

Environmental Hazards Pamphlet

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We in the housing industry are proud of our contribution to home ownership - the American dream - and the high standards we have established and maintained throughout our history. We have undertaken many initiatives to address emerging issues. This publication is one such initiative; it has been prepared specifically for you - the American home buyer - to help you understand the possible consequences that exposure to potentially harmful environmental hazards may have on your health, and to assist you in reaching a more informed decision when you purchase a home.

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American Institute of Real Estate Appraisers

Department of Veterans Affairs

Department of Housing and Urban Development

Fannie Mae

Federal Deposit Insurance Corporation

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Mortgage Bankers Association of America
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National Association of REALTORS[R]
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The Appraisal Foundation
U.S. Environmental Protection Agency
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INTRODUCTION

Does this home fit my needs and those of my family? Is this a safe, secure home, free from potential hazards? Is this home a good investment and will it retain and increase its value in the years ahead?

These are among the hundreds of questions that home buyers ask themselves as part of the home-buying thought process. It is a good policy, this questioning, a means of gathering hard facts that can be used to balance the emotional feelings that are so much a part of buying a home.

In ever- increasing numbers, home buyers today find it necessary to add new kinds of questions to their quest for information. Environmental concerns are becoming an element of the home- buying thought process.

Although it is unrealistic to expect that any home you are considering purchasing will be free of all forms of environmental influences, most homes (and the areas surrounding most homes) in the United States generally do not contain materials and substances that pose a health threat. However, in recent years, new concerns have been raised as our understanding of the natural environment has increased. Substances, such as radon gas and asbestos, have provoked new questions about how and where we build homes and manage their upkeep.

HOME- BUYING CONSIDERATIONS

For the majority of Americans, the purchase of a home is the single greatest investment of a lifetime. Will the presence of an undetected environmental hazard have a long-term negative impact on that investment? Does the presence of a hazard have the potential to affect the health of the occupants? If hazards can be safely removed or mitigated, will the process alter the homeowner's lifestyle? These questions - and others like them - are, and should be, part of the home buyer's thought process today.

As our knowledge of the natural environment evolves, the body of law governing potentially harmful environmental hazards and their effect on real estate transactions also is evolving. The rights and responsibilities of buyers and sellers are determined by state and local laws or terms negotiated into the sales contract between the buyer and seller.

Thus, before buying a home, prudent home buyers may want to obtain information about the potential impact of environmental hazards. Local, county, or state health or environmental departments are sources of such information. And while builders, real estate appraisers, real estate sales licensees, and lenders are not experts about the environment, these individuals may be of assistance in locating additional sources of information regarding environmental matters. Private home inspectors also may be useful in detecting the existence of potentially hazardous conditions if the sales contract provides for such an inspection.

The pages that follow provide general information about some of the environmental hazards that have the potential to affect the home environment. While this information is believed to be accurate, it is not meant to be comprehensive or authoritative. This publication provides introductory information to help home buyers understand the possible risk of exposure to potentially harmful environmental hazards in and around the home.

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RADON

WHAT IS RADON AND WHERE IS IT FOUND?

Radon is a colorless, odorless, tasteless gas that occurs worldwide in the environment as a byproduct of the natural decay of uranium present in the earth. Radon is present in varying quantities in the atmosphere and in soils around the world.

HOW DOES RADON ENTER A HOME?

Radon that is present in surrounding soil or in well water can be a source of radon in a home. Radon from surrounding soil enters a home through small spaces and openings, such as cracks in concrete, floor drains, sump pump openings, wall/floor joints in basements, and the pores in hollow block walls. It also can seep into ground water and remain entrapped there. Therefore, if a home is supplied with water taken from a ground water source (such as a well), there is greater potential for a radon problem. The likelihood of radon in the water supply is greatly reduced for homes supplied with water from a municipal water supply.

IS RADON FOUND THROUGHOUT A HOME, OR JUST IN CERTAIN ROOMS OR AREAS?

Radon generally concentrates most efficiently in the areas of a home closest to the ground. Radon levels generally decrease as one moves higher up in the structure.

HOW CAN I TELL IF A HOME HAS A RADON PROBLEM?

The only way to know whether or not a home has a radon problem is to test it. Radon levels vary from house to house depending on the construction of the house and the soil surrounding it. There are several ways to make a preliminary screening test for radon. Preliminary screening test kits can be bought over-the-counter in many hardware, grocery, and convenience stores. Tests that measure the amount of radon in water normally require you to send a sample of tap water to a laboratory for analysis. State agencies should be consulted if the home water supply is suspected as a source of radon.

When purchasing a radon detection kit, you should examine the package for indications that the kit has been approved by federal or state health, environmental protection, or consumer protection agencies. Directions should be followed carefully when using a radon detection kit to assure that proper measurements are obtained. Short- term testing (ranging from a few days to several months) is one way to determine if a potential problem exists. Long- term testing (lasting for up to one year) is a more accurate way to determine if radon is present. Both short- and long- term testing devices are easy to use

and relatively inexpensive.

WHY IS RADON HARMFUL?

