IAEA
International Atomic Energy Agency

SCART Guidelines

Reference report for IAEA Safety Culture Assessment Review Team (SCART)

Vienna, July 2008

Services Series 16

IAEA Services Series No. 16

SCART GUIDELINES

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IAEA Safety Culture Assessment Review Team (SCART)

IAEA
International Atomic Energy Agency
July 2008

The originating Section of this publication in the IAEA was:

Policy and Programme Support Section
International Atomic Energy Agency
Wagramer Strasse 5
P.O. Box 100
A-1400 Vienna, Austria

SCART GUIDELINES
REFERENCE REPORT FOR
IAEA SAFETY CULTURE ASSESSMENT REVIEW TEAM (SCART)
IAEA, VIENNA, 2008
IAEA-SVS-16
ISSN 1816–9309

Printed by the IAEA in Austria
July 2008

FOREWORD

The IAEA Director General stressed the role of safety culture in his concluding remarks at the Meeting of the Contracting Parties to the Convention on Nuclear Safety in 2002:

> "As we have learned in other areas, it is not enough simply to have a structure; it is not enough to say that we have the necessary laws and the appropriate regulatory bodies. All these are important, but equally important is that we have in place a safety culture that gives effect to the structure that we have developed. To me, effectiveness and transparency are keys. So, it is an issue which I am pleased to see, you are giving the attention it deserves and we will continue to work with you in clarifying, developing and applying safety culture through our programmes and through our technical co-operation activities."

The concept of safety culture was initially developed by the International Nuclear Safety Advisory Group (INSAG) after the Chernobyl accident in 1986. Since then the IAEA's perspective of safety culture has expanded with time as its recognition of the complexities of the concept developed. Safety culture is considered to be specific organizational culture in all types of organizations with activities that give rise to radiation risks.

The aim is to make safety culture strong and sustainable, so that safety becomes a primary focus for all activities in such organizations, even for those, which might not look safety-related at first.

SCART (Safety Culture Assessment Review Team) is a safety review service, which reflects the expressed interest of Members States for methods and tools for safety culture assessment. It is a replacement for the earlier service ASCOT (Assessment of Safety Culture in Organizations Team).

The IAEA Safety Fundamentals, Requirements and Guides (Safety Standards) are the basis for the SCART Safety Review Service. The reports of INSAG, identifying important current nuclear safety issues, serve also as references during a SCART mission.

SCART missions are based on the SCART Guidelines, which provide overall guidance to ensure the consistency and comprehensiveness of the safety culture review. At the same time, SCART missions are designed to be able to respond to more specific or detailed requirements in accordance with national or regional culture.

SCART missions are conducted with the aim to develop recommendations and suggestions in areas of direct relevance to the safety culture of the reviewed nuclear organizations. Commendable good safety culture practices are identified and communicated to other nuclear organizations in order to effect improvements worldwide.

SCART is available to all Member States, and to all kinds of organizations, using or regulating the use of nuclear materials (e.g. nuclear facilities, regulatory bodies, nuclear design organizations).

The IAEA officer responsible for this publication was M. Ignatov of the Division of Nuclear Installation Safety.

EDITORIAL NOTE

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1. INTRODUCTION

1.1. PURPOSE OF THE SCART GUIDELINES

The general purpose of the SCART Guidelines is to provide guidance on the preparation, conducting, reporting and follow-up of SCART missions.

In addition, the guidelines have the purpose to define a process of a comprehensive safety culture assessment. As safety culture relates to attitudes, behaviour norms and human values, the SCART Guidelines offer a method, which is based on behavioural science, and is transparent enough to be widely understood and accepted.

The SCART service is one of a suite of complementary Safety Review Services offered by the Division of Nuclear Installation Safety of the IAEA:

- Integrated Regulatory Review Service (IRRS);
- Operational Safety Review Team Service (OSART);
- Design Evaluation and Safety Analysis Modular Review Service (DESAR);
- Integrated Safety Assessment of Research Reactors Service (INSARR);
- Safety Culture Assessment Review Team Service (SCART).

1.2. SCOPE OF THE SCART GUIDELINES

The SCART Guidelines assist a team of reviewers in preparing and conducting a comprehensive assessment of safety culture. The reviewers are either peers from similar organizations in other Member States or behavioural consultants with direct experience in assessment and enhancement of safety culture.

The SCART Guidelines are addressed, principally, to the team members of SCART missions but they will also provide guidance to Member States preparing to receive a mission.

The SCART Guidelines in their general form are primarily intended for assessment in operating organizations. It should be noted, however, that the methodology and process of the SCART service are identical for all kinds of organizations (including regulatory bodies, and design organizations).

Safety culture relates to the operating organization, and is not restricted to one facility or activity of that organization. It is advisable, nevertheless, to concentrate the SCART service as much as possible on one nuclear facility. Broadening the SCART service to the operating organization as a whole, especially in cases, where the operating organization might incorporate all nuclear facilities in a Member State, may lead to impracticalities and hamper the quality of the review.

The IAEA Safety Standards (Fundamentals, Requirements and Guides) are the basis for planning and conducting SCART missions, in particular:

- Safety Fundamentals SF-1, Fundamental Safety Principles **[1]**;
- Safety Requirements GS-R-3, The Management System for Facilities and Activities **[2]**;
- Safety Requirements NS-R-2, Safety of Nuclear Power Plants: Operation **[3];**

- Safety Guide GS-G-3.1, Application of the Management System for Facilities and Activities **[4];**
- Safety Guide NS-G-2.4, The Operating Organization for Nuclear Power Plants **[5]**.

The review method is based particularly on safety culture characteristics and attributes as defined in Safety Guide GS-G-3.1: Application of the Management System for Facilities and Activities [4].

2. SCART REVIEW ESSENTIALS

2.1. OBJECTIVES OF SCART MISSIONS

The key objectives of SCART missions are:

- To provide the host country (nuclear facility, regulatory body, other governmental authorities) with a valid assessment of the status of the safety culture in the host nuclear facility with respect to international standards;
- To provide a method for identifying strengths and areas for improvement of safety culture at the host nuclear facility, so that the nuclear facility is assisted in the enhancement of its safety culture;
- To provide the host nuclear facility with recommendations and suggestions for improvement in areas where performance falls short of international practice;
- To provide key staff at the host nuclear facility with an opportunity to discuss their practical experience with specialists in safety culture;
- To provide reviewers and observers from Member States and IAEA staff with opportunities to broaden their experience and knowledge in the area of safety culture;
- To provide all Member States with information regarding identified good safety culture practices.

While enabling a comprehensive review of safety culture, SCART missions do not intend:

- To rank the host nuclear facility against other facilities on the basis of safety culture;
- To go outside the defined scope of the assessment; that is, assessment of behaviour and attitudes, and not of operation or design, or
- To attribute any positive or negative results of the assessment to individuals of the host nuclear facility.

SCART missions do not intend to analyse the management system and cannot be considered a substitute for a comprehensive review of the management system in a nuclear operating organization.

2.2. SCOPE OF SCART MISSIONS

A comprehensive safety culture assessment should include all major organizational functions, as described in Safety Guide NS-G-2.4: The Operating Organization for Nuclear Power Plants **[5]**:

- Policy making functions (concentrating on one nuclear facility, but also including all those corporate activities, directly related to the facility);
- Operating functions (including executive decision making);
- Supporting functions (including technical and administrative services);
- Reviewing functions (including critical monitoring of the facilities' performance).

The above organizational functions are meant to reflect the reality of nuclear facilities, but with modifications, should be adaptable to other types of nuclear organizations (regulatory bodies, design organizations, etc.).

In relation to staff responsibility levels, a comprehensive safety culture assessment should include all responsibility levels in a nuclear facility "from the boardroom to the shop floor".

More specifically, the SCART approach follows INSAG-15: Key Practical Issues in Strengthening Safety Culture **[6]**. This document includes the following distinct levels of responsibility in the analysis of safety culture:

- Members of boards of directors;
- Chief nuclear officers and executive officers;
- Station directors and senior managers at nuclear facility level;
- Middle-level managers (operative nuclear facility level);
- First line supervisors (team level, managing 'face to face' groups);
- Shop floor level (operators, maintenance staff, technicians, etc.).

The first two levels (members of boards of directors, chief nuclear officers and executive officers) are in most cases corporate functions. They are included in the safety culture assessment as far as their activities relate to the safety culture of the nuclear facility.

Although it might appear practical, it is not advisable to restrict the assessment of safety culture to specific levels of responsibility or functional areas in the nuclear facility, where weaknesses or problems have been encountered in the past. The nuclear facility should be analyzed as a whole.

2.3. SCART ASSESSMENT VARIABLES

SCART directly relates to the IAEA Safety Guide GS-G-3.1: Application of the Management System for Facilities and Activities [4]. Broad agreement on the key characteristics of safety culture has gradually emerged in recent years and is documented in GS-G-3.1. The framework identified in GS-G-3.1 consists of five key safety culture characteristics, which in turn relate to a set of corresponding attributes. The attributes are short descriptions of a specific organizational performance or attitude in a nuclear facility, which, if fulfilled, would characterize this performance or attitude as belonging to a strong safety culture.

The IAEA framework of safety culture characteristics with corresponding attributes is used both to reach a common understanding of safety culture, and to define assessment variables in SCART. The 37 attributes of the five safety culture characteristics constitute the basis for the safety culture review and are listed in Annex I.

2.4. SCART ASSESSMENT APPROACH

For a valid assessment result to emerge, the review process must have built-in checks and balances. This is especially important for SCART missions because of the intangibility of safety culture and the diversity of experiences among different reviewers. It is the integration of individual opinions that leads to expertise of the SCART team.

