ILK

INTERNATIONALE
LÄNDERKOMMISSION
KERNTECHNIK

Baden-Württemberg · Bayern · Hessen

ILK Statement

on the Regulator's Management of the Licensee Self-Assessments of Safety Culture

Für deutsche Fassung bitte umdrehen!

January 2005
No.: ILK-19 E

Foreword

The International Committee on Nuclear Technology (Internationale Länderkommission Kerntechnik, ILK) was established by the three German states of Baden-Württemberg, Bavaria and Hesse in October 1999. It is currently composed of 13 scientists and experts from Finland, France, Germany, Sweden, Switzerland and USA. The ILK acts as an independent and objective advisory body to the German states on issues related to the safety of nuclear facilities, radioactive waste management and the risk assessment of the use of nuclear power. In this capacity, the Committee's main goal is to contribute to the maintenance and further development of the high, internationally recognised level of safety of nuclear power plants in the southern part of Germany.

Over the last several years, the German licensing and regulatory authorities and licensees have paid increasing attention to safety management systems and to safety culture. The ILK has also addressed these issues on several occasions in the recent past and has placed its focus on the topic of the licensee self-assessment of their safety culture. In the current statement which was adopted at the 33rd ILK meeting on January 25, 2005 in Frankfurt, the ILK presents a total of 10 recommendations for the regulators' effective management of the licensee self-assessments of their safety culture. These recommendations deal mainly with the quality of the methods and tools required in order to achieve objective and sound assessments. The statement is directed primarily at the licensing and regulatory authorities but also at the licensees.

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Executive summary

Over the last several years, the German licensing and regulatory authorities have paid increasing attention to safety management systems and to safety culture. German utilities are in the process of implementing safety culture self-assessment systems. One example is the safety culture assessment system ("Sicherheitskultur-Bewertungssystem", VGB-SBS) developed by the VGB Power Tech (Association of energy utilities).

With this statement, the International Committee on Nuclear Technology (ILK, "Internationale Länderkommission Kerntechnik") focuses on the regulators' effective management of the evaluation of the licensee self-assessment of their safety culture. The ILK makes a total of 10 recommendations for the evaluation of a utility's self-assessment system by the authority.

The regulatory authorities should make sure that the licensees have and continually use a self-assessment system that addresses organizational and personnel aspects. The review of this system for appropriateness should ensure that the self-assessment tools, e.g., questionnaires and work-study techniques, meet acceptable quality criteria and that they are implemented correctly.

Licensees' planned actions and their rationale resulting from the self-assessments should be discussed with the authorities. At mutually agreed upon intervals, senior members from the regulatory authorities should meet with senior corporate managers of the licensees to discuss the overall results of the licensees' self-assessments and their action plans. The regulatory authorities should be particularly attentive to events, which lead to major changes in the company and therefore may entail the risk of a decreasing safety culture, e.g., reorganizations or mergers. The self-assessment of safety culture should also include the consideration of a rigorous root-cause analysis (RCA) of events.

The regulatory authorities and their technical support organizations should also perform their own self-assessment regarding their supervisory activities taking into account special events, e. g., a change of government, and should develop appropriate action plans. This would allow the authorities to further develop their own competence in the field of safety culture.

In evaluating safety culture, the regulatory authorities should aim to support the activities of the licensee to improve its safety culture. The authorities' involvement should not be too prescriptive in order to avoid interfering with the responsibility of the licensee since the regulatory process itself can influence the licensee's safety

culture. There should be mutual trust and cooperation between the licensees and the authorities.

This statement's recommendations intentionally leave ample room for maneuvering in their concrete implementation. Every regulatory authority needs to find its own path in this field and will be influenced by its past supervisory concept and licensee activities. Correspondingly, the concrete implementation of the statement's recommendations will take on a different form for the individual authorities.

In closing, it is emphasized that the licensees bear the sole responsibility for the safety and safety culture of their plants. The regulatory authority, in turn, should always ascertain that the licensees fully acknowledge their responsibilities.

