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UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

October 1, 2009

Attached is a Presentation given by Elmo E. Collins, Regional Administrator, Region IV Office, Arlington, Texas, on "Disaster Initiated Reviews: NRC Role" at the NRC Region IV FEMA RAC Meeting on August 26, 2009

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Disaster-Initiated Reviews: NRC Role

Elmo Collins, Regional Administrator

NRC Region IV

FEMA RAC Meeting

August 26, 2009

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Outline

- Background on NRC
- NRC Response Activities
- Historical Development
  - Hurricanes Andrew, Opal
- NRC Products
- Katrina
  - NRC Activities
  - FEMA Activities
- Other Examples

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Who Are the NRC?

Agency

- Begun in 1975
  - Inherited the regulatory functions of the AEC
- Authorizing Legislation
  - AEA of 1946
    - Atomic energy under control of Fed govt
  - AEA of 1954
    - Commercialized atomic energy (regulation)
    - Regulatory authority to states for materials
  - ERA of 1974
    - Split up AEC into NRC and (DOE)

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Some Facts about NRC

- Almost 4,000 employees
  - ~1,000 in 4 regional offices
- 2009 budget of $1 Billion
  - 90% comes from license fees
- Strategic Plan
  -

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NRC Response Activities related to disasters

- Storm Tracking
- Dispatch of additional onsite inspectors
- Support to State EOC, FEMA RRCC if requested
- Tracking of licensed radioactive materials sources

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Hurricane Andrew

- August 24, 1992
- Turkey Point Plant, Homestead FL
- Category 4 Hurricane
- Was “worst case scenario”

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Andrew Track

Figure 3.2 Water Tower

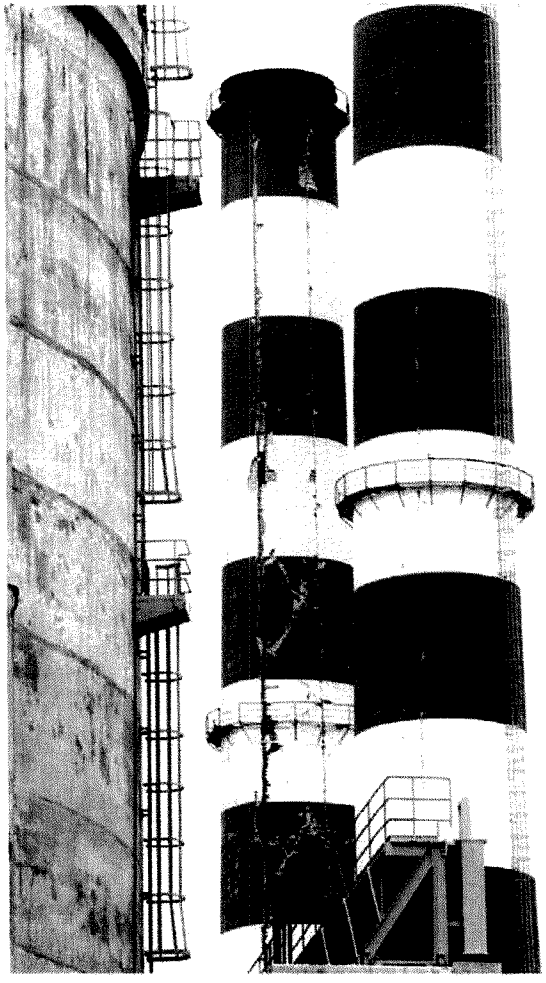

Figure 3.3 Chimneys for Units 1 and 2

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Figure 3.4 Site Access Road (Palm Drive) After Opening

Figure 3.5 View From the Security Building

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Figure 3.8 Employees' Automobiles

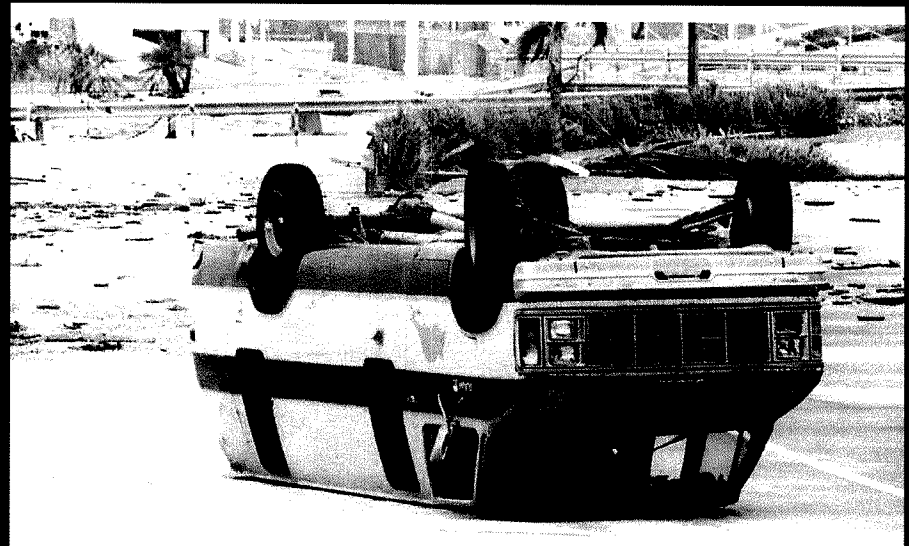

Figure 3.9 Employee Parking Lot

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Figure 3.10 Houses in Homestead

