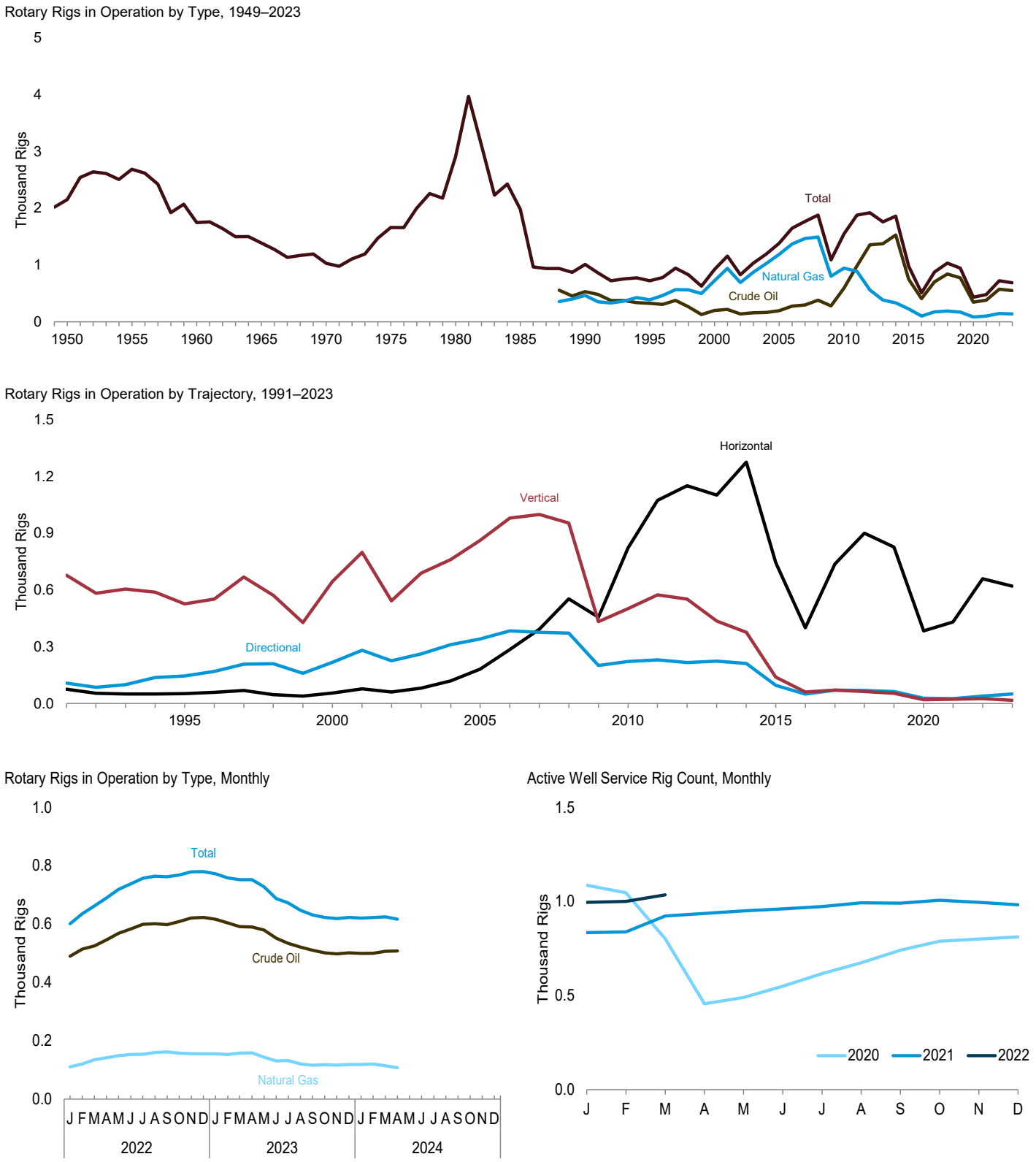
5. Crude Oil and Natural Gas Resource Development

Figure 5.1 Crude Oil and Natural Gas Drilling Activity Measurements



Web Page: http://www.eia.gov/totalenergy/data/monthly/#crude.
Sources: Table 5.1.

