



# Hurricane Ivan Pipeline Subcommittee

Pipeline Response Management in  
the wake of Hurricane Ivan

July 27, 2005

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# Response Management Highlights

- Operations Preparatory Activities and Evacuation
- Hurricane Event and Tracking
- Reconnaissance Flights
- Field Operations Response
- Head Office Response
- National Response integrated with the ICS

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## Operations Preparation

- Evacuation of non-essential personnel
- Shutdown of Crude pipelines
- Evacuation of all personnel
- Shell Utilized ICS for the Evacuation.
- BP had ICS team on Standby during evacuation

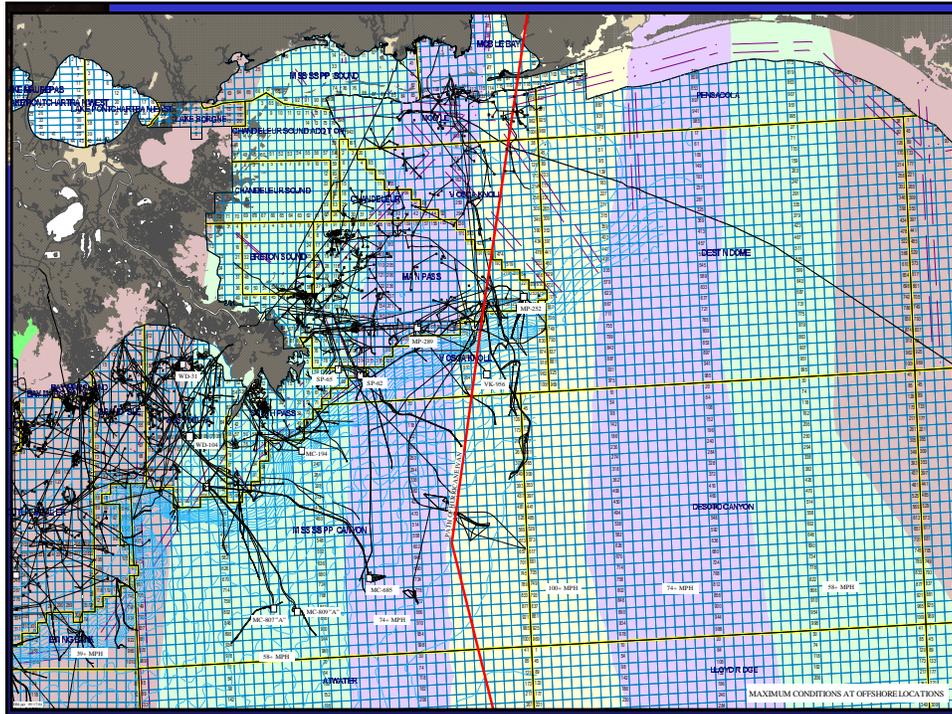
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## Hurricane Event and Tracking

- Twice Daily updates from Impact Weather
- Wind and wave fields overlaid on pipeline system maps
- Located repair assets and placed on first refusal
- Shell, Chevron, & BP placed construction vessels on standby before storm

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## Reconnaissance Flights

- Viewed what appeared to be extensive topsides damage at many platforms
- Took several days to re-man the platforms (weather, damage, debris, utilities).
- Shell released standby vessels to other companies
- BP staffed Fort Jackson the morning after landfall to manage a suspected release on their MPOG system

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MURPHY MEDUSA

MC 528



PETRONIUS PLATFORM  
1,750 FT WATER DEPTH  
QUARTERS & HELIPORT  
DAMAGE

17 8:10 AM



PETRONIUS PLATFORM



MP 289 "B"



## Operational Response

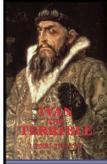
- Priority was given to production operations to make safe, re-man, clean up, repair and restore production operations
- Pipeline Operators communicated continuously with Production Operations to coordinate restarts and prioritize work.
- Pipelines were leak tested for 2 hours in accordance with Notice to Lessees

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MP 69 PUMP STATION

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## Operations Response (cont.)

- Overflights noted several sheens in MP 80 & 69
- Began surveying pipelines subsea
- Some pipelines were fully severed
- Shell immediately dispatched a live-boat operation manned by Stolt Divers and International Boats
- Initially had indications that MPOG 18inch pipelines may be compromised.

