



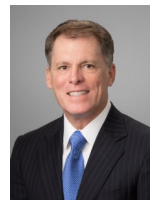
Weekly E&P Update

May 30, 2023

Vol. 21

Louisiana Expected to Obtain Primacy in Class VI Permitting

By Steve Hendrickson
President of Ralph E. Davis Associates



"Class VI" wells refer to injection wells used for the underground storage of carbon dioxide. These wells are regulated under the Safe Drinking Water Act (SDWA), and while they weren't originally included in the types of injection wells covered by the SDWA, the Environmental Protection Agency (EPA) added them to the Underground Injection Control framework in 2010. The SDWA governs various forms of underground injection, including waterflood injection wells and saltwater disposal wells, but it allows states to manage regulation within their borders if they meet the Act's standards.

Class VI wells are crucial in carbon capture and storage (CCS) projects. In previous newsletters, I've highlighted the importance of this technology in achieving a reduction in atmospheric carbon while preserving the essential benefits of hydrocarbons. Unfortunately, due to the newness of the Class VI designation and the recent increase in economic incentives for CCS projects, only two states, North Dakota and Wyoming, had satisfied the EPA's requirements for managing and enforcing the Class VI permitting process. However, the [EPA announced its intention](#) to approve Louisiana's application earlier this month.

This development is significant because the EPA has slowly approved Class VI permits. Currently, approximately 70 permits are in the approval process, with many waiting for several years. As a result, only two permitted Class VI wells have been constructed. The delay can partly be attributed to the time required to gather technical data, develop geologic and reservoir models, and conduct various risk assessments. However, the EPA's limited staff dedicated to Class VI permitting has undoubtedly contributed.

[Louisiana's permit application](#) took about two years to be approved. In their initial application, the state indicated their plan to hire seven full-time employees in the Office of Conservation to oversee Class VI permits. Most of these positions will be filled by engineers or geologists. They will also need to rely on limited third-party consultants initially. They anticipate issuing a well permit within nine to twelve months after receiving a complete application. A separate injection permit application will be required after the drilling and completion of the injection well, so the entire process will likely take one to two years, not including the time needed for application preparation.

In addition to technical considerations, the application must also address several "environmental justice" concerns. The EPA provided further guidance on this matter in late 2022, leading to amendments in the Louisiana primacy application which were [key to the EPA's decision](#). Public comments and potential regulatory delays related to EJ will potentially extend the length of the Class VI permitting process. Even so, transferring this responsibility to states that have demonstrated their ability to manage these permits effectively should facilitate progress in CCS projects.

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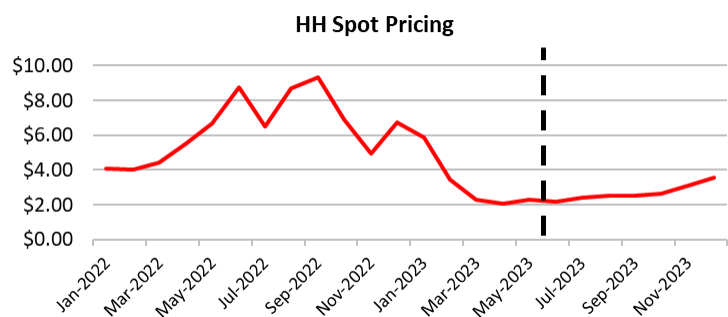
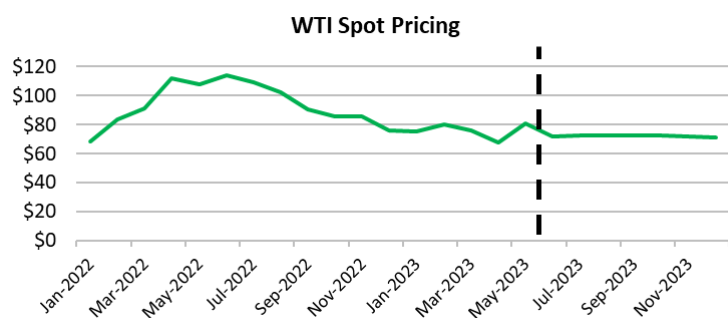
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NYMEX FUTURE PRICING



FRIDAY'S MARKET CLOSE

NYMEX WTI CRUDE OIL FUTURES as of May 26, 2023 Close (\$/bbl)

Period	Current	WoW Change	Last Week	1 Yr Ago
2023	\$72.25	\$0.78	\$71.47	\$89.97
2024	\$69.26	\$0.90	\$68.36	\$80.92
2025	\$66.10	\$0.80	\$65.30	\$75.05
2026	\$63.63	\$0.66	\$62.97	\$71.16
2027	\$61.50	\$0.57	\$60.93	\$68.58

NYMEX HH NATURAL GAS FUTURES as of May 26, 2023 Close (\$/MMBtu)

Period	Current	WoW Change	Last Week	1 Yr Ago
2023	\$2.69	(\$0.11)	\$2.80	\$5.87
2024	\$3.52	(\$0.00)	\$3.52	\$4.50
2025	\$4.08	\$0.02	\$4.06	\$4.17
2026	\$4.08	\$0.02	\$4.06	\$4.20
2027	\$4.06	\$0.03	\$4.03	\$4.27

INDUSTRY METRICS—QUICK SNAPSHOT

	Current	Last Week	WoW Change	%Change
Crude Oil Near-Month Price (\$/bbl)	\$73.23	\$71.99	\$1.24	2%
Natural Gas Near-Month Price (\$/MMBtu)	\$2.42	\$2.40	\$0.02	0.7%
Weekly Upstream-Deal Transaction Value (\$MM)	\$7,975.00	-	\$7,975.00	-
Weekly Number of Upstream-Deal Transactions	4	1	3	300%
Current Total US Rig Count	711	720	(9)	(1%)
US Field Crude Oil Production (MMbbl/day)	12.3	12.2	0.1	1%
US Field Dry Natural Gas Production (Bcf/day)	105.4	105.2	0.2	0.2%
Commercial Crude Oil Stocks-Excluding SPR (MMbbl)	455	468	(13)	(3%)
Natural Gas Stocks-Working Gas Underground Storage (Bcf)	2,336	2,240	96	4%
Total Drilled But Uncompleted Wells (DUC-Last Month)	4,863	4,863	0	-

