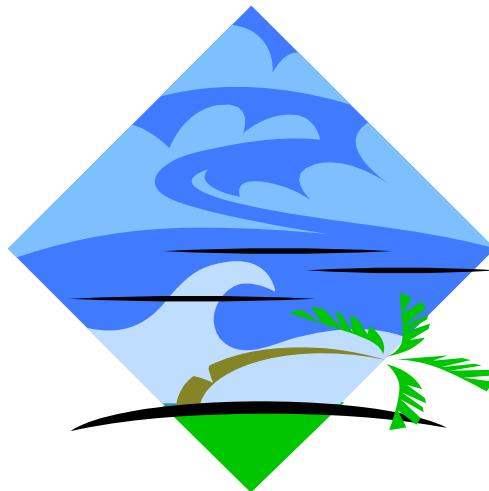




# 2009 Disaster Planning Kit: (Hurricane Preparedness)

Information from

Environmental Health & Safety  
(Biological, Chemical and Radiation)



## DISASTER PLANNING KIT

### Introduction:

These materials are designed to aid you in the development of your laboratory disaster plan and, what actions must be taken to develop an effective course of action.

The **Disaster Plan Questionnaire** is designed to help you think about and plan what should be done to minimize the potential for release as well as how you would clean up after a release of a chemical, biological or radioactive material in you laboratory.

The **Basic Disaster Plan for Laboratory Areas** is a framework for a disaster plan that you will need to expand on and make specific for your laboratory. It is not designed for any one type of disaster although it is designed to dovetail with the UTMB Disaster Plan, which is essentially written to address hurricanes.

Complete the Emergency Weather Information (EWI) form. Include a copy of current laboratory chemical inventory behind the form. Place in a heavy plastic bag (1 gallon self closing freezer bag) and tape to the laboratory door on the top right hand side.

Make a copy of the EWI form and chemical inventory and mail to EHS Rt 1111.

Remove all visual obstructions from the doors windows.

These materials have been developed by Environmental Health and Safety's Biological and Chemical Safety Program. If you require special assistance or consultation in completing any of the parts, please contact our office at **extension 21781**.

## DISASTER PLAN SCREENING QUESTIONNAIRE

This Screening Questionnaire has been developed to assist you in determining the best practices for developing a laboratory specific preparedness plan. Disaster plans can be very useful to reduce the potential for chemical, biological and radioactive material releases in the event of a hurricane or other disaster.

The definition of a hazardous biological/chemical agent is a chemical or biological agent present in a quantity that, if released, has the potential to cause health problems to those exposed.

### QUESTIONS

Please check the appropriate response to the following:

1. Would a power failure over 24 hours potentially cause a release of a hazardous biological, chemical or radioactive material?  Yes  No
2. Would your laboratory be damaged by high winds (74 – 200 mph)?  Yes  No
3. Is water likely to enter your laboratory in the event of a flood or hurricane?  Yes  No
4. Would a fire in your laboratory potentially cause a release of a hazardous biological, chemical or radioactive material?  Yes  No
5. Could an unknowing person (such as a housekeeper, police officer, etc.) enter your laboratory and accidentally release (open, break, spill) a hazardous material?  Yes  No

## DISASTER PLAN QUESTIONNAIRE

This questionnaire has been designed in algorithmic form to help you concentrate only on critical areas in the event of a disaster.

### Item I. POWER FAILURE OVER 24 HOURS

- A. Would the loss of electrical power for more than 24 hours increase the risk of release of hazardous biological, chemical or radioactive material into your laboratory, building or environment?

No (Go to Item II)                       Yes (Continue)

- B. Describe the means of occurrence of the potential release (be specific - include amount of potential release and results of that release).

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- C. Describe the actions that should be taken to minimize the effects of the release (examples: pack freezer with dry ice, contain objects in special containers, isolate and deny entry until special decontamination can be carried out).

