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# UH Severe Weather Response Planning Kit

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This UH Severe Weather Response Planning Kit contains the following sections:

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Storm Names  
*Suggested Severe Weather*  
Response Plan

*Suggested* Emergency Supplies  
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The kit was prepared to assist University of Houston faculty and staff with the preparation of their work areas in the event severe weather threatens the Houston area. It contains several guidelines specific for what might be considered high-risk or high-value areas of a given operation. Also included is a generic *suggested* Severe Weather Response Plan. It is provided to help individual units plan an effective response to a severe weather threat. **You are strongly encouraged to develop your own area specific plan NOW**, using this model as a guide.

No generic guideline can ever fulfill an areas specialized needs. For this reason, you should scrutinize your operations, compare them to the guidelines, and evaluate all additional concerns unique to your area. If applicable, the Teaching Laboratory or Research Laboratory Preparation Guidelines should be integrated into the response plan for the department.

The UH Department of Public Safety Fire Marshal's Office is available to assist you with this effort. If you would like to develop an adapted version of any of the materials in this kit, contact the Fire Marshal's Office via e-mail at [bbowden@uh.edu](mailto:bbowden@uh.edu) or phone at extension 3-1635 for an electronic copy.

If you have any other questions or comments about severe weather planning please contact the Department of Public Safety Fire Marshal's Office at 743-1635.

## **OFFICE AREA PREPARATION GUIDELINES**

### Tropical Storm/Hurricane Watch

1. Place large garbage bag by/atop each piece of electronic equipment. Avoid covering ventilation vents and/or fan motors, which could result in overheating and a possible fire.
2. Prepare departmental emergency information packets, with a take-home copy of the following for each staff member:
  - Current staff listing
  - Campus map
3. Locate and arrange in designated area all emergency preparedness supplies as described in departmental Severe Weather Response Plan.
4. Monitor National Weather Service (NWS) weather radio and television sources each hour for storm updates; indicate most current storm position on wall chart.

### Tropical Storm/Hurricane Warning

1. Cover all electronic equipment with garbage bags or suitable plastic. CAUTION: Electronic equipment must be turned off before covering with a garbage bag or plastic. Failure to do so could result in overheating and possibly a fire.
2. Verbally relay messages between technicians/coordinators and the managers as need be.
3. Distribute departmental emergency information packets to each staff member.

## **TEACHING LABORATORY PREPARATION GUIDELINES**

### Tropical Storm/Hurricane Watch

1. Place large garbage bag by/atop each piece of electronic equipment. Avoid covering ventilation vents and/or fan motors, which could result in overheating and a possible fire.
2. Shelf and secure all glassware, microscopes, chemical containers, etc.
3. Containerize and seal all hazardous and radioactive wastes.
4. Secure all stock radioactive materials and sources.

### Tropical Storm/Hurricane Warning

1. Immediately cancel all demonstrations in progress and halt the use of chemical, radiological, or biohazardous agents.
2. Relocate any such hazardous agents or waste products to areas not subject to flooding.

3. Arrange to protect equipment in areas with windows from hazards associated with broken glass, driven rain, and wind; so far as possible leave all floor and counter space clear of equipment, papers, chemicals, etc.
4. Cover all electronic equipment with garbage bags or suitable plastic, regardless of whether windows are present in the immediate area. CAUTION: Electronic equipment must be turned off before covering with a garbage bag or plastic. Failure to do so could result in overheating and possibly a fire.
5. Contact departmental administrative office to obtain departmental emergency information packets, and distribute them to all technical staff members.
6. Stay in contact with the departmental office for news of university administration decisions.

### **RESEARCH LABORATORY PREPARATION GUIDELINES**

Advance preparation of specialized areas such as laboratories can help avoid certain dilemmas posed by the threat of a severe storm. Additionally, careful selection of hazardous materials storage areas, the permanent placement of sensitive equipment away from windows and other high risk areas, and a realistic assessment of available personnel on-site just prior to a storm, can all aid in making your response both smooth and effective.

