

## Frequently Asked Questions - Calvert City, KY Air Quality Monitoring and Risk Assessment

This document is meant to supplement the full Risk Assessment document and other outreach materials posted at: [www.epa.gov/ky/calvert-city-kentucky-air-monitoring](http://www.epa.gov/ky/calvert-city-kentucky-air-monitoring)

### **Is it safe to live and breathe the air in Calvert City?**

EPA monitored for Volatile Organic Compounds (VOCs) near the Calvert City Industrial Complex and completed a risk assessment. Based on these results, EPA does not believe that there is any risk of immediate or short-term health risks from VOCs in the area. This assessment did find that the levels of VOCs in the air could potentially cause risk over long-term exposures, however. When EPA assesses long-term exposure risks, we ask what the risk would be if someone breathed in the air near the facility 24 hours a day for 70 years.

Specifically, the monitoring results indicate elevated levels of VOCs, mainly ethylene dichloride (EDC, also known as 1,2-dichloroethane) near the Calvert City Industrial Complex that could pose a long-term (chronic) risk of health problems over this lifetime of exposure. Air monitoring at three locations in Calvert City found that levels of EDC and associated risks were most elevated very close to the Calvert City Industrial Complex and lower closer to residential areas, as described in the risk assessment report and shown in the map at the end of this FAQ. The EPA and the Kentucky Department of Environmental Protection (KDEP) are taking steps to reduce this risk, by reducing the amount of EDC pollution in Calvert City. We will continue to monitor the air in Calvert City and provide updates in the future on pollution reductions and air monitoring results.

### **What are EPA and KDEP (Kentucky) doing next?**

Air monitoring is continuing at all three monitoring locations in Calvert City. EPA and KDEP will continue to review the monitoring data. With EPA's support, KDEP is currently in discussions with Westlake Vinyls Inc., the largest source of EDC emissions in Calvert City, to reduce fugitive emissions of EDC. Most emissions of EDC at Westlake's facility are from what we call fugitive emissions, which include unintentional leaks from the many pipes, fittings, and valves at the facility. Fugitive emissions are common at large chemical facilities even with work practices in place to minimize these releases. The EPA has recently strengthened air emissions rules for the Synthetic Organic Chemical Manufacturing Industry (the HON rules) that will require fence-line (property boundary) air pollution monitoring around facilities that release EDC and five other pollutants to help ensure the effective control of fugitive emissions. Westlake Vinyls and 200+ other chemical plants around the country are subject to the HON. Information on the final HON revisions can be found at this webpage: [www.epa.gov/hazardous-air-pollutants-ethylene-oxide/final-rule-strengthen-standards-synthetic-organic-chemical](http://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/final-rule-strengthen-standards-synthetic-organic-chemical)

### **Where can I find more information about ethylene dichloride (EDC)?**

The EPA has set up a webpage about the Calvert City Risk Assessment: [www.epa.gov/ky/calvert-city-kentucky-air-monitoring](http://www.epa.gov/ky/calvert-city-kentucky-air-monitoring). The Agency for Toxic Substances and Disease Registry (ATSDR) provides [ToxFAQs fact sheets](#) that provide general information about many chemicals. The ToxFAQ for EDC (also known as 1,2-dichloroethane) is available here: [www.atsdr.cdc.gov/toxfaqs/tfacts38.pdf](http://www.atsdr.cdc.gov/toxfaqs/tfacts38.pdf)

The EPA provides [health effects fact sheets](#) for many hazardous air pollutants. The fact sheet for EDC is available here: [www.epa.gov/sites/default/files/2016-09/documents/ethylene-dichloride.pdf](http://www.epa.gov/sites/default/files/2016-09/documents/ethylene-dichloride.pdf)

**I understand that one of the three air monitoring sites is at Calvert City Elementary School. Is the air quality near the school safe to breathe?**

The air quality monitoring results in the risk assessment found no immediate danger from short-term exposures to Volatile Organic Compounds (VOCs). Results from the air monitor closest to the Calvert City Industrial Complex in a non-residential area did indicate elevated levels of VOCs, mainly ethylene dichloride (EDC, also known as 1,2-dichloroethane) that could pose a long-term health risk over a 70-year lifetime of continuous exposure. EPA and KDEP are now taking steps to reduce that risk. Air monitoring results from the Calvert City Elementary school site showed lower levels of VOCs, including EDC, than the other air monitoring sites located closer to the Calvert City Industrial complex (see map at the end of this FAQ). EPA and KDEP are continuing to work together to reduce EDC pollution emissions and address air quality concerns in Calvert City, just as we are also working to improve air quality and address concerns in many other communities. The Kentucky Department for Environmental Protection (KDEP) is also working with the school to install air filtration to further reduce potential exposure in the school. It is important to remember that when EPA assesses long-term exposure risks, we ask what the risk would be if someone breathed in the air near the facility 24 hours a day for 70 years. Children spend part of their day at school for several years.

