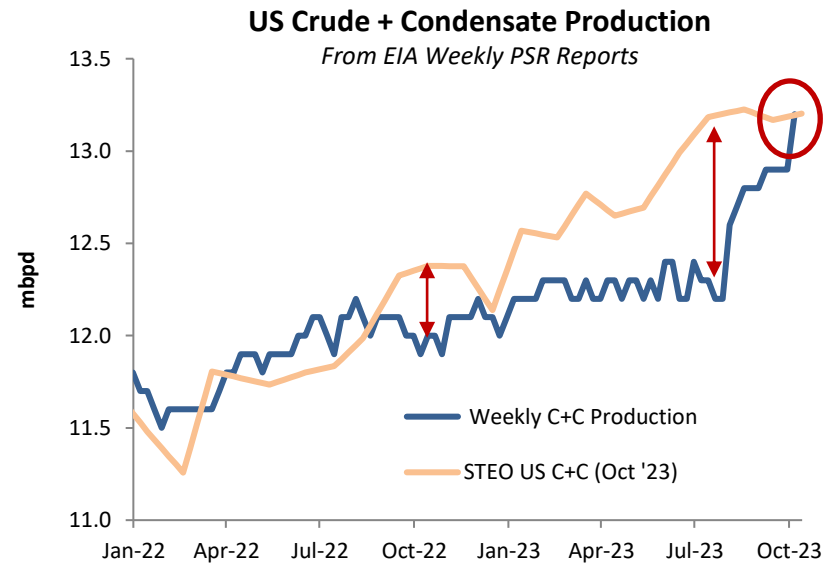
20 October 2023

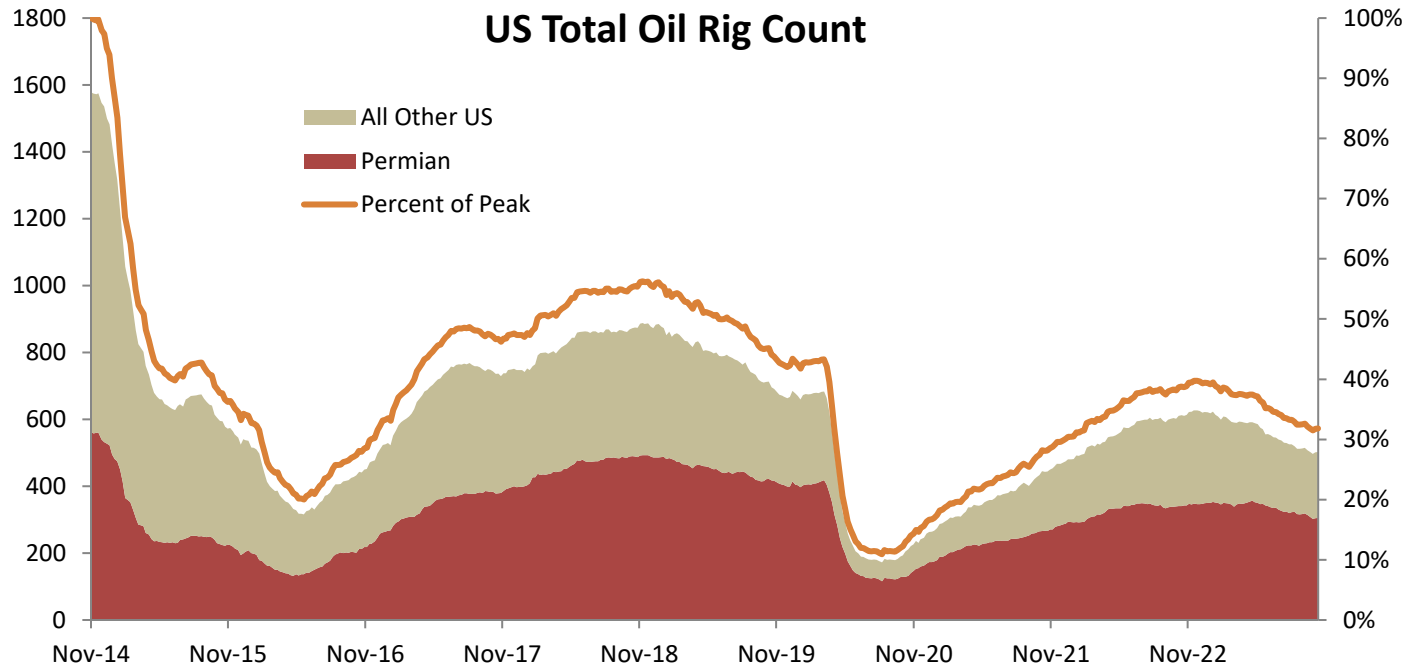
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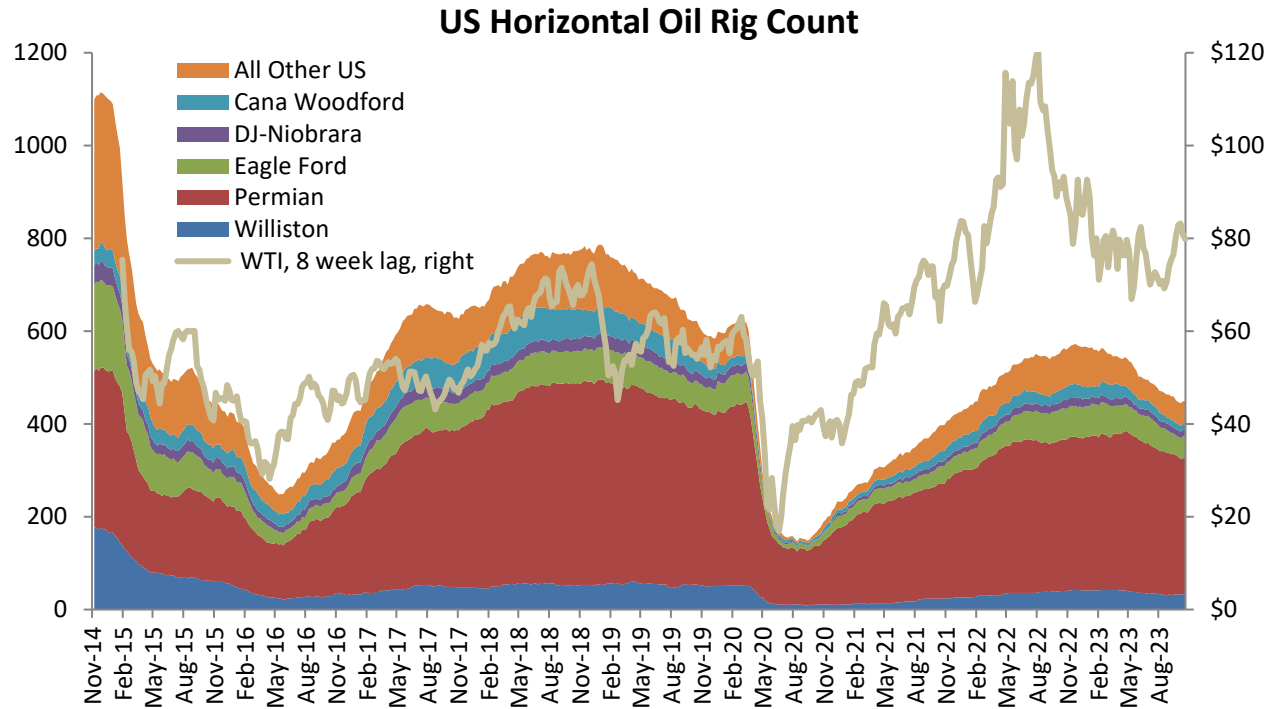
- Rigs counts once again saw a glimmer of hope this week.
- Rig counts
 - Total oil rig counts: +1 to 502
 - Horizontal oil rig counts: +0 to 449
 - The Permian horizontal oil rig count: +1
 - The Canadian horizontal oil rig count saw a solid progress this week, +4 to 118, but is still 17 below this week last year
- The US horizontal oil rig count is falling at a pace of -0.5 / week on a 4 wma basis.
 - This number has been negative for 46 of the last 47 weeks
 - If the rig count change is zero or higher next week, then the 4 wma change in rig counts will turn positive for the first time in 11 months
- Frac spreads rose, +6 to 269
 - There is a stark mismatch between rigs and spreads now, with DUC inventory, as measured in days of turnovers, falling to 14.3 weeks. This the lowest since the early days of the shale revolution
- The rig/spread relationship is now clearly unstable
 - To attain stability in the DUC count, rigs must either rise by 75 or spreads must fall by 38. This is the most distorted this number has been since the height of the pandemic.
 - If the breakeven to add rigs of \$83 holds, then we should see appreciable rig additions in the coming weeks.
 - On the other hand, we have only two weeks of positive data on rigs, which could easily prove a false dawn. If that's the case, then at some point, spreads will start to fall off dramatically

