

PESTICIDE FACT SHEET

OHANA MILITARY COMMUNITIES
ULUPAU

OMC is committed to ensuring its residents are safe. The purpose of this fact sheet is to provide residents with an overview of the use of pesticides in Hawaii, background on the Ulupau Family Housing Community, and a summary of how pesticide impacted soil, if present, was managed to ensure the safety of Ulupau residents.

Use of Pesticides in Hawaii

Chlordane and other similar pesticides are chemicals that were legally used to protect homes and businesses from termites throughout the United States from the late 1940s to 1988 when their use was banned by the United States Environmental Protection Agency because of concerns about damage to the environment and harm to human health. Because Hawaii's climate is very conducive to ground termite infestation, local pest control companies, homeowners, the city and county, and the state and military regularly used these pesticides until 1988. The most common treatment method was to apply chlordane and related pesticides into the soil beneath and around building foundations. Because these pesticides were the most commonly used pesticides to control termites in Hawaii, the City and County of Honolulu has stated that they can be found "universally" throughout the island. Even though it has been 26 years since the use of these pesticides was banned, they break down slowly in the environment, so residual amounts may be present near housing and businesses throughout the United States, both on and off military installations, including Marine Corps Base Hawaii (MCBH).

Health Effects of Termiticides

As the Hawaii Department of Health (HDOH) recently explained: "Health effects from exposure to organochlorine pesticides have been documented in cases involving high-level exposure, such as during pesticide application, or due to intentional or accidental poisoning. **We are not aware of any documented cases of health effects due to exposure at the low levels associated**

with organochlorine pesticide residues in soil. In addition, the EALs [described below] have several conservative safety factors to further ensure that there will be no health risk to children who may be potentially exposed to residual pesticide levels in soil. We therefore believe it is **extremely improbable** that residents' health concerns are linked to exposure to potential low-level residual pesticides in soil." (Emphasis added.)

Site Background

The Ulupau Family Housing Community is located on the Mokapu peninsula on MCBH, encompassing about 32 acres of land. There were originally approximately 350 housing units consisting of four-plex and six-plex homes with detached carports built in 1976. The original construction was typically of wood construction with asphalt shingle roofs. The two-story buildings had cinderblock walls on the first floor and wood construction above. Detached carports were constructed of a combination of cinderblock walls and columns and wood roofs with asphalt shingles.

Ohana Military Communities, LLC (OMC), the lessee, through a Public-Private Venture (PPV) lease with the Navy, demolished the existing homes and reconstructed 218 new homes within the Ulupau neighborhood. New homes in this neighborhood were not built directly over existing foundations, but some overlap of building footprints is present. In some areas of the neighborhood, homes were built at generally the same grade, but several foundations were constructed either several feet below or above existing grade.

Environmental Action Levels

HDOH has established "environmental action levels" or "EALs" that are used to evaluate sites that may have contamination. HDOH has a list of "Tier 1 EALs," but as HDOH explains, they "are *not* strict, regulatory cleanup standards." If a contaminant exceeds the Tier 1 level, it does not mean that the issue poses an



environmental hazard, only that additional evaluation is needed.

HDOH supports the use of “Tier 2 EALs” which are site-specific action levels. The Tier 2 EALs take into account actual conditions at the property, and they are set to be protective of public health and the environment.

OMC developed site-specific “Tier 2” EALs for Marine Family Housing projects in 2005, which were approved by HDOH in February 2007. HDOH believes these EALs are protective of the most-sensitive members of the population (children and infants) when used with an approved Soil Management Plan (as was done here).

HDOH updated some of the pesticide EALs after construction in 2009 and 2011, so OMC also updated its site-specific Tier 2 EALs, which are currently under review by the HDOH.

