

NASA 2005 Safety and Health Managers Meeting



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NASA/Marshall Space Flight Center (MSFC) Michoud Assembly Facility (MAF)



- 832 acres with 41 buildings
- 2.5 million sq ft of manufacturing space
- 800,000 sq ft of office facilities
- 560,000 sq ft of support facilities
- 27 major utility and environmental systems
- 32,000 plant equipment items
- Port/Harbor access to the Gulf of Mexico
- Federal and State Environmental Permits

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External Tank Manufacturing Operations



Weld



Mechanical



Riveter Operations



Major Weld



Weld



ET Final Splice



Test & Checkout



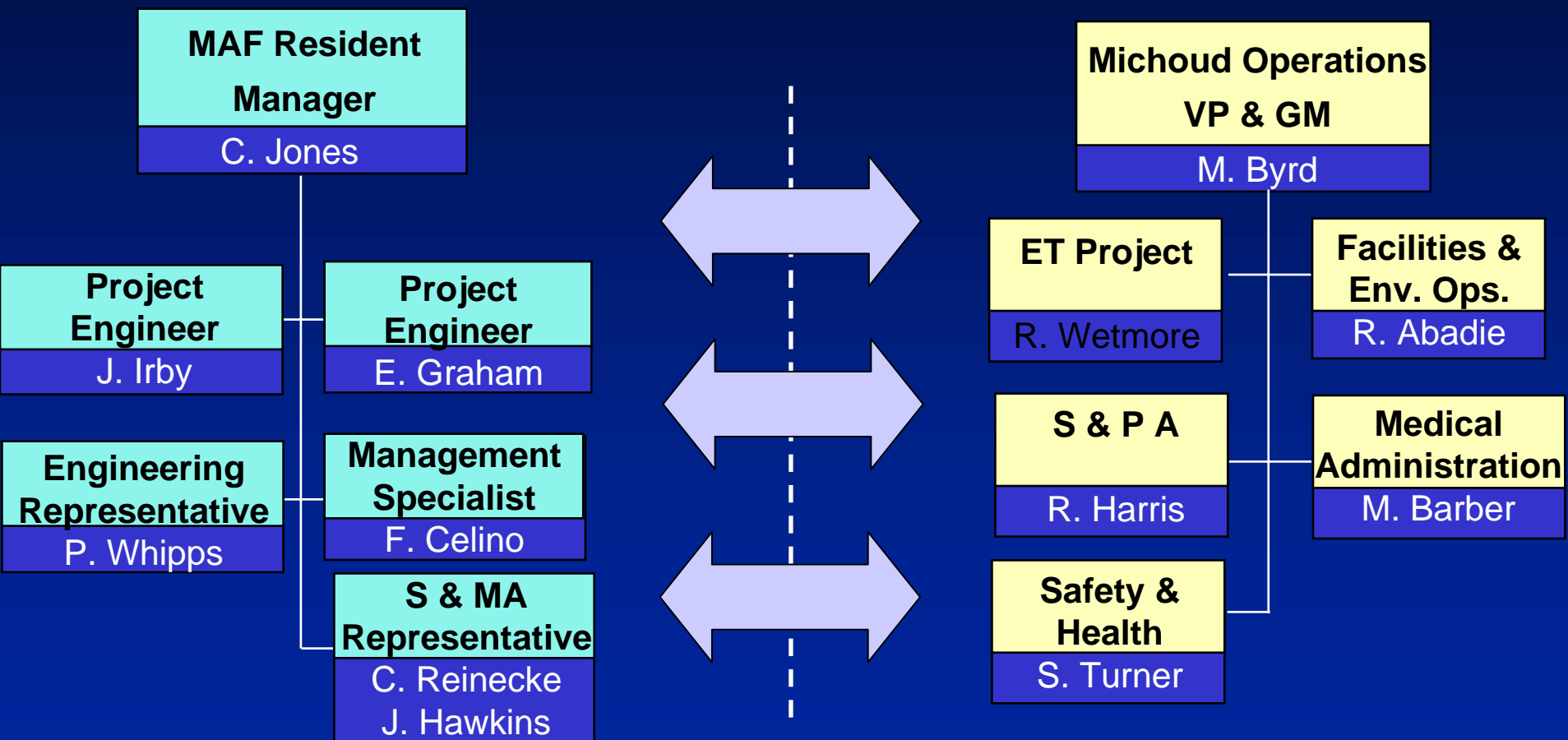
MAF Population

- NASA Project Management
 - NASA MAF
 - Defense Contract Management Agency (DCMA)
 - Defense Contract Audit Agency (DCAA)
- Lockheed Martin
 - ET / Site Operations
 - Other Programs & Support Contractors
- Tenant Agencies
 - Department of Agriculture
 - DCAA
 - UNO / National Biodynamics Lab

