NTSB National Transportation Safety Board

# Establishing and Maintaining Safety Culture

**Robert L. Sumwalt**
**Vice Chairman**

# NTSB Perspective


We've found through years of accident investigation that sometimes the most common link is the attitude of corporate leadership toward safety.

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# NTSB Perspective


The safest companies have more effectively committed themselves to controlling the risks that may arise from mechanical or organizational failures, environmental conditions and human error.

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# Propane Gas Explosion

- San Juan Gas Company/Enron Corp.
- San Juan, PR
- November 21, 1996
- 33 Fatalities
- 69 Injuries

Investigated by NTSB

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# NTSB Conclusion

- “Although Enron Corp. had known since 1985 that the gas company’s operations did not comply with pipeline safety requirements and recommended industry practices, it failed to require the gas company to comply.”

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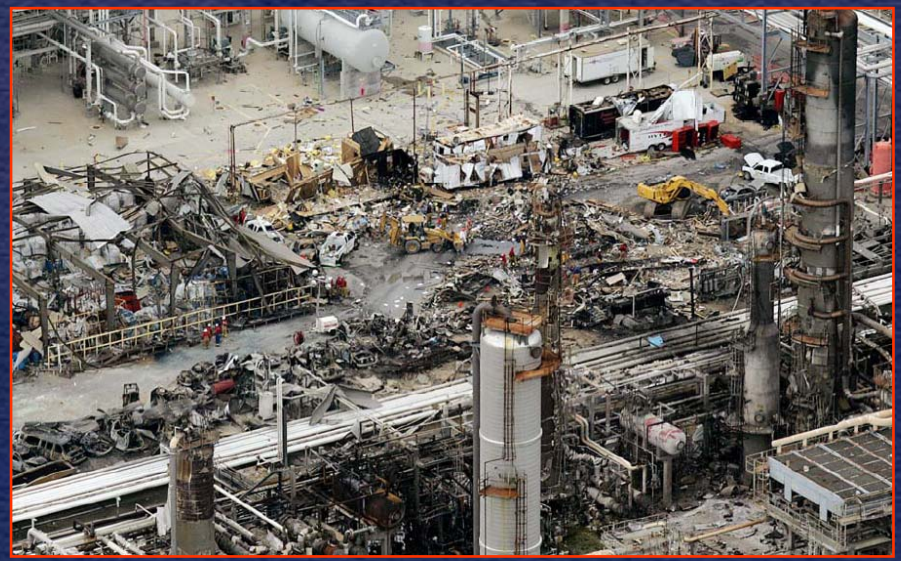
# Refinery Explosion and Fire



- BP
- Texas City, TX
- March 23, 2005
- 15 fatalities
- 180 injuries
- Financial losses exceeding $1.5 Billion

Investigated by CSB

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# From the Chemical Safety Board

"The Texas City disaster was caused by organizational and safety deficiencies at all levels of the BP Corporation. Warning signs of a possible disaster were present for several years, but company officials did not intervene effectively to prevent it. The extent of the serious safety culture deficiencies was further revealed when the refinery experienced two additional serious incidents just a few months after the March 2005 disaster."