- The EIA issued the October DPR this past week
 - In the October report, September crude and condensate production from key shale plays fell to 9.47 mbpd, down 34 kbpd from August.
 - However, total August C+C shale production was revised up a whopping 237 kbpd, and the May-August period was revised up by an eye-popping 182 kbpd on average
 - The EIA continues to see peak shale oil output in July 2023.
 - Having said that, revisions have been so large lately that my confidence in reported numbers is at a low at present.
 - As I noted last week (graph right), the EIA has been on a revision spree lately – which happens sometimes – but it does make the data hard to interpret, and reliable month-to-month comparability may not be restored until early next year.



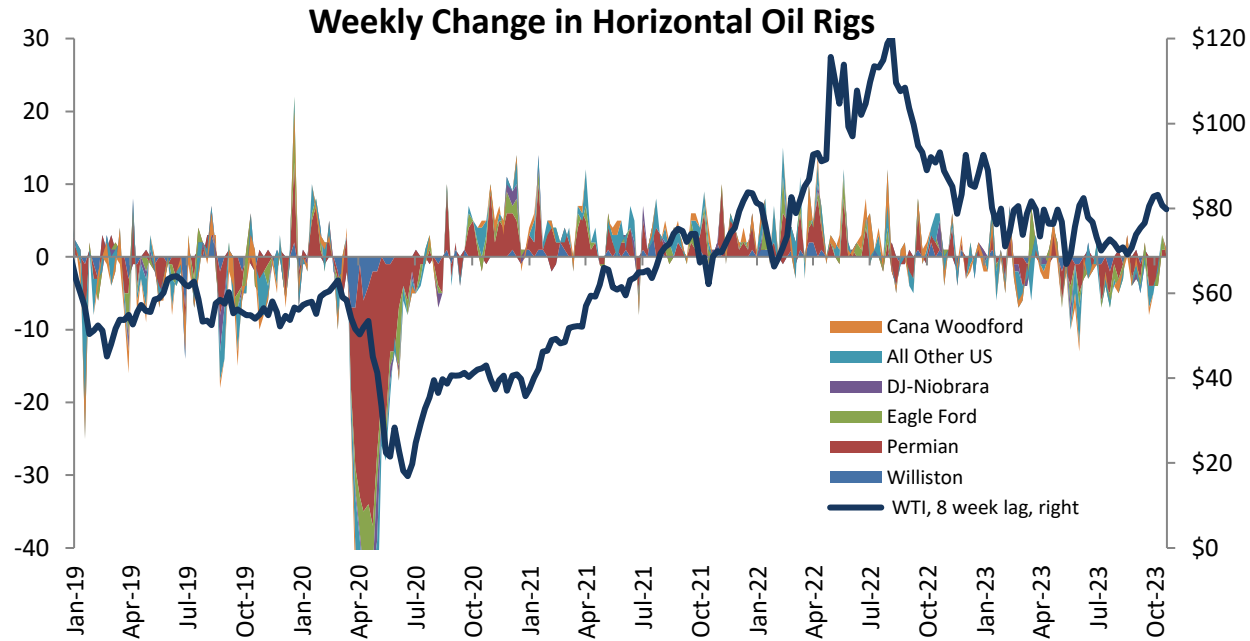


- Total oil rigs: +1 to 502
- Permian: +1
- All Other US: +0



- Horizontal oil rigs: +0 to 449
- Permian: +1
- All Other US: -1

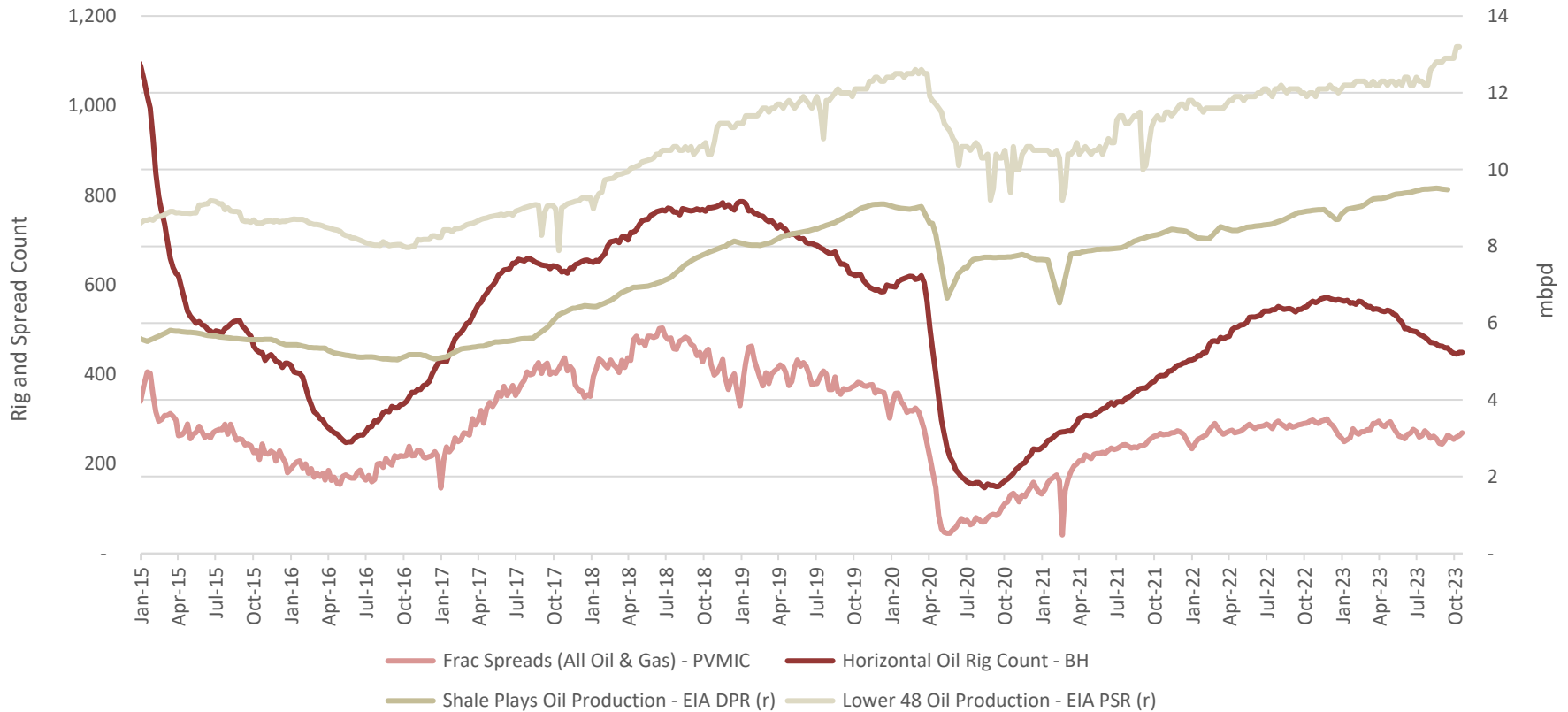
Weekly Change in Horizontal Oil Rig Count by Basin



| • By Basin | Change | Count |
|----------------|----------|------------|
| - Williston | 0 | 33 |
| - Permian | +1 | 294 |
| - Eagle Ford | -1 | 46 |
| - DJ Niobrara | 0 | 14 |
| - Cana Wdford | -1 | 12 |
| - Other US | +1 | 50 |
| - Total | 0 | 449 |

