



TOTAL

**Virgo Platform (Viosca Knoll 823)
Hurricane Ivan Impact & Recovery**

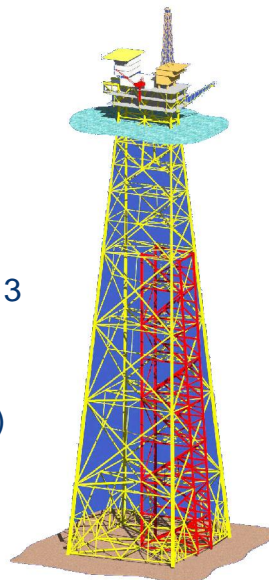
7/27/2005

Richard Case

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Virgo – Viosca Knoll 823

- Installed 1999
- 3 deck levels @ 100' x 200' each
- 1130' w. d.
- 4 Main Pile Structure
- 6 Pile Upper Jacket
- 13 Wells - Originally (including the 3 dual completions)
- 9 Wells Currently Producing
- Production – Sept. 2004 (Pre-Ivan)
 - ~ 24 mmcf
 - ~ 600 bc/d



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Virgo – Viosca Knoll 823 OPERATIONS

- Wells & Wellheads / Structure / Jacket / Decks owned by Virgo Operating Partners (Total, El Paso, Nippon, and Pogo)
- Total is the Operator of the wells for Virgo Operating Partners
- Topsides Process System / Facilities owned by Dauphin Island Gathering Pipeline Partners (DIGP)
- Duke Energy is Ops. representative for DIGP
- Total is the on-site Operator of the topsides process system for Duke Energy

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Virgo (VK823) – Pre-Hurricane Ivan



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Virgo (VK823) – Pre-Hurricane Ivan

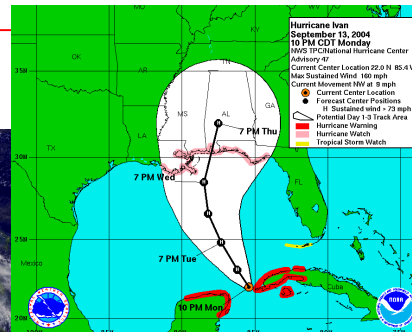
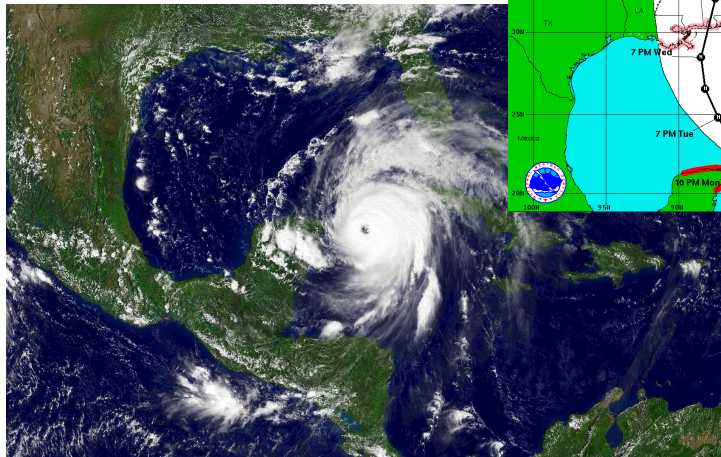


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September 13: Hurricane Ivan Enters the GoM

