Safety Culture – The Canadian Nuclear Regulator’s Perspective

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Our Mandate:

- Regulate the use of nuclear energy and materials to protect health, safety, and security and the environment
- Implement Canada’s international commitments on the peaceful use of nuclear energy
- Disseminate objective scientific, technical and regulatory information to the public
The CNSC Regulates all Nuclear Facilities and Activities in Canada

- Uranium mines and mills
- Nuclear research and educational activities
- Uranium fuel fabrication and processing
- Transportation of nuclear substances
- Nuclear power plants
- Nuclear security and safeguards
- Nuclear substance processing
- Import and export controls
- Industrial and medical applications
- Waste management facilities
CNSC Staff Located Across Canada

Licensees: 1,700
Licences: 2,500

Headquarters (HQ) in Ottawa
4 site offices at power plants
1 site office at Chalk River
4 regional offices
Events Leading to Safety Culture Learning

➢ Major events in the nuclear industry
  – Chernobyl
  – Davis Besse
  – Fukushima

➢ Major non-nuclear events
  – Space shuttles Challenger & Columbia
  – Deepwater Horizon
  – Lac Mégantic
  – Boeing 737 Max

Beyond the Technical Risks to Human and Organizational Factors
The International Atomic Energy Agency (IAEA) has published numerous documents on safety culture including:

- Safety Report Series No. 83 *Performing Safety Culture Assessments* (2016)
Key Milestones:

- NPP licensees began to carry out safety culture self-assessments. CNSC then conducted research in support of developing a method to assess safety culture (Mid 1990s)
- Performed 11 assessments using this method (1997 – 2009)
- Published safety culture discussion paper (2012)
- Amended regulations to include safety culture (2017)
- Published REGDOC 2.1.2, Safety Culture (2018)
- Industry in the process of implementing REGDOC 2.1.2 into their licensing basis (2019)
CNSC REGDOC 2.1.2, Safety Culture (2018)

- Establishes requirements and guidance for fostering and assessing safety culture (also incorporates security culture)
- Describes characteristics and indicators of a healthy safety culture
- Includes safety culture maturity model indicators and behaviours
1. Safety is a clearly recognized value
2. Accountability for safety is clear
3. A learning organization is built around safety
4. Safety is integrated into all activities in the organization
5. A safety leadership process exists in the organization
CNSC REGDOC 2.1.2 - Safety Culture
Maturity Model

Stages of Maturity
1 – Requirement Driven
2 – Goal Driven
3 – Continually Improving

Indicators
• Planning
• Communication
• Response to errors
• Role of management
• Learning
• Value of Safety (safety-production balance)
• Stakeholder relationships
• Value of diversity
• Adherence to processes
• Conflict management
• Systems view
• Performance management
• Feedback
• Training
The Executive Vice-President and Chief Regulatory Operations Officer as the executive champion is accountable to foster a healthy safety culture.

Management at all levels must take every opportunity to promote safety consideration as an overriding priority.

All CNSC staff have individual responsibility and accountability for exhibiting behaviours that set the standard for safety.
Ongoing efforts to promote, maintain, and improve our culture for safety:

- Staff surveys
- Safety culture town halls
- Safety culture working group
- Knowledge management initiative
- Establishment of a Chief Science Officer
- Open door policy
- Non-concurrence process
- Differences of professional opinion process

Fostering a Culture that Encourages Openness, Professionalism and Respectful Scientific Debate
➢ Leadership for safety is to be demonstrated at all levels
➢ All staff of the regulatory body have individual responsibility and accountability for exhibiting behaviours that set the standard for safety
➢ The culture of the regulatory body promotes safety, and facilitates cooperation and open communication
➢ Implementing a holistic approach to safety is ensured by working in a systematic manner
➢ Continuous improvement, learning, and self-assessment are encouraged at all levels
CNSC Regulatory Safety Culture Assessment (2018)

- Conducted under advice and guidance of 3rd party expert
- Informed by international best practices
- Collected data using staff surveys, focus groups, and document reviews
- Analyzed data from all methods summarized findings in assessment report
- Presented to the Commission at a public meeting

Report Findings include Strengths and Areas for Improvement
Self-Assessment Data Collection

- Review of results of previous CNSC staff surveys, safety culture town hall and management meetings
- Six key themes identified and explored during focus groups
- Ten focus groups held with 117 participants from across the CNSC
- Participants completed a perception survey, followed by a theme-by-theme discussion
- Data collected from all methods were analyzed and findings are summarized in the assessment report
CNSC Safety Culture Self-Assessment

STRENGTHS

• Safety is the priority in decision-making
• Employees are treated with respect
• Staff are empowered to share their views
• Everyone plays an important role in a healthy safety culture

AREAS FOR IMPROVEMENT

• Reducing or eliminating fear of reprisals
• Having leaders and managers act as role models
• Improving communications for decisions
• Quantifying and tracking progress

An Action Plan is in Place
Lessons Learned

- Communicate, Communicate, Communicate
- Ensure all areas of the organization are represented
- Include additional data collection methods
- Consider involving licensees and other stakeholders
- Need for better tools to assess progress
- Establish a partnership between management and union
- Continue to utilize 3rd party expertise as appropriate

A Healthy Safety Culture is a Journey; You do not Get There in one Jump
The CNSC continues to learn and remain an active participant in national and international developments in safety culture including:

- International Atomic Energy Agency (IAEA) meetings and workshops
- Nuclear Energy Agency (NEA)
  - Working Group on Human and Organizational Factors
  - Working Group on Safety Culture
- Hosting and participating in international peer review missions (IPPAS, EPREV, IRRS – all completed!)
- Conduct a Country Specific Safety Culture Forum in 2020

A healthy Safety Culture is Built upon a Culture of Continuous Improvement
The CNSC has long since recognized the importance of a healthy safety culture.

The CNSC has published new regulatory requirements to foster a healthy safety culture and for conducting periodic safety culture assessments.

The CNSC has taken concrete steps to promote, maintain and improve its own culture for safety.

The CNSC continues to leverage international best practices and share knowledge on this important topic.
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