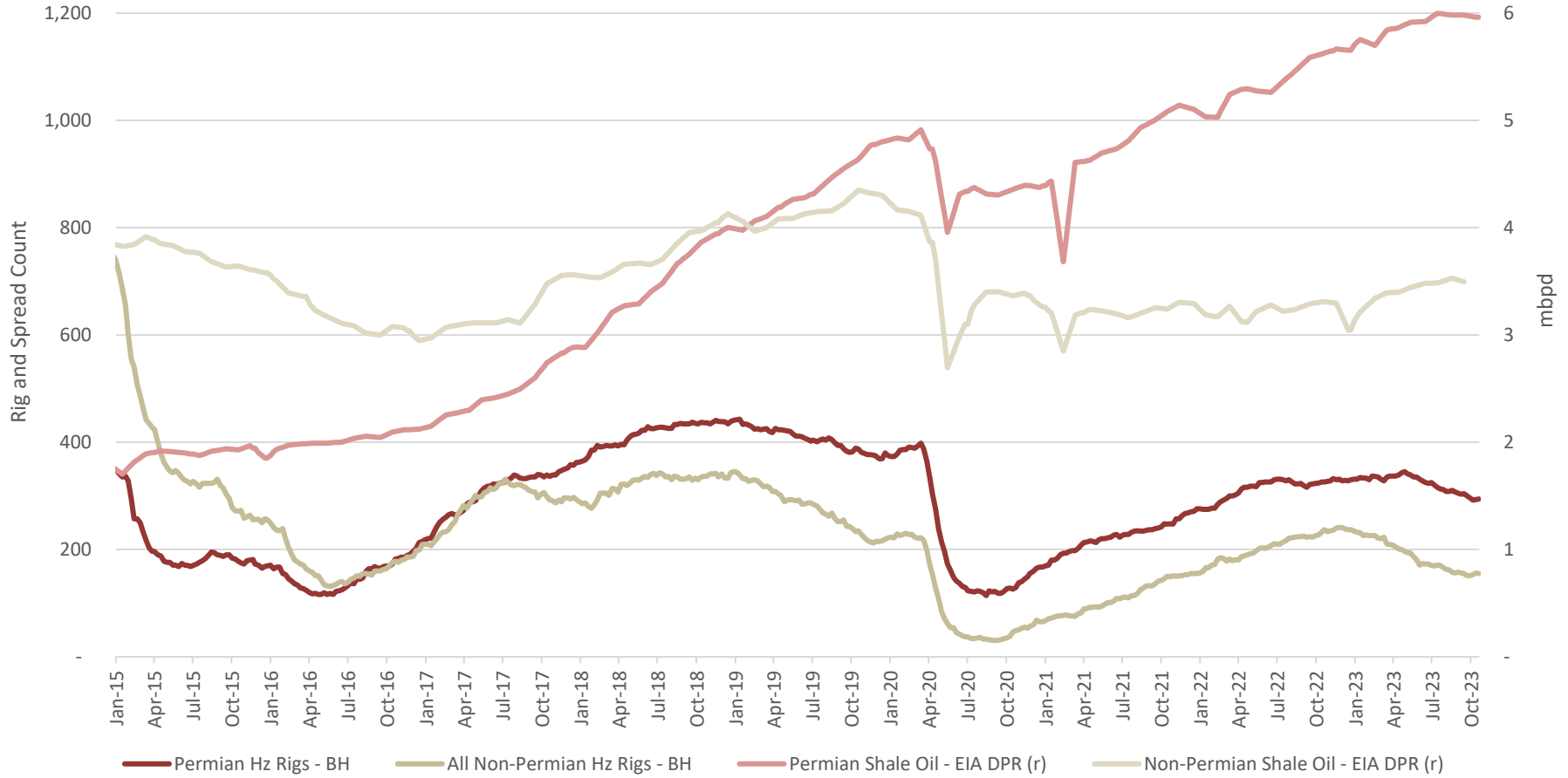
Rigs, Spreads and US Oil Production

Rigs, Spreads and US Crude and Condensate Production

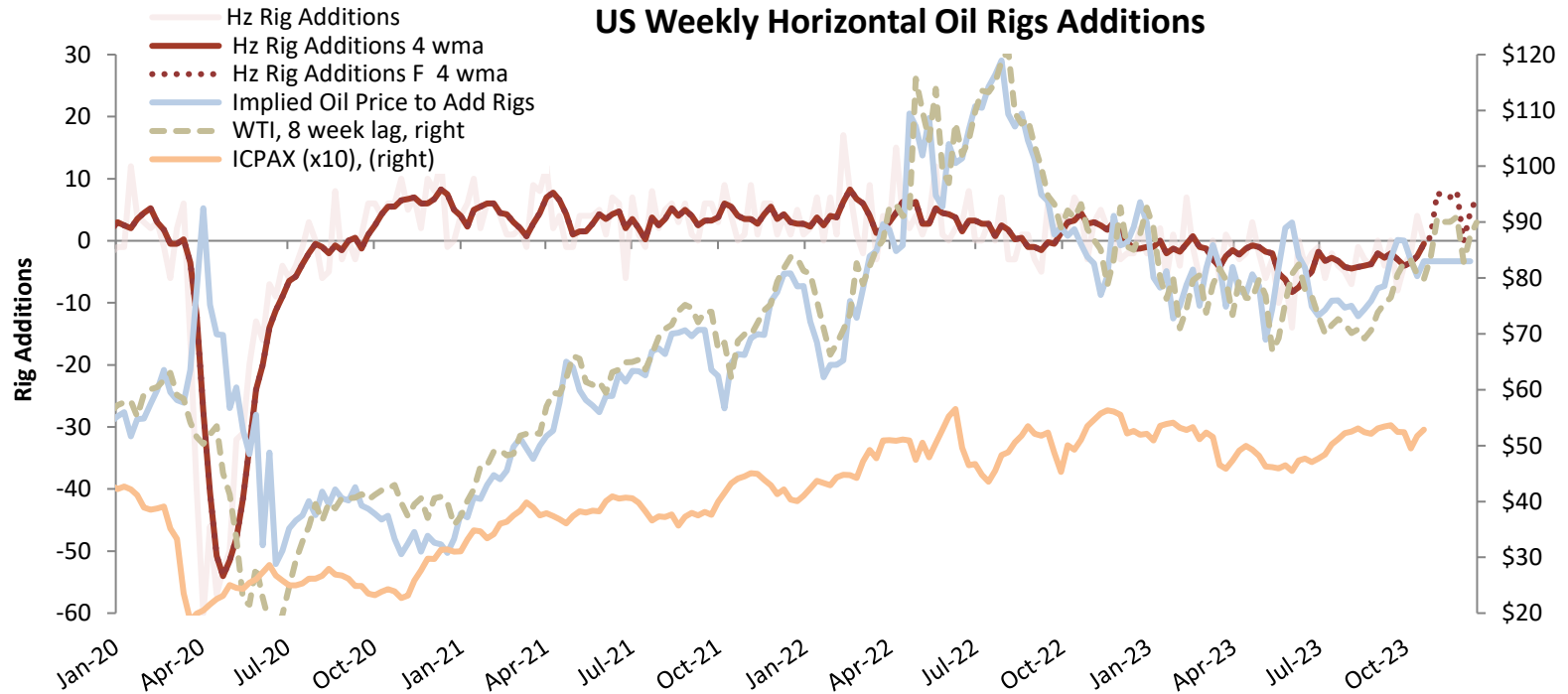


Permian & Non-Permian Shale Oil Production and Hz Oil Rigs

Permian and Non-Permian Shale Oil Production and Horizontal Rigs

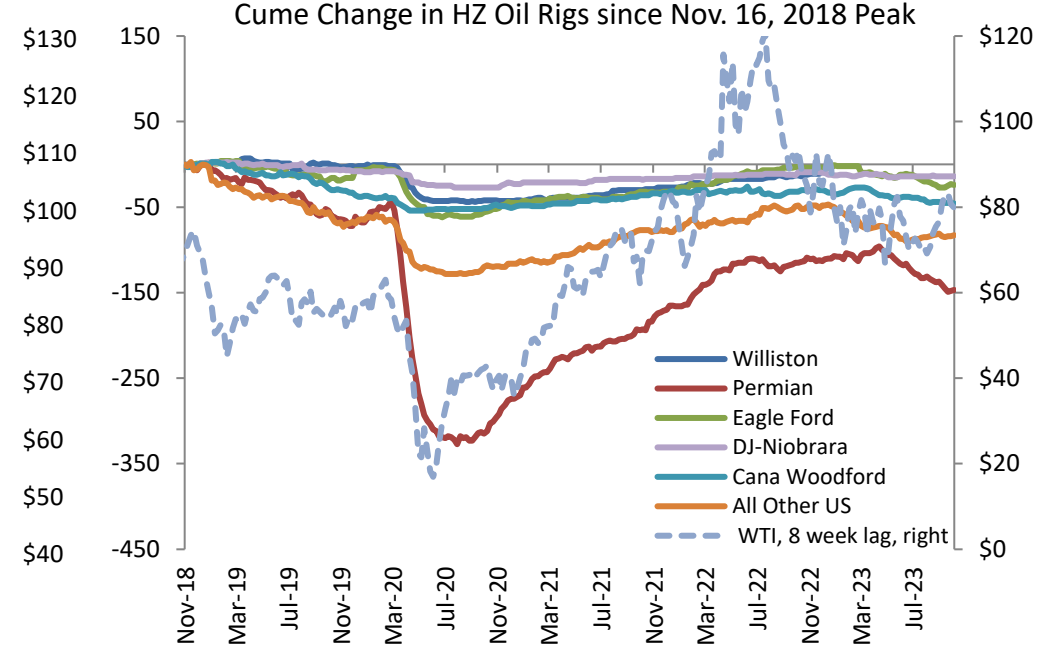
