

## VALUE FOCUS

# Exploration & Production

Third Quarter 2022 // Region Focus: Bakken

## EXECUTIVE SUMMARY

Oil prices declined in the third quarter of 2022, as West Texas Intermediate (WTI) and Brent Crude front-month futures ended the quarter at about \$79/bbl and \$85/bbl, respectively — a decrease from \$108/bbl and \$112/bbl, respectively, at the start of the quarter. Natural gas was more volatile, with Henry Hub front-month futures settling at \$6.77/mmbtu on 9/30/2022 — an increase from \$5.71/mmbtu to start the quarter — but below the highs in the second half of August, topping out at \$9.71/mmbtu. Natural gas prices recovered in the third quarter of 2022, after the sharp decline in mid-June after news that a Freeport LNG facility would be offline longer than anticipated, giving rise to over-supply fears.



# Oil and Gas Industry Services

Mercer Capital provides business valuation and financial advisory services to companies in the energy industry.

## Services Provided

- Valuation of oil & gas companies
- Transaction advisory for acquisitions and divestitures
- Valuations for purchase accounting and impairment testing
- Fairness and solvency opinions
- Litigation support for economic damages and valuation and shareholder disputes

## Industry Segments

Mercer Capital serves the following industry segments:

- Exploration & Production
- Oil Field Services
- Midstream Operations
- Alternative Energy

## Contact Us



**Bryce Erickson, ASA, MRICS**  
214.468.8400  
ericksonb@mercercapital.com  
**Dallas Office**



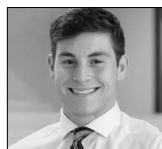
**Don Erickson, ASA**  
214.468.8400  
ericksond@mercercapital.com  
**Dallas Office**



**J. David Smith, ASA, CFA**  
713.239.1005  
smithd@mercercapital.com  
**Houston Office**



**Andrew B. Frew, ASA, ABV**  
832.966.0345  
frewa@mercercapital.com  
**Houston Office**



**Sebastian S. Elzein**  
214.468.8400  
elzeins@mercercapital.com  
**Dallas Office**



**Thomas G. Kasierski**  
832.378.8065  
kasierskit@mercercapital.com  
**Houston Office**

## In This Issue

<b>Oil and Gas Commodity Prices</b>	<b>1</b>
<b>Macro Update</b>	<b>2</b>
How Waves of Reality are Swelling Upstream Returns	3
<b>Region Focus: Bakken</b>	<b>6</b>
Production and Activity Levels	6
Financial Performance	8
<b>Market Valuations &amp; Transaction History</b>	<b>9</b>
Oasis and Whiting Combine in a \$6.0 Billion Merger of Equals	12
Devin Energy – RimRock Oil and Gas Deal	11
<b>Selected Public Company Information</b>	<b>12</b>
<b>Production</b>	<b>16</b>
<b>Rig Count</b>	<b>18</b>

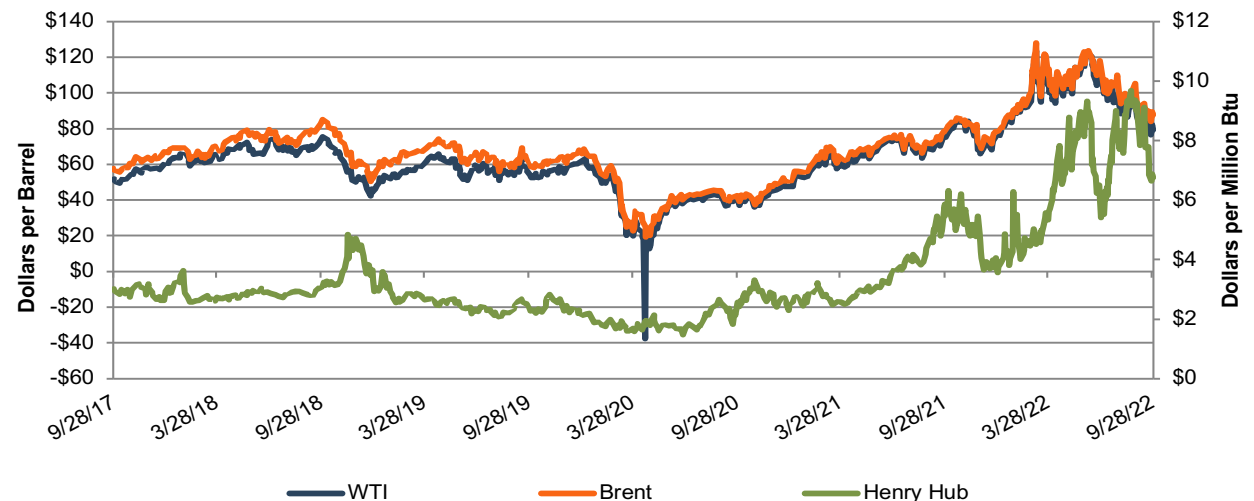
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**[mer.cr/oilgas](http://mer.cr/oilgas)**

## Oil and Gas Commodity Prices

Oil prices rose through the twelve months ended September 30, 2022, with WTI and Brent closing Q3 at \$79/bbl and \$85/bbl, respectively. While the rise in pricing was fairly steady through mid-February 2022, the Russian invasion of Ukraine spurred a series of ups and downs with prices spiking to a high of \$120/bbl (WTI) and \$128/bbl (Brent) in early March, immediately followed by a plunge to \$94/bbl and \$96/bbl in mid-March, respectively. Subsequent spikes and dips were somewhat more muted, but prices remained volatile through early June. A general price decline during the third quarter resulted in prices at the \$79/bbl and \$85/bbl levels, respectively.

