

ANNUAL REPORT

ODNR DIVISION OF OIL AND GAS RESOURCES MANAGEMENT | 2015

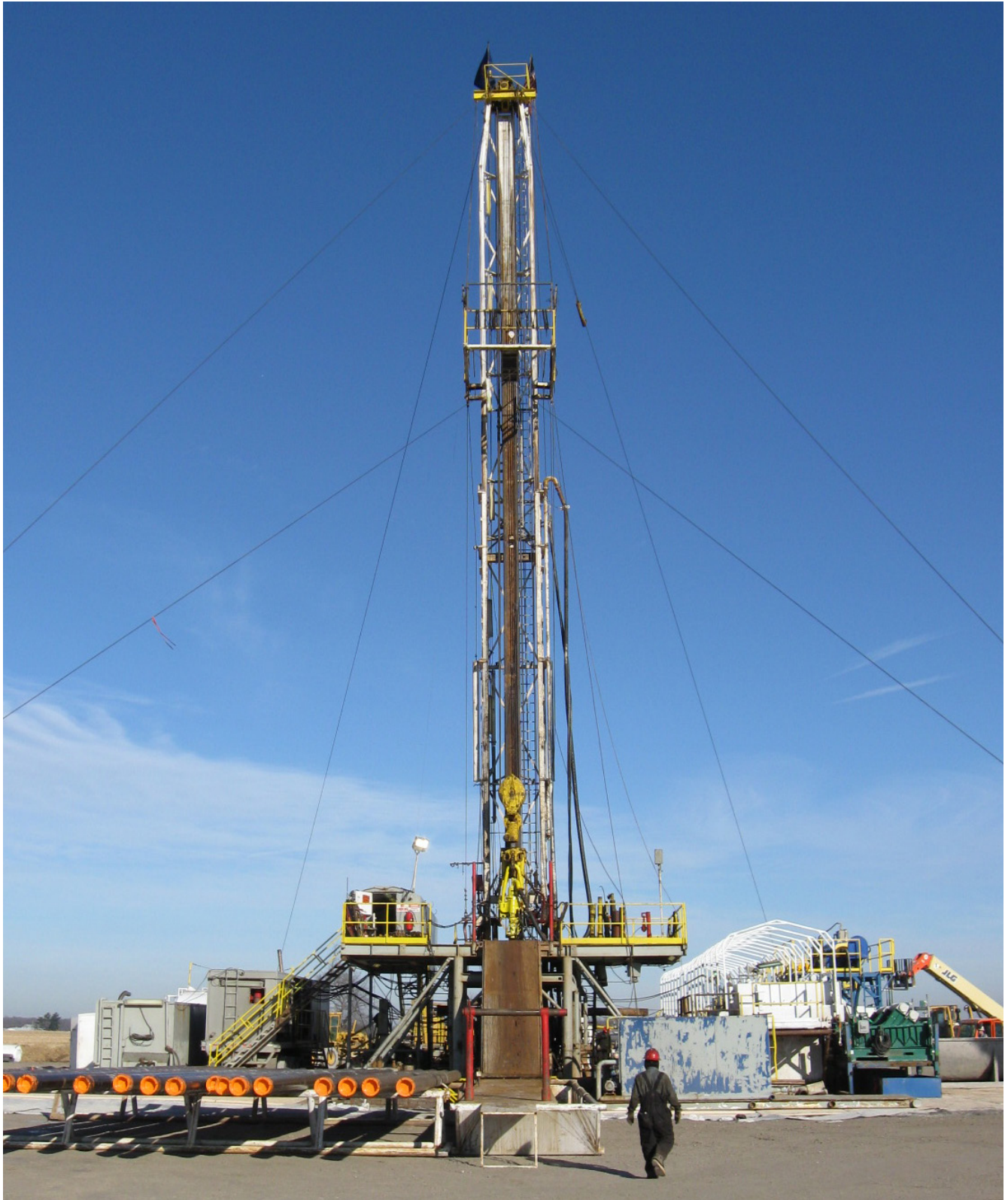


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INTRODUCTION

This fifty-first edition of the Ohio Oil & Gas Summary (The McCormac Report) remains dedicated to accurately presenting statistics that may reflect trends important to Ohio's oil and gas industry, citizens and other governmental agencies. This report includes data submitted through December 1, 2016.

You may also note that some 2014 statistics have been adjusted to include well completion reports received after last year's cut-off date. The 2014 report estimated 715 wells were drilled; the total number has been revised to 730.

Horizontal shale activity decreased in 2015; however its impact on permitting, drilling and production was significant and is reflected throughout the report.

Highlights include:

- 5,709 registered well owners, including 4,258 domestic owners operating 65,202 wells.
- Issued 1,493 permits, including 635 drilling permits.
- Issued 29 urbanized area permits in 5 counties.
- Drilled an estimated 458 oil and gas wells in 30 of Ohio's 88 counties.
- 369 wells were drilled to the Utica/Point Pleasant Shale formations accounting for 81% of all wells drilled.
- Belmont County replaced Harrison County as the most active county with 104 wells drilled which is the third consecutive year that more than 100 wells were drilled in a county.
- A new drilling depth record was set in Guernsey County with a well was drilled 9,268 feet into the Rome dolomite.
- Horizontal well drilled to a record-setting length of 24,578 feet in Monroe County.
- 431 wells were plugged, including 17 contracted by the Orphan Well Program.
- Produced a record 26,781,178 barrels of crude oil, at an average price of \$36.78 per barrel.
- Produced a record 1,009 billion cubic feet of natural gas, at an average price of \$1.96 per mcf.
- The combined market value of crude oil and natural gas production was \$2,962,935,363 which is the second highest amount on record.

To make oil and gas well data more accessible, the division:

- Distributes copies of RBDMS, its oil and gas well database.
- Posts updated shale development activity weekly and cumulatively on our website.
- Operators of horizontal oil and gas wells in Ohio are required to submit production data quarterly. This information is posted on our website.
- An annual spreadsheet combining all four quarters of production was compiled and posted on our website.

Mike McCormac

PERMITTING

The division issued 1,493 permits, a decrease of 713 (32.3%) from 2014 (Figure 1). This total includes permits issued to convert, deepen, drill, plug back, plug and abandon, reissue and reopen. Permits were issued in 15 days on average, compared to 15 days in 2014.

Permits issued to drill for oil and gas totaled 635, a 43.0% decrease (479 permits) from last year. These permits included 345 new permits and 290 reissued permits. Utica/Point Pleasant shale permits decreased by 331 for a total of 515, accounting for 81% of all drilling permits. Deep well permits decreased by thirty-one for a total of 48 (8%). Deep well permits are those issued to drill to formations below the Cambro-Ordovician Knox unconformity such as the Beekmantown dolomite, Rose Run sandstone, Trempealeau dolomite and to the Precambrian granite. Clinton sandstone permits decreased by 80 for a total of 37 (6%). Berea Sandstone permits decreased by seven for a total of 23 (4%). Devonian shale permits decreased by thirty for a total of 4, including three issued for the Marcellus shale, and accounted for .6% of all drill permits.

Five hundred and four plugging permits were issued, a decrease of 124 (19.7%) from 2014.

Notable permitting highlights for 2015 include:

- issued 29 urbanized area permits (a decrease of 38) in 5 counties. The top counties were Belmont (19) and Summit (5);
- reviewed 2 mandatory pooling applications;
- processed 54,240 production reports for 2015; and
- issued 263 stratigraphic test well permits

Source: ODNR, Division of Oil and Gas

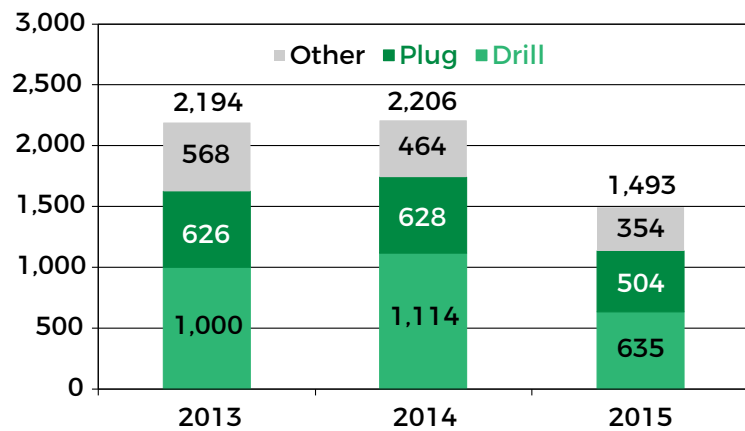


Figure 1. Oil and gas permits issued 2013 - 2015.

DIRECTIONAL AND HORIZONTAL DRILLING PERMITS

This technology is used to access oil and gas in the following ways: under environmentally sensitive or densely populated areas, and to drill horizontally to enhance production. There were seven directional drilling and five hundred and four horizontal permits issued to drill oil and gas wells in 12 counties, a decrease of 334 permits from 2014. Horizontal permits were issued to these formations: Utica/Point Pleasant Shale (500), Clinton sandstone (2), Marcellus Shale (1) and Trempealeau dolomite (1). Directional permits were issued to the Clinton sandstone (4) Trenton Limestone (1), Utica/Point Pleasant Shale (1) and Trempealeau dolomite (1). The most active counties were Belmont (140), Monroe (122), Harrison (67), Noble (53) and Carroll (51).

BONDING / OWNERSHIP

Oil and gas well bond release does not occur until an owner has successfully plugged and restored or transferred ownership and liability of all oil and gas wells under the operator’s permits in Ohio.

