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Keeping Them Fed or Keeping Them Frozen: Disaster Preparedness and Response for Laboratories and Research Animals

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Disaster Preparedness and Response for Laboratories and Research Animals

Disaster Resistant Universities Workshop 2011

University of New Orleans

CHART

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Protection of Research

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Without university research…

- We'd be more itchy.
  - Development of Benadryl, University of Cincinnati, 1940s
- We wouldn't be able to donate our kidney.
  - First human kidney transplant, Harvard, 1964
- We wouldn't be able to have babies via IVF.
  - First IVF baby delivered, EVMS, 1979
- We'd have more wrinkles.
  - Retin-A developed, Penn, 1975
- We wouldn't know the importance of brushing and flossing.
  - Important of brushing and flossing discovered, Tulane, 1946
- We wouldn't listen to the radio.
  - FM radio developed, Columbia University, 1933

Without university research…

- We wouldn't know how to measure earthquakes.
  - Development of the Richter Scale, Cal Tech, 1935
- Surfers wouldn't be able to plan their day.
  - Wave forecasting, UC San Diego, 1948
- Wine tastings would be more boring.
  - Development of multiple grape varieties and vine growing techniques, UC Davis, 1960s
- We wouldn't send each other emails.
  - Development of the first email system, Carnegie Mellon University, 1970
- Shopping would be much more difficult.
  - Development of bar codes, Drexel University, 1948
- We wouldn't save lives by performing CPR.
  - Development of the CPR technique, Johns Hopkins University, 1958

Outline

- The university mission
- Examples
- Why we need to protect research
- How to prepare and respond
  - Essential elements to protect research
  - The Planning Process
  - Key players
- Engaging faculty
- Discussion

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The University Mission

- Teaching
- Research
- Public Service

Examples

- 1994: California State University Northridge: Earthquake
  - Research animals trapped for 12 days
  - 30-40 years of research lost; faculty retired rather than starting over
- 2001: University of Texas Health Sciences Center: Tropical Storm Allison
  - 10 million gallons of water flooded the Science Center and killed all research animals
- 2004: University of Hawaii: Flooding
  - 50 years of research lost

Examples (cont)

- 2005: Gulf Coast Universities: Hurricane Katrina
  - LSU Health Sciences Center School of Medicine lost all of its 8,000 lab animals
  - NIH: Approx. 300 federally funded projects at New Orleans colleges and universities worth more than $150 million — including 153 projects at Tulane — were affected in some way
  - "Irreplaceable." "Decades of research." "My life's work."

Examples (cont)

Why protect research?

- It's the law
  - Grant requirements
  - Animal and human research subjects laws
    - http://las.rutgers.edu/?q=content/ii-federal-state-and-university-laws-regulations-guidelines-and-policies
    - http://biotech.law.lsu.edu/research/index.htm
- Retention of faculty
- Reputation
- "When researchers walk out the door, so does the money."

Essential Elements

- Utilities
  - Electricity, water
- Resources
  - Food, water, and care supplies
  - Equipment
  - Specialized skill sets
  - Data management (IT)
- Access
  - Physical access
  - Credentials (security)

The Planning Process

- The Planning Process
  - Vulnerability/Risk Assessment
    - Hazards and risks
    - Inventory
      - Sensitive Research
      - Hazardous materials
      - Specialized equipment
      - Contact database
    - Capabilities
  - Mitigation measures
    - Hardening of the structure
    - Less vulnerable location
    - Back-up power (e.g. generators)

The Planning Process (cont)

- The Plan
  - Functional Annex or ESF to the university EOP
  - Format
    - Primary and Supporting Departments, external supporting agencies/organizations
    - Purpose
    - Scope
    - Concept of Operations
    - Response Steps
      - Activation
      - Initial response actions
      - Ongoing response actions
      - Recovery Actions
    - Roles and responsibilities

The Planning Process (cont)

