



# Your Health: Facts for Navy Families in Naples

## About: VOCs

An important Public Health Evaluation (PHE) is underway under the guidance of the Navy and Marine Corps Public Health Center. The PHE 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 PHE involves 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.

*The U.S. Navy is committed to ensuring our families are safe while serving our country at home or overseas. The following information is provided as part of a wide-ranging effort to understand the health risks of our personnel and families living in Naples, Italy. Currently underway is a comprehensive Public Health Evaluation (PHE) to assess potential short and long-term health risks associated with living in the Naples area (see sidebar). In line with our commitment to continually share important health information, we encourage you to review the following.*

### What are Volatile Organic Compounds?

Volatile Organic Compounds (VOCs) are liquid chemicals that evaporate easily at room temperature. The term “organic” means these chemicals contain carbon and hydrogen.

VOCs are found in a variety of everyday products and have been widely used in industrial and household products for more than 100 years because of their dissolving and cleaning properties. A wide variety of common products used in our homes, offices and schools contain VOCs. These products, which number in the thousands, include perfumes and hair sprays, shoe polish, mothballs, rug and oven cleaners, paints, lacquers and thinners, cigarette smoke, paint strippers, pesticides, dry-cleaning fluids, building materials and home furnishings. These products can contribute significantly to the level of so-called “background” VOCs found in the home or work environment.

In addition to exposure from everyday products, VOCs have been discovered in soils and groundwater due to leaking storage tanks, accidental spills, and improper refuse disposal and hazardous waste disposal practices.

### How do VOCs get into the environment and into my tap water?

VOCs in groundwater and soil have sometimes been traced to sources such as municipal landfills, hazardous waste dumps and industrial facilities. Other VOCs in tap water and soil may be related to fuel spills on the ground or leaks

from underground storage tanks. Groundwater contamination can also result from improper disposal of other products that contain these materials. VOCs can move easily through the environment. VOCs on the ground surface can travel downward through the soil and eventually end up in the groundwater or well water.

### What should you know about VOCs in Naples?

Currently, the Commander, Navy Region Europe, Africa, Southwest Asia (CNREURAFSWA), with the assistance of the Navy and Marine Corps Public Health Center, is undertaking a comprehensive effort to evaluate the potential short and long-term health risks associated with living in Naples. Included in this Public Health Evaluation (PHE) is the collection of air, water, soil and soil gas samples to identify whether there are potential health risks. The evaluation has not yet been completed, however, initial sampling efforts show presence of VOCs in some tap water in all nine study areas. These levels are higher where homes are served by private wells, but VOCs can also be in city water because of illegal connections from wells to the city water system. This is known as blending, which can potentially contaminate the city water system. For this reason, it is important for military families to be informed.

Currently, the PHE team continues to collect and analyze samples and notify tenants and landlords if preliminary data show there could be health concerns at their residences. If unacceptable levels of VOCs are found that cannot be mitigated to acceptable levels by bottled water, personnel living in those homes will be relocated. In addition, we will continue to investigate these situations so that we can determine the impact to families in nearby residences and take appropriate actions.





For more information contact:

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### How are people exposed to VOCs?

People can be exposed to VOCs in a number of ways. In Naples, based on existing testing and evaluation, the most likely exposure is from tap water served by wells or from blended water (a mix of well water and city water).

**Tap Water:** VOC exposure from tap water can come from drinking the water (ingestion), inhalation, and skin absorption (by direct contact with the skin). Inhalation occurs when VOCs that are dissolved in water are released as vapors into the air. This “evaporation” from water to air occurs more quickly when the water is heated.

**Soil:** VOC exposure from soil can come from intrusive soil activities such as digging. VOCs in exposed soil are released from the soil and can be inhaled. People can also be exposed to VOCs through direct contact with the skin from soil or ingestion of soil via hand-to-mouth contact.

**Indoor Air:** Most VOCs in indoor air come from sources inside the building, such as adhesives, carpeting, upholstery, copy machines and cleaning agents, that may emit VOCs. Exposure can also come from other activities such as showering when VOCs are released from water into air. In some cases, VOCs in soil or contaminated groundwater can migrate upwards and evaporate into the indoor air of overlying buildings. This is known as “vapor intrusion” (see *About: Vapor Intrusion* fact sheet).

### What are the health effects of Volatile Organic Compounds?

Many factors impact individual health effects from exposure to VOCs, including the material itself, length of exposure, amount of exposure, and pre-existing health conditions. In general, immediate effects can include eye, nose and throat irritation; headaches; nausea; memory impairment; and visual disorders. Exposure to high amounts of chlorinated VOCs can cause dizziness, reduce the ability to concentrate, damage the nervous system, and cause an irregular heartbeat. Longer exposures can result in damage to the liver, kidney and central nervous system. Studies indicate that exposure to high levels of some chlorinated solvent VOCs may result in cancer.

### How can I reduce my exposure to VOCs?

**Tap Water:** Follow the CNRE All-Hands Notice to use bottled water for drinking, cooking, brushing teeth and making ice.

- Use only bottled water for all formula, juice and drinks given to children.
- Since VOCs evaporate in hot water, use cooler water when bathing, and take shorter showers and baths.
- Use shorter wash cycles in washing machines and dishwashers.
- Ventilate areas in your home when you use tap water, such as bathrooms, kitchens and laundry areas.

**Soil:** To date, no VOCs have been detected in soil at concentrations that are of concern to human health. However, given the history of illegal refuse and hazardous waste disposal in Naples, it is always advisable to be cautious.

- Avoid digging in the soil in your yard.
- If you must dig in the soil in your yard:
  - Minimize the time you dig to reduce your inhalation exposure.
  - Wear gloves to minimize direct contact with your skin.
  - Thoroughly wash hands with soap and water after yard work is finished.
  - Thoroughly clean shoes and clothes that have come in contact with soil prior to bringing them indoors.

### What is the Navy doing to solve the problem?

The health and safety of our personnel and their families is a top priority in Naples. The Naples PHE is a big step toward determining the potential for health risks in the area as a possible result of improper trash disposal (including burning) and hazardous waste disposal. The goal is to develop as clear a picture as possible of what is happening and then take steps necessary to protect the health of our families.

The Navy issued an All-Hands advisory to use bottled water for drinking, cooking, brushing teeth and making ice in 2008. This was a precautionary measure in response to preliminary sampling results indicating contamination in a significant number of residences. Using bottled water instead of tap water will eliminate much of the exposure to contaminants in tap water, such as VOCs. It will not however, eliminate the inhalation exposure if significant vapor intrusion is present.