

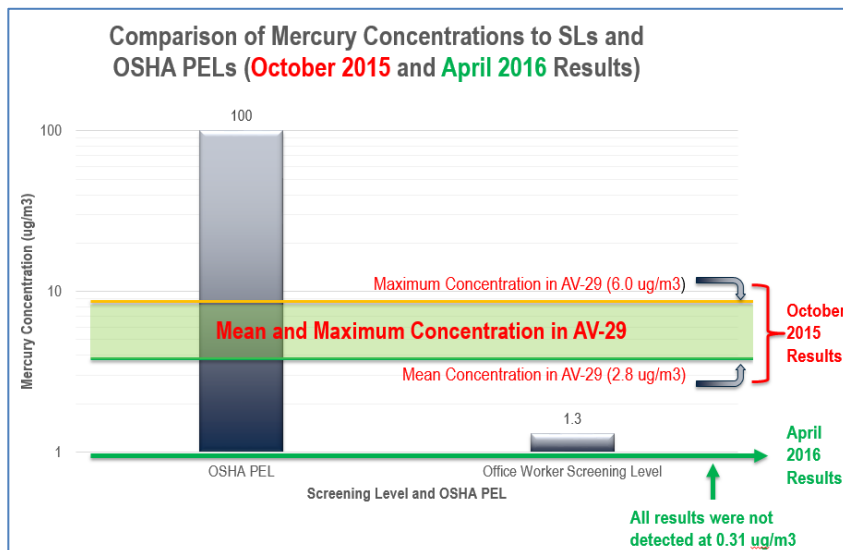


Camp Justice: Mercury in Air

The Preliminary Public Health Screening Risk Assessment Report, Camp Justice, describes the results of indoor air samples for mercury in Building AV-29 (AV-29). Indoor air at AV-29 was sampled for mercury because this building was historically identified to contain a dental clinic. As a result, the potential exists for mercury (which was historically used in amalgam fillings) to have been released at this location. In October 2015, mercury was sampled from 108 locations in AV-29 to determine if mercury might be present in the building by sampling the seams/cracks of floors (i.e., screening for worst case locations). In April 2016, mercury was resampled at 19 locations where mercury was detected in October 2015; however, these samples were collected within the breathing zone level (i.e., 3ft to 6ft above the floor) to assess potential occupational exposure to building occupants. The October 2015 and April 2016 mercury results are summarized below.

What is Mercury?

Mercury is a naturally occurring metal found in the environment in several forms. At ambient temperatures, elemental or metallic mercury is a shiny, silver-white, odorless liquid and may also be present as a colorless, odorless gas. Mercury can combine with other elements to form inorganic mercury salts. Mercury can also combine with carbon to make organic mercury compounds of which methylmercury is the most common. Methylmercury is produced by microscopic organisms in the water and soil and may accumulate in aquatic and terrestrial organisms. Metallic mercury is used in the manufacture of chlorine gas and caustic soda. It is also used in thermometers, some dental fillings, and batteries. This fact sheet addresses inhalation exposures to mercury vapor.



