

Naval Air Station Alameda: Evaluation of Volatile Organic Compounds (VOCs) in Indoor Air and Radiation in Soil

Alameda Point, Alameda, California | November 2022

Summary of ATSDR's Health Consultation

The Naval Air Station (NAS) Alameda is environmentally safe for people to work, live, and play as cleanup operations continue. The Agency for Toxic Substances and Disease Registry (ATSDR) evaluated whether breathing levels of volatile organic chemicals (VOCs) in indoor air and possible contamination from radiation in the soil, at the NAS, might harm people's health.

NAS Alameda is a closed former military base. Land there is being transferred and redeveloped into mixed-use residential, commercial, recreational, and industrial areas. Most past chemical leaks and spills have been cleaned up. The Navy is still cleaning up some areas on the base. Restrictions are in place to protect the safety of residents and people using the property until the cleanup is complete.

What did ATSDR do?

For this report, ATSDR reviewed data collected after 2004 to evaluate

- volatile vapors in indoor air and
- radiation in soil.

ATSDR did not have enough information or data to evaluate these chemicals in our earlier report released in 2004.

What did ATSDR find?

Finding 1 - Current and future workers (building occupants)

Trichloroethylene (TCE), a volatile chemical, has moved from the groundwater into the indoor air of Buildings 360, 163 and 163A in Operable Unit 2B at levels that do not appear to be harmful. However, indoor air tests of Buildings 163 and 163A were taken only once and therefore data are too limited for ATSDR to make a public health determination. Actions are needed (at these and other buildings near contaminated groundwater) to make sure indoor air levels remain low and to protect public health. See callout box on p. 2 for more information.

Finding 2 - Current and future recreational users

Low-level radiation, below ground at Landfills 1 and 2, is below harmful levels. Recreational users are not expected to be harmed by touching the ground, walking, or running on the paved trails along the landfills. The Navy has cleaned up and removed radioactive material in the soil and installed barriers to prevent contact with material below the surface that may remain at the landfills.



Photograph of mounted A-7 Corsair airplane at Naval Air Station Alameda.
Photo by: Tony Hisgett dated 9 October 2014 License: CC BY 2.0;
<https://commons.wikimedia.org/w/index.php?curid=64150415>

Key Findings

- Volatile chemicals in the indoor air of Building 360 currently are below harmful levels.
- ATSDR cannot conclude whether breathing indoor air at other buildings near groundwater contamination at Alameda NAS may harm people's health.
- Actions are needed at buildings near contaminated groundwater to make sure indoor air levels remain low and public health is protected.
- Low-level radiation, below ground at Landfills 1 and 2, is below harmful levels.



U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

Next Steps

ATSDR recommends the Navy, owners, and regulating partners

- **Reduce current and future exposure.** Continue with plans to install vapor reduction systems throughout Building 360. A portion of Building 360 already has this system and plans have been made to install the system in the rest of the building.
- **Monitor indoor air levels.** Continue routine monitoring of VOCs in groundwater and indoor air of buildings within 100 feet of groundwater plumes before occupancy. Take actions to reduce indoor air VOC levels as needed to protect public health.
- **Use health protective measures in new buildings.** Work with future developers to make sure construction includes health protective measures and restrictions as needed; for example, methods that prevent vapors from coming indoors.
- **Maintain land use restrictions.** Make sure land use restrictions stay in place until volatile chemical levels are below those needed for unrestricted use.
- **Inform utility workers.** Make sure utility workers or others who work below ground or in the soil are aware of possible vapor intrusion dangers and ways to protect themselves.
- **Continue landfill inspections.** Continue inspections as specified in site regulatory agreements to be sure that landfill control mechanisms remain intact and hazardous waste remains out of reach by recreational users.
- **Maintain land use restrictions and controls.** Continue 5-year reviews to ensure institutional controls remain in place and the remedy continues to be protective.

