

Understanding the Environmental Health Implications of Tropical Storm Irene



The purpose of this document is to provide helpful information for Vermonters whose homes and properties were impacted by Tropical Storm Irene. In addition, it raises important questions regarding the long-term health of Vermont's soil, air, and water in the wake of Irene that Vermont Public Interest Research Group (VPIRG) will be doing our best to answer in the weeks and months ahead.

MOLD

Homeowners whose houses were flooded during Tropical Storm Irene should take action to prevent or eliminate mold. Mold and mildew can result in serious health problems if left unchecked. This includes respiratory problems; irritation of the eyes, nose, and throat; rashes or hives; or headaches and memory loss.

When a home is flooded, mold may begin to grow within 24 to 48 hours. According to FEMA¹, the following steps should be taken by homeowners that have experienced flooding:

- *Allow areas to dry two to three days before replacing damaged materials. Identify and correct the moisture source. Remove all water and fix any leaks before cleaning.*
- *Porous materials such as paper, rags, wallboard and rotten wood can trap molds and should be thrown out. Harder materials such as glass, plastic and metal can be cleaned and disinfected.*
- *To remove moldy materials, wear a filter mask and gloves to avoid contact with the mold. Remove porous materials such as ceiling tiles, wallboard and wood products. If wallboard is flooded, measure and cut at least two feet above the high water mark.*
- *Carpeting can be a difficult problem because drying does not remove the dead spores. If there is heavy mold, consider disposing of the carpet.*
- *After thorough cleaning and rinsing, disinfect the area with a solution of household bleach and water (1½ cups of bleach per gallon of water). **Never mix bleach with ammonia** - the fumes are toxic!*
- *Let disinfected areas dry naturally overnight to kill all the mold.*



SOIL

Many farms, gardens, lawns, and playing fields were flooded by contaminated waters during Tropical Storm Irene. This has left many unanswered questions about the health and safety of soil in those areas. To protect against pathogens such as E. Coli, the Vermont Agency of Agriculture recommends plowing crops under and not replanting for at least sixty days.

However, chemical contaminants cannot necessarily be remedied in the same way. Flood waters could have been contaminated with heavy metals (such as lead or cadmium), pesticides, or hydrocarbons released from heating-oil tanks or gas stations. There are still many questions as to whether this kind of contamination took place and, if so, how significant it was. According to



a recent Burlington Free Press article, limited testing of soil from flooded farm fields conducted by the University of Vermont's Agricultural and Environmental Testing Lab did not find abnormal levels of heavy metals in the 52 samples analyzed. While this is an initial comfort, questions still remain about other flooded lands as well as other possible contaminants.

There are tests that can be done to detect specific contaminants in soil. The following labs conduct soil testing:

- **University of Vermont's Agricultural and Environmental Testing Lab**—The lab does do testing for heavy metals, but they do not have the capacity to test for hydrocarbons or pesticides. More information can be found at: http://pss.uvm.edu/ag_testing/
- **Endyne, Inc.**—Endyne is private lab with a location in Williston, Vermont. Endyne provides tests for heavy metals, hydrocarbons, and other chemicals. More information can be found at: <http://www.endynelabs.com/>

WATER

Questions also remain about the safety of our waterways and water supplies. According to the Vermont Department of Health, "if your private drinking water well was covered with floodwater, is located very near a flooded area, or there is a change in quality – odor or taste – assume that it is contaminated, take all precautions and get it tested."

Water test kits are available for free. To request one, contact your Health Department district office or town health officer. You can find contact information for these offices at: http://healthvermont.gov/local/district/district_office.aspx.

Test kits can also be ordered for a fee of \$14 by calling the Vermont Department of Health Laboratory at 1-800-660-9997. For more information about drinking water safety, read the full advisory released by the Health Department: http://healthvermont.gov/news/2011/090611_safe_drinking_water.aspx

AIR

Although the scope of destruction unleashed by Hurricane Katrina in 2005 was far more significant than that of Irene, there are lessons to be learned. In the wake of Katrina, asbestos was released into the air during the demolition and cleanup of buildings in New Orleans. This begs the question, have airborne contaminants been released in Vermont as the result of destroyed or damaged buildings? And are precautions being taken to limit the release of such contaminants during any demolition and reconstruction projects that are likely to take place?

VPIRG will pose these and other questions to our state regulators, and work cooperatively to find out the answers and take the appropriate actions. In the meantime, Vermonters impacted by the flood should use caution when demolishing and rebuilding their homes and businesses.



End Notes

¹ FEMA. When Waters Recede, Mold Can Take Hold. September 9, 2011. Available at: <http://www.fema.gov/news/newsrelease.fema?id=57800> (accessed on September 23, 2011)