In order to develop an independent opinion, every SCART reviewer, as a team member, needs to be 'protected' against the views of other team members. Additionally, the team has to be 'protected' against the views of an individual, no matter how experienced or influential he/she might be. The SCART process must, therefore, have mechanisms in place that ensure that

individual deliberations give rise to review decisions about safety culture that are more than personal preferences of members of the team. Opinions on beliefs, values, norms and behaviours need to be justified and validated in the team — this is absolutely essential for the success of the SCART assessment.

The SCART process, as described in these guidelines, has two essential features that give it checks and balances and protect it, as a process, against eventual biases of the team members.

The two features are:

- Parallel and independent evaluation of the safety culture attributes by several reviewers with a qualitative and quantitative output (comments and ratings); and
- Managed, in depth team opinion building, which arises from the individual comments and ratings.

The combination of the two features, independent individual opinion building, and astutely managed team opinion building, is essential to ensure that SCART is protected against the possible bias of any single reviewer.

3. SCART REVIEW METHOD

3.1. DATA GATHERING

The data gathering during the SCART mission is based on three data gathering tools: interviews with managers and staff, behaviour observations, and review of documentation.

3.1.1. Interviews with managers and staff

Interviews with managers and staff are considered the main data gathering tool in SCART. The basic objectives of using interviews in SCART missions are:

- To gain a differentiated opinion on the organizational and business performance features of the nuclear facility which may have implications for safety;
- To gain an opinion on the degree of compliance with safety-related policies, processes, and procedures;
- To gain an opinion on the degree of formal and informal acceptance and understanding for safety-related policies, processes, and procedures;
- To gain an opinion on tacit social norms, beliefs, attitudes, and values of management and staff, especially, concerning their relevance to safety.

Interviews represent a personal contact between a reviewer and a respondent with — ideally — an unconstrained flow of information. It can range from a highly structured situation to a fairly informal conversation. These degrees of freedom represent both opportunities and drawbacks. Topics may be explored with intensity, but the interview may not yield the appropriate data or the reliability of the data might be low. Essential for the success of the interview is the assurance of confidentiality.

Appropriate for SCART missions is the semi-structured type of interviews. While a structured interview setting has a formalized, limited set of questions, a semi-structured interview is flexible, allowing new questions to be brought up during the interview as a result of what the interviewee says. The interviewer in a semi-structured interview setting generally has a framework of themes to be explored. A list of suggested themes and guiding questions, applicable for SCART interviews, are listed in Annex II.

During SCART interviews, notes are taken which should include as a minimum the following:

- Duration of the interview;
- Main responsibilities of the interviewee;
- Major guiding questions;
- Summary of the answers;
- Opinion of the interviewee, if available, on safety-related strengths, preferably illustrated by examples;
- Opinion of the interviewee, if available, on safety-related areas for improvement, preferably illustrated by examples;
- Observational experience during the interview, including a general estimate of the interview atmosphere.

A SCART interview should, as a rule, encompass three stages:

- *Stage 1: Establishing a relationship of trust and cooperation with the interviewee*: Professional skill and experience are needed in this stage to establish a fruitful atmosphere with a common objective (data gathering) and growing mutual trust.
- *Stage 2: Data gathering*: In this stage the two partners (interviewer and interviewee) should clearly take distinct roles. The answers of the interviewee deliver information which is accepted or further questioned by the interviewer. The answers are recorded. At the same time, the interview situation should not transmute into an interrogation. Suggestive or "helpful" questions are usually counterproductive. Mutual respect and openness about the core objectives of the interview are essential.
- *Stage 3: Discussion and closing*: It may appear necessary that the issues, raised by the interviewee, need to be discussed and even evaluated. A mindful and discretionary approach is needed in this stage, although the opinion of the interviewer should be stated as openly and as clearly as possible.

All SCART interviews are kept within a 60 minute time span (90 minutes including preparation and note taking).

3.1.2. Behaviour observations

Behaviour observations in SCART missions are related to specific activities in the nuclear facility, which are expected to be particularly sensitive to safety culture issues. These may include:

- Shift changeover;
- Routine inter-departmental meetings;
- Pre-job briefing by supervisors;
- Post-job review;
- Team meetings and project management conferences;
- Presentations of tests and research results;
- Evaluation of concepts and mid-term results;
- Training sessions, including simulator training.

The direct observation of activities in the nuclear facility should be discreet and unobtrusive. In general, when observing a meeting or a process, it is important to maintain an emphasis on observation and to avoid drifting into interviewing.

To prevent fatigue, observation episodes in SCART missions should not generally exceed 60 minutes, unless the object of observation demands otherwise.

It is advisable to try to take as many notes during observation as one can (provisional notes may include quotations, chronology of events, incidents, descriptions, sketches of the scene, etc.). If the situation does not allow taking notes on the spot, the reviewers should take mental notes and record them as soon as an opportunity arises. It is important to minimize the time between the observation and the writing of the field notes. The observational field notes should not be written later than the evening of the same day.

The observational notes should include as a minimum the following:

- Location and duration of the observation;

- List of involved staff with short description of responsibilities;
- List of topics (in observed meetings and discussions);
- Observed behaviour patterns, especially when related to safety;
- A general estimate of the atmosphere.

3.1.3. Review of documentation

The review of documentation during SCART missions should be seen as a supplementary method. Most of the required documentation should be analysed in advance, before the beginning of the mission. For this reason, an advance information package should be prepared and distributed to all reviewers (see 4.2.3.).

During the SCART mission, documents relevant for safety culture might have to be reviewed to check for presumed inconsistencies or contradictions arising from interview data. Usually the reviewed documents will be of the following kind:

- Documents produced by the national regulatory bodies, or on their behalf, such as: legislation, regulations or regulatory guides on human factors, management of safety and safety culture;
- Vision and mission statements;
- Policy statements on safety;
- Arrangements for safety, including assignment of responsibilities;
- Documents for handling concerns for safety, including general employee concerns;
- Procedures for resource allocation and qualification of personnel who deals with safety;
- Procedures for recruitment strategies, especially in their relation to safety;
- Procedures for event analysis and operational experience feedback;
- Documented training activities with special emphasis on safety, including training curricula; and
- Any other information which might be considered appropriate in the specific assessment circumstances.

3.2. ATTRIBUTE EVALUATION

3.2.1. Individual attribute evaluation

All data gathering activities in SCART missions (interviews with managers and staff, behaviour observations, and review of documentation) should enable the SCART reviewers to develop a founded individual opinion, which is then transformed into a team opinion.

This is achieved usually in five steps for the five safety culture characteristics (see 4.3). Within each step, the SCART reviewers reach their own conclusions for all attributes of one safety culture characteristic.

At the end of the data gathering for one safety culture characteristic, the reviewers summarize their evaluation in comments for each of the attributes. In addition to the reviewers' comments, the reviewers rate each attribute; applying a 9 point scale (the reviewers assign ratings from 1 to 9). Higher ratings mean greater correspondence between the safety culture attribute, and the empirical data, or — formulated differently — greater evidence for a strong safety culture concerning the specific attribute.

When rating the attributes, the reviewers may be supported by behavioural descriptions (anchors) for each attribute. Where applicable, the behaviour anchors should be specifically tailored before the SCART mission, and they should also consider the national or regional culture of the area, where the nuclear facility is located.

The rating of the attributes enables the reviewers to focus their attention towards differences and thus stimulates the discussion component within the team evaluation, including the identification of strengths and areas for improvement.

The output of the individual evaluation process consists of data spreadsheets for each reviewer. The spreadsheets contain both comments and a rating value for all assessed attributes, and are delivered electronically to the team leader.

3.2.2. Team attribute evaluation

The SCART team is expected to develop a common team opinion for every safety culture attribute. The team opinion presupposes sharing of individual evaluations between the team members, and is the basis for the identification of strengths and areas for improvement.

While individual comments comprise the basis for the team discussion on each safety culture attribute, the rating process is designed to expose gaps and disparities between reviewers in the team in an overt and transparent way. The rating process also forces the team members to focus on the reasoning behind any scoring decisions made.

Both, ratings and facilitated safety culture discussion act as a check and balance to ensure the veracity of the SCART outcome.

The development of the team opinion for each of the assessed safety culture attributes is achieved through a team process, which incorporates several phases:

First: The comments and ratings from all reviewers for each attribute are combined by the team leader into a common SCART data spreadsheet. In order to estimate the central tendency of all reviewers' evaluations, the median[1] is calculated.

The estimation of the median of the individual opinions in the SCART team is based on the assumption that all reviewers are considered equally important for the review. In contrast, as the attributes of a given safety culture characteristic can neither be considered equally important nor can their interdependence be ruled out, any averaging of ratings across different attributes of one safety culture characteristic is not advisable. Similarly, calculating a "safety culture index" as the central tendency of all attributes (for all characteristics) is not advisable.

[1] In statistics, the median is the middle number of a group of scores; that is, half the numbers have values that are greater than the median, and half the numbers have values that are less than the median. If there is an even number of scores, the median is not unique, so one should take the mean of the two middle values. The median is generally considered the method of choice for a small group of independent reviewers with usually skewed distribution.

Second: The individual comments, the individual rating values and the medians (team ratings) are presented to the team.

Third: The evaluations for each attribute are discussed in the SCART team. A common team evaluation for each attribute is jointly elaborated. The team evaluation allows the identification of strengths and areas for improvement.

Attributes identified as *strength* reflect a specific organizational performance or attitude at the nuclear facility which would characterize it as belonging to a strong safety culture. This is reflected in high SCART median ratings (rating values from 7 to 9).

Similarly to strengths, a safety culture attribute may be identified as an *area for improvement.* In areas identified for improvement, the organizational performance or attitude at the nuclear facility does not correspond to what is expected according to IAEA Safety Standards. The SCART team's view in relation to these attributes is that in order to achieve a strong safety culture, improvement should be considered necessary. Low SCART median ratings (rating values from 1 to 3) reflect areas for improvement. Identification of areas for improvement usually leads to recommendations concerning the area.

