Navy Environmental Health Center
Public Health Fact Sheet

Polycyclic Aromatic Hydrocarbons

What are polycyclic aromatic hydrocarbons?

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different compounds. PAHs are usually found as a mixture containing two or more of these compounds. Most PAHs found in the environment are formed during the incomplete burning of coal, oil and gas, wood, garbage, or other substances. Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar. Some are used in medicines or to make dyes, plastics, and pesticides. PAHs are also found in tobacco smoke and charbroiled meat.

Can PAHs affect my health?

Most of our information about the possible health effects from exposure to PAHs comes from animal studies. In these studies, laboratory animals are exposed to far greater concentrations of PAHs than people would ever encounter in the environment. From these studies scientists have determined that:

- Mice fed **high levels** of a specific PAH compound during pregnancy had difficulty reproducing and so did their offspring. These offspring also had higher rates of birth defects and lower body weights. It is not known whether these effects would occur in people under similar conditions of exposure.

- Animal studies have also shown that PAHs can affect the skin and the ability to fight disease after both **short-** and **long-term** exposure. But these effects have not been seen in people.

The **Department of Health and Human Services (DHHS)** has determined that some PAHs may reasonably be expected to be carcinogens. Some people who have breathed or touched mixtures of PAHs and other chemicals for **long periods** of time have developed cancer. Some PAHs have caused cancer in laboratory animals when they breathed air containing them, ate them in food, or had them applied to their skin.

PAHs in Marina Point and North Village Housing.

PAHs are present in both surface (0 – 2 feet) and subsurface soils (>2 feet) in North Village Housing Estuary Park and in subsurface soils in a small area of Marina Point Housing. The most likely source of the PAHs is a gas manufacturing plant that operated from 1890 – 1915 across the Oakland Inner Harbor. PAHs were released from this plant to the sediment in the harbor. The sediment was dredged from the harbor and used as fill material long before family housing was constructed at the site.

Where might I be exposed to PAHs in the soil?

If you are a resident of Marina Point Housing exposure to PAHs is unlikely because the compounds are only present in subsurface soil.

In North Village, exposures may occur by breathing dust containing PAHs, skin contact or by accidental ingestion of the soil after play or gardening. Exposures are possible only from bare soil as grass and other vegetation provide an effective barrier.

Estuary Park has been fenced off for almost two years to eliminate possible exposures. The greatest potential for past exposure was on the soccer field in the areas directly in front of the soccer goals where the grass was worn away. The grass cover is

intact in the vast majority of the remainder of the park and exposure to PAHs present in surface soils at other locations was unlikely.

Should I be concerned about my family's health?

To evaluate the possible health consequences of exposure to PAHs present in the soil, we (the Navy Environmental Health Center) took a very health protective approach. We compared the maximum detected value for PAHs in surface soil in the housing area with the EPA Region IX Preliminary Remediation Goal (PRG) for PAHs in residential soils. PRGs combine current toxicity information with "standard" exposure factors to estimate concentrations of materials in the environment that are protective for all people living on a site, including the most sensitive people (children, the elderly, etc.) over a lifetime. For example, the residential PRG assumes that an exposed individual remains at the site twenty-four hours per day, seven days per week for thirty years. Based on this comparison, we have determined that it is extremely unlikely that anyone who comes in contact with PAHs, at the concentrations present in the housing area, would experience any ill effects.

What can I do to further protect my family's health?

The best way to further protect your family's health is limiting possible exposure to PAHs in the soil. Practicing good personal hygiene by washing hands thoroughly after soil contact, washing toys that might have come in contact with bare soil, and recognizing that your children ingest more soil as a result of hand to mouth contact and taking actions to lessen their exposure are the best ways. Other prudent measures include wearing gloves when working in the soil and keeping surfaces in your home free of dust.

For further information.

Should you have questions or require additional information please contact Alameda Point Environmental Liaison, at XXX-XXXX.