Figure 3.11 Damage in Homestead Area

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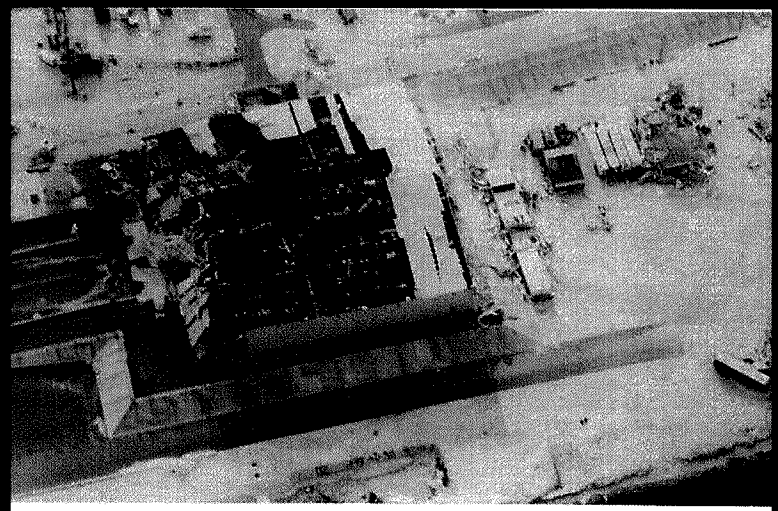

Figure 3.6 Materials Warehouse

Figure 3.7 Nuclear Entrance Building

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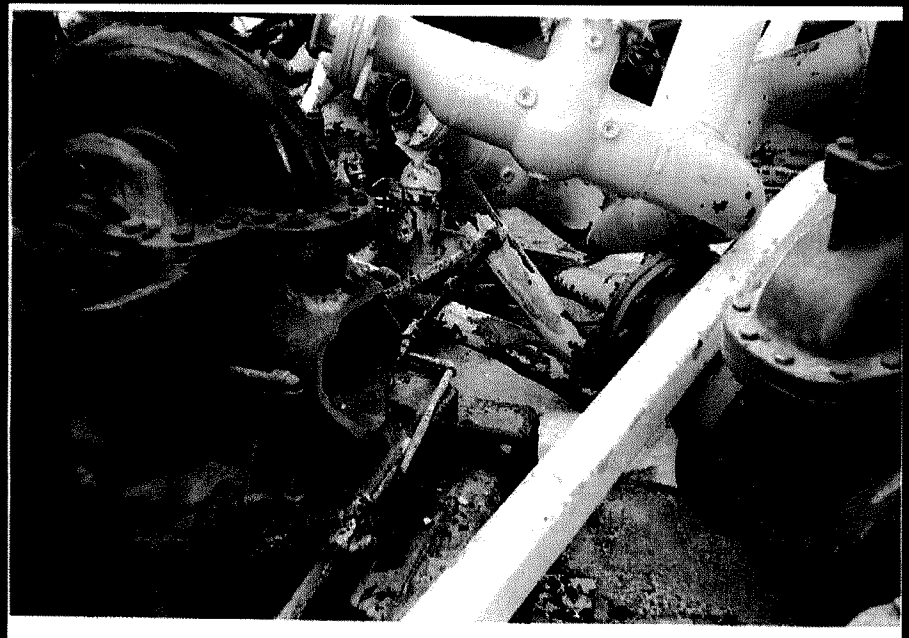

Figure J.2 Electric Fire Pump.

Figure J.3 Area Near Electric Fire Pump

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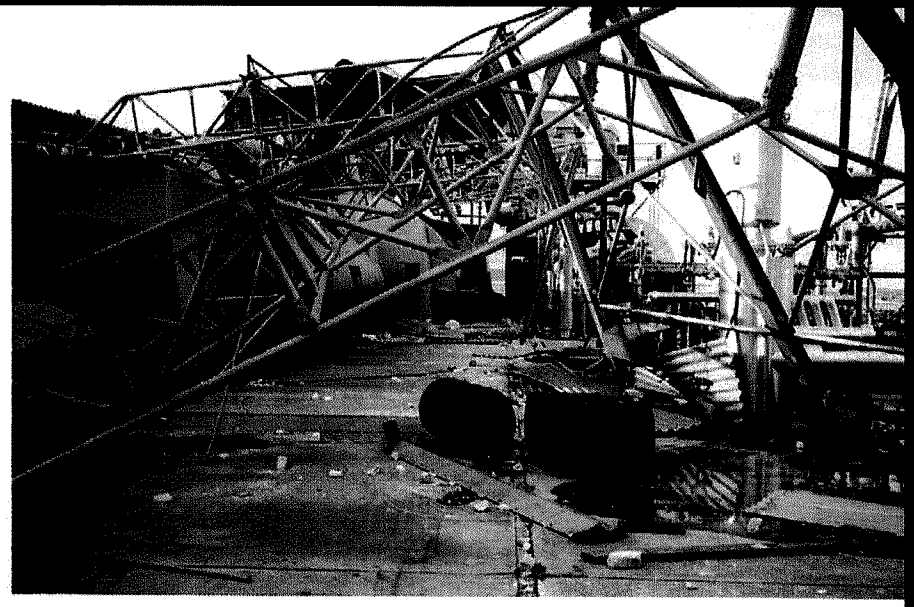