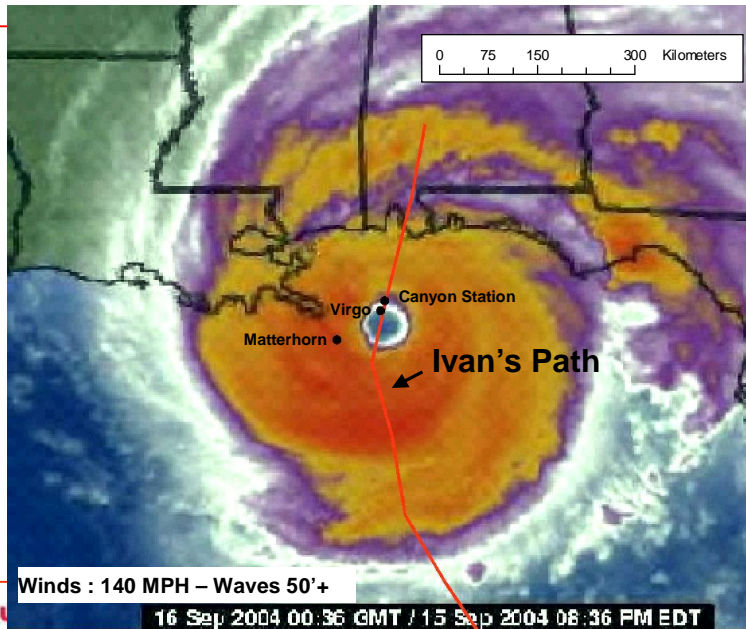
First Priority: ensure the safety of personnel by evacuation



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Ivan Hits on Sept. 15



Virgo (VK823)

Damage Evaluation

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Post Ivan Integrity Inspection

- Assess structural soundness with a helicopter fly around.
- Board and perform initial 3rd Party visual checks with the operations team (Sept. 16, '04)
- Topside Inspection – Utilized a rope access team to visually inspect all structural components (General visual, close visual and ACFM)
- Analyzed a damaged topside beam to assess its residual strength
- Performed overall structural analysis of the facility, using sea conditions that existed during Ivan, in order to assess the overall loading on the facility and to identify connections subject to the highest loads.
- Performed underwater ROV inspection covering structural integrity, selected weld integrity, anode condition, debris, scour risers.
- Performed flooded member inspection on most members.

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Power / Control Cables & Trays



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Power / Control Cables & Trays



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Power / Control Cables & Trays



Cable Trays under Prod Deck

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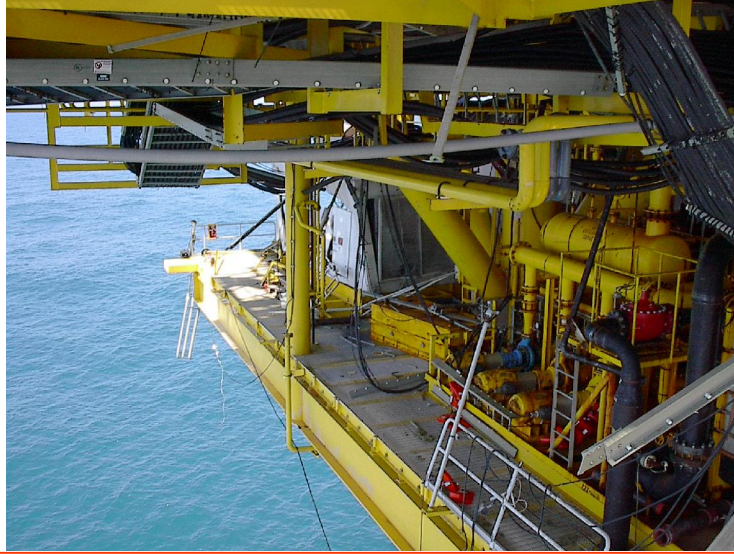
Power / Control Cables



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Cables / Handrails / Sewage Treatment / Generator



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Generators (knocked off skid mounts)



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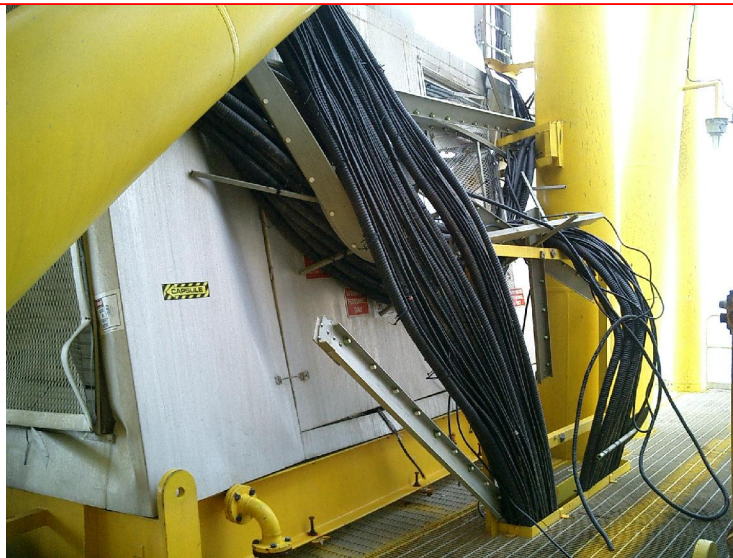
Generators (knocked off skid mounts)