Radon gas breaks down into radioactive particles (called decay products) that remain in the air. As you breath these particles, they can become trapped in your lungs. As these particles continue to break down, they release bursts of energy (radiation) that can damage lung tissue. This damage can cause lung cancer. When radon gas and its decay products enter your home, they remain in circulation the enclosed air. Out of doors, radon is not a problem for human beings because the surrounding air allows the gas to diffuse in the atmosphere.

WHAT HEALTH RISKS ARE ASSOCIATED WITH RADON?

The health risk associated with prolonged inhalation of radon decay products is an increased risk of developing lung cancer. There are indications that risk increases as the level of radon concentration and duration of exposure increase. The U.S. Environmental Protection Agency (EPA) has determined that short- - term exposure to a high concentration of radon is not as severe a risk as long- term exposure to a lower level of the gas.

WHAT IS AN ACCEPTABLE LEVEL OF INDOOR RADON?

The concentration of radon in air is measured in units of picocuries per liter of air (pCi/L). Estimates suggest that most homes will contain from one to two picocuries of radon per liter of air. If preliminary tests indicate radon levels greater than four picocuries per liter of air in livable areas of the home, the EPA recommends that a follow- up test be conducted. No level of radon is considered safe; there are risks even at very low levels. To put this into perspective, the EPA estimates that the risk of dying from lung cancer as the result of an annual radon level of four picocuries is equivalent to the risk from smoking ten cigarettes a day or having 200 chest x- rays a year. A picocurie level of 40 equates to smoking two packs of cigarettes a day, while a level of 100 equates to 2000 chest x- rays a year.

HOW ARE RADON RISK LEVELS CALCULATED?

The EPA's risk assessments assume an individual is exposed to a given concentration of radon over a lifetime of roughly 70 years, and spends 75 percent of his or her time in the home.

CAN THE LEVEL OF CAN RADON IN A HOME BE REDUCED?

Yes, there are many effective and relatively inexpensive methods of reducing radon levels in a home. The method used will vary from house to house and from region to region. The techniques used will depend on the source of the gas, the ways in which it enters the home, and the kind of construction used in the home. If radon is present in water supplies, it can be removed altogether or reduced by the installation of special filter systems.

WHAT WILL IT COST TO REDUCE THE LEVEL OF RADON IN A HOME?

The costs for radon reduction will depend on the number of sources, the amount of radon in the surrounding land or in the water supply, and the kind of construction used in the home. Normally, the costs of installing radon reduction equipment range from several hundred dollars to several thousand dollars. If the system chosen involves fans, pumps, or other appliances, operating costs for these devices may cause increases in monthly utility bills.

IS RADON REMOVAL A "DO IT YOURSELF PROJECT"?

Not usually. In some cases, homeowners should be able to treat the problem themselves; however, it is not always possible for homeowners to diagnose the source of radon or to install systems that will reduce the level. Radon source diagnosis and mitigation normally require skills, experience, and tools not available to the average homeowner; therefore, it is always prudent to consider the use of trained personnel. When seeking a contractor to assist with a radon problem, you should first consult local, county, or state government agencies for recommendations of qualified radon- reduction contractors.

WHAT IS THE GOVERNMENT DOING ABOUT RADON?

The federal government has undertaken an extensive public outreach effort to encourage individuals to test their homes. This effort includes a national hotline, 1- 800 SOS- RADON, for obtaining further information on radon testing. EPA also is working closely with state and local governments and the private sector to research and demonstrate cost- effective methods for reducing indoor radon levels and with builders to develop radon resistant new construction techniques.

You also may contact your state's radon office at the telephone number listed on the following page.

STATE RADON OFFICES

Alabama

(205) 261- 5315

Alaska

(907) 465- 3019

Arizona

(602) 255- 4845

Arkansas

(501) 661- 2301

California

(415) 540- 2134

Colorado

(303) 331- 4812

Connecticut

(203) 566- 3122

Delaware

(800) 554- 4636

Washington, DC

(202) 727- 7728

Florida

(800) 543- 8279

Georgia

(404) 894- 6644

Hawaii

(808) 548- 4383

Idaho

(208) 334- 5933

Illinois

(217) 786- 6384

Indiana

(800) 272- 9723

Iowa

(515) 281- 7781

Kansas

(913) 296- 1560

Kentucky

(502) 564- 3700

Louisiana

(504) 925- 4518

Maine

(207) 289- 3826

Maryland

(800) 872- 3666

Massachusetts

(413) 586- 7525

or in Boston

(617) 727- 6214

Michigan
(517) 335- 8190

Minnesota
(612) 623- 5341

Mississippi
(601) 354- 6657

Missouri
(800) 669- 7236

Montana
(406) 444- 3671

Nebraska
(402) 471- 2168

Nevada
(702) 885- 5394

New Hampshire
(603) 271- 4674

New Jersey
(800) 648- 0394

New Mexico
(505) 827- 2940

New York
(800) 458- 1158

North Carolina

(919) 733- 4283

North Dakota
(701) 224- 2348

Ohio
(800) 523- 4439

Oklahoma
(405) 271- 5221

Oregon
(503) 229- 5797

Pennsylvania
(800) 23- RADON

Puerto Rico
(809) 767- 3563

Rhode Island
(401) 277- 2438

South Carolina
(803) 734- 4631

South Dakota
(605) 773- 3153

Tennessee
(615) 741- 4634

Texas
(512) 835- 7000

Utah

(801) 538- 6734

Vermont

(802) 828- 2886

Virginia

(800) 468- 0138

Virgin Islands

(809) 774- 3320

Washington

(800) 323- 9727

West Virginia

(304) 348- 3526

Wisconsin

(608)273- 5180

Wyoming

(307) 777- 795

The following sources and publications can provide additional information about radon.

