



Joint Base Pearl Harbor-Hickam Drinking Water Quality Monitoring



SWARM TEAM TECHNICAL MEMORANDUM FINDINGS

April 25, 2024

Background

The Navy began a two-year Long-Term Monitoring (LTM) program in March 2022 testing for over 50 substances to validate the Hawai'i Department of Health's (DOH) declaration that Joint Base Pearl Harbor-Hickam (JBPHH) drinking water is safe to drink, and to continue to ensure drinking water meets all federal and state drinking water standards.

During the LTM, the Navy observed an increase in low-level detections of total petroleum hydrocarbons (TPH) beginning in the summer of 2023.

When these TPH detections were analyzed, they did not match jet propellant (JP-5) fuel or other fuel-related products.

The Navy assembled an interagency team of experts from across the Navy and industry, in conjunction with the U.S. Environmental Protection Agency (EPA) and DOH, to evaluate potential causes for these low-level TPH detections.

Evidence Considered

The interagency team of experts evaluated multiple lines of evidence to determine what caused the low-level TPH detections, including:

- Data across geographic zones over the course of the two-year LTM program
- Simulation of water flow in the JBPHH drinking water system
- EPA-approved methods used by the laboratory to test for TPH
- Side-by-side comparison of TPH test results using different sample preparation methods
- Presence/absence of other compounds that indicate the presence of JP-5 or other fuel-related products
- Statistical analysis of TPH data, chlorine in drinking water, and standards added for quality control in the testing method

When considered together, the lines of evidence support the conclusion that low-level detections of TPH are not associated with JP-5 or any other fuel-related product.

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What caused the low-level TPH detections throughout LTM?

A chemical in the regulatory test method (Method 8015) was found to interact with chlorine present in the drinking water samples, producing increased TPH readings in the sample results. These readings have unique chemical signatures which do not match the signature of JP-5 or any other fuel-related products.

Furthermore, striving to detect even the faintest signatures through rigorous testing at ultra-sensitive levels presents challenges for a method designed for solid waste, not drinking water.

Path Forward

The Navy remains committed to the safety and well-being of every individual and family on the JBPHH drinking water system. We are responsible for and completely committed to ensuring we continue to provide safe drinking water throughout the system.

The Navy is voluntarily continuing enhanced water quality monitoring through March 2025. Under the “Extended Drinking Water Monitoring” program, the laboratories will continue to use the same approved testing method but will incorporate an additional step to prevent interferences with the sample analysis.

Chlorine will be removed from drinking water samples prior to testing to mitigate chlorine interference and ensure only hydrocarbons physically present in the water are detected.

The Navy expanded the drinking water quality action team with enhanced capabilities that include new specialists and water quality investigators to evaluate other potential water quality issues such as premise plumbing, water heaters, and more.

Are all hydrocarbons TPH?

There are many sources of hydrocarbons:

- Petroleum – crude oil, JP-5, other fuels, oils
- Biogenic – originate from algae, bacteria, etc.
- Pyrogenic – produced by combustion

The test method used (EPA Method 8015) is not specific to fuel and will report results for all hydrocarbons that are present (i.e., petroleum, biogenic, pyrogenic) as TPH.

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