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- D. 1. Has a specific individual been assigned to ensure that these precautions are taken?       Yes     No

2. Does this individual have a back-up?       Yes     No

3. Is special training necessary?       Yes     No

4. Do personnel assigned to stay in your area during a hurricane know how to control the potential hazards?       Yes     No

5. Are personnel fully aware of the potential health hazards in your area?       Yes     No

6. In case of accidental release, what protective equipment should be used to enter area? \_\_\_\_\_

- E. Have arrangements been made to obtain all the supplies necessary to properly control and clean-up a release of hazardous biological, chemical or radioactive material?

Yes     No

## DISASTER PLAN QUESTIONNAIRE

### Item II. WIND DAMAGE

- A. Is your laboratory susceptible to wind damage in the event of a hurricane (74 - 200 mph winds)?  
 No (Go to Item III)                       Yes (Continue)
- B. Describe how a release would likely occur (be specific - include amount of potential release and the results of that release).  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- C. Describe any actions that should be taken to minimize the effects of the release (examples: tape windows, move hazardous chemicals to more protected areas, place items in protective containers or locked cabinets).  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- D. 1. Has a specific individual been assigned to ensure that these precautions are taken?       Yes    No
2. Does this individual have a back-up?                       Yes    No
3. Is special training necessary?                       Yes    No
4. Do personnel assigned to stay in your area during a hurricane know how to control the potential hazards?       Yes    No
5. Are personnel fully aware of the potential health hazards in your area?       Yes    No
6. In case of accidental release, what protective equipment should be used to enter area? \_\_\_\_\_
- E. Have arrangements been made to obtain all the supplies necessary to properly control and clean-up a release of hazardous biological, chemical or radioactive material?  
 Yes    No

## DISASTER PLAN QUESTIONNAIRE

### Item III. WATER DAMAGE

A. Is your laboratory susceptible to water damage in the event of flooding?

\_\_\_\_\_ No (Go to Item IV)                      \_\_\_\_\_ Yes (Continue)

B. Describe how the release would likely occur if your lab were to flood (be specific - include amount of potential release and the results of that release).

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C. Describe any actions that should be taken to minimize the effects of the release (examples: tape windows, move hazardous material to more protected areas, place items in protective containers or locked cabinets).

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D. 1. Has a specific individual been assigned to ensure that these precautions are taken?      \_\_\_\_\_Yes      \_\_\_\_\_No

2. Does this individual have a back-up?      \_\_\_\_\_Yes      \_\_\_\_\_No

3. Is special training necessary?      \_\_\_\_\_Yes      \_\_\_\_\_No

4. Do personnel assigned to stay in your area during a hurricane know how to control the potential hazards?      \_\_\_\_\_Yes      \_\_\_\_\_No

5. Are personnel fully aware of the potential health hazards in your area?      \_\_\_\_\_Yes      \_\_\_\_\_No

6. In case of accidental release, what protective equipment should be used to enter area? \_\_\_\_\_

E. Have arrangements been made to obtain all the supplies necessary to properly control and clean-up a release of hazardous biological, chemical or radioactive material?

\_\_\_\_\_Yes      \_\_\_\_\_No

## DISASTER PLAN QUESTIONNAIRE

### Item IV. FIRE DAMAGE

- A. If your laboratory was partially damaged by fire, would there be a reasonable chance that a hazardous material could be released and present a health hazard?

\_\_\_\_\_ No (Go to Item V)                      \_\_\_\_\_ Yes (Continue)

- B. Describe how the potential release would most likely occur (be specific - include amount of potential release and the results of that release).

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- C. Describe the special actions that should be taken in the event of a fire in your laboratory.