Figure O.1 Turbine Deck

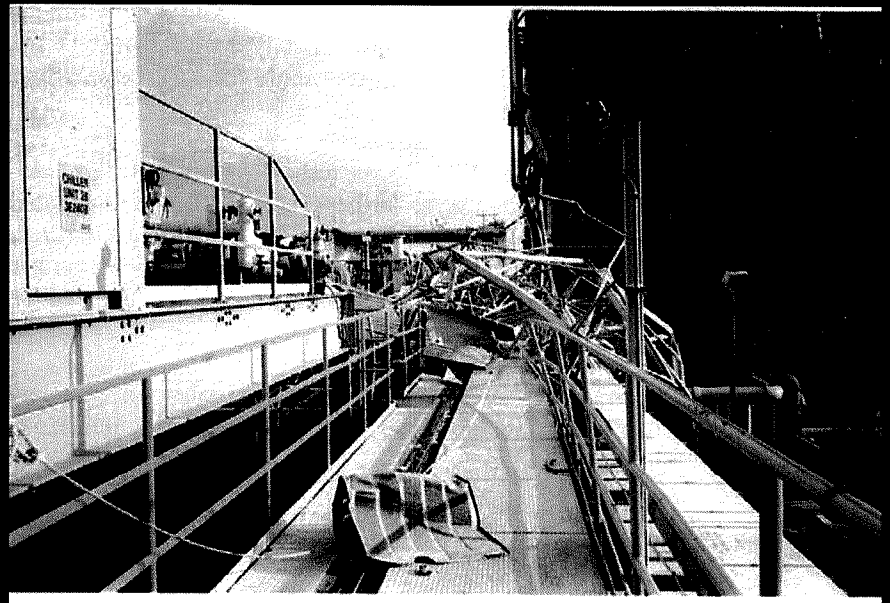

Figure O.2 Parts of Turbine Canopy

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Lessons Learned

- Prompt and aggressive communications needed when coordinating reactor restart with other agencies
- Need to engage with FEMA National for determination of reasonable assurance finding

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Results of Andrew

- Revision to FEMA-NRC MOU
  - Section III. I. (Recovery from Disasters Affecting Offsite Emergency Preparedness)
- NUREG-1474 (Effect of Hurricane Andrew …)
  - Joint INPO/NRC – sponsored effort

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Effect of Hurricane Andrew on
the Turkey Point Nuclear Generating Station
from August 20–30, 1992

Jointly sponsored by the Institute of Nuclear Power Operations and the
U.S. Nuclear Regulatory Commission

March 1993

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1995-96 Hurricane Seasons

- Hurricane Opal
  - October 5, 1995
  - Farley Nuclear Plant threatened
    - Plant shut down in prep for storm
  - Category 4 Hurricane
    - Storm passed about 60 miles west of the plant
- Plant undamaged but area around it suffered damage
  - Need to determine if offsite EP was intact

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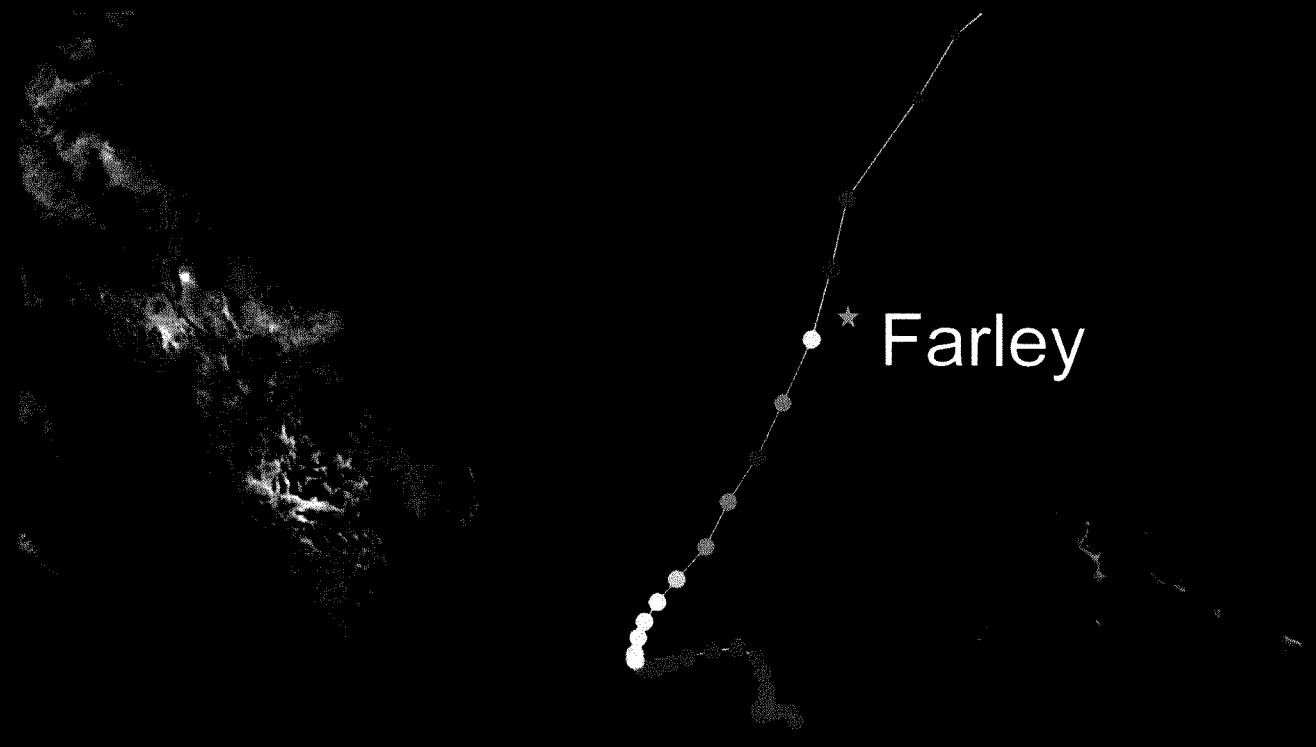
Opal Track



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NRC Products

- Inspection Manual Chapter 0350 (Oversight of Reactor Facilities in a Shutdown Condition …)
  - Andrew scenario – significant onsite damage
- Inspection Manual Chapter 1601 (Communication And Coordination Protocol For Determining The Status Of Offsite …)
  - Opal scenario – minimal onsite damage
- Orders to Licensees
  - Infrequently used regulatory tool

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Manual Chapter 0350

- Not for quick turnarounds
- Focused on performance problem conditions but used for operational events (including natural disasters)
- "Restart Panel"

