

*ENGAGING MINDS.*



*AMAZING RESULTS.*

## **Rebuild, Restore, and Renew: Firestone's Triumph Over Hurricane Ike**

Greg DeFrates, Factory Manager - Firestone  
Jim Montgomery, Senior Vice President Sales - Retired  
Judy Banner, Vice President - Systems

# Presenters

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- Greg DeFrates
- Jim Montgomery
- Judy Banner



# Introduction

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- Firestone Polymers
- Hurricane Devastation
- Engaging Emerson
  - Recovery Management
  - Turnkey Services
- Best Practices
- Amazing Results

# Firestone Polymers

- Firestone Polymers supplies synthetic rubber, thermoplastic elastomers and impact modifiers to rubber, plastics, adhesive and asphalt markets around the world.
- Unique anionic polymerization technology allows production of high purity, high molecular weight polybutadiene and a wide range of block, random, and vinyl modified styrene-butadiene copolymers.



# Firestone Polymers

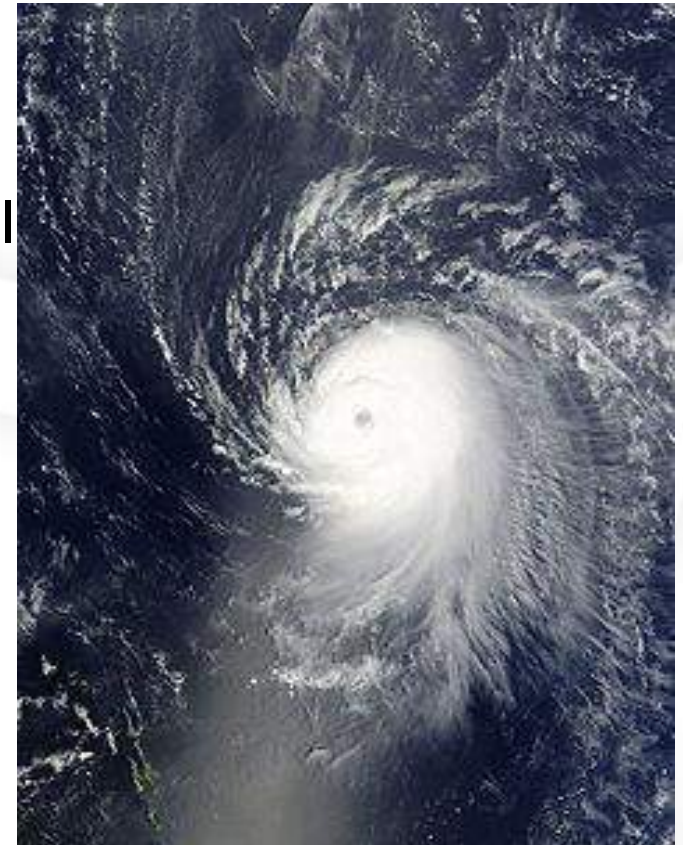
- Orange, TX Production Plant
- 30+ year relationship with Scallon Controls
- Many Emerson products within the facility
  - Approximately 65% Emerson installed base