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1 Introduction

Over the last several years, the German licensing and regulatory authorities have paid increasing attention to safety management systems and to safety culture. The following factors are important in this regard: The liberalization of the energy market forces the licensees to reduce costs, and at the same time the necessary scientific and technical competence of the staff must be assured. There is evidence that the operating experience to date shows that approximately one third of all reportable events are caused directly or at least partly by human behavior [1]. It also reveals weaknesses in the personnel/organizational field. Therefore, a safety management system and the high safety culture it promotes should be important parts of the safety philosophy. The responsibility for such a safety philosophy and for the overall safe plant operation rests solely with the licensees. Thus, the conference of the environmental ministries of the individual German states recommends strongly that licensees implement a safety management system, which includes safety culture that is based on the state of the art in science and technology. The effectiveness of such a system should be monitored by appropriate safety indicators.

German utilities are in the process of implementing safety culture self-assessment systems. One example is the safety culture assessment system ("Sicherheitskultur-Bewertungssystem", VGB-SBS) developed by the VGB Power Tech (Association of energy utilities). Such self-assessment systems are viewed by the licensees as instruments for monitoring and enhancing the safety culture of their facilities. Studies of the benefits of such an approach [2] and of a procedure that uses proven quality criteria [3] are available.

With this statement, the International Committee on Nuclear Technology (ILK, "Internationale Länderkommission Kerntechnik") focuses on the regulators' effective management of the evaluation of the licensee self-assessment of their safety culture [see also 4, 5]. In preparation for this statement and further deliberations on the topic of safety culture, the ILK commissioned a literature survey [6] on safety indicators in use and a second study [7] on possible new safety culture indicators.

2 Statement of affairs

2.1 In order to arrive at a common understanding of what is meant by safety culture, the definition proposed by INSAG-4 [8] is given as a starting point:

> *Safety Culture* is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear power plant safety issues receive the attention warranted by their significance.

Thus, safety culture is not only a feature of the licensee organization, but also of the authorities' organizations. Safety culture is part of an organizational culture, which may be understood as patterns of shared values and beliefs that in time produce behavioral norms adopted in preventing or solving problems.

According to INSAG-4 [8], the two components of safety culture are as follows (see also appendix 1):

- The necessary framework within an organization [9]. Establishing this framework is management's responsibility.
- The attitude of staff at all levels in responding to and benefiting from the framework.

Depending on what a culture emphasizes, we can distinguish three categories of safety culture:

compliance-oriented: Safety management is determined by regulations and rules. The licensee regards safety as an external requirement and assigns little importance to behavioral aspects. Accordingly, even for human performance issues solutions with a procedural and behavioral orientation are not sufficiently pursued; instead technical solutions are primarily sought.

performance-oriented: In addition to compliance, good safety performance becomes an organizational goal and the licensee has flexibility selecting the methods how to achieve these goals. The licensee has a growing awareness of the behavioral issues, thus procedural solutions are applied in addition to technical solutions.

process-oriented: Safety performance can always be improved. A characteristic of this category is continuous learning, i.e., the organization is a learning organization. "The level of awareness of behavioral and attitudinal issues is high and measures are being taken to improve behavior" [10].

This categorization illustrates the evolution and stages of safety culture. These three categories are not mutually exclusive and, in fact, can coexist in a good safety culture. The learning organization can be regarded as a continuous process. It is an objective that energizes people for very long periods of time. It is a vision that motivates, drives and empowers the organization in the long term.

A direct quantitative assessment of safety culture is not feasible, therefore a combination of suitable safety culture indicators is used. These indicators should be periodically monitored, e.g. within the framework of a safety management system.

2.2 In a process-oriented culture, feedback requires a rigorous self-assessment during which values for the safety culture indicators are determined and vice versa. Safety culture indicators are that subset of safety indicators which primarily cover organizational/personnel aspects rather than technical ones. These values represent quantified suitable characteristics that enable an evaluation of the performance of the leadership process "safety management" and its constituent parts while also keeping track of how closely the safety performance goals are attained. Safety indicators are primarily tools for use by the licensee to improve safety performance.