**How does EPA assess cancer risk?**

Under the Clean Air Act (CAA), EPA generally strives to protect the greatest number of persons possible to an individual lifetime risk level no higher than one in one million and limiting to no higher than approximately one hundred in one million as the estimated risk that a person living near a source would have if exposed to the maximum pollutant concentrations continuously for 70 years. While EPA's Risk Assessment is not a regulatory action under the CAA, it is reasonable to compare the excess lifetime cancer risk estimates to this range to determine if further action to reduce or understand the risk is needed. As part of its Risk Assessment for Calvert City, EPA Region 4 has determined that additional steps to reduce potential risk should be explored. The EPA believes that new fence-line pollution monitoring requirements in the recently revised HON rules (discussed above and in the risk assessment document) will reduce EDC emissions and associated risk in Calvert City. Information on the final HON rule revisions can be found at this webpage: [www.epa.gov/hazardous-air-pollutants-ethylene-oxide/final-rule-strengthen-standards-synthetic-organic-chemical](http://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/final-rule-strengthen-standards-synthetic-organic-chemical).

**Is my cancer caused by ethylene dichloride (EDC)?**

EPA is unable to predict whether any one or specific individuals will develop cancer or to link an individual's cancer to a single, specific cause like EDC exposure. EPA's risk assessments are based at the population level, not the individual level. When EPA assesses cancer risk, we ask what the overall cancer risk would be if a group of one million people breathed in a specific pollutant at very high levels over a 70-year lifespan. Please note also that EPA's risk estimates are in addition to the overall "background" risk of developing cancer over your lifetime from other factors such as age, gender, genetics, lifestyle behaviors, and random chance. The Centers for Disease Control and Prevention (CDC) and the American

Cancer Society estimate the “background” cancer risk to be 400,000 per million people (1 in 2 men and 1 in 3 women) in the United States based on observed cancer cases.

Note: Our risk assessment cannot predict whether an individual will develop cancer, and it cannot determine the cause of a person’s cancer.

### **Why haven’t EPA or KDEP (Kentucky) shut down the facilities that are emitting EDC?**

The Clean Air Act allows industrial facilities to release some amounts of air pollution. Industrial facilities are required to obtain air pollution permits from the KDEP’s Division for Air Quality to do so (which the facilities in Calvert City have done).

In Calvert City, Westlake Chemical operates a facility that releases 96% of the EDC air emissions in the area according to EPA’s most recent emissions inventory. The main source of EDC in the air from Westlake’s facility are from what we call fugitive emissions, which include unintentional leaks from the many pipes, fittings, and valves at the facility. Fugitive emissions are common at large chemical facilities even with work practices in place to minimize these releases of pollution. With support from EPA, KDEP is currently in discussions with Westlake Vinyls aimed at reducing fugitive releases of EDC. Additionally, the EPA recently strengthened rules for the Synthetic Organic Chemical Manufacturing Industry (the HON rules) that include requirements for fence-line EDC monitoring to identify and limit fugitive EDC emissions. Westlake Chemical and 200+ other chemical facilities around the country are subject to the HON rules. Information on the final HON revisions can be found at this webpage:

[www.epa.gov/hazardous-air-pollutants-ethylene-oxide/final-rule-strengthen-standards-synthetic-organic-chemical](http://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/final-rule-strengthen-standards-synthetic-organic-chemical).

EPA and the KDEP’s Division for Air Quality (KDAQ) work together to ensure companies comply with the CAA requirements. Westlake has three facilities in Calvert City: Vinyls, Chemical OpCo, and PVC. EPA conducted a Clean Air Act inspection at the Vinyls and Chemical OpCo facilities from September 20, 2022, through September 22, 2022. An information request pursuant to Section 114 of the Clean Air Act was issued to Westlake regarding all three facilities on January 30, 2023. The company has provided a response to the information request letter. EPA inspected all three facilities for compliance with the Clean Air Act requirements between April 12, 2023, and April 20, 2023. EPA is currently evaluating the company’s compliance with the Clean Air Act requirements and will continue to coordinate with the KDAQ. As we work together, we will address any noncompliance identified. Please note that EPA cannot comment on an ongoing investigation. EPA and KDAQ previously entered Consent Decrees with Westlake in 2011 and 2022 that require air emission reductions. The Consent Decree documents are posted at: [www.epa.gov/ky/calvert-city-kentucky-air-monitoring](http://www.epa.gov/ky/calvert-city-kentucky-air-monitoring).