Henry Hub natural gas front-month futures prices dipped from a late 2021 high of \$5.48/mmbtu to a low of \$3.44/mmbtu near 2021 year-end as commodity markets incorporated indications of rising production levels and ebbing weather-driven demand. Pricing subsequently rose to as high as \$9.32/mmbtu in early June on weather-driven demand and a lack of supplies due reduced Russian export. From there, natural gas prices declined sharply in mid-June on the announcement that a Freeport LNG facility would be offline for longer than expected following a fire, prompting over-supply fears. Prices recovered over the third quarter of 2022, albeit with some volatility, to end at \$6.77/mmbtu.

**Crude Oil and Natural Gas Prices**



Source: Bloomberg

# Macro Update

## How Waves Of Reality Are Swelling Upstream Returns

Reprint of Bryce Erickson's  
*Forbes.com* column.  
Originally published October 5, 2022

Upstream and oilfield service companies have bucked trends most of this year. While other industries have had stagnant to negative returns, the oil patch has outperformed them all, as **I highlighted earlier this summer**. Since then, market capitalizations have stagnated. Yet, the reality is that equity returns are soaring on a wave of cash flow right now.

Operational cash flow for the sector was at its highest in the five year period since 2017 at \$203 billion, according to the **EIAs' Financial Review of the Global Oil and Natural Gas Industry: Second Quarter 2022 report**.

This led to a 22% return on equity which was notable not only because it was the highest recorded return in the survey period, but also because it usurped U.S. manufacturing companies' returns on equity for the first time in the survey period.

It has been a long time coming, but several realities have been coming to the forefront to build this wave: world realities, production realities, and capital realities.

### World Realities

The energy industry's reality is one tethered to the zeitgeist. Few if any other industries are as sensitive to the volatility of politics, regulation, and events. A year ago, longer-term supply and demand trends were pushing tailwinds for upstream producers, but those winds blew up into a storm when Russia invaded Ukraine. Several of my contributing colleagues here at Forbes.com have done good work covering these developments. That has Russian oil production likely dropping around 20%, with an accompanying impact to prices. In addition, OPEC+ has reduced oil production quotas for October.

The energy industry's reality is that some unintended consequences regarding the scramble for energy transition away from fossil fuels have collided with "contingencies." Aramco's CEO Amin Nasser was very blunt about this in Switzerland last Tuesday (before the Nord Stream incident).

## Macro Update

### How Waves Of Reality Are Swelling Upstream Returns

(cont.)

*"Perhaps most damaging of all was the idea that contingency planning could be safely ignored," said Nasser, "Because when you shame oil and gas investors, dismantle oil- and coal-fired power plants, fail to diversify energy supplies (especially gas), oppose LNG receiving terminals, and reject nuclear power, your transition plan had better be right."*

*"Instead, as this crisis has shown, the plan was just a chain of sandcastles that waves of reality have washed away. And billions around the world now face the energy access and cost of living consequences that are likely to be severe and prolonged," said Nasser.*

There has been a **flurry of speculation** as to who is responsible for the explosions emanating from the Nord Stream pipeline, but **what** is now concerning is Europe's ability to keep warm this winter. The U.K. reversed its fracking ban to help secure its energy supply. It may be too little too late this winter for the Brits.

In the meantime, Europe's eyes look to the U.S. to stand in the growing energy gap, particularly gas. The U.S. has skyrocketed to become the top exporter of LNG in the world this year. This won't change any time soon and is expected to continue to expand and grow. At the same time, U.S. domestic demand has been growing too, thus multiplying natural gas prices compared to two years ago.

### Production Realities

While demand has resurged domestically and abroad, upstream production has not been keeping up the same way it has in the past. The good news is that production is growing and will continue to. However, there are several things limiting growth. As I have written before, producers have been cautious for a myriad of reasons and as such, new major investments in development and drilling have been stalled. According to the EIA Financial Review, Capex of the companies surveyed was \$59 billion in the 2Q of 2022, only 8% higher than the 2Q of 2021.

Rig counts are growing, but not at the same pace as they did the last time commodity prices were this high. DUC wells are at the lowest level in almost a decade, so drilling inventories continue to shrink.

## Macro Update

### How Waves Of Reality Are Swelling Upstream Returns

(cont.)

Another reality is that productivity at the individual rig level is waning. This comes in two ways: 1) the form of productivity for new wells drilled, and 2) existing legacy production is declining faster than before.

Explanations for this are not entirely clear.

Productivity Per Oil Rig			
	Sep-21	Sep-22	Change %
Permian	1,274	1,083	-15%
Anadarko	870	711	-18%
Bakken	2,322	1,732	-25%
Eagle Ford	2,155	1,688	-22%
Niobrara	1,840	1,500	-18%

Source: EIA - Drilling Productivity Report

Productivity Per Gas Rig			
	Sep-21	Sep-22	Change %
Permian	2,486	2,127	-14%
Anadarko	4,686	3,835	-18%
Bakken	3,251	2,537	-22%
Eagle Ford	7,922	6,386	-19%
Niobrara	5,287	3,759	-29%
Haynesville	12,490	10,912	-13%
Appalachia	28,012	27,855	-1%

Perhaps it is the exhaustion of top-tier PUD well locations, continued permitting problems that Joe Manchin could not fix, or the flight of talent from the oilfield in the last few cycles. Costs increased for the seventh straight quarter in the Fed Survey – near historical index highs. Nonetheless – it is happening and fueling a bevy of comments like this from the [Dallas Fed Survey](#):

*“Uncertainty on the political front continues to be a major concern. The withdrawal of leases that have already been issued is an example. Inflationary pressure is eating significantly into discretionary cash flow, limiting the amount of money allocated to new projects.”*

85% of survey participants expected to see a significant tightening in the oil market by the end of 2024 given the underinvestment in exploration.