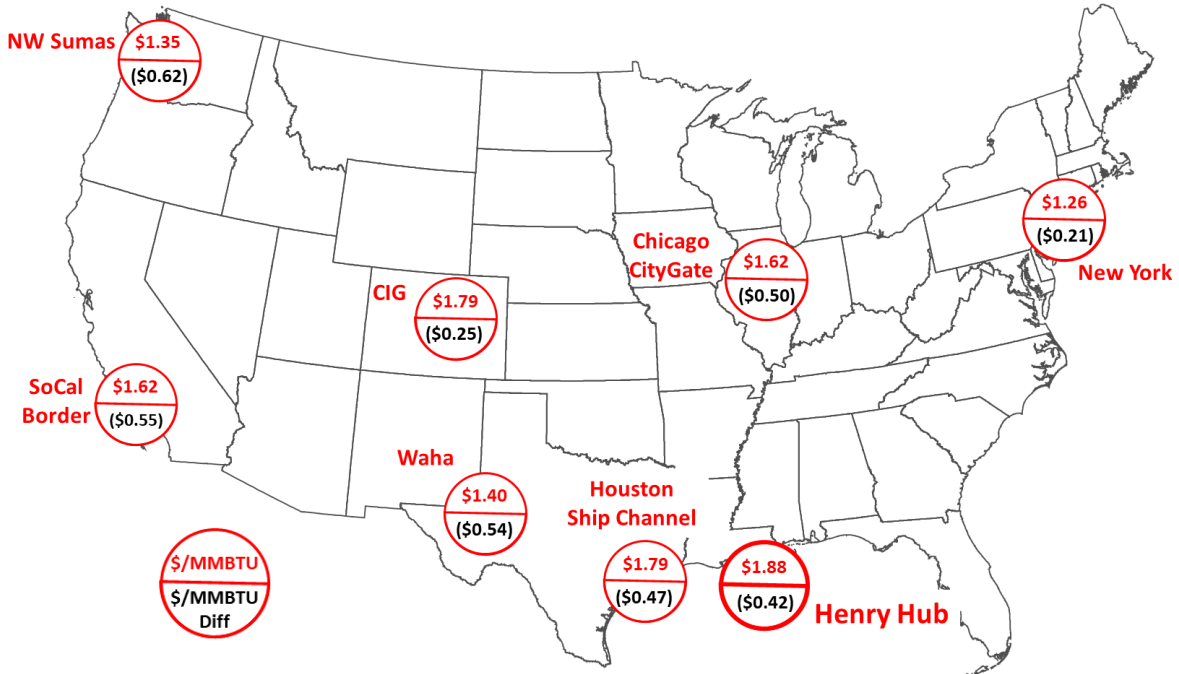
*Source—Energy Information Administration, United States (EIA)

*Source—Baker Hughes North America Rotary Rig Count & PLS M&A Database

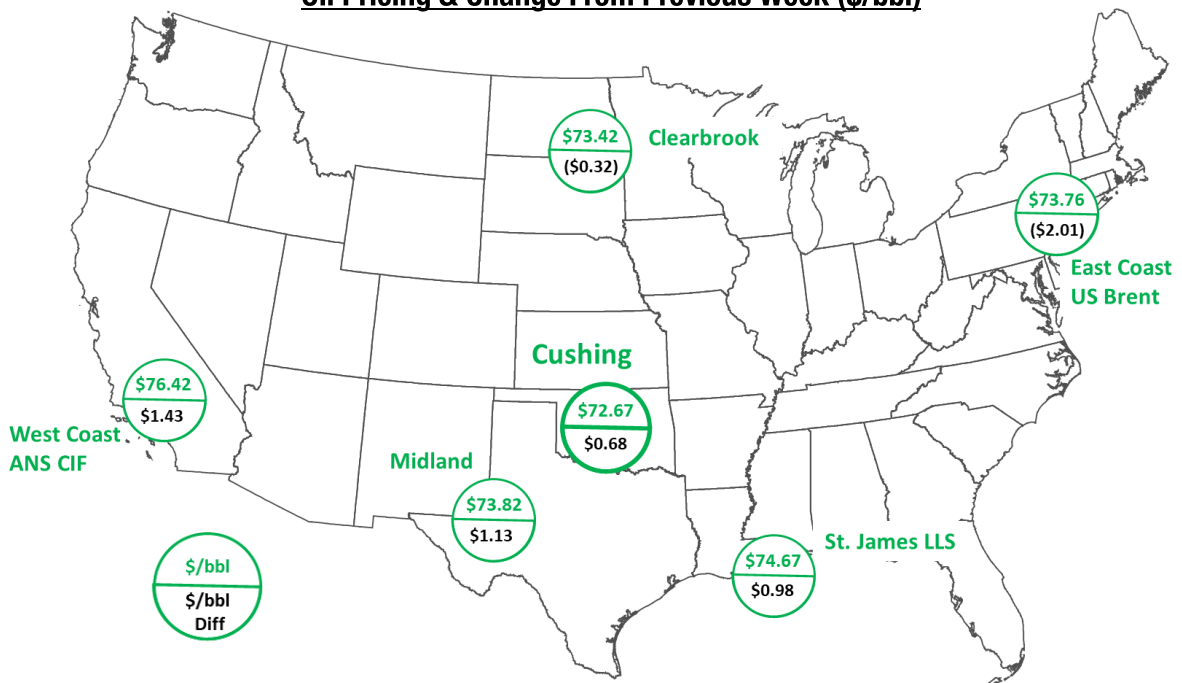


US COMMODITY PRICES CONTINUED

Natural Gas Pricing & Change From Previous Week (\$/MMBtu)



Oil Pricing & Change From Previous Week (\$/bbl)



*Source—Bloomberg LP



SELECTED INDUSTRY HEADLINES

When Will Chinese Oil Imports Boost Oil Prices

China's sluggish crude oil trade in the first quarter of the year has added to macroeconomic concerns and banking sector jitters to keep oil prices around \$80 a barrel so far in 2023, despite the Chinese reopening and expectations of stronger demand in the world's top crude importer later this year.

