The Importance of Safety Culture and the U.S. Nuclear Regulatory Commission's Role in Oversight of Safety Culture

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Outline



- NRC's Mission and Scope of Responsibility
- History of safety culture at the NRC
- NRC's Safety Culture Policy Statement
- Safety culture oversight through the Reactor Oversight Process
- Fuel Cycle Facilities oversight
- Ongoing Activities



NRC's Mission

To license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment.



NRC's Scope of Responsibility

- NRC's regulatory mission covers three main areas:
 - Reactors: commercial reactors for generating electric power and non-power reactors used for research, testing, and training
 - <u>Materials</u>: uses of nuclear materials in medical, industrial, and facilities that produce nuclear fuel
 - Waste: transportation, storage, and disposal of nuclear materials and waste, and decommissioning of nuclear facilities from service

NRC Safety Culture History



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 Operators inattentive and unprofessional while on duty at nuclear power plant

 Commission Policy Statement: Conduct of Nuclear Power Plant Operations

1996

· Workers retaliated against for whistleblowing

 Commission Policy Statement: Freedom to Raise Safety Concerns Without Fear of Retaliation

2002

- Davis-Besse reactor head degradation event
- NRC revised Reactor Oversight Process (ROP) to more fully address safety culture

2008

 Commission direction to develop policy statement on safety culture that applies to all licensees

2011

 Final Safety Culture Policy Statement (SCPS) published in the Federal Register

Safety Culture Policy Statement (SCPS)



- The Commission directed staff to develop a safety culture policy statement in 2008
- The NRC's Safety Culture Policy Statement became effective on June 14, 2011 (76 FR 34773)



Safety Culture Policy Statement



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



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*



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



Leadership Trait Exercise Example of Potential Tier 3 Behaviors

- Management is in the field enforcing standards
- Commitment to maintaining equipment
- Resolves conflict
- Rewards safe behavior
- Rewards (incentives) and sanctions used to reinforce desired positive nuclear safety behaviors
- Respects differing opinions
- Actions match words
- Schedules are realistic and do not challenge safety standards

Preamble to the Safety Culture Traits

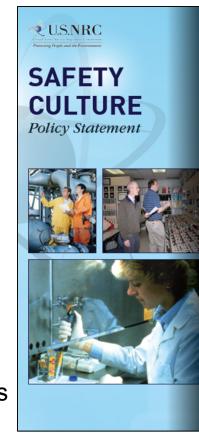


A trait, in this case, is a pattern of thinking, feeling, and behaving that emphasizes safety, particularly in goal conflict situations, e.g., production vs. safety, schedule vs. safety, and cost of the effort vs. safety. It is the Commission's expectation that all organizations and individuals overseeing or performing regulated activities involving nuclear materials should take the necessary steps to promote a positive safety culture by fostering these traits. Additionally, it should be noted that although the term "security" is not expressly included in the traits, safety and security are the primary pillars of the NRC's regulatory program. Consequently, consideration of both safety and security issues commensurate with their significance, is an underlying principle of the Statement of Policy.

Outreach and Education Efforts U.S.NRC



- Interactions with Licensees and External Stakeholders
- International Involvement
- Conferences and Training
- **Educational Tools**
 - Brochures
 - Case Studies
 - Trait Talk
 - Posters and support materials





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Each Traft Talk Includes a fictional

- How does this trait apply to my organization?
- 2. Are there other attributes and
- 3. What impact does this trait have on the safety culture in my organization?

Leadership Safety

One of the traits of a positive safety culture as described in the U.S. Nuclear Regulatory Commission's Safety Culture Policy Statement

What Is The Definition Of Leadership Safety Values And Actions?

The NRC3 SCPS defines Leadership Safety Values and Actions as when leaders demonstrate a commitment to safety in their decisions and behavior

Why Is This Trait Important?

Leaders perform essential functions in organizations. The quality and actions of leadership have widespread consequences for an organization's safety culture and its performance. Leaders have significant power to affect an organization's safety cultur through the priorities they establish, the behaviors and values they model, the reward systems they administer, the trust they create, and the context and expectations they establish for interpersonal relationships, communication, and accountability Leaders also exert significant influence on change initiatives. They have the power and responsibility to set strategy and direction, align people and resources, motivate and inspire people, and ensure that problems are identified and solved in a timely manner. A lack of commitment or clear communication about what is important to the organization can create a conflict for employees who must then decide between competing messages. This leads employees to their own interpretations, thereby potentially negatively affecting the organization's safety culture. It is clear that behavior matters and leadership behaviors that support a positive safety culture are critical.