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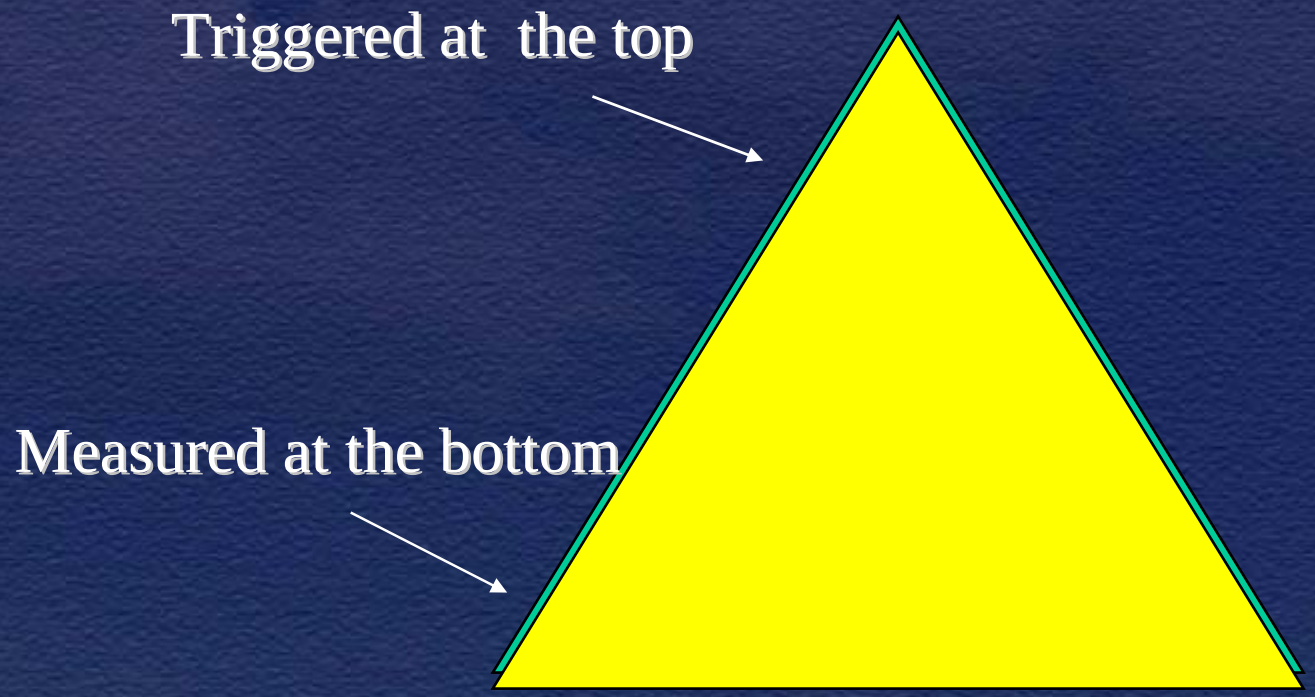
# Safety Culture is:




Safety culture starts at the top of the organization and permeates the entire organization.

# Safety Culture

- Doing the right thing, even when no one is looking.
  - Integrity
  - Core values

# Do you have a safety culture?

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# Do you have a Safety Culture?

- "… it is worth pointing out that if you are convinced that your organization has a good safety culture, you are almost certainly mistaken."
- " … a safety culture is something that is striven for but rarely attained…"
- "…the process is more important than the product."

- James Reason, "Managing the Risks of Organizational Accidents."

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# Roadmap to Safety Culture

- Lautman-Gallimore Study
- James Reason

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# Lautman-Gallimore Study

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# Lautman-Gallimore Findings: Best Practices

- Management emphasis on safety
  - Safety begins at top of organization
  - Safety permeates the entire operation

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# Example: Texas City

- The BP Board of Directors did not provide effective oversight of BP's safety culture and major accident prevention programs.

- BP management did not:
  - implement adequate safety oversight
  - provide needed human and economic resources
  - consistently model adherence to safety rules and procedures

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# Lautman-Gallimore Findings: Best Practices

- Standardization and discipline
  - Management stresses need for these items
  - Strict compliance with Standard Operating Procedures

# Example: Texas City

- Lack of operating discipline
- Toleration of serious deviations from safe operating practices
- Complacency toward serious process safety risk

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# Example: San Juan

- Enron Corp did not provide a working environment that encouraged San Juan Gas employees to follow its operating policies and practices

# Lautman-Gallimore Findings: Best Practices

- Quality control programs
  - conducted safety audits
  - confidential incident reporting systems

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# Examples:

- San Juan
  - Enron did not adequately oversee employees' actions to identify and correct unsafe practices.
- Texas City
  - Numerous surveys, studies, and audits identified deep-seated safety problems at Texas City.
  - The response of BP managers at all levels was typically "too little, too late."

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# Lautman-Gallimore Findings: Best Practices

- Training
  - Strong quality control program of training
  - Accomplished their own training so that positive control of standardization and discipline are maintained

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# San Juan

- San Juan
  - Gas company's employees were inadequately trained in testing for leaks surveying and pinpointing leaks

- Texas City
  - Inadequate training for operations personnel contributed to causing the incident.
  - The hazards of unit startup, including tower overfill scenarios, were not adequately covered in operator training.

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# Lautman-Gallimore Findings: Best Practices

- Management emphasis
- Standardization and discipline
- Quality control programs
- Training

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# Professor James Reason

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# Components of Safety Culture

- Informed Culture
- Reporting Culture
- Just Culture
- Learning Culture

Source: James Reason, Ph.D.