All calculated medians should be kept within the SCART team. They should not be included in the mission report, as they might be used for benchmarking, which is not a feature of the SCART approach and objectives.

3.2.3. Handling cases of disagreement among reviewers

It is probable that for some attributes there will be considerable variation between individual reviewer evaluations (and ratings). Considerable variation should be defined as discrepancy of 4 points or more between the individual ratings of the same safety culture attribute.

In some of these cases, the variations between the ratings, and/or comments of different reviewers may result from misunderstandings. These are resolved in the team discussion.

In other cases, however, the differences of opinion between the reviewers may reflect their different experiences in interviews and observations during the mission. The moderated team discussion in such cases aims at understanding the reasons for these deviations. They should be seen as chances for the SCART team to develop a deeper grasp of the safety-related values, beliefs, and attitudes in the assessed organization.

If it is not possible to reach an agreement in the SCART team, the assessment of the attribute is postponed until after the interviews of senior management staff, and then discussed in the team again. Additional data gathering may also be initiated. The team leader decides on the further approach to resolve all issues of disagreement in the team.

3.2.4. Formulating recommendations and suggestions

Based on the joint identification of strengths and areas for improvement, the SCART team develops recommendations and suggestions. The team leader moderates and facilitates the discussion.

A *recommendation* is advice on how improvements in safety culture can be made in areas that have been identified as areas for improvement (rating values 1 to 3). All attributes rated 1 to 3 should be considered for one or several recommendations. Recommendations should be based on IAEA Safety Standards and should address the identified issues rather than the symptoms of the raised concerns. A recommendation may relate to generic aspects of safety culture or

deal with a specific safety-related activity. A recommendation should be realistic and designed to result in tangible improvements.

For those attributes, which are identified neither as areas for improvement nor as strengths (rating values 4 to 6), it may be appropriate to formulate suggestions.

A *suggestion* is advice on how to continue on the way of improving safety culture although no overt weaknesses have been identified. It should be based on IAEA Safety Standards and should be primarily intended to indicate enhancements of existing safety-related activities or approaches and to point out superior alternatives to these current activities or approaches.

3.2.5. Identifying good safety culture practices

SCART has the objective not only to assist the nuclear facility in the enhancement of safety culture, but also to spread good safety culture practices to other nuclear facilities and Member States.

In order to achieve this objective, the reviewers are encouraged to look for good safety culture practices, and to describe them in written form. All proposed good practices are discussed in a subsequent team meeting, and if a group agreement is reached, the identified good safety culture practices are included in the report. Usually, identified strengths (rating values 7 to 9) serve as basis for formulating a good practice.

A *good safety culture practice* is an outstanding organizational activity at the nuclear facility related to safety culture, superior to activities observed elsewhere. It should be more than just the fulfilment of current expectations. It must be superior enough to be worth bringing to the attention of other nuclear facilities as a model in the general drive for human performance excellence.

A good safety culture practice should have the following characteristics:

- A degree of novelty;
- A proven benefit;
- Replicable in other facilities or circumstances.

4. SCART MISSION PROCESS

4.1. INITIATION OF THE SCART MISSION

A SCART mission is initiated only after the IAEA has been approached by a nuclear facility from a Member State or by the Member State itself, and the request has been formally accepted by the IAEA. The parties involved agree on the funding arrangements in advance.

4.2. PRE-SCART MISSION AND PREPARATORY ACTIVITIES

4.2.1. Pre-SCART mission

A Pre-SCART mission should be conducted 6 to 12 months prior to the SCART mission. Preferably, it should be carried out by authorized IAEA staff at the nuclear facility to provide an opportunity to interface with managers and potential counterparts and to discuss the objectives, methodology and benefits of SCART to a larger number of management and staff of the nuclear facility. It is advisable that the future SCART team leader takes part in the Pre-SCART mission.

The Pre-SCART mission includes the following activities:

- A walk-down of the nuclear facility;
- The scope of the SCART assessment is explained by the future team leader;
- The SCART assessment process is explained by the future team leader;
- The time of the SCART mission and the planning schedule are agreed;
- Preparation of an advance information package is agreed;
- Already available documentation or other data is collected;
- Financial arrangements and logistic support are agreed.

If not decided by this point, the nuclear facility should appoint a contact person (host facility peer) to coordinate the activities with the IAEA.

The decision whether to develop and apply a staff questionnaire survey as a form of self-assessment of safety culture, is also to be made during the Pre-SCART mission because of the time necessary to achieve results. The survey is then administered in the period between the Pre-SCART mission and the SCART mission.

An important part of the Pre-SCART mission is to discuss administrative and logistical details. These might include:

- Interpretation capabilities;
- Offices;
- Administrative support, including a technical secretary;
- Hotel and transportation arrangements; and
- Dress code.

4.2.2. Self-assessment of safety culture through staff questionnaire survey

It may be considered appropriate that a staff questionnaire survey is carried out in the period between the Pre-SCART mission and the SCART mission. The responsibility for developing

and applying staff surveys lies with the host facility. IAEA safety culture experts may support the process with methodological advice.

Staff questionnaires are professionally prepared lists of items (questions or statements) that can be sent through mail or distributed at the work place. The main benefits of staff questionnaire surveys are:

- Questionnaires can be prepared, sent, administered and analysed in advance, before the beginning of the SCART mission;
- Questionnaires can be administered to a very large sample of employees in the nuclear facility;
- Questionnaires are the only assessment tool which might ensure anonymity of response.

Staff questionnaire surveys are especially susceptible to low response rates and particular response biases, like response tendencies (answering all questions according to a predetermined pattern) and social desirability (giving answers that the respondent thinks the management wants to receive). To minimize such biases, the staff questionnaire survey should be prepared and executed with professionalism and utmost care.

In order to ensure collection of qualitatively sound data, sufficient attention should be given to all steps in the preparation and application of the safety culture survey:

- Item formulation;
- Composition of questionnaire;
- Administration;
- Controlling the rate of return;
- Statistical data analysis;
- Data interpretation.

The decision to apply staff questionnaires should be made during the Pre-SCART mission because of the time necessary to plan and conduct the survey prior to the SCART mission. The data from the survey should be available to the SCART team at least one month before the SCART mission.

4.2.3. Advance information package

To facilitate the SCART mission within the limited time available, the nuclear facility is requested to prepare an advance information package.

To the extent possible, existing documentation should be used to reduce the burden on the preparation by the nuclear facility.

The documents in the advance information package should be provided in English, as it would facilitate their review by the SCART team members. However, it is recognized that translation could be cost prohibitive and therefore alternative arrangements could be made for their review, e.g. through nuclear facility personnel competent in English.

The package provided to the team should reach the team members approximately two months in advance of the mission.

The advance information package should include:

- A list of the counterparts and their contact information;
- Agreed upon schedule of the SCART mission;
- An overview of regulations on all types of safety (e.g. nuclear safety, occupational safety, environmental safety), regulations on nuclear security and fitness for duty in the nuclear facility;
- An overview of any specific regulations related to safety culture in the nuclear facility;
- Basic technical information (not more than 5 to 10 pages);
- Organizational and policy information, including all organizational charts and mandates;
- Information on the business plan, mission and vision statements, and main goals of the nuclear facility;
- Safety policy statements, if not included in the business plan, mission and vision statements;
- A copy of the table of contents of the administrative or technical procedures;
- Short descriptions of any safety culture related activities such as trainings, seminars, and performance improvement programmes;
- A summary of results from any internal or external assessments related to safety culture (if available);
- Any other technical or managerial information that the nuclear facility would consider useful to the SCART team; and
- Administrative information related to the SCART mission (arrival logistics, accommodations, site access, etc.).

4.2.4. SCART team composition and responsibilities

The SCART team should include:

- A team leader;
- A deputy team leader;
- Four to six team members;
- Observers.

The team leader selects SCART team members to provide the team with an adequate depth and scope of expertise in safety culture. The composition of the SCART team should reflect the objectives as well as the scope of the assessment.

The basic requirement in forming the SCART team is to ensure that there is a varied but balanced pool of skills and knowledge in the area of safety culture assessment. An efficient SCART team should be comprised of individuals who possess broad knowledge of safety culture and, in particular, how safety culture is developed and maintained in a nuclear facility. Behavioural scientists (at least two of the reviewers) as well as technical specialists with solid grasp of behavioural scientific concepts should be part of the team. All team members should have experience in review activities, including interview and observation techniques.

The host nuclear facility or Member State may propose reviewers from other countries to serve as SCART team members; however, no reviewers from the host country may serve as team members. The team leader should consider the proposals of the host country for team members.

The SCART team leader is an IAEA staff member. The team leader's responsibilities include:

- Acting as the official liaison with the nuclear facility;
- Representing the IAEA in entrance and exit meetings and conducting them;
- Selecting SCART team members and arranging for training;
- Planning and coordinating the review;
- Coaching team members;
- Conducting daily meetings;
- Ensuring adherence to schedule/guidelines;
- Joining team members in interviews, if considered necessary;
- Informing facility manager/government officials/regulatory body of progress and results;
- Coordinating and supervising the data gathering process;
- Leading the team in producing the SCART preliminary mission report and final report.

The deputy team leader is an experienced outside safety culture expert, or an IAEA staff member. The deputy team leader's responsibilities include:

- Supporting the team leader in his/her responsibilities, including planning and coordinating the review;
- Coaching team members in the data gathering process;
- Joining team members in interviews, if considered necessary;
- Supporting the team leader in producing SCART preliminary mission report and final report.

Team members' responsibilities include:

- Conducting the review in accordance with the guidance provided by the SCART Guidelines;
- Conducting the review in accordance with the schedule and guidance of the team leader;
- Attending team meetings and all activities as directed by the team leader;
- Providing input (comments and ratings) for all reviewed safety culture attributes;
- Assisting in drafting and finalizing the SCART preliminary mission report and final report.

