



# At-A-Glance

## Human Health Risk Assessment for Oil & Gas Operations in Colorado

What the study does	What the study does not do
<p>The study uses actual emissions data from oil and gas operations in Colorado, to estimate or “model” hypothetical exposures and risks of health impacts. Modeling is used to predict how pollutants move through the air, accounting for weather conditions and emissions from a source, to estimate exposures at multiple distances from a well pad. These estimated exposures are then used to understand the potential risk to public health.</p>	<p>The study is not based on actual health impacts people have reported from oil and gas operations or on measured concentrations in the air surrounding the well pad.</p>
<p>The study says that there may be a risk of negative health impacts (e.g., headaches; dizziness; respiratory, eye, and skin irritation) from short-term exposures to chemicals such as benzene during worst-case conditions. Worst-case conditions represent the highest of what could reasonably be expected from a single well pad during various phases of oil and gas development.</p>	<p>The study does not examine risk of short-term health impacts from average or everyday conditions, nor does it estimate the frequency of worst-case conditions. The state has collected approximately 5,000 samples near well pads with its mobile monitoring lab in recent years, but has not measured concentrations above what we expect would cause short- or long-term health impacts.</p>
<p>The study found that the risk of negative short-term health impacts could occur at all distances modeled in the study (from 300 feet to 2,000 feet).</p>	<p>The study does not show the risk of negative short-term health impacts at distances greater than 2,000 feet, but does not rule out the possibility of health impacts at greater distances.</p>
<p>The study looks at potential exposure to chemicals directly attributable to oil and gas operations. It estimates exposure to 47 volatile organic compounds during the different phases of oil and gas development and production. The study found the risk of short-term health impacts were largely from exposure to benzene, toluene, and ethyltoluenes.</p>	<p>The study does not consider exposure to other chemicals potentially released from oil and gas operations and/or other activities. It also does not account for natural exposure or “background exposure” to these chemicals-- nor does it account for other factors that might influence public health like particulate matter (e.g., exhaust, dust, pollen, etc.), indoor air pollution, occupational exposures, or noise.</p>
<p>The study does not determine any elevated risk of chronic health impacts from any single substance at 500 feet or greater. The study shows slightly elevated risk of blood and nervous system effects from multiple chemicals at 500 ft but not at 2000 ft. Cancer risk under all exposures was within the Environmental Protection Agency’s acceptable risk range.</p>	<p>The study does not rule out the possibility of chronic health impacts, because it does not comprehensively measure chronic exposures representative of what happens in areas with multiple well pads. It does not consider other potential impacts on human health.</p>
<p>The study largely uses data that was released to the public by CSU in 2016. It is mostly based on data collected after 2014, when stricter state methane and VOC regulations went into effect. Some of the data collected from Garfield County is from before 2014, when less strict policies were in effect.</p>	<p>The study does not contain new data and may not reflect the most current controls and technology used at pre-production sites today.</p>
<p>The study only speaks to the risk of health impacts from being near one well pad.</p>	<p>The study does not speak to the health impacts of being near multiple well pads.</p>
<p>This study adds to the body of knowledge we have on oil and gas development and its potential health impacts.</p>	<p>The study does not definitively dictate a setback that is protective of public health, but it can help inform policy decisions.</p>