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ASCOT Guidelines

Guidelines for organizational self-assessment of safety culture and for reviews by the Assessment of Safety Culture in Organizations Team

INTERNATIONAL ATOMIC ENERGY AGENCY IAEA

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FOREWORD

In 1991 a Safety Series report on Safety Culture of the International Nuclear Safety Advisory Group (INSAG) was published as 75-INSAG-4. This document represents probably the most complete description so far of the safety culture concept along with its definition, features and tangible manifestations.

Very soon after the publication of 75-INSAG-4, interest was expressed as to whether it was possible to make an assessment of safety culture in a particular organization. Difficulties of performing such review should not be underestimated, since so much of the required characteristics lie below the surface. Certainly any comprehensive checks on equipment, documentation and procedures would not necessarily reveal the strength of safety culture.

In order to properly assess safety culture, it is necessary to consider the contribution of all organizations which have an impact on it. Therefore, while assessing the safety culture in an operating organization it is necessary to address at least its interfaces with the local regulatory agency, utility corporate headquarters and supporting organizations.

These guidelines describe an approach used in conducting an ASCOT (Assessment of Safety Culture in Organizations Team) review. They are intended to assist the team members in conducting their reviews and at the same time provide guidance to hosts preparing to receive an ASCOT review. They may also be used by any organization wishing to conduct their own self-assessment of safety culture, independent of an ASCOT review.

EDITORIAL NOTE

In preparing this document for press, staff of the IAEA have made up the pages from the original manuscript(s). The views expressed do not necessarily reflect those of the governments of the nominating Member States or of the nominating organizations.

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1. INTRODUCTION

1.1. BACKGROUND

The International Nuclear Safety Advisory Group (INSAG), in its publication Safety Series No. 75-INSAG-4, defines safety culture as follows:

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

Safety culture was considered by INSAG to have two major components in its manifestation: the framework created within which individuals work, and the attitude and response of individuals.

INSAG took the view that although such matters as style and attitude are generally intangible, they do lead to tangible manifestations which might be used to test what is underlying.

INSAG also took the view that sound procedures and good practices are not fully adequate if merely practised mechanically. This led to the proposition: safety culture requires all duties important to safety to be carried out correctly, with alertness, due thought and full knowledge, sound judgement and a proper sense of accountability.

In order to properly assess safety culture, it is necessary to consider the contributions of all organizations that influence it. Therefore, in assessing safety culture in different types of organizations, governmental, operating and supporting, it is necessary to consider at least the local regulatory agency, the utility's corporate headquarters and the nuclear facility itself.

The ASCOT review is based on tours of facilities and discussions with the hosts' personnel, at least at the regulatory agency, utility headquarters and at the plant. Most of the time, however, should be spent at the plant.

These guidelines are based strictly on the Appendix of Safety Series No. 75-INSAG-4. All the questions proposed in this appendix are addressed and they appear in the guidelines as Basic INSAG Questions. As mentioned in the reference INSAG document they can be expanded and it has been done in this document through the Guide Questions. Key Indicators that follow are intended to illustrate what is considered a sound safety culture.

In short it can be stated that the ASCOT Guidelines are intended to test the safety culture in an organization merely against the principles layed down in 75-INSAG-4 and in particular against indicators layed down in its appendix.

In a very few instances, the Basic INSAG Questions have been slightly modified, when they were seen as promotion of the IAEA services. In all those cases changes have been clearly marked by insertion into parentheses.

1.2. OPTIONS FOR AN ASCOT REVIEW

The form the ASCOT review can take depends very much on the desire of a host country. Basically there are three options or forms of an ASCOT review:

(1) The ASCOT review can be conducted as *a stand-alone international service* to a Member State. The team would be composed of 3 experts, and would normally be of 1 week duration, so as not to be overly disruptive to the hosts' staff. During this time period the review would interact with the majority of organizations contributing to safety culture.

(2) The ASCOT review can be *combined with other IAEA services* such as ASSETs (Assessment of Safety Significant Events Teams) or SRMs (Safety Review Missions). In this case an ASCOT representative would join the team. This expert would be dedicated to drawing conclusions on safety culture aspects from his/her own review plus from the findings of other team members who would, while performing their usual parts of the review give additional attention to safety culture aspects.

(3) In the case where the host country would like to become familiar with the ASCOT approach and its basic principles in order to conduct a self-evaluation of its organizations, the transfer of methodology can be accomplished through the ASCOT Advisory Service. It is envisaged that this service would involve two ASCOT experts for two days, who would present the ASCOT approach in a workshop through a series of lectures, discussions and exercises. These presentations could be accompanied by special lectures by another in-house (IAEA) or outside consultant on specially selected topics, which the host country would preselect.

1.3. OBJECTIVES OF ASCOT REVIEWS

ASCOT reviews are intended to assess the effectiveness of safety culture in the host country based on principles and recommendations of Safety Series No. 75-INSAG-4. At the same time the review will share experience or good practices and possibly offer suggestions contributing to effective safety culture. This stand-alone ASCOT review is not an inspection or an audit against set codes and standards but rather an opportunity to exchange experience and views. It is at the same time an opportunity to disseminate good practices throughout the nuclear community and to promote safety culture concepts.

If the ASCOT review is combined with another review (ASSET or SRM) the main objective, which is reviewing the effectiveness of safety culture, would remain the same. The conduct of the review would be altered to account for the fact that a single ASCOT representative would co-ordinate the review of safety culture.

Where the Member State wants to conduct a self-assessment of the effectiveness of safety culture, it is recommended that it requests the ASCOT Advisory Service. The main objective of this service is to introduce and transfer to the individual country the ASCOT methodology and share experience gained during ASCOT reviews and to provide other information related to safety culture or the conduct of a self-assessment.

1.4. ASSESSMENT METHOD

The assessment method is based on consideration that safety culture is the assembly of commendable attributes of any organization or individual contribution to nuclear plant safety. The effectiveness can therefore best be assessed by addressing different groups of organizations, governmental, operating and supporting.

The assessment of safety culture in a host country would normally begin with discussions at the government/regulatory office. During these discussions, the

government/regulatory commitment to safety and their safety policy should be addressed. The discussions at the government/regulatory offices will in general terms follow the questions and items outlined in Section 3.1 of these guidelines.

After visiting the regulators, a visit to the corporate headquarters should be arranged, where the corporate commitment to safety, its statement of safety policy and its interaction with the plant are assessed. At the corporate level the discussion would be guided by the questions outlined in Section 3.2.1.

The majority of the time is spent at the plant. The assessment begins with an initial overview. Certain manifestations of safety culture are readily apparent on a walk-through of the plant and an overview of the documentation. Plants which do not appear well kept are likely to have areas where safety culture can be significantly improved. On the other hand, a good overall impression from an initial walk-through may be a positive indication of effective safety culture.

With these factors in mind, a practical assessment of safety culture should include an initial walk-through and overview of documentation. The following list could be a starting point:

Plant tour

- Access control: efficiency, effectiveness,
- General state of plant: leaks, lighting, labelling, etc.,
- Housekeeping: rubbish, storage areas, cleanness,
- Use of protective equipment: wearing of hard hats, ear protection and film badges, use of warning notices, etc.,
- Alert and watchful attitude of control room staff,
- Availability of procedures and manuals: in control room and in plant.

Documentation overview

- Log-books and associated documentation,
- Records of operation and maintenance,
- Number of plant defects and documentation amendments outstanding,
- Existence of training programme for key safety related activities,
- Availability of safety policies (company or corporate),
- Consistency of safety policy with safety culture concept,
- Plant policy on procedures and adherence to procedures,
- Documents identifying key safety responsibilities,
- Organizational charts,
- Existence of corporate safety review committee including its agendas, its expertise and the involvement of plant management.

Following the initial overview, the main conclusions on safety culture would be established through discussions and interviews with personnel following the indicators and questions underlined in the third part of this report.

The questions posed are deliberately open to invite discussion and explanation. The actual question asked may need to be tailored to the job of the person being interviewed so that it can be related to that person's practical experience. In each case notes are provided to guide the reviewer so that supplementary questions can be asked if necessary. The key indicators to safety culture are listed so that responses can be judged as indicative of safety

culture effectiveness. The guidelines avoid any type of scoring or numerical rating since the objective is highlighting areas for improvement rather than comparing one plant with another.

The assessment team would concentrate their discussion and evaluation on individual and collective attitudes and knowledge rather than the technical content of procedures and systems.

In conducting interviews, the assessment team should keep in mind that the plant safety culture should span conventional, radiological and reactor safety aspects. The respondents might not always have these distinctions in mind; therefore the assessment team must use the appropriate terminology to ensure that the respondent's answers cover all aspects of plant safety.

Assessment report

At the end of an assessment the review team should prepare a concise report. The contents of an ASCOT review report are outlined in Appendix I. The report will highlight any areas in which safety culture could be strengthened. Where possible the report should give specific suggestions that would guide the plant management in effecting such improvements. The report should avoid any suggestion of grading, rating or comparison with other plants since this is not seen as a constructive way of striving for improvement. On the other hand the report should point out good practices which could be adopted by others to achieve effective safety culture.

The ASCOT review should present and hand over to the host the draft report of the assessment findings. The report will be treated as confidential until commented on by the hosts, finalized by the ASCOT team and released by the host country.

1.5. REVIEW SCHEDULE

The schedule of the ASCOT review will be determined based on the option the member country selects for the safety culture assessment.

Option 1: ASCOT review (stand alone)

To minimize disruption to the normal conduct of work of the organizations involved the method takes into account a one week ASCOT review. During that period of time the review typically addresses the approaches of all parties contributing to the safety culture of the particular plant. A suggested work plan for the review would take the following form (not necessarily in such order):

1/2–1 day:	Governmental organizations/activities directly associated with the plant.
1/2–1 day:	Operating organization corporate level policy on nuclear safety and safety culture.
2–2 1/2 days:	Operating organization/power plant level introductory familiarization with items related to safety culture, plant tour. Power plant level specific aspects contributing to plant safety culture. Individual discussions.
1/2 day:	Finalizing the first draft of the report.
1/2 day:	Final discussion with recipients of the review and exit meeting. Presentation of the draft report.

The majority of activities and discussions will be conducted by the team as a whole. To cover as many aspects as possible the specific items can be addressed by team members individually. It is expected that following individual discussions the team members will regularly exchange their findings and conclusions.

Option 2: ASCOT review combined with other IAEA reviews

In case where the safety culture review is combined with another IAEA review, the duration is adjusted to the duration of that review (normally 2 or 3 weeks). The conduct of the safety culture review would in that case be led by the ASCOT representative, who would co-ordinate constant interactions with other team members. As information on safety culture could be obtained directly or indirectly from each area of the other review, reviewers will receive a briefing and training specific to the needs of safety culture assessment.

The specific areas of review in organizations which are not initially included in the scope of the review activities will be covered by the ASCOT representative. In this context, the ASCOT representative would in addition to the exchange of information with other reviewers independently concentrate on interviews with, for example, corporate personnel, and government or regulatory organizations.

Option 3: ASCOT Advisory Service

When a Member State decides to conduct a self-assessment of safety culture it is recommended that it requests the Agency for assistance in the form of the ASCOT Advisory Service.

In preparing for the ASCOT Advisory Service, the host country participants should be provided with and have familiarized themselves with both IAEA Safety Series Report No.75-INSAG-4 and the ASCOT Guidelines prior to the visit. Likewise, the ASCOT representative should be familiar with any special aspects of the host country's regulatory system, the utility and the utility's supporting organizations that might warrant special consideration during the ensuing discussions.

The lectures, discussions and exercises would include the following topics:

(a) Assessment of safety culture

- Concept of safety culture,
- Examples of safety culture good practices,
- Creation of safety culture framework,
- Assessment of safety culture,
- Questions and key indicators.

(b) Examples of subjects of special interest

Basic Safety Principles, International Nuclear Event Scale, ASSET Highlights, The Safety of WWER and RBMK NPPs, Use of PSA for Safety Enhancement, etc.

Further details of these topics and their presentation are provided in the Appendix II.

1.6. STRUCTURE AND APPLICATION OF ASCOT GUIDELINES

In order to determine the effectiveness of safety culture at a plant it is necessary also to cover those organizations which have a significant impact on the activities and decision making in the utility. These include, but may not be restricted to, the governmental agencies, corporate management and support organizations. No strict rules are set down for coverage of these organizations; however, it is probable that responses from the utility will require that corroboration or explanation be sought from them. It is likely that these bodies are located at a considerable distance from the plant and in this event a representative from each may be able to provide the required information during the reviewers' plant visit. Whichever way the contacts are made, it is essential that a clear idea is formed by the team from sustained discussions.

Bearing in mind that other IAEA services cover more tangible aspects of safety, the ASCOT should examine those factors such as attitudes, morale, motivation and commitment to safety which usually are not considered by direct examination. The objective of ASCOT is to gain insight and understanding of perceptions and experiences contributing to or detracting from optimum safety performance. To gather this type of information it is necessary to collect a representative sample of opinions, facts and perceptions from the plant staff and related entities. Care must be taken to select sufficient sources of information within the time-scale set for the ASCOT. This requires full co-operation of all parties involved.

