



Naples
Community
Health
Awareness

An important Public Health Evaluation is underway under the guidance of the Navy and Marine Corps Public Health Center. The Public Health Evaluation is designed to evaluate the potential short and long-term health risks associated with living in the Naples area as a result of inadequate trash collection, uncontrolled open burning of uncollected trash, and widespread dumping of waste, including chemical and other hazardous waste.

Launched in 2008, the Public Health Evaluation involves the collection of air, water, soil and soil gas samples from throughout the region to identify whether there are potential health risks.

For details and background information, visit the website listed at the bottom of this page.

Your Health: Facts for Navy Families in Naples

About: Investigating Groundwater in Casal di Principe

The health and safety of Navy personnel and their families are a top priority in Naples. The groundwater contamination investigation is a big step toward determining the potential for health risks in the Casal di Principe area. Health risks are a possible result of the region's improper trash and hazardous waste disposal practices. The goal of the Navy's investigation is to develop as clear a picture as possible of what is happening and then take steps necessary to protect the health of Navy personnel and their families.

Overview

The Navy is conducting an investigation of groundwater contamination near Casal di Principe, shown in Figure 1 at right. During Phase I sampling in this area, it became evident that many of the homes were drawing tap water from contaminated groundwater through private wells rather than obtaining treated tap water from a city-supplied public water source. In some cases, landlords supplemented the city-supplied water source with water from a private well, creating a "blended" water supply of city water and contaminated groundwater to the home. Homes connected to both a private well and the city water supply can contaminate neighboring homes if proper backflow prevention devices are not installed.

Tap water samples collected from homes in this area showed relatively high levels of a chemical called tetrachloroethene, or PCE, indicating that tetrachloroethene has contaminated the groundwater.

The presence of tetrachloroethene in groundwater or soil gas can be of concern, because human exposure to this chemical can cause some health effects.

The presence of tetrachloroethene in groundwater suggests that there is a tetrachloroethene-contaminated

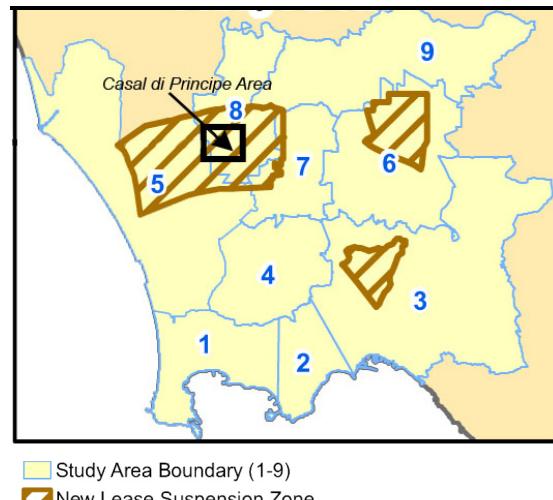


Figure 1. The Navy is conducting an investigation of groundwater contamination near Casal di Principe, shown in the outlined area above.

groundwater plume in the area (see Figure 2 below).

Furthermore, soil gas samples collected from this area also showed relatively high levels of tetrachloroethene.

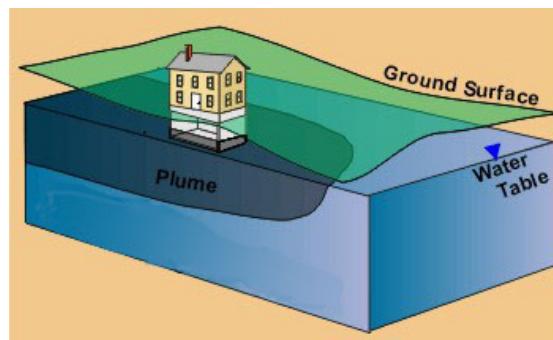


Figure 2. A "plume" is a term used to describe an area of water underground that has been contaminated by chemical(s).

About Tetrachloroethene and Vapor Intrusion

Tetrachloroethene, or PCE, is a man-made chemical that is widely used in the dry-cleaning of fabrics and degreasing of metals. It is also used in some consumer products and to make other chemicals. Chemicals such as tetrachloroethene can seep into the soil and groundwater through leaking storage tanks, accidental spills of hazardous waste and improper refuse and hazardous waste disposal. The chemicals can easily travel through groundwater or through soil as vapors. If conditions are right, these vapors can move up through the groundwater and soil into the air of overlying buildings or homes. This process is called “**vapor intrusion**” (see Figure 3 at right).