# Hurricane Devastation

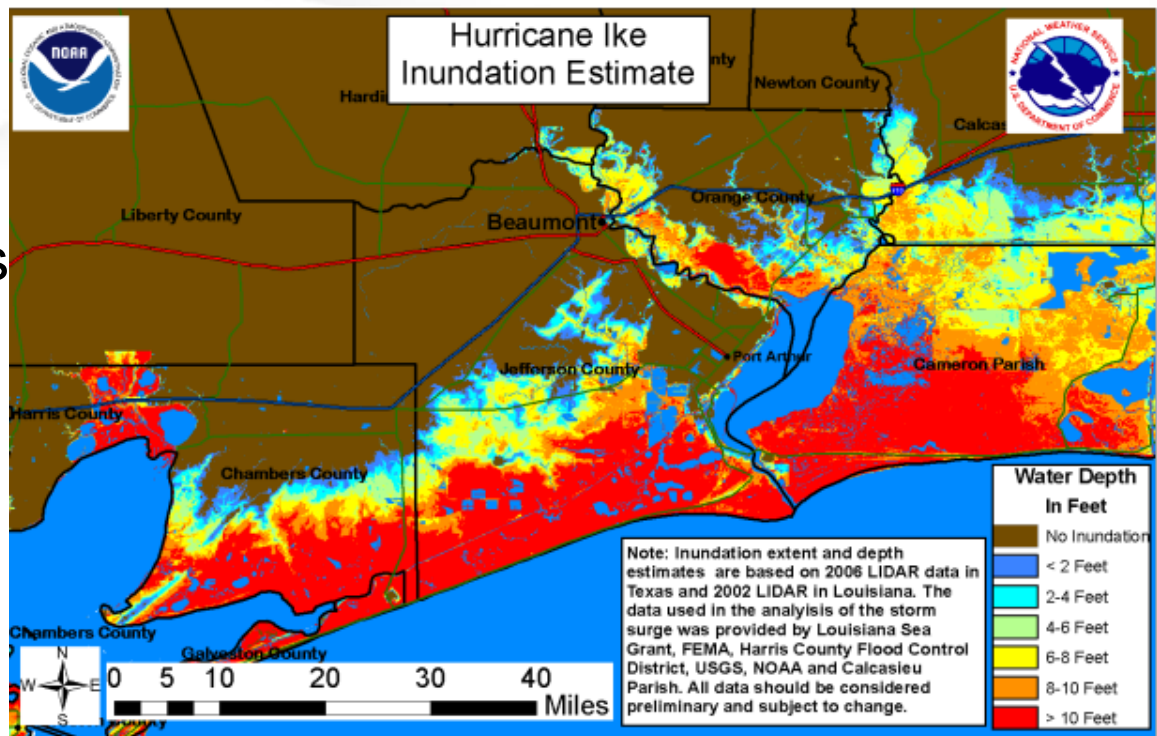
- Hurricane Ike was the third most destructive hurricane to ever make landfall in the United States.
- September 13, 2008, Ike made landfall east of Galveston, TX.
- The hardest hit places were industrial centers near Houston and Port Arthur, Texas.



Hurricane Ike at peak intensity

# Hurricane Devastation

- Winds, surge and giant waves caused the majority of damage in Orange and the surrounding communities. Local community of Bridge City with 3500 homes, only 14 without flooding
- Firestone shut down operations in advance of Ike's approach as a precautionary measure and to comply with evacuation process.



# Hurricane Devastation



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# Hurricane Devastation

- Flooding on main road in Bridge City, TX



# Hurricane Devastation



High Water Marks

# Hurricane Devastation



Debris on machinery



Silt in hall

# Plant Issues – Site Damage

- Plant was under 5 ft of salt water
- High voltage electrical under water
- Lost documentation
- Lost product inventory and warehouse stores
- DeltaV system and PLC's under water
- Site assessment of all instrumentation below 5 ft:
  - 410 Valves
  - 360 Instruments
  - 85 Transmitters
  - 73 Flow meters



# Plant Issues - Infrastructure

- No basic City or Plant Services
  - Bridgestone brought in two trucks to provide basic needs
  - Limited housing, food, and fuel
- No electricity
  - Power outages for over 100 miles from site
  - 4.4 million people without power in the affected area
  - Could only work during the daylight hours
  - Needed to locate generators, housing, other critical items
  - No air conditioning to maintain environment for equipment not damaged by the hurricane directly
- No employees
  - Many were evacuated prior to the storm surge
  - Many had to take care of their own family's devastation

# Plant Issues - Documentation

- Lack of accessible electronic field data made walk-through and early assessment process critical
- Lost various types of data during the storm surge
  - AMS Suite system data
  - Product guides
  - Specification documentation
  - Engineering documents
  - Laptops, handhelds, tools and other equipment
- Fortunately, Guardian Level Foundation Support data backups taken the previous month were available to extract information at module level allowing for immediate order entry data and order placement

# Engaging Emerson



People + Products = Performance

Talent + Technology = Trust

Expertise + Equipment = Emerson

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# Engaging Emerson

- Scallon Controls, Emerson's Local Business Partner, was contacted immediately and asked to supply technicians, tools, new equipment, and parts to get the plant back in operation.
- An emergency response team was assembled in a matter of days.
- Inventory was brought to site and every piece of equipment was diagnosed, then repaired or replaced.