## Macro Update

### How Waves Of Reality Are Swelling Upstream Returns

(cont.)

#### Capital Realities

In the past several years there simply has not been enough capital deployed in the sector to defray some of the shorter-term event volatility such as Ukraine's war with Russia. With the spike in prices, 79% in the **Fed Survey** expect to see some investors return to the space, attracted by superior returns. However, it may be some time for that to matter. In this business, measured in years and decades, investments that can move the world needle take time to come to fruition. In the meantime, 69% of respondents in the Fed Survey expect to see the age of inexpensive gas ending by 2025. Existing capital remains focused on paying off debt and dividends, not drilling. Cash flows from Operations of \$203 billion and Capex of \$59 billion clearly communicates this reality.

In the long run, prices ultimately communicate reality in a commodity business, so the expectations of higher prices should be the instigator to change behavior to a more balanced energy policy for much of the developed world.

In the short run, oil and gas investors are getting exceptional returns. That should not change any time soon.

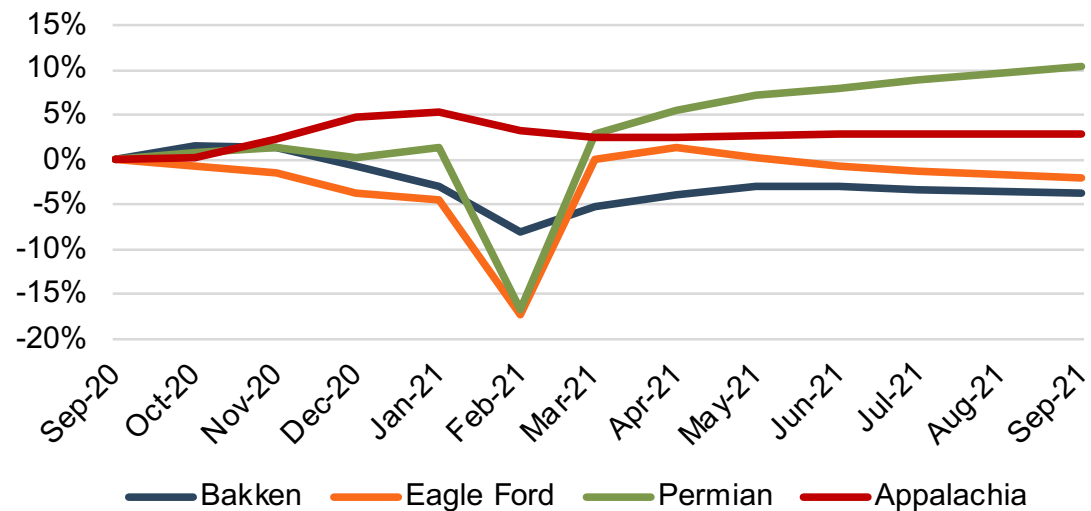


## Region Focus: Bakken

### Production and Activity Levels

Estimated Bakken production (on a barrels of oil equivalent, or “boe” basis) increased by 5% year-over-year in September. Bakken production, relative to the September 2021 level, plunged nearly 20% in April due to the impact of back-to-back blizzards, but had recovered to the September 2021 level by June 2022. Production in the Eagle Ford and Permian were 13% and 8% higher, respectively, than in September 2021, without the short-lived plunge seen in the Bakken. The gas-focused Appalachia region production relative to September 2021 levels was more stable than the oil-focused regions with relative production only varying within a band of -1% to 4%, ending at a year-over-year 3% increase in September 2022.

1-Year Change in Production



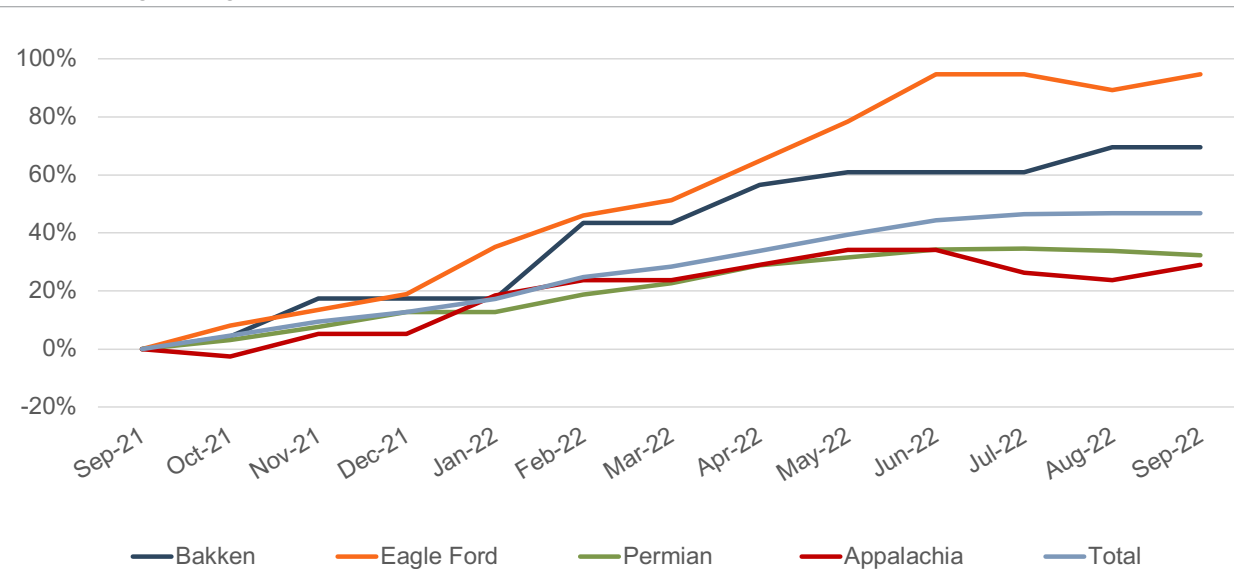
Source: Energy Information Administration



## Production and Activity Levels (cont.)

As of September 16, 2022, there were 40 rigs operating in the Bakken, marking a 74% increase from September 10, 2021. Eagle Ford, Permian, and Appalachia rig counts were significantly higher than year-earlier levels at 112%, 35%, and 24% increases, respectively. The Permian continued to command the largest number of rigs at 343, with the Eagle Ford and Appalachia closer in-line with the Bakken at 72 and 47 rigs, respectively.

