

# The Nuclear Regulatory Commission's Approach to Safety Culture and the Safety Conscious Work Environment

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# Outline



- NRC's Safety Culture History
- NRC's Role in Safety Culture
- Safety Culture Policy Statement
- Safety Culture in the Reactor Oversight Process, Enforcement and Alternative Dispute Resolution
- Case Study – Safety Conscious Work Environment
- International Safety Culture 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 Safety Culture History



**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)



- 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.
- Commission agreed that an overarching safety culture addresses both safety and security.
- A robust discussion of security, and the interface between safety and security, was included in a preamble in the Statement of Policy.

# 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.

# 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.*

# Safety Culture Traits

<b>Leadership Safety Values and Actions</b>	<b>Problem Identification and Resolution</b>	<b>Personal Accountability</b>
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
<b>Work Processes</b>	<b>Continuous Learning</b>	<b>Environment for Raising Concerns</b>
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
<b>Effective Safety Communications</b>	<b>Respectful Work Environment</b>	<b>Questioning Attitude</b>
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



# Outreach and Education Efforts



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

The poster is titled 'SAFETY CULTURE' in large, bold, white capital letters on a dark blue background. Below the title, there are three small images: a nuclear power plant, a close-up of hands holding a small object, and a person in a lab coat working with equipment. The text on the poster reads: 'An Educational Resource About The NRC's Safety Culture Policy Statement'. Below this, there are two sections: 'NRC Licensees, Applicants and Vendors' and 'Agreement States and Their Licensees'. Each section has a paragraph of text. At the bottom of the poster, there are three more small images: a person at a computer, a person using a radiation detector, and a person in a lab coat standing next to a large piece of equipment.

**U.S. NRC**  
United States Nuclear Regulatory Commission  
*Protecting People and the Environment*

## SAFETY CULTURE

**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 (SCPS) 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
- Alternative Dispute Resolution Process can result in Confirmatory Orders for safety culture activities

# NRC Approach to Safety Culture for Vendors

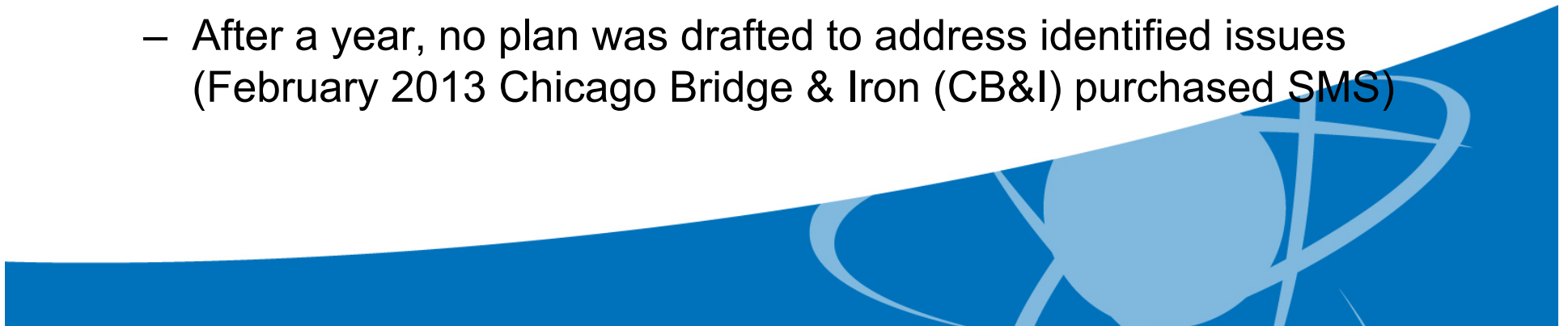


- Update to Inspection Manual Chapter 0617 (IMC 617), “Vendor And Quality Assurance Implementation Inspection Report”, provides expectations and guidance for implementing and documenting safety culture at vendor facilities.
- Provides vendor inspectors with guidance on the process for implementing an observation and/or assessment completed at a vendors facility.
- Provides the vendor inspectors guidance on the process for documenting an observation/assessment.

