Regulatory Oversight of Safety Culture in Romania

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ROMANIA

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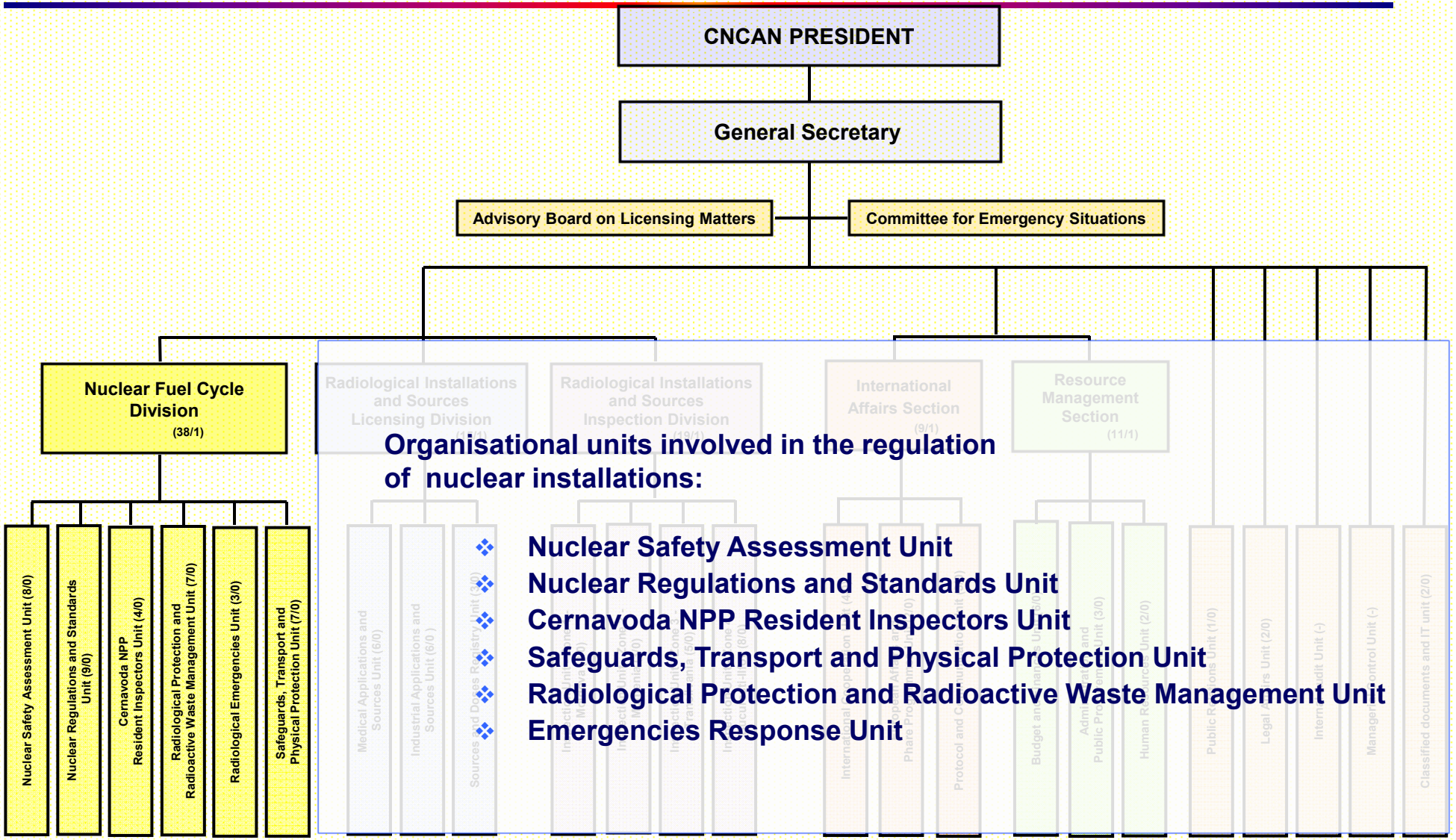
An Overview of the Main Responsibilities of CNCAN

CNCAN is the national authority competent in exercising regulation, licensing and control in the nuclear field, for all the nuclear activities and facilities on the Romanian territory.

CNCAN elaborates the strategy and the policies for regulation, licensing and control with regard to nuclear safety, radiological safety, non-proliferation of nuclear weapons, physical protection of nuclear installations and materials, transport of radioactive materials and safe management of radioactive waste and spent fuel, as part of the National Strategy for the development of the nuclear sector, approved by Governmental Decision.