### 1-Year Change in Rig Count



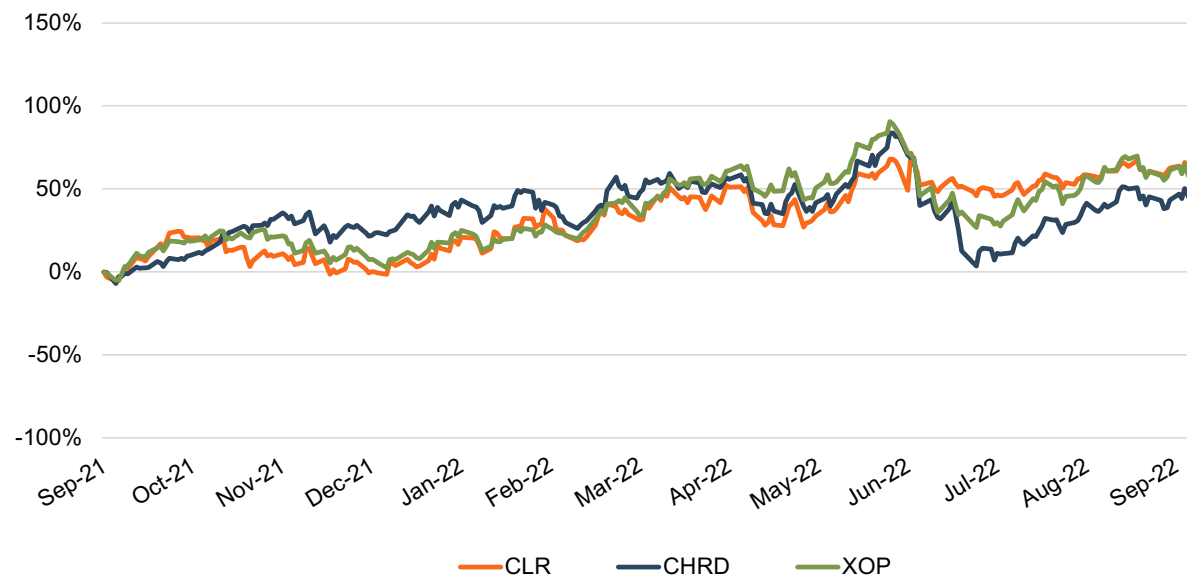
Source: Baker Hughes

## Financial Performance

The Bakken public comp group latest twelve-month financial performance (stock price) analysis was reduced to two subject companies and the XOP SPDR, as a result of the Whiting and Oasis merger in March 2022. The combined Whiting/Oasis company, Chord Energy, appears in our analysis as CHRD.

The Bakken comp group showed strong price performance from year-end 2021 through early June with increases ranging from 63% to 83%, largely reflective of oil prices. The subsequent decline in commodity prices, that ran nearly unchecked for two months, slashed the analysis period performance to increases of only 3% and 46%, with Chord posting a decline that nearly wiped out its post-September 2021 gains. Prices recovered since July with one-year gains of 42% (Chord) to 61% (Continental).

### 1-Year Change in Stock Price



Source: Capital IQ

## Market Valuations & Transaction History

### Recent Transaction Volume Continues into 2022

Deal flow in the Bakken has been steady over the last twelve months, with 14 transactions announced since October 2021, up from nine deals during the same period in **2020 - 2021**. Devon Energy's \$5.6 billion acquisition of assets from WPX Energy was the only deal in twelve months prior to September 2021 that exceeded \$1.0 billion in value. In comparison, five deals exceeded \$1.0 billion during the twelve-month time period ended September 2022, led by the Oasis Petroleum - Whiting Petroleum merger, at \$6.0 billion.

A table detailing transaction activity in the Bakken over the last twelve months is shown below. Despite an increase in number of deals, relative to **2020 - 2021**, median deal size decreased by roughly \$215 million, with five deals valued at less than \$200 million. Median value per acre and value per Boepd, however, increased over 300% and 100%, respectively.