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Generators



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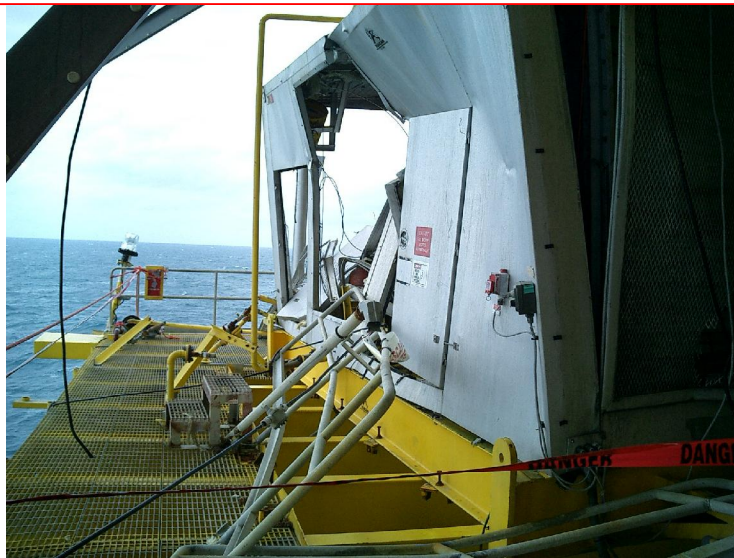
Generators / Power – Control Cables & Trays



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Essential Generator



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Essential Generator



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Essential Generator



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Essential Generator



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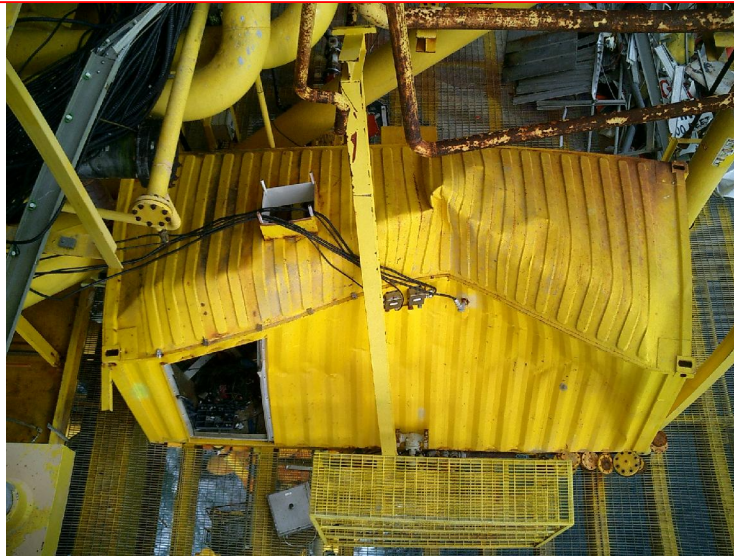
Gas Compressor #2 Controls



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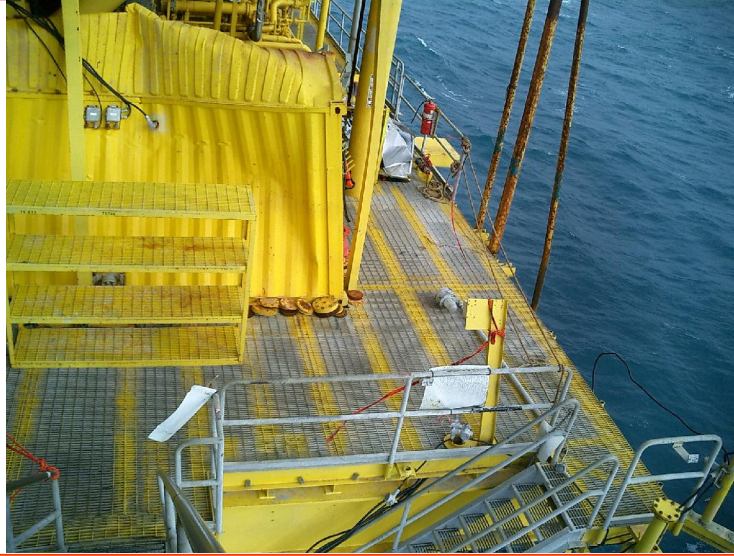
Parts – Tool Storage Building



