

Possible Health Risks from Exposure to TCE & PCE

Purpose

The Agency for Toxic Substances and Disease Registry (ATSDR) recommends that immediate steps be taken to protect the health of children, pregnant women, and workers at the Navy Yard Mills complex. ATSDR recommends that exposure to chemicals known as **TCE (trichloroethylene)** and **PCE (tetrachloroethylene)** from the indoor air in Buildings 1, 4, and 19 be reduced or stopped immediately. This fact sheet will give you information about TCE and PCE.



What are TCE and PCE?

TCE and PCE are man-made chemicals and were used often in manufacturing.

- TCE is a nonflammable colorless liquid. It was used as a solvent to remove grease from metal parts. It is also found in adhesives, paint removers, and spot removers.
- PCE is a nonflammable liquid. It is used frequently in dry cleaning and to remove grease. It is also referred to as perchloroethylene or PERC.

How would I be exposed to TCE and PCE at the Navy Yard Mills buildings?

TCE and PCE in soil and groundwater can evaporate and enter the indoor air of Navy Yard Mills buildings. People who occupy or visit these buildings may then be exposed to these compounds in indoor air.

How could my health be affected by breathing TCE and PCE at this site? Will I get sick? Will my child get sick?

The effect of exposure to any chemicals, including TCE and PCE, depends on several things including: the amount of chemical you were exposed to, how long you were exposed, and other factors such as gender, age, body size, and other existing health issues.

ATSDR's analysis of data from January – April 2012 found:

PCE – Tetrachloroethylene

Buildings 1 and 4 – In buildings 1 and 4, there is no risk of health effects from PCE exposure.

Building 19 – Baseball Practice Area: Children, adolescents, and adults who exercise more than 8 hours a week for many months in the smaller room of batting cage area of building 19 may be at an increased risk of developing health effects associated with PCE exposures, such as altered color vision.

TCE – Trichloroethylene

Buildings 1 and 4

- Female workers who are pregnant and spend time in buildings 1 and 4 (for 10 hours per day, five days per week for several weeks to several months) may be at risk of developing health effects associated with TCE exposures such as damage to the immune system and having a child with heart problems.
- Adults workers who spent time in buildings 1 and 4 (for 10 hours per day, five days per week for several weeks to several months) may be at an increased risk of health effects associated with TCE exposure, such as reduced thymus weight which could increase risk of autoimmune diseases, and having a child with heart problems.

Building 19 – Baseball Practice Area

Main Room containing the Batting Cage area

- Children and adolescents who play or practice baseball in the main room for eight or more hours per week for several weeks to several months may be at an increased risk of damage to their immune systems, such as reduced thymus weight and risk of developing autoimmune diseases.
- Pregnant women who exercise in the main room (batting cage area) of the baseball practice area for more than eight hours per week for several weeks to several months may be at risk for having a child with heart problems. Pregnant women who visit the main room of the baseball practice area to watch family members practice are not at risk.

Second, smaller exercise room (has weights and bikes)

- Children and adolescents who play or practice baseball in the second smaller room with weights and exercise bikes for six or more hours per week for several weeks to several months may be at an increased risk of damage to the immune system such as reduced thymus weight and risk of developing autoimmune diseases.
- Pregnant women who exercise in the second smaller room with weights and exercise bikes of the baseball practice area for more than four hours per week for several weeks to several months may be at risk for having a child with heart problems.
- Pregnant women who visit the second room of the baseball practice area for more than 10 hours a week for several weeks to several months to watch family members practice may be at risk for having a child with heart problems.

Both Rooms (Main room containing batting cage area and second smaller exercise room)

- Adults who work in the baseball practice area full-time (working more than 20 hours per week for several weeks to several months) may be at an increased risk of damage to the immune system such as reduced thymus weight and risk of autoimmune diseases.
- Female workers who may be pregnant (working more than 20 hours a week) maybe at risk of having a child with heart problems.

What is ATSDR doing to address the TCE and PCE exposures?

ATSDR recommends that immediate steps should be taken to stop or reduce exposure to PCE and TCE from indoor air at the Navy Yard Mills site. ATSDR is working with the U.S. Environmental Protection Agency (EPA) to decide on appropriate actions to lessen exposure. ATSDR will review additional data provided by EPA and the Massachusetts Department of Environmental Protection from 2007 through the present and will review any additional data and remediation design plans when available.

I spend time in the buildings at the Navy Yard Mills complex.

Did I take TCE or PCE home with me?

No. TCE and PCE are present in indoor air. The chemicals are a concern only if you were in the building and breathing the air. The chemicals do not attach to clothing or other items in a way that you could bring them home with you.

If I've spent time in the buildings at the Navy Yard Mills complex, could I make other people get sick?

No. The health concern is from people breathing TCE or PCE in indoor air. People who were not in the buildings on the site were not exposed to the chemicals.





I was only in the building(s) a few times. Am I safe?

Based on the data we have from January to April 2012, we do not believe that visiting the buildings a few times would be a health concern.

Is there treatment for exposure to TCE and PCE?

- No medical treatment can remove TCE or PCE from your body, but your body does break down and remove these chemicals.
 - » You breathe out TCE and PCE after an exposure.
 - » It also leaves your body in your urine.
- Avoiding TCE and PCE exposure is always recommended.
 - » TCE can sometimes be found in products used for spot removers or de-greasers
 - » PCE is frequently used in dry cleaning. Allow dry cleaned items to air out before bringing them into your home.

What medical conditions are related to TCE and/or PCE exposures in indoor air levels found at the Navy Yard Mills site?

- Animal studies show that exposure to low levels of TCE may cause heart-related health effects to unborn babies.
- Animal studies also show that TCE can affect the immune system, such as a decrease in thymus weight.
- Occupational studies show PCE exposure can have harmful effects on the visual system resulting in inability to distinguish colors in the blue-yellow range.
- Several government organizations consider TCE and PCE to be carcinogens. At the Navy Yard Mills site, non-cancer health effects, such as those mentioned above, are the major concern.

Will ATSDR assess my or my child's health or diagnose our medical conditions?

The decision to assess for health conditions related to TCE and PCE should be made in consultation with your doctor. ATSDR staff cannot diagnose or provide individual health care advice. ATSDR staff can help you find an expert for you or your doctor to talk to about these chemicals and their health effects.

If I have questions for ATSDR, who can I speak with?

For questions related to ATSDR's work at the Navy Yard Mills complex, you may contact ATSDR Regional Representatives:

- Tarah Somers, RN, MSN/MPH: (617) 918-1493
- Gary Perlman, MPH: (617) 918-1492

Making sure people are safe from chemical exposure is ATSDR's top priority.

ATSDR is a federal agency of the U.S. Department of Health and Human Services.

<http://www.atsdr.cdc.gov/>