#### Tropical Storm/Hurricane Watch

1. Place large garbage bag by/atop each piece of electronic equipment. Avoid covering ventilation vents and/or fan motors which could result in overheating and a possible fire.
2. Shelf and secure all glassware, microscopes, etc.
3. Containerize and seal all hazardous and radioactive wastes.
4. Label all laboratory entrances with appropriate hazard warning symbols; be sure to note any hazards third parties may encounter but not fully recognize.
5. Post emergency telephone numbers for key staff members.
6. Discuss re-entry of the area should it be damaged by the storm: Are any special re-entry precautions potentially necessary? If so, what actions should/should not be taken, and by whom?
7. Decide if heat labile materials will require additional or backup cooling/freezing capability. If so, consider obtaining dry ice for use in such freezers or refrigerators.

#### Tropical Storm/Hurricane Warning

1. Immediately end all experiments in progress and halt the use of chemical, radiological, or biohazards agents.
2. Radioactive, chemical, and biological hazards should be stored in secured compartments appropriate to their hazard (e.g. solvents in flammable solvent

cabinets, corrosives in acid/base cabinets, radioactive materials in their shipping containers with adequate shielding, biologicals in incubators, dry chemicals in cabinets with wooden or metal--not glass--doors).

3. No hazardous materials should be left on countertops, open shelves, or on floors. Small numbers of small, breakable containers or objects (e.g. test tubes, petri plates, microscope slides, etc.) should be emptied and stored.
  4. Large numbers of small, breakable containers or objects can be placed in secondary containers such as plastic restaurant bus trays or 5 gallon utility buckets. The secondary containers or trays can then be securely stored in cabinets located in areas of low flood potential.
  5. Arrange to protect equipment in areas with windows from hazards associated with broken glass, driven rain, and wind; leave all floors and counter space clear of equipment, papers, chemicals, etc.
  6. Cover all electronic equipment with garbage bags or suitable plastic, regardless of whether windows are present in the immediate area. CAUTION: Electronic equipment must be turned off before covering with a garbage bag or plastic. Failure to do so could result in overheating and possibly a fire.
  7. Lock or tape shut all refrigerators, freezers, incubators, etc.
  8. Unplug all non-critical electrical equipment.
  9. Contact departmental administrative office to obtain departmental emergency information packets, and distribute them to all technical staff members.
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## **Storm Names**

The National Hurricane Center near Miami, FL, keeps a constant watch on oceanic storm-breeding areas for tropical disturbances, which may herald the formation of a hurricane. If a disturbance intensifies into a tropical storm - with a circulation and wind speeds above 39 miles per hour - the Center will give the storm a name from the list below. A separate set of names is used each year beginning with the first name in the set, then progresses alphabetically with each subsequent storm.

The name list has an international flavor because hurricanes affect other nations and are tracked by the public and weather services of countries other than the United States. Names for the list are selected from library sources and agreed upon by nations involved during international meetings of the World Meteorological Organization.

<http://www.nhc.noaa.gov/aboutnames.shtml>

## **SUGGESTED SEVERE WEATHER RESPONSE PLAN**

### **Introduction**

In the event of a severe weather threatening the University of Houston, it is the responsibility of this department to control hazards internal to departmental operations. Generally, personnel are responsible to see that facilities are secured and present no danger to the community.

This Severe Weather Response Plan has been written to fulfill these responsibilities. It describes employee duties under three categories of severe weather, as described by the National Weather Service (NWS). The three categories of severe weather are as follows:

Tropical Storm/Hurricane Alert:	A tropical storm/hurricane has entered or developed in the Gulf of Mexico.
Tropical Storm/Hurricane Watch:	Tropical Storm/Hurricane conditions pose a possible threat within 36 hours.
Tropical Storm/Hurricane Warning:	Tropical Storm/Hurricane force winds are expected within 24 hours.

In the event that the University of Houston is notified by the NWS of one of these weather conditions, personnel will be responsible for the following specific actions and responsibilities.

