

# Hurricane Preparedness for the Chemical Industry

Chemistry is essential to just about every aspect of the U.S. economy, with more than 96% of all manufactured goods directly touched by the chemistry industry.

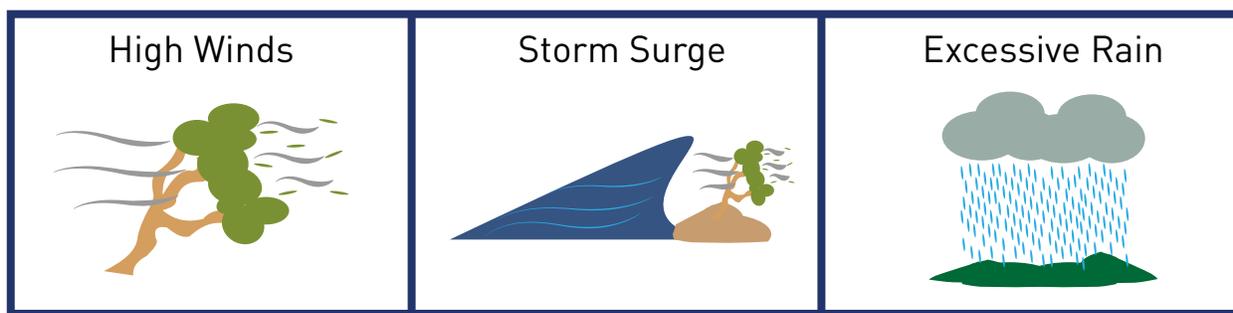
Some form of chemical production can be found in nearly every state. However, much of it is concentrated in the U.S. Gulf Coast region, where there is access to many transportation options and to raw materials such as petroleum and natural gas, which are used to make basic chemicals that are needed to manufacture everyday items throughout the country. Of course, this is also a part of the country that is regularly hit by tropical storms and hurricanes, which is why the chemical industry goes to great lengths to prepare for extreme weather events.

Preparation is the key to addressing the potential dangers of hurricanes. For that reason, chemical facilities take steps well in advance of a storm's arrival with the following priorities in mind:

1. Protect employees and surrounding communities
2. Prevent the release of chemicals
3. Restore operations and production essential to producing vital everyday items

## Weather Hazards

Each hurricane is unique but there are three common hazards that chemical facilities address through a wide-range of protective measures:



## Protective Measures

### **Construction**



Chemical facilities are designed and built to withstand major storms. Specific construction elements can include hardening operations to withstand damaging winds; building dikes and levees to contain spills; elevating equipment and key operations to avoid flooding; and constructing barriers to hold back storm surge.

### **Planning**



Facilities maintain a set of comprehensive emergency plans for various weather events. These plans are tested and drilled regularly. The plans address a variety of emergency scenarios, outlining criteria that would trigger different actions - e.g. "When the wind gets to X miles per hour or the water gets to Y feet above normal level, shut the facility down."

## Personnel



Companies work with employees to arrange personal preparedness plans to provide temporary housing, transportation, basic amenities, and medical support for workers impacted by the storm. Communication systems are put in place to track the safe whereabouts of employees.

## Preparation



Companies take a wide range of steps to safeguard a facility well in advance of an approaching storm by testing and activating backup generators, obtaining extra fuel, checking food supplies (for storm teams), securing tanks, tying down equipment and loose objects, and moving materials to higher ground.

## Operations



Companies may reduce operations, shut down a facility, and/or evacuate personnel in advance of a hurricane. Shutting down and restarting a chemical facility is a complicated and time consuming process that must be done carefully to ensure the safety of employees and minimize emissions. To ensure that this is done as safely as possible, special regulations and emissions limits apply to periods of startup and shutdown. Facilities have plans for safe shutdown and restart of processes, as well as safety and security plans for securing the premises during a shutdown.

## Monitoring



When feasible, emergency “ride out” crews are used to closely monitor the facilities during the storm. The crews consist of employees who are well trained to deal with emergency situations and make on the spot decisions to keep everyone safe. Any incidents or releases are reported to local authorities and government agencies.

## Communications



Companies confirm contact information with emergency personnel and employees. They also form backup plans for breakdowns and share those with local emergency planning committees, or LEPCs.

## Inspections



Before allowing employees back onsite and restoring operations recovery crews assess the facility for any damage or remaining hazards. For safety reasons, access to certain areas of the facility can be restricted to essential personnel until operations come fully online.