Once at the plant and following a site visit and documentation overview, team members will schedule their time and commence structured discussions with nominated staff and managers. The ASCOT Guidelines set out sample questions and suggested lines of enquiry which are intended to lead the team members or other reviewers along the path to determining attitudes and perceptions which influence safety culture.

Each section of questions in the guidelines is labelled with prefixes as per the following table denoting the levels and organizations to be covered by specific areas of questioning:

I – Individual (applies to power plant only below managerial level).
M – Management (applies to power plant only above individual level).
C – Corporate (utility headquarters).
R – Regulator/Government (Licence regulator).
S – Supporting organizations (Research/design).

These are recommended areas of enquiry and may be permutated to suit the individual ASCOT review.

ASCOT members must collect responses from each level and gather corroborative or alternative information to construct an accurate impression of the situation. Questions are to be developed ad hoc by the team to ensure that facts and statements are valid. During this process appropriate notes must be taken. At regular intervals the team members will compare notes and will then develop a strategy for covering outstanding areas of the assessment. The team would further hold regular meetings with the hosts throughout the review to apprise them of any salient points prior to the final draft report being presented.

Each section of the ASCOT specific guidelines contains a key indicators listing. These are for the guidance of team members or other examiners in highlighting key areas of safety culture assessment. The list is not exhaustive and has essentially been restricted to key words or phrases indicative of effective safety culture. Successive reviews may add to these key

indicators with the aim of developing a more comprehensive set of references which will assist in the strengthening of safety culture. Team members should avoid pursuing a narrow line of questioning and must encourage free discussion and voluntary statements from those being interviewed.

2. CONCEPTS AND ASSESSMENT OF SAFETY CULTURE

2.1. CONCEPTS

Safety Series No. 75-INSAG-4 identifies a multilayered approach to safety culture. It is the assembly of characteristics and attitudes, from government right through to the individual on the plant, that makes possible a culture which gives safety issues the attention warranted by their significance. Government and Regulator provide the necessary statutory safety framework. The organizations that designed and built the plant as well as those who provide technical support also have a large impact on the safety performance of the plant in operation. The operating utility will also formulate policy on safety matters. The plant must then work within these externally set boundaries. 75-INSAG-4 makes it clear that safety culture is mostly about the performance of individuals but within an environment which is heavily influenced from outside the plant itself. Therefore an effective assessment of safety culture must also consider the organizations external to the plant.

Safety culture is a necessary characteristic to achieve safety in nuclear installations and as such it has to be possible to assess its status in order to improve it and maintain it at optimum level. This assessment has to be consistent with the general trend in the operation of a specific plant, in such a way that the existence of operational safety problems could be traced back to safety culture problems. However, it is prudent to anticipate and try to identify indicators that will give a warning before the problem occurs. These indicators will not "measure" the safety culture of a specific organization but rather indicate the need for a "fault finding" process to improve some of the different contributors to safety culture. This process is very specific to each organization and should relate the different influences in a similar way as described previously.

In order to obtain a methodology to assess or improve the knowledge of safety culture at a specific plant, efforts have to be made to relate attributes and concepts to facts connected with the operation of the plant. This correlation when feasible, will provide a basis for judging the effectiveness of safety culture in specific cases. This will clearly benefit the understanding of safety culture principles, which are generally not tangible.

2.2. ASSESSMENT

The biggest problem for anyone undertaking a review of safety culture is how to identify, within a short period, the tangible evidence of an essentially intangible concept. It can be done but needs careful scrutiny that goes beyond the mere checking of documentation and review of management systems. It requires collection of information which can then be related to the characteristics of safety culture listed in 75-INSAG-4. This relationship is not easy to identify and often is not unique. For example an attribute or concept usually affects several facts and it is difficult to establish the degree of influence that different concepts have on a measurable fact.

Take for example the question of audits. This activity spans many of the layers previously mentioned. Most plants have a technical audit programme. Usually, the requirement for audits comes from corporate or even regulatory level. Audits are very often concerned with checking safety related practices. At the purely documentary level, it is quite straightforward to look at the audit programme, reports from audits done and clearance of any corrective actions that have resulted. However, in terms of safety culture there are many other aspects which can be assessed:

(1) Do those being audited consider their auditors to be technically competent?
(2) Do managers show support for the audit to their staff?
Do they explain the need for audits?
Do they make their own time available for briefings with the auditors?
(3) Is the audit report communicated to the relevant staff, particularly those who actively participated?
(4) Are any corrective actions identified by the auditors keenly debated and, once accepted, enthusiastically taken?
(5) Do auditors praise good practice and is such praise passed on?

By finding the answers to these questions it should be possible to get an understanding of whether audits are mechanically carried out to fulfil policy or regulatory requirements; or used in addition as a tool to stimulate interest and promote active participation in safety matters. The latter would be a stronger indication of safety culture.

Another important safety culture indicator is the willingness to strive for improvements. No plant management should consider that there is no scope for improvement when it comes to safety; this would be complacency. The tendency to question current systems and seek improvement, along with management support and commitment for the process, is an indication of safety culture. The following is a list of possible areas which could be checked for improvement programmes (the list is not exhaustive):

(1) Training: Increasing the time allocated, number of people being trained. Improving the quality of training or improving systems of qualification that are aimed at checking that competence is the result of the training given.
(2) Technical improvements: These could be improving the quality of procedures or introducing new safety assessment methodologies.
(3) Trying to anticipate problems: It is widely accepted that for every serious safety incident there are a large number of 'near misses'. Programmes aimed at reporting and learning 'from near misses' are good safety practice.
(4) Plant and operational improvements: These can be very wide, ranging from actual plant modifications (which should be strictly regulated) to improvements in the working environment.
(5) Development of indicators: It is often said that what cannot be measured, cannot be managed. Many plants use a variety of indicators, some safety related. None of these are perfect, but they can be used to indicate the trend in safety performance.

The question of audits and improvement programmes discussed above are examples to show how ASCOT methodology can get real indications of safety culture that would not be identified by checking on the existence of and adherence to procedures. These concepts and methods should be borne in mind when posing the questions contained in the next section.

3. ASCOT GUIDELINES: SAFETY CULTURE INDICATORS AND QUESTIONS

These guidelines are based on the Appendix of Safety Series No.75-INSAG-4. All the questions proposed in this appendix are addressed but as mentioned in the reference document they can be expanded. It could be difficult to use all these in the available time. Selection of particularly significant items should be done through ASCOT team discussion.

3.1. GOVERNMENT AND ITS ORGANIZATIONS

3.1.1. Government commitment to safety

Within the safety culture framework the influence of government and its legislation forms a critical basis from which regulatory policy, funding and public notification are determined. The following questions and key indicators provide a framework wherein an understanding of the prevailing situation may be formed. Other areas of enquiry may present themselves during the discussion with governmental representatives and these should be pursued if they affect plant operation. Opportunity to corroborate or clarify information gained elsewhere must be taken; however, the primary objective of highlighting good practices and promoting plant safety must not be forgotten. It will be advantageous to request and study the relevant legislation prior to the ASCOT review.

Q1 (CMR)

Basic

INSAG Questions: Is the body of legislation satisfactory? Are there any undue impediments to the necessary amendment of regulations? Do legislation and government policy statements emphasize safety as a prerequisite for the use of nuclear power? Are there any instances of undue interference in technical matters with safety relevance?

Guide Questions:

- What is the mechanism and how long does it take to make changes to your nuclear legislation?
- What is the scope of the government regarding the control and administration of nuclear power? Is the authority and responsibility of the regulatory agency clear and understood by all parties? Are communication lines between government, regulatory agency and utilities well defined?
- What are the experience and qualifications of the regulatory agency management? What are the selection criteria? Are periodic audits considered?
- What role of the regulatory agency in the construction and operation of nuclear plants defined in the legislation?
- What is the regulatory agency's responsibility for assessing design safety standards and proposed designs as part of licensing procedure?
- What is the process for granting a licence to build and operate an NPP in your country?
- How is the assessment of the safety level of nuclear plants carried out?
- What design and operational safety documentation is required by the regulatory agency for its assessment as part of the licensing process?

- How are the regulatory agency technical and administrative requirements documented relative to the design, construction, commissioning and operation of nuclear plants?
- How are the regulatory agency's enforcement rights defined in the legislation? In the case of a dispute between the regulator and the utility what is the method of resolving matters? Has this happened?
- What is the government's policy on safety versus electricity production? What is the division of responsibility for these activities in the country?

Key Indicators:
- Clear, concise statements with adequate emphasis on safety as a prerequisite.
- Feedback from staff and regulators on non-interference with safety matters.
- There is an independent supervising regulatory agency with enough manpower and with necessary enforcement rights, defined in the legislation.
- The regulatory agency has safety standards and/or instructions which show its supervisory practices in sufficient detail.
- The regulatory agency periodically assesses the safety of nuclear plants against well defined safety standards.

Q2 (CMR)

Basic INSAG Qs: Have budgets for regulatory agencies kept pace with inflation, with the growth of the industry and with other increased demands? Is funding sufficient to allow the hiring of staff of adequate competence? Does the government provide adequate funding for necessary safety research? Are the research results made available to other countries?

Guide Questions:
- Do you have a full staff complement?
- What has been the pattern of budgets to actual allocations over the past five years?
- How is your regulatory body funded?
- What happens to the funding allocation when unexpected events demand more money from the government?
- Do you gather any funds from providing research results to other countries?
- How does a change of government affect the regulatory body and the nuclear legislation?

Key Indicators:
- Adequate staffing levels and low turnover of qualified staff. Documented research results and plans for concerted research into areas of safety concern.
- Positive trends of funding for research organizations.
- Research and technical exchange visits with other countries or agencies.

Q3 (R)

Basic INSAG Qs: How free is the exchange of safety information with other countries? Does the country support relevant international activities [such as] the

IAEA Incident Reporting System (IRS), the Operational Safety Review Teams (OSART) and Assessment of Safety Significant Events Teams (ASSET) programmes?

Guide Questions:
- With whom do you exchange safety information around the world?
- How does the country support affiliation to international organizations such as IAEA, INPO, WANO, owners' groups, etc.?
- Do you have access to nuclear industry information on a regular basis?
- Which sources do you access?
- What restrictions are there on dissemination of nuclear power plant data?

Key Indicators:
- Participation in international programmes and established systems for data collection and analysis.
- Frequent visits to other countries.
- Existence of exchange programmes.
- Literary search facilities for staff.
- Publications from research staff.

3.1.2. Regulatory agencies

Regulatory requirements vary significantly from country to country and it is difficult to generalize; however, the following questions and key indicators are designed to elicit responses which will assist the team in determining the effect of the regulator on the plants' safety performance. Care must be taken not to evaluate or compare the regulatory style with that in other countries. The safety culture should be well developed in the regulatory organization and its staff and should be set out in its own policy statements. A strong commitment to implement legislation and to act to promote plant safety and the protection of individuals, the public and the environment are the essential attributes of a positive regulatory safety culture. The influence of the regulator at corporate and plant levels of the utility is to be determined within the constraints of questioning, discussion and overview of documentation overview and not simply on intuitive feelings. Where the regulatory body is being assessed separately from the plant, emphasis should be placed on the national and social constraints governing the regulatory authority. Elements of the plant questions may also be adapted to the regulatory body as a stand alone review, the objective still being the same, to assess the safety culture.

Q1 (RCM)

Basic INSAG Qs: Are regulatory safety objectives annunciated clearly, meaningfully and so that they are neither too general nor too prescriptive? Do they permit a proper balance between innovation and reliance on proven techniques?

Guide Questions:
- What problems have been experienced with the application of the regulatory requirements?
- How are the authority and responsibility of the regulatory body understood by the plant?
- How is the scope of activities defined?
- Do you feel they are too restrictive? Too loose?
- What changes would you like to see to the regulatory conditions?

Key Indicators:
- Clear understanding and acceptance by the plant staff of regulatory requirements.
- Positive feedback from corporate and plant staff on application of regulatory conditions.

Q2 (RCM)

Basic INSAG Qs: Are comments on regulatory requirements sought from competent bodies? Have such comments been taken into account frequently enough to encourage future comments?

Guide Questions:
- What system is there for gathering comments on regulatory issues?
- How often have you commented on regulatory requirements? To what effect?
- What is the basis of the regulatory policy?
- How is it validated?

Key Indicators:
- Documented and established review system for comments and inputs from other bodies.

Q3 (R)

Basic INSAG Q: Is there a predictable and logical process for dealing with issues that require a consideration of both safety and economic factors?

Guide Questions:
- What is the process for handling issues of safety and commercial considerations? Is it well understood? Where is it documented?
- Is the regulatory body able to halt production unilaterally if safety is threatened? Has this ever happened?

Key Indicators:
- Regular third party review of regulatory requirements.
- Published comments on regulatory legislation.

Q4 (RCM)

Basic INSAG Q: What is the record of project delays or loss of production due to lack of clarity of regulatory requirements or lack of timely regulatory decisions?

Guide Questions:
- How many delays have been incurred at the plant due to regulatory constraints?
- What avenues of appeal does the utility have in the event of delays by the regulator?

Key Indicators:
- Positive feedback from utility staff on regulatory incurred delays.
- Effective regulatory policy on minimizing delays and reviewing submissions.
- Regular meetings of utility and regulator to address safety issues.
- Site representation of regulator and established call-out system.