Soil gas can enter buildings through cracks in concrete-slab floors, basement floors, sump pumps or wherever electrical wires or pipes penetrate the foundation. If vapor intrusion occurs, occupants are at risk for exposure to the chemical through inhalation. For more information about vapor intrusion, review the “Vapor Intrusion” fact sheet and video on the Naples Community Health Awareness website.

Health Effects

Many factors can impact an individual's health effects from exposure to tetrachloroethene, including the amount of exposure, length of exposure and pre-existing health conditions. In general, high concentrations of tetrachloroethene, particularly in closed, poorly ventilated areas, can cause dizziness, headache, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness and under extreme conditions, death. According to the U.S. Department of Health and Human Services, tetrachloroethene may reasonably be anticipated to be a carcinogen. Visit the Agency for Toxic Substances and Disease Registry at <http://www.atsdr.cdc.gov/> for more information about tetrachloroethene.

The presence of tetrachloroethene in groundwater or soil gas can be of concern, because human exposure to this chemical can cause some health effects. Exposure to tetrachloroethene can occur through ingestion, such as drinking it in contaminated tap water, or through inhalation of the chemical. Exposure by inhalation is likely to occur indoors in closed, poorly ventilated areas as a result of vapor intrusion (see vapor intrusion discussion at left).

To identify homes potentially impacted by the groundwater plume, the Navy began collecting tap water and soil gas samples, initially at a 500-foot radius from the cluster of homes where high levels of tetrachloroethene were detected (see Figure 4 on page 3). The testing of tap water and soil gas samples from the 500-foot radius homes showed high levels of

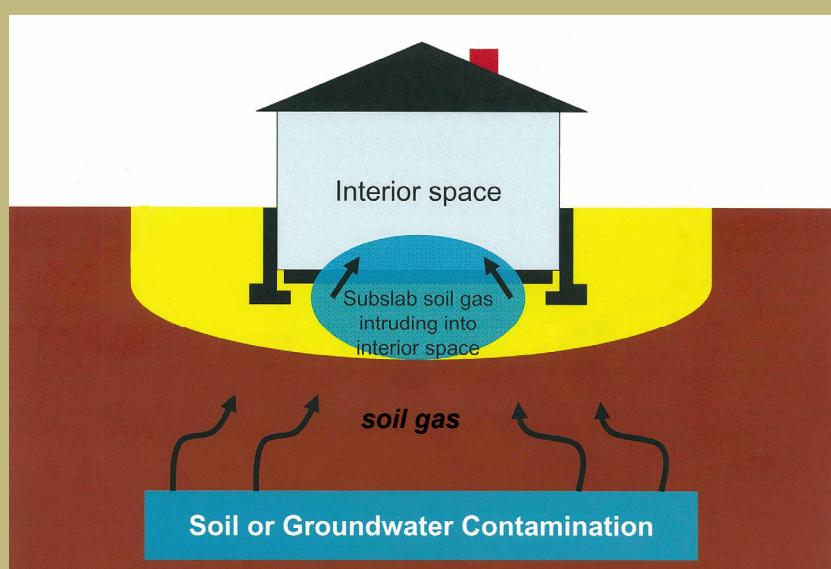


Figure 3. Vapor pathway into buildings.

tetrachloroethene in some samples. The Navy took several actions to help safeguard the health of U.S. military and civilian personnel residing in the Casal di Principe area, including establishing a “New Lease Suspension Zone.” The New Lease Suspension Zone ensures that personnel can no longer move into the area until the contamination has been better defined. The Navy also urged compliance with the bottled water advisory, encouraging personnel to use bottled water for drinking, cooking, food preparation, brushing teeth and making ice so that personnel minimize the risk of ingesting tetrachloroethene in the tap water. As mentioned above, exposure to tetrachloroethene can also

