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

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Outline

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- 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

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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.

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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
  - Materials: 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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1989	• 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)

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- 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

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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

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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*

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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

*Decisionmaking is also included as a trait in the safety culture common language for nuclear power reactors.

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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

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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

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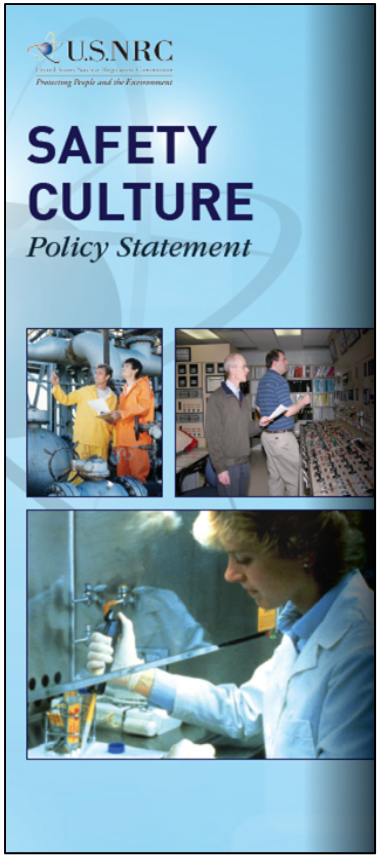
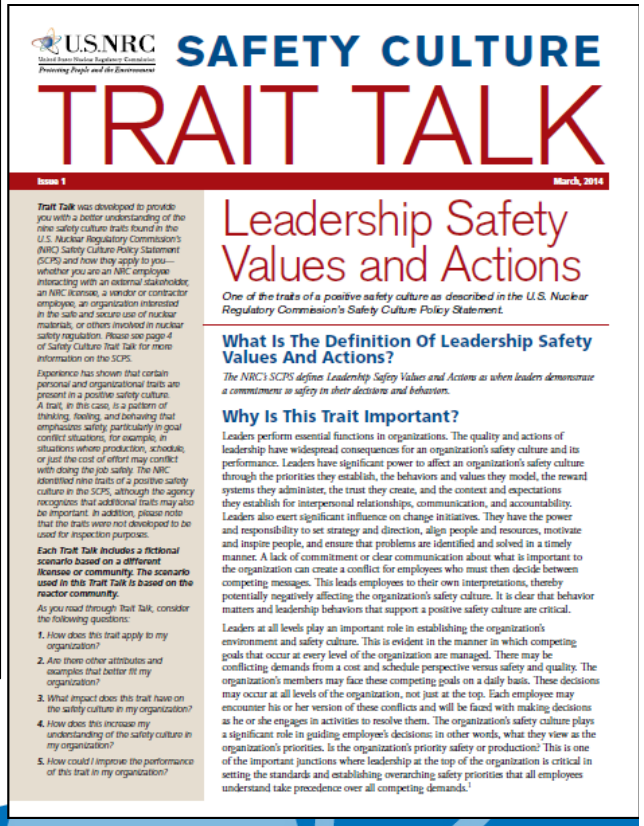
- Interactions with Licensees and External Stakeholders
- International Involvement
- Conferences and Training
- Educational Tools
  - Brochures
  - Case Studies
  - Trait Talk
  - Posters and support materials