Q5 (R)

Basic INSAG Q: Are regulatory practices generally consistent with the objectives of the IAEA's Nuclear Safety Standards (NUSS) Programme?

Guide Questions:
- On which model did you base your regulatory system?
- What differences, if any, are there between your regulatory practices and those of the IAEA (NUSS)?

Key Indicators:
- Good correlation between IAEA (NUSS) and regulatory requirements.

Q6 (R)

Basic INSAG Q: Is there an education and training programme for regulatory staff?

Guide Question:
- What is the recruitment programme content regarding qualifications and experience for new regulatory body staff?
- What is the content and length of the training programme? Does it address nuclear safety principles, plant knowledge, inspection skills, on the job training?
- How do you keep your regulatory staff up to date with nuclear safety and technology and plant experiences?

Key Indicators:
- Established education and training programme.
- Audited and regularly revised training standards for staff.
- Availability and use of international documents, periodicals, etc.
- Attendance at recognized courses, e.g. at the IAEA.

Q7 (R)

Basic INSAG Q: Does the regulatory agency participate actively in relevant international activities?

Guide Questions:
- What is your programme for participation in international conferences on nuclear matters?
- How are foreign visits planned, motivated and approved? Who is allowed to go abroad?
- How is the regulatory body funded?

Key Indicators:
- High profile in international activities.
- Publication of papers and presentations at recognized meetings. Participation in international safety reviews.

Q8 (RCM)

Basic INSAG Qs: Are reports on important safety problems published routinely by the regulatory agency? Does the regulatory agency periodically publish a summary review of the safety performance of plants?

Guide Questions:
- How do you ensure that important safety issues are made available to other plants, countries and the public?
- What is the regulatory policy on the publishing of plant safety performance data?
- What are the arrangements for timely notification and dissemination of information in case of incidents and accidents?

Key Indicators:
- Regular safety reports published.
- Programmes established for gathering plant safety data and trending of results for dissemination.

Q9 (RCMI)

Basic INSAG Qs: What is the nature of the relationship with licensees? Is there an appropriate balance between formality and a direct professional relationship?

Guide Questions:
- What would you consider to be the status of the regulator in the eyes of the utility?
- What level of co-operation exists between the regulator and the plant?
- How could the regulatory body improve its image at the plant?

Key Indicators:
- Positive feedback from plant staff on regulatory interfaces.
- Regular interactive meetings established with utility staff.
- Professional and informative reports available.
- Acceptance of comment from the utility.

Q10 (RCMI)

Basic INSAG Qs: Is there mutual respect between the regulatory staff and the operating organization based on a common level of competence? What proportion of regulatory technical experts have practical operating or design experience?

Guide Questions:
- Are you able to discuss matters at the plant on a common technical basis?
- How is the opportunity to work for the regulatory body viewed by plant staff?

Key Indicators:
- Positive feedback from plant staff on regulatory competence.
- High proportion of plant experienced staff and design personnel.
- Established and effective reviews by regulatory staff.

Q11 (RCM)

Basic INSAG Q: Is there regular joint discussion of the licensees' experience and problems and the impact of regulatory activities on these?

Guide Questions:
- How often do the regulator and utility meet to discuss requests for changes in regulatory requirements?
- At which stage do the regulator and utility meet to discuss requests for changes in regulatory requirements? To what extent are Emergency Planning and Accident Management issues adequately considered as part of the Nuclear Safety Programme?

Key Indicators:
- Regular meetings on problems with the utility.
- Established group on licensing and regulatory activities.
- Recognized routes for plant/regulator interactions.

- Existence of an independent methodology for resolution of concerns and safety issues.

Q12 (RCM)

Basic INSAG Q: To what extent does the regulatory agency rely on the internal safety processes of the operating organization?

Guide Questions:
- What is the philosophy of the regulatory body regarding the ability of the utility to control its own safety?
- How much of the plant's information is readily available to the regulator?
- How much control does the regulator impose on the utility?
- What are the scope and detail of inspection activities the regulatory agency applies to nuclear plants?

Key Indicators:
- Regulatory requirements include adequate safety processes, independent of the plant or operating organization.
- Establishment of regulatory controls to assure the adequacy of the plants' internal safety processes.
- Regular on-site checks and evaluations of plant safety processes.

Q13 (RMI)

Basic INSAG Q: What are the nature and extent of the regulators presence at the plant?

Guide Questions:
- How much does the plant see of the regulatory staff?
- What is the organizational relationship between regulatory and plant staff?
- Is the regulatory presence on site viewed as a help or hinderance?

Key Indicators:
- Regular and effective regulatory presence on site.
- Participation in development of surveillance regimes for key safety areas.
- Notification systems for activities and events out of hours.
- Positive feedback from plant staff on availability and effective inspection programme for site inspectors.
- Regular participation in plant safety meetings and committees. Assessment of reports from nuclear plants to implement preventive and corrective actions.

3.2. OPERATING ORGANIZATION

3.2.1. Corporate level

3.2.1.1. Safety policy at the corporate level

Corporate level safety policy statements vary in both form and content. A safety policy statement must, however, be clear and must be provided to all staff. It should declare a commitment to excellent performance in all activities important for the safety of its nuclear plants, making it plain that nuclear plant safety has the utmost priority, overriding if

necessary the demands of production or project schedules. Essential areas of enquiry are indicated by the questions and key indicators which stress the importance of unequivocal support for safety over all other considerations and the understanding of policy statements by all levels of staff. Questions should be posed to discover the importance attached to the corporate safety policy, how it is documented, disseminated, authorized, reviewed and implemented. Key indicators are an unambiguous statement of safety above all else endorsed by the highest corporate level and translated into 'ownership' by the corporate management. It is very important to discern whether the corporate safety policy is understood and supported at all levels of the national nuclear industry.

Q1 (CMI)

Basic INSAG Qs: Has a safety policy statement been issued? Is it clear? Does the policy express the overriding demand for nuclear safety? Is it brought to staff attention from time to time? Is it consistent with the concept of safety culture presented in the 75-INSAG-4 report?

Guide Question:
- Please explain what you know of any company or corporate safety policy statements.

Key Indicators:
- An organization operating a nuclear plant should issue a safety policy statement to all staff declaring its commitment to safety.
- Staff should be reminded about the statement from time to time.
- Safety policy statements will vary considerably in form and content.
- Staff should be aware of the following in an organization which has a well established safety culture:
  - the responsibility of the operating organization for the safety of the plant;
  - the commitment to excellent safety performance;
  - that safety is of the utmost priority, overriding if necessary commercial considerations.

Q2 (CMI)

Basic INSAG Q: Are managers and workers familiar with the safety policy and can staff cite examples that illustrate its meaning?

Guide Questions:
- Have you ever quoted from the safety policy to highlight safety in a meeting or discussion?
- What can you *not* do in terms of the safety policy statement?
- Who signs and takes responsibility for the policy statement on nuclear safety at corporate level?
- Do you have a copy of the safety policy?
- Have you ever discussed this document with your staff/peers?
- What do you consider the advantages and disadvantages of the safety policy?
- Does it need changing?

Key Indicators:
- Visibility and good knowledge of the current safety policy document.
- Examples of usage, demonstration of familiarity and agreement.

3.2.1.2. Safety practices at the corporate level

Policy statements and commitment to safety must be supplemented and effected by corporate management involvement in safety matters. Confidence in the competency and expertise at corporate level on nuclear safety matters enhances the plant's safety culture by reinforcement of utility safety policy from the top down. Establishment of an effective and credible nuclear safety review group at corporate level and the support of a designated senior manager with prime responsibility for safety may seem obvious prerequisites for utilities. However, quite often the utility delegates the nuclear safety portfolio to a minor level of the corporate structure. Significantly, this may be the most difficult area of enquiry to pursue and this may indirectly indicate an adverse influence on plant safety culture. Any evidence of a gap between the corporate and plant staff's interpretations of safety responsibility must be explored. Safety culture thrives on mutual support, agreement and a common understanding of safety objectives.

Q1 (CMI)

Basic INSAG Qs: Does the corporate board have expertise in nuclear plant safety?
Do formal meetings at this level include agenda items on safety?
Do operating staff attend to discuss the safety performance of plants?

Guide Questions:
- Who is responsible for nuclear plant safety at corporate level?
- Do you consider that there is adequate knowledge of plant safety at the corporate level?
- Are nuclear safety matters given enough prominence at corporate level meetings?
- Who attends corporate level nuclear safety review committee meetings?
- To which levels are corporate nuclear safety minutes distributed?

Key Indicators:
- There is a clear line of reporting from the established nuclear safety review committee to the corporate board or representative of the board at the safety committee.
- The corporate board has expertise in nuclear plant safety.
- Inclusion of safety items on agendas: regular inclusion of plant staff in meetings.
- Positive feedback from plant staff on corporate responses to plant safety issues.

Q2 (CM)

Basic INSAG Q: Is there an active nuclear safety review committee which reports its findings at corporate level?

Guide Question:
- What is the relationship between the plant and corporate management with respect to discussion of nuclear safety issues?

Key Indicators:
- Minutes and actions from corporate nuclear safety review committees.
- Plant confidence in corporate review groups.
- Corporate inputs to plant/regulatory safety issues.

Q3 (CM)

Basic INSAG Qs: Is there a senior manager with nuclear safety as a prime responsibility? How is he supported and assisted in his duties? What is his standing compared with that of the heads of other functions?
Do senior managers visit the plant regularly? Do they give attention to safety matters?

Guide Questions:
- How often do the plant staff meet with corporate managers?
- Who has the highest responsibility for nuclear safety in the utility? Is it considered effective?

Key Indicators:
- Job description and organizational confirmation of senior nuclear manager responsible for nuclear safety.
- Positive perceptions by plant staff of senior managers' roles and responsibilities.
- High level of visibility and interaction between plant and senior managers.
- Willingness to submit all safety matters for senior manager review.

Q4 (CM)

Basic INSAG Qs: Are the resource requirements for the safety function reviewed periodically at corporate level? With what results?

Guide Questions:
- Who reviews safety function resource requirements? How is it done?
- How often are the resource requirements for the safety function upgraded?
- What criteria are used to determine the safety function resources and funding?

Key Indicators:
- Evidence of regular reviews of resources at corporate level.
- Positive attention to upgrading and maintenance of corporate staff ability and availability.
- Recognized career paths for plant and corporate staff which include nuclear safety management.

3.2.2. Plant level

This will undoubtedly form the bulk of the ASCOT reviewers' work and consequently requires the allocation of areas and interviews to assure optimum coverage in the time allotted. Plant activities have been divided into eleven (11) sections of assessment. These cover the key areas encompassing those aspects important to safety culture. Questions are presented as starting points from which the level of attainment of the key indicators can be gauged. Several questions are repetitive or similar indicating their relative importance in determining certain factors of attitude, commitment, safety practices and communications. Questions should be further developed to suit the particular plant circumstances with a view to establishing a picture of safety culture at the plant. The objective of the ASCOT review is to assess an organization's safety culture through a vertical and horizontal review of attitudes, communications and consistency in the implementation of safety throughout the plant.

Team members must always look out for good practices and give examples of improvements of safety culture. The accent should always be on positive aspects of performance and the promotion of enhanced safety culture within the organization and nuclear industry. However, where negative aspects exist these need to be brought out for assessment.

3.2.2.1. Highlighting safety

Q1 (CMI)

Basic INSAG Qs: Does the plant manager hold periodic meetings with his senior staff that are devoted solely to safety? Are there opportunities for non-management staff to participate in meetings devoted to safety? Do these meetings cover safety significant items at that plant? At other plants in the company? At other plants in the country? At other plants in the world?

Guide Questions:
- What means are there to promote safety culture amongst non-technical staff?
- How familiar are non-technical staff with safety issues at the plant? In the world?
- Where are safety priorities listed?
- How are suggestions and promotion of safety handled at the plant?
- Who attends the plant managers' safety meetings?
- What is discussed at these meetings? Are agendas circulated to staff?

Key Indicators:
- Regular safety meetings.
- Documented actions and close out.
- Established protocols for meetings and actions.
- Wide scope of agenda items.
- Positive feedback from staff on the applicability and access to safety meetings.
- Circulation of safety meeting minutes and actions for review.

Q2 (CM)

Basic INSAG Q: Has consideration been given to requesting (an independent peer review such as for example) an OSART review or similar external review?

Guide Question:
- Would such safety review receive support throughout the organization?

Key Indicators:
- One or more of peer safety reviews requested or held and with positive follow-up.
- Evidence of self-appraisals.
- Technical safety reviews.
- Positive feedback from staff on proposals for external review.

Q3 (MI)

Basic INSAG Qs: Is there a process by which more junior staff can report safety related concerns directly to the plant manager? Is the process well known? Is

there a system for reporting individuals' errors? How is it made known to staff? What mechanism is available to staff to report errors even when they were immediately corrected or had no detectable effect? Do staff make occasional use of the mechanism provided?

Guide Questions:
- How would a junior member of staff report a safety concern to the plant manager?
- What system would you use to report minor safety concerns?

Key Indicators:
- Documented system of direct reporting even to the plant manager.
- Positive feedback from staff on past reporting experiences.
- Management encouragement for safety reporting.
- Documented policy statement on safety reporting.
- Confidentiality provisions for reporting unsafe acts to plant, corporate or regulatory bodies.