- Critical decisions
  - Stay and play
  - Load and go
  - Stay and… ☹
- Departmental Plans/Guidance/Checklist
- Continuity of research
  - Coordinated with the COOP Plan
    - Alternate locations and equipment
    - Supplies
    - Personnel (specialized skill sets)
    - Getting researchers access (credentials)
- Recovery

The Planning Process (cont)

Emergency Event Callback Form Set – Page 3
(Fill Out Separate Form Set for Each Location)

Location or Room Number: _____
Common Name for this Room: _____

Responsible Person	**Home Phone:**	**Other Phone:**
Primary: _____	_____	_____
Alternate 1: _____	_____	_____
Alternate 2: _____	_____	_____
	(Area Code) + Number	(Area Code) + Number

List any other means of contacting you in an emergency:

_____

_____

After an emergency event (such as a hurricane or earthquake), please check the following items in this location during initial facility safety check. (Please write out in detail what needs to be checked. List all required checks. Identify any special precautions. Continue on additional sheets if necessary.)

_____

_____

_____

_____

The Planning Process (cont)

Location-Specific Hurricane Preparation Plan

(Fill Out Separate Form for Each Location)

Location or Room Number: _____

Common Name for this Room: _____

Responsible Person	**Home Phone:**	**Other Phone:**
Primary: _____	_____	_____
Alternate 1: _____	_____	_____
Alternate 2: _____	_____	_____
	(Area Code) + Number	(Area Code) + Number

List any other means of contacting you in an emergency:

_____

_____

Detailed Hurricane Readiness Plan for this Area: Please write out in detail the preparations that have to be performed for this specific area. Write this so any undergraduate could perform the tasks without supervision in your absence. (It could happen!) Include any changes required to minimize disruptions due to power loss (e.g., plug critical equipment into red outlets). Please indicate if plans for this room need to be coordinated with anyone else. Identify any special precautions. Continue on additional sheets if necessary. Complete callback form set if you would like the Emergency Response Team to check your area and call you with status update.

Example: "Condition 4 - 72 Hours before Tropical Storm Force Winds:

(1) Remove loose lumber, pots, hoses from greenhouse; place on floor of Prep Room"

_____

_____

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The Planning Process (cont)

Emergency Event Callback Form Set – Page 1
(Fill Out Separate Form Set for Each Location)

Location or Room Number: _____
Common Name for this Room: _____

Responsible Person	**Home Phone:**	**Other Phone:**
Primary: _____	_____	_____
Alternate 1: _____	_____	_____
Alternate 2: _____	_____	_____
	(Area Code) + Number	(Area Code) + Number

List any other means of contacting you in an emergency:

_____

_____

_____

When facility loses commercial power and shifts to generator power, please check the following: (Please write out in detail what needs to be checked. List all required checks. Identify any special precautions. Continue on additional sheets if necessary.)

