



FACT SHEET

Dry Cleaners and PCE

Reviewed 2014

BACKGROUND

Today, dry cleaning operations in Colorado are far cleaner than in years past. Dry cleaners are regulated by numerous federal and state environmental laws including air, water, hazardous waste and occupational safety regulations. Together with the use of new dry cleaning technologies, these regulations have eliminated most releases of hazardous waste into the environment.

In the past, however, environmental laws weren't as strict. Dry cleaners, like other commercial and industrial activities of the time, disposed of wastes according to the laws and accepted practices of the time. Historically, some dry cleaners may have discarded wastes by pouring wastewater into sewers, throwing used filters and sludge into the trash, or by simply dumping wastewater on the ground near their facilities. In many cases, the current property owners are not associated with these past disposal practices.

At some dry cleaning facilities, past disposal and management practices may have resulted in contamination of soil and ground water to an extent that requires cleanup.

PCE CONTAMINATION IN THE ENVIRONMENT

Perchloroethylene, or PCE, contamination associated with releases from dry cleaners is usually found in soil and ground water. Affected soils are usually confined to a small area around the original release.

In ground water, PCE can persist for decades and travel in plumes with the ground water flow. Microorganisms in soil and ground water can slowly break down PCE over time. **Local areas of ground water contamination do not affect drinking water in most metropolitan areas. Denver Water, for example, supplies the water used by residents in the Denver metropolitan area.**

PCE evaporates easily. Therefore, ground water contaminated with PCE can "vent" PCE vapors into the soils above. Indoor air in overlying structures, such as homes, can become contaminated with PCE as it makes its way through cracks in foundations and crawl spaces.

PCE CONTAMINATION IN INDOOR AIR

There are no indoor air standards for PCE or similar compounds, collectively known as "volatile organic compounds." The analytical technology wasn't sensitive enough to measure these contaminants at such low concentrations in air until only a few years ago. In the absence of a regulatory standard, the State of Colorado uses risk-based levels to determine when action must be taken in order to protect human health and the environment.

What Is PCE?

- A colorless, nonflammable liquid, that evaporates easily.
- Widely used for dry cleaning and as metal degreaser. Also used in some consumer products such as typewriter correction fluid and shoe polish.
- Also known as perchloroethylene, tetrachloroethylene, PERC, perclene, and perchlor.
- Small amounts are also retained by recently dry cleaned clothing.

Indoor air impacts can be difficult to estimate, and as a result, indoor air sampling is required to measure the levels that may accumulate in a home or a business. Indoor air sampling for PCE and similar compounds typically costs around \$1,000 per test.

Tests done at several locations in Colorado reveal that PCE is found in the indoor air of many homes, even those unaffected by any nearby sources such as dry cleaners. These “background” levels of PCE are often derived from household products such as cleaning chemicals that are stored within the home or from recently dry cleaned clothing. In cases where a home may be located over ground water contaminated with PCE, it may be difficult to determine with certainty whether the measured vapors are the result of an indoor air source or ground water contamination.

HEALTH EFFECTS ASSOCIATED WITH PCE

The effects of PCE on human health depend greatly on how much PCE one is exposed to, and the length and frequency of exposure. Short-term exposure to high concentrations of PCE can cause dizziness, headaches, sleepiness, confusion, and nausea. Only people working directly with PCE in closed, poorly ventilated areas are likely to be at risk for such an exposure. Contact with PCE in its liquid or vapor form can irritate the skin, eyes, nose and throat.

Long term exposure in animal studies, conducted with amounts much higher than most people would be exposed to, show PCE can cause liver and kidney damage. In addition, the U.S. Department of Health and Human Services has determined that PCE may reasonably be anticipated to be a carcinogen or cancer-causing agent.

In almost all instances, the underground contamination potentially found at dry cleaners does not pose an immediate threat to human health. If the Colorado Department of Public Health and Environment finds a site that poses an immediate threat to human health, the staff of the Hazardous Materials and Waste Management Division works to quickly stop exposure, while communicating with any nearby residents about the possible risk.

REGULATORY RESPONSE

The Colorado Department of Public Health and Environment typically learns of historic contamination during inspections or through environmental assessments conducted during property transfers. Beyond compliance inspections, which examine current operating and waste management practices, the Colorado Department of Public Health and Environment does not have the resources to systematically sample the soil and ground water around every dry cleaner in the state to determine whether or not contamination has been released into the environment. Our priority is to use resources at those locations that are likely to pose the greatest potential risk to human health and the environment.

However, once contamination has been discovered, the department requires an environmental assessment to be performed. If hazardous waste releases are found to have occurred after 1980, the department can order the responsible party to perform a cleanup under the Colorado Hazardous Waste Act.

Under federal and state hazardous waste laws, the Colorado Department of Public Health and Environment does not generally have the regulatory authority to order the cleanup of any hazardous waste contamination that occurred prior to 1980. Sites contaminated with pre-1980 releases are referred to the department’s Voluntary Cleanup Program, where the cleanup is performed voluntarily by the property owner, and with the approval of the department. If pre-1980 releases appear to pose a significant risk, they may be referred to the federal Superfund program, or may be dealt with under state and federal emergency powers.