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Structural – Handrails



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Structural – Handrails



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Structural – Handrails



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Structural – Stairways



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Structural – Stairways



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Structural – Stairways



TOTAL E&P USA, INC.



Structural – Stairways



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Structural – Access ways



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Structural – + 10' Area – Handrails & Grating



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Structural – Pipeline Riser Clamp



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Structural – Crane Pedestal



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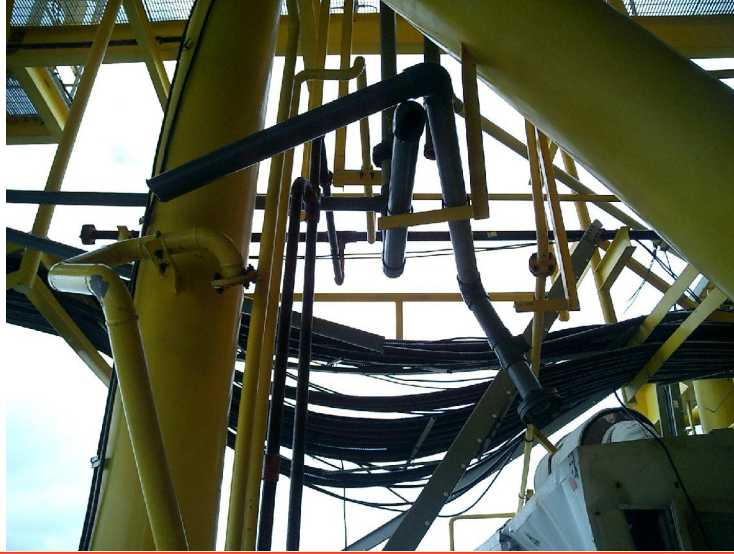
Firewater – Deluge Piping + Cables & Trays



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Firewater – Deluge Piping + Cables & Trays



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Firewater – Deluge Piping



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Firewater – Deluge Piping



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Motor Control Center



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Living Quarters – HVAC



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Virgo (VK823)

Reconstruction Project Development

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Project Planning

- Habitation – (Oct. 25, '04)
 - Life Support
 - Accommodations
 - Safety / USCG / MMS
- Facility: Estimated 6 month repair (ie: April 2005)
- Project Meeting with Partners & DIGP
- Project Scope Development (detailed)
- Project Management Support (Nov. 4, '04)
- Primary Reconstruction Contractor
 - Construction / Mechanical
 - Instrumentation / Electrical

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Virgo (VK823)

Reconstruction Staffing & Safety

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Construction Camp



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SAFETY FIRST

- Daily Safety & Job Planning Meeting



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SAFETY FIRST – Recovery Training

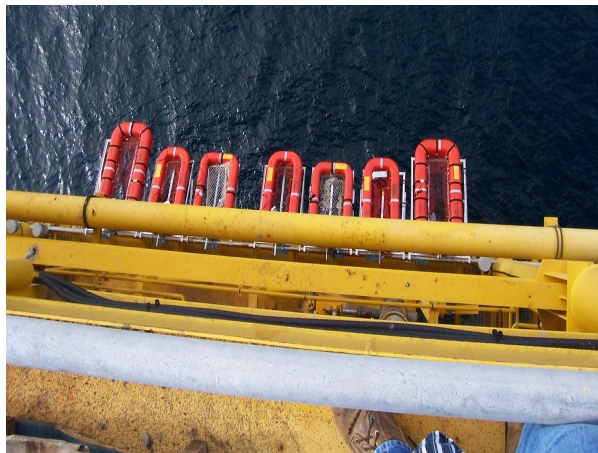


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SAFETY FIRST – Additional Life Saving