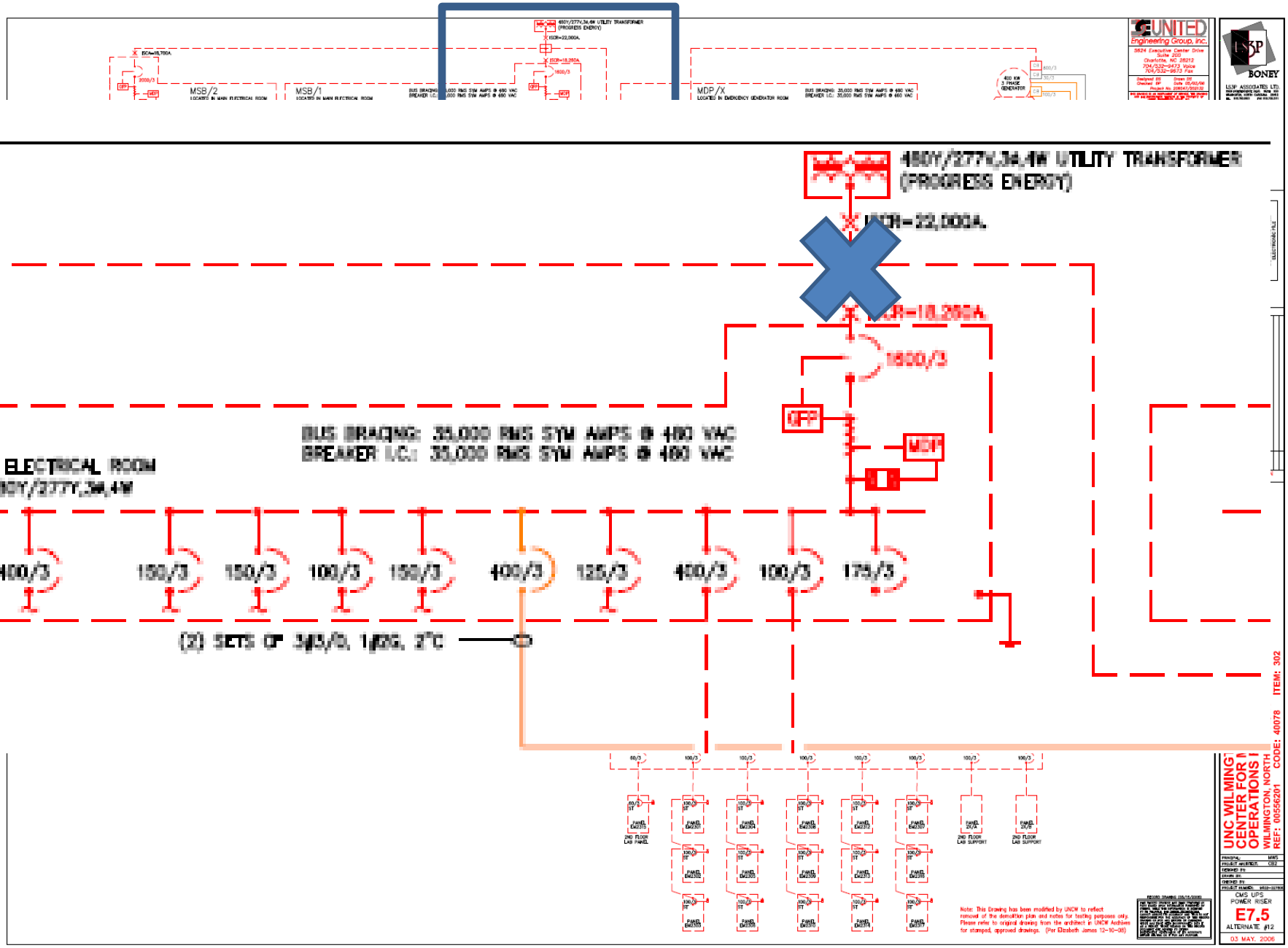
Example: "(1) Confirm incubator on lab bench on far right wall (red outlet circuit EM5) is energized (power indicator should show pulsating red light). If not, attempt reset by turning power switch at right front corner off and back on. If still not working, call above emergency contacts. NOTE: Do Not Open Incubator Hood."

_____

_____

The Planning Process (cont)

- Preparedness
  - Stockpiling of supplies
  - Vendor contracts
  - Training and exercising of key personnel
    - Multi-year training and exercise plan (HSEEP)
    - Involve researchers
    - Scenarios
      - Laboratory fire
      - Utility point of failure
      - Large-scale disaster (hurricane, earthquake, etc.)


