

Managing and Preventing Environmental Risks After a Hurricane

Real Estate Environmental Hazards:
An Often Overlooked Exposure
in Disaster Planning

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In the immediate aftermath of Hurricane Harvey, a chemical plant located northeast of Houston was rocked by two powerful explosions that sent smoke into the air and forced a partial evacuation of the local town. The explosions followed a series of equipment failures including components of its emergency refrigeration system that were intended to keep a stock of hazardous chemicals cool but were instead swamped by flood waters several feet higher than the company's worst case scenario. The event is one that most businesses will undoubtedly and fortunately never have to face. That said, the disaster does underscore a pitfall that many businesses fall into in their business continuity planning efforts: underestimating their potential environmental exposures following a hurricane or other natural disaster. While there may be no way to truly prepare for 50 inches of rain, property owners and managers can take steps to help them prepare to cope and recover in the aftermath of a disaster.



The fact of the matter is that weather events have become much more costly and are causing unprecedented damage. Of the top 10 costliest hurricanes in the U.S., nine occurred since 2004, and four have been in the past five years. What will the next 10 years bring? It's hard to say, but the consequences of ignoring or failing to update continuity planning for environmental exposures could be devastating.

According to a report by the Federal Emergency Management Agency, it is estimated that some 75% of businesses without a business continuity plan will fail within three years after a disaster. And dealing with severe weather events is no longer just the 'other guy's problem.' At least one in three small businesses say they have been affected by a storm or extreme weather, according to a study by [Business Insider](#).

A Roadmap Through the Unknown

The challenges of managing environmental exposures – which are anything but routine under the best conditions – are greatly magnified during a prolonged weather event when critical systems are interrupted. Following Hurricane Harvey in Texas, damage to roadways, bridges, and other infrastructure limited access for emergency response teams, bacteria from wastewater treatment plants seeped

into flood waters, and chemicals were discharged from various facilities. Nearly six months after Hurricane Maria made landfall in Puerto Rico, nearly a quarter of residents were still without access to electricity.

Where do you turn under these circumstances? An emergency response or business continuity plan is the best way to bring direction and order to the chaos that so often follows a severe weather event. A plan can be used to identify critical hazards while providing a roadmap for preparation and recovery following a storm event. By proactively identifying potential environmental exposures and putting appropriate risk management controls in place before severe weather events occur, organizations can greatly reduce their business impacts and severity of the risk. With the hurricane season in the U.S. running from June 1 through November 30th, there is no better time to create or update a plan than now.

Identify and Plan Now

The Risk: A critical review of site operations and a thorough risk analysis for all site locations and operations are the first steps to preparing for a storm and reducing the potential devastation of environmental exposures after the event. If the business is located in a flood zone or coastal area subject to high winds and storm surges, a plan should be developed to secure property, equipment and materials prior to an anticipated event. Companies should review their site operations, and their use and storage of hazardous materials in order to identify processes that are at risk due to storm damage and flooding. The risk assessment information should be used to initiate process improvements, such as anchoring down tanks, reducing on-site chemical volumes, or installing double-walled piping. Any changes to property, staffing or critical business operations should trigger a re-assessment of an organization's exposures and review of its continuity plans.

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Businesses that have hazardous or toxic chemicals subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) need to develop a procedure to ensure that the Environmental Protection Agency's EPCRA reporting requirements are followed correctly. In addition, these facilities are required to support the Local Emergency Planning Commission and work with local authorities to develop an emergency response plan for the site.

The Team: Business continuity plans need to include a basic chain of command communication structure, identifying management and employees, their specific duties, and triggers that activate the execution of emergency preparation. Employees and subcontractors should be trained and knowledgeable in their specific roles. Always include the emergency management staff from the municipality where a business is located, but be aware that following a large-scale event, local emergency responders will prioritize responses for critical needs facilities such as hospitals and nursing homes, and may not be able to provide resources to assist.

The Training: To help keep the risk assessment up-to-date, conduct rigorous testing at least once a year and revise the plan if changes to property, staffing, or business-critical operations occur. Keep the facility and management team involved by training key staff with plan implementation every year, and verify that all employees are aware of and can access the plan. During the risk assessment, engage employees and management in planning and action item development, and verify that contacts with emergency response vendors are current. Preparation as a team typically leads to response as a team.

Days Before the Storm

A storm preparation plan should be activated days prior to a storm and communicated to an organization's customer base, its internal project recovery team and subcontractors, suppliers, and local regulatory authorities, as necessary. Building owners who have agreements with emergency response contractors, such as suppliers of generators, potable water, building materials, and de-watering and pump

How to Get Started

Business continuity planning for environmental exposures often takes a back seat to other exposures, but after a storm, they can quickly become a priority. Here are nine questions that can help you focus on your potential environment exposures or help you take a new look at your plan.

- What scenarios are you prepared to deal with?
- What is your location's risk of flooding from a 25- or 100- year storm event or a storm surge?
- What are your shut down or process control procedures?
- What are the hazards associated with the chemicals stored or processes conducted at your facility?
- What spill/response supplies are stored on site, and where are they located?
- What is the chain of command communication structure?
- Who are the recovery contractors that have agreed to provide assistance?
- What are the critical paths to getting your business back in operation?
- What regulatory authorities may need to be contacted?

equipment, and who have stored fuels for emergency use are much better positioned to resume operations than locations without adequate supplies and preparations. Each site should have its own Emergency Preparedness Plan, with provisions for site security and evacuation to prevent harm to employees and trades working at the site.