- 2 ea. – 25 person rafts + 5 ea. – 12 person rafts



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Virgo (VK823)

Reconstruction

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Reconstruction – Sub-Cellar Scaffolding



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Reconstruction – Sub-Cellar Scaffold Deck



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Reconstruction – Cable Tray Installation



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Reconstruction – Cellar Deck Piping Installation



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Virgo (VK823)

Mid-Project Performance Re-Evaluation

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Mid-Project Re-Evaluation

- Primary Reconstruction Contractor Performance Issues
 - Itemized task sheets for reconstruction job packs
 - Adequate number of qualified craft personnel
 - Material delivery
 - Contractor Management support
- Resulted in the canceling (demaning) of mechanical / instrument / electrical craft services
- Hand-picked quality craft personnel from several different support contractors
 - Re-manned with new craft personnel

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Reconstruction – Cable Installation



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Reconstruction – Cable Installation



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Reconstruction – Cable Installation



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Reconstruction – Cable Installation



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Reconstruction – Electrical & F&G Wiring



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Reconstruction – Electrical & F&G Wiring



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Reconstruction – Electrical & F&G Wiring



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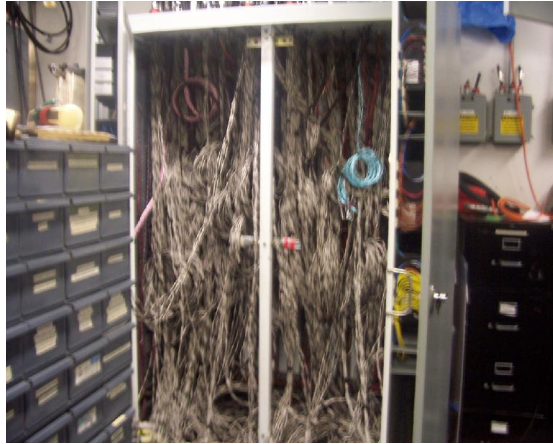
Reconstruction – Electrical & F&G Wiring



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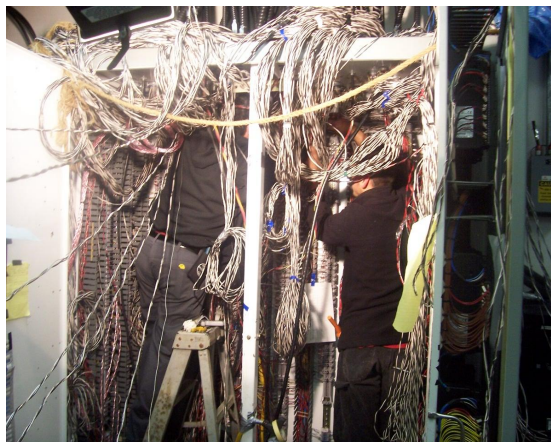
Reconstruction – Marshalling Cabinet Wiring



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Reconstruction – Marshalling Cabinet Wiring



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Reconstruction – Marshalling Cabinet Wiring



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Reconstruction – Marshalling Cabinet Wiring



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Reconstruction – Bondstrand (Firewater/Deluge)



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Reconstruction – Bondstrand (Firewater/Deluge)



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Reconstruction – Bondstrand (Firewater/Deluge)



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Reconstruction – Bondstrand (Firewater/Deluge)



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Reconstruction – Bondstrand (Firewater/Deluge)



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Reconstruction – Bondstrand (Firewater/Deluge)



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Reconstruction – Deluge Valving



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Reconstruction – Generator(s) Refurbishment