# Engaging Emerson

## ■ Recovery Management Team

- Scallon Controls
- Emerson Process Management
  - Fisher, Instrument & Valve Services, Process Systems & Solutions, Global Service Center, Rosemount, Micro Motion
- Liebert - Refining and Chemical Industry Centers
- Andon – Miscellaneous instrumentation and field component vendor
- McBride Electric – Provided electrical services of design and installation associated with rewiring efforts
- Reynolds Company -Distributor for Rockwell Automation
- Imagevision - Control Room Furniture
- Allied Interiors - Computer Room Flooring

# Recovery Management

- Basic needs infrastructure was already established from best practices and lessons learned in previous hurricane recovery efforts:
  - Generators
  - Fuel
  - Water
  - Trailers
  - Equipment
  - Transportation
  - Housing



# Recovery Management

## ■ Communication

- Daily onsite project meetings with a Scallon representative in attendance who could bring information back to the shop, devise action plans and drive results
- Daily and weekly updates of spend totals were shared with Firestone Project Management
- Insurance adjustors and third part representatives on site demonstrated recovery experience to make recommendations for repair or replacement.

# Recovery Management

- Saturday – Hurricane struck
- Sunday – First contact made with the plant
- Monday – Records retrieved from back up system
- Tuesday – Site assessment of damage performed
- Wednesday – Emerson orders equipment and assembled teams of technicians to begin repair





# Recovery Management

- At the peak of operations, there were nearly 60 people on site assisting with recovery efforts to give complete support
  - One overall Project Manager – All Field and Control Room
  - One Scallon VP as executive sponsor and coordinator
  - 8 Emerson IVS Technicians, 2 Scallon Field Technicians
  - 2 Emerson Engineers, 1 Scallon Engineer on Site
  - 5 Emerson engineers producing drawings and doc offsite
  - 1 Admin on site, 2 Admin in office
  - 2 Inside Sales/Order Entry People
  - 1 Inside sales for Electrical Materials on site
  - 42 Electricians and Apprentices for rewiring effort
  - 1 Electrical Foreman

# Turnkey Services

- With one blanket purchase order, Scallon was able to provide:
  - Project management
  - Field assessment
  - Repair or replacement as needed
    - Fisher valves and actuators
    - Rosemount instruments
    - Micro Motion regulators
    - Other equipment manufacturer items
  - Loop checks
  - Start-up / commissioning
  - Drawing red lines, review, drafting
  - Field and component rewiring

# Turnkey Services

- Instrumentation was a critical link
  - Location of original equipment manufacturer
  - Conversion of older pneumatic equipment to new digital
  - Allocation of parts
  - Technician expertise
- Opportunities to upgrade equipment
  - Cost effective as it is cheaper than repair of obsolete items
  - Expected process efficiency gains for the plant

# Turnkey Services

- Opted to take a conservative approach to wiring despite the possibility of schedule setbacks in order to avoid future problems now being experienced by those who chose not to re-wire.
  - Cost was approximately 6 additional weeks of downtime during recovery efforts
  - Other plants who did not use this approach are now experiencing massive unexpected shut-downs in the various processes
- Loop drawings were red lined in the field and produced by Emerson to reflect wiring changes and new field devices.
  - These updated drawings were used for MOC approval and training by Firestone prior to restart.



# Hurricane Devastation



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# Our Experiences

- September 1998 – Hurricane George
- August 2005 - Hurricanes Katrina and Rita
  - 20 sites, 270 resources, 4 trailers, 6 offices, 50 laptops, 12 FlowScanners, 13 375's
- June 2007 - Coffeyville Refinery
  - 1000 assemblies, 16,000 parts, 100 people,
- Jan 2008 - Alon and Aruba refinery fires
  - 105 valves - 79 days, inaccurate or NO serial cards
- June 2008 - Iowa floods
- September 2008 - Hurricanes Gustav and Ike
  - 12 plants, 7000 instruments and valves, 155 people



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# Lessons Learned

- Early planning and preparation needed
- People are the most important element- both yours and ours
  - Assessment by experienced personnel is KEY
- Parts are the second most important element
  - Clear communication to EMR global manufacturing and their supply chain is critical
- Infrastructure planning
  - Fuel, generators, housing, food, and warehousing inventory . Electrical infrastructure is always the critical path





# Lessons Learned

- If you don't do it right every day is like groundhog day
- Avoid legal or procurement “do loops”
- Agree on process for smart, timely business decisions
- Agree on processes and documentation requirements- don't forget to involve insurance company in this step. They can be allies in using new technology to speed startup
- Conduct daily status updates and work plans
- Cash management for both of us is important



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# Risk Management

- Every site is at risk of a disaster
- Establish key contacts and commercial agreement in advance
- With a joint preparedness plan, team EMR can help our customers get back on line faster and more safely due to our experience, people and product resources, and processes.
- A plant that keeps up with standards, routine outages, documentation, notes within CMMS is much better prepared to handle a disaster