Observers are safety culture experts or managers from other Member States, who are interested in learning about the SCART approach to safety culture assessment. The observers' responsibilities include:

- Observing the SCART process;

- Participating in activities of the SCART team;
- Under the direction of team leader and the team members, contributing to attribute assessment, including interviews;
- Reporting lessons learnt to their home country and organization.

4.2.5. Host facility peer and counterparts

The host nuclear facility should appoint a host facility peer with the following characteristics:

- The host facility peer is a senior staff member from the nuclear facility knowledgeable of the main processes at the facility;
- The host facility peer is not a reviewer on the SCART team;

The responsibilities of the host facility peer include:

- Participating in all meetings of the SCART team;
- Supporting the team leader as appropriate.

It is advisable that the host facility peer be exempted from his/her other responsibilities during the SCART mission.

In cases of misunderstanding or issues needing further clarification, the host facility peer advises the SCART team leader about facility staff who are responsible or knowledgeable in specific areas that could provide clarification.

In addition to the host facility peer, one facility specialist should be allocated to each of the team members as a counterpart. It is helpful for the SCART team if the counterparts come from different functional areas.

4.3. SCART MISSION SCHEDULE

4.3.1. SCART team training

The SCART team training should be conducted at the nuclear facility before the beginning of the SCART mission.

Team leader, deputy team leader, team members, observers, host facility peer, counterparts, and eventually interpreters, are expected to attend the SCART team training. The duration of the team training should not be less than two working days.

The training should be designed to contribute in the following areas:

- Better understanding of the safety culture related IAEA Safety Standards (Fundamentals, Requirements, and Guides);
- Better understanding of the technical challenges, specific for the facility;
- Better understanding of the safety challenges, specific for the facility;
- Enhanced methodological knowledge of the participants concerning SCART data gathering, particularly, interviews, observations, and documentation analysis;
- Enhanced methodological knowledge of the participants concerning SCART individual and team evaluation process; and

- Contribution to mutual understanding between SCART team members, nuclear facility peer, counterparts, and interpreters.

All training participants should receive advance copies of the relevant IAEA Safety Standards as soon as they are confirmed as team members or counterparts. These will be reviewed with respect to safety culture issues. In addition, all training participants will receive advance copies of the SCART Guidelines and related materials at least one month prior to training.

More specifically, the SCART team training includes:

- Introduction of team members;
- Presentation of the schedule and team leader expectations, including expectations regarding the professional conduct of SCART reviewers during the mission;
- Explaining the planned SCART assessment process according to the mission schedule;
- Discussing the content of the advance information package with the aim to get better knowledge of the nuclear facility;
- Training in assessment tools such as interview techniques, observational techniques, note taking;
- Training in writing comments and rating the attributes, including exercises;
- Training in formulating recommendations, suggestions as well as good safety culture practices including examples;
- Information on the mission report (layout, style, division of tasks).

4.3.2. Entrance meeting

The purpose of the entrance meeting is to discuss the SCART mission as well as to introduce the team members, host facility peer, and counterparts. Both parties (host facility and SCART team) would be expected to state their primary objectives for the SCART mission. The SCART team leader should provide a brief outline of the approach, expectations, and schedule for the SCART mission.

4.3.3. General overview of the facility and facility tour

Both the general overview through presentations and the facility tour deliver important first hand information to the SCART team. It is advisable that the host facility prepares a set of presentations about all major functional areas in the facility. At least half a day should be reserved in the SCART mission schedule for these presentations. As a minimum, the following areas should be elaborated:

- Management structure and management system;
- Operation;
- Maintenance;
- Engineering and technical support;
- Environment, health and safety;
- Human resources.

An initial facility tour (walk-down) should be carried out as well. The purpose is to acquire practical knowledge of the facility. This should mainly include observations of equipment, housekeeping and material condition, and as far as possible, the general staff attitude towards safety.

4.3.4. Arrangement for interviews and observations

Each reviewer conducts at least four interviews, two in the morning and two in the afternoon. Usually characteristics A, B and C are assessed in the first week, characteristics D and E are left for the second week. Observational activities are scheduled during the whole data gathering process of the SCART mission.

For each characteristic, representatives of all responsibility levels from middle management to shop floor, and from all functional areas should be included in the interview list. Special attention should be given to representatives of operation and maintenance areas. These two areas should constitute at least half of the interviewees.

It is advisable that interviews with senior management are scheduled at the end of the data gathering process. Such interviews have their own specifics and necessarily relate to all safety culture characteristics. The positioning of these interviews at the end of the data gathering allows the reviewers to discuss issues encountered by the SCART team up to this point.

4.3.5. Afternoon team meetings

Each working day, the team leader holds two daily team meetings, one at the beginning of the day, named “Morning team meeting” and one at the end of the interviews, named “Afternoon team meeting”. The host nuclear facility peer takes part in the meetings.

During the afternoon team meeting, each reviewer presents to the other team members his/her main interview data. The reviewers report only factual aspects. This factual sharing (no opinion sharing!) is aimed to enlarge the empirical basis of the reviewers, without a predetermination of the individual opinion building.

In addition, the following other topics may be included in the afternoon team meeting:

- Engaging the SCART team members in an exchange of experience on the process of data gathering and deciding on improvements of the process;
- Providing insight on specific questions or problem areas in relation to safety culture;
- Discussing strategies for additional data gathering, if necessary.

After the afternoon team meeting, the reviewers prepare their individual comments and ratings for all attributes of the assessed safety culture characteristic. The comments and ratings are delivered to the team leader.

4.3.6. Morning team meetings

On the next morning, during the morning team meeting, the team leader facilitates the team evaluation consecutively for all addressed safety culture attributes. This includes the presentation of the median by the team leader for each attribute. All reviewers report in detail on their individual evaluation (comments and individual ratings) for each of the discussed attributes. A moderated team discussion follows, which leads to a common team evaluation.

4.3.7. Team meetings after the completion of the data gathering

After the completion of the data gathering, additional team meetings are scheduled with the aim to formulate recommendations and suggestions, and to identify good safety culture practices.

4.3.8. SCART mission output

The SCART mission output is a preliminary report, which should include the following areas:

- Short description of the assessed nuclear facility, including the organizational structure;
- Description of the assessment process;
- Identified strengths and areas for improvement in the safety culture of the nuclear facility;
- Recommendations and suggestions for improvement, while taking into account national and regional specificity of safety culture at the nuclear facility;
- Identified good safety culture practices as indications of an outstanding performance at the nuclear facility, superior to those observed elsewhere;
- Additional advice, if considered necessary, on specific safety culture related developments;
- Overall conclusion.

All team members contribute to the drafting of the preliminary report, while the overall responsibility for the report stays with the team leader. The preliminary report is presented to the nuclear facility at the SCART exit meeting.

The team leader finalizes the report at the IAEA Headquarters. The report is based on IAEA Safety Standards and other IAEA safety-related documents. The recommendations, suggestions, and good practices, which are formulated at the end of the SCART mission, should stay unchanged in terms of content. For these, only editing changes should be considered acceptable.

Before the text of the SCART mission report is finalized, the management of the nuclear facility is given the opportunity to comment again.

The final report is submitted to the nuclear facility and the regulatory body of the Member State concerned. Further distribution is at the discretion of the Member State.

4.3.9. Exit meeting

The exit meeting is aimed to inform the nuclear facility about the SCART mission results, including a copy of the preliminary report.

It is for the management of the nuclear facility to decide whether media representatives are invited to the exit meeting. In such cases, the team leader and deputy team leader should participate in the press briefing organized by the nuclear facility. In consultation with team members, the team leader may prepare a press statement on the outcome of the SCART mission. It describes the general results of the mission without going into detail. It should be emphasized that the results are preliminary and a factual review and detailed analysis and

assessment will have to be accomplished before the final report can be issued. The press statement also describes any agreed follow-up steps by the IAEA.

4.3.10. Example of a SCART mission schedule

Below is an example of a SCART mission schedule. The host nuclear facility peer is responsible for all necessary staff arrangements to accomplish the schedule.

		Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4
Saturday	Day 1	**SCART Team Training**			
Sunday	Day 2				
Monday	Day 3	**Entrance meeting**			
		General overview of the nuclear facility (General presentations)			
		Facility tour			
Tuesday Characteristic A	Day 4	OPER/Middle manager	OPER/First line supervisor	OPER/Shopfloor	OPER/First line supervisor
		MAINT/Middle manager	MAINT/First line supervisor	MAINT/Shopfloor	MAINT/Middle manager
		ENG/Middle manager	TS/Middle manager	ENG/First line supervisor	TS/First line supervisor
		OBS/Shift changeover	OBS/Post-job review	OBS/Post-work review	OBS/Simulator training
Wednesday Characteristic A	Day 5	OPER/First line supervisor	OPER/Shopfloor	OPER/First line supervisor	OPER/Middle manager
		MAINT/First line supervisor	MAINT/Shopfloor	MAINT/Middle manager	MAINT/Middle manager
		TS/Middle manager	ENG/First line supervisor	TS/First line supervisor	ENG/Middle manager
		OBS/Mock-up training	OBS/Intervention in controlled area	OBS/Shift changeover	OBS/Regulatory Interface
Thursday Characteristic B	Day 6	OPER/Shopfloor	OPER/First line supervisor	OPER/Middle manager	OPER/First line supervisor
		MAINT/Shopfloor	MAINT/Middle manager	MAINT/Middle manager	MAINT/First line supervisor
		ENG/First line supervisor	TS/First line supervisor	ENG/Middle manager	TS/Middle manager
		ADMIN/Middle manager	HR/Middle manager	H&S/Middle manager	QA/Middle manager
Friday Characteristic C	Day 7	OPER/First line supervisor	OPER/Middle manager	OPER/First line supervisor	OPER/Shopfloor
		MAINT/Middle manager	MAINT/Middle manager	MAINT/First line supervisor	MAINT/Shopfloor
		H&S/Middle manager	QA/Middle manager	ADMIN/Middle manager	HR/Middle manager
		OBS/Pre-job briefing	OBS/Intervention in controlled area	OBS/Senior management meeting	OBS/Regulatory interface
Saturday	Day 8	**Formulating recommendations, suggestions and good practices for safety culture characteristics A, B, and C**			
Sunday	Day 9	**Social activities**			
Monday Characteristic D	Day 10	TS/First line supervisor	ENG/Middle manager	TS/Middle manager	ENG/First line supervisor
		HR/Middle manager	H&S/Middle manager	QA/Middle manager	ADMIN/Middle manager
		QA/Middle manager	ADMIN/Middle manager	HR/Middle manager	H&S/Middle manager
		OBS/Simulator training	OBS/Daily management meeting	OBS/Senior management meeting	OBS/Routine inter-department meetings
Tuesday Characteristic E	Day 11	OPER/Middle manager	OPER/First line supervisor	OPER/Shopfloor	OPER/First line supervisor
		MAINT/Middle manager	MAINT/First line supervisor	MAINT/Shopfloor	MAINT/Middle manager
		ENG/Middle manager	TS/Middle manager	ENG/First line supervisor	TS/First line supervisor
		H&S/Middle manager	QA/Middle manager	ADMIN/Middle manager	HR/Middle manager
Wednesday Senior management	Day 12	Senior management	Senior management	Senior management	Senior management
		Senior management	Senior management	Senior management	Senior management
		Formulating recommendations, suggestions and good practices for safety culture characteristics D and E			
Thursday	Day 13	**Drafting preliminary report**			
Friday	Day 14	**Exit meeting**			

