Calm Before the Storm

Facility Planning for severe weather conditions

XL CATLIN

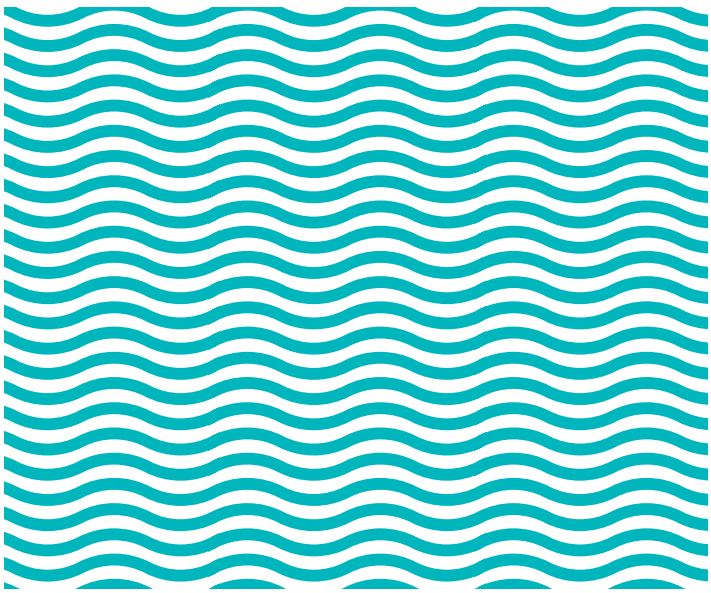
Insurance
Property Risk Engineering
GAPS

Planning ahead for severe weather conditions

For those who have encountered the effects of a severe windstorm, it's an experience that they will never forget. Because severe windstorms don't occur every day, it is easy to get complacent and dismiss the possibility that your facility will someday be affected by damaging winds. Whether you are a multi-billion dollar company or a small company with just a few employees, companies can benefit from having a well thought-out Severe Weather Emergency Response Plan. Case studies have shown that action in emergencies is seldom effective unless it has been carefully developed, documented, practiced and frequently revisited prior to its implementation. Preparing at your own pace throughout the year will greatly reduce last-minute scrambling. It will also reduce employee stress and reassure customers that contingency plans are in place to help minimize potential business interruptions. If your facility is exposed to hurricanes, cyclones, or typhoons, this brochure will help you prepare for the worst.

XL Catlin considers the information in this brochure to be the key elements of a good plan. We recognize that no single plan will be perfect for all facilities. The size and scope of your own Severe Weather Emergency Response Plan will depend directly on the purpose of your business. Use this as a tool to develop standard operating procedures (SOP) catered to the needs of your facility and occupancy.

Our loss prevention specialists are always available to assist you in your preparations.



Severe Weather Emergency Response Team

First, consider establishing a **Severe Weather Emergency Response Team**. Each major sector of your business should be represented. The team's primary responsibilities should include the following:

- Develop, implement, and review the **Severe Weather Emergency Response Plan** to protect the facility from strong winds, windblown debris, storm surge, and flooding.
- Include key personnel with the authority to decide when various levels of alerts are to be announced, and to initiate facility shut down procedures.
- Include contact information for each member, local law organizations, utility companies, emergency contractors, vendors, and recovery / restoration companies.
- Monitor weather conditions using the National Weather Services on television, commercial radio, weather radio, and websites that track and monitor storms.
- Provide team members who may volunteer to remain on-site during the storm with all necessary provisions.
- Determine a safe Operations Center location.
- Designate an Incident Commander.

Severe Weather Emergency Response Plan

Each major sector of your business should have a documented checklist of functions and responsibilities.

Communications:

- Provide the **Severe Weather Emergency Response Team** with compatible and tested communication equipment including: land lines, cell phones, satellite phones, short wave radios, NOAA weather radios, email access through hand held devices, pagers, walkie- talkies, etc.
- Assess the potential of hindered communications prior to, during, and after the severe storm due to damaged cell phone towers, overloaded circuits, downed power lines, etc.