Table 5.1 Crude Oil and Natural Gas Drilling Activity Measurements

(Number of Rigs)

	Rotary Rigs in Operation[a,b]								Active Well Service Rig Count[d]
	By Location[c]		By Type[c]		By Trajectory[c]				
	Onshore	Offshore	Crude Oil	Natural Gas	Horizontal	Directional	Vertical	Total[c]	
1950 Average	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**2,154**	**NA**
1955 Average	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**2,686**	**NA**
1960 Average	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**1,748**	**NA**
1965 Average	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**1,388**	**NA**
1970 Average	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**1,028**	**NA**
1975 Average	**1,554**	**106**	**NA**	**NA**	**NA**	**NA**	**NA**	**1,660**	**2,486**
1980 Average	**2,678**	**231**	**NA**	**NA**	**NA**	**NA**	**NA**	**2,909**	**4,089**
1985 Average	**1,774**	**206**	**NA**	**NA**	**NA**	**NA**	**NA**	**1,980**	**4,716**
1990 Average	**902**	**108**	**532**	**464**	**NA**	**NA**	**NA**	**1,010**	**3,658**
1995 Average	**622**	**101**	**323**	**385**	**52**	**145**	**526**	**723**	**3,041**
2000 Average	**778**	**140**	**197**	**720**	**55**	**217**	**645**	**918**	**2,692**
2005 Average	**1,290**	**93**	**194**	**1,186**	**181**	**341**	**862**	**1,383**	**2,222**
2010 Average	**1,514**	**31**	**591**	**943**	**822**	**222**	**501**	**1,546**	**1,854**
2011 Average	**1,846**	**32**	**984**	**887**	**1,074**	**230**	**574**	**1,879**	**2,075**
2012 Average	**1,871**	**48**	**1,357**	**558**	**1,151**	**216**	**552**	**1,919**	**2,113**
2013 Average	**1,705**	**56**	**1,373**	**383**	**1,102**	**224**	**435**	**1,761**	**2,064**
2014 Average	**1,804**	**57**	**1,527**	**333**	**1,275**	**211**	**376**	**1,862**	**2,024**
2015 Average	**943**	**35**	**750**	**226**	**744**	**95**	**139**	**978**	**1,481**
2016 Average	**486**	**23**	**408**	**100**	**400**	**49**	**60**	**509**	**1,061**
2017 Average	**856**	**20**	**703**	**172**	**737**	**70**	**70**	**876**	**1,187**
2018 Average	**1,013**	**19**	**841**	**190**	**900**	**69**	**63**	**1,032**	**1,292**
2019 Average	**920**	**23**	**774**	**169**	**826**	**63**	**54**	**943**	**1,253**
2020 Average	**417**	**15**	**345**	**85**	**384**	**28**	**20**	**433**	**738**
2021 Average	**464**	**14**	**380**	**98**	**431**	**25**	**22**	**478**	**949**
2022 January	583	18	490	111	543	35	23	601	995
February	622	14	514	121	578	32	26	636	1,000
March	649	12	525	135	605	34	24	662	1,035
April	677	13	546	142	632	32	25	690	NA
May	701	17	568	149	657	37	25	719	NA
June	723	16	583	153	673	39	27	738	NA
July	740	16	599	154	687	41	29	757	NA
August	746	18	601	160	695	39	30	764	NA
September	747	16	598	162	694	44	24	762	NA
October	754	14	609	157	704	42	23	768	NA
November	763	16	621	156	711	45	23	779	NA
December	763	16	623	155	708	45	26	780	NA
Average	**708**	**15**	**574**	**147**	**659**	**39**	**25**	**723**	**NA**
2023 January	756	16	616	155	701	47	24	772	NA
February	742	16	604	153	698	42	18	758	NA
March	736	17	591	158	691	47	14	752	NA
April	733	19	590	159	685	48	19	752	NA
May	707	21	580	144	657	52	19	728	NA
June	667	20	551	131	617	51	18	687	NA
July	654	19	534	132	602	52	18	672	NA
August	629	18	521	121	576	52	19	647	NA
September	613	19	510	116	561	55	15	631	NA
October	600	23	501	118	556	52	15	623	NA
November	599	20	498	117	552	54	13	619	NA
December	603	20	501	119	561	49	13	623	NA
Average	**669**	**19**	**549**	**135**	**620**	**50**	**17**	**687**	**NA**
2024 January	601	20	499	119	561	48	12	620	NA
February	603	20	500	120	560	50	13	622	NA
March	603	22	507	115	559	53	13	625	NA
April	598	19	508	108	555	50	13	617	NA
4-Month Average	**601**	**20**	**504**	**115**	**558**	**50**	**13**	**621**	**NA**
2023 4-Month Average	**741**	**17**	**600**	**156**	**694**	**46**	**18**	**758**	**NA**
2022 4-Month Average	**635**	**14**	**520**	**128**	**592**	**33**	**24**	**649**	**NA**