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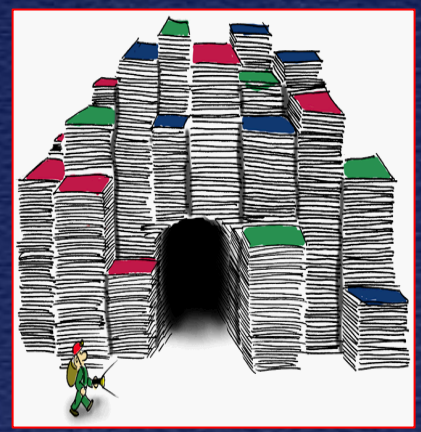
# Informed Culture

- Informed culture – the organization collects and analyses “the right kind of data” to keep it informed of the safety health of the organization

  – Creates a safety information system that collects, analyzes and disseminates information on incidents and near-misses, as well as proactive safety checks.



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# Reporting Culture

- Employees are open to report safety problems
  - They know they will not be punished or ridiculed for reporting
    - Non-reprisal policy signed by CEO
  - Confidentiality will be maintained or the data are de-identified
  - They know the information will be acted upon

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Non Reprisal Policy
December 2005

SCANA Aviation Department is committed to the safest flight operation possible. Therefore, it is imperative that we have uninhibited good faith reporting of any hazard, occurrence or other information that in any way could enhance the safety and efficiency of our operations. It is each employee's responsibility to communicate any information that may affect the integrity of flight safety.

SCANA Aviation Department has developed a format for reporting information, hazards and safety concerns, whether in the air, on the ground or related to passenger or crew safety. [Reference is hereby made to "SCANA Flight Operations Manual," Section 7.11 Information, Safety and Hazard Reporting Procedure.]

To promote a timely, uninhibited flow of information, this communication must be free of reprisal. SCANA will not use this reporting system to initiate disciplinary proceedings against an employee who discloses in good faith a hazard or occurrence involving flight safety which is the result of conduct which is inadvertent, unintentional or not deliberate.

We urge all employees to use this program to help this Department be a leader in providing our passengers and our employees with the highest level of flight safety.

William B. Timmerman
Chief Executive Officer

Robert L. Sumwalt, III
Manager – Aviation

- BP Texas City lacked a reporting culture.
  - Personnel were not encouraged to report safety problems and some feared retaliation for doing so.
  - The lessons from incidents and near-misses, therefore, were generally not captured or acted upon.

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# “Just” Culture

- Basically, this means that employees realize they will be treated fairly
  - Not all errors and unsafe acts will be punished (if the error was unintentional)
  - Those who act recklessly or take deliberate and unjustifiable risks will be punished
- Substitution test