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- D. 1. Is the UTMB Fire Marshal aware of these hazards?                      \_\_\_\_\_ Yes    \_\_\_\_\_ No
2. Is someone assigned to respond to a fire emergency in your laboratory?                      \_\_\_\_\_ Yes    \_\_\_\_\_ No

- E. Have arrangements been made to obtain all the supplies necessary to properly control and clean-up a release of hazardous biological, chemical or radioactive material?                      \_\_\_\_\_ Yes    \_\_\_\_\_ No

# DISASTER PLAN QUESTIONNAIRE

## Item V. BASIC PREPARATION

- A. Have you identified and marked the storage location of hazardous chemical, biological and radioactive material in your laboratory?  Yes  No
- B. Are the laboratory doors clearly marked as to the nature of the hazards within and is a telephone number for emergency use posted?  Yes  No
- C. Is there a list of hazardous biological, chemical and radioactive material available outside the laboratory?  Yes  No
- D. Is there a copy of that list on file in the Office of Environmental Health and Safety?  Yes  No
- E. Do you have a safe place to store hazardous material in the event of a disaster?  Yes  No
- F. Do you have proper transport and storage containers?  Yes  No
- G. Is the storage area for these hazardous material secure?  Yes  No
- H. Do your Essential personnel responsible to stay during the emergency know what is expected from them and have they made personal arrangements for their family?  Yes  No
- I. Do your Essential personnel responsible to return after the storm and check the laboratory, know what to look for in the lab?  Yes  No
- J. You, as the Principal Investigator, are responsible for seeing that these minimum precautions and actions are taken. However, in your absence, please indicate an alternate person who will be assigned these responsibilities.  Yes  No

Alternate Name: \_\_\_\_\_ Extension: \_\_\_\_\_

Home Phone Number: \_\_\_\_\_ Cell phone Number: \_\_\_\_\_

Principal Investigator: \_\_\_\_\_ Extension: \_\_\_\_\_

Home Phone Number: \_\_\_\_\_ Cell phone Number: \_\_\_\_\_

Other Personnel Involved: \_\_\_\_\_ Extension: \_\_\_\_\_ Home Phone Number: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Keep this form as part of your laboratory preparedness plan.

## **DISASTER PLAN FOR LABORATORY AREAS BIOLOGICAL, CHEMICAL AND RADIOACTIVE SAFETY**

Your disaster plan is to be put into effect when UTMB activates its Emergency Weather Plan. Specific activities are required as each disaster category is implemented. Each distinct laboratory should have assigned personnel and alternates to ensure the securement of the laboratory area. Principal Investigators are to assume the responsibility of seeing that proper precautions are taken to reduce loss, damages and potential health hazards should severe flooding or a hurricane occur. At a minimum, the following topics should be covered in the plan.

### **STEP 1 (Preparation Stage)**

1. Radioactive materials and hazardous wastes shall be gathered and transferred to designated areas (specific locations need to be given).
2. Gather emergency supplies such as tape, plastic, packing boxes and flashlights (include a list of requirements and where they are stored). This assumes that the necessary supplies have been obtained and stocked prior to the disaster threat.
3. Hazardous chemicals and biological agents must be properly packaged, labeled and removed from areas with windows and areas subject to flooding (specifically identify areas and make prior arrangements for a place for these materials to be moved).

### **STEP 2**

1. Any chemicals which have not been moved to a safer location or packed into a sealed drum must be secured as best as possible, e.g. locked in a flammable storage cabinet or in cupboards that are taped shut.
2. Refrigerators, freezers, incubators, etc., should be locked or taped shut.
3. All non-essential electrical equipment must be unplugged.
4. All damageable supplies and equipment shall be placed above floor level and placed in plastic bags or covered with plastic.

### **STEP 3**

1. The last person out of each area shall shut and lock all doors.

NOTE: In the event that a hurricane and/or substantial flooding has occurred, laboratory personnel are not allowed to re-enter the building until they have been advised that is safe to do so by EHS. No work will be permitted until the university has issued the "all clear" notice and non-essential personnel are authorized to return to campus.

# General Rules and Guidelines for Handling Radioactive, Chemical and Biological Materials

## EMERGENCY WEATHER PROCEDURES

High water flooding and hurricane force winds can cause damage to laboratories that could result in spread of radioactive, chemical and biological contamination. This emergency procedure is designed to minimize the potential for the spread of contamination. The specific response will depend upon the existing and expected weather conditions.

### FOR RADIOACTIVE MATERIAL

#### Pre-Planning

Emergency weather preparedness begins long before the threat of inclement weather exists. The following measures will make it easier to prepare the lab should the emergency weather plan actually be implemented.