BROCHURES

- * A Citizen's Guide to Radon
- * Radon Reduction Methods (A Homeowner's Guide)
- * Removal of Radon from Household Water
- * The Inside Story- - A Guide to Indoor Air Quality

The above are available from:

U.S. Environmental Protection Agency
Public Information Center
401 M Street, SW
Washington, DC 20460
(202) 475- 7751

ASBESTOS

WHAT IS ASBESTOS AND WHERE IS IT FOUND?

Asbestos is a fibrous mineral found in rocks and soil throughout the world. Asbestos has been used in architectural and construction applications because it is strong, durable, fire retardant, and an efficient insulator. Alone or in combination with other materials, asbestos can be fashioned into a variety of products that have numerous applications within the building industry- - such as flooring, walls, ceiling tiles, exterior housing shingles, insulation or fire retardant for heating and electrical systems, etc.

IS ASBESTOS DANGEROUS?

Asbestos has been identified as a carcinogen. Once ingested, asbestos fibers lodge in the lungs. Because the material is durable, it persists in tissue and concentrates as repeated exposures occur over time. It can cause cancer of the lungs and stomach among workers and others who have experienced prolonged work related exposure to it. The health effects of lower exposures in the home are less certain; however, experts are unable to provide assurance that any level of exposure to asbestos fibers is completely safe.

UNDER WHAT CIRCUMSTANCES DO ASBESTOS- CONTAINING PRODUCTS IN THE HOME BECOME A HEALTH RISK?

Home health risks arise when age, accidental damage, or normal cleaning, construction, or remodeling activities cause the asbestos- containing materials to crumble, flake, or deteriorate. When this happens, minute asbestos fibers are released into the air and can be inhaled through the nose and mouth. The fibers can cling to clothing, tools, and exposed flesh; cleanup operations can then dislodge the fibers and free them to circulate in the air.

CAN I EXPECT TO FIND ASBESTOS IN NEWER HOMES, AND WHERE IN THE HOME

SHOULD I LOOK FOR ASBESTOS?

According to the EPA, many homes constructed in the United States during the past 20 years probably do not contain asbestos products. Places where asbestos sometimes can be found in the home include: around pipes and furnaces in older homes as insulating jackets and sheathing; in some vinyl flooring materials; in ceiling tiles; in exterior roofing, shingles, and siding; in some wallboards; mixed with other materials and troweled or sprayed around pipes, ducts, and beams; in patching compounds or textured paints; and in door gaskets on stoves, furnaces, and ovens.

HOW CAN I IDENTIFY ASBESTOS IN THE HOME?

You may hire a qualified professional who is trained and experienced in working with asbestos to survey the home. A professional knows where to look for asbestos, how to take samples properly, and what corrective actions will be the most effective. EPA regional asbestos coordinators can provide information on qualified asbestos contractors and laboratories. In addition, the manufacturer of a product may be able to tell you, based on the model number and age of the product, whether or not the product contains asbestos.

WHAT SHOULD I DO IF I THINK THERE IS ASBESTOS IN A HOME I HAVE PURCHASED?

Generally, if the material is in good condition and is in an area where it is not likely to be disturbed, leave the asbestos- containing material in place. Extreme care should be exercised in handling, cleaning, or working with material suspected of containing asbestos. If the material is likely to be banged, rubbed, handled, or taken apart- especially during remodeling- - you should hire a trained contractor and reduce your exposure as much as possible. Common construction and remodeling operations can release varying amounts of asbestos fibers if the material being worked on contains asbestos. These operations include hammering, drilling, sawing, sanding, cutting, and otherwise shaping or molding the material. Routine cleaning operations (such as brushing, dusting, vacuum cleaning, scraping, and scrubbing) can also release hazardous fibers from asbestos- containing materials. Vinyl flooring products that contain asbestos can be cleaned in a conventional manner, but these products can release some asbestos fibers if they are vigorously sanded, ground, drilled, filed, or scraped.

The repair or removal of asbestos- containing products from a home is generally a complicated process. It depends on the amount of these products present, the percentage of asbestos they contain, and the manner in which asbestos is incorporated into the product. Total removal of even small amounts of

asbestos- containing material is usually the last alternative. You should contact local, state, or federal health or consumer product agencies before deciding on a course of action. To assure safety and elimination of health hazards, asbestos repair or removal should be performed only by properly trained contractors.

Many home repair or remodeling contractors do not yet have the requisite tools, training; experience, or equipment to work safely with asbestos or to remove it from a home. Furthermore, asbestos removal workers are protected under federal regulations that specify special training, protective clothing, and special respirators for these workers.

