

What Happens When The Power Goes Off?

Fort Polk's Hurricane Rita Experience
September 2005

David L. Hopper, CEM

Resource Efficiency Manager

Sain Engineering Associates, Inc.

Ft. Polk, Louisiana



Sain Engineering Associates, Inc.

Presentation Agenda

- 1. Emergency & Disaster Planning**
- 2. Preparing for the Storm**
- 3. Emergency Operation**
- 4. Damage Assessment and Repair**
- 5. Lessons Learned**

Fort Polk the City



August 8, 2006

Sain Engineering Associates Inc.

3

Fort Polk the City

Fort Polk has 28,000 people (military, military families, civilians, and contractors) working and residing within its boundaries.

Physical plants consist of two water treatment plants, two sewer treatment plants, a number of lift stations, two 60 MVA power substations, two natural gas substations, and four central energy plants.

The Garrison is comprised of over 1600 facilities totaling 8.6 million square feet. Additionally, there are 3500 family housing units totaling 7.4 million square feet.

Infrastructure and Utilities Systems:

- 1.6 Million LF Power Transmission Lines
- 808 Miles of Roads
- 53 Acres of Recreational Lakes
- 270 Miles of Water/Wastewater Distribution
- 3.5 MGD Potable Water Production

Emergency & Disaster Planning

Important Components of an Energy Emergency and Security Plan

- Identify and Assess Potential Emergencies and Disasters that might Impact and Effect Normal Operations
- Identify Critical Facilities and Prepare Facility Specific Backup Plan
- Identify and Prepare Descriptions of Critical Energy System components
- Identify Preliminary Emergency Actions to Be Taken
- Prepare a Key and Emergency Personnel List
- Identify and Describe Functions of Key Personnel
- Prepare General Response Procedures for Immediately Following The Event
- Develop Plan for the Facilities Assessment and Repair Operation Center
- Develop Plan for the Emergency Communication and Information Center
- Identify Available Communications Devices and Points of Contact for Devices

Preparing for the Storm

Guidance (for Facility Managers)

1. Contact Utilities and Contract Service Providers and Obtain and Prepare a Listing of Names and After-Hours Numbers (include personal cell phone numbers) for Engineering and Operations Personnel.
2. Obtain Site Plan Drawings and Utilities and Electrical One-Line Drawings and Store in a Lockable and Secure Location.
3. Prepare a List of Key Personnel and Contact Numbers that Will Remain On Site During the Emergency or Disaster.
4. Be Prepared to House and Serve Meals and Beverages for Key Personnel for Up to 72 Hours.
5. Prepare a List of Local Sources of Transportable Generators.
6. Review and Become Familiar with the Energy Emergency Security Plan. Keep a Copy of the Plan with the Site Drawings.

Preparing for the Storm

Guidance (continued)

7. Check Fuel Storage Systems and Top Off Fuel Tanks (72 run-hours of fuel storage for critical facilities is highly recommended)
8. Make Certain Generators or Hand Pumps are Available to Pump and Distribute Fuel from Storage Facilities.
9. Keep a Supply of Electrical Extension Cords in a Secure Location.
10. Purchase Mobile Radios and Spare Batteries and Store in a Secure Location.
11. Keep Several Gallons of Bottled Water Stored on Site for Key Personnel and Others.
12. Designate and Keep Several Vehicles Fueled that Will Be Used For Damage Assessment and For Coordination of Damage Repair.
13. Choose Locations for the Emergency Communications and Information Center and for the Facilities Assessment and Repair Operations Center that have Redundant Communications Capability and Emergency Power.

Emergency Operation

1. Establish an Emergency Communications Center and Place an Individual in Charge.
2. Establish the Facilities Operations and Assessment Center and Place an Individual in Charge.
3. Maintain Power to Water Systems for Health and Fire Protection.
4. Maintain Power to Sewer Treatment and Lift Stations
5. Assign An Individual to Periodically Check and Re-fuel Emergency Generators.
6. Assign an individual from Facilities Operations as liaison to the Emergency Communication Center to Coordinate and Communicate Information Flow between Communications and Facilities Operation.
7. Place Individual(s) in Charge of Logging Damage Reports and Assessments.
8. Summarize and Prioritize Repair and Recovery Tasks.

Emergency Operation Cont.

9. Assemble Two or More Assessment Teams to Report Findings Back to Facilities Operations.
10. Determine Extent of Damage to Critical Facilities, Components, and Equipment.
11. Perform Emergency Repairs that are Necessary to Reduce Further Injury or Damage to the Utilities Systems.
12. Coordinate and Assign Repairs to Key Operations and Maintenance Personnel.
13. Provide the Communications Center with Periodic Copies of Damage Assessments and Progress Reports.
14. Coordinate and Communicate Damage Reports and Repairs with Utilities Service Providers.
15. Prepare Time Estimate(s) when Systems and Services may be Restored to Normal.

Damage Assessment and Repair

Hurricane Rita did over \$ 4 million in damage to Fort Polk infrastructure, roofs, and buildings.