Q4 (CMI)

Basic INSAG Qs: Do systems of reward include factors relating to safety performances? Are staff aware of the system of rewards and sanctions relating to safety?

Guide Questions:
- To your knowledge do the safety records or attitudes to safety of individuals have any effect on their promotion aspects? If so, do you know of any examples of this? Would you expect the salaries/wages of individuals to be linked to their safety performance? How do you feel about this?
  Note: The acceptance or rejection of safety considerations in the assessment of remuneration or personal advancement influences the attitudes of individuals to safety culture. A resentful attitude can lead to misreporting of errors and the suppression of facts. A balanced approach is accepted as an indicator of a well understood and fair minded policy on reward and penalty for safety performance.

Key Indicators:
- No sanctions which are demotivating.
- Individuals are encouraged to express safety concerns, to report safety related observations.
- A visible tendency for those who actively promote safety issues to be more likely to be promoted.

3.2.2.2. Definition of responsibilities

Q1 (RCMI)

Basic INSAG Qs: Has the assignment of safety responsibilities been clearly annunciated? Has the responsibility of the plant manager for nuclear safety been clearly stated and accepted?

Guide Question:
- Who is responsible for nuclear safety on the site?
  Note: The delegated responsibility of the plant manager for safety is a key element of safety culture. This concept needs to be understood

and accepted by the managers. Managers must assign individuals to particular responsibilities and make sure that these assignments are understood by those involved.

Key Indicators:
- Responses should contain the following key points:
  - the operating organization is responsible for nuclear safety;
  - this is delegated by the operating organization to the plant manager;
  - there are clear, unambiguous and documented definitions of responsibility of individuals;
  - safety responsibility included in job descriptions and reinforced at training sessions;
  - an acceptance that everyone is at least responsible for safety in their own sphere of work.

Q2 (MI)

Basic INSAG Qs: Are the documents that identify safety responsibilities kept up to date and reviewed periodically? With what result?
(*To be partly covered in the review of documentation*)

Guide Questions:
- Who is responsible for reviewing safety responsibility documents? How do changes of responsibilities get transmitted to the staff?

Key Indicators:
- Clear responsibilities for keeping documentation up to date.

3.2.2.3. Selection of managers

Q1 (CMI)

Basic INSAG Qs: Do the staff recognize that attitude to safety is important in the selection and promotion of managers? How is this recognition fostered?

Guide Questions:
- What are the major criteria used to select managers?
- How could the selection of managers be improved?

Key Indicators:
- Documented and established criteria for the selection and promotion of managers.
- Positive feedback from staff on the criteria application.

Q2 (CMI)

Basic INSAG Q: Do annual performance appraisals include a specific section on attitude to safety?

Guide Questions:
- Why would you expect annual performance appraisals to cover safety attitudes?
- How can safety attitude be assessed throughout the year?

Key Indicators:
- Established mechanism for regular review of safety attitude of individuals.

- Performance appraisal sheets show specific reference to safety: documented criteria for managers to gauge safety performance. Positive feedback from appraised staff: evidence of safety related awards and sanctions system.

Q3 (CMI)

Basic INSAG Q: Can cases be identified in which safety attitude was a significant factor in approving or rejecting a promotion to management level?

Guide Questions:
- What would be considered an acceptable attitude to safety? Can you quote an example?
- Has anyone, to your knowledge, ever been rejected for promotion because of safety attitude problems? Is there an explicit example of this?

Key Indicators:
- Current examples of promotion assessments.
- Documented and understood criteria for promotion.
- Positive evidence of safety attitude as a selection criterion.

3.2.2.4. Relations between plant management and regulators

Q1(RCMI)

Basic INSAG Qs: Is the relationship frank, open and yet adequately formal? What is the nature of arrangements for access of regulators to documentation? To facilities? To operating staff? Are required reports to the regulatory agency made in a timely fashion? At what levels are the plant contacts for the regulatory inspectors? Does the plant manager meet routinely with regulatory staff?

Guide Question: What is the nature of the relationship between the plant management and the regulation agency?
Note: An open and constructive relationship with the regulator is in the interests of safety. Staff may require guidance on how they should respond to requests from regulatory inspectors for access and information. There should be a continuing dialogue between the two so that if a contentious issue arises there are adequate communication routes available for the problem to be resolved in an atmosphere of mutual trust and respect.

Key Indicators:
- Desire for frank and open discussion.
- Adequate formality.
- Regular meetings at plant manager level.
- Clear advice to staff to co-operate with regulatory inspectors.
- Provision for informal contact with regulatory inspectors at all levels of staff.
- Timely production of any reports required by regulators.

Guide Questions:
- What is the role of the regulator in the everyday running of the plant?
- Do you consider the regulator to be effective in monitoring activities?

- How often do you see the regulatory inspector? Do you discuss your work?

Note: The regulator is expected to strike a balance between formality and a direct professional relationship. Mutual respect between the regulatory staff and the operating organization should be based on a common level of competence. Regular joint discussions of the licensee's problems and experience and the impact of the regulatory requirements must take place. Individuals in the operating organization should be aware of the mechanisms by which the regulator assures himself or herself of the safety issues. Site inspectors should be technically credible to the operator with a high degree of personal integrity. Regulatory requirements should be clearly understood by all staff members at the site and the safety objectives accepted at all levels.

Key Indicators:
- Respect for the professionalism and technical competence of the regulator and their acceptance by management will indicate an enhancement of safety culture.
- A willingness to contact the regulator for advice and judgement on certain safety issues.

3.2.2.5. Review of safety performance

Q1 (CM)

Basic INSAG Qs: Does senior management receive regular reviews of the safety performance of the plant? Do these include comparisons with the performance of other nuclear plants?

Guide Questions:
- Who prepares reports on safety performance for senior management?
- Are there any objectives set which would define internal safety goals?
- What are considered to be the main safety indicators?
- Where and when are the safety performances discussed with senior management?

Key Indicators:
- Records of safety information sent to senior management.
- Documented system for reporting safety data to senior management.
- Annual report information on safety issues.
- Documented actions by senior management on negative trends in safety.

Q2 (CM)

Basic INSAG Qs: Are the results of safety reviews acted on in a timely way? Is there feedback to managers on the implementation of lessons learned? Can managers identify changes that resulted from reviews?

Guide Questions:
- What is the average time it takes for safety items raised at review meetings to be resolved?
- What benefits have been derived directly from safety review lessons learned?

Key Indicators:
- Documented action plans for resolution of safety issues.
- Established mechanisms for feedback of completed actions.
- Tracking system in place for monitoring safety issues status.
- Authorized persons nominated specifically for addressing safety issues.
- Regular safety review meetings and close-out actions.
- Positive feedback from staff on resolution of safety issues.

Q3 (CM)

Basic INSAG Qs: Are managers aware of how the safety of their plant compares with that of others in the same company? In the country? In the world?

Guide Questions:
- What is the present comparative ranking of the plant in the national and international tables?
- Is there an action plan derived from this data?
- What is the current trend of the plant safety performance?

Key Indicators:
- Instituted system of utility ranking.
- Annual report data on plant performances.
- Regular bulletins on plant safety status.
- Evidence of improvements as a result of inter-plant information exchange.

Q4 (CMI)

Basic INSAG Q: Do staff routinely read and understand reports on operating experience?

Key Indicators:
- Good knowledge of operating experience across staff levels.
- Review of modifications by staff.
- Established system of experience feedback.
- Positive feedback from staff on adequacy of reports and operating information.

Q5 (RCMI)

Basic INSAG Qs: Is there a system of safety performance indicators with a programme for the improvement of performance? Are the safety performance indicators understood by staff?

Guide Question: What do you know of any systems at the plant for measuring safety?
Note: The question is about the use and comprehension of safety indicators as a means of judging the effectiveness of any improvement initiative.

Key Indicators:
- A plant with an effective safety culture should produce safety indicators and display them to staff with an explanation of their meaning.

  Such indicators might be:
  · number and severity of significant events;
  · unavailability of safety systems;

- plant availability;
- radiation exposure;
- lost time accident rate;
- number of unplanned trips;
- pending work orders.

- Another key indicator of safety culture is the ability to quote some specific initiative at the plant aimed at improving safety, perhaps using an indicator as an example of success.

Q6 (CM)

Basic INSAG Q: Are managers aware of the trends of safety performance indicators and the reasons for the trends?

Guide Question: How does the management monitor and review the nuclear safety and performance of the plant?
Note: There should be a range of monitoring measures and practices which go beyond the traditional perception of Quality Assurance. For anything to be effectively managed, it needs to be measured. Therefore the establishment of safety indicators is expected. There should also be a recognition that management needs to be seen by the staff to be giving a high priority to safety matters. This might mean the establishment of special reviews and meetings.

Key Indicators:
- Existence of regular safety management review meetings;
- Existence of safety indicators such as availability or unavailability of safety related systems;
- Number of outstanding plant defects, etc.;
- The monitoring of trends in safety indicators and the taking of actions to bring about improvements;
- The comparison of safety indicators with other similar plants.

Q7 (RMI)

Basic INSAG Qs: What arrangements exist for reporting safety related events at the plant? Is there a formal means for evaluating such events and learning the lessons? Is there a formal mechanism by which staff who were included in a significant event are consulted on the final contents of a report?

Guide Questions:
- How do you know what sort of events need formal reporting?
- How are events followed up?
- Do the operators see or comment on reports of events?

Key Indicators:
- Clear instructions on what sort of events need formal reporting and how and to whom;
- Events analysed for safety lessons;
- Use of human factor methods;
- Operations staff involved in the evaluation process;
- System for identifying adverse trends;
- Results of event analysed used in training programmes.

Q8 (MI)

Basic INSAG Qs: Is there a full time safety review group which reports directly to the plant manager? Does the organization have effective safety information links with operators of similar plants? Does the organization contribute effectively to an international safety reporting system?

Guide Questions:
- What is the composition of the permanent safety review group? Does it include outside experts?
- Does the review group meet regularly or on demand?
- What is the main task of the review group?

Key Indicators:
- Well documented minutes of safety review group.
- Established system of review with review group as a mandatory step.
- Procedures including review group approvals.
- Regular inter-plant meetings or data links.
- Positive acceptance of review group by plant and regulatory staff.

Q9 (RCMI)

Basic INSAG Q: What are the trends for the number of outstanding deficiencies, temporary modifications or operating manuals in need of revision?

Guide Questions:
- Please describe the tracking system for monitoring outstanding modifications and issues?
- What is the current situation on temporary modifications and outstanding issues?

Key Indicators:
- Positive trends of outstanding deficiencies: declining number of temporary modifications with short durations.
- Regular revision of manuals.
- Positive feedback from staff on numbers and status of procedures, modifications, etc.
- Positive response to QA reports.
- Established and effective system for tracking safety related documents.

3.2.2.6. Training

Q1 (MI)

Basic INSAG Qs: Does all critical training and retraining culminate in formal assessment and approval for duties? What is the success/failure record? What is the proportion of operating staff's time devoted to training and how does this compare with the practice of other nuclear plant operators?

Guide Questions:
- What kinds of job related training have you received since coming to work at the plant?
- What specific training have you received in the areas of:
  - personnel/industrial safety practices;
  - radiological protection;

- nuclear power plant safety;
- job specific training for your craft/activity/function;
- emergencies?

- What part of your training is required by the training programme and what part is voluntary?

  Note: The first question will establish whether personnel recognize that they have or have not received instruction in the key areas and will help to gauge the relative weights given to safety oriented training versus production.

Key Indicators: Staff should recognize the differences between:
- good industrial safety practices that would be expected in any industrial setting;
- special radiological health practices and controls;
- rudiments of nuclear power plant principles of operation and safety aspects;
- how their jobs relate to plant safety;
- what they are expected to do in an emergency.

Guide Questions:
- What sort of certification or licence do you receive for each kind of training described? Are these internal certifications (i.e., by plant/company, regulatory agency)?
- Are you required to, or do you have periodic retraining and recertification for any or all of your job related training?

  Note: The purpose of the questions is to determine the degree of formalism and control in training beyond regulatory requirements and establish whether the plant supports and requires retraining in all safety areas.

Key Indicators: One indicator of management commitment to supporting safety culture is the provision of continuing reinforcement of training beyond the mandatory requalification of control room operators, i.e. that other areas of staff training are formalized and that all key personnel understand the importance and extent of such training.

Q2 (CMI)

Basic INSAG Qs: What resources are allocated to training? How does this compare with the allocations of other nuclear plant operators?

Guide Questions:
- On what is the allocation of resources for training based?
- Has the resource level been reviewed against similar plants elsewhere?

Key Indicators:
- Commitment at the management and corporate level to provide adequate resources to allow effective training.

Q3 (CM)

Basic INSAG Q: Is the quality of training programmes assessed at corporate and plant management levels?

Guide Questions: At what level is the quality of training programmes reviewed?
How often is the training programme reviewed?
What is the training programme reviewed against?

Key Indicators: Existence of a satisfactory training policy, facilities, staff and budget.

Q4 (RMI)

Basic INSAG Qs: Is there a periodic review of the applicability, correctness and results of training courses? Does this review take into account operating experience feedback? Can training staff cite examples of operating errors that have resulted in modifications to a training programme?