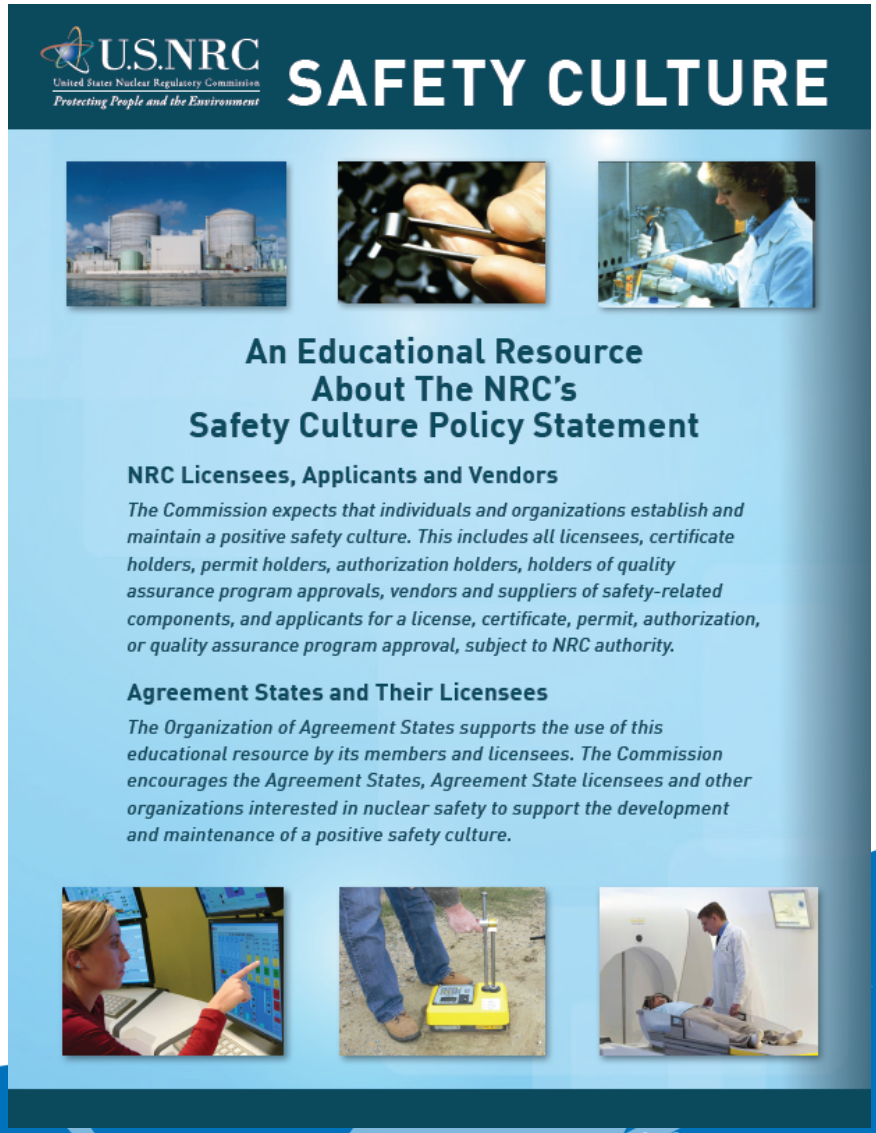




Outreach and Education Efforts

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

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



NRC Approach to Safety Culture

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- 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)

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- 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

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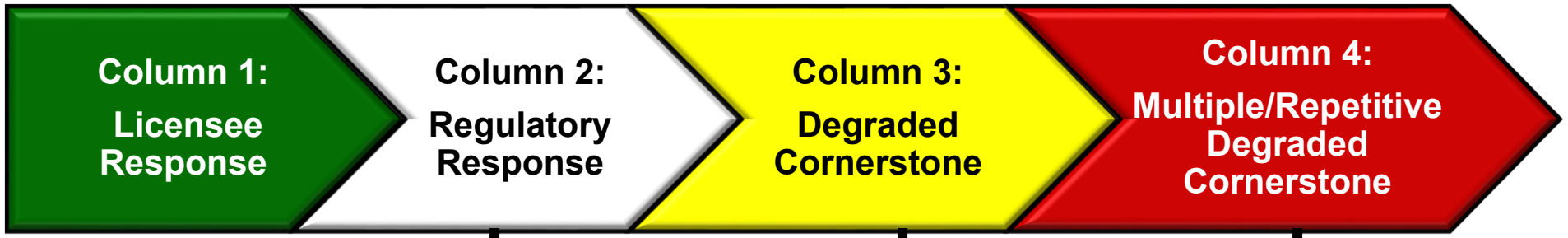

Inspection Procedure (IP) 95001:
- Verify licensee's root cause evaluation appropriately considered safety culture

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

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- 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

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

Ongoing Activities

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

Summary

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- 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

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