

Safety Culture A Continuous Journey

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Presentation Overview

- **What is Safety Culture?**
- **Why is Safety Culture Important?**
- **Identify Weak Safety Culture**
- **NRC Safety Culture Activities**
 - **Background/Development of NRC's Policy Statement**
 - **Elements of Safety Culture Policy Statement**
 - **Case Studies**

What is Safety Culture?

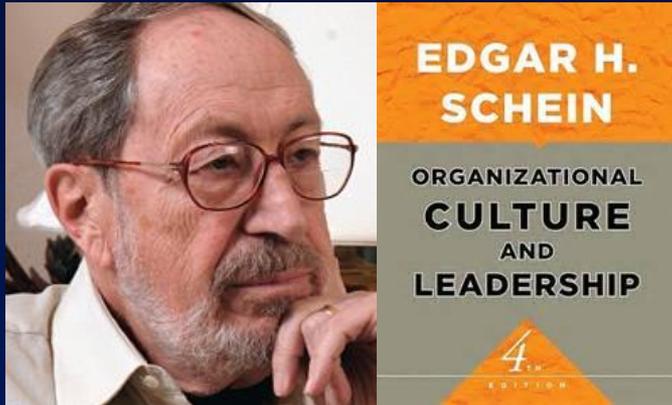
- **Not separate or distinct from organizational culture**
- **A goal that sometimes competes with an organization's primary mission**



What is Safety Culture?

- Safety culture is the extent to which safety is emphasized, both formally and informally, by an organization and its members.





Organizational Culture

- “A pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way you perceive, think, and feel in relation to those problems.”
- A combination of the *intended* (the formal organization) and the *unintended* (the informal organization)

Culture Resolves Goal Conflicts

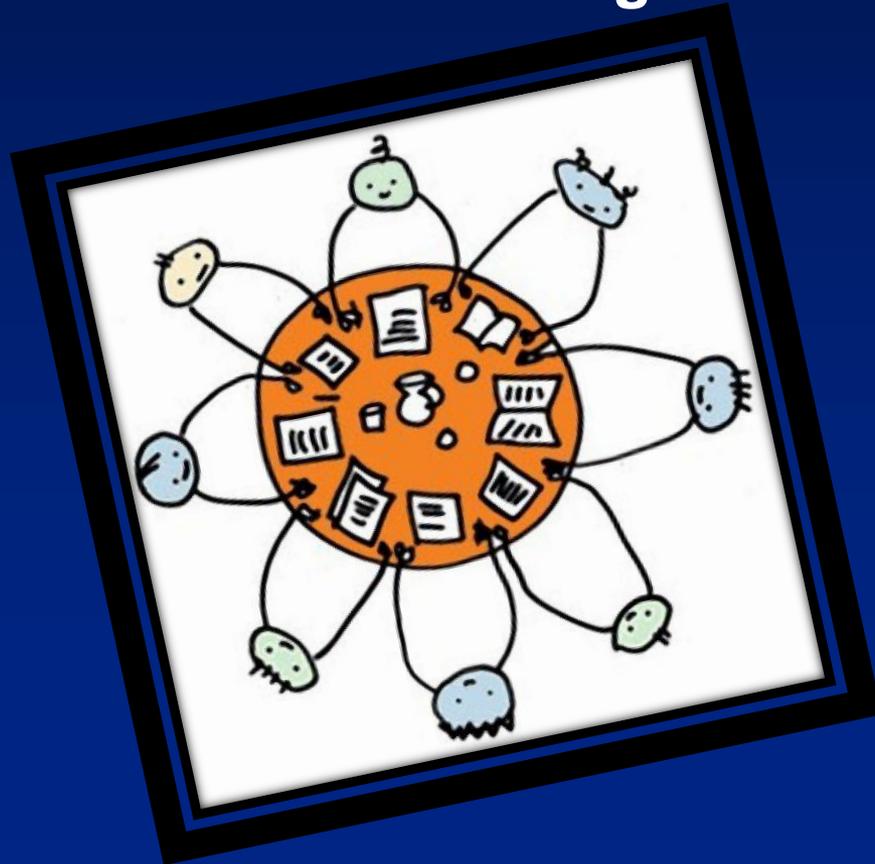
Every organization must resolve conflicts between sometimes competing goals