480Y/277V,3Ø,4W UTILITY TRANSFORMER
(PROGRESS ENERGY)
1600/3
OFP
MDP
BUS BRACING: 35,000 RMS SYM AMPS @ 480 VAC
BREAKER I.C.: 35,000 RMS SYM AMPS @ 480 VAC
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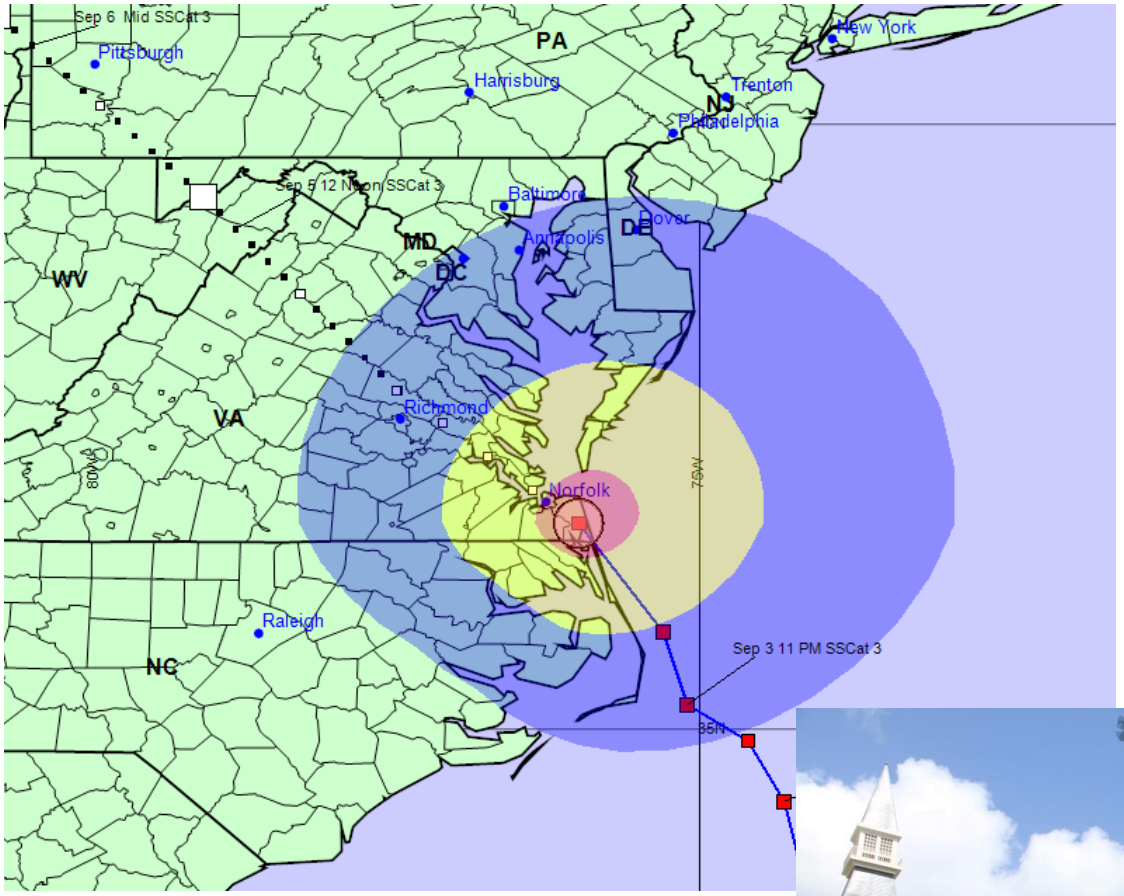
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Pittsburgh
PA
Harrisburg
New York
Trenton
NJ
Philadelphia
Sep 5 12 Noon SSCat 3
Baltimore
Dover
DE
Annapolis
MD
DC
WV
Richmond
VA
Norfolk
Raleigh
NC
Sep 3 11 PM SSCat 3
35N
75W
80W

The Planning Process (cont)

- Key Players
  - VP/VC Academic Affairs/Provost
  - Office of Research/Sponsored Programs
  - Department Directors
  - Facilities/Physical Plant
  - Institutional Animal Care and Use Committee (IACUC)
  - Institutional Review Board (IRB)
  - Environmental Health and Safety
  - External partners and vendors

Engaging Faculty

- Make it required (top-down approach)
- Attend departmental meetings
- Present examples
- Get them to participate in exercises
- Listen
- Make yourself accessible
- Make it easy for them
- Work with Sponsored Programs

Discussion

- Other ideas?

Questions?