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Manual Chapter 1601

- Addresses the time sensitive priorities for restoration of safe and reliable power following disasters
- Designed to promote "prompt and aggressive" communications within NRC and between NRC and FEMA and between NRC and licensee(s)
- Recent revision expands it to include malevolent acts and grid blackouts

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Manual Chapter 1601 (cont'd)

- What the NRC does
  - Restart Counterpart Conference Call
    - Daily internal NRC call to inform sr. management
  - Offsite agency counterpart calls
    - Daily call using NRC bridge resources to get all stakeholders talking to each other
      - Not required, but NRC offers this
  - Onsite evaluation of general plant conditions and onsite EP capabilities
  - Participation in offsite evaluation

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Manual Chapter 1601 (cont'd)

- NRC Key participants
  - EP Section Chief, NSIR (NRC HQs)
    - Serves as NRC P.O.C with FEMA HQs
    - Receives Reasonable Assurance affirmation
    - Informs other NRC HQs officials of status
  - Regional State Liaison Officer
    - Liaison to FEMA's DIR team
    - Communication back to Regional Administrator
  - Regional EP Section Chief
    - Dialogue with Licensee EP management

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Manual Chapter 1601 (cont'd)

- NRC Key participants (cont'd)
  - Resident inspectors (or acting RI's)
    - Monitor onsite activities (including EP)
    - Keep NRC management informed
  - NRC Headquarters Management
    - Offices of NRR and NSIR
      - Evaluate field reports from NRC staff
      - Coordinate on a restart decision
  - Regional Administrator
    - Coordinates on restart decision
    - Receives reasonable assurance affirmation from HQs
    - Conveys restart authorization to licensee management

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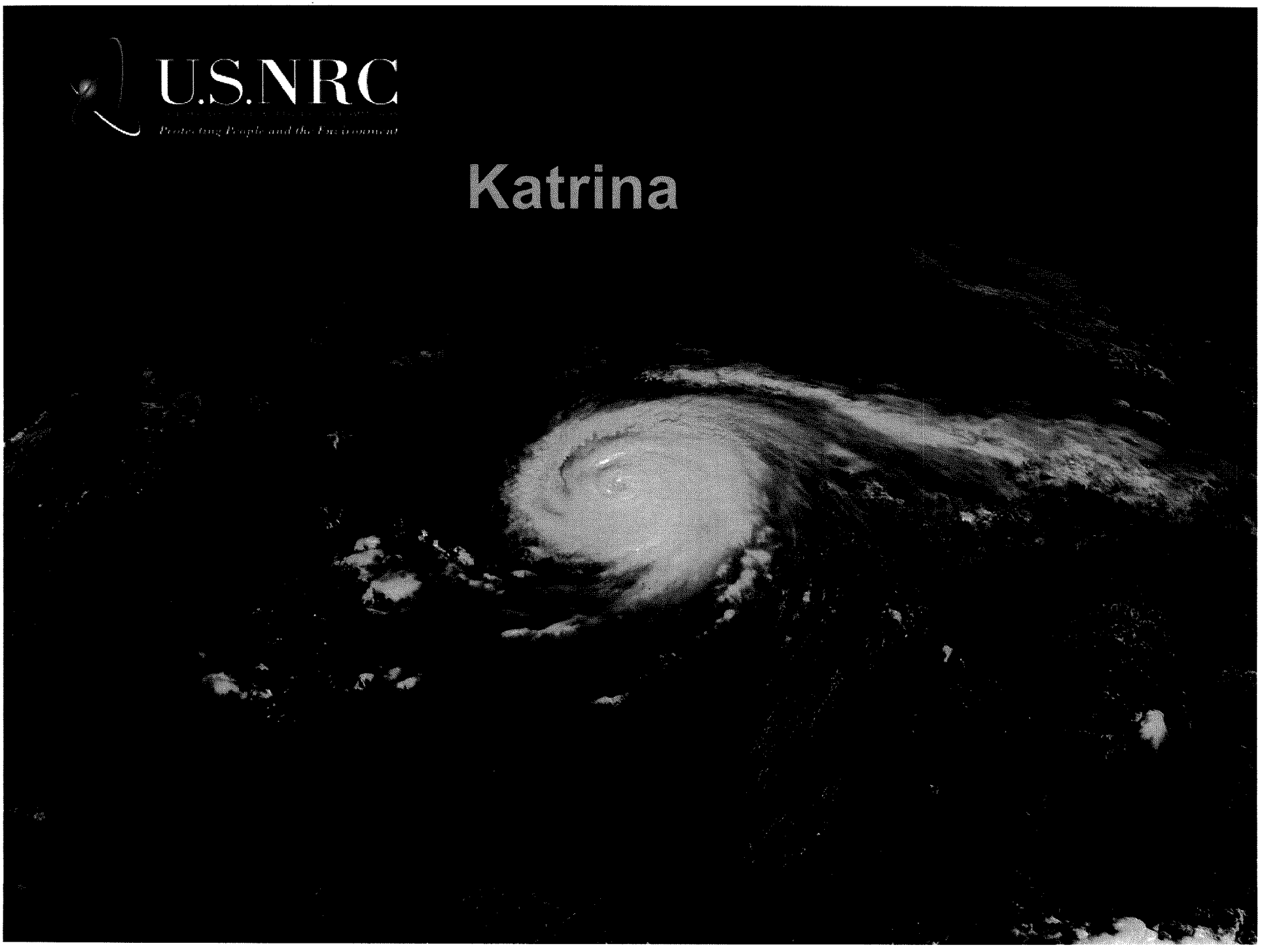
Katrina