Explainer: Why Is OPEC+ Cutting Oil Output? (LOGIN CREDENTIALS REQUIRED)

OPEC and its allies, including Russia, meet in Vienna on June 4 to decide on their output policy. The group, known as OPEC+, agreed on April 2 to increase crude oil production cuts to 3.66 million barrels per day (bpd) or 3.7% of global demand, after several members pledged unilateral cuts.

For the Global Oil Market, Russia's Output Cut Isn't Happening

Wherever you look outside of Russia, there is precious little sign of the oil production cut that President Vladimir Putin and other government officials say is underway.

Here's Why Oil Flows Can Only Be Redirected, Not Stopped

Asian oil imports were due for a marked rebound this month after the end of the maintenance season. Chances are that a lot of the additional oil would be coming from Russia, which has become one of the largest suppliers of China and India.

White House, GOP Reach Compromise On Energy Disputes As Part Of Debt-Limit Deal

President Joe Biden and House Speaker Kevin McCarthy compromised on bitterly contested disputes over federal spending as part of their debt-limit deal. They must now sell the agreement to lawmakers from both parties.

U.S. Crude Dips Below \$70 Ahead of OPEC+ Meeting (LOGIN CREDENTIALS REQUIRED)

U.S. crude dipped below \$70 a barrel for the first time in two weeks ahead of an OPEC+ meeting at which major producers will debate whether to cut output to bolster oil prices.

Turkey Hopeful After Recent Oil And Gas Discoveries

Turkey hopes to increase its daily oil output to 100,000 bpd in 2023, having already seen a significant production increase in recent years.

Emerging Markets Were Biggest LNG Buyers In First Half Of 2023 Thanks To Price Reductions

Countries from Asia to Latin America are snapping up natural gas cargoes as prices slump, helping to ease cost pressures on the economy.

Will the World Hit Net Zero by 2050?

BMI currently does not see enough progress on the decarbonization of the power mix, emissions reduction, or adoption of low carbon technology to reach net zero emissions by 2050.

Oil, Gas Coalition Approves Orphan Well Plugging Resolution Offered By Texas Railroad Commissioner

Recently, the Interstate Oil and Gas Compact Commission (IOGCC) approved Resolution 23.053 offered by Texas Railroad Commissioner Jim Wright, urging the U.S. Department of the Interior to follow the statutory language passed by Congress with respect to the Federal Orphan Well Plugging Program in the Infrastructure Investment and Jobs Act.

NOAA Reveals Outlook for 2023 Atlantic Hurricane Season

The National Oceanic and Atmospheric Administration (NOAA) has revealed its outlook for the 2023 Atlantic hurricane season, which goes from June 1 to November 30, in a statement posted on its site.



SELECTED RECENT TRANSACTIONS

Chord Energy Announces Strategic Acquisition of Williston Basin Assets

Chord Energy Corporation today announced that a wholly owned subsidiary of Chord has entered into a definitive agreement to acquire assets in the Williston Basin from XTO Energy Inc. and affiliates, subsidiaries of Exxon Mobil Corporation, for total cash consideration of \$375MM, subject to customary purchase price adjustments.

Chevron Announces Agreement to Acquire PDC Energy

Chevron Corporation (NYSE: CVX) announced recently that it has entered into a definitive agreement with PDC Energy, Inc. (NASDAQ: PDCE) to acquire all of the outstanding shares of PDC in an all-stock transaction valued at \$6.3 billion, or \$72 per share.

Pompano Resource Transformation Acquires Gulf Coast Oil Field From Paloma Resources

Pompano Resource Transformation, a wholly-owned subsidiary of XMC Strategies, recently announced that it has acquired a Gulf Coast oil asset, including 33 operated oil wells, from Paloma Natural Gas, LLC, which is owned in part by Houston-based private equity firm EnCap Investments.

Southern Energy Corp. Announces Execution of a Purchase and Sale Agreement in Respect of a Synergistic - 400 Boe/D Asset Acquisition To Consolidate the Gwinville Field

Southern Energy Corp. is pleased to announce that it has entered into a definitive agreement with PetroTX Energy, LLC to acquire the remaining producing acreage in the Gwinville Field not already owned by the Company, in Jefferson Davis County, Mississippi for a cash purchase price of \$3.2 million.

Epsilon Announces A Second Transaction In The Permian Basin

Epsilon Energy Ltd. Recently reported an investment in Ector County, Texas with material follow-on development opportunities. The acquired assets are a 25% working interest in 12,373 gross acres on the Central Basin Platform, operated by a Midland-based private operator.

Trio Petroleum Corp. Signs Acquisition Agreement To Acquire Up To 100% Of Producing Asset

Trio Petroleum Corp. recently announced the signing of an Acquisition Agreement to potentially acquire up to 100% of the working interest in the Union Avenue Field located in Bakersfield, California.

Canada Energy Partners Announces Signing Of Participation Agreement With Wandoo Energy LLC For The Development Of The Kuester-Ochoa Project And Concurrent Unit Financing Of \$2M

Canada Energy Partners Inc. recently announced that they have determined that a lower capital cost acquisition opportunity will satisfy the current capital market appetite in the junior energy markets, so they have entered into a Participation Agreement with Wandoo Energy LLC, a Texas based oil & gas company.

Vital Energy To Acquire Permian Assets For \$540 mln

Vital Energy Inc VTLE.N said recently it would acquire Permian assets of Forge Energy II Delaware, an EnCap portfolio company, in a \$540 million all-cash deal.

