
Regulatory Oversight of Licensees' Safety Culture in Romania

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In 2008, Romania received a recommendation, based on the peer review in the framework of the Convention on Nuclear Safety, to develop dedicated diagnostic tools in order to improve the effectiveness of regulatory assessment of safety culture.

This action has been addressed through the "Safe Nuclear Energy - Regional Excellence Programme for Romania", project CNCAN2 "Enhancement of CNCAN's capability to assess the Safety Culture of its licensees".

The project included:

- Definition the Safety Culture Oversight Programme (SCOP) framework and associated strategy**
- Development of safety culture oversight guidelines**
- Development of training materials**
- Training of managers and inspectors in safety culture oversight**
- Implementation of a pilot project to test the safety culture methodology developed**

SCOP Objectives

- **To provide a systematic approach to the identification and collection of information relevant to the licensees' safety culture;**
 - **To develop a “safety culture informed regulation”**
 - **To identify and highlight the safety culture issues at licensee organisational level**
 - **To identify and highlight the predominant safety culture characteristics and attributes related to specific functional areas (e.g. operation, maintenance, etc.)**
 - **To provide the basis for recommendations and suggestions regarding the improvement of safety culture in licensees' organisation.**
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SCOP Principles

- **The existing assessment and inspection processes will be used and upgraded to enable gathering and aggregation of data relevant to safety culture**
- **The existing technical staff will be involved and provided with specific training and coaching**
- **A specific process will be established for providing feedback to the licensee on the findings relevant to safety culture**