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NASA/MAF Interface with LM Safety & Product Assurance



Working Together to Achieve Mission Success

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Michoud Operations Organization



**Vice President
& General Manager**
Marshall D. Byrd

**Director
Mission Success**
Anthony Taconi *

Director, Communications - Marion A. LaNasa
Director, ISO 9001/Ethics Officer - Feltus Kennedy
Director, Business Transformation & Best Practices
- Patricia A. (Pat) Powell
General Counsel - Thomas G. (Tom) Fierke

**Vice President
External Tank (ET) Project**
Ronald W. Wetmore

**Vice President
Program Management &
Technical Operations**
Randall A. (Randy) Tassin

**Vice President
Operations**
Michael (Mike) Javery

**Director
Materiel Sourcing**
Mark D. Bryant

**Director
Business Operations**
Brent D. Clayburn

**Director
Human Resources**
Cheryl A. Alexander

**Director
Facilities & Environ.
Operations**
Reynold J. (Rey) Abadie

**Director
Safety &
Product Assurance**
Richard F. Harris



Michoud Operations Safety Program Organization

The Safety Department is the focal point for planning and integrating the MAF Safety Program

- Defines and disseminates safety criteria and requirements
- Performs specialized hazard identification and analyses
- Monitors and evaluates safety performance of all disciplines
- Initiates and tracks corrective actions and recurrence controls
- Reports performance results to management

Safety
S. A. Turner

System Safety

- Flight systems
- Facilities, ground support equipment & tooling
- Fire prevention

Industrial Safety & Occupational Health

- TPS systems & lab operations
- Product fabrication, final assembly & checkout
- Transportation & facilities operations
- Hazardous materials & chemicals control
- Industrial hygiene
- Emergency preparedness

Performance Evaluation & Safety Administration

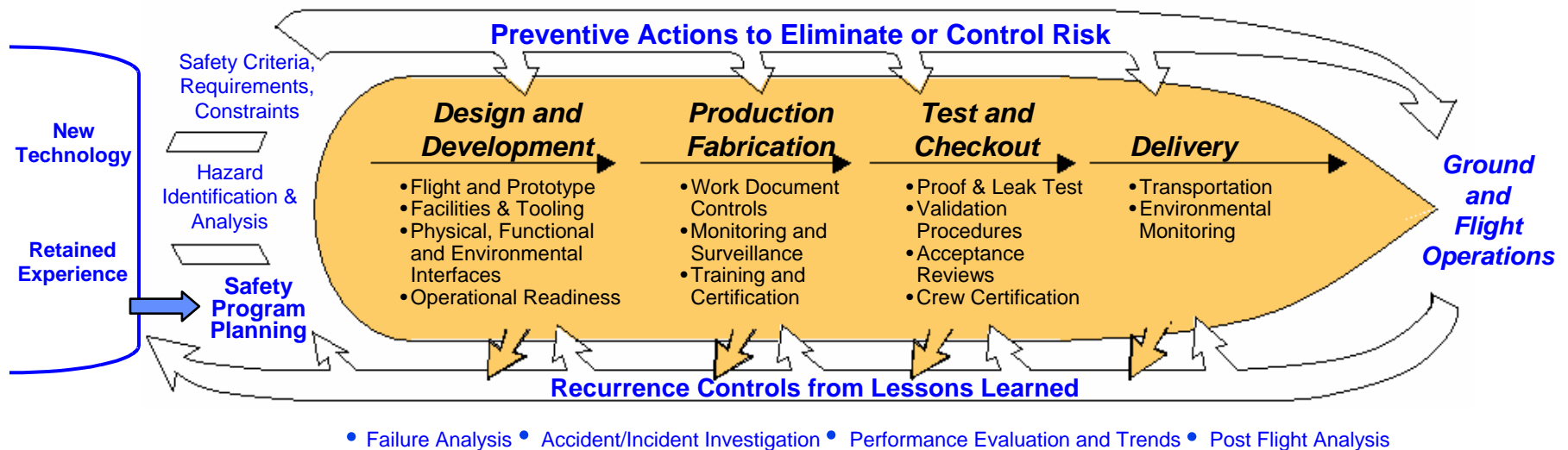
- Performance Evaluation
- Safety Administration
- Workers' Compensation Administration

