

Letter Health Consultation

Evaluation of Indoor Air and Soil Gas Data

FORMER CIRCLE TRI CLEANERS (CTC)

PLYMOUTH, NEW HAMPSHIRE

Prepared by
New Hampshire Department of Environmental Services

DECEMBER 7, 2012

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

You May Contact ATSDR Toll Free at
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LETTER HEALTH CONSULTATION

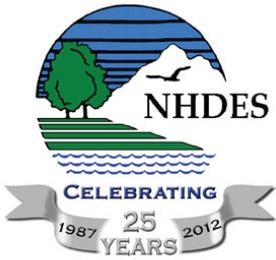
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The State of New Hampshire
Department of Environmental Services

Thomas S. Burack, Commissioner



*Celebrating 25 years of protecting
New Hampshire's environment.*

December 6, 2012

Mia Pasquerella, On-Scene Coordinator
Environmental Protection Agency-Region 1
5 Post Office Square
Boston, MA 02114-2023

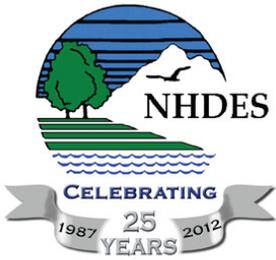
Ralph Wickson
Department of Environmental Services
29 Hazen Drive
Concord, NH 03302-0095

**RE: Evaluation of Indoor Air and Soil Gas Data for the Former Circle Tri Cleaners (CTC) Site
Plymouth NH**

Dear Ms. Pasquerella and Mr. Wickson,

In response to the request from the U.S. Environmental Protection Agency (EPA), the New Hampshire Department of Environmental Services (DES) has reviewed the indoor air and soil gas sampling data collected as part of EPA's investigation of past solvent releases at the Former Circle Tri Cleaners Site at 54-58 Main Street in Plymouth, NH. EPA has asked ATSDR and the DES Environmental Health Program (EHP) to determine if exposure to site contaminants poses a health risk to building occupants and, if so, to identify actions needed to protect them. EPA's investigation at the site included a sampling event during June-July 2012 that involved collecting indoor air and soil gas samples at the former dry cleaner building and other buildings in the area. The EHP will prepare a health consultation to evaluate all of the environmental data for 54-58 Main Street and the other buildings in the area. However, EHP wanted to notify EPA that the maximum detected concentrations of trichloroethylene (TCE) and tetrachloroethylene (PCE) at the former dry cleaners building are of concern for people exposed for even a short time period. This situation requires prompt attention to reduce occupants' exposure at this location.

There are six businesses currently located in the building where the dry cleaning establishment previously operated (54-58 Main Street). Indoor air and soil gas samples were collected at each of the six building locations. The maximum detected concentration of TCE in indoor air using an 8-hr Summa Canister was $33 \mu\text{g}/\text{m}^3$; the maximum detected concentration of PCE in indoor air using an 8-hr Summa Canister was $4,300 \mu\text{g}/\text{m}^3$ (Table 1). The maximum concentration of TCE in indoor air ($33 \mu\text{g}/\text{m}^3$) exceeded the EPA Reference Concentration (RfC) of $2 \mu\text{g}/\text{m}^3$. The EPA RfC is based on two principal animal studies, and one supporting animal study (1). EPA has concluded that there is a 1% risk of fetal heart malformations if pregnant women are exposed to TCE in air at $21 \mu\text{g}/\text{m}^3$ (1). The maximum detected concentration of TCE exceeds this non-cancer effect level. The maximum detected concentration of PCE in indoor air ($4,300 \mu\text{g}/\text{m}^3$) exceeded both the ATSDR Acute MRL ($1,400 \mu\text{g}/\text{m}^3$) and the EPA RfC ($271 \mu\text{g}/\text{m}^3$).