[a] Data are for rigs drilling for crude oil, rigs drilling for natural gas, and other rigs (not shown separately) drilling for miscellaneous purposes, such as service wells, injection wells, and stratigraphic tests.

[b] Rotary rigs in operation are reported weekly on Fridays. Monthly data are averages of 4- or 5-week reporting periods. Multi-month data are averages of the reported weekly data over the covered months. Annual data are averages of 52- or 53-week reporting periods. Published data are rounded to the nearest whole number.

[c] Not shown under "By Type" are other rigs drilling for miscellaneous purposes, such as service wells, injection wells, and stratigraphic tests. Therefore, the sum of "Crude Oil" and "Natural Gas" may not equal "Total" values. In addition, for "By Location," "By Type," and "By Trajectory," the sum of the components in each category may not equal "Total" values due to independent rounding.

[d] The number of rigs doing true workovers (where tubing is pulled from the well), or doing rod string and pump repair operations, and that are, on average, crewed and working every day of the month.

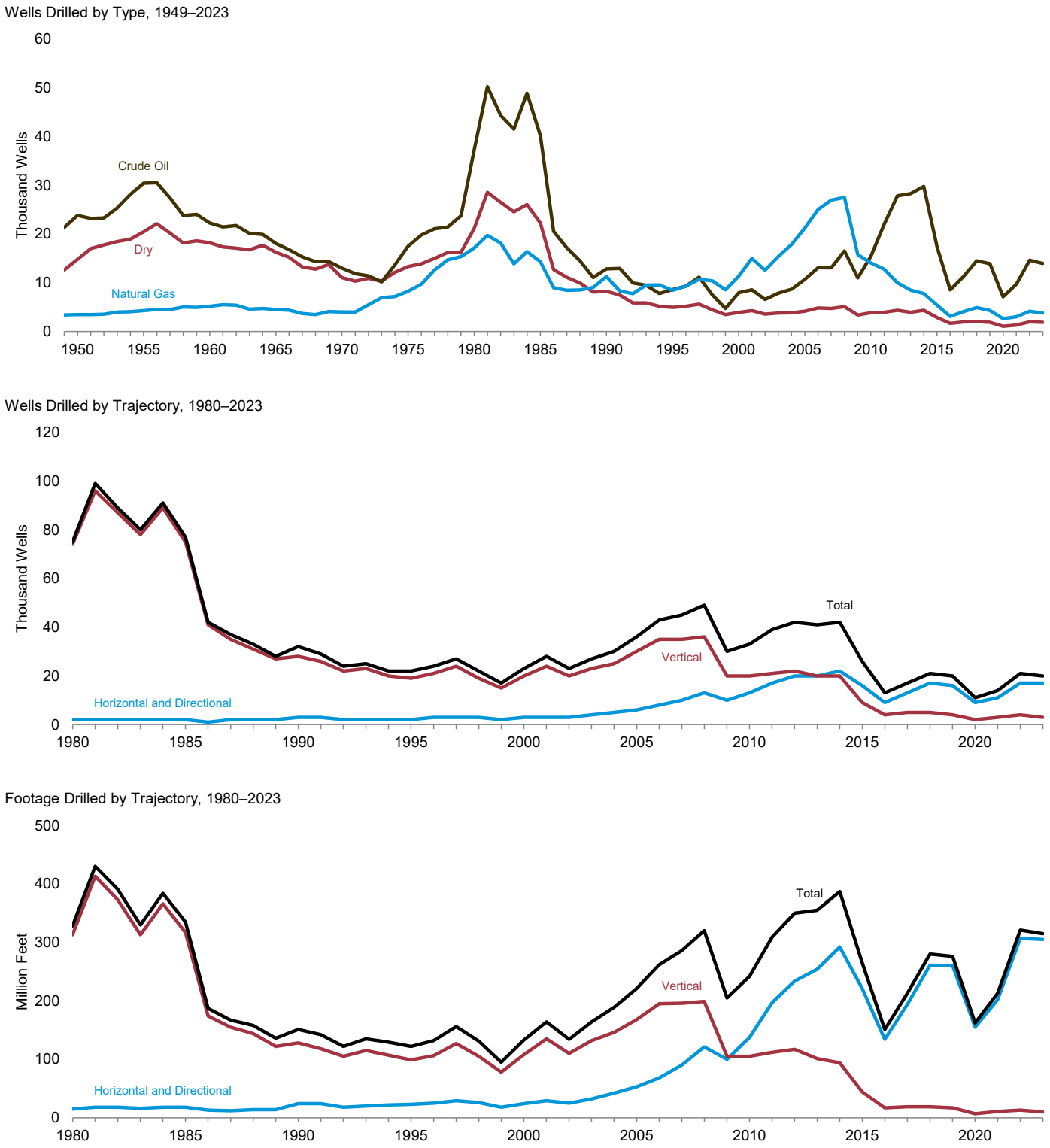
NA=Not available.

