



THE THREAT OF OIL & GAS POLLUTION

Kansas

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.¹ 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.² 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

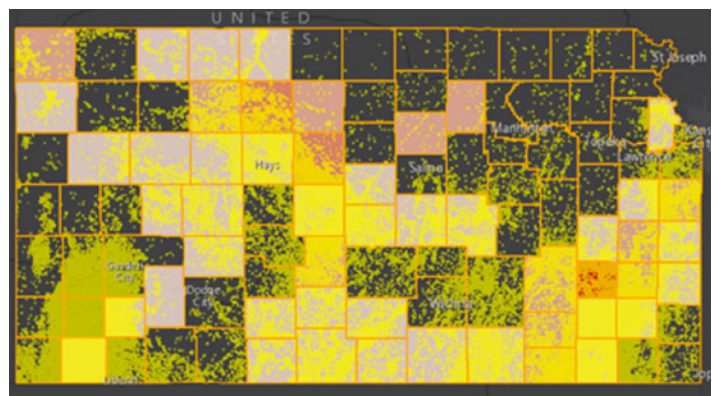
Peer-reviewed studies have documented higher levels of harmful air pollutants in and around areas with oil and gas production activity, and have shown that oil and gas facilities are the source of the excess pollution. Research indicates links between risks and/or prevalence of disease and proximity to facilities.³ 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.⁴

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 radius⁵, 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 Woodson County in Kansas.**⁶

OIL & GAS THREATENS KANSANS

One million people — approximately 38% of Kansas’s population — live within a half mile threat radius of an oil or gas facility. Kansas has the second most threatened schools and medical facilities per state as well as the second most threatened square miles of land, second only to Texas.



MAP: OILANDGASTHREATMAP.COM/THREAT-MAP/KANSAS

In addition to Woodson County exceeding EPA's cancer risk level of concern, two counties, Rooks and Russell, have a county cancer risk in the highest 10%.

The Anadarko Basin, which covers Kansas and several other states, was the highest methane-emitting oil- and gas-producing basin in the country in 2014, emitting 5,855,333 metric tons of carbon dioxide equivalent from 43,536 wells — a rate of 128 metric tons per well.⁷

THE NUMBERS⁸

| | |
|--|---------------------|
| TOTAL POPULATION Living in the Threat Radius (within a half mile of a facility) | 1 million |
| TOTAL NUMBER of Active Oil and Gas Wells, Compressors, and Processors | 90,539 |
| NUMBER OF COUNTIES that Exceed EPA's Cancer Risk Level of Concern | 1 Woodson County |
| NUMBER OF SCHOOLS in the Threat Radius | 2,006 |
| NUMBER OF MEDICAL FACILITIES in the Threat Radius | 89 |
| SQUARE MILES COVERED by the Threat Radius | 29,753 |

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.⁹ 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.¹⁰ 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.¹¹ 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 2025.¹² 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 1 million in Kansas 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, **including three service facilities in Kansas.** These businesses are helping to grow the local economy by creating highly skilled, good-paying jobs.¹³

ENDNOTES

- 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/kansas/>
- <https://cdn.americanprogress.org/wp-content/uploads/2016/06/20070044/MethanePollution-report.pdf>
- <http://oilandgasthreatmap.com/threat-map/kansas/>

- <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.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