Guide Questions:
- How is content of training for your staff established? What portion is dictated by regulatory requirements versus plant imposed safety policy? Is there any inclusion of feedback of operational problems at your plant?
- How often is content reviewed for currency? By you? By others (e.g. senior management)?
- Who are the trainers and how are they selected? Are trainers required to be retrained periodically? Is there an exchange of staff between operations and training departments?

Note: The purpose of the questions is to clarify the manager's attitude to providing sufficient training to support safety policy via a highly skilled staff rather than just achieving the minimum required by regulators.

Key Indicators:
- Training content is established and periodically reviewed for relevance.
- Inclusion of plant experience.
- Maintaining relevance.
- Selection and qualification of trainers.
- Evidence that training is current and relevant, e.g. by rotation of trainers through operations or spending time on shift.
- Ongoing evaluation sessions between instructors and students.
- Positive feedback from staff on operating experience discussion and re-enactment.

Guide Questions:
- What is the schedule for your training to maintain your qualification status?
- What kind of preparations do you have to make before you report for a training session? For example, do you keep notes on issues that may have come up on shift so that you could discuss them with the trainer? Perhaps to arrange for practice ordemonstration?
  Note: The purpose of these questions is to see if staff are active in training and if they seek out training.

Key Indicators:
- Attitude of doing more than what is required, i.e. not just attending because it is mandatory.
- Preparation - operational feedback - input.
- Influencing of content by staff.
- Training proposals included from staff performance appraisals.

Q5 (MI)

Basic INSAG Q: How frequently are production requirements permitted to interfere with scheduled training?

Guide Questions:
- How do you cope with an unforseen event requiring more staff at short notice?
- What arrangements are there for staff to catch up on missed training?
- What input does the training department have into the planning of production activities?
- How much of a problem is the rescheduling of your training because of production pressures?

Key Indicators:
- Completed training schedules and contingency planning. Management directives on maintenance of training in the event of production conflicts.
- Positive feedback from plant staff on management commitments to training despite production pressures.
- Plans for utilization of additional staff as instructors, e.g. shift technical advisors, other plant staff, consultants.
- Evidence of completed shifts and training sessions.
- Adequate repetition of training courses to all staff.

Q6 (MI)

Basic INSAG Qs: Do staff understand the significance of the operating limits of the plant in their areas of responsibility? Are the staff educated in the safety consequences of the malfunction of plant items?

Guide Questions:
- What particular cautions or safety limits must you observe in your job? (e.g. pressures, temperatures, tank levels that you must control or be aware of?) What would happen if the limits were violated? Is there anything of which you have to be careful so that you do not accidentally cause limits to be exceeded?
- Has the plant, to your knowledge, ever been operated outside the operating limits?

  Note: The purpose of these questions is to explore the depth of knowledge that the individual has regarding the relationship of job activities to personal and plant safety.

Key Indicators: Dialogue should elicit responses that cover:
- understanding of safety limits related to their job;
- personal mental model of plant and how their specific job relates to plant safety;
- potential consequences to self and plant if they make an error in their job, e.g. what would occur; how fast would a crisis develop;
- depth of understanding regarding the bases for operating limits and safety margins.

Q7 (MI)

Basic INSAG Qs: Are staff trained in the special importance of following procedures? Are they regularly reminded? Are they trained in the safety basis of the procedures?

Guide Questions:
- What kinds of written operating procedures do you use in your daily work?
- Do you feel that you need to have the written procedures open in front of you to perform the correct actions in the correct sequence? For normal operations?
- How easy to use do you think the procedures are?
- What was your training on emergency operating procedures: how do the trainers lead you through the bases? How much are you expected to know by memory?
- What is management's policy on following procedures verbatim? In all cases?
- Are you given authority to override procedures?
- Have you taken part in the procedure validation process? What was the result?
- Have you or colleagues suggested improvements or spotted errors in procedures?

Note: The basic premise is that well thought out and validated procedures for operations will minimize the likelihood of operator errors a nd operators should be trained to trust the procedures. However, the training should impress upon the operators the need to continue to ask questions, especially when situations vary from the expected evolutions. Operators need to feel a sense of ownership of the procedures. These questions should also be put to other key staff, i.e. in maintenance or radiation protection, with suitable amendments.

Key Indicators:
- Knowledge of bases for procedures with a realization that procedures may not cover all eventualities.
- Operator suggestions for procedure improvements are incorporated in a timely way.
- Operators are involved in the procedure validation process.
- Clear understanding of policy on procedure adherence.
- Operator confidence in procedure accuracy and format.

Q8 (RMI)

Basic INSAG Qs: For control room operators, do retraining sessions on simulators take into account the difficulties that staff have experienced and the questions that they have raised? Are training simulator modifications made as soon as the plant is modified?

Guide Questions:
- Please describe how you make use of control room simulators to support the plant and corporate safety policy?
- Discuss the frequency and duration of simulator training for each operator? What steps do you take to ensure that operators receive simulator and other training when scheduled?

- What guidelines do you establish for the content of simulator training? For example, how much time is spent on maintaining skills in handling normal operational transients versus simulated accidents of various types and probabilities? How do you make sure that operating problems or operator concerns of your plant or similar plants are addressed in the simulator?
- Are you able to attend and observe operator simulator training?
- What do you do during simulator sessions to help improve team performance of operating crews, especially during accident scenarios?
- Are you able to keep the simulator model consistent with plant modifications?
- What counterparts to the simulator are provided for plant equipment operators; maintenance staff, etc.?

Note: The purpose of the questions is to determine the value and priority placed on simulator and training aids by managers. Failure to ensure timely and meaningful simulator training or continuing proof of commitment will affect operators' attitudes toward simulator training. The ideal would be to provide a plant specific simulator with very frequent sessions but this may not be possible for all plants. Even if operators and managers level travel to a simulator site only infrequently, the management should provide as much simulator time as possible and emphasize its importance by attending and observing.

Key Indicators:

- Frequency of simulator use.
- Content; including feedback from operations and operator requests.
- Keeping simulator current with plant.
- Use of simulator sessions to improve team performance of operators.
- Use of other training aids for equipment operators and maintenance staff.
- Good scope of simulation and faults.
- Management involvement in training sessions.

Guide Questions:

- How often do you train on a simulator? Do you go as an individual or with the rest of the shift?
- What kind of events do you cover, e.g. design basis accidents? Events from other plants, beyond design basis accidents?
- If the simulator is not plant specific, are you able to use the current procedures for your plant?
- Do you and colleagues have a say regarding events to be included, e.g. based on operating experiences?

Note: The purpose of this area is to determine the resources and priorities given to simulator training and the degree to which operators value and contribute to training. The opportunity for team training should be explored.

Key Indicators:

- Plant specific simulator is available to operators (own or elsewhere).
- Frequency with which they attend.
- Management commitment to training.
- Balance between normal operations and emergency response.
- Feeling of participation and ownership by operators.
- Team/shift training.
- Evaluation of training results by operators.

Q9 (MI)

Basic INSAG Q: For maintenance personnel, do training sessions make use of mock-ups and video recordings before a complex maintenance activity is performed?

Guide Questions:
- What methods do maintenance staff use to prepare for complex work?
- How does the plant dose rate record compare with that of plants worldwide?
- How much of the budget is allocated to special tools, mock-ups and video equipment per year?
- Is there on the job training? How is it carried out?
- Do you get enough rehearsal time before a maintenance activity?

Key Indicators:
- Training mock-ups and equipment in evidence and use.
- Rehearsal time built into schedules of work.
- Procedural references to preparatory training.
- Feedback of event reports into work preparations.
- Low dose rates recorded for maintenance work.
- Ongoing video recording of maintenance work for future use.
- Mock-ups replicate the plant and replacement components used for training.
- Safety reinforced in documentation and training sessions.

Q10 (MI)

Basic INSAG Q: Do training programmes address safety culture?

Guide Questions:
- In addition to training staff to perform jobs correctly for production purposes, how is knowledge of each individual's contribution to plant safety communicated?
- Are your staff given specific training on potential consequences of an error they might commit, e.g. exceeding a safety limit of the plant or potentially harming themselves?
- Are there written procedures for your staff? Are they required to follow them verbatim by regulators, plant policy or your policy? Are the staff aware of the consequences of not following procedures, e.g. would this lead to a violation of a safety limit?

Note: These questions should address managers' attitudes towards safety related training for their staff.

Key Indicators:
- Relevance of operating limits reinforced.
- Consequences of error transmitted to all staff levels.
- Bases and use of written procedures stressed constantly in training and operations.
- Specific safety culture promotion sessions.
- Total acceptance of validity of procedures.
- Acknowledgement by managers of good safety performance.

3.2.2.7. Local practices

Q1 (CM)

Basic INSAG Q: Has the plant manager instituted any safety related initiatives that go beyond requirements set at the corporate level?

Guide Questions:
- What do you know of initiatives set out by the plant manager to improve safety?
- How effective is the Plant manager's safety improvement programme?
- What systems are in place to recognize the contribution of plant managers to safety? Is there a system of awards?

Key Indicators:
- Unique programmes on safety.
- Feedback from staff on new initiatives.

Q2 (RMI)

Basic INSAG Qs: Are records on the performance or maintenance of components and systems easily retrievable? Complete? Understandable? Accurate? Up to date? (*to be partially covered by documentation review*)

Guide Question: Are maintenance records used to trend major equipment reliability?

Key Indicator: Maintenance records used in a positive manner.

Q3

Basic INSAG Q: What is the general state of the plant in terms of general appearance and tidiness, steam and oil leaks, the tidiness of log-books and records? (*to be covered by a plant tour*)

Q4 (CMI)

Basic INSAG Q: What are the arrangements for supervising, reviewing and signing off maintenance work carried out by supporting organizations?

Guide Questions:
- What special safety related problems are posed by the use of contractors and how are these addressed?
- How many contractor related problems does the plant experience annually?

Note: Contractors (and other supporting organizations) are not routinely exposed to the safety culture which is fostered at the plant and therefore special efforts are required to make sure that the work done and working methods are satisfactory with respect to safety. The questioner should try to find out what is done over and above normal commercial quality assurance practice.

Key Indicators:
- Specific arrangements for safety briefing of contractor's staff before they start work.

- Specific arrangement for supervising, reviewing and accepting work done.
- Evaluation of the quality of contractors before the tendering process.
- Declining trend in contractor related problems.
- Regular meetings with external bodies to discuss safety issues.
- Penalty clauses related to safety built into contracts.
- Regulatory inspection programme of contract work.
- Availability of radiation protection records.

3.2.2.8. Field supervision by management

Q1 (RMI)

Basic INSAG Qs: What is the working style of the senior supervisors on shift? Do they seek information? Are they well informed? Do they visit routinely the areas where safety related work is being done? Are they interested in the problems or solely the schedules? What fraction of the time of the senior person on shift is spent on administrative duties?

Guide Questions:
- What training in leadership, time management and supervision does a senior shift supervisors (SSS) receive?
- How do SSSs keep their plant knowledge up to date?
- What more could be done to make the SSS more effective?
- How often do staff seek out the SSS for advice and guidance?
- What would happen if the SSS spent long hours out of the control room?
- How much knowledge does an SSS need to have?
- What differences are there between the various SSSs' ways of working?
- How much authority does an SSS have on shift?
- Can anyone overrule a senior licensed operator on shift?
- Does the operations supervisor follow up the activities of the SSS/operators and field operators?

Key Indicators:
- Shift logs and supporting documentation shows regular SSS involvement and visits.
- Documented policy and job descriptions state duties, responsibilities and safety accountability of SSS.
- Assistance provided for SSS on administrative duties.
- Selection criteria and training for SSS includes safety reinforcement and questioning attitude.

Q2 (MI)

Basic INSAG Qs: Do middle managers often make first hand inspections of the conduct of safety related work for which they are responsible?
Does the plant manager from time to time inspect the conduct of safety related work?
Do senior managers visit the plant regularly? Do they pay attention to safety matters?

Guide Questions:
- How often do you see managers about the plant?
- Do managers ever come round on tours of inspection?
- Is seeing a manager at the work-place an indication of trouble?

Key Indicators:
- Management visibility around the work-place.
- Regular tours of inspection by managers, particularly looking for problems related to safety.

3.2.2.9. Work-load

Q1 (RCMI)

Basic INSAG Qs: Is there a clear policy on limits to overtime worked? To which staff does it apply? How is overtime controlled, monitored and reported to the plant manager and higher management?

Guide Questions:
- How do you get assurance that staff are fit for duty at the start of a shift/day?
- Where are the limits for overtime stated?

Note: It is important that staff are not permitted to take up duties if they are unfit to do so through tiredness, illness, drugs, alcohol, etc. In addition to management controls, staff should be encouraged to develop and follow codes of practice covering the above.

Key Indicators:
- Stated policy on maximum working hours and minimum time off between shifts.
- Monitoring of hours worked.
- A system which requires a fitness for duty judgement at the start of a shift.
- Codes of practice understood and accepted.
- Contingency plans for unforeseen demands on staff.

3.2.2.10. Attitudes of managers

Q1 (CMI)

Basic INSAG Q: When there is apparent conflict between safety and cost or between safety and operation, do managers discuss with staff members how it is resolved?