Aim of SCOP guidelines

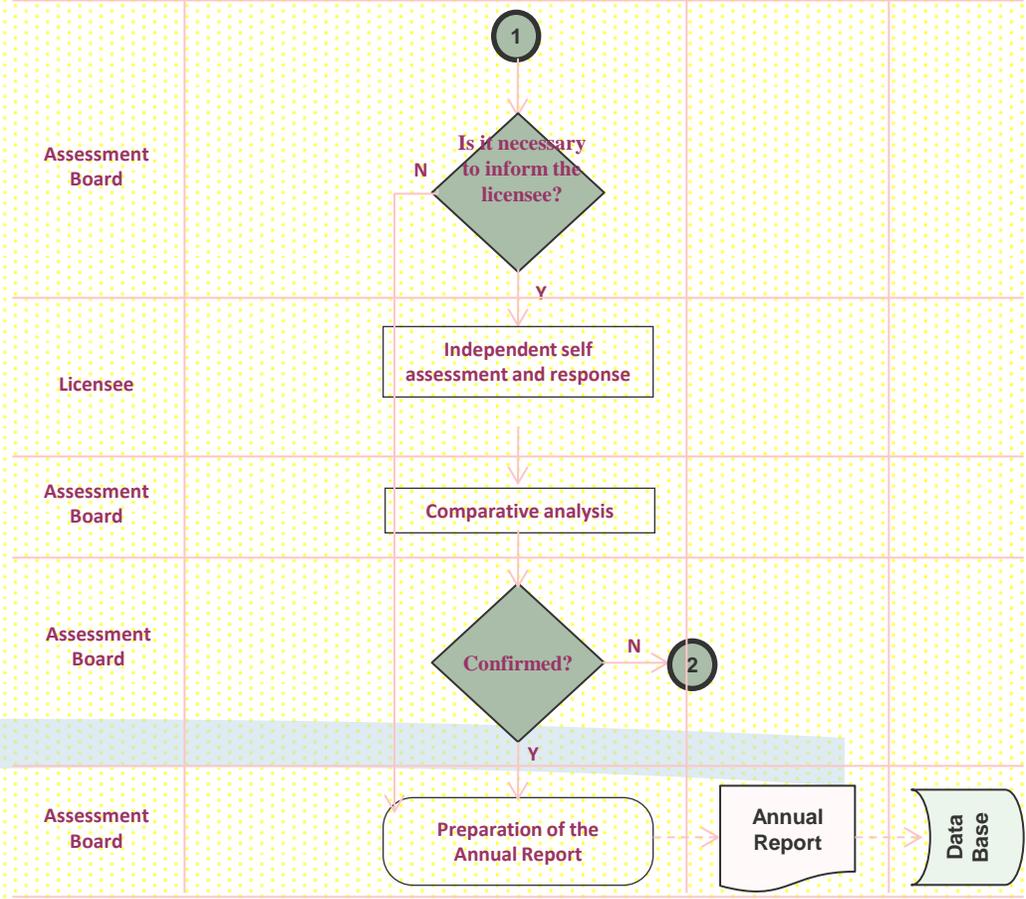
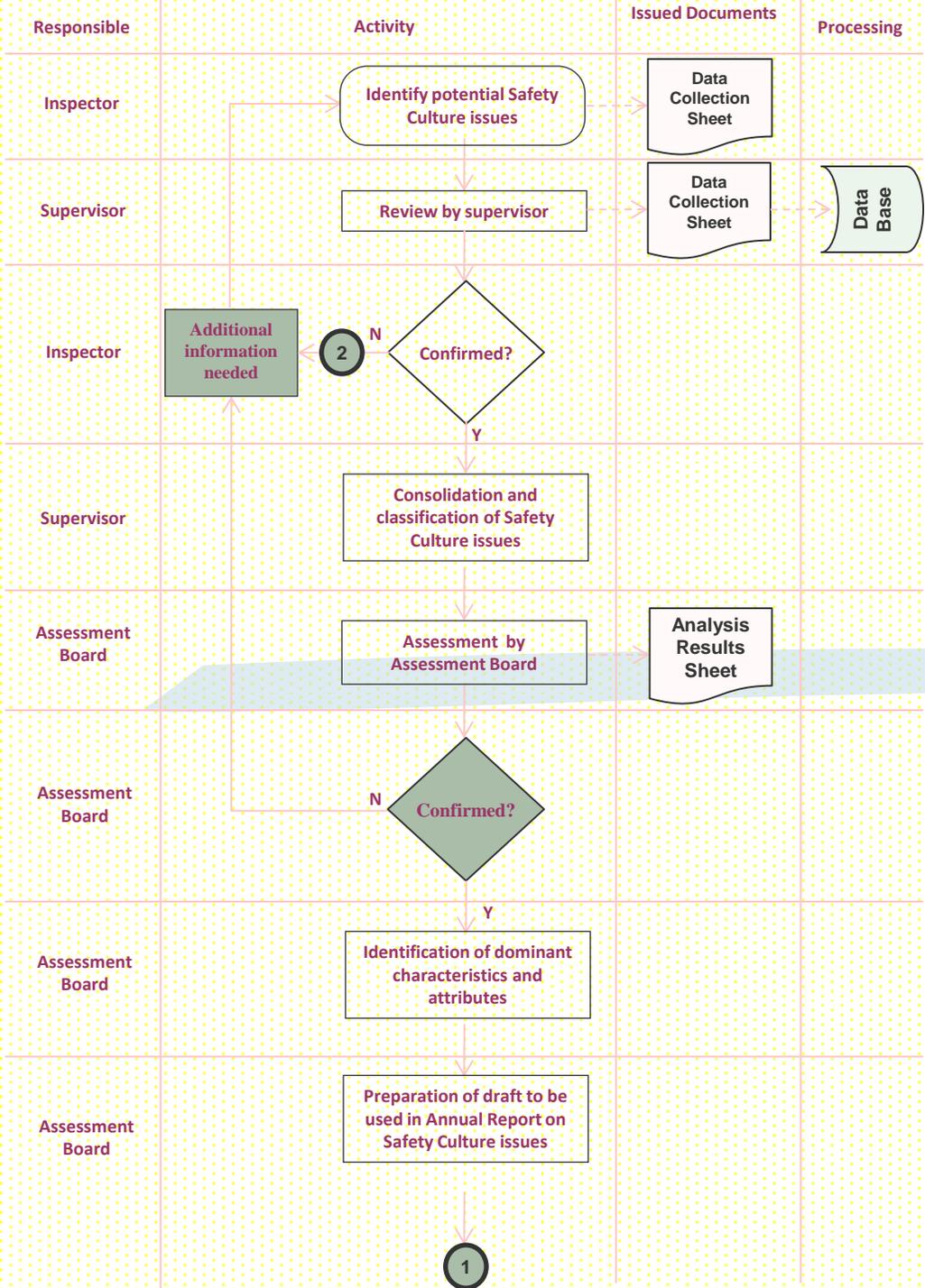
- **The SCOP Guidelines aim at establishing a structured process for the identification, collection and review of data, relevant to the safety culture in licensees' organizations, building on the existing regulatory inspection and review processes.**
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Scope of the guidelines

