

Indiana Mercury Spill Information and Cleanup Guidance for Schools

June 2011

Background Information

Although, mercury performs many useful functions, it is toxic to humans and wildlife and should be managed properly. When liquid (elemental) mercury is spilled, it forms beads or droplets that can accumulate in the tiniest places. These droplets can emit vapors into the air that we cannot see or smell. Breathing mercury vapors can be very dangerous, depending on how much mercury is in the air and how long you breathe the contaminated air. Entire families have been poisoned from mercury spills. Small children and pregnant women are at highest risk for mercury poisoning, but mercury poisoning can impact anyone.

In Indiana, for mercury spills larger than a pea, call the IDEM Spill Hotline at (888) 233-7745.

Outside Indiana, call your local or state health or environmental agency or the National Response Center at (800) 424-8802.

Law bans mercury in schools

The Indiana Legislature passed a law in 2003 banning mercury and mercury-containing instructional equipment ([unless there is no mercury-free substitute](#)) and materials from Indiana schools. For this reason, there should be no mercury or mercury instruments in your school and every effort should be made to ensure that staff and students do not bring such items into your school. Read the [law language](#).

Where was mercury formerly found in schools?

Although, in most instances, Indiana law prohibits it, there still may be mercury compounds and mercury-containing equipment in your school. Here are some locations where mercury has been commonly found in schools:

Chemistry and biology labs: Because of its physical properties, mercury used to be a component of a variety of laboratory equipment (e.g. thermometers, barometers, psychrometers). In addition, mercuric compounds (e.g., mercuric chloride, calomel) were used in chemistry experiments.

School nurse's station: Mercury-containing fever thermometers and blood pressure cuffs were used by school nurses. You may still have mercury-containing instruments in your nurse's station.

Throughout the school: Mercury-containing thermostats, fluorescent light bulbs, and switches may be found in rooms throughout a school.

Brought into school: Occasionally, elemental mercury may be brought to school by students not realizing the hazards it may pose. **What to do when mercury is spilled in your school**

The Indiana Department of Environmental Management (IDEM) recommends having a professional emergency contractor clean up mercury spills. If the spill is minor, such as one smaller than a pea, school or school district staff trained in hazardous materials spill cleanups may take on cleanup responsibilities.

Did you know...any total spill of more than a pea-sized bead of mercury is considered a large spill. A spill of this magnitude in a school should be considered very serious.

Call IDEM at (888) 233-7745 immediately.

Spill Response Action Steps for Liquid Mercury:

1. Designate two to three adults to evaluate the mercury spill.
2. Evaluate the spill. If the mercury was spilled on a heat source or if it was somehow vaporized or atomized (e.g., vacuumed), exposures can be severe. Consider evacuating the building. And if someone ingested mercury, call a poison center at 800-222-1222.
3. If the spill was larger than the size of a pea or if you think it may have been tracked into other rooms, contact the IDEM Spill Hotline immediately, (888) 233-7745 or (317) 233-7745 for technical assistance. The Spill Line is staffed 24 hours/day, 365 days/year. IDEM personnel will determine if IDEM and/or US EPA Region 5 from Chicago should be called in to perform a more thorough cleanup.
4. Determine if anyone involved in the spill has become contaminated with mercury on their clothes, shoes, or skin. Contaminated individuals should remain where they are to avoid spreading mercury to other areas. They will be decontaminated.
5. Everyone who is not contaminated or helping with the cleanup, including children and pets, should leave the area immediately. Be careful when evacuating – make sure no one walks through the mercury spill!
6. Immediately open the room’s outside windows and exterior doors to provide ventilation.
7. Close off the room from the rest of the building by closing all interior doors and windows. Close all cold-air returns so that mercury vapor is not carried throughout the ventilation system. Turn off fans unless they vent to the outdoors. Use portable fans to blow mercury-contaminated air outdoors.
8. Anyone helping to decontaminate individuals or cleanup mercury should put on rubber or latex gloves.
9. Help the contaminated individuals remove contaminated clothing and/or shoes very carefully so as to avoid dislodging and spreading attached mercury. Place the contaminated clothing and/or shoes into a rigid container with a lid (or a trash bag may be used as a temporary container). Use the sticky side of a piece of duct tape to carefully remove any mercury that may be clinging to exposed skin. Use a new piece of strong tape (i.e. duct tape) for each area of exposed skin. Place the pieces of duct tape with adhered mercury into a sealable baggie and place it in the rigid container with the contaminated clothes. Used gloves should also be placed in the rigid container. Seal the container with

