THESE ARE SOME SOURCES OF LEAD THAT MAY BE A PROBLEM AROUND YOUR HOME:

1. **Old, lead-based paints on home walls**
2. **Car batteries where the rubberized plastic casings have cracked so the interior lead plates are exposed**
3. **Engine repair areas where leaded gasoline is commonly used to wash engine parts**
4. **Lead weights for fishing**
5. **Lead shot used in shotgun shells**
6. **Leaded cooking utensils**

For more detailed information on building and maintaining a safe rain catchment system, a Department of Health booklet titled "Tips for Owners of Rain-Catchment Water Systems" is available free at any state health office.

STATE DEPARTMENT of HEALTH
DOCTOR JOHN C. LEWIN, DIRECTOR

PROTECT YOUR FAMILY FROM LEAD POISONING

A SPECIAL PUBLICATION
FOR RAINWATER
CATCHMENT USERS

WHY WORRY ABOUT LEAD?

High levels of lead have been found in the household water of homes with rainwater catchment systems (RWCS).

It's been known for a long time that eating or drinking anything contaminated with lead is dangerous. But recent studies have shown that even very small amounts of lead can cause health problems.

In the last several years, the Environmental Protection Agency (EPA) has recommended lowering the maximum contaminent level.

HOW IS LEAD GETTING INTO YOUR WATER?

Lead is not found in significant amounts in the air or the rainwater. The lead generally comes from the corrosion of materials used to construct your RWCS, which include the collection area, storage and piping. We are all aware of "vog", the Island's "smog" caused by the Kilauea Volcano eruption. During eruptive periods, Madame Pele emits thousands of pounds of a gas called sulphur dioxide (SO_2).

Sulfur dioxide combines with water in the air to make sulfuric acid, to form "acid rain". When this "acid rain" comes into contact with materials containing lead--such as roofing and plumbing materials, or any old lead paint--some lead is leached out and ends up in your water.

Lead has not been found to exceed the maximum contaminant level in public water systems in the State of Hawaii. However, if your water is piped into your home by a public water system, there still may be some concern over lead exposure due to plumbing materials used. Your home plumbing, if it contains leaded materials, may contribute to elevated lead concentrations in the water. The recommended actions in this case are to confirm the presence of lead pipes, solders or fluxes

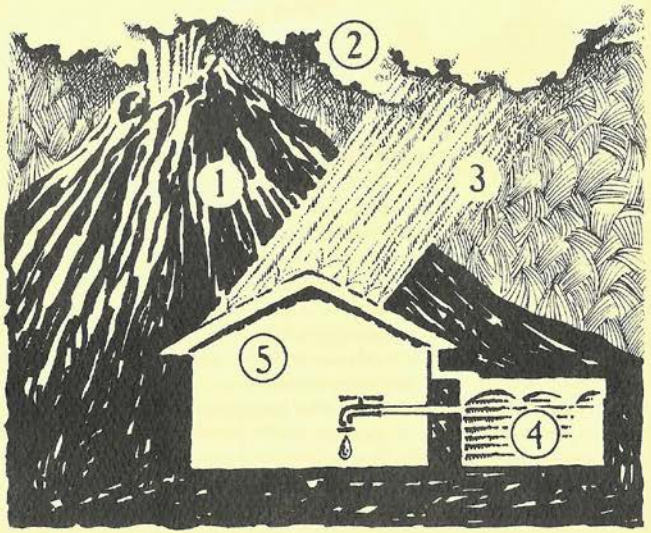
in the home piping system, and to institute a program of flushing any water which stands a long time (more than six hours) in a particular faucet prior to usage for consumption or cooking.

If you get your water from a private water tank, you may have another type of problem. High levels of lead have been found in RWCS systems mainly from old, lead-based paints used on the roof and to seal and protect the inside of redwood water tanks. Some old paints (if bought before 1978) may contain over 50% lead.

LEAD can get into your water from roofing and plumbing materials, such as:

- lead-based paint used on the roof or in the tank itself
- lead flashings around vent pipes and chimneys
- lead-head nails used in the roof
- lead-soldered gutters and pipes
- lead in plumbing fixtures

① sulfur dioxide in volcanic fumes... ② ...combines with rainwater to form sulfuric acid resulting in... ③ acid rain which... ④ causes lead from paint, nails, flashing, solder and plumbing fixtures to enter catchment system... ⑤ lead-tainted water ends up in household water supply...