ARE EXTERIOR ASBESTOS SHINGLES A HEALTH RISK?

When properly installed on the exterior of a home, asbestos- containing products present little risk to human health. However, if siding is worn or damaged, spray painting it will help seal- in the fibers.

WHAT IS BEING DONE ABOUT THE POTENTIAL PROBLEM OF EXPOSURE TO ASBESTOS IN THE HOME?

Over the years, the U.S. Environmental Protection Agency (EPA) and the Consumer Product Safety Commission (CPSC) have taken several steps to reduce the consumer's exposure to asbestos. Most recently these steps include requiring labeling of products containing asbestos and announcing a phased-in ban of most asbestos products by 1996. The following sources and publications can provide additional information about asbestos in the home.

BROCHURES

- * Asbestos (Environmental Backgrounder)
- * The Inside Story- - A Guide to Indoor Air Quality

The above are available from:

U.S. Environmental Protection Agency
Public Information Center
401 M Street, SW Washington, DC 20460
(202) 475- 7751

* Asbestos in the Home

Available from:

U.S. Environmental Protection Agency TSCA Assistance Information Service 401 M Street, SW
Washington, DC 20460

Hotline

* The Toxic Substances Control Act (TSCA) Assistance Information Service Hotline

This Hotline provides both general and technical information and publications about toxic substances (including asbestos) and offers services to help businesses comply with TSCA laws (including regulatory advice and aid, publications, and audiovisual materials). The Hotline operates Monday through Friday from 8:30 a.m. to 5:00 p.m., eastern time.(202) 554- 1404

LEAD

WHAT IS LEAD, AND WHY IS IT HAZARDOUS TO OUR HEALTH?

Lead is a metallic element found worldwide in rocks and soils. The toxic effects of lead have been known since ancient times. Recent research has shown that lead represents a greater hazard at lower levels of concentration than had been thought. Airborne lead enters the body when an individual breathes lead particles or swallows lead dust. Until recently, the most important source of airborne dust was automobile exhaust.

When ingested, lead accumulates in the blood, bones, and soft tissue of the body. High concentrations of lead in the body can cause death or permanent damage to the central nervous system, the brain, the kidneys, and red blood cells. Even low levels of lead may increase high blood pressure in adults.

Infants, children, pregnant women, and fetuses are more vulnerable to lead exposure than others because the lead is more easily absorbed into growing bodies and their tissues are more sensitive to the damaging effects of the lead. Because of a child's smaller body weight, an equal concentration of lead is more damaging to a child than it would be to an adult.

WHAT ARE THE SOURCES OF LEAD IN AND AROUND THE HOME?

Lead can be present in drinking water, in paint used to decorate the interior or exterior of a home, in the dust within a home, and in soil around the home.

LEAD IN DRINKING WATER

ARE THERE ACCEPTABLE LEVELS OF LEAD IN DRINKING WATER?

The EPA Office of Drinking Water has proposed regulations under the Safe Drinking Water Act (SDWA) that establish a maximum contaminant level for lead in drinking water of five micrograms per liter and a maximum contaminant level goal of zero. [Note: One microgram per liter is equal to one part per billion (ppb).] These levels or goals are set by EPA to control contamination that may have an adverse effect on human health. Nonenforceable health-based goals are intended to protect against known or anticipated adverse health effects with an adequate margin of safety. Both the current maximum contamination level and goal are 50 micrograms per liter. Although the Public Health Service first set these levels in the 1960s before much of the current knowledge about the harmful effects of lead at low levels was gained, the EPA included them unchanged in the Safe Drinking Water Act of 1985. EPA, however, is now revising these standards to reflect its increased concern.

I HAVE HEARD THAT MATERIALS CONTAINING LEAD HAVE BEEN BANNED FROM USE IN PUBLIC WATER SUPPLIES. IF THIS IS TRUE, HOW DOES LEAD ENTER DRINKING WATER IN THE HOME?

In 1986, amendments to the Safe Drinking Water Act banned any further use of materials containing lead in public water supplies and in residences connected to public water supplies. In 1988, the U. S. Congress banned the use of lead-based solder in plumbing applications within homes and buildings. However, many homes built prior to 1988 contain plumbing systems that use lead-based solder in pipe connections. In such systems, lead can enter drinking water as a corrosion byproduct when plumbing fixtures, pipes, and solder are corroded by drinking water. In these instances, lead levels in water at the kitchen tap can be far higher than those found in water at treatment plants.

The combination of copper pipes connected with lead-based solder is found in many homes and can result in high levels of lead in water. In these circumstances, galvanic corrosion between the two metals releases relatively large amounts of lead into the water. The amount of lead in this kind of home water

system will be higher when water has been at rest in the pipes for a period of time.

The EPA has determined that newly installed solder is most easily dissolved. As the home ages, mineral deposits build up on the inner walls of water pipes and act as an insulating barrier between the water and the solder. Data compiled by the EPA indicates that during the first five years following home construction, water in the home may have high levels of lead, with the highest levels recorded during the first 24 months.