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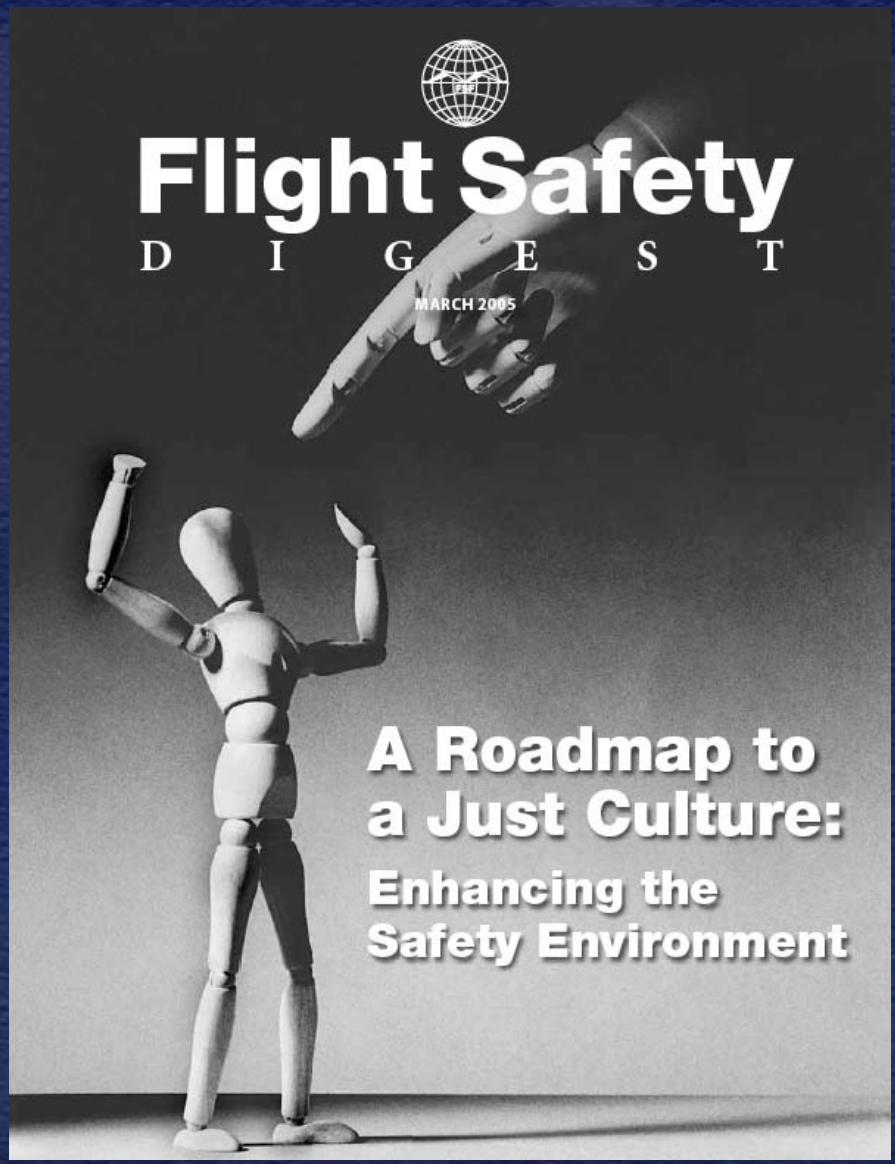
# www.flightsafety.org

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# Just Culture

"An atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety-related information, but in which they are also clear about where the line must be drawn between acceptable and unacceptable behavior."

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# Engineering a Just Culture

The term "no blame culture" flourished in the 1990s and still endures today.

Compared to the largely punitive cultures that it sought to replace, it was clearly a step in the right direction. It acknowledged that a large proportion of unsafe acts were "honest errors" (the kinds of slips, lapses and mistakes that even the best people can make) and were not truly blameworthy, nor was there much in the way of remedial or preventative benefit to be had by punishing their perpetrators. But the "no blame" concept had two serious weaknesses. First, it ignored — or, at least, failed to confront — those individuals who willfully (and often repeatedly) engaged in dangerous behaviors that most observers would recognize as being likely to increase the risk of a bad outcome. Second, it did not properly address the crucial business of distinguishing between culpable and nonculpable unsafe acts.

In my view, a safety culture depends critically upon first negotiating where the line should be drawn between unacceptable behavior and blameless unsafe acts. There will always be a gray area between these two extremes where the issue has to be decided on a case-by-case basis. This is where the guidelines provided by "A Roadmap to a Just Culture" will be of great value. A number of aviation organizations have embarked upon this process, and the general indications are that only around 10 percent of actions contributing to bad events are judged as culpable. In principle, at least, this means that the large majority of unsafe acts can be reported without fear of sanction. Once this crucial trust has been established, the organization begins to have a reporting culture, something that provides the system with an accessible memory, which, in turn, is the essential underpinning to a learning culture. There will, of course, be setbacks along the way. But engineering a just culture is the all-important early step; so much else depends upon it. ■

— James Reason

# October 2004 Kingman, KS

- Pipeline controller failed to take appropriate actions,
  - exacerbated the problem
- Enterprise reviewed circumstances of the accident with the controller and identified deficiencies in his response
- Resulted in improved training

# Learning Culture

- In short, the organization is able to learn and change from its prior mistakes

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- Beginning in 2002, BP Group and Texas City managers received numerous warning signals about a possible major catastrophe at Texas City.

- Received warnings about serious deficiencies regarding the mechanical integrity of aging equipment, process safety, and the negative safety impacts of budget cuts and production pressures.

- However, BP Group oversight and Texas City management focused on personal safety rather than on process safety and preventing catastrophic incidents.

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# Learning Culture

"Learning disabilities are tragic in children,

but they are fatal in organizations."

– Peter Senge, "The Fifth Discipline: The Art and Practicing of the Learning Organization"

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# Do you have a safety culture?

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