### **What is the main way people are exposed to ethylene dichloride (EDC)?**

In Calvert City, we believe the main way that people are exposed to EDC is through breathing in air that contains EDC. EDC is not expected to accumulate in the food chain (crops, meat, or fish). This study did not examine these other ways that you could be exposed to EDC, but we do not believe that air emissions of EDC are affecting food or drinking water (see question on drinking water wells below).

### **Does EDC cause cancer?**

There is scientific evidence that suggests that EDC is a probable human carcinogen. Scientific evidence from animals indicates that exposure to EDC causes tumors in the lungs, reproductive system, brains,

and liver. Studies also show that EDC can damage the immune system. EDC is not expected to cause developmental effects in children.

**I live close to Westlake Vinyls and think I and my family are being exposed to ethylene dichloride. How do I take care of my health?**

Taking care of your and your family's health is always important. While EPA is unable to tell you what your individual or family risk is from EDC exposure, there are some steps that you can take to better understand your risk. If you have health concerns that you believe may be related to EDC exposure in the outdoor air, start by discussing these concerns with your healthcare provider. In addition, the Agency for Toxic Substances and Disease Registry (ATSDR) is a resource to the community for health questions or concerns about potential environmental exposures, such as EDC. If community members would like to share their environmental health concerns, they can contact: Leann Bing, Environmental Health Scientist, ATSDR Region 4 at (404) 747-4451 or [KBing@cdc.gov](mailto:KBing@cdc.gov). In addition, you or your child's healthcare provider can contact the Pediatric Environmental Health Specialty Units (PEHSU), a network of experts specializing in the impacts of environmental factors on the health of children and reproductive-age adults. To contact the Southeast PEHSU, visit [www.pehsu.net/region4.html](http://www.pehsu.net/region4.html), email [sepehsu@emory.edu](mailto:sepehsu@emory.edu), or call 1-877-337-3478. If you have further questions or want to learn more about EPA's Calvert County Risk Assessment, you can go to this website: [www.epa.gov/ky/calvert-city-kentucky-air-monitoring](http://www.epa.gov/ky/calvert-city-kentucky-air-monitoring). Finally, keeping up with regular medical checkups and recommended health screenings is an important way to take care of your and your family's health.

**There are no air monitoring sites north of the river in Livingston County. Why are there not more air monitors?**

Historically, KDAQ operated an air monitoring site just across the river from the Calvert City Industrial Complex (the Bloodworth site). EDC concentrations measured at the Bloodworth site were lower than measurements collected in the area where the current monitors are located, to the south of the Calvert City industrial complex. Previous measurements and weather data informed the selection of two air monitoring sites that would likely have the highest VOC (including EDC) levels in the area. To protect public health, EPA typically conducts air monitoring in areas with the expected highest pollution concentrations based on modeling that incorporates local wind patterns. We locate these sites with the understanding that the exposures in the surrounding area will generally decrease the further you are away from the pollution emissions sources. A third monitor is located in a more populated area in the community, farther from pollution sources. KDAQ is continuing air monitoring at all three sites. EPA and KDAQ believe that these three air monitoring sites are adequate to assess VOC concentrations in the area and protect public health in the community. EPA and KDAQ are confident that reducing risk at the existing monitoring sites will ensure that risk is reduced in the entire area, including in Livingston County.

