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FULL-SERVICE ENVIRONMENTAL CONSULTING:

Hazardous materials investigation—*asbestos, lead, radon, PCBs*

Abatement planning, design, and project monitoring

Indoor air quality—*sampling, testing, and monitoring*

Industrial hygiene investigations

OSHA compliance audits and monitoring

Water testing, monitoring, and remediation

Microbiologicals consulting—*mold, bacteria*

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LEAD AWARENESS—Part I

Put Yourself to the Test for Lead Awareness

True or False?

1. Lead does not usually occur in source water.
 TRUE FALSE
 2. The most common cause of lead poisoning among children is the inhalation of lead dust.
 TRUE FALSE
 3. When found in a residential building, lead-based paint (LBP) should be removed ASAP.
 TRUE FALSE
 4. Though harmful to one's health if untreated, the body can process and rid itself of lead efficiently with the proper treatment.
 TRUE FALSE
 5. Now that leaded gas has been phased out, lead no longer poses an emissions problem.
 TRUE FALSE
 6. Experts can identify LBP just by looking at it.
 TRUE FALSE
 7. Lead-contaminated soil is unlikely in suburban areas.
 TRUE FALSE
 8. Because of our proximity to our own technology, humans are the only animals affected by lead poisoning.
 TRUE FALSE
 9. Lead poisoning is diagnosed through a blood test.
 TRUE FALSE
 10. Good nutrition can lessen one's risk for developing lead poisoning.
 TRUE FALSE
 11. Any building constructed after 1978 is considered to be lead free.
 TRUE FALSE
- (See Bulletin #4 for answers.)

Lead is a highly toxic metal that was used for many years in American products found in and around our homes, work spaces, and classrooms. Prized for many centuries for its strong-yet-malleable quality, historians now attribute the collapse of the Roman Empire, at least in part, to the practice of storing potable liquids in containers made with lead, and drinking from goblets crafted with lead. Lead in the human body may cause a range of health effects, from behavioral problems and learning disabilities, to seizures and death. Children aged 6 and under are most at risk, because their bodies' fast-paced growth absorbs any substance more quickly than mature organisms. Lead can occur . . .

. . . IN THE AIR

Since the 1980s, EPA and its federal partners have phased out lead in gasoline, reduced lead in industrial air pollution, and banned or limited lead used in consumer



products, including residential paint, dramatically reducing the amount

of lead released into the air as fumes or particulates. However, emissions from **industrial processes** have decreased by only 6 percent since 1988, and within the past decade, as many as ten areas of the country did not meet the EPA's national health-based air quality standards for lead. Today the highest levels of lead in the air are found in urban areas with high levels of traffic and trash incineration, and industrial locations such as lead smelters, battery plants, or industrial facilities that burn fuel.



But the most significant source of lead exposure in the U.S. is old **lead-based paint (LBP)**, estimated to still occur in 57 million homes, not to mention our public, commercial, and corporate structures. Renovation or demolition of any building erected before the 1978 ban on LBP, even home maintenance projects and redecorating, can involve the disturbance

or removal of LBP. Harmful exposures to lead can be created when lead-based paint is improperly removed from surfaces by dry scraping, sanding, or open-flame burning. **Lead particulates** become airborne, some contaminating the soil, some attaching to dust. Lead-contaminated dust can also form when painted surfaces bump or rub together, as in the friction of a window sash scraping against the sill.

In addition to renovation activity, high concentrations of airborne lead particles indoors can result from lead dust introduced from outdoor sources, including contaminated soil tracked inside, or from the use of lead in certain indoor activities such as soldering and stained-glass making. Settled lead dust can re-enter the air when people vacuum, sweep, or walk through it. The services of an EPA-certified lead inspector and/or risk assessor should be employed wherever there are concerns about indoor air quality and the possibility of lead particles.

So pervasive is the problem of proper LBP removal in the residential arena, the government has enacted the **Lead Renovation Education Rule (Lead PRE)**. Rental property owners and managers, renovators, and maintenance personnel are all affected by Lead PRE. For a complete review of the notification and certification requirements and who must comply with them, go to www.epa.gov/lead.