During 2015, 450 bonds were released and 193 new owners were registered.

Section staff also manages all information and records concerning current well ownership and well transfers. During 2015, records were managed for 5,709 registered well owners, including 4,258 domestic owners and 1,451 commercial owners. Staff also recorded 3,481 changes in well ownership. There are 65,202 active wells in Ohio.

DRILLING

The number of wells drilled decreased for the first time in five years. An estimated 458 oil and gas wells were drilled, which was a decrease of 272 wells (37%) from 2014 (Figure 2) (Appendix I). Drilling to the Utica/Point Pleasant Shales accounted for 369 wells of the wells drilled in 2014. Wells were drilled in 30 of Ohio’s 88 counties, a decrease of seven (Figure 3).

Source: ODNR, Division of Oil and Gas

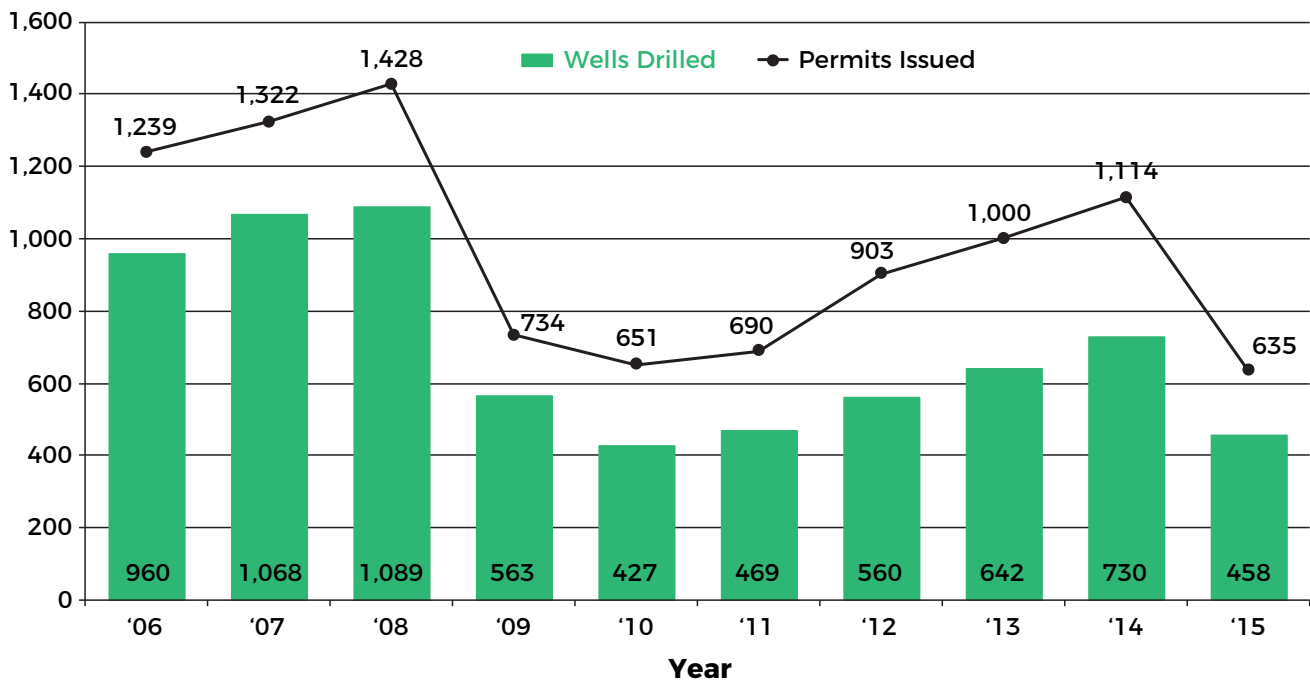


Figure 2. Wells drilled vs. permits issued 2006 – 2015

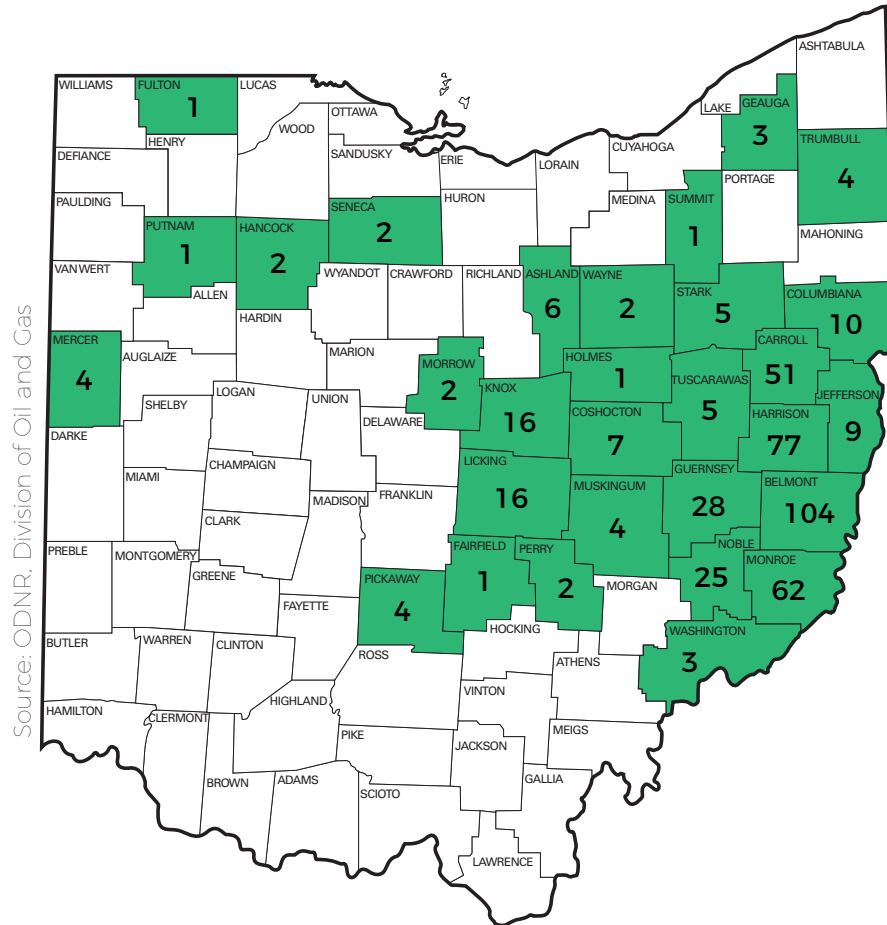


Figure 3. Wells drilled by county - 2015

COMPLETIONS

The majority of well completion reports had been submitted to the division by December 1, 2016 and an estimate was made for the missing reports in order to completely account for every well drilled. Of these, 440 were productive and 18 were dry holes, for a 96% productive rate (Table I).

- Total footage is estimated at 6,540,563 feet compared to 9,403,428 for 2014.
- Average well depth was 14,281 feet, an increase of 1,400 feet per well.
- The median well depth was 16,384 feet compared to 14,945 feet in 2014.
- Total depths ranged from 668 feet in the Berea Sandstone (Knox County) to 24,578 feet in the Utica/Point Pleasant Shale for a horizontal well (Monroe County).

A summary of oil and gas completion statistics by county appears in Table II.

Completion zones ranged from the Pennsylvanian Maxton Sandstone to the Cambrian Mt. Simon sandstone. Licking county had wells drilled to five different geologic zones. The Clinton sandstone and Utica/Point Pleasant shales accounted for 87% of all wells drilled. A summary of oil and gas completion statistics by producing zones appears in Table III.

Source: ODNR, Division of Oil and Gas

TABLE I - DRILLING OPERATIONS BY TYPE OF WELL - 2015			
	DRILLED	CONVERTED	TOTAL FOOTAGE
PRODUCTIVE WELLS	440		6,496,792
DRY HOLES	18		43,771
REOPENED WELLS	0		0
LOST HOLES	9		36,126
GAS STORAGE WELLS	0	0	0
CONVENTIONAL BRINE INJECTION WELLS	9	0	58,097
STRATIGRAPHIC TEST WELLS	12		108,782
SOLUTION MINING WELLS	2	0	5,065
WATER SUPPLY WELL	1	0	487
TOTAL	491	0	6,749,120