Computer Systems / Information Technology:

- Guarantee that all computer information, electronic filing, customer information, billing, payroll records, and any other data that is important to your business, is backed up off-site at a location that is not in the path of the storm.
- Ensure that business interruption is minimized by providing provisions to operate from portable equipment, sister facilities, hot sites or equivalent.
- Conduct testing / dry runs of the business interruption mitigating provisions.

Operations / Production:

- Label and document process flows, critical fuel supplies, and any other important aspect of your operation that might need to be shut down by those unfamiliar with the property, etc.
- Minimize impact of lost operations through: inventory control, retaining available replacement parts for anticipated damaged equipment, identifying sister facilities or outsourcing that can duplicate operations, fill orders, maintain customer service, or any other function your facility may conduct.

Maintenance / Security:

- Conducts a large percentage of physical activities to potentially reduce damage to facility.
- Ensure documented training in full and partial shut down / start up procedures in accordance with manufacturer's specifications.
- Coordinate activities and responsibilities for maintenance and security including fire protection, security systems, alarms, and securing the site.
- Acquire and maintain physical protection materials. See attached Materials Checklist.
- Organize efforts with local law officials, mutual aid organization, etc. to anticipate challenges accessing the property.

Shut Down / Start Up:

- Complete tasks meeting the needs of each alert level leading up to full or partial plant shut down and start up etc. Key personnel may include: maintenance, electrician, pipe fitter, plumber, boiler operator, refrigeration system operator, etc.
- Identify unique tools or apparatuses that would be needed to isolate key valves or repair ruptured control lines, etc.

