

Redfield Site

Update on Trichloroethene

September 2006

Interim Indoor Air Policy for Trichloroethene (TCE)

In August 2004, the Colorado Department of Public Health and the Environment (CDPHE) published a new interim policy that revises interim screening and remediation levels for trichloroethene (TCE) in indoor air. Under the new policy, if indoor air concentrations of TCE range from 0.8 to 1.6 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$), CDPHE will require further study to determine the sources of contamination (i.e., indoor sources, such as household products, versus groundwater sources) and whether remediation will be required. If indoor air concentrations exceed $1.6 \mu\text{g}/\text{m}^3$, remediation may be required. If concentrations are less than $0.8 \mu\text{g}/\text{m}^3$, continued monitoring may not be required. The previous residential risk levels for TCE in indoor air used by CDPHE were 70-140 $\mu\text{g}/\text{m}^3$, based on EPA's standard.

About Trichloroethene (TCE)

TCE is one of a group of chemicals known as volatile organic compounds, which readily evaporate at room temperature. TCE is a manufactured liquid that is non-flammable and colorless. It is used as an industrial cleaner in the automotive and metals industries.

TCE also is found in many common consumer and household products, including typewriter-correction fluid, paint removers, paint strippers, nail polish, gun-cleaning fluid, electronic cleaners, rust remover, adhesive glues, spot removers and other types of cleaning

fluids. These products can emit TCE into the air during their use and even through their containers during storage of the products in the home.

TCE and Indoor Air

The presence of TCE in the environment can be a result of the use and storage of household products that contain the chemical or of its historic use as an industrial cleaner. TCE can enter the indoor air of a building from the use of chemicals that contain TCE. In addition, TCE can enter the indoor air of a building when it has been discharged into the environment through spills, leaks, or disposal and enters surface water, soil or groundwater. TCE vapors can evaporate upward through the soil and into buildings through cracks in foundations, crawl spaces or air space around pipes. When vapors from TCE enter a home or building, the occupants may be exposed. Among the remedies for preventing TCE vapors from entering buildings is the use of ventilation systems identical to those used to prevent radon and other compounds, such as 1-1, DCE, from entering a home.

If the TCE entered the home through a product or another source brought into the home, use of a ventilation system will not reduce exposure. Residents can reduce their exposure to indoor sources of TCE by identifying and removing products that contain TCE. Additional information on chemicals in household products can be found at the National Institute of Health's Web site <http://householdproducts.nlm.nih.gov/products.htm>.

TCE and the Redfield Site

TCE is one of the chemicals Brown Group Retail, Inc., has been monitoring in the indoor air of homes within a designated test area for the Redfield site since 1998. TCE is present in the groundwater under certain areas of the Redfield site and surrounding community, although it is generally found in lower concentrations than another similar chemical, 1,1-dichloroethene (1,1-DCE).

The TCE and 1,1-DCE groundwater plumes in the vicinity of the Redfield site have similar boundaries. Because of this, and because TCE does not evaporate as readily as 1,1-DCE, the new CDPHE policy should not expand the general boundaries of the current indoor air test area associated with the Redfield site, which was historically based on 1,1-DCE. An analysis of homes tested in the area indicates that no additional homes are expected to require ventilation systems due to the presence of TCE.

Homes with Existing Ventilation Systems

Homes that currently have an indoor air ventilation system in place for 1,1-DCE mitigation should be protected from TCE in the indoor air, assuming the TCE is coming from the groundwater. If, however, a ventilated home tests above 0.8 $\mu\text{g}/\text{m}^3$, results will be reviewed by CDPHE and Brown Group's environmental contractor, EnviroGroup, to determine the TCE source. If the source is the groundwater, the ventilation system will be modified.

Homes without Ventilation Systems

If a home without an indoor air ventilation system tests above 0.8 $\mu\text{g}/\text{m}^3$ for TCE and the source is attributed to groundwater, Brown Retail will offer to install a ventilation system. Homeowners will be contacted directly by EnviroGroup to schedule installation of the system.

However, if groundwater concentrations and other evidence indicate that groundwater is not the source, CDPHE will not require the home to be ventilated. Because TCE is prevalent in many household products, levels found in homes above CDPHE's new range of 0.8 to 1.6 $\mu\text{g}/\text{m}^3$ may be attributable to household sources.

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