Pre-construction Pesticides

Before construction of the new homes or buildings started, OMC took soil samples to determine if termiticides were present. Soil samples were taken at a representative number of buildings planned for demolition in the neighborhood. Soil samples were taken:

1. Sub-slab (under the foundation)
2. Near-slab (within two feet of the foundation)
3. Perimeter (two to four feet from the foundation)
4. Yard areas (front and back yards)

For Ulupau, the pre-construction sampling results showed:

- None of the buildings had pesticide concentrations in the perimeter or common areas above the Tier 2 EALs.
- Three buildings had sub-slab (below the foundation) samples above the Tier 2 EALs for either aldrin, dieldrin, or chlordane.
- Two buildings had pesticide concentrations in near-slab (within two feet of the slab) samples

above the Tier 2 EALs for either aldrin or dieldrin.

The 2007 Phase 2 ESA for Ulupau was modified to include soil sampling as deep as three feet below ground surface, and results showed pesticide concentrations above Tier 2 EALs at that depth for dieldrin. Since this neighborhood had new construction with excavation exceeding three feet, OMC conducted a supplemental study to confirm and expand upon findings of the Phase 2 ESA. This study showed that all common area soils were below Tier 2 EALs, and that for sub-slab samples, dieldrin was the most frequent pesticide at concentrations above Tier 2 EALs along with less frequent EAL exceedances of aldrin and chlordane. Carport sub-slab results showed dieldrin and/or aldrin at concentrations above the Tier 2 EAL in all near surface samples.

During construction of this neighborhood, the HDOH changed some of its pesticide EALs. When the pre-construction soil samples are compared to the new EALs, fewer samples are above the EALs.

How Was Soil Managed During Construction

OMC prepared a Pesticide Soils Management Plan to be used during construction of the new homes. This Plan was approved by HDOH. Using the Pesticide Soils Management Plan, OMC chose the safest approach, which was to assume that the soil within two feet of all existing slabs was impacted by pesticides even though the sampling results showed that not all soil was impacted by pesticides.

For the Ulupau neighborhood, soil beneath and within two feet of the slabs was excavated to a depth of four feet below ground surface. Clean fill from on-site was used to replace the soil removed from beneath and around the slabs.

The excavated soil was then reused on-site within centralized, landscaped common areas (e.g., greenbelts) or as general fill to raise grade beneath the homes. In each case, the pesticide-impacted soil was placed and covered with two feet of clean soil and vegetation, or a building slab.





Best Management Practices

During demolition and construction, several Best Management Practices (BMPs) were employed by OMC's contractors. Site workers followed procedures for handling all potentially contaminated soil. Dump trucks and stockpiles were covered with sheeting or wetted to reduce dust. Dust screen fences and water trucks were also used to reduce dust. The Soil Management Plan includes numerous requirements for dust control measures. The Soil Management Plan includes numerous requirements for dust control measures.

Conclusions

Based upon the Soil Management Plan, the soil testing performed by OMC, and the other issues and precautions discussed above, OMC is confident that the soil in the Ulupau Family Housing Community is safe. As discussed above, the pesticides at issue were commonly used throughout Hawaii and the United States, and people live safely around soil with low levels of these pesticides. If you feel you would like to take additional steps, you might consider:

- Ensuring that the ground cover around the foundation of your home is maintained (the highest concentrations of chlorinated pesticides were found in subsurface soils within a few feet of the foundations of existing structures);
- Keeping children or pets from playing in dirt near the foundation of your home;
- Not growing edible produce near the foundation of your home (in the Ohana Military Communities Handbook, residents may not till or destroy the lawn to plant a vegetable garden; however, raised garden beds are acceptable and are encouraged).

Additional Information

Additional information can be found:

On our website: <http://yourmcbhhousing.com/>

On the Department of Health Hazard Evaluation and Emergency Response website: <http://eha-web.doh.hawaii.gov/eha-cma/Org/HEER/>

On the Department of Agriculture website: <http://archive.jan2013.hawaii.gov/hdoa/pi/pest>

In your Community Handbook.