Safety Culture for Nuclear Power Plant Vendors and Suppliers

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Outline

• NRC’s Safety Culture History
• NRC’s Role in Safety Culture
• Safety Culture Policy Statement
• Safety Culture at Vendor Facilities
<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
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</table>
| 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  
| 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 |
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.
NRC 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

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

**Column 1:** Licensee Response
- Inspection Procedure (IP) 95001:
  - Verify licensee’s root cause evaluation was appropriately considered safety culture

**Column 2:** Regulatory Response
- IP 95002:
  - Independently determine whether weakness in safety culture were root or contributing causes
  - May request licensee conduct independent assessment of safety culture

**Column 3:** Degraded Cornerstone
- IP 95003:
  - Request licensee conduct independent safety culture assessment
  - Conduct graded safety culture assessment based on results of review of licensee’s assessment

**Column 4:** Multiple/Repetitive Degraded Cornerstone
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)
• In April 2013, NRC issued CB&I a CEL
  – Notice of Violation (NOV) with proposed civil penalties
Safety Culture Gone Wrong

• 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

• 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 . . .
Questions . . .