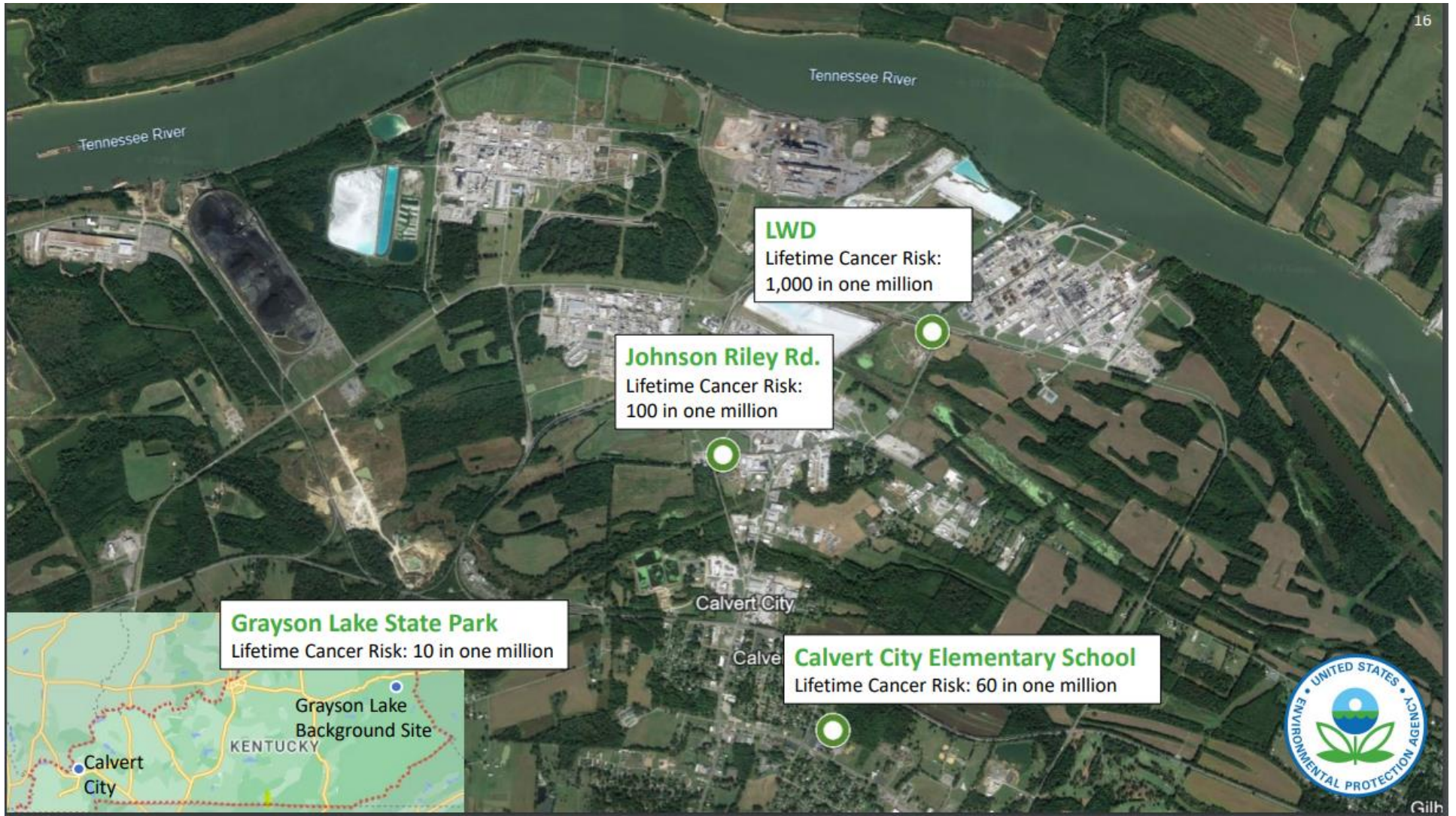
**Could EDC be in my private well water?**

EPA does not believe that air emissions of EDC or other VOCs are affecting private well water in Calvert City. EDC in the air is dispersed and diluted by the wind, which is why concentrations of EDC found in the Calvert City monitoring study are much lower at the monitoring sites further away from the Calvert City Industrial Complex. As it is dispersed and diluted in the air by the wind, EDC is also removed, primarily by breakdown from exposure to sunlight. Where EDC pollution has been found in groundwater in different places around the country, it has been traced to direct releases of EDC in liquid form.

EPA is aware of pollution at the [B.F. Goodrich Superfund Site](#) in the Calvert City Industrial Complex stemming from historical releases of liquid EDC and other pollutants. Like many other historical industrial properties around the country, the BF Goodrich Superfund Site is undergoing active cleanup. Impacts to groundwater at the B.F. Goodrich Superfund Site in Calvert City have been extensively studied as documented in EPA's 2018 Record of Decision. Groundwater at the Site flows north towards the Tennessee River and as such does not pose any risks to private wells in Calvert City or the area's drinking water supply wells, which are located east of the corporate limits of Calvert City.

**Does EPA's Risk Assessment affect the value of my property?**

Many different factors contribute to property values. As stated above, the air quality monitoring results in the risk assessment found no immediate danger from short-term exposures to Volatile Organic Compounds (VOCs). The assessment did identify elevated long-term (chronic) risks that the EPA and the Kentucky Department of Environmental Protection (KDEP) are taking steps to reduce. Specifically, the monitoring results indicate elevated levels of VOCs, mainly ethylene dichloride (EDC, also known as 1,2-dichloroethane) near the Calvert City Industrial Complex that could pose a long-term health risk over a 70-year lifetime of continuous exposure. Air monitoring at three locations in Calvert City found that levels of EDC and associated risks were highest very close to the Calvert City Industrial Complex and lower closer to residential areas, as described in the risk assessment report and shown in the map at the end of this FAQ. EPA and KDEP are working to reduce EDC pollution emissions which would reduce EDC exposure and address air quality concerns in Calvert City, just as we are also working to improve air quality and address concerns in many other communities. EPA's risk assessment does not define a boundary for the area with elevated risk and the risk assessment should not be interpreted as a determination of any type with respect to property values.



Map showing locations of VOC monitoring sites and lifetime cancer risk estimates associated with VOC monitoring results at each site. EPA's approach to estimating lifetime (chronic) cancer risk assumes 70 years of continuous exposure.