

Answers to Frequently Asked Questions Downtown and North Casper PCE Plumes Orphan Site

General Questions about the Contaminant

Q. What contamination have you found?

A. DEQ's investigation focused on a volatile organic compound (VOC) called perchloroethylene (PCE), a chemical commonly used to clean tools and in dry-cleaning processes. A VOC can enter the environment through leaks, spills or improper disposal. The compound can accumulate in soil or groundwater and evaporate into the air. When this compound is suspected to have entered the environment, sampling and testing is often conducted to determine the presence, type, and concentration (quantity) of the compound that may be present. The situation in Casper is not unique. There are similar groundwater/soil contamination problems in almost every state in the country and throughout the world.

Q. When did this contamination occur?

A. We do not know. Environmental testing in the late 1980s and 1990s revealed the presence of VOCs in the groundwater at three locations in downtown Casper and two locations in North Casper and in the indoor air of some homes.

Q. How did it get into the environment/soil/groundwater?

A. We do not know specifically, but at similar sites, the chemicals were spilled during use or leaked into the ground. Sometime, faulty storage tanks can be the cause as well.

Q. Who is responsible for the contamination?

A. We do not have a responsible party identified at this time, but will continue to investigate sources. DEQ is characterizing the site as an "orphan" site. An orphan site is an area where there may be environmental impacts, but the source is unknown and/or there are no viable responsible parties or such parties cannot be identified.

Testing/Ventilation Questions

Q. How did you decide which homes to test and offer ventilation to?

A. Houses offered immediate ventilation are located in the areas where we measured the highest concentrations of chemicals in the shallow soil vapor. Homes where we offered testing are on the edge of the impacted area; we are offering to test those homes to determine if ventilation is needed. Based on the results of this initial sampling, we may offer to test additional homes. Homes outside the impacted area do not need to be tested.

Q. If I opt not to install a vent system, can I have my property tested? Can I install one at a later date?

A. Yes. If you were offered ventilation or testing, you can opt for testing rather than installation of a ventilation system. You can use the testing results to make a decision on whether you want a ventilation system installed. You will have up to 6 months to decide on whether or not you want a ventilation system installed.

Q. Why is DEQ just now ventilating homes and testing the indoor air?

A. Funding to begin orphan site remediation projects was authorized in 2009. After we conducted an investigation to determine if conditions had changed from previous testing done at the site, we developed a course of action.

Q. Who is paying for this?

A. In 2009, the Wyoming legislature designated a portion of the abandoned mine lands reclamation funds to the Orphan Site Remediation Program. The Orphan Site Remediation law (Article 17) passed in 2000 required the Wyoming Department of Environmental Quality (DEQ) to inventory and to determine cost estimates and proposed funding sources to investigate and cleanup orphan sites including those suspected of having VOCs released into the environment. Orphan sites are areas where there may be environmental impacts, but the source of the environmental problem is unknown and/or there are no viable responsible parties or such parties cannot be identified.

Health Related Questions

Q. How might I be exposed to PCE?

A. Individuals are commonly exposed to PCE from a wide range of sources including dry-cleaned clothing, household paint strippers, and degreasing products. The compound can also enter the environment through leaks and spills and evaporate in the air.

Q. What are the health effects from PCE at the site?

A. At the levels seen in the area attributable to PCE in groundwater, we anticipate no clinical health effects. Exposure to high levels of this chemical, significantly higher than those expected in indoor air near the site, can cause dizziness, headaches, sleepiness, nausea, and loss of coordination. In a recent epidemiological study, PCE was evaluated by the EPA and was suspected of causing neurological effects.

In animal studies, prolonged exposure to high levels of this chemical can cause nerve, kidney and liver damage, and have shown to cause cancer in animals.

Q. Is there an increased risk of getting cancer from exposure from PCE?

A. There is no clinical evidence in human studies that PCE causes cancer, at the levels likely to be found in these Wyoming neighborhoods. WDEQ established its residential screening level for PCE based on the hypothetical assumption that someone is exposed to PCE by living in the home 24 hours a day, 7 days a week, 350 days per year for 30 years.

For PCE, the WDEQ residential goal of 8.1 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) would lead to a hypothetical increased risk of one excess case of cancer per hundred thousand people exposed at this level for 30 years.

According to the Wyoming Cancer Registry, it is estimated that 1 in 2 males and 2 in 5 females in Wyoming will develop cancer at some time in their lives from everyday living. Based on these statistics, the average Wyoming resident faces a 45 percent chance of developing cancer at some point in their lifetime. A number of genetic, dietary, environmental and lifestyle factors contribute to cancer development.

Q. Should we be using our basement?

A. Based on the soil vapor results found at the site, we do not anticipate health effects from working or living in the basement. However, homes located in areas where PCE soil vapor concentrations are above the screening levels will be offered indoor air testing or a ventilation system as a precaution.

Q. Is my drinking water safe?

A. Drinking water in area is supplied by the City, which is not affected by these chemicals. If you have a private well we ask that you inform us about its existence and its uses so that we can determine if any additional environmental testing is needed.

Q. I'm trying to have a baby and I'm worried about the effect on fertility and/or impact on the unborn child.

A. There are no fertility or adverse reproductive effects from exposure to the levels of the chemicals that have been found in soil vapor or levels that are likely in indoor air of homes near the site.

Q. What is the amount of these chemicals that people can smell?

A. The average person can detect the odor of PCE at concentrations in the air of $6,780 \mu\text{g}/\text{m}^3$, much higher than the levels expected in indoor air (ATSDR, 2010) (ATSDR <http://www.atsdr.cdc.gov/toxprofiles/phs18.html>).

Q. Is it safe to eat homegrown vegetables?

A. Yes, as long as residents are using water supplied by city water and not well water. The groundwater is located 8 to 20 feet below the ground and most plants do not have a root zone that deep. If you have a private well we ask that you inform us about its existence and its uses so that we can determine if any additional environmental testing is needed.

Q. Are there any special risks to children, pregnant women, or people with respiratory problems or immune system problems?

A. No. There is no evidence to support the idea that being exposed to this chemical at the levels found in soil vapor and expected in indoor air would cause any health problems for any person with special health issues. The screening level for PCE would protect sensitive populations, such as children, pregnant woman, and people with respiratory problems.

Q. Are the chemicals dangerous to my pets?

A. No. PCE is not a risk to your pets at the levels found in soil gas or expected in indoor air.

Q. If this chemical evaporates up through the soil, is it safe for my children to play in our yard and in the dirt?

A. There is no medical risk from these chemicals at the concentrations found. If these chemicals were found in nearby soil, they would quickly evaporate into the outdoor air. Moreover, PCE does not readily bind onto soil. Because the air space outdoors is not confined like it is inside a home, concentrations of these chemicals are even lower outside than indoors.

Q. Can I anticipate long-term health effects related to levels anticipated in the indoor air of homes near the site?

A. There are no anticipated long-term health effects to people from exposure to levels below the screening levels of this chemical for soil vapor or those expected in indoor air in homes near the site. Area residents should continue with their routine periodic physical examinations just as they normally would. No additional health testing is necessary due to exposure at these levels.

Q. If the health effects are not likely, why is WDEQ going to the effort of testing and venting homes and businesses?

A. While the WDEQ is confident the levels of PCE expected in houses/buildings will not cause any health effects or pose an unacceptable risk, we have decided that the best course of action is to reduce or eliminate exposure to PCE to reduce any potential risks of long-term health effects. For elevated levels, installation of a ventilation system will minimize long term-exposure and help ensure that clinical health effects do not result from continued exposure PCE derived from vapor intrusion.