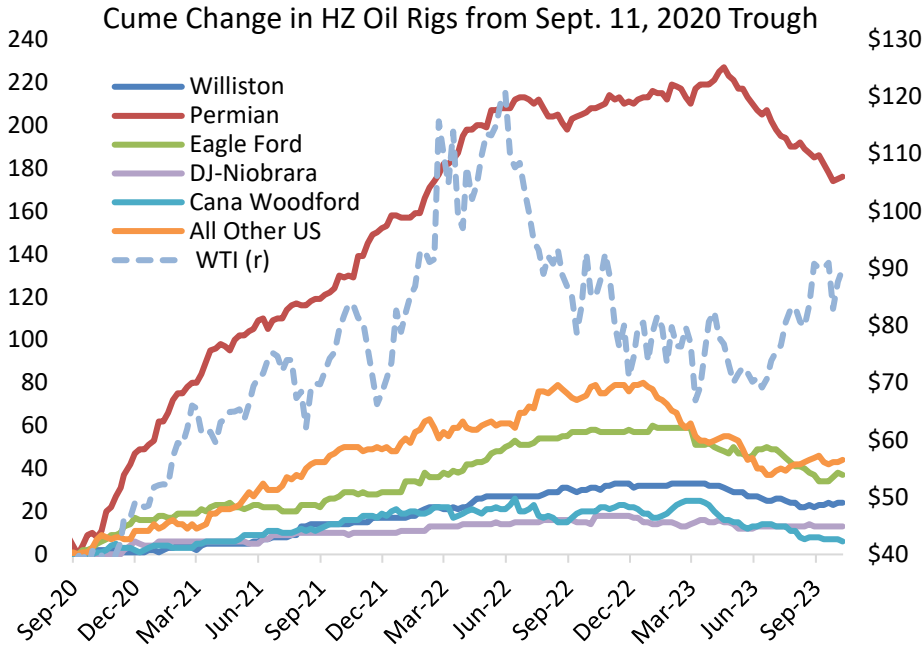


Rig Additions and Breakevens



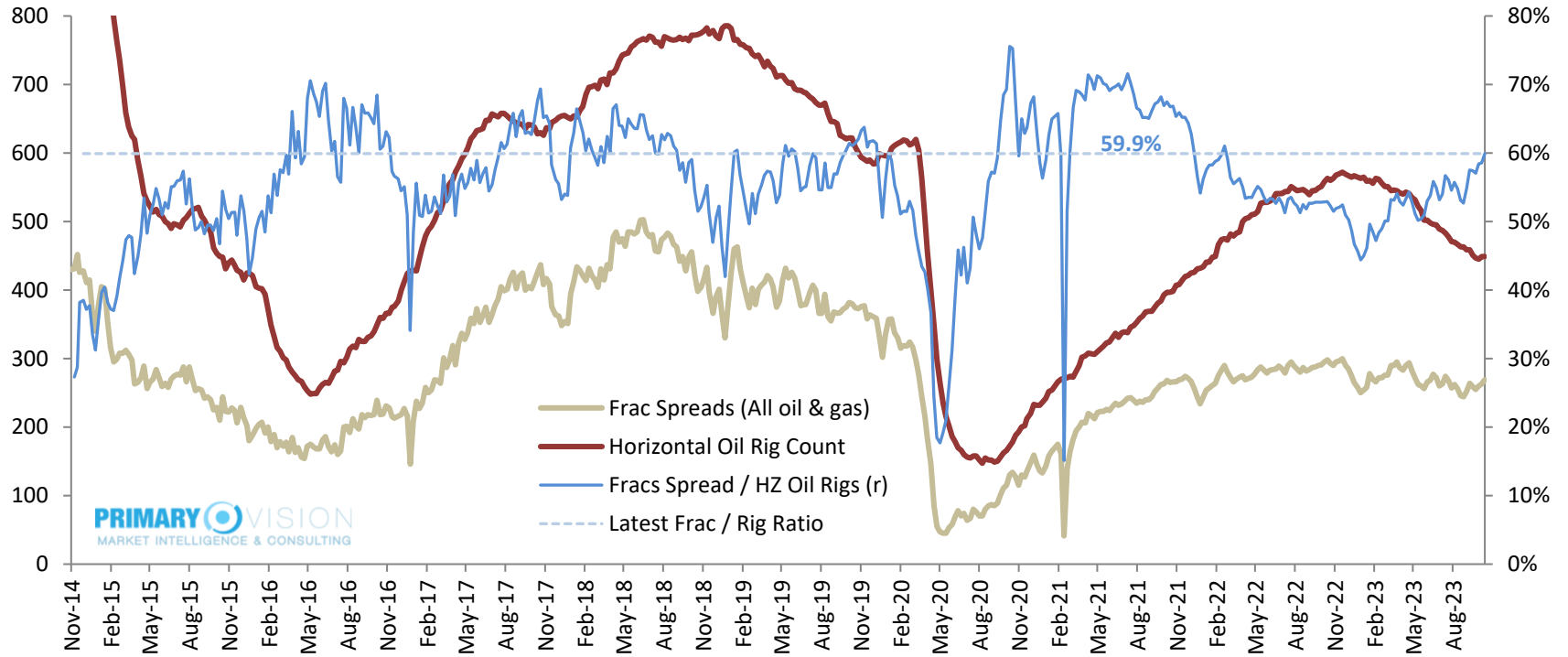
- The 4 wma pace of horizontal rig additions rose to -0.5 / week, negative for the 46th time in the last 47 weeks
- With an eight-week lag, the breakeven to add horizontal oil rigs stands at \$83 / barrel on a WTI basis with \$88 on the screen