Crescent Energy Announces Accretive Eagle Ford Bolt-On; Acquires Operated Interest In Existing Non-Operated Assets

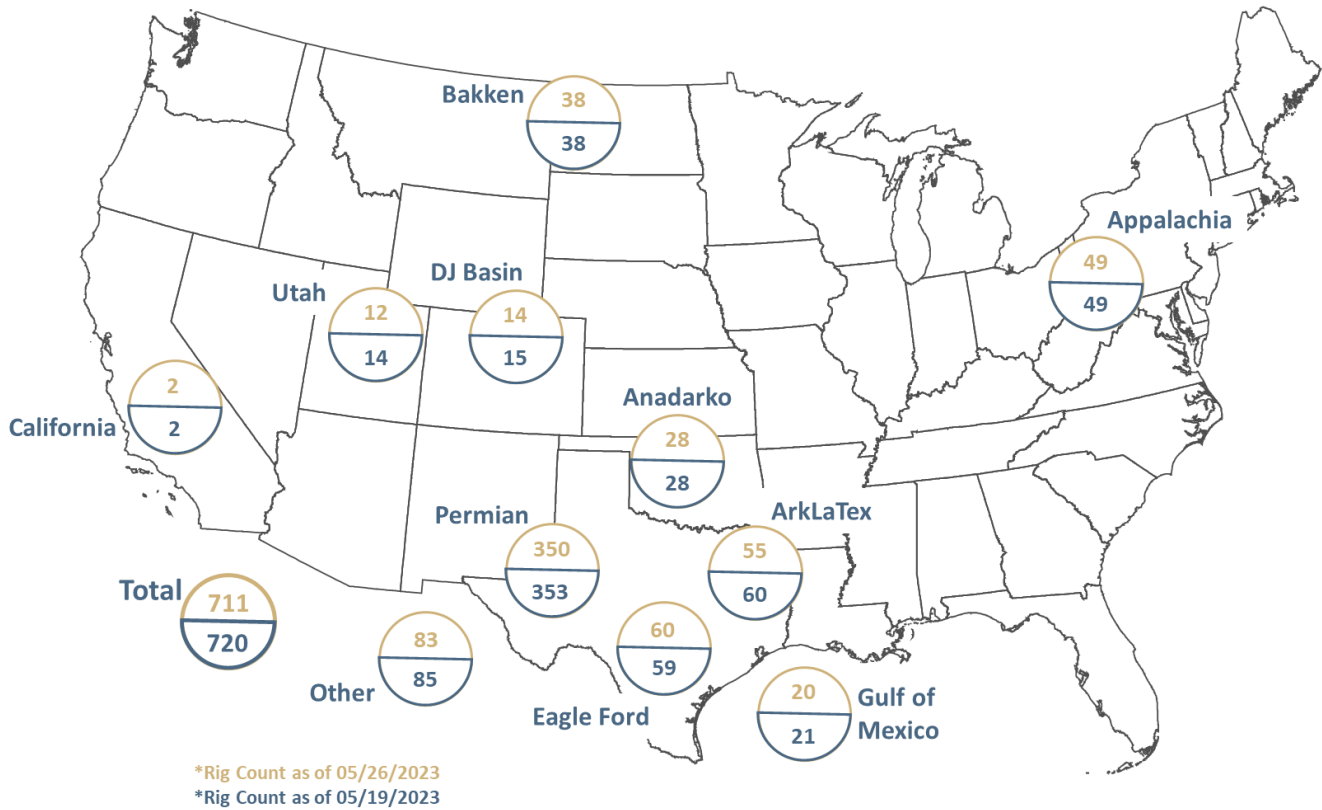
Crescent Energy Company announced that it has entered into a definitive purchase agreement to acquire operatorship and incremental working interest in its existing Western Eagle Ford assets from Mesquite Energy, Inc. for total consideration of \$600 million in cash, subject to customary purchase price adjustments.

Callon To Acquire Core Delaware Basin Assets And Exit Eagle Ford

Callon Petroleum Company ("Callon") signed two definitive agreements that streamline and focus Callon's operations, accelerate the achievement of its debt reduction target and allow for the initiation of a shareholder return program in third quarter of 2023.