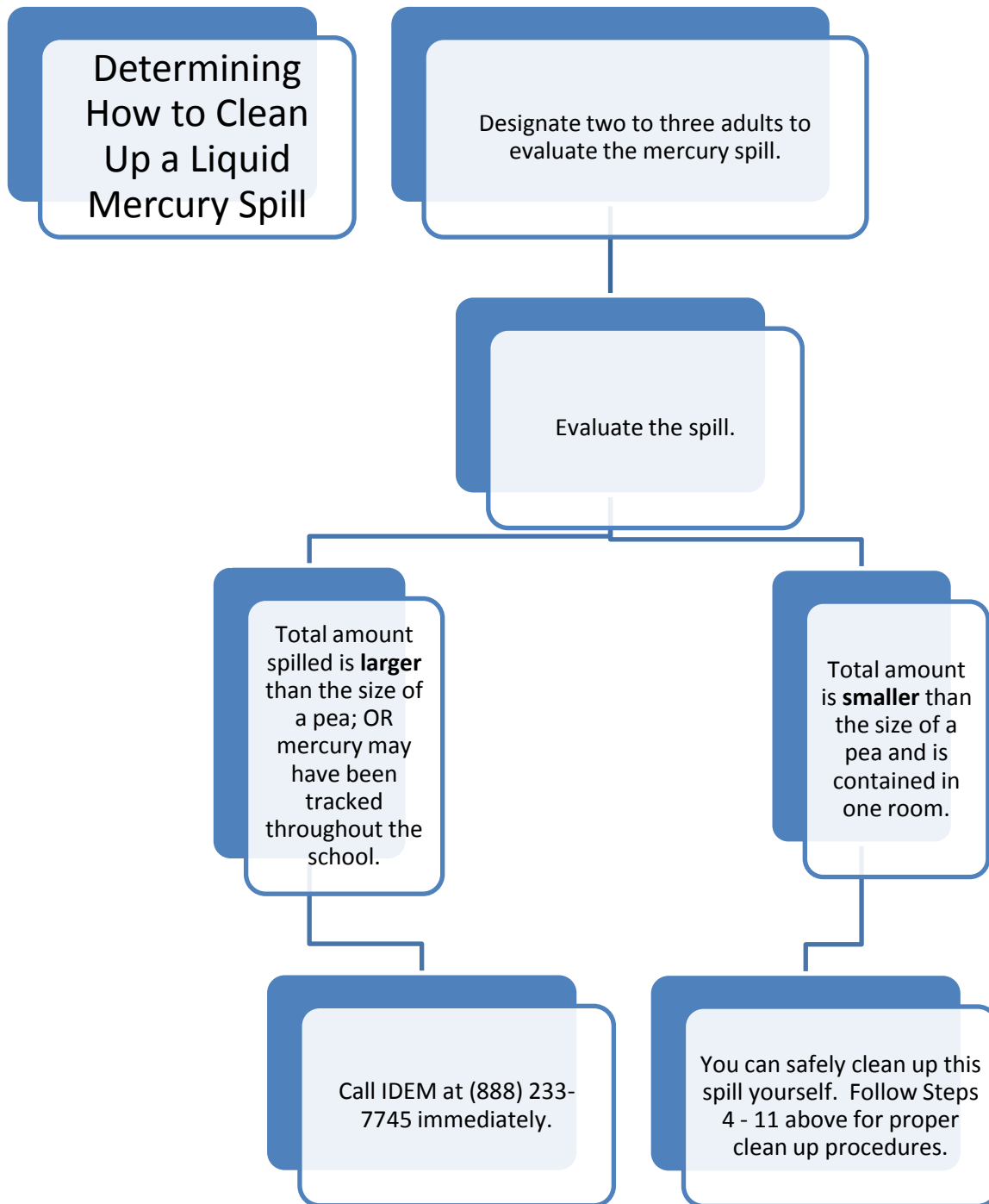
the lid. Individuals should use clean clothes and shoes to replace their contaminated items. As soon as individuals are de-contaminated, they should evacuate the area, being careful not to walk through the mercury spill.