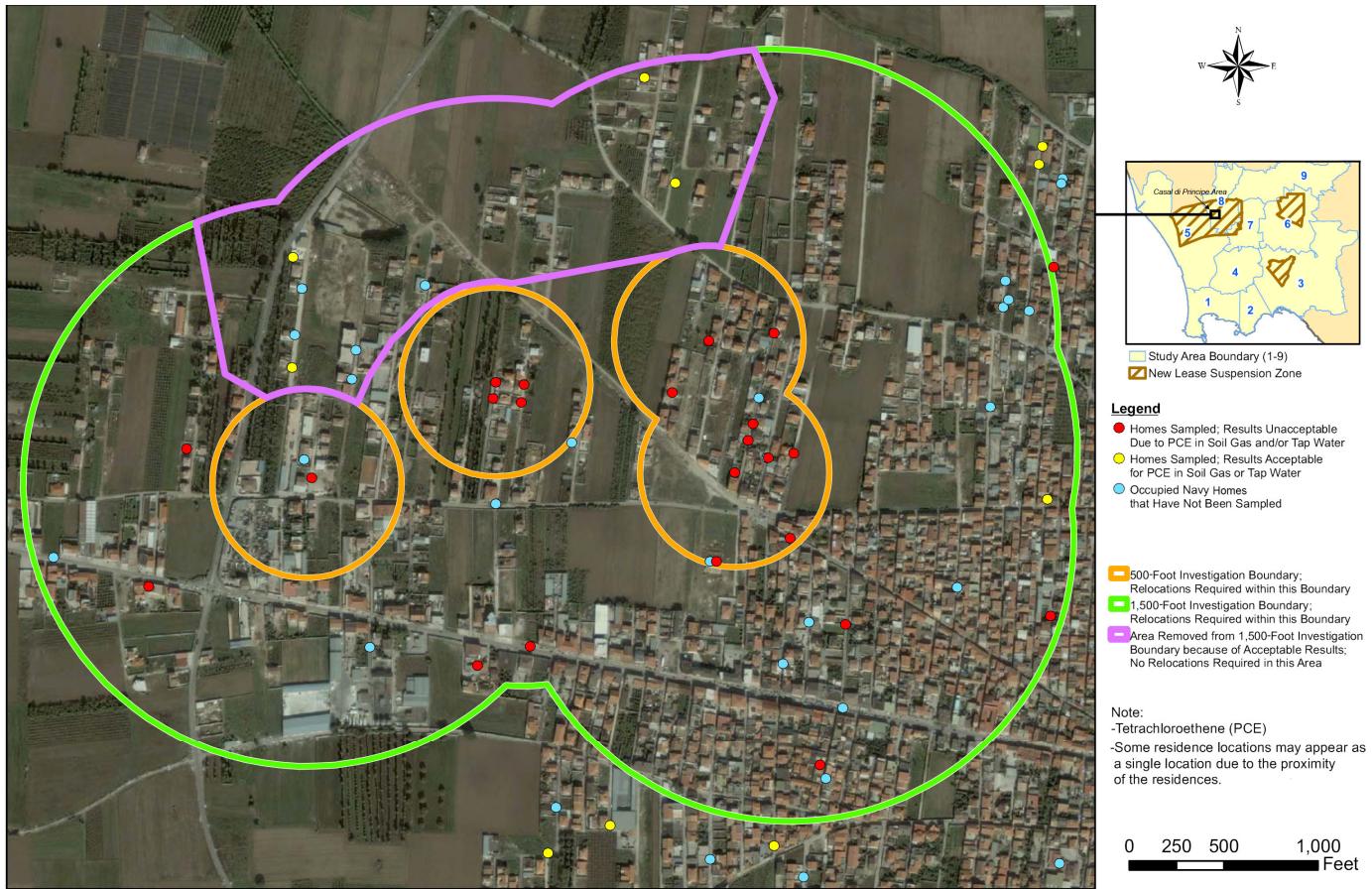


Figure 4. The investigation area lies within a New Lease Suspension Zone. To date, the Navy has relocated 16 families within the 500-foot investigation boundary. Families residing within the 1,500-foot investigation boundary will be relocated, depending on their projected rotation date.

come from inhalation of the chemical. For homes where the risk associated with vapor intrusion of tetrachloroethene was unacceptable, the Navy recommended that U.S. personnel residing in the home relocate to another home outside of the New Lease Suspension Zone.

Because many of the samples originally collected at the 500-foot radius showed high levels of tetrachloroethene, the Navy subsequently began collecting tap water and soil gas samples at a 1,500-foot radius (see Figure 4 above) to continue investigating the boundary of the groundwater plume.