Note: Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#crude (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **Rotary Rigs in Operation:** Baker Hughes, Inc., Houston, TX, "North America Rig Count," used with permission. See http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-reportsother. • **Active Well Service Rig Count:** Energy Workforce & Technology Council, Houston, TX.

Figure 5.2 Crude Oil and Natural Gas Wells and Footage Drilled



Web Page: http://www.eia.gov/totalenergy/data/monthly/#crude.
Sources: Table 5.2.

Table 5.2 Crude Oil and Natural Gas Wells and Footage Drilled

	Wells Drilled						Footage Drilled					
	By Type			By Trajectory			By Type			By Trajectory		
	Crude Oil	Natural Gas	Dry	Horizontal and Directional	Vertical	Total	Crude Oil	Natural Gas	Dry	Horizontal and Directional	Vertical	Total
	Number						Thousand Feet					
1950 Total	**23,812**	**3,439**	**14,799**	**NA**	**NA**	**42,050**	**NA**	**NA**	**NA**	**NA**	**NA**	**157,358**
1955 Total	**30,432**	**4,266**	**20,452**	**NA**	**NA**	**55,150**	**NA**	**NA**	**NA**	**NA**	**NA**	**226,182**
1960 Total	**22,258**	**5,149**	**18,212**	**NA**	**NA**	**45,619**	**NA**	**NA**	**NA**	**NA**	**NA**	**192,176**
1965 Total	**18,065**	**4,482**	**16,226**	**NA**	**NA**	**38,773**	**NA**	**NA**	**NA**	**NA**	**NA**	**174,882**
1970 Total	**12,968**	**4,011**	**11,031**	**NA**	**NA**	**28,010**	**NA**	**NA**	**NA**	**NA**	**NA**	**138,556**
1975 Total	**17,449**	**8,200**	**13,321**	**NA**	**NA**	**38,970**	**NA**	**NA**	**NA**	**NA**	**NA**	**182,199**
1980 Total	**37,209**	**17,108**	**21,125**	**1,677**	**73,765**	**75,442**	**137,273**	**92,649**	**98,054**	**14,607**	**313,369**	**327,976**
1985 Total	**40,217**	**14,309**	**22,270**	**2,184**	**74,612**	**76,796**	**152,575**	**77,699**	**104,791**	**17,944**	**317,122**	**335,066**
1990 Total	**12,839**	**11,246**	**8,245**	**2,839**	**27,987**	**32,330**	**57,153**	**52,870**	**41,360**	**23,619**	**127,764**	**151,383**
1995 Total	R **8,592**	R **8,435**	R **4,931**	R **2,492**	**19,466**	R **21,958**	R **41,703**	R **53,343**	R **26,571**	R **23,107**	R **98,510**	R **121,617**
2000 Total	**7,942**	**11,364**	R **3,882**	**2,913**	R **20,275**	R **23,188**	**34,789**	**75,268**	R **22,693**	**24,352**	R **108,399**	R **132,751**
2005 Total	R **10,647**	**21,191**	R **4,140**	**5,992**	**29,986**	**35,978**	R **49,558**	R **148,776**	R **22,889**	R **52,965**	R **168,258**	R **221,223**
2010 Total	R **15,439**	**14,046**	**3,856**	R **12,904**	R **20,437**	R **33,341**	R **93,204**	**129,978**	**19,128**	R **137,167**	**105,142**	R **242,310**
