



# THE THREAT OF OIL & GAS POLLUTION

## West Virginia

Methane, the primary component of gas, is an invisible, odorless greenhouse gas that is a powerful driver of climate change — 87 times as powerful as carbon dioxide during the time it remains in the atmosphere.<sup>1</sup> The oil and gas sector is the largest source of methane in the U.S., leaking or intentionally venting large quantities of this dangerous pollutant into our air every day. In 2014, the oil and gas industry emitted over 9.8 million metric tons of methane, a number 34% higher than previous estimates.<sup>2</sup> The near-term climate impact of these emissions is equal to the pollution caused by more than 200 coal-fired power plants over 20 years.

Along with methane, oil and gas facilities often release other air pollutants that can harm our health, including formaldehyde, benzene, acetaldehyde, and ethyl benzene. These toxins can cause cancer, respiratory symptoms, anemia, brain damage and birth defects, eye irritation, and blood and neurological disorders.

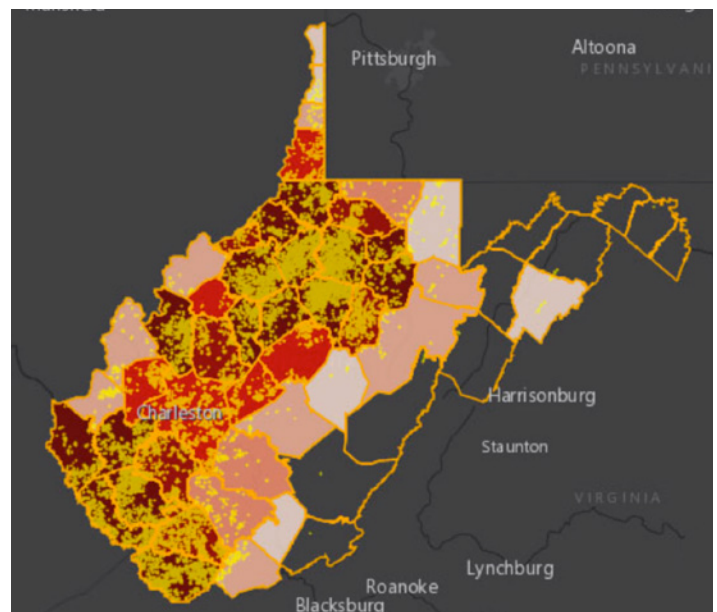
### THE THREAT RADIUS

Peer-reviewed studies have documented higher levels of harmful air pollutants in and around areas with oil and gas production activity, and have shown that oil and gas facilities are the source of the excess pollution. Research indicates links between risks and/or prevalence of disease and proximity to facilities.<sup>3</sup> The half mile “threat radius” is a very conservative estimate of the area within which higher levels of toxic pollution are seen, and the distance within which health impacts have most clearly been correlated with the presence of oil and gas facilities.<sup>4</sup>

There are currently 12.4 million people living within a half mile of one of 1,193,118 active oil and gas wells, compressors, and processors in the United States. In total, 184,578 square miles are covered by the threat radius<sup>5</sup>, which includes 11,543 schools and 639 medical facilities. Nationwide, 238 counties in 21 states face a cancer risk that exceeds EPA’s one-in-a-million threshold level of concern, **including 28 counties in West Virginia.**<sup>6</sup>

### OIL & GAS THREATENS WEST VIRGINIANS

Approximately 14% of West Virginia’s population lives within a half mile threat radius of a methane-emitting facility. More than half of West Virginia’s counties exceed EPA’s cancer risk level of concern, and nearly half of those counties also have either an EPA respiratory hazard level of concern or a respiratory hazard in the top 2%. The counties that exceed EPA’s cancer risk and respiratory hazard risk level of concern are: Calhoun, Doddridge,



MAP: [OILANDGASTHREATMAP.COM/THREAT-MAP/WEST-VIRGINIA](http://OILANDGASTHREATMAP.COM/THREAT-MAP/WEST-VIRGINIA)

Gilmer, Lewis, Mingo, and Ritchie. The counties that exceed EPA's cancer risk level of concern and have a county respiratory health risk in the top 2% are: Harrison, Jackson, Lincoln, Logan, McDowell, Pleasants, and Wayne. In addition to the 28 counties that exceed the cancer risk level of concern, 3 counties, Fayette, Monongalia, and Raleigh, have a county cancer risk in the highest 10%.

