

NAPLES

Public Health Evaluation



Why is the Navy requiring Italian landlords to provide containerized water service from an approved vendor?

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. In line with our commitment to continually share important health information, we encourage you to review this fact sheet.

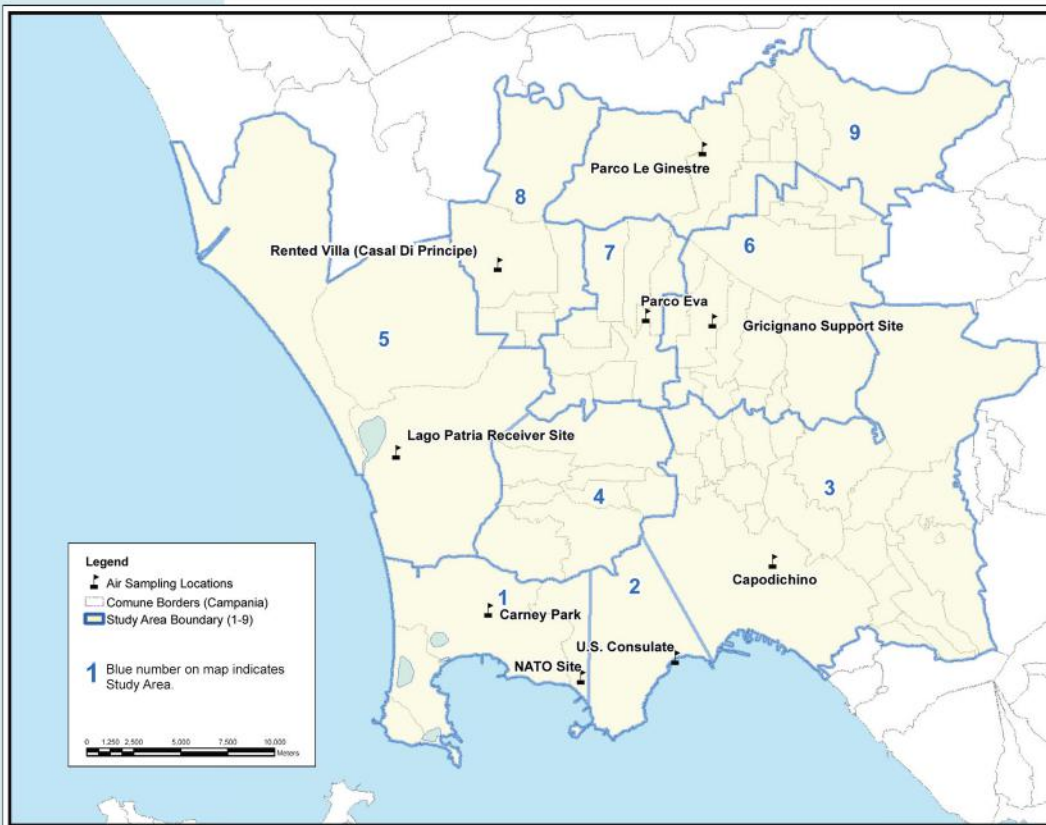
Introduction

The Campania region of Italy has experienced numerous challenges associated with trash collection; uncontrolled, open burning of uncollected trash; and widespread dumping of waste, including chemical and other hazardous waste. In addition, reports of increased rates of cancer, birth defects and other health problems due to the waste situation have been reported in Italian public health studies and Italian media.

In 2008, the Commander, Navy Region Europe, Africa, Southwest Asia (CNREURAFSWA), with the assistance of the Navy and Marine Corps Public Health Center (NMCPHC), launched a Public Health Evaluation to evaluate the potential short and longterm health risks associated with living in the Naples area. The Public Health Evaluation was completed in June 2011 and involved the collection of air, water, soil and soil gas samples from throughout the Naples area to identify whether there are potential health risks.



This fact sheet is specific to the collection of water samples and discusses potential sources of public water supply contamination.



The Navy collected air, water, soil and soil gas samples from the nine study areas shown on this map.

The Navy conducted a Public Health Evaluation to study the potential short and long-term health risks associated with living in the Naples area.

Where is water contamination in the home coming from? Water

contamination found in a home can be from several sources:

- **Chemicals** from spills or illegal waste disposal can travel down into the soil and can eventually contaminate the groundwater or well water that provides drinking water to the home.
- The home's **water holding tank** may not be properly cleaned and disinfected, thus contaminating the in-home plumbing system with bacteria.
- The home's drinking water may come solely from a **non-permitted, private well**. Most private wells sampled were contaminated and did not reliably provide potable water.
- The landlord may have installed a non-permitted, private well that also connects to the municipal water system, creating "**blended water**," which is well water mixed with city water. This cross connection may introduce contaminants to a home's drinking water and to adjacent homes as well.
- There may also be **infrastructure problems** in the drinking water system:
 - Although regulations are in place to protect drinking water from contamination, there is a lack of backflow prevention devices in use. Without such devices, contaminated (blended) water from a home can back siphon or back flow into a nearby home and contaminate its clean water.
 - Age, water supply outages, seasonal demand, and other issues create low pressure in the drinking water system. When combined with the lack of backflow prevention devices, backflow of contaminated water into the public drinking water system can result, which may contaminate other homes.