Guide Questions:
- When situations arise that require a decision between commercial/production and safety considerations, who decides?
- Would you or your colleagues be consulted?
- If the plant were stopped owing to a faulty component and you had to have a replacement part to complete the job and only a substitute of a lower standard was available, what would you do to get the plant back into production again with a minimum of delay?

Note: Managers' attitudes are demonstrated and staff attitudes are influenced, by exchanges on nuclear safety matters. In particular, the opportunity to demonstrate that safety will be placed before production should be apparent to all individuals.

Key Indicators:
- Discussions with staff concerned about delays in restarting the plant for reasons of safety.
- A clear commitment to safety is a primary objective.
- Involvement, discussion, reasons for decisions affecting safety.
- Examples of production delayed for safety reasons reinforces the safety culture.

Q2 (RMI)

Basic INSAG Q: Are the schedules and content of work for annual shutdowns examined by an internal safety review process?

Guide Question: How is the content of the outage work list arrived at?
Note: The aim is to reveal whether shutdown work lists are influenced by previous experience both from the site and from other similar plants. Also, to find out whether there is scrutiny of the work list by some third party safety review process and whether this leads to amendments to the list on the basis of safety considerations.

Key Indicators:
- A third party safety review process.
- Influence of operational feedback to amend list.
- Safety related spares and services provision prior to commencement of work.

Q3 (MI)

Basic INSAG Q: When safety considerations introduce a delay in the startup of a plant, do managers use the occasion to illustrate that safety comes first?

Guide Question: Is there a system for prioritizing maintenance work which is safety significant?
Note: A system of assigning maintenance work is to be expected. The questioner should seek to elicit whether the prioritization system clearly puts safety first, above production issues. The questioners should also try to find out within this question how a conflict of requirement between safety and production is resolved. The question should be expanded to cover amendments to documents.

Key Indicators:
- A prioritization system which affords significant safety related work top priority should exist in all areas of activity. Conflict between safety and production should be discussed with relevant plant staff. Managers should use such times to highlight the overriding priority given to safety. 'Stop work' authority to managers for safety issues indicates a high regard for safety.

Q4 (MI)

Basic INSAG Q: During periods of heavy work-load, do managers ensure that staff are reminded that unnecessary haste and shortcuts are inappropriate?

Guide Questions:
- In periods of heavy work-load and high pressure, what would you and your manager discuss regarding action plans and safety measures?

- Do you re-examine safety concerns? Are you reminded by management of the need to be vigilant and to adhere strictly to procedures and safety limits?

Note: The attitudes of individuals and managers can be examined and impressions gained in exchanges with staff members at various levels to support judgement of the effectiveness of safety culture. Examples may be available from previous experience to illustrate the situation and these should be sought from the individual. Procedures must be strictly followed even when quicker methods are available.

Key Indicators:

- Regular discussions with staff on contingency planning.
- Control of contractors and external staff to ensure no safety problems arise.
- Reference to safety policy by managers and staff in cases of dispute.
- Contacts with regulatory body to ensure clarity of requirements.
- Willingness to reschedule work because of safety constraints.

Q5 (CMI)

Basic INSAG Qs: Do managers explain their commitment to safety culture to their staff? Do they regularly disseminate relevant information such as objectives, expenditure, accomplishments and shortcomings? What practical steps are taken to assist management commitment, such as establishing professional codes of conduct? How often have directions from management been aimed at the improvement of safety?

Guide Question: How are staff encouraged to strive for excellence in matters affecting safety?

Note: The aim of the question is to reveal management practices which foster a good safety attitude among staff. Prompting on the specific areas covered by the key indicators may be necessary.

Key Indicators:

- If there is a bonus system, safety performance should be a factor.
- Promotion prospects are visibly affected by safety attitude.
- Attitude to safety is a specific factor in staff performance appraisal.
- A scheme for staff to suggest safety improvements is in place.
- The concept of safety culture is explained to staff regularly.
- Initiatives are used to obtain improvements in specific areas.
- Professional codes of conduct are instituted.
- There are regular safety bulletins and safety forums.

Q6 (MI)

Basic INSAG Qs: Do managers disseminate to their staff the lessons learned from experience at their own and similar plants? Is this a training topic?

Guide Question:

- How are the lessons learned from incidents on site and from other plants disseminated?

Note: The question is posed to reveal the incident reporting and operational feedback systems. The aim is to reveal the extent and effectiveness of any systems which exist.

Key Indicators:
- An on-site incident reporting and review procedure.
- Positive actions taken in response to incidents.
- Availability of incident reports from other plants and scrutiny of these for relevance.
- Encouragement of 'near miss' reporting.
- Regulatory requirements modified in the light of external incidents.

Q7 (CMI)

Basic INSAG Qs: Is there a system for bringing safety related concerns or potential improvements to the attention of higher management? Is its use encouraged by managers? Do managers respond satisfactorily? Are individuals who transmit such concerns rewarded and given public recognition?

Guide Questions:
- How would a safety concern or improvement be brought to the attention of management?
- What is the attitude of management to safety reporting?
- What mechanism is in place for highlighting safety suggestions?
- Can you cite a safety suggestion you have put forward?

Key Indicators:
- The existence and regular use of a system for safety suggestions.
- Satisfaction with the response to safety suggestions.
- A reward system for valuable safety suggestions.
- A system that gives safety reporting special priority over other work.
- Awareness of how to use the plant's safety suggestion system.

Q8 (MI)

Basic INSAG Qs: What is the attitude of managers and staff to safety reviews and audits affecting their activities? Do they discuss with their staff the results and the means by which deficiencies may be corrected? How responsive are they to improvements made as a result? What is the attitude of managers to the application of quality assurance measures to their activities?

Guide Questions:
- Do you find audits and reviews to be helpful or a hindrance in the way you do the job?
- How do you feel about QA measures such as inspections and tests?
- What is your understanding of why they are done and what is done with the results?
- How do you think QA measures improve the safety factors of your job?

Note: Managerial responsibilities include the implementation of a range of monitoring practices, some of which go beyond the implementation of traditional quality assurance measures. These include, for example, regular reviews of training programmes, working practices, and assessment activities. These practices depend on the activities of the organization and may require the participation of groups and individuals in adherence to principles and approved practices. By these means, the working of safety management systems is checked by internal processes.

It is the responsibility of management and workers to strive for excellence in the achievement of their safety goals. Questions should be developed to explore the depth of commitment to and the understanding of the processes of quality assurance.

Key Indicators: Understanding and appreciation of the need to scrutinize changes to operating parameters, maintenance requirements, modifications to plant, and any non-routine operation of the plant.

Q9 (CMI)

Basic INSAG Qs: Does management regularly review the performance of personnel, with assessment of their attitude to safety? Do managers give recognition to staff members who take actions beneficial to safety?

Guide Questions:
- Do you think the station staff are qualified and have sufficient experience to handle any abnormal situations?
- How would management reward exceptional safety actions by staff?
- For operating and maintenance staff particularly, what is the staff turnover rate and are there any implications here for nuclear safety?

Note: The responses must be substantiated with questions regarding the perceived level of experience needed in critical posts and the contribution to safety. A high staff turnover rate can be an indication of poor staff morale. Even when all training requirements are met, it is still desirable to keep a balance of experience in all groups so that there are some long serving members in each group.

Key Indicators:
- Low staff turnover, little movement of staff, promotion with perceived merit, exposure to abnormal situations, adequate service in key jobs and expressions of confidence in the group and management.
- Recognition for staff who contribute to safety and favourable comment from staff on managers' ability and willingness to acknowledge safe working.
- Awareness of the need for balance of experience in each group. Awareness of staff turnover rate and reasons behind the particular figure.
- Positive steps taken to arrest the problem before it becomes serious.

Q10 (RCMI)

Basic INSAG Q: What is the response of management to safety infringements and violations of safety related technical specifications?

Guide Questions:
- How do you feel about management's reaction to infringements or violations of safety limits?
- Does the attitude of management to safety violations seem acceptable to you?
- In your view, are violations properly investigated by management?
- Do you feel that management gets to the root cause of safety violations?

Note: Staff have to understand that the management cannot condone any infringement or violation of safety limits. Failure to take remedial action

will result in the staff becoming confused as to the importance of safety requirements. All significant events that have occurred on site should be analysed in close co-operation with the staff concerned to help all staff evaluate their strengths and weaknesses. No ambiguity should exist over the limits set or the systems by which the management deals with transgressions. Examples should be requested of any such violations and the action perceived by individuals.

Key Indicators:
- Acceptance of safety limits, understanding of the consequences of violation.
- Confidence in the ability of management to act justly, examples of previous cases of violation and management actions which demonstrated a positive result.
- Expressions of resentment, unjust treatment of previous violators, ineffective actions by management or perceptions of misplaced blame would indicate a problem.

Q11 (CMI)

Basic INSAG Qs: What systems exist to apprise managers of safety accomplishments or shortcomings? How effective are they? Are managers alert to the need to identify weaknesses in their staff, to specify training requirements or to provide other support?

Guide Questions:
- How well do managers know the safety attitudes of their staff? How can they measure them?
- How does a manager ensure that any extra training or support for staff is put into effect?

Key Indicators:
- Managers are kept informed of the number of outstanding safety related work orders.
- Regular managerial review of training delivered.
- Regular system of staff performance appraisals.

Q12 (CMI)

Basic INSAG Qs: Do managers participate in staff training courses at which safety policies and procedures are explained? Do they present any of the training material? Do they follow the training of their staff and are they aware of their training status and levels of ability? Do they encourage staff members to spend time as instructors? Do managers themselves undergo retraining in safety matters?

Guide Questions:
- What training programmes exist for your staff? What are the critical areas of training for your staff related to personnel and plant safety?
- Is any or all of the training required by regulations? Is any or all required by the plant as a requirement for duty? As such, are records kept and/or certificates or licences issued? Who determines standards for passing?
- As a manager, what attention do you give to assessing the content and results of training for your staff?
- Do you have any difficulties providing time or facilities for the training you want?

- Do you attend training sessions to ensure that learning is taking place?
- Do you, yourself, go through retraining periodically? What kind? Is this voluntary or required?

Note: For each manager interviewed, questions should attempt to determine whether adequate attention, priority and resources are being provided and if not, why? Managers should understand the objectives of training efforts to support safety policy.

Key Indicators:

- Formal (e.g. certificate or licence issues) training mandatory.
- Records kept up to date and accurately.
- Time spent by staff and manager on training.
- Resources committed adequate and competent.
- Potential conflict of training versus production resolved.
- Managers receive training in management and communication skills.

Guide Questions:

- Who are the trainers? Do you feel they are able to help you improve or maintain your skills?
- Do your supervisors or managers ever observe your training sessions or take part in them?
- Do trainers and managers discuss the content or results of your training with you?
- What kinds of results are discussed?

Note: As a further demonstration to staff of their commitment to safety culture and related training, as well as being good management practice, managers should periodically observe what is being taught and how training is being received by staff. Managers should be open to suggestions by staff for ways to improve training. If staff do not feel that there is sufficient management interest in training, then staff will tend to be less motivated.

Key Indicators:

Staff perceive that:

- managers regularly come to their training sessions;
- managers or trainers are open to staff input;
- managers emphasize results or regulatory requirements and expressed needs of staff;
- staff comments on training content are taken into account;
- the training staff are respected and trusted;
- the managers' qualifications and experience are adequate.

Q13 (MI)

Basic INSAG Qs: Does the plant manager from time to time inspect the conduct of safety related work? Do managers review regularly the assignment of their staff's duties? Are the relevant documents up to date? Do managers attend regularly at the work-place to review safety related activities? Do middle managers often make first hand inspections of the conduct of safety related work for which they are responsible?

Guide Questions:

- How often do you have a visit from your managers during the working day/week/month?
- Do managers help you by their visits?

- Would you like to see these visits increased?
- Are you able to discuss all aspects of the job with your manager?

Note: The presence of managers at the work site provides opportunities for them to emphasize directly the importance assigned to safety. It is the task of managers to ensure that their staff respond to and benefit from established practices and, by attitude and example, ensure that their staff are continuously motivated towards high levels of personal performance in their duties. It is essential that managers are visible and worthy in the eyes of their workers as this fosters a spirit of concern for the individual and the task in hand.

Key Indicators: Non-appearance or infrequent attendance at the work site indicates a lack of interest by managers. Low standing or unapproachability may influence the individual to withhold safety concerns from management. Regular visits and work reviews are favourable. Open discussion on safety and allocation of duties. Advice sought and given by staff and managers respectively.

Q14 (CMI)

Basic INSAG Q: Do managers give attention to the physical working environment of their staff?

Guide Question: What could be improved in your physical working environment? Who could change that? Why is it not changed? Have you requested improvements to your working environment? Of whom? With what result?

Note: The working environment is usually the area of most interest to the individual and the environment created by the management can condition the individual's attitude. Any shortcomings in physical conditions may affect the performance of the worker and the safety levels associated with the job. Management has a responsibility to provide an environment conductive to safe working practices. Any shortcoming in this area may be perceived by the individual as a de-emphasis on safety and workers by management. Lowered self-esteem and a strained atmosphere may result from a physical working environment which is less than adequate. For staff to carry out their duties with ease, satisfactory facilities must be provided, including: the physical features of work locations, the suitability of controls, instruments, tools and equipment; the availability of necessary information; standards of housekeeping; and, of particular importance, the work-loads of individuals.