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09/26/2005

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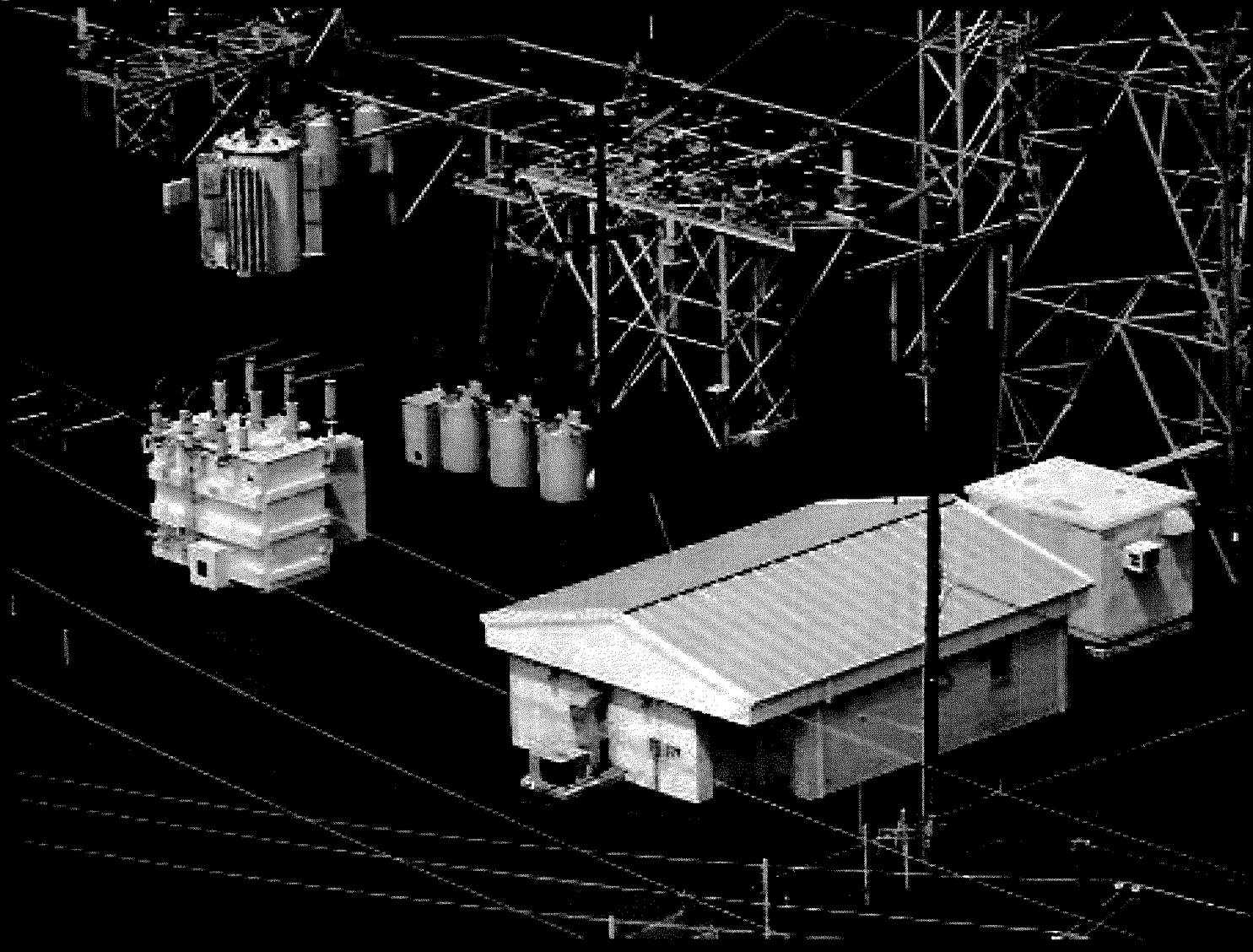

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NRC Activities Post-storm

- Monitor Onsite Impacts and Action Plan
  - Communication channels out
  - Licensee Facilities Impacted
    - Alternate EOF inoperable – had to use River Bend Alternate
    - Emergency News Center inoperable – had to use River Bend ENC
  - Trailer and tent cities in OCA
    - Protective actions for public onsite!

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FEMA Activities Post-storm

- Discussions with State and Parish response organizations
- Review of alternate reception and care centers
- Review of hospitals referenced in plans
- Review of sirens and notification circuits
- Review of Evacuation routes

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Reactors are only half of the story

- Radioactive materials accounting
- Agreement state programs
- NRC provided liaison to Louisiana DEQ after Katrina to gather information on source accounting and/or recovery
- Interface with USEPA