... IN THE WATER

Lead is rarely found in source water. Most lead gets into drinking water after the water leaves the local well or treatment plant and comes into contact with lead pipes, lead solder (commonly used until 1986), and/or the brass faucets, valves, and other components made of brass used in your building's **plumbing**. The physical/chemical interaction that occurs between the water and plumbing is referred to as corrosion. The extent to which corrosion occurs contributes



to the amount of lead that can be released into the drinking water. The most common problem is with brass or chrome-plated brass faucets and fixtures, which can leach significant amounts of lead into the water, especially hot water. New buildings are still at risk: even legally "lead-free" plumbing may contain up to 8 percent lead.

The potential for lead to leach into water increases the longer the water remains in contact with lead in plumbing. As a result, facilities with intermittent water use patterns, such as schools and child care cen-

ters, may have elevated lead concentrations. You cannot see, smell, or taste lead, and boiling water will not get rid of lead if it is contaminated. The only way to know if there are elevated levels of lead at a **drinking water outlet**—a fountain, a water faucet, or a tap where water may be accessed for consumption—is to test it.

Some schools and child care facilities meet the definition of a public water system and are regulated under the **Safe Drinking Water Act (SDWA)**. If your facility regularly serves water for human consumption to an average of at least 25 individuals a day AND you have your own water source (i.e. a well), OR you treat the water, OR you sell the water, you must comply with the provisions of the SDWA. These include the **Lead Ban**, requiring the use of "lead-free" pipe, solder, and flux in the installation or repair of any plumbing, the **Lead Contamination and Control Act (LCCA)**, establishing lead monitoring and reporting requirements for all schools as well as the required replacement of drinking water fixtures that contain excessive levels of lead, and the **Lead and Copper Rule (LCR)**, requiring public water suppliers to monitor for lead in drinking water and to provide treatment for corrosive water if lead or copper are found at unacceptable levels.

Unless a school is regulated as a public water system, testing for lead and copper within the school is not specifically required.



Many schools may never have been tested for lead. Therefore, the EPA strongly recommends that schools test drinking water in their facilities for lead. The EPA's school sampling protocol defines the number, amount, timing, and prioritization of sources for water testing. You can review it on the EPA Web site along with a decision tree for determining the need for testing. An **EPA-certified risk assessor** can advise you in this process, determining the existence, nature, severity and location of lead hazards at your site, be they on the walls, at the water fountain, or in the ground. Only a certified risk assessor is considered qualified to characterize the hazards in your building and present lead abatement options.

(continued in Bulletin #4)

Guidelines for Reducing Your Exposure to Lead

Wipe It Clean

Keep constructed areas where children play as dust-free and clean as possible. Mop floors and wipe ledges and chewable surfaces with a solution of powdered automatic dishwasher detergent (for its phosphate content) in warm water. Most multipurpose cleaners will not remove lead in ordinary dust. Wash toys regularly. Make sure children wash their hands before meals, nap time, and bedtime.

Leave It Alone

Leave lead-based paint undisturbed if it is in good condition. Never sand or burn off paint that may contain lead. Never remove lead-based paint yourself. Hire trained personnel to correct lead-paint problems, and keep occupants, especially children and pregnant women, out of the building until all work is finished and cleanup is completed.

Keep It Outside

Locate play areas in sand or grassy spots as opposed to bare soil. Try to keep children from eating dirt. Do not bring lead dust in from the outside, or track contaminated soil on your shoes. If your work or hobby involves lead, change clothes and use doormats before entering your home.

Let It Flow

Run water for 15 to 30 seconds before drinking it, especially if the tap has not been used for a few hours. Use only cold water for drinking and cooking.

Stay Healthy

Eat a balanced diet, including red meat, beans, eggs, and dairy products. A child who gets enough calcium and iron will absorb less lead. Never store food or liquids in lead crystal or suspect containers. Maintain good personal hygiene and use safe work practices. If you are in doubt about your lead exposure, have your blood lead level checked.

Hire a Pro

To address questions about the lead levels in your building, employ an EPA-certified Lead Risk Assessor and an EPA-certified Lead Inspector. Industrial hygienists often carry both certifications.