



Public Health Implications of Vapor Intrusion of Volatile Organic Compounds Associated with a Former Dry a Cleaning Establishment

September 2012

The Hazardous Materials and Waste Management Division (HMWMD) of CDPHE requested assistance from CCPEHA to evaluate the potential public health implications of exposure to indoor air contaminants at the Cho's Custom Cleaners facility (Cho's Cleaners). The purpose of this evaluation is to determine the public health implications of exposure to indoor air contaminants occurring via vapor intrusion in buildings overlying the groundwater contaminant plume stemming from the former location of Cho's Cleaners.

Site Background

Cho's Custom Cleaners is a former dry cleaning facility that operated for over 25 years at the Lake Arbor Shopping Center in Arvada, CO. The first indication of a release from Cho's was noted in a 2005. The audit concluded that former and current disposal practices of PCE were contributing directly to soil and groundwater contamination. Additional sampling and remediation has been conducted since the confirmation of PCE in soil and groundwater.

What did CCPEHA find in the Health Consultation?

Based on a review of the available indoor air data and the potential public health implications of inhalation exposures, CCPEHA has reached the following conclusions:

Exposure to PCE and TCE in indoor air is not likely to harm the health of Ace Cash Express and Goodwill employees. This conclusion was reached because the estimated non-cancer and theoretical cancer risks are associated with a low increased risk of developing cancer and non-cancer health effects. Specifically, the estimated non-cancer hazards from inhalation of PCE are just above the acceptable level of 1 for employees of Ace Cash Express. In addition, the estimated lifetime excess cancer risks are within the acceptable cancer risk range for employees of Ace Cash Express. Overall, the estimated exposures are above CDPHE's risk management action level of non-cancer hazard quotient of 1.0 and long term cancer risk goal of 1 excess cancer case per million exposed individuals (1E-06).

Currently there is no residential exposure to PCE in indoor air (i.e. not a complete pathway at this time). However, if the contaminant plume moves offsite and beneath the homes of surrounding residents in the future, it is not expected to harm people's health; however, this conclusion is associated with some uncertainty because the estimated exposures are above acceptable levels and enter a range of potential concern. It should be noted that residential exposure is a potential exposure pathway that is not currently expected to occur. However, if this pathway occurs in the future, the estimated non-cancer hazards from PCE exposure are 7 times above the acceptable level (i.e., health-based guideline), but are well below levels known to be associated with harmful health effects. In addition, the estimated theoretical cancer risks are well within EPA's acceptable cancer risk range. However, the estimates of future potential exposures are well above CDPHE's risk management action level of non-cancer hazard quotient of 1.0 and long term cancer risk goal of 1 excess cancer case per million exposed individuals (1E-06).

What's next?

To preserve public health, the following recommendations should be implemented.

- As necessary, CCPEHA will review any additional data collected from the Cho's Cleaner site.
- Upon request, CCPEHA will provide assistance to State and Local environmental officials on sampling plans and analysis.
- Upon request, CCPEHA will provide the appropriate level of health education on the findings of this health consultation to stakeholders and the community.

FREQUENTLY ASKED QUESTIONS:

What is a health consultation? A health consultation provides advice on a specific public health issue related to real or possible human exposure to toxic material. A Health Consultation is a way for the Colorado Department of Public Health and Environment to respond quickly to a need for health information on toxic substances and to make recommendations for actions to protect the public's health. Health Consultations may consider:

1. The levels (or "concentrations") of hazardous substances;
2. If and how people might be exposed to contamination (through "exposure pathways" such as breathing air, drinking or contacting water, contacting or eating soil, or eating food);
3. The harm the substances might cause to people (or the contaminants' "toxicity");
4. If and how working or living nearby might affect people's health; and
5. Other dangers to people, such as unsafe buildings, explosive hazards, or other physical hazards.

Where can I find this health consultation?

An electronic copy of this health consultation can be found at: <http://www.colorado.gov/cs/Satellite/CDPHE-DCEED/CBON/1251610480007>

To request a free copy of this health consultation or for more information on the health consultation, feel free to call Thomas Simmons, Health Assessor, at 303-692-2961. For other site-related concerns call Robert Beierle, Site Project Manager, at 303-692-3368.

What uncertainties are associated with the conclusions of this health consultation? A number of uncertainties exist with any health consultation or risk assessment. The primary uncertainties associated with this evaluation: (a) Limited indoor air data is available. This limitation is overcome by using the maximum detected value for health risk estimation which could over- or under-estimate risk, (b) indoor air contaminant values are likely to fluctuate over time depending on weather and other variables, and (c) the cancer and non-cancer risks for a future potential residential scenario are estimated using the current maximum detected air concentration, which may under- or over-estimate future potential risks.