Natural Disaster Response

Gulf of Mexico
Petroleum Industry
Hurricane Season 2005

January 25, 2006
Gulf of Mexico Hurricane Preparation

• Shut-in offshore production well in advance, using accepted USCG guidelines

• Evacuate offshore employees from platforms and move business essential employees from coastal areas to temporary business sites.

• Operate onshore terminals in hurricane areas as full as possible

• Increase both gasoline and crude inventories to offset expected downtime
Gulf of Mexico Hurricane Preparation

- Corporate response teams and business recovery teams on standby.

- Crisis centers up, running and monitoring storm progress

- Critical “employee plan” in place, including:
  - Those who staff facilities
  - Timing for evacuating others (monitor local municipal plans)
  - Executive Relocation Plan (Corporate decision making)

- 72 hrs. before landfall – modify operations to protect people and assets. Start evacuating non-essential “and” moving business essential employees (and families) to alternate sites.

- 24 - 48 hrs. before landfall – start shutting down onshore facilities, including Corporate offices.
Gulf of Mexico Hurricane Preparation

• Critical response/ investigation vehicles moved out of harms way
  • Helicopters and fixed wing aircraft moved out of Gulf area
  • Response/ survey boats moved out of storms path
  • Onshore response vehicles either moved or potentially damaged or destroyed
  • Significant numbers of available assets “commandeered” by FEMA
Onshore Situation in the Aftermath

• Heavy devastation to homes, business, industry, infrastructure and transportation

• Access extremely limited: flooding, debris fields, trees down, bridges damaged, power lines down, etc.

• Access denied by Federal, State and municipal governments.

• Highway access routes jammed or one way only.
Katrina & Rita: Infrastructure Damage

- Damage to railroads and interstates
- Ship channels closed
- Ports closed
- Natural gas facilities shutdown
- Product and Crude systems shutdown
- Damage to Gulf terminals
Hurricane Impact on Petroleum Operations

**Aug. 29, 2005**

**Production:**
- 92% of U.S. offshore oil production shut-in
- 83% of U.S. offshore natural gas production shut-in

**Refining:**
- 9 refineries (25% U.S. capacity) shutdown
- 15 refineries affected (14% U.S. refineries reduced production)

**Pipeline**
- No electricity to major pipelines feeding Southeast & Midwest
- Major pipelines shutdown

**LOOP**
- Not operating; 10% U.S. crude imports stopped

**Jan. 6, 2006**

All operations normal except:
- 27% of U.S. daily offshore oil production shut-in
- 19% of U.S. daily offshore gas production shut-in
- 9% refining capacity shut-in
October 2005: 65% of Oil and 52% of Natural Gas Daily Production Remained Shut-in
As of January 2006, 27% of U.S. daily offshore oil production 19% of U.S. daily offshore gas production and 9% refining capacity remains shut-in
Hurricane Impact on Gulf Oil, Refining & Natural Gas Operations

In perspective:
- 25% of US oil production
- 65% of US refining capacity
Midwest crude runs cut 700,000 BOPD
Offshore Damage Caused by Katrina and Rita

• 112 fixed platforms and well caissons destroyed.
• 1 deepwater tension leg platform destroyed
• 52 fixed and deepwater platforms with extensive damage.
• 46 drilling rigs severely damaged or impacted
• 64 offshore pipelines damages.
Katrina & Rita: The Human Toll

- 2.7 million customers without power
- An estimated 1.5 million people evacuated
- $120 billion estimated damage
- 275,000 homes destroyed
- 1,333 confirmed deaths; 4,000+ still missing
Katrina/ Rita Oil Industry Response Issues

- Employee humanitarian response dominated first few days
- Facility/ spill investigations delayed
  - Limited air, sea and land transport available
  - Local employees unavailable and out of region employees unfamiliar with local operations
- Rigs missing, pipelines displaced, multiple spills
- Gulf of Mexico Response Oil Spill Response Organization’s also impacted and left with limited capability
  - MSRC, NRC, CCA, Clean Gulf
  - Response capability limited
  - OSRL (UK) put on standby
What can NOAA do to fill the gaps?

• Use remote satellite imagery and aerial over-flights to investigate
  • Damaged/ toppled platforms
  • Missing/ relocated offshore drilling rigs
  • Damage/ access to refineries, onshore pipeline terminals
  • Oil spill source and severity
  • Assess damage to surrounding area
  • Etc.
What can NOAA do to fill the gaps?

• Additional benefits
  • Develop a list of new hazards to shipping industry
  • Assist transportation sector with bridge/road damage assessment
  • Assist FEMA with development/location of humanitarian response sectors, damage assessments and location of adequate distribution sites.
  • Provide industry and response agencies with access route plans for both humanitarian and industrial response.
Industry/API Cooperation with NOAA

- Develop database of GPS coordinates for:
  - Platforms
  - Drilling rigs
  - Pipeline corridors
  - Refineries
  - Terminals
  - Access Routes
  - Pre-storm satellite/ over-flight imagery
Agency/Agency Cooperation

- Key to success of major response is communication
- Sharing of information critical to rapid, efficient and effective response
- Is communication within NOAA sufficient?
- Other agencies?
  - Participation/role in IIMG?