Good safety management may become evident in appropriate training of the personnel, sufficient staffing, appropriate root-cause analyses of events, lessons learnt from operating experience, a small number of violations, a low back-log of appropriate corrective actions, etc. A set of symptoms important to the safety culture assessment of nuclear power plants was proposed by the IAEA [2, 11].

An excerpt of symptoms that point to a weakening of safety culture and that is particularly relevant to the regulator is given in the following:

- Failure of corporate memory, e.g., lack of adequate records and a disproportionate number of experienced people leaving the organization without prior transfer of their knowledge to new colleagues
- Low status of quality assurance

- Lack of corporate oversight, e.g., lack of corporate awareness of safety issues
- Isolationism, e.g., lack of interaction with industry and other external national and international organizations
- Lack of organizational learning, e.g., from operational experience and findings of internal and independent external safety reviews
- Lack of interdepartmental communication and cooperation; the insights of management resulting from their routine monitoring of the work processes in the plant are of utmost importance for an early recognition of a declining safety culture.

These may serve as a starting point for the definition of corresponding safety culture indicators.

The objective quantification of safety culture indicators supports the recognition of trends, thereby facilitating a timely detection of declining safety culture and the implementation of a corresponding action plan.

Moreover, the results of research in the psychological field of work science and organizational psychology point to the existence of so-called "soft indicators" [12]. These reveal the attitude of plant management and staff toward safety performance goals, e.g., dealing with near-incidents without mandatory reports, sick leave statistics or the amount of overtime work.

An extensive self-assessment plays a key-role in monitoring the plant's safety culture. The latest psychological methodologies should be used in performing a rigorous self-assessment.

A self-assessment system should be supplemented by audits executed by a third party such as peer reviews to enhance neutrality and objectivity (see chapter 2.3).

The ILK appreciates fully the significance and utility of processes used to enhance safety culture, yet limitations such as those that are intrinsic to human nature remain. The ILK regards self-assessment as one of the most useful tools to increase healthy self-awareness.

2.3 Since an important goal of a self-assessment system is to quantify valid, reliable and objective safety culture indicators (see also recommendation 3.3), it is essential that the designers and assessors be familiar with and use indicators that have been developed or used internationally for the evaluation of performance effectiveness and of corporate culture in general industry or in nuclear power plants. Of particular interest are those indicators in the field of organization and human resources that have been identified by an analysis of events in nuclear facilities. The safety culture indicators proposed by the IAEA [2, 11] and the methodology described by the Research Center System Safety of the Technical University Berlin [12] are found to be state-of-the-art and the IAEA indicators can easily be adapted to German circumstances.

Many presentations and discussions with experts informed the ILK about the current treatment of safety culture in Swiss nuclear power plants (see also [13]), the IAEA proposals regarding not only a consistent set of safety indicators but also its services of assisting interested organizations in further developing their safety culture, and the safety culture assessment system ("Sicherheitskultur-Bewertungssystem", VGB-SBS) of the VGB Power Tech (Association of energy utilities).

2.4 In the recommendations that follow, the ILK points out what should be done by the regulators to monitor the licensees' self-assessment of safety culture. An outline of implementation ("how-to") aspects is briefly covered in appendix 3. Primary addressees of these recommendations are the licensing and regulatory authorities of the German states. This statement is intended to assist them in the evaluation of the methodology and the results of the self-assessment systems currently implemented in German nuclear plants.

For the authorities, the continuous use of an efficient self-assessment system by the licensee is of considerable interest because it provides a timely warning of a declining safety culture and detects trends for those indicators providing an ongoing insight into the functioning of personnel and equipment with high safety-related significance.

3 Recommendations

The ILK offers the following recommendations for the evaluation of a utility's safety culture self-assessment system. Each of these recommendations is followed by more detailed explanations and essential references.

3.1 The regulatory authorities should make sure that the licensees have and continually use a self-assessment system that addresses organizational and personnel aspects. The authorities should review this system for appropriateness.

Since self-assessment systems are implemented in Germany by the utilities, the regulatory authorities should be ready for evaluating them.