### **I. Tropical Storm/Hurricane Alert**

#### **A. Chair/Director/Business Manager**

1. Monitor storm updates provided by the NWS and local media.
2. Alert departmental personnel of the storm condition as needed.
3. Attend administration advisory meetings if called.
4. Direct members of the department toward specific severe weather readiness.

#### **B. Clerical Staff**

1. Locate emergency supplies as described in Appendix 1.
2. Ensure batteries work, proper amounts of materials are on hand, etc.

C. All Other Staff (Laboratory, Operations, etc.)

1. Other staff members should continue normal and routine duties unless directed to do otherwise by the Chair/Director/Business Manager.

## **II. Tropical Storm/Hurricane Watch**

A. Chair/Director/Business Manager

1. Monitor storm updates provided by the NWS and local media.
2. Advise the administration on departmental conditions as necessary.
3. Attend administration advisory meetings if called.
4. Hold an internal group meeting and obtain a report of the department's severe weather readiness.

B. Clerical Staff

1. Place large garbage bags by/atop each piece of electronic equipment. Avoid covering ventilation vents and/or fan motors which could result in overheating and a possible fire.
2. Prepare for each staff member an "emergency information packet" consisting of a take-home copy of the following:
  - Current staff listing and telephone numbers
  - Campus map
3. Arrange all emergency preparedness supplies on conference table.
4. Respond to telephone inquiries as needed.
5. Monitor local radio and/or television stations each hour for storm updates; indicate most current storm position on tracking chart.

C. Laboratory Staff (Teaching and/or Research)

1. Survey the lab for potential yet preventable hazards likely to be associated with the storm, and correct them if possible.
2. Shelf all chemical containers and secure at a minimum height of two feet; higher if area is prone to flooding.
3. Secure all shelves to prevent disturbance from high winds.
4. Elevate all spill control materials to a minimum of two feet and locate in an area which is easily accessed.

5. Secure radioactive materials and waste by removing all unpackaged waste from the floor, placing glass containers and vials where they cannot be broken, and by placing all other containers such that an uncontained spill is not possible.

\* \* \* INSERT MORE SPECIFIC GUIDELINES HERE IF YOUR INDIVIDUAL SITUATION WARRANTS THEM

### **III. Tropical Storm/Hurricane Warning**

#### **A. Chair/Director/Business Manager**

1. The Chair/Director/Business Manager will maintain communication with University administration in anticipation of an order to close and evacuate the University.

#### **B. Clerical staff**

1. Cover all electronic equipment with garbage bags or suitable plastic. CAUTION: Electronic equipment must be turned off before covering with a garbage bag or plastic. Failure to do so could result in overheating and possibly a fire.
2. Verbally relay messages between laboratory technicians/coordinators and the managers as need be.
3. Distribute the "emergency preparedness packets" to each staff member.

#### **C. Laboratory Staff (Teaching and/or Research)**

1. Immediately end all experiments in progress and halt the use of chemical, radiological, or biohazards agents.
2. Radioactive, chemical, and biological hazards should be stored in secured compartments appropriate to their hazard (e.g. solvents in flammable solvent cabinets, corrosives in acid/base cabinets, radioactive materials in their shipping containers with adequate shielding, biologicals in incubators, dry chemicals in cabinets with wooden or metal--not glass--doors).
3. No hazardous materials should be left on countertops, open shelves, or on floors. Small numbers of small, breakable containers or objects (e.g. test tubes, petri plates, microscope slides, etc.) should be emptied and stored.

4. Large numbers of small, breakable containers or objects can be placed in secondary containers such as plastic restaurant bus trays or 5 gallon utility buckets. The secondary containers or trays can then be securely stored in cabinets located in areas of low flood potential.