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EHP recommends that EPA take immediate actions to eliminate or significantly reduce exposure to TCE and PCE at this location. The maximum concentration of TCE in indoor air ($33 \mu\text{g}/\text{m}^3$) is above the effect level at which pregnant women are at risk for adverse fetal outcomes (fetal heart defects) for even a three-week period of exposure (1). Likewise, the maximum PCE concentration inside the building ($4,300 \mu\text{g}/\text{m}^3$) is above the level at which acute effects, such as disruption of normal motor/cognitive functioning (e.g., lack of vigilance) and motor functioning (e.g., eye-hand coordination) can occur (2).

It should be noted that EHP's evaluation is based on only the most recent sampling event. However the sub-slab levels of TCE and PCE in soil gas underlying the building (maximum concentrations of $188,974 \mu\text{g}/\text{m}^3$ and $397,626 \mu\text{g}/\text{m}^3$, respectively) are supportive of the levels identified in indoor air. It should also be noted that the sample detection limits for TCE in some of the businesses were very high. It is possible that TCE could have been present in these businesses at a level of concern but not been detected. It is possible that TCE and PCE have been present for quite some time.

The EHP is aware that EPA is planning to begin remediating the site in January 2013 in order to reduce the indoor air contaminant levels at this location. EPA should take immediate actions to significantly reduce levels of TCE and PCE in the interim. The EHP will work with EPA to notify building occupants who might be currently affected by this exposure. A site visit is planned for December 12 at which time EHP will meet with the building occupants to make them aware of the possible health implications of exposure and to discuss their health concerns and answer questions. The EHP is currently preparing a health consultation to evaluate all of the indoor air and soil gas data collected at 54-58 Main Street and other buildings in the area of this site to better characterize the extent of the exposures and the need for any additional public health actions.

Should you have further questions please feel free to contact me at tel. (603)271-6909.

Sincerely,

Dennis Pinski, Supervisor
Environmental Health Program

1. U.S. EPA. 2012. Integrated Risk Information System (IRIS) – Trichloroethylene. Office of Research and Development, U.S. Environmental Protection Agency. Last revision: 9/28/2011. Available at: <http://www.epa.gov/iris/subst/0199.htm>.
2. ATSDR. 1997. *Toxicological Profile for Tetrachloroethylene*. Atlanta, Georgia. September 1997. Available at: <http://www.atsdr.cdc.gov/toxprofiles/TP.asp?id=265&tid=48>.

Table 1
Summa Canister Indoor Air (8-hr) Sample Results and Comparison to Air Health Comparison Guidelines
Circle Tri Cleaners Site
54-58 Main Street Building Complex
Results in $\mu\text{g}/\text{m}^3$

Sample	SU-08	SU-09	SU-10	SU-11	SU-12	SU-13	DES Commercial Indoor Air Screening Level ($\mu\text{g}/\text{m}^3$)	DES Commercial Site Cancer Risk Limit ELCR of $1.0 \text{ E-}05$ ($\mu\text{g}/\text{m}^3$)	DES Commercial Site HI Limit HI= 1.0 ($\mu\text{g}/\text{m}^3$)	ATSDR Acute MRL ($\mu\text{g}/\text{m}^3$)	EPA RfC ($\mu\text{g}/\text{m}^3$)
Location	Corner Cuts	Allstate	Gowen Realty	CTC	Styleworks	A-Bit Computer					
Contaminant											
PCE	21	320	24	4,300	1,600	240	35	471	175	1,400	40
TCE	ND	ND	0.7	ND	ND	33	1.75	30	8.8	None	2
Cis-1,2-DCE*	ND	ND	0.7	ND	ND	22	53	NA	265	None	None

Bold results exceed at least one ATSDR Comparison Value

Shaded results exceed DES Screening Level

TCE detection limits were elevated for results at these businesses: Allstate: $4.57 \mu\text{g}/\text{m}^3$; CTC: $46.73 \mu\text{g}/\text{m}^3$; Styleworks: $37.06 \mu\text{g}/\text{m}^3$

Corner Cuts = Corner Cuts for Men

Allstate = Allstate Insurance

CTC = Circle Tri Cleaners

Styleworks = Styleworks Salon

*Trans-1,2-DCE comparison values used as surrogate for cis-1,2-DCE

1,1-DCE and **trans-1,2-DCE** were ND for all indoor air samples