Source: ODNR, Division of Oil and Gas

TABLE II - OIL AND GAS COMPLETION STATISTICS BY COUNTY - 2015												
COUNTY	DEPTH RANGE OF RESERVOIRS		MAJOR TARGETED RESERVOIRS	DEVELOPMENT		EXPLORATORY		TOTAL WELLS	PERCENT PRODUCTIVE	DRILLED FOOTAGE		
	SHALLOW	DEEP		PRODUCTIVE	DRY	PRODUCTIVE	DRY			PRODUCTIVE	DRY	TOTAL
Ashland	4,584	4,990	Trempealeau	2	0	4	1	6	100.00	29,196	0	29,196
Belmont	8,661	23,127	Point Pleasant	83	0	21	1	104	100.00	1,806,063	0	1,806,063
Carroll	7,215	20,525	Point Pleasant	49	0	2	1	51	100.00	831,875	0	831,875
Columbiana	8,445	21,085	Point Pleasant	8	0	2	1	10	100.00	167,999	0	167,999
Coshocton	940	3,854	Berea/Clinton	6	1	0	1	7	85.71	14,422	963	15,385
Fairfield	1,789	1,795	Clinton	1	0	0	1	1	100.00	1,936	0	1,936
Fulton	3,026	3,114	Mt. Simon	0	0	0	1	1	0.00	0	3,114	3,114
Geauga	4,075	4,172	Clinton	3	0	0	0	3	100.00	12,952	0	12,952
Guernsey	7,945	16,909	Point Pleasant	23	0	5	0	28	100.00	431,556	0	431,556
Hancock	1,346	1,428	Trenton	0	0	1	1	2	50.00	1,428	1,400	2,828
Harrison	7,886	19,880	Point Pleasant	67	0	10	0	77	100.00	1,276,259	0	1,276,259
Holmes	640	652	Berea	0	1	0	0	1	0.00	0	760	760
Jefferson	9,515	18,318	Point Pleasant	5	0	4	0	9	100.00	159,993	0	159,993
Knox	660	4,455	Clinton	14	1	0	1	16	87.50	30,231	6,286	36,517
Licking	700	4,517	Rose Run	8	4	4	0	16	75.00	39,914	13,934	53,848
Mercer	1,108	1,730	Trenton	2	1	1	0	4	75.00	4,163	1,240	5,403
Monroe	8,349	24,441	Point Pleasant	47	0	15	0	62	100.00	1,097,845	0	1,097,845
Morrow	3,178	3,570	Trempealeau	0	2	0	0	2	0.00	0	6,798	6,798
Muskingum	2,920	3,250	Clinton	4	0	0	0	4	100.00	12,339	0	12,339
Noble	1,816	19,937	Point Pleasant	20	0	5	0	25	100.00	410,264	0	410,264
Perry	5,493	5,722	Beekmantown	0	0	2	0	2	100.00	11,428	0	11,428
Pickaway	2,447	2,593	Rose Run Trempealeau	1	1	1	1	4	50.00	5,028	5,221	10,249
Putnam	1,379	1,428	Trenton	0	0	0	1	1	0.00	0	1,428	1,428
Seneca	1,342	1,646	Trenton	1	1	0	0	2	50.00	1,567	1,646	3,213
Stark	4,694	7,257	Rose Run	2	0	3	0	5	100.00	34,267	0	34,267

Source: ODNR, Division of Oil and Gas

TABLE II - OIL AND GAS COMPLETION STATISTICS BY COUNTY - 2015												
COUNTY	DEPTH RANGE OF RESERVOIRS		MAJOR TARGETED RESERVOIRS	DEVELOPMENT		EXPLORATORY		TOTAL WELLS	PERCENT PRODUCTIVE	DRILLED FOOTAGE		
	SHALLOW	DEEP		PRODUCTIVE	DRY	PRODUCTIVE	DRY			PRODUCTIVE	DRY	TOTAL
Summit	3,988	4,044	Clinton	1	0	0	0	1	100.00	4,307	0	4,307
Trumbull	3,906	5,116	Clinton	4	0	0	0	4	100.00	20,187	0	20,187
Tuscarawas	5,778	15,784	Point Pleasant	1	1	3	0	5	80.00	54,481	981	55,462
Washington	1,176	15,280	Marcellus/ Point Pleasant	1	0	2	0	3	100.00	25,934	0	25,934
Wayne	5,512	5,590	Trempealeau	2	0	0	0	2	100.00	11,158	0	11,158
TOTAL				355	13	85	5	458	96.07	6,496,792	43,771	6,540,563

Source: ODNR, Division of Oil and Gas

TABLE III - OIL AND GAS COMPLETION STATISTICS BY PRODUCING ZONE - 2015											
PRODUCING ZONES	DEPTH RANGE OF RESERVOIRS		DEVELOPMENT		EXPLORATORY		TOTAL WELLS	PERCENT PRODUCTIVE	DRILLED FOOTAGE		
	SHALLOW	DEEP	PRODUCTIVE	DRY	PRODUCTIVE	DRY			PRODUCTIVE	DRY	TOTAL
"Pennsylvanian (Maxton)"	1,176	1,224	0	0	1	0	1	100.00	1,237	0	1,237
"Mississippian (1st & 2nd Berea)"	660	1,226	10	3	0	0	13	76.92	8,959	2,704	11,663
"Devonian (Ohio Shale - Marcellus)"	1,816	5,266	1	0	1	0	2	100.00	12,121	0	12,121
"Devonian (Oriskany)"			0	0	0	0	0	0	-	0	0
"Silurian (Newburg)"	1,996	2,021	0	0	1	0	1	100.00	2,021	0	2,021
"Silurian (Clinton - Medina)"	1,789	5,508	27	3	0	0	30	90.00	98,921	7,878	106,799
"Ordovician (Utica/Point Pleasant)"	7,215	24,441	302	0	67	0	369	100.00	6,240,634	0	6,240,634
"Ordovician (Trenton)"	1,108	1,730	3	2	2	2	9	55.56	7,158	5,714	12,872
"Ordovician (Beekmantown)"	5,493	5,722	0	0	2	0	2	100.00	11,428	0	11,428
"Cambrian-Ordovician (Rose Run)"	2,483	7,257	5	2	6	1	14	78.57	58,076	9,661	67,737
"Cambrian (Trempealeau)"	2,447	5,590	7	3	5	1	16	75.00	56,237	14,700	70,937
"Cambrian (Mt. Simon)"	3,026	3,114	0	0	0	1	1	0.00	-	3,114	3,114
TOTAL			355	13	85	5	458	96.07	6,496,792	43,771	6,540,563

FORMATION HIGHLIGHTS

The Utica/Point Pleasant Shales were the most actively explored formations accounting for 81% of all wells drilled. Preceding this exploration, 13 stratigraphic test wells were drilled through these formations to obtain geological data. Of these, 9 were plugged back and horizontally drilled in the Utica/Point Pleasant formations. Overall, 369 wells were drilled, a decrease of 166 wells from 2014. These wells were drilled in 10 counties compared to 14 in 2014. Belmont County (104) was the most active followed by Harrison (77), Monroe (62), Carroll (51) and Guernsey (28). The average depth per well was 16,912 feet, an increase of 838 feet per well. Production reports were submitted for 1,281 wells in 2015. Of these, 1,241 were commercial producing wells and 40 were waiting to be put into production (Appendix II). Additionally, 80 Point Pleasant wells were started in 2015 but completed in 2016.

The Clinton sandstone was the next most actively drilled zone accounting for 7% percent of all wells drilled. Thirty wells were drilled, 62 less than the 92 wells drilled in 2014. Clinton sandstone wells averaged 3,560 feet in depth, a decrease of 636 feet per well. Clinton sandstone wells were drilled in 10 counties, compared to 18 last year. The most active counties were Knox (7) and Licking (5).

Drilling to the Knox formations decreased by 20 wells to 32 wells drilled. Drilling occurred in these formations: Beekmantown (2), Rose Run (14) and Trempealeau (16). Drilling occurred in 8 counties with Licking (9), Ashland (6), and Pickaway and Stark (4 each) the most active.

There were 13 Berea Sandstone wells drilled, fourteen less than last year. Drilling occurred in 5 counties. Knox led with 6 wells. The average depth was 897 feet.

There were 9 Trenton Limestone wells drilled, five more than last year. Drilling occurred in 4 counties. Mercer led with 4 wells. The average depth was 1,430 feet.

WELLS COMPLETED BY MONTH AND OWNER

Drilling activity averaged 38 wells per month compared to 61 per month in 2014. January was the most active month with 61 wells (Figure 4).

Fifty-nine owners drilled wells in 2015, 35 less than in 2014. Eighty-three percent of these owners drilled less than 10 wells. The highest number of wells drilled by a single owner was 100 and the 10 most active operators drilled 80% (366) of all wells. Twenty-seven owners only drilled one well and 17 owners drilled horizontal shale wells.