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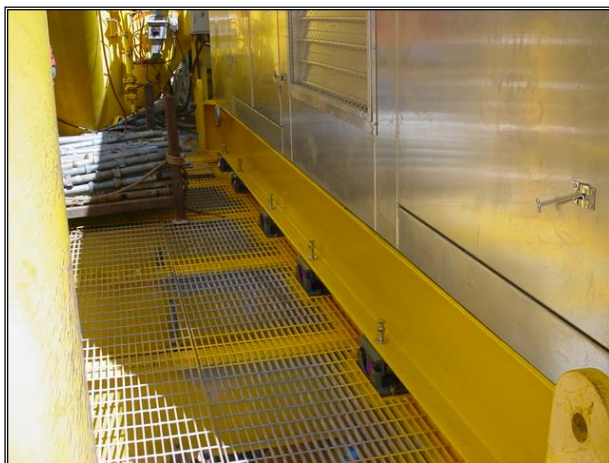
Reconstruction – Generator(s) Refurbishment



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Reconstruction – Generator(s) Refurbishment



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Virgo (VK823)

Post Reconstruction

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Post Reconstruction – Cellar Deck



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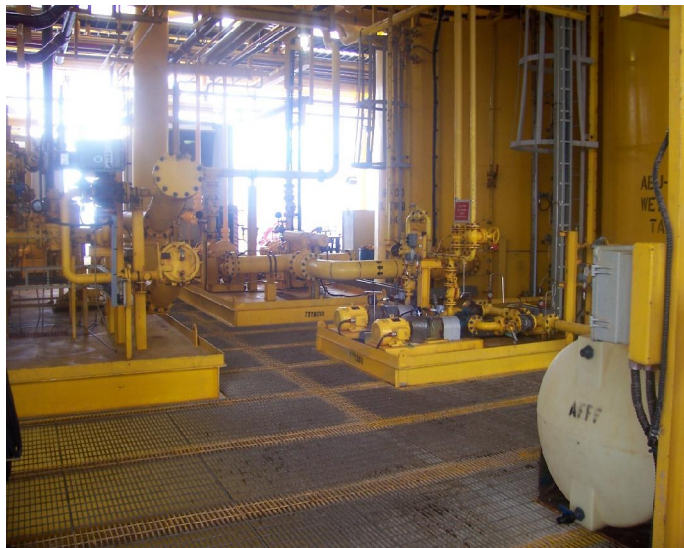
Post Reconstruction – Cellar Deck



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Post Reconstruction – Cellar Deck



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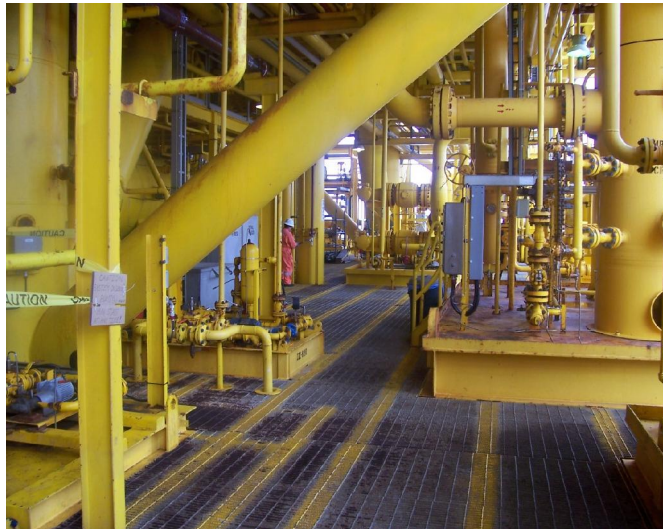
Post Reconstruction – Cellar Deck



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Post Reconstruction – Cellar Deck



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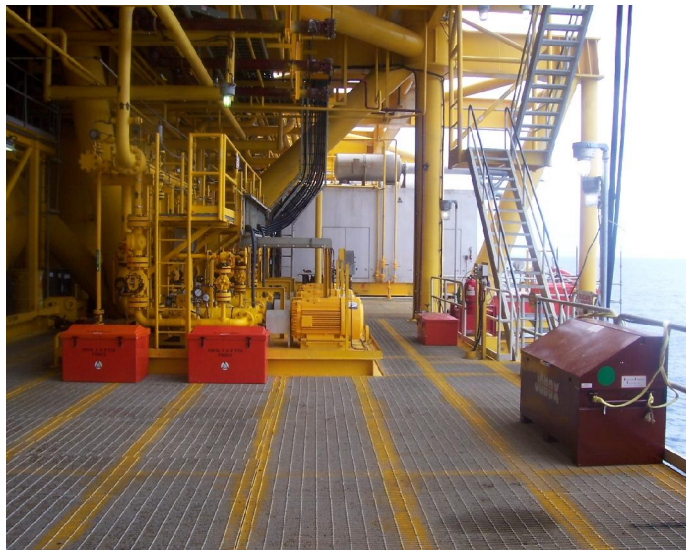
Post Reconstruction – Cellar Deck