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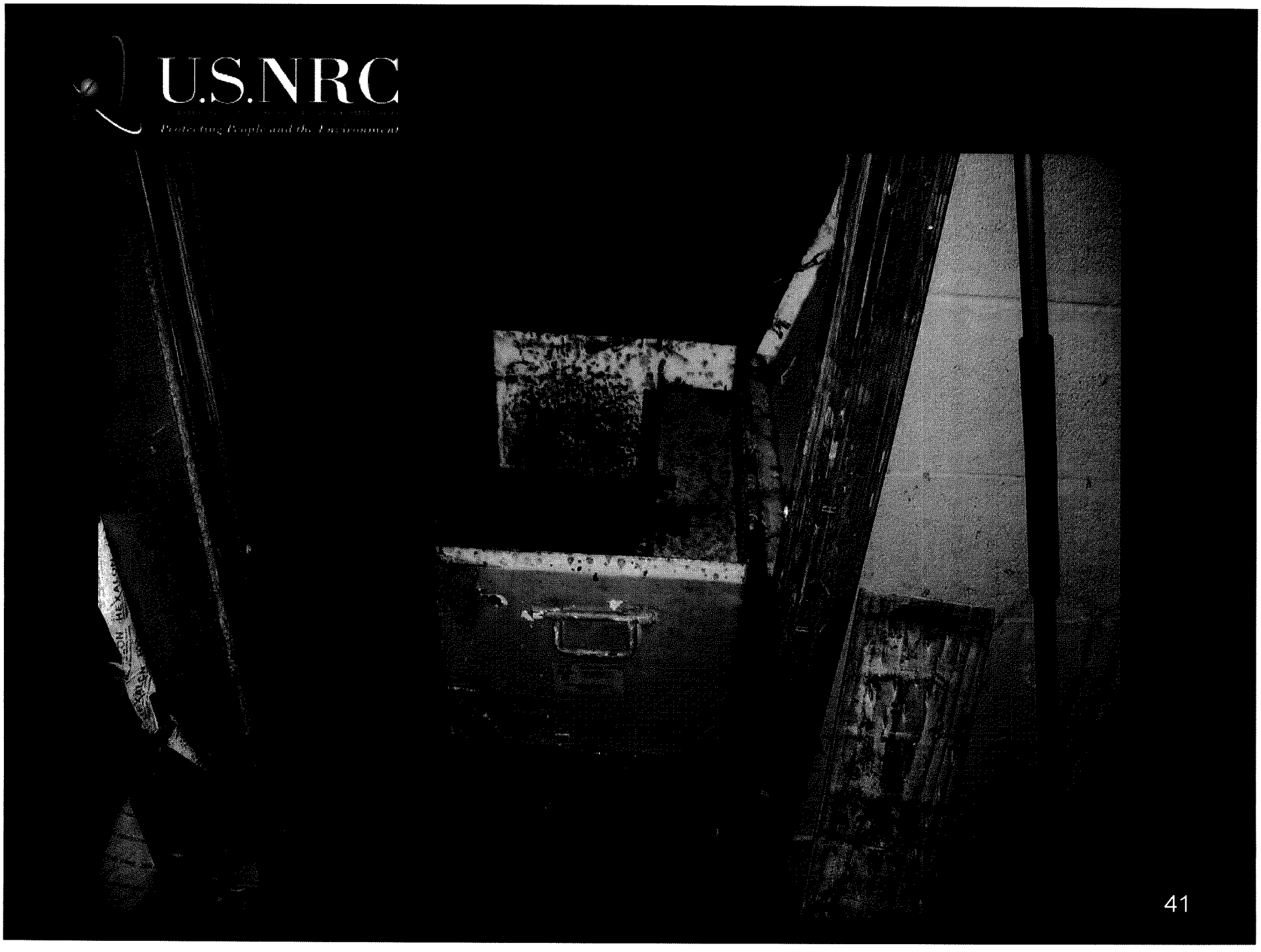

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Other Examples of Post-Disaster Impacts to Licensed Facilities

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SONGS Wildfires (2007)

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SONGS Wildfires

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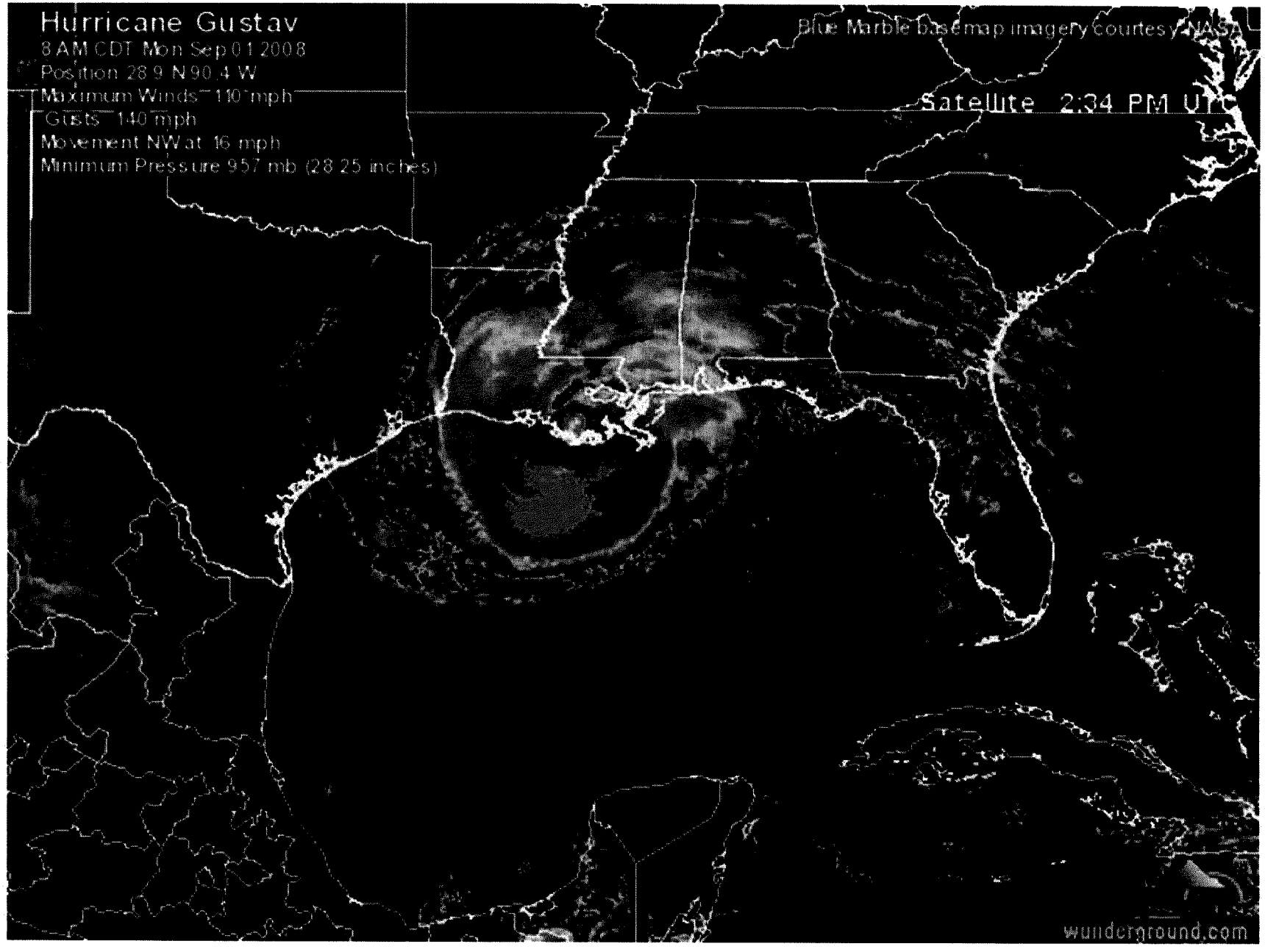
Hurricane Gustav