Table 1: Example of a SCART mission schedule for four reviewers: Observation (OBS), and interviews in eight functional areas: Operation (OPER), Maintenance (MAINT), Engineering (ENG), Technical Support (TS), Health and Safety (H&S), Quality Assurance (QA), Administration (ADMIN), Human Resources (HR); and four responsibility levels: Senior Management (SM), Middle Management (MM), First Line Supervisors (FLS), and Shop.

4.4. SCART FOLLOW-UP MISSION

SCART helps to identify good safety culture practices, strengths and areas for improvement. However, positive changes in safety culture are complex organizational processes that need time. The progress in dealing with areas for improvement identified during the SCART mission needs to be monitored at periods of time that are consistent with their significance and complexity. In this respect, a follow-up mission may be considered appropriate to support the implementation process.

A smaller team of reviewers (team leader, deputy team leader and one reviewer) should perform the follow-up mission. The purpose of the follow-up mission is to review the status of implementation and corrective action taken by the nuclear facility.

A follow-up mission should generally concentrate on the following issues:

- Is relevant information from the SCART report readily available to all concerned staff at the nuclear facility?
- Are the recommendations and suggestions of the SCART report incorporated into a safety culture improvement programme, and how is this programme implemented?
- Are staff members and contractors kept aware of progress in implementing the safety culture improvement programme?
- Is evidence of continuous improvement visible at all responsibility levels at the nuclear facility?

The SCART follow-up mission should be scheduled 12 to 18 months after the review mission.

To monitor continuous improvement, it might be desirable for the nuclear facility to engage in another SCART assessment, which should be conducted not earlier than three years after the original review mission.

REFERENCES

[1] INTERNATIONAL ATOMIC ENERGY AGENCY, Fundamental Safety Principles, IAEA Safety Standards Series No. SF-1, Vienna (2006).
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[3] INTERNATIONAL ATOMIC ENERGY AGENCY, Safety of Nuclear Power Plants: Operation, IAEA Safety Standards Series No. NS-R-2; Vienna (2000).
[4] INTERNATIONAL ATOMIC ENERGY AGENCY, Application of the Management System for Facilities and Activities, IAEA Safety Standards Series No. GS-G-3.1; Vienna (2006).
[5] INTERNATIONAL ATOMIC ENERGY AGENCY, Operating Organization for Nuclear Power Plants, IAEA Safety Standards Series No. NS-G-2.4; Vienna (2002).
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ANNEX I

LIST OF SAFETY CULTURE CHARACTERISTICS AND ATTRIBUTES (AS IN GS-G-3.1)

(A) *SAFETY IS A CLEARLY RECOGNIZED VALUE*

(B) *LEADERSHIP FOR SAFETY IS CLEAR*

(C) *ACCOUNTABILITY FOR SAFETY IS CLEAR*

(D) *SAFETY IS INTEGRATED INTO ALL ACTIVITIES*

(E) *SAFETY IS LEARNING DRIVEN*

Attribute Identifier	Attribute Description[2]
A.1.	The high priority given to safety is shown in documentation, communications and decision making
A.2.	Safety is a primary consideration in the allocation of resources
A.3.	The strategic business importance of safety is reflected in the business plan
A.4.	Individuals are convinced that safety and production go hand in hand
A.5.	A proactive and long term approach to safety issues is shown in decision making
A.6.	Safety conscious behaviour is socially accepted and supported (both formally and informally)
B.1.	Senior management is clearly committed to safety
B.2.	Commitment to safety is evident at all management levels
B.3.	There is visible leadership showing the involvement of management in safety related activities
B.4.	Leadership skills are systematically developed
B.5.	Management ensures that there are sufficient competent individuals
B.6.	Management seeks the active involvement of individuals in improving safety
B.7.	Safety implications are considered in change management processes
B.8.	Management shows a continual effort to strive for openness and good communication throughout the organization
B.9.	Management has the ability to resolve conflicts as necessary
B.10.	Relationships between managers and individuals are built on trust

[2] A key issue for the success of SCART Missions worldwide is the need for caution when translating safety culture attributes and adjacent explanations into different languages. Experience shows that this needs to be done by experts with profound knowledge of safety culture.

C.1.	An appropriate relationship with the regulatory body exists, which ensures that the accountability for safety remains with the licensee
C.2.	Roles and responsibilities are clearly defined and understood
C.3.	There is a high level of compliance with regulations and procedures
C.4.	Management delegate responsibility with appropriate authority to enable clear accountabilities to be established
C.5.	'Ownership' for safety is evident at all organizational levels and for all individuals
D.1.	Trust permeates the organization
D.2.	Consideration for all types of safety, including industrial safety and environmental safety, and of security is evident
D.3.	The quality of documentation and procedures is good
D.4.	The quality of processes, from planning to implementation and review, is good
D.5.	Individuals have the necessary knowledge and understanding of the work processes
D.6.	Factors affecting work motivation and job satisfaction are considered
D.7.	Good working conditions exist with regard to time pressures, work load and stress
D.8.	Cross-functional and interdisciplinary cooperation and teamwork are present
D.9.	Housekeeping and material conditions reflect commitment to excellence
E.1.	A questioning attitude prevails at all organizational levels
E.2.	Open reporting of deviations and errors is encouraged
E.3.	Internal and external assessments, including self-assessments, are used
E.4.	Organizational and operating experience (both internal and external to the facility) are used
E.5.	Learning is facilitated through the ability to recognize and diagnose deviations, to formulate and implement solutions and to monitor the effects of corrective actions
E.6.	Safety performance indicators are tracked, trended, evaluated and acted upon
E.7.	There is systematic development of individual competences

ANNEX II

LIST OF THEMES AND GUIDING QUESTIONS FOR THE SCART INTERVIEWS

Characteristic A: Safety is a clearly recognized value

Attribute A.1: The high priority given to safety is shown in documentation, communications and decision making:

Major guiding questions:

SAFETY POLICY

- In what way is current safety policy being brought to the attention of staff members and contractors? Who decides on the information strategy?
- If a safety policy statement has been issued, what is its content?
- How does the safety policy statement affect the day to day work of staff members and contractors at the nuclear facility?
- Can staff members and contractors cite examples from the safety policy statement that illustrate its meaning?

EXPECTATIONS

- What documents are there, which formulate management expectations for safety, and with what content?
- Can staff members and contractors cite examples of the expectations of the senior management regarding safety?

MEETINGS

- In what way do daily or weekly management meetings at the nuclear facility cover safety significant items?
- Can senior managers describe how safety is discussed, when it is on the agenda of the board meeting?
- Can staff members and contractors cite examples of meetings at corporate (or facility) level when agenda items on safety were included?
- What are the opportunities for non-management staff to participate in meetings devoted to safety?

MEDIA-BASED COMMUNICATION (INTRANET, NEWSLETTER, OTHER MEDIA)

- In what way is media-supported communication being used to disseminate the safety policy to staff members and contractors? What about the real use of safety case/safety report documentation?
- What was the last safety relevant information staff members and contractors received and through which media? For example, the intranet, company newsletter, etc.

DECISION MAKING

- What are the duties of the senior manager with nuclear safety as a prime responsibility?
- How is he/she supported and assisted in his/her duties?

- What is his/her standing compared with that of the heads of other functions?
- During periods of heavy work-load, in what way do managers ensure that staff members and contractors are reminded that unnecessary haste and shortcuts are inappropriate?
- Can staff members and contractors describe situations when the rationale for significant decisions related to safety was communicated to a large group of individuals in the nuclear facility?
- Can staff members and contractors describe situations when assumptions and conclusions of earlier safety decisions were challenged in the light of new information, operating experience or changes in context?

Attribute A.2: Safety is a primary consideration in the allocation of resources:

Major guiding questions:

GENERAL ALLOCATION

- How do resources allocated to safety relate to the allocations of other nuclear facilities?
- In what way are the resource requirements for the safety function reviewed periodically at corporate level? With what results?
- When staff members and contractors have a safety relevant need, what is the procedure, so that staff members and contractors receive the needed resources?
- In what way is time considered a resource to do a job safely?