US Horizontal Oil Rig Change from Peak and Trough



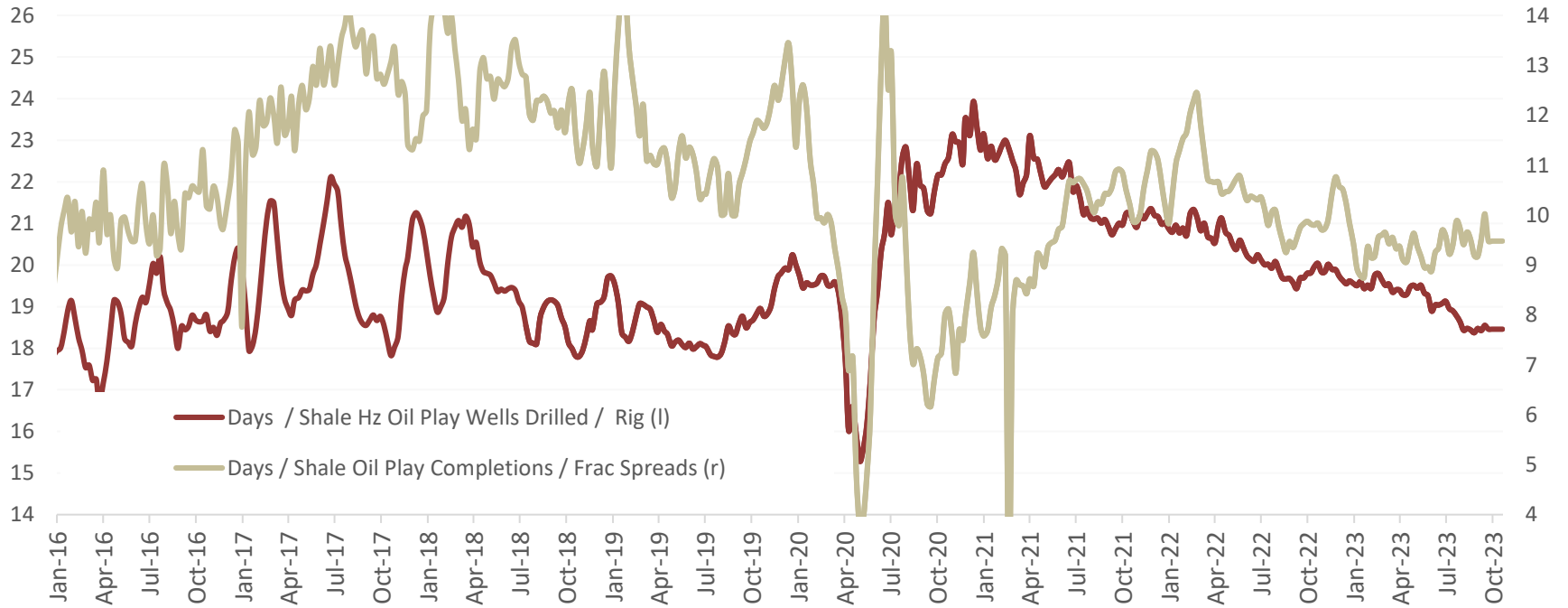
| | Latest HZ Rig Count | Trough August 14, 2020 | | | | Prior Peak Nov. 16, 2018 | | | |
|-----------------------|---------------------------|------------------------|---------------|-------------------|----------------------|--------------------------|---------------|-------------------|---------------------|
| | | Trough Count | Rig Change | Percent Change | Pct of Rig Gained | Peak Count | Rig Change | Percent Change | Pct of Rigs Lost |
| - Williston | 33 | 11 | 22 | 200% | 7% | 53 | (20) | -38% | 6% |
| - Permian | 294 | 114 | 180 | 158% | 60% | 441 | (147) | -33% | 44% |
| - Eagle Ford | 46 | 10 | 36 | 360% | 12% | 70 | (24) | -34% | 7% |
| - DJ Niobrara | 14 | 1 | 13 | 1300% | 4% | 28 | (14) | -50% | 4% |
| - Cana Wdford | 12 | 6 | 6 | 100% | 2% | 58 | (46) | -79% | 14% |
| - Other US | 50 | 5 | 45 | 900% | 15% | 133 | (83) | -62% | 25% |
| - Total | 449 | 147 | 302 | 205% | 100% | 783 | (334) | -43% | 100% |
| | | <i>05/22/20</i> | | | | | | | |
| - Frac Spreads | 269 | 45 | 224 | 498% | | 433 | (164) | -38% | |
| <i>Spread Ratio</i> | <i>59.9%</i> | <i>30.6%</i> | | | | <i>55.3%</i> | | | |

Frac Spreads and Horizontal Oil Rigs



- Frac spreads were +6 to 269

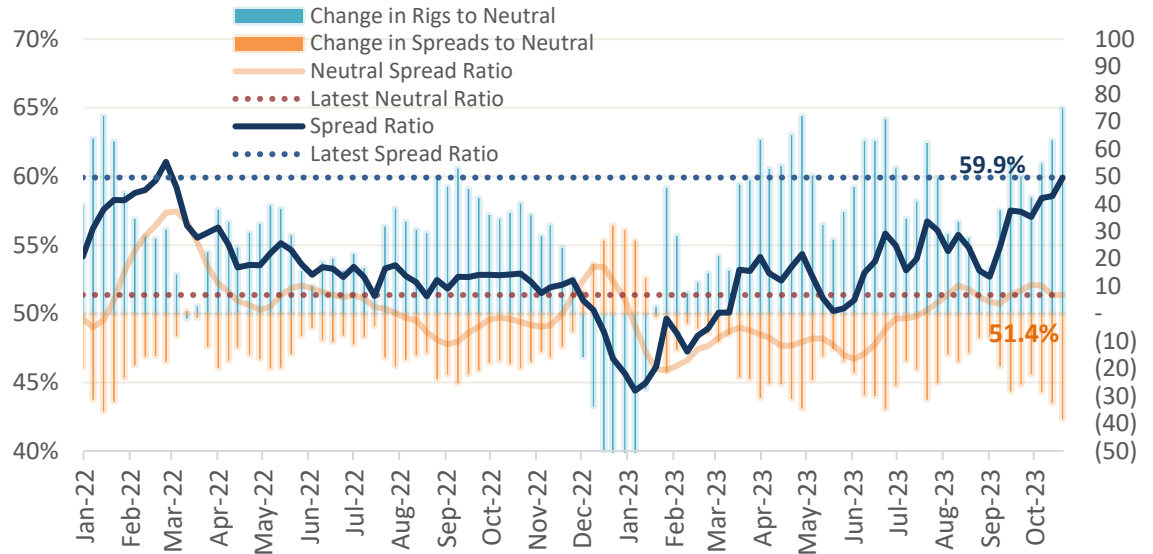
Productivity of Rigs and Spreads: Days per Well