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## Drilling Rig Broke Loose from Mooring Crossed Nakika Oil Line With Rig Dragging Three Anchor Cables



Nakika North Drag Mark - West Side



Nakika North Drag Mark – East Side

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## Pipeline Head Office Response

- Sourced an available vessel to work in MP 69 (relatively shallow water)
- Sourced survey vessels with Sidescan and/or ROV capability to survey pipeline right of ways.
- Established a Project Command center to coordinate assets
- Established Port Operations with full time inspector to coordinate vessels

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## Inspection & Construction Equipment

- **Survey:** Moana Wave, Captain Blake, Emma McCall
- **Dive Support Vessels:** Barge 1, CalDiver II, Mystic Viking, Sea Fox
- **Jackup Boats:** Juan, Choctaw
- **ROV Vessels:** Merlin, Mystic Viking, Uncle John, Ocean Intervention
- **Laybarge:** Pecos Horizon
- **Spud Barge:** BH300, BH103
- **Derrick Barge:** Lili, Boaz
- **Various tugs, supply boats, crew boats, quarters barges, material barges, etc.**
- **Multiple Response vessels (LA, TX, FL Responders and support craft) and equipment**

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## Shell Pipeline Construction Outcome

- Safety: Over 190,000 man hours with no recordable incidents
- Construction Timing: 43 days total (averages 184 people per 12 hour shift)
- Total Costs for Inspection, Cleanup, Repairs in 2004: >\$40MM
- Expected Costs for Construction & Repairs in 2005: >\$10MM
- Minimal Impact to Production – Less than a week for Nakika and 1 day for Cognac – Due to cooperation of all Agencies, Contractors and Operators.

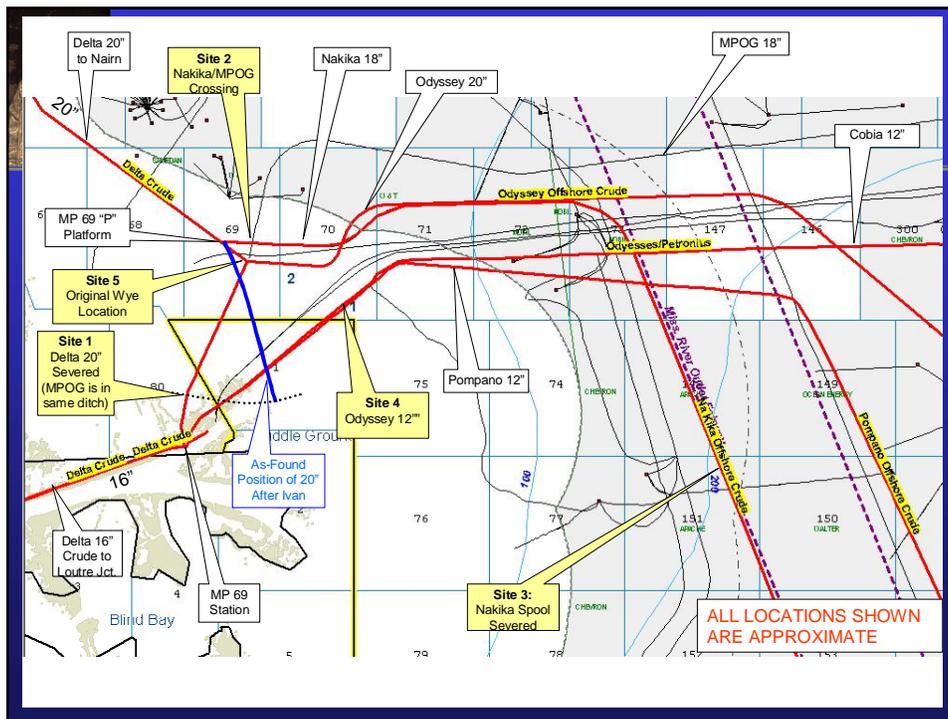
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## Shell Pipeline Hurricane Ivan Worksites