A centralized safety department provides unified control over all safety matters



Michoud Operations Safety Program

Provides visibility and confidence that all efforts within the constraints of time, cost, and operational requirements have been performed to ensure protection of people and property throughout all phases in the life cycle of products and services.



Success is achieved through a progressive application of systematic methods.

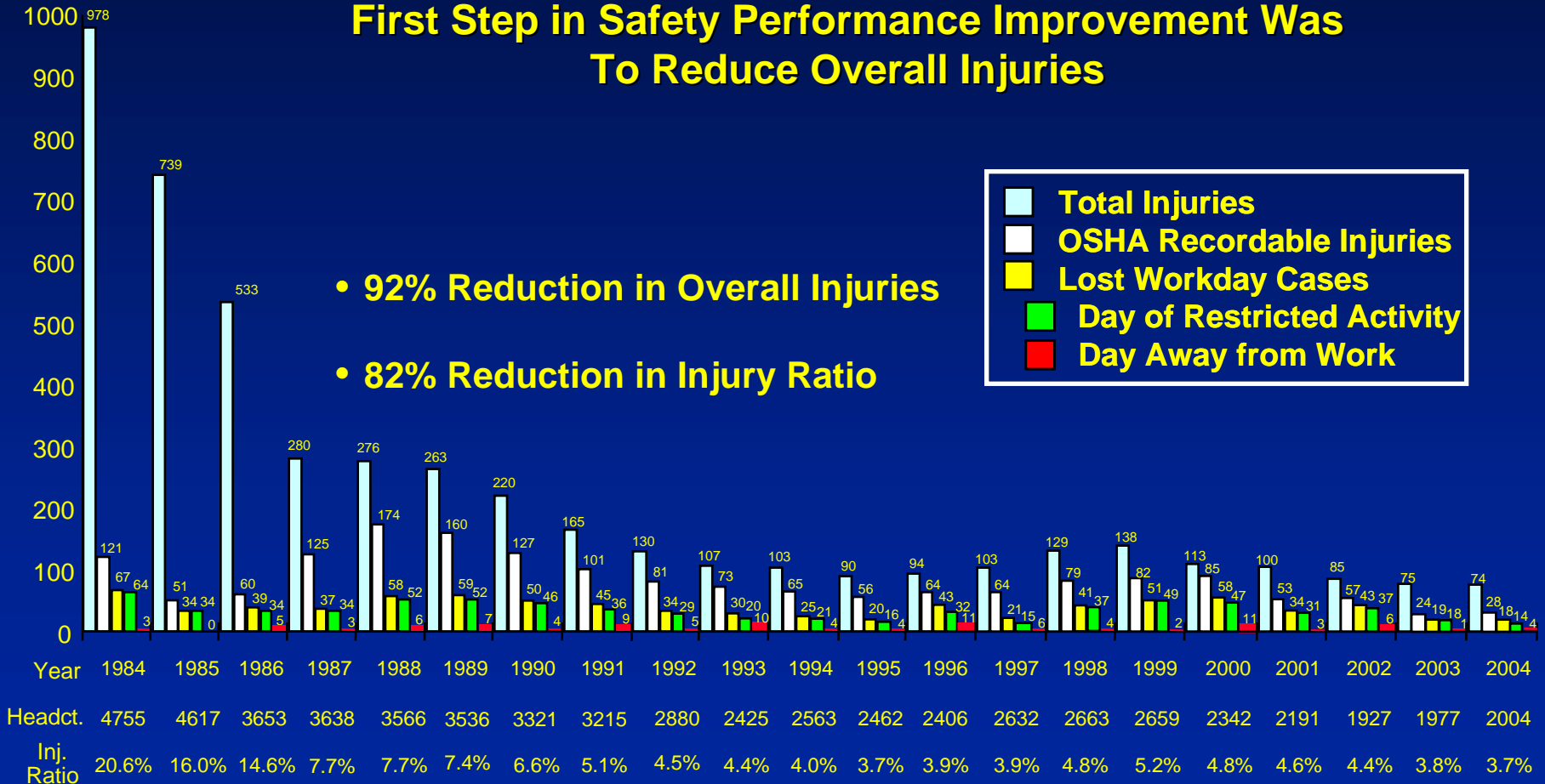
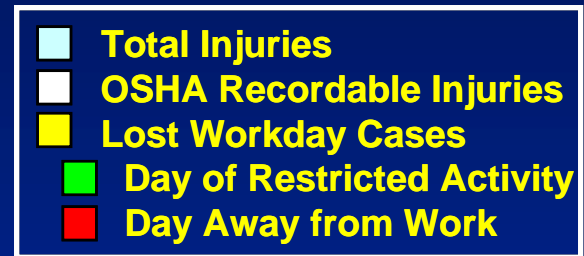
A systematic approach to risk management