Rig and Spread Productivity

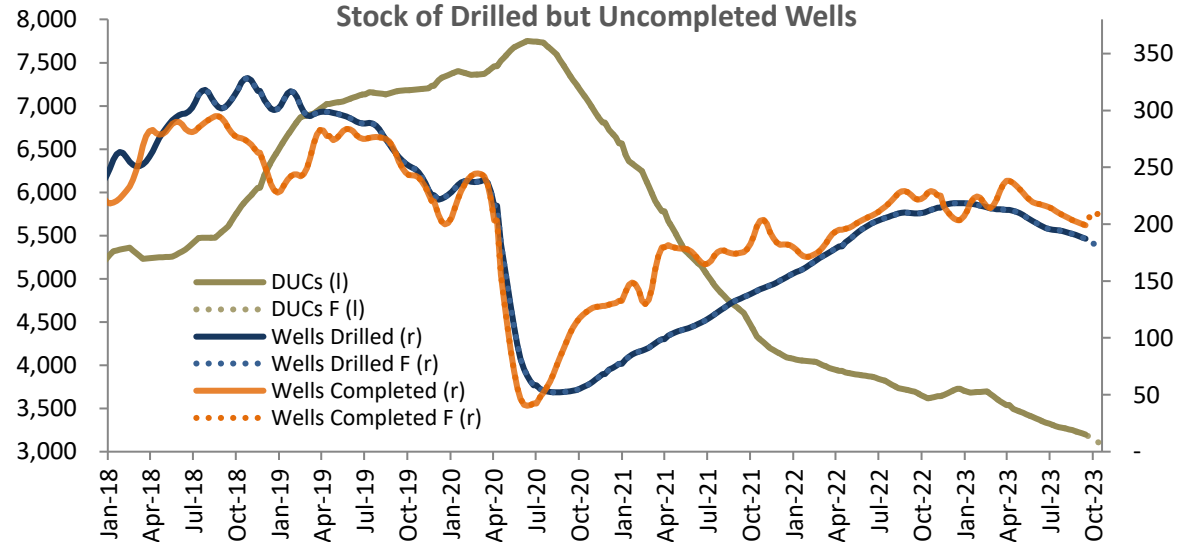
- At estimated productivity levels and current rig and spread counts, the DUC inventory is declining

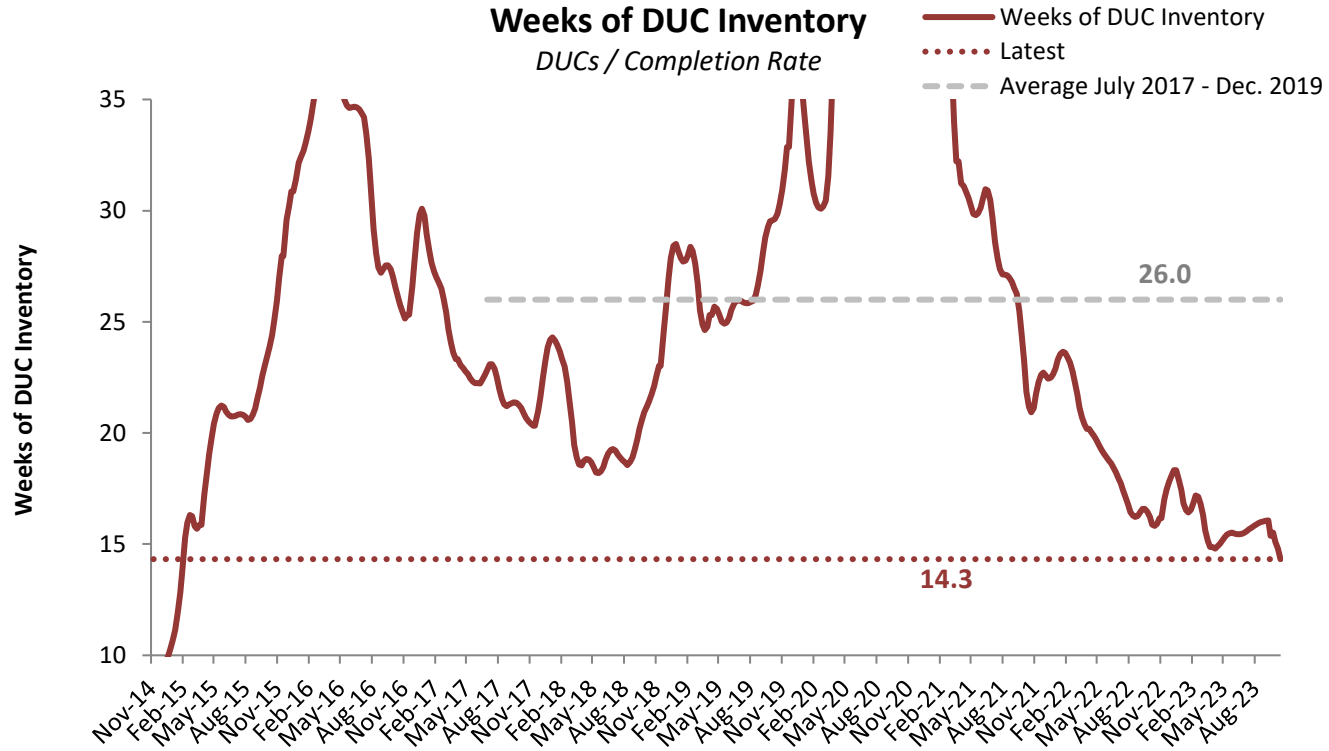
The Spread Ratio and Rigs and Spreads for DUC Neutrality