Why is there a difference in where drinking water was sampled between the U.S. Navy and Italian regulatory agencies?

Because of the multiple problems that can occur at the home, the Navy collected water samples from **inside the home** for the best indication of potential exposure to contaminants.

Similar to what occurs in the United States, Italian water officials collect samples from **public places** and specific sampling sites, such as faucets installed along the water system that are only used for sample collection, city water fountains and public water tanks. However, information provided to the Navy concerning widespread dumping of waste in the Naples area led the Navy to sample inside the home as part of the health evaluation.

Collecting samples at public places, away from the home, does not give the best representation of a resident's potential exposure to contaminants.

Furthermore, potential sources of contamination, such as non-permitted wells and cross connections, non-permitted hazardous waste disposal, and improperly maintained domestic holding tanks, are not accounted for if water samples are collected from public places rather than from the tap inside the home.

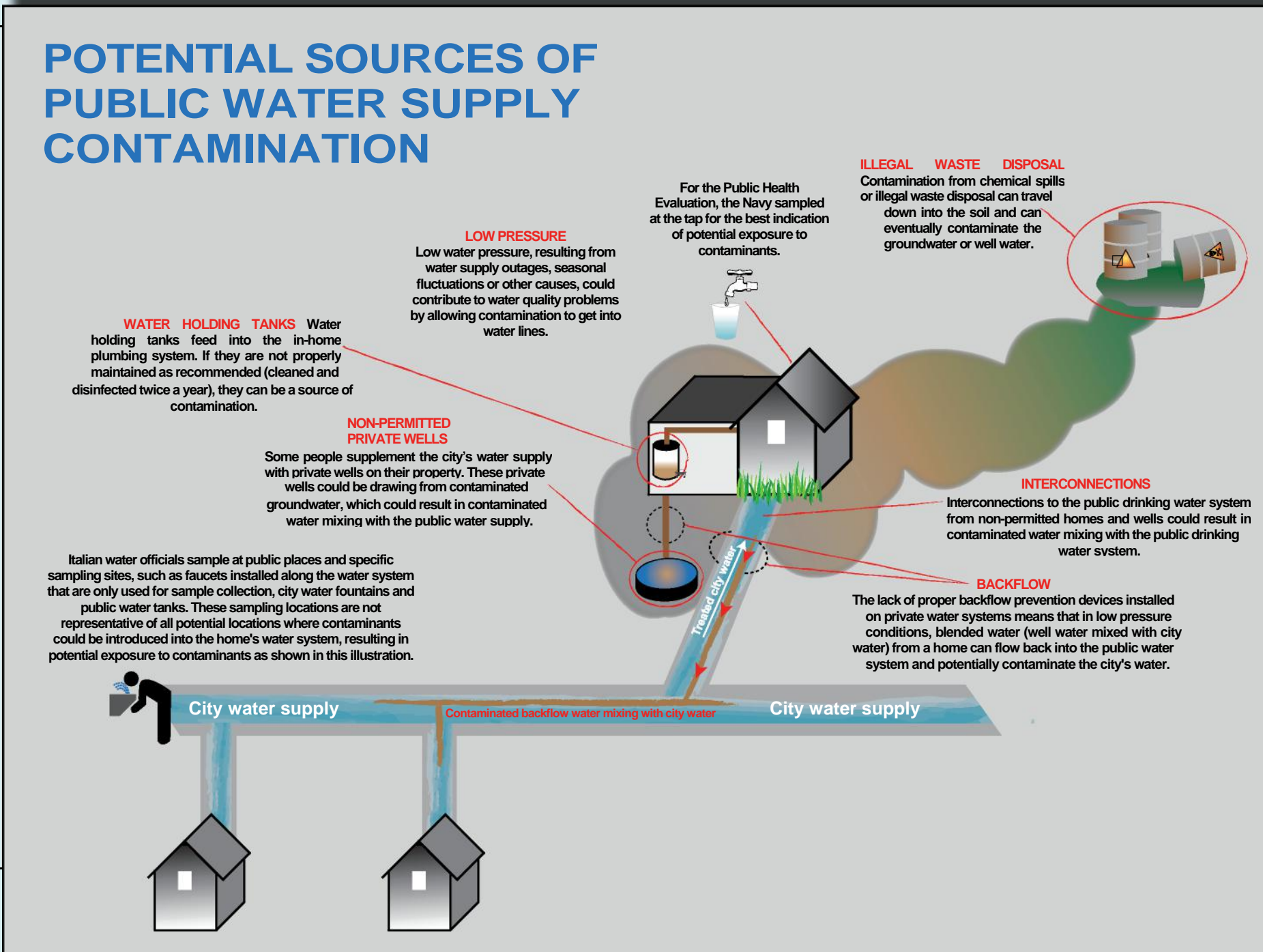
Why are there differences in what was sampled between the U.S. Navy and Italian regulatory agencies?