RIG ACTIVITY BY US REGION

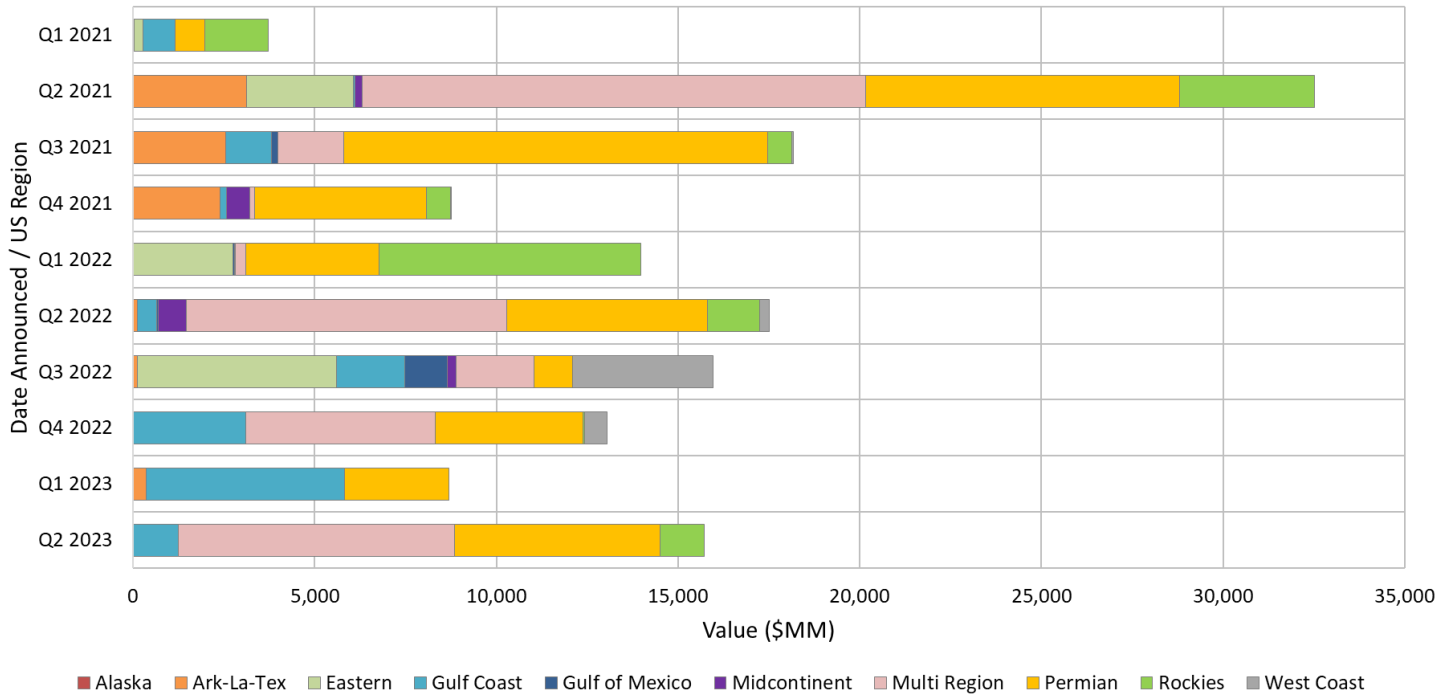


	Week Ending 05/26/2023			Week Ending 05/19/2023		Week Ending 05/27/2022
U.S. Rig Breakouts	Count	+/-	Count	+/-	Count	
Oil	570	(5)	575	(4)	574	
Gas	137	(4)	141	(14)	151	
Not Specified	4	0	4	2	2	
Directional	52	1	51	16	36	
Horizontal	642	(8)	650	(24)	666	
Vertical	17	(2)	19	(8)	25	
Land (Inc Others)	689	(8)	697	(21)	710	
Inland Waters	2	0	2	1	1	
Offshore	20	(1)	21	4	16	
US Total	711	(9)	720	(16)	727	

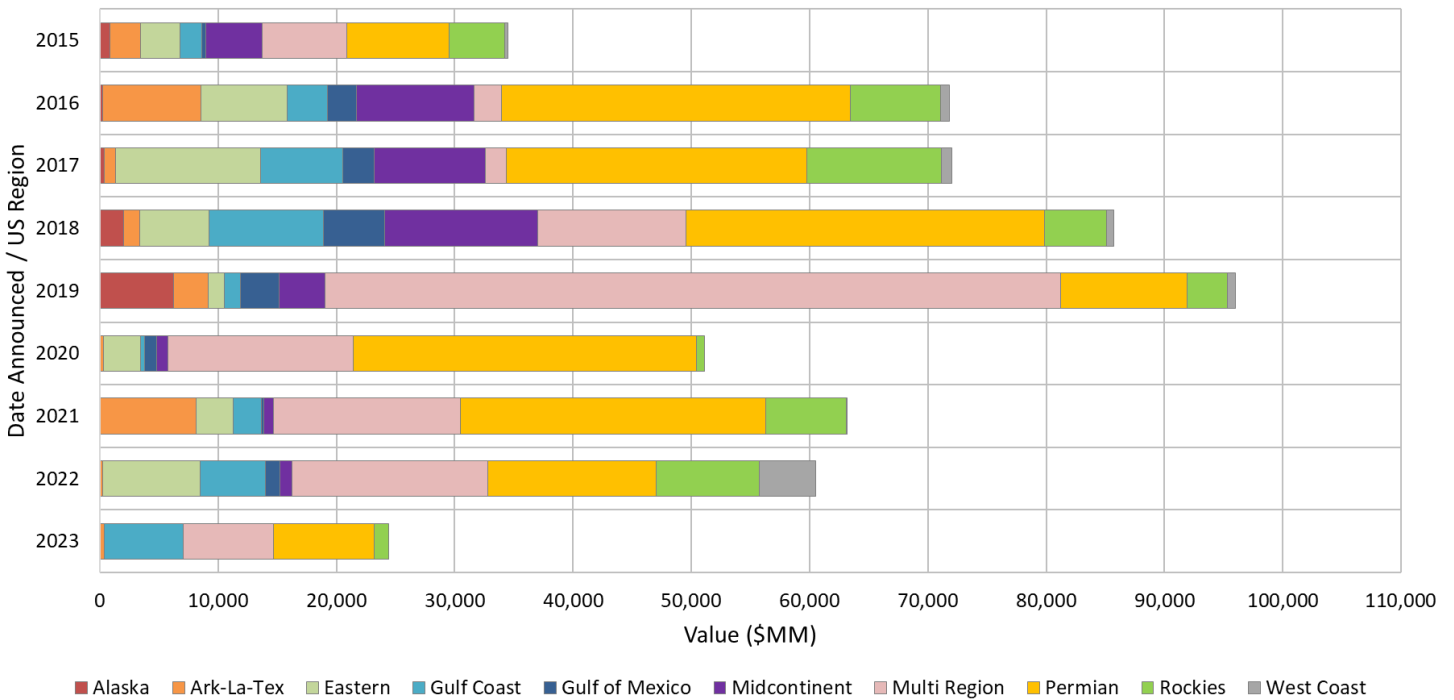
*Source—Baker Hughes Weekly Rig Counts



DEAL VALUE BY US REGION (BY QUARTER)