# Safety Culture Gone Wrong



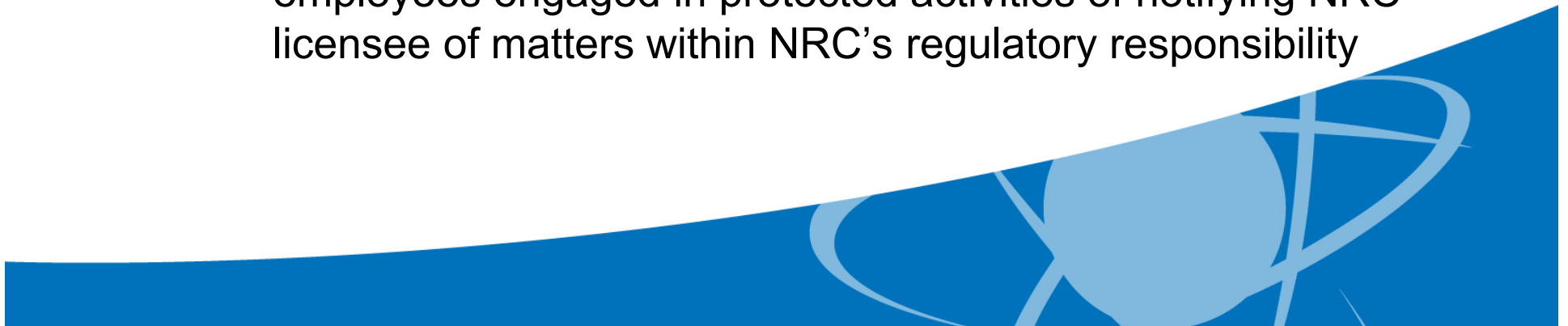
- From 2010-2013, the NRC noted an increasing trend in safety conscious work environment (SCWE)-related concerns at Shaw Modular Services (SMS)
- The NRC performed inspections in January 2011, November 2011, and September 2012
  - Identified ineffective corrective action program (CAP)
- A third-party SCWE assessment conducted in February 2012
  - Identified a chilled environment existed at SMS
  - After a year, no plan was drafted to address identified issues (February 2013 Chicago Bridge & Iron (CB&I) purchased SMS)



# Safety Culture Gone Wrong



- In April 2013, NRC issued CB&I a CEL
  - Notice of Violation (NOV) with proposed civil penalties
- In September 2013, NRC issued Confirmatory Order (CO) to CB&I
  - Title 10 of the *Code of Federal Regulations* (10 CFR) Section 52.5, “Employee Protection”
    1. Terminated QA supervisor for notifying NRC licensee of potential faulty rebar, and
    2. Language in Corporate Code of Conduct restricting employees engaged in protected activities of notifying NRC licensee of matters within NRC’s regulatory responsibility



# Safety Culture Gone Wrong



- In February 2014, NRC inspection to assess progress
  - SCWE assessment part of inspection
- In September 2014, revised CO issued. §52.4, “Deliberate Misconduct,” for:
  1. SMS welder taking qualification test for a coworker;
  2. Coworker allowing the action; and
  3. Weld test administrator participating



# Safety Culture Gone Wrong



- In December 2014, NRC issued Discretion Letter against §52.4 for the following:
  - Two NOVs:
    1. SMS foreman signing weld tags for welders;
    2. Foreman instructing welder to sign off on welds not qualified to perform
  - Three Notices of Nonconformance (NONs):
    1. Foreman failing to ensure qualified welder used to perform specific welds;
    2. Not following procedure for submodule lift; and
    3. Failure to initiate a nonconformance report (NCR) for dropped submodule

# Safety Culture Gone Wrong



- In December 2014, NRC issued Choice Letter for two §52.4 NOVs for two CB&I officials and safety representative instructing employees to omit the following from an incident report:
  1. Submodule had been dropped and damaged; and
  2. Improper rigging used and broke
- Severity Level (SL) II violation and civil penalty issued for dropped submodule, and SL III violation issued to a former company official





# Safety Culture Gone Wrong



- In May 2015, NRC inspection to assess CB&I implementation CO and SCWE. Progress was noted.
  - However, effectiveness of Corrective Actions at other facilities were of concern . . .



# Importance of Safety Culture Activities Internationally and with other Regulators

- International Activities
  - IAEA—current activities
    - Safety and Security Culture Interface
    - Training course for medical licensees
    - Common SC Framework—GSR-2
  - NEA—current activities
    - SC of the Regulator (CNRA/WGSC)
      - Self-Assessment
      - Training
- Other U.S. Regulators

# Summary



- NRC communicates safety culture expectations through the Safety Culture Policy Statement
- NRC continues outreach and education
- NRC utilizes the Reactor Oversight Process (reactors), Enforcement and Alternative Dispute Resolution
- Continue Safety Culture International work
- IMC 617 provides clear guidance
- NRC remains engaged in international safety culture activities

# For More Information:



- NRC's safety culture webpage
- 1996 NRC Policy Statement, "Freedom of Employees in the Nuclear Industry to Raise Safety Concerns Without Fear of Retaliation"
- NRC Regulatory Issue Summary 2005-18, "Guidance for Establishing and Maintaining a Safety Conscious Work Environment"
- Inspection Manual Chapter 0617