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Post Reconstruction – Cellar Deck



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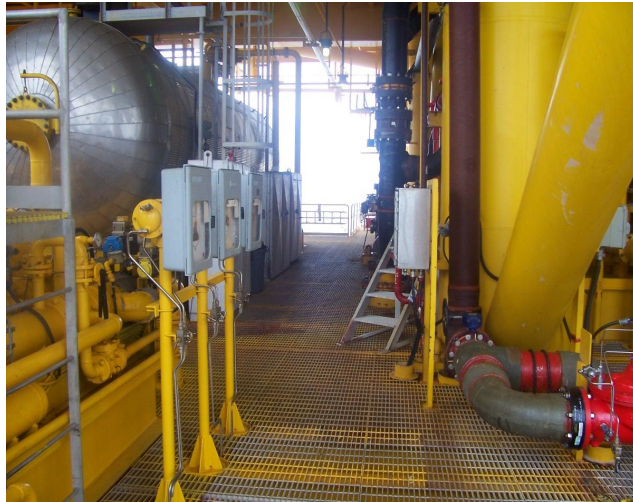
Post Reconstruction – Production Deck



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Post Reconstruction – Production Deck



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Post Reconstruction – Production Deck



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Post Reconstruction – Production Deck



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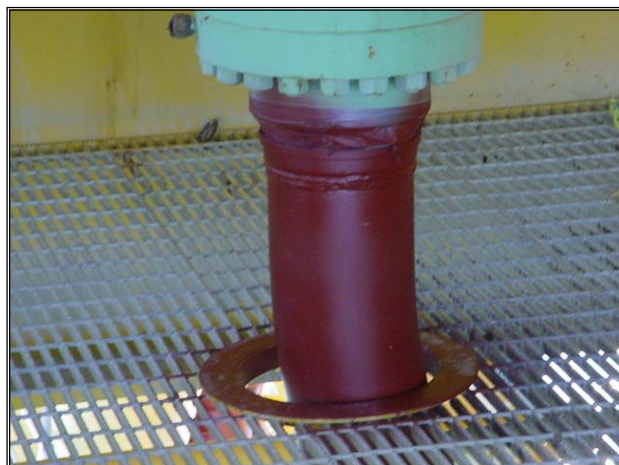
Post Reconstruction – Riser Fireproofing



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Post Reconstruction – Riser Fireproofing



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Post Reconstruction – Riser Fireproofing



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Summary

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Virgo (VK823) – Post Hurricane Ivan



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Overview – Schedule

- Hurricane – Sept. 13, 2004
- Multi-company review and project approval – Mid-Oct. 2004
- Habitation able (Oct. 25, '04)
- CFT / Bid Award - Project Management / Technical Support (Nov. 4, '04)
- CFT / Bid Award - Primary Reconstruction Vendor (C-M-I&E)
- CFT / Bid Award / Mobilization - Camp Facilities
- Mobilization of initial reconstruction crews
- Christmas Break (Dec. 23-26, '04)

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Overview – Schedule (cont.)

- Primary Reconstruction Vendor Performance Re-evaluation – Feb. '04
- Mobilization of New Support Crews (hand picked personnel) – Feb. '04
- Pre-commissioning (early – where possible)
- Initial Re-Start of Production – April 21, 2005
- Final Post Reconstruction Demobilization

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Overview - Highlights

- Maximum of up to 75 persons (including 8 Total Operations Personnel)
- 135 days from initial manning to Re-Start
- Over 10 different contractors with craft personnel working together simultaneously
- In EXCESS of **125,000** man-hours
- **NO LOST TIME ACCIDENTS**
- On Budget

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Virgo (VK823) – Post Hurricane Ivan



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