A prerequisite for the regulatory authorities is to be knowledgeable of the various methods that can be used for such self-assessment systems: questionnaires, interviews of personnel, and reviews are the most frequently used ones.

The authorities also have to remember the three categories of safety culture as outlined in chapter 2.1. These categories can be different from one activity to another, for example the culture can be compliance-based in maintenance while in operation it may be performance-based. The authorities must also be aware of the fact that their regulatory process itself influences these developments. When regulation and supervision is solely compliance-based, it is very prescriptive and detailed and induces intensive inspections and audits. When it is performance-based, the emphasis is put by the regulator on performance monitoring thus providing more flexibility to the utility regarding processes and structure. Finally, when the emphasis is put on development of performance-enhancing processes, it encourages the utility to be a learning organization.

In evaluating the appropriateness of the self-assessment system, the authorities should make sure that the following general guidelines are followed:

- Safety culture indicators that are based on tangible manifestations of good safety culture are primarily applied (examples are given in appendix 2).
- Monitoring the adequate safety culture via safety culture indicators and checking that symptoms such as those indicated in chapter 2.2 do not appear.

3.2 Licensees' planned actions and their rationale resulting from the self-assessments should be discussed with the authorities.

As a result of the self-assessment, the licensee may take certain actions to improve aspects of its organization and safety culture. This action plan should be discussed with the authorities, thus providing the authorities with an overall sense of the results of the self-assessment (see also appendix 3).

3.3 The regulatory authorities should ensure that the self-assessment tools, e.g., questionnaires and work-study techniques, meet acceptable quality criteria.

The quality characteristics and their minimal parameter values are, for example, defined in standards for investigation procedures, such as the DIN 33 430 [14] guideline, and should be applied to self-assessment procedures accordingly. They apply to the quality criteria of validity (appropriate contents of the investigated characteristics), reliability (reliability of data collection) and objectivity (independence from distortions arising from the investigators' or evaluators' range of interpretation).

For investigation procedures whose quality has been ascertained, these criteria can be found in the instructions (manuals) associated with the procedure. The established values can vary between one and zero and are interpreted in the procedural manuals.

For procedures where such specifications are lacking, the authorities are the ones who should decide on their own, following discussions with the licensees, whether or not they want to recommend the use of other procedures, or to determine quality criteria and, if necessary, a revision of the procedure in the case of insufficient criteria. It should be noted that this may entail lengthy investigations. However, it is solely up to the licensee to decide which procedures he wants to apply. In the present case, the specifications of validity refer to the content validity since the indicators that need to be taken into account have largely been agreed upon and have already been investigated and presented at international conferences and in publications. They can be found, for instance, in IAEA and INSAG documents [e. g. 3, 8, 10, 15, 16].

An additional way of using validity data or of determining validity in the case of new procedures that are to be examined is given by criteria validity. This refers to the determination of the extent of agreement of a procedure with another, already evaluated, procedure examining the same characteristics. This represents another possibility in the given case, since procedures that have been methodologically reviewed and can be used for comparison purposes are available in Germany [3].

Self-assessment systems trigger an organizational learning process for a gradual continued improvement of safety culture. The quality criteria of the procedure applied represent the objectives of this process. In those cases where self-assessment procedures are newly developed, these criteria are probably not fully met from the very beginning.

Investigations commissioned by the ILK [6, 7] show that the socio-technical indicators for detecting declining safety outlined in the IAEA and INSAG documents [8, 10 15, 16] as well as the indicators in the mentioned screening procedure [3] are currently not in need of expansion or modification from the point of view of cognitive organization and work science.

Statements of reliability refer to internal consistency, insofar as characteristics that are similar in content are examined in the procedure ("homogeneous procedure") [3].

Another form of reliability is the retest (repetition-) reliability that is to be preferred when using "heterogeneous procedures" (e.g., procedures where the investigated characteristics belong to different fields) and also whenever one focus of the investigation is whether identical results can be achieved with the repeated use of the procedure under comparable conditions.