10. Turn off the ventilation and cooling systems to the spill area. If possible, all air ducts to the room should be closed temporarily. Contain any items contaminated with mercury in a rigid container or plastic trash bag. Seal the container with a lid. Take the mercury and other clean up materials such as used gloves to your local household hazardous waste program for recycling. For a listing of HHW programs, go to IDEM's web site at www.recycle.in.gov (look in Recycling Topics).

NOTES:

- NEVER use an ordinary vacuum or shop vacuum to clean up liquid mercury. Vacuuming mercury will blow vapors into the area, thereby increasing the likelihood of human exposure, and will also contaminate the vacuum cleaner. A contaminated vacuum cleaner should be taken to a mercury collection program.
- NEVER use a broom or a paintbrush to clean up mercury. It will break the mercury into smaller beads and further scatter the mercury.
- NEVER use household cleaning products, especially those containing chlorine or ammonia, because they may react violently with the mercury and release toxic gases.
- NEVER allow people whose shoes or clothing may be contaminated with mercury to walk around the school.
- NEVER put mercury in the trash.
- NEVER throw fluorescent or high-intensity discharge lamps in the garbage or trash. These bulbs contain mercury. Some schools are required by law to either properly recycle or manage lamps as hazardous waste.
- NEVER pour or allow mercury to go down a drain. Mercury becomes lodged in pipes, pollutes wastewater-treatment plants and makes its way to our lakes and streams. There it can contaminate fish and the animals and people who eat them.
- Any total spill of more than a pea-sized bead of mercury is considered a large spill. A spill of this magnitude in a school should be considered very serious. Call IDEM at (888) 233-7745 immediately.
- If the mercury spill is on a porous surface such as a carpet, or if the mercury droplets are widely dispersed in a room, call the IDEM Spill Hotline at (888) 233-7745 for assistance.

Most spills of elemental mercury have little potential to create health issues as long as the spill is properly cleaned up and mercury is not tracked to another location.



Cleaning up Broken Fluorescent Bulbs:

Fluorescent tubes, compact fluorescent lamps, and high-intensity discharge lights used for exterior lighting all contain a small amount of mercury vapors. These bulbs should be managed properly by recycling and by never changing bulbs when children are present in the same room. Placing these bulbs in the trash is not recommended and in some instances, may be illegal. New

and used fluorescent lamps, which contain mercury, may be stored in custodial areas. Fluorescent bulbs should be recycled whole and unbroken. Bulb-crushing machines are not recommended because they can emit large amounts of mercury into buildings and the environment.

When they break, they should be cleaned up in the following manner:

1. Clear the room of all students and staff.
2. If more than two bulbs were broken, call the IDEM Spill Hotline at (888) 233-7745 or (317) 233-7745 for clean up and disposal instructions. If two or fewer bulbs were broken, fall the steps below.
3. Open any outside windows, close all interior doors and windows, and leave the room for 15 minutes.
4. Wear rubber gloves and carefully pick up all glass shards and any remaining powder with duct tape or other sticky tape.
5. Wash the area with soapy water using disposable towels and dry the area with disposable towels.
6. If a bulb breaks on carpet, follow steps 1, 3, and 4. After all visible signs of the bulb have been removed from the carpet, you may vacuum the area.
7. Put all glass, tape, disposable towels and vacuum cleaner bag (or contents of a bagless vacuum) into a rigid container. Seal the container with a lid.
8. Air out the incident room for 12 to 24 hours.
9. Take the broken bulb and other clean up materials such as used gloves to your local household hazardous waste program for recycling. For a listing of HHW programs, go to IDEM's web site at www.recycle.in.gov (look in Recycling Topics).