- Greater impact to Louisiana nuclear plants than Katrina
- Two plants affected
- Two disaster-initiated reviews performed in one trip


Hurricane Gustav
8 AM CDT Mon Sep 01 2008
Position 28.9 N 90.4 W
Maximum Winds 110 mph
Gusts 140 mph
Movement NW at 16 mph
Minimum Pressure 957 mb (28.25 inches)
Blue Marble basemap imagery courtesy NASA
Satellite 2:34 PM UTC
wunderground.com

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Gustav Track

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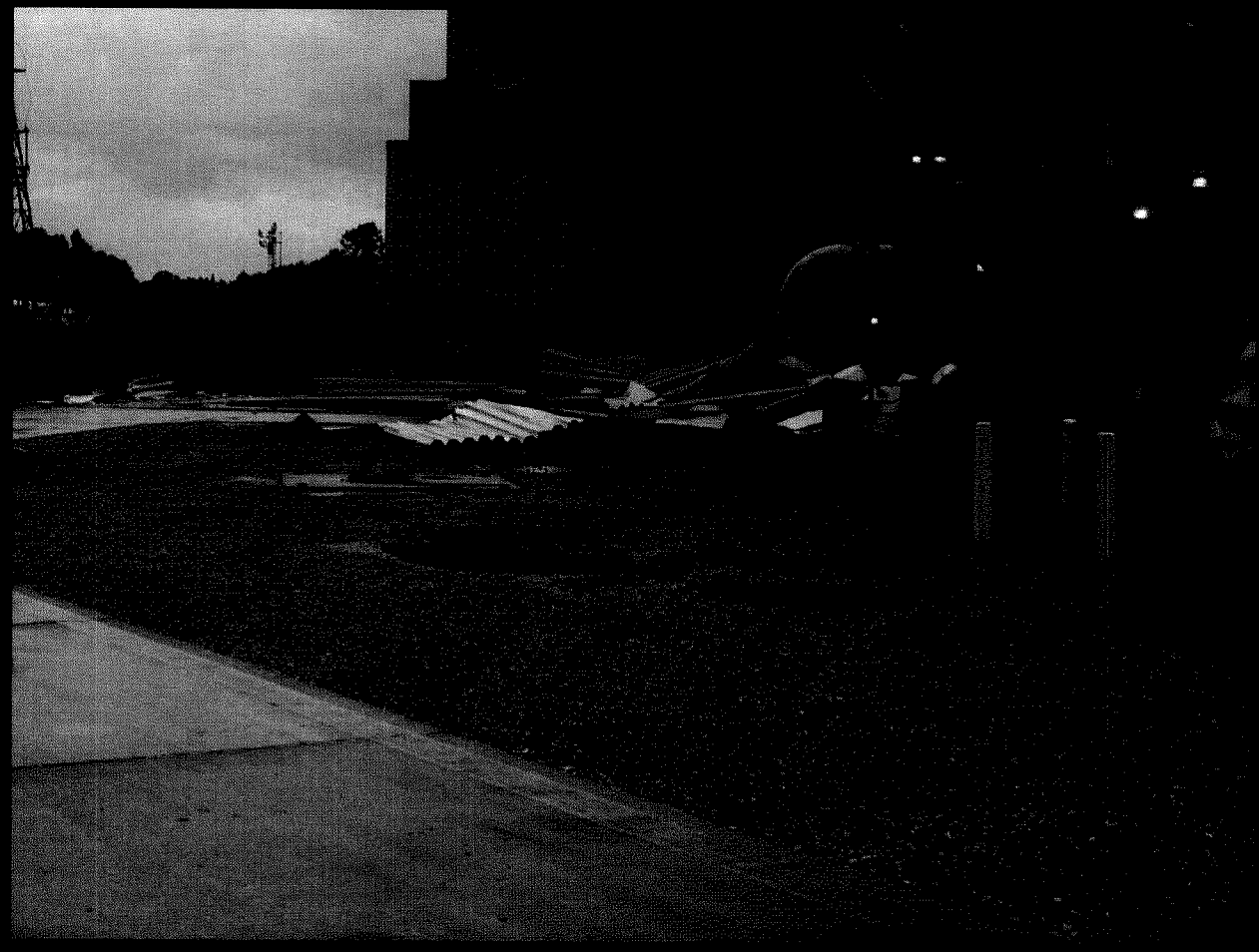
River Bend Turbine Building



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River Bend Turbine Bldg (cont'd)