October 2015 Indoor Air Mercury Results	April 2016 Indoor Air Mercury Results
<ul style="list-style-type: none"> 108 samples collected from the floor level (typically four samples per room, more in some cases [e.g., larger rooms]) 	<ul style="list-style-type: none"> 19 samples collected from the breathing zone (only one sample per room, collected 3ft to 6ft above the floor)
<ul style="list-style-type: none"> Not representative of actual or occupational exposure for building occupants (worst case locations were used to screen the building for presence/absence of mercury) 	<ul style="list-style-type: none"> Representative of potential occupational exposures for building occupants
<ul style="list-style-type: none"> All results were less than the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL). Mercury exceeded the Environmental Protection Agency (EPA) Screening Level (SL) for a 25-year commercial worker in 29 of 108 samples; it exceeded the SL for a 6-year active duty military worker in 19 of 108 samples; it exceeded the SL for a 3-year active duty military worker in 19 of 108 samples; and it exceeded the SL for a 9-month active duty military resident worker in 29 of 108 samples. 	<ul style="list-style-type: none"> All results were less than the OSHA PEL and less than EPA SLs (mercury was not detected in any sample)
<ul style="list-style-type: none"> Mercury detection levels ranged from non-detect to 6 µg/m³ 	<ul style="list-style-type: none"> All sampling results were non-detect (the detection limit was very sensitive – 0.31 µg/m³)
<ul style="list-style-type: none"> Conclusion: Some samples originally collected exceeded the EPA SL at the floor level in AV-29 (screening measurements, worst case locations). While the level of total risk is still to be determined, conditions are acceptable for individuals to work at AV-29. 	<ul style="list-style-type: none"> Conclusion: Mercury was not detected in any of the samples from the breathing zone and the detection limit is less than the OSHA PEL and less than EPA SLs. While the level of total risk is still to be determined, conditions are safe for individuals to work at AV-29.
<ul style="list-style-type: none"> Recommendation: To more accurately characterize mercury air concentrations in AV-29, additional mercury sampling from the breathing zone will be conducted as part of Phase II of the PHR. 	<ul style="list-style-type: none"> Recommendation: No further action is recommended for mercury in indoor air at AV-29. However, if construction or remodeling occurs that disturbs flooring, indoor air mercury concentrations should be monitored to ensure that they remain below appropriate health-based levels.

What Happens to Mercury When it Enters the Environment?

- Inorganic mercury (metallic mercury and inorganic mercury salts) enters air from mining of ore deposits, burning coal and waste, and from manufacturing plants.
- Inorganic mercury can enter water and soil from natural deposits, disposal of wastes, and volcanic activity.
- Methylmercury may be formed in water and soil by small organisms called bacteria, and tends to accumulate in higher aquatic and terrestrial organisms, but is not a significant form of mercury in air.

How Might I Be Exposed to Mercury?

- Eating fish or shellfish containing methylmercury.
- Breathing mercury vapors in air from spills of metallic mercury, or from coal and waste combustion emissions.
- Release of mercury from dental amalgams containing mercury (silver fillings) and medicinals containing mercury.
- Breathing contaminated workplace air or skin contact during mercury use in the workplace.

How Can Mercury Affect My Health?

The nervous system is very sensitive to mercury. Methylmercury and metallic mercury vapors are more harmful than inorganic forms, because more of these mercury forms can reach the brain. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and the developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems.

Short-term exposure to high levels of metallic mercury vapors may cause lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation.

Mercury exposure of a pregnant mother may cause brain damage, mental retardation, incoordination,

blindness, seizures, and inability to speak. Children exposed to mercury may develop problems of their nervous and digestive systems, and kidney damage.

How Likely is Mercury to Cause Cancer?

The EPA has determined that mercuric chloride and methylmercury are possible human carcinogens. Mercuric chloride has caused increases in several types of tumors in rats and mice, and methylmercury has caused kidney tumors in male mice.

How Can You Reduce the Risk of Exposure to Mercury?

Carefully handle and dispose of products that contain mercury, such as thermometers and fluorescent light bulbs. Do not vacuum up spilled metallic mercury, because it will vaporize and increase potential exposure. If a large amount of metallic mercury is spilled, contact your health department. Teach children not to play with the shiny, silver metallic mercury liquid.

Properly dispose of older medicines that contain mercury. Keep all mercury-containing medicines away from children.

Be aware that the EPA and the Food and Drug Administration (FDA) have issued a fish consumption advisory recommending limits on fish consumption to limit your exposure to mercury.

Is There a Medical Test to Determine Whether I've Been Exposed to Mercury?

Tests are available to measure mercury levels in the body. Blood or urine samples are used to test for exposure to metallic and inorganic forms of mercury. Mercury in whole blood or in scalp hair can be measured to determine exposure to methylmercury. Blood mercury levels are useful in assessing recent exposures, while scalp hair may be useful for assessing longer term exposures.

For more information, contact **Navy and Marine Corps Public Health Center**

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