APPENDIX

| KS Counties | Total Population | Threatened Population | Number of Facilities | Threatened Schools | Threatened Medical Facilities | Threatened Square Miles | Other Risks |
|---------------------|-------------------------|------------------------------|-----------------------------|---------------------------|--------------------------------------|--------------------------------|--------------------|
| Johnson County | 544,179 | 207,219 | 1,253 | 130 | 18 | 265.50 | |
| Sedgwick County | 498,365 | 259,355 | 375 | 183 | 9 | 384.24 | |
| Shawnee County | 177,934 | 20,566 | 3 | 18 | 1 | 47.00 | |
| Wyandotte County | 157,505 | 43,358 | 8 | 69 | 3 | 54.82 | |
| Douglas County | 110,826 | 24,973 | 570 | 52 | 0 | 132.31 | |
| Leavenworth County | 76,227 | 21,803 | 372 | 39 | 0 | 191.84 | |
| Riley County | 71,115 | 1,550 | 31 | 1 | 0 | 36.67 | |
| Butler County | 65,880 | 35,093 | 1,762 | 54 | 4 | 773.17 | |
| Reno County | 64,511 | 42,368 | 748 | 50 | 3 | 435.54 | |
| Saline County | 55,606 | 12,391 | 154 | 10 | 0 | 110.90 | |
| Crawford County | 39,134 | 17,422 | 805 | 59 | 1 | 252.08 | |
| Finney County | 36,776 | 21,790 | 1,914 | 19 | 0 | 689.67 | |
| Cowley County | 36,311 | 22,515 | 1,420 | 89 | 4 | 746.30 | |
| Montgomery County | 35,471 | 29,023 | 3,424 | 98 | 1 | 619.34 | |
| Harvey County | 34,684 | 6,002 | 206 | 14 | 0 | 189.33 | |
| Geary County | 34,362 | 2,143 | 14 | 5 | 0 | 35.68 | |
| Ford County | 33,848 | 949 | 217 | 0 | 0 | 163.70 | |
| Lyon County | 33,690 | 2,876 | 125 | 1 | 0 | 208.99 | |
| Miami County | 32,787 | 26,780 | 3,306 | 57 | 1 | 424.31 | |
| McPherson County | 29,180 | 10,938 | 1,073 | 38 | 2 | 378.38 | |
| Ellis County | 28,452 | 16,334 | 3,051 | 35 | 1 | 685.07 | |
| Barton County | 27,674 | 20,635 | 2,622 | 42 | 2 | 784.01 | |
| Franklin County | 25,992 | 11,756 | 2,711 | 19 | 1 | 250.15 | |
| Sumner County | 24,132 | 7,264 | 719 | 21 | 1 | 424.82 | |
| Seward County | 22,952 | 11,102 | 1,311 | 9 | 1 | 508.82 | |
| Labette County | 21,607 | 14,050 | 871 | 93 | 3 | 511.26 | |
| Pottawatomie County | 21,604 | 3,722 | 6 | 7 | 0 | 44.45 | |
| Cherokee County | 21,603 | 7,291 | 26 | 33 | 1 | 166.24 | |
| Dickinson County | 19,754 | 712 | 52 | 0 | 0 | 130.66 | |
| Jefferson County | 19,126 | 2,520 | 133 | 6 | 1 | 82.62 | |
| Atchison County | 16,924 | 1,326 | 3 | 6 | 0 | 24.22 | |
| Neosho County | 16,512 | 15,849 | 2,365 | 92 | 1 | 505.23 | |
| Osage County | 16,295 | 1,267 | 16 | 4 | 0 | 53.65 | |
| Bourbon County | 15,173 | 6,921 | 1,127 | 49 | 0 | 323.53 | |
| Jackson County | 13,462 | 2,324 | 10 | 8 | 0 | 25.13 | |
| Allen County | 13,371 | 12,737 | 3,297 | 74 | 1 | 414.90 | |
| Marion County | 12,660 | 4,246 | 691 | 58 | 0 | 514.16 | |
| Nemaha County | 10,178 | 1,030 | 26 | 4 | 1 | 48.74 | |
| Marshall County | 10,117 | 1,303 | 1 | 4 | 0 | 28.78 | |
| Rice County | 10,083 | 6,598 | 1,756 | 16 | 1 | 524.85 | |
| Brown County | 9,984 | 123 | 13 | 0 | 0 | 21.92 | |
| Linn County | 9,656 | 6,810 | 1,355 | 13 | 0 | 328.41 | |
| Pratt County | 9,656 | 7,028 | 790 | 13 | 1 | 363.94 | |
| Cloud County | 9,533 | 315 | 9 | 3 | 0 | 47.30 | |
| Wilson County | 9,409 | 9,248 | 3,000 | 70 | 2 | 553.78 | |
| Coffey County | 8,601 | 2,303 | 1,746 | 7 | 0 | 272.79 | |
| Clay County | 8,535 | 130 | 18 | 0 | 0 | 30.06 | |
| Anderson County | 8,102 | 4,153 | 2,562 | 9 | 1 | 269.08 | |

APPENDIX, CONT.