#### Transactions in the Bakken

Announced Date	Buyer	Seller	Deal Value (\$MM)	\$ / Acre	\$ / Boepd
10/11/21	Northern Oil and Gas, Inc.	Undisclosed Seller	154	Undisclosed	4,500
10/26/21	Crestwood Equity Partners LP	Oasis Midstream Partners LP	1,800	Undisclosed	Undisclosed
12/31/21	Select Energy Services	Nuverra Environmental Solutions	45	Undisclosed	Undisclosed
1/3/22	Lime Rock Resources	Abraxas Petroleum Corp.	87	24,914	15,855
1/20/22	Evolution Petroleum Corp.	Foundation Energy Management LLC	26	545	43,456
2/8/22	Whiting Petroleum Corp.	Undisclosed Seller	273	18,746	60,667
3/7/22	Oasis Petroleum Inc.	Whiting Petroleum Corp.	6,000	12,500	65,217
5/18/22	Executive Network Partnering Corporation, Granite Ridge Resources, Inc.	Grey Rock Investment Partners	1,300	39,712	63,415
6/8/22	Northern Oil and Gas, Inc.	Undisclosed Seller	158	45,143	68,696
6/8/22	Devon Energy Corp.	RimRock Oil & Gas	865	22,763	57,667
6/21/22	Undisclosed Buyer	Riverbend Oil & Gas	1,800	Undisclosed	38,298
7/6/22	Undisclosed Buyer	Ovintiv Inc.	250	Undisclosed	50,000
7/11/22	Haymaker Minerals, Haymaker Minerals & Royalties III	Undisclosed Seller	Undisclosed	Undisclosed	Undisclosed
9/6/22	Sitio Royalties Corp.	Brigham Minerals Inc.	4,800	56,003	354,296
<b>Median</b>			<b>\$273</b>	<b>\$23,839</b>	<b>\$57,667</b>
<b>Average</b>			<b>\$1,351</b>	<b>\$27,541</b>	<b>\$74,733</b>

Source: Shale Experts

## Market Valuations & Transaction History

### Oasis and Whiting Combine in a \$6.0 Billion Merger of Equals

On March 7, 2022, Oasis Petroleum and Whiting Petroleum **announced** a \$6.0 billion merger of equals, renaming the combined entity Chord Energy. The deal closed on July 5, 2022. Under the terms of the agreement, Whiting shareholders received 0.5774 shares of Oasis common stock and \$6.25 in cash for each share of Whiting common stock owned. Oasis shareholders received a special dividend of \$15.00 per share. At closing, Whiting and Oasis shareholders owned approximately 53% and 47%, respectively, of the combined entity on a fully diluted basis. Transaction highlights include:

- Production (2022 Q1) – 92,000 Boepd
- Acreage – 480,000 net acres in Montana and North Dakota
- Deal creates the Bakken's second-largest producer and the largest pure-play E&P

A **pro forma table** of the transaction is shown below.

Company	Oasis	Whiting	Pro Forma Chord
Oil Production (Mbbbl/d)	40.6 - 41.4	40.0 - 49.0	88.6 - 90.4
Production (Mboe/d)	74.7 - 75.9	81.7 - 82.9	156.4 - 158.8
Oil Premium/(Discount) to WTI \$ per Bbl	\$3.10 - \$3.80	(\$0.35) - \$0.35	\$1.20 - \$1.95
Gas Revenue (\$/boe)	\$37.00 - \$38.50	\$34.00 - \$35.50	\$35.50 - \$37.00
LOE per Boe	\$9.50 - \$10.00	\$10.15 - \$10.65	\$9.85 - \$10.10
GP&T per Boe	\$4.25 - \$4.75	\$1.00 - \$1.50	\$2.30 - \$3.30
Cash G&A (\$MM)	\$13.0 - \$14.5	\$8.0 - \$9.5	\$21.0 - \$24.0
Production Taxes	7.1% - 7.35%	7.2% - 7.4%	7.1% - 7.4%
CapEx (\$MM)	\$50 - \$58	\$115 - \$130	\$165 - \$188
Cash Interest (\$MM)	\$6.9 - \$7.1	\$2.0 - \$3.5	\$8.9 - \$10.6
Cash Taxes (\$MM)	\$0.0 - \$0.0	\$0.0 - \$2.0	\$0.0 - \$2.0

Source: Oasis News Release dated July 1, 2022

## Market Valuations & Transaction History

### Devon Energy – RimRock Oil and Gas Deal

The next largest deal exclusive to the Bakken this quarter is Devon Energy's \$865 million acquisition of a working interest and related assets from RimRock Oil and Gas (seven of the 14 deals analyzed included acreage or midstream assets in areas in addition to the Bakken, including the \$4.8 billion Sitio Royalties - Brigham Minerals transaction and the \$1.8 billion Crestwood Equity Partners - Oasis Midstream Partners transaction). The deal was **announced** on June 8, 2022 and closed on July 21, 2022.

- 38,000 net acres in Dunn County, North Dakota
- 15,000 Boep/d as of Q1 2022 (78% oil)
- 88% working interest
- Over 100 drilling locations

Characterized by Devon Energy as a bolt-on acquisition, the 38,000 net acres are contiguous to Devon Energy's existing position in the Bakken. Production from the acquired assets is expected to increase to approximately 20,000 Boep/d over the next twelve months.

RimRock Oil and Gas is backed by private equity sponsor Warburg Pincus, which has held a stake in RimRock Oil and Gas since 2016.

## Appendix A

## Selected Public Company Information

Mercer Capital tracks the performance of Exploration and Production companies across different mineral reserves in order to understand how the current pricing environment affects operators in each region. We created an index of seven groups to better understand performance trends across reserves and the industry. The current pricing multiples of each company in the index are summarized below.