Culture Resolves Goal Conflicts

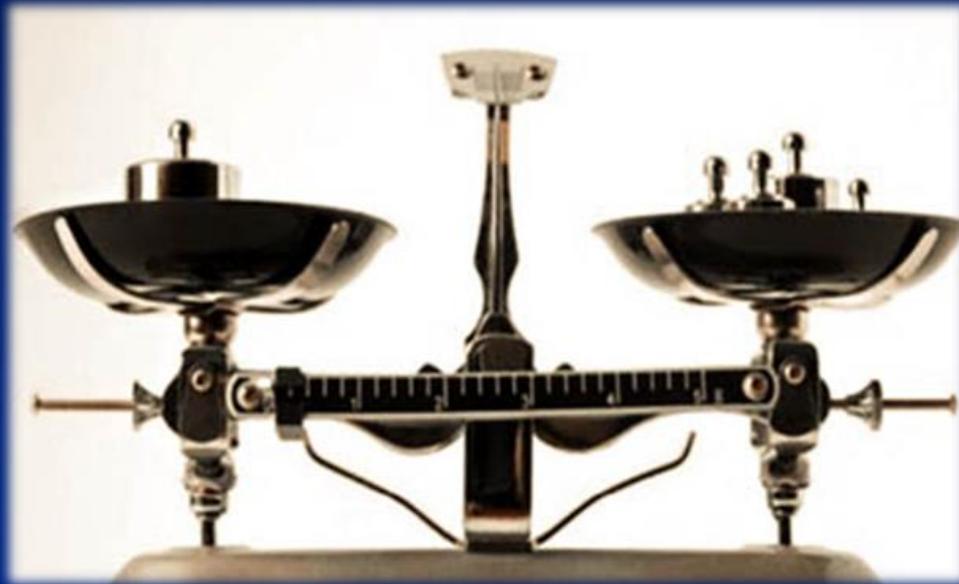
The organization's members (groups and individuals) also daily face goal conflicts in performing their jobs

- Make local choices among competing goals
- Take actions that demonstrate goal-conflict resolution



Culture Resolves Goal Conflicts

The organization's culture includes guidance for resolving conflicts between goals



Subcultures

- **Larger organizations**
- **Work-related factors**
- **Sometimes Geography**
- **Powerful**
- **Inconsistent with overall culture**

Occupational Safety

A workplace free from recognized hazards to safety and health, such as exposure to toxic chemicals or excessive noise.



Safety Culture

A positive safety culture is to encourage the development of values and behaviors that support the safe and secure use of nuclear materials.



Why Do We Care?

- **Safety culture affects safety performance**
 - injury rates
 - accident rates
 - patient safety
- **Results are supported across industries**
 - aerospace, healthcare, manufacturing, construction, agriculture, off-shore oil and gas, highway safety, aviation



Chernobyl



Columbia

Challenger



Deepwater Horizon



NASA's Space Shuttle Columbia



United States

Protecting People and the Environment

NASA's Space Shuttle Columbia

“Broken safety culture” at NASA

- **Ineffective communication**
- **inadequate concern over deviations from expected performance**
- **silent safety program**
- **schedule pressure**

Why is Safety Culture Important to the NRC?

- Operating experience has demonstrated nexus between safety culture and events
- Safety culture contributes to the safe and secure use of radioactive materials
- NRC recognizes that **licensees** bear the primary responsibility for the safe and secure use of nuclear materials, while the NRC, as the regulator, must consider the importance of safety culture in its oversight programs

1989: Conduct of Operations Policy Statement

- **Focuses on nuclear power plants**
- **Personal dedication and accountability of all individuals engaged in any activity which has a bearing on nuclear power plant safety**
- **Management fosters the development of a ‘safety culture’ at each facility and promotes a professional working environment in the control room, and throughout the facility, that assures safe operations**

1996: Safety Conscious Work Environment (SCWE) Policy Statement

- Establish and maintain a SCWE
- Intended to assure the freedom of employees in the nuclear industry to raise safety concerns without fear of retaliation
- Applies to all NRC-regulated activities of licensees, contractors, and applicants