3.4 The regulatory authorities should ensure that the self-assessment tools and the application manuals are implemented correctly.

In the case of survey procedures (interviews and questionnaires), the correct application of methods of self-assessment means taking into account the requirements placed on the methodologically correct use in terms of the characteristics of work processes and their conditions of execution. These requirements apply above all to the individual response to questions by the surveyed employees, safeguarding the anonymity of their statements and ensuring a sufficient response time for the questionnaires or interview questions. These and further conditions of use are laid down in the instructions for procedures that have already been developed.

The same applies to work analysis and work evaluation procedures for which quality criteria have already been established and instructions for use (user guides manuals) have been developed. The instructions also indicate the qualification required from the investigator.

For newly developed procedures that have not yet been standardized, the above mentioned issues are to be laid down by the developers of the procedure.

In order to avoid impairing the implementation of a self-assessment system and the necessary openness of the participants, the regulatory authority should not directly verify the correct application of the methods. Instead, the authority should ensure that the methods are applied by competent personnel.

3.5 The regulatory authority should ensure that the self-assessment of safety culture also includes the consideration of a rigorous root-cause analysis (RCA) of events. The RCA must include organizational aspects and human performance.

The ILK has emphasized the importance of learning from operating experience and of a learning organization. These terms refer to the organization as a whole, i.e., including its work processes, and not to individual members learning by, for example, talking to each other or by attending seminars. Organizational learning is the primary mechanism by which organizations can improve themselves. When no learning takes place, plants are unable to learn from their own experience and that of others and are, therefore, more likely to have related problems recur.

A learning organization collects and analyzes relevant information and, then, acts on the conclusions, as appropriate. This information includes the operating experience of the plant, as well as external information supplied by other organizations. Traditionally, the analysis of operating experience is done using RCA (see also [17], as a similar approach is demanded in the field of occupational health and safety). Given an incident, the objectives of RCA are: 1. Understand what happened during the event, 2. Discover why and how the event happened, and 3. Provide corrective-action recommendations to prevent a recurrence of the event. It is evident that understanding the *why* can be open-ended and requires a mental model on the part of the analyst. With the improving understanding of the causes of human error, several methodologies have been proposed that include organizational factors to various degrees (for applications to non-nuclear industries, see [18]; for applications to nuclear plants, see [19, 20]; an early review of available methods is given in [21]). The assessment of the process for knowledge and experience transfer may also take place separately from the self-assessment system. In each case, the regulatory authority should be particularly attentive to this topic.

3.6 The regulatory authorities should request the licensees to store, for at least five years, the source material relating to the self-assessment in order to assure continuity of the process.

This recommendation (see also [22]) is made to the regulatory authorities to establish guidelines for safekeeping the source materials, including raw data, of the licensees' self-assessment processes in order to enable post-evaluations by the licensee where necessary and also to enable comparisons between different time

periods of investigation. Such source materials include, for example, completed questionnaires, observation records and work analysis documents. Furthermore, it is recommended to include in the documentation a description of how data collection and data evaluation have been conducted.

3.7 The regulatory authorities and their technical support organizations should perform their own self-assessment regarding their supervisory activities and should develop appropriate action plans.

The relation between the regulatory authorities and the utilities should be based on mutual respect and recognition of the added value of the regulatory and supervisory duties. Competence, knowledge and credibility are essential characteristics to be found within the authorities. The same applies to the technical support organizations associated with the authorities. All these considerations already in place for the technical aspect of safety also apply to the field of safety culture.

Therefore a self-assessment process of their own organizational and safety culture is recommended to the authorities and their technical support organizations. The self-assessment is especially important in the areas which lead to direct interfacing contact and evaluation of the licensees' safety culture. Such areas include review of the appropriateness of the utilities' self-assessment system, use of safety culture indicators, monitoring of safety performance to prevent deterioration of safety, and inspections which allow conclusions about the safety culture at NPPs, among others.

The advantages for the authorities of performing a self-assessment are multiple. First, it allows the authorities to develop their own competence in the field of safety culture by using the methods recommended to the utilities.