- **The SCOP guidelines are applicable primarily in the regulatory assessment and inspection activities for organisations responsible for the construction, commissioning, operation or decommissioning of nuclear installations.**
 - **The guidelines are intended to supplement the assessment and inspection procedures currently in use by CNCAN staff.**
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Structure of the guidelines

- **1.0 Purpose and Scope**
 - **2.0 Applicability**
 - **3.0 References**
 - **4.0 Definitions and Abbreviations**
 - **5.0 Responsibilities**
 - **6.0 Description of the Safety Culture Oversight Process**
 - **7.0 General Guidance for collecting and analysing information relevant to safety culture**
 - **8.0 Records**
 - **Appendix #1 – Data Collection Sheet**
 - **Appendix #2 – Assessment Sheet**
 - **Appendix #3 – Annual report**
 - **Appendix #4 – Data base inputs and outputs**
 - **Appendix #5 – SCOP Flowchart**
 - **Appendix #6 – Detailed guidelines**
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SCOP Flowchart

Examples of inspection activities and tasks performed by CNCAN inspectors:

- **review of plant operation reports;**
- **review of progress on outstanding safety issues;**
- **review of the past safety performance of the plant;**
- **review of the status of committed safety improvements;**
- **quality management audits and inspections**
- **review of temporary & permanent modifications to ensure they are consistent with the licensing basis for the plant for the following types of documents;**

Examples of inspection activities and tasks performed by CNCAN inspectors (cont'd):

- system inspections;
- observation of operating practices & work;
- monitoring of the training programme implementation;
- monitoring of emergency drills;
- monitoring of the radiological protection practices;
- independent assessment of the radiological impact on environment;
- examination of several categories of licensees' staff with safety related duties (e.g. control room operators, shift supervisors and managers at various levels)

The resident inspectors perform regular visits to the control room, for verifying the main operating parameters and the different aspects related to work planning and control of temporary modifications.

The resident inspectors participate also as observers in the daily planning meetings of the plant management.

Daily reports are elaborated by the NPP Surveillance Section and forwarded to the CNCAN headquarters for information on the plant status and for ensuring awareness of any inspection findings.

The resident inspectors play a particularly important role in gathering relevant data on work practices and plant staff adherence to procedures which give an indication of the safety culture on site.

Detailed SCOP guidelines

- **The characteristics and attributes for a strong safety culture promoted by the IAEA (GS-G-3.1, GS-G-3.5 and SCART) are at the core of the SCOP guidelines**
- **Detailed guidelines are provided for the review of each attribute and include (as applicable):**
 - **expectations relevant to the attribute;**
 - **documentation to be reviewed;**
 - **questions to be asked;**
 - **observations to be made;**
 - **elements necessary for considering an attribute fulfilled;**
 - **warning flags.**

Examples of Data sources

- **Policy documents emphasizing priority to safety;**
 - **Procedures that describe safety-related processes and activities;**
 - **Self-assessment guidelines;**
 - **Self-assessment reports and safety performance indicators;**
 - **Results of (quality) management system audits and reviews;**
 - **Reports from external reviews;**
 - **Previous inspection reports;**
 - **Records of past events and corrective actions implemented;**
 - **Interviews with licensee's staff during the inspections;**
 - **Observations during meetings;**
 - **Observation of activities in the field.**
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Examples of attributes that can be assessed through documentation review

- **Management ensures that there are sufficient competent individuals;**
 - **Safety implications are considered in change management process;**
 - **Roles and responsibilities are clearly defined;**
 - **Consideration of all types of safety, including industrial safety and environmental safety, and of security is evident.**
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Examples of attributes that can be assessed through interviews and direct observations

- **Individuals are convinced that safety and production go hand in hand;**
 - **Individuals have the necessary knowledge and understanding of the work processes;**
 - **Good working conditions exist with regard to time pressures, workload and stress;**
 - **A questioning attitude prevails at all organizational levels.**
 - **There is visible leadership showing the involvement of management in safety related activities;**
 - **There is cross-functional and interdisciplinary cooperation and teamwork;**
 - **Housekeeping and material conditions reflect commitment to excellence.**
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Example from the training area – data sources (1)

- **Documentation:**
 - **General procedures for training and specific procedures for the training of the various categories of staff;**
 - **Training manuals;**
 - **Job & Task Analyses and Job Related Training Requirements;**
 - **Instructors' qualifications;**
 - **Internal processes for evaluation of the trainees upon completion of a course or set of courses;**
 - **Self-assessment reports of the training department and performance indicators used (incl. non-conformances identified and corrective actions issued);**
 - **Allocation of resources for the training department; Training courses for contractors**
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Example from the training area – data sources (2)

- **Observations:**
 - simulator training;
 - requalification training;
 - general employee training;
 - training facilities.

