

An aerial photograph showing a residential area completely inundated with floodwater. A large, white, two-story house with a grey metal roof is partially submerged. In the foreground, a red and white inflatable rescue boat with several people in orange gear is moving across the water. The surrounding area is filled with trees and utility poles, all under a clear blue sky.

# Climate Change And Toxic Hazards: During The Storm

A View From The Ground

# Why Don't People Or Businesses Prepare ?

## *Individuals:*

- Lack Of Individual Resources Or Time To Adequately Prepare
- Not Understanding The Potential For Severity Or Unwilling To Face A Severe Potential Event

## *Companies:*

- Difficult For Companies To Designate Time And Resources For Something That May Or May Not Happen Or Happens Infrequently
- Not understanding what the vulnerabilities and chemical hazards exist in their own facilities
- Relying on outdated or inadequate Emergency Response Plans
- 40 Percent Of Small Businesses Never Reopen After A Disaster And Another 25 Percent, That Do Reopen, Fail Within A Year – FEMA

# Disaster Risk Assessment For Businesses

- Determine Which Natural Disasters Are Likely To Impact Your Business And Then Prepare For Those Specific Disasters
- Complete A Very Detailed Risk Assessment Of The Facility With Input From Employees From All Levels Of The Organizations
- Catalogue All Dangerous Chemicals, Processes And Equipment - Create A Specific Response For Dealing With Those Processes
- Rate The Hazards Based On Frequency, Severity And The Controls In Place In The Facility
- Create Emergency Response Plans That Fit Your Needs To Address The Hazards
- Share Your Plans With First Responders
- Train & Drill Using The Plan

# Information During A Disaster

Timely / Accurate Information Is Critical Before, During And After A Disaster

## Information Can Include:

- Evacuation Routes
- Storm Information And Severity
- Local Hazards
- Chemical Releases
- Precautions To Take To Prevent Exposure

## Information Sources:

- Local TV & Radio Stations
- NOAA Weather Radio Stations Or Channels
- Text / Email Or Phone Alerts From Municipal Authorities
- Social Media

# Cellphones & Getting Hazard Information During A Storm

- Cell Phones Have Replaced Wired Phone Lines In Many Homes
- Overload Of Cell Systems Are Common Leaving Citizens Without Effective Means Of Communication
- Cell Phone Networks Experience Shutdowns Due To Flooding And Damage To Cell Tower Sites
- Long Term Power Outages That Exceed The Limits Of The Cell Tower Backup Battery Systems
- Although Voice Systems May Not Work Or Be Overloaded - Text Systems Many Times Continue To Work
- Cell Phones Are Only Good As Battery Charge

# Toxic Substances Storm Dangers

- Fuel Leaks
- Flooding and The Release Of Industrial Hazardous Waste (Chemical, Biological, And Radiological)
- Breach & Inundation Of Identified Hazard Waste Sites
- Breach & Inundation Of Uncontrolled Hazardous Waste Sites



# Vulnerable Sites For Chemical Release & Examples Of The Types Of Chemicals That Might Be Released

- Your Home – Household Chemicals, Fuels, Non Compatible Chemicals, Propane Cylinders, Cleaning Supplies, Paints And Thinners
- Hospitals, Laboratories, Pharmacies & Medical Waste Storage Areas
- Fuel Storage Sites & Tank Farms
- Local Gas Stations / Repair Facilities
- Small Manufacturing Operations
- Bus & Vehicle Depots
- Heavy Equipment Sites



# Chemical Hazards During And After A Storm

- Explosive Environments Due To Fuel / Gas Leaks
- Contaminated Soil & Standing Water
- Private Wells May Be Contaminated With Household Chemicals Or Industrial Waste Or Runoff
- Municipal Water Supplies May Be Contaminated Or Not Available Due To Flooded Plants Or Filtration Damaged Or Destroyed
- Fuel Station Run Off
- Public Safety Agencies Overwhelmed Or Unavailable To respond to Toxic Chemical Releases



# Protecting Yourself From Toxic Exposure

- Listen to announcements or alerts from authorities about chemical safety, disposal issues and what to do in the event of a chemical release
- Stay out of floodwater - It may contain hazardous chemicals, human / livestock waste and other contaminants that can lead to illness
- Call local authorities to report oil and chemical spills, abandoned containers, or other containers you suspect may contain chemicals
- Do not touch or move unknown containers
- You may need to evacuate or stay inside (shelter in place) until you are told it is safe to leave

# Be Prepared For Contamination

- Fill Bathtubs, Sinks, Gallon Jars, Or Plastic Soda Bottles So That You Will Have A Supply Of Clean Water
- Consider Having A Portable Camping Filtration Unit On Hand For Questionable Water
- Wash Skin That May Have Come Into Contact With Chemicals Or Floodwater With Soap And Clean Water As Soon As Possible
- Remove And Dispose Of Clothing Have Come Into Contact With Chemicals Or Floodwater
- Have Supplies On Hand To Safely Clean-Up After The Storm Has Passed

# Evacuation from Hazardous Releases

- Plan ahead on how you will evacuate: car, public transit or rely on municipal transport
- Listen To Your Local Radio Or Television Station For Updates
- If Emergency Managers Say To Evacuate, Then Do So Immediately
- Turn Off All Utilities At The Main Power Switch And Close The Main Gas Valve



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