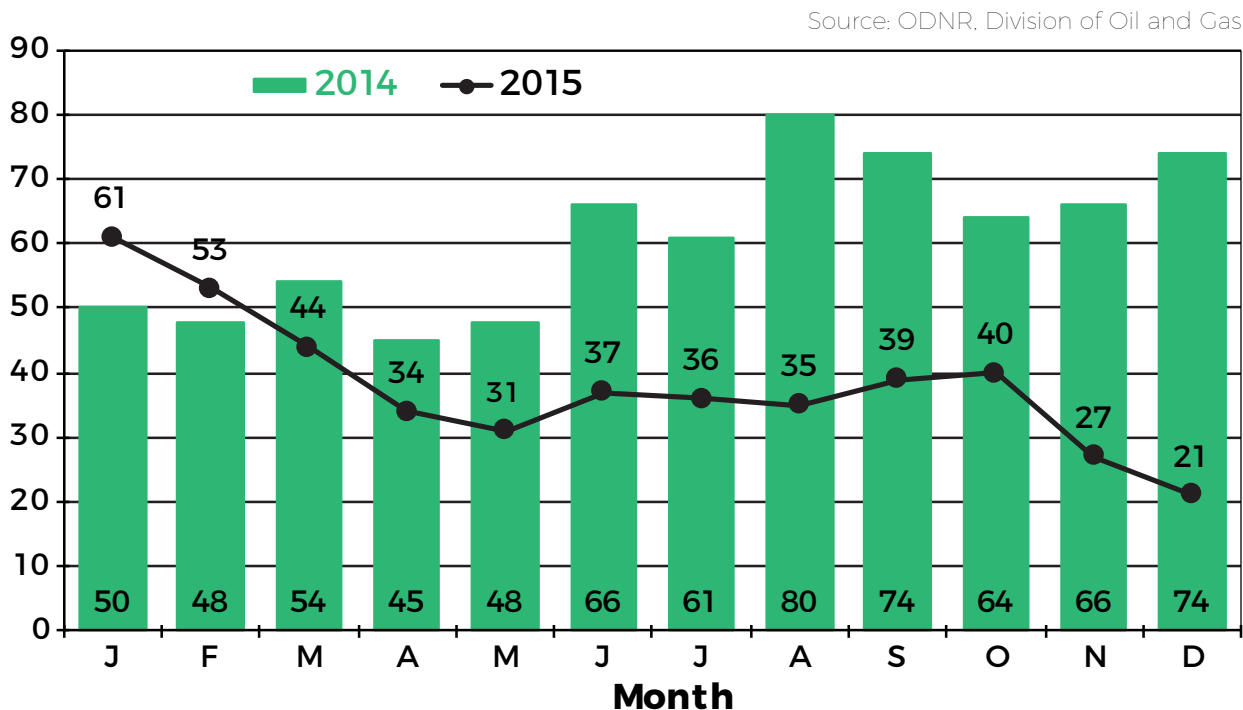


Figure 4. Wells completed by month – 2014 vs. 2015

WELLS COMPLETED BY TYPE OF TOOL AND RIG COUNT

Rotary tools drilled the majority of wells. Cable-tool rigs drilled 24 wells and operated in nine counties. Knox County (11) had the highest number of cable tool operations followed by Coshocton and Muskingum (3 each). Cable tool depths ranged from 668 feet (Knox County) to 3,570 feet (Morrow County). Most of these wells were drilled to the Berea (10) or Clinton (11) sandstones. The average depth per well drilled by cable tool was 1,942 feet, a decrease of 167 feet; rotary-drilled wells averaged 14,963 feet, an increase of 1,572 feet per well.

The horizontal rig count for unconventional or shale wells averaged 25 rigs per week compared to 44 rigs per week in 2014. The vertical rig count for conventional wells averaged 11 rigs per week compared to 18 rigs per week in 2014 (Figure 5).

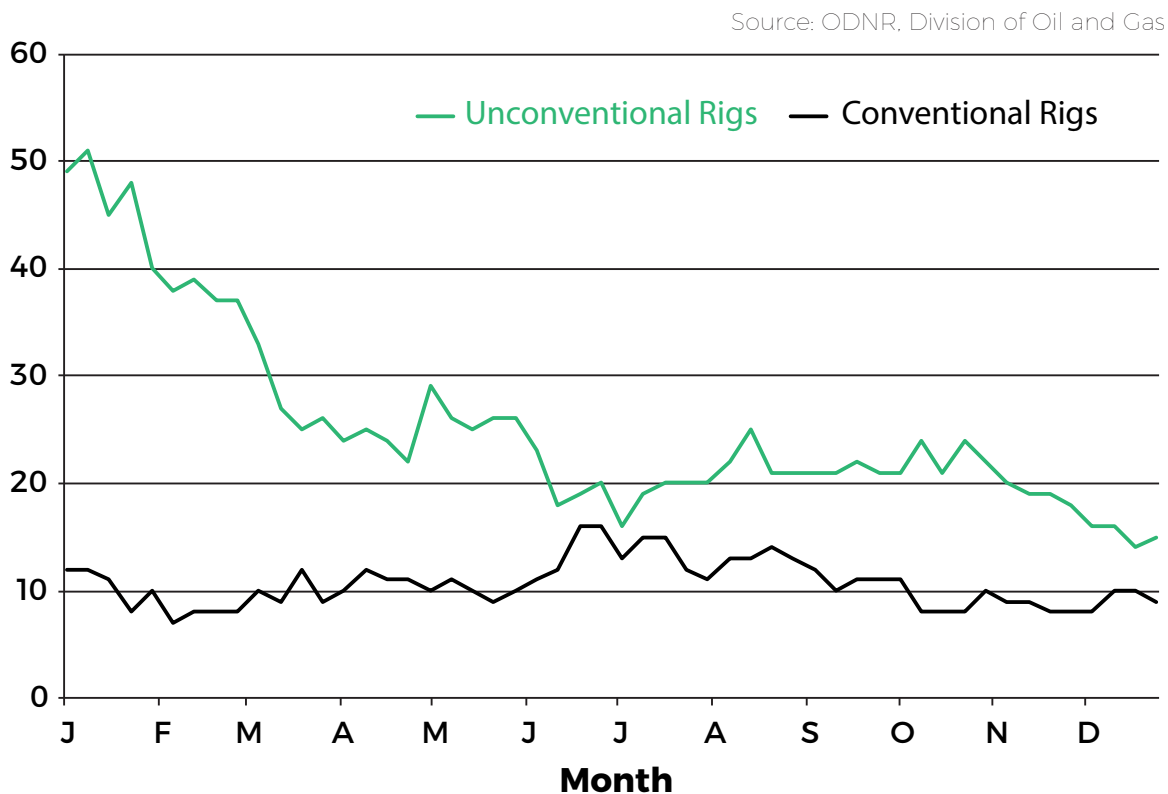


Figure 5. Horizontal (unconventional) vs. vertical (conventional) rig count by week - 2015

PLUG-BACK AND DEEPEN OPERATIONS

There were eleven existing wells plugged back to a different producing zone. There were no wells drilled to a deeper formation

TEN MOST ACTIVE COUNTIES

Belmont County replaced Harrison County as the most active county with 104 wells drilled (Table IV) which is the third consecutive year that more than 100 wells were drilled in a county. Harrison was second with 77 wells. Monroe advanced from fourth to third place (62 wells). The focus of drilling to the Utica/Point Pleasant shales was clearly seen in these top-ten counties. Eight of these counties had 366 wells drilled in them and all but one had these shales as the target. Additionally, many of these counties had stratigraphic test wells drilled in them which are not included in these totals.

Eight of these counties were in the top-ten last year. Overall, the largest increases occurred in Belmont (28) and Jefferson (5). The biggest well decreases took place in Harrison (59), Guernsey (54), Carroll (49), and Noble (35) counties. Columbiana County was last in the top ten in 2013 and Jefferson County is in the top-ten for the first time ever.

Source: ODNR, Division of Oil and Gas

TABLE IV - TEN MOST ACTIVE COUNTIES - 2015					
2015 RANK	COUNTY	WELLS DRILLED	2014 RANK	AVG. DEPTH PER WELL	ESTIMATED FOOTAGE DRILLED
1	Belmont	104	(3)	17,366	1,806,063
2	Harrison	77	(1)	16,575	1,276,259
3	Monroe	62	(4)	17,707	1,097,845
4	Carroll	51	(2)	16,311	831,875
5	Guernsey	28	(4)	15,413	431,556
6	Noble	25	(6)	16,411	410,264
7	Knox	16	(8)	2,282	36,517
7	Licking	16	(9)	3,366	53,848
9	Columbiana	10	(12)	16,800	167,999
10	Jefferson	9	(20)	17,777	159,993

EXPLORATORY WELLS

Exploratory drilling remained active in 2015. Ninety wells (20%) were classified as exploratory which was only 10 less than in 2014 (Figure 6). Of these, 85 were productive and 5 were dry, representing a 94% success rate.

Continued exploration in the Utica/Point Pleasant Shales resulted in 67 exploratory wells being drilled compared to 79 in 2014. Drilling below the Knox unconformity increased to 16 wells. Wells drilled to formations below the Knox unconformity such as the Beekmantown dolomite (2), Rose Run sandstone (7), Trempealeau dolomite (6) and Mt. Simon sandstone (1), are almost always seismic prospects. Three of these wells were dry holes. The Trenton Limestone was also active with four wells.

Wells were drilled in 20 counties. Belmont (21) was the most active county, followed by Monroe (15), Harrison (10), Guernsey and Noble (5 each).

The majority of exploratory wells were classified as either 'deeper pool wildcats' (51) or 'outposts' (25). Additionally, 12 wells were drilled as 'wildcats'. Productive rates were as follows: 'deeper pool wildcats' - 98%, 'outposts' - 96% and 'wildcats' - 75%.

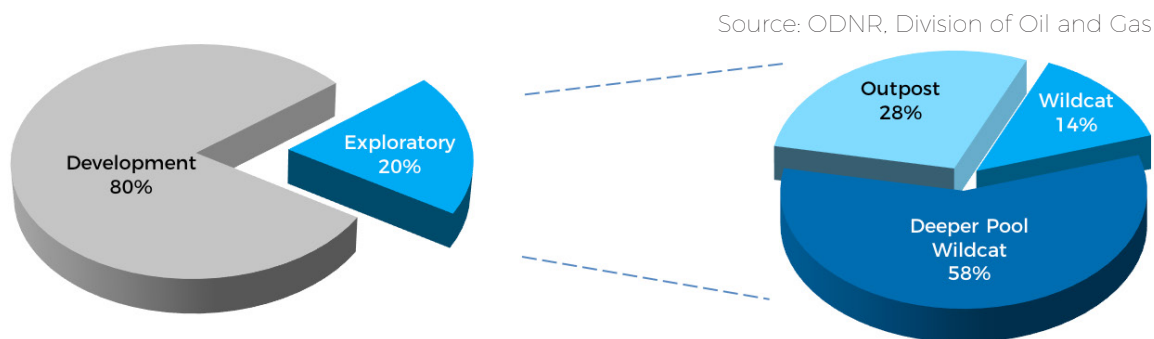


Figure 6. Development vs. exploratory wells - 2015

COUNTY DRILLING DEPTH RECORDS

There was one new drilling depth record in 2015 (Appendix III). In Guernsey County, a well was drilled 9,268 feet into the Rome dolomite, 371 feet deeper than the former record holding well drilled in 2008. The lengths of horizontal wells keep increasing. There were sixteen horizontal wells drilled greater than 20,000 feet, compared to 13 wells in 2013. In Monroe County, a horizontal well was drilled 24,578 feet into the Point Pleasant Shale, making it the longest well ever drilled. The former longest well was 22,240 in Belmont County.