- Keep radioactive materials in your inventory at a minimum. Get rid of old materials in storage.
- Do not allow radioactive waste to accumulate in your lab.
- If your lab has outside windows, identify secure areas within the lab for storage, such as inside refrigerators or built-in cabinets with doors that stay shut.
- Keep all emergency telephone numbers posted in the lab updated.
- Keep plastic or other waterproof containers at hand. You may need them to store your materials.
- Keep a supply of "radioactive" tapes or labels at hand.

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**Emergency Actions** In the event of a weather emergency, you should take the following minimum actions.

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AREA	INSTRUCTIONS
Areas Susceptible To Flooding (basement and Ground Floor)	<ul style="list-style-type: none"><li>• Weather permitting. EHS staff will instruct you to take radioactive waste to the designated waste facility for disposal. NOTE: Due to limited space, only waste from flood prone areas will be accepted.</li><li>• Weather not permitting, or if the EHS waste facility has been secured, move your radioactive waste to designated areas above the first floor for temporary storage.</li><li>• Move radioactive materials (other than waste) to designated areas above the first floor for temporary storage (call Environmental health and Safety for the location of the designated temporary storage area for your lab).</li><li>• If possible, place radioactive materials, in waterproof or plastic containers.</li><li>• Securely close all radioactive material containers so that they will not lose their contents should they be upset.</li></ul>
Areas Susceptible To Damage From High Winds (labs with windows)	<ul style="list-style-type: none"><li>• Clearly mark all radioactive material containers as "Radioactive" and note their contents (radionuclide, activity, and RMC#).</li><li>• Move radioactive materials and wastes into secure locations, such as:<ul style="list-style-type: none"><li>➤ Refrigerators</li><li>➤ Storage cabinets with doors</li><li>➤ Storage closets</li><li>➤ Rooms not susceptible to damage from high winds or flying debris</li><li>➤ Tape shut all storage cabinets containing radioactive material that do not have secure latches.</li></ul></li></ul>

Continued

**Emergency Actions  
(continued)**

- Close all radioactive waste containers and get them up off the floor.
- Check the lab area to be sure no radioactive material has been left out on an open lab bench.
- Label all storage locations not already so marked with "Caution Radioactive Material" labels (labels on temporary storage locations must be removed after the radioactive materials are returned to their normal location).
- Lock all areas where radioactive materials are stored (e.g. laboratory doors, refrigerators in corridors, etc.)

## FOR CHEMICAL MATERIAL

**Pre-Planning** Emergency weather preparedness begins long before the threat of inclement weather exists. The following measures will make it easier to prepare the lab should the emergency weather plan actually be implemented.

- Identify and develop plans for the securing of chemicals stored in the lab.
- Do not allow chemical waste to accumulate in your lab.
- If your lab has outside windows, identify secure areas within the lab for storage, such as inside refrigerators or built-in cabinets with doors that stay shut.
- Keep all emergency telephone numbers posted in the lab updated.

**Emergency Actions** In the event of a weather emergency, you should take the following minimum actions.

AREA	INSTRUCTIONS
Areas Susceptible To Flooding (basement and Ground Floor)	<ul style="list-style-type: none"> <li>• NOTE: Due to limited space, only waste from flood prone areas will be accepted by EHS for chemical pick-up.</li> <li>• If the EHS waste facility has been secured, place your waste in a secure area in your laboratory (Flammable storage cabinets and clearly mark it.</li> </ul>
Areas Susceptible To Damage From High Winds (labs with windows)	<ul style="list-style-type: none"> <li>• Securely close all chemical waste containers so that they will not lose their contents should they be upset and place them up off the floor.</li> <li>• Highly toxic and reactive chemicals should be stored in unbreakable secondary containers and be segregated from materials that might interact with them.</li> <li>• Clearly mark all chemical waste containers as "Chemical Waste" and note their contents.</li> <li>• Check the lab area to be sure no chemical material has been left out on an open lab bench.</li> <li>• Label all storage locations not already so marked with "Chemical Material" labels (label temporary storage locations).</li> <li>• Empty all histological units or containers and dispose of all processed gels unless properly contained for storage.</li> </ul>

## FOR BIOLOGICAL MATERIAL AND GENERAL LABORATORY

**Pre-Planning** Emergency weather preparedness begins long before the threat of inclement weather exists. The following measures will make it easier to prepare the lab should the emergency weather plan actually be implemented.

