



# CAUTION: HURRICANE CLEANUP CAN BE HAZARDOUS!

As the flood waters recede, we all want to get our homes, our places of employment, our communities, and our roads, rails, bridges, and tunnels clean and back to normal as quickly as possible.

**Warning** - Hurricane cleanup and restoration work may have serious risks. Doing the wrong thing can endanger your safety, your health, and possibly your life.

## IMMEDIATE SAFETY HAZARDS:

**Building collapse or shift** - Do not enter a space that has any sign of not being structurally sound (for example, large cracks in the walls). If in doubt, stay out until it can be professionally evaluated.

**Debris piles** - Where possible, avoid direct contact with unstable surfaces. Use bucket trucks, stable and secure scaffolding, and/or fall protection with secure anchor points.

**Electrocution** - Assume that all power lines are energized unless you know they have been de-energized and tested. Do not enter any space that still contains flood waters until you are 100% certain that the electricity is off and will remain off.

**Explosion** - Do not enter any space where there is a natural gas odor. If possible, do not enter any impacted space until you are sure that gas feeds have been shut off and will remain off.

**Asphyxiation (death from lack of oxygen)** - Do not work in poorly ventilated areas which may be subject to emissions from gasoline-, diesel-, or propane-powered generators, vehicles, or equipment. Carbon monoxide poisoning can occur outdoors as well as indoors.

## CHEMICAL HAZARDS:

**Toxic particulates (poisonous airborne dusts)** - During cleanup or restoration work, you may be exposed to **asbestos, lead, silica, cement dust**, or other toxic chemicals. Inhaling (breathing in) any of these chemicals can cause serious, permanent, long term harm to your health. Exposure to asbestos or silica may cause cancer.

**Note: This fact sheet does not address all hazards. Additional hazards may be present.**



disposable N95

To protect against toxic airborne dust, you may need to wear a respirator. A disposable N-95 or greater respirator can provide adequate protection against inhaling silica or cement dust. For protection against asbestos or lead, you will need at least a half face elastomeric (rubberized) respirator equipped with N, R, or P-100 HEPA (high efficiency particulate air) filters. *Do not use paper dust masks - they do not provide significant health protection.*



elastomeric HEPA

**Using a respirator, even the right respirator, probably will not provide proper protection unless you have been fit-tested, trained, and qualified to use a respirator.**

**If you are an employee and are required to use a respirator, your employer must provide you with a respirator at no cost, along with annual training, fit-testing, and medical clearance.**

### **BIOLOGICAL HAZARDS:**

**Mold** - Water and dampness can cause mold growth on building materials and furnishings, including sheet rock, ceiling tiles, wood, and carpets. Inhaling airborne mold can cause wheezing, respiratory distress, allergic reactions, and severe nasal, eye, and skin irritation. To protect against breathing in mold, use a disposable N-95 or greater respirator.

- Avoid skin contact with chemical or biological hazards. Wear protective gloves and clothing.

## **ADDITIONAL HAZARDS: SUPERFUND SITES**

Flooding of Superfund sites and surrounding areas is likely to complicate cleanup by introducing additional serious chemical and biological hazards.

### **Hurricane Sandy**

In New York, during and after Hurricane Sandy, untreated sewage mixed with storm water is likely to have overwhelmed sewage treatment plants, which then release sewage overflows into the Gowanus Canal and Newtown Creek (and also into New York Harbor and Jamaica Bay). Sandy caused both sites to overflow into nearby occupied areas. Sewage poses very significant threats to human health. Safe and effective cleanup or removal of sewage-contaminated materials is usually best left to technically qualified environmental professionals.

The Gowanus Canal Superfund site is contaminated with a variety of highly hazardous pollutants, including polycyclic aromatic hydrocarbons (PAHs), volatile organic contaminants (VOCs), polychlorinated biphenyls (PCBs), pesticides, and heavy metals. Some of these chemicals are carcinogens (cancer-causing). The Newtown Creek Superfund site is similarly contaminated with pesticides, metals, PCBs, and VOCs. NYCOSH recommended at the time that cleanup or removal of materials contaminated by overflow from the Gowanus Canal or Newtown Creek should be performed by technically qualified environmental professionals.

### **Hurricane Harvey**

Per the Washington Post and Think Progress extended coverage, Houston's hazard exposures have imperiled communities for years leading up to Hurricane Harvey.