PRODUCTION

Ohio's total reported crude oil production was 26,781,178 barrels, an increase of 11,706,897 barrels (77.7%) from 2014 (Figure 7, Table V). This is most oil ever produced; the previous record for oil production was 23,941,169 barrels in 1896. In 2015, daily production averaged 73,373 barrels compared to 41,299 barrels in 2014. Through 2015, Ohio wells have produced 1,196,302,500 barrels. (Note: the 2014 oil production number was revised to 15,074,281 barrels).

Ohio wells produced 1,009,144,712 mcf of natural gas, an increase of 496,183,204 mcf (96.7%) from 2014 (Figure 7, Table V). Gas production figures include an estimated 524,585 mcf of natural gas used on the lease. This is the record for natural gas produced; the previous record for natural gas production was 512,964,465 mcf in 2014. In 2015, daily production averaged 2,764,780 mcf compared to 1,405,374 mcf in 2014. Through 2015, Ohio wells have cumulatively produced 10,369,202,919 mcf of natural gas. (Note: the 2014 gas production number was revised to 512,964,465 mcf).

This year's production was influenced by the producing horizontal wells from the Marcellus and Utica/Point Pleasant shale formations. Wells producing from the Marcellus and Utica/Point Pleasant shale formations reported 23,129,760 barrels of oil (86% of total production) and 956,161,655 mcf of natural gas (95% of total production) (Appendix II).

The 2015 production numbers are an estimate based on available data reported to the Division of Oil & Gas Resources Management; oil reserve, gas reserve and gas consumption totals are based on data from the Department of Energy, Energy Information Administration.

Source: ODNR, Division of Oil and Gas

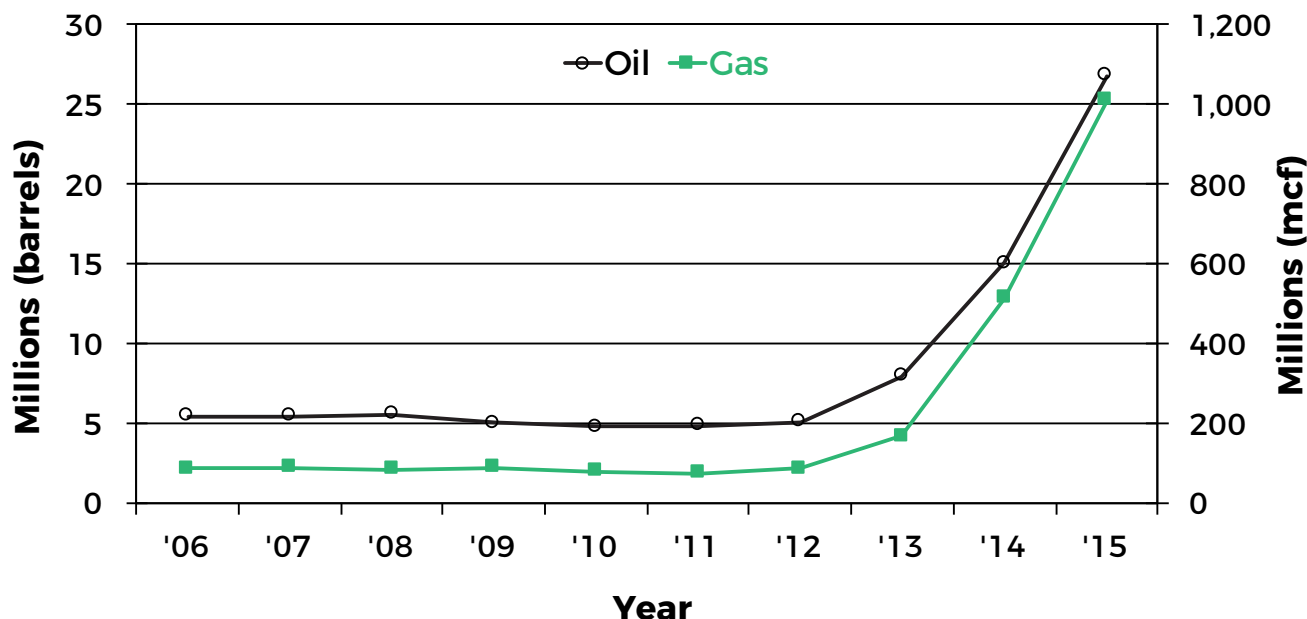


Figure 7. Oil and gas production 2006 - 2015

Source: ODNR, Division of Oil and Gas

TABLE V - CRUDE OIL & NATURAL GAS PRODUCTION, RESERVES & CONSUMPTION - 2006 - 2015					
	OIL (thousands of barrels)		GAS (mmcf)		
YEAR	PRODUCTION	RESERVES	PRODUCTION	RESERVES	CONSUMPTION
2006	5,422	49,000	86,315	975,000	742,359
2007	5,455	48,000	88,095	1,027,000	806,350
2008	5,554	38,000	84,858	985,000	792,247
2009	5,009	38,000	88,824	896,000	740,925
2010	4,785	42,000	78,122	832,000	784,293
2011	4,853	41,000	73,290	758,000	823,548
2012	4,974	39,000	86,700	1,235,000	842,959
2013	8,006	42,000	167,008	3,201,000	912,403
2014	15,061	78,000	512,777	7,193,000	1,002,345
2015	26,781	62,000	1,009,049	12,104,000	966,492

MARKET VALUE

Crude oil production valued at \$985,011,727 decreased 18.2% (\$219,724,811) from its 2014 value. The average price per barrel was \$36.78, a decrease of \$43.14 from 2014's average price of \$79.92 per barrel (Table VI). Posted oil prices ranged from a high of \$60.43 (June 10) to a low of \$33.73 (December 18 - 20) per barrel.

The market value of natural gas increased 2% (\$38,929,136) to \$1,977,923,636. The average price paid per mcf was \$1.96 in 2015, a decrease of \$1.82 per mcf from 2014 (Table VI). The Appalachian price index ranged from a low of \$1.88 in November to a high of \$3.10 in January.

Ohio's combined oil and gas market value decreased by 5.7% (\$180,795,675). The total dollar value of \$2,962,935,363 is the second highest on record (Figure 8). It exceeded the 1 billion dollar mark for the eighth time, with 1984 being the first time.

Source: ODNR, Division of Oil and Gas

TABLE VI - AVERAGE WELLHEAD PRICE OF OIL AND GAS 2006 - 2015		
YEAR	OIL \$/Bbl	GAS \$/mcf
2006	\$62.43	\$7.75
2007	\$67.69	\$7.40
2008	\$93.79	\$9.77
2009	\$55.56	\$4.36
2010	\$74.42	\$4.68
2011	\$90.06	\$4.28
2012	\$92.05	\$2.86
2013	\$95.71	\$3.51
2014	\$79.92	\$3.78
2015	\$36.78	\$1.96

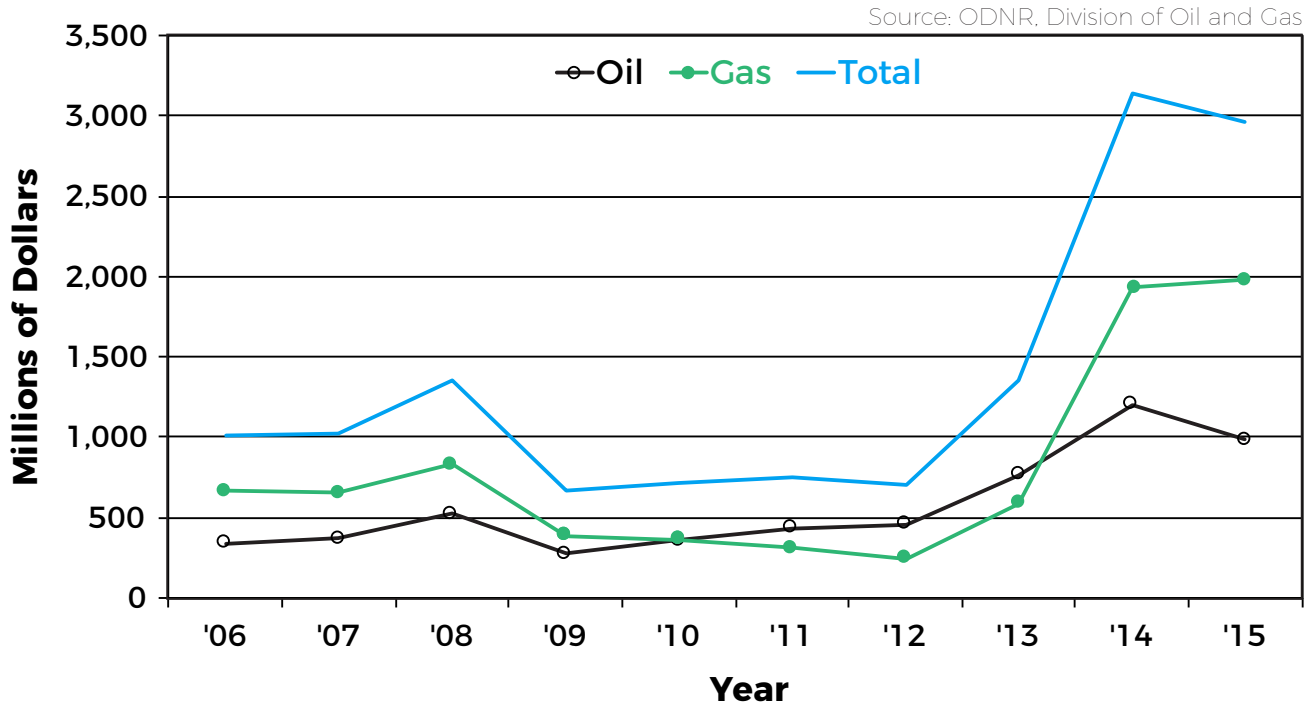


Figure 8. Dollar value of oil and gas 2006 - 2015

PLUGGING ACTIVITY

Plugging activity decreased by 65 wells. Figure 9 compares plugging and drilling activity. In 2015, 431 wells were plugged compared to 496 in 2014. This total does not include dry or lost holes that were plugged in 2015. Seventeen of these wells were plugged through the Orphan Well Program. Additionally, seven previously plugged wells were reopened for the purpose of re-plugging them.

