

City of Algona – Residential Indoor Air Results

Health Consultation Fact Sheet, January 2014



The Washington State Department of Health reviewed the results of indoor air samples taken in Algona between July and November 2013. The samples were taken at homes in the northern part of Algona to see if chemicals in shallow groundwater are affecting indoor air quality. Our assessment of the sample results shows no cause for health concern. A detailed [health consultation report](http://www.doh.wa.gov/consults) (www.doh.wa.gov/consults) is posted on the Department of Health website.

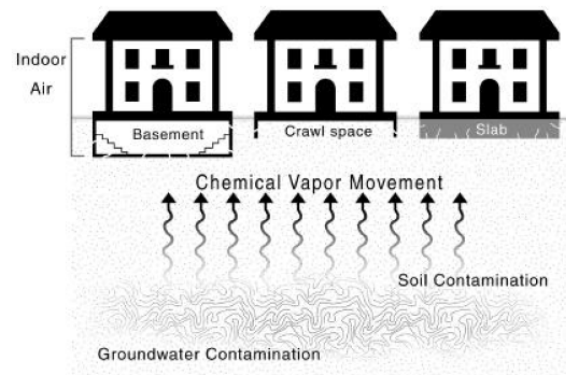
Background

Past releases of chemicals from The Boeing Company's Commercial Fabrication Plant in Auburn have resulted in two contaminated groundwater plumes (western plume and Area 1 Plume). This groundwater is not used as a source for drinking water. Algona drinking water comes from other municipal wells not affected by this contamination.

Natural groundwater flow has resulted in the plumes moving in a north/northwest direction off the Boeing property. In 2012, it was discovered that the western plume had moved below the northeast corner of Algona. Samples showed four chemicals were present in the shallowest groundwater – trichloroethylene (TCE), and vinyl chloride, cis1,2-dichloroethylene (cis1,2-DCE) and trans 1,2-dichloroethylene (trans 1,2 DCE), which may form when TCE breaks down.

How Chemicals in Groundwater Can Affect Indoor Air

TCE and the three other chemicals found in the shallow groundwater are known as volatile organic compounds or "volatile chemicals." When volatile chemicals are released into shallow groundwater, they can evaporate, producing vapors that may travel up through the soil. If that happens, these vapors may enter nearby buildings through crawlspaces and cracks or other openings in the foundation. When this occurs, it may cause unhealthy indoor air quality.



Indoor Air Sampling

Based on the level of chemicals found in the shallow groundwater in Algona, health threats to people in nearby homes were not expected. To confirm this, indoor air sampling was offered to residents at 24 properties in northeast Algona. These properties were chosen because of how close they were to the shallow contaminated groundwater. Only 14 properties chose to take part in the testing. Air sampling was done by The Boeing Company under Washington Department of Ecology oversight. Testing was done at various locations on each property.

- Living spaces (such as bedrooms and living rooms)
- Basements, crawlspaces, and below the concrete slabs, which are the areas closest to the shallow groundwater
- Outdoor air

If chemicals are found in a home's living space, the results from the basement, crawlspace, below the concrete slab, and outdoor air will help determine where it's coming from.

Our Assessment

The Department of Health looked at the results from all tested homes to see if there was a health threat. TCE was the only chemical detected; however, it was only found at five of the fourteen homes. Three of the five homes had TCE only in the living space; one home had it only in the crawlspace; and one had it in both. Based on our assessment of the living space results, it does not appear that groundwater is the source. The TCE levels found in the living spaces appear to have been influenced by other things, such as chemicals previously stored in the homes, activities like painting and carpet replacement, or outdoor air.

Although groundwater does not seem to be the source of the TCE, we still evaluated the living space test results. We looked at several things to determine if exposure to the TCE found in the living spaces might cause health effects:

- How much of the TCE a person might breathe in
- How long a person is in contact with the TCE
- A person's age and body size; for example, when compared to an adult, a child is more affected by exposure to chemicals. This is from their higher breathing rate, smaller body size, and different ability to get rid of chemicals.

What We Found

After evaluating all results from the indoor air sampling, the Department of Health concluded that breathing the chemicals at levels found during the July to November 2013 sampling is not expected to cause harmful health effects.

Recommendations

Although the chemical levels found in 2013 are not expected to cause harmful health effects, we recommend the Department of Ecology continue monitoring the indoor air in northern Algona. We also recommend using site-specific conditions (such as increases or decreases in the level of chemicals found in groundwater) to determine where and how often to conduct more testing.

For information about human health, contact Washington State Department of Health

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The sampling results are available on the [Department of Ecology website](http://www.ecy.wa.gov/programs/hwtr/cleanupSites/boeing-fabn/index.html) (www.ecy.wa.gov/programs/hwtr/cleanupSites/boeing-fabn/index.html)