Horizontal Oil Wells Drilled and Completed per Week

Stock of Drilled but Uncompleted Wells

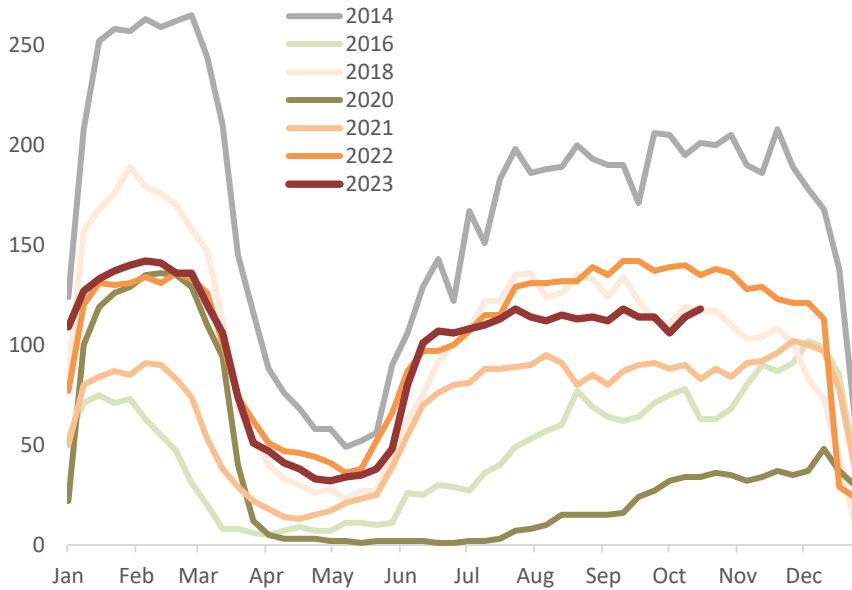




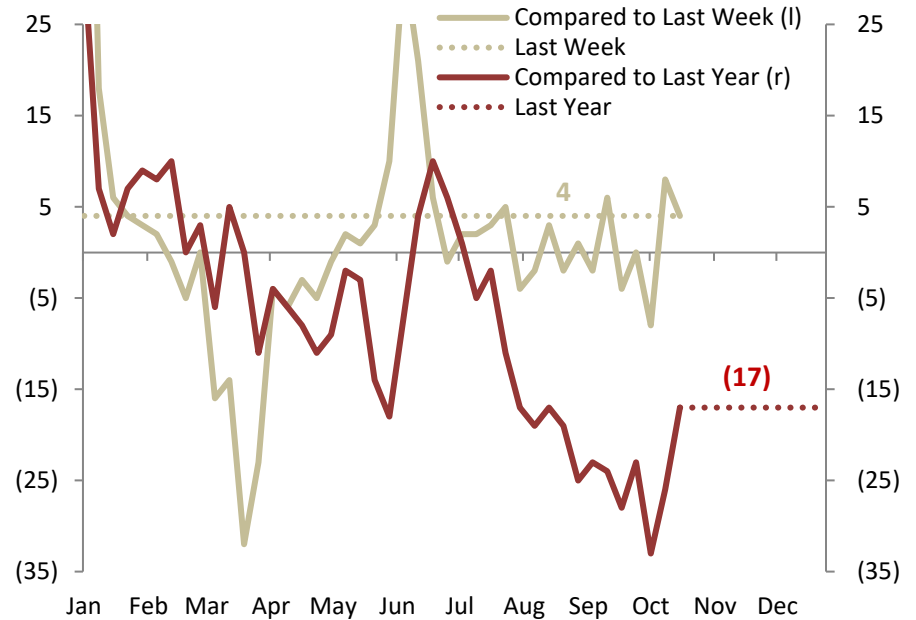
- DUC inventories have fallen back to 14.3 weeks