Michoud Operations Twenty Year Injury Performance Trends

First Step in Safety Performance Improvement Was To Reduce Overall Injuries

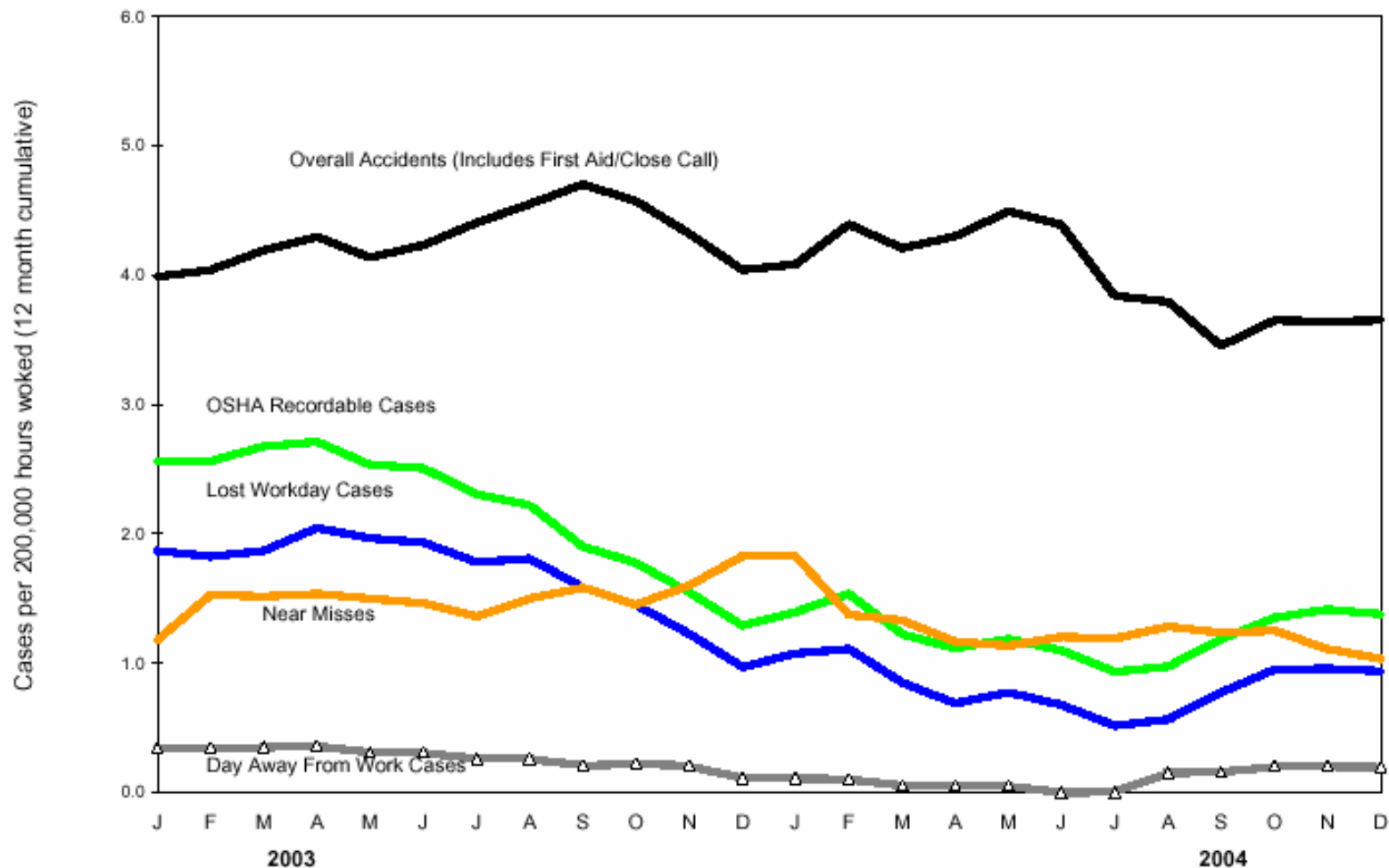
- 92% Reduction in Overall Injuries
- 82% Reduction in Injury Ratio