2011 Total	R **21,918**	**12,807**	**3,926**	R **17,199**	R **21,452**	R **38,651**	R **154,476**	**135,727**	R **18,929**	R **197,054**	R **112,078**	R **309,132**
2012 Total	R **27,847**	**10,005**	**4,335**	R **19,797**	**22,390**	R **42,187**	R **218,261**	**111,335**	R **20,667**	R **233,750**	R **116,511**	R **350,262**
2013 Total	R **28,279**	**8,459**	R **3,931**	R **20,463**	R **20,206**	R **40,669**	R **235,707**	R **99,747**	R **19,842**	R **254,458**	R **100,838**	R **355,296**
2014 Total	R **29,756**	**7,784**	R **4,342**	R **22,335**	R **19,547**	R **41,882**	R **267,651**	R **95,684**	R **23,174**	R **292,128**	R **94,380**	R **386,509**
2015 Total	R **17,302**	R **5,374**	R **2,828**	**16,019**	R **9,485**	R **25,504**	R **177,423**	R **70,979**	R **16,596**	R **221,379**	R **43,620**	R **264,998**
2016 Total	R **8,495**	R **3,063**	R **1,624**	R **9,066**	R **4,116**	R **13,182**	R **98,409**	R **43,417**	R **9,453**	R **134,199**	R **17,080**	R **151,279**
2017 Total	R **11,247**	R **4,069**	**1,939**	R **12,640**	R **4,615**	R **17,255**	R **138,974**	R **61,168**	R **12,923**	R **193,613**	R **19,452**	R **213,065**
2018 Total	R **14,484**	R **4,889**	R **2,018**	R **16,514**	R **4,877**	R **21,391**	R **188,456**	R **77,371**	R **13,792**	R **260,651**	R **18,968**	R **279,619**
2019 Total	R **13,898**	R **4,279**	R **1,854**	R **15,814**	R **4,217**	R **20,031**	R **191,255**	R **71,604**	R **13,507**	R **259,640**	R **16,725**	R **276,365**
2020 Total	R **7,118**	R **2,589**	R **1,044**	R **8,873**	R **1,878**	R **10,751**	R **106,865**	R **47,282**	R **8,068**	R **155,078**	R **7,138**	R **162,215**
2021 Total	R **9,695**	R **3,001**	R **1,310**	R **11,080**	R **2,926**	R **14,006**	R **147,960**	R **55,736**	R **9,403**	R **201,951**	R **11,148**	R **213,099**
2022 January	R 1,073	R 266	R 140	R 1,169	R 310	R 1,479	R 16,411	R 4,938	R 1,104	R 21,298	R 1,155	R 22,452
February	R 1,086	R 280	R 143	R 1,276	R 233	R 1,509	R 17,334	R 5,424	R 1,048	R 22,865	R 941	R 23,806
March	R 1,111	329	R 149	R 1,309	R 280	R 1,589	R 17,187	R 6,307	R 1,058	R 23,456	R 1,096	R 24,552
April	R 1,155	R 328	R 155	R 1,345	293	R 1,638	R 17,910	R 6,173	R 1,103	R 24,101	1,085	R 25,186
May	R 1,208	R 347	R 162	R 1,404	R 313	R 1,717	R 18,703	R 6,521	R 1,151	R 25,158	R 1,217	R 26,375
June	R 1,234	R 354	R 166	R 1,441	R 313	R 1,754	R 19,114	R 6,655	R 1,180	R 25,821	R 1,128	R 26,949
July	R 1,266	R 374	R 170	R 1,511	R 299	R 1,810	R 19,833	R 7,111	R 1,223	R 27,076	R 1,092	R 28,167
August	R 1,271	R 368	R 171	R 1,492	R 318	R 1,810	R 19,733	R 6,935	R 1,219	R 26,735	R 1,151	R 27,887
September	R 1,266	R 373	R 171	R 1,494	316	R 1,810	R 19,660	R 7,030	R 1,219	R 26,771	R 1,139	R 27,909