| KS Counties | Total Population | Threatened Population | Number of Facilities | Threatened Schools | Threatened Medical Facilities | Threatened Square Miles | Other Risks |
|--------------------|-------------------------|------------------------------|-----------------------------|---------------------------|--------------------------------------|--------------------------------|---|
| Doniphan County | 7,945 | 164 | 1 | 6 | 0 | 16.00 | |
| Thomas County | 7,900 | 2,905 | 199 | 3 | 1 | 98.31 | |
| Kingman County | 7,858 | 2,253 | 1,182 | 33 | 0 | 391.35 | |
| Grant County | 7,829 | 7,801 | 1,926 | 12 | 1 | 566.57 | |
| Wabaunsee County | 7,053 | 850 | 46 | 2 | 0 | 126.41 | |
| Pawnee County | 6,973 | 4,214 | 447 | 6 | 1 | 387.42 | |
| Russell County | 6,970 | 5,713 | 2,418 | 17 | 1 | 475.15 | Cancer risk highest 10% |
| Greenwood County | 6,689 | 4,544 | 1,860 | 18 | 1 | 700.63 | |
| Ellsworth County | 6,497 | 3,837 | 497 | 10 | 0 | 228.01 | |
| Mitchell County | 6,373 | 133 | 2 | 0 | 0 | 37.59 | |
| Ottawa County | 6,091 | 174 | 14 | 0 | 0 | 37.23 | |
| Harper County | 6,034 | 4,140 | 825 | 7 | 2 | 302.92 | |
| Sherman County | 6,010 | 3,272 | 260 | 5 | 1 | 123.45 | |
| Gray County | 6,006 | 218 | 117 | 0 | 0 | 79.23 | |
| Morris County | 5,923 | 2,498 | 180 | 4 | 1 | 196.56 | |
| Washington County | 5,799 | 318 | 8 | 1 | 0 | 28.58 | |
| Stevens County | 5,724 | 5,698 | 2,504 | 9 | 1 | 712.50 | |
| Norton County | 5,671 | 564 | 204 | 2 | 0 | 116.95 | |
| Phillips County | 5,642 | 231 | 393 | 0 | 0 | 136.30 | |
| Rooks County | 5,181 | 2,466 | 1,803 | 8 | 0 | 467.21 | Cancer risk highest 10% |
| Republic County | 4,980 | 40 | 0 | 0 | 0 | 19.04 | |
| Scott County | 4,936 | 2,628 | 364 | 10 | 0 | 163.75 | |
| Barber County | 4,861 | 3,782 | 2,140 | 4 | 2 | 700.53 | |
| Meade County | 4,575 | 1,017 | 481 | 4 | 0 | 318.64 | |
| Stafford County | 4,437 | 2,454 | 1,660 | 6 | 0 | 603.37 | |
| Haskell County | 4,256 | 3,432 | 1,631 | 9 | 1 | 466.47 | |
| Kearny County | 3,977 | 3,857 | 1,926 | 8 | 1 | 703.95 | |
| Osborne County | 3,858 | 197 | 144 | 1 | 0 | 71.39 | |
| Smith County | 3,853 | 705 | 2 | 1 | 0 | 16.55 | |
| Chautauqua County | 3,669 | 2,954 | 2,107 | 2 | 1 | 536.86 | |
| Woodson County | 3,309 | 2,656 | 4,522 | 60 | 0 | 421.24 | Exceeds EPA level of concern for cancer risk* |
| Rush County | 3,307 | 866 | 407 | 4 | 0 | 253.13 | |
| Lincoln County | 3,241 | 113 | 13 | 0 | 0 | 45.24 | |
| Morton County | 3,233 | 1,250 | 1,339 | 5 | 1 | 567.89 | |
| Ness County | 3,107 | 1,559 | 1,453 | 6 | 0 | 540.36 | |
| Jewell County | 3,077 | 235 | 0 | 1 | 0 | 8.37 | |
| Edwards County | 3,037 | 1,385 | 383 | 4 | 0 | 234.11 | |
| Trego County | 3,001 | 1,602 | 812 | 2 | 1 | 370.39 | |
| Decatur County | 2,961 | 835 | 196 | 7 | 1 | 132.09 | |
| Elk County | 2,882 | 1,592 | 451 | 10 | 0 | 374.50 | |
| Chase County | 2,790 | 1,283 | 329 | 2 | 0 | 159.84 | |
| Logan County | 2,756 | 500 | 405 | 3 | 0 | 180.71 | |
| Cheyenne County | 2,726 | 1,021 | 627 | 10 | 1 | 201.87 | |
| Gove County | 2,695 | 142 | 516 | 0 | 0 | 280.23 | |
| Hamilton County | 2,690 | 2,084 | 468 | 2 | 1 | 314.03 | |
| Graham County | 2,597 | 628 | 1,068 | 1 | 0 | 479.87 | |
| Sheridan County | 2,556 | 106 | 166 | 0 | 0 | 117.23 | |

APPENDIX, CONT.

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|--------------------|-------------------------|------------------------------|-----------------------------|---------------------------|--------------------------------------|--------------------------------|--------------------|
| Kiowa County | 2,553 | 685 | 493 | 3 | 0 | 337.96 | |
| Rawlins County | 2,519 | 125 | 278 | 6 | 0 | 141.83 | |
| Stanton County | 2,235 | 1,712 | 950 | 4 | 1 | 334.75 | |
| Wichita County | 2,234 | 30 | 102 | 1 | 0 | 62.73 | |
| Clark County | 2,215 | 174 | 345 | 0 | 0 | 261.04 | |
| Hodgeman County | 1,916 | 626 | 477 | 3 | 1 | 302.32 | |
| Comanche County | 1,891 | 322 | 551 | 0 | 1 | 283.72 | |
| Lane County | 1,750 | 197 | 479 | 3 | 0 | 255.19 | |
| Wallace County | 1,485 | 27 | 91 | 0 | 0 | 62.21 | |
| Greeley County | 1,247 | 196 | 210 | 0 | 0 | 123.11 | |

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