Benefits of the MAF Model for Safety



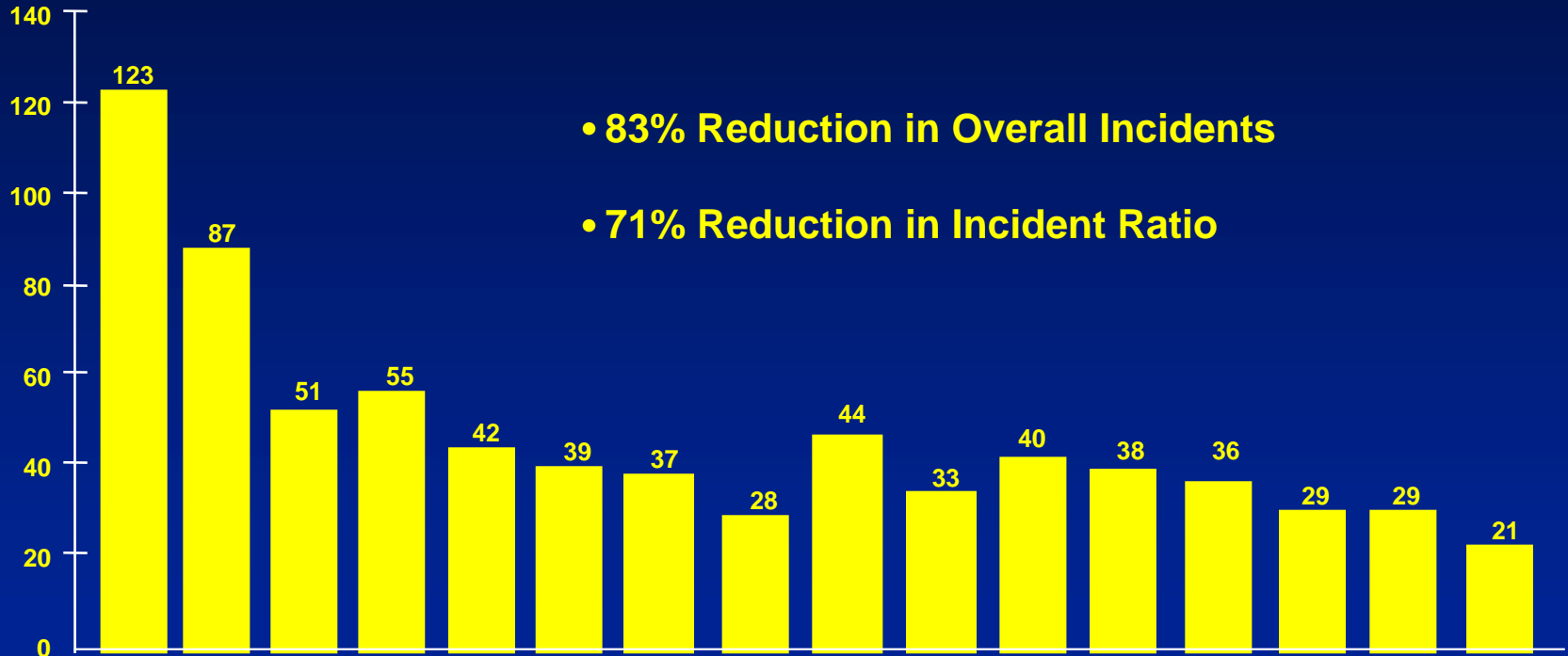
Benefits of the LM Model



Note: Rates are 12 Month Cumulative
#Cases * 200,000/ actual hours worked