Canada Horizontal Oil Rig Count

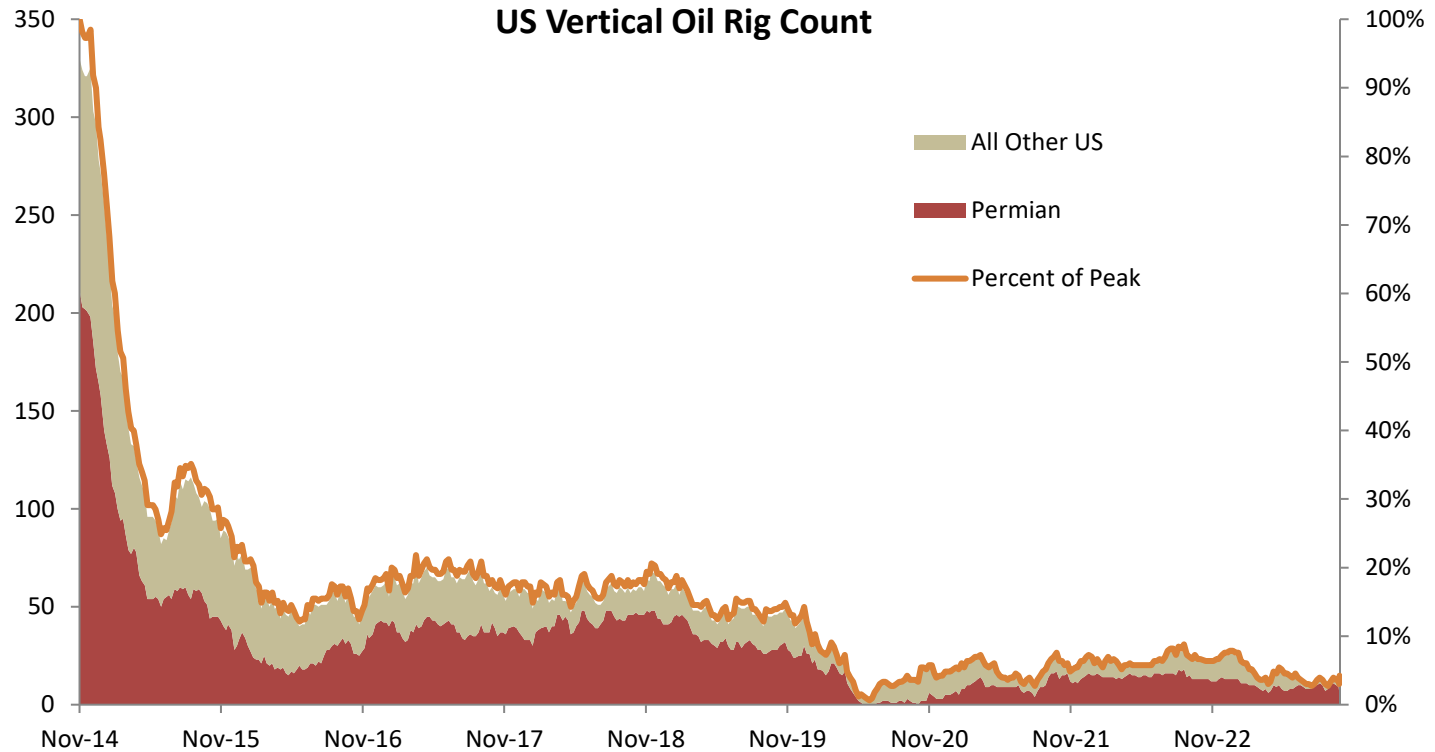
Canada Horizontal Oil Rigs



Compared to Previous Week, Previous Year

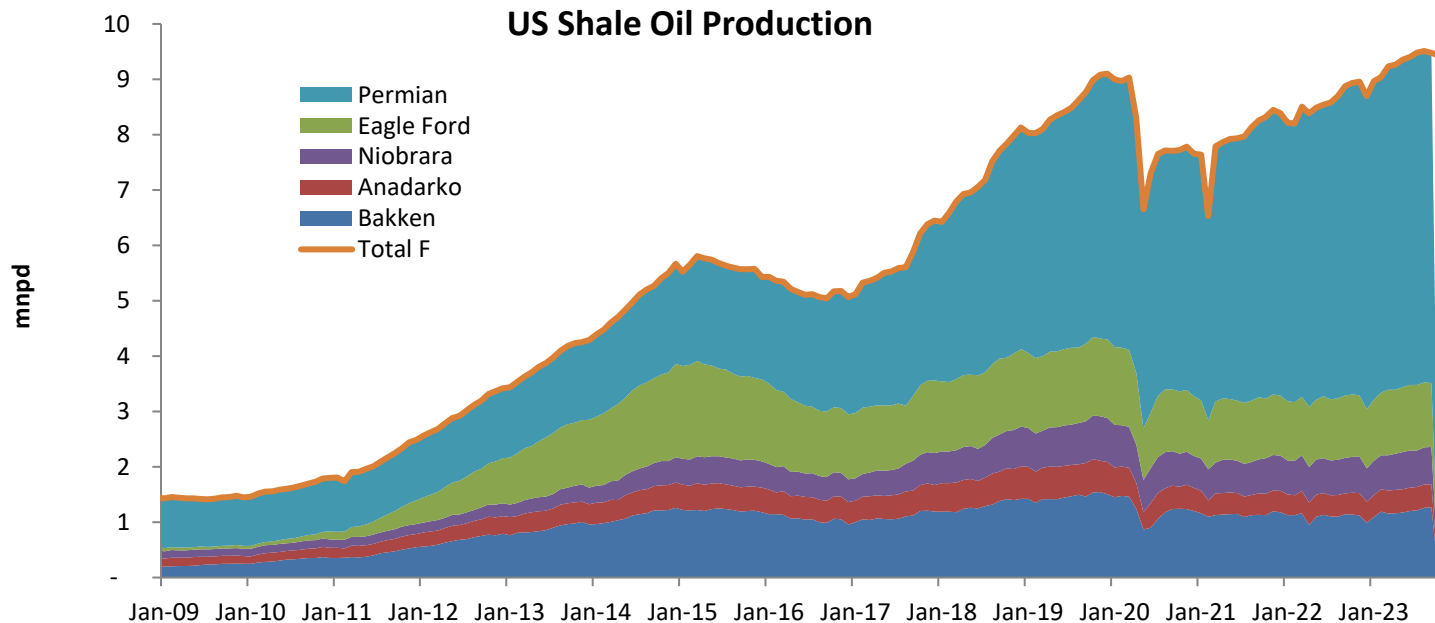


- Canada horizontal oil rigs were +4 to 118 last week
- Rigs counts were -17 compared to the same week last year



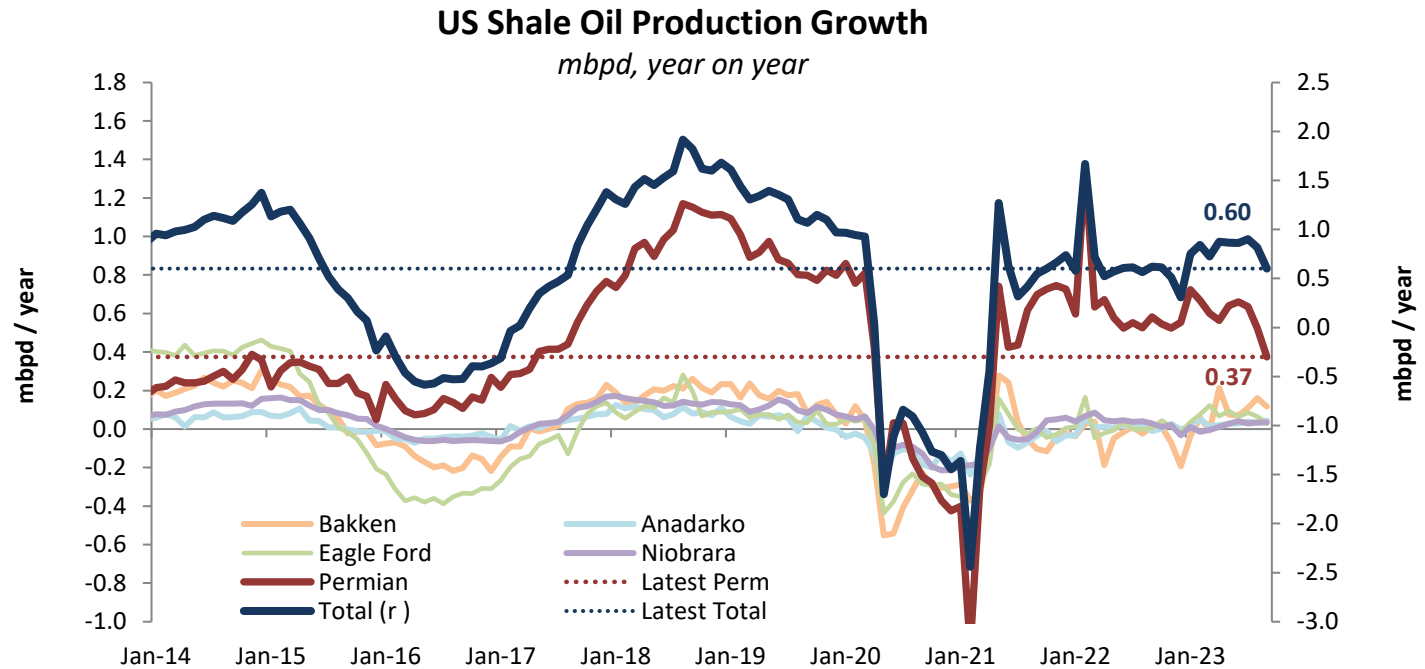
- Vertical oil rigs: -1 to 13
- Permian: +0
- All Other US: -1

US Shale Production Growth (Oct. DPR)



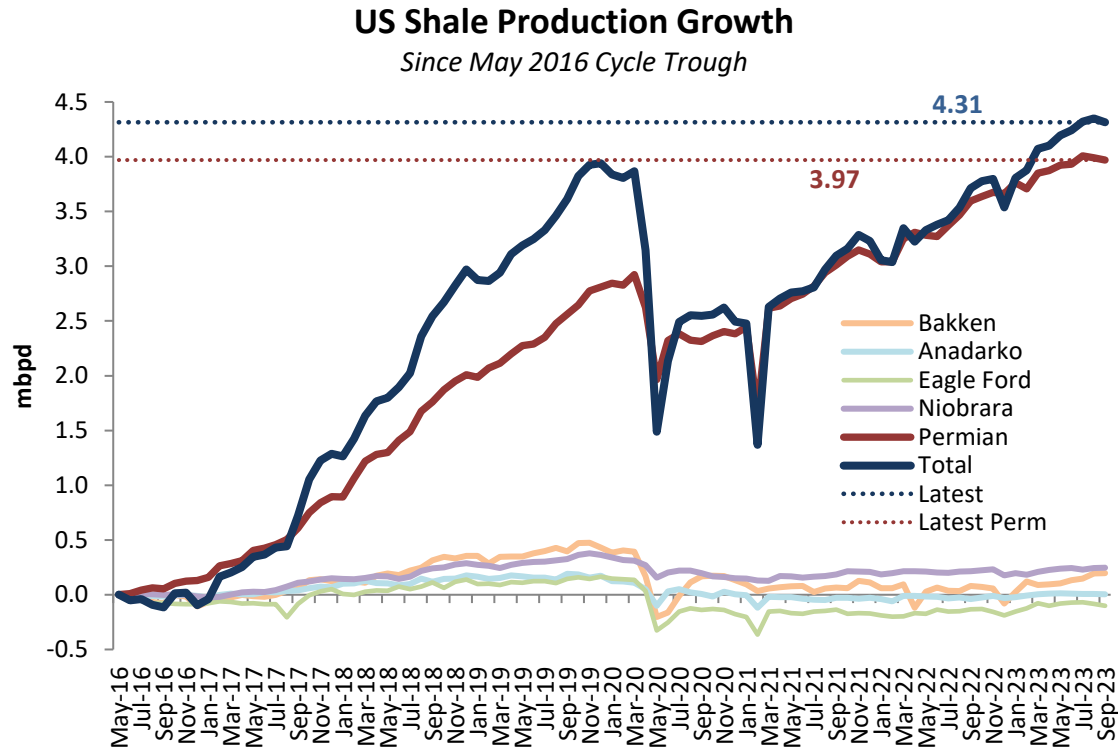
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US Shale Production Growth (Oct. DPR)



- Compared to last year, total shale oil production is up 0.6 mbpd
- The Permian is up 0.4 mbpd
- As before, annual Permian growth is rapidly decelerating

US Shale Production Growth from May '16 (Oct. DPR)



- Since the prior cyclical trough in May 2016, total shale oil production from the key plays is up 4.3 mbpd
- All but 340,000 bpd of this growth comes from the Permian basin

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