CAN I TELL BY LOOKING AT PIPES AND PLUMBING FIXTURES WHETHER OR NOT WATER IN THE HOME WILL CONTAIN HARMFUL LEVELS OF LEAD?

No. Visual inspection of pipe joints and solder lines is not an accurate means of determining whether or not decaying solder is a source of lead.

A simple chemical test can determine whether the solder used in a home is lead containing or not. Many jurisdictions make use of this test as a regular procedure in plumbing inspections. And while many newer homes rely on nonmetallic plumbing lines, the majority of faucets and plumbing fixtures used today can contribute some lead to home water supplies. However, these contributions can be eliminated effectively by running the faucet for 15 seconds before drawing drinking water.

HOW CAN I TELL IF A HOME HAS A PROBLEM WITH LEAD IN THE WATER?

The only way to determine lead levels in water is to test a sample of the water. Should you suspect that lead is present in drinking water, or if you wish to have water tested, contact local, county, or state health or environmental departments for information about qualified testing laboratories.

IS LEAD IN WATER A CONCERN IN NEWLY RENOVATED OLDER HOMES?

If the renovation included replacement of aging water pipes with copper or other metal piping, you should check with the renovating contractor to ensure that lead solder was not used in pipe joints. Further, some old homes contain water systems made of pipes that can contain high levels of lead. If the original water lines remain in the house, you should question the renovating contractor regarding his or her knowledge of pipe composition.

LEAD- BASED PAINT

HOW PREVALENT IS LEAD- BASED PAINT?

According to the EPA, it is estimated that lead- based paint was applied to approximately two- thirds of the houses built in the U.S. before 1940; one- third of the houses built from 1940 to 1960; and to an indeterminate (but smaller) portion of U.S. houses built since 1960.

HOW CAN I TELL WHETHER THE PAINT IN A HOME CONTAINS LEAD?

The only accurate way to determine if paint in a home contains lead is to remove a sample of the paint and have it tested in a qualified laboratory. Should you suspect that lead is present in paint, or if you wish to have paint tested, contact local, county, or state health or environmental departments for information about qualified testing laboratories.

I HAVE HEARD ABOUT PROBLEMS WHEN CHILDREN EAT CHIPS OF LEAD- BASED PAINT, BUT ARE THERE ANY OTHER WAYS THAT LEAD- BASED PAINT CAN BE HARMFUL?

While the health hazards to children from eating lead- based paint chips have been known for some time, other sources of exposure to lead in household air and dust have been documented only recently. Lead can enter the air within a home when surfaces covered with lead- based paint are scraped, sanded, or heated with an open flame in paint- stripping procedures. Once released into the home atmosphere, lead particles circulate in the air and can be inhaled or ingested through the mouth and nose. Lead particles freed in fine dust or vapors settle into carpet fibers and fabric and can be recirculated in the air by normal household cleaning (such as sweeping and dusting) and through the normal hand- to- mouth behavior of young children, which results in the ingestion of potentially harmful amounts of any lead present in household dust. Fine lead particles penetrate the filter systems of home vacuum cleaners and are recirculated in the exhaust air streams of such appliances. Lead also can enter household air from outdoor sources (such as contaminated soil) and from recreational activities that require the use of solder or materials containing lead.

HOW CAN I GET RID OF LEAD- BASED PAINT SAFELY?

It is best to leave lead- based paint undisturbed if it is in good condition and there is little possibility that it will be eaten by children. Other procedures include covering the paint with wallpaper or some other building material, or completely replacing the painted surface.

Pregnant women and women who plan to become pregnant should not do this work. Professional paint removal is costly, time-consuming, and requires everyone not involved in the procedure to leave the premises during removal and subsequent clean up operations. In addition, if the house was built prior to 1950, there is a good chance that lead from exterior surface paint has accumulated in surrounding soils. Keep the yard well vegetated to minimize the likelihood of children being exposed to contaminated dust. Clean the floors, window-sills, and other surfaces regularly, preferably with wet rags and mops. Practice good hygiene with your children, especially frequent hand washing.

The following publications provide additional information about lead in the home.

BROCHURES

- * Is Your Drinking Water Safe?
- * Lead and Your Drinking Water
- * The Inside Story- - A Guide to Indoor Air Quality

The above are available from:

U.S. Environmental Protection Agency
Public Information Center
401 M Street, SW
Washington, DC 20460
(202) 475- 7751

HOTLINE

For additional information about lead in drinking water, contact EPA's Safe Drinking Water Hotline:(800) 426- 4791 (202) 382- 5533 (in the Washington, DC area).

HAZARDOUS WASTES

WHAT ARE HAZARDOUS WASTES?

Hazardous wastes are those waste products that could pose short- or long- term danger to personal health

or the environment if they are not properly disposed of or managed. These wastes can be produced by large business and industries (such as chemical and manufacturing plants), by some small businesses (such as drycleaners and printing plants), and by individuals who improperly apply, store, or dispose of compounds that contain potentially toxic ingredients (which can be found in chemical fertilizers, pesticides, and household products).