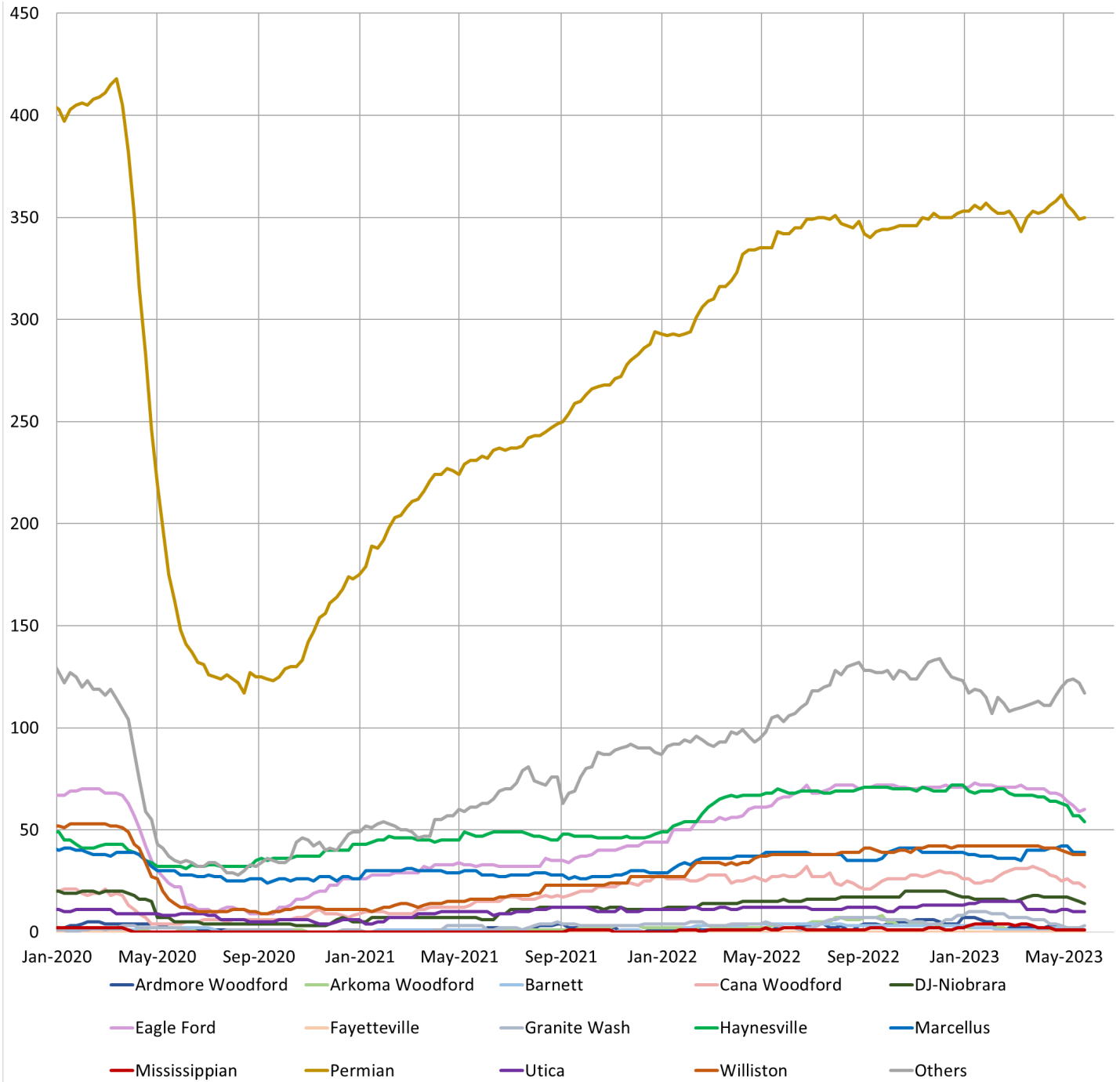
DEAL VALUE BY US REGION (BY YEAR)



*Source—PLS M&A Database (Charts exclude terminated deals)