					Pricing as of 9/30/2022		
Company Name	Ticker	9/30/2022 Enterprise Value	YoY % Change in Stock Price	EBITDAX Margin	EV/ EBITDAX	Daily Production (mboe/d)	Price per Flowing Barrel*
<b>Global Integrated Oil and Gas Companies</b>							
Exxon Mobil Corp	XOM	\$399,090	48.4%	21.4%	4.8x	3,745	\$106,560
Shell PLC	SHEL	223,688	12.0%	20.1%	3.0	2,766	80,870
Chevron Corp	CVX	296,098	41.6%	23.6%	5.5	3,027	97,819
BP PLC	BP	128,408	5.0%	17.3%	3.4	2,298	55,878
Equinor ASA	EQNR	93,792	29.2%	56.7%	1.1	1,885	49,757
<b>Group Median</b>			<b>29.2%</b>	<b>21.4%</b>	<b>3.4x</b>	<b>2,766</b>	<b>\$80,870</b>
<b>Global E&amp;P Companies</b>							
Marathon Oil Corporation	MRO	\$18,265	65.2%	69.1%	3.4x	346	\$52,733
Hess Corporation	HES	41,128	39.5%	51.7%	7.7	368	111,760
ConocoPhillips	COP	139,072	51.0%	46.1%	3.9	1,734	80,202
Occidental Petroleum Corporation	OXY	88,922	107.7%	56.5%	4.7	1,160	76,665
APA Corporation	APA	17,209	59.5%	58.4%	2.7	380	45,319
Murphy Oil Corporation	MUR	8,353	40.8%	62.6%	3.3	188	44,317
<b>Group Median</b>			<b>55.3%</b>	<b>57.5%</b>	<b>3.6x</b>	<b>374</b>	<b>\$64,699</b>

Source: Bloomberg L.P.

- Price per Flowing Barrel is EV/ daily production (\$/boe/d)
- Companies included in the Guideline Group are not meant to be an exhaustive list. The selected companies' market caps exceed \$1 billion and/or revenues exceed \$500 million.
- We review 10-K's and annual reports from guideline companies to ensure companies continue to operate in the regions and groups we have identified.

## Appendix A

## Selected Public Company Information

						Pricing as of 9/30/2022	
Company Name	Ticker	9/30/2022 Enterprise Value	YoY % Change in Stock Price	EBITDAX Margin	EV/ EBITDAX	Daily Production (mboe/d)	Price per Flowing Barrel*
<b>Bakken</b>							
Continental Resources, Inc.	CLR	\$30,041	44.8%	74.5%	4.3x	414	\$72,485
Chord Energy Corp	CHRD	5,522	37.6%	50.2%	3.7	172	32,014
<b>Group Median</b>			<b>41.2%</b>	<b>62.37%</b>	<b>4.0x</b>	<b>293</b>	<b>\$52,250</b>
<b>Appalachia</b>							
Range Resources Corporation	RRC	\$8,441	11.6%	43.3%	4.1x	355	\$23,748
EQT Corporation	EQT	20,082	99.2%	46.0%	3.8	908	22,127
Coterra Energy Inc	CTRA	23,153	20.0%	75.0%	3.4	625	37,058
Antero Resources Corporation	AR	14,550	62.3%	41.7%	3.9	543	26,803
Southwestern Energy Company	SWN	12,042	10.5%	18.5%	4.5	795	15,143
<b>Group Median</b>			<b>20.0%</b>	<b>43.3%</b>	<b>3.9x</b>	<b>625</b>	<b>\$23,748</b>

Source: Bloomberg L.P.

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Company Name	Ticker	9/30/2022 Enterprise Value	YoY % Change in Stock Price	EBITDAX Margin	EV/ EBITDAX	Daily Production (mboe/d)	Price per Flowing Barrel*
<b>Permian Basin</b>							
Diamondback Energy, Inc.	FANG	\$28,042	27.2%	76.1%	4.3x	378	\$74,232
Permian Resources Corporation	PR	2,596	1.5%	57.0%	3.2	88	29,479
Callon Petroleum Company	CPE	4,671	-28.7%	57.9%	2.5	107	43,523
Laredo Petroleum, Inc.	LPI	2,191	-22.5%	58.2%	1.9	80	27,230
Pioneer Natural Resources Company	PXD	54,465	30.0%	51.3%	4.3	657	82,952
<b>Group Median</b>			<b>1.5%</b>	<b>57.9%</b>	<b>3.2x</b>	<b>107</b>	<b>\$43,523</b>
<b>Eagle Ford</b>							
EOG Resources, Inc.	EOG	\$67,713	39.2%	52.6%	4.9x	915	\$74,006
Magnolia Oil & Gas Corporation	MGY	3,803	11.4%	79.0%	2.9	82	46,650
SilverBow Resources, Inc.	SBOW	1,247	9.7%	62.7%	2.8	50	24,820
Ranger Oil Corporation	ROCC	1,563	17.9%	67.0%	2.2	43	36,667
<b>Group Median</b>			<b>14.6%</b>	<b>64.8%</b>	<b>2.8x</b>	<b>66</b>	<b>\$41,659</b>
<b>OVERALL MEDIAN</b>			<b>30.0%</b>	<b>56.5%</b>	<b>3.7x</b>	<b>414</b>	<b>\$46,650</b>

Source: Bloomberg L.P.

- Price per Flowing Barrel is EV/ daily production (\$/boe/d)
- Companies included in the Guideline Group are not meant to be an exhaustive list. The selected companies' market caps exceed \$1 billion and/or revenues exceed \$500 million.
- We review 10-K's and annual reports from guideline companies to ensure companies continue to operate in the regions and groups we have identified.