Second, it may lead to reinforcing some areas that are weaker in terms of understanding and implementation of safety culture.

Third, it allows the establishment of continuous training programs in safety culture common to both the authorities and the technical support organizations. This leads to a better understanding and continuous improvement of safety culture and prevention of deteriorating safety performances.

3.8 At mutually agreed upon intervals, senior members from the regulatory authorities should meet with senior corporate managers of the licensees to discuss the overall results of the licensees' self-assessments and their action plans.

Normally, the regulatory authority will be in contact with the management of the individual plant regarding all matters of safety and safety culture. It is the management of each plant that is in charge of all nuclear safety activities, including the self-assessment process of the licensee and its resulting action plan.

However, each licensee company is substantially affected by the decisions of the corporate board of directors. Such decisions can influence the safety of the plants and/or the safety culture of the personnel.

3.9 The regulatory authorities should be particularly attentive to events which may entail the risk of a decreasing safety culture.

Safety culture is a part of the culture of the organization. If a profound change in the organization takes place, e.g., a new chairman of the corporate board, a privatization of the company, a merging of the company with another company, or an upcoming closing down of a plant, it is likely to modify the culture of the organization. The safety culture will be affected as well. Therefore the regulator should be particularly vigilant in such situations.

It has to be noted that the regulatory authorities themselves can be affected by political events, e.g., a change of government or a change of minister. These events may lead the authority to change its general regulatory approach, to revise former positions and decisions and in the worst case to loose its ability to make objective judgments. This may have an impact on both the safety culture of the authority and the safety culture of the licensee. The regulatory authority should be aware of the potential of such changes and should therefore consider to be reviewed by an international assessment team, e.g., IRRT mission of the IAEA, at regular intervals [23].

3.10 In evaluating safety culture, the regulatory authorities should aim to support the activities of the licensee to improve its safety culture. The authorities' involvement should therefore not be too prescriptive.

The lessons learned from the self-assessments will be implemented more effectively if there is mutual trust and cooperation between the licensees and the authorities. However, the authorities should respect the responsibility of the licensees and avoid reviewing details (e. g., data related to individual persons) of the self-assessment (see also appendix 3). The regulatory process itself can influence the licensee's safety culture. The general concept and methodology and the derived measures should be the main focus of regulatory control. However, the actual application and the individual results of the self-assessment should not be evaluated by the authority. It should always be kept in mind that the licensees are responsible for the safety of the plant.

4 Concluding remarks

The present ILK statement formulates suggestions for the regulator's management of the self-assessment systems of the licensee. These suggestions are intended as a long-term objective. The regulatory authorities are called upon to address this important topic and to make sufficient staff available for its treatment. At the same time, the licensees are also summoned to embrace this issue and to make themselves available to a corresponding exchange of information with the regulator. This statement's recommendations intentionally leave ample room for maneuvering in their concrete implementation. Every regulatory authority needs to find its own path in this field and will be influenced by its past supervisory concept and licensee activities. Correspondingly, the concrete implementation of the statement's recommendations will take on a different form for the individual authorities. The extensive references that have been cited and appendix 3 may provide further information for the individual areas of implementation; however, no universally valid panacea exists for the implementation of the recommendations.

Since the topic of self-assessment of safety culture represents a relatively new field of regulatory activity, the ILK recommends that regulators adopt a stepwise approach in their efforts, taking care to pursue a dialog with the licensee in the process. An unequivocal and independent assessment of safety culture performed solely by the authority is not possible. Instead, the regulator's goal should be to convince itself of and encourage the licensee's in-depth, permanent and correct handling of this topic.

In closing, it should once again be emphasized that the licensees bear the sole responsibility for the safety and safety culture of their plants. The regulatory authority, in turn, should always ascertain that the licensees fully meet their high responsibilities.