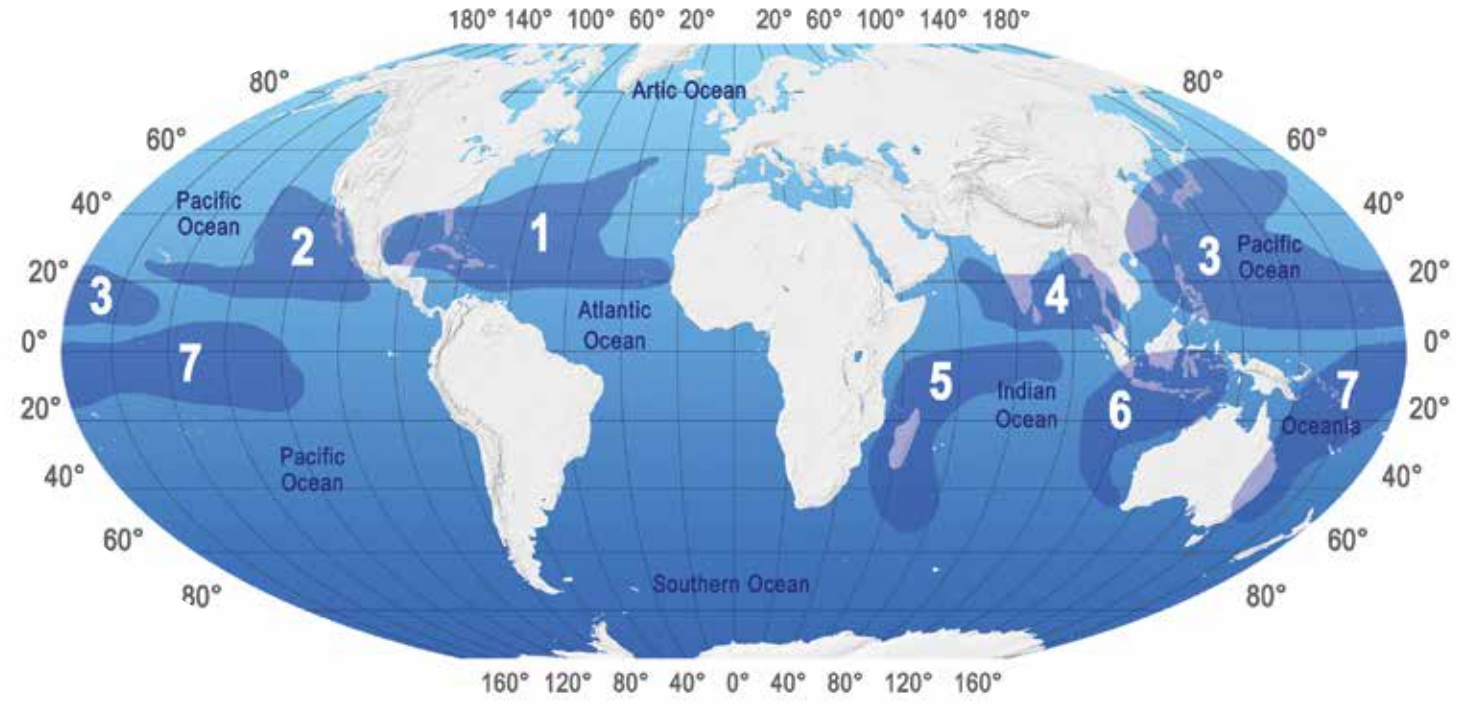


TABLE 1

General Information

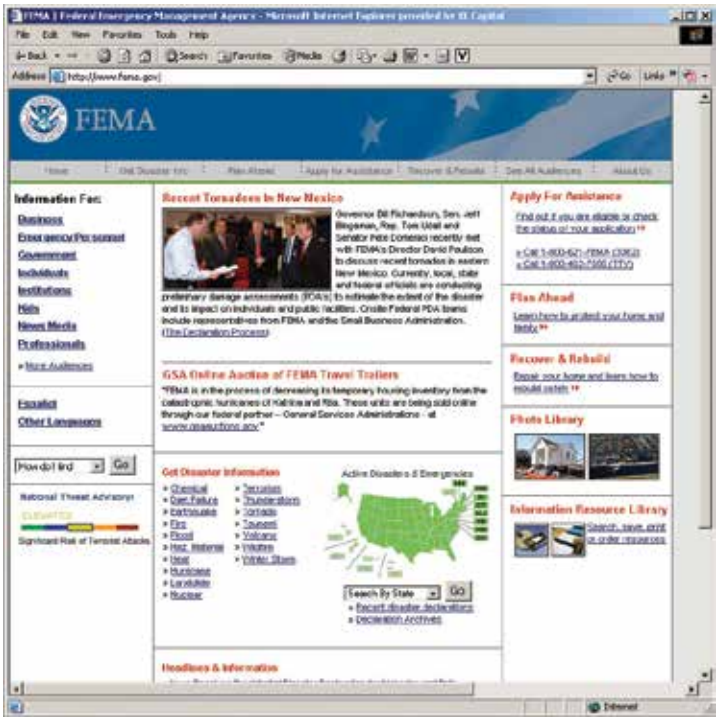
Basin	Basin Area	Severe Weather Season[1]	Storm Classification[2]
1. Atlantic	North Atlantic Ocean, Gulf of Mexico, and Caribbean Sea	June 1 to November 30	Hurricane
2. Northeast Pacific	Mexico to the dateline	May 15 to November 15	
3. Northwest Pacific	Dateline to Asia including South China Sea	All year round (least activity February to early March)	Typhoon
4. North Indian	Includes Bay of Bengal and the Arabian Sea	April 1 to December 30	Cyclone
5. Southwest Indian	Africa to 100E	October 15 to May 10	
6. Southeast Indian/Australian	100E to 142E		
7. Australian/ Southwest Pacific	142E to 120W		

