



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

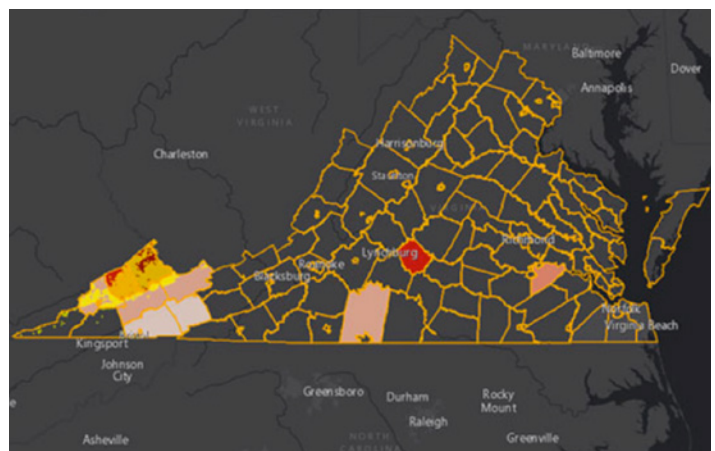
Peer-reviewed studies have documented higher levels of harmful air pollutants in and around areas with oil and gas production activity, and have shown that oil and gas facilities are the source of the excess pollution. Research indicates links between risks and/or prevalence of disease and proximity 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 3 counties in Virginia: Appomattox, Buchanan, and Dickenson.**⁶

OIL & GAS THREATENS VIRGINIANS

Over 45,000 Virginians live within the half mile threat radius of an oil and gas facility. This area includes 178 schools, putting many of Virginia’s most vulnerable at



MAP: OILANDGASTHREATMAP.COM/THREAT-MAP/VIRGINIA

risk. In addition to the 3 counties that exceed EPA's cancer risk level of concern, one county, Prince George County, is in the highest 10% for county cancer risk. The Appalachian Basin, covering part of 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.⁷

THE NUMBERS⁸

TOTAL POPULATION Living in the Threat Radius (within a half mile of a facility)	46,000
TOTAL NUMBER of Active Oil and Gas Wells, Compressors, and Processors	9,890
NUMBER OF COUNTIES that Exceed EPA's Cancer Risk Level of Concern	3 Appomattox, Buchanan, and Dickenson
NUMBER OF SCHOOLS in the Threat Radius	178
NUMBER OF MEDICAL FACILITIES in the Threat Radius	0
SQUARE MILES COVERED by the Threat Radius	1,009

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 46 thousand in 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, **including 6 locations in Virginia.** 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/virginia/>
- <https://cdn.americanprogress.org/wp-content/uploads/2016/06/20070044/MethanePollution-report.pdf>
- <http://oilandgasthreatmap.com/threat-map/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.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

VA Counties	Total Population	Threatened Population	Number of Facilities	Threatened Schools	Threatened Medical Facilities	Threatened Square Miles	Other Risks
Buchanan County	24,098	16,515	4,069	63	0	385.81	Exceeds EPA level of concern for cancer risk*
Wise County	41,452	12,593	1,093	25	0	193.00	
Dickenson County	15,903	10,587	3,187	55	0	255.16	Exceeds EPA level of concern for cancer risk*
Tazewell County	45,078	3,873	709	17	0	72.96	
Russell County	28,897	1,896	735	13	0	63.37	
Lee County	25,587	1,187	65	4	0	26.25	
Scott County	23,177	103	32	1	0	11.73	
Washington County	54,876	7	0	0	0	0.37	

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