- Do not allow biological waste to accumulate in your lab.
- Keep all emergency telephone numbers posted in the lab updated.
- Keep plastic or other waterproof containers at hand. You may need them to store your materials.
- Keep a supply of "biohazard" labels at hand.
- Defrost/de-ice all freezers and verify the integrity of the inner and outer door seals.

**Emergency Actions** In the event of a weather emergency, you should take the following minimum actions.

### AREA

Areas Susceptible To Flooding  
(basement and Ground Floor)

Areas Susceptible To Damage From High  
Winds (labs with windows)

### INSTRUCTIONS

- Remove or secure all biological waste. If possible autoclave or chemically disinfect as much as possible.
- Double bag all autoclave or chemically inactivated waste and label "NON HAZARDOUS", include the name and date autoclaved or chemically inactivated.
- Place biohazard boxes that have not been picked up on top of laboratory benches, place boxes in plastic bags or cover with plastic.
- Place all cardboard boxes and sensitive equipment (unplugged) on benchtop in plastic bags or cover with plastic. Store away from windows.
- Backup all your computers and place data in a dry and secure area. Place all laboratory note books and all important documents in sealed plastic bags and store in dry and secure location.
- Cover with plastic all equipment that might get wet during a

General laboratory duties

**DO NOT USE RED BAGS or  
AUTOCLAVE BAGS for  
EQUIPMENT or REUSABLE  
ITEMS**

storm.

- Terminate all on-going experiments and inactivate all cultures.
- Place all freezers and ultra low freezers containing sensitive material on emergency backup supply. NOTE depending on the type of weather emergency and subsequent damage sustained, power may not be guaranteed to all locations on campus.
- Place dry ice in freezers and ultra-low freezers or connect to back-up systems.
- Do not place dry ice in refrigerator, it is not efficient and might damage your material.
- Raise ultra-low freezer temperatures to a maximum range to limit the potential for compressors over heating due to loss of conditioned air in the building.
- Place liquid nitrogen back-up systems on standby mode.
- Top off all liquid nitrogen dewers.
- Tape shut all freezer and refrigerators
- **Turn off and unplug** all equipment including but not limited to cell incubators, computers, rotary, shaking incubators, PCR and HPLC systems.
- All electrical equipment is susceptible to serious damage due to power surges. Unplug all equipment not deemed critical. Plug critical equipment in designated emergency power outlet. NOTE: depending on the type of weather emergency and subsequent damage sustained, power may not be guaranteed to all locations on campus.
- Empty all water contained in equipment such as water baths and incubators. Turn to off position, unplug and decontaminate.
- Empty and decontaminate all vacuum flasks.
- Ensure that ALL gas cylinders are secured and remove regulators.



## POST-HURRICANE LABORATORY INSPECTION GUIDELINES AND PROCEDURES

Following any weather emergency it is necessary to evaluate the risk and damage sustained to each location on campus. As part of the UTMB Emergency Weather Plan, it is Environmental Health and Safety (EHS) responsibility to assess the safety of each building. Once a building has been deemed safe for entry, individual areas may be surveyed for specific damage.

Each lab has assigned an Essential personnel (S) to return after the storm. This person shall report to a central command area on campus, **which will be determined based on the damaged areas**. This person will sign in and be given a laboratory survey form. They will then have to be escorted by EHS to their laboratory areas for them to assess and report any damage or issues they have found. They will then be escorted back out of the building and will sign out with the main central command area.

**Please note these important points:**

- 1) Only one person per laboratory will be allowed to enter and perform the survey.
- 2) No work will be permitted to start.
- 3) No emails will be checked from laboratory computers.
- 4) Personnel that do not have proper shoes (close toes shoes, no sandals or flip-flops) will not be permitted into buildings.