Concentrations of hazardous wastes occur in the environment when these wastes are handled, managed, or disposed of in a careless or unregulated manner. For many decades, hazardous industrial wastes were improperly disposed of on land, and their toxic components remained in the earth or seeped into ground water and drinking water supplies. The widespread use of pesticides and other agricultural chemicals also has resulted in the seepage and run-off of toxic compounds into land and water supplies. In addition, EPA estimates that as many as two million of the more than five million underground storage tanks in the United States may be leaking - - discharging gasoline, petroleum products, and other hazardous liquids into the soil and, potentially, into ground water sources.

WHAT IS BEING DONE TO LOCATE AND CLEAN UP HAZARDOUS WASTE SITES?

During the past 20 years, the U.S. Congress has enacted a body of interlocking laws and regulatory procedures aimed at the abatement of environmental hazards. The Superfund Act was enacted in 1980 (and amended in 1986) to provide more than \$10 billion for the detection and cleanup of sites where hazardous waste is a problem.

The revenue for Superfund is raised through taxes on petrochemical companies and other manufacturers. Under the law, the EPA, other federal agencies, and individual states may draw the necessary funds to allow them to react in hazardous waste emergency situations and to conduct long-term, permanent cleanups of hazardous waste sites.

HOW CAN I DETERMINE IF A HOME IS AFFECTED BY A HAZARDOUS WASTE SITE?

Generally, testing for hazardous waste involves skills and technology not available to the average homeowner or home remodeling contractor.

The EPA has identified more than 30,000 potentially contaminated waste sites nationwide and has completed a preliminary assessment of more than 27,000 of these sites. The Agency publishes a National Priorities List of sites that will require action through the Superfund.

Sites suspected of containing hazardous wastes are mapped at the time of the EPA preliminary assessment and communities likely to be affected by the site are notified. Thus, the nearest regional office of the EPA should have information on the location and status of local hazardous waste sites. The addresses and telephone numbers of these regional offices are listed in the back of this publication.

Furthermore, local and state governments maintain offices and agencies for locating and managing hazardous waste sites, which are often good sources for current information about the location and possible effects of these sites.

WHAT ARE THE PRIMARY HEALTH HAZARDS ASSOCIATED WITH HAZARDOUS WASTES?

The specific health hazards in homes contaminated by hazardous wastes are determined by the kinds and amounts of toxic substances present. Some hazardous wastes can cause death even when ingested in small amounts. Other hazardous wastes have been linked to elevated risks of cancer, permanent damage to internal body organs, respiratory difficulties, skin rashes, birth defects, and diseases that attack the central nervous system.

CAN HAZARDOUS WASTE CONCENTRATIONS BE REMOVED FROM MY PROPERTY OR REDUCED TO NON HAZARDOUS LEVELS?

The ability to remove or mitigate hazardous wastes will depend of the kinds, amounts, and sources of the wastes that are present. Generally, the removal of hazardous wastes from a property is beyond the capability of an individual homeowner.

The following sources and publications provide additional information about hazardous wastes.

BROCHURES

- * A Consumer's Guide to Safer Pesticide Use
- * Citizen's Guide to Pesticides
- * Hazardous Wastes (Environmental Backgrounder)

The above are available from:

U.S. Environmental Protection Agency
Public Information Center
401 M Street, SW
Washington, DC 20460
(202) 475- 7751

HOTLINES

* National Poison Control Center Hotline

This Hotline provides information on accidental ingestion of chemicals, poisons, or drugs. The Hotline is operated by Georgetown University Hospital in Washington, DC. (202) 625- 3333

* RCRA (Superfund) Hotline

This Hotline responds to questions from the public and regulated community on the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation and Liability Act (Superfund). The Hotline operates Monday through Friday from 8:30 a.m. to 7:30 p.m., eastern time.(800) 424- 9346 (202) 382- 3000 (in the Washington, DC area)

* Emergency Planning and Community Right- to- Know Information Hotline

This Hotline complements the RCRA (Superfund) Hotline and provides communities and individuals with help in preparing for accidental releases of toxic chemicals. The Hotline operates Monday through Friday from 8:30 a.m. to 7:30 p.m., eastern time. (800) 535- 0202 (202) 479- 2449 (in the Washington, DC area)

GROUND WATER CONTAMINATION

WHAT CAUSES GROUND WATER CONTAMINATION?

Ground water contamination occurs when hazardous chemical wastes, pesticides, or other agricultural chemicals (such as fertilizer) seep down through the soil into underground water supplies. Faulty private septic systems, improperly managed municipal sewer systems, and leaking industrial injection wells can also contribute to ground water contamination. In recent years, leaking underground storage tanks also

have posed a threat to ground water. Half of all Americans and 95 percent of rural Americans use ground water for drinking water.

IS GROUND WATER CONTAMINATION HARMFUL?

The U.S. Center for Disease Control reports an average of approximately 7,500 cases of illness linked to drinking water in the United States each year. This estimate generally is thought to be considerably lower than the actual figures because drinking water contaminants are not always considered in the diagnoses of illnesses.

HOW CAN I TELL IF THE WATER IN A HOME IS CONTAMINATED?

