Regulatory Safety Culture: International Perspective

NEA/CNRA/CSNI/CRPPH Workshop on Challenges and Enhancements of the Safety Culture of the Regulatory Body
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Outline

• Evolution of Definition of Safety Culture
• Safety Culture in IAEA Safety Documents
  • Safety Standards and TECDOCs
  • IAEA Reports
  • Key Massages
• Safety Culture as reflected in Integrated Regulatory Review Services missions
  • The IRRS Process
  • IRRS Observations
• Conclusions
EVOLUTION OF SAFETY CULTURE
DEFINITION
Introduction of the notion of SC

INSAG-1 (1986)

• “... formal procedures must be properly reviewed and approved and must be supplemented by the creation and maintenance of a ‘nuclear safety culture’ “

INSAG-4 (1991)

• “Safety Culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance”.
“Safety Culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, protection and safety issues receives the attention warranted by their significance”
Hierarchies of related IAEA safety standards

**Principles for protecting people and environment**

**Safety Fundamentals**

**Safety Requirements**

**Safety Guides**

**Safety reports, TECDOCS ...**

**Requirements to be applied to meet the principles (shall)**

**Recommended ways of meeting the requirements (should)**

IAEA

NEA WS on Safety Culture of the RB

03/06/2015
IAEA Standards and Documents on SC

- **GSR Part 2**: *Leadership of Management for Safety* – to replace GS-R-3 (under approval)
- **Safety Reports**
- **TECDOCs**

**Under development:**
- **Safety Culture in The Regulatory Body**
- **Guidelines on Safety Culture Self-Assessment for the Regulatory Body**
SC-related conclusions:

• The **establishment of an enduring safety culture** remains essential and regulatory bodies should take the necessary actions in this direction.

• The **high level commitment** of Member States to peer reviews ... has to be maintained and enhanced.

• Regulatory bodies should foster an environment that **encourages licensees to invest in improvements** beyond national requirements.
In order to ensure effective regulatory oversight of the safety of nuclear installations, it is essential that the regulatory body is independent and possesses legal authority, technical competence and a strong safety culture.

In order to promote and strengthen safety culture, individuals and organizations need to continuously challenge or re-examine the prevailing assumptions about nuclear safety and the implications of decisions and actions that could affect nuclear safety.

A systemic approach to safety needs to consider the interactions between human, organizational and technical factors. This approach needs to be taken through the entire life cycle of nuclear installations.

* The Fukushima Daiichi Accident, Report by the Director General, GOV/2015/26
Key Messages

Safety culture is a subset of the culture of the whole organization, comprising the mix of shared values, attitudes and patterns of behaviour.

Organizations typically go through a number of phases in developing and strengthening safety culture:

• First, safety is compliance driven and is based mainly on rules and regulations (compliance with externally imposed rules and regulations considered adequate for safety).
• Next, good safety performance becomes an organizational goal and is dealt with primarily in terms of safety targets or goals.
• Lastly, safety is seen as a continuing process of improvement to which everyone can contribute.

The systemic approach to safety addresses the whole system by considering the dynamic interactions within and among all relevant factors (individual, technical and organizational).
SAFETY CULTURE IN IRRS MISSIONS
**Goal and objectives of IRRS**

**Overall goal:**

To improve nuclear and radiation safety and thereby to reduce the possibility of any safety related harm to people or environment.

**Main objectives**

- providing an opportunity for continuous improvement of national regulatory bodies through an integrated process of self-assessment and peer review;
- providing the host country with an objective evaluation of its regulatory infrastructure with respect to IAEA safety standards;
- providing the host country with recommendations and suggestions for improvement;
- promoting the sharing of experience and exchange of lessons learned among senior regulators;

**Overall goal:**

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Structure of an IRRS mission

TECHNICAL ISSUES

1. Responsibilities and functions of the government
2. Global nuclear safety regime
3. Responsibilities and functions of the regulatory body
4. Management system of the regulatory body
5. Authorization
6. Review and Assessment
7. Inspection
8. Enforcement
9. Regulations and Guides

Facilities and activities
- Radiation sources
- Research reactors
- Nuclear power plants
- Fuel cycle facilities
- Waste facilities
- Decommissioning

Core regulatory processes
- Emergency preparedness and response
- Thematic areas
- Interfaces with nuclear security
- Tailored modules

Policy Issues
Observations in IRRS Missions in countries with Nuclear Power Plants

Number of observations in all missions

- Recommendations
- Suggestions
- Good Practices

Modules:
1. Responsibilities and functions of the government
2. Global nuclear safety regime
3. Management system of the regulatory body
4. Responsibilities and functions of the regulatory body
5. Radiation sources
6. Research reactors
7. Nuclear power plants
8. Fuel cycle facilities
9. Waste facilities
10. Decommissioning

Core regulatory processes

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IRRS Observations related to SC

In the 60 missions held in 2006-2014
• 22 findings (Recommendation or Suggestion) and 9 Good Practices are related to SC
• 15 findings relate to the SC of the RB, 7 findings to the oversight of the licensees’ SC
• In GPs 5 relate to the RB, 4 to the licensees
• The observations were offered in missions to 16 nuclear countries and to 2 non-nuclear countries

Photo: V. Friedrich
Examples of observations

Findings
- The RB management system (MS) should address SC
- The RB MS should promote and support a strong SC
- Develop and implement SC policy

Good Practices
- Management promotes SC by positive incentives
- Open Door Policy, Non Concurrence Process, Differing Professional Opinions
- SC training sessions
Conclusions

- **Safety Culture mainly assessed as an organizational factor** *(Management System and supporting processes and procedures).*

- **Integration of Safety Culture** into Regulatory Practices and Decision Making to enhance safety performance is not clearly demonstrated.

- **Self-assessments of Safety Culture** are not performed.