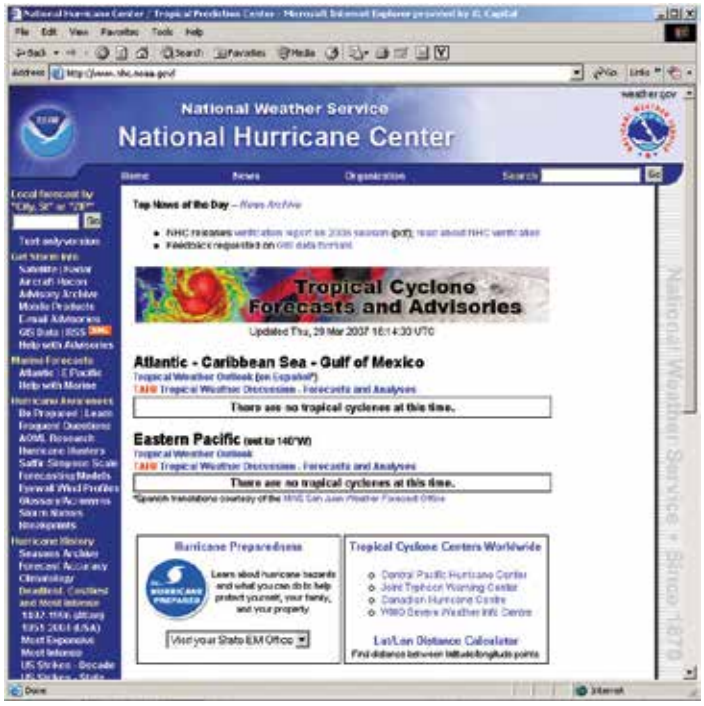
Note 1: Dates are based on historical data for a period of 100 years, and should be used as estimates only.
Note 2: Storm strength classifications differ from country to country. Refer to your national weather service organization for details.

Resources for tracking real-time conditions and general information

Please note that XL Catlin does not control, support, endorse or determine accuracy of materials that are posted on any non-XL Catlin site.

	National Hurricane Center: http://www.nhc.noaa.gov
	Federal Emergency Management Agency: http://www.fema.gov
	NASA Earth Observatory: http://earthobservatory.nasa.gov
	Hurricane Maps Enterprises: http://www.hurricanetrack.com
	National Weather Service Terms: http://www.weather.gov/glossary
	National Weather Service Climate Prediction Center: http://www.cpc.ncep.noaa.gov/





Key National Weather Service Terms

Cyclone:

An atmospheric closed circulation rotating counter-clockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

Flood:

Minor Flood	Minimal or no property damage, but possibly some public threat.
Moderate Flood	Some inundation of structures and roads near stream. Some evacuations of people and/or transfer of property to higher elevations.
Major Flood	Extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.
Record Flood	Flooding which equals or exceeds the highest stage or discharge at a given site during the period of record keeping.
Flood Watch	Identifies areas where there is a risk of flooding, but flooding is not certain.
Flood Warning	Flooding along larger streams in which there is a serious threat to life or property. A flood warning will usually contain river stage (level) forecasts.
Flash Flood Watch	Rapid developing flooding is possible or is close to the watch area
Flash Flood Warning	Rapid developing flooding is in progress, imminent, or highly likely.

Gale Warning:

A warning of 1-minute sustained surface winds in the range 34 kt. (39 mph or 63 km/hr) to 47 kt. (54 mph or 87 km/hr) inclusive, either predicted or occurring and not directly associated with tropical cyclones.

High Wind Warning:

A high wind warning is defined as 1-minute average surface winds of 35 kt. (40 mph or 64 km/hr) or greater lasting for 1 hour or longer, or winds gusting to 50 kt. (58 mph or 93 km/hr) or greater regardless of duration that are either expected or observed over land.

Hurricane / Typhoon:

A tropical cyclone in which the maximum sustained surface wind (using the US 1-minute average) is 64 kt. (74 mph or 119 km/hr) or more. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline.