The only way to know whether or not the water in a home is contaminated is to test it. Since 1977, federal law has required water suppliers to periodically sample and test the water supplied to homes. If tests reveal that a national drinking water standard has been violated, the supplier must move to correct the situation and must also notify the appropriate state agency of the violation. Customers must be notified also, usually by a notice in a newspaper, an announcement on radio or television, or a letter from the health department that supervises the water supplier. If the home is supplied with water from its own private well, laboratory testing of a water sample is the only way to determine if the water supply is contaminated. Should you suspect that water is contaminated, or if you wish to have water tested, contact local, county, or state health or environmental departments for information about qualified testing laboratories.

WHAT CAN BE DONE TO DECONTAMINATE A HOME WATER SUPPLY?

If the home is supplied by an outside water supply source, federal law requires the provider to correct any contamination problems. When homes are supplied by private wells, analysis and treatment of the contaminated water may solve the problem.

WHAT WILL IT COST TO DECONTAMINATE A HOME WATER SUPPLY?

Normally, consumers bear no direct financial responsibility for eliminating contamination from water supplied by an outside source (if the water was contaminated when it was delivered); the supplier bears the primary responsibility for correcting contamination problems. In the case of contaminated water supplied from a private well (or water from an outside source that becomes contaminated after it is

received from the supplier), the cost of decontamination will depend on the kinds and amounts of contaminants present.

In the majority of cases, decontamination of a private water source involves technology and knowledge beyond the scope of the average homeowner. State and local environmental and water quality officials may be able to provide additional information and assistance for decontamination of private water sources.

WHAT IS BEING DONE ABOUT GROUND WATER CONTAMINATION?

The U.S. Environmental Protection Agency has the lead responsibility for assuring the quality and safety of the nation's ground water supply. The EPA's approach is focused in two areas: minimizing the contamination of ground water and surface waters needed for human consumption, and monitoring and treating drinking water before it is consumed.

In 1986, the U. S. Congress passed a set of amendments that expanded the protection provided by the Safe Drinking Water Act of 1974. These amendments streamlined the EPA's regulation of contaminants, banned all future use of lead pipe and lead solder in public drinking water systems, mandated greater protection of ground water sources, and authorized EPA to file civil suits or issue administrative orders against public water systems that are in violation of the Act.

Working with the states, EPA has set national standards for minimum levels of a number of contaminants and is mandated to set such standards for additional contaminants by 1991. In addition, EPA and the states are working to devise a national strategy for the monitoring and management of ground water supplies.

The following sources and publications provide additional information on ground water contamination.

BROCHURE

* Is Your Drinking Water Safe?

Available from:

U.S. Environmental Protection Agency

Public Information Center
401 M Street, SW
Washington, DC 20460
(202) 475- 7751

HOTLINE

* Safe Drinking Water Hotline

This Hotline provides information and publications to help the public and the regulated community understand EPA's drinking water regulations and programs. The Hotline operates Monday through Friday, 8:30 a.m. to 4:30 p.m., eastern time. (800) 426- 4791 (202) 382- 5533 (in the Washington, DC area)

FORMALDEHYDE

WHAT IS FORMALDEHYDE?

Formaldehyde is a colorless, gaseous chemical compound that is generally present at low, variable concentrations in both indoor and outdoor air. It is emitted by many construction materials and consumer products that contain formaldehyde- based glues, resins, preservatives, and bonding agents. Formaldehyde also is an ingredient in foam that was used for home insulating until the early 1980s.

WHERE IS FORMALDEHYDE FOUND IN THE HOME?

Sources of formaldehyde in the home include smoke, household products, and unvented fuel- burning appliances (like gas stoves or kerosene space heaters). Formaldehyde, by itself or in combination with other chemicals, serves a number of purposes in manufactured products. For example, it is used to add permanent press qualities to clothing and draperies, as a component of glues and adhesives, and as a preservative in some paints and coating products.

In homes, the most significant sources of formaldehyde are likely to be in the adhesives used to bond pressed wood building materials and in plywood used for interior or exterior construction. Urea- formaldehyde (UF) resins are found in wood products that are intended for indoor use.

Phenol- formaldehyde (PF) resins are used in products intended for exterior uses. UF resins emit significantly more formaldehyde gas than PF resins. Certain foam insulating materials once widely used in housing construction (urea formaldehyde foam or UFFI) also contain large amounts of formaldehyde. While contractors have voluntarily stopped using UFFI foam insulation, the material is present in many homes that were originally insulated with UFFI.

WHAT HEALTH RISKS ARE ASSOCIATED WITH FORMALDEHYDE?

Formaldehyde has been shown to cause cancer in animals, but there is no definitive evidence linking the chemical to cancer in humans. Higher- than- normal levels of formaldehyde in the home atmosphere can trigger asthma attacks in individuals who have this condition. Other health hazards attributed to formaldehyde include skin rashes; watery eyes; burning sensations in the eyes, throat, and nasal passages; and breathing difficulties. Most persons will first react to formaldehyde when the levels are in the range of 0.1 to 1.1 parts per million. Some individuals acquire a reduced tolerance to formaldehyde following their initial exposure to the gas. In these instances, subsequent exposures to even small amounts of formaldehyde will cause reactions.