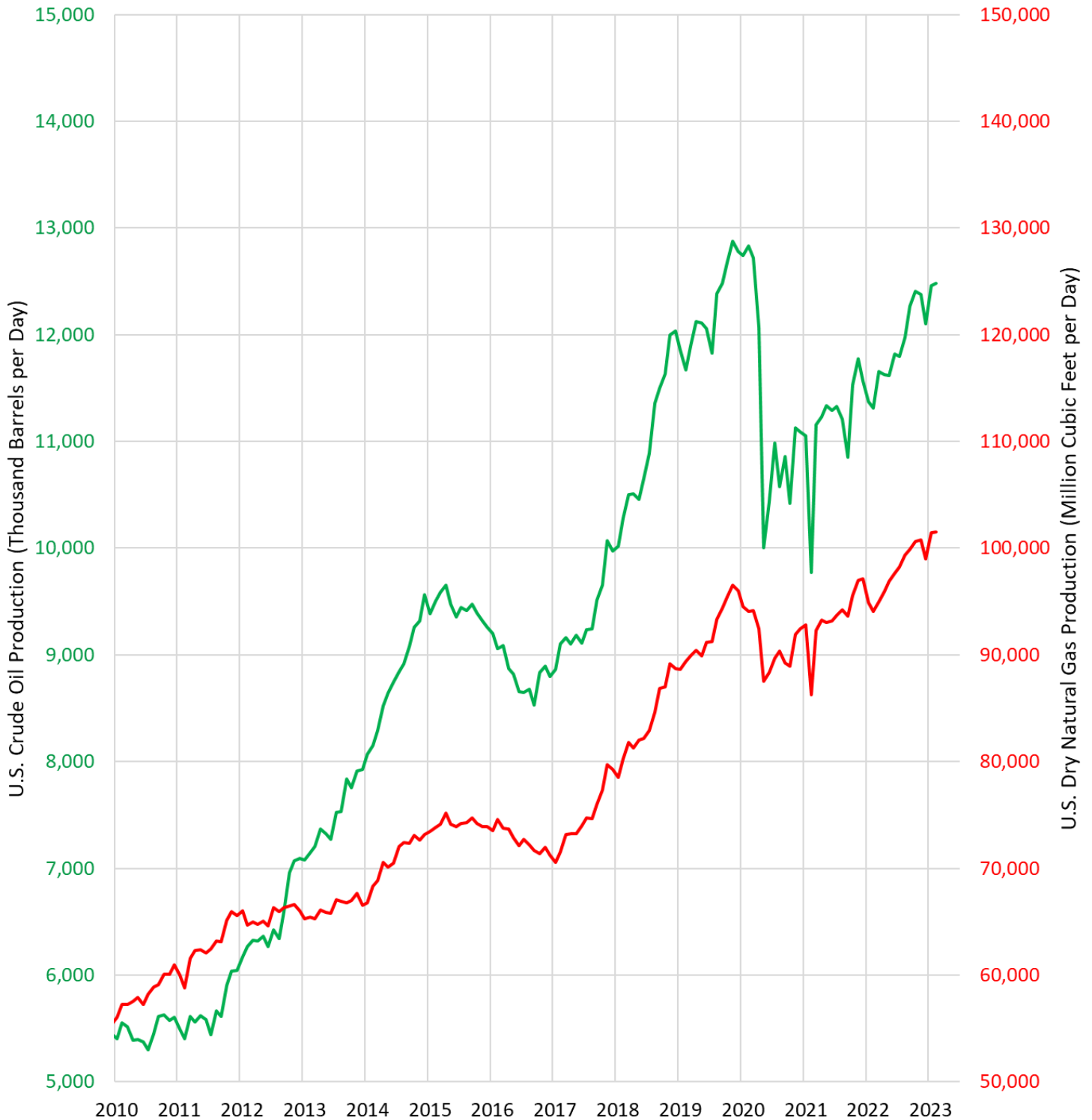
RIG ACTIVITY BY US REGION



*Source—Baker Hughes Weekly Rig Counts



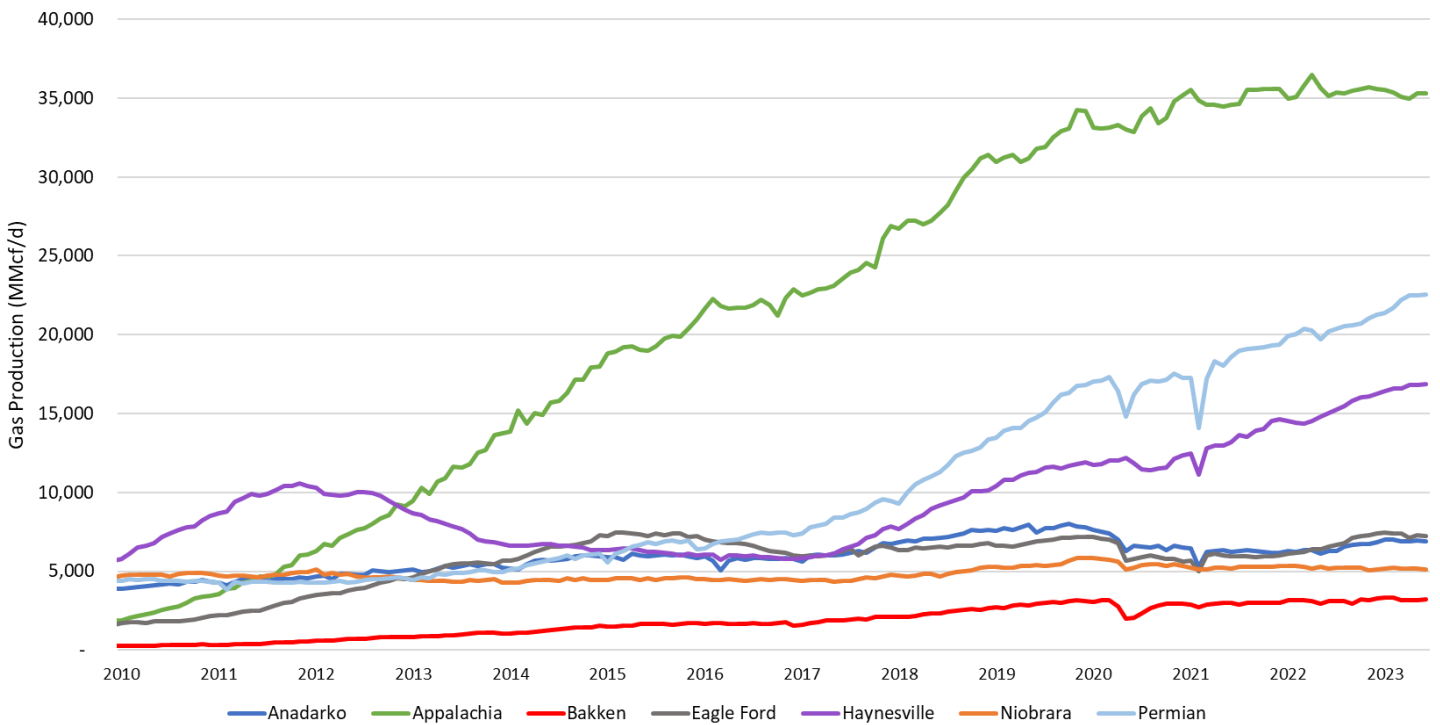
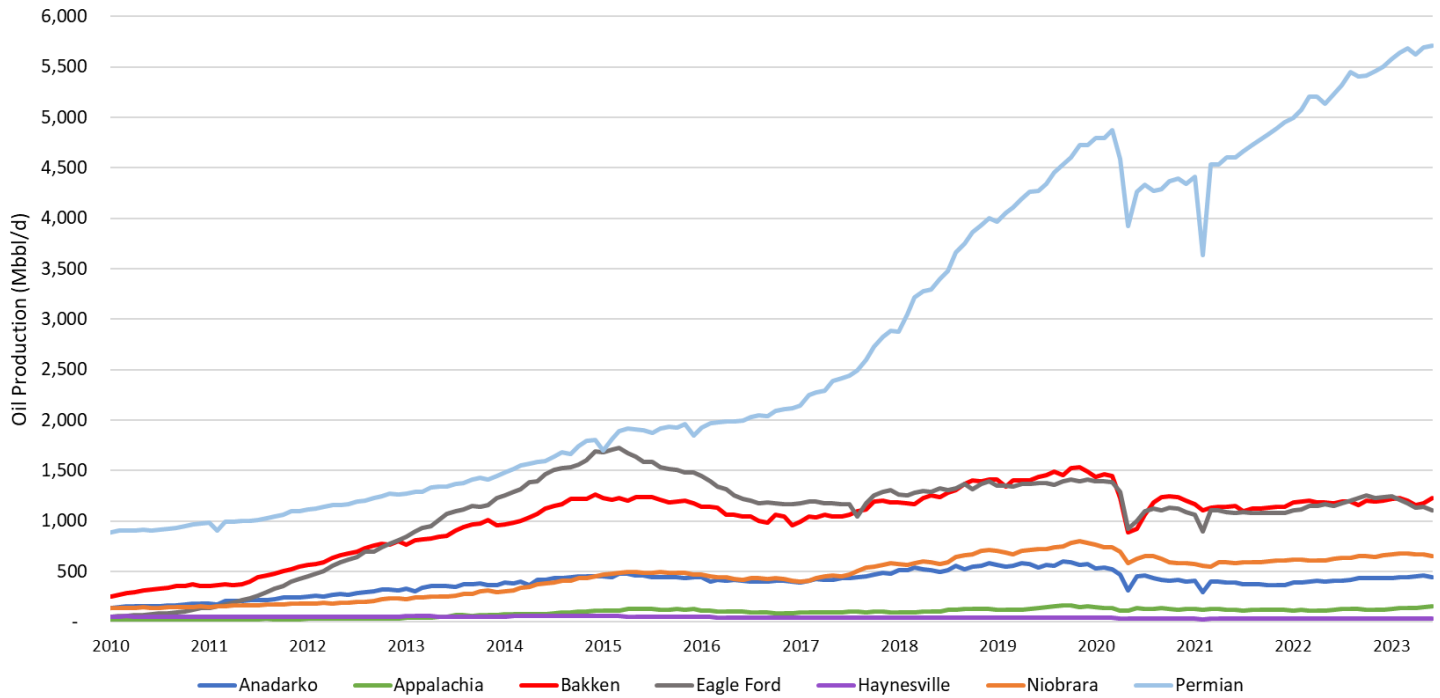
US DAILY CRUDE (MMbbl) & DRY NATURAL GAS PRODUCTION (MMcf)