\* \* \* INSERT ADDITIONAL OR MORE SPECIFIC GUIDELINES HERE IF YOUR INDIVIDUAL SITUATION WARRANTS THEM

**Suggested Emergency Supplies, by Location (minimal)**

1. Radio, NOAA weather capable (battery or hand-crank): \_\_\_\_\_
2. Flashlights, battery or hand-crank (2): \_\_\_\_\_
3. Emergency battery powered or hand-crank lantern (1): \_\_\_\_\_
4. Batteries (Various), refrigerated if possible: \_\_\_\_\_
5. Polyethylene sheeting, (1 roll): \_\_\_\_\_
6. Duct tape (2 rolls): \_\_\_\_\_
7. Cardboard boxes (4): \_\_\_\_\_
8. First Aid Kit (1): \_\_\_\_\_
9. Fresh water (if need anticipated): \_\_\_\_\_
10. Emergency Non-perishable Food supply (if need anticipated): \_\_\_\_\_
11. Cell phone with power supply cord and other mean of recharging if power is lost \_\_\_\_\_

## **Glossary of Additional Terms**

**Trans storm:** The 12 hour period following landfall.

**Post storm:** Generally referred to as the "all clear" for commencement of recovery actions, usually 12-24 hours following landfall.

**Dirty zone of the storm:** The north east quadrant of the storm where the greatest chance for heavy rainfall and violent conditions occur. This generally holds true but is not always the case.

**Clean zone of the storm:** The southwest quadrant of the storm where the amount of rainfall and violent conditions are the least. Again, this is usually the case but with the unpredictability of a storm, this does not always occur.

**Eye of the storm:** Direct center of the storm: Usually 20-30 miles in diameter.

### **Hurricane Classification (Saffir-Simpson Scale):**

**Category 1 storm:** A storm intensity classification where wind speed is 74-95 mph

**Category 2 storm:** A storm intensity classification where wind speed is 96-110 mph

**Category 3 storm:** A storm intensity classification where wind speed is 111-130 mph

**Category 4 storm:** A storm intensity classification where wind speed is 131-155 mph

**Category 5 storm:** A storm intensity classification where wind is 156 mph and greater.

**Tropical Depression:** Once a group of thunderstorms has come together under the right atmospheric conditions for a long enough time, they may organize into a tropical depression. Winds near the center are constantly between 20 and 34 knots (23 - 39 mph).

**Tropical Storm:** Once a [tropical depression](#) has intensified to the point where its maximum sustained winds are between 35-64 knots (39-73 mph), it becomes a tropical storm. It is at this time that it is assigned a name. During this time, the storm itself

becomes more organized and begins to become more circular in shape -- resembling a hurricane.

## **Some Interesting Weather Sites on the Internet**

**Houston/Galveston National Weather Service Office**

<http://www.srh.noaa.gov/hgx>

**National Hurricane Center/Tropical Prediction Center**

<http://www.nhc.noaa.gov>

**Interactive Weather Information Network - IWIN**

<http://iwin.nws.noaa.gov/iwin/graphicsversion/main.html>

**Storm Prediction Center**

<http://www.spc.noaa.gov/>

**NWS Southern Region Headquarters (access to more coastal NWS offices)**

<http://www.srh.noaa.gov>

**National Weather Service Headquarters**

<http://www.nws.noaa.gov>

**Federal Emergency Management Agency**

<http://www.fema.gov/>

**National Climatic Data Center**

<http://www.ncdc.noaa.gov>

**West Gulf River Forecast Center**

<http://www.srh.noaa.gov/wgrfc>

**State of Texas Division of Emergency Management**

<http://www.txdps.state.tx.us/dem>

**Harris County Office of Emergency Management**

<http://www.hcoem.org>

**City of Houston Office of Emergency Management**

<http://www.houstonoem.net/go/site/1855/>

## HURRICANE TRACKING CHART

[http://www.nhc.noaa.gov/gifs/track\\_chart.pdf](http://www.nhc.noaa.gov/gifs/track_chart.pdf)

### **Texas Coastal/Harris County Evacuation Zones**

<http://www.hcoem.org/HMap.aspx?P=Evacuation>