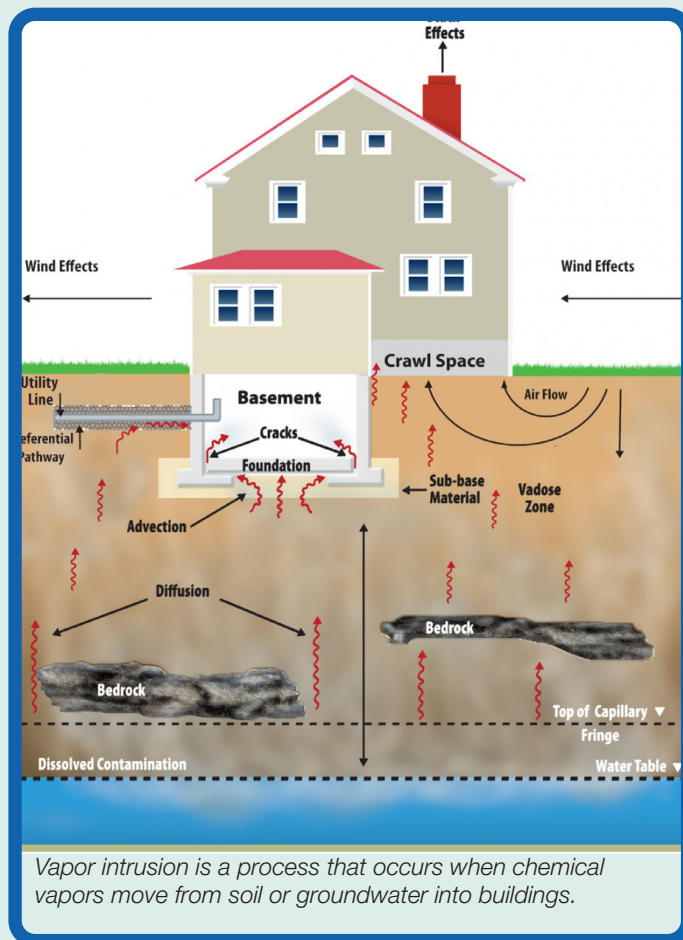


How can I learn more about the Naval Air Station Alameda Site?

For more details about ATSDR's findings, see our companion report. If you have questions about the report, call ATSDR at 1-800-CDC-INFO and ask for information on the Former Naval Air Station Alameda site.

About ATSDR

The Agency for Toxic Substances and Disease Registry (ATSDR) is a federal public health agency of the U.S. Department of Health and Human Services (HHS). ATSDR works with other agencies, tribal, state, and local governments to study possible health risks in communities where people could come in contact with dangerous chemicals. For more information about ATSDR, visit our website at <https://www.atsdr.cdc.gov/>.



What is Vapor Intrusion (VI)?

VI is a process that occurs when chemical vapors move from soil or groundwater into buildings.

Which Chemicals Lead to Vapor Intrusion?

Volatile Organic Compounds (VOCs) and Semi-volatile Organic Compounds (SVOCs) are types of chemicals that release gas into the air. VOCs and SVOCs can cause adverse health effects.

When studying the amount of underground vapors that move indoors, we also consider whether vapors may come from indoor sources. VOCs and SVOCs in indoor air can also come from chemicals released from building materials and commercial products.

Trichloroethylene (TCE)

TCE is a colorless, volatile liquid that evaporates quickly into the air. TCE is mainly used as a solvent to remove grease from metal parts and as an ingredient to make other chemicals.

- ♦ The highest indoor level of TCE was found in Operable Unit 2B, Building 360 located above the TCE groundwater plume.
- ♦ The highest measured level of TCE in OU-2B buildings may not be the highest level there is. Exposure levels over time may be higher or lower due to weather, tidal influence, or other variables.
- ♦ Indoor air levels of TCE were below levels related to heart problems in babies, immune system problems, or cancer.