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Applicability to Region 7

- Flooding events
- Blizzards

And …

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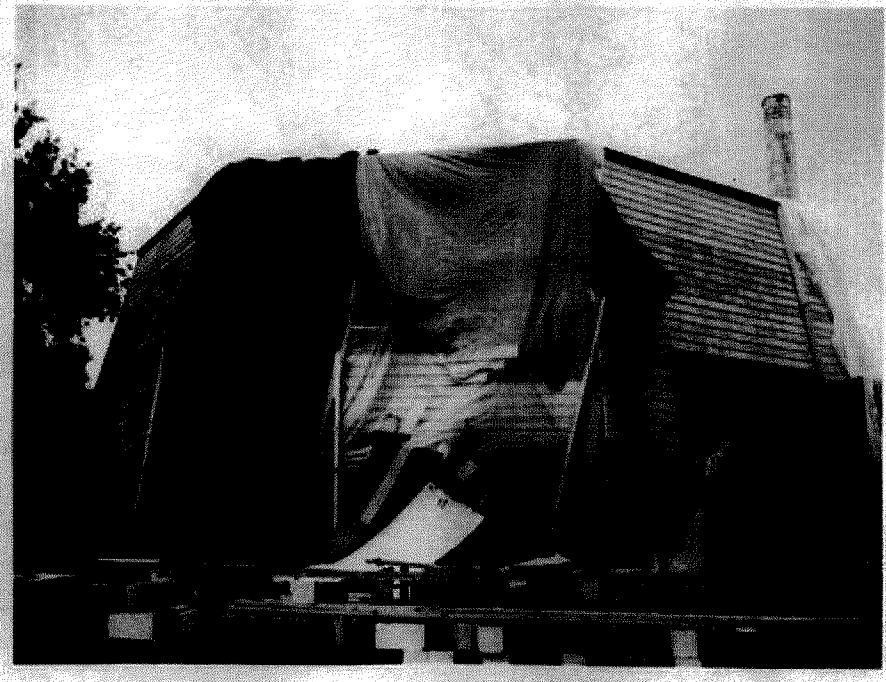
Ward Hall, KSU

9. Ward Hall



Ward Hall's reactor exterior roof is damaged but the interior roof is intact

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Ward Hall Roof

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Parking Lot, KSU

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Interior, Ward Hall

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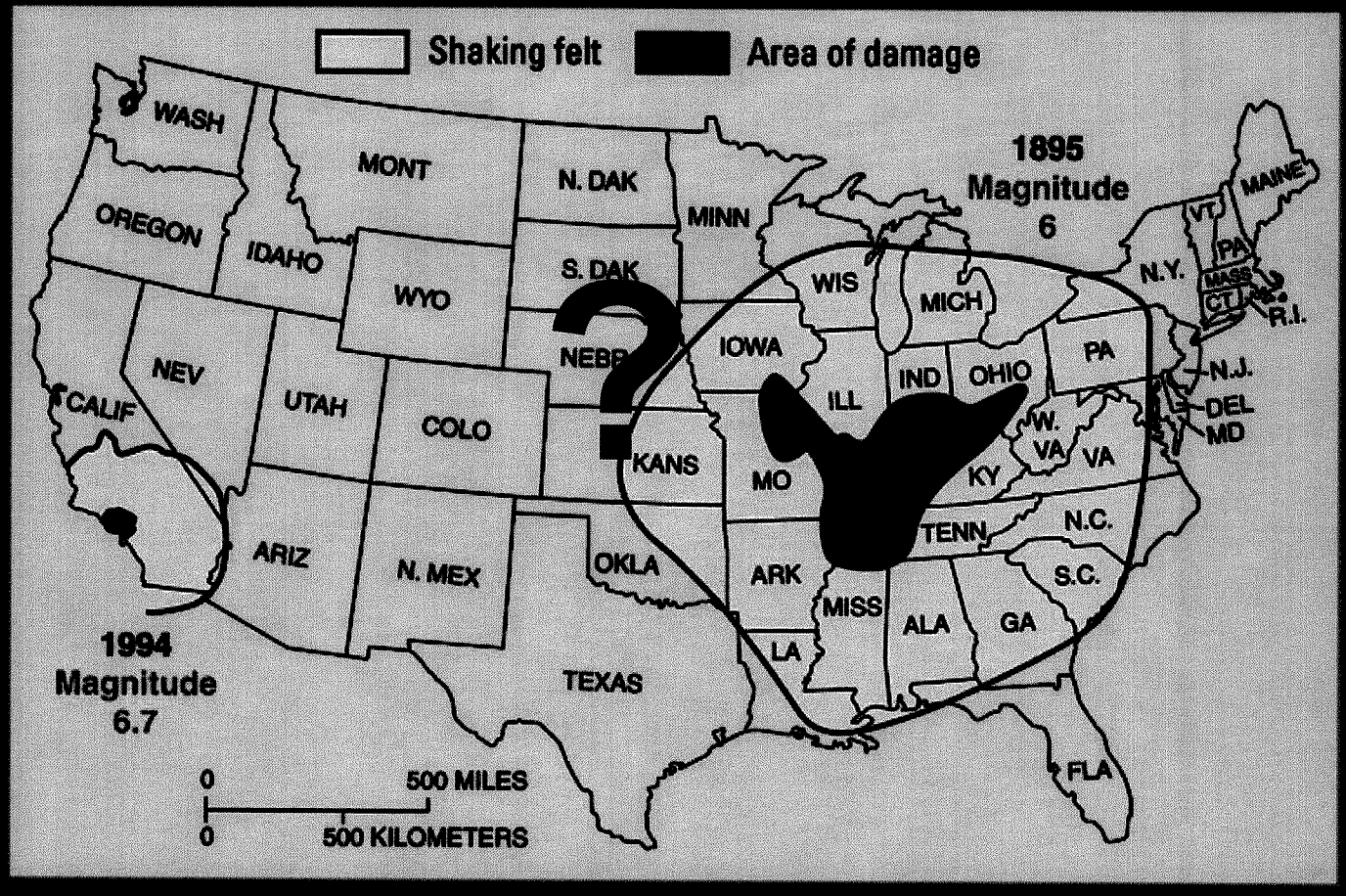
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