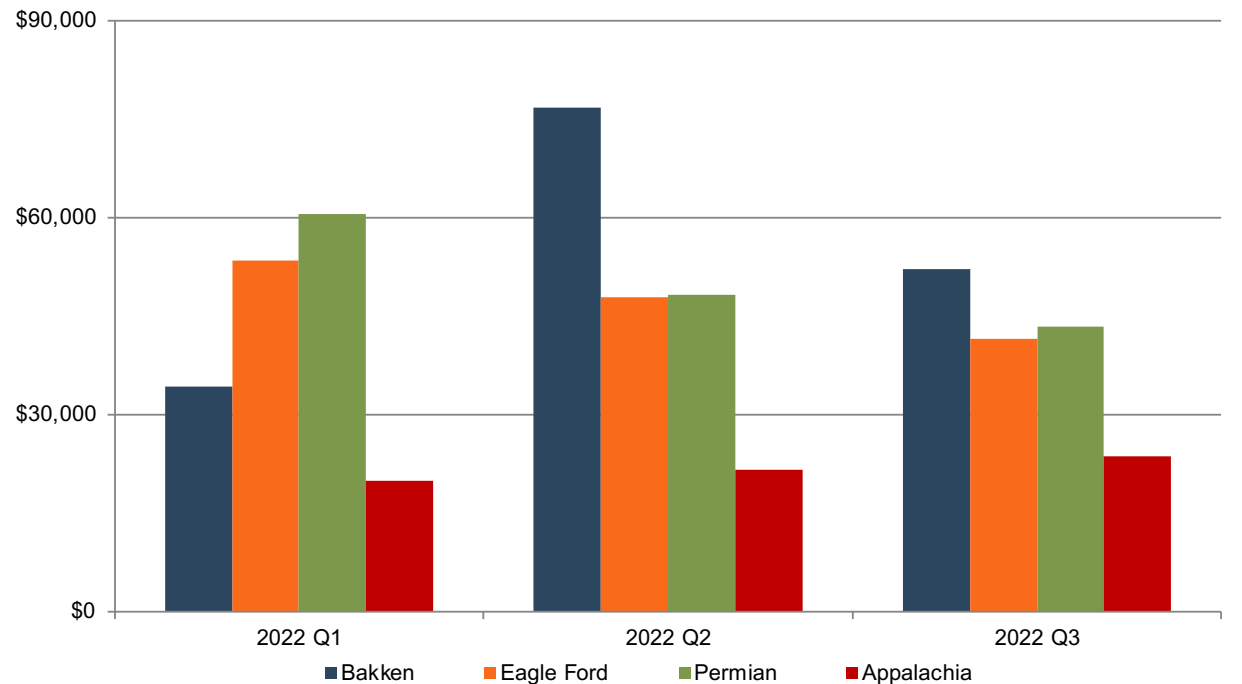


## Appendix A

# Selected Public Company Information

The following graph depicts the median of EV/production multiples, also known as price per flowing barrel, for Q1, Q2, and Q3 2022.

**Price per Flowing Barrel**



Source: Capital IQ

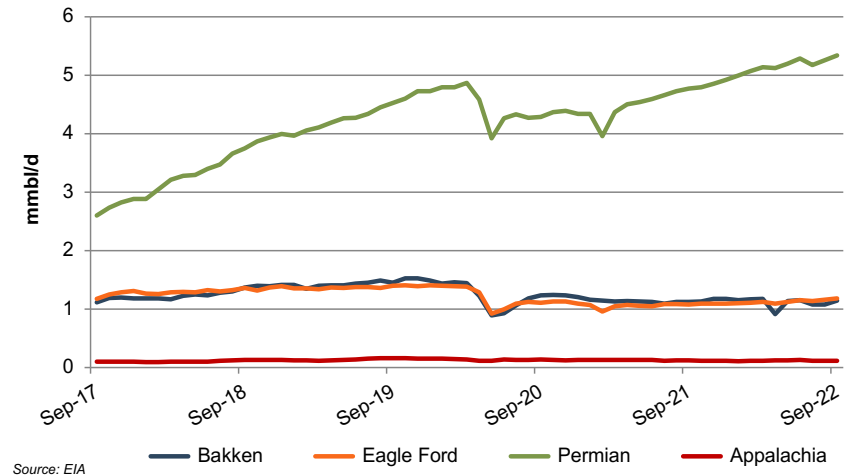
- Price per Flowing Barrel is EV/ daily production (\$/boe/d)
- This is simply a graphic depiction of median figures of our selected public companies for each region. This should be interpreted solely in the context of relative valuation between the various basins over time. Bloomberg aggregates this raw data, and Mercer Capital does not represent or warrant these figures as indicative of valuation multiples attributable to E&P companies or other interests.

## Appendix B

## Production

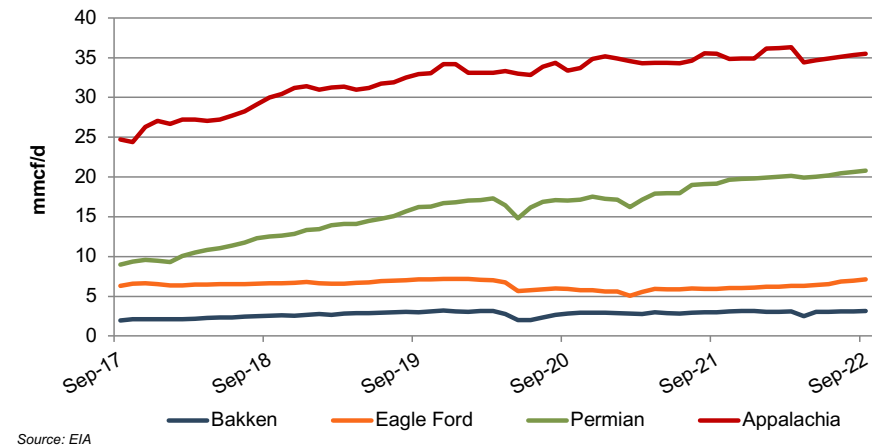
## Daily Production of Crude Oil

Oil production in the Bakken, Eagle Ford, and Permian increased over the last year by 2.0%, 10.0%, and 11.8%, respectively, while Appalachia oil production experienced a decline of 1.9%.



## Daily Production of Natural Gas

Similarly, Appalachia experienced a year-over-year decline in natural gas production on the order of 0.1%, while natural gas production for Bakken, Eagle Ford, and Permian natural gas production has grown by 4.3%, 19.9%, and 8.4%, respectively.