Excerpted from the Post:

Harris County, home to Houston, has at least a dozen federal Superfund sites, more than any county in Texas. ExxonMobil has already reported that two of its refineries east of Houston have been damaged in the flood and released pollutants. In addition to the toxic pits at the Brio in Houston's Friendswood community, Harris County's polluted Superfund sites include the lowlying San Jacinto River Waste Pits that "is subject to flooding from storm surges generated by both tropical storms (i.e. hurricanes) and extra tropical storms" that push water inward from Galveston Bay, according to an Army Corps of Engineers report released last year. There's also the Many Diversified Interests site near the heart of the city, the Crystal Chemical Co. site in southwest Houston, the Patrick Bayou site off the Houston Ship Channel, and the Jones Road Plume dry cleaning waste site. They include oily sludge and contaminants dangerous to inhale or touch: perchloroethylene, trichloroethylene and chlorinated hydrocarbons, to name a few.

Excerpted from Think Progress:

The University of Texas School of Public Health released a study 10 years ago that identified a possible link between cancer risks and hazardous air pollutants being emitted by industrial facilities along the Houston Ship Channel. The study said children living within two miles of the Houston Ship Channel had a 56 percent higher risk of contracting leukemia than children living more than 10 miles from the channel. "Harvey is... a threat to the air we breathe," Bakeyah Nelson, executive director of Air Alliance Houston, said in a release, the Houston Press reported. "When petrochemical plants prepare for storms, they release thousands of pounds of pollutants into the air. This pollution will hurt public health in Houston."

## FLOOD CLEANUP RESOURCES:

Centers for Disease Control and Prevention. *After a Flood: Precautions when Returning to your Home*. <http://www.bt.cdc.gov/disasters/floods/after.asp>

Centers for Disease Control and Prevention. *Clean Up Safely After a Disaster*. <http://emergency.cdc.gov/disasters/cleanup/>

Centers for Disease Control and Prevention. *Natural Disasters: Response, Cleanup & Safety for Workers*. <http://emergency.cdc.gov/disasters/workers.asp>

Centers for Disease Control and Prevention. *Personal Hygiene and Handwashing After a Disaster or Emergency*. <http://www.bt.cdc.gov/disasters/floods/sanitation.asp>

Centers for Disease Control and Prevention. *Reentering Your Flooded Home*. <http://emergency.cdc.gov/disasters/mold/reenter.asp>

Centers for Disease Control and Prevention. *Returning Home After a Disaster: Be Healthy and Safe*. <http://emergency.cdc.gov/disasters/returnhome.asp>

Environmental Protection Agency. *Flooding*. <http://www.epa.gov/naturalevents/flooding.html>

Environmental Protection Agency. *Flood Cleanup and the Air in Your Home*. [http://www.epa.gov/iaq/flood/flood\\_booklet\\_en.pdf](http://www.epa.gov/iaq/flood/flood_booklet_en.pdf)

National Institute for Occupational Safety and Health. *Emergency Response Resources: Storm/Flood and Hurricane Response*. <http://www.cdc.gov/niosh/topics/emres/flood.html>

National Institute for Occupational Safety and Health. *Storm, Flood, and Hurricane Response Recommendations for the Cleaning and Remediation of Flood-Contaminated HVAC Systems: A Guide for Building Owners and Managers*. <http://www.cdc.gov/niosh/topics/emres/Cleaning-Flood-HVAC.html>

National Institute of Environmental Health Sciences. *Flood Response Orientation, Safety Awareness for Responders to Floods: Protecting Yourself While Helping Others*. [http://tools.niehs.gov/wetp/public/hasl\\_get\\_blob.cfm?ID=6709](http://tools.niehs.gov/wetp/public/hasl_get_blob.cfm?ID=6709)

National Institute of Environmental Health Sciences. *Protecting Yourself While Removing Post-Disaster Debris from Your Home or Business*. [http://tools.niehs.gov/wetp/public/hasl\\_get\\_blob.cfm?ID=9295](http://tools.niehs.gov/wetp/public/hasl_get_blob.cfm?ID=9295)

Occupational Safety and Health Administration. *Floods*. <http://www.osha.gov/dts/weather/flood/index.html>

University of Michigan. *Suggested Guidelines for Remediation of Damage from Sewage Backflow into Buildings*. <http://www.oseh.umich.edu/pdf/guideline/fdrappe.pdf>

### Harvey Sources:

The Washington Post. *Houston's polluted Superfund sites threaten to contaminate floodwaters*. 8/29/17 <http://wapo.st/2x5Bvtt>

Think Progress. *Houston residents breathe in toxic fumes as petrochemical facilities cope with Harvey*. 8/28/17 <http://bit.ly/2iHU1m0>