

TO: Vermont Health Care Providers and Health Care Facilities
FROM: Health Commissioner Mark Levine, MD

**TCE Contamination at the Vermont Farmers Food Center; 251 West St,
Rutland, Vermont**

BACKGROUND:

Chemicals associated with metal cleaning, including trichloroethylene (TCE), were detected in soil gas below the foundation and in the indoor air at the Vermont Farmers Food Center located at 251 West Street in Rutland, Vermont. This building belongs to the Vermont Farmers Market Education Center, Inc.

Health officials were notified of the indoor air test results on December 2, 2021. Experts from the departments of Health and Environmental Conservation reviewed the results. The building owner was advised.

Concentrations of TCE in indoor air samples ranged from 1.7 to 21 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). These levels of TCE are above the Vermont Department of Health's level of concern of $0.7 \mu\text{g}/\text{m}^3$. Based on these results, relocation of building occupants was recommended.

REQUESTED ACTION:

Medical Screening

We encourage people to talk with their health care provider about any health concerns they think could be related to this exposure. A person's exposure does not mean they will experience health effects as a result. Routine tests including blood chemistry, complete blood count, and urinalysis may help detect early problems, but will most likely have low sensitivity. Testing should be considered on a case-by-case basis after integrating exposure history, patient symptoms, and known medical history and other risk factors.

Women who are pregnant should be under the care of a provider. An ultrasound can help detect changes to a developing fetus.

Acute health effects of TCE

At high levels of exposure, TCE can cause central nervous system effects such as headaches, dizziness, sleepiness, lack of coordination, or effects on vision, hearing, and balance. Levels of TCE currently reported in the building are lower than what would be expected to cause these acute health effects.

Chronic health effects of TCE

Non-cancer effects: Long-term exposure to low levels of TCE can adversely affect the central nervous system, kidney, liver, immune system, male reproductive system, and the developing fetus. Some people who work directly with TCE in an occupational setting developed scleroderma, an autoimmune disorder of the skin.

The most sensitive effects associated with TCE exposure are immune system toxicity and fetal cardiac malformation. This presents a concern for pregnant women, particularly during the first eight weeks of pregnancy when the fetal heart is developing. The exposure time associated with this health effect in humans is unknown: it could be hours, days or weeks. The Health Department's level of concern for TCE, based on EPA's Reference Concentration, is protective of the most sensitive population, the developing fetus.

Cancer: The U.S. EPA has classified TCE as "carcinogenic to humans by all routes of exposure." The human evidence of carcinogenicity from epidemiologic studies of TCE exposure is strongest (causal) for kidney cancer. There is strong evidence of an association between TCE exposure and non-Hodgkin's lymphoma (NHL) There is limited evidence of an association between TCE exposure and liver cancer.

The detections of TCE in the Vermont Farmers Food Center building are orders of magnitude lower than what has been observed in epidemiological studies where measurable increases of cancer are seen. Studies have shown significant increases in NHL and kidney cancers in people who were exposed to levels of TCE ranging from 10,000 $\mu\text{g}/\text{m}^3$ to 5,000,000 $\mu\text{g}/\text{m}^3$.

The chances of developing health effects due to TCE depends on how much you were exposed to, and for how long. It is impossible to know what the chemical exposure in the building was in previous years. Cancer often takes years to develop.

Metabolism and Biomonitoring

Much of the TCE that is inhaled is exhaled without being metabolized. Once a person is removed from the source of the exposure, their body will break down TCE within a few days. TCE can accumulate in fat due its lipid solubility, but once exposure stops, it will be excreted from the fat within a few days. There is no procedure that can get TCE out of the body.

Blood and urine can be tested for TCE and it's breakdown products, but we do not recommend these tests once people have been removed from the exposure for multiple days. These blood and urine tests are not routine, and the results will not predict the potential for health effects.

Breastfeeding

TCE can pass into breast milk. However, we do not discourage anyone from breastfeeding,

including women who worked in the building.

For more information

- **If you have a patient you think is experiencing health effects due to TCE exposure,** please call us at 1-800-439-8550. Having an exposure does not mean that a person will develop health problems as a result.
- **For detailed summaries of the toxicology and epidemiology studies on TCE:**

EPA IRIS Summary –

https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=199

EPA Toxicological Review for Trichloroethylene –

https://cfpub.epa.gov/ncea/iris/iris_documents/documents/toxreviews/0199tr/0199tr.pdf

ATSDR Toxicological Profile –

<https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=173&tid=30>

If you have any questions, please contact the HAN Coordinator at 802-859-5900 or vthan@vermont.gov.

HAN Message Type Definitions

Health Alert: Conveys the highest level of importance; warrants immediate action or attention.

Health Advisory: Provides important information for a specific incident or situation may not require immediate action.

Health Update: Provides updated information regarding an incident or situation; unlikely to require immediate action.

Info Service Message: Provides general correspondence from VDH, which is not necessarily considered to be of an emergent nature.