Coffeyville Resources Refinery Flood



# The Emerson Difference

## Acting as One--Team Emerson

- Large installed base
- Professional Local support with Global reach
- IVS/Fisher/Rosemount/LBP processes allow immediate mobilization
- Inventory and parts availability – global manufacturing sites have run additional shifts and managed logistics and scheduling
- Support roles – Project Mgr., Lead Tech, Instrument / Valve / Electrical Tech's, CSA's, Administrators
- Proven work processes



# Best Practices

- Incorporate disaster mitigation plans in future projects
  - Develop a removal plan for hard drive consoles in control cabinets.
  - Elevate instrumentation wherever possible in flood areas.
  - Integrate pre-engineering for product upgrades during regularly scheduled maintenance work.
- Lay the groundwork for the unexpected
  - Evacuate critical staff to the same location.
  - Establish remote email service to minimize the effects of internal communication being offline.
  - Establish relationships with vendors to gain commitment prior to the events.

# Best Practices

- Understand insurance representative requirements for claim recovery so that walk-down documentation captures information needed.
  - Educate the team on process integration and obsolescence.
  - Plan to capture all information necessary to complete documentation for insurance traceability.



# Best Practices

- Equipment lists, plant drawings, data back up
  - Have regularly scheduled back ups with a plan for data storage in case of a pending storm or unrealized disaster.
  - Have a remote repository for manuals and electronic copies of product documentation.
- Equipment standardization
  - Product familiarity and expertise developed by maintenance technicians.
  - Recovery repair and replacement easier and more efficient.
  - Order entry process standardized as a result.
- Remote inventory
  - Consider having equipment with long lead times for replacement stored remotely.

# Amazing Results

- The emergency response team provided a turnkey solution and managed an overwhelming scope of work to become operational.
- A streamlined work process allowed technicians to validate and document repairs for each item by tag number and simplified solutions by providing a single source of contact.
- Emerson was able to provide all the necessary documentation to meet requirements of both Firestone and insurance representatives.



# Amazing Results

- Drew on wealth of expertise from technicians all over North America.
- Upgraded technology to allow plants to run more efficiently than prior to damage.
- Trained employees how to best maintain assets.





# Work in Progress



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# Work in Progress



9/17/08



9/23/08



12/1/2008

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12/1/2008





# Amazing Results

- Firestone was back into full scale production by mid-January.
- Equipment is essentially all brand new and upgraded to use the latest technological improvements wherever possible.
- Plant is able to utilize knowledge gained during recovery efforts to establish a database of evergreen information.
  - Used for maintenance planning
  - Referenced in the event of another disaster

# Summary

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- After Hurricane Ike made landfall in Texas on September 13, 2008, Firestone contracted with Emerson Process Management to assist in the recovery efforts.
- By the following week, Emerson was onsite performing assessments and presenting a full service plan for revitalization, enabling Firestone to put our plant back into production.
- Customer feedback from this and other events are being utilized to develop and implement an Emerson wide Recovery Management Plan.

# Questions



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# Where To Get More Information

- Asset Optimization Booth
- [www.EmersonProcess.com/IVS](http://www.EmersonProcess.com/IVS)

# Presenters

- **Greg Defrates** is the Factory Manager for Firestone Polymers located in Orange, TX. Greg holds a BS in Chemical Engineering from Lamar University. With an expertise in Polymer Manufacturing, Greg has 23 years of experience working in Process Engineering, Production Management, Quality Engineering, Production Management, and Plant Management.
- **Jim Montgomery** retired in 2008 as Sr. V.P. of Sales for Emerson Process Management in North America. In 1971, he joined Fisher in Marshalltown, IA as a sales engineer. Jim held sales and marketing roles, both globally and focused on North American customers, throughout his career. He started the company's Key Accounts Program and Global Project Pursuit Process, and was V.P. of Global Business Development for the Process Group. Jim graduated from the University of Missouri at Rolla with a B.S. in Chemical Engineering.
- **Judy Banner** is the Vice President of Systems at Scallon Controls, Inc. Beaumont, TX. Judy has 25 years of experience in helping to manage, justify and develop system automation projects as well as experience in oil and gas exploration and specialty manufacturing. With Automation System Management as her area of expertise, Judy holds both a Bachelors and Masters Degree in Business.