CNCAN Organisational Structure



Overview of Requirements relating to Safety Culture

The main relevant requirements on the licensees' responsibility for safety are provided in the Romanian Law on the Safe Deployment, Regulation, Licensing and Control of Nuclear Activities and in the set of regulations on quality management systems for nuclear facilities and activities.

Although the above mentioned legal requirements are fairly general and do not specifically address "safety culture", they provide an adequate regulatory framework in respect of the main elements influencing the safety culture of the licensees.

Although the principle of priority to safety is not laid down explicitly in the Law, it is met by a sum of regulatory requirements, including some of the provisions of the Law.

Examples are provided below:

- "to develop its own system of requirements, rules and instructions as to ensure that the licensed activities are carried out without posing an unacceptable risks of any kind"
- "to ensure that the decision-making process for safety matters is not unduly influenced by third parties";
- "to take all the necessary measures, at the level of the current technological and scientific standards, to prevent the occurrence of any damage that may result due to the construction and operation of the nuclear installation"

- "to demonstrate the professional qualification, for all job positions, of its own personnel, the personnel's knowledge of the nuclear safety requirements, as well as the probity of the personnel that have authority for decision making in managing the activities to be performed under the licence"
- "to ensure that its own personnel involved in the activities to be performed under the licence has the necessary knowledge and awareness of the impact that the deviations from the quality standards and specifications for the products and services supplied to nuclear installations would have with regard to nuclear safety"
- "to establish and maintain a controlled quality management system in its own activities, and to ensure that its suppliers of products and services, as well as their sub-contractors along the whole chain, establish and maintain controlled quality management systems"

The set of regulations on quality management systems, covering activities related to all the phases of the lifetime of nuclear installations, have been revised to take account of the latest IAEA Requirements and Guides on Management Systems (GS-R-3, GS-G-3.1 and GS-G-3.5).

A mandatory regulation and two guides have been elaborated as the outcome of this revision.

The guides include the safety culture attributes.

CNCAN Activities Relevant for the Oversight of Safety Culture

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;
- review of the station requests with regard to deviations from conditions in the OP&Ps.
- 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 daily 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.

Development and implementation of a Safety Culture Oversight Programme

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”.

CNCAN 2 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 (1)

- 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

SCOP Objectives (2)

- To identify and highlight the predominant safety culture characteristics and attributes related to specific functional areas (e.g. operations, maintenance, etc.)

- To provide the basis for recommendations and suggestions regarding the improvement of safety culture in licensees' organisation.

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.

Scope of the guidelines (1)

- 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.

Scope of the guidelines (2)

The main areas of review considered for the implementation of the SCOP Guidelines are the following:

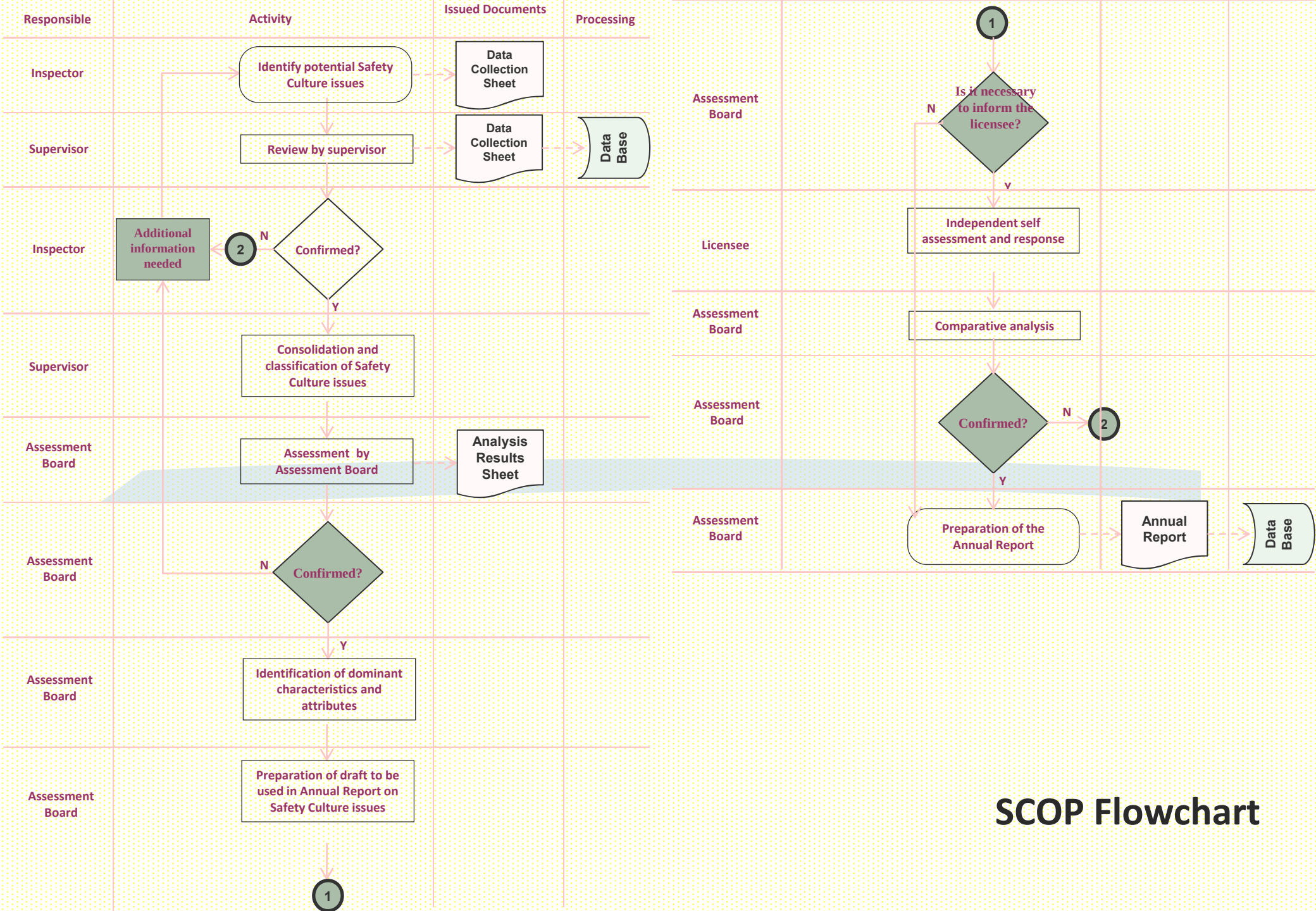
- Management, Organisation & Administration (M,O,A)
- Training and Qualification (T&Q)
- Operation and Maintenance (O&M)
- Technical Support (T&S)
- Operational Experience Feedback (OEF)
- Radiation Protection (RP)
- Emergency Planning and Preparedness (EPP)

Structure of the guidelines (1)

- 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

Structure of the guidelines (2)

- 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



SCOP Flowchart

Roles and responsibilities (1)

- The Director of the Nuclear Fuel Cycle Division;
- The coordinators of the technical units of the Nuclear Fuel Cycle Division;
- All the inspectors;
- The data base administrator.

Roles and responsibilities (2)

- The responsibilities of the Assessment Board include:
  - assessing the safety culture issues highlighted in the quarterly reports;
  - elaborate the annual SCOP report and present the findings to the licensees;
  - review and approve the action plans for improvements resulting from licensee's endorsement of the annual SCOP report;
  - conduct interdisciplinary inspections to assess the progress made by the licensees in addressing the findings from the SCOP annual reports.

Main output: The annual SCOP report

- It contains:
  - the safety culture issues observed in each functional area
  - the categorization / mapping / vectorization of findings with the safety culture characteristics and attributes;
  - the arguments which lead to the conclusion of having safety culture issues.
- 6 to 12 months after the areas for improvements were agreed with the licensee, a follow-up inspection will be performed.

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 (1)

- 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;

Examples of Data sources (2)

- 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.

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.

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.

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

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

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

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.

Expert Mission to support CNCAN in training inspectors on the developed SC oversight programme, 16-17 November, Bucharest

Expert Mission to support CNCAN in training inspectors on the developed SCOP - practical exercises and mock interviews

A Pilot Project was conducted at the TRIGA Research Reactor in Piteşti, 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.

Pilot Project on SC oversight, 08-11 February 2011, Piteşti, Romania

Pilot Project on SC oversight, 08-11 February 2011, Piteşti, Romania

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.

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

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.

Expectations

We would be interested in exchanging experience on the following topics:

- Internal guidance (and/or training for inspectors) used by the regulatory bodies on the conduct of inspection activities, with a focus on what categories of non-conformances are considered particularly relevant as an indication of safety culture problems and on the subsequent regulatory actions;
- Regulatory assessment of licensee's organisation baseline (structure and resources) as well as of its management of change;
- Practical guidelines for developing questionnaires for safety culture and safety climate surveys