DO SOME KINDS OF HOMES CARRY A GREATER FORMALDEHYDE HEALTH RISK THAN OTHERS?

Yes, materials containing formaldehyde were used extensively in the construction of certain prefabricated and manufactured homes. Since 1985, the federal government, through the U.S. Department of Housing and Urban Development, has enforced regulations that sharply curtail the use of materials containing formaldehyde in these types of housing to the lower- emitting products. However, use of formaldehyde compounds is still widespread in the manufacture of furniture, cabinets, and other building materials.

WHAT CAN BE DONE TO REDUCE FORMALDEHYDE LEVELS IN A HOME?

Reducing formaldehyde levels in the home can be a simple or complex task depending on the source of the gas. Initial procedures often include steps to increase ventilation and improve circulation of outside air through the home. If new furniture, drapery, or other sources are contributing to higher- than- normal levels of formaldehyde, removal of these items (or limiting the number of new items introduced into the home) may be all that is needed.

In some instances, home subflooring or walls may be the source of formaldehyde, or foam insulation between inner and outer walls may be emitting the gas. If increased ventilation does not produce acceptable results in these instances, homeowners may be required to remove the formaldehyde-bearing material. Such procedures will be costly, time-consuming, and temporarily disruptive of life in the home.

HOW CAN I TELL IF THE HOME I WISH TO BUY CONTAINS FORMALDEHYDE-BEARING MATERIALS?

In the case of a new home, you should consult with the builder before you purchase the house if you suspect the presence of materials that emit high levels of formaldehyde. Most builders will be able to tell you if construction materials contain urea-formaldehyde or they may direct you to manufacturers who can provide information about specific products. In the case of an older home, formaldehyde-emitting materials may not be visually evident and the current owners may not have specific product information. Because formaldehyde emissions from building materials decrease as the materials age (particularly over the first two or three years), older urea-formaldehyde building materials most probably will not be a significant source of formaldehyde emissions.

If you suspect the presence of formaldehyde, you may wish to hire a qualified building inspector to examine the home for the presence of formaldehyde-emitting materials. In addition, home monitoring kits are currently available for testing formaldehyde levels in the home. Be sure that the testing device will monitor for a minimum of 24 hours to assure that the sampling period is truly representative.

The following sources and publications provide additional information about formaldehyde in the home.

BROCHURES

* The Inside Story - A Guide to Indoor Air Quality

Available from:

U.S. Environmental Protection Agency
Public Information Center
401 M Street, SW Washington, DC 20460
(202) 475- 7751

* Air Pollution in Your Home * Home Indoor Air Quality Checklist

Available from:

Local chapters of the American Lung Association.

* Formaldehyde: Everything You Wanted to Know But Were Afraid to Ask.

Send a self- addressed, stamped envelope to: Consumer Federation of America
1424 Sixteenth Street, NW
Washington, DC 20036

SOURCES OF ADDITIONAL INFORMATION

The EPA operates a variety of telephone hotlines to provide the public with easy access to EPA's programs, capabilities, and services. In addition to the hotlines, EPA has a variety of clearinghouses, libraries, and dockets that may provide information about a broad range of environmental issues. Information related to all of these sources is published in the Guide to EPA Hotlines, Clearinghouses, Libraries, and Dockets, which is available from EPA's Public Information Center (401 M Street, SW, Washington, DC 20460).

The regional offices of the U.S. Environmental Protection Agency are perhaps the best sources of additional information about environmental hazards in specific states and local areas. Each EPA regional office has information on states and areas within a single geographic area.

EPA Region 1

John F. Kennedy Federal Building
Room 2203
Boston, MA 02203
(617) 565- 3715

Areas served: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont

EPA Region 2

26 Federal Plaza
New York, NY 10278
(212) 264- 2515

Areas served: New Jersey, New York, Puerto Rico, and Virgin Islands

EPA Region 3
841 Chestnut Street
Philadelphia, PA 19107
(800) 438- 2474

Areas served: Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, and West Virginia

EPA Region 4
345 Courtland Street, NE
Atlanta, GA 30365
(800) 282- 0239 in Georgia
(800) 241- 1754 in other Region 4 states

Areas served: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee

EPA Region 5
230 South Dearborn Street
Chicago, IL 60604
(800) 572- 2515 in Illinois
(800) 621- 8431 in other Region 5 states

Areas served: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin

EPA Region 6
1445 Ross Avenue
Suite 1200
Dallas, TX 75202
(214) 655- 2200

Areas served: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas

EPA Region 7
726 Minnesota Avenue
Kansas City, KS 66101
(913) 236- 2803

Areas Served: Iowa, Kansas, Missouri, and Nebraska

EPA Region 8
999 18th Street
Suite 500
Denver, CO 80202
(800) 759- 4372

Areas served: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming

EPA Region 9
215 Fremont Street
San Francisco, CA 94105
(415) 974- 8076

Areas served: Arizona, California, Hawaii, and Nevada

EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101
(206) 442- 5810

Areas served: Alaska, Idaho, Oregon, and Washington.

Initial of Seller _____ and Buyer _____