October	R 1,306	R 367	R 175	R 1,508	R 340	R 1,848	R 20,228	R 6,899	R 1,244	R 27,022	R 1,350	R 28,371
November	R 1,314	R 401	R 175	R 1,588	302	R 1,890	R 20,669	R 7,656	R 1,264	R 28,455	R 1,133	R 29,588
December	R 1,317	R 357	R 175	R 1,579	R 270	R 1,849	R 21,055	R 6,927	R 1,284	R 28,294	R 973	R 29,267
Total	R **14,607**	R **4,144**	R **1,952**	R **17,116**	R **3,587**	R **20,703**	R **227,836**	R **78,576**	R **14,098**	R **307,051**	R **13,459**	R **320,510**
2023 January	R 1,302	R 357	R 173	R 1,574	R 258	R 1,832	R 20,970	R 6,979	R 1,279	R 28,204	R 1,024	R 29,228
February	R 1,277	R 352	R 170	R 1,600	R 199	R 1,799	R 21,096	R 7,058	R 1,289	R 28,670	R 773	R 29,443
March	R 1,250	R 365	R 169	R 1,543	R 241	R 1,784	R 20,224	R 7,168	R 1,255	R 27,649	R 998	R 28,647
April	R 1,247	R 366	R 169	R 1,568	R 214	R 1,782	R 20,373	R 7,257	R 1,268	R 28,097	R 801	R 28,898
May	R 1,226	R 332	R 163	R 1,508	R 213	R 1,721	R 19,996	R 6,572	R 1,221	R 27,022	R 767	R 27,789
June	R 1,165	R 303	R 154	R 1,442	R 180	R 1,622	R 19,273	R 6,084	R 1,170	R 25,839	R 687	R 26,526
July	R 1,129	R 304	R 151	R 1,387	R 197	R 1,584	R 18,347	R 6,144	R 1,127	R 24,854	R 764	R 25,617
August	R 1,100	R 292	R 145	R 1,301	R 236	R 1,537	R 17,326	R 5,909	R 1,049	R 23,313	R 972	R 24,284
September	R 1,078	R 269	R 142	R 1,278	R 211	R 1,489	R 17,372	R 5,261	R 1,051	R 22,900	R 783	R 23,684
October	R 1,059	R 292	R 140	R 1,283	R 208	R 1,491	R 17,013	R 5,694	R 1,033	R 22,990	R 749	R 23,739
November	R 1,052	R 269	R 139	R 1,264	R 196	R 1,460	R 17,035	R 5,287	R 1,033	R 22,650	R 706	R 23,356
December	R 1,060	R 274	R 140	R 1,297	R 177	R 1,474	R 17,374	R 5,451	R 1,053	R 23,241	R 638	R 23,879
Total	R **13,945**	R **3,775**	R **1,855**	R **17,045**	R **2,530**	R **19,575**	R **226,400**	R **74,864**	R **13,826**	R **305,429**	R **9,662**	R **315,091**
2024 January	R 1,055	R 274	R 139	R 1,368	R 100	R 1,468	R 18,110	R 5,709	R 1,095	R 24,513	R 401	R 24,914
February	R 1,056	R 276	R 140	R 1,361	R 111	R 1,472	R 17,987	R 5,706	R 1,095	R 24,388	R 400	R 24,788
March	R 1,072	R 265	R 140	R 1,365	R 112	R 1,477	R 18,282	R 5,485	R 1,096	R 24,459	R 404	R 24,863
April	1,074	248	139	1,352	109	1,461	18,377	5,150	1,092	24,226	393	24,619
4-Month Total	**4,257**	**1,063**	**558**	**5,446**	**432**	**5,878**	**72,756**	**22,050**	**4,378**	**97,587**	**1,597**	**99,184**
2023 4-Month Total	**5,076**	**1,440**	**681**	**6,285**	**912**	**7,197**	**82,663**	**28,462**	**5,091**	**112,621**	**3,595**	**116,216**
2022 4-Month Total	**4,425**	**1,203**	**587**	**5,099**	**1,116**	**6,215**	**68,841**	**22,842**	**4,313**	**91,719**	**4,277**	**95,996**