Key Indicators:
- Positive factors are satisfaction with the work-place and the conditions associated with carrying out tasks safely and efficiently.
- A feeling of confidence in management's interest and concern for the workers' environment indicates a healthy situation.
- Some of the negative factors may be apparent from an on-site inspection of the environment.
- Questions may then be forwarded to determine the attitudes of individuals to any shortcomings.

- Acceptance of a poor physical environment and the lack of impetus to improve it would indicate a deficiency in management/worker relations and in the overall safety situation.

3.2.2.11. Attitudes of individuals

Q1 (MI)

Basic INSAG Q: Are staff aware of the management's commitment to safety culture?

Guide Questions:
- What do you understand by the term 'safety culture'?
- What is the nature of any company or corporate safety policy statement and how is it implemented?

Note: If the plant management want good safety culture they should communicate what they want effectively to the staff. An alternative way of asking about this is to ask what it is that makes the particular plant safe. A discussion from this angle might show an understanding of safety culture without having come across the specific term. An organization operating a nuclear plant should issue a safety policy statement declaring the organization's objectives and corporate commitment to safety. The key point is an understanding that safety is derived from an assembly of measures and attitudes that ensures nuclear safety issues are given sufficient attention. Management systems and controls are not fully effective on their own; the questioning attitude, and a rigorous, prudent and communicative approach of individual is also vital to the building and maintenance of safety culture.

Key Indicators: There should be a policy statement which:
- Declares the operating organization's responsibility for safety.
- Declares a commitment to excellent safety performance.
- Declares that safety is of the utmost importance and will if necessary override commercial pressures.
- The policy statement should be made available to all staff and they should be reminded of it from time to time.
- The policy should be implemented through a management structure which assigns responsibility for key safety related activities on the site.

Q2 (MI)

Basic INSAG Qs: Can personnel state ways in which safety might be prejudiced by their own erroneous action? And by those of others working in related areas? Do staff stop and think when facing an unforeseen situation? In such cases are their actions 'safety inspired'?

Guide Questions:
- If you were required to work on/operate a plant item/equipment/system and after the action you discovered that it was the wrong item/equipment/system and you had made a mistake, what would be your actions/attitude to your mistake — actions of management — attitude of colleagues?
- Suppose you were expected to use a procedure for an operation/task and half-way through the procedure you discovered an error in the instructions, what would be your immediate actions and follow-up actions?

Note: The phrasing of questions on behaviour and attitudes requires the interviewer to adjust the context of the question to the job requirements of individuals.
Responses should indicate the individuals' actions in their actual place of work and their perceptions of the expected behaviours from management, supervisors and colleagues. Responses to hypothetical questions will have to be challenged by the interviewer with other, appropriate questions regarding the individuals' feelings, reactions and perceptions of consequence associated with the error situation. Errors, when committed, should be seen less as a matter of concern than as a source of experience from which benefit can be derived.
Individuals should be encouraged to identify, report and correct imperfections in their own work in order to help others as well as themselves to avert future problems. When necessary, they should be assisted by management and colleagues to improve their subsequent performance. Nevertheless, for a repeated deficiency or gross negligence, individuals should expect and accept the management's responsibility to effect adequate measures, since safety may otherwise be prejudiced. The individuals' attitude to and experience of the application of these measures should be explored during questioning to determine whether it is seen to be effective or counterproductive.

Key Indicators: Evidence of an honest approach, admittance of the error, no fear of unwarranted reprisals and the recognition of the need to rectify the situation personally and collectively.

Guide Question:
- What are the things that you would change if you could to help you do your job even more safely than you do now and to make this a safer plant?

Note: The individual should be able to relate the importance of his/her job in the context of the safety of the plant as a whole. Each response will have to be evaluated according to the influence it has on the safety situation. The degree of importance will depend on the amount of inhibition it exerts on the individuals' or group's performance. Examples of suggestions on safety improvement initiated by the individual or group may be stated; however, the results should be explored to determine the reaction and attitude of management to these responses.

Key Indicators:
- Positive actions for implementation.
- Suggestions on safety improvements accepted by management.
- A feeling of being a worthwhile and valued employee.
- Willingness to admit mistakes.

Q3 (CMI)

Basic INSAG Qs: Can staff clearly enunciate their own responsibilities? Can they cite the documents that define them?

Guide Question:
- What are your responsibilities and in particular what are they with respect to safety?

Note: The understanding and acceptance of an individual's assigned responsibilities is an essential part of a sound safety culture. For more senior individuals the question could be expanded to see what is known of immediate colleagues' responsibilities and how they are complemented. The individual ought to be able to quickly refer to a written statement of his responsibilities.

Key Indicators: The individual ought to be able to state his/her responsibilities if there is a good safety culture. In particular he or she ought to be clear about what he or she may decide, may do and may advise on. Staff ought to have an appreciation of the safety significance of their tasks and accept that they are responsible for safety in their area.

Q4 (MI)

Basic INSAG Q: Can operating and maintenance personnel list any recent violations of operating limits of the plant, describe the way they happened and state what has been done to prevent repetition?

Guide Questions:
- How often has the plant been operated outside the safety limits?
- Who is responsible for analysing and reporting on violations of safety limits?
- Have you ever been involved in reviews of safety violations?
- Does your experience include an unforeseen event at the plant?
- Where were you at the time and what did you do?
- What was the outcome? Was it discussed later?
- How did you react at the time? Although you have not had such an event yet, how do you think you would react?

Note: Reaction to unforeseen events is extremely difficult to assess prior to an event. However, the reinforcement of procedural methods of rectification and a clear understanding of the channels of communication to be followed for unforeseen events will be necessary. Individuals must be trained to alert supervisors and management to such events while also taking actions to ensure plant safety. Experiences should be reviewed regularly to ensure lessons are learned, the necessary corrective measures identified and timely implementation pursued. The thoroughness of reviews and the strength of corrective responses are important safety culture indicators. The results of safety analyses, including probabilistic safety analysis, should be consulted regularly to support decisions as specific issues arise, as well as to provide staff with the insight into the important safety features of plant design and operation.

Key Indicators: Confidence in an individual's ability to cope with any event in a safe and controlled manner can be demonstrated by posing hypothetical situations. Staff who respond confidently and without hesitation are usually sure of the channels of communication to use despite not knowing what the specific event may require to control it. Operators should exhibit qualities of analytical behaviour to all events and be clear on the routes of notification and sources of technical expertise to allay any safety concerns.

Q5 (MI)

Basic INSAG Q: Are laid down procedures followed strictly even when quicker methods are available?

Guide Questions:
- Do the procedures frustrate the workers when production pressure is applied? What would happen to a worker who ignored the procedures?
- How are modifications, special tests and defeat of interlocks controlled? How strict is management or adherence to procedures?

Note: The strict control of these matters is considered important because they are non-routine activities which can have a major effect on safety. The seriousness of the control of these activities is a good indicator of the safety consciousness of the plant management. Deviation from procedures should not be tolerated and ambivalence towards procedures shows poor safety culture.

Key Indicators:
- Procedures exist for all safety significant activities.
- Procedures should not be regarded as overburdening or without regard for skills.
- There should be no unpermitted deviations from procedures.
- Modification and interlock defeat procedures which require authorization at a level consistent with safety significance.

Q6 (RMI)

Basic INSAG Q: How attentive are staff to the completeness and accuracy of records, log-books and other documentation?

Guide Questions:
- Are there regular checks that records logs and other documentation are complete?
- How easy is it to retrieve records?

Key Indicators:
- Full awareness of importance of completeness and accuracy of documentation.
- Regular checks on this by supervisors.

Q7 (MI)

Basic INSAG Qs: What steps would staff take if they observed actions that might reduce safety margins? What attitude do individuals take towards their own mistakes that might prejudice safety?

Guide Questions:
- How would you react if you observed that safety margins were being or could be reduced?
- What exceptions would be considered acceptable?
- Do you inform your superior of all actions you took outside the procedure, even if it was a positive action?

Key Indicators:
- Evidence of a self-analytical approach to activities. Documented policy on open reporting and responsibility for mistakes. Feedback from staff on personal experiences in error reporting.

- Self-analysis approach evident.
- Stated policy and open route for reporting and rectification of errors.
- Questioning, rigorous approach to safety.
- Citing admissions of error.

Q8 (MI)

Basic INSAG Q: What would an operator, instructor or a member of the maintenance staff do if in following a written procedure he came upon a step that he thought was a mistake?

Guide Questions:
- How often have you found a mistake in a procedure? What did you do about it?
- How much confidence is placed in procedural accuracy and the relevance of procedure content?

Key Indicators:
- Recorded evidence of procedure modification from staff input.
- Documented policy on procedural error reporting actions.
- Regular procedural reviews of safety related documents.
- Walk-downs and validation exercises by staff of safety procedures.

Q9 (MI)

Basic INSAG Qs: Do staff use the mechanisms for reporting on safety shortcomings and suggesting improvements? Is the mechanism used to report individuals' errors? Is it used even when no detrimental effect is apparent? Do staff respond satisfactorily to the investigation of safety problems assisting effectively in seeking the causes and implementing improvements? Do co-workers look favourably on those who exhibit a good safety attitude by actions such as attention to housekeeping, completeness of entries in log-books and adherence to procedures?

Guide Questions:
- What effect would a safety error have on a worker's position in the plant?
- Do you consider your reporting of safety concerns or improvement proposals will be given proper attention by management?

Key Indicators:
- Reports of staff inputs on safety shortcomings.
- Existence of worker safety committees.
- Techniques for systematic self-assessment.
- Rewards and awards programme established.
- Healthy attitude to safety reporting.

Q10 (RMI)

Basic INSAG Q: Do control room staff show a watchful and alert attitude at all times?

Guide Questions:
- During steady state operation, is there some systematic plant walk down or written assessments that shift staff undertake to keep them alert?

Key Indicators:
- Recognition that boredom is a problem for shift staff during steady state operation.
- Measures to counter boredom.

Q11 (RMI)

Basic INSAG Qs: Do staff make maximum use of training opportunities? Do they adopt a responsible approach, complete necessary preparatory work and participate actively in discussions?

Guide Questions:
- How much benefit do you think is derived from training? Is it worthwhile?
- What don't you like about training sessions?
- How dedicated are the staff to training preparation and self-study?

Key Indicators:
- Training results show a consistent positive trend and high pass rate.
- Interactive training climate evident.
- Suggestions for training needs generated by staff.
- Staff participating as instructors in courses.
- Low absentee rate during training sessions.

Q12 (RCMI)

Basic INSAG Qs: Do staff communicate their experience effectively to other individuals and groups? What examples are there?

Guide Questions:
- Are there any influences external to the plant which tend to impede good communication amongst staff?
- How often do staff meet to discuss experiences and safety improvements?

Note: At most nuclear plants, as with any large industrial enterprise, there may be a mix of cultural, national, linguistic or religious groups amongst the staff. These differences need not adversely affect communication and hence safety culture, provided they are recognized and sensitively dealt with to avoid difficulties and promote good communication. Involvement of staff in safety programmes and reviews aids interaction and communication.

Key Indicators:
- Awareness of issues and positive steps to ensure good and effective communication.
- A single language used for all technical communications on site.
- Published papers by staff on safety initiatives.
- Positive feedback from staff on freedom of communication and effective interaction between workers.
- Regular staff meetings and social interaction.
- Participation by staff in regular safety reviews.

Q13 (RCMI)

Basic INSAG Qs: What is the attitude of staff to safety reviews and audits affecting their area of work? How responsive are they to improvements sought as a result?

Do staff participate in peer reviews of safety activities aimed at reducing human errors?

Guide Questions:
- Do those being audited consider that the auditors are technically competent?
- Do managers show support for the audit to their staff? Do they explain the need for audits and do they make their own time available for briefings with the auditors?
- Is the audit report communicated to the relevant staff, particularly those who actively participated?
- Are the audit results communicated to the relevant staff; particularly those who actively participated?
- Are corrective actions actively debated and once accepted cleared?
- Do auditors praise good practice and pass on praise?

Key Indicators:
- Existence of audit programme.
- Staff look upon reviews and audits as an opportunity rather than a burden.
- Debate by staff of audit findings.
- Acceptance and implementation of changes resulting from audits and reviews.
- Audits well regarded.

3.3. RESEARCH ORGANIZATIONS

3.3.1. Research input to safety analyses

Supporting organizations, which include those responsible for design, manufacture, construction and research, influence greatly the safety of nuclear plants. Their primary responsibility is for the quality of the product, whether this is a design, safety report, software development or any other output important to safety. The basis for safety culture in such an organization is the directive establishing policy and practices to achieve the desired quality, and thereby to meet the safety objectives of the future operator or user.

Research organizations have a particular problem to overcome, that of remoteness from the everyday operation of the plant. Many research bodies may only work on nuclear applications from time to time and their staff may not be totally up to date on the application and operational limitations of equipment and systems. Plant confidence in the integrity and accuracy of research results is vital in underpinning safety culture. The questions in this section seek to establish the degree of support and confidence the plant and regulator may expect and receive from research bodies.