SPECIFIC AREAS (TRAINING, MAINTENANCE, OPERATION)

- How do resources allocated to training relate to the allocations of other nuclear facilities?
- How much of the training budget is allocated to special tools, mock-ups and video equipment per year?
- Can staff members and contractors describe examples when the allocation of resources affected the backlog of maintenance tasks and nuclear facility modifications? What was the process to resolve the conflict?

Attribute A.3: The strategic importance of safety is reflected in the business plan:

Major guiding questions:

BUSINESS PLAN

- In what way are staff members and contractors being informed about the content of the business plan?
- Can staff members and contractors site examples about the integration of safety performance goals, strategies, plans and objectives into the business plan?
- What do staff members and contractors know about it?

Attribute A.4: Individuals are convinced that safety and production go hand in hand:

Major guiding questions:

PROBLEM SOLVING

- Can staff members and contractors describe cases where there was apparent conflict between safety and cost or between safety and operation?
- What was the behaviour of managers in such cases?
- What about the behaviour of respected and experienced colleagues who are not managers?

COMMUNICATION

- When safety considerations introduce a delay in the start-up of the nuclear facility, in what way do managers use the occasion to illustrate that safety comes first?
- Can staff members and contractors site a positive example that the managers or other specialists are really committed to the view that a 'safety first' facility is also a well run facility? What about a negative example?
- What happens if somebody allows shortcuts to be taken in cases, where the unit is behind schedule?

Attribute A.5.: A proactive and long term approach to safety issues is shown in decision-making:

Major guiding questions:

PERSPECTIVE THINKING

- How do strategic and longer range planning processes take account of known and potential safety issues?
- How are schedules and content of work for annual shutdowns examined in the nuclear facility? How does the internal safety review process look like?
- What is the approach of managers at all levels when they have to cope with an unforeseen event requiring more staff at short notice?
- What happens if, for any reason, production requirements are permitted to interfere with scheduled training modules?
- What kind of a system for prioritizing maintenance work along safety requirements is established?
- What arrangements are there for staff members and contractors to catch up on missed training modules?

INCENTIVES

- What is the major focus of incentives and priorities for senior management?
- How are management incentive strategies discussed on the corporate level?

Attribute A.6: Safety conscious behaviour is socially accepted and supported (both formally and informally):

Major guiding questions:

REWARD AND PERFORMANCE APPRAISAL

- In what way do managers ensure that a safety conscious working environment prevails throughout the nuclear facility?
- What kinds of systems exist to appraise managers of safety accomplishments or shortcomings? How effective are such systems?
- In what way are staff members and contractors aware of the system of rewards and sanctions relating to safety matters?
- Can staff members and contractors give examples where individuals who transmit safety related concerns or potential improvements are rewarded and given public recognition?
- In what way do annual performance appraisals include a specific section on hazard awareness and safety conscious attitude?
- Can cases be identified in which safety conscious attitude was a significant factor in approving or rejecting a promotion to management level?

INFORMAL ATTITUDE

- In what way do managers or older, experienced employees give informal recognition to staff members and contractors who take actions beneficial to safety?
- What is the unofficial, informal response of management to safety infringements and violations of safety related technical specifications?
- In what way are good practices praised and poor ones challenged, especially in informal settings?
- How do first line supervisors deal with unsafe acts and/or conditions when they see them or when they are pointed out to them? Do supervisors say ‘well done’ when subordinates are doing something in a safe way?
- In what way do staff members and contractors point out to others in the nuclear facility when they see them doing something unsafe, even if it is not part of their job?

TRAINING

- In what way do training programmes at the nuclear facility address social acceptance of safety conscious behaviour?
- Can staff members and contractors find examples when people are joking about it? What can be the eventual reasons for the lack of acceptance?

Characteristic B: Leadership for safety is clear

Attribute B.1: Senior management is clearly committed to safety:

Major guiding questions:

SAFETY AS MAJOR MANAGERIAL TASK

- In what way are safety issues included in periodic meetings of the facility manager with his senior staff?
- In what way is safety mentioned in official communication from senior corporate and facility management?
- How would staff members and contractors describe the major worries of senior managers in their day to day work?

PRESENCE IN THE FIELD

- How often do senior corporate managers visit operating facilities to assess management effectiveness first hand?
- How are these visits conducted?

SUPPORT TO MIDDLE-LEVEL MANAGEMENT AND SUPERVISORS

- In what way do senior managers encourage middle-level managers and supervisors to look at other nuclear organizations and other parts of the own nuclear facility to see what they can learn from them?
- How do senior managers explain their commitment to safety to their staff?
- Can staff members and contractors describe how senior managers disseminate relevant information (such as objectives, expectations, expenditures, accomplishments and shortcomings) to middle-level managers and supervisors?
- In what way did senior managers support their middle-level managers and supervisors the last time that they stopped operations for safety reasons?

Attribute B.2: Commitment to safety is evident at all management levels:

Major guiding questions:

EXPECTATIONS AT INDIVIDUAL LEVEL

- What are the safety expectations of the facility manager, and how are these translated into the daily job of staff members and contractors? What is the role of middle management in communicating these expectations?
- In what way do middle-level managers and supervisors communicate their expectations on safety to their subordinates? How are these understood by the subordinates?
- How do middle-level managers and supervisors decide what kind of safety courses staff members and contractors should attend?

NO DEVIATIONS ACCEPTED

- In what situations would middle-level managers and supervisors consider deviations or shortcuts to be acceptable?
- How are deviations or shortcuts discussed in informal settings, during week-ends or holidays?

IMMEDIATE CORRECTION

- In what way do senior managers show that they are committed to correct significant weaknesses or vulnerabilities?
- What action do middle-level managers and supervisors take after they learn of deviations and non-compliance situations?
- How do middle-level managers and supervisors react to negative remarks about safety-conscious behaviour, when middle-level managers and supervisors hear them or when they are pointed out to them?
- In what way do subordinates inform middle-level managers and supervisors about poor procedures and what do middle-level managers and supervisors do about it?

Attribute B.3: There is visible leadership showing the involvement of management in safety related activities:

Major guiding questions:

PRESENCE IN THE FIELD

- How do managers inspect performance and conditions at the work-place?
- In what way do managers give attention to the physical working environment of their staff?
- What is the working style of the senior supervisors on shift? How do they seek information?
- Can staff members and contractors describe the way how shift supervisors visit the areas where safety related work is being done?
- How do supervisors discuss safety issues with their teams/work groups for which they are responsible?
- Can staff members and contractors describe situations, when seeing a manager at the work-place is considered an integral part of his/her work?
- What about situations, where seeing a manager at the work-place is considered an indication of trouble?

COACHING AND MENTORING

- In what way do managers participate in staff training courses at which safety policies and procedures are explained? How do they present the training material?
- Can staff members and contractors describe situations where managers spend time observing and coaching individuals at their work locations or provide constructive feedback to reinforce expected behaviour?
- Can staff members and contractors describe situations where managers encourage good colleagues to spend time as instructors?

IDENTIFYING SAFETY ISSUES

- How do senior managers identify safety issues and contribute to fixing them?
- Can staff members and contractors judge whether middle-level managers and supervisors have the necessary experience and knowledge of safety, in order to take action on the issues before them?

Attribute B.4: Leadership skills are systematically developed:

Major guiding questions:

SELECTION OF MANAGERS

- In what way do managers recognize that safety conscious attitude is important in the selection and promotion of staff? How is this recognition fostered?
- Can cases be identified in which safety conscious attitude was a significant factor in approving or rejecting a promotion to management level?

SUCCESSION PLANNING

- Can senior managers describe how succession plans relate to safety?
- In what way is safety leadership reflected in succession plans?

LEADERSHIP TRAINING

- In what way are leadership skills and techniques included in training programmes for managers and supervisors?
- In what way are change management skills taught to individuals in leadership roles?

Attribute B.5: Management ensures that there are sufficient and competent individuals:

Major guiding questions:

NEEDS AND RESOURCES

- In what way do managers ensure that staff members and contractors only perform work for which they are trained and qualified;
- In what way do managers identify weaknesses in their staff in order to specify training requirements or to provide other support?
- What is done by the senior management to prevent staff downsizing even if there are financial restraints on the corporate level?
- What resources are allocated to training? How does this compare with the allocations of other nuclear facilities?

PLANNING

- Who is responsible for following-up the training of staff?
- How frequently are production requirements permitted to interfere with scheduled training?

TRAINING CONTENT

- How are training needs assessed and training content established?
- What specific training have staff members and contractors received in the areas of process safety, radiological protection, and industrial safety practices?
- What is the minimum training schedule in order to maintain the qualification of staff members and contractors?
- What kind of preparations do staff members and contractors have to make before attending training?

- How are issues that may have come up on shift recorded so that staff members and contractors discuss them in training settings, including simulator training?

Attribute B.6: Management seeks the active involvement of individuals in improving safety:

Major guiding questions:

WELCOME TO CONCERNS RAISED

- How would a safety concern or improvement be brought to the attention of the management?
- What mechanisms are in place for highlighting safety suggestions?
- Who do staff members and contractors look to for technical guidance on safety issues? Why?
- Can staff members and contractors cite examples when senior managers actively seek dissenting views and diverse perspectives and encourage robust discussion of pending issues?
- Can staff members and contractors cite examples when their individual opinion mattered, when their input has led to positive change?

INVOLVEMENT IN ACTIVITIES

- How do managers involve their staff in discussions about what the real safety priorities are?
- How do managers discuss with their staff the results and the means by which deficiencies may be corrected?
- What is the attitude of managers to safety reviews and audits affecting their activities?
- When there is apparent conflict between safety and cost or between safety and operation, in what way do managers discuss the situation with staff members and contractors?

BRAINSTORMING AND SIMILAR TECHNIQUES

- In what way are operating staff involved in board meetings when these discuss the safety performance and look for principally new solutions?
- In what way do managers lead brainstorming sessions, for example in the investigation of safety problems, to assist effectively in seeking the causes and implementing improvements?