In addition to where drinking water was sampled, there is also a difference in water quality standards, or guidelines, that the Navy used for the Public Health Evaluation versus what Italian regulatory authorities use for their routine compliance testing of drinking water. Standards are based on health and toxicity information. Contaminants measured in drinking water samples should not be higher than the standard in order to be considered safe for human health. Italian regulatory authorities compare routine water sampling results against Government of Italy water quality standards, which apply only to drinking water. These standards are equivalent to drinking water standards

used in the United States and set by the U.S. Environmental Protection Agency (USEPA), called Maximum Contaminant Levels (MCLs).

However, based on information provided by Italian regulatory agencies on hazardous waste sites throughout the Naples area, Italian public health studies, and reports in the Italian media, the Navy tested not only water, but also air, soil and soil gas to get a complete picture of the potential environmental health risks. Because MCLs apply only to drinking water, the Navy additionally used the USEPA's Regional Screening Levels (RSLs). RSLs apply to not only drinking water, but also to air, soil and soil gas, and can be combined to calculate cumulative risk, which is one of the goals of the Public Health Evaluation. RSLs are not part of the Italian environmental regulatory system.

USEPA RSLs are used, for example, when there is the assumption that the site is contaminated, inadequate infrastructure is in place to deliver safe drinking water (e.g., the use of non-permitted wells or lack of backflow prevention devices), or when multiple environmental factors, such as air, water and soil, are potential health threats because of contamination. Because the Navy compared its testing results against both USEPA MCLs and RSLs (not just MCLs like Italian and U.S. water monitoring officials), the Navy was able to obtain a more conservative analysis of the potential health risks from not only water, but air, soil and soil gas. Tables A and B on page 4 further describe the differences and uses of RSLs and MCLs.



The Navy is committed to ensuring our families are safe

As a precautionary measure in response to sampling results during Phase I of the Public Health Evaluation that indicated contamination in a significant number of residences (primarily in private wells), the Navy issued an **All Hands Bottled Water Advisory** for drinking, cooking, food preparation, brushing teeth, making ice, and for pets, for all off-base rental homes.

In addition, in November 2008, and continuing into the future, the Navy began including new provisions in all new and renegotiated leases. In new and renegotiated leases, the landlord is required to clean and disinfect water holding tanks every six months; disconnect all non-permitted wells and provide proof of connection to the city water system; and provide containerized water service from a Navy-approved vendor.

The Navy also implemented three New Lease Suspension Zones in off-base housing areas of highest concern to prohibit any new rental home leases from being signed. Visit the website listed at the bottom of this page for a map of the New Lease Suspension Zones.

What residents should do

There are a few steps residents can take to mitigate their exposure to potential contamination.

- II Follow the CNREURAFSWA All Hands Bottled Water Advisory for drinking, cooking, food preparation, brushing teeth, making ice, and for pets.
- II Ensure your landlord follows the health protective provisions outlined in your lease, including cleaning and disinfecting the home's water holding tank and associated plumbing every six months.
- II Continue to stay informed through the Naples Community Health Awareness website, *Panorama*, AFN Radio and Television, All Hands e-mails, chain of command, and the Environmental Health Information Center.

For more information

For more information about the Public Health Evaluation or any health-related questions, contact the Environmental Health Information Center at U.S. Naval Hospital Naples, 081-811-6299.

For more information about the landlord-provided containerized water program or the health protective lease provisions, contact the NSA Naples Housing Office at 081-811-4466.

Table A

The Differences between MCLs and RSLs	
<i>Italian MCLs, like USEPA MCLs:</i>	<i>USEPA RSLs:</i>
Are applied to public drinking water systems	Are applied to Superfund Cleanup and other hazardous waste sites
Are legally enforceable standards that limit the levels of contaminants in drinking water	Are available for water, soil and air
Consider human health but are adjusted to reflect economical, technological and political circumstances	Are based entirely on the protection of human health
Are available for about 90 substances	Are available for about 400 substances, including 200 water substances
Are updated on a set regulatory schedule	Are updated anytime toxicity values are changed by the USEPA
Apply only to a single substance; results may not be combined across many substances to arrive at a cumulative risk	Apply to a single substance but can be combined to calculate cumulative risk

Table B

When to Use MCLs and RSLs	
<i>Italian MCLs, like USEPA MCLs:</i>	<i>USEPA RSLs:</i>
Assumption the water is safe; used to establish criteria for safe drinking water	Assumption the water/site is contaminated
An adequate infrastructure is in place to deliver drinking water	An adequate infrastructure may not be in place to deliver safe drinking water
The water system is routinely tested and inspected to ensure it is being operated correctly	Routine testing and monitoring may not be occurring
Protection of the well opening is continually evaluated and enforced	No consistent well protection
Laws are enforced and complied with, and corrective actions are implemented on a regular basis	If laws are not consistently enforced and compliance is not observed; if corrective actions are not implemented
Multiple contaminants are not present in the drinking water system	Multiple environmental factors (air, water, soil) are potential health threats because of contamination