Regulatory Activities for Licensee's Safety Culture

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1. Introduction

Weaknesses in safety culture have contributed to a number of incidents/accidents in the nuclear and other high hazard sectors worldwide in the past. These events have fostered an increasing awareness of the need for licensees to develop a strong safety culture to support successful and sustainable nuclear safety performance.

Regulatory bodies are taking a growing interest in this issue, and several are actively working to develop and implement approaches to maintaining regulatory oversight of licensee safety culture. However, these approaches are not yet well-established, and it was considered prudent to share experiences and developing methodologies in order to disseminate good practices and avoid potential pitfalls.

This paper presents the findings, conclusions and recommendations of international meetings and other countries' activities on safety culture and gives some suggestions for regulators to consider when planning regulatory oversight for licensee's safety culture.

2. Overview of the Safety Culture Workshop

2.1 Introduction

An international workshop organized by NEA/CSNI/IAEA, "Maintaining Oversight of Licensee Safety Culture - Methods and Approaches" was held in UK, in May 2007 in order to explore and discuss the approaches that different regulatory bodies are taking for licensee's safety culture.

The workshop was attended by 50 experts of nuclear regulatory bodies in 20 countries plus IAEA, WANO, EU and NEA. It included both specialists in safety culture and site/resident inspectors. The workshop consisted of structured discussion sessions, in which a set of issues were explored by small discussion groups and then discussed in plenary, complemented by short presentations on national regulatory positions.

Workshop participants discussed the following questions:

- What are we trying to look at and when should we do it?
  - Should/can the regulator look at attitudes, values and behaviors as well as processes and documents?
  - Can safety culture be regarded as a separate topic or is it best considered as part of other regulatory areas e.g. safety management?
- How do we gather and interpret data?
  - What methods can/do we use to gather data on licensee safety culture?
  - How do we ensure that regulatory staff is competent to do so and what knowledge/skills & training are needed?
  - Can we meaningfully extrapolate from a finding on one part of plant to the whole organization? If not, what should we conclude?
- How do we use it?
  - How can safety culture data collection be built into existing regulatory activities?
  - How do we engage with licensees so that they accept and act on safety culture findings?
  - How do we expect licensees to respond to issues raised?
  - Is interaction with licensees on safety culture compatible with other regulatory activities?

2.2 Conclusions and Recommendations

The workshop revealed a broad consensus that nuclear regulators should have processes in place to maintain oversight of licensee safety culture. The approaches to carrying out this activity were discussed, and the strengths and weaknesses of different types of data gathering methodology were identified. The competencies needed by the regulatory bodies were also considered, and there was agreement that those involved in gathering or analyzing data may need to have an awareness of, and training in, selected skills in human and organizational factors.

The workshop gave rise to a number of examples of good practice and methodologies that nuclear regulators should consider. The following recommendations arose from the workshop discussions.

1) Nuclear regulators should consider establishing a clearly defined position concerning their approach to maintaining oversight of licensee safety culture. This position needs to be communicated to stakeholders, including licensees, other regulators and the public.

2) The IAEA safety culture characteristics can be used as a starting point for evaluations and evaluation criteria, but regulators need to 'operationalise' these. There was general agreement that regulators should look at attitudes, values and behaviors in addition to systems and processes.

3) Nuclear regulators should note that safety culture information may be gathered in a number of different ways, using a range of different methods. The strengths

and weaknesses of these approaches should be considered when choosing a suitable data gathering method.

4) There was a strong consensus during the workshop that site/resident inspectors have a key role in gathering safety culture information, and regulatory bodies should consider how best to integrate the capture of safety culture data into the Inspectors' routine activities.

5) Regulators should consider putting in place the processes and resources needed to implement their oversight of licensee safety culture. These processes need to be supported by training and competence development of regulatory staff and others working on their behalf.

6) Nuclear regulators should acknowledge the powerful influence of licensee directors and senior managers on the safety culture of their organization. Regulatory interactions should seek to understand and influence these individuals in order to bring maximum leverage to bear.

7) Nuclear regulators are currently developing the approaches that they take to maintaining oversight of licensee safety culture. CSNI/CNRA/IAEA should therefore consider putting in place arrangements to secure continued exchange of experience. A further workshop after 2-3 years should be considered.

3. Suggestions on Regulatory Activities for Licensee's Safety Culture

2.1 Lessons Learned From Attempts to Assess SC

Korean regulator attempted in the late 1990's to assess safety culture. It was based on the responses to survey questionnaires to measure the whole features of safety culture, attitudinal as well as managerial aspects. In 2003, indicators were developed to measure managerial aspects directly from quantitative and observable data. See the Figure below for the managerial and attitudinal aspects of safety culture.

Major lesson from the attempts was that it is indispensable to adopt various types of data collection methods in order to understand the whole features of safety culture, particularly the lower level of culture. Findings from one area of the plant should not be used to draw conclusions about the organization as a whole. Local sub-cultures exist and further assessment is needed to make any generalizations. (However, a finding in one area can provide information on issues to investigate further.)

2.2 Suggestions

Safety culture is not represented only by the performance of managerial aspects. Organization and its commitment to safety are more influenced by attitudinal components. Regulator should always be conscious of negative effects of regulatory intervention on licensee's activity and take into account the safety principle - Licensee's Prime Responsibility for Safety. Considering these lessons, the following activities are suggested:

(a) For Managerial Aspects

Regulatory Inspection should be conducted through the current regulatory framework of Periodic Inspection on organizational structure, responsibility and authority, qualification & training, human performance, operating procedure and operating experience feedback; and quality assurance inspection on licensee's QA Program. Corrective actions should be enforced if deficiencies are found. This is based on the assumption that culture could be initiated by rules and practices.

(b) For Attitudinal Aspects

Regulatory review on licensee's self-assessment should be continued. Workshop or conference dedicated to safety culture should be held every year. Frank discussions between licensee and regulator are helpful for elaborating the methods and addressing results of self-assessment. Safety culture related parts of PSR (Periodic Safety Review) report will be reviewed every 10 years. Monitoring of safety culture should be a role of resident inspectors. Training and guidance development for monitoring are needed.

Improvement/promotion plan is discussed and voluntary actions are to be encouraged. This is based on the assumption that culture can be cultivated mainly by the licensee's voluntary efforts. Direct assessment on attitudinal aspects will not be introduced until a method is validated.

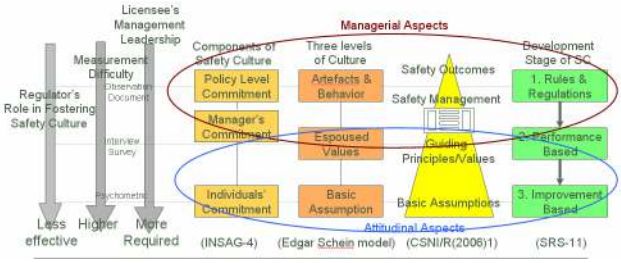

Figure. Components, levels and stages of safety culture

References

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[2] ASCOT Guidelines, IAEA-TECDOC-743 (1994) and its revised edition, IAEA-TECDOC-860 (1996)

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