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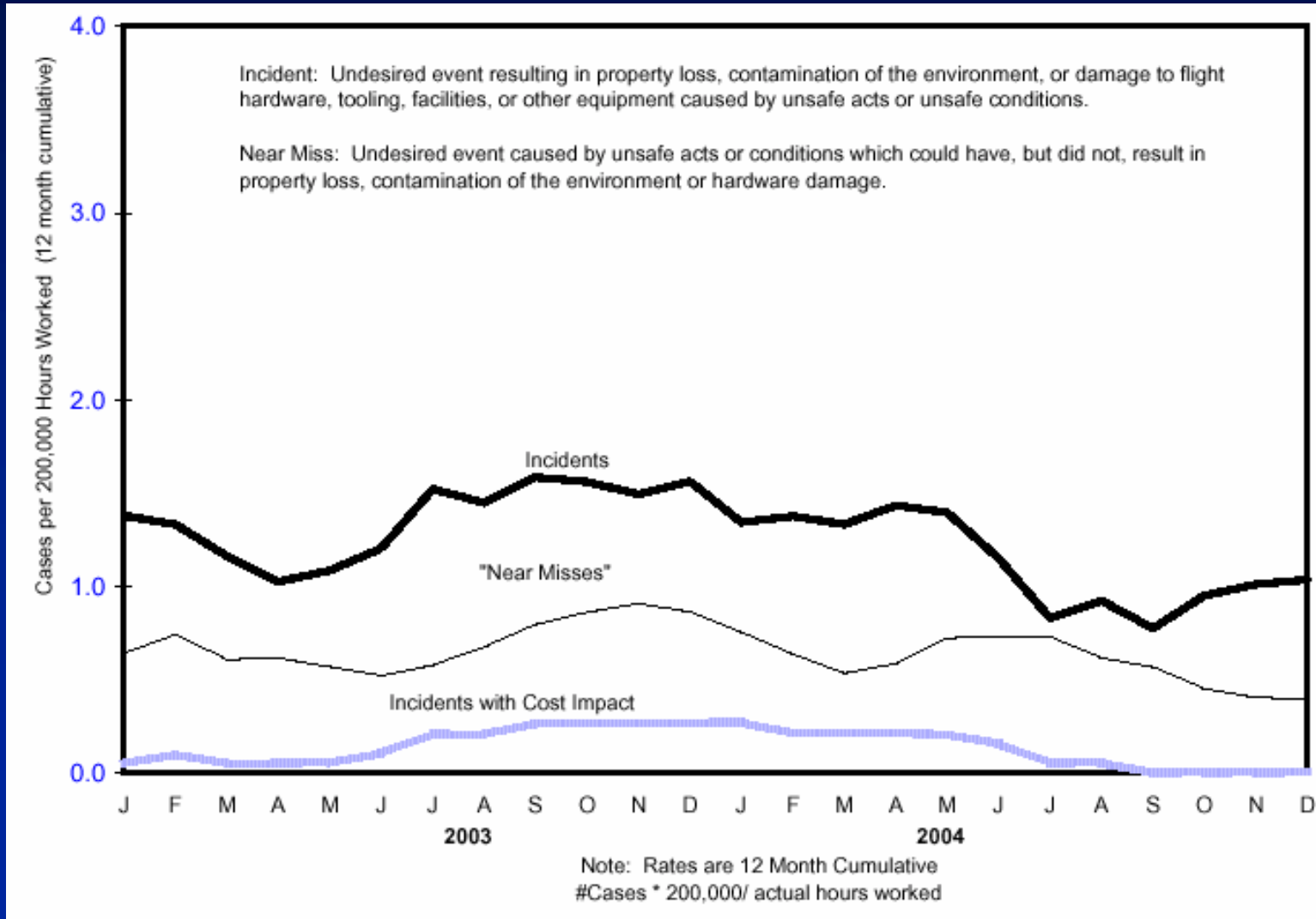
Michoud Operations Sixteen Year Incident Performance Trends