Attribute B.7: Safety implications are considered in the change management processes:

Major guiding questions:

CHANGE MANAGEMENT PROCESS

- What kind of change management process is established when changes to procedures, equipment, or organization are considered;
- How does senior management relate necessary change with safety issues?

TRUST IN TIMES OF CHANGE

- In what way are impending changes communicated to individuals so that high level of mutual trust is maintained throughout the nuclear facility?
- What kind of communication process is established to counter rumours and other undesirable influences on staff members and contractors?

Attribute B.8: Management shows a continual effort to strive for openness and good communication throughout the organization:

Major guiding questions:

COMMUNICATION SKILLS

- How skilled are managers in responding to questions in an open and honest manner?
- How well are managers prepared to facilitate open forum meetings to explain the context for issues and decisions on safety-sensitive matters, and to address potential blockages of communication?
- How well do managers encourage staff members and contractors to deliver ideas for improvement? How do managers act on the improvement proposals?

ENCOURAGEMENT FOR ASKING QUESTIONS

- How do managers communicate with staff members and contractors when they have doubts about safety?
- How do managers explain to staff members and contractors the current safety priorities?
- How do managers involve staff members and contractors in discussions about safety?

Attribute B.9: Management has the ability to resolve conflicts as necessary:

Major guiding questions:

CONFLICT RESOLUTION STRATEGIES

- What strategies may be applied by a senior manager, if middle-level managers in his/her responsibility area are in interpersonal conflict and don't communicate satisfactorily?
- In what way is conflict management part of leadership training curricula at the nuclear facility?
- In what way do free-time activities help to resolve interpersonal conflicts?

Attribute B.10: Relationships between management and individuals are built on trust:

Major guiding questions:

TRUST

- Can staff members and contractors describe whether managers are trusted by their subordinates to act professionally?
- How is the trust between managers and subordinates felt or experienced in the nuclear facility?

- Can staff members and contractors describe any management interventions that have built trust in the nuclear facility?
- Can staff members and contractors list “moments of truth” that have occurred in the past few months, and show that management responded by principle and not by expediency?

Characteristic C: Accountability for safety is clear

Attribute C.1: An appropriate relationship with the regulatory body exists that ensures that the accountability for safety remains with the licensee:

Major guiding questions:

POLICY TOWARDS THE REGULATORY BODY

- How are the role and authority of the regulatory body understood by managers, staff, and contractors in the nuclear facility?
- What level of co-operation exists between the regulatory body and the facility?
- In what way is the regulatory body consulted to obtain clarification and regulatory guidance?
- In what way do staff members and contractors view the regulatory presence on site (more as a help or hindrance)?

ATTITUDE TOWARDS THE REGULATORY BODY

- How much appreciation is there (if any!) in the nuclear facility of the professional competence of the resident representative of the regulatory body at the nuclear facility?
- How is the perception among staff members and contractors about political and other restraints in the work of the regulatory body? Is it considered really independent?

Attribute C.2: Roles and responsibilities are clearly defined and understood:

Major guiding questions:

DEFINITION OF RESPONSIBILITIES

- Who is responsible for safety within the nuclear facility?
- How are safety responsibilities assigned?
- How visible is the overall responsibility of the nuclear facility manager for safety?
- What are the documents which identify safety responsibilities?
- What is the procedure to review documents which identify safety responsibilities?
- To what extent are staff members and contractors able to clearly enunciate their own responsibilities? Can they cite the documents that define those safety responsibilities?
- When contractors are involved with work, how are their roles and responsibilities for safety defined in contractual documents?

INDIVIDUAL UNDERSTANDING OF RESPONSIBILITIES

- To what extent are staff members and contractors qualified to understand their responsibilities, especially concerning safety?
- What explanations do staff members and contractors deliver about the specific hazards in their work area?

- How well do staff members and contractors, especially at the shop floor level, understand what could go wrong and what could happen if the job requirements are not carried out properly?

WHERE TO GO FOR SAFETY CONCERNS

- Who do staff members and contractors look for technical guidance on safety issues?
- What is the procedure for handling safety and other employee concerns at the nuclear facility?

Attribute C.3: There is a high level of compliance with regulations and procedures:

Major guiding questions:

COMMUNICATION

- In what way are staff members and contractors reminded about the importance of following procedures strictly?
- How are staff members and contractors trained to understand the rationale and the safety basis of the procedures?
- Can staff members and contractors give examples what could happen to the nuclear facility or to people if a procedure is not followed?

ADHERENCE

- How much trust in procedures do staff members and contractors show when discussing them?
- Can staff members and contractors describe how supervisors and managers inspect worksites to ensure that procedures are being used and followed in accordance with expectations?
- Can staff members and contractors describe how are they encouraged to critically review procedures and instructions through their use and suggest improvements where appropriate?
- Can staff members and contractors give examples when laid down procedures are followed strictly even in cases when quicker methods are available?
- How common is the feeling that procedures frustrate staff members and contractors when production pressure is applied?
- What would happen to a worker who ignored the procedure in order to achieve production targets?

Attribute C.4: Management delegates responsibility with appropriate authority to enable clear accountabilities to be established:

Major guiding questions:

PROCESS FOR ACCOUNTABILITY

- What procedures and processes exist to ensure clear single-point accountability before execution?

- Can staff members and contractors give examples when accountability is perceived as a good thing? What about examples when accountability is viewed as a way to apportion blame?
- How do managers and peers reinforce accountable behaviour?
- How are staff members and contractors encouraged to maintain open communication or to report concerns or unusual observations?

DELEGATION OF AUTHORITY

- How skilful are middle-level managers and supervisors in delegating responsibilities?
- In what way is delegation included in workshops and seminars on safety leadership?

Attribute C.5: 'Ownership' for safety is evident at all organizational levels and for all individuals:

Major guiding questions:

'OWNERSHIP' AS AN ATTITUDE

- In what way do staff members and contractors show that they understand what could go wrong and what could happen if their work is not carried out properly?
- How do staff members and contractors follow the rule to 'stop and think' when a problem arises?
- In what way do staff members and contractors take care of the safety of their own working environment?
- Can staff members and contractors give examples about proposed improvements of procedures and processes?
- In what way do supervisors promote good safety practices?

SPECIFIC AREAS

- Can operating and maintenance personnel list any recent deviations of operating limits of the nuclear facility, describe the way they happened and state what has been done to prevent repetition?
- How does the control room staff understand the requirement for a 'watchful and alert attitude at all times'?

Characteristic D: Safety is integrated into all activities

Attribute D.1: Trust permeates the organization

Major guiding questions:

TRUST

- Can staff members and contractors describe whether managers are trusted by their subordinates to act professionally?
- How is the trust between managers and subordinates felt or experienced in the nuclear facility?
- Can staff members and contractors describe any management interventions that have built trust in the nuclear facility?
- What about fear of retribution, if errors are reported or safety concerns are raised?
- Can staff members and contractors list "moments of truth" that have occurred in the past few months, and show that management responded by principle and not by expediency?

Attribute D.2: Consideration for all types of safety, including industrial and environmental safety and security, is evident:

Major guiding questions:

INDUSTRIAL SAFETY

- How do managers include industrial safety in their discussions and meetings?
- In what way do managers ensure that a safety conscious working environment prevails throughout the nuclear facility?
- What kind of specific knowledge about industrial safety is considered important by staff members and contractors? And what is considered not so important?

ENVIRONMENTAL SAFETY

- How do managers include environmental safety in their discussions and meetings?
- What kind of specific knowledge about environmental safety is considered important by staff members and contractors? And what is considered not so important?

SECURITY

- Can staff members and contractors list examples of synergies between measures to improve safety and measures to improve security?
- Can staff members and contractors list examples of contradictions between safety and security? What should be the proper behaviour in such cases?

Attribute D.3: The quality of documentation and procedures is good:

Major guiding questions:

QUALITY

- What inputs are considered when reviewing a procedure?
- How easy are procedures to understand and to follow?

- Can managers describe cases where it appeared necessary to give additional (informal) explanation on the procedures that they or their subordinates use?
- Can staff members and contractors describe cases, where they received written procedures that were not useful for their job?

ACCESSABILITY

- How easy is it to find a procedure?
- In what way can the accessibility of procedures be improved?

ACTUALITY

- How often are procedures reviewed to ensure that they are currently valid?
- How are the temporary changes to procedures issued, and what are the appropriate controls that limit their area of application and their period of validity?

IMPROVEMENT

- In what way are staff members and contractors, who are going to use procedures, involved in writing them?
- How do staff members and contractors deliver feedback whether procedures are properly formulated?
- How are managers informed about poor procedures and have managers taken any action?
- What would an operator or a member of the maintenance staff do if, when following a written procedure, he/she comes upon a step that he/she thinks is a mistake?

Attribute D.4: The quality of processes, from planning to implementation and review, is good:

Major guiding questions:

PLANNING

- Can staff members and contractors describe how work is planned (including plans for contingencies) to ensure that all safety functions are maintained effective at all times and to ensure that safety is not impaired?
- To what extent are the approved plans followed?
- What is the process for approval before necessary deviating from the already approved plans?
- In what way are resources matched to demands, so that for example spare parts and tools are available when needed?

QUALITY

- How are processes defined, so that they are easy to understand and to follow?
- What inputs are considered when designing or modifying a process?
- Can staff members and contractors describe cases where it appeared necessary to give additional (informal) explanation on a process that they or their subordinates use?

ACTUALITY

- How often is process documentation reviewed to ensure that it is currently valid?
- How are the temporary changes to processes handled, so that safety aspects are considered as well?

IMPROVEMENT

- In what way are staff members and contractors, who are going to implement processes, involved in developing them?
- How do managers learn whether processes are properly followed?
- How are managers informed about poor processes and have they taken any action to improve them?