*Source—Energy Information Administration, United States (EIA)



HISTORICAL PRODUCTION OF SELECTED US SHALE REGIONS



*Source—Energy Information Administration, United States (EIA)



UPCOMING EVENTS

June 2023

<u>Energy Industry Networking Event</u>	June 5	Oklahoma City, OK
<u>Unconventional Resources Technology Conference (URTeC)</u>	June 13-15	Denver, CO
<u>Society Of Petroleum Evaluation Engineers (SPEE) Annual Meeting</u>	June 17-20	Newport, RI
<u>Salesforce For Energy (with Opportune)</u>	June 22	Houston, TX
<u>Telluride Executive Series</u>	June 27-29	Telluride, CO

July 2023

<u>Banff Energy Summit</u>	July 12-14	Banff, Alberta, Canada
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August 2023

<u>Enercom Denver</u>	August 14-16	Denver, CO
<u>TXCPA Energy Conference</u>	August 25	Houston, TX

*Denotes an Opportune Sponsored Event



ABOUT RALPH E. DAVIS ASSOCIATES

Ralph E. Davis Associates LLC (RED) is an industry-leading petroleum engineering and geosciences firm committed to satisfying the individual needs of clients. We accomplish this by holding ourselves to the highest standards of integrity and professionalism to deliver honest, direct and actionable insights to help clients achieve their strategic objectives. We distinguish ourselves by combining reservoir engineering, geoscience evaluation techniques and advanced data analytics with economic analyses to provide our clients with individual, customized solutions.

Banks, bondholders, private equity firms, financial institutions and law firms around the world trust in RED's diverse services and unrivaled upstream oil and gas expertise to deliver comprehensive solutions that help clients make informed decisions. We add value to every engagement by employing a team approach, leveraging Opportune LLP's experienced bench of experts in transactional due diligence, tax advisory, investment banking, restructuring and valuation.

We offer technical and economic analyses to deliver our clients a complete, independent, accurate and detailed assessment of the value of their assets. We apply a robust set of technical capabilities to assist our clients. Our capabilities include:

- Reservoir engineering and geosciences
- Economic forecasting and reporting
- Data analytics and geospatial analysis

KEY CONTACTS



Steve Hendrickson is the President of Ralph E. Davis Associates, an Opportune LLP company. Steve has over 35 years of professional leadership experience in the energy industry with a proven track record of adding value through acquisitions, development and operations. Steve is a licensed professional engineer in the state of Texas, and holds an M.S. in Finance from the University of Houston and a B.S. in Chemical Engineering from The University of Texas at Austin. He recently served as a board member of the Society of Petroleum Evaluation Engineers (SPEE) and is a registered FINRA representative.



John Beaird is Vice President of Ralph E. Davis Associates, an Opportune LLP company. John has 39 years of oil and gas management, reservoir engineering, and petroleum economics evaluation experience. Recent relevant experience includes the Permian, Western Gulf, Tx-La-Miss Salt, Mid-Continent, Denver-Julesburg, Wind River, Williston Basin, and Appalachian Basins. John is a registered Petroleum Engineer in the State of Texas and holds a B.S. in Petroleum Engineering from Louisiana Tech University. He is also an active member of the Society of Petroleum Evaluation Engineers (SPEE).



Yvonne Trujillo is a Senior Petroleum Engineer at Ralph E. Davis Associates, an Opportune LLP company. Yvonne has over 25 years experience in the oil and gas industry with extensive expertise in reserves engineering, SEC and PRMS/SPE reporting and economics and asset evaluation in conventional and unconventional reservoirs in the U.S. Lower 48. Yvonne earned a B.S. in Mechanical Engineering at Simon Bolivar University in Caracas, Venezuela and an M.S. in Petroleum Engineering at the University of Houston.



David Edwards is a Petroleum Engineer at Ralph E. Davis Associates, an Opportune LLP company. David has over three years of reserves engineering experience in conventional and unconventional reservoirs. Before RED, David was a Petroleum Engineer at a lower middle market A&D advisory firm where he handled the technical processes for marketed assets. He began his career with an operator in Dallas, where he contributed to its engineering, operations, and A&D teams. David holds an M.B.A. from The University of Texas Permian Basin and a B.S. in Petroleum Engineering from The University of Oklahoma.