As the storm approaches, employees assigned to pre-storm preparation and loss prevention should move valuables and fragile/breakable items away from windows that cannot be protected against high winds. They should also secure the building envelope to prevent, to the extent possible, water intrusion into the building with sandbags, berms, or other materials as appropriate. High value equipment such as computer servers or artwork should be secured or moved to higher ground in an anticipated flood event. Building materials exposed to water can develop mold or long term environmental problems that can create indoor air quality issues or other health concerns.

Hazardous materials such as petroleum, pesticides, or flammable materials should be moved or secured in order to prevent releases and hazards. Plans should include provisions to de-energize electrical power, shut down gas to the main valve to prevent a release or fire, shut down water systems except those used for fire protection, and temporarily shut down HVAC systems and cover air intakes.

If the site has a Stormwater Pollution Prevention Plan in place, protective controls should be sufficient to control or contain flooding and prevent pollutants from entering site storm drains. If these controls are breached, and contamination of the site or adjacent site is suspected, the organization will have legal requirements for reporting or for taking other actions depending on the spill. Taking some time to understand the regulatory reporting requirements of your jurisdiction can help smooth recovery after an event.



Employees should be aware of communications channels and protocols for finding critical information. Once the power fails, access to printers, computers and mobile devices is likely to be extremely limited. Any documents, signs, posters, instructions, or other information that is needed to secure the building or protect employees should be printed and distributed beforehand.

After the Storm

During recovery and re-establishment of normal operations, workers need to be made aware of the possibility of hazardous conditions following a storm so that they do not blindly walk into a potential exposure situation. Providing workers with environmental and safety awareness notices can ensure that the work environment is safe for occupancy.

Consider following specific pre-determined procedures in the event of structural damage, gas leaks, power line damage, or other utility damage that pose risks to the recovery team. Planning for these scenarios removes much of the risk and uncertainty in restoring the site and getting back to normal business operations.

Once authorities determine it is safe to reenter the building, it's important

to take reasonable steps to protect the structure from further damage. Something as simple as boarding up windows can mitigate further damage from lingering rain or winds.

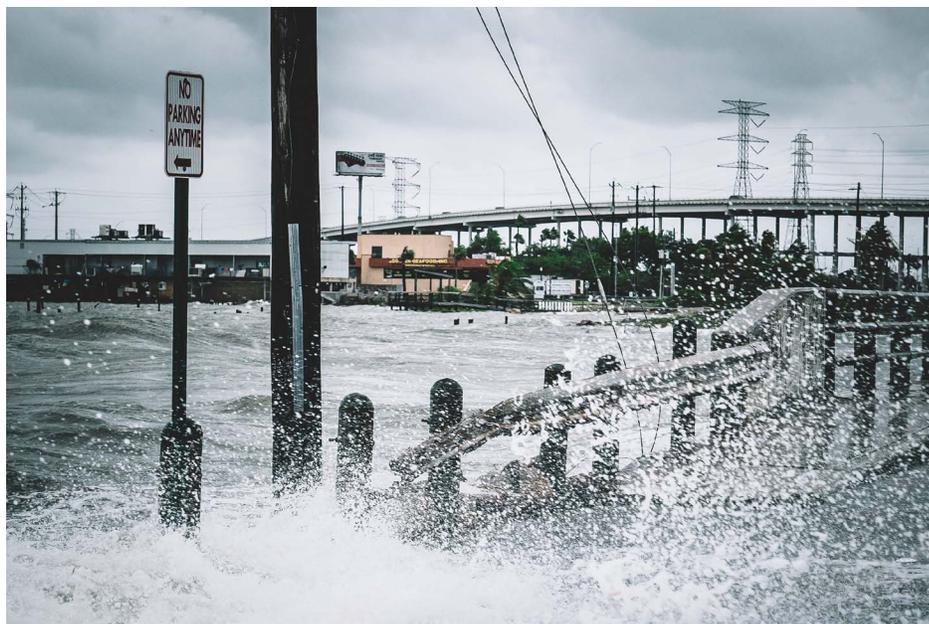
As clean-up starts, be sure employees can safely access protective gear such as goggles, heavy work gloves, N95 masks, or respirators, or waterproof boots and that they use appropriate gear.

What can be often overlooked or underestimated in a recovery plan is the time that an organization's employees will need to care for their family and property. Being sensitive to the needs of employees can build a stronger organization after a storm.

What have I Missed?

"What have I missed" is the question that lurks behind nearly every business continuity plan. Considering all the moving parts and potential scenarios posed by extreme weather events, it's a reasonable concern. As well as a risk manager may know his or her organization, it's easy to overlook an exposure. Seeking out the appropriate engineering and consulting expertise can mitigate operating exposures and safely manage the impacts of a catastrophic weather event.

A critical review of site operations and a thorough risk analysis for all site locations and operations are the first steps to preparing for a storm and reducing the potential devastation of environmental exposures after the event.



Depending on the resources available internally, it can be useful to bring in individuals with licensing as Certified Business Continuity Professionals (CBCP), Qualified Environmental Professionals (QEP), Certified Industrial Hygienists (CIH), Certified Hazardous Materials Managers (CHMM), or Professional Engineers (PE), or other appropriate disciplines to support the development of Business Continuity and Emergency Response plans. Taking the extra step can bring new insight into a plan.

About the Author

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