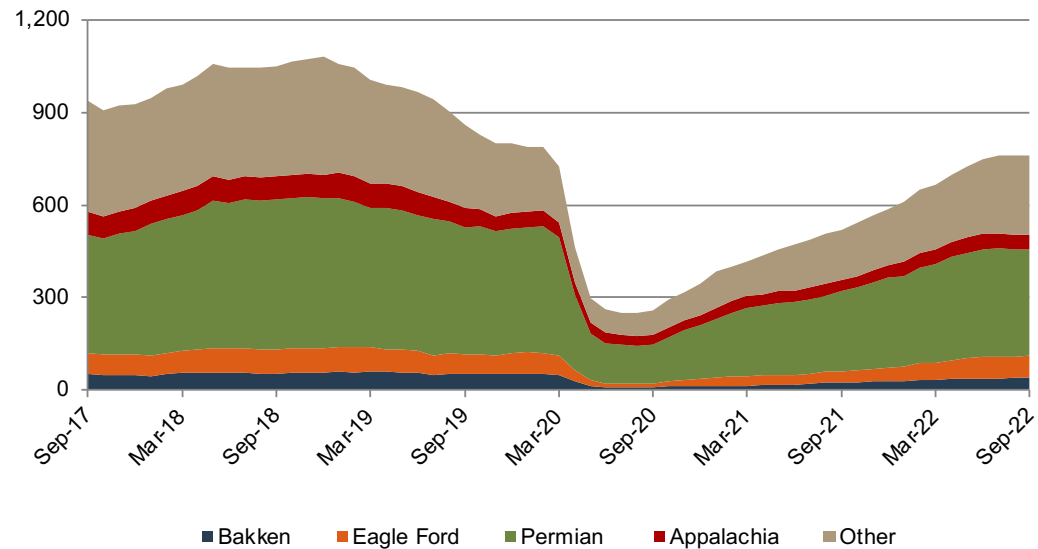
## Appendix B

## Rig Count

**Baker Hughes** collects and publishes information regarding active drilling rigs in the U.S. and internationally. The number of active rigs is a key indicator of demand for oilfield services & equipment. Factors influencing rig counts include energy prices, investment climate, technological changes, regulatory activity, weather, and seasonality.

The number of active rigs in the U.S. during September 2022 was 763, which represents a 46.7% increase from 520 in September 2021, and 1.6% greater than 751 in June 2022. The rig count in the Bakken increased by 79.6% year-over-year, from 23 to 39 rigs.

Rig Count by Region

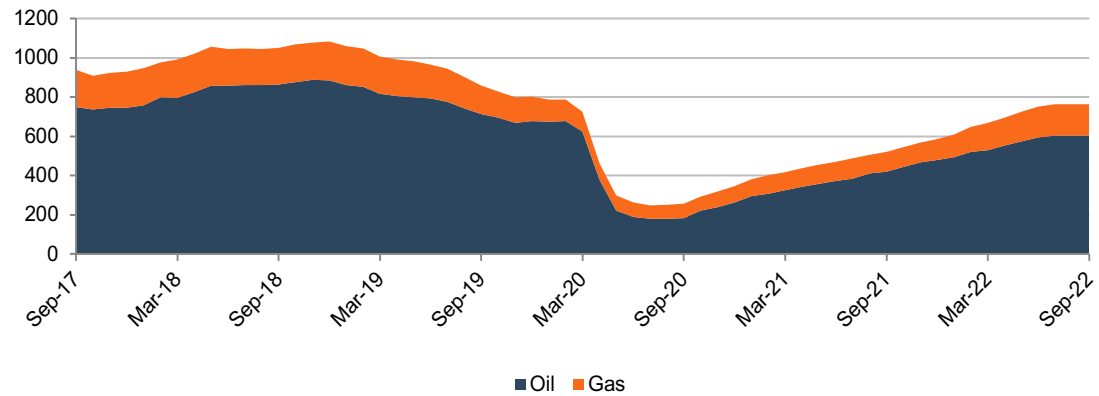


Source: Baker Hughes

## Appendix B

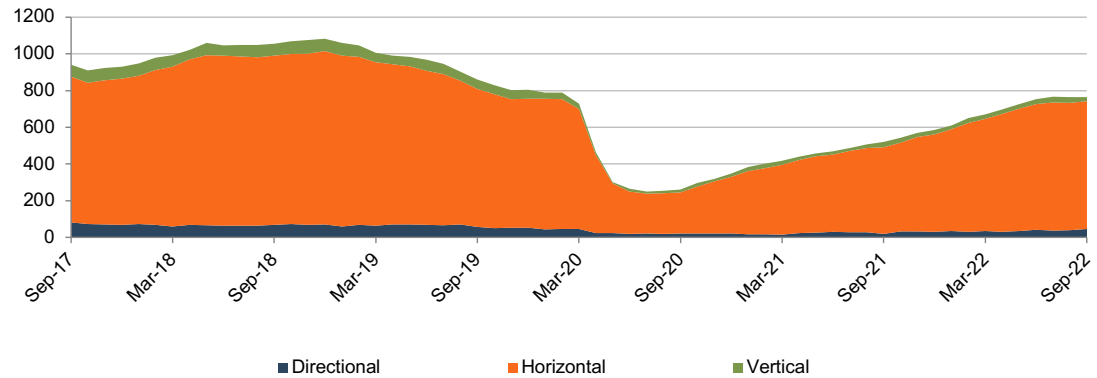
# Rig Count

**U.S. Rig Count by Oil vs. Natural Gas**



Source: Baker Hughes

**U.S. Rig Count by Trajectory**



Source: Baker Hughes



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