Wells were plugged in 43 counties (Figure 10). Wayne County (31) was the most active plugging county followed by Washington (25), Guernsey, Holmes, Licking and Stark (23 each).

Source: ODNR, Division of Oil and Gas

APPENDIX I - WELLS DRILLED IN OHIO 1888 - 2015										
YEAR	PRODUC-TIVE	DRY	TOTAL	BEREA	OHIO SHALE	CLINTON	UTICA/ POINT PLEASANT	TRENTON	ROSE RUN	CAMBRIAN
Prior (a) 1888 (b)	6,022	---	6,022					2,234		
1888 (1)	617	---	617					542		
1889	1,590	132	1,722					702		
1890	2,497	96	2,593					2,151		
1891	1,709	56	1,765					1,572		
1892	1,551	38	1,589					1,465		
1893	2,067	46	2,113					1,877		
1894 (c)	3,216	85	3,301					3,001		
1895	6,020	127	6,147					5,559		
1896 (d)	5,600	856	6,456					4,339		
1897	3,442	300	3,742			987		2,755		
1898	3,338	172	3,510			132		2,852		
1899	6,399	408	6,807			151		4,469		
1900	6,098	457	6,555			116		5,013		
1901	4,559	573	5,132			148		3,524		
1902	5,651	649	6,300			306		4,213		
1903	5,880	777	6,657			352		4,072		
1904	4,974	858	5,832			382		3,141		
1905	3,027	680	3,707			400		1,578		
1906	2,903	681	3,584			388		1,535		
1907	2,146	611	2,757			521		890		
1908	2,083	695	2,778			522		848		
1909	2,881	966	3,847			694		873		
1910	2,059	670	2,729			668		572		
1911	2,270	507	2,777			641		527		
1912	3,527	956	4,483			926		551		
1913	2,560	603	3,163			643		972		
1914	2,371	534	2,905			943		861		
1915	1,672	498	2,170			952		260		
1916	2,028	525	2,553			469		699		
1917	1,864	504	2,368			587		535		
1918	1,708	446	2,154			605		466		
1919	2,486	585	3,071			940		385		
1920	2,421	722	3,143			1,240		565		
1921	1,675	620	2,295			853		461		
1922	1,989	607	2,596			906		522		
1923	1,779	537	2,316			642		697		
1924	1,704	439	2,143			605		592		
1925	1,680	414	2,094			434		627		
1926	1,722	382	2,104			522		460		

APPENDIX I - WELLS DRILLED IN OHIO 1888 - 2015										
YEAR	PRODUC-TIVE	DRY	TOTAL	BEREA	OHIO SHALE	CLINTON	UTICA/ POINT PLEASANT	TRENTON	ROSE RUN	CAMBRIAN
1927	1,286	337	1,623					262		
1928	1,305	395	1,700					204		
1929	1,936	634	2,570					191		
1930	1,562	572	2,134					205		
1931	789	287	1,076					148		
1932	546	224	770					124		
1933	496	183	679					123		
1934	883	276	1,159					103		
1935	544	192	736					94		
1936	754	246	1,000					81		
1937	813	432	1,245							
1938	622	288	910							
1939	713	319	1,032							
1940	818	410	1,228							
1941	1,034	527	1,561							
1942	652	356	1,008							
1943	625	391	1,016							
1944	647	393	1,040							
1945	649	385	1,034							
1946	885	408	1,293							
1947	899	484	1,383							
1948	921	534	1,455							
1949	626	426	1,052							
1950 (2)	666	476	1,142	436	8	418		25		3
1951	626	435	1,061	394	10	406		18		6
1952	670	470	1,140	368	15	459		47		2
1953 (e)	711	386	1,097	359	21	402		30		6
1954	788	407	1,195	441	13	395		25		2
1955	898	336	1,234							
1956	878	367	1,245	364	13	663		32		5
1957	773	268	1,041	260	12	579		21		2
1958	852	316	1,168	303	13	650		19		5
1959	843	315	1,158	300	11	672		20		13
1960	707	309	1,016	218	5	597		7		20
1961	809	295	1,104	257	10	619		4		42
1962	820	326	1,146	358	2	542		10		72
1963 (f)	748	407	1,155	266	2	443		14	4	302
1964	1,075	1,579	2,654	197	2	499		34	9	1,800
1965 (g)	904	801	1,705	195	2	635		53	16	729
1966	872	399	1,271	227	4	692		18	8	261
1967	953	258	1,211	170	17	853		18	4	132

APPENDIX I - WELLS DRILLED IN OHIO 1888 - 2015										
YEAR	PRODUC-TIVE	DRY	TOTAL	BEREA	OHIO SHALE	CLINTON	UTICA/ POINT PLEASANT	TRENTON	ROSE RUN	CAMBRIAN
1968	988	229	1,217	136	66	832		21	6	81
1969	926	183	1,109	104	17	863		13	10	56
1970	1,165	190	1,355	84	15	1,146		5	6	42
1971	1,065	173	1,238	98	11	1,038		5	5	37
1972	1,125	168	1,293	112	21	1,082		3	10	32
1973	1,337	166	1,503	76	31	1,345		5	5	26
1974	1,601	167	1,768	91	13	1,587		3	8	31
1975	1,105	115	1,220	62	6	1,103		5	17	22
1976	1,774	164	1,938	165	30	1,631		38	18	16
1977	2,455	171	2,626	390	34	2,083		33	11	15
1978 (h)	3,132	283	3,415	430	22	2,834		22	27	12
1979	3,480	179	3,659	542	131	2,848		22	29	23
1980	4,935	165	5,100	867	78	3,734		1	24	31
1981	5,685	400	6,085	733	543	4,366			16	50
1982	4,488	342	4,830	756	458	3,426			11	4
1983	4,000	299	4,299	557	533	3,203		1	7	51
1984	4,593	370	4,963	612	329	3,827			9	65
1985	3,546	214	3,760	345	315	3,042			19	94
1986	1,725	125	1,850	185	76	1,482			28	62
1987	1,721	161	1,882	153	40	1,454			70	55
1988	1,267	156	1,423	112	43	1,037			94	62
1989	1,153	159	1,312	69	145	890			92	77
1990	1,147	180	1,327	61	97	863			143	102
1991	1,001	170	1,171	89	89	794			116	108
1992	710	165	875	100	51	465			139	87
1993	643	180	823	60	35	330		2	260	89
1994	601	182	783	26	13	301		9	269	75
1995	507	163	670	25	11	253		2	202	94
1996	559	166	725	35	42	253		1	219	90
1997	620	178	798	33	20	277		0	223	110
1998	383	135	518	66	16	154		0	161	61
1999	407	95	502	32	65	177		5	106	55
2000	455	112	567	18	14	281		3	124	77
2001	599	100	699	36	29	396		1	113	58
2002	432	72	504	8	48	265		0	88	47
2003	455	65	520	30	60	258		2	82	40
2004 (i)	534	55	589	32	97	319		1	66	24
2005	658	69	727	48	116	409		7	45	50
2006	915	45	960	90	134	636		8	18	23
2007	1,022	46	1,068	90	157	672		7	35	32
2008	1,028	61	1,089	124	155	662		1	21	38

APPENDIX I - WELLS DRILLED IN OHIO 1888 - 2015										
YEAR	PRODUC-TIVE	DRY	TOTAL	BEREA	OHIO SHALE	CLINTON	UTICA/ POINT PLEASANT	TRENTON	ROSE RUN	CAMBRIAN
2009	517	46	563	43	97	320		2	30	25
2010 (j)	382	45	427	47	40	228		5	18	42
2011 (k)	443	26	469	52	51	222	25	2	26	47
2012 (l)	522	38	560	40	76	169	198	8	14	40
2013	622	20	642	39	35	111	390	4	12	26
2014	713	17	730	27	18	92	535	4	10	33
2015	440	18	458	13	2	30	369	9	14	17
TOTAL (m)	223,944	42,689	266,633	13,058	4,685	80,989	1,517	71,147	3,117	5,876

REFERENCES

- Years 1888-1950: Alkire, Robert L., 1951, Oil and Gas Production, History, Regulation, Secondary Recovery and Bibliography, 8, part 2 of Ohio Division of Geological Survey Report of Investigations: 45-46 pp.
- Years 1950-2015: Statistics from Annual Oil & Gas Statistical Reports published by Ohio Divisions of Oil & Gas Resources Management and Geological Survey. Numbers were not available for blank formation fields.