Hurricane Warning:

A warning with sustained winds 64 kt. (74 mph or 119 km/hr) or higher associated with a hurricane are expected in a specified coastal area in 24 hours or less. A hurricane warning can remain in effect when dangerously high water or a combination of dangerously high water and exceptionally high waves continue, even though winds may be less than hurricane force.

Hurricane Watch:

An announcement for specific coastal areas that hurricane conditions are possible within 36 hours.

Knot:

Unit of speed used in navigation, equal to 1 nautical mile (the length of 1 minute latitude) per hour or about 1.15 statute miles per hour, or 0.5 meters/sec). Abbreviation is kt"

Monsoon:

A thermally driven wind arising from differential heating between a land mass and the adjacent ocean that reverses its direction seasonally.

Saffir-Simpson Scale:

This scale was developed in an effort to estimate the possible damage a hurricane's sustained winds and storm surge could do to a coastal area. The scale of numbers is based on actual conditions at some time during the life of the storm. As the hurricane intensifies or weakens, the scale number is reassessed accordingly. The following table shows the scale broken down by central pressure, winds, and storm surge:

Category	Central Pressure (mb)	Wind Speed (mph)	Storm Surge (ft)
1	980 or >	74 – 95 (33.1 – 42.5 m/s)	4 – 5 (1.2–1.5 m)
2	965 – 979	96 – 110 (42.6 – 49.2 m/s)	6 – 8 (1.8 – 2.4 m)
3	945 – 964	111 – 130 (49.3 – 58.1 m/s)	9 – 12 (2.7 – 3.7 m)
4	920 – 944	131 – 155 (58.2 – 69.3 m/s)	13 – 18 (4.0 – 5.5 m)
5	< 920	> 155 (> 69.3 m/s)	> 18 (>5.5 m)

Severe Thunderstorm:

A thunderstorm that produces a tornado, winds of at least 58 mph (50 knots), and/or hail at least ¾" (19mm) in diameter. Structural wind damage may imply the occurrence of a severe thunderstorm. A thunderstorm wind equal to or greater than 40 mph (35 knots) and/or hail of at least ½" (13mm) is defined as approaching severe.

Storm Surge:

An abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the cyclone. Storm surge is usually estimated by subtracting the normal or astronomic high tide from the observed storm tide.

Tropical Cyclone:

A warm-core non-frontal synoptic-scale cyclone, originating over tropical or subtropical waters, with organized deep convection and a closed surface wind circulation about a well-defined center. Once formed, a tropical cyclone is maintained by the extraction of heat energy from the ocean at high temperature and heat export at the low temperatures of the upper troposphere. In this they differ from extratropical cyclones, which derive their energy from horizontal temperature contrasts in the atmosphere (baroclinic effects).

Tornado:

A violently rotating column of air, usually pendant to a cumulonimbus, with circulation reaching the ground. It nearly always starts as a funnel cloud and may be accompanied by a loud roaring noise. On a local scale, it is the most destructive of all atmospheric phenomena.

Tropical Depression:

A tropical cyclone in which the maximum sustained surface wind speed (using the US 1-minute average) is 33 kt. (38 mph or 62 km/hr) or less.

Tropical Disturbance:

A discrete tropical weather system of apparently organized convection – generally 100 to 300 nmi in diameter – originating in the tropics or subtropics, having a nonfrontal migratory character, and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.

Tropical Storm:

A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) ranges from 34 kt. (39 mph or 63 km/hr) to 63 kt. (73 mph or 118 km/hr).

Tropical Storm Warning:

A warning that sustained winds within the range of 34 to 63 kt. (39 to 73 mph or 63 to 118 km/hr) associated with a tropical cyclone are expected in a specified coastal area within 24 hours or less.

Tropical Storm Watch:

An announcement for specific coastal areas that tropical storm conditions are possible within 36 hours.

For more information:

Please contact your local Property Risk Engineer or visit:

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