- Site 1 – Severed Delta 20” line displaced ~2 miles to the east of its original position
- Site 2 – Nakika 18” line damaged at MPOG crossing in MP 69
- Site 3 – Nakika 18” line severed in MP 151
- Site 4 – Odyssey 12” line damaged in MP 70
- Site 5 – Delta 20” piggable wye pulled away from Odyssey 20”
- Site 6 – 8” line pulled away from platform at SP 60 & pipeline displaced
- Site 7 – Connection on Bud 8” to allow BP’s MPOG production to come online
- Site 8 – Sunken Jackup barge on Odyssey 20” in MP 309
- Site 9 – Disconnect Odyssey 12” from MP 289 “B” platform – reconfigure SSTI

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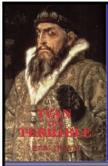


## Special Considerations

- Return of Hurricane Ivan
- Dynamic Bottom Environment
- Local and Displaced Wildlife
- New equipment
- Sharing of resources
- Different kind of leak
- New Security Requirements

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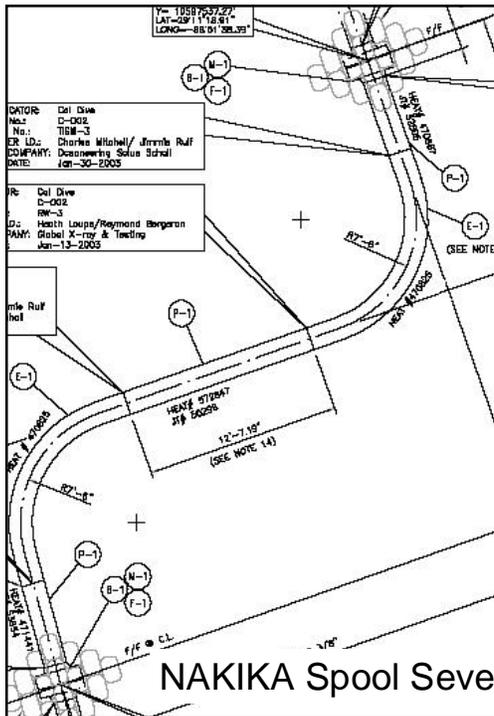




### South Pass 60 Severed 8-inch Riser – Site #6



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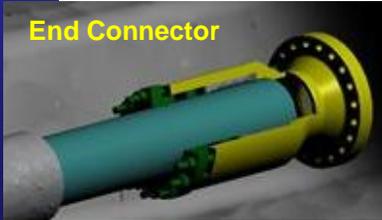
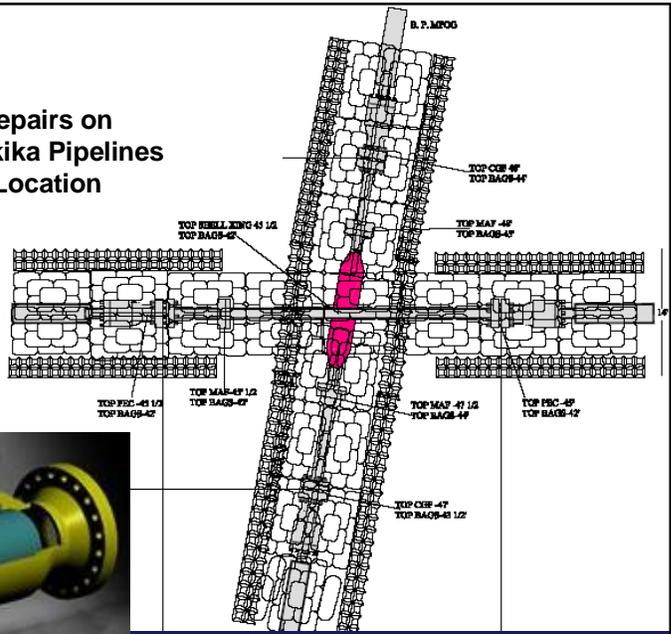


### NAKIKI Spool Severed in MP-151 – Site #3



MSRC - LOUISIANA RESPONDER AT NAKIKA SITE 2

Spool Piece Repairs on both MPOG & Nakika Pipelines at Crossing Location



Nakika / MPOG Crossing – Site #2

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## National Response Integrated with ICS

- Established ICS to work with Federal, State and Local Authorities in overall response.
- Main focus was MP69, since this was the source of the visible oil.
- Priorities were clearly established
  - Stop the oil-regardless of where it was coming from
  - Protect the environment
  - Restore the pipeline systems
  - Do it all safely

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## Special Thanks

- Mike Coyne
- Tommy Hutto
- Jason Dollar
- MMS
- USCG

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