The Appalachian Basin, covering nearly all of West Virginia and sections of other neighboring states was the fifth highest methane-emitting oil- and gas-producing basin in 2014, emitting 3,455,036 metric tons of carbon dioxide equivalent from 76,800 wells.<sup>7</sup>

## THE NUMBERS<sup>8</sup>

<b>TOTAL POPULATION</b> Living in the Threat Radius (within a half mile of a facility)	262,000
<b>TOTAL NUMBER</b> of Active Oil and Gas Wells, Compressors, and Processors	16,116
<b>NUMBER OF COUNTIES</b> that Exceed EPA's Cancer Risk Level of Concern	28
<b>NUMBER OF SCHOOLS</b> in the Threat Radius	890
<b>NUMBER OF MEDICAL FACILITIES</b> in the Threat Radius	16
<b>SQUARE MILES COVERED</b> by the Threat Radius	4,674

## STRONG FEDERAL STANDARDS ARE KEY

On May 12, 2016, the Environmental Protection Agency (EPA) finalized the first-ever federal standards addressing new and modified sources of methane pollution from

the oil and gas sector. These standards require, among other things, that companies regularly monitor for and repair leaks.<sup>9</sup> The EPA expects this rule to cut 510,000 tons of methane pollution from oil and gas facilities and equipment, the emissions equivalent of 11 coal-fired power plants or taking 8.5 million cars off the road every year.<sup>10</sup> These standards will also significantly impact public health by curbing emissions of smog-forming volatile organic compounds (VOCs) and toxic air pollutants.

The 2016 standards were an important first step, but in 2018, nearly 90% of methane emissions will come from existing sources not covered by this rule.<sup>11</sup> Strong methane standards for both new *and existing* sources are key to the Administration's ability to meet its Paris climate commitments to reduce greenhouse gas emissions 26-28% below 2005 levels by 2025.<sup>12</sup> Therefore, the EPA must develop strong and effective standards for existing sources as soon as possible, both to meet its legal commitments and to protect public health and welfare. **Without strong standards on existing sources, millions of people – including the 262,000 in West Virginia within the threat radius – will continue to be at risk.**

## COMMON-SENSE SOLUTIONS ARE READILY AVAILABLE

Thankfully, common-sense solutions exist not only to clean-up and fix methane leaks, but to boost local economies as well. More than 500 locations in 46 states are already manufacturing the equipment and providing the services needed to reduce methane pollution. These businesses are helping to grow the local economy by creating highly skilled, good-paying jobs.<sup>13</sup>

## ENDNOTES

- [http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5\\_Chapter08\\_FINAL.pdf](http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf)
- <https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Main-Text.pdf>
- <http://ehp.niehs.nih.gov/1306722/>
- <http://oilandgasthreatmap.com/about/threat/>
- <http://oilandgasthreatmap.com/threat-map/>
- <http://oilandgasthreatmap.com/threat-map/west-virginia/>
- <https://cdn.americanprogress.org/wp-content/uploads/2016/06/20070044/MethanePollution-report.pdf>
- <http://oilandgasthreatmap.com/threat-map/west-virginia/>

- <https://www.epa.gov/newsreleases/epa-releases-first-ever-standards-cut-methane-emissions-oil-and-gas-sector>
- <https://www.epa.gov/newsreleases/epa-releases-first-ever-standards-cut-methane-emissions-oil-and-gas-sector>
- [https://www.edf.org/sites/default/files/methane\\_cost\\_curve\\_report.pdf](https://www.edf.org/sites/default/files/methane_cost_curve_report.pdf)
- <https://www.whitehouse.gov/the-press-office/2015/03/31/fact-sheet-us-reports-its-2025-emissions-target-unfccc>
- [https://www.edf.org/sites/default/files/us\\_methane\\_mitigation\\_industry\\_report.pdf](https://www.edf.org/sites/default/files/us_methane_mitigation_industry_report.pdf)