WHY IS LEAD HARMFUL TO YOU?

Lead is a substance which can harm you if you swallow or breathe it. If consumed in high doses or allowed to accumulate in low doses over a long period of time, lead can cause serious damage to the brain, kidneys and nervous system, and red blood cells. Of perhaps most concern are subtle effects, such as learning disabilities and behavioral disorders associated with levels of lead previously thought to be safe.

WHO DOES LEAD AFFECT MOST?

Lead can easily affect children under six years. Because children's bodies are small and growing rapidly, even small amounts of lead can cause harm. Also, young children absorb and retain more lead in their bodies than adults. Therefore, young children are more vulnerable to the effects of lead than older children or adults.

If you have a baby you are bottle-feeding, do not mix dry formula with water from RWCS with lead as you will be exposing your infant. Boiling water does not get rid of lead.

Lead poisoning can be treated, but the damage may be permanent. For this reason, you need to prevent lead poisoning by reducing or eliminating exposure to lead. This may be done by identifying lead sources in your home, and removing them.

HOW MUCH LEAD IS DANGEROUS?

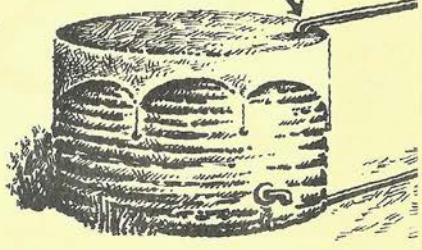
The current drinking water standard for lead is 50 parts per billion. However, there is no "safe" level of lead in water. EPA is proposing a new standard of 20 ppb or parts per billion or lower and recommends that protective actions be taken upon findings of lead level of 20 ppb or more in drinking water.

WHAT SHOULD YOU DO?

You cannot see, smell, or taste lead in drinking water. The only way to tell if you have lead in your water is to get it tested. For information on who performs lead analyses in drinking water, call the Department of Health, District Health Office on your island or the Safe Drinking Water Branch on Oahu.

If your test results show the water has levels of 20 ppb or higher,

DESIGN OF A CATCHMENT SYSTEM AND IDENTIFICATION OF TERMS:



ROOF
aluminum, galvanized steel, roofing tiles

ROOF FASTENERS
galvanized steel or aluminum with rubber washers

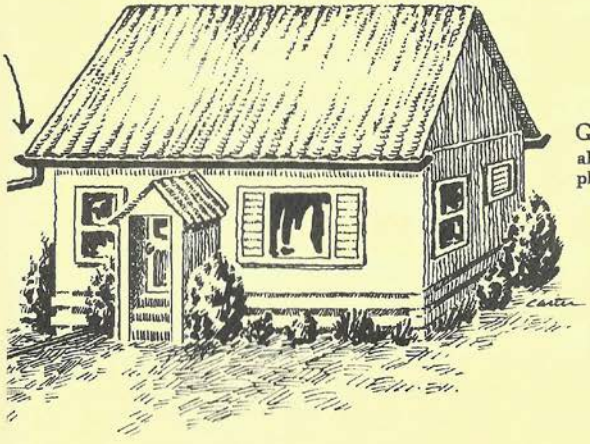
LARGE MESH SCREEN

FINE MESH SCREEN

COVER
galvanized steel, fiberplastic, or redwood

TANK
galvanized steel, fiberglass, redwood, or concrete (if liner used, insure FDA-approved)

DRAIN



FLASHING
asphalt or rubber

GUTTERS
aluminum, plastic (PVC), copper

PLUMBING
galvanized steel, approved plastic or copper pipe (insure non-use of lead for soldered joints)

stop drinking and cooking with it. You may continue bathing and flushing toilets with lead-contaminated water. Lead is not absorbed through the skin. Alternative sources of drinking water should be used for drinking and cooking.

If your test results show high lead levels, your RWCS or plumbing system may contain leaded materials. You should try to eliminate all sources of lead in your system. This can be accomplished in several ways, including the replacement of leaded materials, or construction of a lead-free system exclusively for consumption. In all cases, lead free materials should be used in potable water systems.

Homeowners should contact the county Building Departments for information on materials that may be used in RWCSs. The counties have recently modified their building codes to ban the use of leaded solders, fluxes, and pipes.