Attribute D.5: Individuals have the necessary knowledge and understanding of the work processes:

Major guiding questions:

WORK-RELATED KNOWLEDGE

- In what way do staff members and contractors show that they understand what could happen to the nuclear facility or to people if they modify their work processes?
- In what way do staff members and contractors show a good understanding, not only of their own work processes, but also how these processes interact with other processes?
- Can staff members and contractors give examples of cases, where the task was not understood before carrying it out? What was the reason for it?
- How aware are staff members and contractors, especially at the shop floor level, of the particular cautions or safety limits they have to observe in their job?
- How aware are staff members and contractors, especially at the shop floor level, what would happen if safety limits (pressures, temperature, tank level…) were desecrated?
- For maintenance personnel, how do mock-ups and video recordings support staff before a complex maintenance activity is performed?

Attribute D.6: Factors affecting work motivation and job satisfaction are considered:

Major guiding questions:

RECOGNITION/REWARD

- How does the senior management show that professional capabilities, values and experience of staff are the facility's most valuable strategic asset for safety?
- How is the reward systems aligned with safety policies?
- In what way does the reward system reinforce the desired behaviour and outcomes?
- How is recognition for exemplary performance given to individuals or teams?
- In what way are managers trained in order to have the appropriate knowledge of factors influencing human performance?

- Can staff members and contractors identify cases in which safety conscious attitude was a significant factor in approving or rejecting a promotion to management level?

PRIDE

- What is the staff turnover within the facility?
- What are the major motivating factors for staff members?
- What about contractors? What kind of differences in work motivation between staff members and contractors are perceived in the nuclear facility?

Attribute D.7: Good working conditions exist with regard to time pressures, workload and stress:

Major guiding questions:

OVERTIME

- What is the policy on limits to overtime work? To which staff and contractor groups does it apply?
- How is overtime controlled, monitored and reported to the facility manager?
- What is the attitude of higher (corporate) management to overtime?
- What is the attitude of staff representatives (trade unions) to overtime?
- How difficult is it to find enough qualified staff and contractors?

SHIFTWORK

- How do shift schedules apply up to date knowledge of best solutions with regard to human performance capabilities?
- How are shift schedules discussed with those involved?

WORKLOAD AND STRESS

- What is the level of absenteeism, especially for operational and maintenance staff?
- Can managers give examples of severe stress syndromes or burn-out cases among staff members and contractors recently?
- What type of stress awareness training is offered to managers in the nuclear facility (especially middle-level managers and supervisors)

ERGONOMIC FACTORS

- How are human performance issues treated in the nuclear facility?
- What types of analysis are applied to identify causes of unsatisfactory human performance?
- What kind of improvement strategy is followed?
- On which criteria is the improvement strategy based?
- In what way are human factors specialists and psychologists engaged with the nuclear facility?

Attribute D.8: There is cross-functional and interdisciplinary cooperation and teamwork:

Major guiding questions:

MULTIDISCIPLINARY COOPERATION

- What kinds of opportunities are provided, e.g. workplace forums to discuss issues of mutual interest between operations and maintenance staff?
- How are interdepartmental meetings organized and implemented? How high is their acceptance? Are they considered efficient enough?
- To which extent are cross-functional sections encouraged?
- In what way are outside stakeholders consistently involved when problems are being solved and decisions are made?

TEAMWORK

- In what way are staff members and contractors encouraged to work in teams?
- In what way do staff members and contractors ensure that the workers on the next shift are fully informed about safety issues when they take over the job in hand?
- In what way do staff members and contractors communicate their experience effectively to other individuals and groups?

Attribute D.9: Housekeeping and material conditions reflect commitment to excellence:

Major guiding questions:

HOUSEKEEPING – GENERAL LEVEL

- How would staff members and contractors describe the general state of the nuclear facility in terms of appearance and tidiness?
- How would staff members and contractors describe the general state of log-books and records?
- How is the reporting on housekeeping deficiencies organized? How efficient is it?

MATERIAL CONDITION – GENERAL LEVEL

- How would staff members and contractors describe the material condition of safety relevant systems in the nuclear facility?
- What programmes and procedures exist to monitor and continuously improve the material condition of safety relevant systems in the nuclear facility?

LONG STANDING PROBLEMS

- Can staff members and contractors describe the process for identifying long-standing problems with pieces of equipment, systems or processes?
- What is the strategy of the management towards such issues?

Characteristic E: Safety is learning driven

Attribute E.1: A questioning attitude prevails at all organizational levels

Major guiding questions:
QUESTIONING ATTITUDE

- How do individuals at all levels understand the nature of the nuclear hazards, including worst-case scenarios?
- What measures are taken in the nuclear facility so that group-think is avoided and opposing views are encouraged?
- How is the rule to "stop and think" applied when a problem arises?

ENCOURAGEMENT

- How useful is the current process for bringing up safety related concerns to the attention of higher management?
- How useful is the current process for suggesting potential improvements to the attention of higher management?
- In what way do managers encourage bringing up safety related concerns or potential improvements?

Attribute E.2: Open reporting of deviations and errors is encouraged:

Major guiding questions:
OPEN REPORTING PROCESS

- What arrangements exist for reporting safety related events at the nuclear facility?
- What is the process for near miss reporting? It this process accepted by everyone?
- In what way are staff members and contractors who were involved in a significant event consulted on the final contents of the event report?
- What kind of recognition, if any, is given to individuals and teams that report abnormal conditions, concerns, actual or near miss events etc.?
- What about fear of retribution, if errors are reported or safety concerns are raised?

BLAME-TOLERANT CULTURE

- How effective is the system for reporting individuals' errors?
- How is the system for reporting individuals' errors made known to staff?
- To what extent do staff members and contractors feel free to report any problems?
- How do managers ensure that matters raised are acted upon and feedback is given?

Attribute E.3: Internal and external assessments, including self-assessments, are used:

Major guiding questions:

INTERNAL ASSESSMENTS

- Who does self-assessments in the facility? Who should do self-assessments according to the opinion of staff members and contractors?
- What is the informal perception of internal self-assessments of safety culture? Are they considered important at all?
- When was the last safety culture assessment conducted in the nuclear facility?
- When was the last questionnaire survey conducted in the nuclear facility?
- What mechanisms exist to periodically review and adjust internal assessments?

EXTERNAL ASSESSMENTS

- In what way does the nuclear facility use external or independent opinions?
- Can staff members and contractors give examples when senior management initiated actions based on the results of external assessment activities?
- What is the informal perception of regular external assessments?

ORGANIZATION

- What is the attitude of the senior management on regular assessments in the nuclear facility?
- What type of information is considered most useful by the senior management? Does this information include comparisons with the performance of other nuclear facilities?
- What information is fed back to respondents of questionnaire surveys or safety culture assessments? Is this information considered sufficient by the staff involved?
- If a safety assessment group exists in the facility, how is this group accepted and supported by management, staff members, and contractors? Does it report directly to the facility manager?

FOLLOW-UP

- What is the value of safety improvement programmes developed after internal and external assessments? Is there any added value or is it considered just another campaign?
- What is the attitude of staff members and contractors to safety assessments affecting their area of work?
- How responsive are staff members and contractors to improvements sought as a result of safety assessments?

Attribute E.4: Organizational and operating experience (both internal and external to the facility) is used:

Major guiding questions:

PROCESS

- What processes are in place to ensure that the experience of senior staff is shared with new and junior staff members or contractors in the nuclear facility?
- How does the operating experience process include low level events, near misses and potential problems?

ANALYSIS

- What processes exist to grade the analysis depending on the severity of the event?
- How much effort is put in a timely, but thoroughly investigation of events?

APPLICABILITY

- What is the awareness of managers and staff of how the safety of their nuclear facility compares with that of others in the same company? In the country? In the world?
- How accessible is the operating experience information to staff members and contractors?
- How are reports on operating experience discussed in the nuclear facility?
- In what way does the nuclear facility contribute to international safety reporting systems?
- How is operating experience used in routine work activities (i.e. pre-job briefings, daily work planning, shift briefings, etc.).

Attribute E.5: Learning is facilitated through the ability to recognize and diagnose deviations, to formulate and implement solutions and to monitor the effects of corrective actions:

Major guiding questions:

EARLY RECOGNITION OF DEVIATIONS

- What type of processes exit to enable an early recognition of deviations?
- How is information on precursors integrated in the management of the nuclear facility?

IMPLEMENTATION OF SOLUTIONS

- Can staff members and contractors describe a recent implementation programme? What were the safety implications of this programme?
- How is information on successful implementation spread around the nuclear facility?

CORRECTIVE ACTIONS

- What action is taken on the results of safety culture assessment or other safety reviews?
- What are the processes to disseminate knowledge about lessons learned in the nuclear facility?

- Can staff members or contractors identify changes that resulted from safety culture assessments or other safety reviews?
- Can staff members or contractors point to examples of problems they have reported which have been fixed?
- How high is the rate of repeat events or errors?

Attribute E.6: Safety performance indicators are tracked, trended and evaluated and acted upon:

Major guiding questions:

PERFORMANCE INDICATORS

- What targets are established in the nuclear facility in order to understand, achieve and improve performance at all levels?
- What measures are taken in the nuclear facility in order to understand, achieve and improve performance at all levels?
- How are safety performance indicators communicated to staff members and contractors?
- What action is taken by the management when safety performance does not match the goals, strategies, plans and objectives?

Attribute E.7: There is systematic development of individual competences:

Major guiding questions:

CAREER DEVELOPMENT

- How are individual career development programmes, established and implemented in the nuclear facility?
- What methods are applied in the nuclear facility to support the career development of technically potent and safety conscious young engineers?

TRAINING

- How are training needs of individuals and groups determined in the nuclear facility?
- In what way is hazard awareness included in training curricula, especially for shop floor staff and contractors?
- In what way does on-the-job training support the understanding for the significance of the operating limits of the nuclear facility?

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INTERNATIONAL ATOMIC ENERGY AGENCY
VIENNA
ISSN 1816–9309