Leaders at all levels play an important role in establishing the organization's Leasers at an evens pary an important rote in establishing the organizations environment and safety culture. This is evident in the manner in which competing goals that occur at every level of the organization are managed. There may be conflicting demands from a cost and schedule perspective versus safety and quality. The organization's members may face these competing goals on a daily basis. These decisions may occur at all levels of the organization, not just at the top. Each employee may encounter his or her version of these conflicts and will be faced with making decisi as he or she engages in activities to resolve them. The organization's safety culture plays a significant role in guiding employee's decisions; in other words, what they view as the organization's priorities. Is the organization's priority safety or production? This is one of the important junctions where leadership at the top of the organization is critical in setting the standards and establishing overarching safety priorities that all employees understand take precedence over all competing demands.

Outreach and Education Efforts



- Newest Educational Tool:
 - SC EducationalResource Workbook
 - Trait Talks
 - Metro Case Study
 - Journeys
 - SCPS
- Safety Culture Website

http://www.nrc.gov/aboutnrc/safety-culture.html

U.S.NRC United States Needers Regulatory Commitments Protecting People and the Environment







An Educational Resource About The NRC's Safety Culture Policy Statement

NRC Licensees, Applicants and Vendors

The Commission expects that individuals and organizations establish and maintain a positive safety culture. This includes all licensees, certificate holders, permit holders, authorization holders, holders of quality assurance program approvals, vendors and suppliers of safety-related components, and applicants for a license, certificate, permit, authorization, or quality assurance program approval, subject to NRC authority.

Agreement States and Their Licensees

The Organization of Agreement States supports the use of this educational resource by its members and licensees. The Commission encourages the Agreement States, Agreement State licensees and other organizations interested in nuclear safety to support the development and maintenance of a positive safety culture.







NRC Approach to Safety Culture



- Licensees bear primary responsibility for safety
- NRC's Safety Culture Policy Statement states safety culture expectation, but is not a regulatory requirement
- NRC considers safety culture within the Reactor Oversight Process (ROP) for nuclear power reactors
- NRC assessment of safety culture is primarily as a result of an event or degradation in performance
- Different levels of inspection activity based on NRC's overall assessment of licensee performance

NRC Reactor Oversight Process (ROP)



- NRC's Performance Assessment Program for operating nuclear power reactors
 - Inputs derived from licensee performance indicators and NRC inspection findings
- Licensee performance evaluated continuously
 - Including mid-year and end-of-year assessment meetings
- NRC assigns each licensee to a column in the ROP Action Matrix based on performance
- Action Matrix placement determines level of NRC regulatory oversight

Reactor Oversight Action Matrix



Column 1: Licensee Response

Column 2: Regulatory Response Column 3:

Degraded
Cornerstone

Column 4:
Multiple/Repetitive
Degraded
Cornerstone

Inspection Procedure (IP) 95001:

 Verify licensee's root cause evaluation appropriately considered safety culture

IP 95002:

- Independently determine whether weakness in safety culture were root or contributing causes
 - May request licensee conduct independent assessment of safety culture

IP 95003:

- Request licensee conduct independent safety culture assessment
- Conduct graded safety culture assessment based on results of review of licensee's assessment

Safety Culture Common Language Initiative



- Joint effort with the Nuclear Energy Institute (NEI), Institute for Nuclear Power Operations (INPO), and other stakeholders from 2011 to 2013
- Common language includes 10 traits of a healthy safety culture, 40 aspects (performance characteristics) representing those traits, and numerous examples
- Common language traits and aspects have been incorporated under the ROP cross-cutting areas



Fuel Cycle Facilities



- Oversight of fuel cycle facilities
 - Corrective Action Program Focus with Inspection Procedure 88161.



Ongoing Activities



- SCPS Outreach and Education
- International Activities
- Consideration of internal SC Activities for the NRC



Summary



- NRC communicates safety culture expectations through the Safety Culture Policy Statement
- Safety culture considerations incorporated in the Reactor Oversight Process through cross-cutting areas and supplemental inspection activities
- NRC continues SC outreach and education

For More Information



- Please visit NRC's safety culture webpage at: <u>http://www.nrc.gov/about-nrc/safety-culture.html</u>
- Please visit NRC's Reactor Oversight Process webpage at: http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/i ndex.html
- Or contact NRC staff via email at: <u>external safety culture.resource@nrc.gov</u>