Questions and indicators may have to be adjusted by team members to suit the type and format of the relevant organizations. Throughout, the emphasis should be on the research input to safety analyses for both the plant and the regulatory body. Any stand-alone assessment of research organizations must take into account the interfaces with the users and sponsors. Therefore, the specific guideline questions should be reviewed and adapted for application to a research or supporting body.

Q1 (S)

Basic INSAG Qs: Do researchers ensure that they understand how the results of their work will be used in safety analyses? Are they familiar with how their data are used in interpolating or extrapolating for ranges of parameters different from those in their experiments? Do researchers identify the shortcomings and limitations of their results?

Guide Questions:
- In which areas of research is your organization currently involved?
- To what extent do the researchers interact with the plant and the regulatory body during project work?
- What systems do you have in place to keep research staff up to date on plant and safety applications?
- How often do research staff visit the plant?

Key Indicators:
- Regular interaction between plant, regulator and researchers;
- Regular plant visits;.
- Established systems for recruitment of qualified, experienced staff;
- Ongoing training programmes to upgrade research knowledge with practical experience.

Q2 (S)

Basic INSAG Qs: Do they keep abreast of safety analyses to permit them to identify any misuse of their work? Do they report any potential misuse or misinterpretation?

Guide Questions:
- What system do you have for the validation and assurance of research results?
- How are the limitations of results specified and recorded?
- Are you consulted by plant designers, utility or the regulatory body when extrapolation of your results is needed?
- What method of quality assurance do you employ to assure the standards of computer modelling?

Key Indicators:
- Established and accepted system for validation of results;
- Documented evidence of research staff checks on safety analyses;
- Open exchange when extrapolation of results is needed;
- Recognized QA requirements in place for computer models.

Q3 (S)

Basic INSAG Qs: On any particular topic, is it clear which group or individual is responsible for monitoring new material or international data? What personal contacts have been developed to keep abreast of new data? Is there a mechanism for reporting new information that may invalidate previous safety analyses? What is the appeal route if the first level of notification is ineffective? How often are these mechanisms used?

Guide Questions:
- What type of research contracts are undertaken at present, long or short term?
- How is the allocation of research work handled?

- What can a researcher do if he/she discovers that new data invalidates previously agreed work for the plant?

Key Indicators:
- Clear allocation and recognition of work.
- Organized monitoring system for new data.
- International links.
- Exchange programme for research workers.
- Established system for appeals and data rectification.

Q4 (S)

Basic INSAG Q: Is there a mechanism for ensuring that the relevant research to solve design and operational safety problems is pursued and carried out in a timely fashion?

Guide Questions:
- What system do you use to control the planning and prioritization of research contracts?
- Who has the final word on priorities?
- Who is consulted on scheduling work?
- Are staff aware of the reasons for decisions taken at planning and priority allocation meetings?

Key Indicators:
- Established system for work allocation and prioritization;
- Consultation with plant staff/regulator on the requirements;
- Positive feedback on decision making and deadlines.

Q5 (RS)

Basic INSAG Qs: How promptly are the results of research fed into the design and regulatory process? Is there a policy for regular publication of research results in journals that insists on peer reviews?

Guide Questions:
- How well is the research documented?
- How many publications on research results does the organization contribute to?
- Are there multilateral research projects in place at present? What are they?
- What system do you have to ensure peer review of research results?
- What is the relationship between the researchers and the regulators and utility?
- How are research results communicated from you to the plant or regulator?
- What do researchers understand by the term safety culture?

Key Indicators:
- Well developed international co-operation programme.
- Established system for publication and dissemination of research work.
- Appreciation at all levels of safety culture concepts.
- Positive feedback from regulator and utility on researchers.

3.4. DESIGN ORGANIZATIONS

The design organizations supporting the plant and the regulator influence the safety of nuclear operations and maintenance. Plant perceptions may differ on the performance of design organizations; however, their effect on plant safety culture may be significant dependent upon their involvement at plant level. The extent of questioning and enquiry will depend largely on the scope of design team work for the utility. It may be necessary to revisit the supporting organizations if plant or regulator responses indicate areas of misunderstanding or problems attributable to research or design. Safety culture within the design organization may require assessment as an individual review; however, the pattern of questions and key indicators is basically similar to the other areas of plant and supporting bodies.

3.4.1. Codes for safety aspects of design

Q1 (S)

Basic INSAG Qs: What processes exist for verification and validation of computer modelling codes? Do these involve the relevant researchers? Are the safety design codes verified and validated for the specific circumstances? Are the limitations of codes taken into account explicitly in the design review process? What is the formal mechanism for reporting the matter if it is considered that the previously reported outputs of a computer model may be invalid? Has there been a need to use this mechanism?

Guide Questions:
- What methods do you use for accreditation of designs?
- How available are the codes?
- Have you ever experienced a computer code becoming invalid? What actions were taken?

Key Indicators:
- A recognized accreditation system for designs.
- Accessible and up to date codes.
- Independent review mechanisms for validation and assurance.
- Prompt and wide information in the event of discovery of deficiencies and limitations in computer codes.
- Information network for equivalent external information and prompt internal actions.

Q2 (S)

Basic INSAG Qs: In which international standard problem exercises have analysts participated to test national computer modelling codes? What efforts have been made on a bilateral or multilateral basis to compare work with that of experts in another country?

Guide Questions:
- How do you make international comparisons?
- To what international exchange programmes do you contribute?

Key Indicators:
- National to international comparisons on a regular basis and documented system of validation and feedback to ongoing projects. Favourable response from staff.

3.4.2. Design review process

Q1 (RS)

Basic INSAG Qs: In which areas has outside expertise been used to supplement in-house capability? How was the competence of the outside experts established?

Guide Questions:
- Is the list of needed expertise established for each safety related activity?
- Are you allowed to seek for the assistance of external experts to supplement in-house capability?
- How do you establish the competence of outside experts?

Key Indicators:
- Systematic assessment of needed expertise for each activity.
- Opportunities for seeking external experts when necessary.
- Established process for selection of external experts.

Q2 (S)

Basic INSAG Q: Where are the functions and responsibilities of design review teams described?

Guide Questions:
- Are there provisions for using operating experience during design reviews in order to check the incorporation of lessons learned by for instance equipment deficiencies or difficulties in material testing, or, for instance, maintenance difficulties due to layout?

Key Indicators:
- Documented job descriptions.
- Staff familiarity with duties and scope of responsibility.
- Policy statement accepted on design review teams.

Q3 (RS)

Basic INSAG Qs: Has the design review process been audited by internal Quality Assurance auditors? By the regulatory agency? By a peer group of national or international members?

Key Indicators:
- Regular, documented audit reports and close-out of findings.
- Full participation of all levels of review.
- Conformity with accepted standards.
- Independent evaluation of the process.

Appendix I

CONTENTS OF AN ASCOT REVIEW REPORT

The Introduction should include the background, scope and objectives of the review and set out the approach, methodology and practical application of ASCOT to the particular situation.

The headings should include details of findings, recommendations and suggestions for improvements, if applicable and good practices. All recommendations/suggestions and good practices should be uniquely numbered to facilitate identification.

EXECUTIVE SUMMARY

1. INTRODUCTION
2. GOVERNMENT AND ITS ORGANIZATIONS
3. OPERATING ORGANIZATION
   - 3.1. Corporate level
     - 3.1.1. Corporate level safety policy
     - 3.1.2. Safety practices at corporate level
   - 3.2. Plant level
     - 3.2.1. Management

     to include the following topics:
       - selection of managers
       - attitudes of managers
       - field supervision by managers
       - relations between plant management and regulators

     - 3.2.2. Plant safety experience

     to include the following topics:
       - highlighting safety
       - review of safety performance

     - 3.2.3. Individual responses

     to include the following topics:
       - attitudes of individuals
       - workload

     - 3.2.4. Working environment

     to include the following topics:
       - local practices
       - training
       - definition of responsibility
4. RESEARCH ORGANIZATIONS
5. DESIGN ORGANIZATIONS
   - 5.1. Codes for safety aspects of design
   - 5.2. Design review process
6. OTHER ORGANIZATIONS
7. GOOD PRACTICES
8. GENERAL CONCLUSIONS OF THE ASCOT REVIEW

Appendix II

ASCOT ADVISORY SERVICE

(Standard syllabus for the ASCOT Seminar)

The principal objective of the ASCOT Advisory Service in the transfer of the ASCOT methods to the host country. This transfer would be accomplished at the host country's site in a form of a Seminar.

Venue: **Host country**

Duration: **2–2 ½ days**

Participation: **10–30 participants from regulatory body and/or utility**

Lecturers: **2 (IAEA and/or outside consultants)**

Objectives

Today it is widely recognized that sound safety culture is one of the most important contributors to the safe operation of NPPs. In order to promote the safety culture concepts and its importance, the IAEA has developed the *ASCOT seminar*. Participants from the regulatory body, operating organization and supporting institutions are expected to attend the seminar. The purpose of the seminar is:

- to present internationally recognized indicators of an effective safety culture,
- to demonstrate the basic approach and principles of ASCOT, i.e. methodology for the assessment of safety culture,
- to give examples of good and bad practices from different NPPs in the world in order to illustrate on practical examples obtained from incident analysis and previous ASCOT reviews/seminars, the impact of safety culture on nuclear safety,
- to receive through the discussion among the participants the response on national practice for further dissemination.

The seminar lasts 2–2 ½ days and takes the form of a workshop, at which the objectives are reached through a series of lectures, discussions and exercises.

Seminar schedule

1. Lecture/discussion: Concept of safety culture (approx. 1 h)

It is essential that the participants obtain at the outset a thorough understanding of the concept of safety culture. More specifically, the participants should understand the definition and universal features of safety culture. They should also understand that although safety culture is intangible, its presence has tangible manifestations. Finally, the participants should understand some of the broad characteristics of an effective safety culture and learn to appreciate the long term usefulness of this concept.

The lecture will be presented by the ASCOT representative and will cover the concept of safety culture as presented in 75-INSAG-4. The ASCOT representative will cover each section of 75-INSAG-4 with special emphasis on the definition and characteristics of safety culture (Section 2), the tangible evidence of safety culture (Section 4) and the universal features of an effective safety culture (Section 3). The ASCOT representative will augment the information in 75-INSAG-4 with illustrative examples based on experience from other ASCOT reviews/seminars. safety culture indicators (discussed in the Appendix of 75-INSAG-4) will not be discussed in detail at this time but will be covered later as part of the lecture/discussion on the ASCOT Guidelines (Item 4).

2. Lecture/discussion: Examples of good safety culture practice (approx. 2 h)

Once the participants have obtained an understanding of the concept of safety culture, it is essential that they develop an appreciation for what is generally considered good safety culture practice. That is, the participants should be exposed to examples of especially effective safety culture.

Discussion will follow and will be led by the ASCOT representative. To encourage the participants to think in terms of sound safety culture, the ASCOT representative will invite participants to give examples of what they consider to be an effective safety culture in their own organization. This lecture/discussion will be supplemented by selected video presentations on related subjects.

Within this framework a national presentation on the country's (organization's) perspective to safety culture, given by a senior representative is encouraged.

3. Workshop 1: Creation of safety culture framework (approx. 3 h)

Safety culture has two basic components: the framework created within which individuals work and benefit from, and the attitude and response of individuals. This Seminar involves two workshops. The first one addresses the framework created within the country and the second one its effectiveness and response of individuals. The first workshop therefore deals with the framework and the second one with the individual attitudes.

During the workshop, participants will be divided into smaller working groups. Each group will be given a task of creating an ideal framework for sound safety culture; defining safety bodies and committees, levels (regulatory, corporate, plant), responsibilities, resources etc. Workshop will be concluded by comparing created frameworks among different working groups and with an existing structure.

4. Lecture/discussion: Assessment of safety culture (approx. 1 h)

The lecture will be given by the ASCOT representative and will cover the general approach to the assessment of safety culture as presented in the ASCOT Guidelines.

5. Lecture/discussion: Examples of safety culture issues revealed through the incident investigation (approx. 2 h)

As an introduction to Workshop 2 incidents will be presented where their investigation revealed issues pertaining to safety culture. By applying the ASCOT Guidelines on the event analysis an improved and more specific identification of these issues can be obtained.

6. Workshop 2: Incident evaluation by applying the ASCOT Guidelines (approx. 3 h)

The second workshop is oriented towards identification of issues related to the individual attitudes, motivation, moral and other less tangible aspects of safety culture. Participants will be again divided into smaller groups. To initiate the discussion, each group will be given a task to evaluate different events by using the ASCOT Guidelines, i.e. trying to determine which ASCOT areas or questions are relevant to the event occurrence and progression. Corrective measures will at the end be assessed in order to determine if identified safety culture issues have been properly addressed. Each group will report their findings in a plenary session followed by a discussion where participants will be expected to express their views on individual commitment to safety culture.

7. Invited lectures related to the subject of the Seminar (optional 1/2 day)

Special lectures on selected subjects, which might be of interest to the host country can be arranged. Examples of such lectures, which all should relate to safety culture, are: Basic Safety Principles, OSART and ASSET highlights, Safety of East European and CIS reactors, International Nuclear Event Scale, Maintenance and Outage Planning Good Practice, etc.

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