HISTORICAL FOOTNOTES

- Ohio lays claim to the first discovery of oil from a drilled well. In 1814, saltwater well drillers struck oil in Olive Township of Noble County at 475 feet.
- Ohio's first commercial oil and gas well was put into production in 1860 at Macksburg in Washington County.
- Alkire notes that the statistics for years 1894-1904 were incomplete and estimated that the total number of wells not accounted for during those years is approximately 12,000.
- Ohio was the nation's leading oil producer in 1896.
- Widespread acceptance of the hydraulic fracture method for increasing production in 1953.
- Morrow County Oil Boom in 1963.
- Creation of Ohio Division of Oil and Gas in 1965.
- Natural Gas Policy Act tax credit in 1978.
- Urbanized Drilling Law (HB 278) went into effect September 16, 2004.
- Senate Bill 165 went into effect June 30, 2010.
- The first horizontal Utica/Point Pleasant shale was drilled and put into production.
- Senate Bill 315 went into effect September 10, 2012.
- Total number of wells may actually be 278,633 (see footnote c).

HORIZONTAL SHALE PRODUCTION BY COUNTY

Quarterly production reports for all horizontal wells drilled and completed in the Marcellus and Utica/Point Pleasant formation(s) have been combined into an annual report. The combined report and quarterly shale reports and can be found at: <http://oilandgas.ohiodnr.gov/production>.

The number of wells in production increased from 877 in the first quarter to 1,230 in the 4th quarter. Each quarter had production reports submitted on wells that were shut in and had not produced yet. Oil production increased from 4,753,256 barrels for the first quarter to 6,391,543 barrels for the fourth quarter. Natural gas production increased from 183,892,642 mcf for the first quarter to 302,527,538 mcf for the fourth quarter. Gas reporting totals include Natural Gas Liquids (NGL) as Ohio law does not require the separate reporting of them. Total horizontal shale production for 2015 was 23,129,760 barrels of oil and 956,161,655 mcf of natural gas.

Seventeen counties submitted production reports for 2015. The totals by county are listed in Appendix II. The top 3 counties for oil production were: Guernsey, Harrison and Carroll. The top 3 counties for gas production were: Belmont, Carroll, and Harrison.

It is very unlikely that the wells are being produced at anything near full capacity. Wells produced at high initial rates have the potential of being permanently damaged. Additionally, some wells that were previously reported as productive have been shut-in temporarily as a safety precaution due to simultaneous operations occurring on the well pad.

Source: ODNR, Division of Oil and Gas

APPENDIX II - 2015 HORIZONTAL SHALE PRODUCTION BY COUNTY				
COUNTY	NUMBER OF WELLS	OIL TOTAL (bbls.)	GAS TOTAL (mcf)	BRINE TOTAL (bbls.)
BELMONT	138	257,129	270,251,876	2,438,720
CARROLL	415	5,672,227	212,604,404	3,084,911
COLUMBIANA	66	214,412	37,059,569	373,401
COSHOCTON	1	4,712	50,057	5,944
GUERNSEY	107	6,868,741	45,710,765	1,298,430
HARRISON	242	6,864,966	140,168,274	2,575,902
JEFFERSON	24	355	6,748,650	52,125
MAHONING	13	22,378	4,228,336	120,712
MONROE	130	206,772	136,844,777	2,062,131
MORGAN	2	48,435	403,403	22,604
MUSKINGUM	1	2,721	67,025	3,119
NOBLE	111	2,863,215	99,012,257	1,567,505
PORTAGE	4	304	43,185	338
STARK	2	5,473	153,582	1,879
TRUMBULL	7	10,395	624,754	12,504
TUSCARAWAS	7	60,117	346,969	9,919
WASHINGTON	11	27,408	1,843,772	87,477
TOTALS	1,281	23,129,760	956,161,655	13,717,621

Source: ODNR, Division of Oil and Gas

APPENDIX III - COUNTY DRILLING DEPTH RECORDS - 2015									
COUNTY	TOWNSHIP	PERMIT NO.	OPERATOR	WELL NO.	LEASE NAME	COMPLETION DATE	TOTAL DEPTH	FORMATION AT T.D.	WELL CLASS
ADAMS	FRANKLIN	11	OXFORD OIL CO.	1	J. RUSSELL & M. TENER	07/07/79	3,886	GRANITE WASH	FWC
ALLEN	SPENCER	64	ALCO OIL CO.	2	POHLMAN, FRUEND, ETZ HORN	12/31/65	3,266	GRANITE	FWC
ASHLAND	LAKE	1762	ROY STEWART	1	KENNETH & REX MASHER	02/04/60	5,485	TREMPEALEAU	DPWC
ASHTABULA	NEW LYME	2272	POI ENERGY	1	LAUTANEN	09/01/85	7,124	GRANITE	DPWC
ATHENS	DOVER	3062	QUAKER STATE	2	MILLFIELD COAL & MINING	07/17/84	6,525	ROSE RUN	FWC
AUGLAIZE	ST. MARYS	71	WEST OHIO OIL & GAS	1	D. & B. HOELSCHER	12/05/70	3,067	GRANITE	DPWC
BELMONT	PEASE	611	DAVID R. HILL INC.	1	GEORGETOWN MARINE	12/06/10	13,727	GRANITE	DPWC
BROWN	STERLING	6	SPENCER PETROLEUM CORP.	1	GRIFFITH	03/13/93	3,350	GRANITE	FWC
BUTLER	LEMON	4	ARMCO STEEL CORP.	1	ARMCO STEEL CORP.	03/12/67	3,296	"MIDDLE RUN"	IWDW
CARROLL	LEE	2059	ANSCHUTZ EXPLOR. CORP.	1	WHITE	09/15/10	9,503	ROSE RUN	DPWC
CHAMPAIGN	WAYNE	20	INDUSTRIAL GAS ASSOC.	1	P. & C. HOFFMAN	06/26/78	3,325	MT. SIMON	FWC
CLARK	MADISON	D 2	T. D. FRIEND	1	MATTISON	06/14/26	4,647	PRE MT. SIMON	FWC
CLERMONT	STONELICK	3	CONTINENTAL OIL CO.	1	C. WIKOFF	07/03/60	3,435	MT. SIMON	FWC
CLINTON	WILSON	10	STOCKER & SITLER INC.	1	COY	01/18/83	3,603	GRANITE	FWC
COLUMBIANA	HANOVER	648	MANAGEMENT CONTROL	3	F. MURRAY	07/28/70	10,242	GRANITE	DPWC
COSHOCTON	CRAWFORD	6397	LAKE REGION OIL INC.	2	LEVI M. TROYER	07/23/92	7,950	MT. SIMON	DPWC
CRAWFORD	VERNON	6	HAYNES O&G ENTERPRISES	1	DON D. CRUM	01/09/63	3,879	EAU CLAIRE	FWC
CUYAHOGA	MAYFIELD	1625	BASS ENERGY CO. INC.	1	MARCONI MEDICAL SYSTEMS	03/07/01	6,550	GRANITE	DPWC
DARKE	GREENVILLE	13 A	UNKNOWN	1	EDWARD BARNES	05/26/06	2,850	CAMBRIAN	FWC
DEFIANCE	MARK	28	S. E. BROWN	1	P. HAVER	10/22/62	3,606	MT. SIMON	FWC
DELAWARE	TRENTON	354	R.C. POLING CO. INC.	1	COCKRELL-GODSHALL UNIT	01/22/91	4,873	GRANITE	DPWC
ERIE	FLORENCE	19	SUN OIL CO.	1	A. HERMAN ETAL.	05/01/67	4,466	GRANITE	SWIW
FAIRFIELD	RUSH CREEK	1136	HOPEWELL O. & G. DEV. CO.	1	R. BIGHAM	06/16/94	5,924	GRANITE	DPWC
FAYETTE	UNION	1	KEWANEE OIL CO.	1	E. HOPKINS	07/12/57	4,708	GRANITE	FWC
FRANKLIN	PLEASANT	7	BARNWELL PRODUCING CO.	1	OAKHURST COUNTRY CLUB	08/08/64	3,753	MT. SIMON	FWC
FULTON	CHESTERFIELD	47	LIBERTY PETR. CORP.	1	CLYDE JOHNSTON	03/21/69	3,793	MT. SIMON	FWC
GALLIA	HARRISON	985	BAKERWELL INC.	1	JARRELL UNIT	03/24/04	7,146	TREMPEALEAU	FWC
GEAUGA	TROY	1534	LOMAK PETROLEUM	1	J. VOYTKO	07/01/88	6,888	TREMPEALEAU	DPWC
GREENE	ROSS	4	TATUM PETR. CO. LLC.	1	KELLY GREENE	08/17/10	3,347	GRANITE	FWC