To evaluate damage to the laboratory following a storm, the following actions should be taken:

1. Walk around the laboratory.
2. Look at all essential equipment for proper function.
3. Look for any broken windows
4. Look for water on the floors and ceiling
5. Look for chemical spills
6. Follow the check off list given to you by EHS
7. Note anything that is not way you had left it.

As soon as your inspection is complete, report your findings to the EHS representative. Then report the findings to your PI and other lab members as they will not be permitted to enter the laboratory space.

# EMERGENCY WEATHER INFORMATION

(Use non-water soluble ink to complete this form)

Post the completed form in a heavy plastic bag (i.e. 1 gallon freezer bag) at the top of the lab door and send a copy to EHS Rt1111.

Building: \_\_\_\_\_ Room(s): \_\_\_\_\_

Essential Person (on-site if applicable) \_\_\_\_\_

Phone #: \_\_\_\_\_ Cell Phone #: \_\_\_\_\_ Pager #: \_\_\_\_\_

Essential (post-storm): \_\_\_\_\_

Phone #: \_\_\_\_\_ Cell Phone #: \_\_\_\_\_ Pager #: \_\_\_\_\_

Alternate Essential (post-storm): \_\_\_\_\_

Phone #: \_\_\_\_\_ Cell Phone #: \_\_\_\_\_ Pager #: \_\_\_\_\_

Principal Investigator: \_\_\_\_\_

Phone #: \_\_\_\_\_ Cell Phone #: \_\_\_\_\_ Pager #: \_\_\_\_\_

HAZARDOUS ROOM CONTENTS (e.g. carcinogens, acute toxins, biological agents, and radioisotopes). List specific names of all hazardous agents in the room(s). Attach chemical inventory if needed.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

If flooding or power outage has occurred, is this room to be considered hazardous for re-entry?

\_\_\_\_\_ Yes \_\_\_\_\_ No

Special re-entry precautions: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Critical freezer present: \_\_\_\_\_ Yes \_\_\_\_\_ No # of Freezers: \_\_\_\_\_

# EMERGENCY WEATHER INFORMATION

A copy of the Emergency Weather Information (EWI) form must be on file with Environmental Health and Safety. In order to enter into the laboratories you will be required to post the Emergency Weather Information form on the door and ensure that EHS has a copy of the form on file. If this information is not on file with EHS you will not gain access to the laboratory.

Please forward a copy of the EWI form to:

Dee Zimmerman

Environmental Health and Safety

Route 1111

- Environmental Health and Safety will maintain a central check point for information and laboratory access.
- All persons and requests for entering laboratories will be forwarded to the check point and will complete a laboratory survey form.
- Persons entering the laboratory will be required to sign in and out at the check point.
- Entry is to assure viability of stored material and the time in the laboratory will be limited. No work will be permitted to start. No emails will be checked from laboratory computers.
- All persons entering the laboratory must be appropriately attired, this includes closed toed shoes.
- Only one person per day will be allowed entry.

Entry into laboratories will not be allowed if the building, floor or laboratory has been deemed unsafe due damage caused during the storm. To assess damage to the laboratory follow the EHS laboratory survey form and report the finding to the EHS representative. Then report the findings to your laboratory members.

THIS LABORATORY HAS  
BEEN SECURED AND  
PREPARED FOR  
EVACUATION ACCORDING  
TO THE POSTED PLAN

\_\_\_\_\_  
Name of PI or Essential personnel designee

\_\_\_\_\_  
time and date

\_\_\_\_\_  
Signature

# CRITICAL FREEZER

Dry Ice:

(circle as appropriate)

YES

NO

HOW OFTEN NEEDS REPLACEMENT: \_\_\_\_\_

Is the Freezer on Emergency Power: \_\_\_\_\_ YES \_\_\_\_\_ NO

Contact Information:

Name: \_\_\_\_\_

Alternate Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Phone Number: \_\_\_\_\_

*–Critical materials are materials that are unique and can not be purchased or obtained from collaborators.*