2011: NRC Safety Culture Policy Statement

- **Effective June 14, 2011**
- **Includes safety culture definition and nine traits**
- **Applies to all regulated entities**
- **Does not address implementation directly**
- **NRC staff is continuing to engage in activities to increase awareness and understanding of the benefits of a positive safety culture**

Statement of Policy

Sets forth the Commission's **expectation that individuals and organizations performing regulated activities establish and maintain a positive safety culture commensurate with the safety and security significance of their actions and the nature and complexity of their organizations and functions**

Applicability to Agreement States

The Commission encourages the Agreement States and other organizations interested in nuclear safety to support the development and maintenance of a positive safety culture, as articulated in the Statement of Policy, within their regulated communities.

Safety Culture Definition

Nuclear Safety Culture is the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.

Safety Culture Traits

Trait: a pattern of

- Thinking
- Feeling
- Behaving



Emphasizes safety, particularly in goal conflict situations.



Safety Culture Traits

<p>Leadership Safety Values and Actions</p>	<p>Problem Identification and Resolution</p>	<p>Personal Accountability</p>
<p>Leaders demonstrate a commitment to safety in their decisions and behaviors</p>	<p>Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance</p>	<p>All individuals take personal responsibility for safety</p>
<p>Work Processes</p>	<p>Continuous Learning</p>	<p>Environment for Raising Concerns</p>
<p>The process of planning and controlling work activities is implemented so that safety is maintained</p>	<p>Opportunities to learn about ways to ensure safety are sought out and implemented</p>	<p>A safety conscious work environment is maintained where personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment or discrimination</p>
<p>Effective Safety Communications</p>	<p>Respectful Work Environment</p>	<p>Questioning Attitude</p>
<p>Communications maintain a focus on safety</p>	<p>Trust and respect permeate the organization</p>	<p>Individuals avoid complacency and continually challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action</p>

Principles that Result in Positive Safety Culture

- Leaders demonstrate commitment to safety
- Everyone is personally responsible for safety
- Nuclear safety undergoes constant evaluation and improvement
- Training is provided and organizational learning is embraced
- Trust permeates the organization
- Considers negative factors (e.g., goals, incentives)
- Positive reinforcement for reporting errors

Indications of a Weak Safety Culture

- **Communication issues between staff and management - chilled work environment**
- **Poor security**
- **Value production, schedule, or cost over safety**
- **Safety equipment not properly maintained and/or calibrated**
- **Multiple and/or repeat noncompliance issues**

Case Study: April 2010 Upper Big Branch Mine Explosion



- Existing government reports suggest that PCC/Massey “promoted and enforced a workplace culture that valued production over safety including practices calculated to allow it to conduct mining operations in violation of the law.”
- “While violations of particular safety standards led to the conditions that caused the explosion, the unlawful policies and practices implemented by employer were the root cause of this tragedy.”

“Lessons Learned” from Upper Big Branch Mine Explosion

- Senior Management dictates the tone for the balance between safety and corporate performance.
- No single event led to this catastrophe -- it resulted from a series of events that were precipitated by a weak safety culture which included the absence of a SCWE.



Case Study: Washington DC METRO collision



- WMATA failed to replace or retrofit 1000-series railcars, which were shown in a 2004 accident to exhibit poor crashworthiness.
- WMATA failed to institutionalize and employ across the system an enhanced track circuit verification test procedure that was developed following a near collision in 2005.

Case Study: US Airways – Forced Landing on Hudson River



The story of US Airways flight 1549 contains the same threads of leadership, training, planning and preparation required for any corporation to be sufficiently able to respond when a crisis strikes. This incident reinforces the importance of promoting a positive safety culture by demonstrating how the strong safety culture traits aided the crew in protecting the safety of the passengers.

Final Thoughts

- **Concept of safety culture spans across industries and countries**
- **Safety culture has contributed to many well known events (historical & current)**
- **Field is evolving**
- **NRC continuing education and outreach efforts**

Resources

- Educational Tools
 - Brochures (English and Spanish)
 - Case Studies/User Guide/Trait Talks
 - Posters
 - Pop-ups
 - Presentation template and talking points
- NRC safety culture website: <http://www.nrc.gov/about-nrc/safety-culture.html>
- cindy.flannery@nrc.gov or (301) 415-0223

