

fact sheet

Vapor Intrusion Study: Trainsong Neighborhood Northwest Eugene, January 2010

Background

The state's Environmental Health Assessment Program (EHAP) has completed a report on the health risks from potential indoor air contamination in homes near the Eugene Union Pacific Railyard. The report is based on information from a Department of Environmental Quality (DEQ) investigation of vapor intrusion in the Trainsong neighborhood in northwest Eugene.

The groundwater in the Trainsong neighborhood is contaminated with volatile organic chemicals (VOCs) that were used in historical rail yard maintenance and repair operations. In 2007, EHAP and DEQ became concerned that these VOCs might be entering the indoor air of homes located closest to the rail yard through a process known as vapor intrusion.

In response to these concerns, vapor barriers were installed beneath nine Trainsong homes as a precaution against possible vapor intrusion. DEQ also began a year-long study of these homes to examine the chemical levels in soil, crawlspaces, and outdoor and indoor air.

What did the study find?

After carefully examining the study results, EHAP and DEQ have concluded that the indoor air of homes in the northwest Eugene neighborhood is not being affected by chemicals from contaminated groundwater.

However, while seven of the nine study homes had VOCs that were below levels of concern, two homes had indoor air levels that were above health guidelines. EHAP and DEQ believe there are sources of VOCs within the two homes that are causing the high levels and affecting the indoor air quality.



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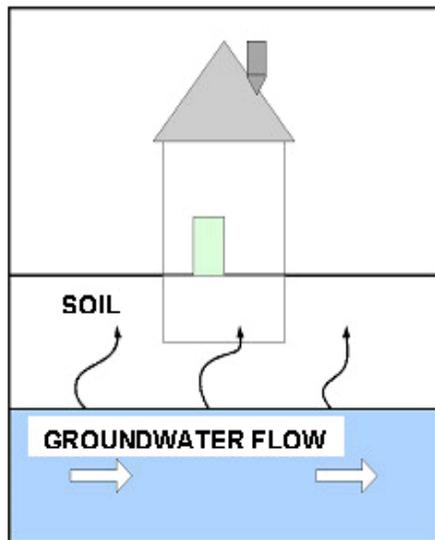
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How can you tell where vapors are coming from?

The simplified image below shows how VOCs can move up from contaminated groundwater, into the soil beneath a home. Vapors can then move into crawlspaces and basements and finally into indoor areas. Many things affect vapor movement, including air pressure inside the house, the building's construction and how much contamination there is.



In most cases of vapor intrusion, VOC levels go down as the vapors move up and are dispersed. Therefore, indoor air levels are typically lower than crawlspace or soil gas levels. If indoor air levels are higher than crawlspace or soil gas levels, investigators try to determine if there is an indoor source of VOCs that is affecting air quality. This is a relatively common occurrence, as there are many commonly used household products that contain VOCs.

What are some sources of VOCs?

VOCs are gases that come off of certain liquids or solids in a process called "off-gassing".

VOCs can off-gas from thousands of products, including some paints, paint strippers, glues, cleaning supplies, pesticides, building materials and furnishings, new carpet, office equipment, correction fluids, carbonless copy paper, dry cleaning chemicals, degreasers, permanent markers and more.

The VOCs of greatest concern for Trainsong homes are trichloroethylene (TCE) and tetrachloroethylene (PCE). Breathing in high levels of these chemicals for long periods of time can cause increased risks for damage to the central nervous system, immune system, kidneys and liver, as well as increased risks for certain types of cancer.

Next steps and recommendations:

We know that the soil gas levels beneath the Trainsong neighborhood have dropped dramatically in the past two years. However, until DEQ can verify that the levels will stay low, Union Pacific Railroad (UPRR) will maintain vapor barriers for six homes located closest to the rail yard. UPRR will also continue monitoring soil gas levels in the Trainsong neighborhood, with DEQ oversight. DEQ will track the sampling results and re-evaluate the need for the vapor barriers in winter of 2010–2011.

EHAP is committed to working with the two homes that have indoor VOC levels of concern, to help them identify and remove the sources of VOC that are contaminating the air inside their homes.

EHAP and DEQ continue to recommend that residents living near the rail yard who have irrigation wells use well water for outdoor purposes only. We recommend against drinking well water or using it for cooking, cleaning or other in-home uses.

To link to the full report:
www.healthoregon.org/ehap

For questions about health effects of TCE & PCE:
Contact Sujata Joshi at 971-673-1213,
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For Information about sampling in the Trainsong area or the Union Pacific Rail Yard cleanup:
Contact Don Hanson at the DEQ at 541-687-7349 or by e-mail: hanson.don@deq.state.or.us

To link to the DEQ Web site for the Eugene Rail Yard Cleanup Project:
www.deq.state.or.us/lq/cu/wr/uprreugene/

Educational Web sites, reports, and resources:

- http://toxtown.nlm.nih.gov/text_version/chemicals.php?id=31
- www.epa.gov/iaq/voc.html

VOCs in well water:

- <http://oregon.gov/DHS/ph/envtox/gentox.shtml>