More than 2
bulbs were
broken

- Clear the room of all students and staff.
- Call the IDEM Spill Hotline at (888) 233-7745.

1 or 2 bulbs
were broken

- Clear the room of all students and staff.
- You can safely clean up this spill yourself. Follow Steps 3 - 9 above for proper clean up procedures.

Why is spilled mercury a concern?

Mercury is a toxin that can affect the nervous system of humans. It can also damage the liver and kidneys. Even small amounts of spilled mercury may become a health hazard if it is not properly controlled and cleaned. Heating mercury or failing to clean up a spill can lead to a large exposure or long-term exposure to lower amounts of mercury. Both can impact your health.

The small amount of elemental mercury in fever thermometers and thermostats is not likely to cause serious health problems if it is immediately cleaned up. The mercury in a broken fluorescent light bulb is not readily visible, but broken bulbs should also be cleaned up immediately.

Elemental mercury vapor easily moves from the lungs to the bloodstream. Heating elemental mercury or breathing excessive amounts of vapor from a spill can be very harmful. Ingestion of liquid mercury does not typically result in health impacts because elemental mercury does not pass easily from the gastrointestinal system into the bloodstream. In addition, people usually can avoid swallowing mercury that has been spilled.

Most symptoms of mercury exposure are subtle and reversible upon removal of exposure. Symptoms of a large exposure to mercury may include pink skin, skin rashes or lesions, muscle tremors, personality and behavioral changes, memory loss, and damage to the kidneys and central nervous system.

The best advice: Keep mercury out of your school

Because there is a ban on the purchase and use of mercury in Indiana schools, you are bound by law to refrain from purchasing products and devices that contain mercury or mercury compounds, except fluorescent lamps.

Fortunately, mercury-free substitutes exist for just about everything that would be used in a school:

- alcohol (red bulb) and isoamyl benzoate (blue bulb) and digital lab and fever thermometers,
- electronic thermostats and switches,
- aneroid blood-pressure units, and
- digital barometers and other gauges.

Need more help?

Technical Assistance when cleaning up a spill: The Spill Hotline can be reached any time at (888) 233-7745 or (317) 233-7745.

School Chemical Cleanout: School districts that wish to conduct a Chemical Cleanout may obtain health and safety information online at: www.in.gov/idem/6493.htm or call IDEM at 800-988-7901.

Hazardous waste information: You can obtain confidential assistance with proper disposal of hazardous waste by calling IDEM's Compliance and Technical Assistance Program at 800-988-7901.

Health-related questions: Questions about the health impacts of mercury can be obtained by contacting the Indiana State Department of Health (ISDH) Indoor and Radiological Health at (317) 351-7190, ext. 253 or the Indiana Poison Center at (800) 222-1222. The Poison Center line is staffed 24 hours/day, 365 days/year.

Sources:

Indiana Department of Environmental Management "Mercury Spill Information and Cleanup Guidance": www.in.gov/idem/files/mercury_spill.pdf

Minnesota Pollution Control Agency "Cleaning up a Mercury Spill in Your School": www.pca.state.mn.us/index.php/topics/mercury/mercury-free-zone-program/cleaning-up-a-mercury-spill-in-your-school.html

U.S. Environmental Protection Agency "Mercury and Hazardous Chemicals in Schools: A Manual for Students in Southeast Asia": www.epa.gov/mercury/pdfs/student_manual_for_printing.pdf