 - **Interviews: As part of the authorisation process for operators and managers**
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Example from the training area – data sources (3)

- **Specific training on safety culture (including any that is provided to contractors working on site – e.g. communication of the nuclear safety policy)**
 - **Specific training for the implementation of the human performance improvement programmes (e.g. reinforcement of use of error prevention tools)**
 - **Quality of the training manuals and of the training facilities**
 - **The process for ensuring that individuals have all the necessary qualifications before being assigned a certain task or job position**
 - **Records of incidents / events that had lack of adequate training as one of the causes**
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Training in safety culture oversight, based on the SCOP guidelines, has been provided to a group of 18 members of CNCAN technical staff.

The trainees acquired a good basis for the implementation of the safety culture oversight guidelines and became familiarized with the safety culture characteristics and attributes promoted in the IAEA safety guides.

A Pilot Project was conducted at the TRIGA Research Reactor in Pitești, Romania, 08-11 February 2011, with the aim of testing the SCOP methodology.

For this purpose, CNCAN has performed an audit covering the areas of Management, Organization and Administration, Training and Qualification, Operational Experience Feedback and Radiological Protection.

The audit team consisted of 8 CNCAN staff members and 3 IAEA observers.

Lessons Learned

All the routine regulatory reviews and inspections reveal aspects that are of certain relevance to safety culture.

However, a large number of review and inspection activities are required, over a relatively long period of time, to gather sufficient data in order to make a judgement on the safety culture of an organisation as a whole.

Training of inspectors is essential for achieving consistency in the regulatory approach.

Systematic planning of regulatory inspections to cover all areas important to safety should ensure that safety culture aspects are also timely observed.

Interaction with plant staff during the various inspection activities and meetings, as well as the daily observation by the resident inspectors, provide all the necessary elements for having an overall picture of the safety culture of the licensee.

We consider the following areas to be particularly important sources of early indicators of the trends in safety performance:

- the training provided to plant staff and contractors;**
 - the planning activities and the practices for authorisation of safety-related work; the management of planned outages;**
 - the management of plant modifications;**
 - the resources devoted to the collection and use of operating experience;**
 - the resources dedicated to the implementation of the human performance improvement programmes;**
 - the presence of managers in the field;**
 - the resources dedicated to preventive maintenance activities, etc.**
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While it is relatively easy to observe signs of weakening safety culture, it is more difficult to choose the means by which the regulator can influence the safety culture of the licensee.

Good communication is essential and a goal-setting rather than a prescriptive approach may prove beneficial.

Although mandatory / legally binding requirements on safety culture can only be kept at a very high level, it is important that the regulatory body issues guidance with regard to its expectations of the licensees' arrangements for management of safety.

The regulator should continuously emphasize the role of the licensee in improving safety culture and acknowledge voluntary initiatives on the licensee's side that show leadership and ownership of safety culture.

Challenges and Planned Measures for Improvement

The challenges related to the oversight and assessment of safety culture include:

- Adjusting the guidelines to fit all organisations operating nuclear installations and implementing a graded approach (the current guidelines are focused on nuclear power plants);**
 - Allocating sufficient resources (including time) to systematic training in the implementation of the SCOP guidelines;**
 - Finding a meaningful way to quantify the results of SCOP**
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The measures planned for the improvement of regulatory activities related to the oversight and assessment of safety culture include:

- issuing formalised regulatory requirements and guidance on the performance of safety culture surveys by the licensee and on the implementation of safety culture enhancement programmes;**
- encouraging, even requiring, external peer reviews of safety culture and of the integrated management system of the licensees.**

The measures planned for the improvement of safety culture in the regulatory authority include:

- acting upon a recommendation from the 6th Review Meeting of the Contracting Parties to the Convention to have assessments of the safety culture of the regulatory authority;**
- providing more training in areas like integrated management system, use of experience feedback, decision-making, error-prevention tools, communication.**