APPENDIX III - COUNTY DRILLING DEPTH RECORDS - 2015									
COUNTY	TOWNSHIP	PERMIT NO.	OPERATOR	WELL NO.	LEASE NAME	COMPLETION DATE	TOTAL DEPTH	FORMATION AT T.D.	WELL CLASS
GUERNSEY	CENTER	4473	CLEARWATER THREE LLC.	1	BO	06/27/15	9,268	ROME	SWIW
HAMILTON	CROSBY	1	CONTINENTAL OIL CO.	1	WALTER C. BRISBIN	11/01/59	2,730	EAU CLAIRE	FWC
HANCOCK	UNION	139	FRANK M. DEVER	1	C. & M. FRAZIER	06/02/64	3,017	GRANITE	FWC
HARDIN	DUDLEY	79	MCMAHON BULLINGTON	1	WOLF	01/07/64	3,002	KNOX	FWC
HARRISON	GREEN	355	STOCKER & SITLER INC.	1	CHARLENE SCHANEY ETAL.	07/30/79	10,288	TREMPEALEAU	DPWC
HENRY	HARRISON	36	CALLANDER & KIMBREL	1	K. HALL	10/10/73	3,480	GRANITE	DPWC
HIGHLAND	FAIRFIELD	7	OHIO VALLEY OIL & GAS	1	COURTNEY	01/20/72	3,610	GRANITE	FWC
HOCKING	STARR	1222	E. J. DUNIGAN	1	M. & H. HOCKMAN	06/30/66	6,495	MT. SIMON	FWC
HOLMES	SALT CREEK	1283	G.C. & J.A. PARKER	1	DAN D. TROYER	11/12/63	7,369	TREMPEALEAU	FWC
HURON	WAKEMAN	103	APPALACHIAN EXPLOR. INC.	1	WOLF	10/05/81	4,574	GRANITE WASH	FWC
JACKSON	FRANKLIN	76	WORTHINGTON OIL CO.	1	G. & I. WOOD	07/08/64	6,320	GRANITE	FWC
JEFFERSON	WARREN	536	CHESAPEAKE EXPL., LLC	25-5-2	CREAMER	10/10/12	10,320	TRENTON	ST
KNOX	PIKE	1413	DAVID L. CANTWAY	1	E. CUNNINGHAM	08/07/61	5,745	GRANITE	FWC
LAKE	LEROY	1094	GREAT PLAINS EXPL. LTD.	1	VROOMAN	01/24/04	6,355	GRANITE	DPWC
LAWRENCE	SYMMES	174	J. STANLEY GOLDBERG	1	A. PAYNE	04/01/66	7,002	GRANITE	FWC
LICKING	PERRY	4792	RONALD F. MORAN	1	RON MORAN	03/08/84	6,237	GRANITE	SWIW
LOGAN	JEFFERSON	86	WORTHINGTON OIL CO.	1	LENA COMER	05/11/76	3,402	MT. SIMON	FWC
LORAIN	GRAFTON	1370	KENOIL/KEN R. MILLER	1	LAWRENCE PALL	08/24/91	5,018	TREMPEALEAU	DPWC
LUCAS	HARDING	60	LIBERTY PETR. CORP.	1	KETRING UNIT	08/24/72	3,915	GRANITE	FWC
MADISON	FAIRFIELD	3	AMERADA PETR. CORP.	1	J. HUME	11/01/65	3,631	GRANITE	FWC
MAHONING	BEAVER	3158	D & L ENERGY, INC.	4	NORTHSTAR LUCKY	10/21/11	10,088	GRANITE	SWIW
MARION	CLARIDON	8	UNITED PRODUCING	1	H. & M. MITCHELL	03/14/62	3,672	GRANITE	FWC
MEDINA	HINCKLEY	1143	WISER OIL CO.	1 A	F. L. SMITH	01/03/59	7,040	GRANITE	FWC
MEIGS	LEBANON	3651	MURPHY OIL CO.	3	M. MCKELVEY	02/10/09	9,082	TREMPEALEAU	DPWC
MERCER	CENTER	141	HARNER UNION OIL CO.	2	M. & M. YEWY	02/09/71	3,215	GRANITE	DPWC
MIAMI	LOST CREEK	3	NATIONAL ASSOC. PETR.	1	E. WALKER	10/30/58	3,513	GRANITE	FWC
MONROE	OHIO	4305	PROTÉGÉ ENERGY II, LLC	1	DANGEL	01/18/12	10,980	TRENTON	ST
MONTGOMERY	MAD RIVER	D 2	DAYTON	M	DAYTON	01/1887	2,440	UNKNOWN	UNKN.
MORGAN	CENTER	4533	ARTEX OIL COMPANY	1	BICKFORD UNIT	08/20/05	8,222	ROSE RUN	DPWC
MORROW	PERRY	3737	STAR EXPL. CORP.	1	R. & W. BREWER	12/19/86	5,000	GRANITE	DPWC

APPENDIX III - COUNTY DRILLING DEPTH RECORDS - 2015

COUNTY	TOWNSHIP	PERMIT NO.	OPERATOR	WELL NO.	LEASE NAME	COMPLETION DATE	TOTAL DEPTH	FORMATION AT T.D.	WELL CLASS
MUSKINGUM	UNION	8776	1960 WELL SERVICES, LLC.	1	GOFF SWD	05/14/13	8,014	MT. SIMON	SWIW
NOBLE	ELK	1278	AMERADA PETR. CORP.	1	R. ULLMAN	02/01/67	11,442	GRANITE	DPWC
OTTAWA	CARROLL	50	FRED E. FITZGERALD	1	RAYMOND ARNDT	08/07/68	2,287	ST. PETER	FWC
PAULDING	JACKSON	13	MT. PLEASANT MINES LTD.	1	H. & E. AREND	10/30/76	3,440	GRANITE	FWC
PERRY	JACKSON	6595	R.C. POLING CO. INC.	1	RUSH CREEK PARTNERS, ETAL.	04/20/85	6,395	GRANITE	SWIW
PICKAWAY	PICKAWAY	24	RAMCO OIL & GAS CORP.	1	M. KERNS	01/17/85	4,500	GRANITE	FWC
PIKE	BEAVER	1	FRANK D. STAHLER	1	R. BAPST	06/14/50	4,227	ST. PETER?	FWC
PORTAGE	DEERFIELD	2860	VIKING RESOURCES CORP.	1	VIKING RESOURCES CORP.	05/24/82	8,800	GRANITE WASH	DPWC
PREBLE	WASHINGTON	D 3	DOC TOLLIVER	3	A. H. CHRISTMAN	06/01/29	1,750	ST. PETER	FWC
PUTNAM	LIBERTY	31	OHIO OIL CO.	1	L. BARLAGE	03/21/44	3,377	GRANITE	FWC
RICHLAND	WASHINGTON	431	TRI STATE PRODUCING CO.	2	C. & K. SCOTT	09/05/66	5,503	GRANITE	DPWC
ROSS	GREEN	8	WELL SUPERVISION INC.	1	M. IMMELL	08/24/64	4,168	MT. SIMON	FWC
SANDUSKY	TOWNSEND	77	EAST OHIO GAS CO.	2	V. & I. HAFF	11/17/60	3,128	GRANITE	FWC
SCIOTO	GREEN	212	USS CHEMICALS/ US STEEL	1	USS CHEMICALS/ US STEEL	07/05/68	5,617	GRANITE	IWDW
SENECA	ADAMS	128	ASHLAND OIL	1	W. STIGAMIRE	01/24/65	3,175	MT. SIMON	FWC
SHELBY	SALEM	13	GUMP OIL CO.	1	J. & B. FOGY	11/10/56	3,360	GRANITE	FWC
STARK	PARIS	5052	VIKING RESOURCES CORP.	1	HANNA UNIT	09/02/97	8,292	ROSE RUN	POOL
SUMMIT	TWINSBURG	1591	K.S.T. OIL & GAS CO.	5	K.S.T. OIL & GAS CO.	07/18/84	7,225	GRANITE WASH	SWIW
TRUMBULL	LIBERTY	4043	D & L ENERGY, INC.	2	NORTHSTAR UNITED	08/21/11	9,038	GRANITE	SWIW
TUSCARAWAS	OXFORD	5465	RED HILL DEVELOPMENT	1	GENERAL CLAY	01/23/11	8,720	GRANITE	DPWC
UNION	DOVER	69	FUNK EXPLORATION	1	YODER	08/15/84	3,500	GRANITE	FWC
VAN WERT	JENNINGS	44	WEST OHIO GAS CO.	5	A. & M. MILLER	01/05/73	3,242	GRANITE	DPWC
VINTON	VINTON	924	COLUMBIA NAT. RES. INC.	723984	MORRIS	03/25/00	5,700	TREMPEALEAU	FWC
WARREN	WAYNE	C 2627	OHIO GEOLOGICAL SURVEY	DS 2	AMERICAN AGGREGATES CORP.	04/26/89	5,380	"MIDDLE RUN"	CORE
WASHINGTON	GRANDVIEW	9717	FLAT ROCK DEV. LLC	19	COLLINS	10/17/12	10,220	TRENTON	ST
WAYNE	CHIPPEWA	71	EAST OHIO GAS CO.	2	N. STEINER	08/12/61	6,919	GRANITE	DPWC
WILLIAMS	BRIDGEWATER	46	COLUMBIA GAS TRANS.	11061	COOK	12/31/71	4,497	GRANITE WASH	FWC
WOOD	LIBERTY	D 6	J. S. BRAILEY	1	S. KILLIAN	08/25/37	2,927	GRANITE	DPWC
WYANDOT	JACKSO	D 8	DIBBLE & MILLER	1	P. PARSELL	03/07/47	5,632	GRANITE	FWC

**ODNR DIVISION OF OIL AND GAS RESOURCES MANAGEMENT
2015**

**GOVERNOR JOHN R. KASICH
DIRECTOR JAMES ZEHRINGER**

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