Year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Head-count	3536	3321	3215	2880	2425	2563	2462	2406	2632	2663	2659	2342	2191	1927	1977	2004
Inc. Ratio	3.5%	2.6%	1.6%	1.9%	1.7%	1.5%	1.5%	1.2%	1.7%	1.2%	1.5%	1.6%	1.6%	1.5%	1.5%	1.0%



Benefits of the LM Model



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Michoud Operations employs an integrated and multi-discipline systems approach to the management of the safety program ensuring that safety is factored into every phase of the operation from design to the final usage of the product.

Strengths

- Management commitment, involvement, and support that promotes an environment which enables worker empowerment and teamwork at every organizational level to identify and correct potentially unsafe conditions that could lead to injury or hardware damage.
- A unique Safety Performance Evaluation System which independently monitors both injury and hardware damage experience within pre-determined limits based on statistical process control techniques and provides top management and NASA with near-real time visibility of results.
- A feedback system that assures knowledge and awareness throughout all departments at all organizational levels of both individual and group contributions to the achievement of continuous improvement of safety performance at Michoud Operations.

Michoud Operation's Safety Program Permeates Every Aspect of Our Work



Michoud Operations Safety Program Successes

- Michoud Operations maintains a robust focus on success, lessons learned, management attention, work force involvement, responsiveness, education and recognition that enables us to maintain an exceptionally safe and healthful work environment for our employees and surrounding community.
 - Annual Safety Initiatives
 - Actively involved with the Orleans Parish Local Emergency Planning Committee, American Society of Safety Engineers, Metropolitan Safety Council, and the System Safety Society.
 - Human Error Prevention has been firmly established at MAF.
 - Effective emergency coordination
 - Innovative Safety Awareness training, conducted live annually
 - Over 400 supervisors and managers completed Supervisor's Safety Development Training.
 - Safety performance data is published monthly and presented at joint LM executive management, NASA/MAF, UAW, and selected subcontractors meeting.



Michoud Operations Safety Program Successes

- Although Michoud Operations maintains extensive safety-related command media to define requirements, maximum employee/management involvement and communication are essential elements of our exemplary program.
 - Employee safety teams meet monthly to discuss performance
 - Executive management participates in monthly area inspections with results reported at monthly Management Safety Committee meetings.
 - Supervisors conduct monthly area safety inspections
 - Employees conduct an annual “Safety and Health Fair”
 - Safety and health information is disseminated through closed-circuit television, electronic mail, newsletters, and crew meetings.
 - Innovative web-based Supervisor Safety Checklist system where monthly inspections are entered into a database, providing management visibility of compliance and results, and enhancing corrective action tracking capabilities.



Michoud Operations Safety Program Successes

- For over 30 years, Michoud Operations' model safety program management approach has developed an enviable and unparalleled record of Mission Success in safety and health.
 - 92% reduction in Overall Injuries since 1984
 - 82% reduction in Injury Ratio (cases to headcount)
 - Over \$16 million in workers' compensation cost-avoidance since 1976
 - 86% reduction in total cases since 1976
- Our superior achievements continue as demonstrated by our outstanding safety performance in 2004.
 - Overall injury rate – 8% decrease with a 10% decrease in the Lost Workday Case Rate. The overall incident rate decreased 38% (1.6 to 1.0), and the reportable incident rate was 0.0.
 - Once again, incentive fee goals were met in both injury and incident performance.

Achieved Day Away From Work Rate of 0.0 in 2004



Continued NASA Assistance

- Champion strong safety and health programs
- Providing world class Safety and health training opportunities
 - NSTC
 - SOLAR
- Fostering safety and health culture
- Maintaining effective communication and technical interchange systems
 - Health information
 - Lessons learned
 - Emergency preparedness