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Appendix 1: Common key safety culture items

- Top management commitment to safety
- Visible leadership
- High priority to safety
- Systematic approach to safety
- Strategic business importance of safety
- Absence of safety versus production conflict
- Relationship to regulators and other external organizations
- Proactive and long term perspective
- Management of change
- Quality of documentation and procedures
- Compliance with regulations and procedures
- Sufficient and competent staff
- Proper resource allocation
- Knowledge in work science, including health and safety and man-technology-organization (MTO)
- Clear roles and responsibilities
- Clearly organized team work
- Openness and communication
- Motivation and job satisfaction
- Involvement of all employees
- Good working conditions (time, work load, stress)
- Housekeeping
- Measurement of safety performance
- Organizational Learning

These items can be grouped into the components "organizational framework" and "attitude of staff" as discussed in chapter 2.1.

Appendix 2: Examples of safety culture indicators to be included in the self-assessment

Accountability for safety is clear

- Indicators
  - Managers have specific safety goals to achieve
  - Rewards reflect achievement
  - Employees involved in safety improvements
  - Team appraisals include safety achievement

Safety is learning driven

- Indicators in organizational learning
  - Program exists for feeding back lessons from operating experience
  - Familiarity with learning processes
  - Process exists for dealing with repeat events
  - Process to prevent mistakes through strengthening defense in depth
  - Mistakes may be a learning opportunity

High priority to safety

- Indicators
  - Safety resources adequate for workloads
  - Safety concerns can be raised openly and safety behaviors are actively supported
  - Teamwork among departments is encouraged

Clear leadership for safety

- Indicators
  - Top managers dedicate time and efforts to improve safety
  - Training in safety culture is available and used by managers
  - Management/workforce interaction frequency
  - Level of personal accountability for safety

Style of management

- Indicators
  - Clear standards and expectations
  - Managers reinforce expected behaviors

Appendix 3: Implementation

1 Objectives

The purpose of the self-assessment of safety culture is to provide the licensee with an evaluation of the current state of its safety culture and, on this basis, to draw up appropriate action plans to improve it. The periodic implementation of the self-assessment tools allows the measurement of changes in the nuclear safety culture and the analysis of the effects of the corrective actions taken. The self-assessment enables the licensee to detect, at an early stage, a possible decline in safety culture.

2 Periodicity

The periodicity of the self-assessments must be adapted to the time needed to implement changes and detect tangible progress, i.e., every 2 to 3 years, as mentioned in the IAEA document [2]. The self-assessment should also be used on a case-by-case basis after a significant change that can influence the safety culture (according to recommendation 3.9). In case of detection of a declining safety culture, the periodicity and the content of the self assessment must be adjusted in order to monitor closely the trends regarding the main weaknesses identified.

3 Role of the Regulatory Authority

The role of the regulatory authority is to monitor the process so that it runs effectively and its objectives are achieved. In particular, as mentioned earlier, the self assessment should enable the licensee to detect, at an early stage, a decline in safety culture and correct it in a timely manner. For this purpose, the regulatory authority should discuss with the licensee:

- The methodology adopted to assess the safety culture (according to recommendations 3.1, 3.3 and 3.4)
- The global results of the self-assessment
- The strengths and the weaknesses it reveals
- The main trends compared to the previous self-assessment, which would confirm the efficiency of the current improvement plans or indicate that modifications of these plans are needed.
- The analysis conducted by the licensee of the root causes of the weaknesses and of the "negative trends"

- The improvement plans and their follow-up activities that are intended to remedy the weaknesses and correct the "negative trends".

The regulatory authorities should check the consistency of the results with their own impressions regarding the tangible manifestation of safety culture and discuss with the licensee the possible discrepancies. The regulatory authorities should decide whether or not they want to recommend to the licensee to propose other corrective actions or to perform further investigations using other procedures in case of permanent weaknesses or unbroken "negative trends". The implementation of such recommendations should be discussed a priori with the licensee in order to respect the responsibilities of the licensee.

Lastly it must be borne in mind that:

- It would be inadequate to consider results in isolation from the specific context of each NPP.
- If a significant decline in safety culture is detected, the self-assessment system should be supplemented by audits executed by a third party and by further investigations, if necessary, before any major decision is made regarding plant operations.

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