Lessons Learned From Katrina

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> What happened
> How we responded
> What we learned
Tulane University
Department of Vivarial Science & Research
New Orleans facilities

- Major animal facilities on two campuses
- 38,000 sq. ft. animal holding space
Tulane National Primate Research Center
>5,000 non-human primates on 500 acres
The Disaster Plan

• Developed in coordination with Tulane Office of Emergency Preparedness.
• Coordinated with Facilities Services.
• Plan development and pre-storm preparation are critical.
Advance Preparation

- Pre-hurricane season practice drill and training
- Weekly generator testing
- Secure Emergency Supplies
- Identification of essential personnel
Advance Preparation

- Ensure safety of research colony animals
- Secure additional food supply
- Ready evacuation plan
- Off-site back-up of animal records system
Timeline—August 26, 3 a.m. Friday

Hurricane Katrina weakens to T.S. Katrina following landfall
Timeline—August 26, 9 p.m. Friday

Revised track seriously threatens New Orleans metropolitan area
Storm Preparations

- Essential personnel on-site (DVSR and Facilities Services)
- Send key contact person off-site to handle communications with key agencies (NIH, USDA, etc.)
- Activate Evacuation Plan of Animals
The Rescue - Timeline

- **Aug. 29**: Storm hits
- **Aug. 30**: Extensive flooding
  - White Caps on Tulane Avenue
  - USDA, OLAW, and AAALAC contacted
  - Humane euthanasia of colony begins
  - Re-entry to rescue remaining lab animals initiated
The Rescue - Timeline

- **Aug. 31:** Loss of emergency generator power and communications
- **Sept. 1 - 2:** E1 personnel safely evacuated from the Health Sciences Center Vivarium
- **Sept. 6 - 8:**
  - Transgenic founder animals evacuated from TUHSC and TUV to TNPRC.
  - Remaining animals humanely euthanized.
Obstacles to Rescue

- No electricity
- No plumbing or potable water
- Roads impassable
- Communications lost (voice and data)
- Fuel in short supply
- Civil unrest
Clean-up and Re-Entry

- Sept. 9: Remediation of TUHSC & TUV campuses began
- Oct. 3: Remediation of TUHSC Vivarium
  - Electric and water restored to JBJ (no steam)
  - No power to TMC
  - Generator Power to Satellite Facility
- Coordination of returning personnel for re-entry of TUHSC Vivarium
Clean-up and Re-Entry

☐ Nov. 1: Re-entry of Vivaria
  ■ 5 of 11 technicians available for return to TUHSC facility
  ■ Utilities on line

☐ Utility Challenges

☐ November and December: Scrubbing every inch of facility from floor to ceiling!

☐ Jan. 2: Re-entry
  ■ 1/3 of TUHSC facility had utilities
  ■ Remaining 2/3 to brought on-line in Feb/March
Repopulation

☐ Jan 23: Re-population of animals from approved vendors

☐ Jan. 31: Re-population of animals from non-approved vendors and return of animals evacuated to Waco, TX
Post-Disaster Issues

- Sheltering evacuated/displaced employees
- Mental health support
- Personnel issues
  Payroll
  Attrition
Tulane Response

- Valuable, investigator-derived transgenic animals were successfully evacuated to approved facilities.
- Remaining animals were humanely euthanized.
- No animals died as a direct result of the storm.
- Essential personnel were successfully evacuated from the city.
How Can We Prepare for These Problems?

Loss of Power/Fuel Availability

- Ensure that critical functions/buildings are supported by natural gas/diesel generators.
- Have adequate fuel storage facilities to support your facility for several weeks if possible.
- Establish relationships with fuel suppliers out of your region.
How Can We Prepare for These Problems?

Civil Unrest

- Properly train and equip police/security personnel (tactical training, body armor, carbines/shotguns, tactical flashlights, etc.)
- Understand that local law enforcement ability to respond is likely to be severely compromised.
- Require and provide security escort to personnel entering unsecured facility.
How Can We Prepare for These Problems?

Preservation of Research Animals and Materials

- Plan for animal holding space at remote locations.
- Plan logistics for evacuation, transport and security.
- Prepare for supply of liquid nitrogen and vessels to transport it to affected laboratories.
How Can We Prepare for These Problems?

Purchasing goods and services

- High limit credit cards without restrictions available to key personnel
- Cash on hand in a secure location
How Can We Prepare for These Problems?

**Sheltering evacuated/displaced employees**

- Maintain provisions for food preparation and a supply of long shelf-life items such as MREs.
- Designate areas where employees and family members can sleep.
How Can We Prepare for These Problems?

Personnel

- Plan for relocating payroll functions immediately after the disaster.
- Require all employees to utilize direct deposit.
- Plan for communication with employees during evacuation.
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Martina Knoedler
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