Electric power was shut off for approximately 72 hours.

Cellular communications were lost about 48 hours after the storm hit.

Damage Assessment and Repair

Dispersion Line Damage



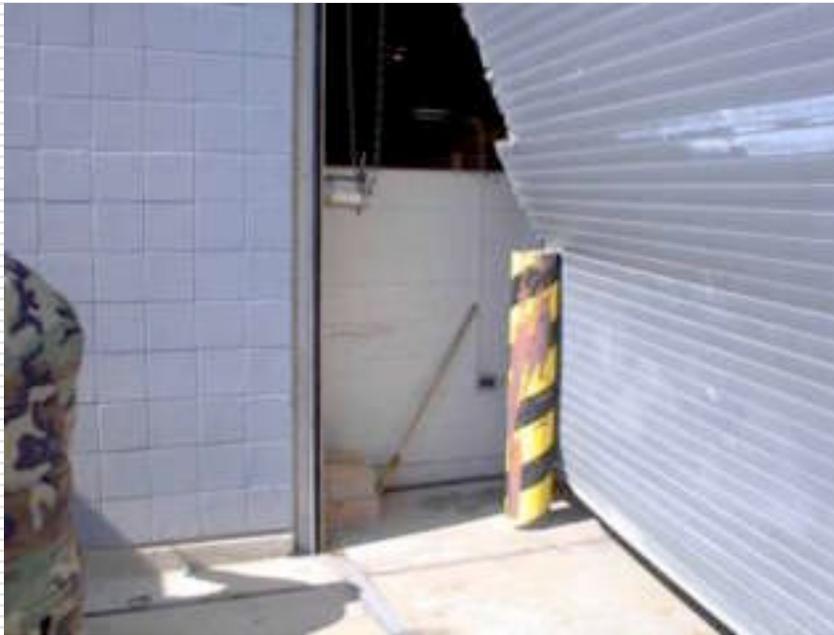
August 8, 2006

Sain Engineering Associates Inc.

11

Damage Assessment and Repair

Roll-up Door Damage



Antenna Damage



Damage Assessment and Repair

Soffett Damage



Roof Shingles Damage



Roof Damage



Damage Assessment and Repair

Telephone Pole Debris



Metal Siding Debris

Lessons Learned

Due to Lessons Learned from Hurricane Katrina preparation for the storm went well. The Emergency Communications Center issued hand held radios to those agencies that did not have one to ensure communication with all mission essential personnel.

The City of Leesville, LA lost all water pressure due to a loss of power at the water purification and pumping station. There was no potable water in Vernon Parrish or the area surrounding Fort Polk due to extended loss of power and fuel shortages. Store and maintain several days' supply of bottled potable water .

Due to the storm oil refiners shut down operations. This resulted in a mass fuel shortage causing motorists to wait for production to resume. Maintain adequate fuel storage on site with plans on how and to whom it will be dispensed.

It may be necessary during times of crisis to establish a method of transporting key personnel and contractors who reside to their place of duty or employment . Loss of power in neighboring communities hampered local area gas stations' ability to commercially dispense fuel to essential and key personnel living off site. Vans and other transportation services may be required to sustain operations and repair of damages.

Lessons Learned

All damage and other incidents were first reported to the Emergency Communications Center. This took a load off other civilian employees and allowed them to focus on emergency efforts.

Coordinate and communicate periodically with the local media outlets to advise them of what where and when relief is available.

Due to the large number of personnel needed to maintain the Facilities Center and with workers coming in and out frequently, one person was assigned from the Facilities Center to the Communications Center.

Due to phone and cell service being minimal at best, maps were a huge success in assessing damage and checking on personnel and repair crews. Keep maps and drawings updated and readily accessible.

T1 circuits that provide internet connectivity to most facilities are not classified as Telecommunications Service Priority, (TSP), and as such, are not priorities for service restoration by the service providers.

Lessons Learned

Produce a flyer to distribute information door to door by security and other personnel when other means of communication is out.

Helicopters are excellent tools for quickly assessing facilities and other damages. Disaster recovery time can be substantially reduced through the use of helicopters for damage assessment.

All buildings and facilities requiring immediate power should have “quick connect receptacles” installed so that transportable generators can be quickly connected. This will prevent service delays caused by having to wire generators into main electrical panels.

Maintain several sets of master keys so that assessment and repair teams can obtain access to buildings and electrical, mechanical, and communication closets.

By establishing an independent crisis center, facilities management and operations were better able to coordinate maintenance crews and repair contractors to critical areas.

Lessons Learned

Once normal services are restored compile a report of deficiencies noted and update the Energy Security Plan and the emergency operations plan.

“Due to lessons learned from Hurricane Katrina the JRTC and Fort Polk staff was able to better prepare for “Hurricane Rita”. Each agency and operating division will incorporate lessons learned from “Hurricane Rita” into their disaster response standard operating procedures (SOP) to better prepare and respond to the next emergency.”