R=Revised. NA=Not available.

Notes: • Data are estimates. • For 1960–1969, data are for well completion reports received by the American Petroleum Institute during the reporting year; for all other years, data are for well completions in a given year. • Through 1989, these well counts include only the original drilling of a hole intended to discover or further develop already discovered crude oil or natural gas resources. Other drilling activities, such as drilling an old well deeper, drilling of laterals from the original well, drilling of service and injection wells, and drilling for resources other than crude oil or natural gas are excluded. Due to the methodology used to estimate ultimate well counts from the available partially reported data, the counts shown on this page are frequently revised. See Note, "Crude Oil and Natural Gas Wells," at end of section. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#crude (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **1949–1965:** Gulf Publishing Company, *World Oil,* "Forecast-Review" issue. • **1966–1969:** American Petroleum Institute (API), *Quarterly Review of Drilling Statistics for the United States,* annual summaries and monthly reports. • **1970–1989:** U.S. Energy Information Administration (EIA) computations based on well reports submitted to the API. • **1990 forward:** EIA computations based on well reports submitted to IHS Markit, Inc.

Note. Crude Oil and Natural Gas Wells. The U.S. Energy Information Administration (EIA) considers six well types in the *Monthly Energy Review* (MER): "completed for crude oil," "completed for natural gas," "dry hole," "vertical," "horizontal and directional," and "total." Wells that produce both crude oil and natural gas are categorized by the state. EIA includes both developmental wells and exploratory wells in the six well types, but excludes all other classes of wells drilled in connection with the search for producible hydrocarbons. If a lateral well (such as a service well, stratigraphic test well, observation well, etc.) is drilled at the same time as the original hole, EIA does not separately count the lateral well. However, EIA includes all of the well footage. EIA counts only horizontal wells after the first lateral is drilled and does not count pilot holes.

Prior to the March 1985 MER, drilling statistics consisted of completion data for crude oil, natural gas, and dry wells as reported to the American Petroleum Institute (API) during a given month. Due to time lags between the date of well completion and the date of completion reporting to the API, as-reported well completions were an inaccurate indicator of drilling activity. For example, in 1982, as-reported well completions increased, while the number of actual completions decreased. As a result, for 1973 forward, the data shown in this section are revised estimates based on the partial data available from IHS Markit. EIA continuously revises these estimates as new data become available. Each month, EIA estimates the latest 36 months of wells using the rig count and a 3-month average wells per rig ratio. EIA applies three conditions to the result: 1) if the model result is less than the actual reported value, then EIA uses the reported value, and 2) the published total well count is the maximum of the modeled total, or the sum of modeled oil, gas, and dry, or the sum of modeled horizontal and vertical well counts, and 3) the modeled component well counts are prorated so that they add exactly to the total published well count. EIA uses a similar process to estimate drilled footage using a 6-month average footage-per-well ratio. Because there is no reported dry rig count data, EIA estimates the number of dry wells using a 6-month average dry-wells-to-total-wells ratio, which EIA then applies to the modeled total wells. In general, the most recent 12 months of estimated well counts will have the highest errors because they are the farthest from the average well-per-rig ratio used in the model (at least 25 months).