**APPENDIX**

<b>WV Counties</b>	<b>Total Population</b>	<b>Threatened Population</b>	<b>Number of Facilities</b>	<b>Threatened Schools</b>	<b>Threatened Medical Facilities</b>	<b>Threatened Square Miles</b>	<b>Other Risks</b>
Harrison County	69,099	38,378	1,213	86	2	271.86	Exceeds EPA level of concern for cancer risk* AND county respiratory health risk in top 2%
Kanawha County	193,063	30,590	909	48	2	324.74	Exceeds EPA level of concern for cancer risk*
Logan County	36,743	22,877	819	33	1	232.64	Exceeds EPA level of concern for cancer risk* AND county respiratory health risk in top 2%
Mingo County	26,839	14,701	704	33	1	212.12	Exceeds EPA level of concern for cancer risk* AND exceeds EPA level of concern for respiratory hazard risk**
Wyoming County	23,796	13,215	846	13	0	294.02	Exceeds EPA level of concern for cancer risk*
Lewis County	16,372	12,752	1,289	58	4	234.88	Exceeds EPA level of concern for cancer risk* AND exceeds EPA level of concern for respiratory hazard risk**
McDowell County	22,113	12,532	1,091	38	1	304.75	Exceeds EPA level of concern for cancer risk* AND county respiratory health risk in top 2%
Upshur County	24,254	11,685	569	45	0	176.40	Exceeds EPA level of concern for cancer risk*
Jackson County	29,211	10,650	452	37	1	166.20	Exceeds EPA level of concern for cancer risk* AND county respiratory health risk in top 2%
Raleigh County	78,859	8,018	186	15	0	80.55	County cancer risk in highest 10%
Boone County	24,629	7,676	488	16	0	180.99	Exceeds EPA level of concern for cancer risk*
Lincoln County	21,720	7,258	418	32	0	161.35	Exceeds EPA level of concern for cancer risk* AND county respiratory health risk in top 2%
Doddridge County	8,202	6,289	1,209	59	0	227.68	Exceeds EPA level of concern for cancer risk* AND exceeds EPA level of concern for respiratory hazard risk**
Marion County	56,418	5,986	475	17	0	74.42	Exceeds EPA level of concern for cancer risk*
Ritchie County	10,449	4,564	1,002	47	0	243.71	Exceeds EPA level of concern for cancer risk* AND exceeds EPA level of concern for respiratory hazard risk**
Putnam County	55,486	4,433	181	11	0	82.51	Exceeds EPA level of concern for cancer risk*
Monongalia County	96,189	4,020	62	7	0	31.56	County cancer risk in highest 10%
Calhoun County	7,627	3,731	311	21	2	113.16	Exceeds EPA level of concern for cancer risk* AND exceeds EPA level of concern for respiratory hazard risk**
Cabell County	96,319	3,581	88	1	0	30.33	
Barbour County	16,589	3,266	325	28	1	92.34	Exceeds EPA level of concern for cancer risk*
Pleasants County	7,605	3,190	118	20	0	42.54	Exceeds EPA level of concern for cancer risk* AND county respiratory risk in top 2%
Roane County	14,926	2,931	346	22	0	131.40	Exceeds EPA level of concern for cancer risk*

**APPENDIX, CONT.**

WV Counties	Total Population	Threatened Population	Number of Facilities	Threatened Schools	Threatened Medical Facilities	Threatened Square Miles	Other Risks
Taylor County	16,895	2,866	158	19	0	48.12	Exceeds EPA level of concern for cancer risk*
Fayette County	46,039	2,715	70	6	0	39.16	County cancer risk in highest 10%
Wayne County	42,481	2,430	204	9	0	91.74	Exceeds EPA level of concern for cancer risk* AND county respiratory health risk in top 2%
Marshall County	33,107	2,406	317	35	0	75.92	Exceeds EPA level of concern for cancer risk*
Wetzel County	16,583	2,284	541	27	0	119.33	Exceeds EPA level of concern for cancer risk*
Ohio County	44,443	1,952	58	3	0	18.82	
Tyler County	9,208	1,891	261	20	0	69.64	Exceeds EPA level of concern for cancer risk*
Braxton County	14,523	1,865	291	7	0	71.84	Exceeds EPA level of concern for cancer risk*
Clay County	9,386	1,814	224	4	0	79.67	Exceeds EPA level of concern for cancer risk*
Brooke County	24,069	1,772	36	4	0	15.82	
Gilmer County	8,693	1,745	356	27	0	118.68	Exceeds EPA level of concern for cancer risk* AND exceeds EPA level of concern for respiratory hazard risk**
Mercer County	62,264	1,608	153	8	0	54.33	
Mason County	27,324	1,330	49	2	0	28.47	
Preston County	33,520	1,105	123	10	0	39.42	
Tucker County	7,141	733	13	6	1	7.65	
Nicholas County	26,233	425	33	2	0	16.80	
Wood County	86,956	311	27	4	0	10.75	
Wirt County	5,717	270	32	7	0	15.44	Exceeds EPA level of concern for cancer risk*
Randolph County	29,405	129	35	1	0	21.08	
Berkeley County	104,169	92	1	0	0	0.78	
Hardy County	14,025	55	8	2	0	5.50	
Hancock County	30,676	54	3	0	0	1.31	
Hampshire County	23,964	37	4	0	0	2.41	
Mineral County	28,212	32	1	0	0	0.79	
Webster County	9,154	15	6	0	0	3.47	
Monroe County	13,502	6	1	0	0	0.79	
Grant County	11,937	0	0	0	0	0	
Greenbrier County	35,480	0	1	0	0	0.79	
Jefferson County	53,498	0	0	0	0	0	
Morgan County	17,541	0	0	0	0	0	
Pendleton County	7,695	0	2	0	0	1.53	
Pocahontas County	8,719	0	7	0	0	4.05	
Summers County	13,927	0	0	0	0	0	

\*County-wide average cancer risk is equal to or greater than 1 in 1 million.

\*\*County-wide average respiratory hazard index is equal to or greater than 1.