Outcome of the 1,500-Foot Investigation

Based on testing results of the 1,500-foot investigation and the Navy's risk management criteria, the Navy is recommending that some personnel relocate to another home outside the New Lease Suspension Zone to minimize the risk of exposure to tetrachloroethene that may be present

in indoor air as a result of vapor intrusion. Although the use of bottled water minimizes the risk of ingesting the chemical through tap water, using bottled water does not prevent the risk of exposure through inhalation of the chemical. Thus, to minimize the risk from inhalation of the chemical, relocation is recommended. However, because there is not an immediate health risk and due to the length of time it would take to move, personnel who have a relatively short period of time before their permanent change of station may not have to relocate.

Investigation of the tetrachloroethene-contaminated groundwater plume is still underway. The Navy continues to refine the boundaries of the 1,500-foot investigation area. The Navy will continue to notify U.S. military and civilian personnel about the testing results of their home.

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For more information contact:

Environmental Health Information Center

U.S. Naval Hospital Naples, Room 1096
COMM: 39-081-811-6071
DSN: 314-629-6071

Navy and Marine Corps Public Health Center

620 John Paul Jones Circle, Suite 1100 Portsmouth, VA 23708
757-953-0664
Fax: 757-953-0675

Naval Support Activity, Naples
Public Affairs Office
PSC 817 Box 40 FPO AE 09622
COMM: 39-081-568-5907
DSN: 314-626-5907

Notification and Assistance

The Navy is committed to sharing testing results with U.S. military and civilian personnel, landlords and Italian officials. Each resident and landlord whose home was tested as part of the 1,500-foot investigation or whose home lies within the current 1,500-foot investigation area will be contacted by the Navy to receive an explanation of the testing results and actions the resident should take to minimize exposure to tetrachloroethene.

To make the transition to another home as seamless as possible, the Navy will assist personnel who need to relocate. The Naval Support Activity Naples Housing Office is committed to assisting personnel and their families every step of the way as they make the transition to another home.

For more information about relocation assistance, contact the Housing Office at 081-811-4466, DSN 314-629-4466.

In addition, an important aspect of the groundwater contamination investigation is to communicate the findings to Italian health authorities to encourage appropriate action to address the groundwater plume. The Navy has communicated its findings to the chain of command, U.S. Consulate and Host Nation officials, including local elected officials and regulatory authorities.

The Navy will continue to publicize updates and information through All Hands meetings and e-mails, the Panorama, the Naples Community Health Awareness website, the Environmental Health Information Center and through special meetings as necessary.

Steps Residents Can Take

If you reside in the 1,500-foot investigation area or in proximity to the boundary, continue to follow the bottled water advisory and begin the process of searching for a new home if you are one of the personnel recommended to

Glossary

Groundwater plume: When a chemical enters the ground, it can contaminate the groundwater. As the chemical moves with the groundwater flow, the area of pollution is referred to as a "plume." Plumes can break down naturally over time. The length of time will depend on the type of chemical, the concentration of the chemical present and whether more of the chemical continues to be added, among other factors.

Tetrachloroethene (PCE): A man-made chemical that is widely used in the dry-cleaning of fabrics and degreasing of metals. Exposure to tetrachloroethene may cause adverse health effects.

Soil gas: Chemicals in their gaseous form that occur in the small spaces between particles of soil. If conditions are right, such gases can move through the soil and make their way into indoor air and outside air.

Vapor intrusion: A condition that occurs when soil gas enters buildings that overlie contaminated soil or groundwater. Soil gas can enter buildings through cracks in concrete-slab floors, basement floors, sump pumps or wherever electrical wires or pipes penetrate the foundation.

relocate. Because there are no steps that residents can take to effectively safeguard against inhaling tetrachloroethene vapors from vapor intrusion, the Navy recommends relocating to another residence that is outside of the New Lease Suspension Zone.

For any health concerns regarding potential exposure to tetrachloroethene, or for more information about the chemical, personnel should contact the Environmental Health Information Center located on the ground floor of Naval Hospital Naples, Room 1096, or via phone at 081-811-6071 or DSN, 314-629-6071. Personnel are encouraged to keep up to date on the progress of the investigation and the Naples Public Health Evaluation.